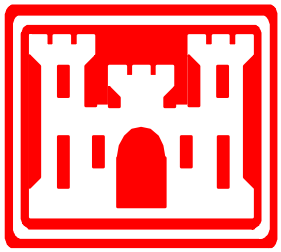
**FINAL**

# UNIFORM FEDERAL POLICY QUALITY ASSURANCE PROJECT PLAN
# PHASE 2 REMEDIAL INVESTIGATION
# NEW YORK ORDNANCE WORKS, FORMERLY USED DEFENSE SITE
# (PROPERTY NO: C02NY0290)
# BALDWINSVILLE, NEW YORK

**U.S. ARMY CORPS OF ENGINEERS, NEW ENGLAND DISTRICT**



**September 2025**

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# Executive Summary

This Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP) describes the technical approach and data quality objectives (DQOs) for conducting field investigations to support the Phase 2 Remedial Investigation (RI) at the New York Ordnance Works (NYOW) Formerly Used Defense Site (FUDS) (Property No. C02NY0290), New York State Department of Environmental Conservation (NYSDEC) Site Number 734003, located in Baldwinsville, New York. Environmental Assessment Services, LLC. (EAS) and WSP USA Solutions, Inc. (WSP) joint venture (JV) (herein known as the EAS WSP JV) has prepared this document under United States Army Corps of Engineers (USACE) New England District (CENAE), Contract No. W912WJ23D0007, Task Order W912WJ23F0130.

This document has been prepared in general accordance with the UFP-QAPP guidance manual (Intergovernmental Data Quality Task Force [IDQTF], 2005), optimized UFP-QAPP worksheets manual (IDQTF, 2012), and U.S. Environmental Protection Agency (EPA) QA/G4, Guidance for the Data Quality Objective Process (EPA, 2006). Project-specific DQOs are designed to ensure data of adequate quality are collected to support project decisions. DQOs have been developed in consensus with the project team and in accordance with the guidance documents (IDQTF, 2005; IDQTF, 2012; EPA, 2006/2012).

A Phase 1 RI was initiated and completed in 2021 at the former NYOW site. The Phase 1 RI investigated four (4) areas of concern (AOCs); AOC 1 – Former Ammonium Picrate Building Area; AOC 3 – Former Landfill Area; AOC 4 – Former Bunker Area; and AOC 5 – Former Power Plant (USACE, 2021, 2022). During the Phase 1 RI, soil and groundwater samples were collected in order to investigate possible releases associated with Department of Defense (DoD)-related activities at each AOC. In addition to performing soil and groundwater sampling at the specific AOCs, background soil and groundwater samples were collected in order to compare contaminants of potential concern (COPCs) to site-specific background concentrations. The results of the Phase 1 RI were documented in the *Remedial Investigation Phase 1 Field Report – AOC 4 and AOC 5* (USACE, 2021) and *Remedial Investigation Phase 1 Field Report – AOC 1, AOC 3, AOC 4 ISM, and Background* (USACE, 2022). Using the Phase 1 RI data, risk screening was performed, and data gaps were identified in the *Phase 1 Risk Screening and Data Gaps Analysis Report* (USACE, 2023a). The following COPCs by AOC were identified from the risk screening:

- AOC 1 – 2,4-dinitrochlorobenzene (2,4-DNCB), 2,4-dinitrophenol (2,4-DNP), picric acid, and metals.
- AOC 3 – volatile organic compounds (VOCs), semi-VOCs (SVOCs), polyaromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) Aroclors, picric acid, and metals.
- AOC 4 – 2,4-DNCB, 2,4-DNP, and picric acid.
- AOC 5 – PAHs, PCBs, and metals.

The *Phase 1 Risk Screening and Data Gaps Analysis Report* (USACE, 2023a) is provided as **Appendix A** to this UFP-QAPP.

The AOC specific data gaps that were identified within the *Phase 1 Risk Screening and Data Gaps Analysis Report* (USACE, 2023a) will be used to guide the Phase 2 RI. In general, additional investigations into the nature and extent of contamination in soil and groundwater, along with investigations into potential impacts to additional media (i.e., surface water, porewater, and sediment), and an evaluation on site-hydrogeological conditions (e.g., groundwater flow, hydraulic conductivity) is needed to complete the RI phase.

Therefore, the project DQOs described within this UFP-QAPP include:

- Fully delineate the nature and extent of COPCs in soil, groundwater, surface water, porewater, and sediment.
- Update the conceptual site model (CSM), including contaminant migration pathways, fate and transport, geologic and hydrogeologic site conditions, and exposure pathways.

- Define and establish background concentrations for the appropriate media (e.g., soil, groundwater, surface water, porewater, and sediment).
- Conduct a quantitative baseline human health risk assessment (HHRA) and a screening level ecological risk assessment (SLERA), which will also incorporate site-specific Phase 1 and Phase 2 data and refinements in a refined SLERA (RLSERA). Note, throughout this UFP-QAPP, the term “SLERA” will be generally used to describe the combined assessment unless a distinction between the two components is necessary.

In general, the objectives will be accomplished by conducting additional sampling investigations geared to address AOC-specific data gaps, as detailed within this UFP-QAPP, in various media (e.g., soil, groundwater, surface water, porewater, and sediment). These AOC-specific DQOs are based on data gaps identified within the *Phase 1 Risk Screening and Data Gaps Analysis Report* (USACE, 2023a) and are summarized throughout this document. This UFP-QAPP discusses the overall approach and describes the means and methods of data collection. Additional details regarding the methods and approach to the HHRA and SLERA are provided in **Appendix B** and **Appendix C**, respectively. If additional data are needed to fulfill data gaps after the completion of collection of Phase 2 data, then additional investigations would be proposed as an addendum to this UFP-QAPP.

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# Acronyms and Abbreviations

| | |
|---|---|
| ºC | degrees Celsius |
| µg/kg | microgram(s) per kilograms |
| µg/L | microgram(s) per liter |
| %R | percent recovery |
| AGC | Army Geospatial Center |
| AMSL | above mean sea level |
| AOC | Area of Concern |
| AP | ammonium picrate |
| APB | ammonium picrate building |
| APP | Accident Prevention Plan |
| AST | above ground storage tank |
| ASTM | American Society for Testing and Materials |
| BBHRA | baseline human health risk assessment |
| bgs | below ground surface |
| BTAG | Biological Technical Assistance Group |
| CAB | coal aggregate bin |
| CAS | Chemical Abstract Services |
| CC | correlation coefficient |
| CCB | continuing calibration blank |
| CCV | continuing calibration verification |
| CCVC | continuing calibration verification check |
| CEC | cation exchange capacity |
| CENAE | USACE New England District |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| CIH | Certified Industrial Hygienist |
| COPC | contaminant of potential concern |
| COPEC | contaminant of potential ecological concern |
| CSA | coal storage area |
| CSM | conceptual site model |
| CVAA | cold vapor atomic absorption |
| D&M | Dames & Moore |
| DFTPP | decafluorotriphenylphosphine |
| DI | deionized |
| DL | detection limit |
| DNCB | dinitrochlorobenzene |
| DNP | dinitrophenol |
| DO | dissolved oxygen |
| DoD | U.S. Department of Defense |
| DPT | direct-push technology |
| DQCR | data quality contractor reports |
| DQI | data quality indicator |
| DQO | data quality objective |
| DU | decision unit |
| DV | data validation |
| EA | EA Engineering, Science, and Technology, Inc. |
| EAS | Environmental Assessment Services, LLC |
| EDD | electronic data deliverable |
| EDS | energy dispersive x-ray spectroscopy |

| | |
|---|---|
| ELLE | Eurofins Lancaster Laboratories Environmental |
| EMCX | Environmental and Munitions Center of Expertise |
| EPA | U.S. Environmental Protection Agency |
| ERA | ecological risk assessor |
| ERAGS | ecological risk assessment guidance for Superfund |
| ERB | equipment rinsate blank |
| ERDC | Engineer Research and Development Center |
| ESD | Empire State Development |
| °F | degrees Fahrenheit |
| FB | field blank |
| FTL | field team leader |
| $ft^2$ | square foot/feet |
| ft | feet/foot |
| ft/day | feet per day |
| ft/sec | feet per second |
| FUDS | Formerly Used Defense Site |
| GC | gas chromatograph |
| GPR | ground-penetrating radar |
| GPS | global positioning system |
| GSA | General Services Administration |
| HHRA | human health risk assessment/assessor |
| HPLC | high-performance liquid chromatography |
| HSDB | Hazardous Substances Data Bank |
| ICAL | initial calibration |
| ICB | initial calibration blank |
| ICP | inductively coupled plasma |
| ICS | interference check sample |
| ICSAB | interference check standard AB |
| ICV | initial calibration verification |
| ID | identification |
| IDQTF | Intergovernmental Data Quality Task Force |
| IDW | investigation derived waste |
| ISM | incremental sampling methodology |
| JV | joint venture |
| KGS | KOMAN Government Solutions, LLC. |
| LANL | Los Alamos National Laboratory |
| LCS | laboratory control sample |
| LD | laboratory duplicate |
| LDI | location definition information |
| LDPE | low density polyethylene |
| L/kg | liters per kilogram |
| LOD | limit of detection |
| LOQ | limit of quantitation |
| MC | munitions constituents |
| MCL | maximum contaminant level |
| MDL | method detection limit |
| M&E | Metcalf & Eddy, Incorporated. |
| mg/kg | milligrams per kilogram |
| mg/L | milligrams per liter |
| MPC | measurement performance criteria |
| MPI | Measurement Performance Indicators |

| | |
|---|---|
| MRS | Munitions Response Site |
| MS | matrix spike |
| MSD | matrix spike duplicate |
| NAWQC | National Ambient Water Quality Criteria |
| ND | not-detected |
| NOAA | National Oceanic and Atmospheric Administration |
| NTU | nephelometric unit |
| NYOW | New York Ordnance Works |
| NYS | New York State |
| NYSDOH | New York State Department of Health |
| NYSDEC | New York State Department of Environmental Conservation |
| NYSUDC | New York State Urban Development Corporation |
| ORP | oxidation-reduction potential |
| OSA | open storage area |
| OSWER | Office of Solid Waste and Emergency Response |
| PAH | polycyclic aromatic hydrocarbon |
| PAL | project action limit |
| PCB | polychlorinated biphenyl |
| Pd | till/diamicton |
| PDT | project delivery team |
| PEM | palustrine emergent wetland |
| P.G. | Professional Geologist |
| PFO | palustrine forested wetland |
| pH | negative logarithm of the hydrogen ion concentration |
| PID | photoionization detector |
| PLM | polarized light microscope |
| PM | project manager |
| POC | point of contact |
| PQL | practical quantitation limit |
| PQG | project quantitation goal |
| PQO | project quality objective |
| Ps | sand and gravel |
| Psc | stratified silt |
| PT | proficiency testing |
| PVC | polyvinyl chloride |
| PWS | Performance Work Statement |
| QA | quality assurance |
| QAPP | Quality Assurance Project Plan |
| QC | quality control |
| QMP | Quality Management Plan |
| QSM | Quality Systems Manual |
| RI | Remedial Investigation |
| RL | reporting limit |
| ROD | Record of Decision |
| ROE | right of entry |
| RPD | relative percent difference |
| RSD | relative standard deviation |
| RSL | Regional Screening Level |
| RSLERA | Refined Screening Level Ecological Risk Assessment |
| RTE | rare, threatened, or endangered |
| S | sampling |

| | |
|---|---|
| SAP | sampling and analysis plan |
| SAR | Site Assessment Report |
| SEM | scanning electron microscope |
| SHM | Safety & Health Manager |
| SI | Site Inspection |
| SLERA | Screening Level Ecological Risk Evaluation |
| SMDP | Scientific Management Decision Point |
| SOP | standard operating procedure |
| SOW | scope of work |
| SRC | Syracuse Research Corporation |
| SSHO | Site Safety & Health Officer |
| SSHP | Site Safety and Health Plan |
| SSL | Soil Screening Level |
| SVOC | semi-volatile organic compound |
| TAL | Target Analyte List |
| TIC | total inorganic carbon |
| TOC | total organic carbon |
| TPP | technical project planning |
| TSS | total suspended solids |
| UFP | Uniform Federal Policy |
| U.S. | United States |
| USACHPPM | United States Army Center for Health Promotion and Preventative Medicine |
| USACE | U.S. Army Corps of Engineers |
| USCS | Unified Soil Classification System |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| VISL | Vapor Intrusion Screening Level |
| VOC | volatile organic compound |
| WMA | Wildlife Management Area |
| WSP | WSP USA Solutions, Inc. |

# Worksheets #1 and #2—Title and Approval Page

| | |
|---|---|
| **Project Name and Site Location:** | Phase 2 Remedial Investigation, New York Ordnance Works (NYOW), Formerly Used Defense Site (FUDS; Property No: C02NY0290), New York State Department of Environmental Conservation (NYSDEC) Site Number 734003, located in Baldwinsville, New York (NY) |
| **Document Title:** | Uniform Federal Policy Quality Assurance Project Plan, Phase 2 Remedial Investigation, NYOW FUDS (C02NY0290), Baldwinsville, NY |
| **Lead Organization:** | USACE CENAE |
| **State Regulatory Agency:** | NYSDEC, New York State Department of Health (NYSDOH) |
| **Other Stakeholders:** | Town of Lysander, Village of Baldwinsville, Radisson Community Association, Empire State Development, Radisson Greens Golf Course, DiMarco Group, Marinus Homes, Private residential landowners on Darting Bird Lane |
| **Preparation Date:** | July 2024, final revision date (September 2025) |
| **Plans and Reports from Previous Investigations Relevant to this Project:** | USACE, 2023a. Phase 1 Risk Screening and Data Gaps Analysis, Former New York Ordnance Works Formerly Used Defense Site, Baldwinsville, New York. Final. May 2023.<br>USACE, 2022. Remedial Investigation Phase 1 Field Report – AOC 1, AOC 3, AOC 4 ISM, and Background, Former New York Ordnance Works Formerly Used Defense Site, Baldwinsville, New York. Final. February.<br>USACE, 2021. Remedial Investigation Phase 1 Field Report – AOC 4 and AOC 5, and Background, Former New York Ordnance Works Formerly Used Defense Site, Baldwinsville, New York. December. Final.<br>USACE New England District. 2020. Historical Photographic Analysis, New York Ordnance Works – Baldwinsville, New York. January. |

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## Approval Page

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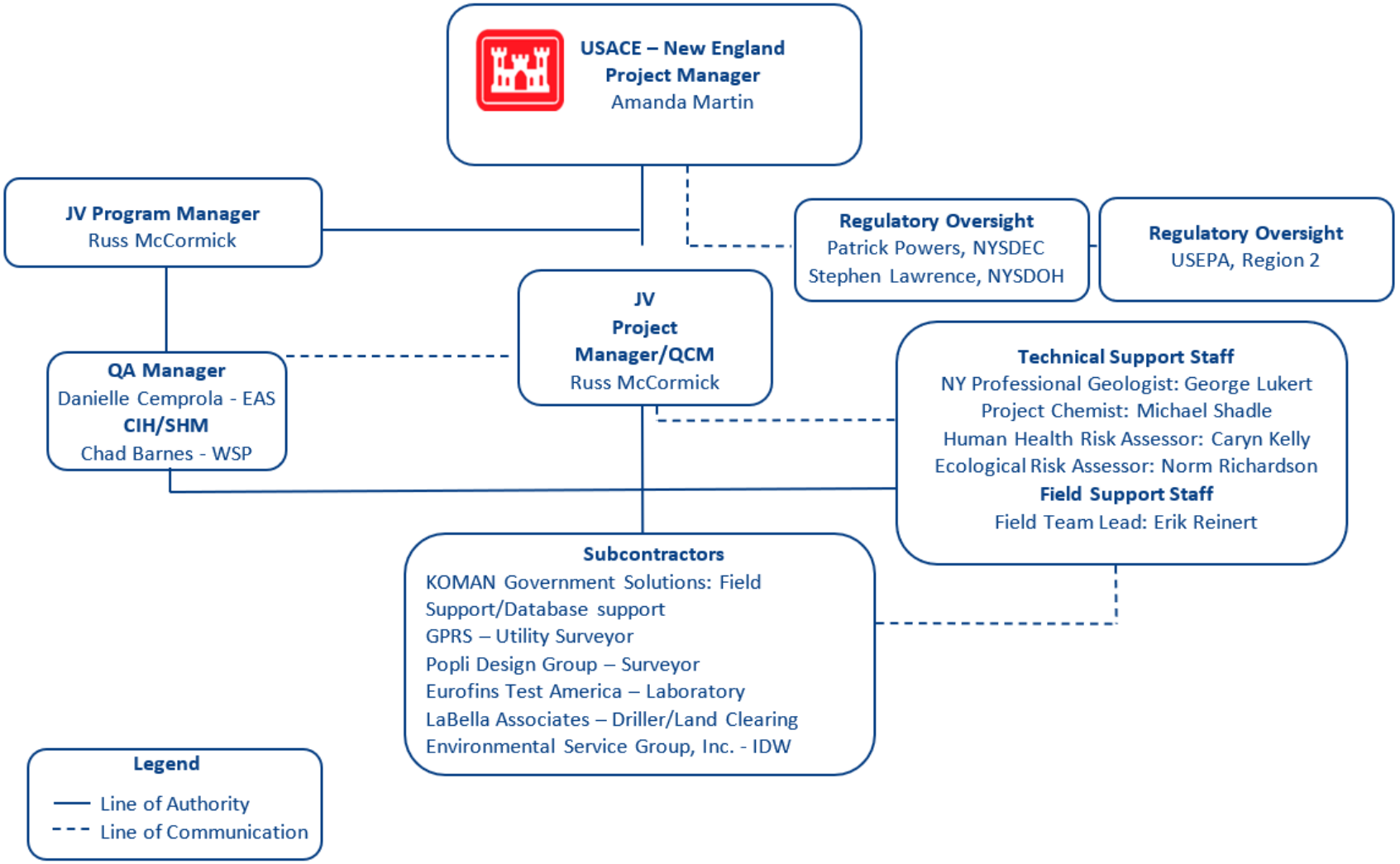
# Worksheets #3 and #5—Project Organization and Distribution List



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# Distribution List

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## Worksheets #4, #7, and #8 – Personnel Qualifications and Sign-off Sheet

| Name/Title | Organization | Responsibilities | Education, Experience, Qualifications | Signature/Date UFP-QAPP/SAP Read/E-mail Receipt* |
|---|---|---|---|---|
| Amanda Martin<br>PM | USACE CENAE | Oversees administrative aspects of project | B.S. Environmental Science, M.S. Environmental Science and Engineering, 12+ years' experience | |
| Constance Lapite<br>Chemist | USACE CENAE | Oversees QA and chemistry aspects of the project | B.A. Chemistry, 5 years laboratory experience, 30+ years project chemist experience | |
| Jeff Kadegis<br>Project Geologist | USACE CENAE | Oversees technical aspects as it relates to geology/hydrogeology aspects of the project | B.S. Geology, Professional Geologist #00906 (New Hampshire), 13+ years' experience | |
| Grace Greenberg<br>Project Risk Assessor | USACE CENAE | Oversees technical aspects as it relates to the human health and ecological risk assessments | B.A. Environmental Science; MPH Environmental Health and Toxicology; 20+ years' experience | |
| Mike Narcisi<br>Project Biologist | USACE CENAE | Provides support as it relates to the ecological risk assessment | B.S. Environmental Science, M.S. Environmental Science/Wetlands Ecology, 14+ years' experience | |
| Russ McCormick, P.G.<br>Program/Project Manager / QCM | EAS WSP JV | Ensures sufficient resources and oversees any programmatic or contractual issues.<br>Manages project, coordinates between lead organization and EAS WSP JV project team. Oversees quality of project. | B.S. Earth Science/Geology, Professional Geologist #868 (New Hampshire), 19 years' experience | |
| George Lukert, P.G.<br>Project Geologist/Technical Lead | EAS WSP JV | Senior Geologist/Hydrogeologist. New York Licensed Professional Geologist. Coordinates between PM Technical Site Manager; coordinates field operations. | B.S. Geology<br>M.S. Geology<br>New York P.G #000327<br>31 years' experience | |

| Name/Title | Organization | Responsibilities | Education, Experience, Qualifications | Signature/Date UFP-QAPP/SAP Read/E-mail Receipt* |
|---|---|---|---|---|
| Caryn Kelly<br>Project HHRA | EAS WSP JV | Senior human health risk assessor. Provides technical direction on conducting human health and ecological risk assessment and data management | B.A. Environmental Toxicology<br>Certified Professional Product Steward, National, 2020<br>26 years' experience | |
| Norm Richardson<br>Project ERA | EAS WSP JV | Senior ecological risk assessor. Provides technical direction on conducting ecological risk assessment | B.A. Biology<br>M.S. Ed<br>33 years' experience | |
| Erik Reinhart<br>FTL | EAS WSP JV | FTL/Site Safety & Health Officer (SSHO). Oversees all aspects of the field sampling program and conducts safety tailgate meetings. Ensures the safety of all team members. | B.S. Geology<br>M.S. Geology<br>New York P.G#1306-01<br>19 years' experience | |
| Michael Shadle<br>Project Chemist/Database Manager | EAS WSP JV | Verifies that the UFP-QAPP analytical requirements are met by the laboratory and field staff. Provides direction regarding requirements for corrective actions for field and analytical issues; evaluates and releases validated analytical results to the EAS WSP JV project team. Ensures the FUDSChem database is accurate and updated accordingly. | B.S. Chemistry, 23 years' experience | |
| Emily Hill<br>FUDSChem Database Manager | Synectics | Primary point of contact for any database related issues/questions that may arise for this project. Lead contact to (but not limited to) perform data uploads, dealing with submission errors, eQAPP, generating sampling events, performing data validation if EAS WSP JV needs support. The EAS WSP JV Project Chemist will oversee and direct Synectic's responsibilities. | Not required | |

| Name/Title | Organization | Responsibilities | Education, Experience, Qualifications | Signature/Date UFP-QAPP/SAP Read/E-mail Receipt* |
|---|---|---|---|---|
| Barbara Weyandt<br>PM | Eurofins Test America – Lancaster, PA | Primary point of contact for Eurofins Test America Lancaster and all initial project sampling needs (e.g., botteware, pre-printed courier labels, etc.) and liaison between the EAS WSP JV and other Eurofins Test America laboratories for this project. Receives direction from KGS project chemist. Responsible for ensuring the UFP-QAPP requirements are met by the laboratory. | Not required | |
| Joy Dela Rosa-Chang | Eurofins Test America, Denver, CO | Client service manager and primary point of contact for Eurofins Test America Denver. Responsible for analyzing specific samples for this project and ensuring the UFP-QAPP requirements are met by the laboratory. | Not required | |
| John Knowles | MicroVision Laboratories, Chelmsford, MA | Client service and manager and primary point of contact. Responsible for analyzing and reporting coal analysis and ensuring the UFP-QAPP requirements are met by the laboratory | Not required | |

Notes:
*Approvals may be received via electronic mail or similar such that actual signature of this UFP-QAPP is not required.

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# Worksheet #6 – Project Communication Pathways

| Communication Drivers | Organization | Name | Contact Information | Procedure (Timing, Pathways, Documentation, etc.) |
|---|---|---|---|---|
| Project scope changes and approval of UFP-QAPP | USACE CENAE | Erin Bradley | 978.318.8195<br>erin.e.bradley@usace.army.mil | Contracting Officer (KO). Provides administrative direction to JV Contracts Manager and project team; authorizes real-time changes to plan and can stop work, if needed. The EAS WSP JV PM and USACE CENAE PM will work together to identify and agree to changes of scope and will communicate these changes to Ms. Bradley. Once all parties agree, the project can proceed. The project will not proceed until the necessary approvals of this UFP-QAPP have been received. If there are significant changes (e.g., laboratory limits and methods, and the laboratory itself, etc.), then a UFP-QAPP Addendum may be needed and approved. During the preparation of the UFP-QAPP, any changes will be documented in comment response matrices. If there are changes during field work (e.g., depths, drilling methods, etc.), those changes must be approved prior to initiating field activities. The changes will be documented on field forms and within the Phase 2 Field Report as a separate section titled “Deviations from UFP-QAPP”. Changes and/or clarifications related to the QAPP that do not rise to the level of a scope change will also be discussed with and agreed upon by the PDT prior to implementation and will be documented in the Field Change Form. The Field Change Form is provided with the Project-Specific Quality Management Plan (QMP). |
| Primary Point of Contact (POC) | USACE CENAE | Amanda Martin | 978.318.8152<br>amanda.k.martin@usace.army.mil | Primary POC for the EAS WSP JV. Coordinates management with USACE KO. Can delegate communication to other internal or external points of contact. Technical and scheduling scope modification items to be discussed with USACE POC for clarification and approved by KO as necessary. |
| Manage project tasks | EAS WSP JV | Russ McCormick, P.G.<br>Project Manager/QCM | 978.460.9603<br>rmccormick@easbio.com | Inform appropriate project staff (field and non-field) of tasks to complete and required completion date. Communicate potential scope issues with project team, task progress, and resources/information required to complete tasks. |

| Communication Drivers | Organization | Name | Contact Information | Procedure (Timing, Pathways, Documentation, etc.) |
|---|---|---|---|---|
| Delays/changes to field work and daily field reports | EAS WSP JV | Russ McCormick, P.G. Project Manager/QCM | 978.460.9603 mccormick@easbio.com | Project staff will inform the project manager of daily field progress and delays or changes to fieldwork. The project manager will inform the project team of field work progress. |
| Review and approve release of geologic data and upload to database | EAS WSP JV | Michael Shadle Project Chemist/Project Database Manager | 804.934.1792 michael.shadle@wsp.com | The EAS WSP JV database manager will coordinate with a KGS scientist to fill and upload FUDSChem locations/coordinates/elevations, boring logs, lithology, well construction information, water levels. The EAS WSP JV QCM will review submittals for accuracy prior to uploading. If Synectic's is involved with the uploading of all data, the EAS WSP JV Project Chemist will still be responsible as the final reviewer and approver of all data uploaded into the database. |
| Review and approve release of analytical data and upload to database | EAS WSP JV | Michael Shadle Project Chemist | 804.934.1792 michael.shadle@wsp.com | USACE CENAE will review data deliverables received from the laboratory for completeness and accuracy prior to uploading to database. Communication pathways will be between the USACE CENAE and the EAS WSP JV project chemist. If Synectic's is involved with the uploading of all data, the EAS WSP JV Project Chemist will still be responsible as the final reviewer and approver of all data uploaded into the database. |
| Reporting of laboratory data quality issues | EAS WSP JV | Michael Shadle Project Chemist | 804.934.1792 michael.shadle@wsp.com | The EAS WSP JV project chemist will communicate issues related to data quality upon receipt of samples or during analyses to the EAS WSP JV project manager. |
| Distribution of analytical data | EAS WSP JV | Michael Shadle Project Chemist | 804.934.1792 michael.shadle@wsp.com | The EAS WSP JV project chemist will receive all deliverables from the subcontracted laboratory and distribute data to the appropriate parties. Validated data will be made available in accordance with the timeframes specified unless these periods are extended by mutual agreement among the project team managers. If Synectic's is involved with the uploading of all data, the EAS WSP JV Project Chemist will still be responsible as the final reviewer and approver of all data uploaded into the database. |
| Regulatory agency interface | USACE CENAE | Amanda Martin | 978.318.8152 amanda.k.martin@usace.army.mil | Communicates with NYSDEC/NYSDOH; provides direction to the EAS WSP JV project manager and project team. |
| Site access, work coordination, health and safety | USACE CENAE | Amanda Martin | 978.318.8152 amanda.k.martin@usace.army.mil | Coordinates field activities with project team. Reviews technical deliverables. Reviews/audits/ assures compliance with health and safety procedures. |

| Communication Drivers | Organization | Name | Contact Information | Procedure (Timing, Pathways, Documentation, etc.) |
|---|---|---|---|---|
| | EAS WSP JV | Russ McCormick, P.G. Project Manager/QCM | 978.460.9603<br>rmccormick@easbio.com | Coordinates field activities with project team. Reviews technical deliverables. Reviews/audits/ assures compliance with health and safety procedures. |
| | | George Lukert, P.G./Technical Lead | 971.409.9302<br>george.lukert@wsp.com | |
| | | Erik Reinhart / FTL | 315.374.1773<br>erik.reinhart@wsp.com | |
| Field progress reports | EAS WSP JV | Erik Reinhart / FTL | 315.374.1773<br>erik.reinhart@wsp.com | Daily Quality Control Reports (DQCRs) will be prepared by the FTL and provided to the senior technical lead and EAS WSP JV PM for review and issuance to the project team. DQCRs will be provided daily via email and attached as an Appendix to the Phase 2 Field Report. Daily summary emails will be distributed to the project team by the EAS WSP JV PM. |
| | | George Lukert, P.G / Technical Lead | 971.409.9302<br>george.lukert@wsp.com | |
| | | Russ McCormick, P.G., PM/ QCM | 978.460.9603<br>rmccormick@easbio.com | |
| Stop work authorization and initiation of corrective actions | Project Team | Project Team | All team members | All team members are authorized to stop work and initiate corrective actions should there be a reason to do so. Whoever stops work or initiates corrective actions will inform all other interested parties immediately. The project team will be notified of any stop work order that creates an imminent and substantial endangerment to the health and welfare of personnel on site or in the surrounding area or to the environment. |
| Data review and interpretation; risk assessment | EAS WSP JV | Russ McCormick, P.G. PM primary POC | 978.460.9603<br>rmccormick@easbio.com | Responds to technical or field questions; reviews data and technical deliverables; provides verbal or written comments to the project manager on technical deliverables; develops and calibrates flow and geotechnical/geochemical models; performs model simulations. |

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# Worksheet #9 – Project Planning Session Summary

A scoping meeting was held to review and discuss the technical approach for the project and the content of the UFP-QAPP. The meeting was held on 20 November 2023.

The project planning session/project scoping meeting included identification of the participants, their organizations, roles, and titles, a review of project goals, field activities and field methods, sampling locations, analyses to be performed on multi-media sampling.

**Location:** Teams Meeting.

**Meeting Date:** Monday, 20 November 2023.

**Start Time / End Time:** 1300 / 1500 EST.

**Attendees:**

- Amanda Martin (USACE CENAE – PM)
- Gina Romano (USACE CENAE – Geologist)
- Constance Lapite (USACE CENAE – Chemist)
- Grace Greenberg (USACE CENAE – HHRA)
- Cheryl Montgomery (USACE ERDC – ERA)
- Michelle Bourne (USACE ERDC – ERA)
- Cliff Opdyke (USACE CENAE – HHRA)
- Russ McCormick (EAS WSP JV – PM)
- George Lukert (EAS WSP JV – Senior Geologist/Technical Lead)
- Pamela Rodgers (EAS WSP JV – HHRA)
- Norman Richardson (EAS WSP JV -ERA)
- Laurie Ekes (KGS – Chemist/Database Manager)

During the 20 November 2023 scoping session, the background on each AOC, along with data gaps that were identified after the Phase 1 RI, along with proposed Phase 2 sampling locations were discussed with the USACE Project Delivery Team (PDT). In general, additional virtual meetings, held on a monthly basis with the same team members listed above, were needed to further discuss PDT recommendations. The following is a summary of key discussion points made per AOC:

**AOC 1:**

It was determined that three (3) soil borings were needed to surround each ammonium picrate building (APB). The PDT recommended that these would be needed for the risk assessment. The PDT also agreed to placing a monitoring well immediately downgradient/at the base of each APB (six (6) total). These wells will represent the source area. A monitoring well should also be placed downgradient of a source well. The PDT recommended that the wetland sample locations be placed using a discrete (statistically derived) approach. The EAS WSP JV agreed. Therefore, a summary of the proposed sampling scope of work (SOW) for AOC 1 is as follows:

- Twenty-two (22) soil borings.
- Twelve (12) surface soil (saturated [i.e., hydric]) only sample locations (within the wetlands).
- Ten (10) monitoring wells.

**AOC 3:**

It was determined that ten (10) additional soil boring only locations should be placed within a decision unit (DU) that surrounds the parking lot and landfill extents. The ten (10) discrete additional borings would be placed using a statistically derived approach. The EAS WSP JV agreed to this approach. The use of fertilizers at the golf course was also discussed and should be considered when evaluating certain metals concentrations at this site. Therefore, a summary of the proposed sampling SOW for AOC 3 is as follows:

- Seven (7) co-located soil borings/monitoring wells;
- Ten (10) soil only borings;
- Eight (8) co-located surface water, porewater, and sediment locations.

**AOC 4:**

A total of sixty (60) discrete surface soil samples (or five per bunker) are proposed within this UFP-QAPP. The purpose of these samples is to confirm the non-detect results for picric acid, 2,4- DCNB, and 2,4-DNP that were identified during the Phase 1 RI incremental sampling methodology (ISM) that was performed in 2021. 2,4-DNCB, 2,4-DNP and picric acid in ISM surface soil had low bias attributable to low surrogate recoveries for multiple samples and the uniformly low bias of results reported as non-detect was identified as a data gap (USACE, 2022). A discussion ensued regarding why surface soil samples were not collected at discrete locations along the drainage ditches or at the base of the floor drainage outlets located at outside each bunker. The PDT decided that additional surface soil samples are not needed in the drainage ditches because the DUs are intended to characterize surface conditions around the bunkers, including the surface of the swales. Additionally, AOC 4 will be treated as one exposure unit (EU) in the risk assessment, and therefore, there will be ample surface soil sample data that will be considered representative.

The NYSDEC maintains the drains exiting the bunkers and the roadside ditch along igloo road. NYSDEC staff at Three Rivers had been planning on performing some modifications to the drains that exit the bunkers. They were planning on cleaning drains and re-connecting them to the road-side ditches, which would require excavation. They were also considering placing stone over the apron area and installing culverts across the roadside ditches in certain locations. This was to prevent icing and improve vehicle access to the bunkers.

**AOC 5:**

As a result of the 18 December 2023 PDT call it was decided to group the following subareas into the four (4) DUs:

- Boiler House and Electric Substation
- Coal Storage Area (CSA)
- Drainage Ditch, and Coal Aggregate Bins (CABs)
- Possible Dump Area.

This results in eight (8) borings per DU or 32 soil borings for AOC 5. These 32 discrete soil borings are to be placed using a statistically derived approach. The hydric soil locations were to be placed in the drainage ditch to the west of AOC 5 and will be placed at discrete locations. Therefore, a summary of the proposed sampling SOW for AOC 5 is as follows:

- Thirty-two (32) soil boring only locations.
- Three (3) surface soil (saturated [i.e., hydric]) only sample locations (within the wetlands).
- Eleven (11) monitoring wells.

Additionally, the PDT recommended PCB Aroclors analysis be removed from groundwater sampling since it was not detected in soil during the Phase 1 RI (USACE, 2023a), and that there was no reason to believe there was a release (this decision was later reversed. See section 10.2.4 for additional discussion).

The decision to collect coal microscopy data to develop a line of evidence between the presence/absence of coal and the presence/absence of PAHs and metals was made in July 2025 based on the data gap recommendation made in the *Phase 1 Risk Screening and Data Gaps Analysis Report* (USACE, 2023a, **Appendix A**). The original intent was to exclude samples with heavy coal presence because the PAHs are assumed to be related to the presence of coal particulates and not from the leaching of coal into the surrounding soils. However, based on further discussion between USACE and the Environmental and Munitions Center of Expertise (EMCX), the PDT was informed that if there are Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) related contaminants identified in an exposure medium (soil intermingled with coal particulates in AOC 5) that pose an unacceptable risk, then the media would have to be remediated regardless of the presence of coal. Therefore, soil samples from AOC 5 will be collected for coal microscopy but the data (relative presence of coal) will be used to support the conceptual site model (CSM) in terms of nature and extent (source) and fate and transport related evaluations. The meeting minutes between the USACE and EMCX are attached as part of **Appendix A**.

**Background:**

The PDT recommended the background surface water/porewater/sediment sample locations should be placed near where the proposed background soil sample locations which are located west/upstream of AOC 3. The PDT recommended placing the samples in streams that are similar in size and type (i.e., substrate, flow, banks, vegetative in nature). The EAS WSP JV agreed. The PDT were ok with the presented background hydric soil locations pending rights-of-entry (ROE) are obtained prior to sampling. Therefore, a summary of the proposed sampling SOW for the Background locations is as follows:

- Eight (8) co-located surface water, porewater, and sediment locations.
- Eight (8) surface soil (saturated [i.e., hydric]) only sample locations (within wetlands).
- Six (6) monitoring wells.

The background surface water, porewater, and sediment sampling will initially be limited to PAHs, and target analyte list (TAL) metals/mercury. If review of the AOC 3 surface water, porewater, and sediment sampling results indicate the need to evaluate additional parameters upstream of AOC 3, then additional analysis will be considered during the second round of sampling at the background locations.

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# Worksheet #10 – Conceptual Site Model

As defined in Engineer Manual 200-1-12 - Environmental Quality, Conceptual Site Models, a CSM describes sources of possible DoD-impacts, as well as complete, potentially complete, or incomplete human and ecological exposure pathways; current, determined, or reasonably anticipated future use of property; and human and ecological potential receptors (USACE, 2023b). A CSM is an iterative planning and communication tool that provides a structure to summarize and display information and to identify additional information needed to develop technically sound decisions.

This worksheet provides the current CSM for the NYOW project and was primarily developed based on the Phase 1 RI (2023a). The below sections describe the NYOW location and current use, history, previous investigations, physical characteristics, constituent fate and transport, and potential receptors and exposure pathways.

## 10.1 Former Facility Location and Current Use

As shown on **Figure 10-1**, the former NYOW is in Onondaga County, New York, near the Finger Lakes, about 1 mile northeast of the Village of Baldwinsville and approximately 13 miles north of Syracuse, New York. Portions of the Site are currently owned by the Radisson Community, the State of New York, and private owners. For a description of current land use per AOC, please refer to subsections 10.2.1 to 10.2.4.

## 10.2 Site History/Areas of Concern

Prior to construction of the NYOW facility, the site was primarily agricultural and forested (Army Geospatial Center [AGC], 2019). In 1942, the site was acquired from private owners in various parcels to establish a facility for the manufacture of ammonium picrate during World War II. The facility was designed and built by Lummus Company and included 146 structures. Construction began on 06 April 1942 and was completed in May 1943. The site was operated by National Aniline Defense Corporation, a Division of Allied Chemical and Dye Corporation under the supervision of the Chief of Ordnance of the War Department (USACE, 1985).

Operations began on 22 January 1942 and were ceased on 15 March 1944 (USACE, 1981). The facility was designed to produce 60,000 pounds of ammonium picrate per day, seven (7) days a week. Ammonium picrate is a stable, high explosive compound used in the production of armor piercing shells. The plant included an ammonium picrate area, acid area, and magazine storage/bunker area (**Figure 10-2**) (Reconstruction Finance Corporation, undated). Historical site features are shown on **Figures 10-3** through **10-6**. The facility encompassed approximately 2,100 acres of the 6,795-acre property; the remainder was farmland. The property was declared surplus on 30 August 1945 (USACE, 1981).

On 23 January 1946, the 6,795-acre property was transferred to the custody of the Reconstruction Finance Corporation (USACE, 1991). Reconstruction Finance Corporation was a predecessor to the General Services Administration (GSA). Subsequently, 4,495 acres in the northern and western parts of the Site were classified as farmland and assigned to the Farm Credit Administration for disposal. By 1947, all tracts of land designated as farmland had been sold, including 2,600 acres which ultimately became the Three Rivers State Wildlife Management Area (WMA) and 1,895 acres were subdivided among 98 individual private owners (USACE, 2006) (**Figure 10-7**).

The remaining 2,300 acres were classified as industrial property. In 1948 and 1950, 500 acres of the industrial property were sold to Fosham Corporation, a merger of a rail company (L.B. Foster) and Hamilton Corporation of Cincinnati. A later purchase by Fosham (approximately 1,600 acres) was identified in the deed as contaminated; the deed required the purchaser to decontaminate the property and to provide proof of decontamination to the government. Fosham Corporation notified the GSA in October 1950 by letter that “all decontamination work necessary under the terms of this agreement has been performed by this company and, in particular, the drying houses and the lower portion of the ramps in each AP line have been burned.” A letter dated 14 December 1950 from the New York Regional Office of GSA noted that the premises were examined by a representative of the Ordnance Ammunition Center, U.S. Army Joliet, Illinois on 24 November 1950 and “no evidence of contamination was found” (USACE, 1981).

On 10 July 1952, the Fosham Corporation conveyed the title to the First National City Bank. On 22 October 1968, the First National City Bank conveyed the title to the 1001 East Genesee Corporation of Syracuse New York. On 09 June 1969, the 1001 East Genesee Corporation sold the 2,300-acres representing the former Ammonium Picrate Area to the New York State Urban Development Corporation (NYSUDC); this area is now known as the Radisson Community (**Figure 10-7**). There is no recreational use category; therefore, golf courses and recreational use land are shown as commercial land use.

As described and detailed within this UFP-QAPP, there are four AOCs (AOC 1 – Ammonium Picrate Area; AOC 3 – Former Landfill Area; AOC 4- Bunker Area; and AOC 5 – Former Power Plant Area). Prior to the Phase 1 RI, AOCs 1, 3, and 4, have been previously investigated. The following investigations by AOC were identified and the results summarized in the Phase 1 RI:

- AOC 1 – Dame & Moore (D&M) (1981) Site Investigation, Metcalf & Eddy, Inc. (M&E) (1990) Preliminary Impact Evaluation.
- AOC 3 – D&M (1981) Site Investigation, M&E (1990) Preliminary Impact Evaluation, and Alion (2008) Final Site Inspection.
- AOC 4 – M&E (1990) Preliminary Impact Evaluation and NYSDEC (1988-1989) Site Characterization, NYSDEC (1993) Operation and Maintenance Plan for the Three Rivers Pesticide Storage Site, NYSDEC (1994) Bunker Reclassification, and NYSDEC (1998) Long-Term Monitoring Sampling.

However, these data will be excluded from risk assessments (primarily due to the age of the data, and updated laboratory methods/standards) and therefore will not be discussed in this UFP-QAPP. The historical investigations that have been performed can be reviewed in the Phase 1 *UFP-QAPP* (USACE, 2020). The Phase 1 RI which was conducted in 2021 will be considered for the risk assessment and therefore a summary of those investigation results are included below. The Phase 1 RI project action limits (PALs) used for the Phase 1 RI data are detailed in **Exhibit 10-1** below:

**Exhibit 10-1 – Phase 1 RI Project PALs**

| Standards/Guidance Values | Media Evaluated |
|---|---|
| EPA Regional Screening Levels (RSLs) – Residential Soil, Industrial Soil, and Tapwater, dated November 2022 | Groundwater<br>Soil |
| EPA Ecological Soil Screening Levels (Eco-SSLs), Interim Final, dated February 2005 through April 2008 | Soil |
| Region III Biological Technical Assistance Group (BTAG) Freshwater Screening Values, 2006 | Tank Water |

Note, there was an additional AOC, AOC 2 - Former Acid Area, identified but this area was privately owned after DoD usage, namely Fosham Corporation, First National City Bank, and the 1001 East Genesee Corporation and the title transfer document does not obligate the Government to conduct site restoration. Due to these circumstances, the five (5) acid tanks in AOC 1 and AOC 2 were not eligible for demolition and removal under DERP-FUDS. Per Section 3-1.5.3.10 Restoration Already Initiated of Regulation No. 200-3-1 Environmental Quality - FUDS Program Policy dated 10 May 2004 (FUDS ER-200-3-1), if a Component has already initiated environmental restoration activities, then the "Component" (the acid tanks) is ineligible. Additionally, in accordance with FUDS ER 200-3-1 projects where a hazard is a result of neglect by an owner/grantee after DoD use (regardless of whether the deed or disposal document required the owner/grantee to maintain the property improvements in accordance with FUDS ER-200-3-1) are ineligible under FUDS. Subsequently residual impacts from the acid tanks are also not FUDS-eligible. Potential concerns at AOC 2 stemmed from the two (2) acid tanks and the former buildings that were removed and remediated post-DoD use. The Program Policy expressly provides that properties where restoration has already been initiated are ineligible under the FUDS Program. At AOC 2 a significant amount of work has been performed after the property was transferred out of DoD ownership. This work included the remediation of the two (2) acid tanks involving the removal of debris and corrosive water, off-site disposal of water, and the installation of limestone and drainage holes in the tanks. Subsequently the Acid Tank Area infrastructure including all the buildings, acid and water tanks, railroad tracks, scrubbers, silo, storage

areas, loading platforms, change house, coal hopper and associated foundations were demolished and disposed off-site.

Based on the information regarding the work performed at this site and several site inspections, it is apparent that restoration has been initiated at AOC 2. The USACE CENAE Office of Counsel has been consulted and they determined that AOC 2 does not meet the criteria for property eligibility under the FUDS Program.

Subsequently, residual impacts from the acid tanks located at AOC 1, the Former Ammonium Picrate Area, are also not FUDS-eligible, and this portion of AOC 1 will not be addressed.

### 10.2.1 AOC 1 – Ammonium Picrate Area

The Former Ammonium Picrate Area is located north of Willett Parkway and Town Center Road E, and west of N Entry Road (**Figure 10-3**). Note, the former locations of the change houses are located west of the APBs. The former location of Change House #35 and #36 are now in a mostly developed area off Sumac Drive and Drumlin Heights Drive, respectively (**Figure 10-3**). The former Change House #37 is now a forested area. The current land use for this AOC is housing and undeveloped land.

This area was used to manufacture ammonium picrate and included six (6) 13,500 square foot ($ft^2$) manufacturing buildings (Numbered 17 through 22), six (6) 10,676 $ft^2$ dryer houses (Numbered 26 through 31), three (3) aboveground 12-foot (ft) diameter by 12-ft-high brick liquid storage tanks (#1 through #3), and a 4,612 $ft^2$ laboratory building (Reconstruction Finance Corporation, undated). Ammonium picrate is produced by mixing picric acid and ammonia (Alion, 2008). Picric acid is formed from DNCB (substituted for phenol), sulfuric acid, and nitric acid (Olsen and Goldstein, 1924). Aerial photographic analysis (AGC, 2019) also shows an open storage area located to the northeast of the main production area, and a borrow area to the west (**Figure 10-3**). Aerial photographs also show later backfilling post- DoD use, of a former borrow pit.

The NYSUDC has developed the Former Ammonium Picrate Area (AOC 1) into the residential/light industrial community now known as the Radisson Community. Most of the Ammonium Picrate Area structures have been demolished, but some structures remain including the ramps to the Ammonia Picrate “bunkers”, the “bunkers” themselves and assorted foundations. These remaining structures are deteriorating and do not appear to be maintained.

**Phase 1 RI (2021)**

In 2021, a Phase 1 RI was initiated by USACE to investigate the nature and extent of potential DoD-related contamination in soil and groundwater. A total of 17 surface and 22 subsurface soil samples were collected throughout AOC 1 (**Figure 10-3**). Sample locations were biased towards potential source areas. Due to unexpected site conditions encountered (e.g., high angle slopes, thick vegetation) however, at most locations surrounding the APBs, only surface soil (0-1 ft [below ground surface [bgs]) samples were collected. Soil samples were analyzed for target analyte list (TAL) metals, DNCB, 2,4-DNP, and picric acid; a subset of samples were selected for total organic carbon (TOC), grain size distribution (including hydrometer analysis), and cation exchange capacity (CEC).

In addition to soil sampling, ten (10) groundwater samples were collected from 1-inch temporary wells, and most of the wells were focused at the dryer houses (**Figure 10-3**). Groundwater samples were analyzed for TAL metals (field-filtered), DNCB and 2,4-DNP, and picric acid.

Detected constituents within AOC 1 soil included picric acid and 23 metals. Maximum detected concentrations that exceeded Phase 1 RI PALs included: aluminum, antimony, arsenic, cadmium, cobalt, copper, iron, lead, manganese, mercury, picric acid, selenium, thallium, vanadium, and zinc.

Detected constituents within AOC 1 groundwater included 18 metals. Maximum detected concentrations that exceeded Phase 1 RI PALs included: antimony, arsenic, barium, cobalt, iron, manganese, and sodium.

Following completion of the Phase 1 RI field effort, the data were compiled, and a risk screening and data gap analysis was performed and documented in the *Phase 1 Risk Screening and Data Gap Analysis Report* (refer to **Appendix A**). After conducting the risk screening, the following COPCs and contaminants of potential ecological concern (COPEC) were identified in **Exhibit 10-2** below:

## Exhibit 10-2 – Phase 1 RI (2021) AOC 1 COPC/COPECs Summary

| AOC 1 | | | | |
|---|---|---|---|---|
| COPC/COPECs | Groundwater | | Soil | |
| | COPC | Rationale for Inclusion | COPC/ COPEC | Rationale for Inclusion |
| **SVOCs** | | | | |
| 2,4-DNCB | X | ND & LOQ> HA SL | X | ND & LOQ> HS, E SL |
| 2,4-DNP | X | ND & LOQ> HA SL | X | ND & LOQ> HS, E SL |
| **Explosives** | | | | |
| Picric acid | -- | -- | X | > E SL |
| **Metals** | | | | |
| Aluminum | -- | -- | X | >BTV and H SL |
| Antimony | -- | -- | X | >BTV and E SL |
| Arsenic | X | >BTV and H SL | X | >BTV and H, E SL |
| Barium | X | >BTV and H SL | X | >BTV and E SL |
| Beryllium | -- | -- | X | >BTV and missing E SL |
| Cadmium | -- | -- | X | >BTV and H, E SL |
| Chromium | -- | -- | X | >BTV and E SL |
| Cobalt | -- | -- | X | >BTV and H, E SL |
| Copper | -- | -- | X | >BTV and E SL |
| Lead | -- | -- | X | >BTV and E SL |
| Manganese | X | >BTV and H SL | X | >BTV and H, E SL |
| Mercury | X | ND & LOQ> HA SL | X | >BTV and E SL |
| Nickel | X | >BTV and H SL | -- | -- |
| Selenium | X | ND & LOQ> HA SL | X | >BTV and E SL |
| Silver | X | ND & LOQ> HA SL | X | >BTV and missing E SL |
| Thallium | X | ND & LOQ> HA SL | -- | -- |
| Vanadium | X | >BTV and H SL | X | >BTV and missing E SL |
| Zinc | -- | -- | X | >BTV and E SL |

Notes:
"--" = No.
BTV = Background threshold value.
E = based on ecological receptor(s)
H = based on human health.
HA = all LOQs > human health screening level.
HS = some LOQs > human health screening level.
LOD = limit of detection.
LOQ = limit of quantitation.
ND = non-detected result, typically reported at the LOD.
SL = Screening level.
X = Yes.

The *Phase 1 Risk Screening and Data Gap Analysis Report* (refer to **Appendix A**) noted that subsurface soils were not collected from any APB and groundwater was not collected from the vicinity of 5 of the 6 APBs. The report concluded that potential areas of release were not adequately characterized to make the determination of whether they are source areas. Therefore, additional sampling was recommended to verify Phase 1 results, adequately delineate the source areas and determine whether APBs are source areas and to characterize risks.

### 10.2.2 AOC 3 – Former Landfill Area

The Former Landfill Area is located under and to the north of the current Radisson Golf Course club house parking lot (**Figure 10-4**). This area was used for the disposal of household and office trash, paint cans, stainless-steel "spiders" (e.g., equipment used to mix the ammonium picrate), and other potential manufacturing items (D&M, 1981). Based on historical documentation there were two (2) distinct phases of dumping at the landfill 1) in 1944 during the operation of the DoD and 2) in 1949 after the DoD transferred the property and the Fosham Corporation owned the area (AGC, 2019). D&M (1981) indicated that residents used the landfill as a trash dump after the security fences were removed from the Site in 1949. Three prior studies have been completed at this AOC; the following section summarizes the results. There is no record that the Former Landfill was lined and capped. Although, D&M (1981) indicated that the landfill was covered with soil prior to removal of the security fences. A parking lot serving the golf course and club house currently covers the landfill. However, a data gap identified during the Phase 1 RI, revealed that landfill signatures were identified in the grass area just north of the landfill which was not investigated.

A former open storage area (OSA), located southwest of the former landfill on the southern side of Potter Road in an area that is currently part of the golf course fairway, has been identified (see **Figure 10-4**). The OSA is visible on two (2) aerial photographs dated February and August 1944 which suggests DoD use (AGC, 2019). Between 1944 and 1949, the OSA ceased activity and while some surface debris was still present, the area was mostly cleared, and vegetation had been reestablishing itself (AGC, 2019). No other documentation of the history or use of this storage area was found.

**Phase 1 RI (2021)**

In 2021, a Phase 1 RI was initiated by USACE to investigate the nature and extent of potential DoD-related contamination in soil and groundwater. A total of 16 surface and 18 subsurface soil samples were collected throughout AOC 3 (**Figure 10-4**). Soil samples were analyzed for TAL metals, SVOCs (including DNCB and 2,4-DNP), PAHs, and picric acid; a subset of samples were analyzed for TOC, grain size distribution (including hydrometer analysis), and CEC. PCB Aroclors were also analyzed in soil samples collected in the former landfill area. Subsurface soils were also sampled for VOCs. In addition to soil sampling, seven (7) groundwater samples were collected from 1-inch temporary wells, mostly adjacent to the northern border of the parking lot (**Figure 10-4**). Groundwater samples were analyzed for TAL metals (field-filtered), VOCs, SVOCs (including DNCB and 2,4-DNP), PAHs, and picric acid. PCB Aroclors were also analyzed in groundwater samples collected in the former landfill area.

Detected constituents within AOC 3 soil included 4 VOCs, 5 SVOCs, 18 PAHs, 1 PCB, and 23 metals. Maximum detected concentrations that exceeded Phase 1 RI PALs included: aluminum, antimony, arsenic, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, bis(2-ethylhexyl)phthalate, cadmium, carbazole, cobalt, copper, m- & p-cresols, dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene, iron, lead, manganese, mercury, selenium, thallium, vanadium, and zinc.

Detected constituents within AOC 3 groundwater included 4 VOCs, 3 SVOCs, and 15 metals. Maximum detected concentrations that exceeded Phase 1 RI PALs included: arsenic, cobalt, manganese, 4-nitroaniline, selenium, and sodium. While PCBs were not detected in groundwater, the LOQs were above respective screening levels. Therefore, PCBs were identified a COPCs.

In addition to the soil and groundwater investigations, a geophysical survey was conducted in the former landfill area. The geophysical survey indicated that the former landfill extended further north (of the parking lot) than originally suspected.

Following completion of the Phase 1 RI field effort, the data were compiled, and a risk screening and data gap analysis was performed and documented in the *Phase 1 Risk Screening and Data Gap Analysis Report* (USACE, 2023a). After conducting the risk screening, the following COPCs and COPECs were identified in **Exhibit 10-3** below:

## Exhibit 10-3 – Phase 1 RI (2021) AOC 3 COPC/COPECs Summary

| AOC 3 | | | | |
|---|---|---|---|---|
| COPC/COPECs | Groundwater | | Soil | |
| | COPC | Rationale for Inclusion | COPC/ COPEC | Rationale for Inclusion |
| **VOCs** | | | | |
| Acetone | -- | -- | X | > E SL |
| Benzene | X | > H SL | -- | -- |
| **SVOCs** | | | | |
| 2-Nitroaniline | X | ND & LOQ>HA SL | X | ND & LOQ> E SL |
| 2-Nitrophenol | X | ND & LOQ>HA SL | X | ND & LOQ> E SL |
| 3-Nitroaniline | X | ND & LOQ>HA SL | X | ND & LOQ> E SL |
| 4-Chloroaniline | X | ND & LOQ> HASL | -- | -- |
| 4-Nitroaniline | X | > H SL | X | ND & LOQ> E SL |
| 4-Nitrophenol | X | ND & LOQ> HA SL | -- | -- |
| Benzaldehyde | -- | -- | X | > E SL |
| Carbazole | -- | -- | X | > E SL |
| Cresols, m- & p- | -- | -- | X | > E SL |
| Dibenzofuran | X | ND & LOQ>HA SL | X | > E SL |
| **PAHs** | | | | |
| Acenaphthene | -- | -- | X | >BTV and E SL |
| Anthracene | -- | -- | X | >BTV and E SL |
| Benzo(a)anthracene | X | ND & LOQ> HA SL | X | >BTV and H SL |
| Benzo(a)pyrene | X | ND & LOQ> HA SL | X | >BTV and H, E SL |
| Benzo(b)fluoranthene | -- | -- | X | >BTV and H SL |
| Dibenz(a,h)anthracene | X | ND & LOQ> HA SL | X | >BTV and H, E SL |
| Indeno(1,2,3-cd)pyrene | -- | -- | X | >BTV and H, E SL |
| PAHs | -- | -- | X | >BTV and missing E SLs |
| **PCBs** | | | | |
| PCB-1016 (Aroclor 1016) | X | ND & LOQ> HA SL | -- | -- |
| PCB-1221 (Aroclor 1221) | X | ND & LOQ> HA SL | -- | -- |
| PCB-1232 (Aroclor 1232) | X | ND & LOQ> HA SL | -- | -- |
| PCB-1242 (Aroclor 1242) | X | ND & LOQ> HASL | -- | -- |
| PCB-1248 (Aroclor 1248) | X | ND & LOQ> HA SL | -- | -- |
| PCB-1254 (Aroclor 1254) | X | ND & LOQ> HA SL | -- | -- |
| PCB-1260 (Aroclor 1260) | X | ND & LOQ> HA SL | -- | -- |
| PCB-1262 (Aroclor 1262) | X | ND & LOQ> HA SL | -- | -- |
| PCB-1268 (Aroclor 1268) | X | ND & LOQ> HA SL | -- | -- |
| **Explosives** | | | | |
| Picric Acid | -- | -- | X | ND & LOQ> E SL |
| **Metals** | | | | |
| Aluminum | -- | -- | X | >BTV and H SL |
| Antimony | -- | ND & LOQ> HA SL | -- | -- |
| Arsenic | X | >BTV and H SL | X | >BTV and H SL |
| Cadmium | -- | ND & LOQ> HA SL | -- | -- |

| AOC 3 | | | | |
|---|---|---|---|---|
| COPC/COPECs | Groundwater | | Soil | |
| | COPC | Rationale for Inclusion | COPC/ COPEC | Rationale for Inclusion |
| Cobalt | X | >BTV and H SL | X | >BTV and H, E SL |
| Manganese | X | >BTV and H SL | X | >BTV and H, E SL |
| Mercury | -- | ND & LOQ> HA SL | X | >BTV and E SL |
| Nickel | X | >BTV and H SL | -- | -- |
| Selenium | -- | -- | X | >BTV and E SL |
| Silver | -- | ND & LOQ>HA SL | X | >BTV and missing E SL |
| Thallium | -- | -- | X | >BTV and H, E |
| Vanadium | X | >BTV and H SL | X | >BTV and missing E SL |

Notes:
"--" = No.
BTV = Background threshold value.
E = based on ecological receptor(s).
H = based on human health.
HA = all LOQs > human health screening level.
LOD = limit of detection.
LOQ = limit of quantitation.
ND = non-detected result, typically reported at the LOD.
SL = Screening level.
X = Yes.

The *Phase 1 Risk Screening and Data Gap Analysis Report* (refer to **Appendix A**) noted the geophysical surveys indicate that the landfill footprint extends more northwestern than sampled during the Phase 1 investigation. The extended area is topographically downgradient and currently there are no samples located beyond the most downgradient edge. Therefore, additional sampling was recommended to verify Phase 1 results, adequately delineate the source areas and determine whether the former landfill is a source area and to characterize risks.

### 10.2.3 AOC 4 – Former Bunker Area

The Former Bunker Area is located within the Three Rivers WMA (**Figure 10-5**). According to the Archives Search Report (USACE, 1999a): "…boxed ammonium picrate (AP) was taken by truck from the AP production lines and stored in the Storage Magazine Area prior to shipment." The 14 original bunkers each measured approximately 30 ft by 60 ft and were constructed with concrete walls on three sides and front wall with a barn door for access (NYSDEC, 1993). The ceilings were constructed of wooden rafters. Earth was built up around the outside walls on the three concrete sides. An apron either concrete, or hard-pack gravel allowed access to each of the bunkers. Current use of this area is recreational. It is located within the Three Rivers WMA so this area is open to the public and contains walking trails. The 14 bunkers remain intact, however two of them are used for WMA maintenance equipment and vehicle storage. These bunker areas are regularly maintained (i.e., mowed) to prevent overgrowth.

Bunkers #3 and #8 were used by NYSDEC personnel for the storage of pesticides for approximately 10 years, from the early 1970s to 1983 (M&E, 1990). A small, partitioned room (approximately 12 ft by 22 ft) within Bunker #3 was used to receive and package pesticides from citizens and/or businesses that had pesticides that were either unwanted or had been banned. Bunker #8 was used for receiving and repackaging pesticides, but was also used for pesticide storage (NYSDEC, 1993). Bunkers #3 and #8 are no longer in use. In 1992, NYSDEC emptied and cleaned Bunkers #3 and #8 and covered them with an impermeable cap. NYSDEC currently maintains responsibility for long-term management of Bunkers #3 and #8, such as lawn mowing and cap inspection. The remaining bunkers are being used by NYSDEC game management personnel for equipment and vehicle storage. Due to the initiation of environmental

restoration after DoD ownership, Bunkers #3 and #8, are not FUDS- eligible and will not be addressed. The remaining 12 bunkers (exterior) remain FUDS-eligible.

**Phase 1 RI (2021)**

In 2021, a Phase 1 RI was initiated by USACE to investigate the nature and extent of potential DoD-related contamination in soil and groundwater. A total of 16 surface and 101 subsurface discrete soil samples were collected targeting potential source areas (e.g., drainage outlets), and migration pathways (e.g., drainage swales) (**Figure 10-5**). In addition to the biased sampling, ISM was employed at each of the 12 bunkers (i.e., DUs) to collect representative samples for each DU. Three ISM samples, comprised of 30 surface soil sample increments each, were collected at each DU for a total of 36 samples. All ISM samples were collected from 0 to 1-foot bgs using a dedicated volumetric sampling device (LaMotte 1055 Soil Sampler or AMS Soil Probe). Refer to Figure 2-6 through 2-8 in Appendix A for ISM sample locations. All soil samples were analyzed for DNCB, 2,4-DNP, and picric acid. In addition to soil sampling, sixteen (16) groundwater samples were collected from 1-inch temporary wells (**Figure 10-5**). Groundwater samples were analyzed for DNCB, 2,4-DNP, and picric acid.

Results for the soil samples and groundwater samples were non-detect at the limit of quantitation (LOQ) value which were greater than PALs for DNCB, 2,4-DNP, and picric acid.

Following completion of the Phase 1 RI field effort, the data were validated, compiled, and a risk screening and data gap analysis was performed and documented in the *Phase 1 Risk Screening and Data Gap Analysis Report* (USACE, 2023a). While the validated data were non-detect, 2,4-DNCB, 2,4-DNP and picric acid in ISM surface soil had low bias attributable to low surrogate recoveries for multiple samples. Since the uniformly low bias of results reported as non-detect was identified as a data gap, confirmation sampling in soil was recommended. Please refer to the Phase 1 Risk Screening and Data Gap Analysis Report (**Appendix A**) for additional discussion of the data quality issues and usability assessment. Given the uncertainty of these results, the *Phase 1 Risk Screening and Data Gap Analysis Report* (refer to **Appendix A**) recommended additional sampling to verify Phase 1 results, adequately delineate the source areas and characterize risks.

### 10.2.4 AOC 5 – Former Power Plant Area

The Former Power Plant Area is located north of the Administration Area (**Figure 10-6**). The AOC included a large aboveground storage tank (AST), a boiler house, CSA, CABs, and an electric substation. There were also two (2) drainage ditches that ran across the area (AGC, 2019). The large AST contained “Fire Water” (Reconstruction Finance Company, undated). Additional site features are shown in **Figure 10-6** and include:

- an abandoned rail line and spur.
- three below ground CABs in line with the rail spur: a dual bin (bins A and B) located between the substation and the boiler house, and a single bin (bin C) located west of the boiler house.
- a second water AST and pipeline between the large AST and the boiler house, as well as a short water distribution pipeline located north of the Site.
- additional drainage ditches.
- a possible dump.
- former roads.

The boiler house was a two (2)-story building with a total area of 8,366 $ft^2$ (Reconstruction Finance Company, undated). No additional written historical information could be found. The former Power Plant Area was not investigated in studies by D&M (1981), M&E (1990) or Alion (2006). The current use of this AOC is undeveloped land.

No documentation was encountered regarding if the power plant was removed and disposed by the military or by some other entity after the NYOW was decommissioned. However, site walks conducted under the Phase 1 and Phase 2 RI confirm that the former power plant and associated structures are no longer present.

## Phase 1 RI (2021)

In 2021, a Phase 1 RI was initiated by USACE to investigate the nature and extent of potential DoD-related contamination in soil and groundwater. Surface and subsurface soil sampling along with groundwater sampling was conducted in potential sources areas (i.e., former boiler house, former electrical substation, former coal storage bins, former coal storage area, and potential former dump area. A total of 25 surface and 50 subsurface soil samples were collected for the Phase 1 RI (USACE, 2021) (**Figure 10-6**). Additionally, groundwater samples were collected from a total of (12) 1-inch temporary wells (**Figure 10-6**). Since 1-inch temporary wells often produce highly turbid samples, which can under/overestimate concentrations, the recommendation to install permanent 2-inch monitoring wells was made within the *Phase 1 Risk Screening and Data Gap Analysis Report* (USACE, 2023a). Additionally, the wetland located to the west of AOC 5 could represent a groundwater seep and or surface water runoff pathways. Therefore, further investigation was recommended within the *Phase 1 Risk Screening and Data Gap Analysis Report* (USACE, 2023a). Further information regarding concentration data is presented in the *Phase 1 Risk Screening and Data Gap Analysis Report* (USACE, 2023a).

A geophysical survey was conducted at the AOC 5 Possible Dump Area to meet the DQOs of assessing the area for evidence of demolition debris or disposal of other waste and delineating the horizontal and vertical extents of observed waste. The survey was conducted using a Geonics EM-31 MKII terrain conductivity meter (EM-31). The results of the survey discussed below.

The EM-31 survey indicated that the subsurface conductivity data were indicative of natural terrain and not fill material, buried metallic objects, or dissolved salts/solids that are typically associated with landfills; however, metallic responses were observed at several locations. It was confirmed in the field that the metallic responses aligned with the presence of visible, surficial metallic debris, such as discarded paint cans, drums, and tire rims, as well as the presence of a buried steel drainpipe.

It has been suggested that there is potential that the geophysical survey conducted at the AOC 5 Possible Dump Area did not entirely satisfy the DQOs of assessing the area for evidence of demolition debris or disposal of other waste and delineating the horizontal and vertical extents of observed waste. This is because it is possible that buried metallic objects beneath the surficial metallic debris may have gone undetected due to interference from the surficial metallic debris. However, the EM-31 survey covered approximately 90% of the Possible Dump area in addition to area north of the mapped footprint without any evidence of subsurface disposal activities and detected analytes and associated concentrations in the Possible Dump area are not substantially above background (refer to Tables I-65 through I-75 of **Appendix A**) or human health and ecological screening levels and are not indicative of DoD-related disposal activities (USACE, 2023a). Therefore, the DQO of assessing the area for evidence of demolition debris or disposal of other waste has been met and the absence of such debris and waste negates the need to delineate the horizontal and vertical extent of waste.

While reviewing the historical photographic analysis (USACE, 2019), a drainage ditch was identified that ran parallel to and just west of the railroad spur, east of the coal piles. The ditch appears to be unlined except for where conduit was placed underneath intersecting roadways. The ditch is no longer visible and was likely filled in during Site decommissioning or reworked and regraded during roadway improvements to Willett Parkway. However, there is the potential that DoD-related contaminants leached into the soil and groundwater beneath the ditch and/or were transported downstream (south) to low-lying wetlands. The lack of data for characterization of this potential transport pathway is a data gap.

Five primary surface soil samples were collected at two AOC 5 subareas, the CABs and CSA, and analyzed for coal and coal ash for a total of ten primary samples at AOC 5 (plus one duplicate sample). Coal was detected in moderate to very heavy concentrations in all samples submitted for analysis, excluding sample NYOW-05-SL022-A (in the CAB subarea). Coal ash was detected in trace to moderate concentrations in samples NYOW-05-SL022-A and NYOW-05-SL024-A in the CAB subarea.

PAHs were generally not detected above background in the Boiler House, Electric Substation, or Possible Dump areas (USACE, 2023b). Concentrations of PAHs in the CABs and CSA were above background and human health screening levels in the 0 to 1 ft bgs soil interval (USACE, 2023a) and were markedly decreased (generally below background and often not detected) progressing through the 1-5 bgs and 5-10 bgs depth intervals (USACE, 2023a). Also of interest was that in sample NYOW-05-SL022-A, the only

sample where coal ash was detected but coal was not, PAHs were not detected above background or human health screening levels (USACE, 2023a). Lastly, boring locations -009, -010, and -024 were the only locations among the AOCs where the PAH ratios indicated a petrogenic source (USACE, 2023a). Additional data are needed to further refine nature and extent of coal as a potential source for CERCLA contaminants.

The patterns of metals concentrations in AOC 5 are less obvious; however, the higher concentrations tend to be at the Boiler House, CABs, and CSA and maximum detected concentrations within a boring tend to be seen at depth. For example, the highest groundwater dissolved arsenic concentration among all of the AOCs was detected at the Boiler House in NYOW-05-WL019-A (140 micrograms per liter [µg/L]) with the second highest soil concentration detected in the 5 to 10 ft bgs interval from the same location (40 milligrams per kilogram [mg/kg]). The highest soil concentration of arsenic was detected in NYOW-05-PH010-C in the 5 to 10 ft bgs interval (79 mg/kg) where the third highest groundwater concentration was detected (7.9 µg/L).

Detected constituents within AOC 5 soil included 23 metals, 1 PCB, 18 PAHs, 3 SVOCs, and 4 VOCs. Maximum detected concentrations that exceeded Phase 1 RI PALs included: aluminum, antimony, arsenic, benzo(a)pyrene, benzo(b)fluoranthene, cadmium, chromium, cobalt, copper, Aroclor-1260, dibenz(a,h)anthracene, dibenzofuran, di-n-butyl phthalate, indeno(1,2,3-c,d)pyrene, iron, lead, manganese, mercury, naphthalene, selenium, thallium, vanadium, and zinc.

Detected constituents within AOC 5 groundwater included 16 PAHs, 1 VOC, 2 SVOCs, and 17 metals. Maximum detected concentrations that exceeded Phase 1 RI PALs included: aluminum, antimony, arsenic, benzo(a)anthracene, benzo(a)pyrene benzo(b)fluoranthene, cobalt, dibenz(a,h)anthracene, iron, manganese, naphthalene, and sodium.

Following completion of the Phase 1 RI field effort, the data were compiled, and a risk screening and data gap analysis was performed and documented in the *Phase 1 Risk Screening and Data Gap Analysis Report* (USACE, 2023a). After conducting the risk screening, the following COPCs and COPECs were identified per subarea in **Exhibits 10-4** through **10-7**. The *Phase 1 Risk Screening and Data Gap Analysis Report* (refer to **Appendix A**) concluded that concentrations detected in the Electric Substation and Potential Dump are not indicative of a substantial release/source area. However, metals concentrations in soil and groundwater (particularly arsenic), are greater than background and human health screening levels in the Boiler House, CABs, and CSA. The report recommended verifying Phase 1 results, adequately delineating source areas and characterizing risks.

**Exhibit 10-4 – Phase 1 RI (2021) AOC 5 Boiler House COPC/COPECs Summary**

| AOC 5 – Boiler House | | | | |
|---|---|---|---|---|
| COPC/COPECs | Groundwater | | Soil | |
| | COPC | Rationale for Inclusion | COPC/ COPEC | Rationale for Inclusion |
| **SVOCs** | | | | |
| 2-Nitroaniline | -- | * | -- | * |
| 3-Nitroaniline | -- | * | -- | * |
| 4-Chloroaniline | -- | * | -- | -- |
| 4-Nitroaniline | -- | * | -- | * |
| **PAHs** | | | | |
| Acenaphthylene | -- | -- | X | >BTV and missing E SLs |
| Anthracene | -- | -- | X | >BTV and missing E SLs |
| Benzo(a)anthracene | X | >BTV and H SL | -- | -- |
| Benzo(a)pyrene | X | >BTV and H SL | -- | -- |
| Benzo(b)fluoranthene | X | >BTV and H SL | -- | -- |
| Dibenz(a,h)anthracene | X | >BTV and H SL | -- | -- |
| Naphthalene | X | >BTV and H SL | -- | -- |

| AOC 5 – Boiler House | | | | |
|---|---|---|---|---|
| COPC/COPECs | Groundwater | | Soil | |
| | COPC | Rationale for Inclusion | COPC/ COPEC | Rationale for Inclusion |
| Phenanthrene | -- | -- | X | >BTV and missing E SLs |
| **Metals** | | | | |
| Aluminum | -- | -- | X | >BTV and H SL |
| Antimony | X | >H SL | X | >BTV and missing E SL |
| Arsenic | X | >BTV and H SL | X | >BTV and H, E SL |
| Beryllium | -- | -- | X | >BTV and missing E SL |
| Cadmium | X | ND & LOQ>HA SL | -- | -- |
| Chromium | -- | -- | X | >BTV and E SL |
| Cobalt | X | >H SL | X | >BTV and H, E SL |
| Manganese | X | >H SL | X | >BTV and H, E SL |
| Mercury | X | ND & LOQ>HA SL | X | >BTV and E SL |
| Nickel | X | ND & LOQ>HA SL | -- | -- |
| Selenium | X | ND & LOQ>HA SL | -- | -- |
| Silver | X | ND & LOQ>HA SL | -- | -- |
| Thallium | X | ND & LOQ>HA SL | X | >BTV and H,E SL |
| Vanadium | X | >BTV and H SL | X | >BTV and missing E SL |
| Zinc | -- | -- | X | >BTV and E SL |

Notes:
*Anilines were not detected but the LOQs were greater than the SLs. There was potential historical evidence that these constituents were associated with AOC 5. Anilines are components of pigments and dyes and were associated with AOC 5 solely because of the potential for paint cans to have been disposed of in the Possible Dump Area. Therefore, anilines are not considered COPCs or COPECs for the Boiler House and do not need to be included in future sampling associated with the Boiler House.
"--" = No.
BTV = Background threshold value.
E = based on ecological receptor(s).
H = based on human health.
HA = all LOQs > human health screening level.
LOD = limit of detection.
LOQ = limit of quantitation.
ND = non-detected result, typically reported at the LOD.
SL = Screening level.
X = Yes.

## Exhibit 10-5 – Phase 1 RI (2021) AOC 5 CABs COPC/COPECs Summary

| AOC 5 – Coal Aggregate Bins | | | | |
|---|---|---|---|---|
| COPC/COPECs | Groundwater | | Soil | |
| | COPC | Rationale for Inclusion | COPC/ COPEC | Rationale for Inclusion |
| **SVOCs** | | | | |
| 2-Nitroaniline | -- | * | -- | * |
| 3-Nitroaniline | -- | * | -- | * |
| 4-Chloroaniline | -- | * | -- | -- |
| 4-Nitroaniline | -- | * | -- | * |
| **PAHs** | | | | |
| 1-Methylnaphthalene | -- | -- | X | >BTV and E SL |
| 2-Methylnaphthalene | -- | -- | X | >BTV and E SL |
| Benzo(a)anthracene | X | ND & LOQ>HA SL | -- | -- |
| Benzo(a)pyrene | X | ND & LOQ>HA SL | X | >BTV and H, E SL |
| Benzo(b)fluoranthene | -- | -- | X | >BTV and H, E SL |
| Dibenz(a,h)anthracene | X | ND & LOQ>HA SL | X | >BTV and H, E SL |
| Indeno(1,2,3-c,d)pyrene | -- | -- | X | >BTV and H, E SL |
| Naphthalene | X | >BTV and H SL | X | >BTV and H, E SL |
| High Molecular Weight PAHs | -- | -- | X | >BTV and E SL |
| PAHs | -- | -- | X | >BTV and missing E SLs |
| **Metals** | | | | |
| Aluminum | X | >BTV and H SL | X | >BTV and H SL |
| Antimony | X | ND & LOQ> HA SL | X | >BTV and E SL |
| Arsenic | X | >BTV and H SL | X | >BTV and H, E SL |
| Beryllium | -- | -- | X | >BTV and missing E SL |
| Cadmium | X | ND & LOQ>HA SL | X | >BTV and E SL |
| Chromium | -- | -- | X | >BTV and E SL |
| Cobalt | X | >H SL | X | >BTV and H, EI SL |
| Lead | -- | -- | X | >BTV and E SL |
| Manganese | X | >H SL | X | >BTV and H, E SL |
| Mercury | X | ND & LOQ>HA SL | X | >BTV and E SL |
| Nickel | X | >BTV and H SL | -- | -- |
| Selenium | X | ND & LOQ>HA SL | X | >BTV and E SL |
| Silver | X | ND & LOQ>HA SL | -- | -- |
| Thallium | X | ND & LOQ>HA SL | X | >BTV and H, E SL |
| Vanadium | X | >BTV and H SL | X | >BTV and E, E SL |
| Zinc | -- | -- | X | >BTV and E SL |

Notes:
*Anilines were not detected but the LOQs were greater than the SLs. There was potential historical evidence that these constituents were associated with AOC 5. Anilines are components of pigments and dyes and were associated with AOC 5 solely because of the potential for paint cans to have been disposed of in the Possible Dump Area. Therefore, anilines are not considered COPCs or COPECs for the Coal Aggregate Bins and do not need to be included in future sampling associated with the Coal Aggregate Bins.
"--" = No.
BTV = Background threshold value.
E = based on ecological receptor(s).
H = based on human health.
HA = all LOQs > human health screening level.
LOD = limit of detection.
LOQ = limit of quantitation.
ND = non-detected result, typically reported at the LOD
SL = Screening level.
X = Yes.

## Exhibit 10-6 – Phase 1 RI (2021) AOC 5 CSA COPC/COPECs Summary

| AOC 5 – Coal Storage Area | | | | |
|---|---|---|---|---|
| COPC/COPECs | Groundwater | | Soil | |
| | COPC | Rationale for Inclusion | COPC/ COPEC | Rationale for Inclusion |
| **SVOCs** | | | | |
| 2-Nitroaniline | -- | * | -- | * |
| 3-Nitroaniline | -- | * | -- | * |
| 4-Chloroaniline | -- | * | -- | -- |
| 4-Nitroaniline | -- | * | -- | * |
| **PAHs** | | | | |
| 1-Methylnaphthalene | -- | -- | X | >BTV and E SL |
| 2-Methylnaphthalene | -- | -- | X | >BTV and E SL |
| Acenaphthene | -- | -- | X | >BTV and E SL |
| Benzo(a)anthracene | X | ND & LOQ>HA SL | X | >BTV and E SL |
| Benzo(a)pyrene | X | ND & LOQ>HA SL | X | >BTV and H, E SL |
| Dibenz(a,h)anthracene | X | ND & LOQ>HA SL | -- | -- |
| Naphthalene | X | >BTV and H SL | X | >BTV and H, E SL |
| High Molecular Weight PAHs | -- | -- | X | >BTV and E SL and missing E SLs |
| Low Molecular Weight PAHs | -- | -- | X | >BTV and E SL and missing E SLs |
| **Metals** | | | | |
| Aluminum | -- | -- | X | >BTV and H SL |
| Antimony | X | >H SL | X | >BTV and E SL |
| Arsenic | X | >BTV and H SL | X | >BTV and H, E SL |
| Beryllium | -- | -- | X | >BTV and missing E SL |
| Cadmium | X | ND & LOQ>HA SL | X | >BTV and E SL |
| Chromium | -- | -- | X | >BTV and E SL |
| Cobalt | X | >H SL | X | >BTV and H, E SL |
| Lead | -- | -- | X | >BTV and E SL |
| Manganese | X | >H SL | X | >BTV and H, E SL |
| Mercury | X | ND & LOQ>HA SL | X | >BTV and E SL |
| Nickel | X | >BTV and H SL | -- | -- |
| Selenium | X | ND & LOQ>HA SL | X | >BTV and E SL |
| Silver | X | ND & LOQ>HA SL | -- | -- |
| Thallium | X | ND & LOQ>HA SL | X | >BTV and H, E SL |
| Vanadium | X | ND & LOQ>HA SL | X | >BTV and E SL |
| Zinc | -- | -- | X | >BTV and E SL |

Notes:
*Anilines were not detected but the LOQs were greater than the SLs. There was potential historical evidence that these constituents were associated with AOC 5. Anilines are components of pigments and dyes and were associated with AOC 5 solely because of the potential for paint cans to have been disposed of in the Possible Dump Area. Therefore, anilines are not considered COPCs or COPECs for the Coal Storage Bins and do not need to be included in future sampling associated with the Coal Aggregate Bins.
"--" = No.
BTV = Background threshold value.
E = based on ecological receptor(s).
H = based on human health.
HA = all LOQs > human health screening level.
LOD = limit of detection.
LOQ = limit of quantitation.
ND = non-detected result, typically reported at the LOD.
SL = Screening level.
X = Yes.

Detected constituents in the Electric Substation were at concentrations not substantially different from background and/or screening levels and additional sampling in the Electric Substation was not recommended during the Phase 1 RI (refer to **Appendix A**). However, one PCB (Aroclor 1260) was detected in all four surface soil samples collected near the Electric Substation. Given that one surface soil sample had a concentration above the PAL and subsurface soil samples were not analyzed for PCBs, additional surface and subsurface soil sampling for PCBs is recommended for the Electric Substation area. In the absence of PCB groundwater data from the Electric Substation, PCB groundwater samples are recommended for the Electric Substation and wells downgradient of the Electric Substation. Additional data will be collected during Phase 2 to confirm/deny Phase 1 results and identified COPCs/COPECs for the Electric Substation presented in **Exhibit 10-7** will be carried through to the Phase 2 risk assessments.

### Exhibit 10-7 – Phase 1 RI (2021) AOC 5 Electrical Substation Summary

| AOC 5 – Electrical Substation | | | | |
|---|---|---|---|---|
| COPC/COPECs | Groundwater | | Soil | |
| | COPC | Rationale for Inclusion | COPC/ COPEC | Rationale for Inclusion |
| **SVOCs** | | | | |
| 2-Nitroaniline | -- | * | -- | * |
| 3-Nitroaniline | -- | * | -- | * |
| 4-Chloroaniline | -- | * | -- | * |
| 4-Nitroaniline | -- | * | -- | * |
| **PAHs** | | | | |
| Acenaphthene | -- | -- | X | >BTV and missing E SLs |
| Acenaphthylene | -- | -- | X | >BTV and missing E SLs |
| Anthracene | -- | -- | -- | -- |
| Benzo(a)anthracene | X | ND & LOQ>HA SL | -- | -- |
| Benzo(a)pyrene | X | ND & LOQ>HA SL | -- | -- |
| Dibenz(a,h)anthracene | X | ND & LOQ>HA SL | -- | -- |
| Phenanthrene | -- | -- | X | >BTV and missing E SLs |
| **PCBs** | | | | |
| PCB-1016 (Aroclor 1016) | NA | -- | X | ND & LOQ>E SL |
| PCB-1221 (Aroclor 1221) | NA | -- | X | ND & LOQ>E SL |
| PCB-1232 (Aroclor 1232) | NA | -- | X | ND & LOQ>E SL |
| PCB-1242 (Aroclor 1242) | NA | -- | X | ND & LOQ>E SL |
| PCB-1248 (Aroclor 1248) | NA | -- | X | ND & LOQ>E SL |
| PCB-1254 (Aroclor 1254) | NA | -- | X | ND & LOQ>E SL |
| PCB-1260 (Aroclor 1260) | NA | -- | X | >E SL |
| PCB-1262 (Aroclor 1262) | NA | -- | X | ND & LOQ>E SL |
| PCB-1268 (Aroclor 1268) | NA | -- | X | ND & LOQ>E SL |
| **Metals** | | | | |
| Aluminum | -- | -- | X | >BTV and H SL |
| Antimony | X | ND & LOQ>HA SL | X | >BTV and missing E SL |
| Arsenic | X | >BTV and H SL | H | >BTV and H SL |
| Beryllium | -- | -- | X | >BTV and missing E SL |
| Cadmium | X | ND & LOQ>HA SL | X | >BTV and E SL |
| Chromium | -- | -- | X | >BTV and E SL |
| Cobalt | X | >H SL | X | >BTV and H, E SL |
| Copper | -- | -- | X | >BTV and E SL |
| Iron | -- | -- | X | >BTV and H SL |
| Lead | -- | -- | X | >BTV and E SL |
| Manganese | X | >H SL | X | >BTV and H, E SL |

| AOC 5 – Electrical Substation | | | | |
|---|---|---|---|---|
| COPC/COPECs | Groundwater | | Soil | |
| | COPC | Rationale for Inclusion | COPC/ COPEC | Rationale for Inclusion |
| Mercury | X | ND & LOQ>HA SL | X | >BTV and E SL |
| Nickel | X | >BTV and HA SL | -- | -- |
| Selenium | X | ND & LOQ>HA SL | X | >BTV and E SL |
| Silver | X | ND & LOQ>HA SL | -- | -- |
| Thallium | X | ND & LOQ>HA SL | X | >BTV and E SL |
| Vanadium | X | ND & LOQ>HA SL | X | >BTV and missing E SL |
| Zinc | -- | -- | X | >BTV and E SL |

Notes:
*Anilines were not detected but the LOQs were greater than the SLs. There was potential historical evidence that these constituents were associated with AOC 5. Anilines are components of pigments and dyes and were associated with AOC 5 solely because of the potential for paint cans to have been disposed of in the Possible Dump Area. Therefore, anilines are not considered COPCs or COPECs for the Electrical Substation.
"--" = No.
BTV = Background threshold value.
E = based on ecological receptor(s).
H = based on human health.
HA = all LOQs > human health screening level.
LOD = limit of detection.
LOQ = limit of quantitation.
ND = non-detected result, typically reported at the LOD.
SL = Screening level.
X = Yes.

There is no evidence of subsurface disposal activities in the Possible Dump area and concentrations are not indicative of DoD-related disposal activities (refer to **Appendix A**). Therefore, additional sampling in the Possible Dump Area was not recommended in the Data Gap Evaluation. However, given the elevated PCB detection limits, additional data is needed to confirm/deny Phase 1 results and identified COPCs/COPECs for the Possible Dump Area, as presented in the table below, to indicate which analytes will be carried through to the risk assessments.

### Exhibit 10-8 – Phase 1 RI (2021) AOC 5 Possible Dump Area Summary

| AOC 5 – Possible Dump Area | | | | |
|---|---|---|---|---|
| COPC/COPECs | Groundwater | | Soil | |
| | COPC | Rationale for Inclusion | COPC/ COPEC | Rationale for Inclusion |
| **VOCs** | | | | |
| 1,2,3-Trichlorobenzene | X | > H SL | -- | -- |
| Acetone | -- | -- | X | >E SL |
| Benzene | X | ND & LOQ> HA SL | -- | -- |
| **SVOCs** | | | | |
| 2-Nitroaniline | X | ND & LOQ> HA SL | X | ND & LOQ> E SL |
| 3-Nitroaniline | X | ND & LOQ>HA SL | X | ND & LOQ>E SL |
| 4-Chloroaniline | X | ND & LOQ>HA SL | -- | -- |
| 4-Nitroaniline | X | ND & LOQ> HA SL | X | ND & LOQ> E SL |
| Benzaldehyde | -- | -- | X | >E SL |
| Dibenzofuran | X | ND & LOQ>HA SL | X | >E SL |
| Di-n-butyl phthalate | -- | -- | X | >E SL |
| **PAHs** | | | | |
| Acenaphthene | -- | -- | X | >BTV and missing E SLs |
| Benzo(a)pyrene | X | ND & LOQ>HA SL | -- | -- |

| AOC 5 – Possible Dump Area | | | | |
|---|---|---|---|---|
| COPC/COPECs | Groundwater | | Soil | |
| | COPC | Rationale for Inclusion | COPC/ COPEC | Rationale for Inclusion |
| Dibenz(a,h)anthracene | X | ND & LOQ>HA SL | -- | -- |
| Phenanthrene | -- | -- | X | >BTV and missing E SLs |
| **PCBs** | | | | |
| PCB-1016 (Aroclor 1016) | X | ND & LOQ>HA SL | X | ND & LOQ>E SL |
| PCB-1221 (Aroclor 1221) | X | ND & LOQ>HA SL | X | ND & LOQ>E SL |
| PCB-1232 (Aroclor 1232) | X | ND & LOQ>HA SL | X | ND & LOQ>E SL |
| PCB-1242 (Aroclor 1242) | X | ND & LOQ>HA SL | X | ND & LOQ>E SL |
| PCB-1248 (Aroclor 1248) | X | ND & LOQ>HA SL | X | ND & LOQ>E SL |
| PCB-1254 (Aroclor 1254) | X | ND & LOQ>HA SL | X | ND & LOQ>E SL |
| PCB-1260 (Aroclor 1260) | X | ND & LOQ>HA SL | X | ND & LOQ>E SL |
| PCB-1262 (Aroclor 1262) | X | ND & LOQ>HA SL | X | ND & LOQ>E SL |
| PCB-1268 (Aroclor 1268) | X | ND & LOQ>HA SL | X | ND & LOQ>E SL |
| **Metals** | | | | |
| Aluminum | -- | -- | X | >BTV and H SL |
| Antimony | X | ND & LOQ>HA SL | X | >BTV and E SL |
| Arsenic | X | >BTV and H SL | X | >BTV and H, E SL |
| Beryllium | -- | -- | X | >BTV and missing E SL |
| Cadmium | X | ND & LOQ>HA SL | X | >BTV and H, E SL |
| Chromium | -- | -- | X | >BTV and E SL |
| Cobalt | X | >H SL | X | >BTV and H, E SL |
| Copper | -- | -- | X | >BTV and E SL |
| Lead | -- | -- | X | >BTV and E SL |
| Manganese | X | >H SL | X | >BTV and H, E SL |
| Mercury | X | ND & LOQ>HA SL | X | >BTV and E SL |
| Nickel | X | >BTV and H SL | -- | -- |
| Selenium | X | ND & LOQ>HA SL | X | >BTV and E SL |
| Silver | X | ND & LOQ>HA SL | X | >BTV and missing E SL |
| Thallium | X | ND & LOQ>HA SL | X | >BTV and H, E SL |
| Vanadium | X | ND & LOQ>HA SL | X | >BTV and missing E SL |
| Zinc | -- | -- | X | >BTV and E SL |

Notes:
"--" = No.
BTV = Background threshold value.
E = based on ecological receptor(s).
H = based on human health.
HA = all LOQs > human health screening level.
LOD = limit of detection.
LOQ = limit of quantitation.
ND = non-detected result, typically reported at the LOD.
SL = Screening level.
X = Yes.

## 10.3 Physical Characteristics

The Site is in the southeastern portion of the Erie-Ontario Lowlands Physiographic Province where several episodes of glacial ice advance and recession have resulted in rolling topography dominated by the deposition of drumlin hills, flanked by flat-lying glacial lake plain deposits. Elevation at the Site ranges from approximately 400 ft near AOC 3 and AOC 4 to approximately 500 ft above mean sea level on the drumlin hill adjacent to AOC 1 (M&E, 1990).

### 10.3.1 Meteorology

Based on data for Syracuse Hancock International Airport, NY, the area receives approximately 38.5 inches of annual precipitation. The hottest month is historically July, with an average high temperature of 81.6 Degrees Fahrenheit (°F), while its coldest month is historically January with an average high temperature of 31.5 °F (National Oceanic and Atmospheric Administration [NOAA], 2017).

### 10.3.2 Surface Water Drainage

The Seneca River flows south of the Site, meandering from west to southeast of Baldwinsville, then turns north, where it joins the Oneida River to form the Oswego River northeast of the Site. From there, the Oswego River flows north-northwest and drains into Lake Ontario (refer to **Figure 10-1**). The Site lies entirely within the Oswego River drainage basin. It is expected that approximately half of the annual precipitation becomes surface water runoff (D&M, 1981). Small swampy areas are abundant at the Site due to the relatively flat-lying topography and poor drainage resulting from the former lakebed deposits. The glacial lake plains in the area are drained primarily by small streamlets which flow in a general northeasterly direction towards the Oswego River and eventually into Lake Ontario. Surface drainage is also influenced by local topography.

Surface drainage at the Former Ammonium Picrate Area (AOC 1) consists of former wastewater ditches that ran from the northeastern side of the Ammonium Picrate Area. These ditches joined northeast of the Former Acid Area and flowed northward to the Oswego River (refer to **Figure 10-2**). A second former wastewater ditch originated in the Administration Area and flowed to the north and discharged into a low area east of the present-day Willette Parkway (D&M, 1981).

At the Former Landfill Area (AOC 3) there are surficial drainage features just north of the parking lot, with one (1) draining to the west, and the other to the northeast, with intervening high ground between them (refer to **Figure 10-4**).

At the Former Bunker Area (AOC 4), inside each bunker there are two (2) interior drains that run the length of the bunker and discharge to the exterior of either side of the front of the bunker. Drainage swales run parallel along the length of West and East Igloo Roads.

At the Former Power Plant Area (AOC 5), drainage ditches to the east and southwest of the AOC were identified by AGC (2019).

### 10.3.3 Geology

The Site is located within the southeastern portion of the Erie-Ontario Lowland Physiographic Province, which is characterized by the gentle topography of a Pleistocene-age lakebed punctuated by northwest-southeast trending drumlins (M&E, 1990), reflecting the direction of ice movement. Relief in the region is not controlled by bedrock but by the Pleistocene-age glacial deposition.

#### 10.3.3.1 Surface Geology

Surface geology (overburden) at the site is of glacial origin and consists of three (3) distinct types of depositional environments. Identifying these depositional environments is important as each has distinct physical properties that affect groundwater flow. The depositional environments include 1) an offshore lacustrine environment containing silt and clay; 2) a near-shore lacustrine environment containing stratified silt, sand and gravel, and 3) a drumlin that contains till consisting of unsorted clay, silt, sand, gravel and boulders. A drumlin is an elongated oval-shaped hill that is formed beneath a glacier parallel to the direction of glacial movement (i.e., southwest to northeast at the site). Drumlins typically contain long axial sides with relatively steep slopes compared to surrounding topography and an up-gradient (i.e., northeast at the site) stoss face that is typically steeper than the down-gradient lee face (i.e., southwest at the site). Generally, AOC 3, AOC 4, and AOC 5 are underlain by lacustrine deposits and the AOC 1 contains the drumlin underlain by near-shore lacustrine deposits along its northeast and southeast flanks. The drumlin in AOC 1 is a significant geological feature as its topography has a strong local modifying effect on overburden groundwater flow.

The Phase 1 RI refined the distribution of the three (3) surface geologic units previously mapped by Pair (2014) (i.e., silt and clay [Psc], stratified silt, sand and gravel [Ps], and till/diamicton [Pd]) based on the logging of site and background soil borings advanced during the Phase 1 field investigation (USACE, 2023a). As discussed in the UFP-QAPP (USACE, 2020), surface geology was more broadly mapped by Muller and Cadwell in 1986 and by Pair in 2014. While the exact level of effort applied in developing this previous mapping is not fully understood, it is assumed to be of a smaller scale as compared with USACE's site-specific investigation. Of these two (2) available resources, the Pair (2014) mapping was selected as the basis for refining surface geology because it more accurately aligns with known landforms and more precisely defines the extent of various surface geologic units (USACE, 2020). USACE's evaluation and refinement of surface geologic distribution was informed by field observations for soil structure and gradation, photographs of the associated soil samples, and laboratory gradation test results. In instances where multiple soil types were observed in the vertical profile, the uppermost soil type identified beyond the 0 to 1 ft bgs depth interval was used for classification and mapping purposes.

A summary of the inferred distribution of site surface geology as compared to the historical interpretation (Pair, 2014) of surface geology is presented on **Figure 10-8**. The inferred distribution of the site geology was based on the 161 site soil borings and 45 background soil borings collected from Phase 1. The location of where these borings are, along with inferred surface geology by AOC, are presented on **Figures 10-9** through **10-12**. The surface geologic unit Hw (wetland deposit) can be seen on some of the figures; however, this unit was identified by Pair (2014) adjacent to but not within AOC boundaries. The figures also show that fill was encountered in ten (10) of the 161 site soil borings and two of the 45 background soil borings. Also shown on the figures, there are 19 soil borings advanced along the toe of the drumlin in AOC 1 that were sampled from the 0 to 1 ft bgs depth interval only and are therefore classified as topsoil. It is noted that fill material observed in the upper 3 to 6 ft of the AOC 1, AOC 5, and background borings appears to be indicative of localized backfilling or grading activities, as opposed to landfilling or dumping activities.

The following observations were made regarding AOC 1 surface geology:

- The previously mapped Psc and Pd units along the northeastern boundary were determined to consist of Ps soils.
- The previously mapped Ps unit along the toe of the drumlin was classified as topsoil because the Phase 1 investigation in this area was limited to hand-augured borings to a depth of 1 ft bgs. Pockets of Pd and Ps soils were also observed in this area.
- The previously mapped Pd unit along the top of the drumlin was confirmed to consist of Pd soils.

Regarding AOC 3 surface geology, the previously mapped Psc unit was confirmed to consist of Psc soils.

Regarding AOC 4 surface geology, the previously mapped Psc unit was confirmed to predominantly consist of Psc soils, except for pockets of Ps soils along the northeastern and southeastern boundaries.

Regarding AOC 5 surface geology, the previously mapped Pd and Psc units in the eastern and western portions of the AOC, respectively, were determined to consist of a mix of Psc and Ps soils, as well as fill that is indicative of localized backfilling or grading activities.

The following observations were made regarding surface geology in the background areas located southwest of AOC 1 and northwest of AOC 5:

- The previously mapped Psc unit was determined to consist of both Psc and Ps soils.
- The previously mapped Ps unit was confirmed to predominantly consist of Ps soils, except for the former borrow pit area located southwest of AOC 1. The former borrow pit area was classified as fill based on field observations of recent backfilling activities in that area.
- The previously mapped Pd unit was confirmed to predominantly consist of Pd soils, except for pockets of Ps soils, Psc soils, and fill in the northern and southern extents. The fill observed in these areas is indicative of localized backfilling or grading activities.

USACE's field observations generally confirmed the previous understanding of site geology and depositional history at the Site. The distribution of the three known surface geologic units (i.e., Psc, Ps, and

Pd) were refined by this investigation but generally aligned with previous mapping from Pair (2014). Surface geology at the Site is controlled by glacial deposition and marked by a higher relief drumlin hill spanning the southwestern edge of AOC 1, the eastern edge of the background area, and the northeast edge of AOC 5. The drumlin hill is composed of poorly sorted diamicton (till) reflective of direct glacial deposition (i.e., Pd unit) and is flanked by coarser water-worked deposits of well-sorted sand and gravel (i.e., Ps unit) present in the northeastern edge of AOC 1 and the center of the background area. As previously mapped by Pair (2014), lacustrine beach deposits composed of finer-grained, water-worked deposits of well-sorted silt and clay (i.e., Psc unit) are predominant within AOCs 3, 4, and 5 and along the western edge of the background area.

These observations indicate a data gap for surface geology along the toe of the drumlin in AOC 1. This area should be investigated further to better understand soil types beyond the 0 to 1 ft bgs depth interval.

#### 10.3.3.2 Bedrock

Bedrock geology (**Figure 10-13**) beneath the Pleistocene-age deposits consists of sedimentary rock units of the Mid to Upper Silurian-age Clinton, Lockport, and Salina Groups. It should be noted that the stratigraphic nomenclature assigned to various units in this region of New York has been modified over the last 60 years. The most current stratigraphy mapped beneath the Site and surrounding area includes the Upper Silurian Vernon Shale overlying the Mid-Silurian Sconondoa Formation of the Lockport Group. To the north of the Site, the Rochester Shale member of the Clinton Group is mapped, which is characterized as interbedded calcareous gray shales and thin limestone beds. The Rochester Shale is the oldest of the three (3) units mapped in **Figure 10-13**.

The Guelph Dolostone belongs to the Lockport Group and is characterized as an alternating light and dark gray, bituminous and irregularly bedded dolomite with stromatolite reef bioherms at the base of the member. To the northwest near Ontario, Canada, the Guelph unit ranges from 200 to 300 feet in thickness; however, the unit thins substantially to the southeast, and appears regionally as just a thin wedge of rock (Tepper et al., 1990).

The Vernon Shale belongs to the Salina Group (Schneider, 1894) and is comprised of red and gray shales with dolomitic beds (Rickard, 1969). The Vernon Shale lies conformably over the Guelph Dolostone, and the transition between the units is marked by light bluish gray wackestone to claystone, with evaporites and vertical burrows.

The Sconondoa Formation (also part of the Lockport Group) is mapped to the south of the Site, and is described as a fine-grained, medium-bedded and fractured limestone, with interbedded shale limestone and coarse- grained dolomite (Zenger, 1965). Thicknesses of the Sconondoa Formation vary but may be as great as 150 ft. Bedrock dips gently southward and no faults or folds have been detected in the overlying Vernon Shale (Chute, 1964). Based on the morphology of the Seneca River, which flows east and south of the Site, there may be northwest-southeast and northeast-southwest trending joints in the Vernon Shale. The Sconondoa has two (2) primary sets of joints, one (1) north-south and one (1) east-west (Chute, 1964). Also within the Sconondoa Formation are thrust faults that strike North 65 to 75 degrees west and dip to the south (Chute, 1964); however, there is no surface expression of these faults in the overlying Vernon Shale. The gentle southward dip of the rock units and jointing in the Vernon Shale may influence the direction of groundwater flow, and subsequently, the direction and rate of migration of potential DoD-impacts from possible source areas. The fracture trends observed in the Sconondoa Formation may be indicative of regional trends, and continue into the formations to the north.

Identification/confirmation of bedrock was not part of the Phase 1 RI (USACE, 2021/2022) nor is it part of the Phase 2 investigation. During Phase 1, a DPT rig was used to advance soil borings and temporary wells across the various AOCs. In some cases, refusal depths were recorded on soil boring logs (USACE, 2021/2022). While it is possible that DPT refusal can provide additional insight into bedrock depth and elevation, caution needs to be employed as DPT drilling methodology has depth limitations. In terms of DPT refusal, refusal can be due to limitations of percussion advancement due to a various number of subsurface conditions (i.e., boulder refusal, running sands, till) encountered.

Therefore, the following paragraphs discuss refusal depths and elevations encountered during the Phase 1 RI and are not intended to describe depth to bedrock.

In AOC 1, a distinction can be made between investigations conducted along the top of the drumlin and the bottom of the drumlin. Along the top of the drumlin, refusal depth ranged from 7 to 18.7 ft bgs (average 12.84 ft bgs), and refusal elevation ranged from 426.33 to 489.23 ft above mean sea level (AMSL) (average 450.83 ft AMSL). Along the bottom of the drumlin, refusal depth ranged from 9.1 to 16 ft bgs (average 14.51 ft bgs), and refusal elevation ranged from 412.59 to 423.47 ft AMSL (average 418.77 ft AMSL). Investigations conducted prior to the USACE Phase 1 investigation indicated refusal, presumably due to bedrock, at a maximum depth of 51 ft bgs along the bottom of the drumlin (USACE, 2020). This varies significantly from the Phase 1 investigation findings; however, many of the Phase 1 borings at the bottom of the drumlin where advanced along the northeastern boundary of the AOC, as opposed to the toe of the drumlin located approximately 500 ft to the southwest. Phase 1 investigations along the toe of the drumlin were limited to hand-augured borings to a depth of 1 ft bgs because the area could not be accessed with the drill rig due to site condition limitations. The lack of direct-push borings closer to the toe of the drumlin is a data gap.

In AOC 3, refusal depth ranged from 6 to 18.9 ft bgs (average 12.96 ft bgs), and refusal elevation ranged from 384.10 to 394 ft AMSL (average 389.4 ft AMSL). These observations correspond with investigations conducted prior to the Phase 1 investigation, which indicated bedrock at depths of approximately 15 ft bgs and elevations ranging from 385 to 389 ft AMSL (USACE, 2020).

In AOC 4, refusal depth ranged from 10.5 to 20.5 ft bgs (average 15.49 ft bgs), and refusal elevation ranged from 389.54 to 415.64 ft AMSL (average 402.94 ft AMSL). Investigations conducted prior to the Phase 1 investigation indicated that bedrock was encountered at a depth of 9 ft bgs and an elevation of approximately 400 ft AMSL at a well location about halfway between AOC 3 and AOC 4 (USACE, 2020). The Phase 1 investigation indicates that both the depth to bedrock and bedrock elevation increase moving west-northwest from AOC 3 to AOC 4.

In AOC 5, refusal depth ranged from 19 to 29 ft bgs (average 23.39 ft bgs), and refusal elevation ranged from 420.22 to 437.07 ft AMSL (average 426.14 ft AMSL). No boreholes had been completed in AOC 5 under previous investigations for comparison with these observations (USACE, 2020). The Phase 1 investigation indicates that although the depth to bedrock increases, the bedrock elevation decreases moving south from the top of the AOC 1 drumlin to AOC 5.

USACE's field observations confirmed the previous understanding that surface relief at the Site is not controlled by bedrock but by glacial deposition, as discussed in the UFP-QAPP (USACE, 2020). This is evident in variations between the surface elevation and bedrock depth observed throughout the Site. It is possible that many of the refusal depths observed during the Phase 1 investigation are attributable to till or saprolite (weathered shale) as opposed to competent bedrock. Bedrock composition below refusal could not be fully characterized during the Phase 1 investigation (USACE, 2023a).

### 10.3.4 Hydrogeology

Regional groundwater flow is toward surface water bodies (Pagano, et al., 1985), and the major river drainages in the area, toward the Seneca River to the south and the Oswego River to the north (refer to **Figures 10-1** and **10-2**). Groundwater at the AOCs generally flows northeast toward the Seneca and Oswego Rivers. However, groundwater also tends to mimic the land surface and thus influenced by local topography. Therefore, shallow groundwater locally may be controlled by nearby surface water features. Deep groundwater will be consistent with regional flow toward the rivers, ultimately draining northward to Lake Ontario.

The shallow groundwater elevations and contours observed during the Phase 1 investigation are shown on **Figures 10-14–10-18**. The groundwater contours shown on these figures were developed using water level data from the temporary site and background monitoring wells installed throughout the site.

In AOC 1, a distinction can be made between the wells installed along the top of the drumlin and those installed along the bottom of the drumlin. Along the top of the drumlin, the depth to groundwater ranged from 1.38 to 7.07 ft bgs (average 3.19 ft bgs), and the groundwater elevation ranged from 441.64 to 475.2 ft AMSL (average 452.10 ft AMSL). Along the bottom of the drumlin, the depth to groundwater ranged from 0.89 to 9.06 ft bgs (average 3.77 ft bgs), and the groundwater elevation ranged from 426.14 to 452.82 ft AMSL (average 434.2 ft AMSL). The general direction of groundwater flow in AOC 1 is northeast; however,

background wells located to the southwest of AOC 1 demonstrate flow to the southwest and potentially south of the drumlin ridge that controls the direction of shallow groundwater flow in this area.

In AOC 3, the depth to groundwater ranged from 1.92 to 10.44 ft bgs (average 6.93 ft bgs), and the groundwater elevation ranged from 393.4 to 400.87 ft AMSL (average 396.02 ft AMSL). The general direction of groundwater flow in AOC 3 is northeast. There is an unnamed creek that is located approximately 100 feet north of the edge of the parking lot (former Landfill) in AOC 3. It is currently unknown if this stream is a losing stream, gaining stream, or both on a seasonal basis (i.e., intermittent). The Phase 2 proposed investigations (e.g., sampling, stream flow measurements) provided in this UFP-QAPP (Worksheet #14.2.8 through 14.2.10 and Worksheet #17.2.3 through 17.2.6) will help determine if this stream is perennial (and therefore receiving site shallow groundwater) and help determine whether the groundwater-to-surface water pathway is complete at AOC 3. Perennial streams have not been identified within the EU/DUs of the remaining AOCs. However, the stream to be sampled as part of the background investigation, and west of AOC 3, is potentially perennial. The background stream will also be investigated (refer to Worksheet #17.5.3, 17.5.4, and 17.5.5).

In AOC 4, the depth to groundwater ranged from 0.53 to 4.75 ft bgs (average 2.63 ft bgs), and the groundwater elevation ranged from 406.3 to 423.89 ft AMSL (average 415.79 ft AMSL). The general direction of groundwater flow in AOC 4 is northeast.

In AOC 5, the depth to groundwater ranged from 0.72 to 12.03 ft bgs (average 4.77 ft bgs), and the groundwater elevation ranged from 438.96 to 451.16 ft AMSL (average 443.56 ft AMSL). The general direction of groundwater flow in AOC 5 is west-southwest.

The Phase 1 observations confirmed the previous understanding that shallow groundwater at the site mimics the land surface and is influenced by local topography, as discussed in the UFP-QAPP (USACE, 2020). The Phase 1 observations demonstrate that the direction of shallow groundwater flow in AOC 1, AOC 3, and AOC 4 is generally northeast toward the Oswego River. The exceptions are the background areas southwest of the AOC 1 drumlin where flow is to the southwest and in AOC 5 where flow is to the west-southwest; both areas flow toward wetlands located west of the site and indicate that shallow groundwater flow is controlled by nearby surface water features, as discussed in the UFP-QAPP (USACE, 2020).

Groundwater is also likely to be present within the relatively thin bedding planes and fractures of the Vernon Shale which may contain significant secondary porosity. Water yield within the bedrock is primarily a function of the interconnection of secondary porosity. This interconnection can be influenced by infilling within the bedding planes, thereby reducing yield or by dissolution of minerals from the bedding planes, allowing for higher yield. The dissolution of dolomitic layers present in the Vernon Shale would facilitate increased groundwater flow through the aquifer. Kantrowitz (1964) found that the Vernon Shale yields as much as 230 gallons per minute where dissolution of the interbedded dolomite has occurred. However, the average yield from this formation is 15 to 20 gallons per minute. The Lockport Formation is expected to be especially susceptible to dissolution by percolating groundwater because it consists primarily of fractured limestone and dolomite. LaSala (1968) has found wells in the Lockport to yield up to 100 gallons per minute. No site monitoring wells are screened in bedrock.

M&E (1990) calculated hydraulic conductivities at the Former Ammonium Picrate Area, and the Former Landfill Area. The calculated hydraulic conductivities of the deposits in the Former Landfill Area were generally higher by one (1) or two (2) orders of magnitude than the deposits in the Former Ammonium Picrate Area. The higher hydraulic conductivity in the Former Landfill Area [0.4 to 4 feet per day (ft/day)] may be attributed to the fact that the lacustrine deposits, while fine-grained (silt and clay), were not overridden by glacial ice. The Former Ammonium Picrate Area was composed of less permeable and more poorly sorted subsurface deposits, further compacted at the base of the ice sheet, and thus has lower hydraulic conductivities (0.004 to 0.024 ft/day) (M&E, 1990). The stratified silt, sand and gravel deposits flanking the drumlin would be expected to have even higher hydraulic conductivity, but there are no monitoring wells or conductivity data available for this unit. Note, the testing method for determining hydraulic conductivity during M&E (1990) is not known. However, new hydraulic conductivity values will be estimated as part of the Phase 2 investigation (refer to Worksheet #14.2.7.1).

### 10.3.5 Sources of Drinking Water

Potable water is supplied to communities in Onondaga County by the Onondaga County Water Authority, which draws water from several sources, including Otisco Lake, Lake Ontario, and/or Skaneateles Lake. For the Lysander-Baldwinsville area (including the Radisson Community and Golf Course), potable water is obtained from Otisco Lake and Lake Ontario and then treated and distributed to the community (Onondaga County Water Authority, 2019). Site impacts on these surface water sources are unlikely given that regional groundwater flow is to the north and given the distance from the Site. Otisco Lake is located about 20 miles south of the Site, far upgradient of the Site. Lake Ontario is about 20 miles northwest of the Site, far downgradient of the Site.

A water well services the NYSDEC field office at the Three Rivers Wildlife Management Area in AOC 4. Some residences in the surrounding area may have private supply wells. In 2007, NYSDOH was contacted by USACE to identify wells and water supply systems within a 4-mile radius of the Site. NYSDOH provided general information on the surrounding wells and source water assessment areas but was unable to provide specific information due to confidentiality protocols (Alion, 2008).

As presented in the RI Phase 1 Field Report – AOCs 1,3, 4 ISM, and Background (USACE, 2022), USACE conducted a potable well survey in September 2021 to identify active public and/or private domestic wells located within a 2-mile radius of the Site for the purpose of evaluating potential impacts from any off-site migration of DoD-related contaminants. The survey included a desktop component, in addition to a windshield survey.

The desktop component identified 471 parcels with a private water supply, such as a well, according to the Onondaga and Oswego Counties' 2020 Assessment Roll (331 in Onondaga County and 140 in Oswego County). The desktop component also identified 83 water well locations according to NYSDEC Water Well Completion Reports. These parcels and water well locations are shown on **Figure 10-19**.

During the windshield survey, USACE attempted to view, from public roadways, each parcel with private water supply (471) and each NYSDEC well location (83) within the 2-mile site boundary radius. A total of 118 potential wells at 115 parcels were identified (USACE, 2022).

In summary, the potable well survey identified a total of 554 potential well locations including 471 parcels with private water supply and 83 NYSDEC water wells within the 2-mile survey.

### 10.3.6 Terrestrial Habitat

General descriptions of the terrestrial habitat of each AOC are noted below. Potential ecological receptors are discussed in Section 10.5.2.

**AOC 1 – Former Ammonium Picrate Area**

The majority of the Ammonium Picrate Area terrestrial habitat is primarily northern deciduous forest, with predominately forested wetlands, in between the ammonium picrate buildings and dryer houses, with some areas of grassy fields. The Ammonium Picrate Area has maintained trails and recreational grassy areas interspersed throughout the Site.

**AOC 3 – Former Landfill Area**

The Former Landfill Area is covered by a blacktop parking lot. The areas south and east of the landfill are dominated by residential properties and west of the landfill is additional blacktop parking and commercial properties associated with the Radisson Greens Golf Course. North of the former landfill is a mature deciduous forest (roughly 200 ft wide) that continues to the northeast and borders one of the golf course fairways.

**AOC 4 – Former Bunker Area**

The bunkers are covered with grass and at most places are periodically managed to discourage the rooting of trees and shrubs on top of the bunkers. Across the road from the bunkers, a heavily vegetated drainage ditch runs parallel to the road in front of each bunker. The terrestrial habitat bordering Igloo Road and associated bunkers consists primarily of grassy fields and northern deciduous forest. The following provides a brief description of the primary terrestrial habitat location within the Bunker Area.

Grass Fields – Located predominantly along the northern portion of the Bunker Area although smaller grass field patches occur around each of the bunkers. The extent of grass maintenance around the bunkers is limited.

Woodlands – Eastern deciduous forest borders the Bunker area to the north and east; second growth forest of similar composition is located between the two bunker rows except at the northern end. The southeastern Site border is a mix of maintained grassy areas and deciduous forest.

**AOC 5 – Former Power Plant Area**

Areas within AOC 5 appear to have been filled to raise contour elevations to support infrastructure and facilitate the power plant operation. The former power plant footprint includes a grass/lawn swath which transitions into a fairly dense growth of colonizing early successional shrub and tree species. There is a forested wetland area to the west of the fill footprint that appears to have had minimal direct disturbance other than past efforts to enhance drainage with shallow open ditches.

## 10.3.7 Land Use and Demography

NYOW is currently occupied by the Three Rivers WMA and the Radisson Community with its associated industrial properties (**Figure 10-7**).

The Three Rivers WMA is situated on the northern portion of the Former NYOW property and was acquired from the US Government when the property was transferred in 1947. It was named for its proximity to the junction of the Seneca and Oneida Rivers, which form the Oswego River. The WMA is flat and poorly drained, with fields, woods, ponds, and marshes. It is used primarily for recreational use - hunting, fishing, hiking, and bird watching. Future use is expected to remain the same as current use.

The Radisson Community is a planned development community that provides approximately 3,500 homes, as well as a large Corporate Park and a wide range of recreational, educational, cultural, shopping, and community services. The area is served by underground water, sewage, gas, and telephone utilities. The Radisson Corporate Park provides building sites for industry and offices. To date, 40 firms employing 2,500 people have located in the park. These firms produce products as diverse as beer, plastic containers, printing, and electronic components. The Seneca River borders the community on the east, Three Rivers WMA borders the community on the north and west, and New York State Route 31 borders the area on the south (Radisson, 2017). The Radisson Community actively uses much of the property and some apartment buildings and residences in the Radisson Community appear to be constructed on or around the sites of former dryer houses, change houses, and other historical site features. In addition, paved walking paths and grassy areas wind between homes and wooded areas containing the old loading ramps, storage bunkers, and loading dock structures. Old concrete structures in disrepair exist in wooded areas of varying density. Current use of potentially impacted areas is limited to recreational use. Future use is expected to remain the same as current use.

## 10.3.8 Wetlands and Aquatic Resources

A wetland delineation and vernal pool survey was performed at AOCs 1, 3, and 5 in 2020. The results of these field investigations are presented in the Wetland Delineation and Vernal Pool Survey Report (USACE, 2020). Note that the following findings made in consideration of the Clean Water Act policy at that time of the survey and any impacts on revised rules/regulations should be evaluated during Phase 2. No formal wetland delineation was performed for AOC 4.

There are several forested wetland areas scattered throughout AOC 1, with the majority located in the lower elevation areas adjacent to residential properties. In total, 17.33 acres of Palustrine Forested Wetland (PFO) were identified across four areas. The largest wetland area (Wetland 1C, 10.81 acres) was identified along the northeast basal plain, with pockets of upland hills, between former Dryer Houses 29 and 31. Wetland 1B was identified along the southern portion of the basal plain, between former Dryer Houses 27 and 28. The remaining two wetlands were delineated along the second terrace (USACE, 2020).

In total, 0.26 acres of PFO/Palustrine Emergent Wetland (PEM) were identified within AOC 3, just north of the parking lot along the stream's floodplain. The only wetland areas associated with AOC 3 are associated with the unnamed stream and the northern stream bank.

Roughly 50% (the whole western side) of AOC 5 consists of a forested wetland habitat (USACE, 2020). Similar to AOC 1, AOC 5 has highly mosaic microtopography throughout and an extensive network of drainage ditches from its previous land use. Therefore, wetland boundaries had to be averaged to mappable lines. This means in some areas there are many small wetland depressions and upland mounds on both sides of the boundary. The western portion of AOC 5 was confirmed to have 3.35 acres of PFO wetlands, which likely extends westward beyond the AOC boundary (USACE, 2020).

Based on the results of the wetland delineation efforts and vernal pool assessments, approximately 20.44 wetland acres were delineated across the AOCs 1, 3, and 5. Based on the observations of the field teams, vernal pool resources do not warrant additional consideration as unique or exceptional resources. However, the pools were all found to occur within, or to have nexus to, areas that are probable Jurisdictional Wetlands as defined and regulated by USACE under the Clean Water Act.

NYSDEC regulates wetlands that are 12.4 acres (5 hectares) or larger. The NYSDEC Freshwater Wetlands Act protects wetlands smaller than this if they are considered of unusual local importance. None of the wetlands delineated at the NYOW AOCs are larger than 12.4 acres; none are identified as part of a state-mapped New York State freshwater wetland; and none contain features of unusual local importance.

According to the National Wetlands Inventory Map, managed by the United States Fish and Wildlife Service (USFWS), (USACE, 2020), there is a small PEM in the southwestern portion on the Site and two small, PFOs adjacent to western AOC 4 boundary. There are also several larger PFO and PEM areas west of AOC 4 and numerous smaller PFO wetlands south and east of AOC 4.

The National Wetlands Inventory Map also shows several freshwater forested/shrub wetland and freshwater emergent wetland areas in the western portion of the Site (primarily in the undeveloped areas of Three Rivers WMA). The freshwater forested/shrub wetland category consists of woody wetlands, forested swamp, or shrub bogs. Freshwater emergent wetlands are described as herbaceous marsh, fen, swale, and wet meadow (USFWS, 2018). There are also several state-regulated freshwater wetland areas within the site that do not necessarily directly coincide with the National Wetlands Inventory Map (the NYSDEC Environmental Resource mapper at https://www.dec.ny.gov/animals/38801.html and Wetlands Research Services, 2020). There are several small freshwater ponds located within the Radisson Community.

During a 27 June 2018 site visit, small scrub-shrub and emergent wetland patches were observed adjacent to and southwest of AOC 4 (USACE, 2020).

## 10.4 Constituent Fate and Transport

Potential release mechanisms for the DoD-related chemicals derived from the Phase 1 RI (USACE, 2020) include:

- Primary:
  - Disposal and adsorption resulting from direct releases to the ground (including spills and leaks from tanks), dumping activities, and disturbance during redevelopment and construction activities, burial of landfill wastes, including direct contact between landfill waste and groundwater in AOC 3.
- Secondary:
  - Wind erosion.
  - Infiltration/leaching to subsurface soils and groundwater
  - Runoff/erosion
- Tertiary:
  - Groundwater flow and discharge

The potential release mechanisms, along with any other updates to the CSM, associated with each AOC will be presented in the RI Report after additional site observations have been made during the Phase 2 RI field work, and after review of all of the data has been completed.

### 10.4.1 Constituent Persistence

When released to the environment, metals can be found in soil, sediment, and organic materials due to their inherit properties and interactions with various environmental factors (e.g., pH, oxic versus anoxic subsurface conditions). The process of when metals bind to soil particles, or organic matter is called adsorption. The tendency for metals to adsorb influences the mobility and bioavailability of the metals. Long-term persistence of metals in soil can therefore be a concern.

Picric acid is likely to exist in anion form in the environment; therefore, it is not expected to adsorb strongly to soils containing organic carbon and clay. Picric acid is resistant to aerobic biodegradation but can be degraded via photolysis by sunlight and hydrolysis in water (Hazardous Substances Data Bank [HSDB], 2011b). 2,4-DNP behaves similarly in the environment to picric acid (HSDB, 2011a). In contrast, DNCB has strong adsorption to clay, and adsorbs to suspended solids in water. DNCB is slow to biodegrade in water and soil and slow to volatilize from water but is susceptible to direct photolysis in sunlight (HSDB, 2013).

### 10.4.2 Constituent Migration

The soils at AOCs 1 and 3 have been extensively reworked during the development of the Radisson Community, potentially resulting in redistribution of soil horizons and any DoD-related constituents associated with them.

Due to the chemical properties of the DoD-related chemicals and time elapsed since potential releases of these DoD-related chemicals, dispersion, diffusion, and volatilization would not be considered significant contributors to constituent migration.

Most of the metals observed in the soil at the former NYOW would be bound to soil particles but could migrate via advective transport (bulk movement) or desorption (leaching) with the flow of surface water or groundwater toward adjacent water bodies. Desorption would be dependent on the solubility of the individual chemical and the properties of the soil. Arsenic is more mobile in soil at high pH (HSDB, 2009). In soil, chromium III has low solubility and low mobility (HSDB, 2016a). Lead compounds have limited mobility when released or deposited on soil (HSDB, 2016b).

Whereas there is some conflicting information about solubility of picric acid in water and mobility in soil, most references show that picric acid is highly soluble, on the order of grams per liter (PubChem, 2020; EPA, 2015). HDSB (2018) indicates that picric acid has an estimated carbon-water partition coefficient (Koc) value of 2,250 liters per kilogram (L/kg), which indicates slight mobility in soil. United States Army Center for Health Promotion and Preventive Medicine (USACHPPM, 2005) provides a much lower Koc estimate of 130 L/kg, indicating moderate to high mobility in soil. Based on this information, it will be assumed that picric acid is highly soluble and mobile in soil.

Koc values of 2,4-DNP have been reported as 13.5 L/kg and 16.6 L/kg, which indicates high mobility (HSDB, 2011), and it is highly soluble in water. The Koc of DNCB is estimated at 575 L/kg (HSDB, 2012), indicating moderate mobility. DNCB is very poorly soluble in water.

## 10.5 Potential Receptors and Exposure Pathways

The current and future land uses and ecological settings for the four (4) AOCs are provided below, while the potential human receptors and exposure pathways and ecological receptors and exposure pathways are identified in Sections 10.5.1 and 10.5.2, respectively.

**AOC 1 – Ammonium Picrate Area**

The Ammonium Picrate Area is currently within a primarily residential area of the Radisson Community with some undeveloped land with maintained paved walkways and recreational grassy areas. Paved walking paths and grassy areas wind between homes and wooded areas containing the old loading ramps, storage bunkers, and loading dock structures. Old concrete structures in disrepair exist in wooded areas of varying density. Terrestrial habitats, including maintained grassy areas and woodlands (eastern deciduous forest), are present. Forested wetlands are located within AOC 1. Current residential properties are located within AOC 1 and some apartment buildings and residences in the Radisson Community appear to be constructed on the sites of former dryer houses, change houses, and other historical site features.

**AOC 3 – Former Landfill Area:**

The Former Landfill Area is currently within the Radisson Golf Course property. As discussed in the UFP-QAPP (USACE, 2020), golf courses and recreational use land are shown as commercial land use. Based on historical documentation, the Former Landfill Area is located under and to the north of the current Radisson Golf Course club house parking lot. The geophysical evaluation indicated the former landfill extended further north of the parking lot, between the parking lot and the stream. At the landfill, a grassy strip with light poles extends along the middle and grassy landscaped areas surround the parking lot. The grassy center strip was not evaluated because it is likely reworked and above the landfill cap. The paved parking lot prevents the presence of surficial ecological habitat. As such, surface soils of potential concern are limited to the perimeter of the parking lot. Suitable subsurface soil habitat was found within the 1-5 ft interval beneath those surface soil samples collected around the perimeter of the parking lot. Ecological screenings were conducted using the analytical results of these surface and subsurface soil samples for select terrestrial ecological receptors (USACE, 2023a). Lastly, there is a small stream north of the landfill that may be receiving runoff or groundwater recharge that should be evaluated for impacts to aquatic organisms, thus representing a data gap. The former OSA is located southwest of the landfill area across Potter Road and straddles one of the golf course fairways, with wooded areas to the north and south. The portion of the former OSA that is located on what is the existing fairway was not investigated; however, the portions of the former OSA that are covered by woody vegetation were evaluated for terrestrial ecological receptors. Future use of this area is expected to remain the same as current use.

**AOC 4 – Bunker Area:**

The Bunker Area is currently located within Three Rivers WMA. NYSDEC is using several of the remaining bunkers for equipment and vehicle storage. The terrestrial habitat consists primarily of grassy fields and northern deciduous forest. Several small forested and emergent wetlands are located along the southeastern border of the Bunker Area. There are also walking trails and are available for use by the general public. The Bunker Areas are maintained regularly to limit vegetative overgrowth. Future use of this area is likely to remain wildlife management along with recreational use.

**AOC 5 – Former Power Plant Area:**

The Former Power Plant Area is currently a mostly wooded area west of a residential area. In the area of the former boiler house, a small area (~0.5 acres) of regularly maintained (i.e., mowed) grass is present. Terrestrial habitats, primarily woodlands (eastern deciduous forest), are present. Review of the Radisson Community General Project Plan (1971) and recent amendments through November 2012, indicates potential future use of AOC 5 as commercial/retail. During an inspection of AOC 5 on 02 October 2020, NYSDEC noted stakes, flagging, and survey pins that appeared to have been placed recently. NYSDEC inquired about the survey with Empire State Development (ESD) and ESD informed New York Department of Environmental Conservation that they are considering marketing and selling the area along Willett Parkway (USACE, 2020). No other potential future uses were identified during the Phase 1 investigation. The Town of Lysander Comprehensive Land Use Plan December 2014 draft shows the AOC 5 area on the map depicting Commercial and Industrial Sites. However, AOC 5 is in a district that includes Planned Unit Development, which provides flexibility in land use for a combination of single-family homes, apartments, and higher density condominium/townhouse development.

### 10.5.1 Potential Human Health Receptors and Exposure Routes

Based on Office of Solid Waste and Emergency Response (OSWER) guidance (EPA, OSWER Directive 9355.7, 2010) and DERP-FUDS guidance (DERP management guidance, 4715.20 4.b.(5)(a)3.b), receptors evaluated will be limited to current receptors and those associated with reasonably foreseeable future site uses. In addition, consistent with FUDS policy, use of groundwater for potable or other purposes will be evaluated in certain AOCs because there are no institutional controls or other restrictions on its use. These receptors will be re-visited and further refined in the BHHRA as part of the Phase 2 investigation.

Receptors may be exposed to COPCs either directly, through activities that result in contact with contaminated environmental media (e.g., digging in contaminated soil), or indirectly, because of chemical migration to locations where contact with receptors can occur (e.g., fugitive dust into an office building). An exposure pathway defines the most probable pathway in which a receptor may come into contact with

contaminated media. In order for an exposure pathway to be complete, the following four elements must be present:

(1) a source and mechanism of chemical release.

(2) a retention or transport medium.

(3) a point of contact between the human receptor and the medium.

(4) a route of exposure for the potential human receptor at the contact point.

The exposure pathway must be complete from the source of chemicals in the environment to human receptors in order for chemical intake to occur. If all exposure pathways are incomplete for human receptors, no chemical intake occurs, and no human health effects are associated with site related COPCs.

Each receptor may be evaluated for one or more exposure points and EU, and receptors exposed to soil may be evaluated for exposure to 0-1 ft soils under current conditions, 0-5 ft for excavation activities, or 0-10 ft soils under future conditions assuming regrading and redevelopment of the site. For the risk assessment, the following receptors will be evaluated based on exposure to all media within the EU. Each AOC will be defined as the EU to demonstrate that there are no actionable risks. The biased data, collected from areas of impact or anticipated impact within these AOCs, will be used conservatively to represent high-end exposure estimates. Since many receptors typically have smaller EUs than these AOCs, if the risks are deemed unacceptable, the data will be reassessed to identify if smaller areas with elevated concentrations and more reasonably sized EUs are contributing to the overall actionable risks. If this is the case, the EUs may be redefined to prevent the dilution of risks by considering the entire AOC as a single EU. Although AOC 5 contains multiple DUs, the entire AOC will initially be identified as the EU. If risks are unacceptable, the evaluation will be refined, and each subarea may be assessed separately to ensure that risks are not diluted by aggregating all subareas.

Potential receptors identified across AOCs include the following:

- On-Site Current and Future Trespasser/Visitor (including golf course users and recreational visitors).
- On-Site Current and Future Outdoor Maintenance Worker.
- On-Site Future Utility Worker.
- On-Site Future Construction Worker.
- On-Site Future Resident.
- On-Site Future Commercial Worker.
- On-Site Resident or Off-Site Nearby Resident utilizing private groundwater wells for potable water.

Based on results of screening the Phase 1 data and identification of preliminary COPCs, human receptors may be exposed to media at the AOCs through the following exposure pathways and routes of exposure:

- Direct contact with soil (incidental ingestion and dermal contact).
- Inhalation of volatiles and fugitive dust from soil.
- Incidental ingestion and dermal contact with groundwater during utility, construction, or maintenance work or during recreational activities.
- Direct contact with saturated/wet (i.e., hydric) soils (incidental ingestion and dermal contact).
- Direct contact with sediment (incidental ingestion and dermal contact).
- Direct contact with surface water ((incidental ingestion and dermal contact).
- Ingestion and dermal contact with groundwater during potable use.

Note that other pathways associated with nonpotable groundwater exposures, such as vapor intrusion or via inhalation of vapor in ambient air, have been determined to be incomplete because VOCs were not detected in groundwater or insignificant as concentrations of VOCs detected in groundwater were less than the USEPA Vapor Intrusion Screening Level as reported in the *Phase 1 Risk Screening and Data Gaps Analysis* (USACE, 2023a). For now, these groundwater inhalation routes of exposure are not included in the preliminary CSMs; however, these exposure pathways will be revisited based on the Phase 2 field investigation results.

The potential receptors, exposure media, exposure routes, and rational for selection or exclusion of exposures that have been considered relevant for each of the AOCs are listed in **Exhibit 10-9**. A preliminary exposure CSM for each of the AOCs is graphically depicted in **Figures 10-20** through **10-23**.

A description of the selected current and potential future likely receptors for exposure to COPCs in the various media at the AOCs are described here.

As noted above, future residential development at AOCs 1 and 5 are not currently expected in potentially impacted areas. If future development is indicated, future residents, future commercial/industrial workers, future construction workers, and/or future utility workers are considered at AOCs 1 and 5. Regardless, hypothetical future potable use of groundwater will be evaluated for AOCs 1 and 5 because there are no current restrictions in place that preclude this use.

### On-Site Receptors

#### *Trespasser/Visitor (AOCs 1, 3, 4, and 5)*

Trespasser/Visitors (adolescents) could encounter site surface soil (0-1 ft bgs) as part of their typical outdoor activities. During the Phase 1 investigation, evidence of trespassing or recreating (e.g., empty bottles) was found near the small stream in the northern portion of AOC 3 (Former Landfill Area). Potentially complete soil exposure pathways include incidental ingestion, dermal contact, and inhalation of windblown dust from surface soils. The Trespasser/Visitor may also come into contact with surface water and sediment associated with the unnamed stream in AOC 3 and the hydric soils, or sediments, in AOCs 1 and 5 during typical outdoor activities. A future exposure scenario for this receptor at AOCs 1 and 5 entails exposure to COPCs in mixed soil (0-10 ft) assuming regrading and redevelopment of the Site.

At AOC 3, a golf course user will also be evaluated for potential exposure to groundwater, under a hypothetical future scenario where a well is installed at the golf course and used as a source for irrigation water.

At AOC 4, a recreational visitor will also be evaluated for potential exposure to groundwater, under a hypothetical future scenario where a well is installed and used as a source for potable water for a water fountain.

#### *Outdoor Maintenance Worker (AOCs 1, 3, 4, and 5)*

An outdoor maintenance worker, representing WMA workers and groundskeepers, could encounter site surface soils as part of their typical outdoor maintenance or landscaping activities. Outdoor maintenance workers are assumed to spend the majority of their 8-hour workday outdoors with exposure to COPCs through incidental ingestion of surface soils, dermal contact with soils, and inhalation of airborne COPCs via volatilization and wind erosion. A future exposure scenario for this receptor at AOCs 1 and 5 entails exposure to COPCs in mixed soil (0-10 ft) assuming regrading and redevelopment of the Site.

At AOC 3, a maintenance worker will also be evaluated for potential exposure to groundwater, under a hypothetical future scenario where a well is installed at the golf course and used as a source for irrigation water.

#### *Utility Worker (AOCs 1, 3, and 5)*

Underground utilities are common in residential and commercial areas and often are located around roads and the areas between the roads and buildings. Underground utilities are present in AOC 1 and AOC 3 and are expected to be present in AOC 5 once development of that area occurs. A utility worker could be exposed on a short-term basis to soil from the surface down to 5 ft bgs while repairing or installing utility lines. Exposure routes could include incidental soil ingestion, dermal contact with soil, and inhalation of

dust emissions released from soil. Direct contact with COPCs in groundwater also is expected to occur for this receptor because groundwater is present at depths ranging between 2 ft and 13 ft bgs.

### *Construction Worker (AOCs 1 and 5)*

This is a short-term receptor exposed during a typical 8-hour workday. For this scenario, it is assumed that soil from the surface down to 10 ft bgs could be excavated, mixed, and used to regrade the Site such that exposure to COPCs that are present between surface and 10 ft bgs is a potential exposure possibility for the construction receptor. Direct contact with COPCs in groundwater also is expected to occur for the construction worker because groundwater is present at depths ranging between 2 ft and 13 ft bgs.

### *Resident (AOCs 1 and 5)*

AOC 1 is in a primarily residential area in the Radisson Community which is a planned development that consists of homes, a large Corporate Park, and a wide range of recreational, educational, cultural, shopping, and community services. AOC 1 is in a primarily residential area in the Radisson Community which is a planned development that consists of homes, a large Corporate Park, and a wide range of recreational, educational, cultural, shopping, and community services. Additional investigation is needed to determine if the residential receptor pathway is complete or potentially complete. Similarly, future redevelopment of AOC 5 may include residential dwellings. Therefore, a future residential receptor may have exposure to contaminants originating from mixed soil (i.e., 0 – 10 ft bgs), assuming that soil from the surface down to 10 ft bgs could be excavated, mixed, and used to regrade the Site such that exposure to COPCs that were present between surface and 10 ft bgs have now been placed at the surface.

No potable wells are currently located on the Site or near the source areas. Potable water is supplied to communities in Onondaga County by the Onondaga County Water Authority. Regardless, hypothetical future potable use of groundwater will be evaluated for AOCs 1 and 5 because there are no current restrictions in place that preclude this use.

Other pathways associated with nonpotable groundwater exposures, such as vapor intrusion or via inhalation of vapor in ambient air, have been determined to be incomplete because VOCs were not detected in groundwater or insignificant as concentrations of VOCs detected in groundwater were less than the USEPA Vapor Intrusion Screening Level as reported in the Phase 1 Risk Screening and Data Gaps Analysis (USACE, 2023). For now, these groundwater inhalation routes of exposure are not included in the preliminary CSMs; however, these exposure pathways will be revisited based on the Phase 2 field investigation results.

### *Commercial Worker (AOC 5)*

AOC 5 also may be developed in the future for commercial use. Currently, AOC 5 is mostly wooded therefore a considerable amount of construction, excavation and dirt moving will be needed to build offices buildings. As such, a future commercial worker receptor may have exposure to contaminants originating from mixed soil (i.e., 0 – 10 ft bgs) because it is assumed that soil from the surface down to 10 ft bgs could be excavated, mixed, and used to regrade the Site such that exposure to COPCs that were present between surface and 10 ft bgs have now been placed at the surface.

Other pathways associated with nonpotable groundwater exposures, such as vapor intrusion or via inhalation of vapor in ambient air, have been determined to be incomplete because VOCs were not detected in groundwater or insignificant as concentrations of VOCs detected in groundwater were less than the USEPA Vapor Intrusion Screening Level as reported in the Phase 1 Risk Screening and Data Gaps Analysis (USACE, 2023a). For now, these groundwater inhalation routes of exposure are not included in the preliminary CSMs; however, these exposure pathways will be revisited based on the Phase 2 field investigation results.

## Off-Site Receptors

### *Nearby Resident Using Groundwater as Drinking Water and Vapor Intrusion (AOCs 1, 3, 4, and 5)*

A nearby resident using a domestic well for potable water could be exposed to groundwater associated with from the Site. Exposure pathways would include ingestion of groundwater and dermal contact with groundwater (while showering or bathing), and inhalation while showering for volatile compounds detected in groundwater.

Other pathways associated with nonpotable groundwater exposures, such as vapor intrusion or via inhalation of vapor in ambient air, have been determined to be incomplete because VOCs were not detected in groundwater or insignificant as concentrations of VOCs detected in groundwater were less than the USEPA Vapor Intrusion Screening Level as reported in the *Phase 1 Risk Screening and Data Gaps Analysis* (USACE, 2023a). For now, these groundwater inhalation routes of exposure are not included in the preliminary CSMs; however, these exposure pathways will be revisited based on the Phase 2 field investigation results.

## Exhibit 10-9 – Receptor Selection and Exposure Pathways

| Scenario Timeframe | Medium | Exposure Medium | Exposure Point | Receptor Population[a] | Receptor Age | Exposure Route [b] | Type of Analysis | Rationale for Selection or Exclusion of Exposure Pathway [c] |
|---|---|---|---|---|---|---|---|---|
| **Current and/or Future** | **Soil** | **Surface Soil (0-1 ft)** | AOC 1 | Current Trespasser/Visitor | Adolescent | Ingestion/Dermal/Inhalation | Quantitative | This AOC is in primarily residential area where there are paved walking paths and grassy areas between homes and wooded areas containing the old loading ramps, storage bunkers, and loading dock structures. Activities of adolescents in these unrestricted open areas may lead to exposure to COPCs in surface soil. Similarly, outdoor workers performing grounds maintenance in these areas may lead to exposure to COPCs in surface soil. See potential future exposure to mixed subsurface soil below. |
| | | | | Current Outdoor Maintenance Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | |
| | | | AOC 3 | Current/Future Trespasser/Visitor | Adolescent | Ingestion/Dermal/Inhalation | Quantitative | This AOC is a golf course. Activities of adolescents in the open areas may lead to exposure to COPCs in surface soil. Similarly, outdoor workers performing grounds maintenance in these areas may lead to exposure to COPCs in surface soil. Current and future exposures are expected to be the same as there would be no heavy construction which would bring soil from below 1 ft bgs to the surface during regrading. |
| | | | | Current/Future Outdoor Maintenance Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | |
| | | | AOC 4 | Current/Future Trespasser/Visitor | Adolescent | Ingestion/Dermal/Inhalation | None [c] | This AOC is currently located within Three Rivers Wildlife Management Area (WMA). Several of the remaining bunkers are used for equipment and vehicle storage. Activities of adolescents in these unrestricted open areas may lead to exposure to COPCs in surface soil. Similarly, outdoor workers performing grounds maintenance in these areas may lead to exposure to COPCs in surface soil. The results of the Phase 1 soil sampling were nondetect. Therefore, although there are potential receptors who may come into contact with surface soil, there are no COPCs identified for the soil. Exposure routes and analysis may change depending on the results of the Phase 2 sampling effort. Note that current and future exposures are expected to be the same as there are no heavy construction activities planned for the AOC that would bring soils greater than 1 ft to the surface. |
| | | | | Current/Future Outdoor Maintenance Worker | Adult | Ingestion/Dermal/Inhalation | None [c] | |
| | | | AOC 5 | Current Trespasser/Visitor | Adolescent | Ingestion/Dermal/Inhalation | Quantitative | This AOC is a mostly uninhabited wooded area west of a residential area. Activities of adolescents in these unrestricted open areas may lead to exposure to COPCs in surface soil. Similarly, outdoor workers performing grounds maintenance in these areas may lead to exposure to COPCs in surface soil. See potential future exposure to mixed subsurface soil below. |
| | | | | Current Outdoor Maintenance Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | |
| **Future** | **Soil** | **Surface and Subsurface Soil (0-5 ft)** | AOC 1 | Future Utility Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | Underground utilities are common in residential and commercial areas, and often are located around roads and the areas between the roads and buildings. The residential area of AOC 1 contains underground utilities and future development would need installation of utilities. Thus, it is assumed that soil from the surface to 5 ft bgs could be excavated, mixed, and used to regrade the Site while installing or repairing utility lines. |
| | | | AOC 3 | Future Utility Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | Underground utilities are common in residential and commercial areas, and often are located around roads and the areas between the roads and buildings. As a developed commercial area, utilities are assumed to be present at AOC 3. Thus, it is assumed that soil from the surface to 5 ft bgs could be excavated, mixed, and used to regrade the Site while installing or repairing utility lines. |
| | | | AOC 4 | Future Utility Worker | Adult | None | None | AOC 4 is located in Three Rivers Wildlife Management Area, an undeveloped, natural environment. No utility lines are present in AOC 4, nor are utility lines expected to be installed in the future. |
| | | | AOC 5 | Future Utility Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | Underground utilities are common in residential and commercial areas, and often are located around roads and the areas between the roads and buildings. AOC 5 is slated for future redevelopment, either as commercial or multiple residential housing. As such, utility lines are expected to be installed in the future. Thus, it is assumed that soil from the surface to 5 ft bgs could be excavated, mixed, and used to regrade the Site while installing or repairing utility lines. |
| | | **Surface and Subsurface Soil (0-10 ft)** | AOC 1 | Future Resident | Adult | Ingestion/Dermal/Inhalation | Quantitative | This AOC is in primarily residential area in the Radisson Community which is a planned development that consists of homes, a large Corporate Park, and a wide range of recreational, educational, cultural, shopping, and community services. Although homes are not currently built on areas of |
| | | | | | Child | Ingestion/Dermal/Inhalation | Quantitative | |
| | | | | Future Trespasser/Visitor | Adolescent | Ingestion/Dermal/Inhalation | Quantitative | |

| Scenario Timeframe | Medium | Exposure Medium | Exposure Point | Receptor Population[a] | Receptor Age | Exposure Route [b] | Type of Analysis | Rationale for Selection or Exclusion of Exposure Pathway [c] |
|---|---|---|---|---|---|---|---|---|
| **Future (cont'd)** | **Soil (cont'd)** | **Surface and Subsurface Soil (0-10 ft)** | | Future Outdoor Maintenance Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | potential impacts, homes or commercial structures may in the future be built on those potential areas of impact if results of the RI indicated those areas are not impacted. Therefore, future residential, commercial and construction worker exposure scenarios have been included. Soils at depth are assumed to be mixed with surface soil such that exposure to soils for future scenario entails contact with soils from 0-10 ft being as this interval would be used to regrade the Site. The future scenario for the trespasser/visitor and outdoor maintenance worker assumes contact with soils after regrading of the Site occurs so that exposure is to COPCs in 0-10 ft bgs interval. |
| | | | | Future Construction Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | |
| | | | AOC 3 | Future Resident | Adult | None | None | This AOC is a former landfill located within the golf course property. Future residential homes or commercial structures will not be constructed over the golf course or areas of the golf course. Therefore, residents, commercial workers, and construction workers will not be exposed to COPCs in subsurface soil in the future. |
| | | | | | Child | None | None | |
| | | | | Future Commercial Worker | Adult | None | None | |
| | | | | Future Construction Worker | Adult | None | None | |
| | | | AOC 4 | Future Resident | Adult | None | None | AOC 4 is in Three Rivers Wildlife Management Area; no future development is expected. Therefore, residents, commercial workers, and construction workers will not be exposure to COPCs in subsurface soil in the future. |
| | | | | | Child | None | None | |
| | | | | Future Commercial Worker | Adult | None | None | |
| | | | | Future Construction Worker | Adult | None | None | |
| | | | AOC 5 | Future Trespasser/Visitor | Adolescent | Ingestion/Dermal/Inhalation | Quantitative | This AOC will be developed in the future and based on current surrounding land use future redevelopment may include residential and/or commercial settings. Therefore, residents, commercial workers, and construction workers may be exposure to COPCs in subsurface soil in the future. Soils at depth are assumed to be mixed with surface soil such that exposure to soils for future scenario entails contact with soils from 0-10 ft being as this interval would be excavated during construction, mixed, and used to regrade the Site. The future scenario for the trespasser/visitor and outdoor maintenance worker assumes contact with soils after regrading of the Site occurs so that exposure is to COPCs in 0-10 ft bgs interval. |
| | | | | Future Outdoor Maintenance Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | |
| | | | | Future Resident | Adult | Ingestion/Dermal/Inhalation | Quantitative | |
| | | | | | Child | Ingestion/Dermal/Inhalation | Quantitative | |
| | | | | Future Commercial Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | |
| | | | | Future Construction Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | |
| | **Groundwater (g)** | **On-Site Groundwater** | AOC 1 | Future Resident | Adult | Ingestion/Dermal | Quantitative | Groundwater on-Site is not currently used as a drinking water source and potable water is supplied by the Onondaga County Water Authority. Regardless, hypothetical future potable use of groundwater will be evaluated for AOCs 1 and 5 because there are no current restrictions in place that preclude this use. There are no VOCs among contaminants of potential concern at this AOC; therefore, groundwater exposure via vapor intrusion and/or inhalation of volatiles from groundwater are considered incomplete exposure pathways. |
| | | | | | Child | Ingestion/Dermal | Quantitative | |
| | | | | Future Utility Worker | Adult | Dermal | Quantitative | The water table is anticipated to be encountered between 2 to 13 ft bgs in the source areas; therefore, utility workers and construction workers are likely to encounter groundwater during excavation activities. Metals were identified as COPCs in the Phase I data; therefore, inhalation exposure is not associated with groundwater and excavation activities. The groundwater ingestion pathway for the future utility and construction workers is an insignificant exposure pathway which will not be quantitatively evaluated in the risk assessment but will be addressed as part of the uncertainty evaluation. |
| | | | | Future Construction Worker | Adult | Dermal | Quantitative | |
| | | | AOC 3 | Future Golfer | Adult | Ingestion/Dermal | Quantitative | These receptors are evaluated for potential exposure to groundwater under a hypothetical future scenario where a well is installed at the golf course and used as a source for irrigation water. |
| | | | | Future Maintenance Worker | Adult | Ingestion/Dermal | Quantitative | |
| | | | | Future Utility Worker | Adult | Dermal | Quantitative | |

| Scenario Timeframe | Medium | Exposure Medium | Exposure Point | Receptor Population[a] | Receptor Age | Exposure Route [b] | Type of Analysis | Rationale for Selection or Exclusion of Exposure Pathway [c] |
|---|---|---|---|---|---|---|---|---|
| **Future (cont'd)** | **Groundwater (g) (cont'd)** | **On-Site Groundwater (cont'd)** | AOC 3 (cont'd) | Future Construction Worker | Adult | None | None | The water table is anticipated to be encountered between 2 to 13 ft bgs in the source areas; therefore, utility workers are likely to encounter groundwater during excavation activities. COPCs from the Phase I data include primarily metals, 4-nitroaniline, and benzene. Inhalation is not a significant exposure pathway associated with inorganics, and volatilization of benzene outdoors is not expected to be significant and therefore will not be evaluated. The groundwater ingestion pathway has been deemed insignificant as the amount of water incidentally ingested is going to be de minimis. No major construction is expected in this former landfill area; therefore, construction workers are not included as a potential receptor to groundwater. |
| | | | AOC 4 | Future Recreational Visitor | Adult/Child | Ingestion/Dermal | Quantitative | This receptor is evaluated for potential exposure to groundwater, under a hypothetical future scenario where a well is installed and used as a source for potable water for a water fountain. |
| | | | | Future Utility Worker | Adult | None | None | AOC 4 located in Three Rivers Wildlife Management Area; no future development is expected so exposure to groundwater while excavating is not expected for these potential receptors. |
| | | | | Future Construction Worker | Adult | None | None | |
| | | | AOC 5 | Future Resident | Adult | Ingestion/Dermal | Quantitative | Groundwater on-Site is not currently used as a drinking water source and potable water is supplied by the Onondaga County Water Authority. Regardless, hypothetical future potable use of groundwater will be evaluated for AOCs 1 and 5 because there are no current restrictions in place that preclude this use. There is no groundwater USEPA Vapor Intrusion Screening Level (VISL, USEPA, 2022) for 1,2,3-trichlorobenzene because this chemical does not have sufficient inhalation toxicity information. However, the maximum detected 1,2,3-trichlorobenzene concentration is below the 1,2,4-trichlorobenzene VISL used as a surrogate) for groundwater set to a target risk level of 1E-06 and a hazard quotient of 0.1. Therefore, inhalation exposure is assumed to be insignificant. |
| | | | | | Child | Ingestion/Dermal | Quantitative | |
| | | | | Future Utility Worker | Adult | Dermal | Quantitative | The water table is anticipated to be encountered between 2 to 13 feet bgs in the source areas; therefore, utility workers and construction workers are likely to encounter groundwater during excavation activities. COPCs from the Phase I data include primarily metals and SVOCs; therefore, inhalation of outdoor air is not a significant exposure pathway and will not be evaluated. The groundwater ingestion pathway for the future utility and construction workers is an insignificant exposure pathway which will not be quantitatively evaluated in the risk assessment but will be addressed as part of the uncertainty evaluation. |
| | | | | Future Construction Worker | Adult | Dermal | Quantitative | |
| **Current and Future** | | **Off-Site Groundwater** | Nearby AOC 1 | Current/Future Resident | Adult | Ingestion/Dermal | Quantitative | There are multiple private wells in the area as per the well survey. Will evaluate groundwater exposure as potable water exposures to current and future nearby residents. There are no VOCs among contaminants of potential concern at this AOC; therefore, groundwater exposure via vapor intrusion and/or inhalation of volatiles from groundwater are considered incomplete exposure pathways. |
| | | | | | Child | Ingestion/Dermal | Quantitative | |
| | | | Nearby AOC 3 | Current/Future Resident | Adult | Ingestion/Dermal | Quantitative | There are multiple private wells in the area as per the well survey. Will evaluate groundwater exposure as potable water exposures to current and future nearby residents. Benzene was the only VOC detected in groundwater, but the maximum detected benzene concentration is below the USEPA Vapor Intrusion Screening Level (VISL, USEPA, 2022) for groundwater set to a target cancer risk of 1E-06 and a hazard quotient (HQ) of 0.1; therefore, the inhalation of volatiles exposure route has been designated as potentially complete but insignificant and will not be quantitatively evaluated. |
| | | | | | Child | Ingestion/Dermal | Quantitative | |
| | | | Nearby AOC 4 | Current/Future Resident | Adult | Ingestion/Dermal | None (d) | There are multiple private wells in the area as per the well survey. However, Phase 1 groundwater analytical results were nondetect. Therefore, this exposure pathway is considered insignificant and will not be evaluated in the BHHRA. Groundwater sampling is not being performed as part of Phase 2 investigation. |
| | | | | | Child | Ingestion/Dermal | None (d) | |

| Scenario Timeframe | Medium | Exposure Medium | Exposure Point | Receptor Population[a] | Receptor Age | Exposure Route [b] | Type of Analysis | Rationale for Selection or Exclusion of Exposure Pathway [c] |
|---|---|---|---|---|---|---|---|---|
| **Current and Future (cont'd)** | **Groundwater (g) (cont'd)** | **Off-Site Groundwater (cont'd)** | Nearby AOC 5 | Current/Future Resident | Adult | Ingestion/Dermal | Quantitative | There are multiple private wells in the area as per the well survey. Will evaluate groundwater exposure as potable water exposures to current and future nearby residents. There is no groundwater USEPA Vapor Intrusion Screening Level (VISL, USEPA, 2022) for 1,2,3-trichlorobenzene because this chemical does not have sufficient inhalation toxicity information. However, the maximum detected 1,2,3-trichlorobenzene concentration is below the 1,2,4-trichlorobenzene VISL used as a surrogate) for groundwater set to a target risk level of 1E-06 and a hazard quotient of 0.1. Therefore, inhalation exposure is assumed to be insignificant. |
| | | | | | Child | Ingestion/Dermal | Quantitative | |
| | **Surface Water (Unnamed Stream)** | **Surface Water (e)** | AOC 3 | Current/Future Trespasser/Visitor | Adolescent | Ingestion/Dermal | Quantitative | This AOC is a golf course and as such access to the stream is not restricted. Adolescents may come in contact with the stream while walking or as part of their outdoor activities. Should VOCs be detected in surface water during the Phase 2 field effort, inhalation of volatiles is assumed to be an insignificant exposure due to ambient air mixing and wind dispersal. |
| | **Sediment (Unnamed Stream)** | **Sediment (e)** | AOC 3 | Current/Future Trespasser/Visitor | Adolescent | Ingestion/Dermal | Quantitative | |
| | **Hydric Soils (from Wetland Areas)** | **Hydric Soils (f)** | AOC 1 | Current/Future Trespasser/Visitor | Adolescent | Ingestion/Dermal | Quantitative | This AOC is in primarily residential area where there are paved walking paths and grassy areas between homes and wooded areas. Adolescents may come in contact with the hydric soils while walking or as part of their outdoor activities. |
| | **Hydric Soils (from Wetland Areas)** | **Hydric Soils (f)** | AOC 5 | Current/Future Trespasser/Visitor | Adolescent | Ingestion/Dermal | Quantitative | This AOC is currently undeveloped and there are no restrictions preventing adolescents from traversing the area and coming into contact with COPCs in hydric soils of the wetland areas. |

Notes:
(a) Note that trespassers and visitors could be any age, but an adolescent was selected as the receptor because they are more sensitive (higher exposure frequencies than a child and higher dose than an adult). The recreational visitor in AOC 4 will be evaluated as child and adult receptors.
(b) For soil exposures, inhalation assessed as volatile or soil derived dusts (i.e., ambient air).
(c) The AOC-specific CSMs were informed by site-specific information and the COPCs identified in the Phase 1 Risk Screening and Data Gaps Analysis (Bluestone, 2023). These potential receptors and exposure pathways may be revised based on risk screening results of the Phase 2 RI data.
(d) Phase 1 analytical results were nondetect which indicates exposure to environmental medium at this AOC would be insignificant. The receptors and potential exposure pathways will be revisited after completion of the Phase 2 field effort.
(e) Surface water and sediment samples are planned during the Phase 2 investigation for the unnamed stream located north of AOC 3. Should VOCs be detected in surface water, inhalation of volatiles is assumed to be an insignificant exposure due to ambient air mixing and wind dispersal.
(f) Discrete surface soil sampling of hydric soils from wetland areas are planned for the Phase 2 investigation. Standing surface water is not present at the wetlands; therefore, surface water samples will not be collected, and hydric soil samples will be evaluated under a sediment exposure scenario.
(g) Other pathways associated with nonpotable groundwater exposures, such as vapor intrusion or via inhalation of vapor in ambient air, have been determined to be incomplete because VOCs were not detected in groundwater or insignificant as concentrations of VOCs detected in groundwater were less than the USEPA Vapor Intrusion Screening Level as reported in the Phase 1 Risk Screening and Data Gaps Analysis (Bluestone, 2023). For now, these groundwater inhalation routes of exposure are not included in the preliminary CSMs; however, these exposure pathways will be revisited based on the Phase 2 field investigation results.

Acronyms:
AOC = area of concern.
bgs = below ground surface.
cont'd = continued.
COPC = contaminant of potential concern.
ft = feet.

## 10.5.2 Potential Ecological Receptors and Exposure Routes

Below is a brief summary of the currently identified potential receptors and exposure routes. All risk assessment activities will be performed during Phase 2, based on Phase 1 investigation exceedances of ecological risk-based screening levels and background levels. These receptors will be re-visited and further refined in Phase 2, if necessary, based on actual or expected changes to land use and habitat. Further details regarding habitat conditions and potential receptors are provided in **Appendix C**. Of particular focus in the SLERA is the potential exposure pathways to rare, threatened, or endangered species (RTE), their critical habitat, or other significant natural communities at or in the vicinity (e.g., Three Rivers State WMA) of the AOCs. Resources such as the NY Natural Heritage Database (NYNHD) Nature Exposure online tool and the U.S. Fish and Wildlife Service IPaC database were performed to update Phase 1 (Appendix K in USACE, 2023). For instance, the northern long-eared bat (*M. septentrionalis*) was recently upgraded to endangered status**. Exhibit 10-10** summarizes the key RTE species most critical to consider when planning appropriate avoidance and/or minimization measures that need to be implemented during the field sampling program.

**Exhibit 10-10 – Key Rare, Threatened and Endangered Species[a]**

| Common Name | Latin Name | Status (T/E/SC)[b] | Federal/ State |
|---|---|---|---|
| Bald Eagle | *Haliaeetus leucocephalus* | T | S |
| Golden Eagle | *Aquila chrysaetos* | E | S |
| Least Bittern | *Ixobrychus exilis* | T | S |
| Pied-billed Grebe | *Podilymbus podiceps* | T | S |
| Sedge Wren | *Cistothorus platensis* | T | S |
| Indiana Bat[c] | *Myotis sodalis* | E | F, S |
| Northern Long-eared Bat[c] | *Myotis septentrionalis* | E | F, S |
| Tri-colored (Eastern Pipistrelle) Bat[d] | *Perimyotis subflavus* | E (proposed) | F, S |
| Monarch Butterfly[e] | *Danaus plexippus* | T (proposed) | F |

Notes:
(a) Updated information obtained from the USFWS IPaC and NYNHD database obtained in 2024 and 2025. For state-listed species and significant natural communities, there are no current records of occurrence in the AOCs themselves.
(b) Status categories include T – threatened, E – endangered, SC – special concern and C – candidate.
(c) Nearest records of Indiana and Northern Long-eared bats are summer records along the Seneca River approximately 2.5 miles from AOC 5.
(d) On 4 September 2022, USFWS proposed listing the tricolored bat as an endangered species and is currently under review. According to communication with the Three Rivers WMA, this species was detected near AOC 4 in 2019.

The updated IPaC information also identified 22 migratory bird species that may occur in the vicinity of the Site that are protected under the Migratory Bird Species Act (MBSA). For each species, temporal variability in the likelihood of occurrence in the vicinity of NYOW is provided along with the breeding season (if applicable). The list of migratory species includes the bald and golden eagles, which are also protected by the Bald and Golden Eagle Protection Act. In addition to the above species, a relatively rare (S2) and significant nature community, a Silver Maple-Ash Swamp, is located along a tributary to the Oswego River, which is east, southeast and south of AOC 4.

An exposure pathway defines the most probable pathway in which a receptor may come into contact with contaminated media. In order for an exposure pathway to be complete and contaminant exposure to occur, the following four elements must be present:

(1) a source and mechanism of chemical release.

(2) a retention or transport medium.

(3) a point of contact between the ecological receptor and the medium.

(4) a route of exposure for the potential ecological receptor at the contact point.

Based on the Phase 1 CSM, ecological receptors may be exposed to COPECs either through activities that result in dermal/direct contact with contaminated environmental media (all receptors) or through incidental

ingestion as a result of preening activities by wildlife and/or foraging activities by both wildlife and invertebrate receptors. Each ecological receptor may be evaluated for one or more exposure points, and receptors exposed to soil may be evaluated for both exposure to surface (0-1 ft bgs) soils and subsurface (0-5 ft bgs) soils.

Ecological receptors with potential exposure to one or more AOCs include the following:

- Terrestrial plants (rooted vascular species).
- Terrestrial invertebrates (e.g., earthworms and other soil fauna).
- Terrestrial wildlife including both mammal and avian species with various trophic level characteristics (e.g., herbivores, omnivores, and carnivores).
- Aquatic life including both organisms that are principally exposed in the water column (pelagic exposures) and the sediment and sediment porewater (benthic exposures). Organisms that could be exposed to water-borne contaminants include aquatic plants, invertebrates, fish, amphibians and reptiles. Benthic invertebrates and vascular aquatic plants are the primary organisms that could be exposed to contaminants in sediment and porewater media. Note that aquatic-dependent wildlife could also be exposed to contaminants in surface water and sediment particularly if contaminants can bioaccumulate in prey tissue. Exposures to aquatic-dependent wildlife will be evaluated, and the CSM updated (Figure 10-25) if bioaccumulating analytes are detected in AOC 3 surface water or sediment.

Similar to the human health risk assessment, ecological risks will be evaluated based on exposure to media within an AOC, defined as the EU for all receptors, to demonstrate that there are no actionable risks. The biased data, collected from areas of impact or anticipated impact within these AOCs, will be used conservatively to represent high-end exposure estimates. Since many receptors typically have smaller EUs than these AOCs, if the risks are deemed unacceptable, the data will be reassessed to identify if smaller areas with elevated concentrations and more reasonably sized EUs are contributing to the overall actionable risks. If this is the case, the EUs may be redefined to prevent the dilution of risks by considering the entire AOC as a single EU. Although AOC 5 contains multiple DUs, the entire AOC will initially be identified as the EU. If risks are unacceptable, the evaluation will be refined, and each subarea may be assessed separately to ensure that risks are not diluted by aggregating all subareas. In addition, the initial screening will compare maximum detected concentrations within an AOC to screening level benchmarks and will not adjust exposures for wildlife with large foraging ranges. If risks are deemed unacceptable, risks may be refined by accounting for receptor specific EUs using area use factors (AUFs) or by redefining EUs to prevent the dilution of risks by considering the entire AOC as a single EU. For assessment endpoint wildlife receptors with AUFs larger than a given AOC, a sensitivity evaluation regarding the impact of potential exposures to multiple AOCs and/or EUs may be conducted.

The potential receptors categories, their level of ecological organization, exposure media, and for wildlife, the selected representative species for each of the AOCs are listed in **Exhibit 10-11**. Preliminary ecological CSMs that include likely exposure routes for each of the AOCs are provided in **Figures 10-24** through **10-27**.

A description of the selected ecological receptors for exposure to COPECs in the various media at the AOCs are described below by ecological habitat type.

**Terrestrial Habitat** – (Note that surficial hydric soil samples will be collected at both AOCs 1 and 5 and these will be assumed to be equivalent to upland soils from an ecological exposure perspective).

**Terrestrial Plants (AOCs 1, 3, 4, and 5)**

Terrestrial Plants are assumed to be exposed to COPECs in both surface (0-1 ft bgs) and subsurface (1-5 ft bgs) soil layers. For AOC 3, the Phase 1 CSM (**Figure 10-25**) assumed that surface soil exposures are prevented by pavement at AOC 3; however, in Phase 2, additional soil (including surface) samples will be collected laterally to address an identified data gap. If it is determined that terrestrial habitat is present in the vicinity of the pavement, these data will be evaluated in the SLERA (**Appendix C**). Dermal/direct contact is the only potentially complete soil exposure pathway for this community-level receptor.

### Terrestrial Invertebrates (AOCs 1, 3, 4, and 5)

Terrestrial Invertebrates are assumed to be exposed to COPECs in both surface (0-1 ft bgs) and subsurface (1-5 ft bgs) soil layers. For AOC 3, the Phase 1 CSM (**Figure 10-25**) assumed that surface soil exposures are prevented by pavement at AOC 3 so terrestrial invertebrate exposures to subsurface soil were identified; however, in Phase 2 additional soil (including surface) samples will be collected adjacent to the paved area to address an identified data gap. If it is determined that terrestrial habitat is present in the vicinity of the pavement, these data will be evaluated in the SLERA (**Appendix C**). Dermal/direct contact and incidental ingestion during foraging activities are the potentially complete soil exposure pathways for this community-level receptor.

### Terrestrial Wildlife (AOCs 1, 3, 4, and 5)

Terrestrial Wildlife are assumed to be exposed to COPECs in surface (0-1 ft bgs) at AOCs 1, 4 and 5 and burrowing mammals (e.g., red fox) could be exposed to COPECs in subsurface (1-5 ft bgs) at all AOCs. For AOC 3, the Phase 1 CSM (**Figure 10-25**) assumed that surface soil exposures are prevented by pavement at AOC 3; however, in Phase 2 additional soil (including surface) samples will be collected laterally to address an identified data gap. If it is determined that terrestrial habitat is present in the vicinity of the pavement, exposures to all wildlife receptors will be evaluated in the SLERA (**Appendix C**). Wildlife receptors are assumed to only be exposed to COPECs in surface soil via the incidental ingestion pathway; however, burrowing mammals could be exposed to COPECs in subsurface soils via both incidental ingestion and dermal/direct contact pathways. If COPECs that are known to bioaccumulate are detected in surface soils at any AOC, the additional ingestion of contaminated prey exposure pathway will also be evaluated for all representative wildlife species.

**Aquatic Habitat** – (Note that groundwater and/or surface runoff may have resulted in the migration of COPECs to aquatic habitat located downgradient of AOCs 1 and 5). As a result, additional samples may be collected in Phase 2 if DoD-related COPECs in groundwater are determined to discharge to this habitat. Depending on the nature of the available habitat, particularly whether standing water is present or just saturated soils are present, either or both of the following community-level receptors may be present. If so, they will be evaluated in the SLERA and the ecological CSM revised accordingly.

### Aquatic Community (AOC 3)

In AOC 3, the extent of the potential impacts downgradient from the former landfill area are uncharacterized, and aquatic life associated with the water column could be directly exposed to DoD-related constituents in surface water in the unnamed stream north of the landfill. Dermal/direct contact and incidental ingestion during foraging activities are the potentially complete aqueous exposure pathways for this community-level receptor.

### Benthic Macroinvertebrates (AOC 3)

The small stream downgradient of AOC 3 also provides benthic habitat for benthos which could be exposed to COPECs in both sediment and pore water. Dermal/direct contact and incidental ingestion during foraging activities are the potentially complete exposure pathways for this community-level receptor. The human and ecological exposure pathways identified in the subsections below were updated from those presented in the UFP-QAPP (USACE, 2020) as appropriate based on data collected during the Phase 1 investigation. A reassessment of potential human and ecological exposure pathways will be needed after completion of the data collection and analysis from the Phase 2 investigation.

## Exhibit 10-11 – Ecological Receptors

| Level of Organization | Receptor Type | Trophic Level | AOC | Exposure Media[b] | Selected Representative Taxa |
|---|---|---|---|---|---|
| Community | Terrestrial Plants | Producer | 1, 3[c], 4, 5 | Soil (0-1 ft, 1-5 ft) | All plant species that obtain nutrients primarily from soil |
| Community | Terrestrial Invertebrates | Various | 1, 3[c], 4, 5 | Soil (0-1 ft, 1-5 ft bgs) | All soil invertebrates (e.g., earthworms, insect larvae, arthropods, isopods) |
| Population | Small Mammal | Herbivorous | 1, 3[c], 4, 5 | Soil (0-1 ft bgs) | Meadow vole (*Microtus pennsylvanicus*) |
| Population | Small Mammal | Omnivorous | 1, 3[c], 4, 5 | Soil (0-1 ft bgs) | Northern short-tailed shrew (*Blarina brevicauda*) |
| Population | Medium Mammal | Carnivorous | 1, 3[c], 4, 5 | Soil (0-1 ft, 1-5 ft) | Red fox (*Vulpes vulpes*) |
| Population | Medium Mammal | Omnivorous | 1, 4, 5 | Soil (0-1 ft bgs) | Raccoon (*Procyon lotor*) |
| Population | Small Bird | Herbivorous | 1, 3[c], 4, 5 | Soil (0-1 ft bgs) | Mourning dove (*Zenaida macroura*) |
| Population | Small Bird | Omnivorous | 1, 3[c], 4, 5 | Soil (0-1 ft bgs) | American robin (*Turdus migratorius*) |
| Community | Aquatic Organisms[d] | Various | 3[d] | Water column; Pore water | Aggregate community components (e.g., fish, aquatic invertebrates, aquatic plants) |
| Community | Benthic Organisms[d] | Various | 3[d] | Sediment (0-0.5 ft bss); Pore water | Aggregate community components (e.g., insects, amphipods, microbes, aquatic plants) |

Notes:

a The Phase 1 analysis concluded that large herbivorous mammals (e.g., deer) and carnivorous birds (e.g., owls, hawks) occur in the vicinity of the individual AOCs and that exposure pathways are potentially complete; however, these pathways were determined to be insignificant due to the wide-ranging foraging behavior of these receptors.

b Surface soils (i.e., 0-1 ft bgs) include both terrestrial and "hydric" soils; the latter will be collected at both AOCs 1 and 5.

c No ecological exposure to surface soils at AOC3; however, burrowing mammals (e.g., red fox) could be exposed to subsurface soils.

d Aquatic organisms including benthic invertebrates may be exposed to contaminants in discharging groundwater downgradient of AOCs 1, 4 and 5. If so, analytical data for aquatic media will be collected and evaluated in the SLERA.

# Worksheet #11 – Project/Data Quality Objectives

## 11.1 Data Quality Objectives

This worksheet documents project DQOs using the systematic planning process outlined in *Guidance on Systematic Planning Using the Data Quality Objectives Process* (EPA, 2006), the UFP-QAPP guidance manual (IDQTF, 2005), the optimized UFP-QAPP worksheets manual (IDQTF, 2012), and the EPA QA/G4, Guidance for the Data Quality Objective Process (EPA, 2006). Project-specific DQOs were developed for this investigation using the EPA seven (7)-step process and are summarized below. Further details regarding DQOs and data use for the HHRA/SLERA/RSLERA are provided in **Appendix B** and **Appendix C**, respectively.

## 11.2 Project Quality Objectives

Project quality objectives (PQOs) define the type, quantity, and quality of data that are needed to answer specific environmental questions and support proper environmental decisions.

### 11.2.1 Who will use the data?

USACE CENAE will be making site management decisions for NYOW and will use the data to complete the RI.

### 11.2.2 What are the Project Action Limits (PALs)?

The purpose of identifying risk-based PALs in the UFP-QAPP is to ensure the analytical methods selected are sensitive enough to detect concentrations at or below the screening benchmark or absent that, the most sensitive method available. PALs on Worksheets #15 are the lower of human health screening levels and ecological benchmarks identified based on the hierarchies presented below for those media where both sets of screening criteria apply. Note, that groundwater PALs are based on human health values only and soil, sediment, and surface water PALs are based on the lower of human health and ecological values. Porewater PALs are based on surface water ecological benchmark values only.

**Human Health**

- Groundwater
  - EPA Regional Screening Level (RSL) (November 2024): Tapwater Tables for Cancer Target Risk of 1E-06 and Target Hazard Quotient of 0.1 (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).
- Soil and Sediment:
  - EPA RSL (November 2024): for Residential Soil Tables for Cancer Target Risk of 1E-06 and Target Hazard Quotient of 0.1 (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).
- Surface Water:
  - Screening levels were calculated using USEPA's RSL calculator for a recreational receptor's exposure to surface water using the exposure parameters for incidental ingestion and dermal contact with COPCs in surface water for a trespasser/visitor scenario listed in **Appendix B** (see Table B2.2-3 of Attachment A).

**Ecological**

Ecological screening benchmarks are derived for multiple receptor categories (see Section 10.5.2) and all expected site-specific receptor categories that need to be considered when selecting the ecological PALs. These receptor categories for exposures to the following media:

- soil: plants, invertebrates and birds and mammals.
- sediment/pore water: invertebrates (benthic).
- surface: aquatic organisms including plants, invertebrates (pelagic), fish and amphibians.

Supporting documentation for the ecological PALs is presented in **Appendix C**. Appendix C.1 presents the methodology for selecting surrogates for key constituents without ecological benchmarks and Appendix C.2 presents all of the values within the QAPP ecological PAL selection hierarchy.C.2 (Table C.2-1 [soil], Table C.2-2 [sediment] and Table C.2-3 [surface water/pore water]) presents all values in the QAPP ecological PAL selection hierarchy. The hierarchies for soil, sediment, and surface water/porewater are defined below. Table C.2-1 (soil), Table C.2-2 (sediment) and Table C.2-3 (surface water/pore water).

- Soil (if reference has more than one receptor, the lowest value was selected):
  - EPA ecological soil screening levels (eco-SSLs )(Eco-SSLs; various dates) (https://www.epa.gov/risk/ecological-soil-screening-level-eco-ssl-guidance-and-documents)
  - EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) –Soil Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf).
  - EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf)
  - Los Alamos National Laboratory (LANL)/Intellus (2024). ECORISK Database (Release 4.4), (https://intellusnm/documents/documents.cfm).
- Sediment (if reference has more than one receptor, the lowest value was selected):
  - EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) –Soil Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf).https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf).
  - EPA Region 3 (2006) Region III BTAG (Biological Technical Assistance Group). Freshwater Sediment Screening Benchmarks (https://www.epa.gov/sites/default/files/2015-09/documents/r3_btag_fw_sediment_benchmarks_8-06.pdf).
  - EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf)
  - LANL/Intellus (2024). ECORISK Database (Release 4.4), (https://intellusnm/documents/documents.cfm).
- Surface water/Pore water (if reference has more than one receptor, the lowest value was selected):
  - National Recommended Water Quality Criteria – Aquatic Life Criteria Table. Accessed November 11, 2022. ( https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table).
  - EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) –Soil Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf).
  - EPA Region 3 (2006) Region III BTAG (Biological Technical Assistance Group). Freshwater Screening Benchmarks (https://www.epa.gov/sites/default/files/2015-09/documents/r3_btag_fw_benchmarks_07-06.pdf).
  - EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf)
  - LANL/Intellus (2024). ECORISK Database (Release 4.4), (https://intellusnm/documents/documents.cfm).

Note that PALs for m,p-xylene and m,p-cresol are the lower of the two isomers.

### 11.2.3 What will the data be used for?

Data collected from studies described in this UFP-QAPP and from the Phase 1 RI will be used to define the nature and extent of DoD-related contamination, identify potential/actual source areas, identify contaminant migration pathways, fate and transport, and support the HHRA and SLERA/RSLERA for the Site.

All of the Phase 1 and Phase 2 data will be combined to estimate a reasonable maximum exposure as both types of sampling methods (biased versus random) results represent high-end exposure and will be used to initially assess risks to show the absence of an actionable risk. The data will be used to estimate upper confidence limits (UCLs) as the exposure point concentrations (EPCs) for the HHRA and SLERA/RSLERA. In cases where the UCL exceeds the maximum detected concentration, the maximum concentration will be used as the EPC. Although most of the Phase 1 datasets are considered to be biased, the majority of the Phase 2 sampling program will result in unbiased data because sampling locations were selected using a spatially balanced statistical design approach. While the combination of these datasets will represent conservative exposure estimates, some of which can be considered “worse case”, the risk assessments will be conducted using a tiered approach that incorporates refinements to reduce overall uncertainties.

The HHRA will include an evaluation of the potential impact that biased data may have on the risk results, as appropriate, in the uncertainty analysis. If the estimated risks for an EU exceed acceptable levels and chemicals of concern (COCs) are identified, the sample locations and analytical results that are based on a biased sampling approach will be reviewed to determine their impact on the quantitative risk estimates. The uncertainty assessment may include recalculating potential risks for the COCs using a refined dataset that excludes biased samples and/or evaluating smaller EUs that are defined based on sample-specific risks.

As discussed in the SLERA Work Plan (**Appendix C**), the RSLERA will evaluate COPECs identified in the initial SLERA screening process using less conservative exposure assumptions and any identified screening value exceedances will also be evaluated in the uncertainty analysis, which will consider the potential impact of sample bias and data gaps on the estimates. The spatial distribution of COPEC concentrations within individual DUs, relative to the EUs of receptors with small foraging ranges, as well as the potential exposures across AOCs/DUs by wildlife receptors with broad foraging ranges, will also be considered.

A summary of the project tasks and schedule are presented in Worksheet #14/16.

### 11.2.4 What types of data are needed?

The types of data needed are described in the table in this section. Data include DoD-related concentrations in soil (both unsaturated and saturated/wet [i.e., hydric]), groundwater, surface water, porewater, and sediment. Synoptic water level data are needed in order to update groundwater flow and contaminant migration pathways, and hydraulic gradients. Stream flow measurements are needed to assist with contaminant transport physical modeling. Updated hydraulic conductivity estimates are needed to support hydrogeological CSM updates (e.g., groundwater flow velocity) and transport physical modeling. Either the radial flow steady state model or ellipsoidal flow steady state model developed by S.A. Vitale and G.A. Robbins will be used during low-flow sampling to estimate hydraulic conductivity. Additional details are provided in Section 14.2.7.1 Hydraulic Conductivity Testing. Sampling designs, locations, methods, and rationales are presented in Worksheets #17 and #18.

### 11.2.5 How “good” do the data need to be in order to support the environmental decision?

Definitive-quality data will be used as described in the table in this section. The data will be generated using rigorous sampling and analytical methods, such as approved EPA SW846 reference methods, where those methods exist. The data are not expected to be restricted in their use once data quality is established and validated. The chemical-specific analytical detection limits are presented in Worksheet #15.

### 11.2.6 How much data are needed? Where, when, and how should the data be collected/generated?

Worksheet #18, and Worksheet #20 present the number of samples to be collected for each environmental medium. It is assumed that the sampling effort, as determined based on the *Phase 1 Risk Screening and Data Gap Analysis* (USACE, 2023a), will be adequate to support the Phase 2 objectives with acceptable parameter estimation precision and decision error rates (e.g., background consistency). Two rounds of sediment, surface water and pore-water sampling will be collected at AOC 3 as well as groundwater sampling at AOC 1, AOC 3, and AOC 5. Along with two rounds of background data for these media, the data will be used to support a qualitative evaluation of potential seasonality effects. These data will be used qualitatively to determine whether seasonable variability is potentially substantial enough to impact conclusions in the RI; if so, additional data collection and a quantitative assessment will be considered. Recommendations for Phase 2 analyses were presented in Section 9 of the *Phase 1 Data Gap Analysis Report* (May 2023) (refer to **Appendix A** of this UFP-QAPP). Worksheet #20 presents the total number of QC samples to be collected. Standard operating procedures (SOPs) for field sampling and field analytical procedures described in **Appendix D** will be followed. Field forms are also included in **Appendix D**.

**Exhibit 11-1** summarizes the anticipated datasets available to evaluate human health and ecological risks at the AOCs. The tiered process of data evaluation is highlighted including the initial assessment of the combined Phase 1 and 2 datasets for consistency with background and comparison to conservative risk-based screening values. Potential refinement evaluation may follow depending on what data are not screened out initially. The exhibit also summarizes the spatial extent of overall AOCs and subunits that may be relevant to refinement level exposures and whether the datasets are considered biased which may affect interpretation of the risk calculations.

## Exhibit 11-1 – Summary of Potential Decision Units (DUs), Sampling Approaches and Available Data to Support Risk Analysis

| AOC | Decision Units | | Combine Phase 1 and Phase 2 Data in Risk Assessment? | Phase 1 Locations within DUs Considered when Selecting Phase 2 Locations | Biased vs Unbiased Sampling Approach | Summary of Media Datasets and Analytical Parameters [3] | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Phase 1 | | | | | | | | | | | | Phase 2 [4] | | | | | | | | | | | | | | | | |
| | Initial | Potential Refinement[1, 2] | | | | Soil (0-1' bgs) | Soil (1-5' bgs) | Soil (5-10' bgs) | Groundwater | VOCs | SVOCs | PAHs | Aroclors | 2,4-DNP | 2,4-DNCB | Picric Acid | Inorganics | Soil (0-1' bgs) | Soil (1-5' bgs) | Soil (5-10' bgs) | Groundwater [5] | Hydric Soil | Sediment (0-1' bgs) | Surface Water | Porewater | VOCs | SVOCs | PAHs | Aroclors [9] | 2,4-DNP | 2,4-DNCB | Picric Acid | TAL metals/mercury | Coal Microscopy |
| AOC 1 | Entire AOC (59.7 acres) **Figure 17-1** | Upland (43.7 acres) and hydric (16.0 acres) soils | Yes | MW: NYOW-01-22 [6] | Phase 1 - biased Phase 2 - combination; wetland soil is unbiased, ammonium picrate building soil is biased; GW - biased | 30 | 11 | 11 | 10 | | | | | ✓ | ✓ | ✓ | ✓ | 22 | 22 | 22 | 20 | 12 | None | None | None | | | | | ✓ | ✓ | ✓ | ✓ | |
| AOC 3 | Entire AOC (3.8 acres) **Figure 17-2** | Former landfill (2.4 acres including 1.3 acres unpaved) and Off-Site Area (1.4 acres) | Yes | SB: NYOW-03-005, NYOW-03-006, NYOW-03-008, NYOW-03-011, NYOW-03-012 MW: NYOW-03-009, NYOW-03-010, NYOW-03-013, NYOW-03-014, NYOW-03-015 | Phase 1 - biased (because outside the asphalt) Phase 2 - soil and 2 GW well locations in former landfill-unbiased (locations selected using GRTS); sediment and SW - unbiased (placed systematically with random start); other GW - biased | 16 | 18 | None | 7 | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | 17 | 17 | 17 | 14 | None | 16 | 16 | 16 | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | |
| AOC 4 | Entire AOC (63.1 acres) **Figure 17-3** | Average area of each DU (i.e., DU001, DU002, DU004, DU005, DU006, DU007, DU009, DU010, DU011, DU012, DU013, DU014) is approximately 5.3 acres | Yes (only the discrete data; not combining Phase 1 ISM data) | MW: NYOW-04-002, NYOW-04-003, NYOW-04-004, NYOW-04-005 | Phase 1 ISM - unbiased Phase 1 discrete - biased, drainage ditches Phase 2 discrete - unbiased (locations selected using GRTS) | 16 | 85 | 16 | 16 | | | | | ✓ | ✓ | ✓ | | 60 [7] | None | None | None | None | None | None | None | | | | | ✓ | ✓ | ✓ | | |
| AOC 5 | Entire AOC (5.1 acres) **Figure 17-4** | DU001 (0.90 acres) | Yes | SB: NYOW-05-013, NYOW-05-015 MW: NYOW-05-012, NYOW-05- | Phase 1 - biased Phase 2 - combination; all soil (and GW well locations | 25 | 25 | 25 | 12 | ✓ | ✓ | ✓ | ✓ | | | | ✓ | 32 | 32 | 32 | 22 | 3 | None | None | None | | | ✓ | ✓ | | | ✓ | | ✓ |

| AOC | Decision Units | | Combine Phase 1 and Phase 2 Data in Risk Assessment? | Phase 1 Locations within DUs Considered when Selecting Phase 2 Locations | Biased vs Unbiased Sampling Approach | Summary of Media Datasets and Analytical Parameters (3) | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Phase 1 | | | | | | | | | | | | Phase 2 (4) | | | | | | | | | | | | | | |
| | Initial | Potential Refinement(1, 2) | | | | Soil (0-1' bgs) | Soil (1-5' bgs) | Soil (5-10' bgs) | Groundwater | VOCs | SVOCs | PAHs | Aroclors | 2,4-DNP | 2,4-DNCB | Picric Acid | Inorganics | Soil (0-1' bgs) | Soil (1-5' bgs) | Soil (5-10' bgs) | Groundwater (5) | Hydric Soil | Sediment (0-1' bgs) | Surface Water | Porewater | VOCs | SVOCs | PAHs | Aroclors (9) | 2,4-DNP | 2,4-DNCB | Picric Acid | TAL metals/mercury | Coal Microscopy |
| | | | | 017-1, NYOW-05-019 | within DUs DU001, DU003 and DU004) - unbiased (locations selected using GRTS); other GW locations biased | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | DU002 (0.67 acres) | N/A (8) | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | ✓ |
| | | DU003 (3.3 acres) | Yes | SB: NYOW-05-007, NYOW-05-009<br>MW: NYOW-05-006, NYOW-05-008, NYOW-05-010 | | | | | | | | | | | | | | | | | | | | | | | | | | | | ✓ |
| | | DU004 (0.18 acres) | Yes | SB: NYOW-05-002, NYOW-05-003<br>MW: NYOW-05-001, NYOW-05-004, NYOW-05-005 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Notes:
(1) The human health risk assessment (HHRA) will initially include an evaluation of exposures and risks for the entire AOC, which will be treated as a single exposure unit. Potential risks may be further evaluated (i.e., refined) based on smaller DUs/exposure units or by using a sample-by-sample approach. The use of biased and unbiased samples in the HHRA will be addressed in the uncertainty analysis.
(2) Assumed individual wildlife receptor site foraging ranges (i.e., potential EUs) - 0.091 (vole) to 6,175 (dove) acres (see Table 5-1, Appendix C).
(3) Biased and unbiased data are light and dark shaded, respectively.
(4) Phase 2 groundwater (AOC 1, AOC 3 and AOC 5) and sediment, surface water, porewater (AOC 3) will be collected semi-annually for 1 year).
(5) Phase 2 groundwater monitoring well locations within the former landfill (AOC 3) and DU001, DU003 and DU004 (AOC 5) were selected using GRTS and are unbiased.
(6) Phase 2 sampling design also considered the presence of the following monitoring wells/soil boring locations which are located within the wetland: NYOW-01-044, NYOW-01-047,NYOW-01-050, NYOW-01-060, and NYOW-01-061.
(7) Five surface soil samples will be collected at each of the 12 remaining bunkers.
(8) No Phase 1 samples collected in DU002.
(9) Aroclor sampling at AOC 5 will be limited to soil (surface and subsurface) and groundwater at the former electrical substation as well as groundwater from the possible dump area and wells downgradient of the substation (MW-03 and MW-07) only.
AOC = Area of Concern
bgs = below ground surface
DNCB = dinitrochlorobenzene
DNP = dinitrophenol
DU = decision unit
GRTS = Generalized Random Tessellation Stratified software
GW = groundwater
ISM = incremental sampling methodology
MW = monitoring well
N/A = not applicable
PAH = polycyclic aromatic hydrocarbon
SB = subsurface
SVOC = semi-volatile organic compound
SW = surface water
TAL = target analyte list
VOC = volatile organic compound

### 11.2.7 Who will collect and generate the data?

USACE CENAE will collect the data. Eurofins Test America, Lancaster, Pennsylvania, a DoD Environmental Laboratory Accreditation Program laboratory (Certification No. 0001.01) will analyze all samples requiring standard analyses (e.g., VOCs, SVOCs, PCBs, PAHs, 2,4-DNCB, 2,4-DNP, CEC, and metals). For those analyses Eurofins Lancaster is not certified to run, JV will ship to its' sister locations as detailed below. Copies of laboratory certification are included in **Appendix E**. Note at the time of this UFP-QAPP, Eurofins Lancaster is currently (August 2025) adding 2,4-DNCB as a target compound. A change page reflecting their lab limits, along with eQAPP updates will be made as soon as possible (currently anticipating September 2025). Also of note, CEC is not in the Quality System Manual (QSM) and therefore is not part of routine accreditation nor a NYSDEC certified analysis.

- Picric Acid analyses - Eurofins Test America, Denver, a DoD Environmental Laboratory Accreditation Program laboratory (Certification No. 2907.01) and National Environmental Laboratory Accredited Program New York State Certified (11964) laboratory.
- Microscopy **–** MicroVision Laboratories, Inc. **Note microscopy is not in the QSM and therefore is not part of routine accreditation nor a NYSDEC certified analysis.** Coal samples will be analyzed and reported in accordance with *SOP MVL/05-09* provided by MicroVision Laboratories, Inc. The methods used to detect coal, will be via scanning electron microscope (SEM), energy dispersive x-ray spectroscopy (EDS), and polarized light microscope (PLM).

Data will be generated by the same sources collecting the data. Additionally, data generated from the Phase 1 RI will be utilized in the evaluations.

### 11.2.8 How will the data be reported? How will the data be archived?

The data will be reported in accordance with procedures outlined in Worksheet #36. Hard copy and electronic (such as database management system and project geographic information system) data will be stored by the EAS WSP JV for 5 years after project completion. Project reports will be archived on digital media and stored in the project file. The report and electronic data deliverable (EDD) will be uploaded to meet FUDSChem requirements.

All environmental data collected during the course of this project will be transferred to the FUDSChem database located at www.fudschem.com, following the FUDSCHem User Manual (version 6.8) 24 May 2024. Synectics Data Management Services will support this project. The following data types, will be loaded into FUDSChem:

- Geological
- Hydrogeological
- Chemical

Location data are fundamental to environmental data storage/retrieval and the relevant location information for each task that includes the collection of field data will be uploaded. These include all data collected on the project for which spatial information is appropriate (i.e., may not apply to reconnaissance activities). At project initiation, the FUDSChem workspace shall be established in FUDSChem for the project and PDT members to share work products. Synectics, who created the FUDSChem database for USACE, will be used to help setup sampling events, load data, manage the database, and conduct data validation if KGS support is unavailable in order to meet project deadlines. If Synectics is used, then the EAS WSP JV project chemist (Michael Shadle) will still oversee, manage, and direct Synectics. The FUDSChem User's Manual (https://fudschem.com; USACE, 2020b) and New England District Data Management Plan (USACE, 2016) provide guidance for the storage of all data types (geotechnical, geological, hydrogeological, chemical, GIS, etc.).

The following electronic files (FUDSChem table names identified in parentheses) will be loaded to FUDSChem when collected:

- Spatial information pertaining to sample locations (northing, easting, and elevation) (**LDI/LDI Update**) and its associated site(s) (**SLX**).
- Hydrogeological information/water levels (**GWD**) and physical parameters of groundwater samples: pH, temperature, conductivity, turbidity, ORP, dissolved oxygen) (**EMI**).
- Soil/sediment grainsize (PDF/Excel files loaded to Library).
- Monitoring well construction information such as monitoring point elevations (**WCI**), screen intervals and other aspects of well construction (sand pack, bentonite seal, etc.) (**WINT**).
- Soil lithology and logged geologic stratigraphy (**LTD**).
- Well Maintenance Information (redevelopment/well rehab stickup to flush mount) (**WMI**).
- Unexploded ordnance Discovery (**UXODISC**) data (not expected at this site).

All electronic "Data Type" files are to be loaded within two weeks following data collection. If surveyed data are required prior to data upload (GWD/WCI), then these files shall be loaded within one week after the survey data are available. Hard-copy boring, monitoring well construction forms, low-flow purge records/well development records, survey reports, grain size distribution curves (excel file, if available) shall be loaded to the FUDSChem Library within the same time frames as required above, for QA purposes.

### Exhibit 11-2 – Data Quality Objectives

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| 1 | Problem Statement | Insufficient data exists that are needed to complete the RI. The Phase 1 RI (USACE, 2023a) identified several data gaps (refer to WS#17) that need to be evaluated in order to complete the RI (USACE, 2023a). Project objectives include:<br>• Fully delineate the nature and extent of COPCs in soil, groundwater, surface water, porewater, and sediment.<br>• Update the CSM, including contaminant migration pathways, fate and transport, geologic and hydrogeologic site conditions, and exposure pathways.<br>• Define and establish background concentrations for the appropriate media (e.g., soil, groundwater, surface water, porewater, and sediment).<br>• Conduct a quantitative baseline HHRA and SLERA/RSLERA. The HHRA will estimate potential HHRA risks associated with exposure to COPCs in soil, groundwater, surface water, porewater, and sediment. The specific objective of the SLERA/RSLERA process is to determine whether the potential for ecological impacts is negligible. If this cannot be concluded for all AOCs under investigation, the SLERA/RSLERA will identify those COPECs, environmental media, exposure pathways, and representative receptor categories that can be excluded from further consideration. |
| 2 | Identify the Goals of the Study | Overall, perform additional site assessment field sampling activities (i.e., soil, groundwater, surface water, porewater, and sediment) to define/refine nature and extent of COPCs in these various media at each AOC. The Phase 1 and 2 data will be combined and used to initially assess risks to show the absence of an actionable risk. If unacceptable risks are determined, the risk assessment will be refined and/or additional investigations may be warranted. Specific sampling and goals per AOC are described below:<br><br><u>AOC 1</u>:<br>1. Determine whether potential source areas (i.e., APBs) contaminate soil and groundwater beyond an unacceptable risk. Fully delineate potential contamination as the Phase 1 RI did not collect subsurface samples in most cases surrounding the potential source areas (i.e., APBs).<br><br>2. Collect soil (saturated/wet [i.e., hydric]) samples in wetland areas in between APBs and dryer houses to determine if a contaminant migration pathway is complete to wetlands (i.e., potential groundwater seeps and/or surface water runoff pathway). |

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| 2 | Identify the Goals of the Study (cont'd) | AOC 1 (cont'd):<br>3. Characterize groundwater concentrations by installing properly constructed permanent monitoring wells.<br>4. Determine groundwater flow and contaminant migration pathways and hydraulic gradients by installing permanent monitoring wells and conducting synoptic water level surveys.<br>5. Update hydraulic conductivity values for AOC 1 by using steady-state drawdown and steady-state discharge measurements that are collected during low-flow sampling of newly installed wells. The steady-state drawdown and discharge measurements will be inputted into site specific flow models to generate an estimated hydraulic conductivity value.<br>AOC 3:<br>1. Determine whether potential source areas (i.e., former landfill and former OSA) contaminate soil, groundwater, surface water, porewater, and sediment beyond an unacceptable risk.<br>2. Determine if a groundwater to surface water and/or a surface water runoff pathway is complete in the unnamed stream to the north of the parking lot.<br>3. Characterize groundwater concentrations by installing properly constructed permanent monitoring wells.<br>4. Determine groundwater flow and contaminant migration pathways and hydraulic gradients by installing permanent monitoring wells and conducting synoptic water level surveys.<br>5. Update hydraulic conductivity values for AOC 3 by using steady-state drawdown and steady-state discharge measurements that are collected during low-flow sampling of newly installed wells. The steady-state drawdown and discharge measurements will be inputted into site specific flow models to generate an estimated hydraulic conductivity value.<br>AOC 4:<br>1. Confirm Phase 1 RI results by conducting discrete soil sampling.<br>AOC 5:<br>1. Determine whether potential source areas (i.e., boiler house, electrical substation, CABs, CSA, and/or possible dump area) contaminate soil and groundwater beyond an unacceptable risk.<br>2. Determine whether the ditch (i.e., DU002) has been impacted by contaminant migration from potential source areas by comparing these results to the results from other potential sources (i.e., boiler house, electrical substation, CSA, CABs, and potential dump area).<br>3. Evaluate soil and groundwater concentrations in potential source areas (i.e., boiler house, electrical substation, CSA, CABs, and potential dump area).<br>4. Characterize groundwater concentrations by installing properly constructed permanent monitoring wells.<br>5. Determine groundwater flow and contaminant migration pathways and hydraulic gradients by installing permanent monitoring wells and conducting synoptic water level surveys.<br>6. Determine if a contaminant migration pathway to wetlands (i.e., potential groundwater seeps and/or surface water runoff pathway) exists. Determine the presence/absence of contamination.<br>7. Update hydraulic conductivity values for AOC 5 by using steady-state drawdown and steady-state discharge measurements that are collected during low-flow sampling of newly installed wells. The steady-state drawdown and discharge measurements will be inputted into site specific flow models to generate an estimated hydraulic conductivity value. |

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| 2 | Identify the Goals of the Study (cont'd) | AOC 5 (cont'd):<br>8. Collect a subset of surface soil and subsurface soil samples within the CSA and near the CABs within AOC 5 and analyze via microscopy, similar to what was completed during the Phase 1 RI. The locations selected for microscopy samples will be biased to areas where coal particles are observed on the surface or within the soil core. (Additionally, coal particles if observed within the soil core, will be described on the boring log). The coal microscopy data (Phase 1 and Phase 2) will be used to support the CSM in terms of nature and extent (i.e., source) and fate and transport. All chemical data will be used to determine if CERCLA related contaminants pose a risk to human health and the environment. If the combined Phase 1 and Phase 2 results indicate that PAHs and metals are both above background and risk screening levels, the coal microscopy data will be used in a qualitative "lines of evidence" approach to distinguish metal and PAH contamination in coal vs. metal and PAH contamination absorbed to soils in the uncertainty section of the risk assessment.<br>Background:<br>1. Collect additional background concentration data in wetland (i.e., hydric) soil, groundwater, surface water, porewater, and sediment for use in the HHRA/SLERA/RSLERA.<br>2. Evaluate groundwater flow pathways.<br>3. Update hydraulic conductivity values for the background by using steady-state drawdown and steady-state discharge measurements that are collected during low-flow sampling of newly installed wells. The steady-state drawdown and discharge measurements will be inputted into site specific flow models to generate an estimated hydraulic conductivity value. Using site assessment data, along with background concentrations and Phase 1 RI results, prepare an HHRA for current and reasonably anticipated future land uses by AOC. The HHRA will evaluate if potential human health risks are associated with current or future land use exposures to COPCs.<br>4. Prepare a SLERA/RSLERA that evaluates the potential for adverse effects to ecological receptors associated with exposures to COPECs. |
| 3 | Identify information inputs | Soil (unsaturated and saturated/wet [i.e., hydric]), groundwater, surface water, porewater, and sediment sampling, along with synoptic gauging events and stream flow measurements as described in this UFP-QAPP and results from the Phase 1 RI. The Phase 1 and 2 data will be combined and used to initially assess risks to show the absence of an actionable risk. If unacceptable risks are determined, the risk assessment will be refined and/or additional investigations may be warranted. The following investigation techniques, field activities, and evaluation methods will be implemented by AOC:<br><br>AOC 1:<br>• Soil sampling using DPT and/or manual methods (e.g., percussion, hand auger) to collect surface (0-1 ft bgs) and subsurface (1-5, and 5-10 ft bgs) samples in the vicinity of the APBs, and within the wetlands located in between the APBs and dryer houses. Analysis will include: 2,4-DNCB, 2,4-DNP, picric acid, and total TAL metals/mercury. This is a one (1)-time event from 22 soil borings (up three (3) sample intervals per boring, resulting in 66 samples) and from 12 surface soil (0-1 ft bgs) only locations within the wetland (12 samples) for a total of up to 78 samples. Geotechnical/geochemical samples (grain size, CEC, TOC, and pH) will also be collected at five (5) borings (up to 3 samples per boring, resulting in up to 15 samples). Geotechnical/geochemical samples (grain size, CEC, TOC, and pH) will also be collected from four (4) hydric surface soil sample locations. |

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| 3 | Identify information inputs (cont'd) | AOC 1 (cont'd):<br>• Groundwater sampling from newly installed proposed monitoring well locations in potential source areas (i.e., APBs, dryer houses), and downgradient of potential sources (i.e., APBs, and dryer houses) will be conducted semi-annually for 1 year from ten (10) locations. Analysis will include 2,4-DNCB, 2,4-DNP, picric acid, total and dissolved (field-filtered) TAL metals/mercury, DOC (field-filtered), and hardness. The data obtained from the groundwater analyses listed above will be used to fill the gap in the evaluation of AOC 1 surface geology, hydrogeology, and human and ecological receptors as well as meet the objective of determining source areas. Section 9 of the *Final Phase 1 Data Gap Analysis Report* (May 2023) recommended installation of permanent groundwater monitoring wells and collection of representative samples for the analyses listed above in order to evaluate hydrogeologic conditions and aquifer characteristics.<br>AOC 3:<br>• Soil sampling using DPT to collect surface (0-1 ft bgs) and subsurface (1-5, and 5-10 ft bgs) samples in potential source areas (landfill area, north of parking lot, OSA) and surrounding areas. Analysis will include: VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, and total TAL metals/mercury. This is a one (1)-time event from seventeen (17) locations (up to three (3) sample intervals per boring, resulting in 51 samples). Geotechnical/geochemical analyses (grain size, CEC, TOC, and pH) will also be collected at seven (7) borings (up to 3 samples per boring, resulting in up to 21 samples).<br>• Groundwater sampling from newly installed proposed monitoring well locations in potential source areas (landfill area, north of parking lot, OSA) and surrounding areas will be taken semi-annually for 1 year from seven (7) locations. Analysis will include VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, and total and dissolved (field-filtered) TAL metals/mercury, DOC (field-filtered), and hardness. Section 9 of the *Final Phase 1 Data Gap Analysis Report* (May 2023) recommended installation of permanent groundwater monitoring wells and collection of representative samples for the analyses listed above in order to evaluate hydrogeologic conditions and aquifer characteristics.<br>• Surface water sampling using direct-dip methods will be employed at eight (8) locations within the unnamed stream semi-annually for 1 year. Analysis will include VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, and total and dissolved (field-filtered) TAL metals/mercury. Sample analysis will also include DOC (field-filtered), hardness, and total suspended solids (TSS).<br>• Porewater sampling using push point sampler will be employed at eight (8) locations within the unnamed stream semi-annually for 1 year. Porewater samples will be co-located with surface water locations. Analysis will include VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, and total and dissolved (field-filtered) TAL metals/mercury.<br>• Sediment sampling using hand coring methods will be employed at eight (8) locations within the unnamed stream semi-annually for 1 year. Sediment samples will be co-located with surface water/porewater locations. Analysis will include VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, and total TAL metals/mercury. Sample analysis will also include grain size, TOC, and pH.<br>• Section 9 of the Final Phase 1 Data Gap Analysis Report (May 2023) recommended sediment, surface water and pore water sampling for the listed analyses in order to assess ecological risk.<br>AOC 4:<br>• Soil sampling using hand augering to collect surface (0-1 ft bgs) samples within Phase 1 RI DUs. Five locations at each Phase 1 RI DUs surrounding the twelve bunkers will result in a total of 60 locations. Analysis will include: 2,4-DNCB, 2,4-DNP, and picric acid. This is a one (1)-time event.<br>AOC 5:<br>• Soil sampling using DPT and/or manual methods (e.g., percussion, hand auger) to collect surface (0-1 ft bgs) and subsurface (1-5, and 5-10 ft bgs) samples in the vicinity of and downgradient of potential source areas (e.g., boiler house, CSA, etc.) and from the wetlands located to the west of AOC 5. Four DUs (eight borings per unit) will be placed along: (1) former electrical substation and boiler house, (2) along the former drainage ditch and CABs, (3) around the former CSA, and (4) at the possible dump area. Analysis will include PAHs and total TAL metals/mercury. Additionally, PCB |

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| | | analysis will be included for surface and subsurface soil samples collected within the former electrical substation only because an aroclor was detected in a Phase 1 soil sample from the area above a PAL. This is a one (1)-time event from 32 DPT soil boring locations (up to three (3) intervals per location, resulting in 96 samples) and from three (3) surface soil (0-1 ft bgs) only locations within the wetland (i.e., three (3) samples) for a total of up to 99 samples. Geotechnical/geochemical analyses (grain size, CEC, TOC, and pH) will also be collected at each DU (i.e., five (5) borings (up to 3 samples per boring, resulting in up to 15 samples. Note DU#1 will have two borings were there are geotechnical/geochemical analyses collected). Geotechnical/geochemical analyses (grain size, CEC, TOC, and pH) will also be collected at one (1) hydric soil sample location (i.e., one sample). Coal by microscopy will also be collected at all eight borings within CSA (up to three (3) intervals per location), four borings closest to the CABs (up to three (3) intervals per location), and three borings closest to the boiler house (up to three (3) intervals per location), resulting in a potential 45 samples for microscopy.<br>• Groundwater sampling from newly installed proposed monitoring well locations in the vicinity of and downgradient of potential source areas (e.g., boiler house, coal storage area, etc.) will be taken semi-annually for 1 year from eleven (11) locations. Analysis will include PAHs and total and dissolved (field-filtered) TAL metals/mercury, DOC (field-filtered), and hardness. Additionally, PCB analysis will be included for groundwater samples collected at monitoring wells installed within the former electrical substation and possible dump area and wells downgradient of the substation (MW-03 and MW-07 only). Section 9 of the *Final Phase 1 Data Gap Analysis Report* (May 2023) recommended installation of permanent groundwater monitoring wells and collection of representative samples for the analyses listed above in order to evaluate hydrogeologic conditions and aquifer characteristics.<br><u>Background</u>:<br>• Soil sampling using hand augering techniques to collect surface (0-1 ft bgs) samples in hydric soils in wetlands located west of AOC 3. Analysis will include PAHs and total TAL metals/mercury, along with geotechnical/geochemical parameters (grain size, CEC, TOC, and pH). This is a one (1)-time event from eight (8) locations (a total of up to eight (8) samples). The Final Phase 1 Data Gap Analysis Report (May 2023) (Appendices F, G and H) established a process for defining background conditions for inorganic and PAH analytes and the additional background datasets will also be evaluated using this same approach to support the risk assessments. In addition, the NYSDEC (2006) statewide inorganic soil background study may also be considered to support decision-making particularly if local background concentrations (e.g., arsenic) are determined to pose unacceptable risks to human or ecological receptors.<br>• Groundwater sampling from newly installed proposed monitoring well locations in the vicinity of previously installed Phase 1 RI background temporary well locations will be taken semi-annually for 1 year from six (6) locations. Analysis will include PAHs and total and dissolved (field-filtered) TAL metals/mercury, DOC (field-filtered), and hardness.<br>• Surface water sampling using direct-dip methods will be employed at eight (8) locations within the unnamed stream located west of AOC 3 semi-annually for 1 year. Analysis will include PAHs and total and dissolved (field-filtered) TAL metals/mercury, DOC (field-filtered), hardness, and TSS.<br>• Porewater sampling using push point sampler will be employed at eight (8) locations within the unnamed stream located west of AOC 3 semi-annually for 1 year. Porewater samples will be co-located with surface water locations. Analysis will include PAHs and total and dissolved (field-filtered) TAL metals/mercury.<br>• Sediment sampling using hand coring methods will be employed at eight (8) locations within the unnamed stream located west of AOC 3 semi-annually for 1 year. Sediment samples will be co-located with surface water/porewater locations. Analysis will include PAHs and total TAL metals/mercury. Sample analysis will also include grain size, TOC, and pH.<br><br>The *Final Phase 1 Data Gap Analysis Report* (May 2023) (Appendices F, G and H) established a process for defining background conditions for inorganic and PAH analytes and the additional background datasets will also be evaluated using this same approach to support the risk assessments. In addition, the NYSDEC (2006) statewide inorganic soil background study may also be considered to support decision-making particularly if local |

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| | | background concentrations (e.g., arsenic) are determined to pose unacceptable risks to human or ecological receptors. Site-specific BTVs will be used as a first line of evidence to determine whether concentrations detected in site media are attributable to background levels. Comparison to the site-specific BTVs is based on the null hypothesis that the site concentrations are consistent with background concentrations. If comparison to the site-specific BTVs indicates the likelihood of false positives (Type I error or the incorrect rejection of the null hypothesis), either single- or two-sample hypothesis testing may be considered for PAH and/or inorganic analytes as an additional risk refinement. The statewide background values (NYSDEC 2006) will also be used as a supporting line of evidence in the site-to-background comparisons.<br><br>HHRA and SLERA/RSLERA evaluations will use newly collected and Phase 1 RI data as appropriate. Site data will be used to calculate potential risks to human receptors where concentrations exceed risk-based screening levels. Inputs used to calculate potential human health cancer risks and hazards will be based on default and site-specific exposure assumptions and intake equations consistent with USACE and EPA guidance. Default exposure assumptions will be sourced from EPA guidance. Toxicological inputs will be based on the EPA (2003) guidance toxicological hierarchy. For ecological receptors, site chemistry data will be used to establish exposure point concentrations for comparisons to direct contact ecotoxicological benchmarks and as inputs into dietary exposure models to evaluate wildlife ingestion pathways. |
| 3 | Identify Information Inputs (cont'd) | Dietary exposure models will be developed using literature-based exposure parameters, bioaccumulation factors, and toxicity reference values. A site reconnaissance survey will be conducted by a qualified ecologist to support the development of the ecological CSM, including the identification of representative ecological receptors for evaluation in the SLERA. |
| 4 | Define the Boundaries of the Study | <u>AOC 1</u>:<br>• Horizontal boundaries for AOC 1 extend the length of the APBs (approximately 3,000 feet northwest/southeast, and to the dryer houses (approximately 1,000 feet to the east/northeast).<br>• Vertical boundaries for AOC 3 for soil extend to 10 ft bgs. For groundwater, not to exceed 20 ft bgs.<br><u>AOC 3</u>:<br>• Horizontal boundaries for AOC 3 extend from where the unnamed stream crosses beneath Potter Road to the west of the site and extends approximately 1,200 feet to the east. Using the southern boundary of the open storage area, the boundary extends approximately 1,000 feet to the north.<br>• Vertical boundaries for AOC 3 for soil extend to 10 ft bgs. For groundwater, not to exceed 20 ft bgs.<br><u>AOC 4</u>:<br>• Horizontal boundaries for AOC 4 are the footprints of each individual bunker approximately 30 ft x 40 ft.<br>• Vertical boundaries for AOC 4 for soil extend to 1 ft bgs.<br><u>AOC 5</u>:<br>• Horizontal boundaries for AOC 5 begin at the edge of Route 631 and extend approximately 1,000 feet to the west/southwest. The north/south boundary begins across from Deep Glad Drive and extends approximately 600 feet to the south. If analytical parameters in the hydric soil samples (i.e., NYOW-05-058 through -060, Figure 17-5) collected along the current western boundary exceed both ecological screening values and hydric soil background BTVs, the PDT will consider the need to collect additional characterization samples in this wetland habitat.<br>• Vertical boundaries for AOC 5 soil extend to 10 ft bgs. For groundwater, not to exceed 20 ft bgs.<br><br>Semi-annual sampling for 1 year will be conducted to qualitatively evaluate potential temporal variability in groundwater, sediment, surface water and pore water concentrations. |

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| 5 | Develop the Analytical Approach | Soil (unsaturated and saturated [i.e.,hydric]), groundwater, surface water, porewater, and sediment concentrations will be compared to risk-based screening levels, federal (applicable) standards, and background concentrations. This comparison will be completed in the HHRA and SLERA/RSLERA using the combined Phase 1 and 2 datasets, and each AOC will initially be treated as a single EU. Cumulative Excess Lifetime Risk calculations (in accordance with state and federal guidance documents) and hazard indices will be calculated in the risk assessments (only hazard is calculated in the SLERA/RSLERA). Based on the results of the initial screening and risk calculations, the risk assessment CSMs will be used to develop refined EU assumptions for receptors and analytes that are not eliminated during the initial screening process. The risk refinement process will be included in the uncertainty analyses and will address the use of biased samples (e.g., samples collected near buildings and/or sources) in the risk assessments and the potential overestimation or underestimation of risks. This may include a sample-by-sample evaluation and/or recalculation of risks with only unbiased samples. If the risk refinement process does not adequately address the potential decision errors associated with including biased samples, the use of weighted EPCs (spatial and/or volume weighted) may be considered as an alternative approach in the uncertainty analyses. Risk assessment findings will be documented in the RI Report and will guide future decisions.<br><br>The HHRA and SLERA/RSLERA will be conducted in accordance with CERCLA requirements and consistent with US EPA and USACE risk assessment guidance and all applicable NYSDEC requirements as appropriate. |
| 6 | Specify Performance or Acceptance Criteria | All work shall have the ability to provide samples that represent current conditions to address data gaps and provide information to support the HHRA, and SLERA. Sampling design will be as specified in this QAPP; analytical data will meet USACE and EPA specifications for precision, accuracy, representativeness, completeness, and comparability. If after data collection, additional samples are needed in order to fulfill identified data gaps, further investigations will be proposed via a work plan addendum. Following the initial screening of the combined Phase 1 and 2 datasets and potential refinement of EUs, the risk assessments will evaluate the robustness of the available datasets to support decision-making. If quantitative hypothesis testing is conducted (e.g., to evaluate consistency of site data with background conditions), power analysis may be used to determine whether additional sample collection is necessary to achieve acceptable decision error rates. |
| 7 | Develop the Detailed Plan for Obtaining Data | Tasks will be conducted as described in Worksheet #14/16. Samples will be collected as described in Worksheets #17 and #18, with analytical design requirements presented in Worksheet #s 19/30, 20, 25, 26/27, and 28. |

# Worksheet #12 – Measurement Performance Criteria

The quality of the data to be collected for this project will be verified through appropriate measurement performance criteria (MPC) established for both sampling procedures and analytical methods. The criteria should relate to data quality indicators, consisting of precision, accuracy, representativeness, comparability, and completeness as well as sensitivity. MPC for NYOW methods are presented in the worksheets below: Analytical SOPs are listed in Worksheet #23 and are included in **Appendix F**. Completeness will be evaluated separately for each DU, analyte and data use to determine whether the data needs are adequate for the decisions to be made.

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## Worksheet #12-1

Matrix: Soil/Groundwater/Surface water/Pore Water/Sediment
Analytical Group: VOCs
Concentration Level: Low

| Sampling Procedure | Analytical Method/SOP | Data Quality Indicator (DQI) | Measurement Performance Criteria | QC Sample and/or Activity Used to Assess Measurement Performance | QC Sample Assesses Error for Sampling (S), Analytical (A) or Both (S&A) |
|---|---|---|---|---|---|
| Aqueous/Solid sampling | EPA 8260C/D/ WI8236/WI8194 | Accuracy | Recovery limits per QSM 6.0 | Surrogate Spike | A |
| Aqueous/Solid sampling | EPA 8260C/D/ WI8236/WI8194 | Accuracy/Bias/Precision | Recovery limits and RPDs per QSM 6.0 | Laboratory Control Spike/Matrix Spike and their Duplicates | S & A |
| Aqueous/Solid sampling | EPA 8260C/D/ WI8236/WI8194 | Accuracy/Laboratory Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater | Method Blank | A |
| Aqueous/Solid sampling | EPA 8260C/D/ WI8236/WI8194 | Precision | Solid FD RPDs ≤ 50%; Aqueous FD RPDs ≤ 30%. | Field Duplicate | S & A |
| Aqueous/Solid sampling | EPA 8260C/D/ WI8236/WI8194 | Accuracy/Field Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample. | Field Blank | S & A |
| Aqueous/Solid sampling | EPA 8260C/D/ WI8236/WI8194 | Accuracy/Transport Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample. | Trip Blank | A |
| Aqueous/Solid sampling | EPA 8260C/D/ WI8236/WI8194 | Completeness | Evaluated on a per-data-use basis. | Reported Sample Data | S & A |
| Aqueous/Solid sampling | EPA 8260C/D/ WI8236/WI8194 | Bias/Holding Time | See Worksheet #18 for holding time criteria for all matrices. | Reported Sample Data | A |
| Aqueous/Solid sampling | EPA 8260C/D /WI8236/WI8194 | Sensitivity | LOQ ≤ to PQLs | LOQ | S |

## Worksheet #12-2

Matrix: Soil/Groundwater/Surface Water/Pore Water/Sediment
Analytical Group: SVOC
Concentration Level: Low

| Sampling Procedure | Analytical Method/SOP | Data Quality Indicator (DQI) | Measurement Performance Criteria | QC Sample and/or Activity Used to Assess Measurement Performance | QC Sample Assesses Error for Sampling (S), Analytical (A) or Both (S&A) |
|---|---|---|---|---|---|
| Aqueous/Solid sampling | SW-846 8270E WI9617 | Accuracy | Recovery limits per QSM 6.0 | Surrogate Spike | A |
| Aqueous/Solid sampling | SW-846 8270E WI9617 | Accuracy/Bias/Precision | Recovery limits and RPDs per QSM 6.0 | Laboratory Control Spike/Matrix Spike and their Duplicates | S & A |
| Aqueous/Solid sampling | SW-846 8270E WI9617 | Laboratory Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater | Method Blank | A |
| Aqueous/Solid sampling | SW-846 8270E WI9617 | Precision | Solid FD RPDs ≤ 50%; Aqueous FD RPDs ≤ 30%. | Field Duplicate | S & A |
| Aqueous/Solid sampling | SW-846 8270E WI9617 | Accuracy/Field Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater | Field Blank | S & A |
| Aqueous/Solid sampling | SW-846 8270E WI9617 | Completeness | Evaluated on a per-data-use basis. | Reported Sample Data | S & A |
| Aqueous/Solid sampling | SW-846 8270E WI9617 | Bias/Holding Time | See Worksheet #18 for holding time criteria for all matrices. | Reported Sample Data | A |
| Aqueous/Solid sampling | SW-846 8270E WI9617 | Sensitivity | LOQs ≤ to PQLs | LOQ | S |

## Worksheet #12-3

Matrix: Soil (includes hydric)/Groundwater
Analytical Group: SVOC – 2,4-DNP and 2,4-DNCB
Concentration Level: Low

| Sampling Procedure | Analytical Method/SOP | Data Quality Indicator (DQI) | Measurement Performance Criteria | QC Sample and/or Activity Used to Assess Measurement Performance | QC Sample Assesses Error for Sampling (S), Analytical (A) or Both (S&A) |
|---|---|---|---|---|---|
| Aqueous/Solid sampling | SW-846 8270E WI9617 | Accuracy | 2,4,6-tribromophenol<br>Water – 10-130%R<br>Soil – 21-132%R<br>Nitrobenzene-d5<br>Limits per QSM 6.0 Appendix C | Surrogate Spike<br>2,4,6-tribromophenol (acid)<br>Nitrobenzene-d5 (base-neutral) | A |
| Aqueous/Solid sampling | SW-846 8270E WI9617 | Accuracy/Bias/Precision | Water –<br>2.4-DNP – 47-121%R<br>2,4-DNCB – TBD<br>Soil –<br>2,4-DNP/2,4-DNCB – 10-130%/TBD<br>RPDs ≤ 30%. | Laboratory Control Spike/Matrix Spike and their Duplicates | S & A |
| Aqueous/Solid sampling | SW-846 8270E WI9617 | Laboratory Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater | Method Blank | A |
| Aqueous/Solid sampling | SW-846 8270E WI9617 | Precision | Solid FD RPDs ≤ 50%;<br>Aqueous FD RPDs ≤ 30%. | Field Duplicate | S & A |
| Aqueous/Solid sampling | SW-846 8270E WI9617 | Accuracy/Field Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater | Field Blank | S & A |
| Aqueous/Solid sampling | SW-846 8270E WI9617 | Completeness | Evaluated on a per-data-use basis. | Reported Sample Data | S & A |
| Aqueous/Solid sampling | SW-846 8270E WI9617 | Bias/Holding Time | See Worksheet #18 for holding time criteria for all matrices. | Reported Sample Data | A |
| Aqueous/Solid sampling | SW-846 8270E WI9617 | Sensitivity | LOQs ≤ to PQLs | LOQ | S |

## Worksheet #12-4

Matrix: Soil/Groundwater/Surface Wate/Porewater/Sediment SIM
Analytical Group: SVOA - Alkyl PAH SIM
Concentration Level: Low

| Sampling Procedure | Analytical Method/SOP | Data Quality Indicator (DQI) | Measurement Performance Criteria | QC Sample and/or Activity Used to Assess Measurement Performance | QC Sample Assesses Error for Sampling (S), Analytical (A) or Both (S&A) |
|---|---|---|---|---|---|
| Aqueous/Solid sampling | SW-846 8270E SIM WI9995 | Accuracy | QSM .6.0 limits* | Surrogate Spike | A |
| Aqueous/ Solid sampling | SW-846 8270E SIM WI9995 | Accuracy/Bias/Precision | Recovery limits per QSM 6.0* | Laboratory Control Spike/Matrix Spike and their Duplicates | S & A |
| Aqueous/ Solid sampling | SW-846 8270E SIM WI9995 | Accuracy/Laboratory Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater | Method Blank | A |
| Aqueous/ Solid sampling | SW-846 8270E SIM WI9995 | Precision | Solid FD RPDs ≤ 50; Aqueous FD RPDs ≤ 30%. | Field Duplicate | S & A |
| Aqueous/ Solid sampling | SW-846 8270E SIM WI9995 | Accuracy/Field Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater | Field Blank | S & A |
| Aqueous/ Solid sampling | SW-846 8270E SIM WI9995 | Completeness | Evaluated on a per-data-use basis. | Reported Sample Data | S & A |
| Aqueous/ Solid sampling | SW-846 8270E SIM WI9995 | Bias/Holding Time | See Worksheet #18 for holding time criteria for all matrices. | Reported Sample Data | A |
| Aqueous/ Solid sampling | SW-846 8270E SIM WI9995 | Sensitivity | LOQ ≤ to PQLs | LOQ | S |

## Worksheet #12-5

Matrix: Soil/Groundwater/Surface water/Pore Water/Sediment
Analytical Group: Picric Acid
Concentration Level: Low

| Sampling Procedure | Analytical Method/SOP | Data Quality Indicator (DQI) | Measurement Performance Criteria | QC Sample and/or Activity Used to Assess Measurement Performance | QC Sample Assesses Error for Sampling (S), Analytical (A) or Both (S&A) |
|---|---|---|---|---|---|
| Aqueous/ Solid sampling | SW-846 8330B/ DV-LC-0002 | Accuracy | Aqueous – 80-120%<br>Solid – 78-119%R | Surrogate Spike | A |
| Aqueous/ Solid sampling | SW-846 8330B/ DV-LC-0002 | Accuracy/Bias/Precision | Aqueous - 80-120%R/20% RPD<br>Solid – 38-184%R/20% RPD | Laboratory Control Spike/Matrix Spike and their Duplicates | S & A |
| Aqueous/ Solid sampling | SW-846 8330B/ DV-LC-0002 | Accuracy/Laboratory Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater | Method Blank | A |
| Aqueous/ Solid sampling | SW-846 8330B/ DV-LC-0002 | Precision | Solid FD RPDs ≤ 50%; Aqueous FD RPDs ≤ 30%. | Field Duplicate | S & A |
| Aqueous/ Solid sampling | SW-846 8330B/ DV-LC-0002 | Accuracy/Field Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample. | Field Blank | S & A |
| Aqueous/ Solid sampling | SW-846 8330B/ DV-LC-0002 | Completeness | Evaluated on a per-data-use basis. | Reported Sample Data | S & A |
| Aqueous/ Solid sampling | SW-846 8330B/ DV-LC-0002 | Bias/Holding Time | See Worksheet #18 for holding time criteria for all matrices. | Reported Sample Data | A |
| Aqueous/ Solid sampling | SW-846 8330B/ DV-LC-0002 | Sensitivity | LOQ ≤ to PQLs | LOQ | S |

## Worksheet #12-6

Matrix: Soil/Groundwater/Surface water/Pore Water/Sediment
Analytical Group: PCBs
Concentration Level: Low

| Sampling Procedure | Analytical Method/SOP | Data Quality Indicator (DQI) | Measurement Performance Criteria | QC Sample and/or Activity Used to Assess Measurement Performance | QC Sample Assesses Error for Sampling (S), Analytical (A) or Both (S&A) |
|---|---|---|---|---|---|
| Aqueous/ Solid sampling | SW-846 8082A/ WI9238/WI10004 | Accuracy | Recovery limits per QSM 6.0 | Surrogate Spike | A |
| Aqueous/ Solid sampling | SW-846 8082A/ WI9238/WI10004 | Accuracy/Bias/Precision | Recovery limits and RPDs per QSM 6.0 | Laboratory Control Spike/Matrix Spike and their Duplicates | S & A |
| Aqueous/ Solid sampling | SW-846 8082A/ WI9238/WI10004 | Accuracy/Laboratory Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater | Method Blank | A |
| Aqueous/ Solid sampling | SW-846 8082A/ WI9238/WI10004 | Precision | Solid FD RPDs ≤ 50%; Aqueous FD RPDs ≤ 30%. | Field Duplicate | S & A |
| Aqueous/ Solid sampling | SW-846 8082A/ WI9238/WI10004 | Accuracy/Field Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater | Field Blank | S & A |
| Aqueous/ Solid sampling | SW-846 8082A/ WI9238/WI10004 | Completeness | Evaluated on a per-data-use basis. | Reported Sample Data | S & A |
| Aqueous/ Solid sampling | SW-846 8082A/ WI9238/WI10004 | Bias/Holding Time | See Worksheet #18 for holding time criteria for all matrices | Reported Sample Data | A |
| Aqueous/ Solid sampling | SW-846 8082A/ WI9238/WI10004 | Sensitivity | LOQ ≤ to PQLs | LOQ | S |

## Worksheet #12-7

Matrix: Soil/Groundwater/Surface water/Pore Water/Sediment
Analytical Group: Metals - ICP/MS
Concentration Level: Low

| Sampling Procedure | Analytical Method/SOP | Data Quality Indicator (DQI) | Measurement Performance Criteria | QC Sample and/or Activity Used to Assess Measurement Performance | QC Sample Assesses Error for Sampling (S), Analytical (A) or Both (S&A) |
|---|---|---|---|---|---|
| Aqueous/ Solid sampling | SW-846 6020B WI11933 | Accuracy/Bias/Precision | Recovery limits and RPDs per QSM 6.0* | Laboratory Control Spike/Matrix Spike and their Duplicates | A |
| Aqueous/ Solid sampling | SW-846 6020B WI11933 | Accuracy/Laboratory Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample | Method Blank | A |
| Aqueous/ Solid sampling | SW-846 6020B WI11933 | Precision | RPD ≤20% | Lab Duplicate | S & A |
| Aqueous/ Solid sampling | SW-846 6020B WI11933 | Precision | Solid FD RPDs ≤ 50%; Aqueous FD RPDs ≤ 30%. | Field Duplicate | S & A |
| Aqueous/ Solid sampling | SW-846 6020B WI11933 | Accuracy/Field Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample | Field Blank | S & A |
| Aqueous/ Solid sampling | SW-846 6020B WI11933 | Completeness | Evaluated on a per-data-use basis. | Reported Sample Data | S & A |
| Aqueous/ Solid sampling | SW-846 6020B WI11933 | Bias/Holding Time | See Worksheet #18 for holding time criteria for all matrices | Reported Sample Data | A |
| Aqueous/ Solid sampling | SW-846 6020B WI11933 | Sensitivity | LOQ ≤ to PQLs | LOQ | S |

## Worksheet #12-8

Matrix: Soil/Groundwater/Surface water/Pore Water/Sediment
Analytical Group: Metals- Hg
Concentration Level: Low

| Sampling Procedure | Analytical Method/SOP | Data Quality Indicator (DQI) | Measurement Performance Criteria | QC Sample and/or Activity Used to Assess Measurement Performance | QC Sample Assesses Error for Sampling (S), Analytical (A) or Both (S&A) |
|---|---|---|---|---|---|
| Aqueous/ Solid sampling | SW-846 7470A/7471B WI7965 | Accuracy/Bias/Precision | Recovery limits per QSM 6.0; RPD ≤20% | Laboratory Control Spike/Matrix Spike and their Duplicates | A |
| Aqueous/ Solid sampling | SW-846 7470A/7471B WI7965 | Accuracy/Laboratory Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample | Method Blank | A |
| Aqueous/ Solid sampling | SW-846 7470A/7471B WI7965 | Precision | RPD ≤20% | Lab Duplicate | S & A |
| Aqueous/ Solid sampling | SW-846 7470A/7471B WI7965 | Precision | Solid FD RPDs ≤ 50%; Aqueous FD RPDs ≤ 30%. | Field Duplicate | S & A |
| Aqueous/ Solid sampling | SW-846 7470A/7471B WI7965 | Accuracy/Field Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample | Field Blank | S & A |
| Aqueous/ Solid sampling | SW-846 7470A/7471B WI7965 | Completeness | Evaluated on a per-data-use basis. | Reported Sample Data | S & A |
| Aqueous/ Solid sampling | SW-846 7470A/7471B WI7965 | Bias/Holding Time | See Worksheet #18 for holding time criteria for all matrices | Reported Sample Data | A |
| Aqueous/ Solid sampling | SW-846 7470A/7471B WI7965 | Sensitivity | LOQ ≤ to PQLs | LOQ | S |

## Worksheet #12-9

Matrix: Soil/Groundwater/Surface water/Sediment
Analytical Group: Dissolved/Total Organic Carbon
Concentration Level: Low

| Sampling Procedure | Analytical Method/SOP | Data Quality Indicator (DQI) | Measurement Performance Criteria | QC Sample and/or Activity Used to Assess Measurement Performance | QC Sample Assesses Error for Sampling (S), Analytical (A) or Both (S&A) |
|---|---|---|---|---|---|
| Aqueous/ Solid sampling | SM 5310C-2014<br>WI11637<br>9060A; WI11627 | Accuracy/Bias/Precision | Aqueous – 90-110%R/20% RPD<br>Soil – 36-163%R/20%RPD | Laboratory Control Spike/Matrix Spike | A |
| Aqueous/ Solid sampling | SM 5310C-2014<br>WI11637<br>9060A; WI11627 | Accuracy/Laboratory Contamination | No analytes detected > 1/2RL or >1/10 the amount measured in any sample | Method Blank | A |
| Aqueous/ Solid sampling | SM 5310C-2014<br>WI11637<br>9060A; WI11627 | Precision | RPD < 20% | Lab Duplicate | S & A |
| Aqueous/ Solid sampling | SM 5310C-2014<br>WI11637<br>9060A; WI11627 | Precision | Solid FD RPDs ≤ 50%; Aqueous FD RPDs ≤ 30%. | Field Duplicate | S & A |
| Aqueous/ Solid sampling | SM 5310C-2014<br>WI11637<br>9060A; WI11627 | Accuracy/Field Contamination | No analytes detected > 1/2RL or >1/10 the amount measured in any sample | Field Blank | S & A |
| Aqueous/ Solid sampling | SM 5310C-2014<br>WI11637<br>9060A; WI11627 | Completeness | Evaluated on a per-data-use basis. | Reported Sample Data | S & A |
| Aqueous/ Solid sampling | SM 5310C-2014<br>WI11637<br>9060A; WI11627 | Bias/Holding Time | See Worksheet #18 for holding time criteria for all matrices | Reported Sample Data | A |
| Aqueous/ Solid sampling | SM 5310C-2014<br>WI11637<br>9060A; WI11627 | Sensitivity | LOQ ≤ to PQLs | LOQ | S |

## Worksheet #12-10

Matrix: Soil
Analytical Group: pH
Concentration Level: N/A

| Sampling Procedure | Analytical Method/SOP | Data Quality Indicator (DQI) | Measurement Performance Criteria | QC Sample and/or Activity Used to Assess Measurement Performance | QC Sample Assesses Error for Sampling (S), Analytical (A) or Both (S&A) |
|---|---|---|---|---|---|
| Solid sampling | SW9045<br>WI11518 | Accuracy/Bias/Precision | Soil – 95-105%R/RPD < 5% | Laboratory Control Spike/Laboratory Control Sample Duplicate | A |
| Solid sampling | SW9045<br>WI11518 | Precision | RPD < 20% | Lab Duplicate | S & A |
| Solid sampling | SW9045<br>WI11518 | Precision | Solid FD RPDs ≤ 50% | Field Duplicate | S & A |

## Worksheet #12-11

Matrix: Soil
Analytical Group: Cation Exchange Capacity (CEC)
Concentration Level: N/A

| Sampling Procedure | Analytical Method/SOP | Data Quality Indicator (DQI) | Measurement Performance Criteria | QC Sample and/or Activity Used to Assess Measurement Performance | QC Sample Assesses Error for Sampling (S), Analytical (A) or Both (S&A) |
|---|---|---|---|---|---|
| Solid sampling | SW9081<br>WI7562/WI11931 | Accuracy | No analytes detected > 1/2LOQ | Method Blank | A |
| Solid sampling | SW9081<br>WI7562/WI11931 | Precision | Solid FD RPDs ≤ 50% | Field Duplicate | S & A |

## Worksheet #12-12

Matrix: Aqueous
Analytical Group: Total Suspended Solids (TSS)
Concentration Level: N/A

| Sampling Procedure | Analytical Method/SOP | Data Quality Indicator (DQI) | Measurement Performance Criteria | QC Sample and/or Activity Used to Assess Measurement Performance | QC Sample Assesses Error for Sampling (S), Analytical (A) or Both (S&A) |
|---|---|---|---|---|---|
| Aqueous sampling | SM2540 WI11604 | Accuracy | No analytes detected > 1/2LOQ | Method Blank | A |
| Aqueous sampling | SM2540 WI11604 | Precision | FD RPDs ≤ 50% | Field Duplicate | S & A |

## Worksheet #12-13

Matrix: Aqueous
Analytical Group: Hardness
Concentration Level: N/A

| Sampling Procedure | Analytical Method/SOP | Data Quality Indicator (DQI) | Measurement Performance Criteria | QC Sample and/or Activity Used to Assess Measurement Performance | QC Sample Assesses Error for Sampling (S), Analytical (A) or Both (S&A) |
|---|---|---|---|---|---|
| Aqueous sampling | SM 2340 C-2011 or EPA 130.2; WI11475 | Completeness | Evaluated on a per-data-use basis. | Reported Sample Data | S&A |

## Worksheet #12-14

Matrix: Soil
Analytical Group: Grain Size
Concentration Level: N/A

| Sampling Procedure | Analytical Method/SOP | Data Quality Indicator (DQI) | Measurement Performance Criteria | QC Sample and/or Activity Used to Assess Measurement Performance | QC Sample Assesses Error for Sampling (S), Analytical (A) or Both (S&A) |
|---|---|---|---|---|---|
| Soil sampling | ASTM D422 Modified; WI46354 | Completeness | Evaluated on a per-data-use basis. | Reported Sample Data | S&A |

## Worksheet #13 – Secondary Data Uses and Limitations

Secondary data refer to historical data previously collected for the sites. The source(s) of the data, date of collection, planned uses, and limitations of the secondary data for each site are summarized in the following table.

| Secondary Data | Source | Date of Collection | How Data Will Be Used | Limitations on Data Use |
|---|---|---|---|---|
| Groundwater, soil | USACE, 2022. Final Remedial Investigation Phase 1 Field Report – AOC 1, AOC 3, AOC 4 ISM, and Background | 2021 | Historical data will be used to evaluate concentrations and trends and to place proposed Phase 2 locations | (1) Groundwater samples were collected from temporary locations which can over/underestimate concentrations. (2) Laboratory sensitivity issues were noted for the AOC 4 ISM surface soil samples. |
| Groundwater, soil | USACE, 2022. Final Remedial Investigation Phase 1 Field Report – AOC 4, and AOC 5 | 2021 | Historical data will be used to evaluate concentrations and trends and to place proposed Phase 2 locations | (1) Groundwater samples were collected from temporary locations which can over/underestimate concentrations |
| Groundwater, soil | USACE, 2023a. Phase 1 Risk Screening and Data Gaps Analysis, Former New York Ordnance Works Formerly Used Defense Site, Baldwinsville, New York. May. | 2023 | Historical data will be used to evaluate concentrations and trends (i.e., seasonal variability) and will be considered for the HHRA and SLERA/RSLERA. A statistical trend analysis will not be conducted. | (1) Groundwater samples were collected from temporary locations which can over/underestimate concentrations. (2) Laboratory sensitivity issues were noted for the AOC 4 ISM surface soil samples. |

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# Worksheets #14 and #16 – Project Tasks and Schedule

This worksheet provides specific project tasks and responsible parties. The planned start and end dates for the project tasks are provided in the schedule. Applicable SOPs that are used to supplement the work procedures described in Worksheet #14 and #16 are provided in Worksheet #21. The proposed activities are based on the project statement of work (USACE, 2022) and project DQOs (Worksheet #11).

## 14.1 Pre-Field Work Activities

Activities required before field tasks (e.g., soil sampling) begin include: site access and work location coordination, site reconnaissance, identification of boring and well locations, and well permits.

### 14.1.1 Site Access and Location Coordination

All project work will be coordinated with the USACE CENAE PM, Ms. Amanda Martin. Notice of field activities will be provided to the NYSDEC and the NYSDOH at least two weeks prior to the start of work. Additionally, field activities will be coordinated with the property owners at least 2 weeks prior to the work being conducted at their respective AOC. Work schedules are anticipated to follow a 5-day weekly schedule, Monday through Friday. Work is anticipated to be performed during daylight and within, typically, 8:00 AM to 5:00 PM.

Photographs are required to assist with the documentation of field activities, geologic features, sites, and sampling locations. Camera permits are not required.

### 14.1.2 Private Property Access

If work is to be conducted on private property, a ROE must be obtained in order to execute field investigations before accessing private property. USACE CENAE will be responsible for obtaining ROEs for all properties. The EAS WSP JV will provide a list of property owners to be contacted prior to the field activities. The list will include the mailing address and telephone number of the property owners (if available). Field work will commence once USACE CENAE establishes an access agreement with the owner(s) of each privately owned parcel proposed for the field program. The EAS WSP JV will contact and coordinate with property owners to schedule sampling activities. During the field program, sampling crews will carry a hard copy of the signed access agreement for each parcel, as needed. Per USACE CENAE direction, a minimum of two (2) full weeks (14 business days) advanced verbal notice will be provided to the facility/property owners prior to mobilization.

Due to the intrusive nature of some field activities, it is possible that property owners may object to having a drill rig on their property or may feel that the field team is trespassing. If USACE cannot secure ROEs, the EAS WSP JV will obtain the contact information for several of the closest neighbors (if possible) and provide the information to USACE CENAE to establish ROEs to the adjacent properties. If no ROEs can be obtained, then the location would be moved to the closest area that would not need an ROE.

### 14.1.3 Site Reconnaissance and Marking of Boring and Well Locations

Site reconnaissance and marking boring/sampling locations will consist of a site visit by the EAS WSP JV to identify overhead and obvious underground utility locations and other site features that may impede or preclude drilling. Impediments to drilling include uneven or soft ground, high degree slopes, and thick vegetation. Boring/sampling locations, including buffer areas, will be marked with white or pink paint, white or pink pin flags, or wooden stakes by the FTL. Drill paths will also be flagged for future clearing events.

### 14.1.4 Well Permits

The EAS WSP JV, through its drilling subcontractor (Labella Associates), will obtain any required local and state drilling and boring permits. Upon completion of borings, boring abandonment, and well installation, the EAS WSP JV, through its drilling subcontractor (Labella Associates), will submit any required completion reports.

## 14.2 Field Activities

Field activities that will occur to support Phase 2 RI data collection include (not necessarily in chronological order):

- Mobilization/Demobilization.
- Vegetation Clearing
- Utility Clearance
- Soil sampling.
- Monitoring Well Installation & Development
- Groundwater sampling semi-annually x 1 year.
    - Synoptic water levels (manual measurements) semi-annually x 1 year.
- Surface water sampling semi-annually x 1 year.
    - Stream Velocity Measurements semi-annually x 1 year.
- Porewater sampling semi-annually x 1 year.
- Sediment sampling semi-annually x 1 year.
- Stream Piezometer Installation
    - Synoptic water levels (manual measurements) semi-annually x 1 year.
- Survey
- Temporary Well Abandonment

Field activities will be performed at various stages throughout the program and will be conducted in accordance with the SOPs identified on Worksheet #21 and indicated below as applicable. The SOPs are included as **Appendix D**. The following subsections will describe the procedure and processes that will be followed for each field activity. Worksheet #17 will provide the specific sampling design and rationale for the field activities during each specific phase of the program.

### 14.2.1 Mobilization/Demobilization

Mobilization will consist of the delivery of all equipment, materials, and supplies to the site, the complete assembly in satisfactory working order of all such equipment at the site, and the satisfactory storage at the site of all such materials and supplies. Each demobilization shall consist of prompt and timely removal of all equipment, materials, and supplies from the site following work completion. Demobilization includes the cleanup and removal of waste generated during the investigation.

#### 14.2.1.1 Field Staging Area

A field staging area will be established in the parking area located at AOC 4, next to the NYSDEC Field Office. The staging area will be large enough to accommodate portable sanitary facilities (and service access), a drive-on pad for the decontamination of drilling and sampling equipment, staging of drilling equipment and supplies, and vehicle parking. A Conex box may be leased for the long-term storage of equipment and supplies, if necessary. In addition, a secured chain-link fenced area will be constructed for the staging of investigation-derived wastes (IDW) and trash. The decontamination pad will be constructed with water-proof materials and cinder blocks (or similar), for the containment of decontamination fluids. Any fluids that collect in the bottom of the pad will be pumped into 55-gallon drums, as needed, and labeled appropriately. In addition, the secure fenced area will be used to stage drums containing impacted drill cuttings, if applicable, pending proper waste characterization and disposal.

### 14.2.2 Vegetation Clearance

Some areas may require vegetation to be cleared in order to access drilling/sampling locations. Equipment used will be commensurate of the type of clearing that will be needed. To remove brush, thin branches, cutting shears and/or loppers, or similar will be used. For overgrown grass and thick brush, a bush-hog or similar type of equipment will be used. For trees not greater than 3-inches, and/or for fallen trees, chain-saw type removal methods will be used. At drilling locations where vegetation removal is required for access, tree clearing will be kept to a minimum and trees having a breast height of 3 inches or greater shall not be cut unless approved by USACE. Furthermore, trees with shaggy or exfoliating bark will not be removed as these may provide bat habitat.

### 14.2.3 Utilities Clearance

Utility clearance will occur prior to any intrusive field activity (e.g., soil sampling). Once intrusive locations have been marked and identified (by the EAS WSP JV), New York State 811 will be contacted and a DigSafe ticket will be filed. In addition to the State DigSafe, ground-penetrating radar (GPR) will be employed as an additional safety measure prior to any subsurface soil/monitoring well location that will be drilled beyond 1 feet bgs by a drill rig. For surface soil (0-1 foot bgs) only locations (AOC 4), and because the sample collection method (i.e., hand auger) is considered a utility detection method, GPR will not be performed. The purpose of the GPR will be to identify known or unknown subsurface anomalies to avoid inherent safety risks to the field crew and property. At each intrusive drilling location, the FTL will escort the GPR subcontractor to each location. A stake or flag will be used at each location to mark the boring/sample location. The name of the boring will be marked using a sharpie and photographed by the FTL. The subcontractor will mark and measure a 10-foot by 10-foot area during the GPR survey; the four (4) corners of each area will be marked by flagging. The area will be surveyed once the location has been marked. If a particular anomaly/utility feature has been identified within the 10-foot by 10-foot area, it will be marked with flagging and spray paint. If the anomaly is located within 5-feet of the proposed boring location, then a new area will be re-surveyed in any direction to avoid the anomaly. After completion of the survey, the findings will be sketched in a field logbook by the FTL, as well as photographed. This ensures the results of the survey are documented if intrusive activity is delayed. All activities will be documented on Daily Quality Contractor Reports (DQCRs) and reviewed daily by the QCM. The DQCRs will list project name, location, date, weather, personnel and company, equipment used and serial numbers, installation IDs, footage, description of work performed, who collected samples, health and safety requirements, any changes from the work plan, and any remarks. The DQCR will be signed by the FTL daily.

### 14.2.4 Soil Boring Installation and Sampling

Following approval from Digsafe and the GPR survey, discrete soil samples will be collected at prescribed depths by AOC (refer to Worksheet #17). Soil sampling will be performed at AOC 1, AOC 3, AOC 4, and AOC 5 in order to further refine the nature and extent of COPCs and collect the data necessary to complete the RI. Background hydric soils will also be collected in order to compare background wetland concentrations to wetland concentrations located at AOC 1 and AOC 5. Background hydric soils will be compared to soil benchmarks, site-specific soil background data and/or NYSDEC background data to determine if they are a suitable dataset for background. If after the collection of the initial samples identified within this UFP-QAPP does not satisfy DQOs, then additional sample locations can be proposed in order to fulfill DQOs (refer to Worksheet #11). LaBella Associates will perform all drilling/intrusive activities with oversight provided by the JV's Field Geologist and support personnel. Hand augering tasks may be performed by the JV or drilling subcontractor.

Boreholes for soil sampling will be advanced using a combination of either hand augering, direct-push technology (DPT) track mounted rig, and/or manual percussion drilling methods. The following design rationale (i.e. if/then) will be considered:

- If a location is solely designated as a surface soil (0-1 feet bgs) only sample location, then hand augering will be the preferred sample collection method. DPT will be considered depending on terrain, and drill rate productivity.

- If a location is designated to be a surface/subsurface soil boring with sampling intervals of 0-1, 1-5, and 5-10 feet bgs, then borings will be advanced utilizing DPT.
- If a soil boring cannot be advance by DPT due to the inherent safety risks associated with drilling on steep slopes, then manual drilling methods utilizing an air-powered handheld percussion hammer or manual slide hammer will be used to advance the borehole to terminal depth.
- If a surface soil only location cannot be advanced via hand auger due to hard pack gravel/cement/pavement, then the DPT rig or manual methods (i.e., hand-held percussion/manual slide hammer) will be used.
- If a soil boring is to be co-located with a permanent monitoring well, then soil samples will be collected using dual-tube DPT. Once samples have been collected, the monitoring well will be placed within the same borehole (refer to Section 14.2.5 for additional details). Boreholes may be advanced via manual methods (i.e., hand-held percussion/manual slide hammer), also.

Typical hand auger core barrel lengths are 6-inches, therefore for surface soil collection, the first and second 6-inches of retrieval will be placed into a clean, decontaminated stainless-steel bowl. The sample will then be composited and mixed thoroughly in accordance with *SOP #9 Soil Sampling Procedure* provided in **Appendix D**. Once the sample has been mixed thoroughly, either a stainless-steel spoon or disposable plastic scoops will be used to collect the sample into the appropriate bottleware. Common collection procedures are identified below.

Due to the inherent risks associated with drilling on steep slopes at AOC 1, manual drilling methods using an air-powered hand-held percussion hammer or manual slide hammer may be used to advance a macrocore to collect soil samples, in the event an area is inaccessible to the DPT drill rig. Similar to DPT, at the end of the drill rod will be a thread on macrocore that will be used to collect the samples from 0-1, 1-5, and 5-10 feet bgs. A 3-inch diameter macrocore sampler has been requested in order to maximize soil volume collected. If a boring does not contain the required volume of sample, additional borings will be located as close as possible to the original in order to obtain the volume necessary. Manual drilling methods will not be used to install permanent monitoring wells.

If the water table is encountered at a depth shallower than 10 feet bgs, then the last soil sampling interval will be adjusted. For example, if the water table at an AOC 3 location is encountered at a depth of 8 feet bgs, then the last sample interval would be 5-8 feet bgs.

**Common Procedures Soil Sampling/Logging Procedures**

At each drilling location, soil cores will be retrieved and lifted on top of a field table with a set ruler (or equivalent). Once at the core has been cut open, the following procedure will occur:

(1) Each sampling interval will be screened immediately using a photoionization detector (PID) (10.6 electron volt lamp) if sampling for VOC analysis (AOC 3 only). Within each sampling interval, VOC samples will be collected from the area of the core exhibiting the highest PID reading or areas of staining. If no PID response or staining is observed, the VOC sample will be collected from areas showing a change in lithology such as grain size within the designated sample interval. If there is no discernable lithology change, the sample will be collected from the mid-point of the sampling interval to provide consistency between sample locations. Refer to SOP#9 for additional details.

(2) Samples that require VOC analysis will be collected using a TerraCore™ (or equivalent) and transferred within the appropriate sample bottleware first.

(3) The core will be divided into the appropriate sampling intervals, using a ruler (or similar) and a decontaminated putty knife (or similar).

(4) Once VOCs have been collected, soils at each sampling interval will be mixed using cone and quartering techniques in a decontaminated stainless-steel bowl.

(5) Once the sample has been mixed thoroughly, a stainless-steel spoon or disposable plastic scoop will be used to transfer the sample into the appropriate bottle ware.

(6) All soils will be logged following the Unified Soil Classification System (USCS). Color will be described following Munsell Charts, and moisture content (dry, moist or damp, wet, or saturated) will be included in the description. The boring log to be used is provided in Appendix D. The entire core will be photographed.

(7) All soil boring only locations will be abandoned by filling them completely with a cement/bentonite slurry or hydrated bentonite chips from the total depth to ground surface. For locations that are within pavement, the bentonite/grout will extend to an appropriate height that will allow for a cold patch seal to be placed.

(8) Samples will be placed into laboratory-prepared, pre-preserved (if required) sample bottles and packed on ice for overnight shipment to the appropriate laboratories identified on Worksheet #11 and Worksheet #19/30. The samples will be shipped to the laboratory using approved chain-of-custody procedures (Refer to Worksheet #26 and #27).

(9) Decontamination of all drill and sampling tooling will follow SOP #6 Decontamination Procedure (Appendix D). Decontamination of drilling tooling will consist of a high-pressure wash. Decontamination of the macrocore and split spoons will consist of a potable water rinse, potable water and liquinox/alconox rinse using a scrub brush, and a DI rinse. A centralized decontamination pad will be built near the drill site and all decontamination of large sampling equipment (e.g., core barrels, over-ride casing) will occur within that pad. All fluids generated will be captured within secondary containment and will be temporarily containerized. Management of IDW will follow the procedures outlined in the IDW Plan (refer to **Appendix E**).

### 14.2.5 Monitoring Well Installation and Well Development

Monitoring well installation will be performed at select locations within AOC 1, AOC 3, AOC 5, and Background (refer to Worksheet #17). LaBella Associates will perform all drilling/intrusive activities with oversight provided by the EAS WSP JV Field Geologist and support personnel. In areas where it is inaccessible to a drill rig, temporary groundwater sampling may be performed. Refer to the groundwater sampling section for further details. Monitoring well installations and development will follow *EPA Region 4 Design and Installation of Monitoring Wells SOP SESDGUID-101-R2,* provided in **Appendix D**. Decontamination of all drill and sampling tooling will follow *SOP #6 Decontamination Procedure* (**Appendix D**).

IDW will be disposed of in accordance with the Investigation-Derived Waste Plan located as **Appendix E**.

As indicated in Section 14.2.4, proposed monitoring well boreholes will be advanced using dual tube DPT (or similar). At co-located soil boring/monitoring well locations, soil samples will be collected first as described in Section 14.2.4. Depending on the height of the water table, after soil samples have been collected, the monitoring well borehole will be advanced to a depth sufficient enough to allow for a properly constructed permanent monitoring well. A properly constructed permanent monitoring well will be constructed of; a 2-inch schedule 40 PVC, 10-foot 0.010-inch screen slot pre-pack; riser; surface expression; filter pack; bentonite seal, and grout to surface. At a minimum, 6-inches of filter pack material will be placed at the bottom of the well to provide a firm base. The filter pack will then extend to a minimum of 2-feet above the top of the screen, followed by a minimum of 2-feet bentonite seal, followed by grout to surface. Filter pack will consist of #00N silica sand with approximately two feet of #00 choker sand above the filter pack. Since groundwater encountered at the site may be less than 1 ft bgs, permanent monitoring well screen placement will be flexible, determined in the field, and extend below the water table approximately 7 to 8 feet so that a proper filter pack and seal can be installed.

In an effort to alleviate the potential effects of frost heave damage to the well, it is recommended that grouting material not be placed inside the protective casing. The bottom of the protective casing would be placed on top of the grout and additional grout placed on the outside of the protective casing. The annular space between the well riser will be filled with sand. This design prevents the protective casing from being

connected to the riser. In the event of frost heaving, the protective casing may move, but not the monitoring well.

In wells with shallow water table elevation the well screen will be placed below the top of the water table to allow for sufficient placement of filter pack, bentonite seal, and grout. During sampling, wells will be allowed to adjust to atmospheric pressure before collecting depth to water measurements.

In locations that are within the woods, the surface expression will include steel casing that will extend above grade. In high foot traffic/high visibility areas, monitoring wells will be completed inside a sealed, bolted roadbox. A 2-foot x 2-foot x 4-inch thick concrete pad will be installed around each well head. No bollards will be placed.

Following installation and at least 24 hours in order to allow the monitoring well surface pad to cure, the monitoring wells will be developed using pump and surge techniques for up to two (2) hours per well to remove fine sediment from the well. Field parameters (pH, temperature, specific conductance, dissolved oxygen [DO], turbidity, color, odor, and oxidation- reduction potential [ORP]) will be recorded during well development. Monitoring well development will be considered complete when the water is clear of visible sediment and the turbidity of the well reaches an asymptotic value. The monitoring well development form is provided in **Appendix D**. If a monitoring well runs dry during well development, development will be considered complete.

Wells will be sampled to support study tasks no sooner than 24 hours following the completion of well development. The process of collecting groundwater samples is discussed in the following section.

### 14.2.6 Water Quality Equipment Calibration

Calibration of all field water quality equipment (i.e., water quality instrument, turbidity meter) will include a calibration each day of sampling. Immediately following calibration, an initial calibration verification (ICV) will occur. The ICV is meant to document how well the appropriate meter calibrated. The meter will be inserted into each appropriate calibration solution and the parameter will be recorded in read/run mode on the appropriate field form (**Appendix D**). The ICV value will be within control limits specified on field forms. In the event the ICV does not meet the specified criteria, then the meter will be re-calibrated. If the ICV continues to fail, then a new meter will be requested from the vendor. Following sampling and at the end of each day, a post-calibration check will be performed. The purpose of this check is to document instrument drift. The meter will be placed within the designated calibration fluid and the value will be recorded in read/run mode on the appropriate form (**Appendix D**). If the parameter fails the specific criteria identified on the field form, then it will be noted on the calibration form and a “J” qualifier will be applied to all effected parameters on the appropriate purge forms. Turbidity and pH will be bracketed (i.e., multiple calibrations used). For pH, calibration will beginning with pH 7 calibration solution and followed by either pH 4 and/or pH 10. The bracketed calibration will occur prior to conducting the ICV check.

For all other equipment requiring calibration please refer to Worksheet #22.

### 14.2.7 Groundwater Sampling

Following at least 24-hours post-development, groundwater sampling will be conducted by the JV field personnel. Groundwater sampling from monitoring wells will follow low-flow sampling protocol in accordance with *EPA Low-Stress (Low Flow) / Minimal Drawdown Groundwater Sampling* SOP in **Appendix D**. Based on the site CSM and identified depth-to-water measurements historically taken, a peristaltic pump will be used to collect the samples.

Teflon-lined tubing will be used to collect all groundwater and porewater samples at AOC 1, AOC 3, and AOC 5. Teflon-lined tubing is being used for VOC sample collection as well as other organic sample collection (e.g. SVOCs and PAHs). If the screen is fully saturated, then tubing intake depths will be set at the midpoint. If the screen zone is not fully saturated, tubing intake depths will be placed at the midpoint of the saturated screen interval.

Wells will be purged prior to sampling using an in-line, flow-through cell to measure water quality parameters (pH, temperature, specific conductance, ORP, DO, and turbidity) at intervals of approximately every 5 minutes. Flow rates during purging and sampling will be maintained between approximately 50 to 500

milliliters per minute, if well yield is sufficient, and will be adjusted to minimize drawdown in the well. Purging will be considered complete and sampling will commence. when the water quality parameters stabilize for three (3) consecutive readings in the following order, and in accordance with *EPA Low-Stress (Low Flow) / Minimal Drawdown Groundwater Sampling* SOP as summarized below:

- pH + 0.1 pH units.
- Temperature + 1% degree Celsius (°C).
- Conductivity + 3%.
- ORP + 10 millivolts (mV)
- DO + 10 % or all readings < 0.5 milligrams/liter (mg/L).
- Turbidity + 10 % or all readings < 10 nephelometric turbidity units (NTU).

Water quality parameters and other observations (e.g., color and odor) will be observed and recorded on field purge forms (**Appendix D**). After the parameters have stabilized, the flow-through cell will be disconnected, and sampling will commence. For dissolved metals and DOC analyses, a 0.45-micron filter will be placed in line and samples collected (refer to Worksheet #17), after the total metals analysis has been collected.

At certain locations where a drill rig cannot gain access to a proposed monitoring well location (e.g., AOC 1 APBs), due to uneven terrain/high angle slopes, or soft ground (i.e., wetlands), groundwater samples can be collected from temporary well points. The potential for this is only anticipated in 2 – 3 locations and will not be used as data points in the risk assessments. However, since the intent of these sample locations is to investigate source areas, a temporary well point will provide information on groundwater conditions in the area and a decision can be made whether to invest additional effort to provide drill rig access for installation of a permanent well. In these cases, similar to the manual soil boring collection method, groundwater samples can be collected via the vertical profiling technique using a hand-held percussion hammer or manual slide hammer to drive the drill rod(s). The first rod will consist of a mill-slotted screen with a drive point on the end of the rod. The rod will be advanced using a hand-held percussion hammer or manual slide hammer. The groundwater samples will be collected using the following procedure:

- Decontaminate each of the rods;
- Advance the rod using the hand-held percussion hammer or manual slide hammer;
- Insert LDPE tubing into the slotted portion of the rod to collect a groundwater sample via either a check valve sampling method or peristaltic pump;
- Purge the line and record one-set of field parameters (temperature, pH, conductivity, DO, ORP, and turbidity).
- Collect samples
- Remove and dispose of tubing.
- Pull rods and decontaminate and move to the next location. Repeat the process.

The appropriate length and size of drill rods will be used. Depending on the depth to groundwater, the rods will be driven to 3-foot below the encountered water table. Once at sampling depth, the rods will be extracted, and the screen will be exposed. Example, if the depth to the water table is encountered at 1 ft bgs, the screen would be driven to a depth of 4 feet, and the groundwater sample collected would represent 2-4 feet bgs. Final sample depths may be adjusted based on field conditions encountered during advancement of the rods, and if a larger screen length is used. Only one interval will be sampled. Following the collection of the temporary groundwater sample, the borehole will be abandoned using either hydrated bentonite or grout to surface.

Groundwater samples will be collected into laboratory-prepared, pre-preserved (if required) sample bottles and packed on ice for overnight shipment to Eurofins Test America Lancaster, Denver, and/or Georgia depending upon laboratory analyses (refer to Worksheet #11). Refer to Worksheet #17 for specific

analyses. The samples will be shipped to the laboratory using approved chain-of-custody procedures (Refer to Worksheet #26 and #27).

Groundwater sampling equipment calibration logs will be submitted with the Phase 2 RI Field Report. Equipment calibration logs are provided in **Appendix D**. Equipment rinsate blanks (ERBs) will not be collected because single-use disposable equipment (e.g., tubing) will be used and the equipment is not anticipated to contribute to COPCs.

### 14.2.7.1 Hydraulic Conductivity Testing

Hydraulic conductivity values will be estimated using the steady state discharge and drawdown low-flow data that will be collected during purging and sampling events as described in Section 14.2.7. Testing will follow the *Determining K while Low Flowing* SOP provided in **Appendix D**. The magnitude of drawdown must be measured. The drawdown will be determined as the difference between the depth to water during pumping and the pre-pumping static water level. In addition to the steady state depth to water, the steady state discharge rate (i.e., flowrate) will be used. The following steps will be used:

1. Determine Steady State Drawdown using the following equation:

$$S = DTW(t) – DTWo$$

Where:

S = drawdown

DTW(t) = depth to water while pumping

DTW(o) = depth to water before pumping

2. Determine Steady State Discharge using the following equation:

$$Q = V/dt$$

Where:

Q = flowrate (discharge)

V = volume of water

Dt = duration of collection

Once that data has been collected, and during the reporting stages of this program (refer to Section 14.4), the data will be inserted into either the Half Ellipsoid Model spreadsheet (Dachler (1936), Full Ellipsoid Model spreadsheet (Hvorslev (1951), or the Radial Flow Model spreadsheet (Muskat (1937). The spreadsheets are provided with the *Determining K while Low Flowing* SOP provided in **Appendix D**. The decision on which model to use won't be made until after the monitoring well is installed since the models are dependent on the lithology encountered while drilling and where the well screen is located. For example, the Half Ellipsoid Model would be selected if a the well screen is placed on top of a lower transmissive layer (e.g., silt and/or clay); the Full Ellipsoid Model would be selected if the well screen is installed in a uniform formation; and the Radial Flow Model would be selected applicable to a fully penetrating well in a confined aquifer, a well in a formation that is highly anisotropic (horizontal K >> vertical K), or a well that is screened from the water table to the bottom of a formation (low hydraulic conductivity layer). The data from all newly installed and sampled wells will be used and a range of hydraulic conductivity values will be generated per AOC and Background locations.

## 14.2.8 Surface Water, Porewater, and Sediment Sampling

A total of 16 (eight [8] locations at AOC 3, and eight [8] background locations) co-located surface water, porewater, and sediment sampling locations are proposed on **Figures 17-2** and **17-7**, respectively. At each location, surface water will be collected first, then porewater, and then sediment. All three (3) media are to

be collected at a single location before moving onto the next upstream location. Note, surface water samples will not be collected during a rain event which accumulates greater than 0.25 inches of rainfall, or at least 48-hours following a rain event. In order to separate the surface water from the pore water sample; a shallow probe will be installed into the sediment along with a sediment seal will be used to prevent short-circuiting. Samples shall be collected from downstream to upstream. Each sample location will be marked with a 4-foot long section of 0.5-inch diameter rebar (or wooden stake) driven into the stream bed about 2 feet, in order to identify the location for future sampling events. Depositional areas of the stream (i.e. bends where sediments can accumulate) will be targeted for sediment and porewater sampling. In addition to the sampling sequence described below, physical characteristics of the sampling locations (e.g., water depth, stream width, nearby vegetation, stream flow), substrate (e.g., presence of leaf litter and cobbles, general description), and presence of potential receptors (e.g., evidence of human presence or wildlife in and around the sampling location) shall be documented. Sampling will correspond to seasonal groundwater sampling events to determine the influence of groundwater to the stream (i.e., assess if the stream is a losing stream, gaining stream, or both on a seasonal basis).

Surface water sampling at new location(s) will be conducted in accordance with the procedures listed below and *SOP #12 Surface Water Sampling Procedure* provided in **Appendix D**.

The following sampling sequence was followed to minimize the potential for surface water turbidity and suspended solids:

(1) Begin at the most downgradient location.

(2) Work upstream within each stream.

(3) Collect surface water samples by inserting a capped sampling container with the opening pointing down to avoid the collection of surface films. At the time of container opening, the container must be at the mid-point of the water column, while maintaining a distance of more than 1 foot from the sediment bed and more than 1 foot below the surface water level and as close to the center of the channel as possible, where practicable.

(4) For dissolved metal analysis, either a separate unpreserved bottle can be collected or tubing can be placed within the stream (at least 12-inches below the surface) and the sample can be pumped using a peristaltic pump located onshore. If the sample is placed within the unpreserved bottle, then a piece of tubing will be placed within the unpreserved sample along with an in-line 0.45-micron filter. A peristaltic pump will be used to draw the sample through the 0.45-micron filter and into the appropriately preserved bottleware.

(5) A YSI sonde will be placed directly in the top portion of the stream, where the water samples for laboratory analyses were obtained. Turbidity samples will be obtained in the same vicinity as the YSI sonde. One (1) set of field parameters will be recorded via YSI and turbidity meter. The set of field parameters will be recorded, following 2 minutes of placement of the YSI within the water column.

Following the collection of the surface water sample, porewater sampling will be conducted in accordance with the procedures listed below and using *EPA Region 4 LSASDPROC-513-R4 Porewater Sampling SOP* (provided in **Appendix D**) as guidance. Samples will be collected from a temporary PushPoint™ sampler (M.H.E. Products 2003). At each location (**Figure 17-2** and **17-7**), the following procedures will be followed (to be done after surface water sample collection):

(1) Install pushpoint-type sampler 1 foot below the top of sediment. The sampler will be pushed into the stream bed by hand or driven with a hammer. The target total depth will be 1.0 foot below the surface of the stream bed so that the top of the screened portion is 1.0 feet below the bottom of the stream bed. However, in some cases, the sampler may need to be driven deeper to locate a zone permeable enough to sample.

(2) Place a seal at the top of the stream bed in order to minimize surface water intrusion.

(3) Record depth to surface water from the top of the sampler.

(4) Record depth to top of sediment from the top of the sampler.

(5) Retract screen.

(6) If using a peristaltic pump, purge the porewater sampler and monitor field parameters. Once field parameters have stabilized and at least one well (sampler) volume plus the volume of tubing has been purged, begin to fill up the required bottleware. Stabilization of field parameters can be used as an indicator that "short circuiting" between porewater and surface water is not occurring.

(7) If using a syringe, extract one (1) screen volume and collect the samples.

Following porewater sampling, sediment sampling will occur at each of the 16 locations (**Figures 17-2** and **17-7**). Sediment samples will be collected from 0-0.5 ft interval beginning at the top of sediment using a sediment core device (Wildco Hand Core™ or equivalent) with cellulose acetate butyrate liners. At each location, a new liner will be used to collect each sample. The outside of the corer with be decontaminated using a potable water rinse and scrub, potable water + alconox/liquinox rinse and scrub, and DI rinse.

Once the core is extruded, immediately collect samples for VOC analysis using an Encore™ or equivalent sampler and place into the appropriate bottleware. Collection of VOC analysis will be similar to the procedures identified in Section 14.2.4. Once VOC analysis has been collected, carefully remove the remaining sample with a clean, non-reactive utensil and transfer into a stainless steel container for homogenization using cone and quarter techniques for all non-VOC analysis.

### 14.2.9 Stream Flow Measurements

Stream flow measurements will occur semi-annually and will be taken at all co-located surface water/porewater/sediment locations at AOC 3 (**Figure 17-2** and **17-7**) utilizing a hand-held, electronic velocity meter to determine stream flow and velocity. The information will be used in the site assessment and HHRA/SLERA/RSLERA to assist with contaminant transport modeling. Measurements will be conducted in accordance with FDEP- Standard Operating Procedure FT1800. Field Measurement of Stage, Surface Water Velocity, and Discharge (Flow) and Computation of Streamflow, Revised January 2017, effective April 16, 2018.

A Global Water FP111 Water Flow Probe or similar will be utilized. According to the manufacturer, the water velocity probe consists of a protected propeller and water bearing for measuring water velocity, coupled to a telescoping probe handle ending with a LCD display flow computer. The Flow Probe is ideal for measuring flows in rivers and streams, and monitoring water velocity in ditches and canals. The Flow Probe handle has markers on it to measure water depth. Flow measurement range is 0.3 – 19.9 feet per second (ft/sec) and accuracy is 0.1 ft/sec. Averaging is a true digital running average and updated once per second.

The channel width at each measured location will be measured. Flow measurement locations will be selected that are relatively free of debris and in reasonably straight areas of the channel. The 0.6-depth method will be utilized (also known as the six-tenths-depth method). The following steps will be taken at each measuring location:

- Station location will be photographed and global positioning system (GPS) coordinates recorded. The location will also be marked on a map.
- A measuring tape will be used to determine channel width (perpendicular to flow direction) and the measuring tape will be anchored at each side of the channel. Measurements will be recorded to the nearest 0.1 ft.
- The measuring tape will allow the channel to be divided into 1-ft wide segments.
- The Flow Probe will be used to measure water depth at each 1 ft segment across the channel (i.e., perpendicular to flow). Measurements will be used to create a stream bed/water depth profile that will be drawn in the field notebook. Depth measurements will be recorded to the nearest 0.01 ft. If the stream is 1 ft or less in width, then one measurement equidistant will be collected.
- The Flow Probe will be used to make a velocity measurement at 0.6 of the depth below the water surface at each 1 ft segment across the channel. The six-tenths method will be used

when water depth is less than 1.5 feet. The flow measurement will be a 1- to 2-minute average and recorded as ft/sec. The average is automatically calculated by the Flow Probe.

- Flow, in cubic ft/sec and gallons per minute, will be calculated for each segment. Total flow at each location will be calculated by adding flows in each segment.

### 14.2.10 Stream Piezometer Installation and Gauging

Stream piezometers will be installed at three locations within the unnamed stream that is located north of the parking lot in AOC 3 (**Figure 17-2**). One piezometer will be installed at the most upstream location, west of the former OSA. The second piezometer will be installed approximately 600 feet downstream of the first piezometer. The last piezometer will be installed approximately 500 feet downstream of the second location and within the portion of the stream that is downgradient of the northern parking lot. A 1.25-inch or similar galvanized steel pipe (or PVC pipe) will be installed into the top of sediment. A 2-foot section of the galvanized steel pipe (or PVC) will contain open holes, or slots to allow for the inflow of water. The bottom of the pipe will be closed using a thread on or push-type cap. No glue or solvent will be used. The piezometer will be pushed or hammered into the top of the sediment. Actual field conditions will dictate the final depth of the bottom of the screen. The ideal target depth will be of sufficient depth to prevent the movement of the piezometer.

Following the installation and surveying of the piezometers, water levels will be measured from the top of the casing and from the inside and alongside the edge of the piezometer to the top of the stream. Water level measurements will occur concurrently with the AOC 3 synoptic water level events in spring and fall.

### 14.2.11 Survey

Any new temporary sampling location's (i.e., soil, surface water, porewater, sediment) horizontal position will be surveyed using a hand-held global position system (GPS). Following monitoring well installation and stream piezometers, horizontal and vertical coordinates of all new wells/piezometers will be determined by a professional land surveyor registered in the State of New York. Horizontal coordinates will be surveyed to an accuracy of 0.1 foot relative to New York State Plane coordinate system (North American Datum [NAD]83). Vertical elevations will be relative to North American Vertical Datum (NAVD) 1988 to an accuracy of 0.01 ft. Vertical elevations will be established for the top of casing and the ground surface on the well pad.

### 14.2.12 Temporary Well Abandonment

Temporary monitoring wells installed under the Phase 1 RI will be abandoned in place by backfilling with a cement bentonite mixture in accordance with New York State requirements. During backfilling, the grout mixture will be tremied into the monitoring well to ensure that the well is completely filled and bridging of grout material does not occur. Following grouting, the protective casing will be removed and the ground surface restored to current surroundings (e.g. soil, asphalt, etc.).

### 14.2.13 Investigation-Derived Waste

IDW will be generated as a result of field activities. IDW will be handled in accordance with the IDW Plan located as **Appendix E** to this UFP-QAPP.

## 14.3 Data Management, Review, and Evaluation

### 14.3.1 Data Management

Field activities will be recorded in project logbooks and on standardized field forms (**Appendix D**). Site maps will be maintained, and sample locations will be updated on the maps as necessary. Field and analytical data will be consolidated and maintained within the FUDSChem database.

### 14.3.2 Data Review

A three (3)-step data review process consisting of verification, validation, and usability assessment will be used to examine the data only so that scientifically sound data of known and documented quality are used

in making environmental decisions. The analytical data obtained during the project will be validated by a qualified chemist according to the specifications provided in Worksheets #34 through #37. Documentation of the data validation review will be provided in an appendix to the final report.

### 14.3.3 Data Evaluation

Field and analytical data collected as part of these investigations will be used to evaluate nature and extent of COPCs in soil, groundwater, surface water, porewater, and sediment. Ultimately the data, in combination with the data collected from the Phase 1 RI (USACE, 2023a) will be used to assess the risks to human health and the environment.

## 14.4 Reporting

Investigations covered under this UFP-QAPP will generate a significant amount of data and observations that will be documented in the following reporting deliverables:

- DQCRs;
- Phase 2 RI Field Report; and
- RI Report.

*DQCRs* – Will be generated daily and document field activities. These reports will be kept with the project file. It is also anticipated that periodic conference calls with the project team will be implemented before mobilization to the field, during field activities, and upon demobilization from the field, or on an as needed basis.

*Phase 2 RI Field Report* – Following completion of all field activities, a Draft and Final Phase 2 RI Field Report will be prepared to document the field effort. The Field Report will include summaries of the work performed by AOC and document any deviations from the UFP-QAPP that may have occurred. Boring logs, well completion logs, data tables, laboratory reports sampling figures, groundwater contour maps, and other field documentation (photographic logs, IDW disposal documents, etc.) will be included. Documentation required to be included in the report include all boring logs, soil sample collection logs, well construction details, well survey data, well development documentation, documentation of field parameters collected during sampling (i.e., groundwater sampling, DPT groundwater sampling, etc.), sample results and lab data validation reports, and DQCRs. The Contractor will present figures, tables, and graphs that detail the sampling results from each media source.

*RI Report* – The RI Report shall introduce the Site and summarize the Site history, characterize environmental conditions; describe the complete nature and extent (including coal); describe and portray a comprehensive groundwater flow, hydraulic conductivity, and contaminant hydrogeological conditions; and evaluate the migration pathways based on the geologic, geotechnical, hydrogeological, ecological, chemical, physical, and hydrologic data. The RI Report shall also include analysis and interpretation groundwater hydrology/modeling, enhancement of the CSM, groundwater transmissivity, document fate and transport and contaminant mass flux, calculate travel times, discuss nature and extent of the contamination, in addition to source identification. Information on the nature and extent of contamination shall be used to conduct human health and ecological risk assessments. The RI report will also address the discrepancy between AOC 1 Phase 1 recommendations to not sample for picric acid, and the rationale for including it during Phase 2 sampling (refer to Section 17.1). The RI report will address the Phase 1 RI recommendation to perform an in-depth analysis regarding the relationship between the presence of coal and presence/absence of PAHs and metals in the uncertainty section of the risk assessment if the risks from CERCLA related contaminants pose an unacceptable risk for AOC 5 where coal presence was found (refer to Worksheet #9 for additional detail). The Phase 2 RI Field Report will also be included as an appendix to the RI Report. The RI Report will be produced as a Draft, Draft-Final, and Final.

Other RI Report requirements include, but are not limited to, the following:

- Detailed preparation and discussion of an updated CSM in accordance with the July 2011 EPA CSM Best Management Practice Fact Sheet: EPA 542-F-11-011, including updates as necessary of the preliminary CSMs provided in the BHHRA and SLERA. Inclusion of one or

more three (3)-dimensional figures (s) to visually depict the vertical and horizontal aspects of groundwater contaminant migration will also be considered to enhance understanding of the overall CSM.;

- An evaluation of whether DQOs were met;
- Hydrogeologic cross section(s) showing subsurface geology and surface water bodies using AutoCad/Arc GIS;
- Potentiometric maps and evaluation of horizontal gradients;
- Evaluation of groundwater-surface water hydraulic interactions, including gaining/losing portions of the stream north of the parking lot in AOC 3 with impacts from historical activities in the area;
- Isoconcentration contaminant contour maps in both plan view and cross-sectional views;
- Summary evaluation of potential off-site sources of contaminants of potential concern as contributors to the groundwater plume;
- Analytical data tables that include all analytes listed and the test method, including appropriate data quality flags;
- Evaluation of data quality, data usability, and representativeness to conduct a baseline HHRA and SLERA/RSLERA;
- Inclusion of data validation reports;
- Integration of all habitat, species, ecological information collected in Phase 1; and
- Assessment of potential risks in the form of a baseline HHRA and SLERA/RSLERA. The risk assessments shall include the identification of potentially complete and/or complete exposure pathways and potential receptors, defining the COPC by comparing concentrations to risk-based criteria protective of human health or ecological receptors, quantifying potential risks for complete exposure pathways and receptors, and recognizing uncertainties and potential biases associated with different information sources (Lines of Evidence, LOE) used in the risk assessment.

Data from the RI sample collection for the purposes of delineation of nature and extent in soil, groundwater, surface water, porewater, and sediment shall be considered to assess risks to potential current and future human and ecological receptors for each AOC under reasonable scenarios in accordance with EPA risk assessment guidance (e.g., EPA RAGS, EPA Ecological Risk Assessment Guidance for Superfund [ERAGS]) and other pertinent DoD documents (and/or updates). The SLERA/RSLERA shall incorporate site-specific data and refinements of exposure to mitigate risk and identify whether a full baseline ecological risk assessment is warranted.

The HHRA will evaluate whether potential human health risks are associated with current or future land use exposures to COPCs are acceptable. Tasks included in the HHRA are hazard identification, exposure assessment, toxicity assessment, and risk characterization. As part of the hazard identification, the following will occur: a review and refinement of preliminary CSM; evaluation of historical (where available) and data collected during Site Assessment Field Work, statistical evaluation of data and selection of COPCs. In the exposure assessment, calculations of the exposure point concentrations of COPCs in each medium, identification of the exposure assumptions are identified, and methodology for calculation of the daily intake dose based on magnitude, frequency, and duration of exposures over a specified exposure period of time will be presented. The toxicity assessment will identify the relationship between the potential extent of exposure and toxicological effects of the exposure for each COPC-specific toxicity criteria. Finally, in the risk characterization step, the toxicity and exposure will be integrated derive quantitative estimates of human health risks for carcinogens and non-carcinogens, and presentation of the uncertainties and limitations inherent in the estimation of the potential risks, and the potential risks associated with background concentrations (where applicable).

The SLERA will evaluate the potential for adverse effects to ecological receptors associated with exposures to COPECs within the study area. As part of the SLERA, the following steps will be performed:

- Step 1 – Screening-Level Problem Formulation and Ecological Effects Evaluation: The screening-level problem formulation will evaluate, and update as necessary, the Phase I ecological CSM for the study area. The ecological CSM describes the site setting, identify known or suspected constituents and their fate, transport, and ecotoxicity, and specifies complete ecological exposure pathways and representative ecological receptors that may be exposed to known or suspected constituents in environmental media. The ecological CSM provides the basis for identifying key risk questions and defining the assessment endpoints and measurement endpoints that will be evaluated in the SLERA. The screening-level effects evaluation will identify exposure levels, or screening levels, that represent conservative thresholds for adverse ecological effects.
- Step 2 – Screening-Level Exposure Estimate and Risk Calculation: The screening-level exposure estimate and risk calculation will evaluate constituent concentrations relative to screening levels established in the preliminary effects analysis for complete exposure pathways identified in the ecological CSM. Constituents with exposure concentrations (i.e., maximum concentration in the combined Phase 1 and 2 datasets specific to a given AOC and environmental medium) exceeding screening levels for complete exposure pathways will be evaluated as COPECs that may require further ecological risk assessment.
- Step 3A – Refined Problem Formulation and Ecological Screening: The list of COPECs identified in the SLERA will be refined using less conservative and more realistic assumptions. exposure pathways and receptors potentially at risk will be identified and the ecological CSM updated. The exposure concentrations will be based on the smaller of the 95%UCL and maximum value for a given AOC and environment medium. To provide a robust understanding of the accuracy and reliability of the RSLERA hazard estimates, the RSLERA will also include a qualitative evaluation of the significant sources of uncertainty associated with all key lines of evidence (LOE), including supplemental parameters, used in the refinement phase. Appendix C specifies the key LOE for the following categories: data, toxicity, exposure and risk and the overall process is defined in the Figure 5-2 flow chart (USACE, 2023a). In addition, the uncertainty analysis will also consider potential adverse effects associated with analytes and ecological receptors without toxicity values (e.g., reptiles/amphibians) as well as the potential for adverse effects to species of special concern (e.g., bats).
- Scientific Management Decision Point (SMDP) – The results of SLERA/RSLERA process will be used to support a SMDP to inform risk management decision-making based on consensus regarding COPECs, assessment endpoints, exposure pathways and risk questions. Consistent with ERAGS, one (1) of three (3) possible SMDPs will be selected at the end of Step 3a:
    1. There is adequate information to conclude that ecological risks are negligible and therefore no need for remediation on the basis of ecological risk;
    2. The information is not adequate to make a decision at this point and the ecological risk assessment process will continue to a Tier II Baseline Ecological Risk Assessment; or
    3. The information indicates a potential for adverse ecological effects and a more thorough assessment is warranted.

## 14.5 Project Schedule

The project schedule is a dynamic process that is constantly evolving as key milestones are reached and/or delays occur. Below in are the key project milestones along with general timeframe to completion, that will be tracked through the life-cycle of the project. These key milestones must occur sequentially, meaning the project cannot move forward until the above milestone has been met. The schedule may be revised to accommodate changes that could have a positive (i.e., shorter duration) or negative (i.e., longer duration) effect on the schedule. Once a potential schedule change is recognized, potential revisions to the project schedule will be communicated to the project team so that the changes can be evaluated and, where

appropriate, efficiently accommodated within the overall schedule to minimize impacts upon the milestone dates.

- Technical Project Planning (TPP) Meeting #1 (Spring 2025)
- Final UFP-QAPP (Fall 2025)
- Field Work (Fall 2025 – Spring 2026)
- Final Phase 2 Field Report (Summer 2026)
- TPP#2 (Spring 2027)
- Final RI Report (Spring 2027)

## 14.6 Health and Safety

All site work will be performed in accordance with the Accident Prevention Plan (APP) that includes the Site Safety and Health Plan (SSHP) that includes an Accident Prevention Plan (APP). The APP/SSHP will be provided to USACE CENAE separately.

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# Worksheet #15 – Project Action Limits and Laboratory-Specific Detection/ Quantitation Limits

This worksheet describes PALs and laboratory-specific detection/quantitation limits for this project.

Groundwater, soil, surface water, porewater, and sediment samples will be collected to support nature and extent and evaluate associated risks to human health and ecological risk receptors from former NYOW activities (USACE, 2023a). Subsection worksheets (e.g., 15-1a) have been added to show each compound/matrix specific PAL, project-quantitation goal (PQG), and laboratory-specific detection/quantitation limits. **Note, there are no subsection worksheets for grain size, CEC, TOC, pH, DOC, TSS, hardness, or microscopy**. These analyses report numeric values for the specific result with limited QC.

## 15.1 Project Action Limits

The purpose of identifying risk-based PALs in the UFP-QAPP is to ensure the analytical methods selected are sensitive enough to detect concentrations at or below the screening benchmark or absent that, the most sensitive method available. PALs on Worksheets #15 are the lower of human health screening levels and ecological benchmarks identified based on the hierarchies presented below for those media where both sets of screening criteria apply. Note, the groundwater PALs are based on human health values only, and soil, sediment, and surface water PALs are based on the lower of human health and ecological values. Porewater PALs are based on surface water ecological benchmark values only. In addition, no PALs or PQGs were developed for essential nutrients (calcium, iron, magnesium, potassium, and sodium). These analytes are necessary for metabolic processes in organisms and at naturally occurring concentrations, receptors are able to regulate uptake and metabolism of these elements. In addition, it should be noted that most of the compounds listed in the tables below are not expected to be identified as COPCs.

**Human Health**

- Groundwater
  - EPA Regional Screening Level (RSL) (November 2024): Tapwater Tables for Cancer Target Risk of 1E-06 and Target Hazard Quotient of 0.1 (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).
- Soil and Sediment:
  - EPA RSL (November 2024): Residential Soil Tables for Cancer Target Risk of 1E-06 and Target Hazard Quotient of 0.1 (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).
- Surface Water:
  - Screening levels were calculated using USEPA's RSL calculator for a recreational receptor's exposure to surface water using the exposure parameters for incidental ingestion and dermal contact with COPCs in surface water for a trespasser/visitor scenario listed in **Appendix B** (see Table B2.2-3 of Attachment A).

**Ecological**

Ecological screening benchmarks are derived for multiple receptor categories (see Section 10.5.2) and all expected site-specific receptor categories that need to be considered when selecting the ecological PALs. These receptor categories apply to exposures to the following media:

- soil: plants, invertebrates and birds and mammals;
- sediment/pore water: invertebrates (benthic) and vascular rooted aquatic plants;
- surface water: aquatic organisms including plants, invertebrates (pelagic), fish and amphibians.

Supporting documentation for the ecological PALs is presented in **Appendix C**. Appendix C.1 presents the methodology for selecting surrogates for key constituents without ecological benchmarks and Appendix C.2 presents all of the values within the QAPP ecological PAL selection hierarchy. The hierarchies for soil, sediment and surface water/porewater are defined below.

- Soil (if reference has more than one receptor, the lowest value was selected):
    - EPA ecological soil screening levels (eco-SSLs )(Eco-SSLs; various dates) (https://www.epa.gov/chemical-research/interim- ecological-soil-screening-level-documents)
    - EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) –Soil Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf).
    - EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf)
- LANL/Intellus (2024). ECORISK Database (Release 4.4), (https://intellusnm/documents/documents.cfm).
- Sediment (if reference has more than one receptor, the lowest value was selected):
    - EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) –Sediment Screening Values for Hazardous Waste Sites (Ecological Screening Values for Step 2) (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf).https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf).
    - EPA Region 3 (2006) Region III BTAG (Biological Technical Assistance Group). Freshwater Sediment Screening Benchmarks (https://www.epa.gov/sites/default/files/2015-09/documents/r3_btag_fw_sediment_benchmarks_8-06.pdf).
    - EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf)
    - LANL/Intellus (2024). ECORISK Database (Release 4.4), (https://intellusnm/documents/documents.cfm).
- Surface water/Pore water (if reference has more than one receptor, the lowest value was selected):
    - National Recommended Water Quality Criteria – Aquatic Life Criteria Table. Accessed November 11, 2022. (https://www.epa.gov/wqc/national-recommended-water-quality-criteria aquatic-life criteria-table).
    - EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) –Surface Water Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf).
    - EPA Region 3 (2006) Region III BTAG (Biological Technical Assistance Group). Freshwater Screening Benchmarks (https://www.epa.gov/sites/default/files/2015-09/documents/r3_btag_fw_benchmarks_07-06.pdf).
    - EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf)
    - LANL/Intellus (2024). ECORISK Database (Release 4.4), (https://intellusnm/documents/documents.cfm).

Separate ecological benchmarks are available for soil and sediment media and these will be applied to data collected from terrestrial and aquatic habitats, respectively. Consistent with the conservative nature of the SLERA screening process, detected analyte concentrations for "hydric" soils, which are periodically inundated (e.g., vernal pools) and/or saturated to the surface, will be compared to the lower of available benchmarks for these two media (see Attachment C.2). If any of these analytes are not eliminated in the initial screening steps, additional evaluation of the nature of ecological exposures for these areas will be conducted during the Step 3A refinement (Appendix C, Section 6).

Note that PALs for m,p-xylene and m,p-cresol are the lower of the two isomers. In addition, no PALs were developed for essential nutrients (calcium, iron, magnesium, potassium, and sodium). These analytes are necessary for metabolic processes in organisms and at naturally occurring concentrations, receptors are able to regulate uptake and metabolism of these elements.

## 15.2 Laboratory Limits

Laboratory Limits (Limit of Quantitation (LOQ), Limit of Detection (LOD), and Detection Limit (DL)) are current as of when the information was requested for the UFP-QAPP. Note, Method 9081 for CEC is not DoD accredited; therefore three-tiered reporting (i.e., LOQ, LOD, and Detection Limit) is not available.

## 15.3 Project Quantitation Goals

The PQG was set to 1/3 the PAL. If the LOQ is greater than the PQG, then the PQG was set to the LOQ. If the analyte does not have a PAL, the PQG was set to 5x the LOQ.

## 15.4 Analyte Lists

Routine analytes for which there is no PAL, and which are unlikely to be site-related were considered for elimination from the analysis unless there was a PAL for that analyte in another matrix. Based on these criteria, no analytes were eliminated. Note that VOCs without PALs were retained at AOC 3 and AOC 5 because they are frequently associated with landfills and therefore will allow for a more comprehensive assessment of potential risk. The retained analytes without PALs had the PQLG set to five times the LOQ.

Analytes in the tables below high-lighted in blue were identified as COPCs in Phase 1 as listed in Worksheet 10. Most of the compounds listed in the tables below are not expected to be identified as COPCs. Consistent with the approach employed in Phase 1, the impact of the uncertainty associated with compounds not highlighted blue where LOQs are greater than PQGs will be qualitatively discussed in the risk assessments.

## 15.5 Analytes with LOQs Greater than PALs

Some analytes have analytical limits (LOQs and/or LODs) greater than PALs. This indicates that achievement of the PAL is technically infeasible by the laboratory with the selected method. Prior to the finalization of Worksheet #15, methods were changed for known COPCs when possible to meet PALs; however, many analytes do not have alternatives to achieve lower limits.

Non-detects will be reported at the LOD; therefore, if the LOD meets the PAL, there is no effect on the risk assessment process. If the LOD does not meet the appropriate PAL for the specific human health or ecological risk assessment, how non-detects are handled will depend on the characteristics of the data set. When the PAL is less than the LOQ, detections less than the LOQ (J qualified results) cannot be used to determine whether contamination is above or below the PAL, unless these results are part of a data set that contains at least one result greater or equal to the LOQ.

- If detected concentrations of an analyte exceed the PAL, the analyte will be carried through the Phase 2 risk screening using the LOD as the concentration for non-detects when calculating summary statistics and as the input in ProUCL (if applicable).
- In the cases when no detects are greater or equal to the LOQ in a data set (i.e., all detects are J- qualified), for the purposes of the Phase 2 risk screening, the concentration of the

analyte will be set equal to the LOQ because the LOQ is a more defensible concentration than the J-qualified result and this will be discussed in the Uncertainty Analysis.

- If there are no detected concentrations of an analyte, the Uncertainty Analysis will include a discussion of potential risks. The Uncertainty Analysis will first evaluate the likelihood of non-detected analytes being DoD-related chemicals based on site history and operation, and eliminate analytes that are unlikely to be DoD-related from the risk assessment. The Uncertainty Analysis will then assume the maximum LOD for a DoD-related chemical as the exposure point concentration for the EU and the results will be qualitatively discussed in the Uncertainty Analysis.

The results of the Phase 2 risk screening, among other evaluations (e.g., frequency of detection, comparisons with background), will be used to determine the need for additional investigations.

For analytes with LOQs and/or LODs greater than PALs, the impacts on data usability vary as noted below. Note that the majority of these analytes are VOCs/SVOCs that are being analyzed for in AOC 3 (Landfill Area) and AOC 5 (Former Power Plant) and are not directly related to the manufacture of ammonium picrate. This evaluation does not account for sample-specific limits that may be elevated due to matrix effects, QC issues, or other analytical issues; which, if present, would need to be considered during the risk assessment process.

### 15.5.1 Groundwater

Groundwater PALs consider human health screening levels only. See method- and medium-specific #15 tables provided at the end of Section 15 for groundwater PALs.

**Residential Tapwater PALs are less than the LOQ and/or LOD, MCL equal to or greater than the LOQ**

Although not meeting one type of risk-based screening level, these analytes would be adequately regulated based on meeting the promulgated Federal standard. See the text at the start of Section 15.5 regarding how non-detects will be treated in the risk assessments. Analytes to which this applies are:

- Antimony
- Arsenic
- Cadmium
- Mercury
- Thallium
- 1,2,4-Trichlorobenzene
- 1,1-Dichloroethene
- 1,1,2-Trichloroethane
- 1,2-Dichloroethane
- 1,2-Dichloropropane
- 1,4-Dichlorobenzene
- Benzene
- Bromodichloromethane, chloroform, dibromochloromethane, bromoform (individual LOQs of 1 µg/L versus MCL for total trihalomethanes of 80 µg/L)
- Carbon tetrachloride
- Trichloroethene
- Vinyl chloride
- Benzo(a)pyrene
- Hexachlorobenzene
- Hexachlorocyclopentadiene

**Residential Tapwater PAL is less than the LOD; cancer-based RSL is within a factor of 10 of the LOQ and/or LOD**

If concentrations in the dataset are all non-detected and/or comprised of only estimated (J) values, decisions can still be made whether the analyte is detected within the 1E-05 excess lifetime cancer risk (ELCR) range, which is within EPA's acceptable risk range. As per CERCLA guidelines, these data would be deemed usable in the risk assessments; however, quantitative risk estimates would not be reliable.

- 1,1,2,2-Tetrachloroethane
- 1,1,2-Trichloroethane
- 1,2,4-Trichlorobenzene
- 1,2-Dichloroethane
- 1,4-Dichlorobenzene
- Benzene
- Bromodichloromethane
- Carbon tetrachloride
- Chloroform
- Trichloroethene
- 1,1'-Biphenyl
- 2,4-Dinitrotoluene
- Benzo(a)anthracene
- Benzo[a]pyrene
- Dibenz(a,h)anthracene
- Atrazine
- Hexachlorobutadiene
- Hexachloroethane
- 1-Methylnaphthalene
- Naphthalene
- Nitrobenzene
- PCB-1016

**Residential Tapwater PAL is less than the LOD; cancer-based RSL is between a factor of 10 and 100 of the LOQ and/or LOD**

If concentrations in the dataset are all non-detected and/or comprised of only estimated (J flagged) values, decisions can still be made whether the analyte is detected within the 1E-04 ELCR range, which is within EPA's acceptable risk range. As per CERCLA guidelines, these data would be deemed usable in the risk assessments; however, quantitative risk estimates would not be reliable. The following additional chemicals are identified as meeting this criterion:

- 1,2-Dibromoethane
- Vinyl chloride
- 2,6-Dinitrotoluene
- 3,3'-Dichlorobenzidine
- 4-Chloroaniline
- Bis(2-chloroethyl)ether

- Hexachlorobenzene
- N-Nitrosodi-n-propylamine
- Pentachlorophenol
- PCB Aroclors 1221 through 1260
- Arsenic

**Residential Tapwater PAL falls between the LOQ and the LOD**

These chemicals may be positively identified as detected, but the quantification would be estimated. As per CERCLA guidelines, these data would be deemed usable in the risk assessments. Chemicals to which this applies are:

- 1,1-Dichloroethene
- 1,2-Dichloropropane
- 1,3-Dichlorobenzene
- 2-Hexanone
- Bromoform
- Bromomethane
- Dibromochloromethane
- Antimony
- 2,4,6-Trichlorophenol
- Benzo(b)fluoranthene
- Indeno(1,2,3-cd)pyrene

**Residential Tapwater PAL is less than or equal to the LOD**

Reliable risk-based decisions cannot be made unless the concentrations are greater than the LOQ. See text above regarding how non-detects will be treated in the risk assessments.

- Arsenic
- Cadmium
- Thallium
- Mercury
- 1,1,2,2-Tetrachloroethane
- 1,1,2-Trichloroethane
- 1,2,4-Trichlorobenzene
- 1,2-Dibromo-3-chloropropane
- 1,2-Dibromoethane
- 1,2-Dichloroethane
- 1,4-Dichlorobenzene
- Benzene
- Bromodichloromethane
- Carbon tetrachloride
- Chloroform
- cis-1,3-Dichloropropene
- trans-1,3-Dichloropropene
- Trichloroethene
- Vinyl chloride
- 1-Methylnaphthalene
- 2,4-Dinitrophenol (constituent of potential concern)
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- 3,3'-Dichlorobenzidine
- 4,6-Dinitro-2-methylphenol
- 4-Chloroaniline
- Atrazine
- Benz(a)anthracene
- Benzo(a)pyrene
- Biphenyl
- Bis(2-chloroethyl) ether
- Dibenzo(a,h)anthracene
- Dibenzofuran
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- Naphthalene
- Nitrobenzene

- N-Nitrosodi-n-propylamine
- Pentachlorophenol
- PCB Aroclors 1016 through 1260

### 15.5.2 Soils

Soil PALs consider the lower of human health and ecological screening levels. See method- and medium-specific #15 tables provided at the end of this Section for soil PALs.

**Soil PAL (i.e., the lower of the human health and ecological screening value) falls between the LOQ and the LOD**

These chemicals may be positively identified as detected, but the quantification would be estimated. As per CERCLA guidelines, these data would be deemed usable in the risk assessments. Chemicals to which this applies are:

- Anthracene

**Soil PAL (i.e., the lower of the human health and ecological screening value) is less than the LOD**

Reliable risk-based decisions cannot be made unless the concentrations are greater than the LOQ. See text above regarding how non-detects will be treated in the risk assessments.

- Mercury
- 2,4-Dinitrophenol (constituent of potential concern)
- 2-Chloronaphthalene
- 3,3'-Dichlorobenzidine
- 4,6-Dinitro-2-methylphenol
- Anthracene
- Atrazine
- Bis(2-ethylhexyl)phthalate
- Di-n-butyl phthalate
- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- PCB-1248

## Worksheet #15-1a – VOCs Groundwater

Matrix: Groundwater
Analytical Group: Volatile Organic Compounds (GC/MS) (SW8260C/D)
Units: µg/L

| Analyte | Human Health Risk-based Value[a] | Human Health Reference[b] | PAL | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 800 | 2024 Nov EPA Tapwater (THQ 0.1) | 800 | 270 | 1 | 0.6 | 0.3 |
| 1,1,2,2-Tetrachloroethane | 0.076 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.076 | 1 | 1 | 0.6 | 0.3 |
| 1,1,2-Trichloroethane | 0.041 | 2024 Nov EPA Tapwater (THQ 0.1) | 0.041 | 1 | 1 | 0.6 | 0.3 |
| 1,1-Dichloroethane | 2.8 | 2024 Nov EPA Tapwater (Risk 10-6) | 2.8 | 1 | 1 | 0.6 | 0.3 |
| 1,1-Dichloroethene | 0.82 | 2024 Nov EPA Tapwater (THQ 0.1) | 0.82 | 1 | 1 | 0.6 | 0.3 |
| 1,2,4-Trichlorobenzene | 0.4 | 2024 Nov EPA Tapwater (THQ 0.1) | 0.4 | 5 | 5 | 1 | 0.3 |
| 1,2-Dibromo-3-Chloropropane | 0.00033 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.0003 | 5 | 5 | 1 | 0.3 |
| 1,2-Dibromoethane (EDB) | 0.0075 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.0075 | 1 | 1 | 0.5 | 0.2 |
| 1,2-Dichlorobenzene | 30 | 2024 Nov EPA Tapwater (THQ 0.1) | 30 | 10 | 5 | 0.5 | 0.2 |
| 1,2-Dichloroethane | 0.17 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.17 | 1 | 1 | 0.6 | 0.3 |
| 1,2-Dichloropropane | 0.82 | 2024 Nov EPA Tapwater (THQ 0.1) | 0.82 | 1 | 1 | 0.6 | 0.3 |
| 1,3-Dichlorobenzene | 3 | New York State Groundwater 703.5 | 3 | 5 | 5 | 1.4 | 0.68 |
| 1,4-Dichlorobenzene | 0.48 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.48 | 5 | 5 | 0.6 | 0.3 |
| 2-Butanone | 560 | 2024 Nov EPA Tapwater (THQ 0.1) | 560 | 190 | 10 | 1 | 1 |
| 2-Hexanone | 3.8 | 2024 Nov EPA Tapwater (THQ 0.1) | 3.8 | 10 | 10 | 1.7 | 0.85 |
| 4-Methyl-2-pentanone | 630 | 2024 Nov EPA Tapwater (THQ 0.1) | 630 | 210 | 10 | 1 | 0.5 |
| Acetone | 1800 | 2024 Nov EPA Tapwater (THQ 0.1) | 1800 | 600 | 20 | 2 | 0.7 |
| Benzene | 0.46 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.46 | 1 | 1 | 0.6 | 0.3 |
| Bromodichloromethane | 0.13 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.13 | 1 | 1 | 0.5 | 0.2 |
| Bromoform | 3.3 | 2024 Nov EPA Tapwater (Risk 10-6) | 3.3 | 4 | 4 | 2 | 1 |
| Bromomethane | 0.75 | 2024 Nov EPA Tapwater (THQ 0.1) | 0.75 | 1 | 1 | 0.6 | 0.3 |
| Carbon disulfide | 81 | 2024 Nov EPA Tapwater (THQ 0.1) | 81 | 27 | 5 | 0.6 | 0.3 |

| Analyte | Human Health Risk-based Value[a] | Human Health Reference[b] | PAL | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| Carbon tetrachloride | 0.46 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.46 | 1 | 1 | 0.6 | 0.3 |
| Chlorobenzene | 7.8 | 2024 Nov EPA Tapwater (THQ 0.1) | 7.8 | 2.6 | 1 | 0.6 | 0.3 |
| Chloroethane | 830 | 2024 Nov EPA Tapwater (THQ 0.1) | 830 | 280 | 1 | 0.6 | 0.3 |
| Chloroform | 0.22 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.22 | 1 | 1 | 0.6 | 0.3 |
| Chloromethane | 19 | 2024 Nov EPA Tapwater (THQ 0.1) | 19 | 6.3 | 2 | 1.1 | 0.55 |
| cis-1,2-Dichloroethene | 2.5 | 2024 Nov EPA Tapwater (THQ 0.1) | 2.5 | 1 | 1 | 0.6 | 0.3 |
| cis-1,3-Dichloropropene | 0.47 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.47 | 1 | 1 | 0.5 | 0.2 |
| Cyclohexane | 1300 | 2024 Nov EPA Tapwater (THQ 0.1) | 1300 | 430 | 5 | 2 | 1 |
| Dibromochloromethane | 0.87 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.87 | 1 | 1 | 0.5 | 0.2 |
| Dichlorodifluoromethane | 20 | 2024 Nov EPA Tapwater (THQ 0.1) | 20 | 6.7 | 1 | 0.6 | 0.3 |
| Ethylbenzene | 1.5 | 2024 Nov EPA Tapwater (Risk 10-6) | 1.5 | 1 | 1 | 0.8 | 0.4 |
| Freon 113 | 1000 | 2024 Nov EPA Tapwater (THQ 0.1) | 1000 | 330 | 10 | 0.6 | 0.3 |
| Isopropylbenzene | 45 | 2024 Nov EPA Tapwater (THQ 0.1) | 45 | 15 | 5 | 0.6 | 0.3 |
| Methyl acetate | 2000 | 2024 Nov EPA Tapwater (THQ 0.1) | 2000 | 670 | 5 | 0.6 | 0.3 |
| Methyl tert-butyl ether | 14 | 2024 Nov EPA Tapwater (Risk 10-6) | 14 | 4.7 | 1 | 0.5 | 0.2 |
| Methylcyclohexane | 20 | 2024 Nov EPA Tapwater (THQ 0.1) | 20 | 6.7 | 5 | 1 | 0.5 |
| Methylene Chloride | 11 | 2024 Nov EPA Tapwater (THQ 0.1 and Risk 10-6) | 11 | 3.7 | 1 | 0.6 | 0.3 |
| Styrene | 120 | 2024 Nov EPA Tapwater (THQ 0.1) | 120 | 40 | 5 | 0.6 | 0.3 |
| Tetrachloroethene | 4.1 | 2024 Nov EPA Tapwater (THQ 0.1) | 4.1 | 1.4 | 1 | 0.6 | 0.3 |
| Toluene | 110 | 2024 Nov EPA Tapwater (THQ 0.1) | 110 | 3.7 | 1 | 0.6 | 0.3 |
| trans-1,2-Dichloroethene | 6.8 | 2024 Nov EPA Tapwater (THQ 0.1) | 6.8 | 2.3 | 2 | 1.4 | 0.7 |
| trans-1,3-Dichloropropene | 0.47 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.47 | 1 | 1 | 0.5 | 0.2 |
| Trichloroethene | 0.28 | 2024 Nov EPA Tapwater (THQ 0.1) | 0.28 | 1.0 | 1 | 0.60 | 0.30 |
| Trichlorofluoromethane | 520 | 2024 Nov EPA Tapwater (THQ 0.1) | 520 | 170 | 1 | 0.60 | 0.30 |
| Vinyl chloride | 0.019 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.019 | 1.0 | 1 | 0.60 | 0.30 |

| Analyte | Human Health Risk-based Value[a] | Human Health Reference[b] | PAL | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| Xylenes, Total | 19 | 2024 Nov EPA Tapwater (THQ 0.1) | 19 | 6.3 | 1 | 0.80 | 0.40 |

Notes:
Only human health benchmarks are presented because ecological receptors are not expected to be exposed to groundwater.
References include: EPA, 2024. Regional Screening Levels (RSLs). November.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Analytes shaded in blue were identified as COPCs during Phase 1 investigation.
Acronyms:
µg/L = microgram per liter.
DL = detection limit.
EPA = Environmental Protection Agency.
GC/MS = gas chromatography/mass spec.
LOD = limit of detection.
LOQ = limit of quantitation.
NA = Not Applicable.
PAL = project action limit.
THQ = target hazard quotient.

## Worksheet 15-1b – SVOC Groundwater

Matrix: Groundwater
Analytical Group: Semivolatile Organic Compounds (GC/MS) (SW8270E)
Units: µg/L

| Analyte | Human Health Risk-based Value[a] | Human Health Reference [b] | PAL | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| 1,1'-Biphenyl | 0.083 | 2024 Nov EPA Tapwater (THQ 0.1) | 0.083 | 2.0 | 2.0 | 1.0 | 0.50 |
| 2,2'-oxybis[1-chloropropane] | 71 | 2024 Nov EPA Tapwater (THQ 0.1) | 71 | 24 | 2.0 | 1.0 | 0.50 |
| 2,4,5-Trichlorophenol | 120 | 2024 Nov EPA Tapwater (THQ 0.1) | 120 | 40 | 2.0 | 1.0 | 0.50 |
| 2,4,6-Trichlorophenol | 1.2 | 2024 Nov EPA Tapwater (THQ 0.1) | 1.2 | 2.0 | 2.0 | 1.0 | 0.50 |
| 2,4-Dichlorophenol | 4.6 | 2024 Nov EPA Tapwater (THQ 0.1) | 4.6 | 2.0 | 2.0 | 1.0 | 0.50 |
| 2,4-Dimethylphenol | 36 | 2024 Nov EPA Tapwater (THQ 0.1) | 36 | 12 | 10 | 9.0 | 3.0 |
| 2,4-Dinitrophenol | 3.9 | 2024 Nov EPA Tapwater (THQ 0.1) | 3.9 | 30 | 30 | 28 | 14 |
| 2,4-Dinitrotoluene | 0.24 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.24 | 5.0 | 5.0 | 2.0 | 1.0 |
| 2,6-Dinitrotoluene | 0.049 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.049 | 2.0 | 2.0 | 1.0 | 0.50 |
| 2-Chloronaphthalene | 75 | 2024 Nov EPA Tapwater (THQ 0.1) | 75 | 25 | 1.0 | 0.80 | 0.40 |
| 2-Chlorophenol | 9.1 | 2024 Nov EPA Tapwater (THQ 0.1) | 9.1 | 2.0 | 2.0 | 1.0 | 0.50 |
| 2-Methylnaphthalene | 3.6 | 2024 Nov EPA Tapwater (THQ 0.1) | 3.6 | 1.2 | 0.50 | 0.20 | 0.10 |
| 2-Methylphenol | 93 | 2024 Nov EPA Tapwater (THQ 0.1) | 93 | 31 | 2.0 | 1.0 | 0.50 |
| 2-Nitroaniline | 19 | 2024 Nov EPA Tapwater (THQ 0.1) | 19 | 6.3 | 5.0 | 2.0 | 1.0 |
| 2-Nitrophenol | NA | - | NA | 25 | 5.0 | 2.0 | 1.0 |
| 3,3'-Dichlorobenzidine | 0.13 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.13 | 10 | 10 | 8.0 | 4.0 |
| 4,6-Dinitro-2-methylphenol | 0.15 | 2024 Nov EPA Tapwater (THQ 0.1) | 0.15 | 21 | 21 | 20 | 8.0 |
| 4-Chloro-3-methylphenol | 140 | 2024 Nov EPA Tapwater (THQ 0.1) | 140 | 47 | 5.0 | 2.0 | 1.0 |
| 4-Chloroaniline | 0.37 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.37 | 10 | 10 | 9.0 | 4.0 |
| 4-Chlorophenyl phenyl ether | NA | - | NA | 10 | 2.0 | 1.0 | 0.50 |
| 4-Methylphenol[c] | 37 | 2024 Nov EPA Tapwater (THQ 0.1) | 37 | 12 | 2.0 | 1.0 | 0.50 |
| 4-Nitroaniline | 3.8 | 2024 Nov EPA Tapwater (Risk 10-6) | 3.8 | 3.0 | 3.0 | 2.0 | 0.90 |
| 4-Nitrophenol | NA | - | NA | 150 | 30 | 20 | 10 |

| Analyte | Human Health Risk-based Value[a] | Human Health Reference [b] | PAL | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| Acenaphthene | 53 | 2024 Nov EPA Tapwater (THQ 0.1) | 53 | 18 | 0.50 | 0.20 | 0.10 |
| Acenaphthylene | 53 | Tapwater RSL for acenaphthene | 53 | 18 | 0.50 | 0.20 | 0.10 |
| Acetophenone | 190 | 2024 Nov EPA Tapwater (THQ 0.1) | 190 | 63 | 5.0 | 2.0 | 1.0 |
| Anthracene | 180 | 2024 Nov EPA Tapwater (THQ 0.1) | 180 | 60 | 0.50 | 0.20 | 0.10 |
| Atrazine | 0.3 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.3 | 5.0 | 5.0 | 2.0 | 1.0 |
| Benzaldehyde | 19 | 2024 Nov EPA Tapwater (Risk 10-6) | 19 | 6.3 | 5.0 | 2.0 | 1.0 |
| Benz [a]anthracene | 0.03 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.03 | 0.50 | 0.50 | 0.20 | 0.10 |
| Benzo[a]pyrene | 0.025 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.025 | 0.50 | 0.50 | 0.22 | 0.11 |
| Benzo[b]fluoranthene | 0.25 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.25 | 0.50 | 0.50 | 0.20 | 0.10 |
| Benzo[g,h,i]perylene | 12 | Tapwater RSL for pyrene | 12 | 4.0 | 0.50 | 0.20 | 0.10 |
| Benzo[k]fluoranthene | 2.5 | 2024 Nov EPA Tapwater (Risk 10-6) | 2.5 | 0.83 | 0.50 | 0.20 | 0.10 |
| Bis(2-chloroethoxy)methane | 5.9 | 2024 Nov EPA Tapwater (THQ 0.1) | 5.9 | 2.0 | 2.0 | 1.0 | 0.50 |
| Bis(2-chloroethyl)ether | 0.014 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.014 | 2.0 | 2.0 | 1.0 | 0.50 |
| Bis(2-ethylhexyl) phthalate | 5.6 | 2024 Nov EPA Tapwater (Risk 10-6) | 5.6 | 5.0 | 5.0 | 4.0 | 2.0 |
| Butyl benzyl phthalate | 16 | 2024 Nov EPA Tapwater (Risk 10-6) | 16 | 5.3 | 5.0 | 4.0 | 2.0 |
| Caprolactam | 990 | 2024 Nov EPA Tapwater (THQ 0.1) | 990 | 330 | 7.0 | 6.0 | 3.0 |
| Carbazole | 29 | Tapwater RSL for fluorene | 29 | 9.7 | 2.0 | 1.0 | 0.50 |
| Chrysene | 25 | 2024 Nov EPA Tapwater (Risk 10-6) | 25 | 8.3 | 0.50 | 0.20 | 0.10 |
| Dibenz(a,h)anthracene | 0.025 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.025 | 0.50 | 0.50 | 0.20 | 0.10 |
| Dibenzofuran | 0.79 | 2024 Nov EPA Tapwater (THQ 0.1) | 0.79 | 2.0 | 2.0 | 1.0 | 0.50 |
| Diethyl phthalate | 1500 | 2024 Nov EPA Tapwater (THQ 0.1) | 1500 | 500 | 5.0 | 4.0 | 2.0 |
| Dimethyl phthalate | NA | - | NA | 25 | 5.0 | 4.0 | 2.0 |
| Di-n-butyl phthalate | 90 | 2024 Nov EPA Tapwater (THQ 0.1) | 90 | 30 | 5.0 | 4.0 | 2.0 |
| Di-n-octyl phthalate | 20 | 2024 Nov EPA Tapwater (THQ 0.1) | 20 | 11 | 11.0 | 10.0 | 5.0 |
| Fluoranthene | 80 | 2024 Nov EPA Tapwater (THQ 0.1) | 80 | 27 | 0.50 | 0.20 | 0.10 |
| Fluorene | 29 | 2024 Nov EPA Tapwater (THQ 0.1) | 29 | 9.7 | 0.50 | 0.24 | 0.12 |
| Hexachlorobenzene | 0.0098 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.0098 | 0.50 | 0.50 | 0.22 | 0.11 |

| Analyte | Human Health Risk-based Value[a] | Human Health Reference [b] | PAL | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| Hexachlorobutadiene | 0.14 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.14 | 2.0 | 2.0 | 1.0 | 0.50 |
| Hexachlorocyclopentadiene | 0.041 | 2024 Nov EPA Tapwater (THQ 0.1) | 0.041 | 11 | 11 | 10 | 5.0 |
| Hexachloroethane | 0.33 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.33 | 5.0 | 5.0 | 1.0 | 0.50 |
| Indeno[1,2,3-cd] pyrene | 0.25 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.25 | 0.50 | 0.50 | 0.22 | 0.11 |
| Isophorone | 78 | 2024 Nov EPA Tapwater (Risk 10-6) | 78 | 26 | 2.0 | 1.0 | 0.50 |
| Naphthalene | 0.12 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.12 | 0.50 | 0.50 | 0.30 | 0.26 |
| Nitrobenzene | 0.14 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.14 | 2.0 | 2.0 | 1.0 | 0.50 |
| N-Nitrosodi-n-propylamine | 0.011 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.011 | 2.0 | 2.0 | 1.0 | 0.50 |
| N-Nitrosodiphenylamine | 12 | 2024 Nov EPA Tapwater (Risk 10-6) | 12 | 4.0 | 2.0 | 1.0 | 0.50 |
| Pentachlorophenol | 0.041 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.041 | 5.0 | 5.0 | 4.0 | 2.6 |
| Phenanthrene | 180 | Tapwater RSL for anthracene | 180 | 60 | 0.50 | 0.22 | 0.11 |
| Phenol | 580 | 2024 Nov EPA Tapwater (THQ 0.1) | 580 | 190 | 2.0 | 1.0 | 0.50 |
| Pyrene | 12 | 2024 Nov EPA Tapwater (THQ 0.1) | 12 | 4 | 0.50 | 0.20 | 0.10 |

Notes:
(a) Only human health benchmarks are presented because ecological receptors are not expected to be exposed to groundwater.
(b) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
(c) 4-methylphenol is reported by the laboratory as 3 & 4-methylphenol.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Analytes shaded in blue were identified as COPCs during Phase 1 investigation.
Project Quantitation Goal shaded in purple is 5x the LOQ since there is no associated PAL.
Acronyms:
µg/L = microgram per liter
DL = detection limit
EPA = Environmental Protection Agency
GC/MS = gas chromatography/mass spec
LOD = limit of detection
LOQ = limit of quantitation
NA = Not Applicable
PAL = project action limit
THQ = target hazard quotient

## Worksheet 15-1c – SVOC Groundwater - 2,4-dinitrophenol and 2,4-dinitrochlorobenzene

Matrix: Groundwater
Analytical Group: Semivolatile Organic Compounds (GC/MS) (SW8270E)
Units: µg/L

| Analyte | Human Health Risk-based Value[a] | Human Health Reference [b] | PAL | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| 2,4-Dinitrophenol (2,4-DNP) | 3.9 | 2024 Nov EPA Tapwater (THQ 0.1) | 3.9 | 30 | 30 | 28 | 14 |
| 1-chloro-2,4-dinitrobenzene (2,4-DNCB) * | 0.24 | Tapwater RSL for 2,4-DNT | 3.9 | TBD | TBD | TBD | TBD |

Notes:
*Eurofins Lancaster is currently (August 2025) adding 2,4-DNCB as a target compound. A change page reflecting their lab limits, along with eQAPP updates will be made as soon as possible (currently anticipating September 2025).
(a) Only human health benchmarks are presented because ecological receptors are not expected to be exposed to groundwater.
(b) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Analytes shaded in blue were identified as COPCs during Phase 1 investigation.
Acronyms:
µg/L = microgram per liter
DL = detection limit
EPA = Environmental Protection Agency
GC/MS = gas chromatography/mass spec
LOD = limit of detection
LOQ = limit of quantitation
NA = Not Applicable
PAL = project action limit
TBD = to be determined
THQ = target hazard quotient

## Worksheet #15-1d – PAH Groundwater

Matrix: Groundwater
Analytical Group: Semivolatile Organic Compounds (GC/MS SIM) SW8270E
Units: µg/L

| Analyte | Human Health Risk-based Value [a] | Human Health Reference [b] | PAL | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | 0.00063 | 2024 Nov EPA Tapwater (THQ 0.1) | 0.00063 | 0.05 | 0.05 | 0.04 | 0.02 |
| 2-Methylnaphthalene | 3.6 | 2024 Nov EPA Tapwater (THQ 0.1) | 3.6 | 1.2 | 0.05 | 0.04 | 0.02 |
| Acenaphthene | 53 | 2024 Nov EPA Tapwater (THQ 0.1) | 53 | 18 | 0.05 | 0.03 | 0.01 |
| Acenaphthylene | 53 | Tapwater RSL for acenaphthene | 53 | 18 | 0.05 | 0.03 | 0.01 |
| Anthracene | 180 | 2024 Nov EPA Tapwater (THQ 0.1) | 180 | 60 | 0.05 | 0.03 | 0.01 |
| Benzo[a]anthracene | 0.03 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.03 | 0.05 | 0.05 | 0.03 | 0.01 |
| Benzo[a]pyrene | 0.025 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.025 | 0.15 | 0.15 | 0.1 | 0.047 |
| Benzo[b]fluoranthene | 0.25 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.25 | 0.15 | 0.15 | 0.1 | 0.047 |
| Benzo[g,h,i]perylene | 12 | Tapwater RSL for pyrene | 12 | 4 | 0.05 | 0.03 | 0.01 |
| Benzo[k]fluoranthene | 2.5 | 2024 Nov EPA Tapwater (Risk 10-6) | 2.5 | 0.08 | 0.05 | 0.03 | 0.01 |
| Chrysene | 25 | 2024 Nov EPA Tapwater (Risk 10-6) | 25 | 8.3 | 0.06 | 0.05 | 0.025 |
| Dibenz(a,h)anthracene | 0.025 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.025 | 0.008 | 0.05 | 0.04 | 0.02 |
| Fluoranthene | 80 | 2024 Nov EPA Tapwater (THQ 0.1) | 80 | 27 | 0.05 | 0.046 | 0.023 |
| Fluorene | 29 | 2024 Nov EPA Tapwater (THQ 0.1) | 29 | 9.7 | 0.05 | 0.03 | 0.01 |
| Indeno[1,2,3-cd]pyrene | 0.25 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.25 | 0.08 | 0.05 | 0.04 | 0.02 |
| Naphthalene | 0.12 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.12 | 0.15 | 0.15 | 0.14 | 0.068 |
| Phenanthrene | 180 | Tapwater RSL for anthracene | 180 | 60 | 0.07 | 0.06 | 0.03 |
| Pyrene | 12 | 2024 Nov EPA Tapwater (THQ 0.1) | 12 | 4 | 0.05 | 0.042 | 0.021 |

Notes:
Only human health benchmarks are presented because ecological receptors are not expected to be exposed to groundwater.
References include: EPA, 2024. Regional Screening Levels (RSLs). November.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Analytes shaded in blue were identified as COPCs during Phase 1 investigation.
Acronyms:
µg/L – microgram per liter
EPA – Environmental Protection Agency
GC/MS – gas chromatography/mass spec
THQ – target hazard quotient
LOD – limit of detection
LOQ – limit of quantitation
PAL – project action limit

## Worksheet #15-1e – PCBs Groundwater

Matrix: Groundwater
Analytical Group: Polychlorinated Biphenyls (PCBs) by Gas Chromatography (SW8082)
Units: µg/L

| Analyte | Human Health Risk-based Value[(a)] | Human Health Reference [(b)] | PAL | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| PCB-1016 | 0.14 | 2024 Nov EPA Tapwater (THQ 0.1) | 0.14 | 0.5 | 0.5 | 0.20 | 0.10 |
| PCB-1221 | 0.0047 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.0047 | 0.5 | 0.5 | 0.20 | 0.10 |
| PCB-1232 | 0.0047 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.0047 | 0.5 | 0.5 | 0.20 | 0.10 |
| PCB-1242 | 0.0078 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.0078 | 0.5 | 0.5 | 0.20 | 0.10 |
| PCB-1248 | 0.0078 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.0078 | 0.5 | 0.5 | 0.20 | 0.10 |
| PCB-1254 | 0.0078 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.0078 | 0.5 | 0.5 | 0.20 | 0.078 |
| PCB-1260 | 0.0078 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.0078 | 0.5 | 0.5 | 0.20 | 0.078 |
| PCB-1262 | NA | - | NA | 2.5 | 0.5 | 0.20 | 0.078 |
| PCB-1268 | NA | - | NA | 2.5 | 0.5 | 0.20 | 0.078 |

Notes:
(a) Only human health benchmarks are presented because ecological receptors are not expected to be exposed to groundwater.
(b) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Analytes shaded in blue were identified as COPCs during Phase 1 investigation.
Project Quantitation Goal shaded in purple is 5x the LOQ since there is no associated PAL.
Acronyms:
µg/L = microgram per liter
DL = detection limit
GC/MS = gas chromatography/mass spec
LOD = limit of detection
LOQ = limit of quantitation
PAL = project action limit
PCB = polychlorinated biphenyl
THQ = target hazard quotient
EPA = Environmental Protection Agency
NA = Not Applicable

## Worksheet #15-1f – Picric Acid Groundwater

Matrix: Groundwater
Analytical Group: Nitroaromatics and Nitramines (HPLC)-SW8330D
Units: µg/L

| Analyte | Human Health Risk-based Value[a] | Human Health Reference [b] | PAL | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| Picric acid | 4 | 2024 Nov EPA Tapwater (THQ 0.1) | 4 | 1.3 | 0.400 | 0.120 | 0.0436 |

Notes:
(a) Only human health benchmarks are presented because ecological receptors are not expected to be exposed to groundwater.
(b) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Analytes shaded in blue were identified as COPCs during Phase 1 investigation.
Acronyms:
µg/L = microgram per liter
HPLC = high performance liquid chromatography
LOD = limit of detection
LOQ = limit of quantitation
PAL = project action limit
THQ = target hazard quotient

## Worksheet #15-1g – Metals (Total and Dissolved) Groundwater

Matrix: Groundwater
Analytical Group: Metals (ICP/MS) SW6020B
Units: µg/L

| Analyte | Human Health Risk-based Value[a] | Human Health Reference [b] | PAL | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| Aluminum | 2000 | 2024 Nov EPA Tapwater (THQ 0.1) | 2000 | 670 | 30 | 24 | 12 |
| Antimony | 0.78 | 2024 Nov EPA Tapwater (THQ 0.1) | 0.78 | 1.0 | 1.0 | 0.50 | 0.20 |
| Arsenic | 0.052 | 2024 Nov EPA Tapwater (Risk 10-6) | 0.052 | 2.0 | 2.0 | 1.7 | 0.68 |
| Barium | 380 | 2024 Nov EPA Tapwater (THQ 0.1) | 380 | 130 | 2.0 | 1.6 | 0.746 |
| Beryllium | 2.5 | 2024 Nov EPA Tapwater (THQ 0.1) | 2.5 | 0.83 | 0.5 | 0.3 | 0.119 |
| Cadmium | 0.18 | 2024 Nov EPA Tapwater (THQ 0.1) | 0.18 | 0.50 | 0.50 | 0.40 | 0.151 |
| Calcium | EN | - | EN | 600 | 120 | 100 | 50 |
| Chromium | 2200 | 2024 Nov EPA Tapwater (THQ 0.1) | 2200 | 730 | 2.0 | 1.1 | 0.55 |
| Cobalt | 0.6 | 2024 Nov EPA Tapwater (THQ 0.1) | 0.6 | 0.50 | 0.50 | 0.40 | 0.156 |
| Copper | 80 | 2024 Nov EPA Tapwater (THQ 0.1) | 80 | 27 | 1.0 | 0.90 | 0.85 |
| Iron | 1400 | 2024 Nov EPA Tapwater (THQ 0.1) | 1400 | 470 | 50 | 40 | 20 |
| Lead | 10 | 2024 Nov RSL (Lead Action Level) | 10 | 3.3 | 0.50 | 0.24 | 0.12 |
| Magnesium | EN | - | EN | 250 | 50 | 32 | 16 |
| Manganese | 43 | 2024 Nov EPA Tapwater (THQ 0.1) | 43 | 14 | 2.0 | 1.9 | 0.95 |
| Nickel | 39 | 2024 Nov EPA Tapwater (THQ 0.1) | 39 | 13 | 1.5 | 0.80 | 0.40 |
| Potassium | EN | - | EN | 1000 | 200 | 180 | 65 |
| Selenium | 10 | 2024 Nov EPA Tapwater (THQ 0.1) | 10 | 3.3 | 1.0 | 0.60 | 0.278 |
| Silver | 9.4 | 2024 Nov EPA Tapwater (THQ 0.1) | 9.4 | 3.1 | 0.50 | 0.30 | 0.10 |
| Sodium | EN | - | EN | 1000 | 200 | 180 | 90 |
| Thallium | 0.02 | 2024 Nov EPA Tapwater (THQ 0.1) | 0.02 | 0.50 | 0.50 | 0.30 | 0.13 |
| Vanadium | 8.6 | 2024 Nov EPA Tapwater (THQ 0.1) | 8.6 | 4.0 | 4.0 | 2.0 | 0.794 |
| Zinc | 600 | 2024 Nov EPA Tapwater (THQ 0.1) | 600 | 200 | 15 | 8.0 | 4.0 |

| Analyte | Human Health Risk-based Value[a] | Human Health Reference [b] | PAL | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|

Notes:
(a) Only human health benchmarks are presented because ecological receptors are not expected to be exposed to groundwater.
(b) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Analytes shaded in blue were identified as COPCs during Phase 1 investigation.
Project Quantitation Goal shaded in purple is 5x the LOQ since there is no associated PAL.
Acronyms:
µg/L = microgram per liter
DL = detection limit
EPA = Environmental Protection Agency
EN = Essential Nutrient
ICP/MS = inductively coupled plasma/mass spectrometry
LOD = limit of detection
LOQ = limit of quantitation
NA = Not Applicable
PAL = project action limit
THQ = target hazard quotient

## Worksheet #15-1h – Mercury (Total and Dissolved) Water

Matrix: Groundwater
Analytical Group: Mercury (CVAA) SW7470A
Units: µg/L

| Analyte | Human Health Risk-based Value[a] | Human Health Reference [b] | PAL | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| Mercury | 0.063 | 2024 Nov EPA Tapwater (THQ 0.1) | 0.063 | 0.2 | 0.200 | 0.160 | 0.0870 |

Notes:
(a) Only human health benchmarks are presented because ecological receptors are not expected to be exposed to groundwater.
(b) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Analytes shaded in blue were identified as COPCs during Phase 1 investigation.
Acronyms:
µg/L = microgram per liter
DL = detection limit
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
PAL = project action limit
THQ = target hazard quotient

## Worksheet #15-2a – VOCs Soil

Matrix: Soil
Analytical Group: Volatile Organic Compounds (GC/MS) (SW8260C/D)
Units: µg/Kg

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Soil Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 810000 | RSL Resident Soil (THQ 0.1) | 40 | EPA Region 4 | 40 | 13 | 5.0 | 2.0 | 0.80 |
| 1,1,2,2-Tetrachloroethane | 600 | RSL Resident Soil (Risk 10-6) | 127 | EPA Region 4 | 127 | 42 | 5.0 | 2.0 | 0.80 |
| 1,1,2-Trichloroethane | 150 | RSL Resident Soil (THQ 0.1) | 320 | EPA Region 4 | 150 | 50 | 5.0 | 2.0 | 0.70 |
| 1,1-Dichloroethane | 3600 | RSL Resident Soil (Risk 10-6) | 140 | EPA Region 4 | 140 | 47 | 5.0 | 2.0 | 0.80 |
| 1,1-Dichloroethene | 480 | RSL Resident Soil (THQ 0.1) | 40 | EPA Region 4 | 40 | 13 | 5.0 | 2.0 | 0.80 |
| 1,2,4-Trichlorobenzene | 5800 | RSL Resident Soil (THQ 0.1) | 270 | EPA Region 4 | 270 | 90 | 10 | 8.0 | 5.0 |
| 1,2-Dibromo-3-Chloropropane | 5.3 | RSL Resident Soil (Risk 10-6) | 35.2 | EPA Region 5 RCRA ESLs | 5.3 | 5.0 | 5.0 | 2.0 | 0.80 |
| 1,2-Dibromoethane (EDB) | 36 | RSL Resident Soil (Risk 10-6) | 1230 | EPA Region 5 RCRA ESLs | 36 | 12 | 5.0 | 2.0 | 0.70 |
| 1,2-Dichlorobenzene | 180000 | RSL Resident Soil (THQ 0.1) | 90 | EPA Region 4 | 90 | 30 | 5.0 | 2.0 | 0.90 |
| 1,2-Dichloroethane | 460 | RSL Resident Soil (Risk 10-6) | 400 | EPA Region 4 | 400 | 133 | 5.0 | 2.0 | 0.60 |
| 1,2-Dichloropropane | 1600 | RSL Resident Soil (THQ 0.1) | 280 | EPA Region 4 | 280 | 93 | 5.0 | 2.0 | 0.80 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Soil Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| 1,3-Dichlorobenzene | NA | - | 80 | EPA Region 4 | 80 | 27 | 5.0 | 2.0 | 1 |
| 1,4-Dichlorobenzene | 2600 | RSL Resident Soil (Risk 10-6) | 880 | EPA Region 4 | 880 | 290 | 5.0 | 2.0 | 0.90 |
| 2-Butanone | 2700000 | RSL Resident Soil (THQ 0.1) | 1000 | EPA Region 4 | 1000 | 330 | 10 | 4.0 | 2.0 |
| 2-Hexanone | 20000 | RSL Resident Soil (THQ 0.1) | 360 | EPA Region 4 | 360 | 120 | 10.0 | 5.0 | 2.50 |
| 4-Methyl-2-pentanone | 3300000 | RSL Resident Soil (THQ 0.1) | 443000 | EPA Region 5 RCRA ESLs | 443000 | 150000 | 10.0 | 4.00 | 2.00 |
| Acetone | 7000000 | RSL Resident Soil (THQ 0.1) | 1200 | EPA Region 4 | 1200 | 400 | 20.0 | 16.0 | 6.00 |
| Benzene | 1200 | RSL Resident Soil (Risk 10-6) | 120 | EPA Region 4 | 120 | 40 | 5.00 | 2.00 | 0.800 |
| Bromodichloromethane | 290 | RSL Resident Soil (Risk 10-6) | 540 | EPA Region 5 RCRA ESLs | 290 | 97 | 5.00 | 2.00 | 0.700 |
| Bromoform | 19000 | RSL Resident Soil (Risk 10-6) | 70 | EPA Region 4 | 70 | 23 | 10.0 | 8.00 | 5.00 |
| Bromomethane | 680 | RSL Resident Soil (THQ 0.1) | 2 | EPA Region 4 | 2 | 5.00 | 5.00 | 2.00 | 1.00 |
| Carbon disulfide | 77000 | RSL Resident Soil (THQ 0.1) | 5 | EPA Region 4 | 5 | 5.00 | 5.00 | 2.00 | 0.800 |
| Carbon tetrachloride | 650 | RSL Resident Soil (Risk 10-6) | 50 | EPA Region 4 | 50 | 17 | 5.00 | 2.00 | 0.800 |
| Chlorobenzene | 28000 | RSL Resident Soil (THQ 0.1) | 2400 | EPA Region 4 | 2400 | 800 | 5.00 | 2.00 | 0.900 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Soil Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Chloroethane | 540000 | RSL Resident Soil (THQ 0.1) | NA | EPA Region 4 | 540000 | 180000 | 5.00 | 4.00 | 1.00 |
| Chloroform | 320 | RSL Resident Soil (Risk 10-6) | 50 | EPA Region 4 | 50 | 17 | 5.00 | 2.00 | 0.800 |
| Chloromethane | 11000 | RSL Resident Soil (THQ 0.1) | 10400 | EPA Region 5 RCRA ESLs | 10400 | 3500 | 5.00 | 2.00 | 1.00 |
| cis-1,2-Dichloroethene | 6300 | RSL Resident Soil (THQ 0.1) | 40 | EPA Region 4 | 40 | 13 | 5.00 | 2.00 | 0.800 |
| cis-1,3-Dichloropropene | 1800 | RSL Resident Soil (Risk 10-6) | 398 | EPA Region 5 RCRA ESLs | 398 | 130 | 5.0 | 1.0 | 0.60 |
| Cyclohexane | 650000 | RSL Resident Soil (THQ 0.1) | NA | EPA Region 4 | 650000 | 220000 | 5.0 | 2.0 | 0.90 |
| Dibromochloromethane | 8300 | RSL Resident Soil (Risk 10-6) | 2050 | EPA Region 5 RCRA ESLs | 2050 | 680 | 5.0 | 1.0 | 0.50 |
| Dichlorodifluoromethane | 8700 | RSL Resident Soil (THQ 0.1) | 39500 | EPA Region 5 RCRA ESLs | 8700 | 2900 | 5.0 | 2.0 | 1.0 |
| Ethylbenzene | 5800 | RSL Resident Soil (Risk 10-6) | 270 | EPA Region 4 | 270 | 90 | 5.0 | 2.0 | 1.0 |
| Freon 113 | 670000 | RSL Resident Soil (THQ 0.1) | NA | EPA Region 4 | 670000 | 220000 | 10 | 2.0 | 0.90 |
| Isopropylbenzene | 190000 | RSL Resident Soil (THQ 0.1) | 40 | EPA Region 4 | 40 | 13 | 5.0 | 3.0 | 1.50 |
| Methyl acetate | 7800000 | RSL Resident Soil (THQ 0.1) | NA | EPA Region 4 | 7800000 | 260000 | 5.0 | 4.0 | 1.0 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Soil Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Methyl tert-butyl ether | 47000 | RSL Resident Soil (Risk 10-6) | NA | EPA Region 4 | 47000 | 16000 | 5.0 | 2.0 | 0.80 |
| Methylcyclohexane | 9800 | RSL Resident Soil (THQ 0.1) | NA | EPA Region 4 | 9800 | 3300 | 5.0 | 2.0 | 0.80 |
| Methylene Chloride | 35000 | RSL Resident Soil (THQ 0.1) | 210 | EPA Region 4 | 210 | 70 | 5.0 | 4.0 | 2.0 |
| Styrene | 600000 | RSL Resident Soil (THQ 0.1) | 1200 | EPA Region 4 | 1200 | 400 | 5.0 | 2.0 | 0.90 |
| Tetrachloroethene | 8100 | RSL Resident Soil (THQ 0.1) | 60 | EPA Region 4 | 60 | 20 | 5.0 | 3.0 | 1.50 |
| Toluene | 490000 | RSL Resident Soil (THQ 0.1) | 150 | EPA Region 4 | 150 | 50 | 5.0 | 2.0 | 1.0 |
| trans-1,2-Dichloroethene | 7000 | RSL Resident Soil (THQ 0.1) | 40 | EPA Region 4 | 40 | 13 | 5.0 | 2.0 | 0.80 |
| trans-1,3-Dichloropropene | 1800 | RSL Resident Soil (Risk 10-6) | 398 | EPA Region 5 RCRA ESLs | 398 | 130 | 5.0 | 1.0 | 0.60 |
| Trichloroethene | 410 | RSL Resident Soil (THQ 0.1) | 60 | EPA Region 4 | 60 | 20 | 5.0 | 2.0 | 0.80 |
| Trichlorofluoromethane | 2300000 | RSL Resident Soil (THQ 0.1) | 16400 | EPA Region 4 | 16400 | 5500 | 5.0 | 2.0 | 1.0 |
| Vinyl chloride | 59 | RSL Resident Soil (Risk 10-6) | 30 | EPA Region 4 | 30 | 10 | 5.0 | 2.0 | 0.80 |
| Xylenes, Total | 58000 | RSL Resident Soil (THQ 0.1) | 100 | EPA Region 4 | 100 | 33 | 10 | 2.0 | 0.70 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Soil Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|

Notes:
(a) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
(b) References include: EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Soil Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf);EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf).
(c) PALs have been selected as the lower of the human health risk-based value and ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Analytes shaded in blue were identified as COPCs during Phase 1 investigation.
Acronyms:
µg/Kg = microgram per kilogram
DL = detection limit
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
NA = Not Applicable
PAL = project action limit
THQ = target hazard quotient

## Worksheet #15-2b – SVOCs Soil

Matrix: Soil
Analytical Group: Semivolatile Organic Compounds (GC/MS) (8270E)
Units: µg/Kg

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Soil Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| 1,1'-Biphenyl | 4700 | RSL Resident Soil (THQ 0.1) | 200 | EPA Region 4 | 200 | 67 | 36.7 | 33.4 | 16.7 |
| 2,2'-oxybis[1-chloropropane] | 310000 | RSL Resident Soil (THQ 0.1) | 19900 | EPA Region 5 RCRA ESLs | 19900 | 6600 | 43.3 | 40.0 | 20.0 |
| 2,4,5-Trichlorophenol | 630000 | RSL Resident Soil (THQ 0.1) | 4000 | EPA Region 4 | 4000 | 1300 | 36.7 | 33.4 | 16.7 |
| 2,4,6-Trichlorophenol | 6300 | RSL Resident Soil (THQ 0.1) | 9940 | EPA Region 4 | 6300 | 2100 | 36.7 | 33.4 | 16.7 |
| 2,4-Dichlorophenol | 19000 | RSL Resident Soil (THQ 0.1) | 50 | EPA Region 4 | 50 | 43.3 | 43.3 | 40.0 | 20.0 |
| 2,4-Dimethylphenol | 130000 | RSL Resident Soil (THQ 0.1) | 40 | EPA Region 4 | 40 | 36.7 | 36.7 | 33.4 | 16.7 |
| 2,4-Dinitrophenol | 13000 | RSL Resident Soil (THQ 0.1) | 61 | EPA Region 4 | 61 | 1000 | 1000 | 840 | 420 |
| 2,4-Dinitrotoluene | 1700 | RSL Resident Soil (Risk 10-6) | 6000 | EPA Region 4 | 1700 | 570 | 167 | 66.7 | 33.3 |
| 2,6-Dinitrotoluene | 360 | RSL Resident Soil (Risk 10-6) | 4000 | EPA Region 4 | 360 | 120 | 36.7 | 33.4 | 16.7 |
| 2-Chloronaphthalene | 480000 | RSL Resident Soil (THQ 0.1) | 12.2 | EPA Region 5 RCRA ESLs | 12.2 | 33.3 | 33.3 | 26.7 | 13.3 |
| 2-Chlorophenol | 39000 | RSL Resident Soil (THQ 0.1) | 60 | EPA Region 4 | 60 | 36.7 | 36.7 | 33.4 | 16.7 |
| 2-Methylnaphthalene | 24000 | RSL Resident Soil (THQ 0.1) | 110 | EPA Region 4 | 110 | 37 | 16.7 | 9.99 | 5.00 |
| 2-Methylphenol | 320000 | RSL Resident Soil (THQ 0.1) | 100 | EPA Region 4 | 100 | 50 | 50.0 | 40.0 | 20.0 |
| 2-Nitroaniline | 63000 | RSL Resident Soil (THQ 0.1) | NA | - | 63000 | 21000 | 50.0 | 33.4 | 16.7 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Soil Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| 2-Nitrophenol | NA | - | 1600 | EPA Region 5 RCRA ESLs | 1600 | 530 | 50.0 | 40.0 | 20.0 |
| 3,3'-Dichlorobenzidine | 1200 | RSL Resident Soil (Risk 10-6) | 30 | EPA Region 4 | 30 | 333 | 333 | 267 | 167 |
| 4,6-Dinitro-2-methylphenol | 510 | RSL Resident Soil (THQ 0.1) | 144 | EPA Region 5 RCRA ESLs | 144 | 500 | 500 | 334 | 167 |
| 4-Chloro-3-methylphenol | 630000 | RSL Resident Soil (THQ 0.1) | 7950 | EPA Region 5 RCRA ESLs | 7950 | 2650 | 50.0 | 40.0 | 20.0 |
| 4-Chloroaniline | 2700 | RSL Resident Soil (Risk 10-6) | 1000 | EPA Region 4 | 1000 | 330 | 167 | 66.7 | 33.3 |
| 4-Chlorophenyl phenyl ether | NA | - | NA | - | NA | 183.5 | 36.7 | 33.4 | 16.7 |
| 4-Methylphenol [d] | 130000 | RSL Resident Soil (THQ 0.1) | 80 | EPA Region 4 | 80 | 50.0 | 50.0 | 33.4 | 16.7 |
| 4-Nitroaniline | 25000 | RSL Resident Soil (THQ 0.1) | 21900 | EPA Region 5 RCRA ESLs | 21900 | 7300 | 167 | 66.7 | 33.3 |
| 4-Nitrophenol | NA | - | 5120 | EPA Region 4 | 5120 | 1700 | 500 | 334 | 167 |
| Acenaphthene | 360000 | RSL Resident Soil (THQ 0.1) | 250 | EPA Region 4 | 250 | 83 | 16.7 | 6.66 | 3.33 |
| Acenaphthylene | 360000 | RSL for acenaphthene | 340 | EPA Region 4 | 340 | 110 | 16.7 | 8.00 | 4.00 |
| Acetophenone | 780000 | RSL Resident Soil (THQ 0.1) | 300000 | EPA Region 5 RCRA ESLs | 300000 | 100000 | 50.0 | 33.4 | 16.7 |
| Anthracene | 1800000 | RSL Resident Soil (THQ 0.1) | 1.5 | EPA Region 4 | 1.5 | 16.7 | 16.7 | 6.66 | 3.33 |
| Atrazine | 2400 | RSL Resident Soil (Risk 10-6) | 0.05 | EPA Region 4 | 0.05 | 167 | 167 | 133 | 66.7 |
| Benzaldehyde | 170000 | RSL Resident Soil (Risk 10-6) | NA | - | 170000 | 57000 | 167 | 66.7 | 33.3 |
| Benzo[a]anthracene | 1100 | RSL Resident Soil (Risk 10-6) | 730 | EPA Region 4 | 730 | 240 | 16.7 | 13.3 | 3.33 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Soil Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Benzo[a]pyrene | 110 | RSL Resident Soil (Risk 10-6) | 130 | EPA Region 4 | 110 | 36.7 | 16.7 | 6.66 | 3.33 |
| Benzo[b]fluoranthene | 1100 | RSL Resident Soil (Risk 10-6) | 2700 | EPA Region 4 | 1100 | 367 | 16.7 | 6.66 | 3.33 |
| Benzo[g,h,i]perylene | 180000 | RSL for pyrene | 70 | EPA Region 4 | 70 | 23 | 16.7 | 6.66 | 3.33 |
| Benzo[k]fluoranthene | 11000 | RSL Resident Soil (Risk 10-6) | 130 | EPA Region 4 | 130 | 43 | 16.7 | 6.66 | 3.33 |
| Bis(2-chloroethoxy) methane | 19000 | RSL Resident Soil (THQ 0.1) | 302 | EPA Region 5 RCRA ESLs | 302 | 100 | 36.7 | 33.4 | 16.7 |
| Bis(2-chloroethyl)ether | 230 | RSL Resident Soil (Risk 10-6) | 23700 | EPA Region 5 RCRA ESLs | 230 | 77 | 36.7 | 33.4 | 16.7 |
| Bis(2-ethylhexyl) phthalate | 39000 | RSL Resident Soil (Risk 10-6) | 20 | EPA Region 4 | 20 | 167 | 167 | 133 | 66.7 |
| Butyl benzyl phthalate | 290000 | RSL Resident Soil (Risk 10-6) | 590 | EPA Region 4 | 590 | 200 | 167 | 133 | 66.7 |
| Caprolactam | 3100000 | RSL Resident Soil (THQ 0.1) | NA | - | 3100000 | 1000000 | 167 | 66.7 | 33.3 |
| Carbazole | 240000 | RSL for fluorene | 70 | EPA Region 4 | 70 | 36.7 | 36.7 | 33.4 | 16.7 |
| Chrysene | 110000 | RSL Resident Soil (Risk 10-6) | 3100 | EPA Region 4 | 3100 | 1000 | 16.7 | 6.66 | 3.33 |
| Dibenz(a,h)anthracene | 110 | RSL Resident Soil (Risk 10-6) | 60 | EPA Region 4 | 60 | 20 | 16.7 | 13.3 | 6.67 |
| Dibenzofuran | 7800 | RSL Resident Soil (THQ 0.1) | 150 | EPA Region 4 | 150 | 50 | 36.7 | 33.4 | 16.7 |
| Diethyl phthalate | 5100000 | RSL Resident Soil (THQ 0.1) | 250 | EPA Region 4 | 250 | 167 | 167 | 133 | 66.7 |
| Dimethyl phthalate | NA | - | 350 | EPA Region 4 | 350 | 167 | 167 | 133 | 66.7 |
| Di-n-butyl phthalate | 630000 | RSL Resident Soil (THQ 0.1) | 11 | EPA Region 4 | 11 | 167 | 167 | 133 | 66.7 |
| Di-n-octyl phthalate | 63000 | RSL Resident Soil (THQ 0.1) | 910 | EPA Region 4 | 910 | 300 | 167 | 133 | 66.7 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Soil Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Fluoranthene | 240000 | RSL Resident Soil (THQ 0.1) | 10000 | EPA Region 4 | 10000 | 3300 | 16.7 | 6.66 | 3.33 |
| Fluorene | 240000 | RSL Resident Soil (THQ 0.1) | 3700 | EPA Region 4 | 3700 | 1200 | 16.7 | 6.66 | 3.33 |
| Hexachlorobenzene | 78 | RSL Resident Soil (THQ 0.1) | 79 | EPA Region 4 | 78 | 33.3 | 33.3 | 33 | 16.7 |
| Hexachlorobutadiene | 1200 | RSL Resident Soil (Risk 10-6) | 9 | EPA Region 4 | 9 | 50.0 | 50.0 | 40.0 | 20.0 |
| Hexachlorocyclopentadiene | 180 | RSL Resident Soil (THQ 0.1) | 1 | EPA Region 4 | 1 | 500 | 500 | 334 | 167 |
| Hexachloroethane | 1800 | RSL Resident Soil (Risk 10-6) | 24 | EPA Region 4 | 24 | 167 | 167 | 66.7 | 33.3 |
| Indeno[1,2,3-cd]pyrene | 1100 | RSL Resident Soil (Risk 10-6) | 80 | EPA Region 4 | 80 | 27 | 16.7 | 8.00 | 4.00 |
| Isophorone | 570000 | RSL Resident Soil (Risk 10-6) | 139000 | EPA Region 5 RCRA ESLs | 139000 | 46000 | 66.7 | 33.4 | 16.7 |
| Naphthalene | 2000 | RSL Resident Soil (Risk 10-6) | 160 | EPA Region 4 | 160 | 53 | 16.7 | 13.3 | 6.67 |
| Nitrobenzene | 5100 | RSL Resident Soil (Risk 10-6) | 2200 | EPA Region 4 | 2200 | 730 | 36.7 | 33.4 | 16.7 |
| N-Nitrosodi-n-propylamine | 78 | RSL Resident Soil (Risk 10-6) | 544 | EPA Region 5 RCRA ESLs | 78 | 66.7 | 66.7 | 50.0 | 33.3 |
| N-Nitrosodiphenylamine | 110000 | RSL Resident Soil (Risk 10-6) | 545 | EPA Region 4 | 545 | 180 | 36.7 | 33.4 | 16.7 |
| Pentachlorophenol | 1000 | RSL Resident Soil (Risk 10-6) | 2100 | EPA Region 4 | 1000 | 330 | 167 | 133 | 66.7 |
| Phenanthrene | 1800000 | RSL for anthracene | 5500 | EPA Region 4 | 5500 | 1800 | 16.7 | 8.00 | 4.00 |
| Phenol | 1900000 | RSL Resident Soil (THQ 0.1) | 790 | EPA Region 4 | 790 | 260 | 36.7 | 33.4 | 16.7 |
| Pyrene | 180000 | RSL Resident Soil (THQ 0.1) | 10000 | EPA Region 4 | 10000 | 3300 | 16.7 | 6.66 | 3.33 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Soil Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|

Notes:
(a) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
(b) References include: EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Soil Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf);EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf).
(c) PALs have been selected as the lower of the human health risk-based value and ecological benchmark.
(d) No ecological benchmark is available for 3-methylphenol and this PAL will be used to screen values reported as 3&4-methylphenol.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Analytes shaded in blue were identified as COPCs during Phase 1 investigation.
Project Quantitation Goal shaded in purple is 5x the LOQ since there is no associated PAL.
Acronyms:
µg/Kg = microgram per kilogram
2,4-DNT = 2,4-dinitrotoluene
DL = detection limit
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
NA = Not Applicable
PAL = project action limit
RCRA = Resource Conservation and Recovery Act
THQ = target hazard quotient

## Worksheet #15-2c Soil – 2,4-dinitrophenol and 2,4-dinitrochlorobenzene

Matrix: Soil
Analytical Group: Semivolatile Organic Compounds (SW8270-GC/MS)
Units: µg/Kg

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Soil Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| 2,4-Dinitrophenol (2,4-DNP) | NA | - | 61 | EPA Region 4 | 61 | 1000 | 1000 | 840 | 420 |
| 1-chloro-2,4-dinitrobenzene (2,4-DNCB)* | 1700 | RSL for 2,4-DNT | 6000 | See Attachment C.1 | TBD | TBD | TBD | TBD | TBD |

Notes:
*Eurofins Lancaster is currently (August 2025) adding 2,4-DNCB as a target compound. A change page reflecting their lab limits, along with eQAPP updates will be made as soon as possible (currently anticipating September 2025).
(a) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
(b) References include: EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Soil Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf)
(c) PALs have been selected as the lower of the human health risk-based value and ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Analytes shaded in blue were identified as COPCs during Phase 1 investigation.
Acronyms:
µg/Kg = microgram per kilogram
2,4-DNT = 2,4-dinitrotoluene
DL = detection limit
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
NA = Not Applicable
PAL = project action limit
RCRA = Resource Conservation and Recovery Act
TBD = to be determined.
THQ = target hazard quotient

## Worksheet #15-2d Soil – PAHs Soil

Matrix: Soil
Analytical Group: PAHs 8270E SIM
Units: µg/Kg

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Soil Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | 18 | RSL Resident Soil (THQ 0.1) | 140 | EPA Region 4 | 18 | 6 | 1.67 | 1.33 | 0.667 |
| 2-Methylnaphthalene | 24000 | RSL Resident Soil (THQ 0.1) | 110 | EPA Region 4 | 110 | 37 | 3.33 | 2.67 | 1.33 |
| Acenaphthene | 360000 | RSL Resident Soil (THQ 0.1) | 250 | EPA Region 4 | 250 | 83 | 1.67 | 1.33 | 0.67 |
| Acenaphthylene | 360000 | RSL for acenaphthene | 340 | EPA Region 4 | 340 | 110 | 1.67 | 1.33 | 0.33 |
| Anthracene | 1800000 | RSL Resident Soil (THQ 0.1) | 1.5 | EPA Region 4 | 1.5 | 1.67 | 1.67 | 1.33 | 0.67 |
| Benzo[a]anthracene | 1100 | RSL Resident Soil (Risk 10-6) | 730 | EPA Region 4 | 730 | 240 | 1.67 | 1.33 | 0.67 |
| Benzo[a]pyrene | 110 | RSL Resident Soil (Risk 10-6) | 130 | EPA Region 4 | 110 | 37 | 1.67 | 1.33 | 0.67 |
| Benzo[b]fluoranthene | 1100 | RSL Resident Soil (Risk 10-6) | 2700 | EPA Region 4 | 1100 | 370 | 1.67 | 1.33 | 0.67 |
| Benzo[g,h,i]perylene | 180000 | RSL for pyrene | 70 | EPA Region 4 | 70 | 23 | 1.67 | 1.33 | 0.67 |
| Benzo[k]fluoranthene | 11000 | RSL Resident Soil (Risk 10-6) | 130 | EPA Region 4 | 130 | 43 | 1.67 | 1.33 | 0.67 |
| Chrysene | 110000 | RSL Resident Soil (Risk 10-6) | 3100 | EPA Region 4 | 3100 | 1000 | 1.67 | 1.33 | 0.33 |
| Dibenz(a,h)anthracene | 110 | RSL Resident Soil (Risk 10-6) | 60 | EPA Region 4 | 60 | 20 | 1.67 | 1.33 | 0.67 |
| Fluoranthene | 240000 | RSL Resident Soil (THQ 0.1) | 10000 | EPA Region 4 | 10000 | 3300 | 1.67 | 1.33 | 0.67 |
| Fluorene | 240000 | RSL Resident Soil (THQ 0.1) | 3700 | EPA Region 4 | 3700 | 1200 | 1.67 | 1.33 | 0.67 |
| Indeno[1,2,3-cd]pyrene | 1100 | RSL Resident Soil (Risk 10-6) | 80 | EPA Region 4 | 80 | 27 | 1.67 | 1.33 | 0.67 |
| Naphthalene | 2000 | RSL Resident Soil (Risk 10-6) | 160 | EPA Region 4 | 160 | 53 | 3.33 | 2.67 | 1.33 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Soil Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Phenanthrene | 1800000 | RSL for anthracene | 5500 | EPA Region 4 | 5500 | 1800 | 2.33 | 2 | 1 |
| Pyrene | 180000 | RSL Resident Soil (THQ 0.1) | 10000 | EPA Region 4 | 10000 | 3300 | 1.67 | 1.33 | 0.67 |

Notes:
(a) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
(b) References include: EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Soil Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf).
(c) PALs have been selected as the lower of the human health risk-based value and ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Analytes shaded in blue were identified as COPCs during Phase 1 investigation.
Acronyms:
µg/Kg = microgram per kilogram
2,4-DNT = 2,4-dinitrotoluene
DL = detection limit
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
NA = Not Applicable
PAL = project action limit
RCRA = Resource Conservation and Recovery Act
THQ = target hazard quotient

## Worksheet #15-2e – PCBs Soil

Matrix: Soil
Analytical Group: Polychlorinated Biphenyls (PCBs) by Gas Chromatography (SW8082)
Units: µg/Kg

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Soil Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1016 | 410 | RSL Resident Soil (THQ 0.1) | 1100 | LANL | 410 | 140 | 17 | 11 | 5.3 |
| PCB-1221 | 200 | RSL Resident Soil (Risk 10-6) | NA | - | 200 | 67 | 17 | 11 | 5.3 |
| PCB-1232 | 170 | RSL Resident Soil (Risk 10-6) | NA | - | 170 | 57 | 17 | 11 | 5.3 |
| PCB-1242 | 230 | RSL Resident Soil (Risk 10-6) | 41 | LANL | 41 | 17 | 17 | 11 | 5.3 |
| PCB-1248 | 230 | RSL Resident Soil (Risk 10-6) | 7.3 | LANL | 7.3 | 17 | 17 | 11 | 5.3 |
| PCB-1254 | 120 | RSL Resident Soil (THQ 0.1) | 41 | LANL | 41 | 17 | 17 | 11 | 6.4 |
| PCB-1260 | 240 | RSL Resident Soil (Risk 10-6) | 880 | LANL | 240 | 80 | 17 | 11 | 6.4 |
| PCB-1262 | NA | - | NA | - | NA | 85 | 17 | 11 | 6.4 |
| PCB-1268 | NA | - | NA | - | NA | 85 | 17 | 11 | 6.4 |

Notes:
(a) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
(b) References include: Los Alamos National Laboratories (LANL)/Intellus (2024)I. ECORISK Database (Release 4.4), (https://intellusnm/documents/documents.cfm).
(c) PALs have been selected as the lower of the human health risk-based value and ecological benchmark
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Analytes shaded in blue were identified as COPCs during Phase 1 investigation.
Project Quantitation Goal shaded in purple is 5x the LOQ since there is no associated PAL.
Acronyms:
µg/Kg = microgram per kilogram
DL = detection limit
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
NA = Not Applicable
PAL = project action limit
THQ = target hazard quotient

## Worksheet #15-2f – Picric Acid Soil

Matrix: Soil
Analytical Group: Nitroaromatics and Nitramines (HPLC)-SW8330D
Units: µg/kg

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Soil Benchmark | Ecological Reference | PAL [b] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Picric acid | 13 | RSL Resident Soil (THQ 0.1) | 6.1 | See Attachment C.1 | 6.1 | 0.20 | 0.2 | 0.075 | 0.05 |

Notes:
(a) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
(b) PALs have been selected as the lower of the human health risk-based value and ecological benchmark
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Analytes shaded in blue were identified as COPCs during Phase 1 investigation.
Acronyms:
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
µg/Kg = microgram per kilogram
PAL = project action limit
THQ = target hazard quotient

## Worksheet #15-2g – TAL Metals Soil

Matrix: Soil
Analytical Group: Metals (ICP/MS) SW6020B
Units: mg/kg

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Soil Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 7700 | RSL Resident Soil (THQ 0.1) | Narrative (d) | EPA Eco SSLs | 7700 | 2600 | 10 | 9.9 | 4.95 |
| Antimony | 3.1 | RSL Resident Soil (THQ 0.1) | 0.27 | EPA Eco SSLs | 0.27 | 0.10 | 0.10 | 0.08 | 0.04 |
| Arsenic | 0.68 | RSL Resident Soil (Risk 10-6) | 18 | EPA Eco SSLs | 0.68 | 0.23 | 0.20 | 0.16 | 0.067 |
| Barium | 1500 | RSL Resident Soil (THQ 0.1) | 330 | EPA Eco SSLs | 330 | 110 | 0.20 | 0.184 | 0.092 |
| Beryllium | 16 | RSL Resident Soil (THQ 0.1) | 21 | EPA Eco SSLs | 16 | 5.3 | 0.05 | 0.025 | 0.012 |
| Cadmium | 0.71 | RSL Resident Soil (THQ 0.1) | 0.36 | EPA Eco SSLs | 0.36 | 0.12 | 0.05 | 0.04 | 0.02 |
| Calcium | EN | - | NA | - | - | 100 | 20 | 19.6 | 9.8 |
| Chromium | 8500 | RSL Resident Soil (THQ 0.1) | 26 | EPA Eco SSLs | 26 | 8.7 | 0.20 | 0.19 | 0.095 |
| Cobalt | 2.3 | RSL Resident Soil (THQ 0.1) | 13 | EPA Eco SSLs | 2.3 | 0.77 | 0.10 | 0.08 | 0.04 |
| Copper | 310 | RSL Resident Soil (THQ 0.1) | 28 | EPA Eco SSLs | 28 | 9.3 | 0.20 | 0.18 | 0.09 |
| Iron | 5500 | RSL Resident Soil (THQ 0.1) | Narrative (e) | EPA Eco SSLs | 5500 | 1800 | 10 | 9.22 | 4.61 |
| Lead | 200 | USEPA, 2024 | 11 | EPA Eco SSLs | 11 | 3.7 | 0.10 | 0.08 | 0.038 |
| Magnesium | EN | - | NA | - | - | 25 | 5.0 | 4.9 | 2.45 |
| Manganese | 180 | RSL Resident Soil (THQ 0.1) | 220 | EPA Eco SSLs | 180 | 60 | 0.25 | 0.20 | 0.10 |
| Nickel | 140 | RSL Resident Soil (THQ 0.1) | 38 | EPA Eco SSLs | 38 | 13 | 0.20 | 0.19 | 0.095 |
| Potassium | EN | - | NA | - | - | 100 | 20 | 16 | 8.0 |
| Selenium | 39 | RSL Resident Soil (THQ 0.1) | 0.52 | EPA Eco SSLs | 0.52 | 0.20 | 0.20 | 0.10 | 0.05 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Soil Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Silver | 39 | RSL Resident Soil (THQ 0.1) | 4.2 | EPA Eco SSLs | 4.2 | 1.4 | 0.05 | 0.04 | 0.02 |
| Sodium | EN | | NA | | - | 125 | 25 | 24 | 12 |
| Thallium | 0.078 | RSL Resident Soil (THQ 0.1) | 0.05 | EPA Region 4 | 0.05 | 0.05 | 0.05 | 0.04 | 0.02 |
| Vanadium | 39 | RSL Resident Soil (THQ 0.1) | 7.8 | EPA Eco SSLs | 7.8 | 2.6 | 0.40 | 0.20 | 0.10 |
| Zinc | 2300 | RSL Resident Soil (THQ 0.1) | 46 | EPA Eco SSLs | 46 | 15 | 15 | 4.0 | 2.0 |

Notes:

(a) References include: EPA, 2024. Regional Screening Levels (RSLs). November. USEPA, 2024. Updated Residential Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. Memorandum from Barry N. Breen to Regional Administrators, Regions 1-10. Office of Land and Emergency Management. January 17.

(b) References include: EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Soil Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf); Ecological Soil Screening Levels (EcoSSLs; various dates) (https://www.epa.gov/chemical-research/interim-ecological-soil-screening-level-documents)

(c) PALs have been selected as the lower of the human health risk-based value and ecological benchmark.

(d) Aluminum is identified as a COPC only for those soils with a pH less than 5.5. The technical basis for this procedure is that the soluble and toxic forms of aluminum are only present in soil under soil pH values of less than 5.5. Site-specific considerations could, however warrant inclusion of aluminum as a COPC.

(e) The main concern from an ecological risk perspective for iron is not direct chemical toxicity per se, but the effect of iron as a mediator in the geochemistry of other (potentially toxic) metals and the potential physical hazard of depositing flocculent. Soil pH and Eh should be included as standard soil chemical field parameters when conducting any field investigation. Although some EPA analytical methods require the collection of soil pH prior to analysis, this information is not always made available to the ultimate data users. In addition, the pH measured in the lab may no longer be representative of field conditions since the samples can be exposed to oxygen during storage prior to analysis. A determination of the geochemical conditions (i.e., pH and Eh at a minimum) of the environmental setting, as well as the presence of iron floc and the toxic metals, is critical to the determination of the relative importance of iron at a site.

LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Analytes shaded in blue were identified as COPCs during Phase 1 investigation.
Project Quantitation Goal shaded in purple is 5x the LOQ since there is no associated PAL.
Acronyms:
DL = detection limit
EN= Essential Nutrient
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
mg/Kg = milligram per kilogram
NA = Not Applicable
PAL = project action limit
THQ = target hazard quotient

## Worksheet #15-2h – Mercury Soil

Matrix: Soil
Analytical Group: Mercury (CVAA) SW7471B
Units: mg/kg

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Soil Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.71 | RSL Resident Soil (THQ 0.1) | 0.013 | EPA Region 4 Soil | 0.013 | 0.060 | 0.060 | 0.040 | 0.020 |

Notes:
(a) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
(b) References include: EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Soil Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf)
(c) PALs have been selected as the lowest of the human health risk-based value and ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Analytes shaded in blue were identified as COPCs during Phase 1 investigation.
Acronyms:
DL = detection limit
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
mg/Kg = milligram per kilogram
PAL = project action limit
THQ = target hazard quotient

## Worksheet #15-3a – VOCs Surface Water

Matrix: Surface Water
Analytical Group: Volatile Organic Compounds (GC/MS) (SW8260C/D)
Units: µg/L

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 334000 | RSL | 76 | EPA Region 4 | 76 | 25 | 1.0 | 0.60 | 0.30 |
| 1,1,2,2-Tetrachloroethane | 84.7 | RSL | 200 | EPA Region 4 | 84.7 | 28 | 1.0 | 0.60 | 0.30 |
| 1,1,2-Trichloroethane | 445 | RSL | 730 | EPA Region 4 | 445 | 150 | 1.0 | 0.60 | 0.30 |
| 1,1-Dichloroethane | 3970 | RSL | 410 | EPA Region 4 | 410 | 140 | 1.0 | 0.60 | 0.30 |
| 1,1-Dichloroethene | 10300 | RSL | 130 | EPA Region 4 | 130 | 43 | 1.0 | 0.60 | 0.30 |
| 1,2,4-Trichlorobenzene | 60.5 | RSL | 130 | EPA Region 4 | 60.5 | 20 | 5.0 | 1.0 | 0.30 |
| 1,2-Dibromo-3-Chloropropane | 4.84 | RSL | NA | EPA Region 4 | 4.84 | 5.0 | 5.0 | 1.0 | 0.30 |
| 1,2-Dibromoethane (EDB) | 15.9 | RSL | NA | EPA Region 4 | 15.9 | 5.3 | 1.0 | 0.50 | 0.20 |
| 1,2-Dichlorobenzene | 4300 | RSL | 23 | EPA Region 4 | 23 | 7.7 | 5.0 | 0.50 | 0.20 |
| 1,2-Dichloroethane | 357 | RSL | 2000 | EPA Region 4 | 357 | 120 | 1.0 | 0.60 | 0.30 |
| 1,2-Dichloropropane | 535 | RSL | 520 | EPA Region 4 | 520 | 170 | 1.0 | 0.60 | 0.30 |
| 1,3-Dichlorobenzene | NA | - | 22 | EPA Region 4 | 22 | 7.3 | 5.0 | 1.4 | 0.68 |
| 1,4-Dichlorobenzene | 610 | RSL | 9.4 | EPA Region 4 | 9.4 | 5.0 | 5.0 | 0.60 | 0.30 |
| 2-Butanone | 654000 | RSL | 22000 | EPA Region 4 | 22000 | 7300 | 10 | 1.0 | 1.0 |
| 2-Hexanone | 2610 | RSL | 99 | EPA Region 4 | 99 | 33 | 10 | 1.7 | 0.85 |
| 4-Methyl-2-pentanone | 630 | Tapwater RSL | 170 | EPA Region 4 | 170 | 57 | 10 | 1.0 | 0.50 |
| Acetone | 1190000 | RSL | 1700 | EPA Region 4 | 1700 | 570 | 20 | 2.0 | 0.70 |
| Benzene | 224 | RSL | 160 | EPA Region 4 | 160 | 53 | 1.0 | 0.60 | 0.30 |
| Bromodichloromethane | 437 | RSL | 340 | EPA Region 4 | 340 | 110 | 1.0 | 0.50 | 0.20 |
| Bromoform | 3330 | RSL | 230 | EPA Region 4 | 230 | 80 | 4.0 | 2.0 | 1.0 |
| Bromomethane | 857 | RSL | 16 | EPA Region 4 | 16 | 5.3 | 1.0 | 0.60 | 0.30 |
| Carbon disulfide | 22300 | RSL | 15 | EPA Region 4 | 15 | 5.0 | 5.0 | 0.60 | 0.30 |
| Carbon tetrachloride | 119 | RSL | 77 | EPA Region 4 | 77 | 26 | 1.0 | 0.60 | 0.30 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Chlorobenzene | 1760 | RSL | 25 | EPA Region 4 | 25 | 8.3 | 1.0 | 0.60 | 0.30 |
| Chloroethane | 830 | Tapwater RSL | NA | EPA Region 4 | 830 | 280 | 1.0 | 0.60 | 0.30 |
| Chloroform | 676 | RSL | 140 | EPA Region 4 | 140 | 47 | 1.0 | 0.60 | 0.30 |
| Chloromethane | 19 | Tapwater RSL | NA | EPA Region 4 | 19 | 6.3 | 2.0 | 1.1 | 0.55 |
| cis-1,2-Dichloroethene | 433 | RSL | 620 | EPA Region 4 | 433 | 140 | 1.0 | 0.60 | 0.30 |
| cis-1,3-Dichloropropene | 183 | RSL for 1,3-dichloropropene | 1.7 | EPA Region 4 | 1.7 | 1.0 | 1.0 | 0.50 | 0.20 |
| Cyclohexane | 1300 | Tapwater RSL | 158 | EPA Region 4 | 158 | 53 | 5.0 | 2.0 | 1.0 |
| Dibromochloromethane | 333 | RSL | 320 | EPA Region 4 | 320 | 107 | 1.0 | 0.50 | 0.20 |
| Dichlorodifluoromethane | 47500 | RSL | NA | EPA Region 4 | 47500 | 16000 | 1.0 | 0.60 | 0.30 |
| Ethylbenzene | 344 | RSL | 61 | EPA Region 4 | 61 | 20 | 1.0 | 0.80 | 0.40 |
| Freon 113 | 2800000 | RSL | NA | NA | 2800000 | 30000 | 10 | 0.60 | 0.30 |
| Isopropylbenzene | 2880 | RSL | 4.8 | EPA Region 4 | 4.8 | 5.0 | 5.0 | 0.60 | 0.30 |
| Methyl acetate | 1160000 | RSL | NA | NA | 1160000 | 390000 | 5.0 | 0.60 | 0.30 |
| Methyl tert-butyl ether | 28900 | RSL | 730 | EPA Region 4 | 730 | 240 | 1.0 | 0.50 | 0.20 |
| Methylcyclohexane | NA | - | 52 | EPA Region 4 | 52 | 17 | 5.0 | 1.0 | 0.50 |
| Methylene Chloride | 3250 | RSL | 1500 | EPA Region 4 | 1500 | 500 | 1.0 | 0.60 | 0.30 |
| Styrene | 14100 | RSL | 32 | EPA Region 4 | 32 | 10 | 5.0 | 0.60 | 0.30 |
| Tetrachloroethene | 344 | RSL | 53 | EPA Region 4 | 53 | 18 | 1.0 | 0.60 | 0.30 |
| Toluene | 6970 | RSL | 62 | EPA Region 4 | 62 | 20 | 1.0 | 0.60 | 0.30 |
| trans-1,2-Dichloroethene | 4330 | RSL | 558 | EPA Region 4 | 558 | 190 | 2.0 | 1.4 | 0.70 |
| trans-1,3-Dichloropropene | 183 | RSL for 1,3-dichloropropene | 1.7 | EPA Region 4 | 1.7 | 1.0 | 1.0 | 0.50 | 0.20 |
| Trichloroethene | 90.8 | RSL | 220 | EPA Region 4 | 90.8 | 30 | 1.0 | 0.60 | 0.30 |
| Trichlorofluoromethane | 48900 | RSL | NA | NA | 48900 | 16000 | 1.0 | 0.60 | 0.30 |
| Vinyl chloride | 28.9 | RSL | 930 | EPA Region 4 | 28.9 | 9.6 | 1.0 | 0.60 | 0.30 |
| Xylenes, Total | 10700 | RSL | 27 | EPA Region 4 | 27 | 9.0 | 1.0 | 0.80 | 0.40 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|

Notes:
(a) Human health risk based values References include: EPA, 2024. Regional Screening Levels (RSLs) for Tapwater. November. Use of the EPA RSL Calculator (November 2024) to calculate risk-based screening levels for an adolescent receptor's exposure (incidental ingestion and dermal contact) to surface water based on exposure parameters in Table B2.2-3 in Appendix B of this UFP-QAPP and a target cancer risk of 1x10-6 and noncancer THQ of 0.1.
(b) Reference include: EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Surface Water Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf)
(c) PALs have been selected as the lower of the human health risk-based value and ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the PQG.
Acronyms:
µg/L = microgram per liter
DL = detection limit
EPA = Environmental Protection Agency
GC/MS = gas chromatography/mass spec
LOD = limit of detection
LOQ = limit of quantitation
NA = Not Applicable
PAL = project action limit
RSL = Regional Screening Level
THQ = target hazard quotient
UFP-QAPP = Uniform Federal Policy – Quality Assurance Project Plan
VOCs = volatile organic compounds

## Worksheet 15-3b – SVOC Surface Water

Matrix: Surface Water
Analytical Group: Semivolatile Organic Compounds (GC/MS) (8270E)
Units: µg/L

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| 1,1'-Biphenyl | 189 | RSL | 6.5 | EPA Region 4 | 6.5 | 2.2 | 2.0 | 1.0 | 0.50 |
| 2,2'-oxybis[1-chloropropane] | 8750 | RSL | NA | NA | 8750 | 2900 | 2.0 | 1.0 | 0.50 |
| 2,4,5-Trichlorophenol | 4350 | RSL | 1.9 | EPA Region 4 | 1.9 | 2.0 | 2.0 | 1.0 | 0.50 |
| 2,4,6-Trichlorophenol | 45.5 | RSL | 4.9 | EPA Region 4 | 4.9 | 2.0 | 2.0 | 1.0 | 0.50 |
| 2,4-Dichlorophenol | 278 | RSL | 11 | EPA Region 4 | 11 | 3.7 | 2.0 | 1.0 | 0.50 |
| 2,4-Dimethylphenol | 3990 | RSL | 15 | EPA Region 4 | 15 | 10 | 10 | 9 | 3 |
| 2,4-Dinitrophenol | 1220 | RSL | 71 | EPA Region 4 | 71 | 30 | 30 | 28 | 14 |
| 2,4-Dinitrotoluene | 97.8 | RSL | 44 | EPA Region 4 | 44 | 14.8 | 5 | 2 | 1 |
| 2,6-Dinitrotoluene | 17.6 | RSL | 81 | EPA Region 4 | 17.6 | 5.9 | 2 | 1 | 0.5 |
| 2-Chloronaphthalene | 2130 | RSL | 0.396 | EPA Region 5 RCRA ESLs | 0.396 | 1.0 | 1.0 | 0.8 | 0.4 |
| 2-Chlorophenol | 1270 | RSL | 18 | EPA Region 4 | 18 | 6.0 | 2.0 | 1.0 | 0.50 |
| 2-Methylnaphthalene | 97.5 | RSL | 6.1 | EPA Region 4 | 6.1 | 2.0 | 0.50 | 0.20 | 0.10 |
| 2-Methylphenol | 14200 | RSL | 67 | EPA Region 4 | 67 | 22 | 2.0 | 1.0 | 0.50 |
| 2-Nitroaniline | 3910 | RSL | 17 | EPA Region 4 | 17 | 5.7 | 5.0 | 2.0 | 1.0 |
| 2-Nitrophenol | NA | | 73 | EPA Region 4 | 73 | 24 | 5.0 | 2.0 | 1.0 |
| 3,3'-Dichlorobenzidine | 13.1 | RSL | 4.5 | EPA Region 4 | 4.5 | 10 | 10 | 8.0 | 4.0 |
| 4,6-Dinitro-2-methylphenol | 31.5 | RSL | 23 | EPA Region 5 RCRA ESLs | 23 | 21 | 21 | 20 | 8.0 |
| 4-Chloro-3-methylphenol | 7530 | RSL | 1 | EPA Region 4 | 1 | 5.0 | 5.0 | 2.0 | 1.0 |
| 4-Chloroaniline | 131 | RSL | NA | - | 131 | 44 | 10 | 9.0 | 4.0 |
| 4-Chlorophenyl phenyl ether | NA | - | NA | - | NA | 10 | 2.0 | 1.0 | 0.50 |
| 4-Methylphenol | 5740 | RSL | NA | - | 5740 | 1900 | 2.0 | 1.0 | 0.50 |
| 4-Nitroaniline | 2240 | RSL | NA | - | 2240 | 750 | 3.0 | 2.0 | 0.90 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| 4-Nitrophenol | NA | - | 58 | EPA Region 4 | 58 | 30 | 30 | 20 | 10 |
| Acenaphthene | 1430 | RSL | 15 | EPA Region 4 | 15 | 5.0 | 0.50 | 0.20 | 0.10 |
| Acenaphthylene | 1430 | RSL for acenaphthene | 13 | EPA Region 4 | 13 | 4.3 | 0.50 | 0.20 | 0.10 |
| Acetophenone | 47700 | RSL | NA | EPA Region 4 | 47700 | 16000 | 5.0 | 2.0 | 1.0 |
| Anthracene | 3840 | RSL | 0.02 | EPA Region 4 | 0.02 | 0.50 | 0.50 | 0.20 | 0.10 |
| Atrazine | 72 | RSL | 0.03 | EPA Region 4 | 0.03 | 5.0 | 5.0 | 2.0 | 1.0 |
| Benzaldehyde | 8520 | RSL | 143 | EPA Region 4 | 143 | 48 | 5.0 | 2.0 | 1.0 |
| Benz [a]anthracene | 399 | RSL | 4.7 | EPA Region 4 | 4.7 | 1.6 | 0.50 | 0.20 | 0.10 |
| Benzo[a]pyrene | 39.9 | RSL | 0.06 | EPA Region 4 | 0.06 | 0.50 | 0.50 | 0.22 | 0.11 |
| Benzo[b]fluoranthene | 399 | RSL | 2.6 | EPA Region 4 | 2.6 | 0.87 | 0.50 | 0.20 | 0.10 |
| Benzo[g,h,i]perylene | 233 | RSL for pyrene | 0.012 | EPA Region 4 | 0.012 | 0.50 | 0.50 | 0.20 | 0.10 |
| Benzo[k]fluoranthene | 3990 | RSL | 0.06 | EPA Region 4 | 0.06 | 0.50 | 0.50 | 0.20 | 0.10 |
| Bis(2-chloroethoxy)methane | 2440 | RSL | NA | - | 2440 | 810 | 2.0 | 1.0 | 0.50 |
| Bis(2-chloroethyl)ether | 45.7 | RSL | 19000 | EPA Region 5 RCRA ESLs | 45.7 | 15 | 2.0 | 1.0 | 0.50 |
| Bis(2-ethylhexyl) phthalate | 8570 | RSL | 8 | EPA Region 4 | 8 | 5.0 | 5.0 | 4.0 | 2.0 |
| Butyl benzyl phthalate | 809 | RSL | 23 | EPA Region 4 | 23 | 7.7 | 5.0 | 4.0 | 2.0 |
| Caprolactam | 510000 | RSL | NA | - | 510000 | 170000 | 7.0 | 6.0 | 3.0 |
| Carbazole | 712 | RSL for fluorene | 4 | EPA Region 4 | 4 | 2.0 | 2.0 | 1.0 | 0.50 |
| Chrysene | 39900 | RSL | 4.7 | EPA Region 4 | 4.7 | 1.6 | 0.50 | 0.20 | 0.10 |
| Dibenz(a,h)anthracene | 39.9 | RSL | 0.012 | EPA Region 4 | 0.012 | 0.50 | 0.50 | 0.20 | 0.10 |
| Dibenzofuran | 19.8 | RSL | 4 | EPA Region 4 | 4 | 2.0 | 2.0 | 1.0 | 0.50 |
| Diethyl phthalate | 250000 | RSL | 220 | EPA Region 4 | 220 | 73 | 5.0 | 4.0 | 2.0 |
| Dimethyl phthalate | NA | - | 1100 | EPA Region 4 | 1100 | 370 | 5.0 | 4.0 | 2.0 |
| Di-n-butyl phthalate | 2500 | RSL | 19 | EPA Region 4 | 19 | 6.3 | 5.0 | 4.0 | 2.0 |
| Di-n-octyl phthalate | 17100 | RSL | 215 | EPA Region 4 | 215 | 72 | 11 | 10 | 5.0 |
| Fluoranthene | 68400 | RSL | 0.8 | EPA Region 4 | 0.8 | 0.50 | 0.50 | 0.20 | 0.10 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Fluorene | 712 | RSL | 19 | EPA Region 4 | 19 | 6.3 | 0.50 | 0.24 | 0.12 |
| Hexachlorobenzene | 17.1 | RSL | 0.15 | EPA Region 4 | 0.15 | 0.50 | 0.50 | 0.22 | 0.11 |
| Hexachlorobutadiene | 13.1 | RSL | 1 | EPA Region 4 | 1 | 2.0 | 2.0 | 1.0 | 0.50 |
| Hexachlorocyclopentadiene | 64 | RSL | 0.45 | EPA Region 4 | 0.45 | 11 | 11 | 10 | 5.0 |
| Hexachloroethane | 20.8 | RSL | 12 | EPA Region 4 | 12 | 5.0 | 5.0 | 1.0 | 0.50 |
| Indeno[1,2,3-cd] pyrene | 399 | RSL | 0.012 | EPA Region 4 | 0.012 | 0.50 | 0.50 | 0.22 | 0.11 |
| Isophorone | 34300 | RSL | 920 | EPA Region 4 | 920 | 310 | 2.0 | 1.0 | 0.50 |
| Naphthalene | 29.9 | RSL | 21 | EPA Region 4 | 21 | 7.0 | 0.50 | 0.3 | 0.26 |
| Nitrobenzene | 712 | RSL | 230 | EPA Region 4 | 230 | 80 | 2.0 | 1.0 | 0.50 |
| N-Nitrosodi-n-propylamine | 6.34 | RSL | NA | - | 6.34 | 2.1 | 2.0 | 1.0 | 0.50 |
| N-Nitrosodiphenylamine | 1490 | RSL | 25 | EPA Region 4 | 25 | 8.3 | 2.0 | 1.0 | 0.50 |
| Pentachlorophenol | 1.58 | RSL | 15 | National AWQC | 1.58 | 5.0 | 5.0 | 4.0 | 2.6 |
| Phenanthrene | 3840 | RSL for anthracene | 2.3 | EPA Region 4 | 2.3 | 0.77 | 0.50 | 0.22 | 0.11 |
| Phenol | 138000 | RSL | 160 | EPA Region 4 | 160 | 53 | 2.0 | 1.0 | 0.50 |
| Pyrene | 233 | RSL | 4.6 | EPA Region 4 | 4.6 | 1.5 | 0.50 | 0.20 | 0.10 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|

Notes:

(a) Human health risk based values were based on the EPA RSL Calculator (November 2024) to calculate risk-based screening levels for an adolescent receptor's exposure (incidental ingestion and dermal contact) to surface water based on exposure parameters in Table B2.2-3 in Appendix B of this UFP-QAPP and a target cancer risk of 1x10-6 and noncancer target hazard of 0.1.

(b) References include: EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Surface Water Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf); EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf); National Recommended Water Quality Criteria - Aquatic Life (EPA, 2023) (https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table)

(c) PALs have been selected as the lower of the human health risk-based value and ecological benchmark.

LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.

LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.

Project Quantitation Goal shaded in purple is 5x the LOQ since there is no associated PAL.

Acronyms:

µg/L = microgram per liter
2,4-DNT = 2,4-dinitrotoluene
DL = detection limit
EPA = Environmental Protection Agency
GC/MS = gas chromatography/mass spec
LOD = limit of detection
LOQ = limit of quantitation
AWQC = Ambient Water Quality Criteria
NA = Not Applicable
PAL = project action limit
RCRA = Resource Conservation and Recovery Act
RSL = Regional Screening Level
THQ – target hazard quotient
UFP-QAPP = Uniform Federal Policy – Quality Assurance Project Plan

## Worksheet #15-3c – PAH Surface Water

Matrix: Surface Water
Analytical Group: Semivolatile Organic Compounds (GC/MS SIM) (8270 SIM)
Units: µg/L

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | 33 | RSL | 6.1 | EPA Region 4 | 6.1 | 2.0 | 0.05 | 0.04 | 0.02 |
| 2-Methylnaphthalene | 97.5 | RSL | 4.7 | EPA Region 4 | 4.7 | 1.6 | 0.05 | 0.04 | 0.02 |
| Acenaphthene | 1430 | RSL | 15 | EPA Region 4 | 15 | 5.0 | 0.05 | 0.03 | 0.01 |
| Acenaphthylene | 1430 | RSL for acenaphthene | 13 | EPA Region 4 | 13 | 4.3 | 0.05 | 0.03 | 0.01 |
| Anthracene | 3840 | RSL | 0.02 | EPA Region 4 | 0.02 | 0.05 | 0.05 | 0.03 | 0.01 |
| Benzo[a]anthracene | 399 | RSL | 4.7 | EPA Region 4 | 4.7 | 1.6 | 0.05 | 0.03 | 0.01 |
| Benzo[a]pyrene | 39.9 | RSL | 0.06 | EPA Region 4 | 0.06 | 0.05 | 0.05 | 0.03 | 0.01 |
| Benzo[b]fluoranthene | 399 | RSL | 2.6 | EPA Region 4 | 2.6 | 0.87 | 0.15 | 0.1 | 0.0475 |
| Benzo[g,h,i]perylene | 233 | RSL for pyrene | 0.012 | EPA Region 4 | 0.012 | 0.05 | 0.05 | 0.03 | 0.01 |
| Benzo[k]fluoranthene | 3990 | RSL | 0.06 | EPA Region 4 | 0.06 | 0.05 | 0.05 | 0.03 | 0.01 |
| Chrysene | 39900 | RSL | 4.7 | EPA Region 4 | 4.7 | 1.6 | 0.06 | 0.046 | 0.025 |
| Dibenz(a,h)anthracene | 39.9 | RSL | 0.012 | EPA Region 4 | 0.012 | 0.05 | 0.05 | 0.04 | 0.02 |
| Fluoranthene | 68400 | RSL | 0.8 | EPA Region 4 | 0.8 | 0.27 | 0.05 | 0.03 | 0.01 |
| Fluorene | 712 | RSL | 19 | EPA Region 4 | 19 | 6.3 | 0.05 | 0.03 | 0.01 |
| Indeno[1,2,3-cd]pyrene | 399 | RSL | 0.012 | EPA Region 4 | 0.012 | 0.05 | 0.05 | 0.04 | 0.02 |
| Naphthalene | 29.9 | RSL | 21 | EPA Region 4 | 21 | 7 | 0.15 | 0.14 | 0.068 |
| Phenanthrene | 3840 | RSL for anthracene | 2.3 | EPA Region 4 | 2.3 | 0.77 | 0.07 | 0.06 | 0.03 |
| Pyrene | 233 | RSL | 4.6 | EPA Region 4 | 4.6 | 1.5 | 0.05 | 0.042 | 0.021 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|

Notes:

(a) Human health risk based values are based on References include the use of the EPA RSL Calculator (November 2024) to calculate risk-based screening levels for an adolescent receptor's exposure (incidental ingestion and dermal contact) to surface water based on exposure parameters in Table B2.2-3 in Appendix B of this UFP-QAPP and a target cancer risk of 1x10-6 and noncancer target hazard of 0.1.

(b) Reference include: EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Surface Water Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf).

(c) PALs have been selected as the lower of the human health risk-based value and ecological benchmark.

LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.

LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.

Acronyms:

µg/L = microgram per liter
DL = detection limit
EPA = Environmental Protection Agency
GC/MS = gas chromatography/mass spec
LOD = limit of detection
LOQ = limit of quantitation
PAL = project action limit
THQ = target hazard quotient
UFP-QAPP = Uniform Federal Policy – Quality Assurance Project Plan

## Worksheet #15-3d – PCBs Surface Water

Matrix: Surface Water
Analytical Group: Polychlorinated Biphenyls (PCBs) by Gas Chromatography (SW8082)
Units: µg/L

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1016 | 120 | RSL | 0.000074 | EPA Region 3 BTAG | 0.000074 | 0.5 | 0.5 | 0.20 | 0.10 |
| PCB-1221 | 0.354 | RSL | NA | - | 0.354 | 0.5 | 0.5 | 0.20 | 0.10 |
| PCB-1232 | 0.354 | RSL | NA | - | 0.354 | 0.5 | 0.5 | 0.20 | 0.10 |
| PCB-1242 | 60 | RSL | 0.000074 | EPA Region 3 BTAG | 0.000074 | 0.5 | 0.5 | 0.20 | 0.10 |
| PCB-1248 | 60 | RSL | 0.000074 | EPA Region 3 BTAG | 0.000074 | 0.5 | 0.5 | 0.20 | 0.10 |
| PCB-1254 | 34.2 | RSL | 0.000074 | EPA Region 3 BTAG | 0.000074 | 0.5 | 0.5 | 0.20 | 0.078 |
| PCB-1260 | 60 | RSL | 0.000074 | EPA Region 3 BTAG | 0.000074 | 0. 5 | 0.5 | 0.20 | 0.078 |
| PCB-1262 | NA | - | NA | - | NA | 1.25 | 0.5 | 0.20 | 0.078 |
| PCB-1268 | NA | - | NA | - | NA | 1.25 | 0.5 | 0.20 | 0.078 |

Notes:
(a) Human health risk based values are based on References include the use of the EPA RSL Calculator (November 2024) to calculate risk-based screening levels for an adolescent receptor's exposure (incidental ingestion and dermal contact) to surface water based on exposure parameters in Table B2.2-3 in Appendix B of this UFP-QAPP and a target cancer risk of 1x10-6 and noncancer target hazard of 0.1.
(b) References include: EPA Region 3 Biological Technical Assistance Group (BTAG) (2006) – Freshwater Screening Benchmarks (https://www.epa.gov/sites/default/files/2015-09/documents/r3_btag_fw_benchmarks_07-06.pdf).
(c) PALS have been selected as the lower of the human health risk-based value and ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Project Quantitation Goal shaded in purple is 5x the LOQ since there is no associated PAL.
Acronyms:
µg/L = microgram per liter
BTAG = Biological Technical Assistance Group
DL = detection limit
EPA = Environmental Protection Agency
GC/MS = gas chromatography/mass spec
LOD = limit of detection
LOQ = limit of quantitation
PAL = project action limit
PCB = polychlorinated biphenyl
RSL = Regional Screening Level
THQ = target hazard quotient
NA = Not Applicable
UFP-QAPP = Uniform Federal Policy – Quality Assurance Project Plan

## Worksheet #15-3e – Picric Acid Surface Water

Matrix: Surface Water
Analytical Group: Nitroaromatics and Nitramines (HPLC)-SW8330D
Units: µg/L

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Picric acid | 1890 | RSL | 7.1 | Derived - See Attachment C.1 | 7.1 | 2.4 | 0.40 | 0.12 | 0.0436 |

Notes:
(a) Human health risk based values are based on References include the use of the USEPA RSL Calculator (November 2024) to calculate risk-based screening levels for an adolescent receptor's exposure (incidental ingestion and dermal contact) to surface water based on exposure parameters in Table B2.2-3 in Appendix B of this UFP-QAPP and a target cancer risk of 1x10-6 and noncancer target hazard of 0.1.
(b) See Attachment C.1 in Appendix C for derivation of the picric acid PAL using the ESL for 2,4-dinitrophenol as a surrogate.
(c) PALS have been selected as the lower of the human health risk-based value and ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Acronyms:
µg/L = microgram per liter
DL = detection limit
HPLC = high performance liquid chromatography
LOD = limit of detection
LOQ = limit of quantitation
PAL = project action limit
THQ = target hazard quotient
UFP-QAPP = Uniform Federal Policy – Quality Assurance Project Plan

## Worksheet #15-3f – Metals (Total and Dissolved) Surface Water

Matrix: Surface Water
Analytical Group: Metals (ICP/MS) SW6020B
Units: µg/L

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 1170000 | RSL | 87 | EPA Region 4 | 87 | 30 | 30 | 24 | 12 |
| Antimony | 166 | RSL | 190 | EPA Region 4 | 166 | 55 | 1.0 | 0.50 | 0.20 |
| Arsenic | 54.5 | RSL | 150 | National AWQC | 54.5 | 18 | 2.0 | 1.7 | 0.68 |
| Barium | 44600 | RSL | 220 | EPA Region 4 | 220 | 73 | 2.0 | 1.6 | 0.746 |
| Beryllium | 50.5 | RSL | 11 | EPA Region 4 | 11 | 3.7 | 0.50 | 0.30 | 0.119 |
| Cadmium | 16.5 | RSL | 0.25 | National AWQC | 0.25 | 0.50 | 0.50 | 0.40 | 0.151 |
| Calcium | EN | - | 116000 | EPA Region 4 | 116000 | 39000 | 120.0 | 100 | 50 |
| Chromium | 69400 | RSL | 85 | EPA Region 3 BTAG | 85 | 28 | 2.0 | 1.1 | 0.55 |
| Cobalt | 432 | RSL | 19 | EPA Region 4 | 19 | 6.3 | 0.5 | 0.4 | 0.156 |
| Copper | 46600 | RSL | 9 | EPA Region 3 BTAG | 9 | 3 | 1.0 | 0.9 | 0.85 |
| Iron | 816000 | RSL | 1000 | National AWQC | 1000 | 330 | 50.0 | 40 | 20 |
| Lead | 10 | Office of Water Action Level | 2.5 | National AWQC | 2.5 | 0.83 | 0.50 | 0.24 | 0.12 |
| Magnesium | EN | - | 82000 | EPA Region 4 | 82000 | 27000 | 50 | 32 | 16 |
| Manganese | 3240 | RSL | 93 | EPA Region 4 | 93 | 31 | 2.0 | 1.9 | 0.95 |
| Nickel | 10300 | RSL | 52 | National AWQC | 52 | 17 | 1.5 | 0.80 | 0.40 |
| Potassium | EN | - | 53000 | EPA Region 4 | 53000 | 18000 | 200 | 180 | 65 |
| Selenium | 5830 | RSL | 5 | EPA Region 4 | 5 | 1.7 | 1.0 | 0.60 | 0.278 |
| Silver | 1070 | RSL | 3.2 | EPA Region 3 BTAG | 3.2 | 1.1 | 0.50 | 0.30 | 0.10 |
| Sodium | EN | - | 680000 | EPA Region 4 | 680000 | 230000 | 200 | 180 | 90 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Thallium | 11.7 | RSL | 6 | EPA Region 4 | 6 | 2 | 0.50 | 0.30 | 0.13 |
| Vanadium | 454 | RSL | 27 | EPA Region 4 | 27 | 9 | 4.0 | 2.0 | 0.794 |
| Zinc | 401000 | RSL | 120 | National AWQC | 120 | 40 | 15 | 8.0 | 4.0 |

Notes:

(a) Human health risk based values are based on References include the use of the EPA RSL Calculator (November 2024) to calculate risk-based screening levels for an adolescent receptor's exposure (incidental ingestion and dermal contact) to surface water based on exposure parameters in Table B2.2-3 in Appendix B of this UFP-QAPP and a target cancer risk of 1x10-6 and noncancer target hazard of 0.1.

(b) References include: EPA Region 3 Biological Technical Group (BTAG) (2006) – Freshwater Screening Benchmarks (https://www.epa.gov/sites/default/files/2015-09/documents/r3_btag_fw_benchmarks_07-06.pdf). EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Surface Water Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/document/era_regional_supplemental_guidance_report-march-2018_update.pdf).

(c) National Recommended Water Quality Criteria – Aquatic Life (EPA, 2023) (https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table).

(d) PALs have been selected as the lower of the human health risk-based value and ecological benchmark.

LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.

LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.

Acronyms:

µg/L = microgram per liter
BTAG = Biological Technical Assistance Group
DL = detection limit
EN= Essential Nutrient
EPA = Environmental Protection Agency
ICP/MS = inductively coupled plasma/mass spectrometry
LOD = limit of detection
LOQ = limit of quantitation
NA = Not Applicable
AWQC = Ambient Water Quality Criteria.
PAL = project action limit
THQ = target hazard quotient
UFP-QAPP = Uniform Federal Policy – Quality Assurance Project Plan

## Worksheet #15-3g – Mercury (Total and Dissolved) Surface Water

Matrix: Surface Water
Analytical Group: Mercury (CVAA) SW7470A
Units: µg/L

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 66.8 | RSL | 0.77 | National AWQC | 0.77 | 0.26 | 0.20 | 0.16 | 0.087 |

Notes:
(a) Human health risk based values are based on References include the use of the USEPA RSL Calculator (November 2024) to calculate risk-based screening levels for an adolescent receptor's exposure (incidental ingestion and dermal contact) to surface water based on exposure parameters in Table B2.2-3 in Appendix B of this UFP-QAPP and a target cancer risk of 1x10-6 and noncancer target hazard of 0.1.
(b) Reference includes: National Recommended Water Quality Criteria – Aquatic Life (EPA, 2023) (https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table).
(c) PALs have been selected as the lower of the number of the human health risk-based value and ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Acronyms:
µg/L = microgram per liter
DL = detection limit
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
AWQC = Ambient Water Quality Criteria
PAL = project action limit
THQ = target hazard quotient
UFP-QAPP = Uniform Federal Policy – Quality Assurance Project Plan

## Worksheet #15-4a – VOCs Porewater

Matrix: Porewater
Analytical Group: Volatile Organic Compounds (GC/MS) (SW8260C/D)
Units: µg/L

| Analyte | Ecological Benchmark | Ecological Reference [a] | PAL [b] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 76 | EPA Region 4 | 76 | 25 | 1.0 | 0.60 | 0.30 |
| 1,1,2,2-Tetrachloroethane | 200 | EPA Region 4 | 200 | 66.7 | 1.0 | 0.60 | 0.30 |
| 1,1,2-Trichloroethane | 730 | EPA Region 4 | 730 | 240 | 1.0 | 0.60 | 0.30 |
| 1,1-Dichloroethane | 410 | EPA Region 4 | 410 | 140 | 1.0 | 0.60 | 0.30 |
| 1,1-Dichloroethene | 130 | EPA Region 4 | 130 | 43 | 1.0 | 0.6 | 0.30 |
| 1,2,4-Trichlorobenzene | 130 | EPA Region 4 | 130 | 43 | 5.0 | 1.0 | 0.30 |
| 1,2-Dibromo-3-Chloropropane | NA | EPA Region 4 | NA | 25 | 5.0 | 1.0 | 0.30 |
| 1,2-Dibromoethane (EDB) | NA | EPA Region 4 | NA | 5 | 1.0 | 0.50 | 0.20 |
| 1,2-Dichlorobenzene | 23 | EPA Region 4 | 23 | 7.7 | 5.0 | 0.50 | 0.20 |
| 1,2-Dichloroethane | 2000 | EPA Region 4 | 2000 | 670 | 1.0 | 0.60 | 0.30 |
| 1,2-Dichloropropane | 520 | EPA Region 4 | 520 | 170 | 1.0 | 0.60 | 0.30 |
| 1,3-Dichlorobenzene | 22 | EPA Region 4 | 22 | 7.3 | 5.0 | 1.4 | 0.68 |
| 1,4-Dichlorobenzene | 9.4 | EPA Region 4 | 9.4 | 5.0 | 5.0 | 0.60 | 0.30 |
| 2-Butanone | 22000 | EPA Region 4 | 22000 | 7300 | 10 | 1.0 | 1.0 |
| 2-Hexanone | 99 | EPA Region 4 | 99 | 33 | 10 | 1.7 | 0.85 |
| 4-Methyl-2-pentanone | 170 | EPA Region 4 | 170 | 57 | 10 | 1.0 | 0.50 |
| Acetone | 1700 | EPA Region 4 | 1700 | 570 | 20 | 2.0 | 0.70 |
| Benzene | 160 | EPA Region 4 | 160 | 53 | 1.0 | 0.60 | 0.30 |
| Bromodichloromethane | 340 | EPA Region 4 | 340 | 110 | 1.0 | 0.50 | 0.20 |
| Bromoform | 230 | EPA Region 4 | 230 | 77 | 4.0 | 2.0 | 1.0 |
| Bromomethane | 16 | EPA Region 4 | 16 | 5.3 | 1.0 | 0.60 | 0.30 |
| Carbon disulfide | 15 | EPA Region 4 | 15 | 5.0 | 5.0 | 0.60 | 0.30 |
| Carbon tetrachloride | 77 | EPA Region 4 | 77 | 26 | 1.0 | 0.60 | 0.30 |
| Chlorobenzene | 25 | EPA Region 4 | 25 | 9.3 | 1.0 | 0.60 | 0.30 |

| Analyte | Ecological Benchmark | Ecological Reference [a] | PAL [b] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| Chloroethane | NA | EPA Region 4 | NA | 5.0 | 1.0 | 0.60 | 0.30 |
| Chloroform | 140 | EPA Region 4 | 140 | 47 | 1.0 | 0.60 | 0.30 |
| Chloromethane | NA | EPA Region 4 | NA | 10.0 | 2.0 | 1.1 | 0.55 |
| cis-1,2-Dichloroethene | 620 | EPA Region 4 | 620 | 210 | 1.0 | 0.60 | 0.30 |
| cis-1,3-Dichloropropene | 1.7 | EPA Region 4 | 1.7 | 1.0 | 1.0 | 0.50 | 0.20 |
| Cyclohexane | 158 | EPA Region 4 | 158 | 53 | 5.0 | 2.0 | 1.0 |
| Dibromochloromethane | 320 | EPA Region 4 | 320 | 107 | 1.0 | 0.50 | 0.20 |
| Dichlorodifluoromethane | NA | EPA Region 4 | NA | 5.0 | 1.0 | 0.60 | 0.30 |
| Ethylbenzene | 61 | EPA Region 4 | 61 | 20 | 1.0 | 0.80 | 0.40 |
| Freon 113 | NA | NA | NA | 50 | 10 | 0.60 | 0.30 |
| Isopropylbenzene | 4.8 | EPA Region 4 | 4.8 | 5.0 | 5.0 | 0.60 | 0.30 |
| Methyl acetate | NA | NA | NA | 25 | 5.0 | 0.60 | 0.30 |
| Methyl tert-butyl ether | 730 | EPA Region 4 | 730 | 240 | 1.0 | 0.50 | 0.20 |
| Methylcyclohexane | 52 | EPA Region 4 | 52 | 17 | 5.0 | 1.0 | 0.50 |
| Methylene Chloride | 1500 | EPA Region 4 | 1500 | 500 | 1.0 | 0.60 | 0.30 |
| Styrene | 32 | EPA Region 4 | 32 | 11 | 5.0 | 0.60 | 0.30 |
| Tetrachloroethene | 53 | EPA Region 4 | 53 | 18 | 1.0 | 0.60 | 0.30 |
| Toluene | 62 | EPA Region 4 | 62 | 21 | 1.0 | 0.60 | 0.30 |
| trans-1,2-Dichloroethene | 558 | EPA Region 4 | 558 | 190 | 2.0 | 1.4 | 0.70 |
| trans-1,3-Dichloropropene | 1.7 | EPA Region 4 | 1.7 | 1.0 | 1.0 | 0.50 | 0.20 |
| Trichloroethene | 220 | EPA Region 4 | 220 | 66.7 | 1.0 | 0.60 | 0.30 |
| Trichlorofluoromethane | NA | NA | NA | 5.0 | 1.0 | 0.60 | 0.30 |
| Vinyl chloride | 930 | EPA Region 4 | 930 | 310 | 1.0 | 0.60 | 0.30 |
| Xylenes, Total | 27 | EPA Region 4 | 27 | 9.0 | 1.0 | 0.80 | 0.40 |

| Analyte | Ecological Benchmark | Ecological Reference [a] | PAL [b] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|

Notes:
(a) Reference include: EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Surface Water Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf).
(b) PALs have been selected as the ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Project Quantitation Goal shaded in purple is 5x the LOQ since there is no associated PAL.
Acronyms:
µg/L = microgram per liter
DL = detection limit
EPA = Environmental Protection Agency
GC/MS = gas chromatography/mass spec
LOD = limit of detection
LOQ = limit of quantitation
NA = Not Applicable
PAL = project action limit
THQ = target hazard quotient
VOCs = volatile organic compounds

## Worksheet 15-4b – SVOC Porewater

Matrix: Porewater
Analytical Group: Semivolatile Organic Compounds (GC/MS) (8270E)
Units: µg/L

| Analyte | Ecological Benchmark | Ecological Reference [a] | PAL [b] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| 1,1'-Biphenyl | 6.5 | EPA Region 4 | 6.5 | 2.1 | 2.0 | 1.0 | 0.50 |
| 2,2'-oxybis[1-chloropropane] | NA | - | NA | 10 | 2.0 | 1.0 | 0.50 |
| 2,4,5-Trichlorophenol | 1.9 | EPA Region 4 | 1.9 | 2.0 | 2.0 | 1.0 | 0.50 |
| 2,4,6-Trichlorophenol | 4.9 | EPA Region 4 | 4.9 | 2.0 | 2.0 | 1.0 | 0.50 |
| 2,4-Dichlorophenol | 11 | EPA Region 4 | 11 | 3.7 | 2.0 | 1.0 | 0.50 |
| 2,4-Dimethylphenol | 15 | EPA Region 4 | 15 | 10 | 10 | 9.0 | 3.0 |
| 2,4-Dinitrophenol | 71 | EPA Region 4 | 71 | 30 | 30 | 28 | 14 |
| 2,4-Dinitrotoluene | 44 | EPA Region 4 | 44 | 15 | 5.0 | 2.0 | 1.0 |
| 2,6-Dinitrotoluene | 81 | EPA Region 4 | 81 | 27 | 2.0 | 1.0 | 0.50 |
| 2-Chloronaphthalene | 0.396 | EPA Region 5 RCRA ESLs | 0.396 | 1.0 | 1.0 | 0.80 | 0.40 |
| 2-Chlorophenol | 18 | EPA Region 4 | 18 | 6.0 | 2.0 | 1.0 | 0.50 |
| 2-Methylnaphthalene | 4.7 | EPA Region 4 | 4.7 | 1.6 | 0.50 | 0.20 | 0.10 |
| 2-Methylphenol | 67 | EPA Region 4 | 67 | 22 | 2.0 | 1.0 | 0.50 |
| 2-Nitroaniline | 17 | EPA Region 4 | 17 | 5.7 | 5.0 | 2.0 | 1.0 |
| 2-Nitrophenol | 73 | EPA Region 4 | 73 | 24 | 5.0 | 2.0 | 1.0 |
| 3,3'-Dichlorobenzidine | 4.5 | EPA Region 4 | 4.5 | 10 | 10 | 8.0 | 4.0 |
| 4,6-Dinitro-2-methylphenol | 23 | EPA Region 5 RCRA ESLs | 23 | 21 | 21 | 20 | 8.0 |
| 4-Chloro-3-methylphenol | 1 | EPA Region 4 | 1 | 5.0 | 5.0 | 2.0 | 1.0 |
| 4-Chloroaniline | 0.8 | EPA Region 4 | 0.8 | 10 | 10 | 9.0 | 4.0 |
| 4-Chlorophenyl phenyl ether | NA | - | NA | 10.0 | 2.0 | 1.0 | 0.50 |
| 4-Methylphenol | 53 | EPA Region 4 | 53 | 17 | 2.0 | 1.0 | 0.50 |
| 4-Nitroaniline | NA | - | NA | 15.0 | 3.0 | 2.0 | 0.90 |

| Analyte | Ecological Benchmark | Ecological Reference [a] | PAL [b] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| 4-Nitrophenol | 58 | EPA Region 4 | 58 | 30 | 30 | 20 | 10 |
| Acenaphthene | 15 | EPA Region 4 | 15 | 5.0 | 0.50 | 0.20 | 0.10 |
| Acenaphthylene | 13 | EPA Region 4 | 13 | 4.3 | 0.50 | 0.20 | 0.10 |
| Acetophenone | NA | - | NA | 25.0 | 5.0 | 2.0 | 1.0 |
| Anthracene | 0.02 | EPA Region 4 | 0.02 | 0.50 | 0.50 | 0.20 | 0.10 |
| Atrazine | 0.03 | EPA Region 4 | 0.03 | 5.0 | 5.0 | 2.0 | 1.0 |
| Benzaldehyde | 143 | EPA Region 4 | 143 | 48 | 5.0 | 2.0 | 1.0 |
| Benz [a]anthracene | 4.7 | EPA Region 4 | 4.7 | 1.6 | 0.50 | 0.20 | 0.10 |
| Benzo[a]pyrene | 0.06 | EPA Region 4 | 0.06 | 0.50 | 0.50 | 0.22 | 0.11 |
| Benzo[b]fluoranthene | 2.6 | EPA Region 4 | 2.6 | 0.87 | 0.50 | 0.20 | 0.10 |
| Benzo[g,h,i]perylene | 0.012 | EPA Region 4 | 0.012 | 0.50 | 0.50 | 0.20 | 0.10 |
| Benzo[k]fluoranthene | 0.06 | EPA Region 4 | 0.06 | 0.50 | 0.50 | 0.20 | 0.10 |
| Bis(2-chloroethoxy)methane | NA | - | NA | 10.0 | 2.0 | 1.0 | 0.50 |
| Bis(2-chloroethyl)ether | 19000 | EPA Region 5 RCRA ESLs | 19000 | 6300 | 2.0 | 1.0 | 0.50 |
| Bis(2-ethylhexyl) phthalate | 8 | EPA Region 4 | 8 | 5.0 | 5.0 | 4.0 | 2.0 |
| Butyl benzyl phthalate | 23 | EPA Region 4 | 23 | 7.7 | 5.0 | 4.0 | 2.0 |
| Caprolactam | NA | - | NA | 35.0 | 7.0 | 6.0 | 3.0 |
| Carbazole | 4 | EPA Region 4 | 4 | 2.0 | 2.0 | 1.0 | 0.50 |
| Chrysene | 4.7 | EPA Region 4 | 4.7 | 1.6 | 0.50 | 0.20 | 0.10 |
| Dibenz(a,h)anthracene | 0.012 | EPA Region 4 | 0.012 | 0.50 | 0.50 | 0.20 | 0.10 |
| Dibenzofuran | 4 | EPA Region 4 | 4 | 2.0 | 2.0 | 1.0 | 0.50 |
| Diethyl phthalate | 220 | EPA Region 4 | 220 | 73 | 5.0 | 4.0 | 2.0 |
| Dimethyl phthalate | 1100 | EPA Region 4 | 1100 | 370 | 5.0 | 4.0 | 2.0 |
| Di-n-butyl phthalate | 19 | EPA Region 4 | 19 | 6.3 | 5.0 | 4.0 | 2.0 |
| Di-n-octyl phthalate | 215 | EPA Region 4 | 215 | 72 | 11 | 10 | 5.0 |
| Fluoranthene | 0.8 | EPA Region 4 | 0.8 | 0.50 | 0.50 | 0.20 | 0.10 |
| Fluorene | 19 | EPA Region 4 | 19 | 6.3 | 0.50 | 0.24 | 0.12 |

| Analyte | Ecological Benchmark | Ecological Reference [a] | PAL [b] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| Hexachlorobenzene | 0.15 | EPA Region 4 | 0.15 | 0.50 | 0.50 | 0.22 | 0.11 |
| Hexachlorobutadiene | 1 | EPA Region 4 | 1 | 2.0 | 2.0 | 1.0 | 0.50 |
| Hexachlorocyclopentadiene | 0.45 | EPA Region 4 | 0.45 | 11 | 11 | 10 | 5.0 |
| Hexachloroethane | 12 | EPA Region 4 | 12 | 5.0 | 5.0 | 1.0 | 0.50 |
| Indeno[1,2,3-cd] pyrene | 0.012 | EPA Region 4 | 0.012 | 0.50 | 0.50 | 0.22 | 0.11 |
| Isophorone | 920 | EPA Region 4 | 920 | 310 | 2.0 | 1.0 | 0.50 |
| Naphthalene | 21 | EPA Region 4 | 21 | 7 | 0.50 | 0.30 | 0.260 |
| Nitrobenzene | 230 | EPA Region 4 | 230 | 77 | 2.0 | 1.0 | 0.50 |
| N-Nitrosodi-n-propylamine | NA | - | NA | 10 | 2.0 | 1.0 | 0.50 |
| N-Nitrosodiphenylamine | 25 | EPA Region 4 | 25 | 8.3 | 2.0 | 1.0 | 0.50 |
| Pentachlorophenol | 15 | National AWQC | 15 | 5.0 | 5.0 | 4.0 | 2.6 |
| Phenanthrene | 2.3 | EPA Region 4 | 2.3 | 0.77 | 0.50 | 0.22 | 0.11 |
| Phenol | 160 | EPA Region 4 | 160 | 53 | 2.0 | 1.0 | 0.50 |
| Pyrene | 4.6 | EPA Region 4 | 4.6 | 1.5 | 0.50 | 0.20 | 0.10 |

Notes:
(a) References include: EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Surface Water Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf); EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf); National Recommended Water Quality Criteria - Aquatic Life (USPEA, 2023) (https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table).
(b) PALS have been selected as the ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Project Quantitation Goal shaded in purple is 5x the LOQ since there is no associated PAL.
Acronyms:
µg/L = microgram per liter
DL = detection limit
EPA = Environmental Protection Agency
GC/MS = gas chromatography/mass spec
LOD = limit of detection
LOQ = limit of quantitation
AWQC = Ambient Water Quality Criteria
NA = Not Applicable
PAL = project action limit
RCRA = Resource Conservation and Recovery Act
THQ = target hazard quotient

## Worksheet #15-4c– PAH Porewater

Matrix: Porewater
Analytical Group: Semivolatile Organic Compounds (SW8270-GC/MS SIM)
Units: µg/L

| Analyte | Ecological Benchmark | Ecological Reference [a] | PAL [b] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | 6.1 | EPA Region 4 | 6.1 | 2.0 | 0.05 | 0.04 | 0.02 |
| 2-Methylnaphthalene | 4.7 | EPA Region 4 | 4.7 | 1.6 | 0.05 | 0.04 | 0.02 |
| Acenaphthene | 15 | EPA Region 4 | 15 | 5.0 | 0.05 | 0.03 | 0.01 |
| Acenaphthylene | 13 | EPA Region 4 | 13 | 4.3 | 0.05 | 0.03 | 0.01 |
| Anthracene | 0.02 | EPA Region 4 | 0.02 | 0.05 | 0.05 | 0.03 | 0.01 |
| Benzo[a]anthracene | 4.7 | EPA Region 4 | 4.7 | 1.6 | 0.05 | 0.03 | 0.01 |
| Benzo[a]pyrene | 0.06 | EPA Region 4 | 0.06 | 0.05 | 0.05 | 0.03 | 0.01 |
| Benzo[b]fluoranthene | 2.6 | EPA Region 4 | 2.6 | 0.87 | 0.15 | 0.1 | 0.0475 |
| Benzo[g,h,i]perylene | 0.012 | EPA Region 4 | 0.012 | 0.05 | 0.05 | 0.03 | 0.01 |
| Benzo[k]fluoranthene | 0.06 | EPA Region 4 | 0.06 | 0.05 | 0.05 | 0.03 | 0.01 |
| Chrysene | 4.7 | EPA Region 4 | 4.7 | 1.6 | 0.06 | 0.05 | 0.25 |
| Dibenz(a,h)anthracene | 0.012 | EPA Region 4 | 0.012 | 0.05 | 0.05 | 0.04 | 0.02 |
| Fluoranthene | 0.8 | EPA Region 4 | 0.8 | 0.27 | 0.05 | 0.046 | 0.023 |
| Fluorene | 19 | EPA Region 4 | 19 | 6.3 | 0.05 | 0.03 | 0.01 |
| Indeno[1,2,3-cd]pyrene | 0.012 | EPA Region 4 | 0.012 | 0.05 | 0.05 | 0.04 | 0.02 |
| Naphthalene | 21 | EPA Region 4 | 21 | 7 | 0.15 | 0.14 | 0.068 |
| Phenanthrene | 2.3 | EPA Region 4 | 2.3 | 0.77 | 0.07 | 0.06 | 0.03 |
| Pyrene | 4.6 | EPA Region 4 | 4.6 | 1.5 | 0.05 | 0.042 | 0.021 |

Notes:
(a) Reference include: EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Surface Water Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf).
(b) PALs have been selected as the ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Acronyms:
µg/L = microgram per liter
EPA = Environmental Protection Agency
GC/MS = gas chromatography/mass spec
LOD = limit of detection
LOQ = limit of quantitation
PAL = project action limit
THQ = target hazard quotient

## Worksheet #15-4d – PCBs Porewater

Matrix: Porewater
Analytical Group: Polychlorinated Biphenyls (PCBs) by Gas Chromatography (SW8082)
Units: µg/L

| Analyte | Ecological Benchmark | Ecological Reference [a] | PAL [b] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| PCB-1016 | 0.000074 | EPA Region 3 BTAG | 0.000074 | 0.5 | 0. 5 | 0.20 | 0.10 |
| PCB-1221 | NA | - | NA | 2.5 | 0.5 | 0.20 | 0.10 |
| PCB-1232 | NA | - | NA | 2.5 | 0.5 | 0.20 | 0.10 |
| PCB-1242 | 0.000074 | EPA Region 3 BTAG | 0.000074 | 0.5 | 0.55 | 0.20 | 0.10 |
| PCB-1248 | 0.000074 | EPA Region 3 BTAG | 0.000074 | 0.5 | 0.5 | 0.20 | 0.10 |
| PCB-1254 | 0.000074 | EPA Region 3 BTAG | 0.000074 | 0.5 | 0.5 | 0.20 | 0.078 |
| PCB-1260 | 0.000074 | EPA Region 3 BTAG | 0.000074 | 0.5 | 0.5 | 0.20 | 0.078 |
| PCB-1262 | NA | - | - | 2.5 | 0.5 | 0.20 | 0.078 |
| PCB-1268 | NA | - | - | 2.5 | 0.5 | 0.20 | 0.078 |

Notes:
(a) References include: EPA Region 3 Biological Technical Assistance Group (BTAG) (2006) – Freshwater Screening Benchmarks (https://www.epa.gov/sites/default/files/2015-09/documents/r3_btag_fw_benchmarks_07-06.pdf).
(b) PALs have been selected as the ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Project Quantitation Goal shaded in purple is 5x the LOQ since there is no associated PAL.
Acronyms:
µg/L = microgram per liter
BTAG = Biological Technical Assistance Group
DL = detection limit
GC/MS = gas chromatography/mass spec
LOD = limit of detection
LOQ = limit of quantitation
THQ = target hazard quotient
PCB = polychlorinated biphenyl
PAL = project action limit
EPA = Environmental Protection Agency
NA = Not Applicable

## Worksheet #15-4e – Picric Acid Porewater

Matrix: Porewater
Analytical Group: Nitroaromatics and Nitramines (HPLC)-SW8330D
Units: µg/L

| Analyte | Ecological Benchmark | Ecological Reference | PAL [(a)] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| Picric acid | 7.1 | Derived - See Attachment C.1 | 7.1 | 2.4 | 0.40 | 0.12 | 0.0436 |

Notes:
(a) PALs have been selected as the ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Acronyms:
µg/L = microgram per liter
DL = detection limit
HPLC = high performance liquid chromatography
LOD = limit of detection
LOQ = limit of quantitation
PAL = project action limit
THQ = target hazard quotient

## Worksheet #15-4f – Metals (Total and Dissolved) Porewater

Matrix: Porewater
Analytical Group: Metals (ICP/MS) SW6020B
Units: µg/L

| Analyte | Ecological Benchmark | Ecological Reference[a] | PAL[b] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| Aluminum | 87 | EPA Region 4 | 87 | 30 | 30 | 24 | 12 |
| Antimony | 190 | EPA Region 4 | 190 | 63 | 1.0 | 0.50 | 0.20 |
| Arsenic | 150 | EPA Region 4 | 150 | 50 | 2.0 | 1.7 | 0.68 |
| Barium | 220 | EPA Region 4 | 220 | 73 | 2.0 | 1.6 | 0.746 |
| Beryllium | 11 | EPA Region 4 | 11 | 3.7 | 0.50 | 0.30 | 0.119 |
| Cadmium | 0.25 | National AWQC | 0.25 | 0.50 | 0.50 | 0.40 | 0.151 |
| Calcium | 116000 | EPA Region 4 | 116000 | 39000 | 120 | 100 | 50 |
| Chromium | 85 | EPA Region 3 BTAG | 85 | 28.3 | 2.0 | 1.1 | 0.55 |
| Cobalt | 19 | EPA Region 4 | 19 | 6.4 | 0.50 | 0.40 | 0.156 |
| Copper | 9 | EPA Region 3 BTAG | 9 | 3.0 | 1.0 | 0.90 | 0.85 |
| Iron | 1000 | National AWQC | 1000 | 330 | 50.0 | 40 | 20 |
| Lead | 2.5 | National AWQC | 2.5 | 0.83 | 0.5 | 0.24 | 0.12 |
| Magnesium | 82000 | EPA Region 4 | 82000 | 27000 | 50 | 32 | 16 |
| Manganese | 93 | EPA Region 4 | 93 | 31 | 2.0 | 1.9 | 0.95 |
| Nickel | 52 | National AWQC | 52 | 17 | 1.5 | 0.80 | 0.40 |
| Potassium | 53000 | EPA Region 4 | 53000 | 18000 | 200 | 180 | 65 |
| Selenium | 5 | EPA Region | 5 | 1.7 | 1.0 | 0.6 | 0.278 |
| Silver | 3.2 | EPA Region 3 BTAG | 3.2 | 1.1 | 0.50 | 0.30 | 0.10 |
| Sodium | 680000 | EPA Region 4 | 680000 | 230000 | 200 | 180 | 90 |
| Thallium | 6 | EPA Region 4 | 6 | 2.0 | 0.50 | 0.30 | 0.13 |

| Analyte | Ecological Benchmark | Ecological Reference[(a)] | PAL[(b)] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| Vanadium | 27 | EPA Region 4 | 27 | 9.0 | 4.0 | 2.0 | 0.794 |
| Zinc | 120 | National AWQC | 120 | 40 | 15 | 8.0 | 4.0 |

Notes:
(a) References include: EPA Region 3 Biological Technical Assistance Group (BTAG) (2006) – Freshwater Screening Benchmarks (https://www.epa.gov/sites/default/files/2015-09/documents/r3_btag_fw_benchmarks_07-06.pdf);EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Soil Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance__report-march-2018_update.pdf); National Recommended Water Quality Criteria - Aquatic Life (USPEA, 2023) (https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table).
(b) PALs have been selected as the ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Acronyms:
µg/L = microgram per liter
BTAG = Biological Technical Assistance Group
DL = detection limit
EN = Essential Nutrient
EPA = Environmental Protection Agency
ICP/MS = inductively coupled plasma/mass spectrometry
LOD = limit of detection
LOQ = limit of quantitation
NA = Not Applicable
AWQC = Ambient Water Quality Criteria
PAL = project action limit
THQ = target hazard quotient

## Worksheet #15-4g – Mercury (Total and Dissolved) Porewater

Matrix: Porewater
Analytical Group: Mercury (CVAA) SW7470A
Units: µg/L

| Analyte | Ecological Benchmark | Ecological Reference [a] | PAL [b] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|
| Mercury | 0.77 | National AWQC | 0.77 | 0.26 | 0.20 | 0.16 | 0.087 |

Notes:
(a) Reference include: National Recommended Water Quality Criteria – Aquatic Life (EPA, 2023) (https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table).
(b) PALs have been selected as the ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the 1/3 PAL.
Acronyms:
µg/L = microgram per liter
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
AWQC = Ambient Water Quality Criteria
PAL = project action limit
THQ = target hazard quotient

## Worksheet #15-5a – VOCs Sediment/Hydric Soils

Matrix: Sediment / Hydric Soils
Analytical Group: Volatile Organic Compounds (SW8260-GC/MS)
Units: µg/Kg

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Sediment Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 810000 | RSL Resident Soil (THQ 0.1) | 70 | EPA Region 4 | 70 | 23 | 5.0 | 2.0 | 0.80 |
| 1,1,2,2-Tetrachloroethane | 600 | RSL Resident Soil (Risk 10-6) | 250 | EPA Region 4 | 250 | 83.3 | 5.0 | 2.0 | 0.80 |
| 1,1,2-Trichloroethane | 150 | RSL Resident Soil (THQ 0.1) | 538 | EPA Region 4 | 150 | 50 | 5.0 | 2.0 | 0.70 |
| 1,1-Dichloroethane | 3600 | RSL Resident Soil (Risk 10-6) | 20 | EPA Region 4 | 20 | 6.7 | 5.0 | 2.0 | 0.80 |
| 1,1-Dichloroethene | 23000 | RSL Resident Soil (THQ 0.1) | 100 | EPA Region 4 | 100 | 33 | 5.0 | 2.0 | 0.80 |
| 1,2,4-Trichlorobenzene | 5800 | RSL Resident Soil (THQ 0.1) | 11 | EPA Region 4 | 11 | 10 | 10 | 8.0 | 5.0 |
| 1,2-Dibromo-3-Chloropropane | 5.3 | RSL Resident Soil (Risk 10-6) | NA | NA | 5.3 | 5.0 | 5.0 | 2.0 | 0.80 |
| 1,2-Dibromoethane (EDB) | 36 | RSL Resident Soil (Risk 10-6) | NA | NA | 36 | 12 | 5.0 | 2.0 | 0.70 |
| 1,2-Dichlorobenzene | 180000 | RSL Resident Soil (THQ 0.1) | 95 | EPA Region 4 | 95 | 32 | 5.0 | 2.0 | 0.90 |
| 1,2-Dichloroethane | 460 | RSL Resident Soil (Risk 10-6) | 986 | EPA Region 4 | 460 | 150 | 5.0 | 2.0 | 0.60 |
| 1,2-Dichloropropane | 1600 | RSL Resident Soil (THQ 0.1) | 428 | NA | 428 | 143 | 5.0 | 2.0 | 0.80 |
| 1,3-Dichlorobenzene | NA | - | 89 | EPA Region 4 | 89 | 30 | 5.0 | 2.0 | 1.0 |
| 1,4-Dichlorobenzene | 2600 | RSL Resident Soil (Risk 10-6) | 30 | EPA Region 4 | 30 | 10 | 5.0 | 2.0 | 0.90 |
| 2-Butanone | 2700000 | RSL Resident Soil (THQ 0.1) | 7600 | EPA Region 4 | 7600 | 2500 | 10 | 4.0 | 2.0 |
| 2-Hexanone | 20000 | RSL Resident Soil (THQ 0.1) | 45 | EPA Region 4 | 45 | 15 | 10 | 4.0 | 2.5 |
| 4-Methyl-2-pentanone | 3300000 | RSL Resident Soil (THQ 0.1) | 73 | EPA Region 4 | 73 | 24 | 10 | 4.0 | 2.0 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Sediment Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | 7000000 | RSL Resident Soil (THQ 0.1) | 65 | EPA Region 4 | 65 | 22 | 20 | 16 | 6.0 |
| Benzene | 1200 | RSL Resident Soil (Risk 10-6) | 10 | EPA Region 4 | 10 | 5.0 | 5.0 | 2.0 | 0.80 |
| Bromodichloromethane | 290 | RSL Resident Soil (Risk 10-6) | 210 | EPA Region 4 | 210 | 70 | 5.0 | 2.0 | 0.70 |
| Bromoform | 19000 | RSL Resident Soil (Risk 10-6) | 142 | EPA Region 4 | 142 | 47 | 10 | 8.0 | 5.0 |
| Bromomethane | 680 | RSL Resident Soil (THQ 0.1) | 6.5 | EPA Region 4 | 6.5 | 5.0 | 5.0 | 2.0 | 1.0 |
| Carbon disulfide | 77000 | RSL Resident Soil (THQ 0.1) | 7.8 | EPA Region 4 | 7.8 | 5.0 | 5.0 | 2.0 | 0.80 |
| Carbon tetrachloride | 650 | RSL Resident Soil (Risk 10-6) | 57 | EPA Region 4 | 57 | 19 | 5.0 | 2.0 | 0.80 |
| Chlorobenzene | 28000 | RSL Resident Soil (THQ 0.1) | 30 | EPA Region 4 | 30 | 10 | 5.0 | 2.0 | 0.90 |
| Chloroethane | 540000 | RSL Resident Soil (THQ 0.1) | NA | NA | 540000 | 180000 | 5.0 | 4.0 | 1.0 |
| Chloroform | 320 | RSL Resident Soil (Risk 10-6) | 87 | EPA Region 4 | 87 | 29 | 5.0 | 2.0 | 0.80 |
| Chloromethane | 11000 | RSL Resident Soil (THQ 0.1) | NA | NA | 11000 | 3700 | 5.0 | 2.0 | 1.0 |
| cis-1,2-Dichloroethene | 6300 | RSL Resident Soil (THQ 0.1) | 432 | EPA Region 4 | 432 | 140 | 5.0 | 2.0 | 0.80 |
| cis-1,3-Dichloropropene | 1800 | RSL for 1,3-dichloropropene | 1.5 | EPA Region 4 | 1.5 | 5.0 | 5.0 | 1.0 | 0.60 |
| Cyclohexane | 650000 | RSL Resident Soil (Risk 10-6) | NA | NA | 650000 | 220000 | 5.0 | 2.0 | 0.90 |
| Dibromochloromethane | 8300 | RSL Resident Soil (Risk 10-6) | 198 | EPA Region 4 | 198 | 66 | 5.0 | 1.0 | 0.50 |
| Dichlorodifluoromethane | 8700 | RSL Resident Soil (THQ 0.1) | NA | NA | 8700 | 2900 | 5.0 | 2.0 | 1.0 |
| Ethylbenzene | 5800 | RSL Resident Soil (Risk 10-6) | 290 | EPA Region 4 | 290 | 97 | 5.0 | 2.0 | 1.0 |
| Freon 113 | 670000 | RSL Resident Soil (THQ 0.1) | NA | NA | 670000 | 220000 | 10 | 2.0 | 0.90 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Sediment Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Isopropylbenzene | 190000 | RSL Resident Soil (THQ 0.1) | 35 | EPA Region 4 | 35 | 12 | 5.0 | 2.0 | 0.70 |
| Methyl acetate | 7800000 | RSL Resident Soil (THQ 0.1) | NA | NA | 7800000 | 2600000 | 5.0 | 4.0 | 1.0 |
| Methyl tert-butyl ether | 47000 | RSL Resident Soil (Risk 10-6) | 304 | EPA Region 4 | 304 | 100 | 5.0 | 2.0 | 0.80 |
| Methylcyclohexane | 9800 | RSL Resident Soil (THQ 0.1) | NA | NA | 9800 | 3300 | 5.0 | 2.0 | 0.80 |
| Methylene Chloride | 35000 | RSL Resident Soil (THQ 0.1) | 18 | EPA Region 4 | 18 | 6.0 | 5.0 | 4.0 | 2.0 |
| Styrene | 600000 | RSL Resident Soil (THQ 0.1) | 126 | EPA Region 4 | 126 | 42 | 5.0 | 2.0 | 0.90 |
| Tetrachloroethene | 8100 | RSL Resident Soil (THQ 0.1) | 2 | EPA Region 4 | 2 | 5.0 | 5.0 | 2.0 | 1.5 |
| Toluene | 490000 | RSL Resident Soil (THQ 0.1) | 10 | EPA Region 4 | 10 | 5.0 | 5.0 | 2.0 | 1.0 |
| trans-1,2-Dichloroethene | 7000 | RSL Resident Soil (THQ 0.1) | 389 | EPA Region 4 | 389 | 130 | 5.0 | 2.0 | 0.80 |
| trans-1,3-Dichloropropene | 1800 | RSL for 1,3-dichloropropene | 1.5 | EPA Region 4 | 1.5 | 5.0 | 5.0 | 1.0 | 0.60 |
| Trichloroethene | 410 | RSL Resident Soil (THQ 0.1) | NA | NA | 410 | 140 | 5.0 | 2.0 | 0.80 |
| Trichlorofluoromethane | 2300000 | RSL Resident Soil (THQ 0.1) | 58000 | LANL | 58000 | 19000 | 5.0 | 2.0 | 1.0 |
| Vinyl chloride | 59 | RSL Resident Soil (Risk 10-6) | 482 | EPA Region 4 | 59 | 20 | 5.0 | 2.0 | 0.80 |
| Xylenes, Total | 58000 | RSL Resident Soil (THQ 0.1) | 130 | EPA Region 4 | 130 | 43 | 10 | 2.0 | 0.70 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Sediment Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|

Notes:
(a) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
(b) References include: EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Sediment Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf); LANL Los Alamos National Laboratories (LANL)/Intellus (2024)I. ECORISK Database (Release 4.4), (https://intellusnm/documents/documents.cfm).
(c) PALs have been selected as the lower of the human health risk-based value and ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet 1/3 PAL.
Acronyms:
µg/Kg = microgram per kilogram
DL = detection limit
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
NA = Not Applicable
PAL = project action limit / THQ = target hazard quotient

## Worksheet #15-5b – SVOC Sediment/Hydric Soils

Matrix: Sediment/Hydric Soils
Analytical Group: Semivolatile Organic Compounds (SW8270-GC/MS)
Units: µg/Kg

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Sediment Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| 1,1'-Biphenyl | 4700 | RSL Resident Soil (THQ 0.1) | 198 | EPA Region 4 | 198 | 66 | 36.7 | 33.4 | 16.7 |
| 2,2'-oxybis[1-chloropropane] | 310000 | RSL Resident Soil (THQ 0.1) | NA | EPA Region 4 | 310000 | 100000 | 43.3 | 40.0 | 20.0 |
| 2,4,5-Trichlorophenol | 630000 | RSL Resident Soil (THQ 0.1) | 34 | EPA Region 4 | 34 | 36.7 | 36.7 | 33.4 | 16.7 |
| 2,4,6-Trichlorophenol | 6300 | RSL Resident Soil (THQ 0.1) | 89 | EPA Region 4 | 89 | 36.7 | 36.7 | 33.4 | 16.7 |
| 2,4-Dichlorophenol | 19000 | RSL Resident Soil (THQ 0.1) | 57 | EPA Region 4 | 57 | 43.3 | 43.3 | 40.0 | 20.0 |
| 2,4-Dimethylphenol | 130000 | RSL Resident Soil (THQ 0.1) | 39 | EPA Region 4 | 39 | 36.7 | 36.7 | 33.4 | 16.7 |
| 2,4-Dinitrophenol | 13000 | RSL Resident Soil (THQ 0.1) | 223 | EPA Region 4 | 223 | 1000 | 1000 | 334 | 167 |
| 2,4-Dinitrotoluene | 1700 | RSL Resident Soil (Risk 10-6) | 290 | EPA Region 4 | 290 | 167 | 167 | 66.7 | 33.3 |
| 2,6-Dinitrotoluene | 600 | RSL Resident Soil (Risk 10-6) | 296 | EPA Region 4 | 296 | 99 | 36.7 | 33.4 | 16.7 |
| 2-Chloronaphthalene | 480000 | RSL Resident Soil (THQ 0.1) | 417 | EPA Region 5 RCRA ESLs | 417 | 139 | 33.3 | 26.7 | 13.3 |
| 2-Chlorophenol | 39000 | RSL Resident Soil (THQ 0.1) | 55 | EPA Region 4 | 55 | 36.7 | 36.7 | 33.4 | 16.7 |
| 2-Methylnaphthalene | 24000 | RSL Resident Soil (THQ 0.1) | 20.2 | EPA Region 4 | 20.2 | 16.7 | 16.7 | 9.99 | 5.00 |
| 2-Methylphenol | 320000 | RSL Resident Soil (THQ 0.1) | 119 | EPA Region 4 | 119 | 50.0 | 50.0 | 40.0 | 20.0 |
| 2-Nitroaniline | 63000 | RSL Resident Soil (THQ 0.1) | 7300 | LANL | 7300 | 2400 | 50.0 | 33.4 | 16.7 |
| 2-Nitrophenol | NA | - | 168 | EPA Region 4 | 168 | 56 | 50.0 | 40.0 | 20.0 |
| 3,3'-Dichlorobenzidine | 1200 | RSL Resident Soil (Risk 10-6) | 31 | EPA Region 4 | 31 | 333 | 333 | 267 | 167 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Sediment Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| 4,6-Dinitro-2-methylphenol | 510 | RSL Resident Soil (THQ 0.1) | 1477 | EPA Region 4 | 510 | 500 | 500 | 334 | 167 |
| 4-Chloro-3-methylphenol | 630000 | RSL Resident Soil (THQ 0.1) | 5 | EPA Region 4 | 5 | 50.0 | 50.0 | 40.0 | 20.0 |
| 4-Chloroaniline | 2700 | RSL Resident Soil (Risk 10-6) | NA | - | 2700 | 900 | 167 | 66.7 | 33.3 |
| 4-Chlorophenyl phenyl ether | NA | - | NA | - | NA | 183.5 | 36.7 | 33.4 | 16.7 |
| 4-Methylphenol | 130000 | RSL Resident Soil (THQ 0.1) | 93 | EPA Region 4 | 93 | 50.0 | 50.0 | 33.4 | 16.7 |
| 4-Nitroaniline | 25000 | RSL Resident Soil (THQ 0.1) | NA | - | 25000 | 8330 | 167 | 66.7 | 33.3 |
| 4-Nitrophenol | NA | - | 13.3 | EPA Region 5 | 13.3 | 500 | 500 | 334 | 167 |
| Acenaphthene | 360000 | RSL Resident Soil (THQ 0.1) | 6.7 | EPA Region 4 | 6.7 | 16.7 | 16.7 | 6.66 | 3.33 |
| Acenaphthylene | 360000 | RSL for acenaphthene | 5.9 | EPA Region 4 | 5.9 | 16.7 | 16.7 | 8.00 | 4.00 |
| Acetophenone | 780000 | RSL Resident Soil (THQ 0.1) | NA | - | 780000 | 260000 | 50.0 | 33.4 | 16.7 |
| Anthracene | 1800000 | RSL Resident Soil (THQ 0.1) | 57.0 | EPA Region 4 | 57.0 | 19 | 16.7 | 6.66 | 3.33 |
| Atrazine | 2400 | RSL Resident Soil (Risk 10-6) | 0.3 | EPA Region 4 | 0.3 | 167 | 167 | 133 | 66.7 |
| Benzaldehyde | 170000 | RSL Resident Soil (Risk 10-6) | 59 | EPA Region 4 | 59 | 167 | 167 | 66.7 | 33.3 |
| Benzo[a]anthracene | 1100 | RSL Resident Soil (Risk 10-6) | 108 | EPA Region 4 | 108 | 36 | 16.7 | 13.3 | 3.33 |
| Benzo[a]pyrene | 110 | RSL Resident Soil (Risk 10-6) | 150 | EPA Region 4 | 110 | 37 | 16.7 | 6.66 | 3.33 |
| Benzo[b]fluoranthene | 1100 | RSL Resident Soil (Risk 10-6) | 190 | EPA Region 4 | 190 | 63.0 | 16.7 | 6.66 | 3.33 |
| Benzo[g,h,i]perylene | 180000 | RSL for pyrene | 170 | EPA Region 4 | 170 | 57.0 | 16.7 | 6.66 | 3.33 |
| Benzo[k]fluoranthene | 11000 | RSL Resident Soil (Risk 10-6) | 240 | EPA Region 4 | 240 | 80 | 16.7 | 6.66 | 3.33 |
| Bis(2-chloroethoxy) methane | 19000 | RSL Resident Soil (THQ 0.1) | NA | NA | 19000 | 6300 | 36.7 | 33.4 | 16.7 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Sediment Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Bis(2-chloroethyl)ether | 230 | RSL Resident Soil (Risk 10-6) | 8163 | EPA Region 4 | 230 | 77 | 36.7 | 33.4 | 16.7 |
| Bis(2-ethylhexyl) phthalate | 39000 | RSL Resident Soil (Risk 10-6) | 180 | EPA Region 4 | 180 | 167 | 167 | 133 | 66.7 |
| Butyl benzyl phthalate | 290000 | RSL Resident Soil (Risk 10-6) | 100 | EPA Region 4 | 100 | 167 | 167 | 133 | 66.7 |
| Caprolactam | 3100000 | RSL Resident Soil (THQ 0.1) | NA | - | 3100000 | 1000000 | 167 | 66.7 | 33.3 |
| Carbazole | 240000 | RSL for fluorene | 69 | EPA Region 4 | 69 | 36.7 | 36.7 | 33.4 | 16.7 |
| Chrysene | 110000 | RSL Resident Soil (Risk 10-6) | 166 | EPA Region 4 | 166 | 65.3 | 16.7 | 6.66 | 3.33 |
| Dibenz(a,h)anthracene | 110 | RSL Resident Soil (Risk 10-6) | 33.0 | EPA Region 4 | 33.0 | 16.7 | 16.7 | 13.3 | 6.67 |
| Dibenzofuran | 7800 | RSL Resident Soil (THQ 0.1) | 510 | EPA Region 4 | 510 | 170 | 36.7 | 33.4 | 16.7 |
| Diethyl phthalate | 5100000 | RSL Resident Soil (THQ 0.1) | 630 | EPA Region 4 | 630 | 210 | 167 | 133 | 66.7 |
| Dimethyl phthalate | NA | - | 678 | EPA Region 4 | 678 | 230 | 167 | 133 | 66.7 |
| Di-n-butyl phthalate | 630000 | RSL Resident Soil (THQ 0.1) | 11 | EPA Region 4 | 11 | 167 | 167 | 133 | 66.7 |
| Di-n-octyl phthalate | 63000 | RSL Resident Soil (THQ 0.1) | 39 | EPA Region 4 | 39 | 167 | 167 | 133 | 66.7 |
| Fluoranthene | 240000 | RSL Resident Soil (THQ 0.1) | 423 | EPA Region 4 | 423 | 141 | 16.7 | 6.66 | 3.33 |
| Fluorene | 240000 | RSL Resident Soil (THQ 0.1) | 77.0 | EPA Region 4 | 77.0 | 25.7 | 16.7 | 6.66 | 3.33 |
| Hexachlorobenzene | 78 | RSL Resident Soil (THQ 0.1) | 20 | EPA Region 4 | 20 | 33.3 | 33.3 | 33 | 16.7 |
| Hexachlorobutadiene | 1200 | RSL Resident Soil (Risk 10-6) | 26.5 | EPA Region 5 RCRA ESLs | 26.5 | 50.0 | 50.0 | 40.0 | 20.0 |
| Hexachlorocyclopentadiene | 180 | RSL Resident Soil (THQ 0.1) | 6.5 | EPA Region 4 | 6.5 | 500 | 500 | 334 | 167 |
| Hexachloroethane | 1800 | RSL Resident Soil (Risk 10-6) | 27 | EPA Region 4 | 27 | 167 | 167 | 66.7 | 33.3 |
| Indeno[1,2,3-cd]pyrene | 1100 | RSL Resident Soil (Risk 10-6) | 200 | EPA Region 4 | 200 | 66.7 | 16.7 | 8.00 | 4.00 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Sediment Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Isophorone | 570000 | RSL Resident Soil (Risk 10-6) | 876 | EPA Region 4 | 432 | 144 | 66.7 | 33.4 | 16.7 |
| Naphthalene | 2000 | RSL Resident Soil (Risk 10-6) | 176 | EPA Region 4 | 176 | 58.7 | 16.7 | 13.3 | 6.67 |
| Nitrobenzene | 5100 | RSL Resident Soil (Risk 10-6) | 407 | EPA Region | 407 | 140 | 36.7 | 33.4 | 16.7 |
| N-Nitrosodi-n-propylamine | 78 | RSL Resident Soil (Risk 10-6) | NA | | 78 | 66.7 | 66.7 | 50.0 | 33.3 |
| N-Nitrosodiphenylamine | 110000 | RSL Resident Soil (Risk 10-6) | 110 | EPA Region 4 | 110 | 36.7 | 36.7 | 33.4 | 16.7 |
| Pentachlorophenol | 1000 | RSL Resident Soil (Risk 10-6) | 10 | EPA Region 4 | 10 | 167 | 167 | 133 | 66.7 |
| Phenanthrene | 1800000 | RSL for anthracene | 204 | EPA Region 4 | 204 | 68.0 | 16.7 | 8.00 | 4.00 |
| Phenol | 1900000 | RSL Resident Soil (THQ 0.1) | 175 | EPA Region | 175 | 58 | 36.7 | 33.4 | 16.7 |
| Pyrene | 180000 | RSL Resident Soil (THQ 0.1) | 195 | EPA Region 4 | 195 | 65.0 | 16.7 | 6.66 | 3.33 |

Notes:
(a) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
(b) References include: EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Sediment Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf); EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf); LANL Los Alamos National Laboratories (LANL)/Intellus (2024)I. ECORISK Database (Release 4.4), (https://intellusnm/documents/documents.cfm).
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet 1/3 PAL.
Project Quantitation Goal shaded in purple is 5x the LOQ since there is no associated PAL.
Acronyms:
µg/Kg = microgram per kilogram
2,4-DNT = 2,4-dinitrotoluene
DL = detection limit
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
NA = Not Applicable
PAL = project action limit
THQ = target hazard quotient

## Worksheet #15-5c – Sediment/Hydric Soils – 2,4-dinitrophenol and 2,4-dinitrochlorobenzene

Matrix: Hydric Soils
Analytical Group: Semivolatile Organic Compounds (GC/MS) (SW8270-GC/MS)
Units: µg/Kg

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Sediment Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| 2,4-Dinitrophenol (2,4-DNP) | NA | - | 223 | EPA Region 4 | 223 | 1000 | 1000 | 840 | 420 |
| 1-chloro-2,4-dinitrobenzene (2,4-DNCB) | 1700 | RSL for 2,4-DNT | 290 | Derived – See Attachment C.1 | TBD | TBD | TBD | TBD | TBD |

Notes:
*Eurofins Lancaster is currently (August 2025) adding 2,4-DNCB as a target compound. A change page reflecting their lab limits, along with eQAPP updates will be made as soon as possible (currently anticipating September 2025).
(a) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
(b) References include: EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Sediment Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf); EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf); LANL Los Alamos National Laboratories (LANL)/Intellus (2024)I. ECORISK Database (Release 4.4), (https://intellusnm/documents/documents.cfm).
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet 1/3 PAL.
Acronyms:
µg/Kg = microgram per kilogram
2,4-DNT = 2,4-dinitrotoluene
DL = detection limit
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
NA = Not Applicable
PAL = project action limit
TBD = to be determined.
THQ = target hazard quotient

## Worksheet #15-5d – PAHs Sediment/Hydric Soils

Matrix: Sediment
Analytical Group: PAHs 8270E SIM (SW8270E)
Units: µg/Kg

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Sediment Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | 18 | RSL Resident Soil (Risk 10-6) | 141 | EPA Region 4 | 18 | 6.0 | 1.67 | 1.33 | 0.667 |
| 2-Methylnaphthalene | 24000 | RSL Resident Soil (THQ 0.1) | 20.2 | EPA Region 4 | 20.2 | 6.3 | 3.33 | 2.67 | 1.33 |
| Acenaphthene | 360000 | RSL Resident Soil (THQ 0.1) | 6.7 | EPA Region 4 | 6.7 | 2.2 | 1.67 | 1.33 | 0.67 |
| Acenaphthylene | 360000 | RSL for acenaphthene | 5.9 | EPA Region 4 | 5.9 | 2.0 | 1.67 | 1.33 | 0.33 |
| Anthracene | 1800000 | RSL Resident Soil (THQ 0.1) | 57 | EPA Region 4 | 57 | 19 | 1.67 | 1.33 | 0.67 |
| Benzo[a]anthracene | 1100 | RSL Resident Soil (Risk 10-6) | 108 | EPA Region 4 | 108 | 36 | 1.67 | 1.33 | 0.67 |
| Benzo[a]pyrene | 110 | RSL Resident Soil (Risk 10-6) | 150 | EPA Region 4 | 110 | 37 | 1.67 | 1.33 | 0.67 |
| Benzo[b]fluoranthene | 1100 | RSL Resident Soil (Risk 10-6) | 190 | EPA Region 4 | 190 | 63 | 1.67 | 1.33 | 0.67 |
| Benzo[g,h,i]perylene | 180000 | RSL for pyrene | 170 | EPA Region 4 | 170 | 57 | 1.67 | 1.33 | 0.67 |
| Benzo[k]fluoranthene | 11000 | RSL Resident Soil (Risk 10-6) | 240 | EPA Region 4 | 240 | 80 | 1.67 | 1.33 | 0.67 |
| Chrysene | 110000 | RSL Resident Soil (Risk 10-6) | 166 | EPA Region 4 | 166 | 55 | 1.67 | 1.33 | 0.33 |
| Dibenz(a,h)anthracene | 110 | RSL Resident Soil (Risk 10-6) | 33 | EPA Region 4 | 33 | 11 | 1.67 | 1.33 | 0.67 |
| Fluoranthene | 240000 | RSL Resident Soil (THQ 0.1) | 423 | EPA Region 4 | 423 | 140 | 1.67 | 1.33 | 0.67 |
| Fluorene | 240000 | RSL Resident Soil (THQ 0.1) | 77 | EPA Region 4 | 77 | 26 | 1.67 | 1.33 | 0.67 |
| Indeno[1,2,3-cd]pyrene | 1100 | RSL Resident Soil (Risk 10-6) | 200 | EPA Region 4 | 200 | 67 | 1.67 | 1.33 | 0.67 |
| Naphthalene | 2000 | RSL Resident Soil (Risk 10-6) | 176 | EPA Region 4 | 176 | 59 | 3.33 | 2.67 | 1.33 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Sediment Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Phenanthrene | 1800000 | RSL for antracene | 204 | EPA Region 4 | 204 | 68 | 2.33 | 2 | 1 |
| Pyrene | 180000 | RSL Resident Soil (THQ 0.1) | 195 | EPA Region 4 | 195 | 65 | 1.67 | 1.33 | 0.67 |

Notes:
(a) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
(b) References include: EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Soil Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf).
(c) PALs have been selected as the lower of the human health risk-based value and ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet 1/3 PAL.
Acronyms:
µg/Kg = microgram per kilogram
DL = detection limit
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
NA = Not Applicable
PAL = project action limit
THQ = target hazard quotient

## Worksheet #15-5e – PCBs Sediment/Hydric Soils

Matrix: Sediment / Hydric Soils
Analytical Group: Polychlorinated Biphenyls (PCBs) by Gas Chromatography (SW8082)
Units: µg/Kg

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Sediment Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1016 | 410 | RSL Resident Soil (THQ 0.1) | 59 | LANL | 59 | 20 | 17 | 11 | 5.3 |
| PCB-1221 | 200 | RSL Resident Soil (Risk 10-6) | NA | NA | 200 | 67 | 17 | 11 | 5.3 |
| PCB-1232 | 170 | RSL Resident Soil (Risk 10-6) | NA | NA | 170 | 67 | 17 | 11 | 5.3 |
| PCB-1242 | 230 | RSL Resident Soil (Risk 10-6) | 59 | LANL | 59 | 18 | 17 | 11 | 5.3 |
| PCB-1248 | 230 | RSL Resident Soil (Risk 10-6) | 8.1 | LANL | 8.1 | 17 | 17 | 11 | 5.3 |
| PCB-1254 | 120 | RSL Resident Soil (THQ 0.1) | 53 | LANL | 53 | 18 | 17 | 11 | 6.4 |
| PCB-1260 | 240 | RSL Resident Soil (Risk 10-6) | 59 | LANL | 59 | 20 | 17 | 11 | 6.4 |
| PCB-1262 | NA | - | NA | NA | - | 85 | 17 | 11 | 6.4 |
| PCB-1268 | NA | - | NA | NA | - | 85 | 17 | 11 | 6.4 |

Notes:
(a) Reference:EPA, 2024. Regional Screening Levels (RSLs). November.
(b) Reference: Los Alamos National Laboratories (LANL)/Intellus (2024)I. ECORISK Database (Release 4.4), (https://intellusnm/documents/documents.cfm).
(c) PALs have been selected as the lowest of the human health risk-based value and ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet 1/3 PAL.
Project Quantitation Goal shaded in purple is 5x the LOQ since there is no associated PAL.
Acronyms:
µg/Kg = microgram per kilogram
DL = detection limit
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
NA = Not Applicable
PAL = project action limit
THQ – target hazard quotient

## Worksheet #15-5f – Picric acid Sediment/ Hydric Soils

Matrix: Sediment/Hydric Soils
Analytical Group: Nitroaromatics and Nitramines (HPLC)-SW8330D
Units: mg/Kg

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Sediment Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Picric acid | 13 | RSL Resident Soil (THQ 0.1) | 22.3 | Derived - See Attachment C.1 | 13 | 4.3 | 0.20 | 0.075 | 0.05 |

Notes:
(a) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
(b) PALs have been selected as the lowest of the human health risk-based value and ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet 1/3 PAL.
Acronyms:
DL = detection limit
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
mg/Kg = milligram per kilogram
PAL = project action limit
THQ = target hazard quotient

## Worksheet #15-5g – Metals Sediment/Hydric Soils

Matrix: Sediment / Hydric Soils
Analytical Group: Metals (ICP/MS) SW6020B
Units: mg/Kg

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Sediment Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 7700 | RSL Resident Soil (THQ 0.1) | 25000 | EPA Region 4 | 7700 | 2600 | 10 | 9.9 | 4.95 |
| Antimony | 3.1 | RSL Resident Soil (THQ 0.1) | 2 | EPA Region 4 | 2 | 0.67 | 0.10 | 0.08 | 0.04 |
| Arsenic | 0.68 | RSL Resident Soil (Risk 10-6) | 9.8 | EPA Region 4 | 0.68 | 0.23 | 0.20 | 0.16 | 0.067 |
| Barium | 1500 | RSL Resident Soil (THQ 0.1) | 20 | EPA Region 4 | 20 | 6.7 | 0.20 | 0.184 | 0.092 |
| Beryllium | 16 | RSL Resident Soil (THQ 0.1) | 66 | LANL | 16 | 5.3 | 0.05 | 0.025 | 0.012 |
| Cadmium | 0.71 | RSL Resident Soil (THQ 0.1) | 1 | EPA Region 4 | 0.71 | 0.24 | 0.05 | 0.04 | 0.02 |
| Calcium | EN | - | NA | NA | NA | 100 | 20 | 19.6 | 9.8 |
| Chromium | 8500 | RSL Resident Soil (THQ 0.1) | 43.4 | EPA Region 4 | 43.4 | 14 | 0.20 | 0.19 | 0.095 |
| Cobalt | 2.3 | RSL Resident Soil (THQ 0.1) | 50 | EPA Region 4 | 2.3 | 0.77 | 0.10 | 0.08 | 0.04 |
| Copper | 310 | RSL Resident Soil (THQ 0.1) | 31.6 | EPA Region 4 | 31.6 | 11 | 0.20 | 0.18 | 0.09 |
| Iron | 5500 | RSL Resident Soil (THQ 0.1) | 20000 | EPA Region 4 | 5500 | 1800 | 10 | 9.2 | 4.6 |
| Lead | 200 | USEPA, 2024 | 35.8 | EPA Region 4 | 35.8 | 12 | 0.1 | 0.08 | 0.038 |
| Magnesium | EN | - | NA | NA | NA | 25 | 5 | 4.9 | 2.45 |
| Manganese | 180 | RSL Resident Soil (THQ 0.1) | 460 | EPA Region 4 | 180 | 60 | 0.25 | 0.20 | 0.10 |
| Nickel | 140 | RSL Resident Soil (THQ 0.1) | 22.7 | EPA Region 4 | 22.7 | 7.6 | 0.20 | 0.19 | 0.095 |
| Potassium | EN | - | NA | NA | NA | 100 | 20 | 16 | 8 |

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Sediment Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Selenium | 39 | RSL Resident Soil (THQ 0.1) | NA | | 39 | 13 | 0.20 | 0.10 | 0.05 |
| Silver | 39 | RSL Resident Soil (THQ 0.1) | 1 | EPA Region 4 | 1 | 0.33 | 0.05 | 0.04 | 0.02 |
| Sodium | EN | - | NA | NA | NA | 125 | 25 | 24 | 12 |
| Thallium | 0.078 | RSL Resident Soil (THQ 0.1) | 0.73 | LANL | 0.078 | 0.05 | 0.05 | 0.04 | 0.02 |
| Vanadium | 39 | RSL Resident Soil (THQ 0.1) | 0.012 | EPA Region 5 RCRA ESLs | 0.012 | 0.4 | 0.4 | 0.2 | 0.1 |
| Zinc | 2300 | RSL Resident Soil (THQ 0.1) | 121 | EPA Region 4 | 121 | 40 | 15 | 4 | 2 |

Notes:

(a) References include: EPA, 2024. Regional Screening Levels (RSLs). November. EPA, 2024. Updated Residential Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. Memorandum from Barry N. Breen to Regional Administrators, Regions 1-10. Office of Land and Emergency Management. January 17.

(b) References include: EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Sediment Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf); EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf); Los Alamos National Laboratories (LANL)/Intellus (2024)I. ECORISK Database (Release 4.4), (https://intellusnm/documents/documents.cfm); EPA Ecological Soil Screening Levels (EcoSSLs; various dates) (https://www.epa.gov/chemical-research/interim-ecological-soil-screening-level-documents)

(c) PALs have been selected as the lowest of the human health risk-based value and ecological benchmark.

(d) Aluminum is identified as a COPC only for those soils with a pH less than 5.5. The technical basis for this procedure is that the soluble and toxic forms of aluminum are only present in soil under soil pH values of less than 5.5. Site-specific considerations could, however warrant inclusion of aluminum as a COPC.

(e) The main concern from an ecological risk perspective for iron is not direct chemical toxicity per se, but the effect of iron as a mediator in the geochemistry of other (potentially toxic) metals and the potential physical hazard of depositing flocculent. Soil pH and Eh should be included as standard soil chemical field parameters when conducting any field investigation. Although some EPA analytical methods require the collection of soil pH prior to analysis, this information is not always made available to the ultimate data users. In addition, the pH measured in the lab may no longer be representative of field conditions since the samples can be exposed to oxygen during storage prior to analysis. A determination of the geochemical conditions (i.e., pH and Eh at a minimum) of the environmental setting, as well as the presence of iron floc and the toxic metals, is critical to the determination of the relative importance of iron at a site.

LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet 1/3 PAL.
Project Quantitation Goal shaded in purple is 5x the LOQ since there is no associated PAL.
Acronyms:
DL = detection limit
EN= Essential Nutrient
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
mg/Kg = milligram per kilogram
NA = Not Applicable
PAL = project action limit
THQ = target hazard quotient

## Worksheet #15-5h – Mercury Sediment / Hydric Soils

Matrix: Sediment / Hydric Soils
Analytical Group: Mercury (CVAA) SW7471B
Units: mg/Kg

| Analyte | Human Health Risk-based Value | Human Health Reference [a] | Ecological Sediment Benchmark | Ecological Reference [b] | PAL [c] | Project Quantitation Goal | LOQ | LOD | DL |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 1.1 | RSL Resident Soil (THQ 0.1) | 0.17 | EPA Region 4 | 0.17 | 0.06 | 0.06 | 0.04 | 0.02 |

Notes:
(a) References include: EPA, 2024. Regional Screening Levels (RSLs). November.
(b) References include: EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) = Sediment Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf)
(c) PALs have been selected as the lowest of the human health risk-based value and ecological benchmark.
LOQs, LODs, DLs are derived by the laboratories, are current as of when the information was requested for the UFP-QAPP.
LOQ, LOD, and DL are highlighted yellow if the value does not meet the PQG.
Acronyms:
EPA = Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
mg/Kg = milligram per kilogram
PAL = project action limit
THQ = target hazard quotient

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# Worksheet #17 – Sampling Design and Rationale

Field investigation activities planned for this project are described in this worksheet. Field tasks will be conducted in accordance with this UFP-QAPP and in general accordance with the SOPs provided in **Appendix D**. Field data forms are also provided in **Appendix D**.

The number of proposed samples and the analytical parameters planned for each environmental medium by AOC are presented in Worksheet #18. All samples will be assigned a unique sample identifier (alpha-numeric code). The purpose of the numbering system is to assist in the tracking of samples and to facilitate retrieval of analytical results. The sampling numbers will be used on the sample labels, sample tracking forms, COC forms, field logs, and all other applicable documentation. Refer to Worksheet #18.

Field and laboratory quality control (QC) samples will be collected during each sampling investigation task described below in Worksheet #17. The analyses and frequency are prescribed in Worksheet #20, where applicable. Note, ERBs will not be required during soil sampling unless VOCs are being analyzed (i.e., AOC 3). ERBs are not required for solid sample analyses other than VOCs because it may not be appropriate to make a direct quantitative comparison for aqueous field blanks (such as equipment blanks reported as micrograms per milliliter) to a solid parent sample (such as a soil sample reported as mg/kg) (EPA, 2006; DoD, 2019). ERBs will not be collected during groundwater, surface water, or porewater sampling since new disposable equipment will be used. If non-dedicated equipment is used, then ERBs will be collected and analyzed for the same parameters being sampled at a particular site. Details regarding the types of information collected by each technology are described in Worksheets #14 and #16.

The results of the Phase 1 RI, along with potential data gaps were identified in the *Phase 1 Risk Screening and Data Gaps Analysis Report* (refer to **Appendix A**). In summary, additional investigations into the nature and extent, investigations into potential impacts to additional media (i.e., surface water, porewater, and sediment), and site-hydrogeological conditions (e.g., groundwater flow, hydraulic gradients) are needed to complete the RI phase.

Therefore, the project DQOs described within this UFP-QAPP include:

- Fully delineate the nature and extent of COPCs in soil, groundwater, surface water, porewater, and sediment.
- Update the CSM, including contaminant migration pathways, fate and transport, geologic and hydrogeologic site conditions, and exposure pathways.
- Define and establish background concentrations for the appropriate media (e.g., soil, groundwater, surface water, porewater, and sediment)
- Conduct a quantitative baseline HHRA and a SLERA, which will also incorporate site-specific data and refinements in RLSERA.

A spatially balanced random stratified sampling design method, Generalized Random Tessellation Stratified (GRTS), was applied to generate an updated set of sampling locations for proposed Phase 2 soil borings and select monitoring wells for portions of AOC 1 and AOC 3 and each of the DUs in AOCs 4 and 5 (Stevens and Olsen 2004). The GRTS program generates an unbiased sampling design for a given sample size and avoids inadvertent bias from field selection of alternative locations.

Proposed sampling locations using this balanced random stratified sampling design method were generated with consideration of the historical sample locations from Phase 1 (soil borings and temporary monitoring wells) and proposed Phase 2 monitoring wells locations where soil boring data will be collected within a given DU or portion of an AOC. Data from these historical locations will be analyzed together with the data from newly proposed sample locations to create a spatially balanced dataset for evaluation in the initial risk assessment screening process. Based on the sampling area and density for a given DU or portion of an AOC, each sampling design incorporated an edge buffer zone and a minimum distance between sampling locations to ensure adequate coverage and avoid potential “clumping” of locations. **Exhibit 11-1** provides details on the Phase 1 locations that were considered in the sampling designs.

Sampling designs by AOC are detailed below. Often times the specific rationale for sample collection, analyses, and data validation are consistent among AOCs and are therefore summarized here so that there is clarity and there is no debate about why and how sampling will be conducted:

- Soil sampling collection at all AOCs will include samples being collected from a combination of, or all, of the following sample intervals; 0-1, 1-5 and 5-10 ft bgs. The surface soil sample interval (0-1 ft bgs) is consistent with historical soil sampling and is a commonly encountered depth(s) for human and ecological exposures. The subsurface soil intervals (1-5 ft bgs) is also consistent with historical soil sampling, can be used to assess vertical migration of contaminants, and is a commonly encountered depth(s) for human and ecological exposures associated with digging or excavation for installation or repair of utility lines and burrowing animals. The 5-10 ft interval also is consistent with historical soil sampling, can be used to assess vertical migration of contaminants, and is useful for assessing future exposures where soil from the surface down to 10 ft bgs could be excavated, mixed, and used to regrade the Site such that exposure to COPCs that were present between surface and 10 ft bgs have now been placed at the surface.
- Wetland area samples, or hydric soils, have only been proposed to be collected from 0-1 ft bgs. As these wetland areas could represent groundwater seeps, and/or represent surface water runoff pathways, the depth of contamination is assumed to be at the shallow interval. The surface soil sample interval (0-1 ft bgs) is a commonly encountered depth(s) for human and ecological exposures that will be evaluated in the risk assessments.
- Supporting analyses for hardness, DOC (field-filtered), TSS, grain size, CEC, TOC and pH will be used to help determine appropriate background locations and/or bioavailability.
- A more sensitive PAHs analysis (i.e., 8270D-SIM) is needed because PALs cannot be met with typical SVOC analysis without the use of selective ion monitoring.

Proposed locations are shown on **Figure 17-1** through **Figure 17-7** and are subject to change based on site safety issues (i.e., presence of high angle slopes). **Exhibit 17-1** summarizes the number of borings per AOC, soil sampling intervals, estimated depth to the water table, sample collection method, and drilling method. Locations are subject to change based on terrain, utilities, along with general site access.

**Exhibit 17-1 – AOC Soil Sampling Summary**

| AOC | Number of Borings | Discrete Sample Depths (ft bgs) | Estimated Depth to Water Table (ft bgs) | Sample Collection Method | Drill Rig Type |
|---|---|---|---|---|---|
| 1 | 22 | 0-1; 1-5; 5-10 | 0.8–9.0 | 3-inch diameter macrocore | DPT/manual percussion |
| | 12 | 0-1 | | Hand auger | N/A |
| 3 | 17 | 0-1; 1-5; 5-10 | 1.5–10 | 3-inch diameter macrocore | DPT/manual percussion |
| 4 | 60 | 0-1 | 0.5–5 | Hand auger | N/A |
| 5 | 32 | 0-1; 1-5; 5-10 | 1.7–25 | 3-inch diameter macrocore | DPT/manual percussion |
| | 3 | 0-1 | | Hand auger | N/A |
| Background | 8 | 0-1 | 4–12 | Hand Auger | N/A |

## 17.1 AOC 1

The purpose of conducting further soil and groundwater sampling at AOC 1 is to address data gaps that were identified within the *Phase 1 Risk Screening and Data Gaps* Analysis (refer to **Appendix A**). These data gaps include:

1. Evaluation of Potential Source Areas and/or Areas of Higher Concentrations – Due to inaccessibility issues with high-angled slopes, difficult terrain, and thick vegetation, subsurface soil sampling along with groundwater sampling for DoD-related constituents' picric acid, 2,4-DNP, 2,4-DNCB, and to a lesser extent TAL metals/mercury, were not adequately delineated vertically. Therefore, these potential areas of release will need to be adequately characterized (i.e., sampling subsurface soil and groundwater for these DoD-related constituents) to make the determination of whether they are source areas.
2. Groundwater data not collected from permanent wells – Grab groundwater samples were collected from temporary groundwater monitoring wells that were not developed prior to sampling. Temporary wells can result in concentrations both above and below the corresponding data from a permanent monitoring well; therefore, the groundwater data may not be representative of groundwater conditions. The effect of the well installation technique on the reported groundwater concentrations cannot be assessed during data validation. Additionally, temporary wells provide only limited hydrogeologic information; therefore, they are not sufficient to evaluate hydrogeologic conditions and aquifer characteristics. Lastly, the HHRA requires the use of total, not dissolved metals concentrations. Therefore, the installation of permanent monitoring wells along with well development are needed to produce higher quality groundwater data.
3. Wetland Areas were not investigated – In order to avoid impacts to sensitive habitats, the wetlands located in between the APBs and Dryer Houses were not investigated. These wetland areas could represent groundwater seeps, and/or represent surface water runoff pathways. These areas could thus have the potential to be impacted by potential contamination emanating from the APB(s). Therefore, these wetland areas need to be characterized for potential ecological impacts to help characterize the fate and transport, as well as nature and extent, of contamination potentially emanating from the APBs.

In order to fulfill data gaps #1 and #2, biased surface and subsurface soil sampling at up to 22 soil boring locations, along with groundwater sampling at ten (10) newly installed permanent monitoring wells will be performed at AOC 1. Of the 22 locations, 18 soil borings (up to three per APB) will be installed in the vicinity of suspected contaminated areas (i.e., the APB(s). The remaining four permanent monitoring wells will be installed at the base of the drumlin near the dryer houses. The four (4) wells will be evenly spaced at dryer house locations to provide evaluation of groundwater contamination across the base of the drumlin (e.g. not placing downgradient wells in just the southern portion of AOC 1).

Upon completion of the soil borings, up to ten (10) permanent monitoring wells will be installed. Of the ten (10) locations six (6) co-located permanent monitoring wells will be installed at the base of the APBs (i.e., top of the drumlin). These well locations are considered bias as they are specifically targeting a source area. The remaining four (4) permanent monitoring wells will be installed at the base of the drumlin near the dryer houses. The four (4) wells will be evenly spaced at dryer house locations to provide evaluation of groundwater contamination across the base of the drumlin (e.g. not placing downgradient wells in just the southern portion of AOC 1). These well locations are considered bias as they are placed downgradient of a suspected source area(s). At drilling locations where vegetation removal is required for access, tree clearing will be kept to a minimum and trees having a breast height of 3 inches or greater shall not be cut unless approved by USACE. Furthermore, trees with shaggy or exfoliating bark will not be removed as these may provide bat habitat. In order to further minimize any impacts to sensitive species, tree clearing activities should be avoided during the 1-April to 31-October timeframe (e.g., bat active season), and 1-June to 31 July (in forested areas) to avoid pup-brooding season.

Following installation, the monitoring wells will be developed using pump and surge techniques. Following well development, a synoptic gauging event to include all newly installed monitoring well locations along with pre-existing well locations will occur prior to collecting groundwater samples. During low flow sampling, hydraulic conductivity estimates will be extracted from all 10 newly installed monitoring wells. This is a one time event.

In order to fulfill data gap #3, unbiased surface soil (saturated [i.e., hydric]) sampling (0-1 ft bgs) sampling using a hand auger will occur at 12 locations in the wetlands located in between the APBs and dryer houses.

The locations were statistically generated using GRTS. In the event a location is not saturated or representative of hydric soils, the location will be adjusted in the field accordingly. The use of heavy machinery for sample collection is not anticipated in wetland areas. However, in the event it is required, mitigative steps such as working during colder months, or the placement of construction mats will be utilized. Additionally, any heavy machinery will be decontaminated between AOCs to prevent the spread of contamination and invasive species.

A summary of the Phase 2 RI sampling rationale for AOC 1 is provided in **Exhibit 17-2**. With the exception of soil sampling, synoptic gauging and groundwater sampling events, will occur semi-annually for 1-year in order to evaluate seasonal variability in groundwater flow/magnitude and concentrations, respectively.

The following field activities will be conducted in support of the AOC 1 Field Investigation (refer to Worksheets #14 and #16 for additional details):

- Field Staking.
- Utility Clearance
- Soil sampling at 22 locations at three (3) depth intervals (0-1 ft bgs; 1-5 ft bgs; and 5-10 ft bgs).
- Soil sampling at 12 hydric locations at one (1) depth interval (0-1 ft bgs).
- Installation and well development of up to ten (10) permanent monitoring well locations.
- Synoptic water levels (manual) – semi-annually x 1 year
- Groundwater sampling of up to ten (10) permanent monitoring well locations – semi-annual x 1 year.
- Hydraulic conductivity testing (once).
- GPS Survey of sampling locations.
- Professional Well Survey.

**Exhibit 17-2 – AOC 1 Soil and Groundwater Sampling Rationale Summary**

| Sample Location | Discrete Sample Depth (ft bgs) | Sampling Rationale |
|---|---|---|
| **Soil** | | |
| NYOW-01-40 through -057 | 0-1; 1-5; 5-10 | Locations will be placed in the vicinity of the former APBs in order to investigate/characterize source. |
| NYOW-01-058 through -061 | 0-1; 1-5; 5-10 | Locations will be evenly spaced along a transect parallel to the former dryer houses to investigate concentrations potentially emanating from a source (i.e., former dry houses). |
| NYOW-01-062 through -073 | 0-1 | Advanced in the wetlands to evaluate potential contaminant migration pathways and ecological concerns. Soils are to be saturated/wet (i.e., hydric). |
| **Groundwater** | | |
| NYOW-01-MW01 through -MW06 | TBD | Locations will be placed within/adjacent to APBs to investigate/characterize groundwater concentrations in a potential source area. |
| NYOW-01-MW07 through 10 | TBD | Locations will be evenly spaced along a transect parallel to the former dryer houses to investigate downgradient groundwater concentrations emanating from potential source areas (i.e., APBs, former dryer houses). |

### 17.1.1 Environmental Media (Soil) Sampling

Sample locations will follow the nonmenclature that was used during the Phase 1 RI sampling (USACE, 2023a) and in accordance with FUDSChem database requirements. The last soil sample location that was conducted during the Phase 1 RI was NYOW-01-039. Therefore, the next sample location will be NYOW-01-040.

As shown on **Figure 17-1**, locations NYOW-01-040 through NYOW-01-057 will be placed in the vicinity of the former APBs in order to evaluate these potential source(s) area(s). Locations NYOW-01-058 through NYOW-01-061, will be evenly spaced along a transect parallel to the former dryer houses in order to investigate concentrations potentially emanating from a source (i.e., former dry houses).

Up to three (3) soil samples will be collected from boring locations NYOW-01-040 through NYOW-01-061, at the designated intervals described below:

- Sample Depth A – 0 to 1 ft bgs.
- Sample Depth B – 1 to 5 ft bgs.
- Sample Depth C – 5-10 ft bgs.

At locations NYOW-01-062 through NYOW-01-073, hand augering will be utilized to advance 12 borings within the wetlands (refer to **Figure 17-1**). One (1) soil (saturated/wet [i.e., hydric]) sample will be collected from the "Sample Depth A – 0 to 1 ft bgs" interval.

Samples will be collected following the procedures identified in Worksheets #14/16. During this soil sampling event, up to 78 parent samples are expected to be collected and analyzed for:

- 2,4-DNCB, 2,4-DNP, picric acid, and TAL metals with mercury.

At five (5) soil borings located at the base of the APBs (NYOW-01-041, NYOW-01-044, NYOW-01-047, NYOW-01-050, and NYOW-01-53) geotechnical/geochemical parameters (grain size, CEC, TOC, and pH) will also be collected at the three sampling intervals (i.e., 0-1, 1-5, and 5-10 ft bgs). These samples are needed in order to document the potential differences in geologic units located within the source area, as well as evaluate bioavailability potential.

At four (4) hydric soil locations (NYOW-01-63, NYOW-01-067, NYOW-01-070, and NYOW-01-073) geotechnical/geochemical parameters (grain size, CEC, TOC, and pH) will also be collected to evaluate the Psc unit.

A separate borehole(s) may be needed in order to fulfill sample volume requirements. If needed, the borehole(s) will be placed as close as possible to the original.

### 17.1.2 Environmental Media (Groundwater) Sampling

Groundwater samples will be collected semi-annually for up to 1-year at all newly installed permanent monitoring well locations (NYOW01-MW01 through NYOW-01-MW10) in order to evaluate seasonality. During each sampling event, up to ten (10) parent samples will be analyzed for 2,4-DNCB, 2,4-DNP, picric acid, total and dissolved (field-filtered) TAL metals/mercury, and geochemical parameters (DOC [field-filtered] and hardness).

### 17.1.3 Synoptic Groundwater Events

Uncertainty exists regarding groundwater flow directions and contaminant migration pathways, and hydraulic gradients. As summarized in **Exhibit 17-3**, groundwater levels will be measured in all of the ten (10) (if installed) AOC 1 newly installed monitoring wells, the three (3) newly installed proposed background wells (refer to Section 17.5), along with 20 pre-existing well locations. The synoptic water levels will be taken using a water level meter. Depth to water, total depth, along with well condition will be recorded on the appropriate form (refer to **Appendix D**). Water level frequency will be collected semi-annually prior to groundwater sampling in order to evaluate seasonal variability in AOC groundwater flow directions/magnitude. Locations are summarized below and displayed on **Figure 17-1**. Note, if a permanent

monitoring well will be installed in the vicinity of a temporary well, then that temporary monitoring well will be abandoned and will not be included in the synoptic water level event(s).

**Exhibit 17-3 – AOC 1 Synoptic Water Level Summary**

| AOC | Existing Well ID | | Proposed New Well | | Frequency |
|---|---|---|---|---|---|
| 1 | NYOW-01-001 | B-6 | NYOW-01-MW01 | NYOW-01-MW07 | Semi-Annual X 1 year |
| 1 | NYOW-01-005 | B-7 | NYOW-01-MW02 | NYOW-01-MW08 | |
| 1 | NYOW-01-006 A & B | MW-5 | NYOW-01-MW03 | NYOW-01-MW09 | |
| 1 | NYOW-01-018 | MW-6 | NYOW-01-MW04 | NYOW-01-MW10 | |
| 1 | NYOW-01-019 | MW-7 | NYOW-01-MW05 | - | |
| 1 | NYOW-01-021 | D&M-1 | NYOW-01-MW06 | - | |
| 1 | NYOW-01-022 | D&M-7 | - | - | |
| 1 | NYOW-01-023 | D&M-13 | - | - | |
| 1 | NYOW-01-024 | - | - | - | |
| 1 | B-5 | - | - | - | |
| BK | NYOW-B-031 | | NYOW-B-MW01 | NYOW-B-MW02 | |
| | | | NYOW-B-MW03 | - | |

## 17.2 AOC 3

The purpose of conducting further soil and groundwater sampling at AOC 3 is to address data gaps that were identified within the *Phase 1 Risk Screening and Data Gaps* Analysis (refer to **Appendix A**). These data gaps include:

1. Evaluation of Potential Source Areas and/or Areas of Higher Concentrations – Soil sampling was not performed below the parking lot in the footprint of the previously identified former landfill. In addition, the geophysical survey conducted during the Phase 1 RI, identified that the former landfill extended more northerly, beyond the parking lot (USACE, 2023a), than previously suspected. The area was not adequately characterized to make a determination of whether the former landfill is a source area. Therefore, this potential area(s) of release will need to be adequately characterized to make the determination of whether they are source areas.
2. Groundwater data not collected from permanent wells – Grab groundwater samples were collected from temporary groundwater monitoring wells that were not developed prior to sampling. Temporary wells can result in concentrations both above and below the corresponding data from a permanent monitoring well; therefore, the groundwater data may not be representative of groundwater conditions. The effect of the well installation technique on the reported groundwater concentrations cannot be assessed during data validation. Additionally, temporary wells provide only limited hydrogeologic information; therefore, they are not sufficient to evaluate hydrogeologic conditions and aquifer characteristics. Lastly, the HHRA requires the use of total, not dissolved metals concentrations. Therefore, the installation of permanent monitoring wells along with well development are needed to produce higher quality groundwater data.
3. Unnamed Stream located north of the site not investigated – Surface water, porewater, and sediment samples in the unnamed stream north of the parking lot were not planned for collection during Phase 1 RI. However, based on the results of the Phase 1 investigation, samples in the unnamed stream north of the parking lot are needed to assess potential ecological risk. In addition, it is not known if the stream is gaining or losing in this area. This information is needed to characterize fate and transport. Therefore, surface water, porewater, sediment sampling, in addition to hydrogeological investigations (i.e., stream flow measurements, installation of and gauging stream piezometers) are needed to fulfill this data gap.

In order to fulfill data gaps #1 and #2, co-located surface and subsurface soil sampling along with monitoring well installations will occur at seven (7) locations; one (1) biased soil boring/monitoring well (NYOW-03-019/MW01) will be installed within the former OSA; one (1) biased soil boring/monitoring well location (NYOW-03-020/MW02) will be installed upgradient/west of the former OSA;; two (2) unbiased soil boring/monitoring well locations (NYOW-03-021/MW03, NYOW-03-022/MW04), which were statistically generated using GRTS, will be in the vicinity of the former landfill DU; one (1) biased soil boring/monitoring well (NYOW-03-023/MW05) will be installed downgradient of Phase 1 RI location NYOW-03-008 to investigate extent of potential PAHs; and two (2) biased soil boring/monitoring wells (NYOW-03-024/MW06, NYOW-03-025/MW07) will be located north of the stream, primarily to document groundwater concentrations and to determine if groundwater, or a portion of, from the former landfill area is flowing beneath the stream. In addition to the seven (7) locations, ten (10) unbiased soil boring only locations (NYOW-03-026 through NYOW-03-035) will be installed within the DU surrounding the former landfill. The locations of these soil borings were statistically generated using GRTS.

Monitoring well installations will occur next to the co-located soil boring for a total of seven (7) permanent monitoring wells, and the borehole will be advanced using HSA drilling methodology. At drilling locations where vegetation removal is required for access, tree clearing will be kept to a minimum and trees having a breast height of 3 inches or greater shall not be cut unless approved by USACE. Furthermore, trees with shaggy or exfoliating bark will not be removed as these may provide bat habitat. In order to further minimize any impacts to sensitive species, tree clearing activities should be avoided during the 1-April to 31-October timeframe (e.g., bat active season), and 1-June to 31 July (in forested areas) to avoid pup-brooding season.

Following installation, the monitoring wells will be developed using pump and surge techniques. Following well development, a synoptic gauging event to include all newly installed monitoring well locations (along with newly installed stream piezometers [refer to data gap #3]) along with pre-existing wells will occur prior to collecting groundwater samples. During low flow sampling, hydraulic conductivity estimates will be extracted from all seven (7) newly installed monitoring wells. This is a one time event.

In order to fulfill data gap #3, biased surface water, porewater, and sediment co-located samples will be collected at a total of eight (8) locations along the stream in order to evaluate concentrations of suspected COPCs within these media and evaluate potential ecological risks. Locations have been placed in areas that appear to be downgradient of and/or potentially receiving groundwater from potential source areas (i.e., former OSA and former Landfill Area). In addition to collecting samples, stream flow measurements will be made at each co-located sample location. These data will be used to evaluate fate and transport. Three semi-permanent piezometers will also be installed upstream, mid-stream, and downstream. The water elevation data obtained from the stream piezometers in conjunction with the permanent monitoring wells groundwater elevation data will be used to determine the groundwater to surface water migration pathway (e.g., gaining versus losing conditions, and groundwater input). In addition to water elevation data, stream flow measurements will be collected at eight (8) sampling locations including where piezometers are placed (see Section 14.2.9). In addition to flow measurements, depth measurements will be collected at 1-foot intervals in order to develop a channel profile. Bank vegetation will also be noted. A published n-value or Manning's roughness coefficient will be used to determine stream discharge at each sampling location. Discharge at each location will be compared to determine gaining or losing stream conditions.

A summary of the Phase 2 RI sampling rationale for AOC 3 is provided in **Exhibit 17-4**.

With the exception of soil sampling, synoptic gauging and groundwater sampling events, will occur semi-annually for 1-year in order to evaluate seasonal variability in groundwater flow/magnitude and concentrations, respectively.

The following field activities will be conducted in support of the AOC 3 Field Investigation (refer to Worksheets #14 and #16 for additional details):

- Field Staking.
- Utility Clearance
- Soil sampling at seventeen (17) locations at three (3) depth intervals (0-1 ft bgs; 1-5 ft bgs; and 5-10 ft bgs).

- Installation and well development of up to seven (7) permanent monitoring well locations.
- Installation of three (3) stream piezometers.
- Surface water, porewater, and sediment sampling at eight (8) locations – semi-annual x 1 year
- Synoptic water levels (manual) – semi-annual x 1 year.
- Groundwater Sampling of up to seven (7) permanent monitoring well locations - semi-annual x 1 year.
- Hydraulic conductivity testing (once).
- GPS Survey of sampling locations.
- Professional Well Survey.

### Exhibit 17-4 – AOC 3 Soil, Groundwater, Surface Water, Porewater, Sediment Sampling Rationale Summary

| Sample Location | Discrete Sample Depth (ft bgs) | Sampling Rationale |
|---|---|---|
| **Soil** | | |
| NYOW-03-019 | 0-1; 1-5; 5-10 | Location will be placed within former OSA to investigate/characterize source |
| NYOW-03-020 | 0-1; 1-5; 5-10 | Location will be placed upgradient/west of the former OSA to represent concentrations outside of a known source area (i.e. former OSA) |
| NYOW-03-021, -022 | 0-1; 1-5; 5-10 | Locations will be placed in the vicinity of the suspected landfill area to investigate/characterize source |
| NYOW-03-023 | 0-1; 1-5; 5-10 | Location will be installed downgradient of Phase 1 RI location NYOW-03-008 to investigate extent of potential PAHs |
| NYOW-03-024; -025 | 0-1; 1-5; 5-10 | Locations will be installed north of the stream, primarily to document groundwater concentrations and to determine if groundwater, or a portion of, from the former landfill area is flowing beneath the stream. |
| NYOW-03-026 through -035 | 0-1; 1-5; 5-10 | Locations installed at unbiased locations throughout the former landfill DU |
| **Groundwater** | | |
| NYOW-03-MW01 | TBD | Location will be placed within former OSA to investigate/characterize source |
| NYOW-03-MW02 | TBD | Location will be placed upgradient/west of the former OSA to represent concentrations outside of a known source area (i.e. former OSA) |
| NYOW-03-MW03; MW04 | TBD | Locations will be placed in the vicinity of the former landfill area to investigate/characterize source |
| NYOW-03-MW05 | TBD | Location will be installed downgradient of Phase 1 RI location NYOW-03-008 to investigate extent of potential PAHs |
| NYOW-03-MW06; MW07 | TBD | Locations will be installed north of the stream, primarily to document groundwater concentrations and to determine if groundwater, or a portion of, from the former landfill area is flowing beneath the stream. |
| **Surface Water, Porewater, Sediment** | | |
| NYOW-03-SW/PW/SD01 through -03 | Varies | Evaluate concentrations in the unnamed stream potentially receiving groundwater from the former OSA. Evaluate potential ecological impacts |

| Sample Location | Discrete Sample Depth (ft bgs) | Sampling Rationale |
|---|---|---|
| NYOW-03-SW/PW/SD04 | TBD | Evaluate concentrations in portion of the stream located downstream from an area potentially receiving groundwater from the former OSA. Evaluate potential ecological impacts |
| NYOW-03-SW/PW/SD05 and -06 | TBD | Evaluate concentrations in the unnamed stream potentially receiving groundwater from the former landfill. Evaluate potential ecological impacts |
| NYOW-03-SW/PW/SD07 and -08 | TBD | Evaluate concentrations in portion of the stream located downstream from an area potentially receiving groundwater from the former landfill and OSA. Evaluate potential ecological impacts |

The following subsection describes the sampling design.

### 17.2.1 Environmental Media (Soil) Sampling

Sample locations will follow the nonmenclature that was used during the Phase 1 RI sampling (USACE, 2023a). The last soil sample location that was conducted during the Phase 1 RI was NYOW-03-018. Therefore, the next sample will be NYOW-03-019.

At locations NYOW-03-019 through NYOW-03-036 soil samples will be collected via DPT (refer to Worksheets #14/16). The proposed locations are shown on **Figure 17-2**. A total of three (3) soil samples will be collected from boring locations NYOW-03-019 through NYOW-03-025, as described below:

- Sample Depth A – 0 to 1 ft bgs.
- Sample Depth B – 1 to 5 ft bgs.
- Sample Depth C – 5-10 ft bgs.

Samples will be collected following the procedures identified in Worksheets #14/16. During this soil sampling event, a total of 51 parent samples are expected to be collected and analyzed for:

- VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, TAL metals/mercury. Note, while volatilization may possibly have occurred in shallow soil, there is still the potential for VOCs to be present. Since the HHRA is cumulative there are other pathways to be concerned about if VOCs are present at shallow depth (i.e. direct contact). Additionally, shallow soil may represent exposure to terrestrial plants and invertebrates. At this time, the presence or absence of VOCs is unknown. PCB analysis is also included because of its presence in Phase I AOC 3 soil samples.

At co-located soil boring/monitoring well locations (NYOW-03-019, NYOW-03-021, NYOW-03-022, NYOW-023, and NYOW-03-025) and soil boring only locations NYOW-03-030, and NYOW-03-033, geotechnical/geochemical parameters (grain size, CEC, TOC, and pH) will also be collected at each of the three soil sample intervals 0-1, 1-5, 5-10 ft bgs.

Separate borehole(s) may be needed in order to fulfill sample volume requirements. If needed, the borehole(s) will be placed as close as possible to the original.

### 17.2.2 Environmental Media (Groundwater) Sampling

Groundwater samples will be collected semi-annually for up to 1-year at all newly installed permanent monitoring well locations (NYOW-03-MW01 through NYOW-03-MW07) to evaluate seasonality (**Figure 17-2**). During each sampling event, seven (7) parent samples, will be collected and analyzed for VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total and dissolved (field-filtered) TAL metals/mercury, and geochemical parameters (DOC [field-filtered] and hardness). PCB analysis is included at AOC 3 for all aqueous samples because it was detected in a Phase 1 soil sample. While PCBs are not readily soluble in water, this analysis was planned because PCBs can adhere to sediment particles in unfiltered surface

water column, porewater, and groundwater. The presence of PCBs can impact ecological receptors as well as direct contact and ingestion pathways for human health.

### 17.2.3 Environmental Media (Surface Water) Sampling

Surface water samples will be collected semi-annually for up to 1-year at all new locations (**Figure 17-2**) to evaluate seasonality. Surface water samples will be collected at the mid-point of the water column, while maintaining a distance of more than 1 foot from the sediment bed and more than 1 foot below the surface water level. If the water column is less than 2 feet, the sample will be collected from the mid-point of the water column. Sampling will not occur within 48 hours after a precipitation event totaling more the 0.25 inches (refer to Worksheet #14/16).

During each sampling event, eight (8) samples will be collected from locations NYOW-03-SW01 through NYOW-03-SW08, along with field QC samples (i.e., duplicate, MS/MSD, trip blank) and analyzed for VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total and dissolved (field-filtered) TAL metals/mercury, and geochemical parameters (DOC [field-filtered], and TSS). Hardness will also be analyzed but only for the parent sample. Field filtered metals analysis is needed for surface water samples because dissolved concentrations are needed for evaluation of metals that have water quality criteria that are based on the dissolved fraction.

An equipment blank will not be collected during surface water sampling since direct-dip sampling methods will be employed (refer to Worksheet #14/16).

### 17.2.4 Environmental Media (Porewater) Sampling

Porewater samples will be collected semi-annually for up to 1-year at all new locations (**Figure 17-2**) to evaluate seasonality. During each sampling event, eight (8) samples will be collected from locations NYOW-03-PW01 through NYOW-03-PW08, along with field QC samples (i.e., duplicate, MS/MSD, equipment blank, and trip blank) and analyzed for VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, and total and dissolved (field-filtered) TAL metals/mercury.

### 17.2.5 Environmental Media (Sediment) Sampling

Sediment samples will be collected semi-annually for up to 1-year at all new locations (**Figure 17-2**) to evaluate seasonality. During each sampling event, eight (8) samples will be collected from locations NYOW-03-SD01 through NYOW-03-SD08, along with field QC samples (i.e., duplicate, MS/MSD, equipment blank, and trip blank) and analyzed for VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total TAL metals/mercury, and geotechnical/geochemical parameters (grain size and TOC). Note, there is no QC for grain size or TOC. For sediment samples, the 0-0.5 depth has been proposed based primarily on information regarding burrowing and foraging behaviors of terrestrial and semi-aquatic ecological receptors.

### 17.2.6 Synoptic Groundwater Events

Uncertainty exists regarding groundwater flow directions and contaminant migration pathways, and hydraulic gradients. As summarized in **Exhibit 17-5**, groundwater levels will be measured in all of the seven (7) newly installed monitoring wells, three (3) newly installed piezometers, the two (2) new nearby proposed background wells (refer to Section 17.5), along with nine (9) pre-existing well locations. The synoptic water levels will be measured using a water level meter. Depth to water, total depth, along with well condition will be recorded on the appropriate form (refer to **Appendix D**). Water level frequency will be collected semi-annually prior to groundwater sampling in order to evaluate seasonal variability in AOC groundwater flow directions/magnitude. Locations are summarized below and displayed on **Figure 17-2**. Note, if a permanent monitoring well will be installed in the vicinity of a temporary well, then that temporary monitoring well will be abandoned and will not be included in the synoptic water level event(s).

**Exhibit 17-5 – AOC 3 Synoptic Water Level Summary Table**

| AOC | Existing Well ID | Proposed New Well | Proposed New Piezometer | Frequency |
|---|---|---|---|---|
| 3 | NYOW-03-002 | NYOW-03-MW01 | NYOW-03-SG01 | Semi-Annual X 1 year |
| 3 | NYOW-03-007 | NYOW-03-MW02 | NYOW-03-SG02 | |
| 3 | NYOW-03-009 | NYOW-03-MW03 | NYOW-03-SG03 | |
| 3 | NYOW-03-010 | NYOW-03-MW04 | - | |
| 3 | NYOW-03-013 | NYOW-03-MW05 | - | |
| 3 | NYOW-03-14 | NYOW-03-MW06 | - | |
| 3 | NYOW-03-15 | NYOW-03-MW07 | - | |
| 3 | MW-8 | - | - | |
| 3 | D&M-11 | - | - | |
| BK | - | NYOW-B-MW-05 | | |
| | | NYOW-B-MW-06 | | |

## 17.3 AOC 4

The purpose of conducting further soil sampling at AOC 4 is to address data gaps that were identified within the *Phase 1 Risk Screening and Data Gaps* Analysis (refer to **Appendix A**). These data gaps include:

1. Evaluation of Potential Source Areas and/or Areas of Higher Concentrations – The results from Phase 1 RI soil sampling were all non-detect for three analytes (2,4-DNCB, 2,4-DNP, and picric acid). However the surficial incremental sampling methodology (ISM) results from the bunkers had low bias for the SVOCs. Therefore, discrete surface soil samples are needed to verify/confirm ISM results.

In order to fulfill data gap #1, surface soil samples (0-1 ft bgs) will be collected from up to five unbiased sample locations within each of the Phase 1 RI DUs at the 12 bunkers, for a total of 60 parent sample locations. The locations were statistically generated using GRTS.

The following field activities will be conducted in support of the AOC 4 Field Investigation (refer to Worksheets #14 and #16 for additional details):

- Field Staking.
- Soil sampling at sixty (60) locations at one (1) depth interval (0-1 ft bgs)
- GPS Survey of sampling locations.

**Exhibit 17-6 – AOC 4 Soil Sampling Rationale Summary**

| Sample Location | Discrete Sample Depth (ft bgs) | Sampling Rationale |
|---|---|---|
| NYOW-04-086 through -145 | 0-1 | Locations will be placed using an unbiased (non-judgmental) approach within previously established ISM DUs to confirm Phase 1 RI ISM results. |

The following subsection describes the sampling design.

### 17.3.1 Environmental Media (Soil) Sampling

Sample identification will follow the nonmenclature that was used during the Phase 1 RI sampling (USACE, 2023a). The last soil sample location that was conducted during the Phase 1 RI was NYOW-04-085. Therefore, the next sample will be NYOW-04-086.

At locations NYOW-04-086 through NYOW-04-145 a total of sixty (60) parent soil samples will be collected from 0-1 ft bgs using a hand auger. Samples will be analyzed for 2,4-DNCB, 2,4-DNP, and picric acid. If the location is within hard compaction gravel, then macrocore sampling with DPT may be employed. The proposed locations are shown on **Figure 17-3.**

Separate borehole(s) may be needed in order to fulfill sample volume requirements. If needed, the borehole(s) will be placed as close as possible to the original.

## 17.4 AOC 5

The purpose of conducting further soil and groundwater sampling at AOC 5 is to address data gaps that were identified within the *Phase 1 Risk Screening and Data Gaps* Analysis (refer to **Appendix A**). These data gaps include:

1. Evaluation of Potential Source Areas and/or Areas of Higher Concentrations – Elevated metals concentrations in soil borings during the Phase 1 RI, is likely due to leaching from coal and/or coal ash. Elevated PAHs were not found at depth or in the sample that contained coal ash only. Therefore, additional sampling is needed to determine the source of PAHs (i.e., is PAH concentrations associated with coal particles or in the soil?).
    - These potential areas of release will need to be adequately characterized to make the determination of whether they are source areas.
    - TOC data were mostly rejected. These data are needed to evaluate suitability of background soil for comparison to site soil.
    - The background and screening-level comparisons for groundwater and discrete soil samples resulted in the identification of COPCs and COPECs within the surface and subsurface intervals in the Boiler house, CABs, and CSA. Of particular interest is the arsenic detected in groundwater at the Boiler House. Therefore, additional sampling is necessary to characterize the extent of soil and groundwater impacts and estimate representative mean sample concentrations to conduct human health and ecological risk assessments. A subset of surface soil and subsurface soil samples within the coal storage area and near the coal aggregate bins within AOC 5 need to be analyzed via microscopy, similar to what was completed during the Phase 1 RI. The locations selected for microscopy samples will be biased to areas where coal particles are observed on the surface or within the soil core. (Additionally, coal particles if observed within the soil core, will be described on the boring log). The microscopy data (Phase 1 and Phase 2) will be used to support the CSM in terms of nature and extent (i.e., source) and fate and transport, and if CERLA related contaminants pose a risk to human health and the environment. All chemical data will be used to determine if CERCLA related contaminants pose a risk to human health and the environment. If the combined Phase 1 and Phase 2 results indicate that PAHs and metals are both above background and risk screening levels, the coal microscopy data will be used in a qualitative "lines of evidence" approach to distinguish metal and PAH contamination in coal vs. metal and PAH contamination absorbed to soils in the uncertainty section of the risk assessment.

2. Groundwater data not collected from permanent wells – Grab groundwater samples were collected from temporary groundwater monitoring wells that were not developed prior to sampling. Temporary wells can result in concentrations both above and below the corresponding data from a permanent monitoring well; therefore, the groundwater data may not be representative of groundwater conditions. The effect of the well installation technique on the reported groundwater concentrations cannot be assessed during data validation. Additionally, temporary wells provide only limited hydrogeologic information; therefore, they are not sufficient to fully evaluate hydrogeologic conditions and aquifer characteristics. Lastly, human health risk assessment requires the use of total, not dissolved metals concentrations.

Therefore, the installation of permanent monitoring wells along with well development are needed to produce higher quality groundwater data.

3. Wetland Areas were not investigated – In order to avoid/reduce impact to sensitive habitats, the wetlands located east of the APBs were not sampled. These wetland areas could represent groundwater seeps, and/or represent surface water runoff pathways. Therefore, these wetland areas need to be characterized for the presence/absence of DoD related contamination in order to evaluate potential ecological impacts.

4. Evaluate PCB concentrations in soil (surface and subsurface) and groundwater in the former electrical substation, as well as groundwater only in the possible dump area and downgradient of the former electrical station (MW03 and MW07) based on the aroclor detected in a Phase 1 soil from electrical substation and elevated detection limits in the Phase 1 groundwater samples.

In order to fulfill data gaps #1 and #2, surface and subsurface soil sampling at up to 32 locations, along with groundwater sampling at ten (10) newly installed permanent monitoring wells will be performed within suspected contaminated areas at AOC 5. Four DUs (DU#1 through #4) (**Figure 17-4**), with eight (8) borings per unit (i.e., 32 locations), will be drilled utilizing DPT within the following former areas; DU#1 – former electrical substation and boiler house; DU#2 – a former drainage ditch, including the CABs; DU#3 – CSA; and DU#4 – possible dump area. All of the sample locations within the DUs are considered unbiased and were generated using GRTS. All three soil borings in and within the vicinity of the boiler house; all eight soil boring locations within the CSA, and four borings near the CABs for coal and coal ash by microscopy.

Upon completion of the soil borings, up to eleven (11) permanent monitoring wells will be installed. One (1) biased monitoring well only location (NYOW-05-MW01) will be installed in the vicinity of Phase 1 soil boring location NYOW-05-023 to evaluate groundwater concentrations downgradient of elevated PAHs detected within the borehole; one (1) biased monitoring well (NYOW-05-MW02) will be installed downgradient of Phase 1 RI soil boring location NYOW-05-019 to evaluate elevated PAHs and the highest mercury concentrations detected within that borehole; two (2) monitoring wells (NYOW-05-MW03, -MW04) will be placed within the CSA to investigate potential source releases from this area. These two wells are considered unbiased as they were placed using GRTS. Three (3) biased monitoring wells (NYOW-05-MW-05, -MW06, and -MW07) will be installed along the downgradient limits of AOC 5; one (1) monitoring well (NYOW-05-MW08) will be installed within the possible dump area. This location is considered unbiased as it was placed using GRTS. One (1) monitoring well (NYOW-05-09) will be installed within the former electrical substation. This location is considered unbiased as it was placed using GRTS. Two (2) biased monitoring wells (NYOW-05-MW10, -MW11) will be installed approximately 500 feet downgradient (west/southwest) of the site to evaluate downgradient concentrations and groundwater flow paths.

At drilling locations where vegetation removal is required for access, tree clearing will be kept to a minimum and trees having a breast height of 3 inches or greater shall not be cut unless approved by USACE. Furthermore, trees with shaggy or exfoliating bark will not be removed as these may provide bat habitat. In order to further minimize any impacts to sensitive species, tree clearing activities should be avoided during the 1-April to 31-October timeframe (e.g., bat active season), and 1-June to 31 July (in forested areas) to avoid pup-brooding season.

In order to fulfill data gap #3, discrete surface soil (saturate/wet [i.e., hydric]) sampling (0-1 ft bgs) using a hand auger will occur at three (3) drainage ditches located to the west of AOC 5; (1) one surface soil sample (NYOW-05-058) will be collected in a drainage ditch located to the north of the AOC, (2) one surface soil sample (NYOW-05-059) will be collected in a drainage ditch located to the west of the AOC; and (3) one surface soil sample (NYOW-05-060) will be collected in a drainage ditch located to the southwest of the AOC. If a soil sample is not saturated/wet (i.e., hydric) during sample collection, then location will be moved in order to obtain a saturated/wet (i.e., hydric) soil sample. These locations, in addition to groundwater sample data from NYOW-05-MW10 and NYOW-05-MW11, are selected in order to determine the presence/absence to ensure that impacts are not found beyond the AOC 5 boundary. These samples will be compared to samples from AOC 5, the PALs, and/or background concentrations, where appliable. If PAL and background exceedances are observed, the results of these samples may be used to identify potential data gaps for additional sampling efforts. The use of heavy machinery for sample collection is not

anticipated in wetlands. However, in the event it is required, mitigative steps such as working during colder months, or the placement of construction mats will be utilized. Additionally, any heavy machinery will be decontaminated between AOCs to prevent the spread of contamination and invasive species.

In order to fulfill data gap #4, surface and subsurface soils at borings located within the footprint of the electrical substation will be analyzed for PCBs. Additionally, groundwater samples for PCB analysis will also be collected from NYOW-05-MW03, NYOW-05-MW07, NYOW-05-MW08 and NYOW-05-MW09. Groundwater samples from NYOW-05-MW03 and NYOW-05-MW07 will monitor downgradient groundwater emanating from the electrical substation. Groundwater samples from NYOW-05-MW08 and NYOW-05-MW09 will be representative of a potential source.

With the exception of soil sampling, synoptic gauging and groundwater sampling events, will occur semi-annually for 1-year in order to evaluate seasonal variability in groundwater flow/magnitude and concentrations, respectively. During low flow sampling, hydraulic conductivity estimates will be extracted from all 11 newly installed monitoring wells. This is a one-time event.

The following field activities will be conducted in support of the AOC 5 Field Investigation (refer to Worksheets #14 and #16 for additional details):

- Field Staking.
- Utility Clearance
- Soil sampling at 32 locations at three (3) depth intervals (0-1 ft bgs; 1-5 ft bgs; and 5-10 ft bgs).
- Soil sampling at five (5) locations at one (1) depth interval (0-1 ft bgs)
- Installation and well development of up to ten (10) permanent monitoring well locations
- Synoptic water levels
- Groundwater Sampling of up to ten (10) permanent monitoring well locations.
- Hydraulic conductivity testing (once).
- GPS Survey of sampling locations.
- Professional Well Survey.

**Exhibit 17-7 – AOC 5 Soil and Groundwater Sampling Rationale Summary**

| Sample Location | Discrete Sample Depth (ft bgs) | Sampling Rationale |
|---|---|---|
| **Soil** | | |
| NYOW-05-026 through -033 | 0-1; 1-5; 5-10 | Locations installed to investigate potential sources (boiler house, former electrical substation) within DU#1. Please note, soil borings were statistically generated using GRTS. |
| NYOW-05-034 through -041 | 0-1; 1-5; 5-10 | Locations installed to investigate potential sources (drainage ditch, CABs) within DU#2. |
| NYOW-05-042 through -049 | 0-1; 1-5; 5-10 | Locations installed to investigate potential source (CSA) within DU#3. Please note, soil borings were statistically generated using GRTS. |
| NYOW-05-050 through -057 | 0-1; 1-5; 5-10 | Locations installed to investigate potential source (possible dump) within DU#4. Please note, soil borings were statistically generated using GRTS. |
| NYOW-05-058 through -060 | 0-1 | Locations placed to investigate drainage ditches west/south of AOC 5. Soils need to be saturated/wet (i.e., hydric). |
| **Groundwater** | | |
| NYOW-05-MW01 | TBD | Install to evaluate groundwater concentrations downgradient of elevated PAHs detected within Phase 1 borehole (NYOW-05-023). |
| NYOW-05-MW02 | TBD | Install downgradient of Phase 1 RI soil boring location NYOW-05-019 to evaluate elevated PAHs and the highest mercury concentrations detected within that borehole. |
| NYOW-05-MW03; MW04 | TBD | Install within the CSA to investigate potential source releases from this area. |
| NYOW-05-MW05; MW06; MW07 | TBD | Install downgradient of AOC 5 to evaluate groundwater concentrations leaving the site. |
| NYOW-05-MW08 | TBD | Install within the possible dump area to investigate potential source releases from this area. |
| NYOW-05-MW09 | TBD | Install within the former electrical substation area to investigate potential source releases from this area. |
| NYOW-05-MW10; MW11 | TBD | Install approximately 500 ft downgradient of AOC 5 to evaluate groundwater concentrations leaving the site. |

## 17.4.1 Environmental Media (Soil) Sampling

Sample locations will follow the nonmenclature that was used during the Phase 1 RI sampling (USACE, 2023a). The last soil sample location that was conducted during the Phase 1 RI was NYOW-05-025. Therefore, the next sample will be NYOW-05-026.

At locations NYOW-05-026 through NYOW-05-057 soil samples will either be collected using DPT drilling or manual drilling methods. The proposed locations are shown on **Figure 17-4.** A total of three (3) soil samples will be collected from boring locations NYOW-05-051 through NYOW-05-051, as described below:

- Sample Depth A – 0 to 1 ft bgs.
- Sample Depth B – 1 to 5 ft bgs.
- Sample Depth C – 5-10 ft bgs.

At locations NYOW-05-058 through NYOW-05-060 a total of three (3) parent soil (saturated/wet [i.e., hydric]) samples will be collected from 0-1 ft bgs using a hand auger within the wetlands. The proposed locations are shown on **Figure 17-5.**

Samples will be collected following the procedures identified in Worksheets #14/16. During this soil sampling event, a total of 99 parent samples are expected to be collected and analyzed for:

- PAHs, and TAL metals/mercury.

A total of 15 parent samples are also expected to be collected and analyzed for:

- PCBs – locations within the former electrical substation only.

A total of up to 45 parent samples are expected to be collected and analyzed for:

- Coal by microscopy. Coal samples will be analyzed and reported in accordance with the *SOP MVL/05-09* provided by MicroVision Laboratories. The methods used to detect coal, will be via SEM, EDS, and PLM. Samples will be collected at all three intervals (i.e., 0-1 ft bgs; 1-5 ft bgs; and 5-10 ft bgs). Boring locations for coal analysis will be as follows per DU#:
    - DU#1 – Boiler House – NYOW-05-031; -032; -033
    - DU#2 – Drainage Ditch/CABs – Four locations will be selected in the field based on the presence of coal. If no coal is found in the vicinity of the borings within DU#2, then borings closest to the locations of the CABs, the most likely source for coal within DU#2, will be selected for analysis.
    - DU#3 – CSA – All borings within the CSA will be analyzed for coal (i.e., NYOW-05-042 thru NYOW-05-049).

At locations (NYOW-05-028, NYOW-05-032, NYOW-05-036, NYOW-05-045, and NYOW-05-056) geotechnical/geochemical parameters (grain size, CEC, TOC, and pH) will also be collected at each of the three soil sample intervals 0-1, 1-5, 5-10 ft bgs. Attempts will be made to move this analysis if appropriate in DU#1, DU#2, and DU#3 to be co-located with soil borings that contain coal that is confirmed in the field visually.

Additionally, geotechnical/geochemical parameters (grain size, CEC, TOC, and pH) will be collected at the 0-1 ft bgs interval at hand auger location at NYOW-05-059.

Separate borehole(s) may be needed in order to fulfill sample volume requirements. If needed, the borehole(s) will be placed as close as possible to the original.

## 17.4.2 Environmental Media (Groundwater) Sampling

Groundwater samples will be collected semi-annually for up to 1-year at all newly installed permanent monitoring well locations (NYOW-05-MW01 through NYOW-05-MW10) to evaluate seasonality. During each sampling event, ten (10) parent samples, along with field QC samples (i.e., duplicate, MS/MSD) will be collected and analyzed for PAHs, total and dissolved (field-filtered) TAL metals/mercury, and geochemical parameters (DOC [field-filtered]. Hardness will also be collected but for parent samples only. For monitoring wells located within the former electrical substation (MW09) and possible dump area (MW08) and wells downgradient of the electric substation (MW03 and MW07), groundwater samples will also be analyzed for PCBs.

## 17.4.3 Synoptic Groundwater Events

Uncertainty exists regarding groundwater flow directions and contaminant migration pathways, and hydraulic gradients. Groundwater levels will be measured in all of the 11 (if installed) newly installed monitoring wells, one (1) newly installed proposed nearby background well, along with 14 pre-existing well locations (refer to **Exhibit 17-8**). The synoptic water levels will measured using a water level meter. Depth to water, total depth, along with well condition will be recorded on the appropriate form (refer to **Appendix D**). Water level frequency will be collected semi-annually prior to groundwater sampling in order to evaluate seasonal variability in AOC groundwater flow directions/magnitude. Locations are summarized below and

displayed on **Figure 17-4** and **Figure 17-5**. Note, if a permanent monitoring well will be installed in the vicinity of a temporary well, then that temporary monitoring well will be abandoned and will not be included in the synoptic water level event(s).

**Exhibit 17-8 – AOC 5 Synoptic Water Level Summary Table**

| AOC | Existing Well ID | | Proposed New Well | | Frequency |
|---|---|---|---|---|---|
| 5 | NYOW-05-001 | NYOW-05-012 | NYOW-05-MW01 | NYOW-05-MW07 | Semi-Annual X 1 year |
| 5 | NYOW-05-004 | NYOW-05-016 | NYOW-05-MW02 | NYOW-05-MW08 | |
| 5 | NYOW-05-005 | NYOW-05-017-01 | NYOW-05-MW03 | NYOW-05-MW09 | |
| 5 | NYOW-05-006 | NYOW-05-019 | NYOW-05-MW04 | NYOW-05-MW10 | |
| 5 | NYOW-05-008 | NYOW-05-024 | NYOW-05-MW05 | NYOW-05-MW11 | |
| 5 | NYOW-05-010 | NYOW-05-025 | NYOW-05-MW06 | - | |
| BK | NYOW-B-005 | NYOW-B-050 | NYOW-B-MW-04 | - | |

## 17.5 Background

The purpose of conducting further soil and groundwater sampling at Background locations is to address data gaps that were identified within the *Phase 1 Risk Screening and Data Gaps* Analysis (refer to **Appendix A**). These data gaps include:

1. Groundwater data not collected from permanent wells – Grab groundwater samples were collected from temporary groundwater monitoring wells that were not developed prior to sampling. Temporary wells can result in concentrations both above and below the corresponding data from a permanent monitoring well; therefore, the groundwater data may not be representative of groundwater conditions. The effect of the well installation technique on the reported groundwater concentrations cannot be assessed during data validation. Additionally, temporary wells provide only limited hydrogeologic information; therefore, they are not sufficient to fully evaluate hydrogeologic conditions and aquifer characteristics. Lastly, human health risk assessment requires the use of total, not dissolved metals concentrations.
    (a) Therefore, the installation of permanent monitoring wells along with well development, will produce higher quality groundwater data.
    (b) TOC data were mostly rejected. These data are needed to evaluate suitability of background soil for comparison to site soil.
2. Wetland Areas not Investigated – In order to compare wetland concentrations collected from the AOC 1 and AOC 5 investigation, background (hydric) soils need to be collected and analyzed.
3. Background surface water, porewater, and sediment concentrations need to be established – In order to compare concentrations in similar media collected at AOC 3, background surface water, porewater, and sediment sampling will be performed in an undeveloped area west of AOC 3.

The background analytical results will be used to estimate BTVs for each medium. The site-specific BTVs will be used as a first line of evidence to determine whether concentrations detected in site media are attributable to background levels. Comparison to the site-specific BTVs is based on the null hypothesis that the site concentrations are consistent with background concentrations. The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV is used to determine the potential for a site release. If comparison to the site-specific BTVs indicates the likelihood of false positives (Type I error or the incorrect rejection of the null hypothesis), either single- or two-sample hypothesis testing may be considered for PAH and/or inorganic analytes as an additional risk refinement.

In order to fulfill data gaps #1, six (6) permanent monitoring wells will be installed in the vicinity of Phase 1 RI temporary background locations; one (1) location will be installed near NYOW-B-004, one (1) location will be installed near NYOW-B-027, one (1) location will be installed near NYOW-B-010, one (1) location near NYOW-B-047, one (1) location will be installed near NYOW-B-001, and NYOW-B-003. Soil samples for laboratory analyses will not be collected. Following installation, the monitoring wells will be developed using pump and surge techniques. Following well development, a synoptic gauging event to include all newly installed monitoring well locations along with Phase 1 RI temporary well will occur prior to collecting groundwater samples. With the exception of soil sampling, synoptic gauging and groundwater sampling events, will occur semi-annually for 1-year in order to evaluate seasonal variability in groundwater flow/magnitude and concentrations, respectively. During low flow sampling, hydraulic conductivity estimates will be extracted from all six (6) newly installed monitoring wells. This is a one time event.

In order to fulfill data gap #2, discrete surface soil (saturated/wet [i.e., hydric]) sampling (0-1 ft bgs) using a hand auger will occur in the wetlands at eight (8) locations west of AOC 3. The locations were statistically generated using GRTS. In the event soil at a location is not saturated/wet (i.e., hydric) or representative of hydric soils, the location will be adjusted in the field accordingly.

In order to fulfill data gap #3, discrete surface water, porewater, and sediment co-located samples will be collected at a total of eight (8) locations along the stream and surface water body located west of AOC 3. This area was selected as it appears to be outside the influence of any previous DoD-related activity. The locations were statistically generated using GRTS.

The following field activities will be conducted in support of the Background Field Investigation (refer to Worksheets #14 and #16 for additional details):

- Field Staking.
- Utility Clearance
- Soil sampling at eight (8) locations at one (1) depth interval (0-1 ft bgs)
- Installation and well development of up to six (6) permanent monitoring well locations
- Synoptic water levels (facility-wide)
- Groundwater sampling of up to six (6) permanent monitoring well locations.
- Hydraulic conductivity testing (once).
- Surface water, porewater, and sediment sampling at eight (8) co-located locations
- GPS Survey of sampling locations.
- Professional Well Survey.

The following subsection describes the sampling design.

### 17.5.1 Background Environmental Media (Soil) Sampling

Sample identification will follow the nomenclature that was used during the Phase 1 RI sampling (USACE, 2023a). The last soil sample location that was conducted during the Phase 1 RI was NYOW-B-050. Therefore, the next sample will be NYOW-B-051.

At locations NYOW-B-051 through NYOW-B-058 a total of eight (8) parent soil (saturated/wet [i.e., hydric]) samples will be collected from 0-1 ft bgs using a hand auger within the wetlands. The proposed locations are shown on **Figure 17-6.**

Samples will be collected following the procedures identified in Worksheets #14/16. During this soil sampling event, a total of eight (8) parent samples are expected to be collected and analyzed for: PAHs, and TAL metals/mercury. At all eight (8) locations, geotechnical/geochemical parameters (grain size, CEC, TOC, and pH) will also be collected.

Separate borehole(s) may be needed in order to fulfill sample volume requirements. If needed, the borehole(s) will be placed as close as possible to the original.

### 17.5.2 Background Environmental Media (Groundwater) Sampling

Groundwater samples will be collected semi-annually for up to 1-year at all newly installed permanent monitoring well locations (NYOW-B-MW01 through NYOW-B-MW06) to evaluate seasonality. During each sampling event, six (6) parent samples, along with field QC samples (i.e., duplicate, MS/MSD) will be collected and analyzed for PAHs, total and dissolved (field-filtered) TAL metals/mercury, and geochemical parameters (DOC [field-filtered]. Hardness will also be collected for parent samples only.

### 17.5.3 Background Environmental Media (Surface Water) Sampling

Surface water samples will be collected semi-annually for up to 1-year at all new background locations (**Figure 17-7**) to evaluate seasonal variability. Surface water, samples will be collected at the mid-point of the water column, while maintaining a distance of more than 1 foot from the sediment bed and more than 1 foot below the surface water level. If the water column is less than 2 feet the sample will be collected from the mid-point of the water column. Sampling will not occur within 48 hours after a precipitation event totaling more the 0.25 inches (refer to Worksheet #14/16). During each sampling event, eight (8) samples will be collected from locations NYOW-B-SW01 through NYOW-B-SW08 and analyzed for PAHs, total and dissolved (field-filtered) TAL metals/mercury, and geochemical parameters (DOC [field-filtered], hardness, and TSS). Note, there is no QC for hardness. If after review of the round one results from AOC 3 indicates the need to sample for additional parameters (i.e., VOCs, SVOCs, PCB Aroclors, picric acid), then it will be performed.

An equipment blank will not be collected during surface water sampling since direct-dip sampling methods will be employed (refer to Worksheet #14/16).

### 17.5.4 Background Environmental Media (Porewater) Sampling

Porewater samples will be collected semi-annually for up to 1-year at all new background locations (**Figure 17-7**) to evaluate seasonal variability. During each sampling event, eight (8) samples will be collected from locations NYOW-B-PW01 through NYOW-B-PW08, along with field QC samples (i.e., duplicate, MS/MSD, equipment blank, and trip blank) and analyzed for PAHs, and total and dissolved (field-filtered) TAL metals/mercury. If after review of the round one results from AOC 3 indicates the need to sample for additional parameters (i.e., VOCs, SVOCs, PCB Aroclors, picric acid), then it will be performed.

### 17.5.5 Background Environmental Media (Sediment) Sampling

Sediment samples will be collected semi-annually for up to 1-year at all new background locations (**Figure 14-7**) to evaluate seasonal variability. During each sampling event, eight (8) parent samples will be collected from locations NYOW-B-SD01 through NYOW-B-SD08), along with field QC samples (i.e., duplicate, MS/MSD, equipment blank, and trip blank) and analyzed for PAHs, and total TAL metals/mercury, and geotechnical/geochemical parameters (grain size, and TOC). Note, there is no QC on grain size and TOC. If after review of the round one results from AOC 3 indicates the need to sample for additional parameters (i.e., VOCs, SVOCs, PCB Aroclors, picric acid), then it will be performed.

### 17.5.6 Synoptic Groundwater Events (Facility-Wide)

Uncertainty exists regarding groundwater flow directions and contaminant migration pathways, and hydraulic gradients. In order to evaluate facility-wide groundwater, a comprehensive synoptic water level event will occur that will include all new permanent monitoring well locations within AOC 1, AOC 3, AOC 5, and Background locations. The three stream piezometers within AOC 3 will also be included (refer to **Exhibit 17-9**). The synoptic water levels will be collected semi-annually prior to groundwater sampling in order to evaluate seasonal variability. The synoptic water levels will be manually collected using a water level meter. Depth to water, total depth, along with well condition will be recorded on the appropriate form (refer to **Appendix D**). Water level frequency will be collected semi-annually prior to groundwater sampling in order to evaluate seasonal variability in groundwater flow directions/magnitude. Locations are summarized below and displayed on **Figure 17-6**. Note, if a permanent monitoring well will be installed in the vicinity of a temporary well, then that temporary monitoring well will be abandoned and will not be included in the synoptic water level event(s).

## Exhibit 17-9 – Background Synoptic Water Level Summary Table

| AOC | Proposed Well ID | | Frequency |
|---|---|---|---|
| 1 | NYOW-01-MW01 | NYOW-01-MW06 | Semi-Annual X 1 year |
| | NYOW-01-MW02 | NYOW-01-MW07 | |
| | NYOW-01-MW03 | NYOW-01-MW08 | |
| | NYOW-01-MW04 | NYOW-01-MW09 | |
| | NYOW-01-MW05 | NYOW-01-MW10 | |
| 3 | NYOW-03-MW01 | NYOW-03-MW06 | |
| | NYOW-03-MW02 | NYOW-03-MW07 | |
| | NYOW-03-MW03 | NYOW-03-SG01 | |
| | NYOW-03-MW04 | NYOW-03-SG02 | |
| | NYOW-03-MW05 | NYOW-03-SG03 | |
| 5 | NYOW-05-MW01 | NYOW-05-MW07 | |
| | NYOW-05-MW02 | NYOW-05-MW08 | |
| | NYOW-05-MW03 | NYOW-05-MW09 | |
| | NYOW-05-MW04 | NYOW-05-MW10 | |
| | NYOW-05-MW05 | NYOW-05-MW11 | |
| | NYOW-05-MW06 | | |
| Background | NYOW-B-MW01 | NYOW-B-MW04 | |
| | NYOW-B-MW02 | NYOW-B-MW05 | |
| | NYOW-B-MW03 | NYOW-B-MW06 | |

## Exhibit 17-10 – NYOW Phase 2 RI Field Activities Summary

| Investigation Study | Field Task | Total Number of Locations | Summary of Field Task | Frequency | Laboratory Sample Parameters | Field QA-QC*/Other Requirements | Field Parameters Collected |
|---|---|---|---|---|---|---|---|
| **Environmental Investigation Summary** | | | | | | | |
| AOC 1 | Soil Sampling with DPT or Manual Percussion Methods | 22 | Using DPT or manual percussion methods, collect soil samples from up to 22 soil boring only locations at three (3) depth intervals (0-1, 1-5, and 5-10 feet bgs) (**Figure 17-1**). | Once | -2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury<br>-Grain size, CEC, TOC, and pH | Refer to Worksheet #20 | -Soil lithologic descriptions, field sketch |
| | Soil Sampling within Wetland | 12 | Using a hand auger, collect soil (saturated/wet [i.e., hydric]) samples from up to 12 locations within the wetland in between the APBs and Dryer Houses at one (1) sample interval (0-1 ft bgs) (**Figure 17-1**). | Once | -2,4-DNCB, 2,4-DNP, picric acid, metals<br>-Grain size, CEC, TOC, and pH | Refer to Worksheet #20 | |
| | Monitoring Well Installation | 10 | Using dual-tube DPT, install up to ten (10), 2-inch monitoring wells at first occurrence of water. Install well screens at a sufficient depth to obtain a properly constructed well (filter pack 2-feet above screen, 2-foot thick bentonite seal, grout to surface). | Once | N/A | N/A | Complete monitoring well construction form |
| | Monitoring Well Development | 10 | Conduct monitoring well development through pumping and surging for up to two (2) hours per well. Well development considered complete if water is free of visible sediment, and turbidity has reached an asymptotic value (e.g., 20 NTU), or up to two (2) hours, whichever comes first. | Once (24 hours post installation); As needed going forward. | N/A | N/A | -pH, temperature, specific conductance, DO, ORP, turbidity, color, and odor |
| | Synoptic Water Levels | Up to 33 | Collect manual groundwater levels from up to ten (10) newly installed AOC 1 monitoring well locations, three (3) nearby newly installed background locations, along with 19 pre-existing locations. | Semi-Annual | N/A | N/A | -Manual water level measurements |
| | Groundwater Sampling | 10 | Collect groundwater samples from newly installed monitoring wells. | Semi-annual x 1 year | -2,4-DNCB, 2,4-DNP, picric acid, total and dissolved (field-filtered) TAL metals/mercury<br>-DOC (field-filtered), and hardness | Refer to Worksheet #20 | -pH, temperature, specific conductance, DO, ORP, turbidity, color, and odor |
| | GPS Survey Sampling Locations | 34 | Using a hand-held Trimble GPS, survey in the horizontal coordinates of soil sample locations. | Once | N/A | N/A | Field Sketch, notes |
| | Professional Survey Permanent Monitoring Well Locations | 10 | Conduct professional survey to include obtaining horizontal coordinates in the New York State Plane Coordinate System, latitude and longitude of each well location; NAVD88 (US feet) elevation at top of well casing, reported to 0.01 foot; NAVD88 (US feet) ground elevation at base of casing, reported to 0.1 foot. | Once | N/A | N/A | Field Sketch, notes |
| AOC 3 | Soil Sampling with DPT Methods | 17 | Using DPT, collect soil samples from 17 soil boring only locations at three (3) depth intervals (0-1, 1-5, and 5-10 feet bgs) (**Figure 17-2**). | Once | -VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, TAL metals/mercury<br>-Grain size, CEC, TOC, and pH | Refer to Worksheet #20 | -Soil lithologic descriptions, field sketch |
| | Monitoring Well Installation | 7 | Using dual-tube DPT, install seven (7) 2-inch monitoring wells at first occurrence of water next to soil boring locations. Install well screens at a sufficient depth to obtain a properly constructed well (filter pack 2-feet above screen, 2-foot thick bentonite seal, grout to surface). | Once | N/A | N/A | Complete monitoring well construction form |
| | Monitoring Well Development | 7 | Conduct monitoring well development through pumping and surging for up to two (2) hours per well. Well development considered complete if water is free of visible sediment, and turbidity has reached an asymptotic value (e.g., 20 NTU), or up to two (2) hours, whichever comes first. | Once (24 hours post installation); As needed going forward. | N/A | N/A | -pH, temperature, specific conductance, DO, ORP, turbidity, color, and odor |
| AOC 3 | Groundwater Sampling | 7 | Collect groundwater samples from newly installed monitoring wells. | Semi-annual x 1 year | -VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total and dissolved (field-filtered) TAL metals/mercury<br>-DOC (field-filtered), and hardness | Refer to Worksheet #20 | -pH, temperature, specific conductance, DO, ORP, turbidity, color, and odor |
| | Synoptic Water Levels | Up to 21 | Collect manual groundwater levels from the seven (7) newly installed monitoring well locations, three (3) newly installed stream piezometers, two (2) newly proposed nearby background wells, and nine (9) pre-existing locations (**Figure 17-2**). | Semi-Annual | N/A | N/A | -Manual water level measurements |

| Investigation Study | Field Task | Total Number of Locations | Summary of Field Task | Frequency | Laboratory Sample Parameters | Field QA-QC*/Other Requirements | Field Parameters Collected |
|---|---|---|---|---|---|---|---|
| | Professional Survey Permanent Monitoring Well Locations | 7 | Conduct professional survey to include obtaining horizontal coordinates in the New York State Plane Coordinate System, latitude and longitude of each well location; NAVD88 (US feet) elevation at top of well casing, reported to 0.01 foot; NAVD88 (US feet) ground elevation at base of casing, reported to 0.1 foot. | Once | N/A | N/A | Field Sketch, notes |
| | Surface Water Sampling | 8 | Collect surface water samples by direct-dipping laboratory bottleware with closed cap to a depth of 12-inches below top of the stream at eight (8) locations (**Figure 17-2**). Collect one (1) set of field parameters. Collect an unpreserved sample as needed for dissolved metals analysis. Once collected, insert a piece of tubing and hook up a field filter. Extract sample from unpreserved bottle with a peristaltic pump into the appropriate preserved bottleware. | Semi-annual x 1 year | -VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total and dissolved (field-filtered) TAL metals/mercury<br>-Hardness, DOC (field-filtered), and TSS | Refer to Worksheet #20 | -pH, temperature, specific conductance, DO, ORP, turbidity, color, and odor |
| | Porewater Sampling | 8 | Collect porewater samples using a porewater sampler at co-located surface water/sediment locations. Install the porewater sample at least 1-1.5 foot below top of stream sediment. Purge until field parameters indicate a difference between surface water | Semi-annual x 1 year | -VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total and dissolved (field-filtered) TAL metals/mercury | Refer to Worksheet #20 | -pH, temperature, specific conductance, DO, ORP, turbidity, color, and odor |
| | Sediment Sampling | 8 | Collect sediment samples using a coring device at co-located surface water/pore water locations. The sample will be collected from the top of sediment to a depth of 0.5-ft (0-0.5 ft below top of sediment). | Semi-annual x 1 year | -VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total TAL metals/mercury<br>-Grain size, TOC | Refer to Worksheet #20 | Field Sketch, notes |
| | Stream Flow Measurements | 8 | Measure stream channel width and water depth. Create stream profile. Measure average flow velocity every 1-ft of channel width at the 0.6-depth interval. Document physical characteristics of the sampling locations (e.g., water depth, stream width, nearby vegetation, stream flow), substrate (e.g., presence of leaf litter and cobbles, general description), and presence of potential receptors (e.g., evidence of human presence or wildlife in and around the sampling location). | Semi-annual x 1 year | N/A | Refer to *FDEP-Standard Operating Procedure FT1800. Field Measurement of Stage, Surface Water Velocity, and Discharge (Flow) and Computation of Streamflow, Revised January 2017, effective April 16, 2018.* | Stream channel width, water depth, water velocity. |
| AOC 3 | Install stream piezometers | 3 | Install three (3) 1.25-inch galvanized steel piezometers at select locations within the unnamed stream at AOC 3 (**Figure 17-2**). | Once | N/A | N/A | Field Sketch, notes |
| | GPS Survey Sampling and stream flow measurement locations | 8 | Using a hand-held Trimble GPS, survey in the horizontal coordinates of co-located surface water, porewater, and sediment sample locations. | Once | N/A | N/A | Field Sketch, notes |
| | Professional Survey Stream Piezometers | 3 | Conduct professional survey to include obtaining horizontal coordinates in the New York State Plane Coordinate System, latitude and longitude of each well location; NAVD88 (US feet) elevation at top of well casing, reported to 0.01 foot. | Once | N/A | N/A | Field Sketch, notes |
| AOC 4 | Soil Sampling using a Hand Auger | 60 | Using a hand auger, collect soil samples from five (5) locations within each of the 12 DUs surrounding each of the 12 bunkers at one (1) depth interval (0-1 ft bgs) (**Figure 17-3**) | Once | -2,4-DNCB, 2,4-DNP, and picric acid. | Refer to Worksheet #20 | -Soil lithologic descriptions, field sketch |
| AOC 5 | Soil Sampling with DPT | 32 | Using DPT, collect soil samples from 32 soil boring only locations at three (3) depth intervals (0-1, 1-5, and 5-10 feet bgs) (**Figure 17-4**). | Once | -PAHs, TAL metals/mercury,<br>-PCBs (former electrical substation only)<br>-Grain size, CEC, TOC, and pH<br>- Coal for select samples within boiler house, CSA and CAB (up to 15 borings) | Refer to Worksheet #20 | -Soil lithologic descriptions, field sketch |
| | Soil Sampling within Wetland | 3 | Using a hand auger, collect a soil (saturated/wet [i.e., hydric]) sample (0-1 ft bgs) from three locations from within drainage ditches located within the wetland located west of the former CSA (**Figure 17-5**). | Once | -PAHs, TAL metals/mercury<br>-Grain size, CEC, TOC, and pH | Refer to Worksheet #20 | |
| | Monitoring Well Installation | 11 | Using dual-tube DPT, install eleven (11), 2-inch monitoring wells at first occurrence of water next to soil boring locations. Install well screens at a sufficient depth to obtain a properly constructed well (filter pack 2-feet | Once | N/A | N/A | Complete monitoring well construction form |

| Investigation Study | Field Task | Total Number of Locations | Summary of Field Task | Frequency | Laboratory Sample Parameters | Field QA-QC*/Other Requirements | Field Parameters Collected |
|---|---|---|---|---|---|---|---|
| | | | above screen, 2-foot thick bentonite seal, grout to surface) (**Figure 17-4** and **Figure 17-5**). | | | | |
| | Monitoring Well Development | 11 | Conduct monitoring well development through pumping and surging for up to two (2) hours per well. Well development considered complete if water is free of visible sediment, and turbidity has reached an asymptotic value (e.g., 20 NTU), or up to two (2) hours, whichever comes first. | Once (24 hours post installation); As needed going forward. | N/A | N/A | -pH, temperature, specific conductance, DO, ORP, turbidity, color, and odor |
| | Synoptic Water Levels | Up to 26 | Collect manual groundwater levels from twelve (12) newly installed AOC 5 monitoring well locations, one (1) newly installed proposed background well, and 14 pre-existing wells (**Figure 17-4** and **Figure 17-5**). | Semi-Annual | N/A | N/A | -Manual water level measurements |
| | Groundwater Sampling | 11 | Collect groundwater samples from newly installed monitoring wells. | Semi-annual x 1 year | -PAHs, total and dissolved (field-filtered) TAL metals/mercury<br>-DOC (field-filtered), and hardness<br>- PCBs (former electrical substation and possible dump area and wells MW03 and MW07 downgradient of the electric substation only) | Refer to Worksheet #20 | -pH, temperature, specific conductance, DO, ORP, turbidity, color, and odor |
| | GPS Survey Sampling Locations | 32 | Using a hand-held Trimble GPS, survey in the horizontal coordinates of soil sample locations. | Once | N/A | N/A | Field Sketch, notes |
| | Professional Survey Permanent Monitoring Well Locations | 11 | Conduct professional survey to include obtaining horizontal coordinates in the New York State Plane Coordinate System, latitude and longitude of each well location; NAVD88 (US feet) elevation at top of well casing, reported to 0.01 foot; NAVD88 (US feet) ground elevation at base of casing, reported to 0.1 foot. | Once | N/A | N/A | Field Sketch, notes |
| Background | Soil Sampling within Wetland | 8 | Using a hand auger, collect soil (saturated/wet [i.e., hydric]) samples from the wetland at one (1) sample interval (0-1 ft bgs) (**Figure 17-6**) to characterize the area. | Once | -PAHs, TAL metals/mercury<br>-Grain size, CEC, TOC, and pH | Refer to Worksheet #20 | Field Sketch, notes |
| | Monitoring Well Installation | 6 | Using dual-tube DPT, install six (6) 2-inch monitoring wells at first occurrence of water (**Figure 17-6**). Install well screens at a sufficient depth to obtain a properly constructed well (filter pack 2-feet above screen, 2-foot thick bentonite seal, grout to surface). | Once | N/A | N/A | Complete monitoring well construction form |
| | Monitoring Well Development | 6 | Conduct monitoring well development through pumping and surging for up to two (2) hours per well. Well development considered complete if water is free of visible sediment, and turbidity has reached an asymptotic value (e.g., 20 NTU), or up to two (2) hours, whichever comes first. | Once (24 hours post installation); As needed going forward. | N/A | N/A | -pH, temperature, specific conductance, DO, ORP, turbidity, color, and odor |
| | Site Wide Synoptic Water Levels | up to 37 | Collect manual groundwater levels from the six (6) newly installed monitoring well background locations, along with newly installed proposed permanent monitoring wells within each AOC specific gauging event. | Semi-Annual | N/A | N/A | -Manual water level measurements |
| | Groundwater Sampling | 6 | Collect groundwater samples from newly installed monitoring wells. | Semi-annual x 1 year | -PAHs, total and dissolved (field-filtered) metals<br>-DOC (field-filtered), and hardness | Refer to Worksheet #20 | -pH, temperature, specific conductance, DO, ORP, turbidity, color, and odor |
| | Professional Survey Permanent Monitoring Well Locations | 6 | Conduct professional survey to include obtaining horizontal coordinates in the New York State Plane Coordinate System, latitude and longitude of each well location; NAVD88 (US feet) elevation at top of well casing, reported to 0.01 foot; NAVD88 (US feet) ground elevation at base of casing, reported to 0.1 foot. | Once | N/A | N/A | Field Sketch, notes |
| Background | Surface Water Sampling | 8 | Collect surface water samples by direct-dipping laboratory bottleware with closed cap to a depth of 12-inches below top of the stream at eight (8) locations (**Figure 17-7**). Collect one (1) set of field parameters. Collect an unpreserved sample as needed for dissolved metals analysis. Once collected, insert a piece of tubing and hook up a field filter. Extract sample | Semi-annual x 1 year | -PAHs, total and dissolved (field-filtered) TAL metals/mercury<br>-Hardness, DOC (field-filtered), and TSS | Refer to Worksheet #20 | -pH, temperature, specific conductance, DO, ORP, turbidity, color, and odor |

| Investigation Study | Field Task | Total Number of Locations | Summary of Field Task | Frequency | Laboratory Sample Parameters | Field QA-QC*/Other Requirements | Field Parameters Collected |
|---|---|---|---|---|---|---|---|
| | | | from unpreserved bottle with a peristaltic pump into the appropriate preserved bottleware. | | | | |
| | Porewater Sampling | 8 | Collect porewater samples using a porewater sampler at co-located surface water/sediment locations (**Figure 17-7**). Install the porewater sample at least 1-1.5 foot below top of stream sediment. Purge until field parameters indicate a difference between surface water | Semi-annual x 1 year | -PAHs, PAHs, total and dissolved (field-filtered) TAL metals/mercury | Refer to Worksheet #20 | -pH, temperature, specific conductance, DO, ORP, turbidity, color, and odor |
| | Sediment Sampling | 8 | Collect sediment samples using a coring device at co-located surface water/pore water locations (**Figure 17-7**). The sample will be collected from the top of sediment to a depth of 0.5-ft (0-0.5 ft below top of sediment). | Semi-annual x 1 year | -PAHs, total TAL metals/mercury<br>-Grain size, TOC | Refer to Worksheet #20 | Field Sketch, notes |
| | GPS Survey Sampling and stream flow measurement locations | 8 | Using a hand-held Trimble GPS, survey in the horizontal coordinates of co-located surface water, porewater, and sediment sample locations. | Once | N/A | N/A | Field Sketch, notes |
| Abandonment Activities | Temporary Phase 1 RI Wells | 54 | Abandon Phase 1 RI temporary locations. Remove surface expressions and grout in place. | Once | N/A | N/A | Field Sketch, notes |
| | Soil Boring Only Locations | 154 | Between AOC 1, AOC 4, AOC 5, and Background, abandon soil boring locations that will not be a well location using hydrated bentonite or cement. | Once | N/A | N/A | Field Sketch, notes |

Notes:
APBs = ammonium picrate buildings.
bgs = below ground surface.
CAB = coal aggregate bin
CEC = cation exchange capacity.
CSA = coal storage area
DO = dissolved oxygen.
DOC = dissolved organic carbon.
DPT = direct-push technology.
GPS = global positioning system.
NAVD88 = North American Vertical Datum 1988.
NTU = nephelometric units.
OPR = oxidation-reduction potential.
PAHs = polyaromatic hydrocarbons.
PCBs = polychlorinated biphenyls.
RI = remedial investigation.
SVOCs = semi-volatile organic carbon.
TOC = total organic carbon.
TSS = total suspended solids.
VOC = volatile organic carbon

# Worksheet #18 – Sampling Locations and Methods

Samples will be collected at four (4) AOCs and three background areas. Proposed sampling locations are shown on Worksheet #11, **Figures 17-1** through **Figure 17-7**. The field sampling will include:

- AOC 1 – Up to 22 soil borings (66 soil samples), up 12 hand auger locations (12 soil samples); and ten (10) monitoring well locations (up to ten [10] groundwater samples).
- AOC 3 – Up to seventeen (17) soil borings (51 soil samples); and seven (7) monitoring well locations (seven (7) groundwater samples); eight (8) co-located surface water/porewater/sediment locations (24 total samples).
- AOC 4 – Up to 60 locations (60 parent soil samples).
- AOC 5 – Up to 32 boring locations (96 soil samples), up to three (3) hand auger locations (3 soil samples); and eleven (11) monitoring well locations (eleven [11] groundwater samples).
- Background – Up to eight (8) locations (8 soil samples); and six (6) monitoring well locations (up to six (6) groundwater samples); eight (8) co-located surface water/porewater/sediment locations (24 total samples).

Each sample container will be labeled with the project name, unique sample identification number, analysis method number, date and time collected, preservative (if any), and will be initialed by the sampler. All samples will be assigned a unique sample identifier (alpha-numeric code). The purpose of the numbering system is to assist in the tracking of samples and to facilitate retrieval of analytical results. The sampling numbers will be used on the sample labels, sample tracking forms, COC forms, field logs, and all other applicable documentation.

For the NYOW Phase 2 field work, the field sample identifiers will follow the “Recommended Naming Conventions for Locations, Field Samples, and Library File Nomenclature” – Appendix B of the most recent FUDSChem Database User’s Manual in force when the Location Definition Information (LDI) tables are uploaded and Event Planning is completed in FUDSChem. Example sample IDs based on the FUDSCHem User Manual (version 6.8) 4 May 2024. are presented below as **Exhibits 18-1, 18-2, 18-3, 18-4, 18-5, and 18-6**. Discrete sample field duplicates will be collected as blind to the laboratory. For the NYOW Phase 2 field work, the sample numbers will be in the following format: Location Type-DUP-Number-QQYY. For example, the second field duplicate collected from a borehole on 08/24/25 would be PH-DUP-002-Q325. An example of the first field duplicate sample ID during monitoring well sampling on 08/24/25 would be MW-DUP-001-Q325. Locations of duplicate and MS/MSD will be determined in the field and based on recovered sample volume during sample volume, and flow rates during groundwater/porewater sampling.

Trip blanks and ERBs not tied to specific locations will be given unique names every event. For the NYOW Phase 2 field work, the sample numbers will be in the following format: Blank Type-Number-QQYY. Where:

- ERB denotes Equipment Rinsate Blank
- QQYY denotes quarter, year
- TB denotes Trip Blank

For example, the first ERB collected on 08/24/25 would be ERB-01-Q325. The equipment rinsed and sampling team which used the equipment will be noted in the field log so that ERBs may be associated with the appropriate field samples. ERB analyses will be for all the COPCs designated for the particular AOC. Trip blank analyses will only include VOCs. A trip blank will accompany each VOC cooler generated.

## Exhibit 18-1 – AOC 1 Sample Nomenclature

| Sample ID | Matrix | Depth (ft bgs) | Collection Method | Analyte/Analytical Group | Comments |
|---|---|---|---|---|---|
| **Soil** | | | | | |
| NYOW-01-PH040 thru 061-A | Soil | 0-1 | DPT/Manual Percussion | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury. Collect one geotechnical/geochemical at NYOW-01-PH041; -044; -047; -050; and -053* | Surface Soil, AOC 1, DPT/Manual Percussion Locations 40 through 61 (1st depth interval, 0-1 ft bgs) |
| NYOW-01-PH040 thru 061-B | Soil | 1-5 | DPT/Manual Percussion | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury. Collect one geotechnical/geochemical at NYOW-01-PH041; -044; -047; -050; and -053** | Subsurface Soil, AOC 1, DPT/Manual Percussion Locations 40 through 61 (2st depth interval, 1-5 ft bgs) |
| NYOW-01-PH040 thru 061-C | Soil | 5-10 | DPT/Manual Percussion | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury. Collect one geotechnical/geochemical at NYOW-01-PH041; -044; -047; -050; and -053* | Subsurface Soil, AOC 1, DPT/Manual Percussion Locations 40 through 61 (3rd depth interval, 5-10 ft bgs) |
| NYOW-01-PH-DUP001-QQYY** | Soil | 0-1,1-5, 5-10 | DPT/Manual Percussion | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury | Duplicate Subsurface Soil Location, AOC 1, DPT/Manual Percussion Location 0XX (select depth interval with greatest sample recovery bgs). |
| NYOW-01-PH-DUP002-QQYY** | Soil | 0-1,1-5, 5-10 | DPT/Manual Percussion | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury | Duplicate Subsurface Soil Location, AOC 1, DPT/Manual Percussion Location 0XX (select depth interval with greatest sample recovery bgs). |
| NYOW-01-PH-DUP003-QQYY** | Soil | 0-1,1-5, 5-10 | DPT/Manual Percussion | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury | Duplicate Subsurface Soil Location, AOC 1, DPT/Manual Percussion Location 0XX (select depth interval with greatest sample recovery bgs). |
| NYOW-01-PH-DUP004-QQYY** | Soil | 0-1,1-5, 5-10 | DPT/Manual Percussion | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury | Duplicate Subsurface Soil Location, AOC 1, DPT/Manual Percussion Location 0XX (select depth interval with greatest sample recovery bgs). |
| NYOW-01-PH-DUP005-QQYY** | Soil | 0-1,1-5, 5-10 | DPT/Manual Percussion | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury | Duplicate Subsurface Soil Location, AOC 1, DPT/Manual Percussion Location 0XX (select depth interval with greatest sample recovery bgs). |

| Sample ID | Matrix | Depth (ft bgs) | Collection Method | Analyte/Analytical Group | Comments |
|---|---|---|---|---|---|
| NYOW-01-PH-DUP006-QQYY** | Soil | 0-1,1-5, 5-10 | DPT/Manual Percussion | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury | Duplicate Subsurface Soil Location, AOC 1, DPT/Manual Percussion Location 0XX (select depth interval with greatest sample recovery bgs). |
| NYOW-01-PH-DUP007-QQYY** | Soil | 0-1,1-5, 5-10 | DPT/Manual Percussion | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury | Duplicate Subsurface Soil Location, AOC 1, DPT/Manual Percussion Location 0XX (select depth interval with greatest sample recovery bgs). |
| NYOW-01-PH046-B-MS** | Soil | 1-5 | DPT/Manual Percussion | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury | MS Subsurface Soil Location, AOC 1, DPT/Manual Percussion Location 046 (select depth interval with greatest sample recovery bgs). |
| NYOW-01-PH046-B-MSD** | Soil | 1-5 | DPT/Manual Percussion | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury | MSD Subsurface Soil Location, AOC 1, DPT/Manual Percussion Location 046 (select depth interval with greatest sample recovery bgs). |
| NYOW-01-PH053-B-MS** | Soil | 1-5 | DPT/Manual Percussion | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury | MS Subsurface Soil Location, AOC 1, DPT/Manual Percussion Location 053 (select depth interval with greatest sample recovery bgs). |
| NYOW-01-PH053-B-MSD** | Soil | 1-5 | DPT/Manual Percussion | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury | MSD Subsurface Soil Location, AOC 1, DPT/Manual Percussion Location 053 (select depth interval with greatest sample recovery bgs). |
| NYOW-01-PH060-B-MS** | Soil | 1-5 | DPT/Manual Percussion | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury | MS Subsurface Soil Location, AOC 1, DPT/Manual Percussion Location 060 (select depth interval with greatest sample recovery bgs). |
| NYOW-01-PH060-B-MSD** | Soil | 1-5 | DPT/Manual Percussion | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury | MSD Subsurface Soil Location, AOC 1, DPT/Manual Percussion Location 060 (select depth interval with greatest sample recovery bgs). |
| **Hydric Soil** | | | | | |
| NYOW-01-SL062 through 073 -A | Saturated/Wet (i.e., hydric} Soil | 0-1 | Hand Auger Only locations | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury. Collect one geotechnical/geochemical at NYOW-01-PH063; -067; -070; and -073 | Saturated/Wet (i.e., hydric) Surface Soil Only, AOC 1, Hand Auger Locations 62 thru 73 (1st depth interval, 0-1 ft bgs) |

| Sample ID | Matrix | Depth (ft bgs) | Collection Method | Analyte/Analytical Group | Comments |
|---|---|---|---|---|---|
| NYOW-01-SL-DUP001-QQYY** | Saturated/Wet (i.e., hydric} Soil | 0-1 | Hand Auger Only locations | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury | Duplicate Saturated/Wet (i.e., hydric) Surface Soil Location, AOC 1, Hand Auger Location XX (1st depth interval, 0-1 ft bgs) |
| NYOW-01-SL073-A-MS** | Saturated/Wet (i.e., hydric} Soil | 0-1 | Hand Auger Only locations | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury | MS Saturated/Wet (i.e., hydric) Surface Soil Location, AOC 1, Hand Auger Location 073 (1st depth interval, 0-1 ft bgs) |
| NYOW-01-SL073-A-MSD** | Saturated/Wet (i.e., hydric} Soil | 0-1 | Hand Auger Only locations | 2,4-DNCB, 2,4-DNP, picric acid, TAL metals/mercury | MSD Saturated/Wet (i.e., hydric) Surface Soil Location, AOC 1, Hand Auger Location 073 (1st depth interval, 0-1 ft bgs) |
| **Groundwater** | | | | | |
| NYOW-01-MW01-QQYY thru -MW10-QQYY | GW | TBD | Low-flow | 2,4-DNCB, 2,4-DNP, picric acid, total and dissolved (field-filtered) TAL metals/mercury, DOC (field-filtered), hardness | Groundwater Sample from Monitoring Wells, AOC 1, Well #01 through 10 |
| NYOW-01-MW-DUP001-QQYY** | GW | TBD | Low-flow | 2,4-DNCB, 2,4-DNP, picric acid, total and dissolved (field-filtered) TAL metals/mercury, DOC (field-filtered) | Duplicate Groundwater Sample from Monitoring Well, AOC 1, Well #1 |
| NYOW-01-MW02-MS-QQYY** | GW | TBD | Low-flow | 2,4-DNCB, 2,4-DNP, picric acid, total and dissolved (field-filtered) TAL metals/mercury, DOC (field-filtered) | MS Groundwater Sample from Monitoring Well, AOC 1, Well #2 |
| NYOW-01-MW02-MSD-QQYY** | GW | TBD | Low-flow | 2,4-DNCB, 2,4-DNP, picric acid, total and dissolved (field-filtered) TAL metals/mercury, DOC (field-filtered) | MSD Groundwater Sample from Monitoring Well, AOC 1, Well #2 |

Notes:
*Select 8 random locations for geotechnical/geochemical analysis. Geotechnical/geochemical analyses include: grain size, CEC, TOC, and pH. Field QC will not be collected for geochemical analysis.
**Locations of duplicate and MS/MSD shown as an example. Actual locations will be determined in the field and based on sample volume.
Acronyms:
CEC = cation exchange capacity.
DOC = dissolved organic carbon
DPT = direct-push technology
DUP = duplicate. Collection frequency 10% total number of parent samples.
GW = groundwater
MS = matrix spike. Collection frequency 5% total number of parent samples.
MSD = matrix spike duplicate. Collection frequency 5% total number of parent samples.
PH = Direct-push technology
QQYY = quarters/year. Example. Q225 would indicate the sample was collected during Quarter 2 in the year 2025.
NYOW = New York Ordnance Works
SL = surface location (surface soil via hand auger only)
TBD=screen depth to be determined.
TOC = total organic carbon

## Exhibit 18-2 – AOC 3 Example Nomenclature

| Sample ID | Matrix | Depth (ft bgs) | Collection Method | Analyte/Analytical Group | Comments |
|---|---|---|---|---|---|
| **Soil** | | | | | |
| NYOW-03-PH019 thru 035-A | Soil | 0-1 | DPT | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, TAL metals/mercury. Collect one geotechnical/geochemical at NYOW-03-PH019; -021; -022; -023; -025; -030, and -033 *. | Surface Soil, AOC 3, DPT Locations 019 thru 036 (1st depth interval, 0-1 ft bgs) |
| NYOW-03-PH019 thru 035-B | Soil | 1-5 | DPT | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, TAL metals/mercury. Collect one geotechnical/geochemical at NYOW-03-PH019; -021; -022; -023; -025; -030, and -033 *. | Subsurface Soil, AOC 3, DPT Locations 019 thru 036 (2st depth interval, 1-5 ft bgs) |
| NYOW-03-PH019 thru 035-C | Soil | 5-10 | DPT | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, TAL metals/mercury. Collect one geotechnical/geochemical at NYOW-03-PH019; -021; -022; -023; -025; -030, and -033 *. | Subsurface Soil, AOC 3, DPT Locations 019 thru 036 (3rd depth interval, 5-10 ft bgs) |
| NYOW-03-PH-DUP001-QQYY** | Soil | 0-1,1-5, 5-10 | DPT | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, TAL metals/mercury | Duplicate Subsurface Soil Location, AOC 3, DPT Location 0XX (select depth interval with greatest sample recovery bgs). |
| NYOW-03-PH-DUP002-QQYY** | Soil | 0-1,1-5, 5-10 | DPT | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, TAL metals/mercury | Duplicate Subsurface Soil Location, AOC 3, DPT Location 0XX (select depth interval with greatest sample recovery bgs). |
| NYOW-03-PH-DUP003-QQYY** | Soil | 0-1,1-5, 5-10 | DPT | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, TAL metals/mercury | Duplicate Subsurface Soil Location, AOC 3, DPT Location 0XX (select depth interval with greatest sample recovery bgs). |
| NYOW-03-PH-DUP004-QQYY** | Soil | 0-1,1-5, 5-10 | DPT | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, TAL metals/mercury | Duplicate Subsurface Soil Location, AOC 3, DPT Location 0XX (select depth interval with greatest sample recovery bgs). |
| NYOW-03-PH-DUP005-QQYY** | Soil | 0-1,1-5, 5-10 | DPT | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, TAL metals/mercury | Duplicate Subsurface Soil Location, AOC 3, DPT Location 0XX (select depth interval with greatest sample recovery bgs). |
| NYOW-03-PH025-B-MS** | Soil | 1-5 | DPT | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, TAL metals/mercury | MS Subsurface Soil Location, AOC 3, DPT Location 025 (select depth interval with greatest sample recovery bgs). |

| Sample ID | Matrix | Depth (ft bgs) | Collection Method | Analyte/Analytical Group | Comments |
|---|---|---|---|---|---|
| NYOW-03-PH025-B-MSD** | Soil | 1-5 | DPT | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, TAL metals/mercury | MSD Subsurface Soil Location, AOC 3, DPT Location 025 (select depth interval with greatest sample recovery bgs). |
| NYOW-03-PH032-C-MS** | Soil | 5-10 | DPT | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, TAL metals/mercury | MS Subsurface Soil Location, AOC 3, DPT Location 032 (3rd depth interval, 5-10 ft bgs) |
| NYOW-03-PH032-C-MSD** | Soil | 5-10 | DPT | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, TAL metals/mercury | MSD Subsurface Soil Location, AOC 3, DPT Location 032 (select depth interval with greatest sample recovery bgs). |
| **Surface Water** | | | | | |
| NYOW-03-SW001 through 008-QQYY | SW | 1 | Direct-dip | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total and dissolved (field-filtered) TAL metals/mercury, hardness, DOC (field-filtered), and TSS. | Surface Water Sample, AOC 3, Locations 001 through 008 |
| NYOW-03-SW-DUP001-QQYY** | SW | 1 | Direct-dip | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total and dissolved (field-filtered) TAL metals/mercury, hardness, DOC (field-filtered) and TSS. | Duplicate Surface Water Sample, AOC 3, Location 006 |
| NYOW-03-SW001-MS-QQYY** | SW | 1 | Direct-dip | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total and dissolved (field-filtered) TAL metals/mercury, hardness, DOC (field-filtered), and TSS. | MS Surface Water Sample. AOC 3, Location 001 |
| NYOW-03-SW001-MSD-QQYY** | SW | 1 | Direct-dip | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total and dissolved (field-filtered) TAL metals/mercury, hardness, DOC (field-filtered), and TSS. | MSD Surface Water Sample, AOC 3, Location 001 |
| **Porewater** | | | | | |
| NYOW-03-PW001 through 008-QQYY | PW | 1-1.5 feet below top of sediment | Syringe/peristaltic | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total and dissolved (field-filtered) TAL metals/mercury. | Porewater Sample, AOC 3, Locations 001 through 008 |
| NYOW-03-PW-DUP001-QQYY** | PW | 1-1.5 feet below | Syringe/peristaltic | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total and | Duplicate Porewater Sample, AOC 3, Location 006 |

| Sample ID | Matrix | Depth (ft bgs) | Collection Method | Analyte/Analytical Group | Comments |
|---|---|---|---|---|---|
| | | top of sediment | | dissolved (field-filtered) TAL metals/mercury. | |
| NYOW-03-PW001-MS-QQYY** | PW | 1-1.5 feet below top of sediment | Syringe/peristaltic | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total and dissolved (field-filtered) TAL metals/mercury. | MS Porewater Sample. AOC 3, Location 001 |
| NYOW-03-PW001-MSD-QQYY** | PW | 1-1.5 feet below top of sediment | Syringe/peristaltic | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total and dissolved (field-filtered) TAL metals/mercury. | MSD Porewater Sample, AOC 3, Location 001 |
| **Sediment** | | | | | |
| NYOW-03-SD001 through 008-QQYY | SD | 0-0.5 | Sediment Core | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total TAL metals/mercury, grain size, TOC. | Sediment Sample, AOC 3, Locations 001 through 008 |
| NYOW-03-SD-DUP001-QQYY** | SD | 0-0.5 | Sediment Core | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total TAL metals/mercury. | Duplicate Sediment Sample, AOC 3, Location 006 |
| NYOW-03-SD001-MS-QQYY** | SD | 0-0.5 | Sediment Core | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total TAL metals/mercury. | MS Sediment Sample. AOC 3, Location 001 |
| NYOW-03-SD001-MSD-QQYY** | SD | 0-0.5 | Sediment Core | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total TAL metals/mercury. | MSD Sediment Sample, AOC 3, Location 001 |
| **Groundwater** | | | | | |
| NYOW-03-MW01 thru -MW07-QQYY | GW | TBD | Low-flow | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total and dissolved (field-filtered) TAL metals/mercury, DOC (field-filtered), hardness | Groundwater Sample from Monitoring Wells, AOC 3, Well #01 through 07 |
| NYOW-03-MW-DUP001-QQYY** | GW | TBD | Low-flow | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total and dissolved (field-filtered) TAL metals/mercury, DOC (field-filtered) | Duplicate Groundwater Sample from Monitoring Well, AOC 3, Well #1 |
| NYOW-03-MW02-MS-QQYY** | GW | TBD | Low-flow | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total and | MS Groundwater Sample from Monitoring Well, AOC 3, Well #2 |

| Sample ID | Matrix | Depth (ft bgs) | Collection Method | Analyte/Analytical Group | Comments |
|---|---|---|---|---|---|
| | | | | dissolved (field-filtered) TAL metals/mercury, DOC (field-filtered) | |
| NYOW-03-MW02-MSD-QQYY** | GW | TBD | Low-flow | VOCs, SVOCs, PAHs, PCB Aroclors, picric acid, total and dissolved (field-filtered) TAL metals/mercury, DOC (field-filtered) | MSD Groundwater Sample from Monitoring Well, AOC 3, Well #2 |

Notes:
*Select 8 random locations for geotechnical/geochemical analysis. Geotechnical/geochemical analyses include: grain size, CEC, TOC, and pH. Field QC will not be collected for geochemical analysis.
**Locations of duplicate and MS/MSD shown as an example. Actual locations will be determined in the field and based on sample volume.
Acronyms:
CEC = cation exchange capacity.
DOC = dissolved organic carbon
DPT = direct-push technology
DUP = duplicate. Collection frequency 10% total number of parent samples..
GW = groundwater
MS = matrix spike. Collection frequency 5% total number of parent samples.
MSD = matrix spike duplicate. Collection frequency 5% total number of parent samples.
NYOW = New York Ordnance Works
PH = Direct-push technology
PW = porewater
QQYY = quarters/year. Example. Q225 would indicate the sample was collected during Quarter 2 in the year 2025.
SD = sediment
SW = surface water
TBD=screen depth to be determined.
TOC = total organic carbon
TSS = total suspended solids

## Exhibit 18-3 – AOC 4 Sample Nomenclature

| Sample ID | Matrix | Depth (ft bgs) | Collection Method | Analyte/Analytical Group | Comments |
|---|---|---|---|---|---|
| NYOW-04-SL086 thru 145-A | Soil | 0-1 | Hand auger | 2,4-DNCB, 2,4-DNP, picric acid | Surface Soil, AOC 4, Hand auger Locations 086 thru 144 (1st depth interval, 0-1 ft bgs) |
| NYOW-04-SL-DUP001-QQYY** | Soil | 0-1 | Hand auger | 2,4-DNCB, 2,4-DNP, picric acid | Duplicate Surface Soil Location, AOC 4, Hand Auger Location 095 (1st depth interval, 0-1 ft bgs) |
| NYOW-04-SL-DUP002-QQYY** | Soil | 0-1 | Hand auger | 2,4-DNCB, 2,4-DNP, picric acid | Duplicate Surface Soil Location, AOC 4, Hand Auger Location 0XX (1st depth interval, 0-1 ft bgs) |
| NYOW-04-SL-DUP003-QQYY** | Soil | 0-1 | Hand auger | 2,4-DNCB, 2,4-DNP, picric acid | Duplicate Surface Soil Location, AOC 4, Hand Auger Location 0XX (1st depth interval, 0-1 ft bgs) |
| NYOW-04-SL-DUP004-QQYY** | Soil | 0-1 | Hand auger | 2,4-DNCB, 2,4-DNP, picric acid | Duplicate Surface Soil Location, AOC 4, Hand Auger Location 0XX (1st depth interval, 0-1 ft bgs) |
| NYOW-04-SL-DUP005-QQYY** | Soil | 0-1 | Hand auger | 2,4-DNCB, 2,4-DNP, picric acid | Duplicate Surface Soil Location, AOC 4, Hand Auger Location 0XX (1st depth interval, 0-1 ft bgs) |
| NYOW-04-SL-DUP006-QQYY** | Soil | 0-1 | Hand auger | 2,4-DNCB, 2,4-DNP, picric acid | Duplicate Surface Soil Location, AOC 4, Hand Auger Location 0XX (1st depth interval, 0-1 ft bgs) |
| NYOW-04-SL105-MS** | Soil | 0-1 | Hand auger | 2,4-DNCB, 2,4-DNP, picric acid | MS Surface Soil Location, AOC 4, Hand Auger Location 105 (1st depth interval, 0-1 ft bgs) |
| NYOW-04-SL105-MSD** | Soil | 0-1 | Hand auger | 2,4-DNCB, 2,4-DNP, picric acid | MSD Surface Soil Location, AOC 4, Hand Auger Location 105 (1st depth interval, 0-1 ft bgs) |
| NYOW-04-SL125-MS** | Soil | 0-1 | Hand auger | 2,4-DNCB, 2,4-DNP, picric acid | MS Surface Soil Location, AOC 4, Hand Auger Location 125 (1st depth interval, 0-1 ft bgs) |
| NYOW-04-SL125-MSD** | Soil | 0-1 | Hand auger | 2,4-DNCB, 2,4-DNP, picric acid | MSD Surface Soil Location, AOC 4, Hand Auger Location 125 (1st depth interval, 0-1 ft bgs) |
| NYOW-04-SL144-MS** | Soil | 0-1 | Hand auger | 2,4-DNCB, 2,4-DNP, picric acid | MS Surface Soil Location, AOC 4, Hand Auger Location 144 (1st depth interval, 0-1 ft bgs) |
| NYOW-04-SL144-MSD** | Soil | 0-1 | Hand auger | 2,4-DNCB, 2,4-DNP, picric acid | MSD Surface Soil Location, AOC 4, Hand Auger Location 144 (1st depth interval, 0-1 ft bgs) |

Notes:
**Locations of duplicate and MS/MSD shown as an example. Actual locations will be determined in the field and based on sample volume.
Acronyms:
DUP = duplicate. Collection frequency 10% total number of parent samples..
MS = matrix spike. Collection frequency 5% total number of parent samples.
MSD = matrix spike duplicate. Collection frequency 5% total number of parent samples.
NYOW = New York Ordnance Works
QQYY = quarters/year. Example. Q225 would indicate the sample was collected during Quarter 2 in the year 2025.

## Exhibit 18-4 – AOC 5 Sample Nomenclature

| Sample ID | Matrix | Depth (ft bgs) | Collection Method | Analyte/Analytical Group | Comments |
|---|---|---|---|---|---|
| **Soil – DU#1 – Electrical Substation Portion** | | | | | |
| NYOW-05-PH026 thru 030-A | Soil | 0-1 | DPT | PAHs, TAL metals/mercury, PCB Aroclors. Collect one geotechnical/geochemical at NYOW-05-PH028. | Surface Soil, AOC 5, DPT Locations 026 through 030 (1st depth interval, 0-1 ft bgs) |
| NYOW-05-PH026 thru 030-B | Soil | 1-5 | DPT | PAHs, TAL metals/mercury, PCB Aroclors. Collect one geotechnical/geochemical at NYOW-05-PH028. | Subsurface Soil, AOC 5, DPT Locations 026 through 030 (2nd depth interval, 1-5 ft bgs) |
| NYOW-05-PH026 thru 030-C | Soil | 5-10 | DPT | PAHs, TAL metals/mercury, PCB Aroclors. Collect one geotechnical/geochemical at NYOW-05-PH028. | Subsurface Soil, AOC 5, DPT Locations 026 through 030 (3rd depth interval, 5-10 ft bgs) |
| NYOW-05-PH-DUP001-QQYY** | Soil | 0-1,1-5, 5-10 | DPT | PAHs, TAL metals/mercury, PCB Aroclors. | Duplicate Subsurface Soil Location, AOC 5, DU#1, DPT Location 0XX (select depth interval with greatest sample recovery bgs). |
| **Soil – DU#1 – Boiler House** | | | | | |
| NYOW-05-PH031 thru 033-A | Soil | 0-1 | DPT | PAHs, TAL metals/mercury. Collect one geotechnical/geochemical sample at NYOW-05-PH032*. Select three soil boring locations for coal/coal ash by microscopy. | Surface Soil, AOC 5, DPT Locations 031 through 033 (1st depth interval, 0-1 ft bgs) |
| NYOW-05-PH031 thru 033-B | Soil | 1-5 | DPT | PAHs, TAL metals/mercury. Collect one geotechnical/geochemical sample at NYOW-05-PH032*. Select three soil boring locations for coal/coal ash by microscopy. | Subsurface Soil, AOC 5, DPT Locations 031 through 033 (2nd depth interval, 1-5 ft bgs) |
| NYOW-05-PH031 thru 033-C | Soil | 5-10 | DPT | PAHs, TAL metals/mercury. Collect one geotechnical/geochemical sample at NYOW-05-PH032*. Select three soil boring locations for coal/coal ash by microscopy. | Subsurface Soil, AOC 5, DPT Locations 031 through 033 (3rd depth interval, 5-10 ft bgs) |

| Sample ID | Matrix | Depth (ft bgs) | Collection Method | Analyte/Analytical Group | Comments |
|---|---|---|---|---|---|
| NYOW-05-PH-DUP002-QQYY** | Soil | 0-1,1-5, 5-10 | DPT | PAHs, TAL metals/mercury. | Duplicate Subsurface Soil Location, AOC 5, DU#1, DPT Location 0XX (select depth interval with greatest sample recovery bgs). |
| NYOW-05-PH032-B-MS** | Soil | 1-5 | DPT | PAHs, TAL metals/mercury. | MS Subsurface Soil Location, AOC 5, DU#1 DPT Location 032 (select depth interval with greatest sample recovery bgs). |
| NYOW-05-PH032-B-MSD** | Soil | 1-5 | DPT | PAHs, TAL metals/mercury. | MSD Subsurface Soil Location, AOC 5, DU#1 DPT Location 032 (select depth interval with greatest sample recovery bgs). |
| **Soil – DU#2** | | | | | |
| NYOW-05-PH034 thru 041-A | Soil | 0-1 | DPT | PAHs, TAL metals/mercury. Collect one geotechnical/geochemical sample at NYOW-05-PH036*. Select four soil boring locations for coal/coal ash by microscopy. | Surface Soil, AOC 5, DPT Locations 034 through 042 (1st depth interval, 0-1 ft bgs) |
| NYOW-05-PH034 thru 041-B | Soil | 1-5 | DPT | PAHs, TAL metals/mercury. Collect one geotechnical/geochemical sample at NYOW-05-PH036*. Select four soil boring locations for coal/coal ash by microscopy. | Subsurface Soil, AOC 5, DPT Locations 034 through 042 (2nd depth interval, 1-5 ft bgs) |
| NYOW-05-PH034 thru 041-C | Soil | 5-10 | DPT | PAHs, TAL metals/mercury. Collect one geotechnical/geochemical sample at NYOW-05-PH036*. Select four soil boring locations for coal/coal ash by microscopy. | Subsurface Soil, AOC 5, DPT Locations 034 through 042 (3rd depth interval, 5-10 ft bgs) |
| NYOW-05-PH-DUP003-QQYY** | Soil | 0-1,1-5, 5-10 | DPT | PAHs, TAL metals/mercury. | Duplicate Subsurface Soil Location, AOC 5, DU#2, DPT Location 0XX (select depth interval with greatest sample recovery bgs). |
| NYOW-05-PH-DUP004-QQYY** | Soil | 0-1,1-5, 5-10 | DPT | PAHs, TAL metals/mercury. | Duplicate Subsurface Soil Location, AOC 5, DU#2, DPT Location 0XX (select depth interval with greatest sample recovery bgs). |
| NYOW-05-PH037-B-MS** | Soil | 1-5 | DPT | PAHs, TAL metals/mercury. | MS Subsurface Soil Location, AOC 5, DU#2 DPT Location 037 (select depth interval with greatest sample recovery bgs). |

| Sample ID | Matrix | Depth (ft bgs) | Collection Method | Analyte/Analytical Group | Comments |
|---|---|---|---|---|---|
| NYOW-05-PH037-B-MSD** | Soil | 1-5 | DPT | PAHs, TAL metals/mercury. | MSD Subsurface Soil Location, AOC 5, DU#2 DPT Location 037 (select depth interval with greatest sample recovery bgs). |
| **Soil – DU#3** | | | | | |
| NYOW-05-PH042 thru 049-A | Soil | 0-1 | DPT | PAHs, TAL metals/mercury. Collect one geotechnical/geochemical sample at NYOW-05-PH045*. All eight soil boring locations for coal/coal ash by microscopy. | Surface Soil, AOC 5, DPT Locations 043 through 055 (1st depth interval, 0-1 ft bgs) |
| NYOW-05-PH042 thru 049-B | Soil | 1-5 | DPT | PAHs, TAL metals/mercury. Coal by microscopy. Collect one geotechnical/geochemical sample at NYOW-05-PH045*. All eight soil boring locations for coal/coal ash by microscopy. | Subsurface Soil, AOC 5, DPT Locations 043 through 055 (2nd depth interval, 1-5 ft bgs) |
| NYOW-05-PH042 thru 049-C | Soil | 5-10 | DPT | PAHs, TAL metals/mercury. Coal by microscopy. Collect one geotechnical/geochemical sample at NYOW-05-PH045*. All eight soil boring locations for coal/coal ash by microscopy. | Subsurface Soil, AOC 5, DPT Locations 043 through 055 (3rd depth interval, 5-10 ft bgs) |
| NYOW-05-PH-DUP006-QQYY** | Soil | 0-1,1-5, 5-10 | DPT | PAHs, TAL metals/mercury. | Duplicate Subsurface Soil Location, AOC 5, DU#3, DPT Location 0XX (select depth interval with greatest sample recovery bgs). |
| NYOW-05-PH-DUP007-QQYY** | Soil | 0-1,1-5, 5-10 | DPT | PAHs, TAL metals/mercury. | Duplicate Subsurface Soil Location, AOC 5, DU#3, DPT Location 0XX (select depth interval with greatest sample recovery bgs). |
| NYOW-05-PH044-B-MS** | Soil | 1-5 | DPT | PAHs, TAL metals/mercury. | MS Subsurface Soil Location, AOC 5, DU#3 DPT Location 044 (select depth interval with greatest sample recovery bgs). |
| NYOW-05-PH044-B-MSD** | Soil | 1-5 | DPT | PAHs, TAL metals/mercury. | MSD Subsurface Soil Location, AOC 5, DU#3 DPT Location 044 (select depth interval with greatest sample recovery bgs). |

| Sample ID | Matrix | Depth (ft bgs) | Collection Method | Analyte/Analytical Group | Comments |
|---|---|---|---|---|---|
| **Soil – DU#4** | | | | | |
| NYOW-05-PH050 thru 057-A | Soil | 0-1 | DPT | PAHs, TAL metals/mercury, Collect one geotechnical/geochemical sample at NYOW-05-PH056*. | Surface Soil, AOC 5, DPT Locations 056 through 064 (1st depth interval, 0-1 ft bgs) |
| NYOW-05-PH050 thru 057-B | Soil | 1-5 | DPT | PAHs, TAL metals/mercury , Collect one geotechnical/geochemical sample at NYOW-05-PH056*. | Subsurface Soil, AOC 5, DPT Locations 056 through 064 (2nd depth interval, 1-5 ft bgs) |
| NYOW-05-PH050 thru 057-C | Soil | 5-10 | DPT | PAHs, TAL metals/mercury,. Collect one geotechnical/geochemical sample at NYOW-05-PH056*. | Subsurface Soil, AOC 5, DPT Locations 056 through 064 (3rd depth interval, 5-10 ft bgs) |
| NYOW-05-PH-DUP008-QQYY** | Soil | 0-1,1-5, 5-10 | DPT | PAHs, TAL metals/mercury. | Duplicate Subsurface Soil Location, AOC 5, DU#4, DPT Location 0XX (select depth interval with greatest sample recovery bgs). |
| NYOW-05-PH-DUP009-QQYY** | Soil | 0-1,1-5, 5-10 | DPT | PAHs, TAL metals/mercury. | Duplicate Subsurface Soil Location, AOC 5, DU#4, DPT Location 0XX (select depth interval with greatest sample recovery bgs). |
| NYOW-05-PH058-B-MS** | Soil | 5-10 | DPT | PAHs, TAL metals/mercury. | MS Subsurface Soil Location, AOC 5, DU#2 DPT Location 058 (select depth interval with greatest sample recovery bgs). |
| NYOW-05-PH058-B-MSD** | Soil | 5-10 | DPT | PAHs, TAL metals/mercury. | MSD Subsurface Soil Location, AOC 5, DU#2 DPT Location 058 (select depth interval with greatest sample recovery bgs). |
| **Hydric Soil** | | | | | |
| NYOW-05-SL058 through 060 -A | Saturated/Wet (i.e., hydric) Soil | 0-1 | Hand Auger Only locations | PAHs, TAL metals/mercury Collect one geotechnical/geochemical sample at NYOW-05-PH059*. | Saturated/Wet (i.e., hydric) Surface Soil Only, AOC 5, Hand Auger Locations 065 thru 067 (1st depth interval, 0-1 ft bgs) |
| **Groundwater** | | | | | |
| NYOW-05-MW01, NYOW-05-MW02, NYOW-05-MW04, NYOW-05-MW05, NYOW-05-MW06-QQYY** | GW | TBD | Low-flow | PAHs, TAL metals/mercury (total and dissolved [field-filtered]), DOC (field-filtered), hardness. | AOC 5 wells not likely impacted by PCBs detected in electric substation soils. Groundwater Sample from Monitoring Wells, AOC 5, Well #01, -02, -04 through. |

| Sample ID | Matrix | Depth (ft bgs) | Collection Method | Analyte/Analytical Group | Comments |
|---|---|---|---|---|---|
| NYOW-05-MW08, and NYOW-05-MW09-QQYY** | GW | TBD | Low-flow | PAHs, TAL metals/mercury (total and dissolved [field-filtered]), DOC (field-filtered), hardness, PCB Aroclors. | Electric substation and possible dump. Groundwater Sample from Monitoring Wells, AOC 5, Well #08 and -09 |
| NYOW-05-MW03 and NYOW-05-MW07-QQYY** | GW | TBD | Low flow | PAHs, TAL metals/mercury (total and dissolved [field-filtered]), DOC (field-filtered), hardness, PCB Aroclors. | Groundwater Sample from Monitoring Wells downgradient of electric substation in AOC 5, Well #03 and -07. |
| NYOW-05-MW10 and NYOW-05-MW11-QQYY** | GW | TBD | Low-flow | PAHs, TAL metals/mercury (total and dissolved [field-filtered]), DOC (field-filtered), hardness. | Wells downgradient of AOC 5 - Groundwater Sample from Monitoring Wells, AOC 5, Well #10, and 11. |
| NYOW-05-MW-DUP001-QQYY** | GW | TBD | Low-flow | PAHs, TAL metals/mercury (total and dissolved [field-filtered]), DOC (field-filtered). | Duplicate Groundwater Sample from Monitoring Well, AOC 5, Well #1 |
| NYOW-05-MW02-MS-QQYY** | GW | TBD | Low-flow | PAHs, TAL metals/mercury (total and dissolved [field-filtered]), DOC (field-filtered). | MS Groundwater Sample from Monitoring Well, AOC 5, Well #2 |
| NYOW-05-MW02-MSD-QQYY** | GW | TBD | Low-flow | PAHs, TAL metals/mercury (total and dissolved [field-filtered]), DOC (field-filtered). | MSD Groundwater Sample from Monitoring Well, AOC 5, Well #2 |

Notes:
*Select 8 random locations for geotechnical/geochemical analysis. Geotechnical/geochemical analyses include: grain size, CEC, TOC, and pH. Field QC will not be collected for geochemical analysis.
**Locations of duplicate and MS/MSD shown as an example. Actual locations will be determined in the field and based on sample volume.
Acronyms:
CEC = cation exchange capacity.
DOC = dissolved organic carbon
DPT = direct-push technology
DU = decision unit
DUP = duplicate. Collection frequency 10% total number of parent samples..
GW = groundwater
MS = matrix spike. Collection frequency 5% total number of parent samples.
MSD = matrix spike duplicate. Collection frequency 5% total number of parent samples.
NYOW = New York Ordnance Works
PH = Direct-push technology
QQYY = quarters/year. Example. Q225 would indicate the sample was collected during Quarter 2 in the year 2025.
SL = surface location (surface soil via hand auger only)
TBD=screen depth to be determined.
TOC = total organic carbon

## Exhibit 18-5 – Background Sample Nomenclature

| Sample ID | Matrix | Depth (ft bgs) | Collection Method | Analyte/Analytical Group | Comments |
|---|---|---|---|---|---|
| **Soil** | | | | | |
| NYOW-BK-SL001 thru 008-A | Saturated/Wet (i.e., hydric) Soil | 0-1 | Hand Auger | PAHs, TAL metals/mercury. Collect one geotechnical/geochemical at each location)*. | Saturated/Wet (i.e., hydric) Surface Soil, Background, Hand Auger Locations 001 thru 008 (1st depth interval, 0-1 ft bgs) |
| NYOW-BK-SL-DUP001-QQYY** | Saturated/Wet (i.e., hydric) Soil | 0-1 | Hand Auger | PAHs, TAL metals/mercury. | Duplicate Saturated/Wet (i.e., hydric) Surface Soil Location, Background, Hand Auger Location 001 (1st depth interval, 0-1 ft bgs) |
| NYOW-BK-SL005-A-MS-QQYY** | Saturated/Wet (i.e., hydric) Soil | 0-1 | Hand Auger | PAHs, TAL metals/mercury. | MS Saturated/Wet (i.e., hydric) Surface Soil Location, Background, Hand Auger Location 005 (1st depth interval, 0-1 ft bgs) |
| NYOW-BK-SL005-A-MSD-QQYY** | Saturated/Wet (i.e., hydric) Soil | 0-1 | Hand Auger | PAHs, TAL metals/mercury. | MSD Saturated/Wet (i.e., hydric) Surface Soil Location, Background, Hand Auger Location 005 (1st depth interval, 0-1 ft bgs) |
| **Surface Water** | | | | | |
| NYOW-BK-SW001 through 008-QQYY* | SW | 1 | Direct-dip | PAHs, total and dissolved (field-filtered) TAL metals/mercury, hardness, DOC (field-filtered), and TSS. | Surface Water Sample, Background, Locations 001 through 008 |
| NYOW-BK-SW-DUP001-QQYY** | SW | 1 | Direct-dip | PAHs, total and dissolved (field-filtered) TAL metals/mercury, hardness, DOC (field-filtered), and TSS. | Duplicate Surface Water Sample, Background, Location 001 |
| NYOW-BK-SW002-MS-QQYY** | SW | 1 | Direct-dip | PAHs, total and dissolved (field-filtered) TAL metals/mercury, hardness, DOC (field-filtered), and TSS. | MS Surface Water Sample. Background, Location 002 |
| NYOW-BK-SW002-MSD-QQYY** | SW | 1 | Direct-dip | PAHs, total and dissolved (field-filtered) TAL metals/mercury, hardness, DOC (field-filtered), and TSS. | MSD Surface Water Sample, Background, Location 002 |
| **Porewater** | | | | | |
| NYOW-BK-PW001 through 008-QQYY** | PW | 1-1.5 feet below top of sediment | Syringe/peristaltic | PAHs, total and dissolved (field-filtered) TAL metals/mercury | Porewater Sample, Background, Locations 001 through 008 |

| Sample ID | Matrix | Depth (ft bgs) | Collection Method | Analyte/Analytical Group | Comments |
|---|---|---|---|---|---|
| NYOW-BK-PW-DUP001-QQYY** | PW | 1-1.5 feet below top of sediment | Syringe/peristaltic | PAHs, total and dissolved (field-filtered) TAL metals/mercury | Duplicate Porewater Sample, Background, Location 001 |
| NYOW-BK-PW002-MS-QQYY** | PW | 1-1.5 feet below top of sediment | Syringe/peristaltic | PAHs, total and dissolved (field-filtered) TAL metals/mercury | MS Porewater Sample. Background, Location 002 |
| NYOW-03-PW002-MSD-QQYY** | PW | 1-1.5 feet below top of sediment | Syringe/peristaltic | PAHs, total and dissolved (field-filtered) TAL metals/mercury | MSD Porewater Sample, Background, Location 002 |
| **Sediment** | | | | | |
| NYOW-BK-SD001 through 008-QQYY** | SD | 0-0.5 | Sediment Core | PAHs, total TAL metals/mercury, grain size, TOC. | Sediment Sample, Background, Locations 001 through 008 |
| NYOW-BK-SD-DUP001-QQYY** | SD | 0-0.5 | Sediment Core | PAHs, total TAL metals/mercury, grain size, TOC. | Duplicate Sediment Sample, Background, Location 001 |
| NYOW-BK-SD002-MS-QQYY** | SD | 0-0.5 | Sediment Core | PAHs, total TAL metals/mercury, grain size, TOC. | MS Sediment Sample, Background, Location 002 |
| NYOW-BK-SD002-MSD-QQYY** | SD | 0-0.5 | Sediment Core | PAHs, total TAL metals/mercury, grain size, TOC. | MSD Sediment Sample, Background, Location 002 |
| **Groundwater** | | | | | |
| NYOW-BK-MW01 thru -MW06-QQYY | GW | TBD | Low-flow | PAHs, total and dissolved (field-filtered) TAL metals/mercury, DOC (field-filtered), hardness | Groundwater Sample from Monitoring Wells, Background, Well #01 through 06 |
| NYOW-BK-MW-DUP001-QQYY** | GW | TBD | Low-flow | PAHs, total and dissolved (field-filtered) TAL metals/mercury, DOC (field-filtered) | Duplicate Groundwater Sample from Monitoring Well, Background, Well #01 |
| NYOW-BK-MW02-MS-QQYY** | GW | TBD | Low-flow | PAHs, total and dissolved (field-filtered) TAL | MS Groundwater Sample from Monitoring Well, Background, Well #02 |

| Sample ID | Matrix | Depth (ft bgs) | Collection Method | Analyte/Analytical Group | Comments |
|---|---|---|---|---|---|
| | | | | metals/mercury, DOC (field-filtered) | |
| NYOW-BK-MW02-MSD-QQYY** | GW | TBD | Low-flow | PAHs, total and dissolved (field-filtered) TAL metals/mercury, DOC (field-filtered) | MSD Groundwater Sample from Monitoring Well, Background, Well #02 |

Notes:
*Select 8 random locations for geotechnical/geochemical analysis. Geotechnical/geochemical analyses include: grain size, CEC, TOC, and pH. Field QC will not be collected for geochemical analysis.
**Locations of duplicate and MS/MSD shown as an example. Actual locations will be determined in the field and based on sample volume.
Acronyms:
CEC = cation exchange capacity.
DOC = dissolved organic carbon
DPT = direct-push technology
DUP = duplicate. Collection frequency 10% total number of parent samples..
GW = groundwater
MS = matrix spike. Collection frequency 5% total number of parent samples.
MSD = matrix spike duplicate. Collection frequency 5% total number of parent samples.
NYOW = New York Ordnance Works
PH = Direct-push technology
PW = porewater
QQYY = quarters/year. Example. Q225 would indicate the sample was collected during Quarter 2 in the year 2025.
SD = sediment
SW = surface water
TBD=screen depth to be determined.
TOC = total organic carbon
TSS = total suspended solids

## Exhibit 18-6 – IDW Sample Nomenclature

| IDW – Example Sample IDs | Nomenclature | Analyte/Analytical Group |
|---|---|---|
| IDW, Solid 1st Sample | NYOW-IDWS001 | TCLP VOCs, TCLP SVOCs, TCLP Pesticides, TCLP Herbicides, TCLP Metals, RCI, PCBs |
| IDW, Aqueous, 3rd Sample | NYOW-IDWA003 | TCLP VOCs, TCLP SVOCs, TCLP Pesticides, TCLP Herbicides, TCLP Metals, RCI, PCBs |

Acronyms:
NYOW = New York Ordnance Works
IDW = investigation-derived waste
RCI = reactivity, corrosivity, ignitability
SVOCs = semi-volatile organic compounds
TCLP = toxic characteristic leaching procedure

# Worksheets #19 and #30 – Sample Containers, Preservation, and Holding Times

The analytical methods for each sample matrix, sample volume, containers, preservation, holding times, and analytical laboratories are identified below. Samples will be shipped to respective laboratories for analysis. Applicable analytical SOPs are provided in **Appendix F**. All sample coolers will be shipped to Eurofins Lancaster Laboratories Environmental Testing, LLC (ELLE). All sample analyses will be conducted by ELLE with the exception of picric acid which will be performed by Eurofins Denver. For these analyses, the JV will collect in separate bottleware, and ship under separate chain of custody to the appropriate laboratory in order to reduce the risk of missing hold times. Preliminary POCs that are currently available are provided below, however due to staffing/scheduling, POCs can change due to project demands. Therefore, prior to going in the field, the initial bottleware order along with shipping information will be coordinated through ELLE. Along with the appropriate bottleware, ELLE will provide pre-printed courier labels with the appropriate individual laboratory destinations and POCs. Data will be generated by the same sources collecting the data. All communication regarding samples will be through ELLE. Additionally, data generated from the Phase 1 RI will be utilized in the evaluations.

**Laboratory:** **Eurofins Lancaster Laboratories Environment Testing, LLC (ELLE)**

2425 New Holland Pike
Lancaster, PA 17601
**POC:** Barbara Weyandt (670) 658-7330
**Accréditations/Certifications:** DoD A2A 1.01 (exp 11/30/2026)

**Eurofins Denver**
4955 Yarrow St, Suite 100
Arvada, CO 80002
POC Joy Chang (303) 467-7396
**Accreditations/Certifications:** DoD L2907 (exp. 10/31/2026) / NY No. 11964 (exp. 04/01/2026)

**MicroVision Laboratories, Inc.**
Samples for coal analysis only
187 Billerica Road
Chelmsford, MA 01824
POC John Knowles (978) 315-5768
**Accreditations/Certifications:** ISO/IEC 17025:2017 (exp 9/30/2025)

**Sample Delivery Method:** Federal Express (or equivalent)

| Analyte/Analyte Group | Matrix | Method/SOP | Sample Volume | Container(s) | Preservation | Preparation Holding Time | Analytical Holding Time | Data Package Turnaround |
|---|---|---|---|---|---|---|---|---|
| VOC | Water | SW-846 8260C/D WI8194 | 120 mL | 3 x 40 mL glass vials | HCl, 2-6oC; pH <2 | 14 days preserved; 7 days not preserved | 14 days preserved; 7 days not preserved | Project Specific |
| VOC | Soil | SW-846 8260C/D WI8236 | 15 g | TerraCore samplers plus 3 X 40 mL glass vials | Methanol, DI water; 2-6oC | preserved in the field at time of collection | DI water - 48 hours; frozen upon receipt. MeOH -14 days | Project Specific |
| GC/MS Semivolatiles | Water | SW-846 8270E/ WI9617 | 250 mL | 2 x 250 mL amber glass bottle | None, 0-6oC | 7 days | 40 days | Project Specific |
| GC/MS Semivolatiles 2,4-DNCB & 2,3-DNB | Water | Eurofins-Lancaster SW-846-8270E WI9617 | 250 mL | 2 x 250 mL amber glass bottle | None, 0-6oC | 7 days | 40 days | Project Specific |
| Explosives | Water | Eurofins-Denver SW-846-8330B DV-LC-0002 | 250 mL | 2 x 250 mL amber glass bottle | None, 0-6oC | 7 days | 40 days | Project Specific |
| GC/MS Semivolatiles PAH-SIM, PCBs | Soil | SW-846 8270E / PAH-SIM, 8330B, 8082A WI9617/9252/9981/9238 | 100 g | 1x 4 or 8 ounce glass jar | None, 0-6oC | 14 days | 40 days | Project Specific |
| GC/MS Semivolatiles 2,4-DNCB & 2,3-DNB | Soil | Eurofins-Lancaster SW-846-8270E WI9617 | 100 g | 1x 4 or 8 ounce glass jar | None, 0-6oC | 14 days | 40 days | Project Specific |
| Explosives | Soil | Eurofins-Denver SW-846-8330B DV-LC-0002 | 100 g | 1x 4 or 8 ounce glass jar | None, 0-6oC | 14 days | 40 days | Project Specific |
| | | | | | | | | |
| PCBs | Water | SW-846 8082A/ WI9238 | 250 mL | 2 x 250 mL amber glass bottle | None, 0-6oC | 365 days | 40 days | Project Specific |
| PCBs | Soil | SW-846 8082A/ WI9238 | 100 g | 4 or 8 ounce glass jar | None, 0-6oC | 365 days | 40 days | Project Specific |
| Metals | Water | SW-846 6020B WI11933 | 250 mL | 250 mL plastic | HNO3, 2-6oC; pH <2 | NA | 6 months | Project Specific |

| Analyte/Analyte Group | Matrix | Method/SOP | Sample Volume | Container(s) | Preservation | Preparation Holding Time | Analytical Holding Time | Data Package Turnaround |
|---|---|---|---|---|---|---|---|---|
| Metals | Soil | SW-846 6020B WI11933 | 100 g | 4 or 8 ounce glass jar | None, 2-6oC | NA | 6 months | Project Specific |
| Metals | Water | SW-846 7470A/ WI7965 | 250 mL | 250 mL plastic | HNO3, 2-6oC, pH <2 | NA | 28 days | Project Specific |
| Metals | Soil | SW-846 7471B WI7965 | 100 g | 4 or 8 ounce glass jar | None, 0-6oC | NA | 28 days | Project Specific |
| Dissolved Organic Carbon | Water (field filtered) | SM 5310C-2014 WI11637 | 40 mL | 2 x 40 mL amber glass vial | Cool, 6oC, H3PO4 to pH <2 | NA | 28 days | standard |
| Total Organic Carbon | solid | 9060A; WI11627 | 20 g | 4 or 8 ounce glass jar | Cool, 6oC | NA | 28 days | standard |
| Total Hardness | Water | SM 2340 C-2011 or EPA 130.2; WI11475 | 100mL | 250 mL plastic or glass bottle | HNO3 to pH <2 | NA | 6 months | Project Specific |
| pH | Soil | SW-846 9045 C/D; WI11518 | 25 g | 4 ounce soil jar | None, 0-6oC | NA | NA | Project Specific |
| CEC | Soil | Eurofins-Lancaster SW-846 9081 WI7562 | 25 g | 4 ounce soil jar | None, 0-6oC | NA | NA | 14 days |
| Microscopy | Soil | MicroVision Laboratory, Inc. / Method is proprietary | 5 g | 8 oz jar or Ziplock bag | None | NA | NA | standard |

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# Worksheet #20 – Field QC Summary

The following information is a summary of the field QC samples to be collected during sampling activities. Field QC samples are summarized in the tables at the end of this section.

## Field Duplicate Samples

Field duplicates are two (2) (or more) field samples taken at the same time in the same location. They are intended to represent the same population and are taken through all steps of the analytical procedure in an identical manner. These samples are used to assess precision of the entire data collection activity, including sampling, analysis, and site heterogeneity. The standard collection frequency for duplicate samples is one (1) for every ten (10) field samples.

## Matrix Spike/Matrix Spike Duplicates

A MS/MSD is an aliquot of sample spiked with known concentrations of specific analytes. The spiking occurs before sample preparation and analysis at the laboratory. Additional volumes of a selected sample will be collected in the field to provide sufficient sample volume for the MS/MSD analysis. One (1) MS and one (1) MSD sample will be analyzed at a rate of approximately every 20 samples collected. MS/MSD samples will apply to soil and aqueous samples only.

## Equipment Rinsate Blanks

ERBs monitor the on-site sampling environment, sampling equipment decontamination, sample transport and storage conditions for water, soil, or sediment samples. ERBs are collected when non-dedicated equipment is used to collect environmental samples. ERBs for VOCs will be collected at a frequency of 5-percent of the total number of parent samples collected.

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## Worksheet #20 – Field Quality Control Sample Summary

Analytical SOPs are listed in Worksheet #23 and included in **Appendix E**.

| Study Type | Matrix | Analytical Group | Analytical Method | No. of Normal Field Samples Per Sampling Event | No. of Field Duplicates Per Sampling Event | No. of MS/MSD Per Sampling Event | No. of Equipment Rinsate Blanks/Trip Blank Per Sampling Event | Total No. of Samples to Lab Per Sampling Event | Sample Frequency |
|---|---|---|---|---|---|---|---|---|---|
| **AOC 1** | | | | | | | | | |
| AOC 1 - Soil Sampling | Soil | 2,4-DNP/2,4-DNCB | WI9617 | 78 | 8 | 4 | 0 / 0 | 90 | Once |
| AOC 1 - Soil Sampling | Soil | Picric acid | DV-LC-0002 | 78 | 8 | 4 | 0 / 0 | 90 | Once |
| AOC 1 - Soil Sampling | Soil | TAL metals/mercury | WI11933/WI7965 | 78 | 8 | 4 | 0 / 0 | 90 | Once |
| AOC 1 – Soil Sampling | Soil | TOC | WI11627 | 19 | 2 | 0 | 0 / 0 | 21 | Once |
| AOC 1 – Soil Sampling | Soil | Grain Size | WI46354 | 19 | 0 | 0 | 0 / 0 | 19 | Once |
| AOC 1 – Soil Sampling | Soil | pH | WI11518 | 19 | 2 | 0 | 0 / 0 | 21 | Once |
| AOC 1 – Soil Sampling | Soil | CEC | WI7562/WI11931 | 19 | 2 | 0 | 0 / 0 | 21 | Once |
| AOC 1 – Groundwater Sampling | Groundwater | 2,4-DNP/2,4-DNCB | WI9617 | 10 | 1 | 1 | 0 / 0 | 12 | Semi-Annual x 1 year |
| AOC 1 – Groundwater Sampling | Groundwater | Picric acid | DV-LC-0002 | 10 | 1 | 1 | 0 / 0 | 12 | Semi-Annual x 1 year |
| AOC 1 – Groundwater Sampling | Groundwater | Total TAL metals/mercury | WI11933/WI1765 | 10 | 1 | 1 | 0 / 0 | 12 | Semi-Annual x 1 year |
| AOC 1 – Groundwater Sampling | Groundwater | Dissolved (field-filtered) TAL metals/mercury | WI11933/WI11765 | 10 | 1 | 1 | 0 / 0 | 12 | Semi-Annual x 1 year |
| AOC 1 – Groundwater Sampling | Groundwater | DOC (field filtered) | WI11637 | 10 | 1 | 1 | 0 / 0 | 12 | Semi-Annual x 1 year |

| Study Type | Matrix | Analytical Group | Analytical Method | No. of Normal Field Samples Per Sampling Event | No. of Field Duplicates Per Sampling Event | No. of MS/MSD Per Sampling Event | No. of Equipment Rinsate Blanks/Trip Blank Per Sampling Event | Total No. of Samples to Lab Per Sampling Event | Sample Frequency |
|---|---|---|---|---|---|---|---|---|---|
| AOC 1 – Groundwater Sampling | Groundwater | Hardness | WI11475 | 10 | 0 | 0 | 0 / 0 | 10 | Semi-Annual x 1 year |
| **AOC 3** | | | | | | | | | |
| AOC 3 – Soil sampling | Soil | VOCs | WI8236 | 51 | 5 | 2 | 2 ERBs / 1 TB per VOC cooler* | 61* | Once |
| AOC 3 – Soil sampling | Soil | SVOCs | WI9617 | 51 | 5 | 2 | 0 / 0 | 58 | Once |
| AOC 3 – Soil sampling | Soil | PAHs-SIM | WI9995 | 51 | 5 | 2 | 0 / 0 | 58 | Once |
| AOC 3 – Soil sampling | Soil | PCB Aroclors | WI10004 | 51 | 5 | 2 | 0 / 0 | 58 | Once |
| AOC 3 – Soil sampling | Soil | Picric acid | DV-LC-0002 | 51 | 5 | 2 | 0 / 0 | 58 | Once |
| AOC 3 – Soil sampling | Soil | TAL metals/mercury | WI11933/WI7965 | 51 | 5 | 2 | 0 / 0 | 58 | Once |
| AOC 3 – Soil Sampling | Soil | TOC | WI11627 | 21 | 2 | 0 | 0 / 0 | 23 | Once |
| AOC 3 – Soil Sampling | Soil | Grain Size | WI46354 | 21 | 0 | 0 | 0 / 0 | 21 | Once |
| AOC 3 – Soil Sampling | Soil | pH | WI11518 | 21 | 2 | 0 | 0 / 0 | 23 | Once |
| AOC 3 – Soil Sampling | Soil | CEC | WI7562/WI11931 | 21 | 2 | 0 | 0 / 0 | 23 | Once |
| AOC 3 – Groundwater Sampling | Groundwater | VOCs | WI8194 | 7 | 1 | 1 | 0 / 1 TB per VOC cooler* | 10* | Semi-Annual x 1 year |
| AOC 3 – Groundwater Sampling | Groundwater | SVOCs | WI9617 | 7 | 1 | 1 | 0 / 0 | 9 | Semi-Annual x 1 year |

| Study Type | Matrix | Analytical Group | Analytical Method | No. of Normal Field Samples Per Sampling Event | No. of Field Duplicates Per Sampling Event | No. of MS/MSD Per Sampling Event | No. of Equipment Rinsate Blanks/Trip Blank Per Sampling Event | Total No. of Samples to Lab Per Sampling Event | Sample Frequency |
|---|---|---|---|---|---|---|---|---|---|
| AOC 3 – Groundwater Sampling | Groundwater | PAHs-SIM | WI9995 | 7 | 1 | 1 | 0 / 0 | 9 | Semi-Annual x 1 year |
| AOC 3 – Groundwater Sampling | Groundwater | PCB Aroclors | WI9238 | 7 | 1 | 1 | 0 / 0 | 9 | Semi-Annual x 1 year |
| AOC 3 – Groundwater Sampling | Groundwater | Picric acid | DV-LC-0002 | 7 | 1 | 1 | 0 / 0 | 9 | Semi-Annual x 1 year |
| AOC 3 – Groundwater Sampling | Groundwater | Total TAL metals/mercury | WI11933/WI7965 | 7 | 1 | 1 | 0 / 0 | 9 | Semi-Annual x 1 year |
| AOC 3 – Groundwater Sampling | Groundwater | Dissolved (field-filtered) TAL metals/mercury | WI11933/WI7965 | 7 | 1 | 1 | 0 / 0 | 9 | Semi-Annual x 1 year |
| AOC 3 – Groundwater Sampling | Groundwater | DOC (field filtered) | WI11637 | 7 | 1 | 1 | 0 / 0 | 9 | Semi-Annual x 1 year |
| AOC 3 – Groundwater Sampling | Groundwater | Hardness | WI11475 | 7 | 0 | 0 | 0 / 0 | 7 | Semi-Annual x 1 year |
| AOC 3 – Surface Water Sampling | Surface Water | VOCs | WI8194 | 8 | 1 | 1 | 0 / 1 TB per VOC cooler* | 11* | Semi-Annual x 1 year |
| AOC 3 – Surface Water Sampling | Surface Water | SVOCs | WI9617 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| AOC 3 – Surface Water Sampling | Surface Water | PAHs-SIM | WI9995 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |

| Study Type | Matrix | Analytical Group | Analytical Method | No. of Normal Field Samples Per Sampling Event | No. of Field Duplicates Per Sampling Event | No. of MS/MSD Per Sampling Event | No. of Equipment Rinsate Blanks/Trip Blank Per Sampling Event | Total No. of Samples to Lab Per Sampling Event | Sample Frequency |
|---|---|---|---|---|---|---|---|---|---|
| AOC 3 – Surface Water Sampling | Surface Water | PCB Aroclors | WI9238 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| AOC 3 – Surface Water Sampling | Surface Water | Picric acid | DV-LC-0002 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| AOC 3 – Surface Water Sampling | Surface Water | Total TAL metals/mercury | WI11933/WI7965 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| AOC 3 – Surface Water Sampling | Surface Water | Dissolved (field-filtered) TAL metals/mercury | WI11933/WI7965 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| AOC 3- Surface Water Sampling | Surface Water | DOC (field filtered) | WI11637 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| AOC 3- Surface Water Sampling | Surface Water | TSS | WI11604 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| AOC 3 – Surface Water Sampling | Surface Water | Hardness | WI11475 | 8 | 0 | 0 | 0 / 0 | 8 | Semi-Annual x 1 year |
| AOC 3 – Porewater Sampling | Porewater | VOCs | WI8194 | 8 | 1 | 1 | 1 / 1 per VOC cooler* | 12* | Semi-Annual x 1 year |
| AOC 3 – Porewater Sampling | Porewater | SVOCs | WI9617 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |

| Study Type | Matrix | Analytical Group | Analytical Method | No. of Normal Field Samples Per Sampling Event | No. of Field Duplicates Per Sampling Event | No. of MS/MSD Per Sampling Event | No. of Equipment Rinsate Blanks/Trip Blank Per Sampling Event | Total No. of Samples to Lab Per Sampling Event | Sample Frequency |
|---|---|---|---|---|---|---|---|---|---|
| AOC 3 – Porewater Sampling | Porewater | PAHs-SIM | WI9995 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| AOC 3 – Porewater Sampling | Porewater | PCB Aroclors | WI9238 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| AOC 3 – Porewater Sampling | Porewater | Picric acid | DV-LC-0002 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| AOC 3 – Porewater Sampling | Porewater | Total TAL metals/mercury | WI11933/WI17965 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| AOC 3 – Porewater Sampling | Porewater | Dissolved (field-filtered) TAL metals/mercury | WI11933/WI7965 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| AOC 3 – Sediment Sampling | Sediment | VOCs | WI8236 | 8 | 1 | 1 | 1 / 1 per VOC cooler* | 12* | Semi-Annual x 1 year |
| AOC 3 – Sediment Sampling | Sediment | SVOCs | WI9617 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| AOC 3 – Sediment Sampling | Sediment | PAHs-SIM | WI9995 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| AOC 3 – Sediment Sampling | Sediment | PCB Aroclors | WI9238 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| AOC 3 – Sediment Sampling | Sediment | Picric acid | DV-LC-0002 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| AOC 3 – Sediment Sampling | Sediment | Total TAL metals/mercury | WI11733/WI17965 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |

| Study Type | Matrix | Analytical Group | Analytical Method | No. of Normal Field Samples Per Sampling Event | No. of Field Duplicates Per Sampling Event | No. of MS/MSD Per Sampling Event | No. of Equipment Rinsate Blanks/Trip Blank Per Sampling Event | Total No. of Samples to Lab Per Sampling Event | Sample Frequency |
|---|---|---|---|---|---|---|---|---|---|
| AOC 3-Sediment Sampling | Sediment | TOC | Wi11627 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| AOC 3 – Sediment Sampling | Sediment | Grain Size | Wi48354 | 8 | 0 | 0 | 0 / 0 | 8 | Semi-Annual x 1 year |
| **AOC 4** | | | | | | | | | |
| AOC 4- Soil Sampling | Soil | 2,4-DNP/2,4-DNCB | WI9617 | 60 | 6 | 3 | 0 / 0 | 69 | Once |
| AOC 4- Soil Sampling | Soil | Picric acid | DV-LC-0002 | 60 | 6 | 3 | 0 / 0 | 69 | Once |
| **AOC 5 – DU#1 Electrical Substation (ES)** | | | | | | | | | |
| AOC 5 DU#1 ES- Soil Sampling | Soil | PAHs-SIM | WI9995 | 15 | 1 | 0 | 0 / 0 | 16 | Once |
| AOC 5 DU#1 ES- Soil Sampling | Soil | TAL metals/mercury | WI11933/WI7965 | 15 | 1 | 0 | 0 / 0 | 16 | Once |
| AOC 5 DU#1 ES- Soil Sampling | Soil | PCB Aroclors | WI9238 | 15 | 1 | 0 | 0 / 0 | 16 | Once |
| AOC 5 DU#1 ES- Soil Sampling | Soil | TOC | WI11627 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 DU#1 ES- Soil Sampling | Soil | Grain Size | WI46354 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 DU#1 ES- Soil Sampling | Soil | pH | WI11518 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 DU#1 ES- Soil Sampling | Soil | CEC | WI7562/WI11931 | 3 | 0 | 0 | 0 / 0 | 3 | Once |

| Study Type | Matrix | Analytical Group | Analytical Method | No. of Normal Field Samples Per Sampling Event | No. of Field Duplicates Per Sampling Event | No. of MS/MSD Per Sampling Event | No. of Equipment Rinsate Blanks/Trip Blank Per Sampling Event | Total No. of Samples to Lab Per Sampling Event | Sample Frequency |
|---|---|---|---|---|---|---|---|---|---|
| AOC 5 DU#1 ES– Groundwater Sampling | Groundwater | PAHs-SIM | WI9995 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |
| AOC 5 DU#1 ES– Groundwater Sampling | Groundwater | Total TAL metals/mercury | WI11933/WI7965 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |
| AOC 5 DU#1 ES– Groundwater Sampling | Groundwater | PCB Aroclors | WI9238 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |
| AOC 5 DU#1 ES– Groundwater Sampling | Groundwater | Dissolved (field-filtered) TAL metals/mercury | WI11933/WI7965 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |
| AOC 5 DU#1 ES– Groundwater Sampling | Groundwater | DOC (field-filtered) | WI11637 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |
| AOC 5 DU#1 ES– Groundwater Sampling | Groundwater | Hardness | Wi11475 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |
| **AOC 5 – DU#1 Boiler House (BH)** | | | | | | | | | |
| AOC 5 DU#1 BH - Soil Sampling | Soil | PAHs-SIM | WI9995 | 9 | 1 | 1 | 0 / 0 | 11 | Once |
| AOC 5 DU#1 BH - Soil Sampling | Soil | TAL metals/mercury | WI11933/WI7965 | 9 | 1 | 1 | 0 / 0 | 11 | Once |
| AOC 5 DU#1 BH - Soil Sampling | Soil | TOC | WI11627 | 3 | 0 | 0 | 0 / 0 | 3 | Once |

| Study Type | Matrix | Analytical Group | Analytical Method | No. of Normal Field Samples Per Sampling Event | No. of Field Duplicates Per Sampling Event | No. of MS/MSD Per Sampling Event | No. of Equipment Rinsate Blanks/Trip Blank Per Sampling Event | Total No. of Samples to Lab Per Sampling Event | Sample Frequency |
|---|---|---|---|---|---|---|---|---|---|
| AOC 5 DU#1 BH - Soil Sampling | Soil | Grain Size | WI46354 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 DU#1 BH - Soil Sampling | Soil | pH | WI11518 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 DU#1 BH - Soil Sampling | Soil | Coal by Microscopy | Coal Combustion Residue | 9 | 0 | 0 | 0 / 0 | 9 | Once |
| AOC 5 DU#1 BH - Soil Sampling | Soil | CEC | WI7562/WI11931 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 DU#1 BH – Groundwater Sampling | Groundwater | PAHs-SIM | WI9995 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |
| AOC 5 DU#1 BH – Groundwater Sampling | Groundwater | Total TAL metals/mercury | WI11933/WI7965 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |
| AOC 5 DU#1 BH – Groundwater Sampling | Groundwater | Dissolved (field-filtered) TAL metals/mercury | WI11933/WI7965 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |
| AOC 5 DU#1 BH – Groundwater Sampling | Groundwater | DOC (field-filtered) | WI11637 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |
| AOC 5 DU#1 BH – Groundwater Sampling | Groundwater | Hardness | Wi11475 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |

| Study Type | Matrix | Analytical Group | Analytical Method | No. of Normal Field Samples Per Sampling Event | No. of Field Duplicates Per Sampling Event | No. of MS/MSD Per Sampling Event | No. of Equipment Rinsate Blanks/Trip Blank Per Sampling Event | Total No. of Samples to Lab Per Sampling Event | Sample Frequency |
|---|---|---|---|---|---|---|---|---|---|
| **AOC 5 – DU#2** | | | | | | | | | |
| AOC 5 DU#2 - Soil Sampling | Soil | PAHs-SIM | WI9995 | 24 | 2 | 1 | 0 / 0 | 27 | Once |
| AOC 5 DU#2- Soil Sampling | Soil | TAL metals/mercury | WI11933/WI7965 | 24 | 2 | 1 | 0 / 0 | 27 | Once |
| AOC 5 DU#2 - Soil Sampling | Soil | TOC | WIi11627 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 DU#2 - Soil Sampling | Soil | Grain Size | WIi46354 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 DU#2 - Soil Sampling | Soil | pH | WI11518 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 DU#2 - Soil Sampling | Soil | CEC | WI7562/WI11931 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 DU#2 - Soil Sampling | Soil | Coal by Microscopy | Coal Combustion Residue | 12 | 0 | 0 | 0 / 0 | 12 | Once |
| **AOC 5 – DU#3** | | | | | | | | | |
| AOC 5 DU#3 - Soil Sampling | Soil | PAHs-SIM | WI9995 | 24 | 2 | 1 | 0 / 0 | 27 | Once |
| AOC 5 DU#3 - Soil Sampling | Soil | TAL metals/mercury | WI11933/WI7965 | 24 | 2 | 1 | 0 / 0 | 27 | Once |
| AOC 5 DU#3 - Soil Sampling | Soil | TOC | WI11627 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 DU#3 - Soil Sampling | Soil | Grain Size | WI46354 | 3 | 0 | 0 | 0 / 0 | 3 | Once |

| Study Type | Matrix | Analytical Group | Analytical Method | No. of Normal Field Samples Per Sampling Event | No. of Field Duplicates Per Sampling Event | No. of MS/MSD Per Sampling Event | No. of Equipment Rinsate Blanks/Trip Blank Per Sampling Event | Total No. of Samples to Lab Per Sampling Event | Sample Frequency |
|---|---|---|---|---|---|---|---|---|---|
| AOC 5 DU#3 - Soil Sampling | Soil | pH | WI11518 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 DU#3 - Soil Sampling | Soil | CEC | WI7562/WI11931 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 DU#3 - Soil Sampling | Soil | Coal by Microscopy | Coal Combustion Residue | 24 | 0 | 0 | 0 / 0 | 24 | Once |
| AOC 5 DU#3– Groundwater Sampling | Groundwater | PAHs-SIM | WI9995 | 2 | 1 | 0 | 0 / 0 | 3 | Semi-Annual x 1 year |
| AOC 5 DU#3– Groundwater Sampling | Groundwater | Total TAL metals/mercury | WI11933/WI7965 | 2 | 1 | 0 | 0 / 0 | 3 | Semi-Annual x 1 year |
| AOC 5 DU#3– Groundwater Sampling | Groundwater | Dissolved (field-filtered) TAL metals/mercury | WI11933/WI7965 | 2 | 1 | 0 | 0 / 0 | 3 | Semi-Annual x 1 year |
| AOC 5 DU#3– Groundwater Sampling | Groundwater | DOC (field-filtered) | WI11637 | 2 | 1 | 0 | 0 / 0 | 3 | Semi-Annual x 1 year |
| AOC 5 DU#3– Groundwater Sampling | Groundwater | Hardness | WI11475 | 2 | 0 | 0 | 0 / 0 | 2 | Semi-Annual x 1 year |
| **AOC 5 – DU#4** | | | | | | | | | |
| AOC 5 DU#4 - Soil Sampling | Soil | PAHs-SIM | WI9995 | 24 | 2 | 1 | 0 / 0 | 27 | Once |

| Study Type | Matrix | Analytical Group | Analytical Method | No. of Normal Field Samples Per Sampling Event | No. of Field Duplicates Per Sampling Event | No. of MS/MSD Per Sampling Event | No. of Equipment Rinsate Blanks/Trip Blank Per Sampling Event | Total No. of Samples to Lab Per Sampling Event | Sample Frequency |
|---|---|---|---|---|---|---|---|---|---|
| AOC 5 DU#4 - Soil Sampling | Soil | TAL metals/mercury | WI11933/WI7965 | 24 | 2 | 1 | 0 / 0 | 27 | Once |
| AOC 5 DU#4 - Soil Sampling | Soil | TOC | Wi11627 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 DU#4 - Soil Sampling | Soil | Grain Size | WI46354 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 DU#4 - Soil Sampling | Soil | pH | WI11518 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 DU#4 - Soil Sampling | Soil | CEC | WI7562/WI11931 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 DU#4– Groundwater Sampling | Groundwater | PAHs-SIM | WI9995 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |
| AOC 5 DU#4– Groundwater Sampling | Groundwater | Total TAL metals/mercury | WI11933/WI7965 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |
| AOC 5 DU#4– Groundwater Sampling | Groundwater | PCB Aroclors | WI9238 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |
| AOC 5 DU#4– Groundwater Sampling | Groundwater | Dissolved (field-filtered) TAL metals/mercury | WI11933/WI7965 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |
| AOC 5 DU#4– Groundwater Sampling | Groundwater | DOC (field-filtered) | WI11637 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |

| Study Type | Matrix | Analytical Group | Analytical Method | No. of Normal Field Samples Per Sampling Event | No. of Field Duplicates Per Sampling Event | No. of MS/MSD Per Sampling Event | No. of Equipment Rinsate Blanks/Trip Blank Per Sampling Event | Total No. of Samples to Lab Per Sampling Event | Sample Frequency |
|---|---|---|---|---|---|---|---|---|---|
| AOC 5 DU#4– Groundwater Sampling | Groundwater | Dissolved (field-filtered) TAL metals/mercury | WI11933/WI7965 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |
| AOC 5 DU#4– Groundwater Sampling | Groundwater | Hardness | Wi11475 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |
| **AOC 5 – Hydric Soils** | | | | | | | | | |
| AOC 5 Hydric - Soil Sampling | Soil | PAHs-SIM | WI9995 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 Hydric - Soil Sampling | Soil | TAL metals/mercury | WI11933/WI7965 | 3 | 0 | 0 | 0 / 0 | 3 | Once |
| AOC 5 Hydric - Soil Sampling | Soil | TOC | Wi11627 | 1 | 0 | 0 | 0 / 0 | 1 | Once |
| AOC 5 Hydric - Soil Sampling | Soil | Grain Size | Wi46354 | 1 | 0 | 0 | 0 / 0 | 1 | Once |
| AOC 5 Hydric - Soil Sampling | Soil | pH | WI11518 | 1 | 0 | 0 | 0 / 0 | 1 | Once |
| AOC 5 Hydric - Soil Sampling | Soil | TOC | WI11627 | 1 | 0 | 0 | 0 / 0 | 1 | Once |
| **AOC 5 – Downgradient Groundwater** | | | | | | | | | |
| AOC 5 – Downgradient Groundwater Sampling | Groundwater | PAHs-SIM | WI9995 | 5 | 0 | 1 | 0 / 0 | 6 | Semi-Annual x 1 year |

| Study Type | Matrix | Analytical Group | Analytical Method | No. of Normal Field Samples Per Sampling Event | No. of Field Duplicates Per Sampling Event | No. of MS/MSD Per Sampling Event | No. of Equipment Rinsate Blanks/Trip Blank Per Sampling Event | Total No. of Samples to Lab Per Sampling Event | Sample Frequency |
|---|---|---|---|---|---|---|---|---|---|
| AOC 5 – Downgradient Groundwater Sampling (MW03, MW07) | Groundwater | PCB Aroclors | WI9238 | 1 | 0 | 0 | 0 / 0 | 1 | Semi-Annual x 1 year |
| AOC 5 – Downgradient Groundwater Sampling | Groundwater | Total TAL metals/mercury | WI11933/WI7965 | 2 | 0 | 1 | 0 / 0 | 3 | Semi-Annual x 1 year |
| AOC 5 – Downgradient Groundwater Sampling | Groundwater | Dissolved (field-filtered) TAL metals/mercury | WI11933/WI7965 | 2 | 0 | 1 | 0 / 0 | 3 | Semi-Annual x 1 year |
| AOC 5 – Downgradient Groundwater Sampling | Groundwater | DOC (field-filtered) | WI11637 | 2 | 0 | 1 | 0 / 0 | 3 | Semi-Annual x 1 year |
| AOC 5 – Downgradient Groundwater Sampling | Groundwater | Hardness | Wi11475 | 2 | 0 | 1 | 0 / 0 | 3 | Semi-Annual x 1 year |
| **Background** | | | | | | | | | |
| Background - Soil Sampling | Soil | PAHs-SIM | WI9995 | 8 | 1 | 1 | 0 / 0 | 10 | Once |
| Background - Soil Sampling | Soil | TAL metals/mercury | WI11933/WI7965 | 8 | 1 | 1 | 0 / 0 | 10 | Once |
| Background – Soil Sampling | Soil | TOC | WI11637 | 8 | 0 | 0 | 0 / 0 | 8 | Once |
| Background – Soil Sampling | Soil | Grain Size | W146354 | 8 | 0 | 0 | 0 / 0 | 8 | Once |
| Background – Soil Sampling | Soil | pH | WI11581 | 8 | 0 | 0 | 0 / 0 | 8 | Once |

| Study Type | Matrix | Analytical Group | Analytical Method | No. of Normal Field Samples Per Sampling Event | No. of Field Duplicates Per Sampling Event | No. of MS/MSD Per Sampling Event | No. of Equipment Rinsate Blanks/Trip Blank Per Sampling Event | Total No. of Samples to Lab Per Sampling Event | Sample Frequency |
|---|---|---|---|---|---|---|---|---|---|
| Background – Soil Sampling | Soil | CEC | WI7562/WI11931 | 8 | 0 | 0 | 0 / 0 | 8 | Once |
| Background – Groundwater Sampling | Groundwater | PAHs-SIM | WI9995 | 6 | 1 | 1 | 0 / 0 | 8 | Semi-Annual x 1 year |
| Background – Groundwater Sampling | Groundwater | Total TAL metals/mercury | WI11933/WI7965 | 6 | 1 | 1 | 0 / 0 | 8 | Semi-Annual x 1 year |
| Background – Groundwater Sampling | Groundwater | Dissolved (field-filtered) TAL metals/mercury | WI11933/WI7965 | 6 | 1 | 1 | 0 / 0 | 8 | Semi-Annual x 1 year |
| Background – Groundwater Sampling | Groundwater | DOC (field-filtered) | WI11637 | 6 | 1 | 1 | 0 / 0 | 8 | Semi-Annual x 1 year |
| Background – Groundwater Sampling | Groundwater | Hardness | WI11475 | 6 | 0 | 0 | 0 / 0 | 6 | Semi-Annual x 1 year |
| Background – Surface Water Sampling | Surface Water | PAHs-SIM | WI9995 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| Background – Surface Water Sampling | Surface Water | Total TAL metals/mercury | WI11933/WI7965 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| Background – Surface Water Sampling | Surface Water | Dissolved (field-filtered) TAL metals/mercury | WI11933/WI7965 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| Background - Surface Water Sampling | Surface Water | DOC (field-filtered) | WI11627 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |

| Study Type | Matrix | Analytical Group | Analytical Method | No. of Normal Field Samples Per Sampling Event | No. of Field Duplicates Per Sampling Event | No. of MS/MSD Per Sampling Event | No. of Equipment Rinsate Blanks/Trip Blank Per Sampling Event | Total No. of Samples to Lab Per Sampling Event | Sample Frequency |
|---|---|---|---|---|---|---|---|---|---|
| Background - Surface Water Sampling | Surface Water | TSS | WI11604 | 8 | 0 | 0 | 0 / 0 | 8 | Semi-Annual x 1 year |
| Background – Surface Water Sampling | Surface Water | Hardness | WI11475 | 8 | 0 | 0 | 0 / 0 | 8 | Semi-Annual x 1 year |
| Background – Porewater Sampling | Porewater | PAHs-SIM | WI9995 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| Background – Porewater Sampling | Porewater | Total TAL metals/mercury | WI11933/WI7965 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| Background – Porewater Sampling | Porewater | Dissolved (field-filtered) TAL metals/mercury | WI11933/WI7965 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| Background – Sediment Sampling | Sediment | PAHs-SIM | WI9995 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| Background – Sediment Sampling | Sediment | Total TAL metals/mercury | WI11933/WI7965 | 8 | 1 | 1 | 0 / 0 | 10 | Semi-Annual x 1 year |
| Background – Sediment Sampling | Sediment | TOC | WI11627 | 8 | 0 | 0 | 0 / 0 | 8 | Semi-Annual x 1 year |
| Background – Sediment Sampling | Sediment | Grain Size | WI46354 | 8 | 0 | 0 | 0 / 0 | 8 | Semi-Annual x 1 year |

Notes:
*Total number of samples may change based on the number of VOC trip blanks needed per day (i.e., coolers generated per day).
BH denotes boiler house.
EA denotes electrical substation.

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# Worksheet #21 – Field SOPs

Field SOPs associated with the project include, but are not limited to, sample collection, field equipment cleaning and decontamination, field equipment testing, inspection and maintenance, and sample handling and custody. The SOPs and summary information are listed in the following table. The SOPs provided are used to guide investigation techniques described in Worksheet #14 and #16. The headers of some of the SOPs state "WSP" however they are considered the JV's for their intended purpose. The actual field SOPs (and field forms) are provided in **Appendix D**.

| Reference Number | Title/Revision (Rev), Date | Originating Organization | Equipment Type | Modified for Project Work? |
|---|---|---|---|---|
| SOP 1 | Note Taking and Field Book Entries Procedure, 8/28/2020 | WSP | Field logbook, field forms, black or blue ballpoint pent | No |
| SOP 3 | Sample Packaging and Shipment Procedure | WSP | Coolers, COCs, custody seals, mailing address labels, shipping form, tape, bubble wrap, large plastic garbage bag | No |
| SOP 5 | Investigation-Derived Waste Management, 8/28/2020 | WSP | Permanent ink marking pen, paint, stick/pen, sampling equipment, drum labels, waste manifest | No |
| SOP 6 | Decontamination Procedure, 8/28/2020 | WSP | Phosphate free laboratory grade soap, analyte-free water, brushes, buckets, solvents, reagent grade acid, aluminum foil | No |
| SOP 7 | Water Quality Monitoring Equipment, 8/3/2020 | WSP | Water quality meter, flow-through cell, display/logger, calibration | No |
| SOP 9 | Soil Sampling, 9/8/2020 | WSP | DPT tools and equipment, hand auger, hand lens, sample containers, sample labels, Munsell color chart, calculator, decontamination supplies, stainless-steel trowels/bowls/spoons | No. |
| SOP 10 | Sediment Sampling Procedure, 8/28/2020 | WSP | Sample containers, waders, sampling equipment, sample labels | No |
| SOP 11 | Groundwater Sampling/Water level measurements, 9/8/2020 | WSP | Water level indicator, water quality meter, dissolved oxygen meter, pumps, tubing, turbidity meter, field filtering for dissolved metals, sample containers, sample labels, field data sheets | No |
| SOP 12 | Surface Water Sampling, 9/8/2020 | WSP | Water quality meter, waders, sample containers, sample labels surface water sampler, decontamination supplies | No |

| Reference Number | Title/Revision (Rev), Date | Originating Organization | Equipment Type | Modified for Project Work? |
|---|---|---|---|---|
| SESDGUID-101-R2 | Design and Installation of Monitoring Wells | EPA | Drill Rig(s) tools and equipment, filter pack sand, bentonite/fine sand, construction materials, PVC, tremie apparatus, water level indicator, well sounder, bailer, surge block, pumps, water quality meter, turbidity meter, calculator | No |
| LSASDPROC-513-R4 | Porewater Sampling | EPA | Water level indicator, water quality meter, pumps, tubing, turbidity meter, field filtering for dissolved metals (if required), sample containers, sample labels, field data sheets, porewater sampler | No |
| FT1800 | Field Measurement of Stage, Surface Water Velocity, and Discharge (Flow) and Computation of Streamflow, 01/2017 | FDEP | Water flow velocity meter, measuring tape (50 or 100 ft long in 0.01 ft increments), staff gauge in 0.01 ft increments (built-in to water flow velocity meter) | No |
| ASTM-D-2488-visual-USCS | Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) | ASTM | N/A | No |
| SOP Low-Stress (Low-Flow) | Standard Operating Procedure for Low-Stress (Low-Flow) / Minimal Drawdown ground-water sample collection | EPA | Water level indicator, water quality meter, pumps, tubing, turbidity meter, field filtering for dissolved metals (if required), sample containers, sample labels, field data sheets | No |
| Use of GPS | For GPS use please use appropriate manual that is provided with rental unit | N/A | GPS, field logbook | No |

## Worksheet #22 – Field Equipment Calibration, Maintenance, Testing, and Inspection

Field equipment and instruments to be used during the field investigation and requiring calibration, maintenance, testing are listed below. Field SOPs are included in **Appendix D**.

| Field Equipment | Calibration Activity | Maintenance Activity | Testing Activity | Inspection Activity | Frequency | Acceptance Criteria | Corrective Action | Responsible Person | SOP Reference |
|---|---|---|---|---|---|---|---|---|---|
| PID | Each day calibrate fresh air (0 ppm); and to 100 ppm Isobutylene gas. | Perform maintenance per manufacturer's instructions. | Measures VOCs as an air concentration. | Per manufacturer's | Daily before use, an ICV following calibration, and at the end of the day (CCV) | Each day calibrate fresh air (0 ppm); and to 100 ppm Isobutylene gas. ±5% | Perform maintenance per manufacturer's instructions. | Measures VOCs as an air concentration. | Per manufacturer's recommendation |
| Water Level Indicator | Rental agency to calibrate quarterly to determine the accuracy of the measurement. | Perform maintenance per manufacturer's instructions. | Measures depth to water and total well depth | Per manufacturer's instructions. | Daily before use. | ±0.01 foot | Do not use if meter fails calibration criteria. | FTL | SOP 11 |
| Peristaltic Pump | None. | Perform maintenance per manufacturer's instructions. | Not applicable. | Per manufacturer's instructions. | Daily before use. Periodic checks throughout day of use. | Up to 25' | Not applicable. | FTL | SOP 11 |
| GPS | A QC check for the GPS unit will involve collecting the coordinates over a known structure (e.g., manhole, catch basin) will occur each day of GPS use. | Perform maintenance per manufacturer's instructions. | Collects horizontal coordinates of soil boring/surface water/porewater/sediment locations | Per manufacturer's instructions | Each day the GPS is in use | ±3 to 6 feet | Post-correct the data if coordinates accuracy exceeds 6 feet | FTL | Per manufacturer's recommendation |

| Field Equipment | Calibration Activity | Maintenance Activity | Testing Activity | Inspection Activity | Frequency | Acceptance Criteria | Corrective Action | Responsible Person | SOP Reference |
|---|---|---|---|---|---|---|---|---|---|
| Water Quality Meter | Calibrate daily prior to collecting water quality data; Perform an ICV immediately following calibration in read/run mode and record. At the end of each day, a post calibration in read/run mode will be performed and recorded | Perform maintenance per manufacturer's instructions. | Measures aqueous dissolved oxygen, oxidation-reduction potential, conductance, pH, turbidity, and temperature. | Per manufacturer's instructions. | Daily before use, immediately following calibration, and post-sampling | Check operations manual for acceptable range of calibrated probes and appropriate field forms. | If ICV fails initially, then re-calibrate. If ICV continues to fail, then do not use if meter fails calibration criteria. If Post-Calibration fails, "J" qualify appropriate parameters that failed on purge forms | FTL | SOP 7 |
| Global Water Flow Probe FP111 | Factory calibrated. Additional calibration recommended when turbo-prop propeller is replaced | Check for and remove any debris from the propeller and propeller housing. Assure that propeller spins freely. | Water velocity in open channels. | Per manufacturer's instructions. | Prior to each measurement. | 0.01 ft/sec accuracy. 0.3 – 19.9 ft/sec range. | Do not use if flow rate is outside of range. | FTL | None |

# Worksheet #23 – Analytical SOPs

The following laboratory SOP references were provided by Eurofins Lancaster (ELLE). The laboratory SOPs and procedures are provided in **Appendix F** and have not been modified for this project.

| Lab SOP Number | Title, Revision Date, and / or Number | Definitive or Screening Data | Matrix and Analytical Group | Instrument | Organization Performing Analysis | Modified for Project Work? (Y/N) |
|---|---|---|---|---|---|---|
| WI9238 | Analysis of Polychlorinated Biphenyls (PCBs) by 8082A in Aqueous Samples using GC-ECD, Version 9, 01/27/2023 | Definitive | PCBs | GC | ELLE | N |
| WI7965 | Mercury in Aqueous, Solid and Tissue Samples by EPA 7471A, 7471B, 7470A, and 245.1 rev 3 by Cold Vapor AA, Version 21, 4/30/2023 | Definitive | Solid, liquid, tissues Metals | ICP | ELLE | N |
| WI11933 | Metals by ICP-MS by Methods SW-846 6020/6020A/6020B(waters, solid, tissue) and EPA 200.8 (waters)and EPA 200.8 (aqueous), Version 13, 07/27/2022 (last reviewed 07.19.2023) | Definitive | Solid, liquid, tissues Metals | ICP/MS | ELLE | N |
| WI11518 | pH by EPA 9045C, 9045D and Corrosivity by SW-846 Chap 7 of Solids, Soils, and Solvents using Electrometic Methods, Version 14, 04/30/2021 | Definitive | Soil | pH meter | ELLE | N |
| WI10004 | Polychlorinated Biphenyls (PCBs) in Solid samples by 8082A using GC-ECD, Version 11, 06/01/2022 | Definitive | PCBs | GC | ELLE | N |
| WI9617 | Semi-volatile Organic Compounds by Method 8270E in Aqueous and Non-Aqueous Matrices using GC-MS, Version 14, 06/26/2023 | Definitive | Water, solid, leachate GC/MS SVOCs | GC/MS | ELLE | N |
| WI11627 | TOC and TC in Solids and Sludges by Combustion by SM 5310B, EPA 415.1, SW-846 9060/9060A, Lloyd Kahn, Version 18,, 11/04/2022 | Definitive | Solid, Instrumental Wet Chemistry | TOC Analyzer | ELLE | N |
| WI11637 | Total Organic Carbon (TOC), Dissolved Organic Carbon (DOC), and Total Inorganic Carbon (TIC) by SM 5310C or EPA 415.1 in Waters, Version 19, 11/02/2022 | Definitive | Water | TOC Analyzer | ELLE | N |

| Lab SOP Number | Title, Revision Date, and / or Number | Definitive or Screening Data | Matrix and Analytical Group | Instrument | Organization Performing Analysis | Modified for Project Work? (Y/N) |
|---|---|---|---|---|---|---|
| WI8236 | VOCs and GRO by GC/MS in Soils by Method 8260C/D, Rev 11, 6/23/2023 | Definitive | Solid GC/MS VOCs | GC/MS | ELLE | N |
| WI8194 | VOCs and GRO by GC/MS in Waters and Wastewaters by Method 8260C/D, Rev 14, 11/16/2023 | Definitive | Aqueous GC/MS VOCs | GC/MS | ELLE | N |
| WI11475 | Multi-Parameters in Solids and Waters by Man-Tech Multi-Parameter System, Version 18, 3/15/2024 | Definitive | Water - Hardness | Man-Tech Multi-Parameter System | ELLE | N |
| WI11604 | Total Suspended Solids (TSS) Gravimetric by SM 2540 D-1997, Version 13, 11/16/2023 | N/A | Aqueous-TSS | Miscellaneous Laboratory equipment | ELLE | N |
| DV-LC-0002 | Nitroaromatic and Nitroamine Explosive Compounds by HPLC SW-846-8330A and 8330B), Revision 27, 07/13/2023 | Definitive | Picric Acid | HPLC | Eurofins, Denver | N |
| WI9995 | Semi-volatile Organic Compounds in Waters and Soils by Method 8270E SIM and 625.1 SIM by GC-MS, Version 20, 07/07/2023 | Definitive | Water, solid GC/MS SVOCs-SIM | GC/MS-SIM | ELLE | N |
| WI46354 | Particle Size Distribution of Soils and Solids/Grain Size Classification by ASTM D422-63, Version 2, 7/7/2023 | Definitive | Solids – Grain Size | Miscellaneous Laboratory equipment | ELLE | N |
| WI11242 | Preparation of Vials for Field Preservation of Soils for Volatile Analysis, Rev 18, 04/24/23 | N/A | Organic Solids Preparation SW-846 5035,5030A, 5035A | N/A | ELLE | N |
| WI10682 | GC/MS - Bulk Solid Matrix Sample Preparation, Rev 14, 04/09/21 | N/A | Organic Solids Preparation SW-846 5030A, 5035A Mod. | N/A | ELLE | N |

| Lab SOP Number | Title, Revision Date, and / or Number | Definitive or Screening Data | Matrix and Analytical Group | Instrument | Organization Performing Analysis | Modified for Project Work? (Y/N) |
|---|---|---|---|---|---|---|
| WI11169 | Preparation of Soil and Solid Samples for GC Volatile Analysis by methods SW-846-5030A and SW-846-5035A Modified, Rev 19, 07/12/2023 | N/A | Organic Solids Preparation SW-846 5030A, 5035A Mod. | N/A | ELLE | N |
| SOP11880 | Laboratory Equipment Verifications-Balance, Syringe, Pipette, Weights and Other Equipment, Rev 14,05/18/2023 | N/A | Maintenance | Balance | ELLE | N |
| WI7619 | GC and GC/MS Instrument Maintenance, Rev 10, 04/28/2023 | N/A | Maintenance | GC/MS | ELLE | N |
| WI9617 | Semi-Volatile Organic Compounds by GC.MS, Revision 12, 12/7/2023 | Definitive | Water, solid 2,4-DNP and 2,4-DNCB | GC/MS | ELLE | N |
| WI11432 | Separatory Funnel Extraction by Method 3510C for BNAs in Wastewater, Version 20, 03/10/2023 | N/A | Method 3510C water prep | N/A | ELLE | N |
| WI9598 | GC/MS Preventive and Corrective Maintenance, Version 6, 09/26/2019 (last reviewed 9/28/2023 with no changes needed) | N/A | Maintenance | GC/MS | ELLE | N |
| WI10928 | Microwave Extraction by Method 3546 for Semivolatiles , Version 14, 04/15/2022 (reviewed 05.09.2023, no changes needed) | N/A | Method 3546 microwave (standard, SIM, and tissue) prep | N/A | ELLE | N |
| WI10942 | Extraction of Nitroaromatics and Nitroamines by Method 3535A in Water, Version 16, 05/16/2023 | N/A | Organic Preparation Method 8330/A/B | N/A | ELLE | N |

| Lab SOP Number | Title, Revision Date, and / or Number | Definitive or Screening Data | Matrix and Analytical Group | Instrument | Organization Performing Analysis | Modified for Project Work? (Y/N) |
|---|---|---|---|---|---|---|
| WI10920 | Separatory Funnel Extraction by Method 3510C, 608, or 608.3 for Pesticides and PCBs in a Wastewater, Version 23, 6/06/2023 | N/A | Organic Preparation Method 3510C | N/A | ELLE | N |
| WI10007 | Preventive and Corrective GC Maintenance, Version 7, 02/04/2019 (last review 10/19/2022) | N/A | Maintenance | N/A | ELLE | N |
| WI8639 | Sample Preparation of Waters for Analysis of Total Recoverable Metals by ICP-OES and ICP-MS, Version 20, 10/13/2023 | N/A | Liquid Inorganic Preparation SW-846 3005A | N/A | ELLE | N |
| WI21590 | Instrument Maintenance for Agilent 7900, Version 2, 02/21/2021 (Last reviewed 04.20.2023) | N/A | Maintenance | N/A | ELLE | N |
| WI11924 | Digestion of Aqueous Samples by SW-846 Method 7470A, Version 23, 05/20/2022 | N/A | Liquid Inorganic Preparation SW-846 7470A | N/A | ELLE | N |
| WI11948 | Preparation of Solids by EPA 7471A or B for Mercury Analysis, Version 23, 7/26/2023 | N/A | Solid, tissue, and oil Inorganic Preparation SW-846 7471A & SW-846 7471B | N/A | ELLE | N |
| WI11643 | Maintenance of Continuous Flow analyzers, ver. 7, 5/31/2022 (last reviewed 06.16.2023. no changes needed) | N/A | Water | NA | ELLE | N |
| WI7562 | Preparation of Solids for Cation Exchange Capacity (CEC) using Sodium Acetate by EPA 9081, Version 10, 12/6/2024 | N/A | Solids-CEC | Miscellaneous Laboratory equipment | ELLE | N |
| WI11931 | Metals by ICP-MS by Methods SW-846 6010B/C/D(aqueous, solid, tissue) and EPA 200.7 (aqueous), Version 18, 2/06/2025 | Definitive | Solid, liquid, tissues Metals | ICP/MS | ELLE | N |

| Lab SOP Number | Title, Revision Date, and / or Number | Definitive or Screening Data | Matrix and Analytical Group | Instrument | Organization Performing Analysis | Modified for Project Work? (Y/N) |
|---|---|---|---|---|---|---|
| WI11170 | Preparation of Soils for Volatile Analysis by EPA SW-846 Method 5035 and Method 5035A, Rev 21, 06/13/23 | N/A | Organic Solids Preparation SW-846 5035/5035A | N/A | ELLE | N |
| WI9954 | Interpretation of Chromatographic Data, Version 17, 07/26/2023 | NA | Data interpretation | GC & HPLC | ELLE | N |
| Not included, the information is proprietary | Proprietary | Definitive | Solids-Microscopy | Miscellaneous Laboratory equipment | MicroVision Laboratory | N |

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# Worksheet #24 – Analytical Instrument Calibration

Analytical instruments will be calibrated in accordance with the procedures in the analytical laboratory SOPs (**Appendix F**). Following is a summary of the calibration procedures. All analytical instrument calibration procedures follow QSM criteria.

## Worksheet #24-1 – GC/MS VOC Instrument Calibration Table

| Instrument | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| GC/MS Volatiles 8260C/D | GC/MS Tuning | Tune with BFB before an ICAL and every 12 hours | Per ion abundance criteria in SW-846 method | Retune, injection port maintenance, clean the source and/or change the column | ELLE analyst | WI8236 |
| | Initial Calibration with minimum 5 points; Solid and 5 mL waters 1 ppb through 300 ppb; 25 mL waters 0.2 ppb through 25 ppb; 5 mL UST waters 0.5 ppb through 200 ppb | After continuing calibration fails. | %RSD of ≤15% is required for all analytes using an average relative response factor. 10% of the analytes may fail this criteria. For any analytes with a %RSD >15%, a first-degree linear regression can be used providing that the correlation coefficient (CC) is ≥ 0.99 and a minimum of five (5) levels are used. A quadratic curve fit may be used providing that the coefficient of determination is ≥ 0.99 and a minimum of six (6) levels are used. If >10% of the analytes fail, the calibration is not valid and must be repeated. Minimum response factor criteria must be met for select compounds. | Perform more aggressive instrument maintenance and recalibrate | | |
| | Retention Time Window Establishment | Once per ICAL and at the beginning of the analytical sequence | Position is set using the midpoint standard of the ICAL curve when ICAL is performed. On days with | N/A | | |

| Instrument | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| | | | no ICAL use the initial CCV | | | |
| | Evaluation of Relative Retention Times (RRT) | With each sample | RRT of each reported analyte within ±0.06 RRT units | Correct problem, then recalibrate | | |
| | MDL Standard | After each calibration | All compounds must be detected | Repeat tuning and ICAL procedure prior to analyzing samples. Repeat maintenance if needed. | | |
| | LOD standard | Quarterly | All compounds must be detected | Re-prep and re-analyze LOD | | |
| | CCV standard | Every 12 hours and at the end of analytical run | All target analytes ≤20% Drift; Ending CCV - All reported analytes and surrogates within ± 50%. | Re-analyze CCV in duplicate immediately. If both pass, samples can be reported. If either fails or if immediate reanalysis of CCV in duplicate cannot be performed all samples since acceptable CCV must be re-analyzed. If the CCV fails high any associated samples that are ND can be reported. | | |

Acronyms:
ICAL = Initial Calibration
ICV = Initial Calibration Verification
CCV = Calibration Check Verification
RF = Response Factor
RSD = Relative Standard Deviation
RRF = Relative Response Factor
LOD = Limit of Detection
MDL = Method Detection Limit

## Worksheet #24-2 – GC/MS SVOC Instrument Calibration Table

| Instrument | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| GC/MS Semivolatiles 8270E | GC/MS Tuning and Performance Check | Tune with DFTPP before an ICAL or CCV | Per ion abundance criteria in SW-846 method; DDT breakdown ≤20%; tailing factors: benzidine ≤2; pentachlorophenol ≤2 | Retune, injection port maintenance, clean the source and/or change the column | ELLE analyst | WI9617 |
| | Initial calibration with a minimum 5 points: Solid, tissue and water 1000 mL= 0.5 ppm through 120 ppm; Water 250 mL= 0.125 ppm through 30 ppm | After continuing calibration fails. or after major maintenance. | Avg RRF is used if % RSD ≤15%, if >15% a linear fit can be used if $r^2$≥0.99. A linear curve fit is a suitable alternative when only five (5) calibration standards have been analyzed. When calculating the calibration curves using the linear regression model, a minimum quantitation check on the viability of the lowest calibration point should be performed by re-fitting the response from the low concentration calibration standard back into the curve. The recalculated concentration of the low calibration point should be within ±30% of the standard's true concentration. | Perform more aggressive instrument maintenance and recalibrate | | |
| | Retention Time Window Establishment | Once per ICAL and at the beginning of the analytical sequence | Position is set using the midpoint standard of the ICAL curve when ICAL is performed. On days with no ICAL use the initial CCV | NA | | |

| Instrument | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| | Evaluation of Relative Retention Times (RRT) | With each sample | RRT of each reported analyte within ±0.06 RRT units | Correct problem, then recalibrate | | |
| | ICV standard (required only for 2,4-dinitrochlorobenzene) | After each initial calibration | Target compounds ≤20% drift | Re-analyze the ICV and samples associated with the non-compliant ICV. If ICV fails again do system maintenance, recalibrate, and re-analyze samples. | | |
| | CCV standard | Every 12 hours | Target compounds ≤20% drift. Ending CCV - All reported analytes and surrogates within ± 50%. | Re-analyze CCV in duplicate immediately. If both pass, samples can be report. If either fails or if immediate reanalysis of CCV in duplicate cannot be performed all samples since acceptable CCV must be re-analyzed. If the CCV fails high any associated samples that are ND can be reported. | | |
| | Tune-ending check standard (CCVC) | End of analytical run | Run within 12 hour tune time; ±50% drift | Re-analyze the CCVC if within the 12 hour tune period. If not or if the re-analyzed CCVC fails do system maintenance, retune, recalibrate, and re-analyze samples. | | |
| | LOD Verification | Quarterly | Spike at LOD, goes through all preparative methods. Meets qualitative detection criteria | Re-prep and re-analyze the LOD standard. If needed, LODs are raised by performing a new initial LOD verification | | SOP11892 |
| | MDL Verification | Quarterly | Per 40 CFR 136 Appendix B Rev 2.0. Goes through all preparative methods. Meets qualitative detection criteria. May be combined with the LOD verifications. | Re-prep and re-analyze the MDL standard. If needed, a new initial MDL study is performed with a higher concentration. | | |

| Instrument | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| | LOQ Verification | Quarterly | Goes through all preparative methods. Meets quantitative detection criteria. May be combined with the LOD and MDL verifications. | Re-prep and re-analyze the RL standard. If needed, LOQs are raised by performing a new initial LOQ verification | | |

Acronyms:
SPCC = System Performance Check Compound
CCC = Calibration Check Compounds
ICAL = Initial Calibration
ICV = Initial Calibration Verification
CCV = Calibration Check Verification
RF = Response Factor
RRF = Relative Response Factor
RSD = Relative Standard Deviation
SECC = Shift Ending Calibration Check
DFTPP = Decafluorotriphenylphosphine
LOD = Limit of Detection
CF = Calibration Factor

## Worksheet #24-3 – Explosives HPLC Instrument Calibration Table

| Instrument | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| HPLC Nitroaromatics and Nitroamines 8330B | Initial calibration with a minimum 6 points. Ranges from a standard at or near the reporting limit through 80x the first level | After continuing calibration fails | % RSD ≤15%, if >15% then alternate fit linear $r^2$ ≥0.99 or quadratic r2 ≥0.99. Must use 6 points for quadratic curve. | Perform more aggressive instrument maintenance and recalibrate | Eurofins-Denver Analyst | DV-LC-0002 |
| | MDL Standard | After each initial calibration | All compounds must be detected | Repeat ICAL procedure prior to analyzing samples. Repeat maintenance if needed. | | |
| | LOD Standard | Quarterly | All compounds must be detected | Re-prep and re-analyze LOD | | |
| | CCV Standard | Prior to sample analysis, after every 10 field samples, and at the end of the sequence. | Target compounds +/- 20% of the nominal concentration and within established retention time windows | All samples since acceptable CCV must be re-analyzed. If the CCV fails high, any associated samples that are ND can be reported. | | |
| | Confirmation of positive results | All positive results | Calibration and QC criteria are the same for the confirmation analysis as for primary analysis. For results > LOQ, RPD for results between the primary and confirmation is ≤ 40%. | Report both columns in data package | | |
| | LOD Verification | Quarterly | Spike at LOD, goes through all | Re-prep and re-analyze the LOD | | SOP11892 |

| Instrument | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| | | | preparative methods. Meets qualitative detection criteria | standard. If needed, LODs are raised by performing a new initial LOD verification | | |
| | MDL Verification | Quarterly | Per 40 CFR 136 Appendix B Rev 2.0. Goes through all preparative methods. Meets qualitative detection criteria. May be combined with the LOD verifications. | Re-prep and re-analyze the MDL standard. If needed, a new initial MDL study is performed with a higher concentration. | | |
| | LOQ Verification | Quarterly | Goes through all preparative methods. Meets quantitative detection criteria. May be combined with the LOD and MDL verifications. | Re-prep and re-analyze the LOQ standard. If needed, LOQs are raised by performing a new initial LOQ verification | | |

Acronyms:
ICAL = Initial Calibration
ICV = Initial Calibration Verification
ICB = Initial Calibration Blank
CCV = Continuing Calibration Verification
CCB = Continuing Calibration Blank
LCS = Laboratory Control Spike
LCSD = Laboratory Control Spike Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
LOD = Limit of Detection
MDL = Method Detection Limit
LOQ = Limit of Quantitation

## Worksheet #24-4 – PCBs GC Instrument Calibration Table

| Instrument | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| Gas Chromatography PCBs 8082A | Initial calibration with a minimum 5 points. Ranges from 50 ug/L to 200 ug/L | After continuing calibration fails | % RSD ≤20%, if >20% then alternate fit linear $r^2$ ≥0.99 or quadratic r2 ≥0.99. Must use 6 points for quadratic curve. | Perform more aggressive instrument maintenance and recalibrate | ELLE Analyst | WI9238 |
| | MDL Standard | After each initial calibration | All compounds must be detected | Repeat ICAL procedure prior to analyzing samples. Repeat maintenance if needed. | | |
| | LOD Standard | Quarterly | All compounds must be detected | Re-prep and re-analyze LOD | | |
| | CCV Standard | Prior to sample analysis, after every 10 field samples, and at the end of the sequence. | Target aroclors +/- 20% of the nominal concentration and within established retention time windows | All samples since acceptable CCV must be re-analyzed. If the CCV fails high, any associated samples that are ND can be reported. | | |
| | Confirmation of positive results | All positive results | Calibration and QC criteria are the same for the confirmation analysis as for primary analysis. For results > LOQ, RPD for results between the primary and confirmation is ≤ 40%. | Flag outliers | | |
| | LOD Verification | Quarterly | Spike at LOD, goes through all preparative methods. Meets qualitative detection criteria | Re-prep and re-analyze the LOD standard. If needed, LODs are raised by performing a new initial LOD verification | | SOP11892 |
| | MDL Verification | Quarterly | Per 40 CFR 136 Appendix B Rev 2.0. Goes through all preparative methods. Meets qualitative detection criteria. May be combined with the LOD verifications. | Re-prep and re-analyze the MDL standard. If needed, a new initial MDL study is performed with a higher concentration. | | |
| | LOQ Verification | Quarterly | Goes through all preparative methods. Meets quantitative | Re-prep and re-analyze the LOQ standard. If | | |

| Instrument | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| | | | detection criteria. May be combined with the LOD and MDL verifications. | needed, LOQs are raised by performing a new initial LOQ verification | | |

Acronyms:
ICAL = Initial Calibration
ICV = Initial Calibration Verification
ICB = Initial Calibration Blank
CCV = Continuing Calibration Verification
CCB = Continuing Calibration Blank
LCS = Laboratory Control Spike
LCSD = Laboratory Control Spike Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
LOD = Limit of Detection
MDL = Method Detection Limit
LOQ = Limit of Quantitation

## Worksheet #24-5 – Metals-ICP-MS Instrument Calibration Table

| Instrument | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| ICP/MS: 6020B | Tuning | Daily | No AMUA difference of >0.1 AMU.<br>Peak Width < 0.9 AMU at 10% height.<br>%RSD < 5 for masses used for tuning. | Perform mass calibration for AMU. Adjust mass calibration for PW. | ELLE Analyst | WI11933 |
| | Initial Calibration consists of Blank and 1 point: 0 and 10,000 ppb for Al, Ca, Fe, Mg, K, Na; 0 and 1,000 ppb for As, Ba, Cr, Co, Cu, Mn, Ni, Ti, V, Zn; 0 and 100 ppb for Sb, Be, Cd, Pb. Mo, Se, Ag, Sr, Tl, Sn | Each new run | Passing ICB | Recalibrate, perform instrument maintenance if calibration cannot conform to criteria, recalibrate | | |
| | ICB | Immediately after the ICV | No analytes > LOD | Re-analyze | | |
| | LOD Verification | Quarterly | Spike at LOD, goes through all preparative methods. Meets qualitative detection criteria | Re-prep and re-analyze the LOD standard. If needed, LODs are raised by performing a new initial LOD verification | | |
| | MDL Verification | Quarterly | Per 40 CFR 136 Appendix B Rev 2.0. Goes through all preparative methods. Meets qualitative detection criteria. May be combined with the LOD verifications. | Re-prep and re-analyze the MDL standard. If needed, a new initial MDL study is performed with a higher concentration. | | |
| | LOQ Verification | Quarterly | Goes through all preparative methods. Meets quantitative detection criteria. May be combined with the LOD and MDL verifications. | Re-prep and re-analyze the RL standard. If needed, LOQs are raised by performing a new initial LOQ verification | | |
| | CCV | Immediately after the ICSAB and every 10 samples | ±10% of true value | Re-analyze | | |

| Instrument | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| | CCB | Immediately after the CCV and every 10 samples | No analytes > LOD | Re-analyze | | |
| | Interference Check Sample-A | At the beginning of each run immediately following the LLC | Absolute value of concentration for all non-spiked project analytes <1/2 LOQ | Recalibrate | | |
| | Interference Check Sample-AB | At the beginning of each run immediately following the LLC | ± 20% of the true value for each analyte | Recalibrate | | |
| | Low Level Check (LLC) | Beginning of each sequence and before the interference check samples | ± 20% True Value | Re-analyze the sample | | |
| | Linear Dynamic Range (LDR) Check | Quarterly | ±10% of true value | Samples > 90% of the linear range must be re-analyzed as a dilution | | |

Acronyms:
ICSAB = Interference Check Standard AB
ICV = Initial Calibration Verification
ICB = Initial Calibration Blank
CCV = Continuing Calibration Verification
CCB = Continuing calibration Blank
CRA = Contract-required detection limit

## Worksheet #24-6 – Mercury CVAA Instrument Calibration Table

| Instrument | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| CVAA: 7471A/7470A (water and soil) | Initial Calibration consists of a Blank and 5 points ranging from 0.2 ppb to 5 ppb | Each new run | Correlation coefficient (r) >0.995 | Recalibrate, perform instrument maintenance if calibration cannot conform to criteria, recalibrate | ELLE Analyst | WI7965 |
| | ICV | After each calibration | ±10% of true value | Re-analyze | | |
| | ICB | Immediately after the ICV | No analytes > LOD | Re-analyze | | |
| | LOD Verification | Quarterly | Spike at LOD, goes through all preparative methods. Meets qualitative detection criteria | Re-prep and re-analyze the LOD standard. If needed, LODs are raised by performing a new initial LOD verification | | |
| | MDL Verification | Quarterly | Per 40 CFR 136 Appendix B Rev 2.0. Goes through all preparative methods. Meets qualitative detection criteria. May be combined with the LOD verifications. | Re-prep and re-analyze the MDL standard. If needed, a new initial MDL study is performed with a higher concentration. | | |
| | LOQ Verification | Quarterly | Goes through all preparative methods. Meets quantitative detection criteria. May be combined with the LOD and MDL verifications. | Re-prep and re-analyze the RL standard. If needed, LOQs are raised by performing a new initial LOQ verification | | |
| | CCV | Immediately after the CRA and every 10 samples | ±10% of true value | Re-analyze | | |
| | CCB | Immediately after the CCV and at a frequency of every 10 samples | No analytes > LOD | Re-analyze | | |
| | Low level Check (CRA) | Immediately after the ICB | ± 20% True Value | Re-analyze | | |

| Instrument | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|

Acronyms:
ICSAB = Interference Check Standard AB
ICV = Initial Calibration Verification
ICB = Initial Calibration Blank
CCV = Continuing Calibration Verification
CCB = Continuing calibration Blank
CRA = Contract-required detection limit

## Worksheet #24-7 – TOC/DOC Instrument Calibration Table

| Instrument | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| TOC Analyzer: TOC, DOC, & TIC in Water | Initial calibration with a minimum 6 points ranging from 1.0 ppm to 100 ppm | Monthly or after continuing calibration fails | $r^2$ ≥0.995. Relative Error for CAL1 and midpoint must be less than 15% | Perform more aggressive instrument maintenance and recalibrate | ELLE Analyst | WI11637 (5310C); WI10038 (9060A) |
| | ICB Standard | After each initial calibration | No analytes detected > MDL | Perform more aggressive instrument maintenance and recalibrate | | |
| | ICV Standard | After each initial calibration | Method Acceptance Criteria | Re-analyze the ICV. If ICV fails again do system maintenance and recalibrate. | | |
| | Total Inorganic Check Standard | Daily | Within +/- 20% of the nominal concentration | All affected samples are re-analyzed | | |
| | CCV Standard | If instrument is idle > 4 hours, after every 10 field samples, and at the end of the sequence | Method Acceptance Criteria | All affected samples are re-analyzed | | |
| | CCB Standard | If instrument is idle > 4 hours, after every 10 field samples, and at the end of the sequence | No analytes detected > MDL | All affected samples are re-analyzed | | |
| TOC in Soil, 9060A | Initial calibration with a minimum 4 points ranging from 0.3 mg C to 6 mg C | Monthly or after continuing calibration fails | $r^2$ ≥0.995. %Relative Error for low and midpoint cal standards must meet lab criteria | Perform more aggressive instrument maintenance and recalibrate | ELLE Analyst | WI11627 |
| | ICB Standard | After each initial calibration | No analytes detected > ½ LOQ | Perform more aggressive instrument maintenance and recalibrate | | |
| | ICV Standard | After each initial calibration | Laboratory Acceptance Criteria | Re-analyze the ICV. If ICV fails again do system maintenance and recalibrate. | | |
| | CCV Standard | After every 10 analyses, and at | Manufacturer acceptance limits | All affected samples are re-analyzed | | |

| Instrument | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| | | the end of the sequence | | | | |
| | CCB Standard | After every 10 analyses, and at the end of the sequence | No analytes detected > ½ LOQ | All affected samples are re-analyzed | | |

Acronyms:
TC = Total Carbon
TOC = Total Organic Carbon
TIC = Total Inorganic Carbon
DC = Dissolved Carbon
DOC = Dissolved Organic Carbon
DIC = Dissolved Inorganic Carbon
DO = Dissolved Oxygen

## Worksheet #24-8 – Hardness Instrument Calibration Table

| Parameter | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| Hardness, SM2340C | CCV Standard | Every 10 samples | ±10% Difference | Re-analyze affected samples | ELLE Analyst | WI11475 |
| | CCB Standard | Every 10 samples | <MDL | Re-analyze affected samples >ND | ELLE Analyst | |

## Worksheet #24-9 – pH Instrument Calibration Table

| Parameter | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| pH using pH meter liquid | 3 point: 4, 7, 10 buffers | Every 24 hours | Percent slope by be within 92% and 102% | Perform instrument maintenance if calibration cannot conform to criteria, recalibrate | ELLE Analyst | WI11518, WI11519 |
| | CCV Standard | After every 10 samples and end of batch | ±10% D | Re-analyze affected samples | ELLE Analyst | |

## Worksheet #24-10 – CEC Instrument Calibration Table

| Instrument | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| ICP: 6010D/ CEC: 9081 | Initial Calibration consists of Blank and 1 point: 0 and 10,000 ppb for Na | Each new run | Passing ICB | Recalibrate, perform instrument maintenance if calibration cannot conform to criteria, recalibrate | ELLE Analyst | WI11933 |
| | ICB | Immediately after the ICV | No analytes > LOD | Re-analyze | | |

| Instrument | Calibration Procedure/Range | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| | LOD Verification | Quarterly | Spike at LOD, goes through all preparative methods. Meets qualitative detection criteria | Re-prep and re-analyze the LOD standard. If needed, LODs are raised by performing a new initial LOD verification | | |
| | MDL Verification | Quarterly | Per 40 CFR 136 Appendix B Rev 2.0. Goes through all preparative methods. Meets qualitative detection criteria. May be combined with the LOD verifications. | Re-prep and re-analyze the MDL standard. If needed, a new initial MDL study is performed with a higher concentration. | | |
| | LOQ Verification | Quarterly | Goes through all preparative methods. Meets quantitative detection criteria. May be combined with the LOD and MDL verifications. | Re-prep and re-analyze the RL standard. If needed, LOQs are raised by performing a new initial LOQ verification | | |
| | CCV | Immediately after the ICSAB and every 10 samples | ±10% of true value | Re-analyze | | |
| | CCB | Immediately after the CCV and every 10 samples | No analytes > LOD | Re-analyze | | |
| | Interference Check Sample-A | At the beginning of each run immediately following the LLC | Absolute value of concentration for all non-spiked project analytes <1/2 LOQ | Recalibrate | | |
| | Interference Check Sample-AB | At the beginning of each run immediately following the LLC | ± 20% of the true value for each analyte | Recalibrate | | |
| | Low Level Check (LLC) | Beginning of each sequence and before the interference check samples | ± 20% True Value | Re-analyze the sample | | |
| | Linear Dynamic Range (LDR) Check | Quarterly | ±10% of true value | Samples > 90% of the linear range must be re-analyzed as a dilution | | |

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# Worksheet #25 – Analytical Instrument and Equipment Maintenance, Testing, and Inspection

Laboratory analytical equipment will undergo maintenance and testing procedure in accordance with the laboratory SOPs (**Appendix F**). Instrument maintenance is not required for isotopic signature analyses. All analytical instrument calibration procedures follow QSM criteria. Following is a summary of the procedures.

## Worksheet #25-1 – VOC Analytical Instrument Maintenance

| Instrument/ Equipment | Maintenance Activity | Testing Activity | Inspection Activity | Frequency | Acceptance Criteria | Corrective Action | Responsible Person | SOP Reference |
|---|---|---|---|---|---|---|---|---|
| Agilent 6890 GC/5973 MSD (or equivalent) | As needed, replacement of components | CCV | Visual inspection of components | As needed | Initial calibration or continuing calibration verification passes method criteria | Perform additional maintenance prior to instrument calibration or CCV | Analysts or group leaders | WI7619 & WI9598 |
| Analytical Balance | Annual Calibration/ Verification | Daily Check with Class 1 weights | Visual inspection | Annual Calibration/ Daily Check | The reading must be ±0.1% or ±0.5mg, whichever is greater. Weight must be 1000X heavier than sensitivity of balance. | 1) verify cleanliness of weights 2) remove balance from service and place a call to service firm 3) management must evaluate data generated since last acceptable reading to determine any potential impacts to data quality | Outside vendor for calibration/ Analyst for daily checks | SOP11880 |

## Worksheet #25-2 – SVOC Analytical Instrument Maintenance

| Instrument/ Equipment | Maintenance Activity | Testing Activity | Inspection Activity | Frequency | Acceptance Criteria | Corrective Action | Responsible Person | SOP Reference |
|---|---|---|---|---|---|---|---|---|
| 8270 Agilent 6890 or 7890 GC/5973, 5975, or 5977 MSD (or equivalent) | As needed, replacement of components (Injection port; column, ion source; other) | Continuing calibration verification (CCV) and DFTPP per 12 hour tune period | Visual inspection of components | Daily routine maintenance (injection port); as needed for other components | Initial calibration or continuing calibration verification passes method criteria | Perform maintenance again; re-calibration if necessary | Analysts or group leaders | WI9598 |

## Worksheet #25-3 – Explosives Analytical Instrument Maintenance

| Instrument/ Equipment | Maintenance Activity | Testing Activity | Inspection Activity | Frequency | Acceptance Criteria | Corrective Action | Responsible Person | SOP Reference |
|---|---|---|---|---|---|---|---|---|
| HPLC, HP1100 with 2HPLC UV detectors | Replacing frits and check valves | Calibration Check<br>All analytes within +/- 15% of the nominal concentration and within established retention time windows | Visual Inspection | As needed | Initial calibration after maintenance is within specifications | Perform maintenance again | HPLC analyst | WI10008 |

## Worksheet #25-4 – PCBs Analytical Instrument Maintenance

| Instrument/ Equipment | Maintenance Activity | Testing Activity | Inspection Activity | Frequency | Acceptance Criteria | Corrective Action | Responsible Person | SOP Reference |
|---|---|---|---|---|---|---|---|---|
| Gas Chromatograph, HP5890, HP 6890, and HP7890 with ECD Detector | Injection port maintenance; ECD maintenance | Calibration Check All analytes within +/- 20% of the nominal concentration and within established retention time windows | Visual Inspection | As needed | Initial calibration after maintenance is within specifications | Perform maintenance again | GC analyst | WI10007 |

## Worksheet #25-5 – Metals-ICP-MS Analytical Instrument Maintenance

| Instrument/ Equipment | Maintenance Activity | Testing Activity | Inspection Activity | Frequency | Acceptance Criteria | Corrective Action | Responsible Person | SOP Reference |
|---|---|---|---|---|---|---|---|---|
| Agilent 7900/7700X | As needed replacement of components | Calibration checks | Visual inspection of components | As needed maintenance/ calibration checks every 10 injections | 90-110% for the calibration checks | Recalibration | ELLE Analyst | WI21590, WI11933 |

## Worksheet #25-6 – Mercury Analytical Instrument Maintenance

| Instrument/ Equipment | Maintenance Activity | Testing Activity | Inspection Activity | Frequency | Acceptance Criteria | Corrective Action | Responsible Person | SOP Reference |
|---|---|---|---|---|---|---|---|---|
| Leeman Labs Hydra II Mercury Analyzer | As needed replacement of components | Calibration checks | Visual inspection of components | As needed maintenance/ calibration checks every 10 injections | 90-110% for the calibration checks | Recalibration | ELLE Analyst | WI7965 |

## Worksheet #25-7 – TOC/DOC Analytical Instrument Maintenance

| Instrument/ Equipment | Maintenance Activity | Testing Activity | Inspection Activity | Frequency | Acceptance Criteria | Corrective Action | Responsible Person | SOP Reference |
|---|---|---|---|---|---|---|---|---|
| TOC Analyzer | As needed replacement of components | Calibration checks | Visual inspection of components | As needed maintenance/calibration checks every 10 injections | Per Method Criteria | Recalibration | ELLE Analyst | WI11637 (5310C waters); WI10038 (9060A waters); WI11627 (soil) |
| Analytical balance | Assure the balance is in a vibration-free area, is level, and the interior housing is clean. | Verification with ASTM certified weights | Visual inspection and weight verification | Each day of use | The reading must be ±0.1% or ±0.5mg, whichever is greater. | 1) verify cleanliness of weights 2) remove balance from service and place a call to service firm 3) management must evaluate data generated since last acceptable reading to determine any potential impacts to data quality | ELLE analyst | SOP11880 |

## Worksheet #25-8 – Hardness Analytical Instrument Maintenance

| Instrument/ Equipment | Maintenance Activity | Testing Activity | Inspection Activity | Frequency | Acceptance Criteria | Corrective Action | Responsible Person | SOP Reference |
|---|---|---|---|---|---|---|---|---|
| Man-Tech Autotitrator | As needed replacement of components | Continuing calibration verification (CCV) | Visual inspection of components | As needed | Initial calibration or continuing calibration verification passes method criteria | Perform maintenance again; re-calibration if necessary | Analysts or group leaders | WI11475 |

## Worksheet #25-9 – pH Analytical Instrument Maintenance

| Instrument/ Equipment | Maintenance Activity | Testing Activity | Inspection Activity | Frequency | Acceptance Criteria | Corrective Action | Responsibl e Person | SOP Reference |
|---|---|---|---|---|---|---|---|---|
| pH/ISE Meter | As needed replacement of components | Calibration checks | Visual inspection of components | As needed maintenance/c alibration checks every 10 injections | 90-110% for calibration checks | Recalibration | ELLE Analyst | WI11518 |

## Worksheet #25-10 – Metals-ICP/CEC Analytical Instrument Maintenance

| Instrument/ Equipment | Maintenance Activity | Testing Activity | Inspection Activity | Frequency | Acceptance Criteria | Corrective Action | Responsibl e Person | SOP Reference |
|---|---|---|---|---|---|---|---|---|
| Thermo Scientific iCAP 6000, 6500, 7000 | As needed replacement of components | Calibration checks | Visual inspection of components | As needed maintenance/ calibration checks every 10 injections | 90-110% for the calibration checks | Recalibration | ELLE Analyst | WI7562/WI 11931 |

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# Worksheets #26 and #27 – Sampling Handling, Custody, and Disposal

Proper sample collection, labeling, custody, and shipping procedures will be followed from the time of sample collection to final sample disposal. SOPs related to sampling are in **Appendix D**. Analytical laboratory staff will prepare and analyze the samples in accordance with the laboratory SOPs provided in **Appendix F**.

**Sampling Organization:** **EAS-WSP JV**

**Laboratories:** ELLE
Eurofins Test America, Denver, CO

**Method of Sample Delivery:** Federal Express (or equivalent) Overnight

**Number of Days from Reporting Until Sample Disposal:** 60 days

| Activity | Organization/Title/Position of Person Responsible for Activity | SOP Reference (Appendix D) |
|---|---|---|
| Sample Collection | Field Team Members: WSP/KGS | SOP#9, #10, #11, #12, LSASDPROC-513-R5 |
| Sample Labeling | Field Team Members: WSP/KGS | SOP #3 |
| Chain-of-Custody Form Completion | Field Team Members: WSP/KGS | SOP #3 |
| Packaging | Field Team Members: WSP/KGS | SOP #3 |
| Shipping Coordination | Field Team Members: WSP/KGS; JV Chemist: Michael Shadle – EAS WSP JV PM – Russ McCormick JV QC Manager – George Lukert | SOP #3 |
| Sample Receipt, Inspection, and Log In | Laboratory Sample Custody Staff | Laboratory Procedures |
| Sample Custody and Storage | Laboratory Sample Custody Staff | Laboratory Procedures |
| Sample Disposal of 60 days once data has been received and validated | Laboratory Sample Custody Staff | Minimum of 60 days following analysis. |
| Extract/Digestate Disposal | Laboratory Sample Custody Staff | Minimum of 60 days, if any extract remains |

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# Worksheet #28 – Analytical Quality Control and Corrective Action

The purpose of laboratory QC activities is to produce data of known quality that satisfy the project-specific DQOs. The QC requirements apply to laboratory analysis of samples that will produce definitive data. The purpose of laboratory QC activities is to produce data of known quality that satisfy the project-specific DQOs. The following worksheets contain information for each analytical method/SOP, matrix, and analytical group.

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## Worksheet #28-1

Matrix: Aqueous/Solids
Analytical Group: VOCs
Concentration Level: Low
Analytical Method/SOP Reference: 8260C/D; WI8236/WI8194
Analytical Organization: ELLE

| QC Sample | Frequency/Number | Method/SOP QC Acceptance Limits | Corrective Action | Person(s) Responsible for Corrective Action | Data Quality Indicator (DQI) | Measurement Performance Criteria |
|---|---|---|---|---|---|---|
| Surrogate Spike | Per sample (including MS/MSD, LCS, and Blanks) | Recovery limits per QSM 6.0 and above. Laboratory statistical limits for surrogates not in QSM 6.0 and above. | If obvious matrix interference report data with a comment. Otherwise, re-analyze. | ELLE Analyst | Accuracy | Results within acceptance limits |
| Method blanks | 1 per prep batch of up to 20 samples | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater | Re-analyze to confirm detections. If detects confirm re-analyze samples that are not ND or not >10x the blank value or regulatory limit | ELLE Analyst | Accuracy/Laboratory Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater |
| MS/MSD | 1 per prep batch of up to 20 samples | Recovery limits per QSM 6.0 and above. Laboratory statistical limits for compounds not in QSM 6.0 and above; RPD ≤30% | Flag outliers | ELLE Analyst | Accuracy/Bias/Precision | Results within acceptance limits |

| QC Sample | Frequency/Number | Method/SOP QC Acceptance Limits | Corrective Action | Person(s) Responsible for Corrective Action | Data Quality Indicator (DQI) | Measurement Performance Criteria |
|---|---|---|---|---|---|---|
| LCS/LCSD | 1 per prep batch of up to 20 samples | Recovery limits per QSM 6.0 and above. Laboratory statistical limits for compounds not in QSM 6.0 and above.; RPD ≤30% | Analytes in the LCS that fail high and are ND in the samples can be reported. For all others re-analyze LCS and samples. If it still fails, perform instrument maintenance, restart the tune period and re-analyze all QC and samples. | ELLE Analyst | Accuracy/Bias/Precision | Results within acceptance limits |
| Internal standards | Per sample (including MS/MSD, LCS, and blanks) | -50% to + 100% of internal standard area of 12 hour STD. RT change | Check the instrument for possible problems and then re-analyze samples. If reinject confirms, report with a comment. | ELLE Analyst | Precision | Results within acceptance limits |

## Worksheet #28-2

Matrix: Aqueous/Solids
Analytical Group: SVOC
Concentration Level: Low
Analytical Method/SOP Reference: 8270E WI9617
Analytical Organization: ELLE

| QC Sample | Frequency/Number | Method/SOP QC Acceptance Limits | Corrective Action | Person(s) Responsible for Corrective Action | Data Quality Indicator (DQI) | Measurement Performance Criteria |
|---|---|---|---|---|---|---|
| Surrogate Spike | Per sample (including MS/MSD, LCS/LCSD, and Blanks) | Recovery limits per QSM 6.0 and above. Laboratory statistical limits for surrogates not in QSM.6.0 | If obvious matrix interference report data with a comment. Otherwise, re-extract and re-analyze. | ELLE Analyst | Accuracy | Results within acceptance limits |
| Method blanks | 1 per prep batch of up to 20 samples | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater | Re-analyze to confirm detections. If detects confirm re-extract samples that are not ND or not >10x the blank value | ELLE Analyst | Accuracy/Laboratory Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater |
| MS/MSD | 1 per prep batch of up to 20 samples | Recovery limits per QSM 6.0 and above. Laboratory statistical limits for compounds not in QSM.6.0; RPD ≤30% | Flag outliers | ELLE Analyst | Accuracy/Bias/Precision | Results within acceptance limits |

| QC Sample | Frequency/Number | Method/SOP QC Acceptance Limits | Corrective Action | Person(s) Responsible for Corrective Action | Data Quality Indicator (DQI) | Measurement Performance Criteria |
|---|---|---|---|---|---|---|
| LCS/LCSD | 1 per prep batch of up to 20 samples | Recovery limits per QSM 6.0 and above. Laboratory statistical limits for compounds not in QSM.6.0; RPD ≤30% | Analytes in the LCS that fail high and are ND in the samples can be reported. All others are re-extracted. | ELLE Analyst | Accuracy/Bias/Precision | Results within acceptance limits |
| Internal standards | Per sample (including MS/MSD, LCS/LCSD, and blanks) | -50% to +100% of internal standard area of 12 hour STD. RT within ±10 sec. of referenced standard | Flag data | ELLE Analyst | Precision | Results within acceptance limits |
| MDL | 2 spiked samples per instrument per quarter (or per batch, whichever is less frequent | Analyte(s) meet qualitative identification criteria | Raise MDL spike concentration and re-calculate | ELLE Analyst | Sensitivity | Results within acceptance limits |
| LOD | 1 spiked sample per quarter prepared and analyzed at the concentration of the LOD (or per batch, whichever is less frequent) | Analyte(s) meet qualitative identification criteria | Raise LOD spike concentration, raise LOD reported | ELLE Analyst | Sensitivity | Results within acceptance limits |

## Worksheet #28-3

Matrix: Aqueous/Solids
Analytical Group: SVOC-2,4-DNCB & 2,4-DNP
Concentration Level: Low
Analytical Method/SOP Reference: 8270E WI9617
Analytical Organization: ELLE

| QC Sample | Frequency/Number | Method/SOP QC Acceptance Limits | Corrective Action | Person(s) Responsible for Corrective Action | Data Quality Indicator (DQI) | Measurement Performance Criteria |
|---|---|---|---|---|---|---|
| Surrogate Spike | Per sample (including MS/MSD, LCS/LCSD, and Blanks) | See Worksheet 12-3 for limits. | If obvious matrix interference report data with a comment. Otherwise, re-extract and re-analyze. | Analyst | Accuracy | Results within acceptance limits |
| Method blanks | 1 per prep batch of up to 20 samples | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater | Re-analyze to confirm detections. If detects confirm re-extract samples that are not ND or not >10x the blank value | Analyst | Accuracy/Laboratory Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater |
| MS/MSD | 1 per prep batch of up to 20 samples | See Worksheet 12-3 for limits RPD ≤30% | Flag outliers | Analyst | Accuracy/Bias/Precision | Results within acceptance limits |
| LCS/LCSD | 1 per prep batch of up to 20 samples | See Worksheet 12-3 for limits. RPD ≤30% | Analytes in the LCS that fail high and are ND in the samples can be reported. All others are re-extracted. | Analyst | Accuracy/Bias/Precision | Results within acceptance limits |

| QC Sample | Frequency/Number | Method/SOP QC Acceptance Limits | Corrective Action | Person(s) Responsible for Corrective Action | Data Quality Indicator (DQI) | Measurement Performance Criteria |
|---|---|---|---|---|---|---|
| Internal standards | Per sample (including MS/MSD, LCS/LCSD, and blanks) | -50% to +100% of internal standard area of 12 hour STD. RT within ±10 sec. of referenced standard | Flag data | Analyst | Precision | Results within acceptance limits |
| MDL | 2 spiked samples per instrument per quarter (or per batch, whichever is less frequent | Analyte(s) meet qualitative identification criteria | Raise MDL spike concentration and re-calculate | Analyst | Sensitivity | Results within acceptance limits |
| LOD | 1 spiked sample per quarter prepared and analyzed at the concentration of the LOD (or per batch, whichever is less frequent) | Analyte(s) meet qualitative identification criteria | Raise LOD spike concentration, raise LOD reported | Analyst | Sensitivity | Results within acceptance limits |

## Worksheet #28-4

Matrix: Aqueous/Solids
Analytical Group: Alkylated PAHs
Concentration Level: Low - SIM
Analytical Method/SOP Reference: SW-846 8270E SIM/ WI9995
Analytical Organization: ELLE

| QC Sample | Frequency/Number | Method/SOP QC Acceptance Limits | Corrective Action | Person(s) Responsible for Corrective Action | Data Quality Indicator (DQI) | Measurement Performance Criteria |
|---|---|---|---|---|---|---|
| Surrogate Spike | Per sample (including MS/MSD, LCS, and Blanks) | QSM 6.0 or above limits for those listed, otherwise use laboratory statistical limits | If obvious matrix interference report data with a comment. Otherwise, re-extract and re-analyze. | ELLE Analyst | Accuracy | Results within acceptance limits |
| Method blanks | 1 per prep batch of up to 20 samples | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater | Re-analyze to confirm detections. If detects confirm re-extract samples that are not ND or not >10x the blank value | ELLE Analyst | Accuracy/Laboratory Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater |
| MS/MSD | 1 per prep batch of up to 20 samples | Recovery limits per QSM 6.0 or above. Laboratory statistical limits for compounds not in QSM 6.0; RPD ≤30% | Flag outliers | ELLE Analyst | Accuracy/Bias/Precision | Results within acceptance limits |
| LCS/LCSD | 1 per prep batch of up to 20 samples | Recovery limits per QSM 6.0 and above. Laboratory statistical limits for compounds not in QSM 6.0; RPD ≤30% | Analytes in the LCS that fail high and are ND in the samples can be reported. All others are re-extracted. | ELLE Analyst | Accuracy/Bias/Precision | Results within acceptance limits |

| QC Sample | Frequency/Number | Method/SOP QC Acceptance Limits | Corrective Action | Person(s) Responsible for Corrective Action | Data Quality Indicator (DQI) | Measurement Performance Criteria |
|---|---|---|---|---|---|---|
| Internal standards | Per sample (including MS/MSD, LCS, and blanks) | -50% to +100% of internal standard area of 12 hour STD.<br>RT change ≤30 sec. of associated reference standard | Re-analyze, document if confirmed. | ELLE Analyst | Precision | Results within acceptance limits |
| MDL Standard | 2 spiked samples per instrument per quarter (or per batch, whichever is less frequent) | Analyte(s) meet qualitative identification criteria | Raise MDL spike concentration and re-calculate | ELLE Analyst | Sensitivity | Results within acceptance limits |
| LOD | 1 spiked sample per quarter prepared and analyzed at the concentration of the LOD (or per batch, whichever is less frequent) | Analyte(s) meet qualitative identification criteria | Raise LOD spike concentration, raise LOD reported | ELLE Analyst | Sensitivity | Results within acceptance limits |

## Worksheet #28-5

Matrix: Aqueous/Solids
Analytical Group: Picric Acid
Concentration Level: low
Analytical Method/SOP Reference: SW-846 8330B/DV-LC-0002
Analytical Organization: Eurofins - Denver

| QC Sample | Frequency/Number | Method/SOP QC Acceptance Limits | Corrective Action | Person(s) Responsible for Corrective Action | Data Quality Indicator (DQI) | Measurement Performance Criteria |
|---|---|---|---|---|---|---|
| Surrogate Spike | Per sample (including MS/MSD, LCS, and Blanks) | Recovery limits per QSM 6.0 and above. Laboratory statistical limits for compounds not in QSM | If obvious matrix interference report data with a comment. Otherwise, re-extract and re-analyze. | Eurofins-Denver Analyst | Accuracy | Results within acceptance limits |
| Method blanks | 1 per prep batch of up to 20 samples | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater | Re-analyze to confirm detections. If detects confirm re-extract samples that are not ND or not >10x the blank value | Eurofins-Denver Analyst | Accuracy/Laboratory Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater |
| MS/MSD | 1 per prep batch of up to 20 samples | Recovery limits per QSM 6.0 and above. Laboratory statistical limits for compounds not in QSM; RPD ≤20% | Flag outliers | Eurofins-Denver Analyst | Accuracy/Bias/Precision | Results within acceptance limits |
| LCS/LCSD | 1 per prep batch of up to 20 samples | Recovery limits per QSM 6.0 and above. Laboratory statistical limits for compounds not in QSM; RPD ≤20% | Analytes in the LCS that fail high and are ND in the samples can be reported. All others are re-extracted. | Eurofins-Denver Analyst | Accuracy/Bias/Precision | Results within acceptance limits |

## Worksheet #28-6

Matrix: Aqueous/Solids
Analytical Group: PCBs
Concentration Level: Low
Analytical Method/SOP Reference: 8082A/WI10004/WI9238
Analytical Organization: ELLE

| QC Sample | Frequency/Number | Method/SOP QC Acceptance Limits | Corrective Action | Person(s) Responsible for Corrective Action | Data Quality Indicator (DQI) | Measurement Performance Criteria |
|---|---|---|---|---|---|---|
| Surrogate Spike | Per sample (including MS/MSD, LCS, and Blanks) | Recovery limits per QSM 6.0 and above. Laboratory statistical limits for surrogates not in QSM | If obvious matrix interference report data with a comment. Otherwise, re-extract and re-analyze. | ELLE Analyst | Accuracy | Results within acceptance limits |
| Method blanks | 1 per prep batch of up to 20 samples | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater | Re-analyze to confirm detections. If detects confirm re-extract samples that are not ND or not >10x the blank value | ELLE Analyst | Accuracy/Laboratory Contamination | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limit, whichever is greater |
| MS/MSD | 1 per prep batch of up to 20 samples | Recovery limits per QSM 6.0 and above. Laboratory statistical limits for compounds not in QSM; RPD ≤30% | Flag outliers | ELLE Analyst | Accuracy/Bias/Precision | Results within acceptance limits |

| QC Sample | Frequency/Number | Method/SOP QC Acceptance Limits | Corrective Action | Person(s) Responsible for Corrective Action | Data Quality Indicator (DQI) | Measurement Performance Criteria |
|---|---|---|---|---|---|---|
| LCS/LCSD | 1 per prep batch of up to 20 samples | Recovery limits per QSM 6.0 and above. Laboratory statistical limits for compounds not in QSM; RPD ≤30% | Analytes in the LCS that fail high and are ND in the samples can be reported. All others are re-extracted. | ELLE Analyst | Accuracy/Bias/Precision | Results within acceptance limits |

## Worksheet #28-7

Matrix: Aqueous/Solids
Analytical Group: Metals
Concentration Level: Low
Analytical Method/SOP Reference: SW-846 6020B/WI11933
Analytical Organization: ELLE

| QC Sample | Frequency/Number | Method/SOP QC Acceptance Limits | Corrective Action | Person(s) Responsible for Corrective Action | Data Quality Indicator (DQI) | Measurement Performance Criteria |
|---|---|---|---|---|---|---|
| Method Blank | 1 per prep batch of up to 20 samples | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample | Re-analyze blank to confirm detections. If detects confirm, redigest samples that are not ND or not >10x the blank value. | ELLE Analyst | Accuracy/Laboratory Contamination | Results within acceptance limits |
| MS/MSD | 1 per prep batch of up to 20 samples | Recovery limits per QSM 6.0; ±25% for elements not in QSM; RPD ≤20% | Analyze post digestion spike and serial dilution | ELLE Analyst | Accuracy/Bias/Precision | Results within acceptance limits |
| LCS/LCSD | 1 per prep batch of up to 20 samples | Recovery limits per QSM 6.0; ±20% for elements not in QSM; RPD ≤20% | Analytes in the LCS that fail high and are ND in the samples can be reported. All others are re-digested and re-analyzed. | ELLE Analyst | Accuracy/Bias/Precision | Results within acceptance limits |
| Duplicate | 1 per prep batch of up to 20 samples | RPD must be ≤20% | Flag data | ELLE Analyst | Precision | Results within acceptance limits |
| Serial Dilutions | Must be prepared with each background sample, evaluated only when analyte concentrations are >50x the LOQ | The percent difference must be ≤10% | Flag data | ELLE Analyst | Precision | Results within acceptance limits |

| QC Sample | Frequency/Number | Method/SOP QC Acceptance Limits | Corrective Action | Person(s) Responsible for Corrective Action | Data Quality Indicator (DQI) | Measurement Performance Criteria |
|---|---|---|---|---|---|---|
| Post Digestion Spike | Prepare with each background sample | ± 20% True Value | No specific action needed unless required by the project. PDS is reported in data package | ELLE Analyst | Accuracy/Bias | Results within acceptance criteria |
| Internal Standard | Every sample and QC | Must be 30%-120% of the calibration blank | Re-analyze at a dilution | ELLE Analyst | Precision | Results within acceptance criteria |

## Worksheet #28-8

Matrix: Aqueous/Solids
Analytical Group: Metals- Hg
Concentration Level: Low
Analytical Method/SOP Reference: SW-846 7470A /WI7965
Analytical Organization: ELLE

| QC Sample | Frequency/Number | Method/SOP QC Acceptance Limits | Corrective Action | Person(s) Responsible for Corrective Action | Data Quality Indicator (DQI) | Measurement Performance Criteria |
|---|---|---|---|---|---|---|
| Method Blank | 1 per prep batch of up to 20 samples | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample | Re-analyze blank to confirm detections. If detects confirm, redigest samples that are not ND or not >10x the blank value. | ELLE Analyst | Accuracy/Laboratory Contamination | Results within acceptance limits |
| MS/MSD | 1 per prep batch of up to 20 samples | Recovery limits per QSM 6.0; RPD ≤20% | Flag outliers | ELLE Analyst | Accuracy/Bias/Precision | Results within acceptance limits |
| LCS/LCSD | 1 per prep batch of up to 20 samples | Recovery limits per QSM 6.0; RPD ≤20% | Analytes in the LCS that fail high and are ND in the samples can be reported. All others are re-digested and re-analyzed. | ELLE Analyst | Accuracy/Bias/Precision | Results within acceptance limits |
| Duplicate | 1 per prep batch of up to 20 samples | RPD must be ≤20% | Flag data | ELLE Analyst | Precision | Results within acceptance limits |

## Worksheet #28-9

Matrix: Aqueous/Solids
Analytical Group: Total Organic Carbon (TOC)/Dissolved Organic Carbon (DOC)
Concentration Level: Low
Analytical Method/SOP Reference: SM 5310C-2014 WI11637 9060A; WI11627
Analytical Organization: ELLE

| QC Sample | Frequency/Number | Method/SOP QC Acceptance Limits | Corrective Action | Person(s) Responsible for Corrective Action | Data Quality Indicator (DQI) | Measurement Performance Criteria |
|---|---|---|---|---|---|---|
| Method blanks | 1 per prep batch of up to 20 samples | No analytes detected > MDL or >1/10 the amount measured in any sample | Re-analyze blank to confirm detections. If detects confirm, re-prep samples that are not ND or not >10x the blank value. | ELLE Analyst | Accuracy/Laboratory Contamination | Results within acceptance limits |
| MS | 1 per 10 samples | Laboratory Statistical Limits | Flag outliers | ELLE Analyst | Accuracy/Bias | Results within acceptance limits |
| LCS | 1 per prep batch of up to 20 samples | Method windows or Laboratory Statistical Limits if tighter | Correct problem, reprepare and re-analyze the LCS and all sample associated | ELLE Analyst | Accuracy/Bias | Results within acceptance limits |
| Duplicate | 1 per 10 samples | Laboratory statistical RPD | Flag data | ELLE Analyst | Precision | Results within acceptance limits |

## Worksheet #28-8

Matrix: Solids
Analytical Group: Cation Exchange Capacity (CEC)
Concentration Level: Low
Analytical Method/SOP Reference: SW-846 6010D/WI11931 and SW-846 9081/WI7562
Analytical Organization: ELLE

| QC Sample | Frequency/Number | Method/SOP QC Acceptance Limits | Corrective Action | Person(s) Responsible for Corrective Action | Data Quality Indicator (DQI) | Measurement Performance Criteria |
|---|---|---|---|---|---|---|
| Method Blank | 1 per prep batch of up to 20 samples | No analytes detected > 1/2 LOQ or >1/10 the amount measured in any sample | Re-analyze blank to confirm detections. If detects confirm, redigest samples that are not ND or not >10x the blank value. | ELLE Analyst | Accuracy/Laboratory Contamination | Results within acceptance limits |
| Duplicate | 1 per prep batch of up to 20 samples | RPD must be ≤20% | Flag data | ELLE Analyst | Precision | Results within acceptance limits |

## Worksheet #28-9

Matrix: Aqueous/Solids
Analytical Group: Total Organic Carbon (TOC)/Dissolved Organic Carbon (DOC)
Concentration Level: Low
Analytical Method/SOP Reference: SM 5310C-2014 WI11637 9060A; WI11627
Analytical Organization: ELLE

| QC Sample | Frequency/Number | Method/SOP QC Acceptance Limits | Corrective Action | Person(s) Responsible for Corrective Action | Data Quality Indicator (DQI) | Measurement Performance Criteria |
|---|---|---|---|---|---|---|
| Method blanks | 1 per prep batch of up to 20 samples | No analytes detected > MDL or >1/10 the amount measured in any sample | Re-analyze blank to confirm detections. If detects confirm, re-prep samples that are not ND or not >10x the blank value. | ELLE Analyst | Accuracy/Laboratory Contamination | Results within acceptance limits |
| MS | 1 per 10 samples | Laboratory Statistical Limits | Flag outliers | ELLE Analyst | Accuracy/Bias | Results within acceptance limits |
| LCS | 1 per prep batch of up to 20 samples | Method windows or Laboratory Statistical Limits if tighter | Correct problem, reprepare and re-analyze the LCS and all sample associated | ELLE Analyst | Accuracy/Bias | Results within acceptance limits |
| Duplicate | 1 per 10 samples | Laboratory statistical RPD | Flag data | ELLE Analyst | Precision | Results within acceptance limits |

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# Worksheet #29 – Project Documents and Records

All project files will be held by the JV until the USACE PM requests transfer of items. However, all important project files and deliverables will be uploaded to the FUDSCHem database.

| Record | Generation | Verification | Storage Location/Archival |
|---|---|---|---|
| **Sample Collection and Field Records** | | | |
| Field Logbook or Data Collection Sheets (field forms) | Field Sampler or FTL or Designee | RI TM | Project File (electronically on Contractor Server and within FUDSChem) |
| Field SOPs | FTL or Designee | RI TM | Project File /Included as Attachments to QAPP |
| Chain-of-Custody Forms | Sample Manager or Designee | FTL or Designee | Project File/included in laboratory SDGs |
| Air Bills | Sample Manager or Designee | FTL or Designee | Project File (electronically on Contractor Server and within FUDSChem) |
| Sample Tracking Forms | Sample Manager or Designee | FTL or Designee | Project File (electronically on Contractor Server and within FUDSChem) |
| Daily Quality Control (QC) Reports | FTL or Designee | RI TM or Designee | Project File (electronically on Contractor Server and within FUDSChem) |
| Deviations from Scope of Work - Field Change Notification Forms (Refer to Appendix C of the Project-Specific Quality Management Plan) | FTL or Designee | RI TM or Designee | Project File (electronically on Contractor Server and within FUDSChem). Appendix C of the Project-Specific Quality Management Plan |
| Corrective Action Reports | FTL | FTL or Designee | Project File (electronically on Contractor Server and within FUDSChem) |
| Correspondence | FTL | FTL or Designee | Project File (electronically on Contractor Server and within FUDSChem) |
| Soil Boring Logs /Groundwater Elevation Logs | FTL or Designee | Field Geologist or Designee | Project File (electronically on Contractor Server and within FUDSChem library) and Final Report. |
| Water Quality Data Logs (field parameters) | FTL or Designee | Field Geologist or Designee | Project File /Field parameters (EMI and GWD) will be loaded into FUDSChem. |
| Equipment Calibration and Maintenance Logs | FTL or Designee | Field Scientist or Designee | Project File (electronically on Contractor Server and within FUDSChem) |
| Photographs | FTL or Designee | Field Scientist or Designee | Project File (electronically on Contractor Server and within FUDSChem) |
| Field Equipment Inspection and Maintenance records | FTL or Designee | Field Geologist or Designee | Project File (electronically on Contractor Server and within FUDSChem) |
| Monitoring Well Construction Diagrams | FTL or Designee | Field Geologist or Designee | Project File /to be included in FUDSCHem library and Final Report. |

| Record | Generation | Verification | Storage Location/Archival |
|---|---|---|---|
| Waste Manifests | FTL or Designee | Field Scientist or Designee | Project File (electronically on Contractor Server and within FUDSChem) |
| **Project Assessments** | | | |
| Audit Plans and Reports | Auditor | QA Manager or Designee | Project File (electronically on Contractor Server and within FUDSChem) |
| Field Audit Checklists | Auditor | QA Manager or Designee | Project File (electronically on Contractor Server and within FUDSChem) |
| Corrective Action Report | QA Manager | FTL | Project File (electronically on Contractor Server and within FUDSChem) |
| Self-Assessment Checklist | FTL or Designee | QA Specialist | Project File (electronically on Contractor Server and within FUDSChem) |
| Data Verification Checklists | FTL or Designee | ASC | Project File/to be included in Data Validation Reports. |
| Data Validation Report | Data validator | Chemist | Project File/to be included in FUDSCHem library and Final Report. |
| Data Usability Assessment Report | Chemist and project team | Chemist | Project File/to be included in FUDSCHem library and Final Report. |
| **Laboratory Records** | | | |
| Bid Sheets, Scopes of Work | RI TM or Designee | Technical Reviewer and Procurement Specialist | Procurement File |
| Subcontract Laboratory Certifications | Laboratory QA Officer | Chemist or QA Specialist | Procurement File/included as Attachment to QAPP |
| Laboratory SOPs | Laboratory QA Officer | Chemist or QA Specialist | Procurement File/included as Attachment to QAPP |

**Laboratory Data Deliverables to be loaded to FUDSChem library**

| | Organics | Metals | Wet Chemistry | Other |
|---|---|---|---|---|
| Narrative | X | X | X | X |
| COC Form | X | X | X | X |
| Summary Results | X | X | X | X |
| Analytical sample results | X | X | X | X |
| QC Results | X | X | X | if applicable |
| Chromatograms | X | NA | NA | NA |
| Sample Preparation Log | X | X | X | X |
| Sample Run Log | X | X | X | X |
| Tentatively Identified Compounds | X | NA | NA | NA |
| Raw Data | X | X | X | X |

# Worksheets #31, #32, and #33 – Assessments and Corrective Action

Periodic assessments may be performed during the course of the project so that the planned project activities are implemented in accordance with this UFP-QAPP. The routine data quality verification steps described in Worksheet #34 will be used to assess the effectiveness of the project data reporting system. If additional assessments become necessary; this worksheet will be amended as needed.

| Assessment Type | Responsible Party and Organization | Frequency | Assessment Deliverable | Timeframe of Response | Person(s) Responsible for Response and Implementing Corrective Actions | Person(s) Responsible for Monitoring Corrective Action Implementation |
|---|---|---|---|---|---|---|
| Field Procedure Assessment | Russ McCormick, Field Team /EAS WSP JV | Weekly | Internal e-mail | 1 business day | Field Team Lead | Russ McCormick/EAS WSP JV |
| Field Documentation Reviews | Russ McCormick/EAS WSP JV | Weekly | Internal e-mail | 3 business days | Field Team Lead | Russ McCormick/EAS WSP JV |
| Sample Condition Report/ Log-in receipt | Michael Shadle/EAS WSP JV | After sample receipt at laboratory. | External e-mail if laboratory issue. Internal e-mail if JV issue. | 24-48 hours after notification | Laboratory log-in personnel if sample ID error, or JV if sample collection issue. | Michael Shadle/EAS WSP JV |
| Analytical Discrepancy | Michael Shadle/EAS WSP JV | After data receipt from laboratory and during data validation. | External e-mail | 7 business days | Barbara Weyandt/Eurofins | Michael Shadle/EAS WSP JV |
| Data Validation Reports | Michael Shadle/EAS WSP JV | Prepared for each Sample Delivery Group. | FUDSChem Data Validation reports | 21 days after receipt of certified EDD and completed data package. | Michael Shadle/EAS WSP JV | Russ McCormick/EAS WSP JV |

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# Worksheet #34 – Data Verification and Validation Inputs

The following three-step data review will be performed: Step I (verification) will confirm that all sampling and analytical requirements have been met. Step II (validation) will assess whether the sampling and analytical processes comply with the contract-specific and the UFP-QAPP specific requirements. Step III (usability assessment) will determine whether the resulting data are suitable as a basis for the decision being made. Worksheets #34, #35, and #36 describe the processes to be followed for the three steps, respectively.

This worksheet establishes the procedures that will be followed to verify project data, including, but not limited to, sampling documents and analytical data package.

| Item | Description | Verification (completeness) | Validation (conformance to specifications) |
|---|---|---|---|
| **Planning Documents/Records** | | | |
| 1 | Approved QAPP | X | |
| 2 | Contract | X | |
| 3 | Field SOPs | X | |
| 4 | Laboratory SOPs | X | |
| **Field Records, as needed** | | | |
| 5 | Field logbooks/Daily Reports | X | |
| 6 | Equipment calibration records | X | |
| 7 | Chain-of-Custody Forms | X | |
| 8 | Sampling diagrams/surveys | X | |
| 9 | Drilling logs | X | |
| 10 | Relevant Correspondence | X | |
| 11 | Change orders/deviations | X | |
| 12 | Field audit reports, if audited | X | |
| 13 | Field corrective action reports | X | |
| 14 | Photographs | X | |
| 15 | Sampling forms | X | |
| 16 | Well development forms | X | |
| 17 | Water level forms | X | |
| **Analytical Data Packages[a]** | | | |
| 18 | Cover sheet (laboratory identifying information) | X | X |
| 19 | Case narrative | X | X |
| 20 | Internal laboratory chain-of-custody | X | |
| 21 | Sample receipt records | X | X |
| 22 | Sample chronology (i.e., dates and times of receipt, preparation, & analysis) | X | |
| 23 | Communication records | X | X |
| 24 | LOD/LOQ establishment and verification | X | |
| 25 | Standards Traceability | X | |
| 26 | Instrument calibration records | X | |
| 27 | Definition of laboratory qualifiers | X | X |
| 28 | Results reporting forms | X | X |
| 29 | QC sample results | X | X |
| 30 | Corrective action reports | X | X |
| 31 | Raw data | X | X |
| 32 | Electronic data deliverable | X | X |
| 33 | Air Bills | X | X |

(a) The items to be reviewed during the validation process are determined by the validation stage as specified in Worksheet #36.

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# Worksheet #35 – Data Verification Procedures

| Records Reviewed | Requirement Documents | Description | Responsible Person, Organization |
|---|---|---|---|
| Field Logbook/Daily Reports | Field SOPs (Appendix D), Daily Reports, Field Corrective Action Reports | Verify that records are present and complete for each day of field activities, and daily reports are submitted. Verify that all planned samples including field QC samples were collected and that sample collection locations are documented. Verify that meteorological data were provided for each day of field activities. Verify that changes/exceptions are documented and were reported in accordance with requirements. Verify that field instruments were calibrated appropriately, and field monitoring was performed as required, and results are documented. | Daily – FTL/PM<br>At conclusion of field activities - Project QC Staff |
| COC Forms | Field SOPs (Appendix D), QAPP, and field logbook | Verify the completeness of COC records. Examine entries for consistency with the field logbook. Check that appropriate methods and sample preservation have been recorded. Verify that the required volume of sample has been collected and that sufficient sample volume is available for QC samples (e.g., MS/MSD). Verify that all required signatures and dates are present. Check for transcription errors. | Daily – FTL/PM/Project Chemist - Project QC Staff |
| Laboratory Deliverable | QAPP, eQAPP | Verify that the laboratory deliverable contains all records specified in the QAPP. Check sample receipt records to ensure sample condition upon receipt was noted, and any missing/broken sample containers were noted and reported according to plan. Compare the data package with the COCs to verify that results were provided for all collected samples. Review the narrative to ensure all QC exceptions are described. Check for evidence that any required notifications were provided to project personnel as specified in the QAPP. Verify that necessary signatures and dates are present. Determine potential impacts from noted/approved deviations in regard to Project Quality Objectives (PQOs).<br><br>With the exception of IDW samples, Grain Size, and Methods for which the laboratories are not DoD certified (CEC, 2,4-DNP), analytical data will be verified through FUDSChem, a web-based data review program. IDW samples will not be validated but the data package will be verified for completeness and that limits for expected disposal requirements are met. | Before release - Laboratory QAM<br>Upon receipt – KGS Validator |
| Audit Reports, Corrective Action Reports | QAPP | Verify that all planned audits were conducted. Examine audit reports. For any deficiencies noted, verify that corrective action was implemented according to plan. | Project QC Staff |

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# Worksheet #36 – Data Validation Procedures

The objective of data validation is to assess the performance associated with the analysis to determine the quality of the data. This will be accomplished by evaluating whether the collected data comply with the predefined requirements of the project, including method, procedural, or contractual requirements and by comparing the collected data with criteria established based on the project DQOs.

All types of data, including screening and definitive data, are relevant to the usability assessment. The following sections focus on the data review requirements for definite data only.

The KGS Project Chemist will be the data validator responsible for reviewing the routine analytical data.

**Validation Code and Label Identifier Table:**

| Validation Code | Validation Label | Description/Reference |
|---|---|---|
| S1VE | Stage 1 Validation Electronic | EPA 540-R-08-005 |
| S1VM | Stage 1 Validation Manual | EPA 540-R-08-005 |
| S1VEM | Stage 1 Validation Electronic and Manual | EPA 540-R-08-005 |
| S2aVE | Stage 2a Validation Electronic | EPA 540-R-08-005 |
| S2aVM | Stage 2a Validation Manual | EPA 540-R-08-005 |
| S2aVEM | Stage 2a Validation Electronic and Manual | EPA 540-R-08-005 |
| S2bVE | Stage 2b Validation Electronic | EPA 540-R-08-005 |
| S2bVM | Stage 2b Validation Manual | EPA 540-R-08-005 |
| S2bVEM | Stage 2b Validation Electronic and Manual | EPA 540-R-08-005 |
| S3VE | Stage 3 Validation Electronic | EPA 540-R-08-005 |
| S3VM | Stage 3 Validation Manual | EPA 540-R-08-005 |
| S3VEM | Stage 3 Validation Electronic and Manual | EPA 540-R-08-005 |
| S4VE | Stage 4 Validation Electronic | EPA 540-R-08-005 |
| S4VM | Stage 4 Validation Manual | EPA 540-R-08-005 |
| S4VEM | Stage 4 Validation Electronic and Manual | EPA 540-R-08-005 |
| NV | Not Validated | EPA 540-R-08-005 |

## Data Validation Qualifiers

The following data qualifiers will be applied during DV by WSP. Potential impacts on project DQOs will be discussed in the data usability report.

- U: The analyte was not detected and was reported as less than the LOD (practical quantitation limit [PQL] for non-DoD QSM analyses). The LOD (or PQL) has been adjusted for any dilution or concentration of the sample.
- J: The associated numerical value is an estimated quantity.
- J+: The associated numerical value is an estimated quantity that may be biased high.
- J-: The associated numerical value is an estimated quantity that may be biased low. UJ: The undetected result is estimated due to QC sample considerations.
- X: The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

| Analytical Group/Method | Metals – Aqueous and Solid – SW-846 6020A | Mercury – Aqueous and Solid – SW-846 7470A/7471B |
|---|---|---|
| Data deliverable requirements: | SEDD 2a, version 5.2 with three-tier reporting, Level 4 data package (pdf) and uploaded by the laboratory without errors to FUDSChem within 3 weeks of sample date. | SEDD 2a, version 5.2 with three-tier reporting, Level 4 data package (pdf) and uploaded by the laboratory without errors to FUDSChem within 3 weeks of sample date. |
| Analytical specifications: | Worksheets 24 and 28 | Worksheets 24 and 28 |
| Measurement performance criteria: | Worksheet 12 | Worksheet 12 |
| Percent of data packages to be validated: | 100% | 100% |
| Percent of raw data reviewed: | 0% | 0% |
| Percent of results to be recalculated: | 0% | 0% |
| Validation procedure: | FUDSCHEM electronic validation with manual verification of flagged data and evaluation of additional 2B Measurement Performance Indicators (MPIs). Validation will be completed using project established QA/QC limits, DoD General Data Validation Guidelines (EDQW, 2019), and DoD Data Validation Guidelines Module 5: Data Validation Procedure for Metals by ICP-MS. (EDQW, 2022). Analyses not provided for in Data Validation Guidelines will be reviewed based upon DoD QSM 6.0 (or latest) requirements and analytical method specific criteria. | FUDSCHEM electronic validation with manual verification of flagged data and evaluation of additional 2B Measurement Performance Indicators (MPIs). Validation will be completed using project established QA/QC limits, DoD General Data Validation Guidelines (EDQW, 2019), and National Functional Guidelines for Inorganic Superfund Data Validation (EPA 2020). Analyses not provided for in Data Validation Guidelines will be reviewed based upon DoD QSM 6.0 (or latest) requirements and analytical method specific criteria. |
| Validation code (*see attached table): | S2bVEM | S2bVEM |
| Electronic validation program/version: | FUDSChem | FUDSChem |
| Data deliverable requirements: | SEDD 2a, version 5.2 with three-tier reporting, Level 4 data package (pdf) and uploaded by the laboratory without errors to FUDSChem within 3 weeks of sample date. | SEDD 2a, version 5.2 with three-tier reporting, Level 4 data package (pdf) and uploaded by the laboratory without errors to FUDSChem within 3 weeks of sample date. |
| Analytical specifications: | Worksheets 24 and 28 | Worksheets 24 and 28 |
| Measurement performance criteria: | Worksheet 12 | Worksheet 12 |
| Percent of data packages to be validated: | 100% | 100% |
| Percent of raw data reviewed: | 0% | 0% |
| Percent of results to be recalculated: | 0% | 0% |

| Analytical Group/Method | Metals – Aqueous and Solid – SW-846 6020A | Mercury – Aqueous and Solid – SW-846 7470A/7471B |
|---|---|---|
| Validation procedure: | FUDSCHEM electronic validation with manual verification of flagged data and evaluation of MPIs. Validation will be completed using project established QA/QC limits, DoD General Data Validation Guidelines (EDQW, 2019), and Data Validation Guidelines Module 1: Data Validation Procedure for Organic Analyses by GC-MS (EDQW, 2020). | FUDSCHEM electronic validation with manual verification of flagged data and evaluation of MPIs Validation will be completed using project established QA/QC limits, DoD General Data Validation Guidelines (EDQW, 2019), and Data Validation Guidelines Module 1 Data Validation Procedure for Organic Analysis by GC.MS (EDQW, 2020). |
| Validation code (*see attached table): | S2bVEM | S2bVEM |
| Electronic validation program/version: | FUDSChem | FUDSChem |
| Data deliverable requirements: | SEDD 2a, version 5.2 with three-tier reporting, Level 4 data package (pdf) and uploaded by the laboratory without errors to FUDSChem within 3 weeks of sample date. | SEDD 2a, version 5.2 with three-tier reporting, Level 4 data package (pdf) and uploaded by the laboratory without errors to FUDSChem within 3 weeks of sample date. |
| Analytical specifications: | Worksheets 24 and 28 | Worksheets 24 and 28 |
| Measurement performance criteria: | Worksheet 12 | Worksheet 12 |
| Percent of data packages to be validated: | 100% | 100% |
| Percent of raw data reviewed: | 0% | 0% |
| Percent of results to be recalculated: | 0% | 0% |
| Validation procedure: | FUDSCHEM electronic validation with manual verification of flagged data. Validation will be completed using project established QA/QC limits, DoD General Data Validation Guidelines (EDQW, 2019), and Data Validation Guidelines Module 4: Data Validation Procedure for Organic Analyses by GC (EDQW, 2021). | FUDSCHEM electronic validation with manual verification of flagged data. Validation will be completed using project established QA/QC limits, DoD General Data Validation Guidelines (EDQW, 2019), and QSM 6.0 (or latest) requirements. |
| Validation code (*see attached table): | S2bVEM | S2bVEM |
| Electronic validation program/version: | FUDSChem | FUDSChem |
| Data deliverable requirements: | SEDD 2a, version 5.2 with three-tier reporting, Level 4 data package (pdf) and uploaded by the laboratory without errors to FUDSChem within 3 weeks of sample | SEDD 2a, version 5.2 with three-tier reporting, Level 2 data package (pdf) and uploaded by the laboratory without errors to FUDSChem within 3 weeks of sample |
| Analytical specifications: | Worksheets 24 and 28 | Worksheets 24 and 28 |
| Measurement performance criteria: | Worksheet 12 | Worksheet 12 |
| Percent of data packages to be validated: | 100% | 100% |
| Percent of raw data reviewed: | 0% | 0% |

| Analytical Group/Method | Metals – Aqueous and Solid – SW-846 6020A | Mercury – Aqueous and Solid – SW-846 7470A/7471B |
|---|---|---|
| Percent of results to be recalculated: | 0% | 0% |
| Validation procedure: | FUDSCHEM electronic validation with manual verification of flagged data and evaluation of additional 2B MPIs. Validation will be completed using project established QA/QC limits, DoD General Data Validation Guidelines (EDQW, 2019), and Data Validation Guidelines Module 1L Data Validation Procedure for Organic Analysis by GC/MS (EDQW, 2020). | FUDSCHEM electronic validation with manual verification of flagged data and evaluation of additional 2B MPIs. Validation will be completed using project established QA/QC limits, DoD General Data Validation Guidelines (EDQW, 2019) and National Functional Guidelines for Inorganic Superfund Data Validation (EPA 2020). |
| Validation code (*see attached table): | S2bVEM | S2bVEM |
| Electronic validation program/version: | FUDSChem | FUDSChem |
| Data deliverable requirements: | SEDD 2a, version 5.2 with three-tier reporting, Level 2 data package (pdf) and uploaded by the laboratory without errors to FUDSChem within 3 weeks of sample | SEDD 2a, version 5.2 with three-tier reporting, Level 2 data package (pdf) and uploaded by the laboratory without errors to FUDSChem within 3 weeks of sample |
| Analytical specifications: | Worksheets 24 and 28 | Worksheets 24 and 28 |
| Measurement performance criteria: | Worksheet 12 | Worksheet 12 |
| Percent of data packages to be validated: | 100% | 100% |
| Percent of raw data reviewed: | 0% | 0% |
| Percent of results to be recalculated: | 0% | 0% |
| Validation procedure: | FUDSCHEM electronic validation with manual verification of flagged data and evaluation of additional 2B MPIs. Validation will be completed using project established QA/QC limits, DoD General Data Validation Guidelines (EDQW, 2019). | FUDSCHEM electronic validation with manual verification of flagged data and evaluation of additional 2B MPIs. Validation will be completed using project established QA/QC limits, DoD General Data Validation Guidelines (EDQW, 2019). |
| Validation code (*see attached table): | S2bVEM | S2bVEM |
| Electronic validation program/version: | FUDSChem | FUDSChem |

| Analytical Group/Method | Miscellaneous Analyses-Grain Size, pH, Hardness |
|---|---|
| Data deliverable requirements: | Level 2 data package (pdf) and uploaded by the laboratory within 3 weeks of sample. Note: hardness results may be reported with metals data. |
| Measurement performance criteria: | Worksheet 12 |
| Validation procedure: | Stage 1 |

# Worksheet #37 – Data Usability Assessment

Identify personnel (organization and position/title) responsible for participating in the data usability assessment:

- Project Manager
- Risk Assessor
- Project Chemist
- Data Manager
- Task Leader
- Geologist/Hydrogeologist
- Data Validator
- Data Coordinator
- FTL
- Project Engineer
- Project QA Specialist
- Data Specialist

| | |
|---|---|
| Step 1 | Review the project's objectives and sampling design.<br>Review the key outputs defined during systematic planning (i.e., PQOs or DQOs and method performance criteria [MPCs]) to make sure they are still applicable. Review the sampling design for consistency with stated objectives. This provides the context for interpreting the data in subsequent steps. |
| Step 2 | Review the data verification and DV outputs.<br>Review available QA reports. Perform basic calculations and summarize the data (using graphs, maps, tables, etc.). Look for patterns, trends, and anomalies (i.e., unexpected results). Review deviations from planned activities (e.g., number and locations of samples, holding time exceedances, damaged samples, non-compliant proficiency testing [PT] sample results, and SOP deviations) and determine their impacts on the data usability. Evaluate implications of unacceptable QC sample results. |
| Step 3 | Verify the assumptions of the selected statistical method.<br>If statistics will be used for the project, verify whether underlying assumptions for selected statistical methods (if documented in the QAPP) are valid. Common assumptions include the distributional form of the data, independence of the data, dispersion characteristics, homogeneity, etc. Depending on the robustness of the statistical method, minor deviations from assumptions usually are not critical to statistical analysis and data interpretation. If serious deviations from assumptions are discovered, then another statistical method may need to be selected. |
| Step 4 | Implement the statistical method.<br>Implement the specified statistical procedures for analyzing the data and review underlying assumptions. Consider the consequences for selecting the incorrect alternative; for estimation projects (e.g., establishing a boundary for surface soil impacts), consider the tolerance for uncertainty in measurements. |
| Step 5 | Document data usability and draw conclusions.<br>Determine if the data can be used as intended, considering implications of deviations and corrective actions. Discuss DQIs (see Usability Assessment details below). Assess the performance of the sampling design and Identify limitations on data use. Update the CSM and document conclusions. |

**The usability assessment will be documented as follows:**

The Data Usability tool in FUDSChem will be used to prepare the Data Usability Assessment Report. The Data Usability Assessment will be performed by the project team and a recommendation will be made to the project delivery team. The Project Manager will be responsible for information in the Data Usability Assessment and will also be responsible for assigning task work to the individual task members who will be supporting the Data Usability Assessment. Note that the Data Usability Assessment will be conducted on validated or reviewed data. After the Data Usability Assessment has been performed, data deemed appropriate for use will then be used in the subsequent project evaluation. The results of the Data Usability Assessment will be presented in the project measurement report such as the Risk Assessment, RI or other report. Tables will be prepared of the samples and analytical parameters, field and trip blank results, field duplicates comparison, and completeness of the data set. The following items will be assessed, and conclusions drawn based on their results.

**Describe the evaluative procedures used to assess overall measurement error associated with the project:**

*Precision* – Results of laboratory duplicates will be assessed during DV and data will be qualified according to the DV procedures cited on **Worksheet #36**. Field duplicates will be assessed by matrix using the RPD for each pair of results reported above the LOQ for organic and inorganic analyses respectively. Absolute difference will be used for low results as described in **Worksheet #28**. A discussion summarizing the results of laboratory and field precision and any limitations on the use of the data will be described in the Data Usability Report.

*Field duplicates* – Field duplicates will be evaluated against the MPCs outlined in **Worksheet #12**. The PM will review the extent of exceedance of the field duplicate criteria. For groundwater, the sample results will be flagged according to the DV protocol.

*Accuracy/Bias Contamination* – Laboratory blank results will be assessed as part of DV. During the DV process the validator will qualify the data following the procedures listed on **Worksheet #36**. A discussion summarizing the results of laboratory accuracy and bias based on contamination will be presented and limitations on the use of the data will be described.

*Accuracy/Bias* – The results for all matrix spike and surrogate standard spike analyses will be evaluated based on the requirements listed in **Worksheets #12 and #28**. A discussion will follow, summarizing accuracy and bias. Any conclusions about the accuracy and bias of the analyses will be drawn and any limitations on the use of the data will be described.

*Sensitivity* – Data results will be compared to criteria provided on **Worksheet #15**. A discussion summarizing any conclusions about sensitivity of the analyses will be presented and any limitations on the use of the data will be described.

*Representativeness* – Representativeness is achieved through adherence to sampling and analytical procedures described in this QAPP and compliance with stipulated sample holding times. After evaluation of relative compliance with specified procedures and holding times, conclusions about data representativeness will be drawn and any limitations on the use of data will be described. DV narratives will also be reviewed and any conclusions about the representativeness of the data set will be discussed in the Data Usability Report. Although discrete sampling is being conducted, it does not preclude evaluating the representativeness parameter.

*Comparability* – Study results will be used in conjunction with existing data to make qualitative and quantitative assessments of the data to be used to produce the Site reports.

*Reconciliation* – The DQIs presented in **Worksheet #12** will be examined to determine if the MPCs were met. This examination will include a combined overall assessment of the results of each analysis pertinent to an objective. Each analysis will first be evaluated separately in terms of major impacts observed from DV, DQIs and measurement performance criteria assessments. Based on the results of these assessments, the quality of the data will be determined. As a result of the quality determined, the usability of the data for each analysis will be established. After the combined usability of the data from all analyses for an objective is determined, it will be concluded if the DQIs were met and whether project goals were achieved. As part of the reconciliation of each objective, conclusions will be drawn and any limitations on the usability of any of the data will be described.

*Completeness* – A completeness check will be done on all data generated. The number of planned samples and samples with non-rejected results will be used to calculate the completeness of the obtained data set for each DU/EU, analyte and data use. The field completeness will be calculated by the ratio of the number of samples received in acceptable condition by the laboratories to the number of samples planned to be collected as specified in this document. The equation for field completeness is:

$$\% \text{ Field Completeness} = \frac{\text{Number of Samples Received by Laboratories}}{\text{Total Number of Samples Planned to be Collected}} \times 100$$

The analytical completeness will be calculated by the ratio of total valid analytical data results (including estimated values) to the total number of analytical results requested on samples submitted for analysis. Valid analytical data results are defined as those that were not rejected during DV, due to a significant quality assurance/quality control problem. The equation for analytical completeness is:

$$\% \text{ Analytical Completeness} = \frac{\text{Total Valid Analytical Data}}{\text{Analytical Data Obtained}} \times 100$$

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# Figures

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# Figures

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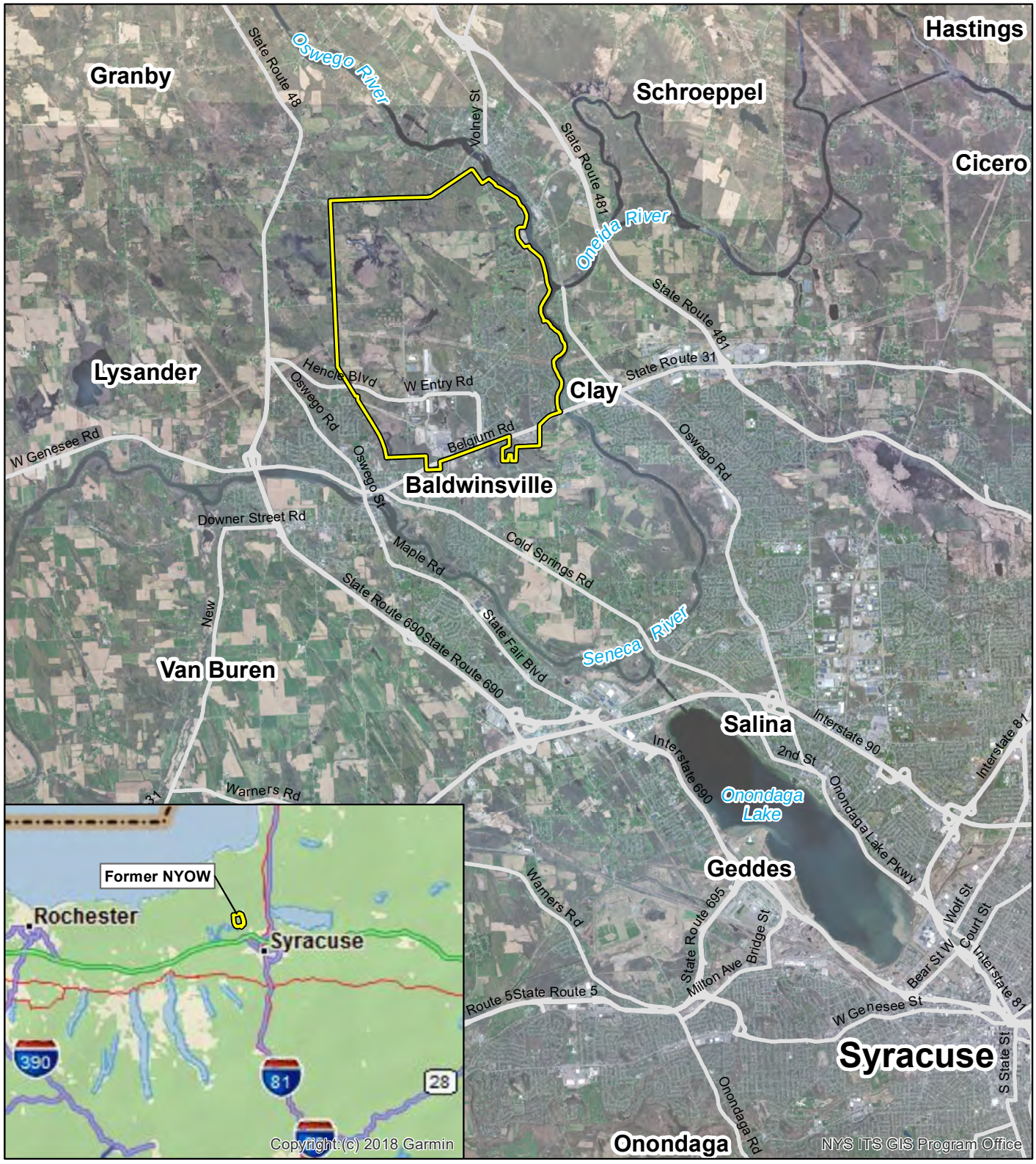



**Figure 10-1: Former NYOW - Regional Map**

**Legend**
- Former NYOW
- Major Roads

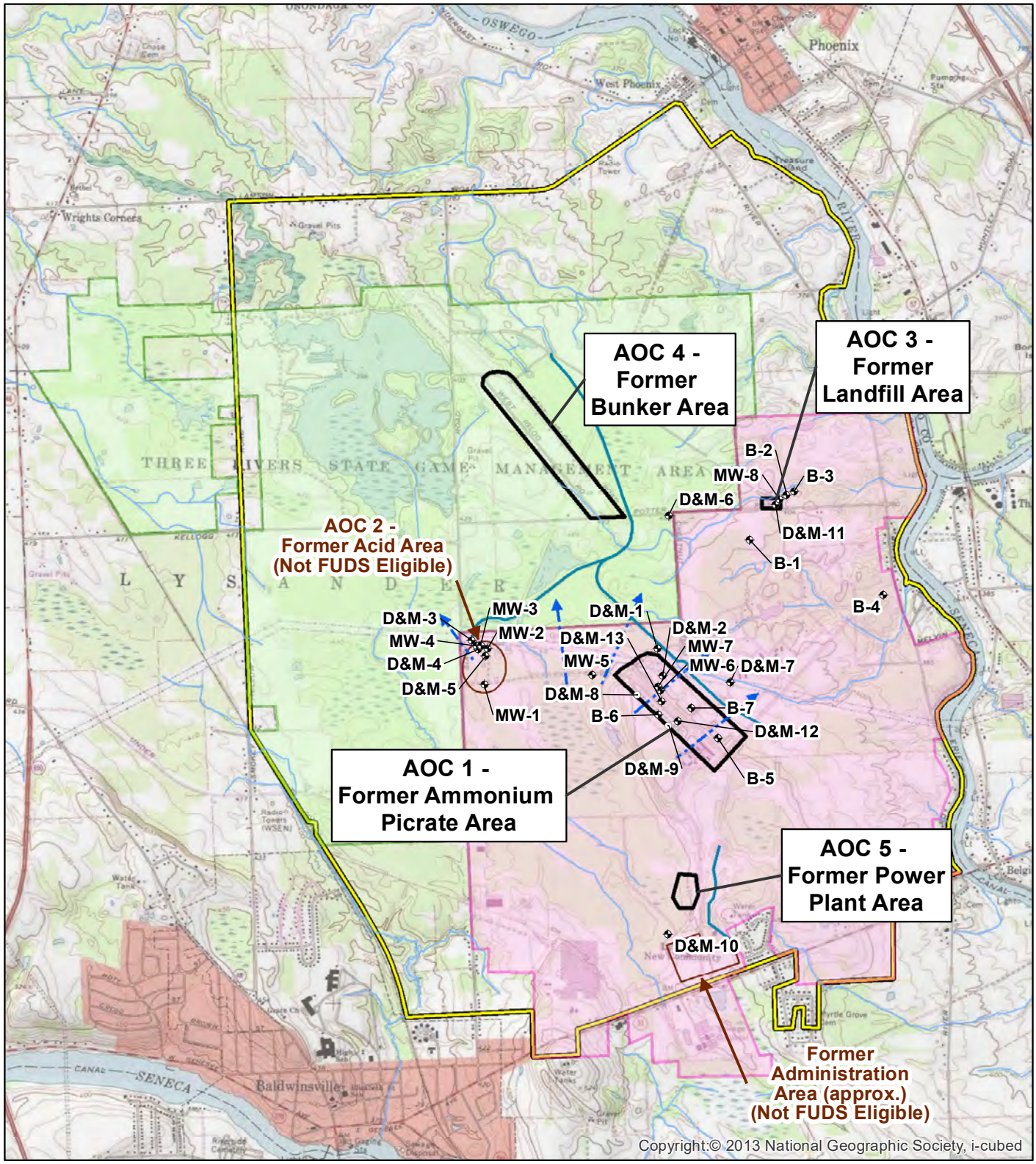
N
W E
S

0 0.5 1 2 3 4 Miles

Scale is approximate - for illustrative purposes only.

Coordinate System: NAD 1983 UTM Zone 18N
Projection: Transverse Mercator

Additional Sources: NYS GIS Clearinghouse; U.S. Army Corps of Engineers




## Figure 10-2: Former NYOW - Areas of Concern

**Legend***
- Monitoring Well (D&M, 1981, M&E, 1990)
- Soil Boring (D&M, 1981)
- Former Wastewater Ditch
- Stream
- Inferred Groundwater Flow Direction
- Area of Concern (approx.)
- Radisson Community
- Three Rivers Wildlife Management Area
- Formerly Used Defense Site - NYOW

N, W, E, S

0 0.25 0.5 0.75 1 Miles

Scale is approximate - for illustrative purposes only.

Coordinate System: NAD 1983 UTM Zone 18N
Projection: Transverse Mercator

Additional Sources: Dames & Moore, 1981; Metcalf & Eddy, 1990; RFC, undated; USACE, 2019; USGS, 2019.

*Note: Site feature locations are approximate.

Former Open Storage Area 2

Dryer Houses (26-31)

Ammonium Picrate Magazines (107-112)

Change Houses (35-37)

Former Borrow Pit

Acid Tanks (1-3)

Ammonium Picrate Buildings (17-22)

A-3 D&M-1 NYOW-01-006 NYOW-01-019 SW-3 NYOW-01-027 NYOW-01-007 MW-5 NYOW-01-001 NYOW-01-025 NYOW-01-026 NYOW-01-009 NYOW-B-004 D&M-2 NYOW-01-020 NYOW-01-029 MW-7 NYOW-01-028 MW-6 NYOW-01-030 NYOW-01-002 D&M-8 NYOW-01-011 D&M-13 NYOW-01-021 NYOW-01-032 NYOW-01-033 NYOW-01-031 AMS-1 B-7 NYOW-01-022 B-6 NYOW-01-013 NYOW-01-035 NYOW-01-034 D&M-12 NYOW-01-036 D&M-9 NYOW-01-023 NYOW-01-015 NYOW-01-016 B-5 NYOW-01-024 NYOW-01-038 NYOW-01-037 NYOW-01-018 NYOW-01-039 NYOW-B-031 NYOW-01-005

22 112 3 9 111 8 37 21 20 110 2 10 109 36 19 108 18 1 11 107 35 17 42 31 30 29 28 27 26

Sage Ln Basswood Ln Walwyn Ln Letchworth Ln Oberon Dr Walpole Ln Amberlea Ln Carpenter Rd Glacier Ridge Rd Peony Farm Ln Hayfield Ln Brazewood Dr Kingsbridge Ln D&M-7 N Entry Rd Coppertree Ln Coriander Ln Woodsboro Dr Amesbury Dr Hill Road North-CH-Road Whisper Ridge Cir Meadowbriar Ln Cheldrake Cir East-D-Road Center Pointe Dr Drumlin Heights Dr Sumac Dr Captiva Ct Corlear Dr South-O-Road Town Center Rd E Lupine Dr Willett Pkwy Greymoor Way Drummers Ct Esprit Glade VanWie W Chestnut Ridge Beaver Ct Narcoossee Ln Town Center Rd

N W E S

0 400 Feet

Legend

- Grab Sample (D&M, 1981)
- Monitoring Well (D&M, 1981, M&E, 1990)
- Soil Boring (D&M, 1981)
- Soil Sample (M&E, 1990)
- Surface Water Sample (M&E, 1990)
- Monitoring Well

**Phase 1 Sample Locations**

- Temporary Well and Co-located Surface/Subsurface Soil
- Surface/Subsurface Soil
- Surface Soil
- Former Borrow Pit
- Former Open Storage Area 1

**Historic Site Features (Approx.)**

- Historical Site Feature
- Ammonium Picrate Building (APB)
- Ammonium Picrate Magazine
- Change House
- Dryer House
- Former Acid Tank (Not FUDS-Eligible)
- Laboratory Building
- Former Wastewater Ditch
- Stream
- 10' Contour
- 2' Contour

1. Historic site features - Site history brochure by RFC, undated
2. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
3. NHD flowline - USGS, 2019
4. Basemap: NYS ITS GIS Program Office 2022 Orthoimagery

**Figure 10-3**

**Former Ammonium Picrate Area Historical Features and Previous Sampling Location AOC 1**

**Phase 2 Remedial Investigation**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**January 2025**

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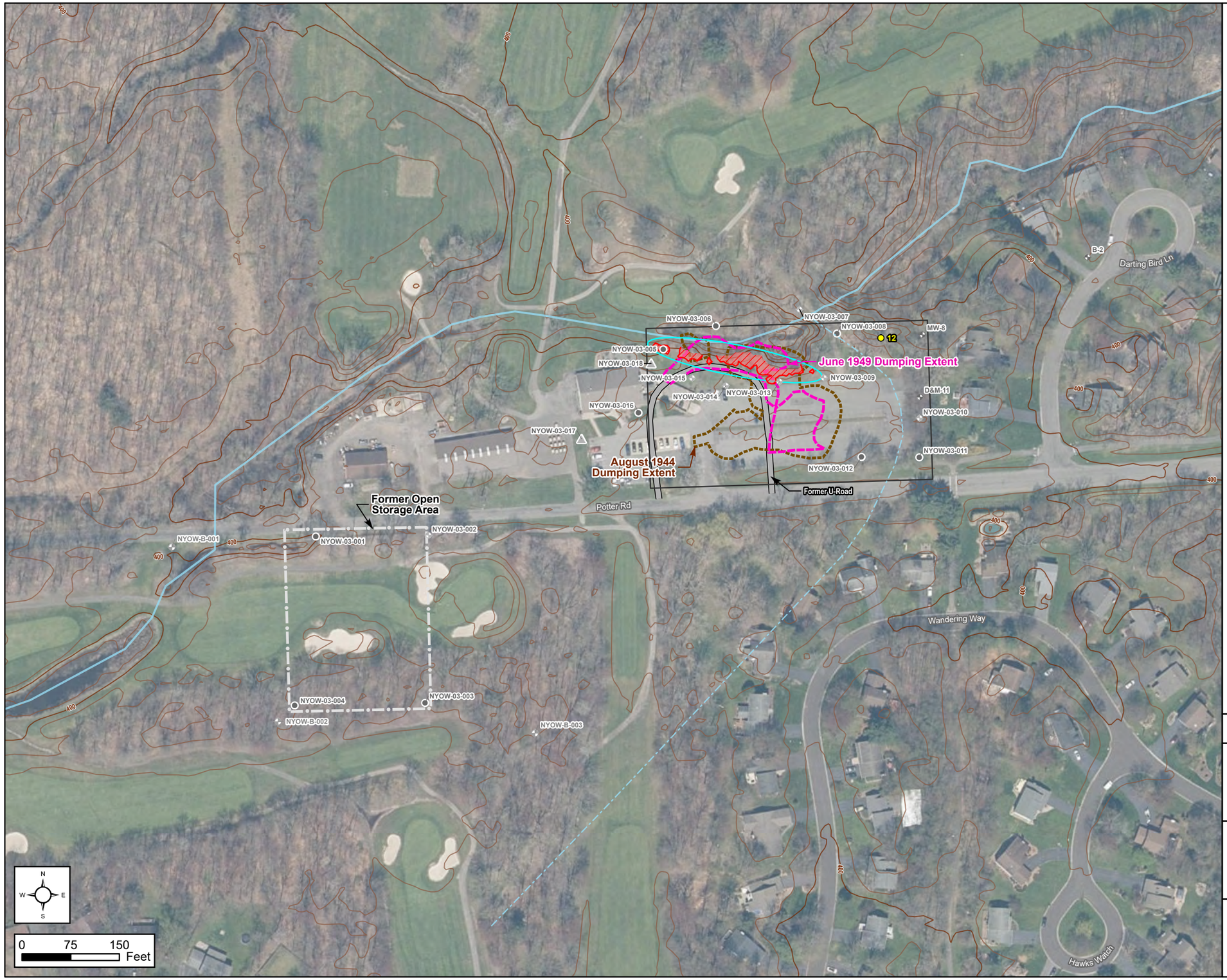


Legend

- Monitoring Well
- Soil Sample (M&E, 1990)

**Phase 1 Sample Locations**

- Temporary Well and Co-located Surface/Subsurface Soil
- Surface/Subsurface Soil
- Vapor Intrusion
- Monitoring Well (D&M, 1981, M&E, 1990)

**Historic Site Features**

- August 1944 Dumping Extent
- Former Open Storage Area
- June 1949 Dumping Extent
- Former Landfill and Area of Concern
- Former U-Road
- Stream
- Historic Drainage
- 10' Contour
- 2' Contour
- Elevated Metallic Response
- Suspected Landfill Signature

1. Historic Site Features - NYOW Historical Photographic Analysis Draft Report prepared by USACE Army Geospatial Center, Nov. 2019
2. Basemap: NYS ITS GIS Program Office 2022 Orthoimagery

**Figure 10-4**

**Former Landfill Area**
**Previous Sampling Locations**
**AOC 3**

**Phase 2 RI**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**January 2025**

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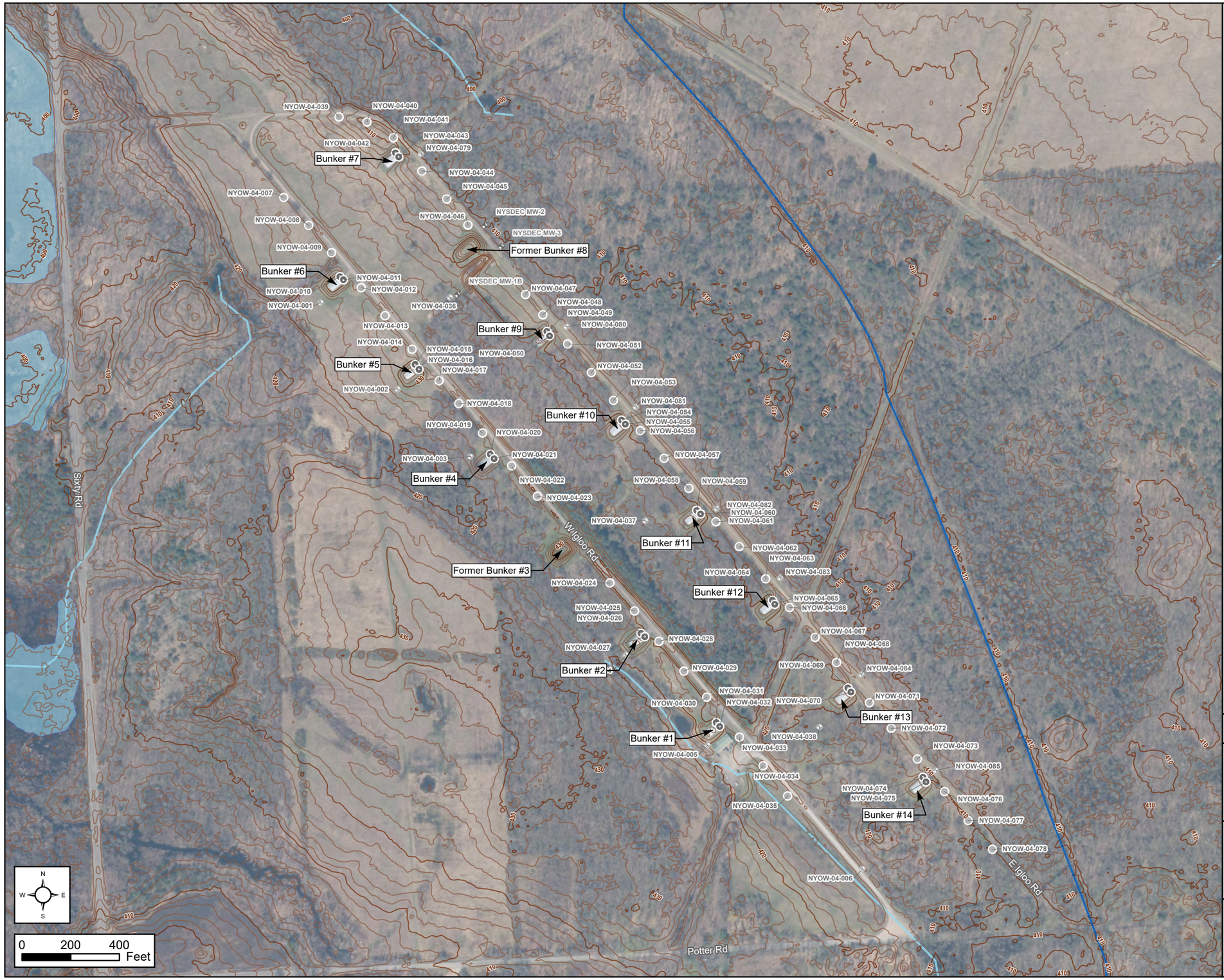


Legend

- Monitoring Well

**Phase 1 Sample Locations**

- Temporary Well and Co-located Surface/Subsurface Soil
- Subsurface Soil at Outlet
- Subsurface Soil in Swale
- Pre-Existing Monitoring Well (NYSDEC, 1990)
- Stream
- Former Wastewater Ditch
- Water Body
- 10' Contour
- 2' Contour

1. Pre-existing monitoring wells - NYSDEC, 1990
2. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
3. NHD flowline - USGS, 2019
4. Basemap: NYS ITS GIS Program Office 2022 Orthoimagery
5. Refer to Appendix A of this UFP-QAPP for ISM sampling locations

# Figure 10-5

## Former Bunker Area Previous Discrete Sampling Locations AOC 4

**Phase 2 Remedial Investigation**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**January 2025**

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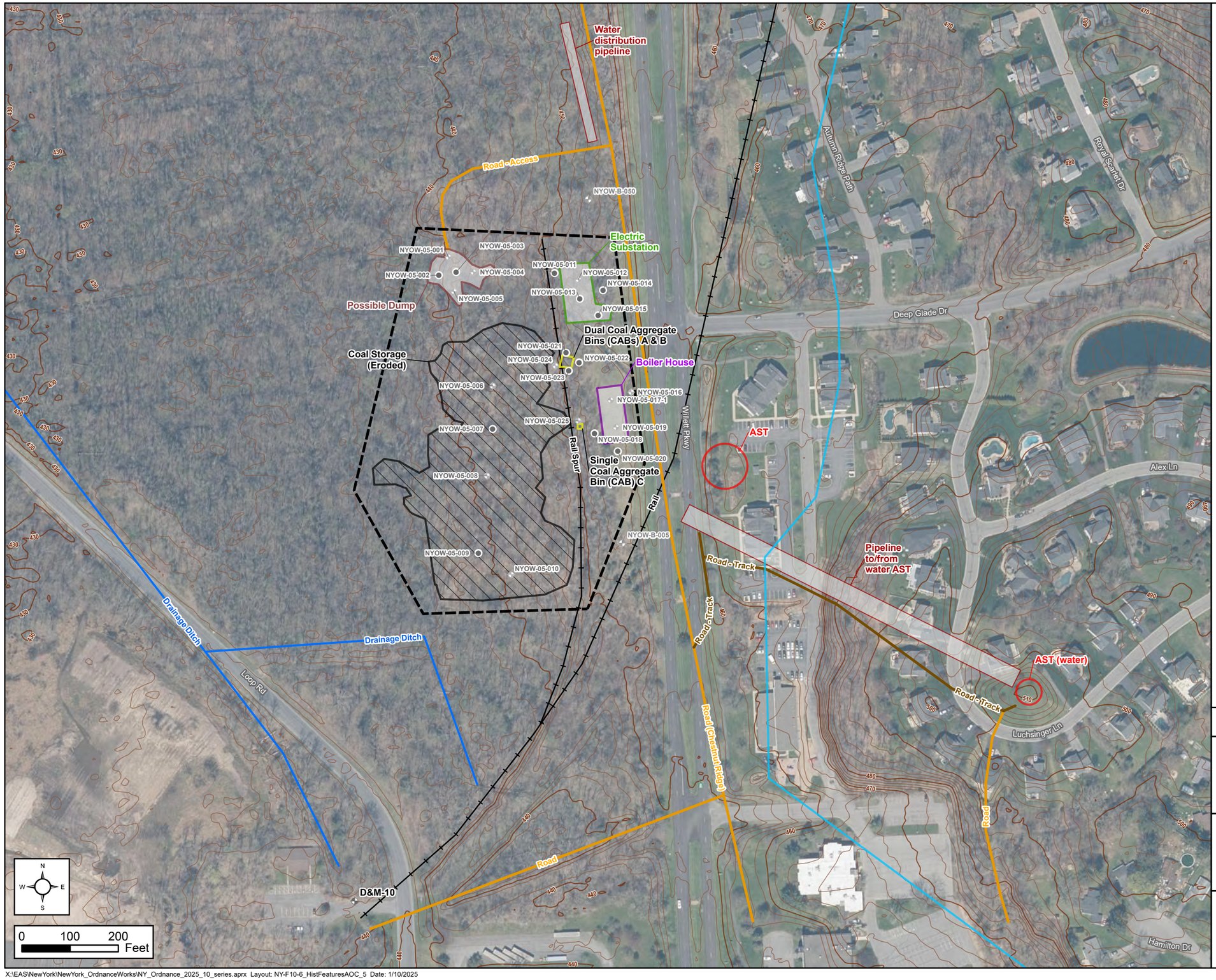


Legend

- Monitoring Well (D&M, 1981, M&E, 1990)
- Monitoring Well

**Phase 1 Sample Locations**

- Temporary Well and Co-located Surface/Subsurface Soil
- Surface/Subsurface Soil
- Area of Concern (approx.)
- Aboveground Storage Tank (AST)
- Boiler House
- Coal Aggregate Bin (CAB)
- Coal Storage (Eroded)
- Electric Substation
- Pipeline
- Possible Dump
- Railroad
- Road
- Road - Track
- Drainage Ditch
- Former Wastewater Ditch
- 10' Contour
- 2' Contour

1. Historic site features provided by USACE in 2019.
2. Former wastewater ditch - RFC, undated; Dames & Moore, 1981
3. Basemap: NYS ITS GIS Program Office 2022 Orthoimagery.

**Figure 10-6**

**Former Power Plant Area Historical Features and Previous Sampling Locations AOC 5**

**Phase 2 Remedial Investigation**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**January 2025**

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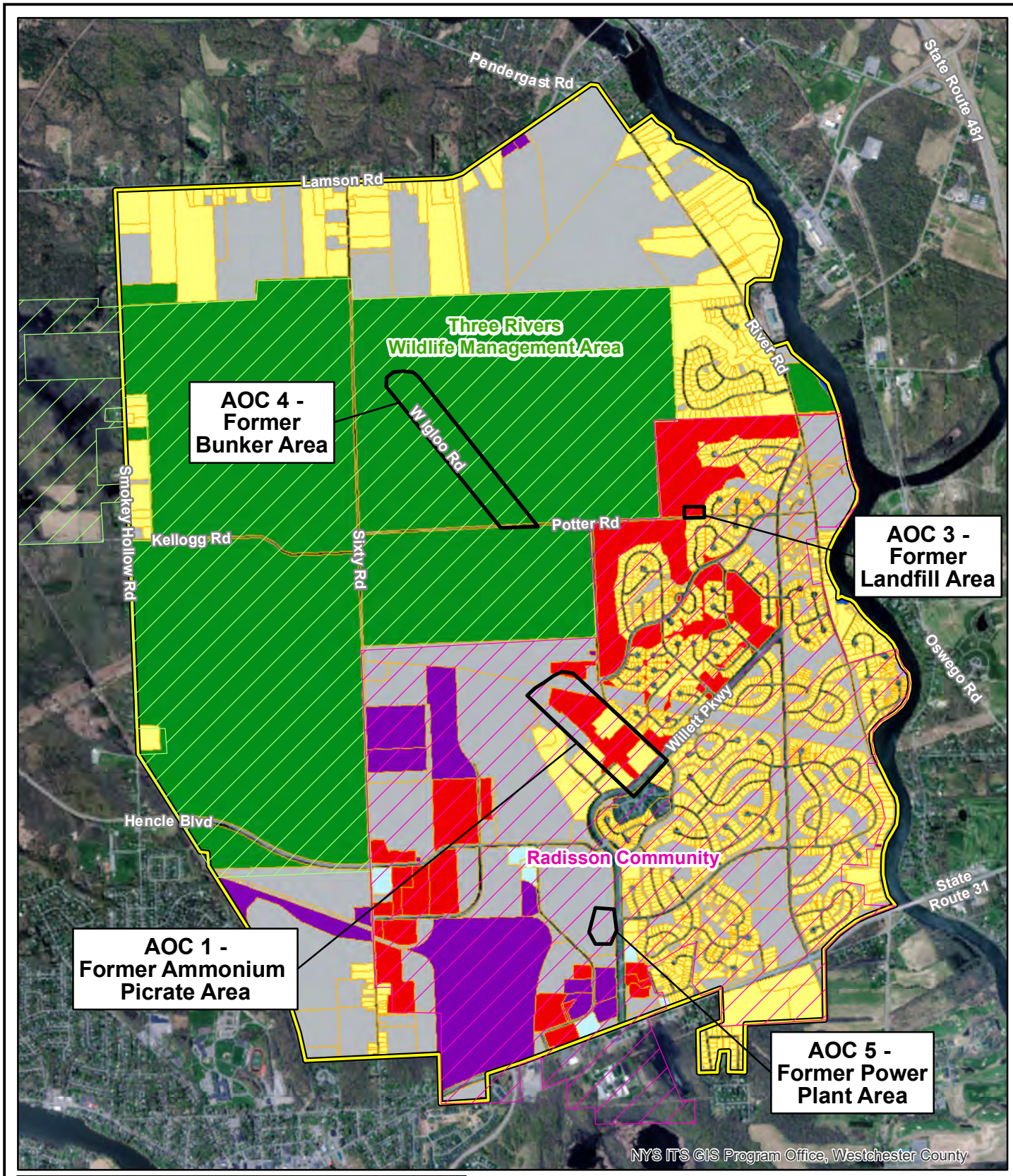



**Legend***
**Land Use (OCWA, 2019)** [1]

- Parcel Boundary

Parcel Land Use

- Commercial
- Industrial/Utility
- Parks/Open Space
- Public Service
- Residential
- Vacant/Undeveloped
- Water

- Area of Concern (approx.)
- Three Rivers Wildlife Management Area
- Radisson Community
- Former NYOW

# Figure 10-7: Current Land Use (Onondaga County Water Authority, 2019)

N
W E
S

0 1,500 3,000 6,000 Feet

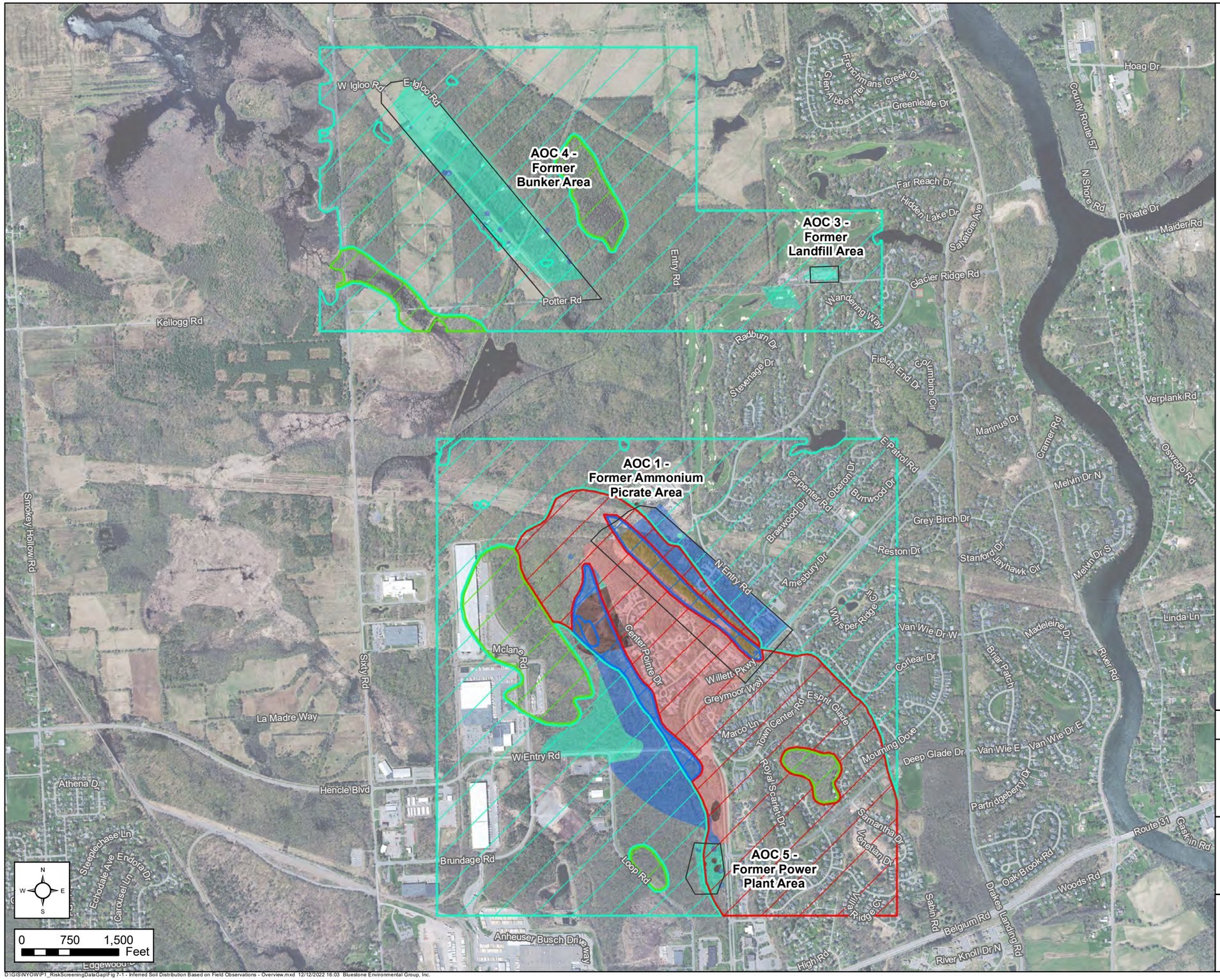
Scale is approximate - for illustrative purposes only.

Coordinate System: NAD 1983 UTM Zone 18N. Projection: Transverse Mercator

[1] Land Use is Syracuse-Onondaga County GIS on the Web's "Parcel Land Use" (source: Onondaga County Parcel File by Onondaga County Water Authority [OCWA], last updated in 2019), downloaded as a PDF on 7/31/20 from www.fsihost.com/onondaga.

Additional Sources: USACE, 2019.

*Note: Site feature locations are approximate.




D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 7-1 - Inferred Soil Distribution Based on Field Observations - Overview.mxd 12/12/2022 16:03 Bluestone Environmental Group, Inc.

## Legend

- Area of Concern

**Historic Soil Distribution (Pair, 2014)**

- Pd
- Ps
- Psc
- Hw

**Inferred Soil Distribution Based on Field Observations**

- Fill
- Topsoil*
- Pd
- Ps
- Psc

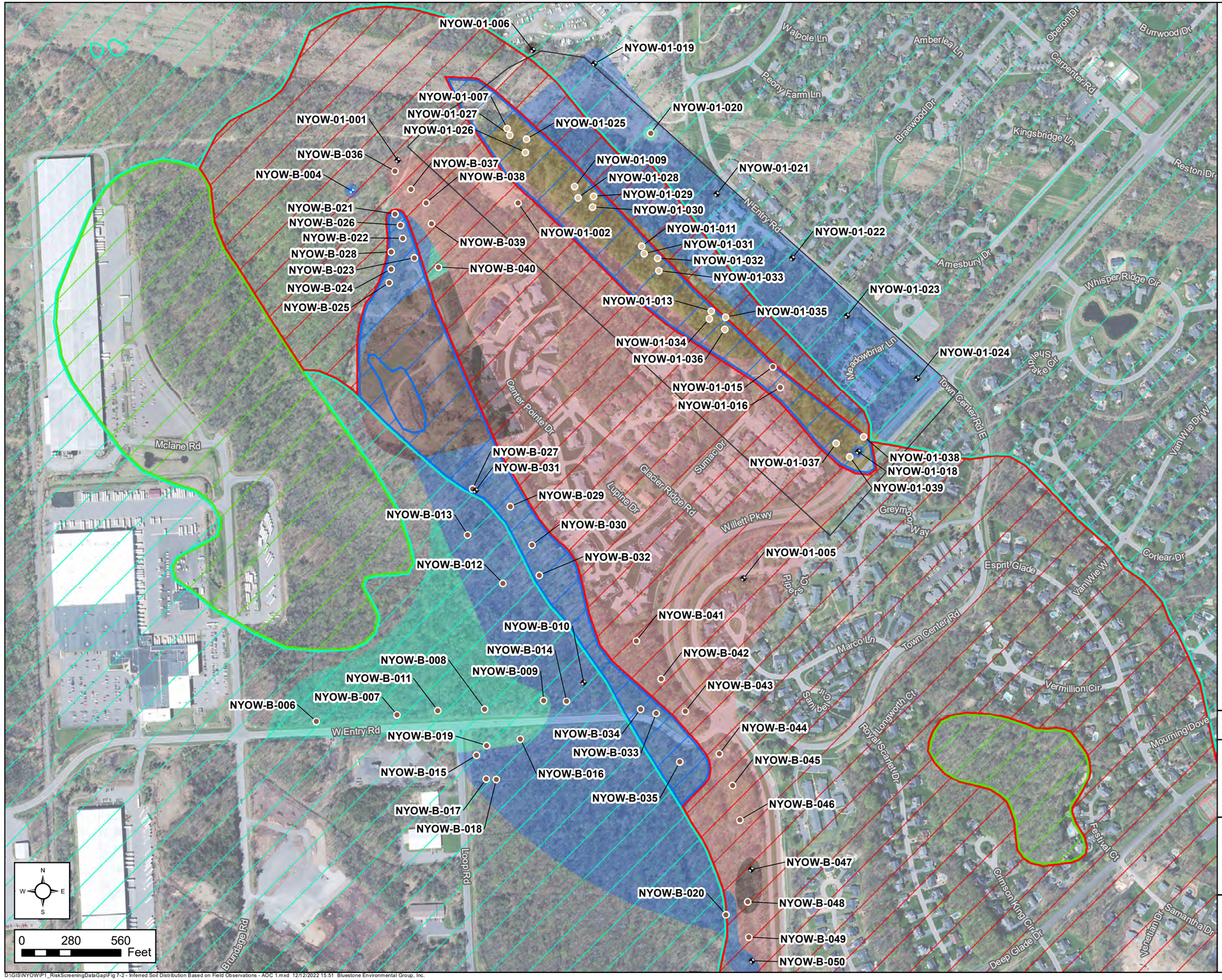
*Location sampled from the 0 to 1 ft bgs depth interval only; therefore, classified as topsoil.

1. Historic soil distribution from Surficial Geology of the Baldwinsville 7.5-Minute Quadrangle, Onondaga and Oswego Counties, New York(Pair, 2014).
2. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 10-8**

**Inferred Soil Distribution Based on Field Observations - Overview**

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**




## Legend

**Phase 1 Sample Location**

- Temporary Well
- Temporary Well and Co-located Surface/Subsurface Soil
- Surface/Subsurface Soil
- Surface Soil
- Area of Concern

**Historic Soil Distribution (Pair, 2014)**

- Pd
- Ps
- Psc
- Hw

**Inferred Soil Distribution Based on Field Observations**

- Fill
- Topsoil*
- Pd
- Ps
- Psc

*Location sampled from the 0 to 1 ft bgs depth interval only; therefore, classified as topsoil.

1. Historic soil distribution from Surficial Geology of the Baldwinsville 7.5-Minute Quadrangle, Onondaga and Oswego Counties, New York(Pair, 2014).
2. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 10-9**

# Inferred Soil Distribution Based on Field Observations - AOC 1

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 7-2 - Inferred Soil Distribution Based on Field Observations - AOC 1.mxd 12/12/2022 15:51 Bluestone Environmental Group, Inc.

## Legend

**Phase 1 Sample Location**

- Temporary Well
- Temporary Well and Co-located Surface/Subsurface Soil
- Surface/Subsurface Soil
- Vapor Intrusion
- Area of Concern

**Historic Soil Distribution (Pair, 2014)**

- Psc

**Inferred Soil Distribution Based on Field Observations**

- Psc

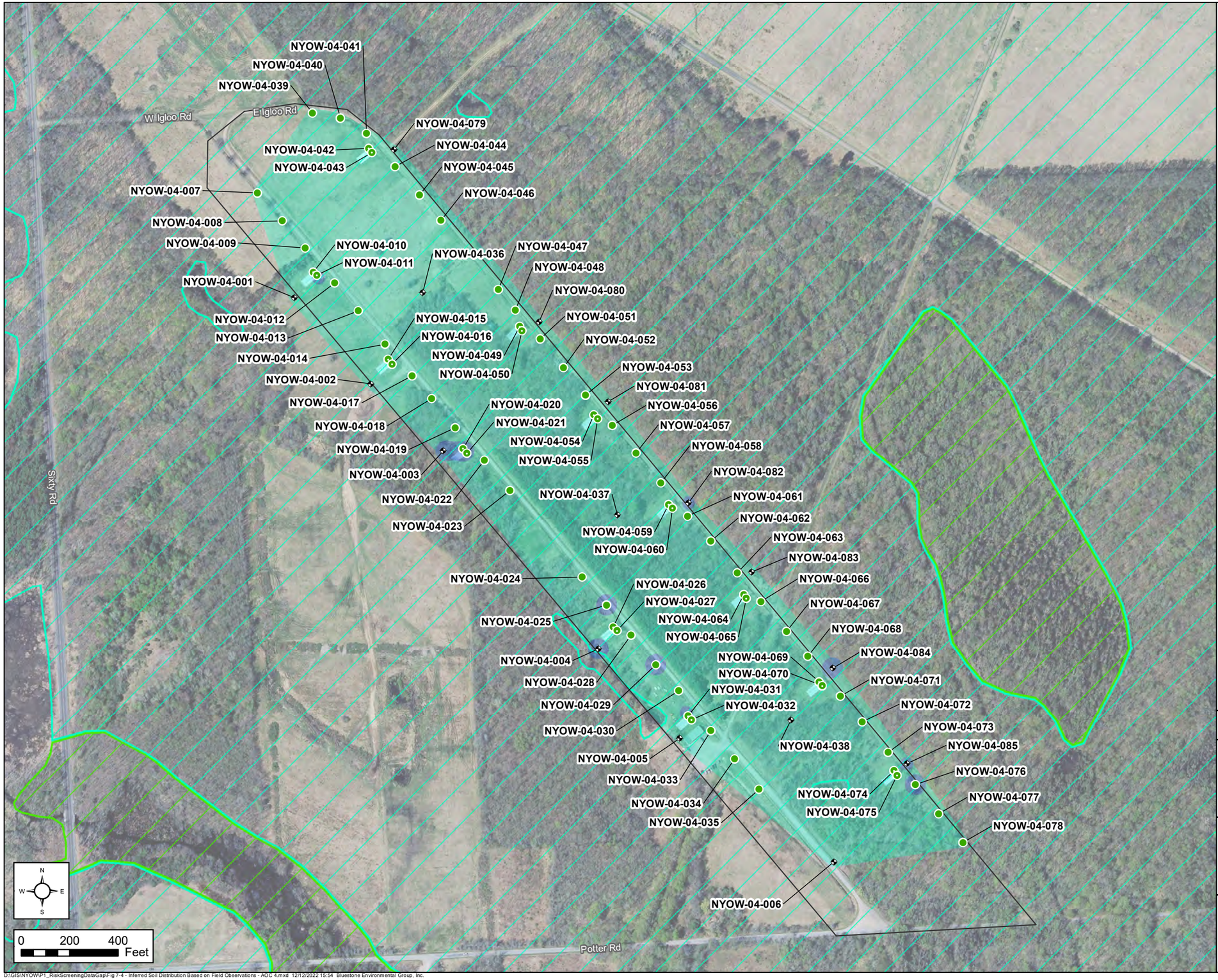
1. Historic soil distribution from Surficial Geology of the Baldwinsville 7.5-Minute Quadrangle, Onondaga and Oswego Counties, New York(Pair, 2014).
2. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 10-10**

# Inferred Soil Distribution Based on Field Observations - AOC 3

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 7-3 - Inferred Soil Distribution Based on Field Observations - AOC 3.mxd 12/12/2022 15:54 Bluestone Environmental Group, Inc.




## Legend

**Phase 1 Sample Location**

- Temporary Well and Co-located Surface/Subsurface Soil
- Subsurface Soil at Outlet
- Subsurface Soil in Swale
- Area of Concern

**Historic Soil Distribution (Pair, 2014)**

- Psc
- Hw

**Inferred Soil Distribution Based on Field Observations**

- Ps
- Psc

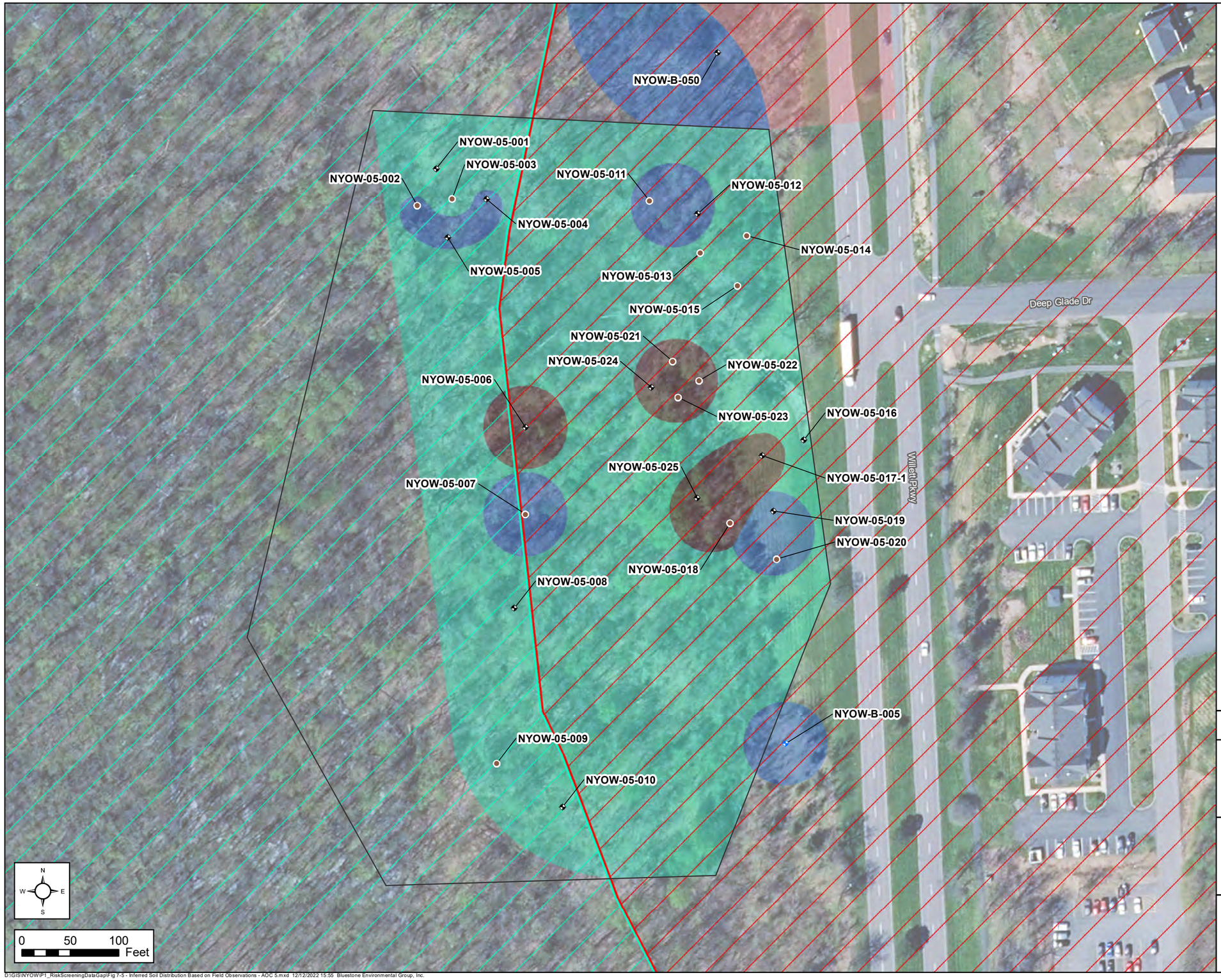
1. Historic soil distribution from Surficial Geology of the Baldwinsville 7.5-Minute Quadrangle, Onondaga and Oswego Counties, New York(Pair, 2014).
2. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 10-11**

# Inferred Soil Distribution Based on Field Observations - AOC 4

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 7-4 - Inferred Soil Distribution Based on Field Observations - AOC 4.mxd 12/12/2022 15:54 Bluestone Environmental Group, Inc.




## Legend

**Phase 1 Sample Location**

- Temporary Well
- Temporary Well and Co-located Surface/Subsurface Soil
- Surface/Subsurface Soil
- Area of Concern

**Historic Soil Distribution (Pair, 2014)**

- Pd
- Psc

**Inferred Soil Distribution Based on Field Observations**

- Fill
- Pd
- Ps
- Psc

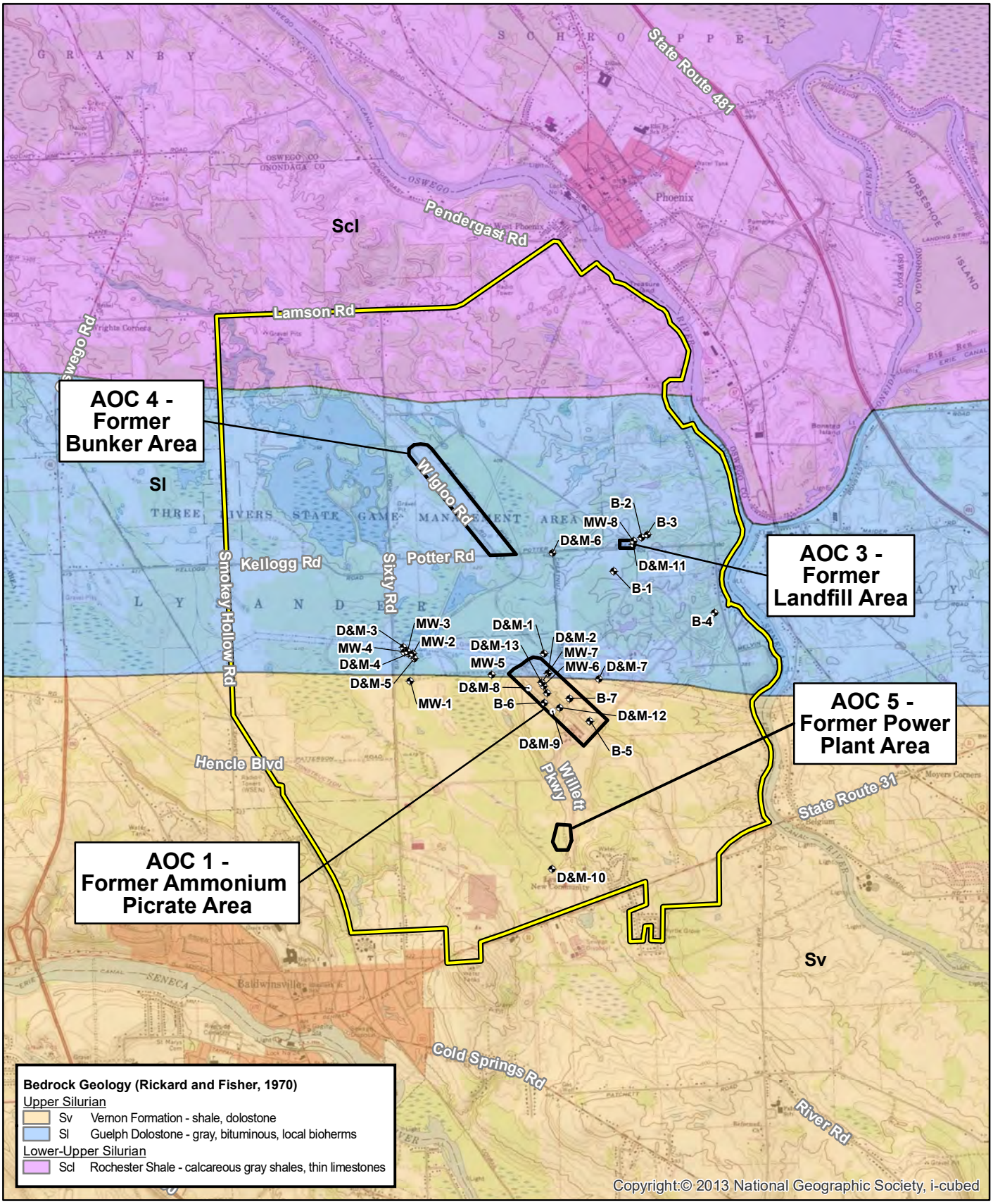
1. Historic soil distribution from Surficial Geology of the Baldwinsville 7.5-Minute Quadrangle, Onondaga and Oswego Counties, New York(Pair, 2014).
2. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 10-12**

# Inferred Soil Distribution Based on Field Observations - AOC 5

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 7-5 - Inferred Soil Distribution Based on Field Observations - AOC 5.mxd 12/12/2022 15:55 Bluestone Environmental Group, Inc.




**Legend***

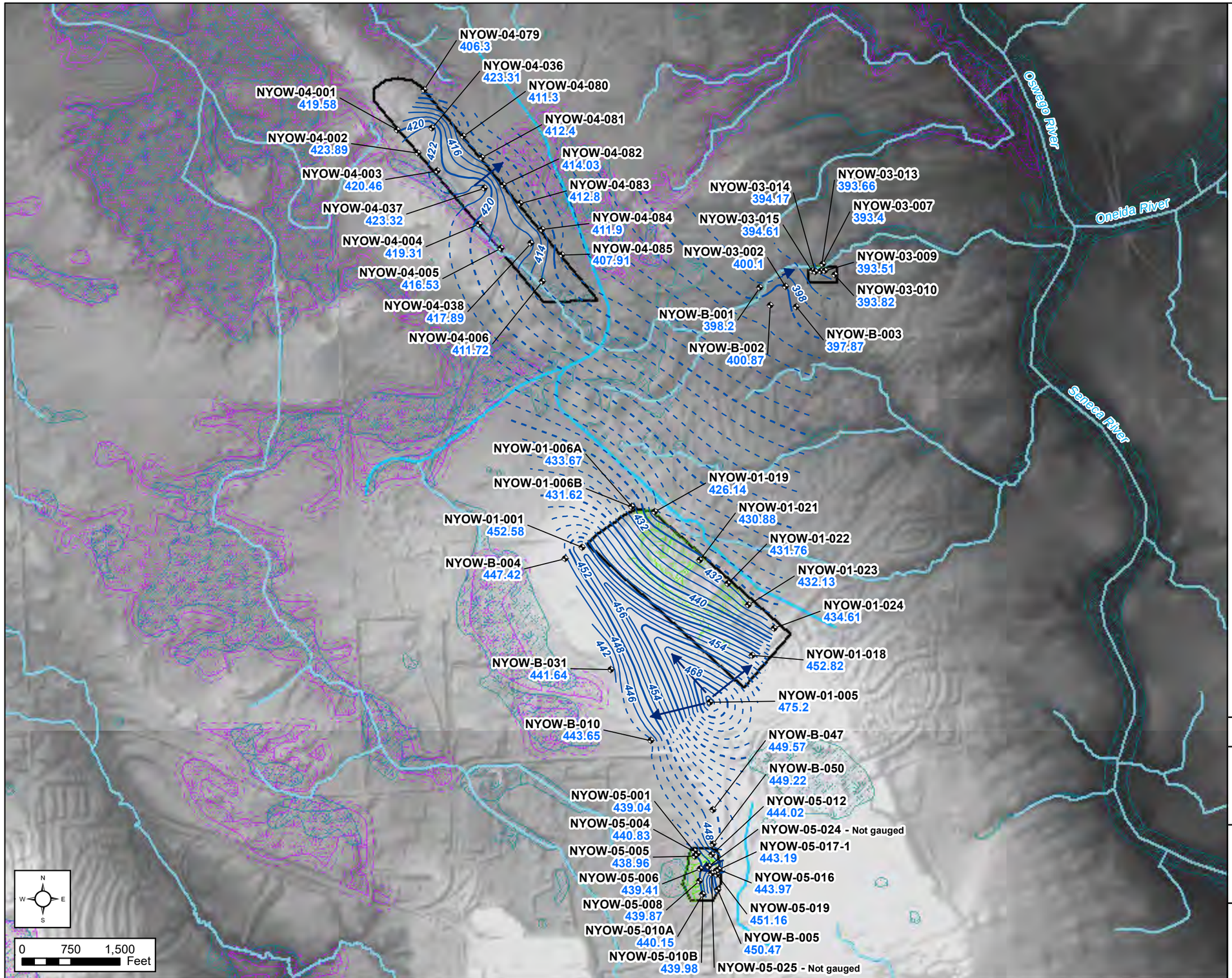
- Monitoring Well (D&M, 1981, M&E, 1990)
- Soil Boring (D&M, 1981)
- Area of Concern (approx.)
- Former NYOW

# Figure 10-13: Site Bedrock Geology Map (Rickard and Fisher, 1970) and Site Features

N W E S

0 0.4 0.8 1.6 Miles

Scale is approximate - for illustrative purposes only.
Coordinate System: NAD 1983 UTM Zone 18N
Projection: Transverse Mercator
Additional Sources: Dames & Moore, 1981; Metcalf & Eddy, 1990; NYS GIS, 2019; Rickard and Fisher, 1970; USACE, 2019.
*Note: Site feature locations are approximate.




## Legend

- Monitoring Well — Labeled with May 2021 Groundwater Elevation (ft)

**Groundwater Contour - May 2021**

**Dashed where inferred**

- 10 ft
- 2 ft
- Flow Direction
- Former Wastewater Ditch
- Stream
- Wetland (May 2020)
- USFWS NWI Wetland
- NYS Freshwater Wetland 100-ft Buffer
- NYS Freshwater Wetland
- Area of Concern

**Ground Surface Elevation**

High : 519 feet

Low : 358 feet

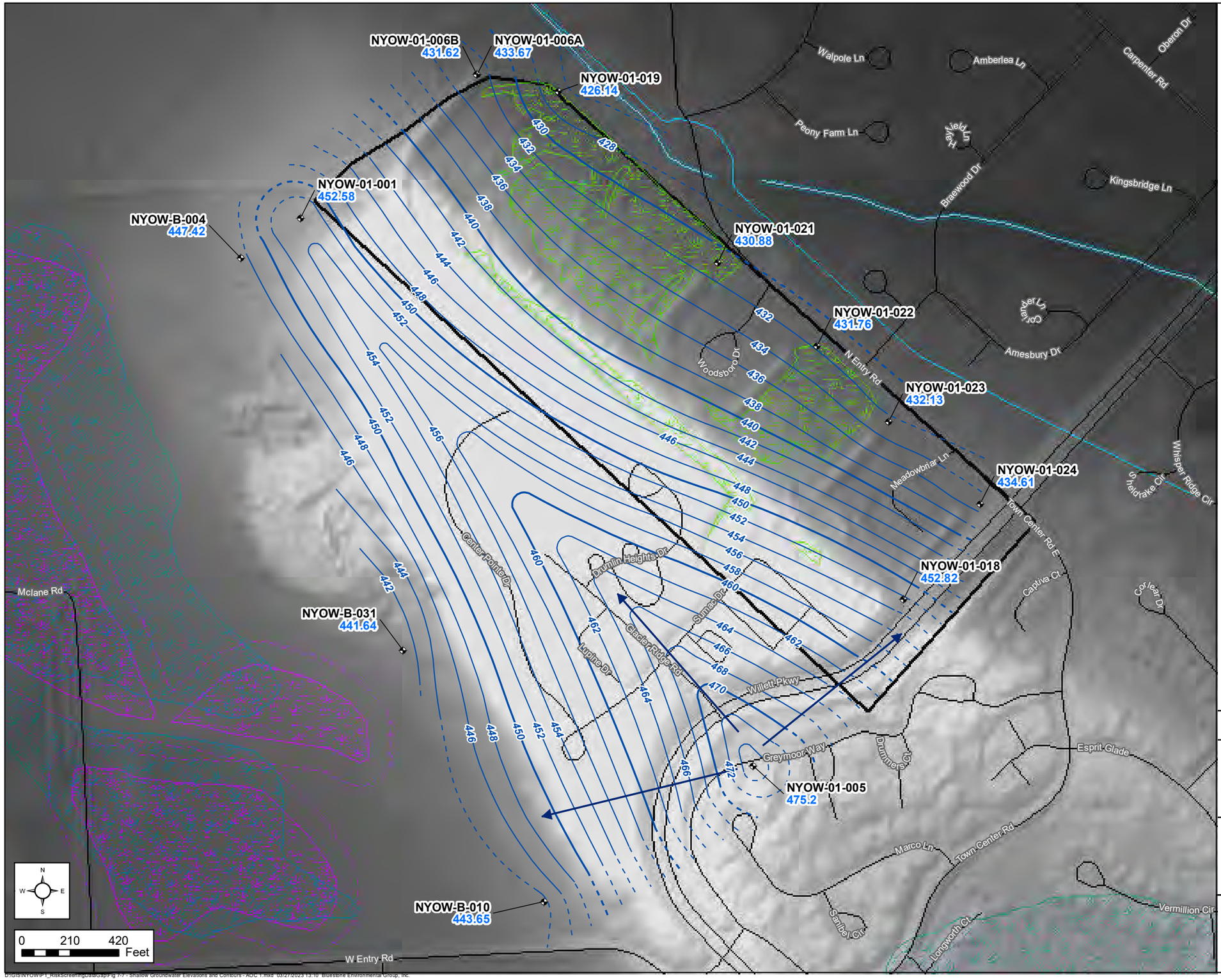
1. Local groundwater flow direction determined by monitoring well gauging in May 2021.
2. Wetlands delineated in May 2020 by WRS.
3. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
4. NHD flowline - USGS, 2019
5. NWI wetlands - USFWS, 1981
6. NYS freshwater wetlands, Onondaga Co. - NYSDEC, 2010
7. Basemap: Esri Terrain 3D. Source data for areas shown include 2012 FEMA USGS Seneca Watershed Lidar and 2018 NYS Cayuga-Oswego County Lidar.

**Figure 10-14**

# Shallow Groundwater Elevations and Contours - Overview

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**March 2023**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 7-6 - Shallow Groundwater Elevations and Contours - Overview.mxd 03/27/2023 13:08 Bluestone Environmental Group, Inc.




## Legend

- Monitoring Well — Labeled with May 2021 Groundwater Elevation (ft)

**Groundwater Contour - May 2021**

**Dashed where inferred**

- 10 ft
- 2 ft
- Flow Direction
- Road
- Former Wastewater Ditch
- Stream
- Wetland (May 2020)
- USFWS NWI Wetland
- NYS Freshwater Wetland 100-ft Buffer
- NYS Freshwater Wetland
- Area of Concern

**Ground Surface Elevation**

High : 519 feet

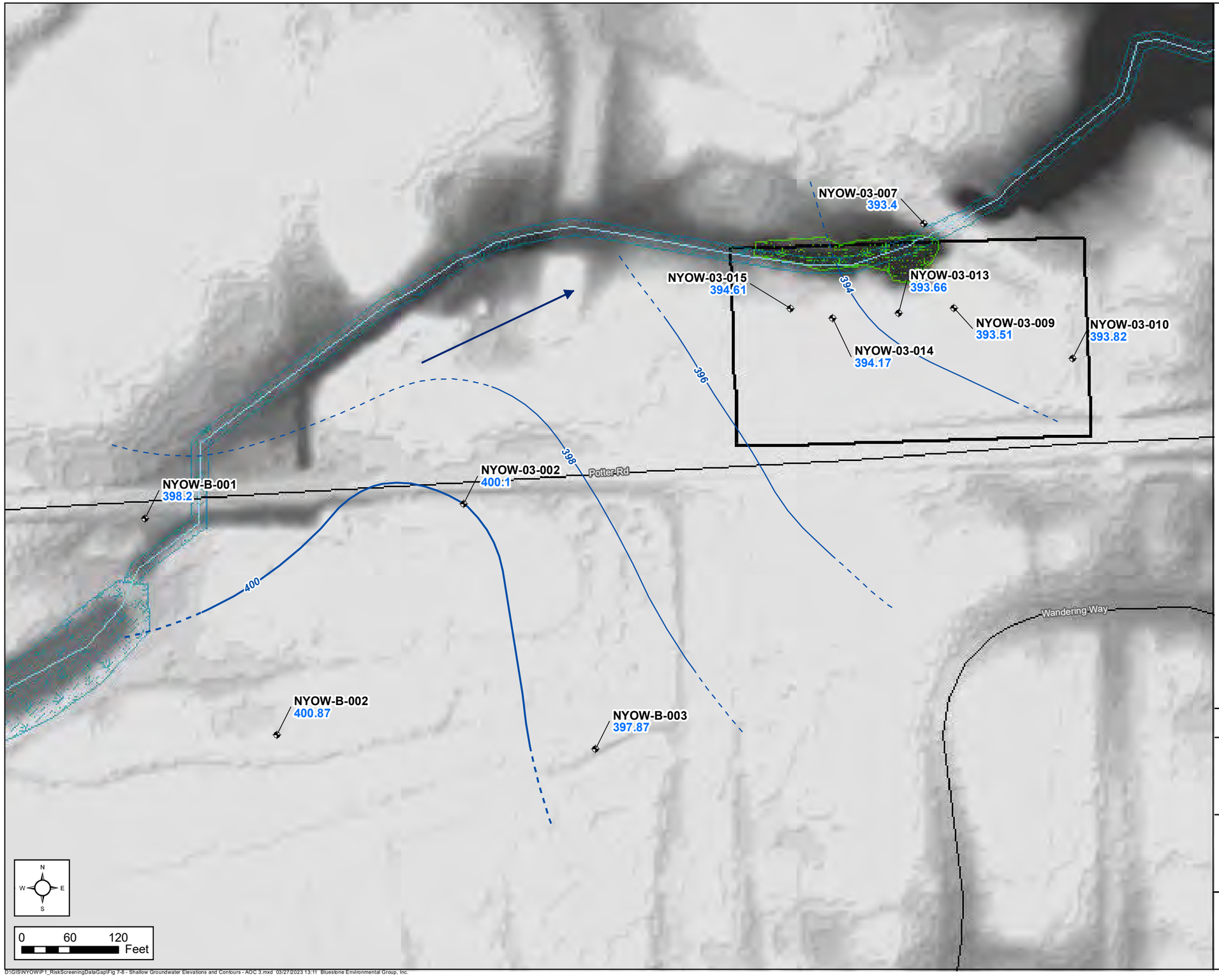
Low : 407 feet

1. Local groundwater flow direction determined by monitoring well gauging in May 2021.
2. Wetlands delineated in May 2020 by WRS.
3. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
4. NHD flowline - USGS, 2019
5. NWI wetlands - USFWS, 1981
6. NYS freshwater wetlands, Onondaga Co. - NYSDEC, 2010
7. Basemap: Esri Terrain 3D. Source data for areas shown include 2012 FEMA USGS Seneca Watershed Lidar and 2018 NYS Cayuga-Oswego County Lidar.

**Figure 10-15**

# Shallow Groundwater Elevations and Contours - AOC 1

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**March 2023**




## Legend

- Monitoring Well — Labeled with May 2021 Groundwater Elevation (ft)

**Groundwater Contour - May 2021**

**Dashed where inferred**

- 10 ft
- 2 ft
- Flow Direction
- Road
- Stream
- Wetland (May 2020)
- USFWS NWI Wetland
- Area of Concern

**Ground Surface Elevation**

High : 413 feet

Low : 385 feet

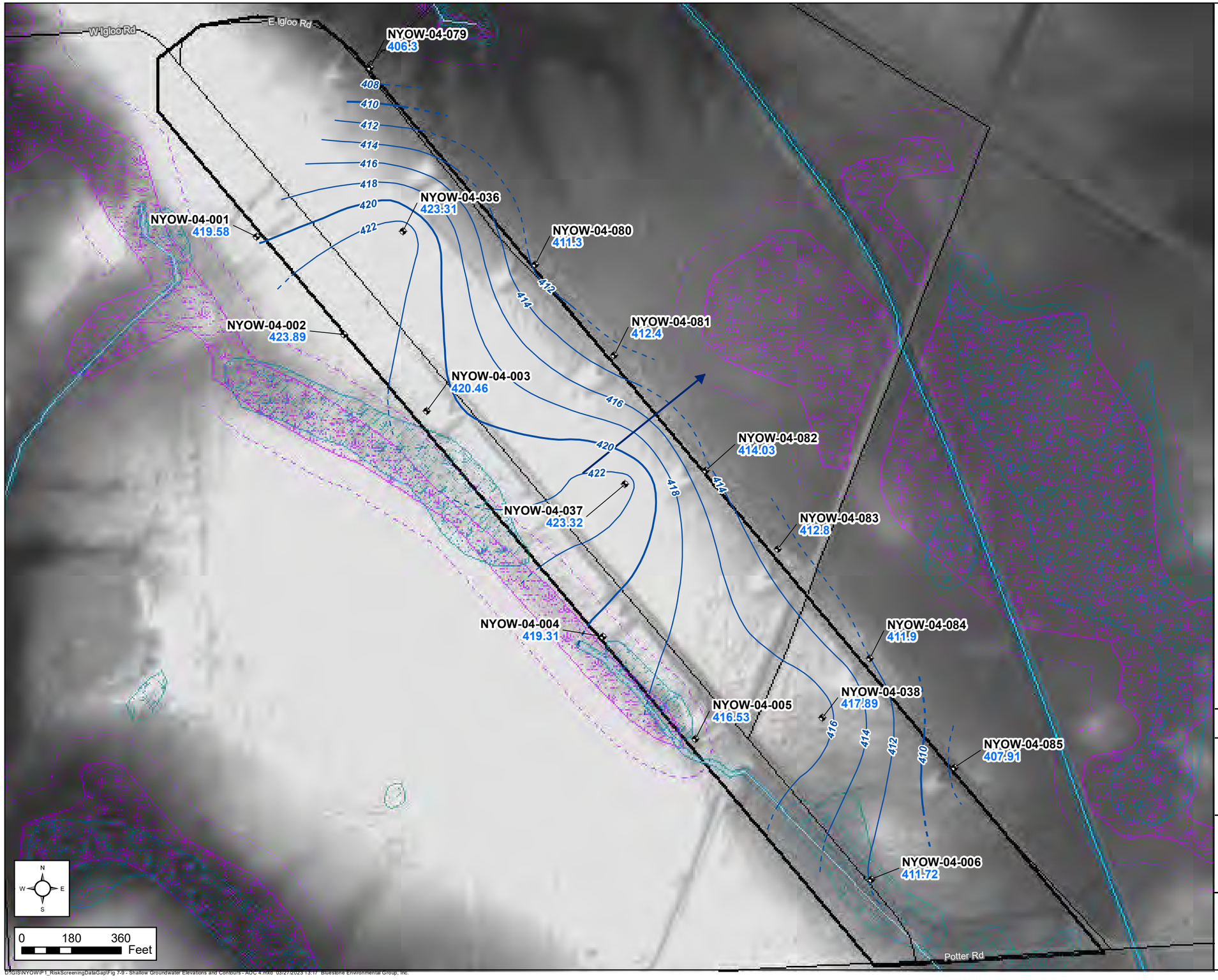
1. Local groundwater flow direction determined by monitoring well gauging in May 2021.
2. Wetlands delineated in May 2020 by WRS.
3. NHD flowline - USGS, 2019
4. NWI wetlands - USFWS, 1981
5. Basemap: Esri Terrain 3D. Source data for areas shown include 2012 FEMA USGS Seneca Watershed Lidar and 2018 NYS Cayuga-Oswego County Lidar.

**Figure 10-16**

# Shallow Groundwater Elevations and Contours - AOC 3

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**March 2023**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 7-8 - Shallow Groundwater Elevations and Contours - AOC 3.mxd 03/27/2023 13:11 Bluestone Environmental Group, Inc.




D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 7-9 - Shallow Groundwater Elevations and Contours - AOC 4.mxd 03/27/2023 13:17 Bluestone Environmental Group, Inc.

## Legend

- Monitoring Well — Labeled with May 2021 Groundwater Elevation (ft)

**Groundwater Contour - May 2021**

**Dashed where inferred**

- 10 ft
- 2 ft
- Flow Direction
- Road
- Former Wastewater Ditch
- Stream
- USFWS NWI Wetland
- NYS Freshwater Wetland 100-ft Buffer
- NYS Freshwater Wetland
- Area of Concern

**Ground Surface Elevation**

High : 437 feet

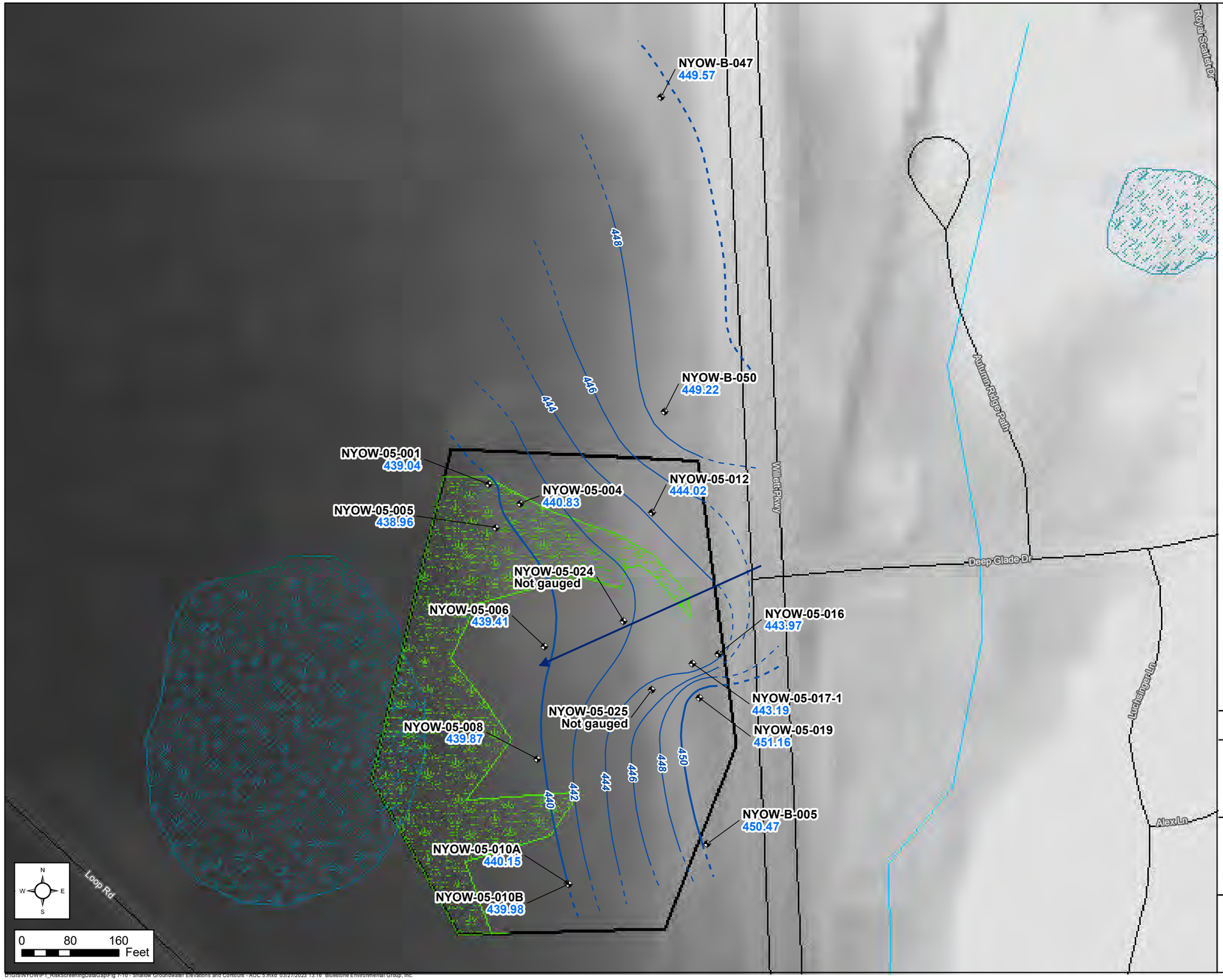
Low : 400 feet

1. Local groundwater flow direction determined by monitoring well gauging in May 2021.
2. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
3. NHD flowline - USGS, 2019
4. NWI wetlands - USFWS, 1981
5. NYS freshwater wetlands, Onondaga Co. - NYSDEC, 2010
6. Basemap: Esri Terrain 3D. Source data for areas shown include 2012 FEMA USGS Seneca Watershed Lidar and 2018 NYS Cayuga-Oswego County Lidar.

**Figure 10-17**

# Shallow Groundwater Elevations and Contours - AOC 4

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**March 2023**




## Legend

- Monitoring Well — Labeled with May 2021 Groundwater Elevation (ft)

**Groundwater Contour - May 2021**

**Dashed where inferred**

- 10 ft
- 2 ft
- Flow Direction
- Road
- Former Wastewater Ditch
- Wetland (May 2020)
- USFWS NWI Wetland
- Area of Concern

**Ground Surface Elevation**

High : 499 feet

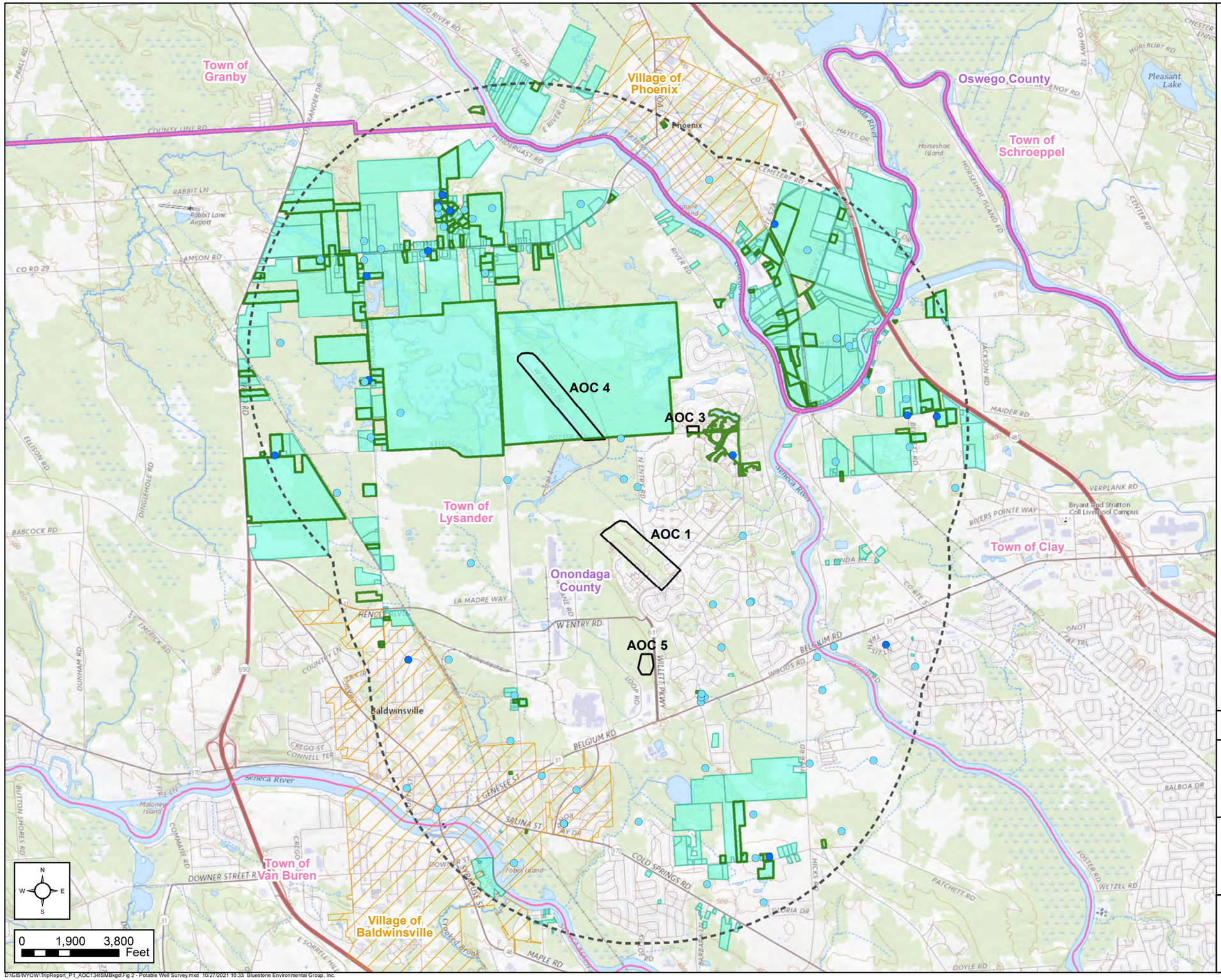
Low : 430 feet

1. Local groundwater flow direction determined by monitoring well gauging in May 2021.
2. Wetlands delineated in May 2020 by WRS.
3. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
4. NWI wetlands - USFWS, 1981
5. Basemap: Esri Terrain 3D. Source data for areas shown include 2012 FEMA USGS Seneca Watershed Lidar and 2018 NYS Cayuga-Oswego County Lidar.

**Figure 10-18**

# Shallow Groundwater Elevations and Contours - AOC 5

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**March 2023**




## Legend

**NYSDEC Water Well**

- Well observed (15)
- Well not observed (68)
- Parcel with Possible Well Observed (115)
- Parcel with Private Water Supply in 2020 Assessment Roll (471)
- Area of Concern (AOC)
- 2-Mile Buffer from AOCs
- Village
- Town
- County

1. NYSDEC Water Well Program - June 2021. Downloaded 7/8/21 from NYS GIS.
2. 2020 Tax Parcel Centroid Points with Water Supply - NYS GPO, June 2021. Downloaded 7/13/21 from NYS GIS.
3. Onondaga County Tax Parcel Polygons - Onondaga County, March 2021. Received 3/16/21.
4. Oswego County Tax Parcel Polygons - Real Property Tax Services Dept., Nov. 2020. Downloaded 7/9/21 from NYS GIS.
5. NYS Civil Boundaries - NYS GIS, April 2021. Accessed 10/27/21.
6. Basemap: USGS Topo - The National Map.

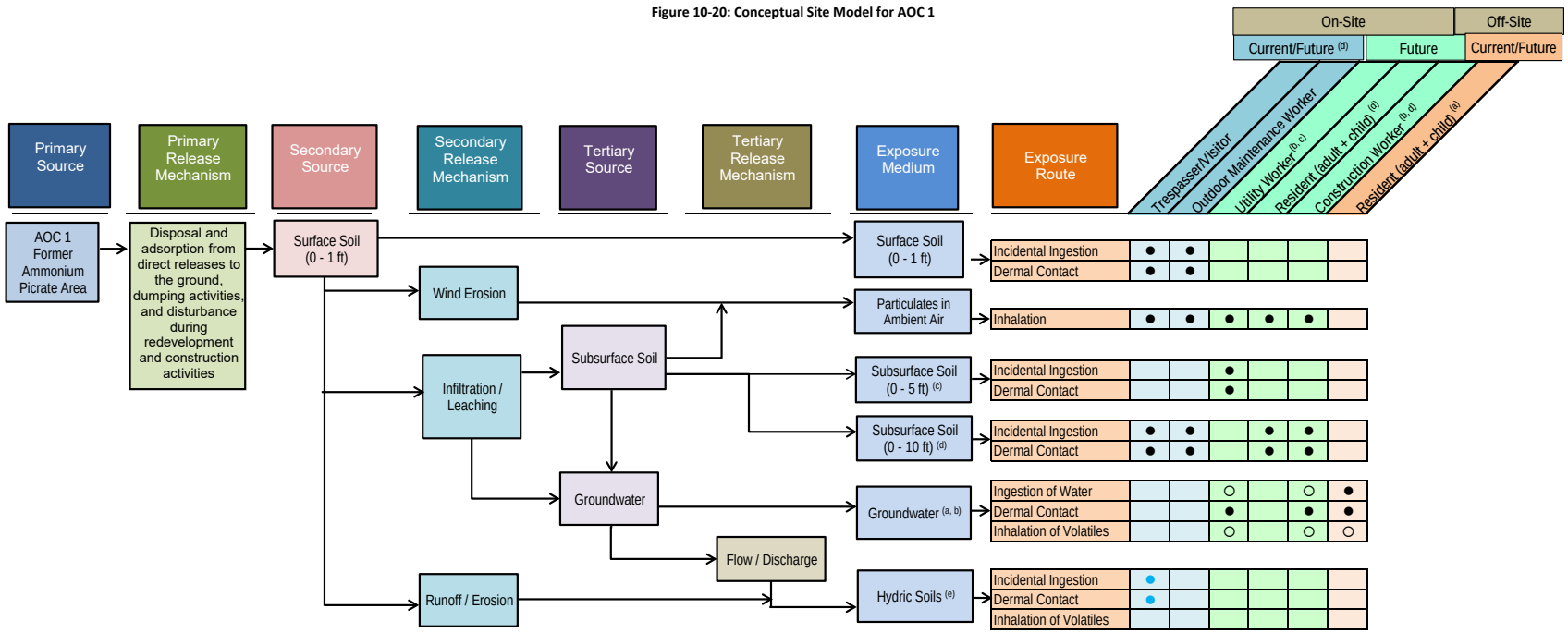
**Figure 10-19**

**Potable Well Survey**

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\TripReport_P1_AOC134ISMBkgd\Fig 2 - Potable Well Survey.mxd 10/27/2021 10:33 Bluestone Environmental Group, Inc.

**Figure 10-20: Conceptual Site Model for AOC 1**




Indicates a potentially complete migration pathway

| | |
|---|---|
| ● | Potentially complete exposure pathway |
| ○ | Potentially complete but insignificant exposure pathway |
| | Exposure not applicable |
| ● | Potentially complete exposure pathway depending on results of Phase 2 sampling event. |

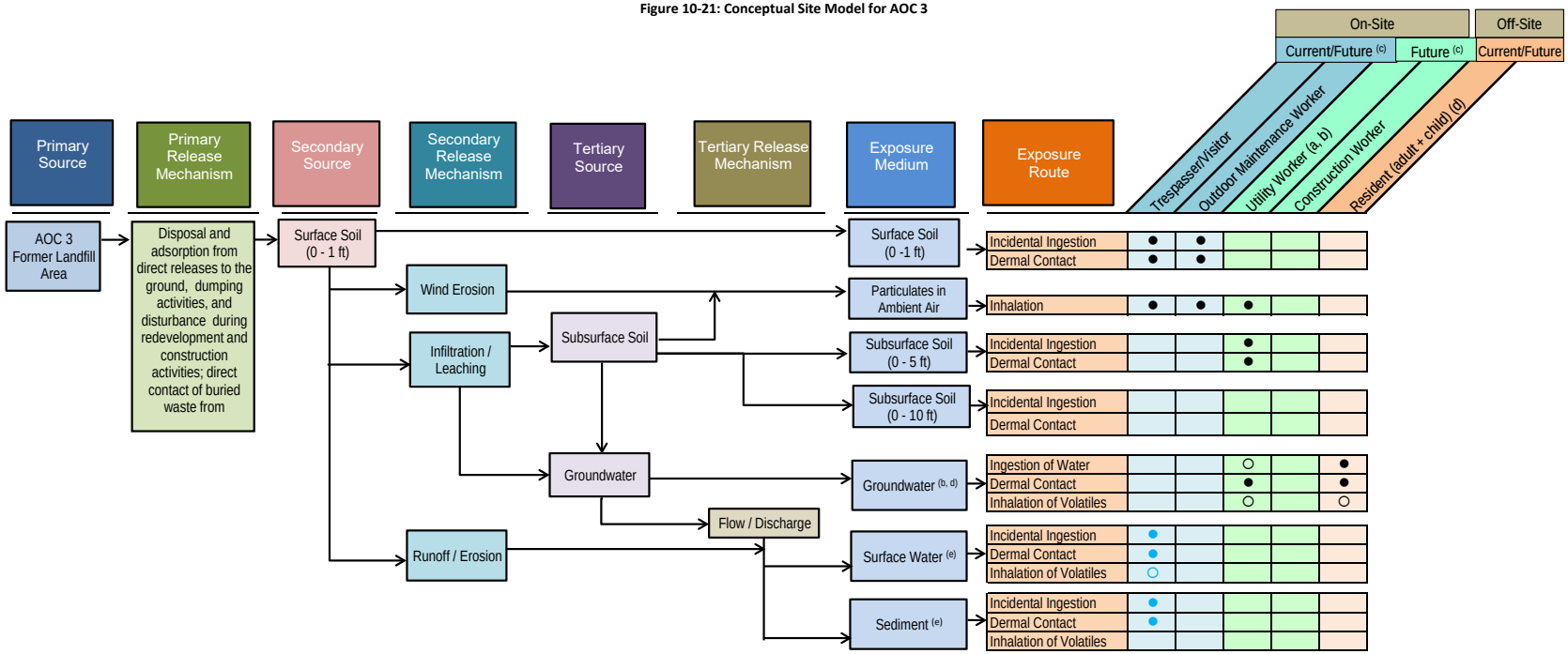
Notes:

(a) Groundwater on-Site is not currently used as a drinking water source and potable water is supplied by the Onondaga County Water Authority; therefore, a groundwater potable use scenario for the on-Site future residents will not be included. However, some residences in the surrounding area may have private groundwater wells and no restrictions are in place preventing groundwater use in the area as drinking water. Therefore, ingestion and dermal exposures to groundwater used as a drinking water resource is considered potentially complete pathways for an off-Site nearby resident. There are no VOCs among contaminants of potential concern at this AOC; therefore, groundwater exposure via vapor intrusion and/or inhalation of volatiles from groundwater are considered incomplete exposure pathways.
(b) The water table is anticipated to be encountered between 2 to 13 ft bgs in the source areas; therefore, utility workers and construction workers are likely to encounter groundwater during an excavation on-Site. The groundwater ingestion pathway has been deemed insignificant as the amount of water incidentally ingested is going to be de minimis. The inhalation of volatiles exposure route is deemed complete but insignificant due to ambient air mixing and wind dispersal and will not be quantitatively evaluated.
(c) Utility workers are assumed to install or repair utility lines such that incidental ingestion, dermal contact, and inhalation exposure to COPCs that are present between surface and 5 ft bgs may potentially occur. The soil is assumed to be placed back in the hole once work has been completed.
(d) Construction worker is assumed to be exposed to soil within the 0-10 ft bgs interval. It is assumed that subsurface soils are brought to the surface as a result of construction work during redevelopment of the Site, which would mean that future receptors would also be exposed to COPCs in the 0-10 ft range as it is assumed that subsurface soils are brought to the surface, mixed amd used to regrade the Site during redevelopment activities.
(e) Discrete surface soil sampling of hydric soils from wetland areas are planned for the Phase 2 investigation. Standing surface water is not present at the wetlands; therefore, surface water samples will not be collected and hydric soil samples will be evaluated under a sediment exposure scenario.

Acronyms:

AOC = area of concern
bgs = below ground surface
COPC = contaminant of potential concern
ft = feet
VOC = volatile organic compound

**Figure 10-21: Conceptual Site Model for AOC 3**




Indicates a potentially complete migration pathway

| | |
|---|---|
| ● | Potentially complete exposure pathway |
| ○ | Potentially complete but insignificant exposure pathway |
| | Exposure not applicable |
| ● | Potentially complete exposure pathway depending on results of Phase 2 sampling event. |
| ○ | Potentially complete but insignificant exposure pathway depending on results of Phase 2 sampling event. |

Notes:

(a) Utility workers are assumed to install or repair utility lines such that incidental ingestion, dermal contact, and inhalation exposure to COPCs that are present between surface and 5 ft bgs may potentially occur. The soil is assumed to be placed back in the hole once work has been completed.

(b) The water table is anticipated to be encountered between 2 to 13 ft bgs in the source areas; therefore, utility workers are likely to encounter groundwater during an excavation on-Site. The groundwater ingestion pathway has been deemed insignificant as the amount of water incidentally ingested is going to be de minimis. The inhalation of volatiles exposure route is deemed complete but insignificant due to ambient air mixing and wind dispersal and will not be quantitatively evaluated.

(c) No major construction work is expected in this area as AOC 3 is a former landfill. As such, there will be no subsurface soils brought to the surface as a result of construction work during redevelopment of the Site, which would mean that future receptors would also be exposed to COPCs originating between 0-10 ft bgs.

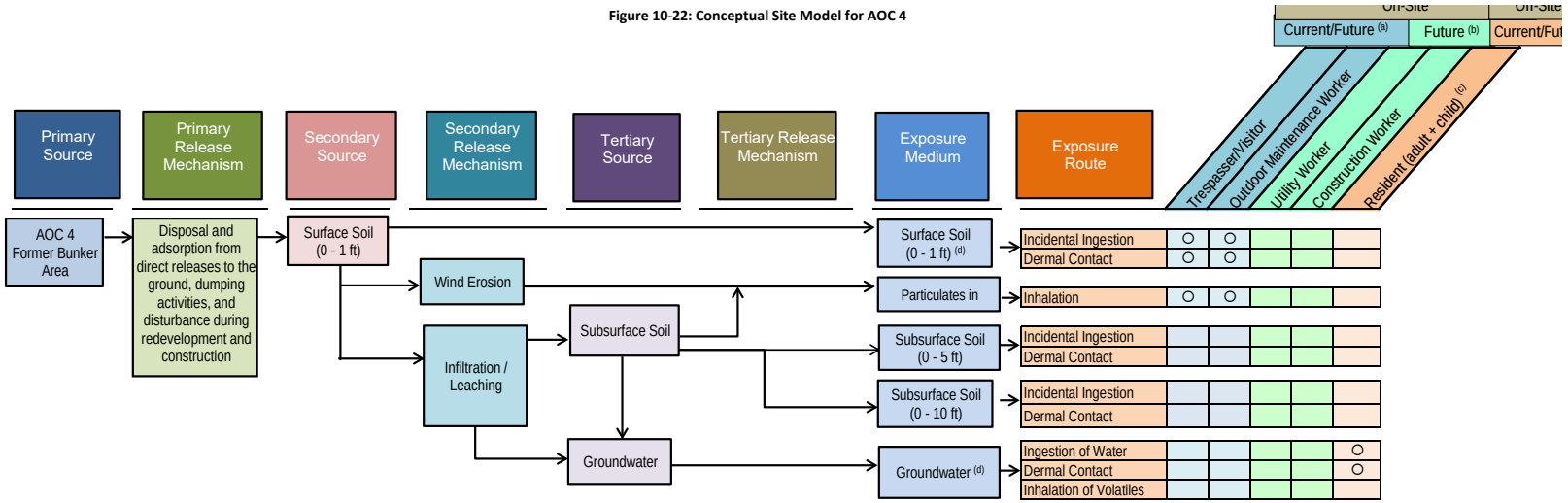
(d) Groundwater on-site is not currently used as a drinking water source and potable water is supplied by the Onondaga County Water Authority. However, some residences in the surrounding area may have private groundwater wells and no restrictions are in place preventing groundwater use in the area as drinking water. Therefore, ingestion and dermal exposures to groundwater used as a drinking water resource is considered potentially complete pathways for the hypothetical residents. Benzene was the only VOC detected in groundwater but the maximum detected benzene concentration is below the USEPA Vapor Intrusion Screening Level (VISL, USEPA, 2022) for groundwater set to a target cancer risk of 1E-06 and a hazard quotient (HQ) of 0.1; therefore, the inhalation of volatiles exposure route has been designated as potentially complete but insignificant and will not be quantitatively evaluated.

(e) Surface water and sediment samples are planned during the Phase 2 investigation for the unnamed stream located north of AOC 3. Should VOCs be detected in surface water, inhalation of volatiles is assumed to be an insignificant exposure due to ambient air mixing and wind dispersal.

Acronyms:

AOC = area of concern
bgs = below ground surface
COPC = contaminant of potential concern
ft = feet
VOC = volatile organic compound

**Figure 10-22: Conceptual Site Model for AOC 4**




Indicates a potentially complete migration pathway

| | |
|---|---|
| ● | Potentially complete exposure pathway |
| ○ | Potentially complete but insignificant exposure pathway |
| | Exposure not applicable |

Notes:

(a) AOC 4 is located within the Three Rivers State Wildlife Management Area. Current and future use of this area is wildlife management with remaining bunkers used for maintenance equipment and vehicle storage. The only potential current and future receptors are trespasser/visitor and outdoor maintenance worker to COPCs remaining in surface soil.

(b) There are no plans for future development thus, no future utility or construction work likely to occur in this AOC that is a wildlife management area..

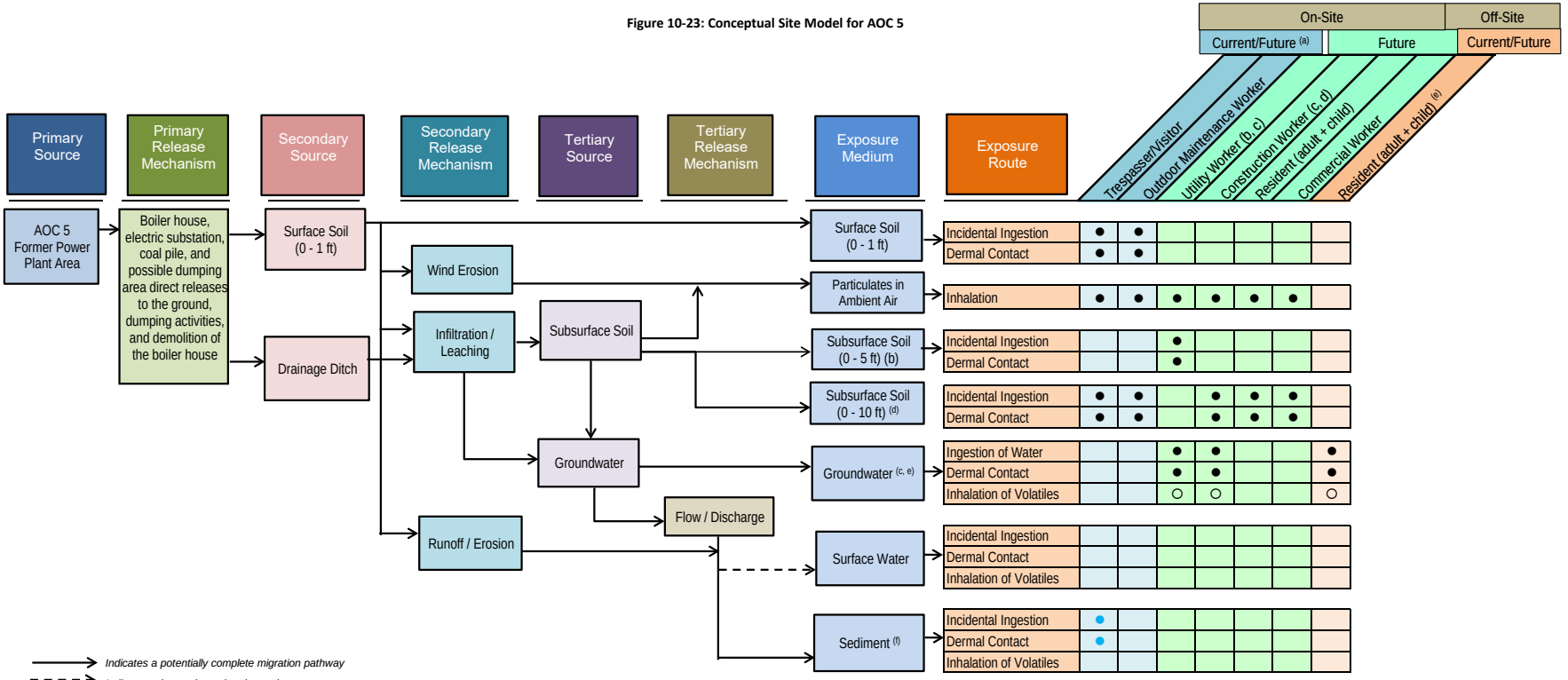
(c) Groundwater on-site is not currently used as a drinking water source as potable water is supplied by the Onondaga County Water Authority; however, some residences in the surrounding area may have private groundwater wells and no restrictions are in place preventing groundwater use in the area as drinking water. Therefore, ingestion and dermal exposures to groundwater used as a drinking water resource is considered potentially complete pathways for the hypothetical residents. There are no VOCs among contaminants of concern; therefore, groundwater exposure via vapor intrusion and/or inhalation of volatiles from groundwater used as drinking water by current or future nearby residents are not considered applicable pathways.

(d) Soil and groundwater samples collected in Phase 1 were nondetect for 2,4-DNCB, 2,4-DNP, and picric acid; therefore, although exposure to surface soil and groundwater may occur, exposures are deemed insignificant. Surface soil sampling during Phase 2 may result in a revised CSM depending on the analytical results.

Acronyms:

2,4-DNP = 2,4-dinitrophenol
2,4-DNCB = 2,4-dinitrochlorobenzene
AOC = area of concern
bgs = below ground surface
COPC = contaminant of potential concern
ft = feet
VOC = volatile organic compound

**Figure 10-23: Conceptual Site Model for AOC 5**




Notes:

(a) Current soil exposures assume no intrusive activities and exposures are associated with COPCs in the surface soil. For future soil exposures, it is assumed that subsurface soils are brought to the surface as a result of construction work during redevelopment of the Site, which would mean that future receptors would be exposed to COPCs in the 0-10 ft range as it is assumed that subsurface soils are brought to the surface and mixed during redevelopment regrading activities.

(b) Utility worker is assumed to be exposed to soil within the 0-5 ft bgs interval while installing or repairing utility lines. The soil is assumed to be placed back in the hole once work has been completed.

(c) The water table is anticipated to be encountered between 2 to 13 ft bgs in the source areas; therefore, utility workers and construction workers are likely to encounter groundwater during an excavation on-Site. The inhalation of volatiles exposure route is deemed complete but insignificant due to ambient air mixing and wind dispersal.

(d) Construction worker is assumed to be exposure to soil within the 0-10 ft bgs interval. Soils at depth are assumed to be mixed with surface soil such that exposure to soils for a future scenario entails contact with soils from 0-10 ft being as this interval would be used to regrade the Site.

(e) Groundwater on-site is not currently used as a drinking water source; however, some residences in the surrounding area may have private groundwater wells and no restrictions are in place preventing groundwater use in the area as drinking water. Therefore, ingestion and dermal exposures to groundwater used as a drinking water resource is considered potentially complete pathways for the hypothetical residents. There is no groundwater USEPA Vapor Intrusion Screening Level (VISL, USEPA, 2022) for 1,2,3-trichlorobenzene because this chemical does not have sufficient inhalation toxicity information. However, the maximum detected 1,2,3-trichlorobenzene concentration is below the 1,2,4-trichlorobenzene VISL(used as a surrogate) for groundwater set to a target risk level of 1E-06 and a hazard quotient of 0.1. Therefore, inhalation exposure is assumed to be insignificant.

(f) Discrete surface soil sampling of hydric soils from wetland areas are planned for the Phase 2 investigation. Standing surface water is not present at the wetlands; therefore, surface water samples will not be collected and hydric soil samples will be evaluated under a sediment exposure scenario.

Acronyms:

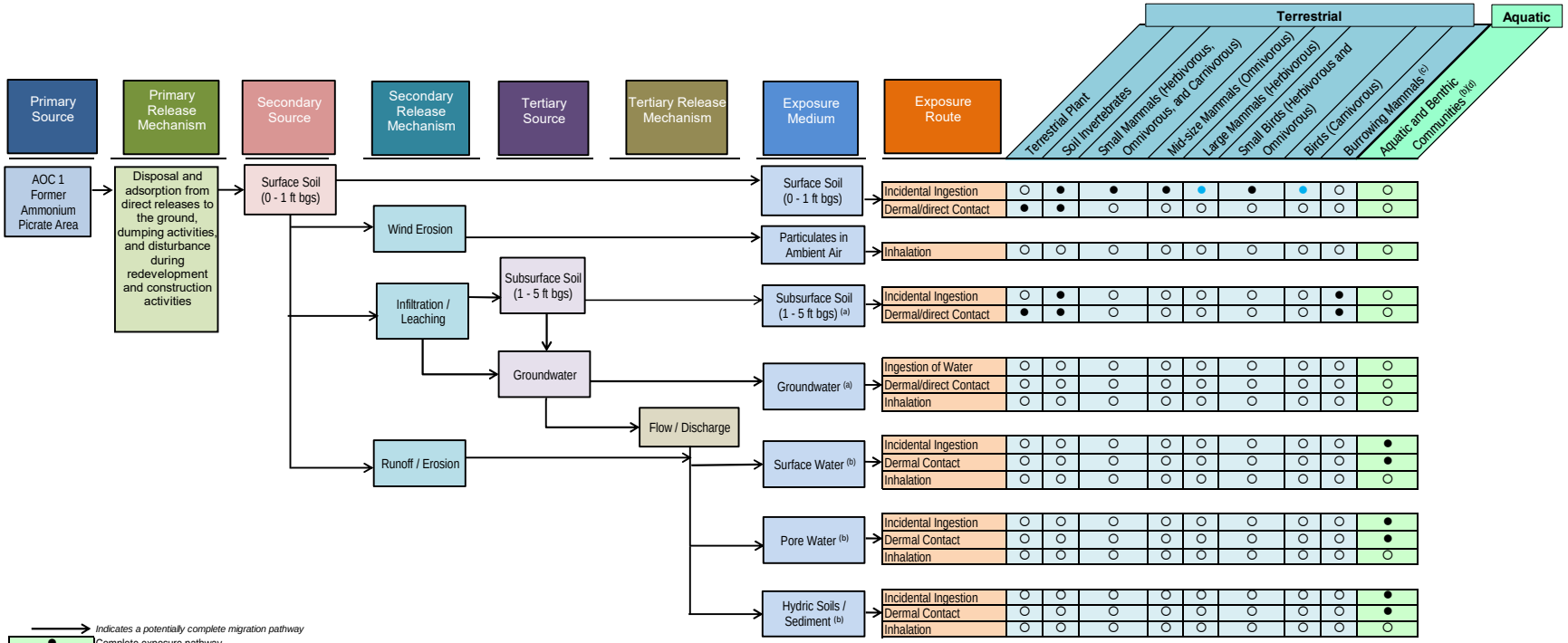
AOC = area of concern

bgs = below ground surface

COPC = contaminant of potential concern

ft = feet

**Figure 10-24 Preliminary Ecological Conceptual Site Model: AOC 1 – Former Ammonium Picrate Area**




Notes:

(a) Chemical concentrations in discrete subsurface soil samples were compared to appropriate ecological screening levels as part of the Phase 1 risk screening (Subsection 5.7) process and will be used to determine the need for additional sampling and subsequent risk evaluation.

(b) Surface water, pore water, and sediment may be sampled as part of a phased assessment of groundwater contamination and will only be considered if DOD-related COPECs identified in groundwater are potentially discharging to nearby wetland areas.

(c) Burrowing mammals are included in the "small mammal" receptor category when considering surface soil exposure.

(d) Habitat Downgradient from the Ammonium Picrate Buildings within AOC 1 - Former Ammonium Picrate Area

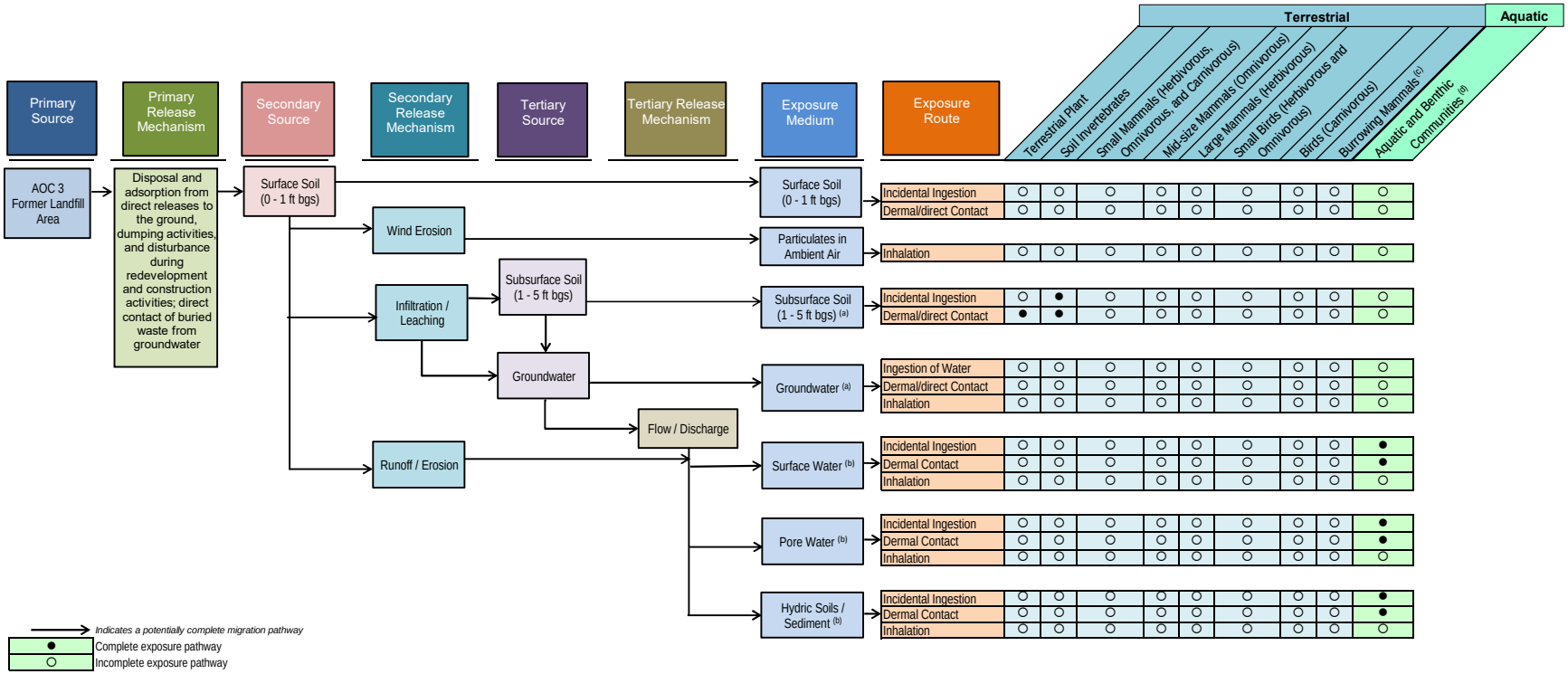
Acronyms:

AOC = area of concern

bgs = below ground surface

ft = feet

**Figure 10-25 Preliminary Ecological Conceptual Site Model: AOC 3 – Former Landfill Area**




Notes:

(a) Chemical concentrations in discrete subsurface soil samples were compared to appropriate ecological screening levels as part of the Phase 1 risk screening (Subsection 5.7) process and will be used to determine the need for additional sampling and subsequent risk evaluation.

(b) Surface water, pore water, and sediment may be sampled as part of a phased assessment of soil and groundwater contamination and will only be considered if DOD-related COPECs identified in soil and groundwater are potentially affecting the unnamed stream north of the landfill.

(c) Burrowing mammals are included in the "small mammal" receptor category when considering surface soil exposure.

(d) Habitat Downgradient from AOC 3 - Former Landfill Area.

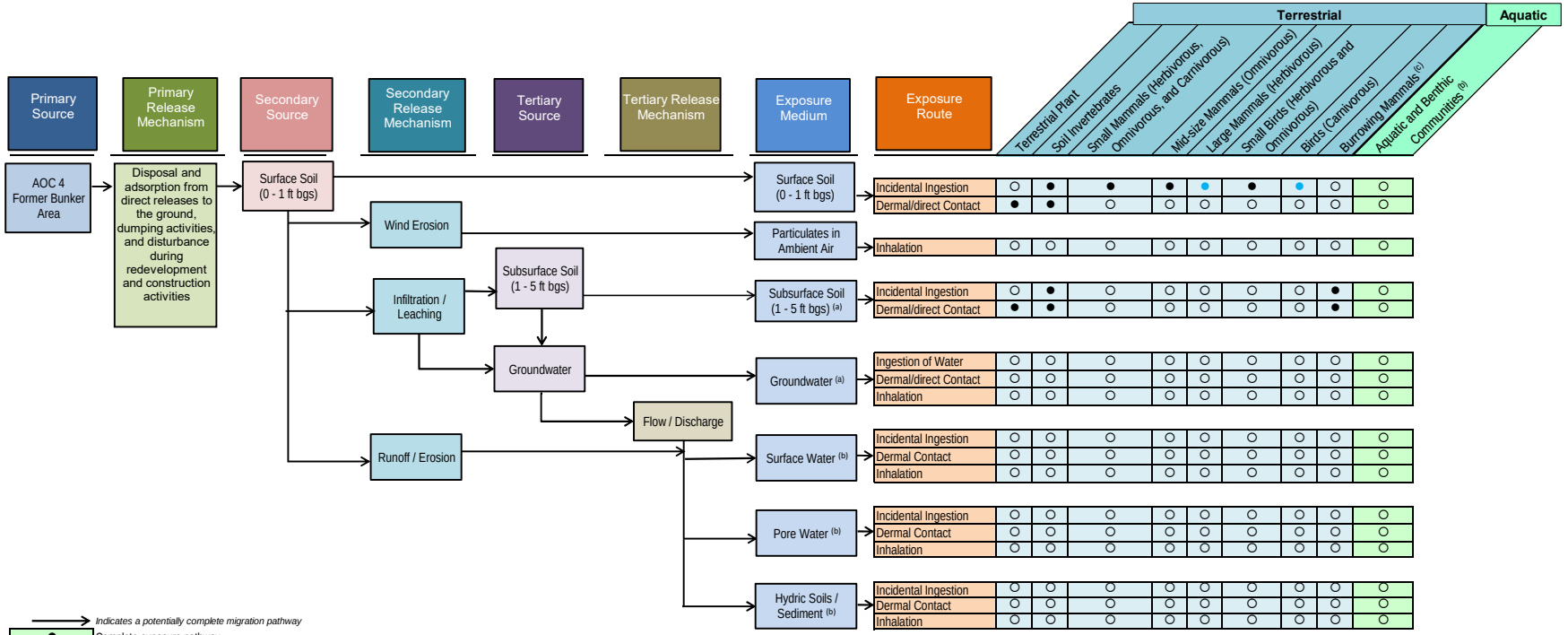
Acronyms:

AOC = area of concern

bgs = below ground surface

ft = feet

**Figure 10-26 Preliminary Ecological Conceptual Site Model: AOC 4 – Former Bunker Area**




Notes:

(a) Chemical concentrations in discrete subsurface soil samples were compared to appropriate ecological screening levels as part of the Phase 1 risk screening (Subsection 5.7) process and will be used to determine the need for additional sampling and subsequent risk evaluation.

(b) Surface water, pore water, and sediment may be sampled as part of a phased assessment of groundwater contamination and will only be considered if DOD-related COPECs identified in groundwater are potentially discharging to nearby wetland areas.

(c) Burrowing mammals are included in the "small mammal" receptor category when considering surface soil exposure.

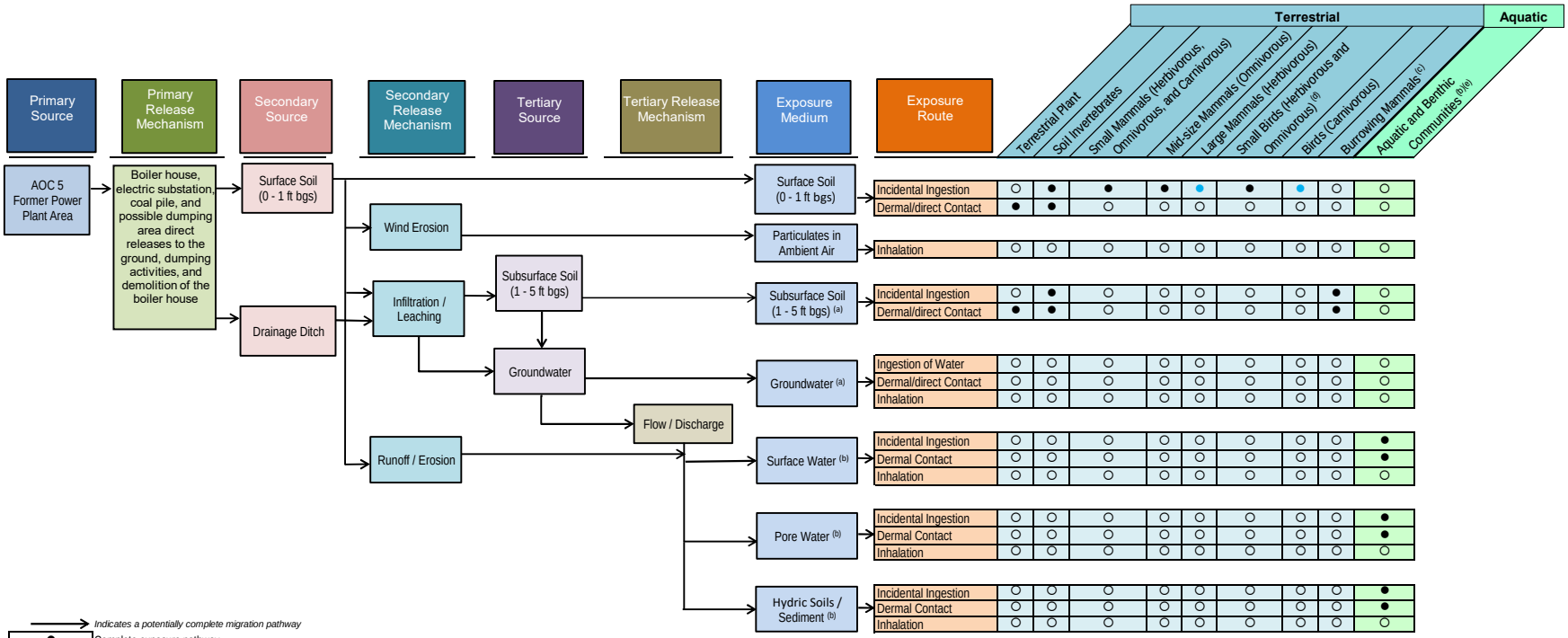
Acronyms:

AOC = area of concern

bgs = below ground surface

ft = feet

**Figure 10-27 Preliminary Ecological Conceptual Site Model: AOC 5 – Former Power Plant Area**




*Indicates a potentially complete migration pathway*

● Complete exposure pathway

○ Incomplete exposure pathway

● Complete but insignificant exposure pathway (note: due to large home range relative to potential site exposure)

Notes:

(a) Chemical concentrations in discrete subsurface soil samples were compared to appropriate ecological screening levels as part of the Phase 1 risk screening (Subsection 5.7) process and will be used to determine the need for additional sampling and subsequent risk evaluation.

(b) Surface water, pore water, and sediment may be sampled as part of a phased assessment of groundwater contamination and will only be considered if DOD-related COPECs identified in groundwater are potentially discharging to nearby wetland areas.

(c) Burrowing mammals are included in the "small mammal" receptor category when considering surface soil exposure.

(d) Based on the risk screening evaluation results presented in Subsection 6.2.2 in the Phase 1 Risk Screening and Data Gaps Analysis report, small birds are not receptors of concern at the Boiler House.

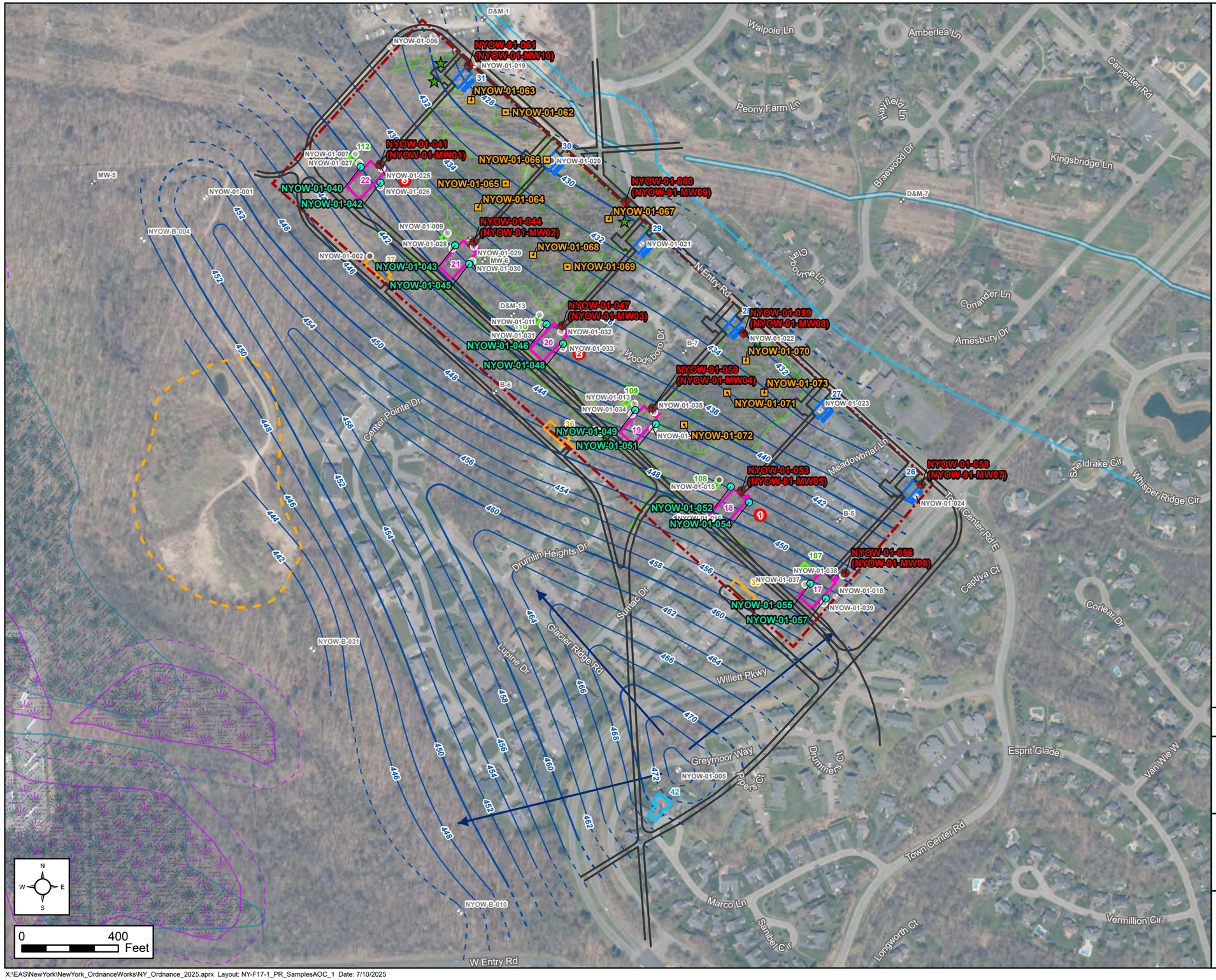
(e) Habitat Downgradient from AOC 5 - Former Power Plant Area

Acronyms:

AOC = area of concern

bgs = below ground surface

ft = feet




Legend

- Monitoring Well

**Phase 2 RI Proposed Locations**

- Soil Boring with Co-located Monitoring Well
- Soil Boring Only
- Surface Soil Only (0-1 ft bgs) Sample

**Phase 1 Sample Locations**

- Temporary Well and Co-located Surface/ Subsurface Soil
- Surface/Subsurface Soil
- Surface Soil

**Groundwater Contour - May 2021**
**Dashed where inferred**

- 10 ft
- 2 ft
- Flow Direction
- Monitoring Well (D&M, 1981, M&E, 1990)
- Extent of Observed Fill
- Decision Unit

**Historic Site Features (Approx.)**

- Historical Site Feature
- Ammonium Picrate Building (APB)
- Ammonium Picrate Magazine
- Change House
- Dryer House
- Former Acid Tank (Not FUDS-Eligible)
- Laboratory Building
- Candidate Vernal Pool (May 2020)
- Former Wastewater Ditch
- Wetland (May 2020)
- USFWS NWI Wetland
- NYS Freshwater Wetland
- NYS Freshwater Wetland 100-ft Buffer

1. Proposed Phase 2 permanent monitoring well locations may move to areas downgradient of corresponding APB permanent monitoring well locations.
2. Historic site features - Site history brochure by RFC, undated
3. Local groundwater flow direction determined by monitoring well gauging in May 2021.
4. Candidate vernal pools and wetlands delineated in May 2020 by WRS.
5. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
6. NHD flowline - USGS, 2019
7. NWI wetlands - USFWS, 1981
8. NYS freshwater wetlands, Onondaga Co. - NYSDEC, 2010
9. Basemap: NYS ITS GIS Program Office 2022 Orthoimagery

# Figure 17-1

## Phase 2 Remedial Investigation Proposed Soil Boring and Monitoring Well Locations AOC 1

**Phase 2 Remedial Investigation**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**July 2025**

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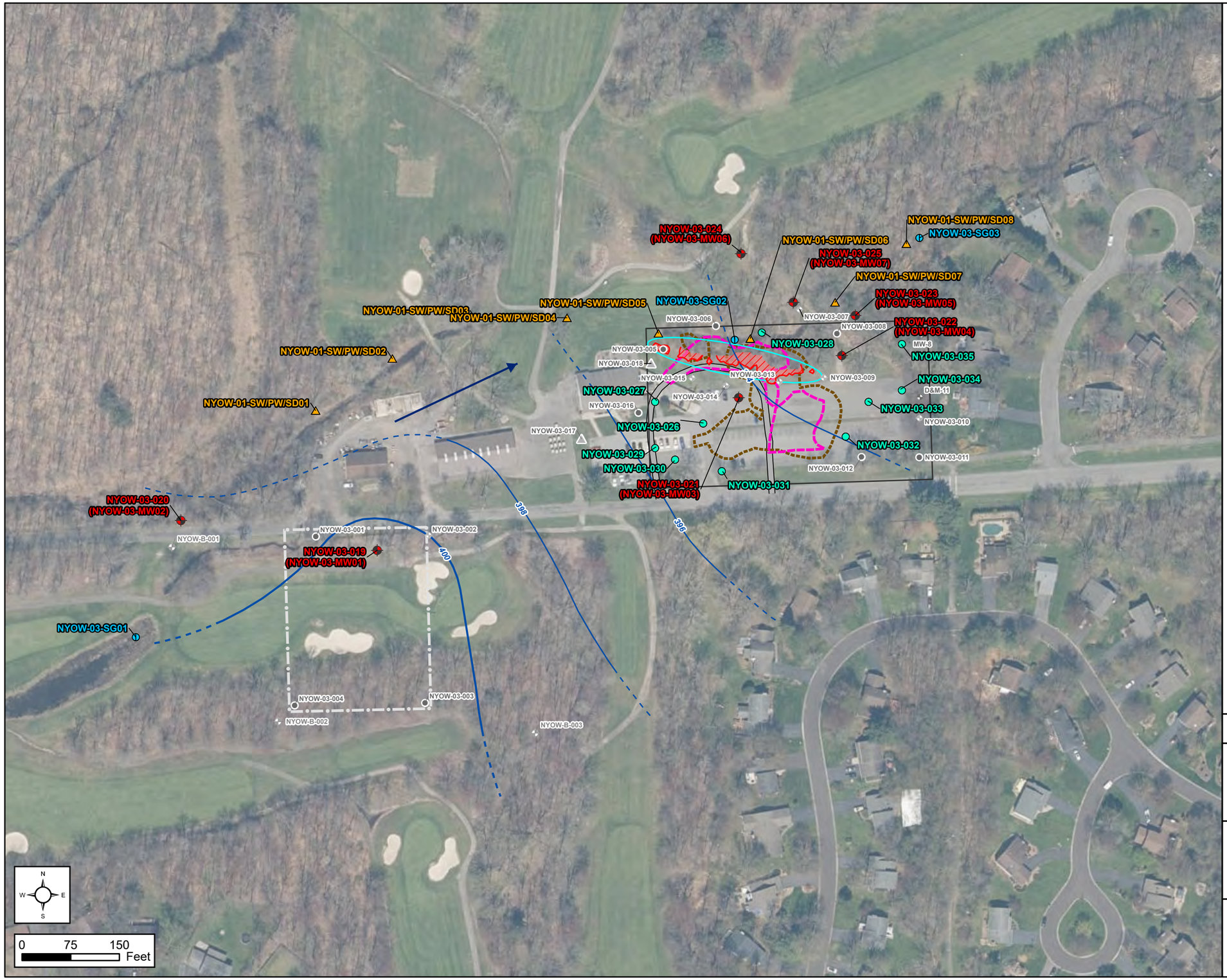


Legend

- Monitoring Well

**Phase 2 RI Proposed Locations**

- Soil Boring with Co-located Monitoring Well
- Soil Boring Only
- Stream/Piezometer
- SW/PW/SD Location

**Phase 1 Sample Locations**

- Temporary Well and Co-located Surface/ Subsurface Soil
- Surface/Subsurface Soil
- Vapor Intrusion

**Groundwater Contour - May 2021**
**Dashed where inferred**

- 10 ft
- 2 ft
- Flow Direction
- Monitoring Well (D&M, 1981, M&E, 1990)
- Elevated Metallic Response
- Suspected Landfill Signature

**Historic Site Features**

- August 1944 Dumping Extent
- Former Open Storage Area
- June 1949 Dumping Extent
- Former Landfill and Area of Concern
- Former U-Road

1. Historic Site Features - NYOW Historical Photographic Analysis Draft Report prepared by USACE Army Geospatial Center, Nov. 2019
2. Local groundwater flow direction determined by monitoring well gauging in May 2021
3. Wetlands delineated in May 2020 by WRS
4. NHD flowline - USGS, 2019
5. NWI wetlands - USFWS, 1981
6. Basemap: NYS ITS GIS Program Office 2022 Orthoimagery

# Figure 17-2

## Phase 2 Remedial Investigation Proposed Soil Boring and Monitoring Well Locations AOC 3

**Phase 2 RI**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**March 2025**

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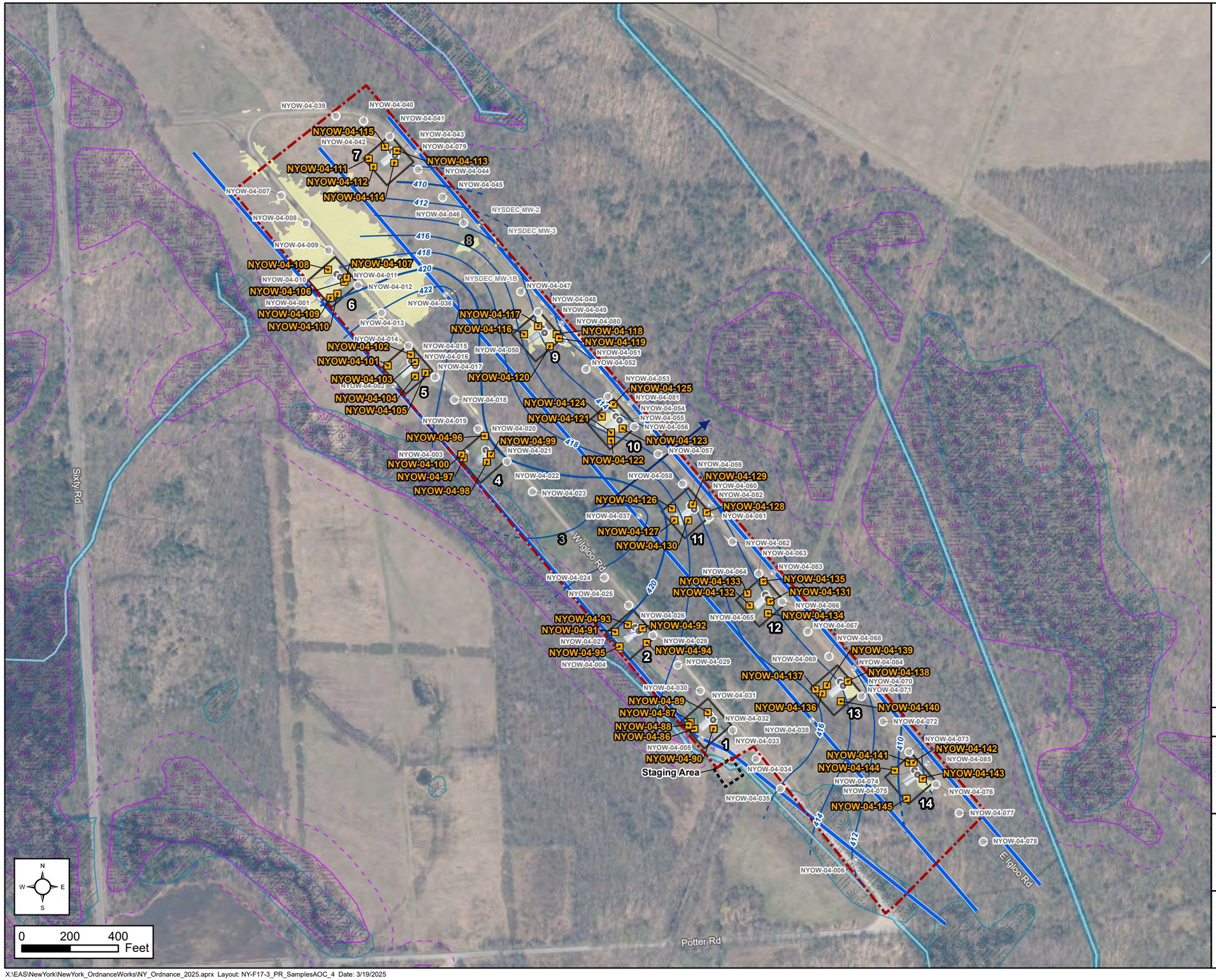



Legend

- Surface Soil Only (0-1 ft bgs) Sample

**Phase 1 Sample Locations**

- Temporary Well and Co-located Surface/Subsurface Soil
- Subsurface Soil at Outlet
- Subsurface Soil in Swale

**Groundwater Contour - May 2021**
**Dashed where inferred**

- 10 ft
- 2 ft
- Flow Direction
- 1 Existing Bunker Number / Sampling Unit
- 8 Former Bunker Number
- Pre-Existing Monitoring Well (NYSDEC, 1990)
- DPT Transect
- Staging Area
- ISM Decision Unit (0.5 acre)
- Decision Unit
- Stream
- Former Wastewater Ditch
- USFWS NWI Wetland
- NYS Freshwater Wetland 100-ft Buffer
- NYS Freshwater Wetland
- Swallow-wort Locations as of Jan 2021

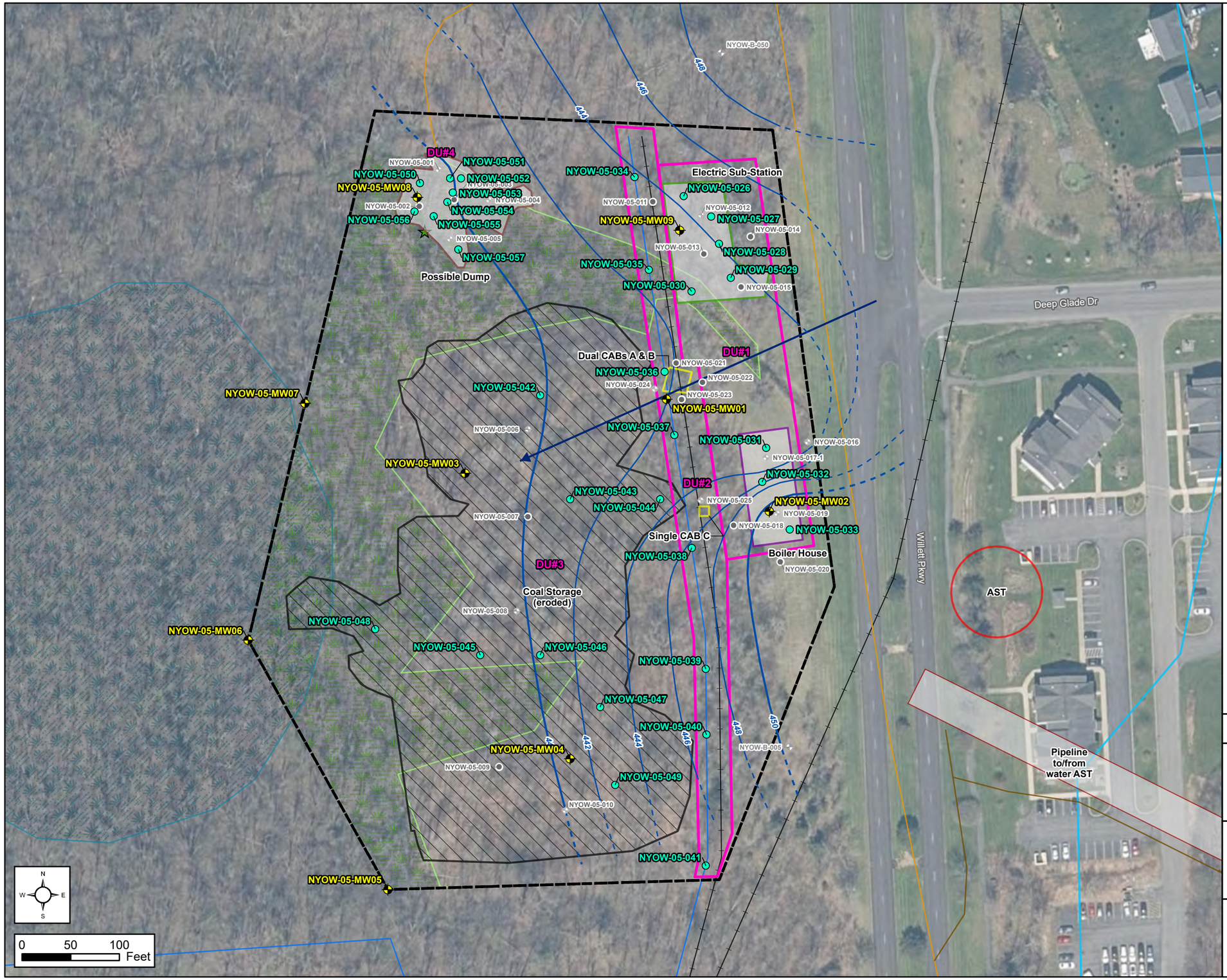
1. Pre-existing monitoring wells - NYSDEC, 1990
2. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
3. NHD flowline - USGS, 2019
4. NWI wetlands - USFWS, 1981
5. NYS freshwater wetlands, Onondaga Co. - NYSDEC, 2010
6. Swallow-wort mapping provided by NYSDEC in Jan. 2021.
7. Basemap: NYS ITS GIS Program Office 2022 Orthoimagery

**Figure 17-3**

# Phase 2 Remedial Investigation Proposed Soil Boring Locations AOC 4

**Phase 2 Remedial Investigation**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**March 2025**

X:\EAS\NewYork\NewYork_OrdnanceWorks\NY_Ordnance_2025.aprx Layout: NY-F17-3_PR_SamplesAOC_4 Date: 3/19/2025




Legend

- Monitoring Well

**Phase 2 RI Proposed Locations**

- Monitoring Well
- Soil Boring Only

**Phase 1 Sample Locations**

- Temporary Well and Co-located Surface/ Subsurface Soil
- Surface/Subsurface Soil

**Groundwater Contour - May 2021**
**Dashed where inferred**

- 10 ft
- 2 ft
- Flow Direction
- Area of Concern (approx.)

**Historic Site Features**

- Drainage Ditch
- Railroad
- Road
- Road - Track
- Aboveground Storage Tank (AST)
- Boiler House
- Coal Aggregate Bin (CAB)
- Coal Storage (Eroded)
- Electric Substation
- Pipeline
- Possible Dump
- Candidate Vernal Pool (May 2020)
- Former Wastewater Ditch
- Wetland (May 2020)
- USFWS NWI Wetland

1. Historic site features provided by USACE in 2019.
2. Former wastewater ditch - RFC, undated; Dames & Moore, 1981
3. Wetland delineation - WRS, May 2020
4. NWI wetlands - USFWS, 1981
5. Basemap: NYS ITS GIS Program Office 2022 Orthoimagery.

**Figure 17-4**

# Phase 2 Remedial Investigation Proposed Soil Boring and Monitoring Well Locations AOC 5

**Phase 2 Remedial Investigation**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**March 2025**

X:\EAS\NewYork\NewYork_OrdnanceWorks\NY_Ordnance_2025.aprx Layout: NY-F17-4_PR_SamplesAOC_5 Date: 3/19/2025

Legend

- Monitoring Well

**Phase 2 RI Proposed Locations**

- Monitoring Well
- Surface Soil Only (0-1 ft bgs) Sample
- Area of Concern (approx.)
- Candidate Vernal Pool (May 2020)
- Former Wastewater Ditch
- Wetland (May 2020)
- USFWS NWI Wetland

1. Historic site features provided by USACE in 2019.
2. Former wastewater ditch - RFC, undated; Dames & Moore, 1981
3. Wetland delineation - WRS, May 2020
4. NWI wetlands - USFWS, 1981
5. Basemap: NYS ITS GIS Program Office 2022 Orthoimagery.

**Figure 17-5**

# Phase 2 Remedial Investigation Proposed Soil Boring and Monitoring Well Locations AOC 5 - Downgradient

**Phase 2 Remedial Investigation**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**July 2025**

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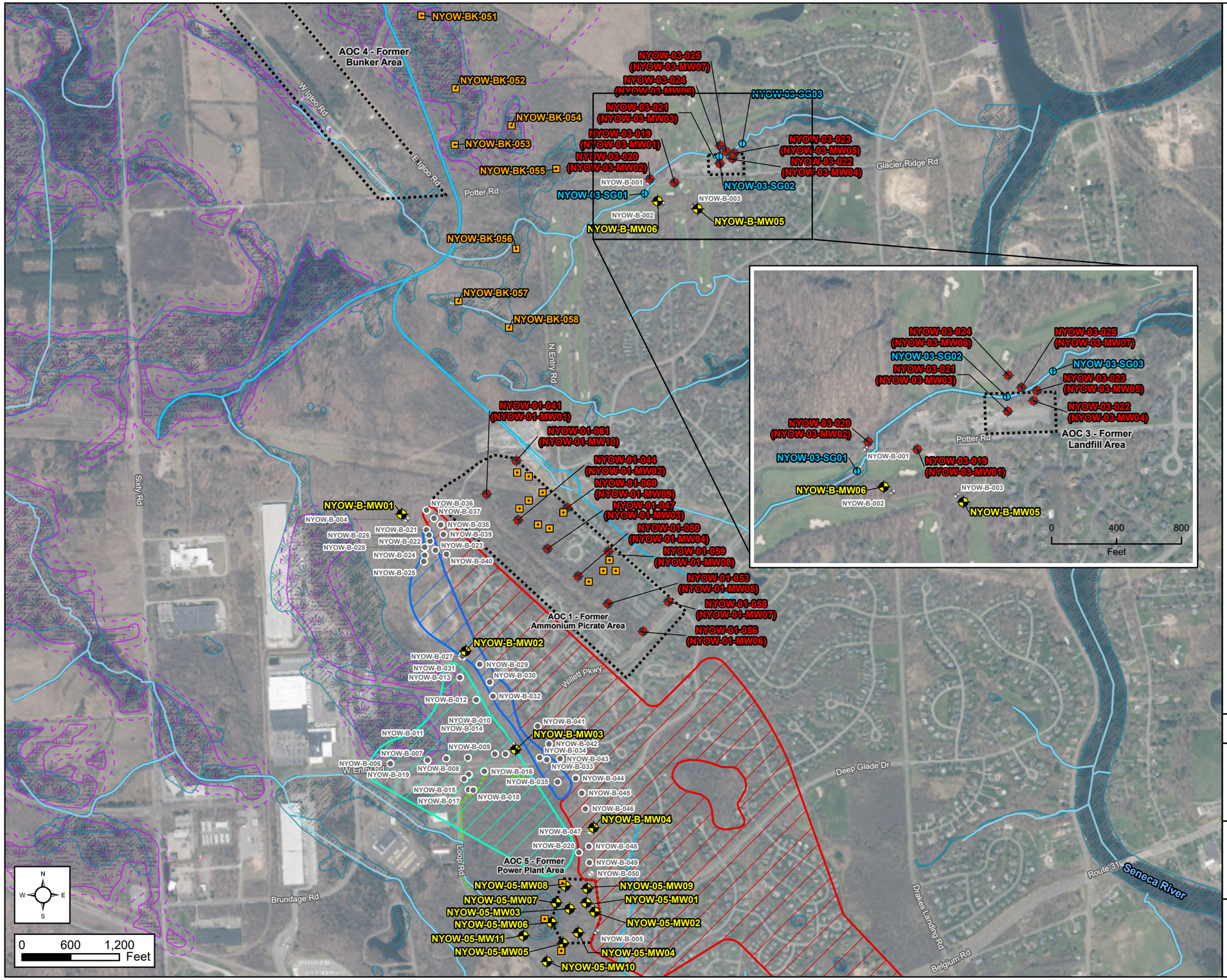


Legend

**Phase 2 RI Proposed Locations**

- Monitoring Well
- Soil Boring with Co-located Monitoring Well
- Stream Piezometer
- Surface Soil Only (0-1 ft bgs) Sample

**Phase 1 Sample Locations**

- Temporary Well
- Temporary Well and Co-located Surface/ Subsurface Soil
- Surface/Subsurface Soil

**Proposed Background Sample Areas Based on Historic Soil Distribution (Pair, 2014)**

- Pd Unit - Diamicton
- Ps Unit - Stratified silt, sand, and gravel
- 15 Surface and 15 Subsurface Soil Samples (Radisson Area, Psc Unit)
- Area of Concern (approx.)
- Former Wastewater Ditch
- Stream
- Approximate Edge of Wetland
- USFWS NWI Wetland
- NYS Freshwater Wetland 100-ft Buffer
- NYS Freshwater Wetland

1. Surficial Geology of the Baldwinsville 7.5-Minute Quadrangle - Pair, 2014
2. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
3. NHD flowline - USGS, 2019
4. NWI wetlands - USFWS, 1981
5. NYS freshwater wetlands, Onondaga Co. - NYSDEC, 2010
6. Basemap: NYS ITS GIS Program Office 2022 Orthoimagery

**Figure 17-6**

# Phase 2 Remedial Investigation Proposed Monitoring Well and Soil Sample Locations Background

**Phase 2 Remedial Investigation**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**July 2025**

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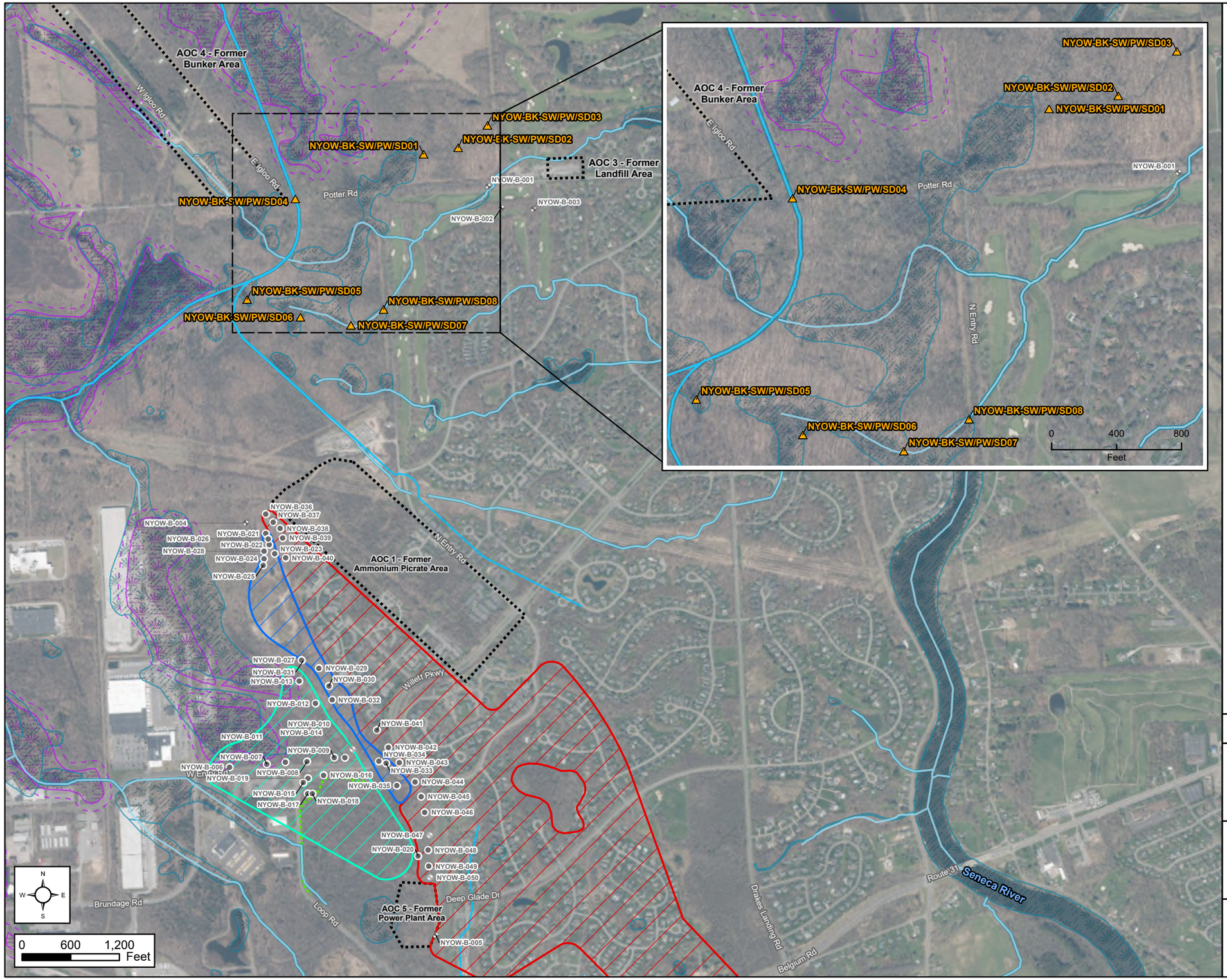


Legend

**Phase 2 RI Proposed Locations**

- SW/PW/SD Location

**Phase 1 Sample Locations**

- Temporary Well
- Temporary Well and Co-located Surface/ Subsurface Soil
- Surface/Subsurface Soil

**Proposed Background Sample Areas Based on Historic Soil Distribution (Pair, 2014)**

- Pd Unit - Diamicton
- Ps Unit - Stratified silt, sand, and gravel
- 15 Surface and 15 Subsurface Soil Samples (Radisson Area, Psc Unit)
- Area of Concern (approx.)
- Former Wastewater Ditch
- Stream
- Approximate Edge of Wetland
- USFWS NWI Wetland
- NYS Freshwater Wetland 100-ft Buffer
- NYS Freshwater Wetland

1. Surficial Geology of the Baldwinsville 7.5-Minute Quadrangle - Pair, 2014
2. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
3. NHD flowline - USGS, 2019
4. NWI wetlands - USFWS, 1981
5. NYS freshwater wetlands, Onondaga Co. - NYSDEC, 2010
6. Basemap: NYS ITS GIS Program Office 2022 Orthoimagery

**Figure 17-7**

# Phase 2 Remedial Investigation Proposed Surface Water, Porewater, Sediment Sample Locations Background

**Phase 2 Remedial Investigation**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**July 2025**

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# Appendices

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# Appendix A  Phase 1 RI Risk Screening and Data Gap Analysis

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# PHASE 1 RISK SCREENING AND DATA GAPS ANALYSIS

# FORMER NEW YORK ORDNANCE WORKS
# FORMERLY USED DEFENSE SITE
# BALDWINSVILLE, NEW YORK

## VOLUME 1 – TEXT, FIGURES, AND TABLES

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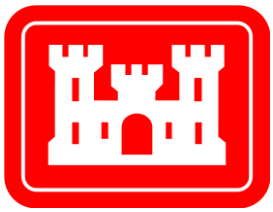

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Concord, Massachusetts 01742

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# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| 2,4-DNCB | 2,4-Dinitrochlorobenzene |
| 2,4-DNP | 2,4-Dinitrophenol |
| ADR | Automated Data Review |
| Al | Aluminum |
| AMSL | Above Mean Sea Level |
| an/(an+ph) | anthracene/(anthrancene+phenanthrene) |
| ANCOVA | Analysis of Covariance |
| AOC | Area of Concern |
| ASTM | American Society for Testing and Materials |
| B/N | Base Neutral |
| BaA/(BaA+chry) | benzo(a)anthracene/(benzo(a)anthracene+chrysene) |
| BH | Benjamini-Hochberg |
| Bluestone | Bluestone Environmental Group, Inc. |
| BNASIM | Base/Neutral/Acid Extractable Compounds by Selective Ion Monitoring |
| BTV | Background Threshold Value |
| CCV | Continuing Calibration Verification |
| CEC | Cation Exchange Capacity |
| CENAE | New England District |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| COPC | Constituent of Potential Concern |
| COPEC | Constituent of Potential Ecological Concern |
| CSM | Conceptual Site Model |
| DERP | Defense Environmental Restoration Program |
| DL | Detection Limit |
| DNT | Dinitrotoluene |
| DO | Dissolved Oxygen |
| DoD | Department of Defense |
| DPT | Direct Push Technology |
| DQI | Data Quality Indicator |
| DQO | Data Quality Objective |
| DU | Decision Unit |
| DUA | Data Usability Assessment |
| Eco-SSL | Ecological Soil Screening Level |
| Eh | Redox Potential |
| EM | Electromagnetic |
| EM-31 | Geonics EM-31 MKII Terrain Conductivity Meter |
| EM-61 | Geonics EM-61 MKII Metal Detector |
| EMCX | Environmental and Munitions Center of Expertise |
| EPA | United States Environmental Protection Agency |
| EPC | Exposure Point Concentration |
| ESD | Empire State Development |
| ESL | Ecological Screening Level |
| EU | Exposure Unit |

## ACRONYMS AND ABBREVIATIONS, CONTINUED

| | |
|---|---|
| FD | Field Duplicate |
| FDR | False Discovery Rate |
| Fe | Iron |
| ft bgs | feet below ground surface |
| fla/(fla+py) | fluoranthene/(fluoranthene+pyrene) |
| FOD | Frequency of Detection |
| FR | Field Replicate |
| FS | Feasibility Study |
| FUDS | Formerly Used Defense Site |
| FUDSChem | Formerly Used Defense Sites Chemical |
| FWER | family-wise error |
| g | grams |
| GPR | Ground Penetrating Radar |
| Hg | Mercury |
| HMW | High Molecular Weight |
| HQ | Hazard Quotient |
| HSD | Honestly Significant Difference |
| ICP | Inductively Coupled Plasma |
| ICP-MS | Inductively Coupled Plasma-Mass Spectrometry |
| IDW | Investigation-Derived Waste |
| ISM | Incremental Sampling Methodology |
| ITRC | Interstate Technology and Regulatory Council |
| KM | Kaplan-Meier |
| LANL | Los Alamos National Laboratory |
| LCS | Laboratory Control Spike |
| LCSD | Laboratory Control Spike Duplicate |
| LCSSRM | Laboratory Control Spike Solid Reference Material |
| LMW | Low Molecular Weight |
| LOD | Limit of Detection |
| LOQ | Limit of Quantitation |
| MDC | Maximum Detected Concentration |
| meq/100g | milliequivalents per 100 grams of soil |
| mL | milliliter |
| MPC | Measurement Performance Criteria |
| MQO | Measurement Quality Objective |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| NCBI | National Center for Biotechnology Information |
| NTU | Nephelometric Turbidity Unit |
| NYOW | New York Ordnance Works |
| NYS | New York State |
| NYSDEC | New York State Department of Environmental Conservation |
| ORP | Oxidation Reduction Potential |

## ACRONYMS AND ABBREVIATIONS, CONTINUED

| | |
|---|---|
| OSWER | Office of Solid Waste and Emergency Response |
| PAH | Polycyclic Aromatic Hydrocarbon |
| PAL | Project Action Limit |
| PCB | Polychlorinated Biphenyl |
| Pd | Diamicton (till) |
| PDT | Project Delivery Team |
| PEM | Palustrine Emergent Wetland |
| PFO | Palustrine Forested Wetland |
| PP | Proposed Plan |
| PPRTV | Provisional Peer-Reviewed Toxicity Values |
| Ps | Sorted Sand and Gravel |
| Psc | Lacustrine Silt and Clay |
| QA | Quality Assurance |
| QC | Quality Control |
| QSM | Quality Systems Manual |
| RCRA | Resource Conservation and Recovery Act |
| RI | Remedial Investigation |
| ROE | Right of Entry |
| RPD | Relative Percent Difference |
| RSL | Regional Screening Level |
| SDG | Sample Delivery Group |
| SDS | Safety Data Sheets |
| SEDD | Staged Electronic Data Deliverable |
| SI | Site Investigation |
| SOP | Standard Operating Procedure |
| SPE | Solid Phase Extraction |
| SU | Sampling Unit |
| SVOC | Semi-Volatile Organic Compound |
| RAGS | Risk Assessment Guidance for Superfund |
| TRC | Target Cancer Risk |
| TEST | Toxicity Estimation Software Tool |
| TOC | Total Organic Carbon |
| UCL | Upper Confidence Limit |
| UFP-QAPP | Uniform Federal Policy-Quality Assurance Project Plan |
| UPL | Upper Prediction Limit |
| UTL | Upper Tolerance Limit |
| USACE | United States Army Corps of Engineers |
| VI | Vapor Intrusion |
| VISL | Vapor Intrusion Screening Level |
| VOC | Volatile Organic Compound |
| WMA | Wildlife Management Area |
| WQP | Water Quality Parameter |
| % | Percent |

## ACRONYMS AND ABBREVIATIONS, CONTINUED

| | |
|---|---|
| µg/L | microgram per liter |

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# 1.0 INTRODUCTION

Bluestone Environmental Group, Inc. (Bluestone) was tasked by the United States Army Corps of Engineers (USACE), New England District (CENAE) under Contract Number W912WJ-19-D-0001, Task Order W912WJ19F0056 to complete Remedial Investigation (RI), Feasibility Study (FS), Proposed Plan (PP) and Decision Document (DD) activities at the Former New York Ordnance Works (NYOW), Formerly Used Defense Site (FUDS) in Baldwinsville, New York (Property No. C02NY0290).

This report presents the Data Usability Assessment, Phase 1 Risk Screenings, and Data Gaps Analysis for Areas of Concern (AOCs) 1, 3, 4, and 5 and is based on the data collected during the RI Phase 1 field investigations. RI Phase 1 field investigations were completed in 2021 and were detailed in the *Final RI Phase 1 Field Report – AOC 4 and AOC 5* (USACE, 2021) and the *Final RI Phase 1 Field Report – AOCs 1, 3, 4 ISM, and Background* (USACE, 2022). The available data are discussed in more detail in **Section 2** of this report. Recommendations also are presented herein for additional RI field activities (i.e., Phase 2). An RI Report will be prepared upon the completion of all field activities.

The report objectives, approach, and organization are presented below.

## 1.1 OBJECTIVES

The objectives of this report are as follows.

- Assess the usability of the analytical data collected as part of the Phase 1 field investigations.
- Assess if any Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) constituents related to historical Department of Defense (DoD) activities are present, and if these constituents are present above risk-based screening levels and background concentrations.
- Identify potential source areas and/or areas of higher concentrations.
- Focus additional fieldwork to collect data for an RI and to meet risk assessment-related Data Quality Objectives (DQOs) if potential impacts from DoD-related constituents are indicated.

Whether these objectives were met is discussed in **Subsection 8.1**.

## 1.2 APPROACH

The Phase 1 Risk Screening approach was developed in conjunction with the New York Ordnance Works (NYOW) Site USACE project delivery team (PDT) and Environmental and Munitions Center of Expertise (EMCX). The *New York Ordnance Works Phase 1 Risk Screening Approach Technical Memorandum, Final* (Bluestone, 2022) is included as **Appendix A** of this document.

Prior to implementing the RI Phase 1 Risk Screening approach, the usability of the data was determined in accordance with the project's Uniform Federal Policy-Quality Assurance Project Plan (UFP-QAPP) Worksheet #37, *Data Usability Assessment* (DUA; USACE, 2020). The DUA is included as **Appendix B** of this document and is summarized in **Subsection 3.2**.

## 1.3 REPORT ORGANIZATION

The remainder of this report is organized as follows:

- Section 2 – Available Data
- Section 3 – Data Usability Summary
- Section 4 – Data Reduction
- Section 5 – Risk Screenings
- Section 6 – Risk Screening Results and Discussion
- Section 7 – Conceptual Site Model Update
- Section 8 – Data Gaps Analysis
- Section 9 – Recommendations for Phase 2
- Section 10 – References

# 2.0 AVAILABLE DATA

Historical chemistry data are available for the Site from reports ranging from 1981 through 2008. During writing of the *Uniform Federal Policy for Quality Assurance Project Plan* (UFP-QAPP) (USACE, 2020), it was determined that those data are of limited use due to issues associated with their age (e.g., comparability with recently collected data). Therefore, only data collected during the Phase 1 field efforts are included in this Phase 1 Risk Screening and Data Gaps Analysis. The Phase 1 field collection efforts were completed in 2021 as follows.

1) January 2021 – AOC 5;
2) February 2021 – AOC 4, discrete sampling;
3) March/April 2021 – AOCs 1 and 3;
4) May 2021 – Background and investigation-derived waste (IDW); and
5) June 2021 – AOC 4, incremental sampling methodology (ISM) sampling.

The locations of the AOCs and background sample areas with respect to the entire NYOW Site are provided on **Figure 2-1**. **Figures 2-2 through 2-10** show all Phase 1 sample locations. All work was completed in accordance with applicable Federal, State, and local regulations, as well as industry standards and best management practices. In general, samples were collected and analyzed in accordance with the *Final Uniform UFP-QAPP* (USACE, 2020), with any deviations noted in the *RI Phase 1 Field Report – AOC 4 and AOC 5* (USACE, 2021) or *RI Phase 1 Field Report – AOCs 1,3, 4 ISM, and Background* (USACE, 2022), as applicable.

Field documents, field data, and laboratory data were loaded into and managed within the Formerly Used Defense Sites Chemical (FUDSChem) database.

Separate screenings (described in **Section 5**) were conducted for each of the following four AOCs:

- Ammonium Picrate Area (AOC 1);
- Former Landfill Area (AOC 3);
- Bunker Area (AOC 4); and
- Former Power Plant Area (AOC 5).

For AOC 4, the surface soil data from the discrete and ISM samples were screened separately.

AOC 5 was divided into five subareas based on historical use and potential source areas as follows:

- Boiler House;
- Coal Aggregate Bins;
- Coal Storage Area;
- Electric Substation; and
- Possible Dump.

With the exception of ISM samples collected from surface soil (0 to 1 feet below ground surface [ft bgs]) in the bunker aprons of AOC 4, all samples collected were discrete soil samples collected from 0 to 10 ft bgs (i.e., 0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs). ISM data were not collected from the same sampling units as the discrete samples and were screened independently of data collected using conventional discrete

samples. Refer to **Section 5** for more details on the screening approach. If, in the future, based on the Phase 1 Risk Screening and data gaps analysis, ISM samples were to be collected from a sampling unit (SU) overlapping existing discrete samples used in the Phase 1 risk screening, only the ISM results would be evaluated in the risk assessment (USACE, 2020).

**Table 2-1** summarizes the number of samples per medium (and depth interval for soils) available for use in this Phase 1 Risk Screening and Data Gaps Analysis for each AOC and the background area. **Tables 2-2** through **2-6** present the analyses conducted per sample, for each AOC and background. Soil and groundwater analytical results presented in this Phase 1 Risk Screening and Data Gaps Analysis are based on validated data that were subjected to data reduction steps outlined in **Section 4**. Validated analytical results without the data reduction steps applied are presented as appendices to the field investigation reports (USACE, 2021 and 2022) and are not presented herein.

Five primary surface soil samples were collected at two AOC 5 subareas, the Coal Aggregate Bins and Coal Storage Area, and analyzed for coal and coal ash by a combination of microscopy techniques for a total of ten primary samples at AOC 5 (plus one duplicate sample). Coal was detected in moderate to very heavy concentrations in all samples submitted for analysis, excluding sample NYOW-05-SL022-A (in the Coal Aggregate Bins subarea). Coal ash was detected in trace to moderate concentrations in samples NYOW-05-SL022-A and NYOW-05-SL024-A in the Coal Aggregate Bins subarea. Coal ash results are further evaluated in **Section 8.1.3**, to aid in the interpretation of polycyclic aromatic hydrocarbon (PAH) concentrations detected within AOC 5.

To facilitate determining appropriate background datasets for the Site, geologic units for each sample were determined. Soil geologic groupings presented within correspond with the final boring logs submitted to CENAE on 10 February 2022. The Site has three distinct surface geologic units (lacustrine silt and clay [Psc]; sorted sand and gravel [Ps]; and diamicton (till) [Pd]). The surface soil interval (i.e., 0 to 1 ft bgs) is categorized as topsoil. Geologic units assigned to the soil borings are presented in **Table 2-7**. **Table 2-8** presents a summary of the geologic unit distribution. The AOC 4 groupings are included for informational purposes only. The DoD-specific compounds of concern in AOC 4 are explosives and explosives do not represent a background condition; therefore, AOC 4 will not be compared to background. The significance of the geology will be discussed in the RI.

Two background sample borings (NYOW-B-047 and NYOW-B-048) were determined to be fill due to the presence of non-native materials, such as brick and concrete fragments, in the shallow interval above the native soil. Fill in borings appears to be indicative of localized backfilling or grading activities, as opposed to landfilling or dumping activities. Samples from borings in fill were excluded from the dataset used to calculate background threshold values (BTVs) as they may contain concentrations not representative of native soil.

# 3.0 DATA USABILITY

## 3.1 DATA VALIDATION

Analytical data were uploaded to FUDSChem by Eurofins/TestAmerica and then validated by Bluestone. Data validation was performed in accordance with the *U.S. Department of Defense (DoD) General Data Validation Guidelines* (16 September 2019), the *DoD Data Validation Guidelines Module 1* (11 May 2020), the United States Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January, 2017), the EPA's *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January, 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (UFP-QAPP) (USACE, 2020), and the specifics of the methods employed. Data validation reports were generated for all laboratory analytical data upon completion of the review. Data validation reports are included in **Appendix B**.

Bluestone's data validation was performed to conform with Stage 2B guidelines as defined by EPA in *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*, EPA 540-R-08-005 for combined automated and manual data verification and validation. Automated data review was performed using the Automated Data Review (ADR) module in FUDSChem for all quality control summary results as provided by the Laboratory in the Staged Electronic Data Deliverable (SEDD) files submitted with the data packages. No calibration information is included in this file format; therefore, all calibrations (initial and continuing) were evaluated manually. Sample results for grain size distribution and cation exchange capacity (CEC) underwent Stage 1 manual validation.

## 3.2 DATA USABILITY ASSESSMENT SUMMARY

The purpose of the DUA report is to determine if the DQOs outlined in the UFP-QAPP (USACE, 2020) were met. The laboratory sample delivery groups (SDGs) that are included in the data usability assessment for each investigation are listed in **Appendix B**. In accordance with Worksheet #37 (DUA) of the UFP-QAPP, the DUA included the following elements:

- Data Collection Objective and Sampling Design – determine whether the collected data are of the right type and quantity to support decision-making for the project.
- Data Quality Indicator (DQI) Evaluation – evaluate data quality indicators (precision, accuracy/bias, representativeness, comparability, completeness, and sensitivity).
- Statistical Method Evaluation – verify whether the underlying assumptions for the selected statistical method are valid; consider the consequences for selecting the incorrect alternative and/or the tolerance for uncertainty in measurements.
- Conclusions – describe how data quality issues will be addressed and how limitations of the use of the data will be handled.

### 3.2.1 AOC 1 DUA Findings

Based on this assessment of DQIs for AOC 1, the data obtained during the site investigation are of sufficient quantity and quality to support the Phase 1 investigation and human health and ecological risk screenings (**Appendix B Section 2.1.3**). Furthermore, the quantity and quality of data are sufficient to update the conceptual site model (CSM) and support the identification of data gaps. The rejected surface soil result for

2,4-dinitrophenol (DNP) in AOC 1 does not affect the overall usability of the dataset. A description of the findings that may affect future RI activities at AOC 1 is presented below. All findings associated with accuracy are presented in **Appendix B**; however, the findings presented below are limited to those affecting greater than 20% of results to focus the evaluation of data gaps. The findings presented below offer only a general assessment of precision; all findings associated with precision are presented in **Appendix B**.

Surface and Subsurface Soil Findings

1. Samples were not collected at two locations (NYOW-01-003 and NYOW-01-004) because Bluestone did not have right-of-entry (ROE) for either property. These borings could not be relocated and may represent an existing data gap.
2. Soil sample heterogeneity was documented through the analysis of field duplicate (FD) and matrix spike/matrix spike duplicate (MS/MSD) sample pairs, affecting primarily metals and TOC in surface soil and subsurface soil. Soil heterogeneity is defined as a parent/FD relative percent difference (RPD) greater than 50%, MS/MSD RPD for metals greater than 20%, or MS/MSD RPD for TOC greater than 20%. The specific FD and RPD outliers identified during data validation are presented in **Appendix B Section 2.2.1.3**. Uncertainty related to soil sample heterogeneity should be considered and options to improve soil characterization and support the calculation of representative mean sample concentrations for metals should be identified.
3. 2,4-Dinitrochlorobenzene (DNCB) in surface soil had low bias attributable to low surrogate recoveries at a frequency greater than 20% of samples (8 in 30 samples, or 27%). 2,4-DNCB in subsurface soil also had low bias attributable to low surrogate recoveries at a frequency greater than 20% of samples (6 in 22 samples, or 27%). There was no obvious indication that chromatographic interference was responsible for the low recoveries based on a review of the sample chromatograms and the data are considered usable; however, suppressed recoveries may be attributable to sample matrix. The extraction efficiency of EPA Method 3546 is comparable or better than other available methods; therefore, the selected extraction method may be retained for future sampling events.
4. All of the 2,4-DNP surface and subsurface soil sample results were non-detect, with the limits of quantitation (LOQs) and limits of detection (LODs) greater than the ecological Project Action Limits (PALs). One surface soil sample had a positive detection for picric acid; the remaining surface and subsurface soil results were non-detect, with the LOQs and LODs greater than the PAL. The PALs for 2,4-DNP and picric acid are not attainable with contemporary analytical methodology; exceedances of these PALs were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020). See **Subsection 5.1.2** for a discussion of how data with LOQs greater than the PALs were treated in the Phase 1 Risk Screening.

Groundwater Findings

1. The planned groundwater sample from NYOW-01-003 could not be collected because Bluestone did not have ROE for the property. The unsampled location may represent a data gap.
2. At AOC 1, all of the 2,4-DNP groundwater sample results were non-detect, with the LOQ and LOD greater than the PAL. The PAL for 2,4-DNP is not attainable with contemporary analytical methodology; exceedances of the PAL were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020). The PALs for all metal analytes in groundwater were met by the

LOQs, with the exception of antimony, arsenic, cadmium, mercury, nickel, selenium, silver, thallium, and vanadium. Of those analytes, the PALs were met by the LODs for nickel, silver, and vanadium. Cadmium and selenium were analyzed by Method 6010C; changing to Method 6020A may be warranted for future sampling events to improve analytical sensitivity. See **Subsection 5.1.2** for a discussion of how data with LOQs greater than the PALs were treated in the Phase 1 Risk Screening.

### 3.2.2 AOC 3 DUA Findings

Based on this assessment of DQIs for AOC 3, the data obtained during the site investigation are of sufficient quantity and quality to support the Phase 1 investigation and human health and ecological risk screenings (**Appendix B Section 2.1.4**). Furthermore, the quantity and quality of data are sufficient to update the CSM and support the identification of data gaps. A description of the findings that may affect future RI activities at AOC 3 is presented below. The findings presented below offer only a general assessment of precision; all findings associated with precision are presented in **Appendix B**.

Surface and Subsurface Soil Findings

1. Soil sample heterogeneity was documented through the analysis of FD and MS/MSD sample pairs, affecting primarily PAHs in surface soil and PAHs and metals in subsurface soil. Soil heterogeneity is defined as a parent/FD RPD greater than 50%, MS/MSD RPD for metals greater than 20%, or MS/MSD RPD for PAHs greater than 40%. The specific FD and RPD outliers identified during data validation are presented in **Appendix B Section 2.2.1.4**. Heterogeneity can result in over- or underestimating contaminant concentrations and lead to decision errors. Uncertainty related to soil sample heterogeneity should be considered and options to improve soil characterization and support the calculation of representative mean sample concentrations for PAHs and metals should be identified.

2. Due to their clay matrix, eight of the 32 (25%) soil samples collected from AOC 3 could not be thoroughly homogenized by the laboratory before sub-sampling and extraction for polychlorinated biphenyls (PCBs), semi-volatile organic compound (SVOC), and PAH analyses were performed. Heterogeneity can result in over- or underestimating contaminant concentrations and lead to decision errors. Uncertainty related to soil sample heterogeneity should be considered and options to improve soil characterization and support the calculation of representative mean sample concentrations for PCBs, SVOCs, and PAHs should be identified.

3. All of the 2,4-DNP and picric acid surface and subsurface soil sample results were non-detect, with the LOQs and LODs greater than the ecological PALs. The PALs for 2,4-DNP and picric acid are not attainable with contemporary analytical methodology; exceedances of these PALs were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020). See **Subsection 5.1.2** for a discussion of how data with LOQs greater than the PALs were treated in the Phase 1 Risk Screening.

Groundwater Findings

1. The PALs for all PAH analytes in groundwater were met by the LOQs, with the exception of benzo(a)anthracene, benzo(a)pyrene, and dibenz(a,h)anthracene. PAHs in groundwater were

analyzed by the more sensitive analytical method (i.e., Base/Neutral/Acid Extractable Compounds by Selected Ion Monitoring [BNASIM]). The PALs for all metal analytes in groundwater that were not met by LOQs were either attained by the LOD or were analyzed by the more sensitive analytical technique (i.e., Inductively Coupled Plasma-Mass Spectrometry [ICP-MS]), with the exception of cadmium and selenium. Cadmium and selenium may be analyzed by Method 6020A during Phase 2 Sampling events. The groundwater PALs for PCBs were not met. Future sampling of PCBs could employ concentrated extracts during sample preparation; however, PCBs were not identified as risk-drivers in soil and are not soluble in water. PCBs may represent a current data gap in the AOC 3 groundwater investigation area. See **Subsection 5.1.2** for a discussion of how data with LOQs greater than the PALs were treated in the Phase 1 Risk Screening.

2. All groundwater 2,4-DNP sample results were non-detect, with the LOQs and LODs greater than the human health PAL. The PAL for 2,4-DNP is not attainable with contemporary analytical methodology; exceedance of this PAL was anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020).

### 3.2.3 AOC 4 Discrete DUA Findings

Based on this assessment of DQIs for AOC 4, the data obtained during the site investigation are of sufficient quantity and quality to support the Phase 1 investigation and human health and ecological risk screenings (**Appendix B Section 2.1.2**). Furthermore, the quantity and quality of data are sufficient to update the CSM and support the identification of data gaps. The rejected groundwater result for picric acid in AOC 4 is downgradient and bounded by results that are considered usable. A description of the findings that may affect future RI activities at AOC 4 is presented below. All findings associated with accuracy are presented in **Appendix B**; however, the findings presented below are limited to those affecting greater than 20% of results to focus the evaluation of data gaps. The findings presented below offer only a general assessment of precision; all findings associated with precision are presented in **Appendix B**.

Surface and Subsurface Soil Findings

1. All of the 2,4-DNP and picric acid surface and subsurface soil sample results were non-detect, with the LOQs and LODs greater than ecological PALs. The PALs for 2,4-DNP and picric acid are not attainable with contemporary analytical methodology; exceedances of these PALs were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020). See **Subsection 5.1.2** for a discussion of how data with LOQs greater than the PALs were treated in the Phase 1 Risk Screening.

Groundwater Findings

1. Temporary monitoring wells were not developed, and discrete groundwater samples were collected using a peristaltic pump as grab samples in accordance with the UFP-QAPP. Upon initial discharge of groundwater from the sampling tubing, the field water quality parameters were measured, and samples were collected without development, purging, or field parameter stabilization. Sample turbidity ranged from 10.8 NTU (NYOW-04-004) to the upper instrument limit (> 1,000 NTU). The presence of particles in the sample may result in an overestimation of groundwater concentrations for all analytical parameters; however, all of the groundwater sample results were non-detect for the AOC-4 target analytes. The effect of particulate in groundwater samples on the

reported concentration cannot be assessed during data validation. It is noted that 9 of 16 groundwater samples (approximately 56%) clogged the solid phase extraction (SPE) cartridge (i.e., flow rate <4 mL/min) during extraction for the explosives analysis and one sample (NYOW-04-WL005-A) required vacuum filtration through glass fiber filter paper prior to analysis due to turbidity. While the extraction volumes were sufficient to avoid re-preparation of the samples at dilutions, the reduced extraction volumes may impact representativeness. It is possible that the extraction efficiency was compromised for those samples with high particulate load and reduced flow rates due to the small volume of solvent employed and the short contact time. Installation of permanent wells may address elevated turbidity, potential low bias of samples with low extraction efficiency, and potential representativeness concerns for samples with low extraction volume.

2. The following analytes in groundwater had low bias qualifiers primarily attributable to low surrogate recoveries at a frequency greater than 20% of samples: 2,4-DNCB at 45% and picric acid at 30%. The picric acid result for one groundwater sample (NYOW-04-WL080-A) was rejected based on surrogate recovery of less than 10% but all other results are considered usable. Installation of permanent monitoring wells may be necessary to obtain representative groundwater samples from AOC 4.

3. In AOC 4, all 2,4-DNP sample results in groundwater were non-detect, with the LOQs and LODs greater than the human health PAL. The PAL for 2,4-DNP is not attainable with contemporary analytical methodology; exceedance of this PAL was anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020). See **Subsection 5.1.2** for a discussion of how data with LOQs greater than the PALs were treated in the Phase 1 Risk Screening.

### 3.2.4 AOC 4 ISM DUA Findings

Based on this assessment of DQIs for AOC 4 ISM, the data obtained during the site investigation are not of sufficient quantity and quality to support the Phase 1 investigation and human health and ecological risk screenings at all of the decision units (DUs) (**Appendix B Sections 2.1.4 and 2.2.8.5**). A description of the findings that may affect future RI activities at AOC 4 is presented below. All findings associated with accuracy are presented in **Appendix B**; however, the findings presented below are limited to those affecting greater than 20% of results to focus the evaluation of data gaps. The findings presented below offer only a general assessment of precision; all findings associated with precision are presented in **Appendix B**.

ISM Surface Soil Findings

1. The ISM samples for SVOC analysis of 2,4-DNP and 2,4-DNCB underwent the complete ISM processing and subsampling procedures, rather than having aliquots removed for SVOC analysis and moisture content prior to drying, as was specified in the UFP-QAPP. The decision to process ISM samples for the SVOC analysis was based on information provided in the ISM Update guidance (Interstate Technology and Regulatory Council [ITRC], 2020) regarding the loss potential of various SVOCs during air drying and the consideration that air exposure at the laboratory was not likely to produce analyte loss for surface soils that have been exposed to ambient air for many years. In addition, there is no laboratory control spike solid reference material (LCSSRM) available that contains the SVOC analytes 2,4-DNCB and 2,4-DNP, and the explosives LCSSRM does not contain picric acid. As a result, the impact that air drying and sample milling to generate a flour-

like matrix may have on the recovery of all analytes cannot be quantified. If ISM samples are collected in the future, air drying and milling of ISM samples analyzed for 2,4-DNCB and 2,4-DNP may be avoided and LCSSRMs for target analytes should be identified by the analytical laboratory.

2. Generally low surrogate recoveries were associated with the ISM samples for SVOC analysis. The laboratory added an equivalent mass of Ottawa Sand to the samples before reanalysis to increase solvent contact with the flour-like soil matrix generated by milling; however, this approach did not typically improve surrogate recoveries.

3. 2,4-DNCB in ISM surface soil had low bias attributable to low surrogate recoveries at a frequency greater than 20% of samples (33 of 34 samples, or 97%). 2,4-DNP had low bias attributable to low surrogate recoveries at a frequency greater than 20% of samples (27 of 29 samples, or 93%). Picric acid had low bias attributable to low surrogate and MS recoveries at a frequency greater than 20% of samples (9 of 36 samples, or 25%). The uniformly low bias of ISM results reported as non-detect may represent a data gap at AOC 4.

4. For Decision Unit 1, all three replicates had results rejected for low bias of 2,4-DNP based on low MS/MSD recoveries. For Decision Unit 5, one replicate had results rejected for 2,4-DNCB and 2,4-DNP due to holding time exceedances. At Decision Unit 9, all three replicates had results rejected for low bias of 2,4-DNP due to an MSD that did not recover. For Decision Unit 10, one replicate had the result for 2,4-DNCB rejected based on a low surrogate recovery. All other Decision Units had usable results for all three replicates. Three valid ISM replicates are considered necessary to provide information regarding the reproducibility and heterogeneity of the data; therefore, the lack of three valid replicates may represent a data gap at the AOC 4 ISM Decision Units.

5. All of the 2,4-DNP and picric acid ISM soil sample results were non-detect, with the LOQs and LODs greater than the invertebrate and mammal ecological PALs. The PALs for 2,4-DNP and picric acid are not attainable with contemporary analytical methodology; exceedances of these PALs were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020). See **Subsection 5.1.2** for a discussion of how data with LOQs greater than the PALs were treated in the Phase 1 Risk Screening.

### 3.2.5 AOC 5 DUA Findings

Based on this assessment of DQIs for AOC 5, the data obtained during the site investigation are of sufficient quantity and quality to support the Phase 1 investigation and human health and ecological risk screenings (**Appendix B Section 2.1.1**). Furthermore, the quantity and quality of data are sufficient to update the Conceptual Site Model (CSM) and support the identification of data gaps. The rejected results in AOC 5 are for compounds not likely to be DoD-related nor risk drivers; however, analytical completeness for base/neutral (B/N) extractable SVOCs was less than 90% for many compounds in groundwater. The data needs will continue to be assessed by the project team as findings are evaluated and the CSM evolves. A description of the findings that may affect future RI activities at AOC 5 is presented below. All findings associated with accuracy are presented in **Appendix B**; however, the findings presented below are limited to those affecting greater than 20% of results to focus the evaluation of data gaps. The findings presented below offer only a general assessment of precision; all findings associated with precision are presented in **Appendix B**.

Surface and Subsurface Soil Findings

1. Due to an equipment failure at the laboratory, TOC results at AOC 5 were usable, but uniformly biased low. While microbial degradation is significantly reduced by storing samples at 4°C, some loss of organic material can occur, and the loss is exacerbated by prolonged storage. The bioavailability of many constituents is dependent upon the TOC content. In general, higher TOC leads to lower bioavailability and subsequently, a lower potential for toxicity. Given that the Site TOC results were compared to background TOC results, the low-biased TOC results may represent a data gap.

2. Soil sample heterogeneity was documented through the analysis of FD and MS/MSD sample pairs. Imprecision affecting primarily PAHs and metals in surface soil and metals in subsurface soil was identified. Soil heterogeneity is defined as a parent/FD RPD greater than 50%, MS/MSD RPD for metals greater than 20%, or MS/MSD RPD for PAHs greater than 40%. The specific FD and RPD outliers identified during data validation are presented in **Appendix B Section 2.2.1.1**. Surface soil heterogeneity of PAHs is likely attributable to their anthropogenic (pyrogenic) disposition and the depositional mechanism of PAH transport to the shallow soil interval. Uncertainty related to soil sample heterogeneity should be considered and options to improve soil characterization and support the calculation of representative mean sample concentrations for PAHs and metals should be identified.

3. The following analytes in surface soil had usable results with low bias primarily attributable to low surrogate or MS/MSD recoveries at a frequency greater than or equal to 20% of samples (5 in 25 samples, or 20%): benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and pyrene. Analytes in subsurface soil had usable results low bias attributable to low surrogate or MS/MSD recoveries affecting more than 20% of samples (10 in 50 samples, or 20%) included benzo(a)pyrene, benzo(g,h,i)perylene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. These low recoveries may be associated with the significantly greater difficulty in homogenizing clay soil and extracting PAHs from high clay content soil due to the strong adsorption of PAHs to clay surfaces. The extraction efficiency of EPA Method 3546 (microwave-assisted extraction [MAE]) is comparable or better than available alternatives (e.g., Soxhlet and ultrasonic extraction); therefore, the selected extraction method may be retained for future sampling events. For the Phase 1 sampling event, samples were field homogenized by thorough mixing in a Ziplock bag. Future discrete soil samples may be homogenized sequentially, first in quarter-sample segments and then in combined half-sample and full sample segments (EPA, 1995). Quartering samples for manual homogenization is described by EPA (1995), followed by remixing of opposite quarters (combined half-sample) and full sample mixing. Uncertainty related to soil sample heterogeneity should be considered and options to improve the representativeness of soil samples should be identified.

4. To reduce the impact to sensitive habitat areas, mapped wetland areas were avoided by relocating two soil borings. Wetland avoidance may have resulted in a data gap for collection of spatially representative soil samples at AOC 5 that may be addressed in the Phase 2 Investigation, if necessary.

Groundwater Findings

1. Temporary monitoring wells were not developed, and discrete groundwater samples were collected using a peristaltic pump as grab samples in accordance with the UFP-QAPP. Upon initial discharge of groundwater from the sampling tubing, the field water quality parameters were measured, and samples were collected without development, purging, or field parameter stabilization. Sample turbidity ranged from 30.2 Nephelometric Turbidity Units (NTU; NYOW-05-008) to the upper instrument limit (> 1,000 NTU). The presence of particles in the sample may result in an overestimation of groundwater concentrations for all analytical parameters. The effect of particulate in groundwater samples on the reported concentration cannot be assessed during data validation. Installation of permanent monitoring wells may be necessary to obtain representative groundwater samples from AOC 5.

2. All three groundwater samples collected from the Possible Dump (NYOW-05-WL001-A, NYOW-05-WL004-A, and NYOW-05-WL005-A) did not attain PALs for PCBs. Future sampling of PCBs could employ concentrated extracts during sample preparation; however, PCBs were not identified as risk-drivers in soil and are not soluble in water. See **Subsection 5.1.2** for a discussion of how data with LOQs greater than the PALs were treated in the Phase 1 Risk Screening.

3. All 12 groundwater samples from AOC 5 had low B/N surrogate recoveries. Results for B/N compounds associated with well locations NYOW-05-WL-024-A (west of the Dual Coal Aggregate Bins A&B) and NYOW-05-WL-010-A (within the southern portion of the Coal Storage Area) were rejected based on surrogate recoveries less than 10%. Installation of permanent wells may lessen matrix effects in Phase 2 Sampling; PCBs and B/Ns may represent a current data gap in the AOC 5 groundwater investigation area.

4. The PALs for PAHs in groundwater (benzo(a)anthracene, benzo(a)pyrene, and dibenz(a,h)anthracene) that were not met by LOQs were analyzed by the more sensitive analytical technique (i.e., BNASIM). With the exception of cadmium and selenium, the PALs for aqueous metals that were not met by the LOQ were either attained by the LOD or were analyzed by the more sensitive analytical technique (i.e., ICP-MS). Cadmium and selenium may be analyzed by EPA Method 6020A during Phase 2 Sampling events to achieve lower LOQs. See **Subsection 5.1.2** for a discussion of how data with LOQs greater than the PALs were treated in the Phase 1 Risk Screening.

### 3.2.6 Background DUA Findings

Based on this assessment of DQIs for background, the data obtained during the site investigation are of sufficient quantity and quality to support the Phase 1 investigation and human health and ecological risk screenings (**Appendix B Section 2.1.6**). Furthermore, the quantity and quality of data are sufficient to update the CSM and support the identification of data gaps. A description of the findings that may affect future RI activities is presented below. All findings associated with accuracy are presented in **Appendix B**; however, the findings presented below are limited to those affecting greater than 20% of results to focus the evaluation of data gaps. The findings presented below offer only a general assessment of precision; all findings associated with precision are presented in **Appendix B**.

Surface and Subsurface Soil Findings

1. The objective of the subsurface soil sampling to obtain 15 samples for each soil type was not achieved; however, the sample size is sufficient (i.e., n ≥ 8) to compare site soil to background using summary statistics (e.g., ranges, means, medians, standard deviations), exploratory graphical displays (e.g., side-by-side box plots) and to calculate BTVs (Bluestone, 2022). In the case of AOC 5, where the investigation is an initial Site Investigation (SI), any comparisons with background is for informational purposes and not used to eliminate methods and/or analytes from further investigation (Bluestone, 2022). Due to wetland avoidance, the Psc unit could not be sampled south of the edge of the wetland, resulting in a potential data gap.

2. Soil sample heterogeneity was documented through the analysis of FD and MS/MSD sample pairs, affecting PAHs and metals in surface soil and subsurface soil. Soil heterogeneity is defined as a parent/FD RPD greater than 50%, MS/MSD RPD for metals greater than 20%, or MS/MSD RPD for PAHs greater than 40%. The specific FD and RPD outliers identified during data validation are presented in **Appendix B Section 2.2.1.6**. Uncertainty related to soil sample heterogeneity should be considered and options to improve soil characterization and support the calculation of representative mean sample concentrations for PAHs and metals should be identified.

3. The following analytes in surface soil had usable results with low bias primarily attributable to low surrogate or MS/MSD recoveries at a frequency greater than 20% of samples (9 in 45 samples): benzo(g,h,i)perylene (22%), benzo(k)fluoranthene (22%), chrysene (24%), fluoranthene (27%), and pyrene (27%). These low recoveries may be associated with the significantly greater difficulty in homogenizing clay soil and extracting PAHs from high clay content soil because of the strong adsorption of PAHs to clay surfaces. Future discrete soil samples may be homogenized sequentially, first in quarter-sample segments and then in combined half-sample and full sample segments. It is noted that ISM processing may address homogenization issues.

4. The following analytes in surface soil had low bias attributable to low laboratory control spike/laboratory control spike duplicate (LCS/LCSD) recoveries at a frequency greater than 20% of samples (9 in 45 samples): indeno(1,2,3-cd)pyrene (27%). The following analytes in subsurface soil had low bias attributable to low LCS/LCSD recoveries at a frequency greater than or equal to 20% of samples (18 in 90 samples): indeno(1,2,3-cd)pyrene (26%). LCS/LCSD anomalies are reflective of laboratory accuracy.

5. Due to a laboratory equipment failure, 74 samples were analyzed outside the holding time period for TOC (i.e., 28 days) but within the holding time rejection threshold (56 days) and are therefore usable. While microbial degradation is significantly reduced by storing samples at 4°C, some loss of organic material can occur, and the loss is exacerbated by prolonged storage. Given that the Site TOC results were compared to background TOC results, the low-biased TOC results may represent a data gap.

Groundwater Findings

1. The PALs for all PAH analytes in groundwater were met by the LOQs or LODs, with the exception of benzo(a)anthracene, benzo(a)pyrene, and dibenz(a,h)anthracene. PAHs in groundwater were analyzed by the more sensitive analytical method (i.e., BNASIM). The PALs for all metals analytes in groundwater that were not met by LOQs were either attained by the LOD or were analyzed by

the more sensitive analytical technique (i.e., ICP-MS), with the exception of cadmium and selenium. Cadmium and selenium can be analyzed by Method 6020A during Phase 2 Sampling events. See **Subsection 5.1.2** for a discussion of how data with LOQs greater than the PALs were treated in the Phase 1 Risk Screening.

## 3.3 INITIAL CONCLUSIONS – DATA USABILITY

Based on the assessment of DQIs, the data obtained during the site investigation for all datasets except for AOC 4 ISM samples are of sufficient quantity and quality to support the Phase 1 investigation and human health and ecological risk screenings. Overarching data usability issues to be considered during the development of potential data gaps and recommendations are noted below.

The validated data are usable for the Phase 1 Risk Screening with the exception of the rejected data. The overall usability of the AOC 1 and AOC 4 discrete datasets are not affected by the rejected results. Three valid ISM replicates are considered necessary to provide information regarding the reproducibility and heterogeneity of the data; three DUs did not meet this criteria for at least one of the three analytes. The rejected results in AOC 5 are for compounds not likely to be DoD-related nor likely to be risk drivers; however, because of these rejections, analytical completeness for base/neutral (B/N) extractable SVOCs was less than 90% for many compounds in groundwater. None of the AOC 3 results were rejected.

All groundwater samples were collected from temporary wells that were not developed or purged and samples tended to be turbid. The field team often experienced issues with slow and at times insufficient recharge while collecting samples.

All 2,4-DNP results and all but one picric acid result were non-detects, but the soil PALs for 2,4-DNP and picric acid and the groundwater PAL for 2,4-DNP are not attainable with contemporary analytical methodology and almost all were non-detects.

Cadmium and selenium were analyzed by Method 6010C; changing to Method 6020A may be warranted for future sampling events to improve analytical sensitivity. The groundwater PALs for PCBs were not met and any future sampling of PCBs could employ concentrated extracts during sample preparation.

## 3.4 SAMPLE-LEVEL LESSONS LEARNED

This subsection discusses observations made by the field team during the RI Phase 1 field investigations that resulted in several sample-level lessons learned. These lessons learned are presented for consideration during future sampling design and have no impact on the data usability assessment presented elsewhere in this section (**Section 3**), **Subsection 8.1.1**, or **Appendix B**.

The following are noted for AOC 1 discrete sampling:

- Groundwater recharge in the temporary monitoring well installed at the NYOW-01-021 location was minimal with respect to available sample volume. Future sampling design should consider the potential for encountering similar groundwater conditions at this location.
- Fill material was encountered in the shallow interval above native soil at the NYOW-01-006A and NYOW-01-006B sample locations. Future sampling design should consider the presence of fill material at these locations.

The following is noted for AOC 3 discrete sampling:

- Refusal was encountered at 10.5 ft bgs at sample location NYOW-03-011 where a temporary monitoring well was planned but not installed because groundwater was not observed in this interval. Future sampling design should consider the potential for encountering similar subsurface and groundwater conditions at this location.

The following is noted for AOC 4 discrete sampling:

- Groundwater recharge in the temporary monitoring wells installed at the NYOW-04-037, NYOW-04-038, and NYOW-04-082 locations was minimal with respect to available sample volume. Future sampling design should consider the potential for encountering similar groundwater conditions at these locations.

The following is noted for AOC 4 ISM sampling:

- Gravel encountered in the bunker driveway aprons prevented ISM sample collection using hand tools and required relocation of several ISM increments within their respective incremental sample units. Future sampling design should consider the presence of gravel in the bunker driveway aprons when determining ISM increment locations.

The following are noted for AOC 5 discrete sampling:

- Refusal was encountered at 25.5 ft bgs at sample location NYOW-05-015 where a temporary monitoring well was planned but not installed because no groundwater was observed in this interval. Shallow refusal was encountered at 5 ft bgs at sample location NYOW-05-017 where a temporary monitoring well was planned but not installed. Shallow refusal was encountered at sample location NYOW-05-018 due to concrete at 6 ft bgs. Future sampling design should consider the potential for encountering similar subsurface conditions at these locations.
- Fill material was encountered in the shallow interval above native soil at the following sample locations: NYOW-05-006, NYOW-05-017, NYOW-05-017-1, NYOW-05-018, NYOW-05-021, NYOW-05-022, NYOW-05-023, NYOW-05-024, and NYOW-05-025. Future sampling design should consider the presence of fill material in these locations.

The following is noted for background discrete sampling:

- Fill material was encountered in the shallow interval above native soil at the NYOW-B-047 and NYOW-B-048 sample locations. Future sampling design should consider the presence of fill material in these locations.

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# 4.0 DATA REDUCTION

FDs and associated discrete primary samples were reduced to obtain only one result per location/depth/analyte combination using the following approach.

- When two non-detections were reported, the non-detection with the lowest LOD (to reduce data censoring), along with its associated qualifier and bias (i.e., "+" or "-") was selected. If the LODs were equal and the qualifiers and biases were not in agreement, the qualifier and bias associated with the least uncertainty was selected. For example, if the LOD primary and duplicate results were 10 U and 10 UJ-, respectively, the "U" qualifier was assigned.
- When a detection and a non-detection were reported, the detection (to reduce data censoring) along with its associated qualifier and bias was selected.
- When two detections were reported, the mean of the two values was selected. If the qualifiers and biases were in agreement, both were assigned to the reduced concentration. If the qualifiers were in agreement, but the biases were not, only the qualifiers were assigned. If the qualifiers were not in agreement, neither a qualifier nor a bias were indicated.

Detections less than the LOQ (J qualified results) cannot be used to determine whether contamination is above or below the PAL, unless these results are part of a dataset that contains at least one result greater or equal to the LOQ. The LOQ is a more defensible concentration than the J qualified result. Therefore, in the cases where all detections within a dataset were less than the LOQ (i.e., all detects are J qualified), for the purposes of the Phase 1 risk screening, the concentration of the analyte was set equal to the LOQ. These LOQ-censored detects were still considered a detect and assigned a J+ flag. The datasets used to determine if an analyte had all detections less than the LOQ were based on AOC (and subarea, if applicable), matrix, and depth interval (for soil). The data for which the J values were raised to the LOQs are presented in **Appendix C.1**. The effects of raising J qualified detections to the LOQ is discussed in the Uncertainty Analysis (**Subsection 6.3**).

PAH sums (high molecular weight [HMW], and low molecular weight [LMW]) were calculated as follows (see **Appendix C.2**):

- Low molecular weight PAHs are those with ≤ 3 benzene rings and high molecular weight PAHs are those with ≥ 4 benzene rings (EPA, 2007 – Eco Guidance for Developing Ecological Soil Screening Levels (Eco-SSLs), Attachment 4-1; https://www.epa.gov/sites/default/files/2015-09/documents/ecossl_attachment_4-1.pdf )

| LMW PAHs | HMW PAHs |
|---|---|
| 1-Methylnaphthalene | Benzo(a)anthracene |
| 2-Methylnaphthalene | Benzo(a)pyrene |
| Acenaphthene | Benzo(b)fluoranthene |
| Acenaphthylene | Benzo(g,h,i)perylene |
| Anthracene | Benzo(k)fluoranthene |
| Fluoranthene | Chrysene |
| Fluorene | Dibenz(a,h)anthracene |
| Naphthalene | Indeno(1,2,3-c,d)pyrene |
| Phenanthrene | Pyrene |

- Within a sample, if all of the analytes within a PAH category were detected, the total was sum of the results for the category.
- Within a sample, if any of the analytes within a PAH category were non-detect, the total was the Kaplan-Meier (KM) sum for the PAH category. This approach is after Helsel (2009) Summing Nondetects: Incorporating Low-level Contaminants in Risk Assessment, *Integrated Environmental Assessment and Management*. 6(3):361-366. The use of the LMW PAH and HMW PAH categories are based on ecological risk assessment; therefore, there are no relative toxicity weighting factors to consider.

In AOC 3, locations were resampled because of laboratory QC issues with the Method 8260 analysis (volatile organic compounds [VOCs]). Samples NYOW-03-PH005-B_R, NYOW-03-PH006-B_R, NYOW-03-PH007-B_R, and NYOW-03-PH0016-B_R were inadvertently submitted for analysis for Methods 8260 and 8270 (SVOCs); therefore, resulting in two sets of SVOC results for virtually the same location. Both datasets are valid and both were included in the AOC 3 Phase 1 risk screening dataset.

The reduced datasets are presented in **Appendix D**.

# 5.0 RISK SCREENINGS

Several steps in the human health and ecological risk screenings are essentially the same. Where specific details of the similar steps differ, the more conservative of the two was selected to streamline and provide uniformity in the Phase 1 risk screenings. The common steps are presented in **Subsections 5.1 through 5.4.** The remainder of the human health and ecological risk screenings were performed in parallel, with approaches specific to each presented in **Subsections, 5.5 and 5.6**, respectively.

## 5.1 ANALYTES WITHOUT SCREENING VALUES OR FOR WHICH THE LOQ IS GREATER THAN THE PAL

There are almost always analytes without screening values or for which the LOQ is greater than the PAL. Worksheet #15 of the *Uniform Federal Policy Quality Assurance Project Plan, Former New York Ordnance Works, Baldwinsville, New York, Final* (USACE, 2020) indicates the analytes for which it was known that PALs do not exist or for which PALs would not be achieved at the LOQ. During the UFP-QAPP development, ecological PALs were either available or derived for all of the known constituents of potential concern (COPCs) (i.e., picric acid, 2,4-DNCB, and 2,4-DNP) in AOCs 1 and 4. The analyte lists for AOCs 3 and 5 were longer than for AOCs 1 and 4 based on their historical uses. The selection of surrogates for PALs for additional AOCs 3 and 5 analytes was not performed during the UFP-QAPP development phase. Research to determine DoD-related COPCs other than the ammonium picrate-related analytes (i.e., picric acid, 2,4-DNCB, and 2,4-DNP) was not within the UFP-QAPP task scope. That research is within the Phase 1 Risk Screening task scope and is described in **Subsection 5.1.1.1**.

The approaches for evaluating analytes without screening values and for which the LOQ is greater than the PAL are discussed in **Subsections 5.1.1 and 5.1.2**, respectively.

### 5.1.1 Analytes Without Screening Values

Screening values are medium-specific (i.e., soil or groundwater) and are needed for each of the AOC-specific receptors for the Phase 1 Risk Screening. During UFP-QAPP development, analytes for which there are no PALs, and which were not related to the manufacture of ammonium picrate were considered for elimination from the analysis unless there was a PAL for that analyte in another matrix. Based on these criteria, no analytes were eliminated. During UFP-QAPP development, VOCs without PALs were retained at AOC 3 and AOC 5 because they are frequently associated with landfills and therefore would allow for a more comprehensive assessment of potential risk.

The Phase 1 Risk Screening approach for evaluating analytes without screening values is dependent upon whether it was DoD-related/potentially DoD-related or unlikely to be DoD-related as described in **Subsections 5.1.1.1 and 5.1.1.2**, respectively. Whether an analyte advances to the screening-level comparison based on the initial screening steps is presented for human health and ecological receptors in **Subsections 5.6 and 5.7**, respectively.

#### *5.1.1.1 Selection of Surrogates for DoD-related and Potentially DoD-related Analytes*

Analytes without a screening value that are either DoD-related or potentially DoD-related (**Table 5-1**) were discussed with the PDT risk assessors (during regularly scheduled biweekly calls on 14 September, 28 September, and 26 October 2022) to determine if a surrogate screening value may be used for risk screening; and if so, what value should be used. Human health surrogate screening values are limited to regional screening levels (RSLs) as appropriate for the medium. Ecological surrogate screening value references are limited to those used in QAPP Worksheet #15 for PAL selection. For analytes without site-specific derived values, the hierarchy of benchmarks for use in the Phase 1 Ecological Risk Screening is as follows:

- EPA Eco-SSLs (Eco-SSLs; various dates) (https://www.epa.gov/chemical-research/interim-ecological-soil-screening-level-documents);
- EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) –Soil Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf);
- EPA Region 5 (2003) Resource Conservation and Recovery Act (RCRA) Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf); and
- Los Alamos National Laboratory (LANL) ECORISK Database Ecological Screening Levels (2017) (https://rais.ornl.gov/documents/ECO_BENCH_LANL.pdf).

Surrogates are selected based on similarities to the COPC in structure and functional groups. The following general rules were used to inform the selection of surrogate screening values.

1) For isomers, the isomer with the highest similarity coefficient in EPA's Toxicity Estimation Software Tool (TEST) or with a published toxicological comparison (e.g., Provisional Peer-Reviewed Toxicity Values [PPRTV]) was selected.
2) For Aroclors with risk assigned based on the percent (%) of congeners with more than four chlorines, the Aroclor with the closest percent chlorination was selected.
3) For PAHs, an analog with a similar number and orientation of benzene rings and bay or bay-like region was selected.
4) For heterocyclic compounds, a structurally similar surrogate that shares similar electronegativity and reactivity was selected and verified with TEST.

Justification for each of the surrogates that were chosen for human health and ecological risk screening are provided in **Tables 5-2 through 5-7**.

For analytes for which a surrogate was selected, the screening value for the surrogate was used as-is without any modifications (e.g., safety factors) with the exception of picric acid and 2,4-DNCB; specific consideration of surrogates for the DoD-related COPCs picric acid and 2,4-DNCB are provided below.

Picric acid is an aromatic compound with three electron-withdrawing (nitro) substituents at the para and at both ortho positions relative to the hydroxyl group; as a result, the phenolic proton is quite acidic (pKa < 1). As a starting point, the minimum requirements for finding an acceptable surrogate for picric acid included finding another phenolic compound with similar substituents in terms of steric hindrance, location on the aromatic ring and electron-withdrawing capacity (USACE, 2020). As a result of these considerations,

2,4-DNP was selected as the best surrogate for picric acid. A safety factor of ten was applied to the 2,4-DNP benchmarks for ecological screening to account for potential differences between picric acid and 2,4-DNP toxicity.

2,4-DNCB is an aromatic compound with two nitro substituents at the para- and ortho- positions relative to the chloride group. Since another polynitrobenzene with a similar substituent pattern on the aromatic ring with toxicity information was not available, a dinitro-substituted benzene with the nitro groups oriented in the meta position relative to each other, 2,4-dinitrotoluene (DNT), was identified (USACE, 2020). A safety factor of ten was applied to the surrogate benchmark for ecological screening to account for the difference between 2,4-DNCB and 2,4-DNT.

The list of analytes for which screening levels were available after the assignment of surrogates is provided in **Tables 5-8 through 5-12.** Screening values were not derived by Bluestone from primary literature. Derivation of screening values is beyond the current scope of the Phase 1 Risk Screening but may be considered in Phase 2. Uncertainties regarding the use of surrogates are discussed in **Subsection 6.3**.

Surrogates were available for all likely and potentially DoD-related analytes for human health and mammalian ecological receptors. Analytes for which surrogates could not be developed (**Tables 5-13 through 5-15**) cannot be quantitatively evaluated. Analytes for which surrogates could not be developed are discussed in the uncertainty analysis (**Subsection 6.3**) with respect to any historical use, analytical, or toxicological reasons as to why the analyte may be considered a COPC and subsequently presented in the data gaps analysis (**Section 8**) for potential investigation during Phase 2. Whether an analyte advances to the screening-level comparison based on the initial screening steps is presented for human health and ecological receptors in **Subsections 5.6 and 5.7**, respectively.

#### *5.1.1.2 Analytes that are Unlikely to be DoD-related*

As noted in **Subsection 5.2.3**, with the exception of PAHs and metals, analytes that are unlikely to be DoD-related (**Tables 5-16 through 5-21)** were not evaluated further.

### 5.1.2 Analytes for Which the LOQ is Greater than the PAL

To meet measurement quality objectives (MQOs) for sensitivity, the LOQs for detections and LODs for non-detections must be less than the PALs. When MQOs for sensitivity are not met, the results are typically unusable for reliably determining whether concentrations are above or below the PALs.

As noted in **Subsection 5.1**, the analytes for which it was known that PALs would not be achieved at the LOQ were presented in the UFP-QAPP. Prior to the finalization of the UFP-QAPP, methods were changed for known constituents of potential concern, when possible, to meet PALs; however, many analytes did not have alternatives to achieve lower limits. Any additional analytes that did not achieve the PAL at the LOQ based on analytical issues associated with the Phase 1 sample collection effort (conducted in 2021) were identified in the DUA (**Appendix B**). If the data gaps analysis (**Section 8**) identifies COPCs for analysis during Phase 2 sampling for which the LOQ did not meet PALs during the Phase 1 analyses, analytical method, laboratory, and laboratory location options will be explored in an attempt to lower the LOQs below PALs.

The approach for evaluating an analyte that did not achieve the individual receptor PALs (hereafter referred to as screening values/levels when not discussed in context of the UFP-QAPP) at the LOQ is dependent

upon whether it is DoD-related/potentially DoD-related or unlikely to be DoD-related as described in **Subsections 5.1.2.1 and 5.1.2.2**, respectively. Analytes that were never detected in a medium on an AOC/subarea-specific basis and the frequency with which they exceed the screening level are presented in **Appendix E.** Whether an analyte advances to the screening-level comparison based on the initial screening steps is presented for human health and ecological receptors in **Subsections 5.6 and 5.7**, respectively.

#### *5.1.2.1 DoD-related and Potentially DoD-related Analytes*

Analytes with screening levels not achieved at the LOQ that were not detected within a medium on an AOC/subarea-basis in the Phase 1 samples collected in 2021 and are potentially site-related (see **Subsection 5.3**) are typically unusable for reliably determining whether concentrations are above or below the screening levels and will not proceed through the remaining screening steps. These analytes are presented in **Tables 5-22 through 5-27** and discussed in the uncertainty analysis with respect to any historical use, analytical, or toxicological reasons as to why the analyte may be a COPC and subsequently presented in the data gaps analysis for potential investigation during Phase 2.

#### *5.1.2.2 Analytes that are Unlikely to be DoD-related*

As noted in **Subsection 5.3.2**, with the exception of PAHs and metals, analytes that are unlikely to be DoD-related are noted as such (**Tables 5-16 through 5-21**) and not evaluated further.

### 5.1.3 Initial Conclusions – Analytes without Screening Values or for Which the LOQ is Greater than the PAL

An attempt was made to identify surrogates for analytes without screening values that were likely or potentially DoD-related. Surrogates were available for all likely and potentially DoD-related analytes for human health and mammalian ecological receptors. Analytes for which surrogates could not be developed for plants, soil invertebrates, or birds cannot be quantitatively evaluated and are presented in **Tables 5-13 through 5-15**. The likely or potentially DoD-related analytes without screening values should be considered during the development of potential data gaps and recommendations.

If a likely or potentially DoD-related analyte did not achieve the individual receptor screening levels at the LOQ and were not detected within a medium on an AOC/subarea-basis, the results are typically unusable for reliably determining whether concentrations are above or below the screening level. These analytes are presented in **Tables 5-22 through 5-27** and are discussed in the uncertainty analysis with respect to any historical use, analytical, or toxicological reasons as to why the analyte may be a COPC. The likely or potentially DoD-related analytes that did not achieve the individual receptor screening levels at the LOQ and were not detected within a medium on an AOC/subarea-basis should be considered during the development of potential data gaps and recommendations.

Analytes that are unlikely to be DoD-related (**Tables 5-16 through 5-21**) and are without screening values or for which the LOQ is greater than the PAL should be considered during the development of potential data gaps and recommendations.

## 5.2 NON-DETECT ANALYTES FOR WHICH THE LOQ IS LESS THAN A SCREENING LEVEL

To meet MQOs for sensitivity, the LOQs for detections and LODs for non-detections must be less than the screening levels. When MQOs for sensitivity are met, the results are reliable for determining whether concentrations are above or below the screening levels. Analytes with screening levels achieved at the LOQ that were not detected within a medium on an AOC-basis in the Phase 1 samples collected in 2021 are usable for reliably determining whether concentrations are above or below the screening levels (see **Appendix E** and **Tables 5-22 through 5-27**). With the exception of PAHs and metals, these analytes do not proceed through the remaining screening steps**.** PAHs and metals do proceed to background comparisons (**Subsection 5.4**). Whether an analyte advances to the screening-level comparison based on the initial screening steps is presented for human health and ecological receptors in **Subsections 5.6 and 5.7**, respectively. Analytes that were not detected within a medium on an AOC-basis for which the LOQ is less than all screening levels should be considered for elimination from analysis in future sampling events.

## 5.3 ANALYTES NOT RELATED TO DOD ACTIVITIES

Prior to conducting the human health and ecological risk screenings, the data were reviewed to determine if detected analytes or non-detected analytes with LOQs greater than the screening level for each human health and ecological receptor are present as a result of historical DoD-related activities. To streamline the process, analytes with LOQs less than the screening level were to be eliminated from this step (see Subsection 5.2 of **Appendix A**). The non-detected analytes for which the LOQ is less than the screening level for each of the AOC-specific receptors (o-xylene in AOC 3 and m-/p- and o-xylene in AOC 5) were few in number. Therefore, the complete list of analytes were included in this Phase 1 screening step.

Site chemistry results from the Phase 1 sampling activities were tabulated and evaluated on an AOC-specific basis because each of the four AOCs had different uses. AOCs 1 and 4 likely have similar constituents, and the analytical methods were limited as to what was expected based on the manufacture or storage of picric acid. AOCs 3 and 5 are different in that AOC 3 was a landfill and AOC 5 was a power plant that had not been investigated previously; therefore, sufficient information regarding the site-specific constituents of concern was not available to cull the analysis lists during UFP-QAPP development.

Research for identifying analytes as DoD-related, potentially DoD-related, and unlikely to be DoD-related was limited to the following DoD-produced site-specific documents provided by the PDT.

- Metcalf & Eddy, Inc. 1990. *Contamination Evaluation at the Former New York Ordnance Works, Lysander, New York, Final Report*. January.
- USACE. 1992. *Site Survey Summary Sheet (Revised) for DERP-FUDS Site No. C02NY029000, New York Ordnance Works, Lysander, New York.* 2 February.
- USACE. 1999. *Archives Search Report Findings for the Former New York Ordnance Works, Lysander Township, New York.* September.
- USACE. 2004. ASR Supplement. New York Ordnance Works, FUDS Property Num*ber: C02NY0290.* 26 November.
- USACE. 2019. *New York Ordnance Works – Baldwinsville, New York Historical Photographic Analysis, Draft.* November.

### 5.3.1 Literature Review Results

AOC-specific DoD-related constituents/items identified in the above listed literature are noted below:

- AOC 1
  - Raw materials
    - 2,4-DNCB
    - Caustic soda (sodium hydroxide)
    - Sulfuric acid
    - Nitric acid
    - Aqueous ammonia
  - Manufacturing Intermediates
    - 2,4-DNP
    - Picric Acid
  - Final Product
    - Ammonium picrate
- AOC 3
  - Solid waste
    - Canvas filters
    - NYOW trash
    - Fly ash from boiler house
    - Wood
    - Stainless steel mixing "spiders" with incidental picric acid contamination
    - Drums and cans of paint
- AOC 4 – Bunker Area
  - Ammonium picrate
- AOC 5 – Power Plant Area (presumptive evidence based on site use)
  - Coal
  - Fly ash
  - PCBs
  - NYOW trash

Information regarding constituents and/or environmental degradation products of the above listed items were also researched (see **Table 5-28**).

### 5.3.2 AOC-Specific Constituent Characterization

The following criteria were used to categorize constituents.

- DoD-related – the analyte was noted in the reviewed literature as being used at the Site;
- Potentially DoD-related – the analyte was not confirmed in the reviewed literature as site-related, but is detected in at least 5% of the AOC-specific samples collected during Phase 1; and
- Unlikely to be DoD-related – the analyte was not confirmed in the reviewed literature as site-related and is detected in less than 5% of the AOC-specific samples collected during Phase 1. An exception to this rule is that PAHs and metals categorized as unlikely to be site-related are carried through the remaining screening steps as appropriate and discussed in the uncertainty section.

The 5% indicated in the 2nd and 3rd bullets above is derived from EPA (1989) example statistic for eliminating infrequently detected analytes from risk assessment.

DoD-related categorization is presented by AOC in **Table 5-29**. All AOC 1 analytes were either "DoD-related" or "potentially DoD-related". Although some analytes from AOC 3 and AOC 5 were categorized as "unlikely to be DoD-related", given the site history, AOC-specific uses, and lack of additional information to categorize constituents regarding DoD-relatedness, no detected constituents were eliminated from proceeding to the next step of Phase 1 risk screening from either AOC 3 or AOC 5. For AOC 4, only constituents known to be used in the manufacture of ammonium picrate were analyzed (i.e., 2,4-DNCB, 2,4-DNP, and picric acid); therefore, no constituents were eliminated from further evaluation from AOC 4. In summary, every analyte from each AOC was subjected to the evaluations in **Subsection 5.1**.

DoD-relatedness may be re-evaluated after Phase 2 sampling results are available.

### 5.3.3 Initial Conclusions – Analytes Not Related to DoD Activities

Based on the criteria applied to determine DoD-relatedness, every analyte from each AOC initially was considered likely or potentially DoD-related. At this time, only metals and PAHs considered to be within background would be considered analytes not related to DoD activities (see **Subsection 5.4**). DoD-relatedness for non-PAHs and non-metals may be re-evaluated after Phase 2 sampling results are available.

## 5.4 BACKGROUND COMPARISONS

Background surface and subsurface soil samples were collected for each of the three distinct surface geologic units to assess the contribution of natural and anthropogenic sources to total PAH and metal concentrations. PAHs and metals that are detected in site soils are frequently unrelated to a historical release associated with operation of the Site. Given the potential that these analytes, and especially metals, will leach into groundwater, background samples were also collected from temporary background monitoring wells within the background reference area (**Section 2**). The following sections describe the procedures that were used to determine the representativeness of the background dataset and to compare media concentrations in the background samples to their counterparts on the Site.

### 5.4.1 Background Threshold Value Development

BTVs were developed for AOCs 1, 3, and 5 at the NYOW Site for use in the phased site assessment process. In order to determine that the background dataset is both robust and appropriate to the Site, the following objectives must be achieved:

1) Determine whether background location geophysical/geochemical characteristics are representative of site location characteristics.
2) Determine if data from differing soil sampling intervals (0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs) within the assigned surface geologic units (Pd, Psc, and Ps) for the background locations can be combined.
3) Determine if surface geologic units within the background locations can be combined.
4) Determine if there are data gaps in the background soil dataset(s) that would prohibit the development of appropriate background threshold values for AOCs 1, 3, and 5 at the NYOW Site.

If data gaps exist after these four evaluation steps, a sampling program would need to be developed and executed. Resulting data would be combined with existing data as appropriate and the exercise in Background Dataset Objectives 1-4 would be repeated.

Prior to developing soil BTVs for use in determining whether PAH and metal concentrations at AOCs 1, 3, and 5 are within background concentrations, the background dataset must be compiled. To date, AOC 4 soil and groundwater samples have been analyzed only for site-specific COPCs, i.e., picric acid, 2,4-DNCB, and 2,4-DNP. Therefore, BTVs for AOC 4 are not required.

The dataset for calculating groundwater BTVs is less complicated than the soil dataset in that data from all wells located outside the area of influence of the Site may be combined regardless of geologic units. Therefore, **Subsections 5.4.1.1 and 5.4.1.2** below are not applicable to groundwater. All nine of the wells will be used to calculate groundwater BTVs as described in **Subsection 5.4.1.3**.

#### *5.4.1.1 Site Versus Background Surface Geologic Unit Comparison*

The site versus background surface geologic unit comparison will satisfy Background Dataset Objective 1, i.e., determine whether background location geophysical/geochemical characteristics are representative of site location characteristics.

Geologic variability in soil material plays an important role in the elemental composition of the soil. Therefore, it is necessary to determine that soil samples of similar characteristics and origin are being compared during background studies. Parameters that are indicative of soil geochemical composition include lithology (represented by grain size), TOC, CEC, and indicator analytes such as iron, aluminum, and PAHs. See **Appendix F.1** for data summary tables**.** Note that the KM method was used to calculate the mean and standard deviation for datasets that contain non-detects (see **Section 4**).

The comparability of soil on site (all AOCs combined) for each of the three discrete soil intervals within a surface geologic unit (0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs) with the soil background reference area was confirmed by evaluating these parameters as described in detail below. Best professional judgment was used to determine if site and background locations are similar based on the magnitude of differences and utility of each of the parameters. For most parameters, graphical displays (e.g., side-by-side box plots, ternary charts) were used to visually compare data.

Standard side-by-side box plots were presented only for analytes that have at least five samples within the dataset and that meet the following criteria:

- n = 5 – at least 3 detects;
- n = 6 to 10 – at least 4 detects;
- n = 11 to 20 – at least 5 detects; and
- n > 20 – greater than 20% detects.

If an analyte did not have at least five samples within the dataset, scatter plots were used to qualitatively compare datasets.

Probability plots were not used for visual assessment of the data because point-by-point comparisons of the grouped datasets was not necessary.

#### 5.4.1.1.1 Grain Size Distribution

Grain size is the physical measurement of the size of particles in soil. Many experimental studies have documented that for most contaminants, soil fractions composed of smaller particle sizes have higher loadings than fractions composed of larger particles (ITRC, 2020). Therefore, the representativeness of background is heavily dependent on the grain size characteristics of the reference area and the AOCs.

Grain size was evaluated by comparing the percentage of sand, silt, and clay from the background soil dataset to the AOC soil dataset with box plots for each depth interval (**Appendix F.2**). When the sample size was less than five or contained fewer than three detects, a scatter plot was developed for comparison purposes. Ternary diagrams were also generated to illustrate the relative percentages of silt, clay, and sand for background and site data for each depth (**Appendix F.2**). The results of the comparison were documented by designating the box plots and ternary diagrams as depicting a "highly similar" (+), "moderately similar" (0), or "dissimilar" (-) relationship between site and background (**Table 5-30**). The data used to perform the comparisons is presented in **Appendix D**.

Grain Size Distribution Results - Psc

The side-by-side Psc box plots for clay at depths of 0-1 ft bgs, 1-5 ft bgs, and 5-10 ft bgs were assigned scores of "+", "0", and "-", respectively. The side-by-side Psc box plots for silt at increasing depth intervals were assigned scores of "-", "+", and "+", respectively. The side-by-side Psc box plots for sand at increasing depth intervals were assigned scores of "-", "+", and "+", respectively. Box plots could not be developed for the background dataset 5-10 ft bgs interval due to small sample size; consequently, the data was evaluated using scatter plots. The ternary diagrams for Psc were scored as "0", indicating moderately similar characteristics for each depth interval. Refer to **Appendix F.2** for box plots and/or scatter plots and ternary diagrams and **Table 5-30** for the associated scores.

Grain Size Distribution Results - Ps

The side-by-side Ps box plots for clay at depths of 0-1 ft bgs, 1-5 ft bgs, and 5-10 ft bgs were assigned scores of "+", "+", and "+", respectively. The side-by-side Ps box plots for silt at increasing depth intervals were assigned scores of "+", "+", and "+", respectively. The side-by-side Ps box plots for sand at increasing depth intervals were assigned scores of "0", "+", and "+", respectively. Box plots could not be developed for the background dataset due to small sample size; consequently, the data was evaluated using scatter plots. The ternary diagrams for Ps were scored as "+", indicating highly similar characteristics for each depth interval. Refer to **Appendix F.2** for box plots and/or scatter plots and ternary diagrams and **Table 5-30** for the associated scores.

Grain Size Distribution Results - Pd

The side-by-side Pd box plots for clay at depths of 0-1 ft bgs, 1-5 ft bgs, and 5-10 ft bgs were assigned scores of "-", "+", and "+", respectively. The side-by-side Pd box plots for silt at increasing depth intervals were assigned scores of "+", "0", and "+", respectively. The side-by-side Pd box plots for sand at increasing depth intervals were assigned scores of "-", "0", and "0", respectively. Box plots could not be developed for the background dataset due to small sample size; consequently, the data was evaluated using scatter plots. The ternary diagrams for Ps were scored as "0" for surface soil and "+" for both subsurface soil intervals, indicating moderately and highly similar characteristics. Refer to **Appendix F.2** for box plots and/or scatter plots and ternary diagrams and **Table 5-30** for the associated scores.

Grain Size Distribution Results - Summary

Overall, site and background surface soil grain size classes tended to be less similar than subsurface soil. This result is expected due to the potential historical backfilling of low-lying land. In addition, the Ps and Pd surface geologic units scored higher than Psc, indicating greater similarity between site and background soil samples. All of the surface geologic units had net positive scores for grain size which are interpreted to indicate the background data are representative of site conditions.

#### 5.4.1.1.2 Total Organic Carbon

TOC is the carbon present in the soil organic matter fraction of the soil sample. Due to organic matter's ability to form complexes with metal ions, interact with clay minerals and bind particles together, and sorb and desorb organic compounds, the amount of organic matter in background and the corresponding site soil is essential to evaluate (EPA, 2002). As a result of these characteristics, the abundance of TOC can substantially affect how chemicals behave in the soil and, ultimately, their chemical concentrations. Therefore, TOC was measured in background and site soil samples to confirm the representativeness of the background dataset.

The TOC of the background sample locations was compared to the TOC of the AOCs (all combined) using box plots (**Appendix F.3**). The results of the comparison were documented by designating the box plots as depicting a "highly similar" (+), "moderately similar" (0), or "dissimilar" (-) relationship between site and background (**Table 5-30**). The data used to perform the comparisons is presented in **Appendix D**.

Total Organic Carbon Results

Box plots were developed for the background TOC datasets for all three geologic units and depth intervals. Box plots could not be developed for the site Psc dataset 5-10 ft bgs interval and all site Ps and Pd depth intervals due to small sample sizes; consequently, the data were evaluated by comparing background box plots to scatter plots. The side-by-side Psc comparisons for TOC at depths of 0-1 ft bgs and 1-5 ft bgs, were assigned scores of "+", "-", and "-", respectively. The side-by-side Ps comparisons for TOC with increasing depth were assigned scores of "+", "+", and "+", respectively. The side-by-side Pd comparisons for TOC with increasing depth were assigned scores of "-", "+", and "+", respectively. s Refer to **Appendix F.3** for box plots and/or scatter plots and **Table 5-30** for the associated scores.

With the exception of Psc, the surface geologic units had net positive scores for TOC which are interpreted to indicate the background data are representative of site conditions. TOC within Psc soil was higher in subsurface background soil relative to site subsurface soil. Psc site TOC concentrations within the 0-1 ft bgs interval were determined to be highly similar to background concentrations for Psc. The assessment of background may be limited by sample size (e.g., n = 2 for 5-10 ft bgs).

#### 5.4.1.1.3 Cation Exchange Capacity

Most metal analytes exist as cations in soil solutions; therefore, the adsorption of metals to soil particle surfaces depends on the magnitude of negative charge present on the surface. The total number of positively charged ions that a soil can hold is referred to as the soil's cation exchange capacity, measured as millequivalents per 100 grams of soil (meq/100g). A high CEC is indicative of a high negative charge and a greater capacity to attract and retain cations (Mengel, 2022). CEC is an inherent characteristic of the soil

that will vary according to the amount of clay and organic matter that are present because each have net negative charges (Mengel, 2022).

CEC was measured in this investigation in order to confirm the representativeness of background sample locations relative to the AOCs. Since CEC is difficult to significantly alter, comparison of the site and background CEC values by depth and soil type was used to determine if the AOCs and the reference area have the same or similar intrinsic composition. The CEC of the background sample locations was compared to the CEC of the AOCs (all combined) using box plots (**Appendix F.3**). The results of the comparison were documented by designating the box plots as depicting a "highly similar" (+), "moderately similar" (0), or "dissimilar" (-) relationship between site and background (**Table 5-30**). The data used to perform the comparisons is presented in **Appendix D**.

Cation Exchange Capacity Results

The side-by-side Psc box plots for CEC at depths of 0-1 ft bgs, 1-5 ft bgs, and 5-10 ft bgs were assigned scores of "0", "-", and "-", respectively. The side-by-side Ps box plots for CEC with increasing depth were assigned scores of "+", "+", and "+", respectively. The side-by-side Pd box plots for CEC with increasing depth were assigned scores of "+", "+", and "+", respectively. Box plots could not be developed for the Psc site dataset 5-10 ft bgs interval and all Ps and Pd site depth intervals due to small sample sizes; consequently, the data was evaluated using scatter plots. Refer to **Appendix F.3** for box plots and/or scatter plots and **Table 5-30** for the associated scores.

With the exception of Psc, the surface geologic units had net positive scores for CEC which are interpreted to indicate the background data are representative of site conditions. CEC within Psc soil was higher in subsurface background soil relative to site subsurface soil. CEC within the 0-1 ft bgs interval was determined to be moderately similar to background for Psc. The assessment of background may be limited by sample size (e.g., n = 2 for 5-10 ft bgs).

#### 5.4.1.1.4 Geochemical Ratios

Aluminum and iron are dominant (i.e., abundant), naturally occurring metals in soils. High aluminum (Al) and iron (Fe) concentrations are associated with a high percentage of clay minerals and fine-grained soils; therefore, the similarity of the physical matrices of the site and background soil can be assessed by evaluating their relationship (EPA, 2019). Aluminum and iron are also chosen because their concentrations are not usually influenced by anthropogenic sources and they covary with grain size (ITRC, 2022).

The geochemical ratio of Al/Fe was used as an indicator to determine if the background area matrix is similar to the combined AOC matrices. The relationship between Al/Fe in background soils was initially compared to the Al/Fe ratios of site soils through regression analysis consistent with EPA's methodology used as prelude to further chemical/reference metal evaluations (**Appendix F.5**). To determine if Al/Fe ratios were similar, Analysis of Covariance (ANCOVA) was used to compare regression lines for background soil and site soil ratios (EPA, 2019). Two null hypotheses were subsequently tested: 1) are the slopes of the background and site Al/Fe ratio regression lines equal (i.e., parallel to each other) and 2) are the means of the Fe concentrations the same when excluding the effects of covariates (McDonald, 2014). A significance level of 0.05 was used as cutoff. The results of the comparison were designated as "highly similar" (+), "moderately similar" (0), or "dissimilar" (-) relationship between site and background (**Table 5-30**). The data used to perform the comparisons is presented in **Table F.5-1**.

Geochemical Ratios Conclusions

The Psc Al/Fe regression lines for depths of 0-1 ft bgs, 1-5 ft bgs, and 5-10 ft bgs were assigned scores of "+", "-", and "+", respectively, on the basis of the ANCOVA p-values for regression line slope and mean concentrations. The Al/Fe regression lines for Ps with increasing depth were assigned scores of "-", "-", and "-", respectively. The Al/Fe regression lines for Pd with increasing depth were assigned scores of "+", "+", and "+", respectively. Refer to **Appendix F.5** for box plots, regression analyses, and ANCOVA and **Table 5-30** for the associated scores.

With the exception of Ps, the surface geologic units had net positive scores for Al/Fe which are interpreted to indicate the background data are representative of site conditions. In the 0-1 ft bgs interval, the slopes of the regression lines were similar; however, the site data had several samples with lower Al/Fe ratios (e.g., 0.2 at NYOW-05-SL007-A and 0.17 at NYOW-05-SL005-A) that result in a p-value for the means test that is less than 0.05. It is noted that each of the Psc locations with lower aluminum concentrations relative to iron were located in AOC 5.

In the 1-5 ft bgs interval, the slopes of the regression lines were dissimilar; therefore, the means test was not performed. The site data had a single sample with an elevated Al/Fe ratio (i.e., 0.7 NYOW-05-PH012-B) that increased the regression line slope of the combined AOCs. Similarly, AOC 5 samples NYOW-05-PH003-C, NYOW-05-PH004-C, and NYOW-05-PH012-C had Al/Fe ratios that were inconsistent with the background dataset and resulted in a means test p-value less than 0.05. It is noted that the grain size distribution evaluation for Ps resulted in 11 "+" scores (highly similar) and 1 "0" score (moderately similar) out of 12 total box plot and ternary diagram comparisons.

#### 5.4.1.1.5 LMW and HMW PAHs

PAHs represent a class of organic compound comprised of carbon and hydrogen atoms grouped into at least two aromatic ring structures. They are categorized as pyrogenic or petrogenic based on their origin and can be divided into LMW compounds composed of fewer than four rings and HMW compounds of four or more rings (Amodu, et al., 2013). Pyrogenic sources of PAHs (i.e., anthropogenic or fill) are dominated by HMW PAHs and petrogenic sources are generally dominated by LMW PAHs associated with gasoline, kerosine, or diesel/fuel oil #2 (Patel, et al., 2020). PAHs tend to adsorb onto soil and sediment, making them persistent in the environment and useful in distinguishing background soil from site soils. Soil properties such as organic matter content, soil depth, particle size, and CEC, control their sorption (Amodu, et al., 2013).

To determine if soil samples collected within the AOCs and assigned to a surface geologic unit are of similar composition to background of the same geologic unit and depth (i.e., similar soil properties), hypothesis testing was completed (**Appendix F.6**). For normally distributed datasets with equal variance determined by Levene's Test for Equality of Variances, the Tukey's Honestly Significant Difference (HSD) test was performed. For datasets without a normal distribution, the nonparametric Dunn's test with Bonferroni Adjustment was performed. Background and site surface geologic units with similar characteristics were assigned based on p-values > 0.05. The results of the comparison were documented by designating comparison results as "highly similar" (+), "moderately similar" (0), or "dissimilar" (-) relationship between site and background (**Table 5-30**). The data used to perform the comparisons is presented in **Appendix D**.

LMW and HMW PAHs Conclusions

Low and high molecular weight comparisons could not be made for the Pd surface geologic unit because PAH concentration data was not available. Scatter plots were developed when the sample size was insufficient to generate box plots. The LMW and HMW PAH concentrations within Psc and Ps surface soil were determined to be higher than background soil concentrations, indicating that there may be additional sources of PAHs in the 0-1 ft bgs interval on-site. Psc and Ps each had net positive scores for the combined depth interval (see **Table 5-30**) for both the LMW and HMW comparisons, which indicate the background data are representative of site conditions.

#### 5.4.1.1.6 Pyrogenic and Petrogenic PAHs

PAHs can be generated through the incomplete combustion of fossil fuels and organic material (pyrogenic, anthropogenic origin) or can be derived directly from petroleum products such as oil (petrogenic source origin) and their degradation products. Pyrogenic PAHs have different chemical composition and distribution pattern than petrogenic PAHs (Tobiszewski, 2012). To determine if PAHs present in background soil have the same, anthropogenic origin as PAHs detected within site AOCs, diagnostic ratios identified through literature were calculated and compared.

Four diagnostic PAH ratios were computed for each background and site soil sample: 1) anthracene/(anthrancene+phenanthrene) [an/(an+ph)], 2) benzo(a)anthracene/(benzo(a)anthracene+chrysene) [BaA/(BaA+chry)], 3) fluoranthene/(fluoranthene+pyrene) [fla/(fla+py)], and 4) LMW/HWM (see **Appendix F.7**). The four diagnostic ratios were selected based on the following ratio value ranges presented in PAH diagnostic ratios for the identification of pollution emission sources (Tobiszewski, 2012):

- an/(an+ph) > 0.1 = pyrogenic
- BaA/(BaA+chry) < 0.2 = petrogenic; > 0.2 = coal, petroleum combustion and vehicular emissions (pyrogenic)
- fla/(fla+py) < 0.4 = petrogenic; > 0.5 = grass, wood, pyrogenic diesel combustion
- LMW/HMW < 1 = pyrogenic; > 1 = petrogenic

Where three of the four ratios resulted in the same source designation, that designation was selected; otherwise, the source was considered inconclusive (**Table 5-30**).

Pyrogenic and Petrogenic PAHs Conclusions

A total of 181 site and background samples were evaluated and assigned a petrogenic or pyrogenic origin based on the ratios described above (**see Appendix F.7**). Of the total number of samples, only three were designated as petrogenic in origin (NYOW-05-SL009-A, NYOW-05-SL010-A, and NYOW-05-SL024-A). Fifty-five samples were designated as inconclusive because the majority of ratios (three out of four) were not in agreement. Of them, one was from AOC 3 (NYOW-03-PH002-B), 26 were from AOC 5 (all depths), and 28 were from background samples (all depths). The majority of samples (n = 123) were determined to have a pyrogenic source, including 24 samples from AOC 3, 39 samples from AOC 5, and 60 samples from the background reference area. It is noted that AOC 5 contained a coal pile and three concrete coal aggregate bins that would be consistent with a finding of petrogenic PAHs. Sample locations NYOW-05-SL009-A and NYOW-05-SL010-A reside within the coal storage area (**Figure 2-9**). Sample NYOW-05-SL024-A is between the coal storage area and the dual coal aggregate bin A&B (**Figure 2-9**). Given that approximately

70% of the site and background samples were determined to have pyrogenic sources, and only three samples from known historical petroleum areas were found to have a petrogenic origin, a "+" score was assigned to each depth interval to document site and background similarity (i.e., site and background depths and geologic units were comparable and dominated by pyrogenic PAHs, see **Table 5-30**).

#### 5.4.1.1.7 Summary and Recommendations

Based on the results of the site versus background surface geologic unit comparisons, no background soil samples are recommended for removal from the dataset. The Psc surface geologic unit had the weakest overall total scores of +1, +2, and +3 for the 0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs soil intervals, respectively (**Table 5-30**). However, given that the scores were net positive, indicative of similar characteristics to site soil, and that no single background soil sample was responsible for the "dissimilar" scores among the parameters tested, it is recommended that the dataset remain in full. The comparisons for the Ps and Pd surface geologic units resulted in higher total positive scores. For Ps, the net positive scores were +3.5, +8, and +8 for the 0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs soil intervals, respectively (**Table 5-30**). For Pd, the net positive scores were +1.5, +7, and +7.5, respectively (**Table 5-30**).

It is noted that for each surface geologic unit, the strength of the similarity improved with depth, indicating that the surface soil interval was subject to a greater range of values for several parameters, including HMW and LMW PAHs and % sand. The large-scale heterogeneity associated with surface soil may be attributable to anthropogenic transport mechanisms (e.g., differences in atmospheric deposition) and mobilization of larger grain size materials such as sand via air dispersion and erosion. Given that the site versus background comparisons resulted in positive similarity scores, and that the strength of the relationship between site and background improved with depth as expected, the results were considered to support extended intra-background soil concentration comparisons.

### *5.4.1.2 Intra-Background Soil Concentration Comparisons*

The intra-background comparison will satisfy Background Dataset Objectives 2 and 3 presented in **Subsection 5.4.1** and reiterated below.

- Objective 2 – Determine if data from differing soil sampling intervals (0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs) within the assigned surface geologic units (Pd, Psc, and Ps) for the background locations can be combined.
- Objective 3 – Determine if surface geologic units within the background locations can be combined.

Chemical deposition from anthropogenic sources is more likely to remain bound to organic matter at the surface, resulting in a potential accumulation of metals and PAHs in the 0 to 1 ft bgs soil interval. Although it was anticipated that the 0 to 1 ft bgs soil interval could have differing PAH and metal concentrations from the subsurface intervals, the statistical comparisons among all three intervals will be undertaken in order to compile the most robust dataset for the calculation of BTVs.

Initial comparisons were based on the chemistry (i.e., PAHs and metals) from 0 to 1 ft bgs, 1 to 5 ft bgs, and the 5 to 10 ft bgs intervals within a surface geologic unit to determine if the depth intervals could be combined. The second set of comparisons was between surface geologic units using the datasets resulting from the initial exercise.

Multiple comparison tests for centrality were used initially to determine whether or not data can be grouped; multiple comparison tests are more effective in controlling false positives than multiple pairwise tests alone. False positive and false negative error rates are inversely related; controlling false positives (i.e., rejecting the null hypothesis incorrectly) is more desirable in this context so that the most robust datasets are compiled.

- Data distributions were determined using Q-Q plots and goodness of fit tests performed in ProUCL and interpreted in accordance with guidance provided in the ProUCL Technical Guide (EPA, 2015a). For normally distributed datasets with equal variance, the Tukey's HSD multiple comparison test was performed. The Tukey's HSD can be used with both equal and unequal group sample sizes and is more powerful than most other parametric multiple comparisons and its correction from family-wise error (FWER) to pairwise error rates is relatively small (Helsel et.al 2020). For datasets that are normally distributed with unequal variance or without a normal distribution, the nonparametric Dunn's (rank-sum) test with Bonferroni Adjustment multiple comparison test was performed. Both the Tukey's HSD test and Dunn's test with Bonferroni Adjustment are able to control for the FWER, which is the probability of making any Type 1 errors. The *p-value* for the FWER for both tests was set at $p \leq 0.05$.

If the null hypothesis was rejected during the pairwise comparisons as part of either the Tukey's HSD or the Bonferroni-adjusted Dunn's test, the Benjamini-Hochberg (BH) method was used to reduce the overall false discovery rate (FDR; i.e., the expected proportion of incorrect rejections of the null hypothesis) for the pairwise tests. The BH approach was implemented as described below. For k groups there are c = k(k-1)/2 possible pairwise (combinations) comparisons.

- Set the FDR rate to the desired p-value (i.e., 0.05).
- Order the observed p-values from hypothesis tests from high to low.
- Compare each p-value with the product (i/c)FDR, where i = c, c-1, c-2,…1.

A pairwise difference is significant if the observed p-value < (i/c)FDR. Data groupings that were statistically significantly different were not combined.

Supporting exploratory graphics, statistical outputs, and results are presented in **Appendix G** as follows:

- **Appendix G.1** Depth Interval Comparisons and
- **Appendix G.2** Geologic Unit Comparisons.

#### 5.4.1.2.1 Intra-Background Soil Depth Interval Conclusions

Based on the results of the statistical approach described above, all three soil depth intervals (i.e., 0-1 ft bgs, 1-5 ft bgs, and 5-10 ft bgs) can be combined into one 0-10 ft bgs dataset for the Psc, Ps, and Pd surface geologic units and the analytes listed below (Group 1). The associated box plots, scatter plots, and multiple comparison test p-values are provided in **Appendix G.1**.

- Antimony
- Arsenic
- Barium
- Chromium

- Cobalt
- Copper
- Iron
- Nickel
- Selenium
- Silver
- Sodium
- Thallium
- Dibenzo(a,h)anthracene
- Fluorene

Subsurface soil intervals (i.e., 1-5 ft bgs and 5-10 ft bgs) can be combined for each of the three surface geologic units for the analytes presented below (Group 2). For each Group 2 analyte, the difference in sample concentrations in surface soil was determined to be statistically significant and the 0-1 ft bgs interval soil data was not combined with subsurface data.

- Mercury
- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(g,h,i)perylene
- Benzo(k)fluoranthene
- Chrysene
- Fluoranthene
- Indeno(1,2,3-cd)pyrene
- Pyrene

Cadmium was the only analyte for which no depth interval combinations were determined to be appropriate for any of the surface geologic units (**Appendix G.1**). Beryllium and calcium comparisons resulted in the combination of the 0-1 ft bgs and 1-5 ft bgs intervals for each surface geologic unit; however, chemical concentrations in the 5-10 ft bgs intervals were significantly different (**Appendix G.1**). Therefore, the 5-10 ft bgs interval soil depths were not combined with other depth intervals. A discussion of the results of the statistical comparisons for the remaining metals and PAHs is presented in the following section.

Metals

- Aluminum – All three depth intervals can be combined for the Psc surface geologic unit. Only the subsurface soil intervals (1-5 ft bgs and 5-10 ft bgs) can be combined for Ps soils. No depth intervals can be combined for Pd soils (**Appendix G.1**).
- Lead – For the Psc and Ps surface geologic units, surface soil (0-1 ft bgs) was determined to be significantly different than subsurface soil at depths greater than 1 ft bgs. The 1-5 ft bgs and 5-10 ft bgs intervals can be combined. No depth intervals can be combined for Pd soils (**Appendix G.1**).
- Magnesium – No depth intervals can be combined for Psc or Ps soils (**Appendix G.1**). Within the Pd surface geologic unit, the 0-1 ft bgs and 1-5 ft bgs intervals can be combined. Deeper soil (i.e.,

5-10 ft bgs) was found to be significantly different and cannot be combined with soil from other depths (**Appendix G.1**).

- Manganese – All three depth intervals can be combined for the Psc and Ps surface geologic units. The subsurface soil interval (5-10 ft bgs) can be combined with the 0-1 ft bgs and 1-5 ft bgs interval soils within the Pd soil type (**Appendix G.1**).
- Potassium – All three depth intervals can be combined for the Psc and Pd surface geologic units. The subsurface soil interval (5-10 ft bgs) cannot be combined with the 0-1 ft bgs and 1-5 ft bgs interval soils within the Ps soil type (**Appendix G.1**).
- Vanadium – All three depth intervals can be combined for the Psc surface geologic unit. Only the subsurface soil intervals (1-5 ft bgs and 5-10 ft bgs) can be combined for Ps soils. No depth intervals can be combined for Pd soils (**Appendix G.1**).
- Zinc – All three depth intervals can be combined for the Psc and Ps surface geologic units. The subsurface soil interval (5-10 ft bgs) cannot be combined with the 0-1 ft bgs and 1-5 ft bgs interval soils within the Pd soil type (**Appendix G.1**).

PAHs

- 1-Methylnaphthalene, 2-methylnapthalene, and acenaphthylene – All three depth intervals can be combined for the Psc surface geologic unit. Only the subsurface soil intervals (1-5 ft bgs and 5-10 ft bgs) can be combined for Ps and Pd soils (**Appendix G.1**).
- Acenaphthene and anthracene – All three depth intervals can be combined for the Psc and Pd surface geologic units. Only the subsurface soil intervals (1-5 ft bgs and 5-10 ft bgs) can be combined for Ps soils (**Appendix G.1**).
- Naphthalene – All three depth intervals can be combined for the Psc and Ps surface geologic units. Only the subsurface soil intervals (1-5 ft bgs and 5-10 ft bgs) can be combined for Pd soils (**Appendix G.1**).
- Phenanthrene – All three depth intervals can be combined for the Ps surface geologic unit. Only the subsurface soil intervals (1-5 ft bgs and 5-10 ft bgs) can be combined for Psc and Pd soils (**Appendix G.1**).

**Table 5-31** summarizes the results of the initial comparison of depth intervals within surface geologic units as well as the comparison across surface geologic units (as described in **Subsection 5.4.1.2.2**) and highlights the depth interval and surface geologic unit combinations that were implemented.

#### 5.4.1.2.2 Intra-Background Surface Geologic Unit Conclusions

To determine if further consolidation of the background data could be achieved, statistical tests were performed across surface geologic units. Where it was concluded that all depth intervals could be combined within each surface geologic unit, the secondary comparison was performed between surface geologic units using the soil data from 0-10 ft bgs for each unit (e.g., antimony). For every other combination of data that resulted from the initial depth interval comparison, the secondary comparison was performed between surface geologic units with shared vertical grouping. For example, lead soil data from 1-10 ft bgs was combined for the Psc and Ps surface geologic units. Therefore, the inter-unit comparisons were performed between the 0-1 ft bgs interval for all three 0-1 ft bgs surface geologic units and the 1-10 ft bgs intervals of the Psc and Ps units as illustrated below.

| Lead (Comparisons Performed) | | | |
|---|---|---|---|
| Psc | **0-1 ft bgs** | **1-5 ft bgs** | **5-10 ft bgs** |
| Ps | **0-1 ft bgs** | **1-5 ft bgs** | **5-10 ft bgs** |
| Pd | **0-1 ft bgs** | 1-5 ft bgs | 5-10 ft bgs |

Notes: Patterned = 0-1 ft bgs depth interval inter-surface geologic unit comparison; Green Patterned = 1-5 ft bgs+5-10 ft bgs depth interval inter-surface geologic unit comparison

Based on the statistical tests performed, it was determined that the 0-10 ft bgs soil intervals for Psc, Ps, and Pd could be combined and a single BTV calculated for the Group 1 analytes listed below (**Table 5-31**).

- Barium
- Chromium
- Selenium
- Sodium
- Dibenz(a,h)anthracene
- Fluorene

For the following list of Group 1 analytes, only the Ps and Pd surface geologic units could be combined for the 0-10 ft bgs intervals (**Table 5-31**).

- Arsenic
- Cobalt
- Copper
- Iron
- Nickel
- Silver

For antimony, only Psc and Ps data could be further consolidated.

For thallium, the results of the multiple comparison tests indicate that Psc and Pd can be combined and Ps and Pd can be further combined; however, the p-value for Psc and Ps was slightly less than 0.05 at 0.042 following the Benjamini Hochberg adjustment. Therefore, separate BTVs will be calculated of the combined Psc + Pd, and Ps + Pd. Soil sample results for thallium from the Pd surface geologic unit will be compared to the lower BTV in order to maintain conservatism.

All Group 2 surface geologic units could be combined for surface soil. Subsurface soil intervals (i.e., 1-5 ft bgs and 5-10 ft bgs) were combined for each of the three surface geologic units for the Group 2 analytes below (**Table 5-31**). The associated box plots, scatter plots, and p-values are provided in **Appendix G.2**.

- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(g,h,i)perylene
- Benzo(k)fluoranthene
- Chrysene
- Fluoranthene

- Indeno(1,2,3-cd)pyrene
- Pyrene

Only Ps and Pd could be further combined for subsurface soil mercury data.

Cadmium was the only analyte for which no depth interval combinations were determined to be appropriate for any of the surface geologic units; therefore, each depth interval was compared separately across the surface geologic units. The results of the multiple comparison tests indicate that the individual depth interval data can be combined for Psc, Ps, and Pd soil (**Table 5-31**).

All three surface geologic units could be combined for beryllium (0-5 ft bgs) and calcium (0-5 ft bgs). All surface geologic unit data for the beryllium (5-10 ft bgs) was also able to be consolidated. For calcium (5-10 ft bgs) the results of the multiple comparison tests indicate that Psc and Pd, and Ps and Pd can be further combined; however, the p-value for Psc and Ps was slightly less than 0.05 at 0.044 following the Benjamini Hochberg adjustment. Therefore, separate BTVs will be calculated of the combined Psc + Pd, and Ps + Pd. Soil sample results for calcium from the Pd surface geologic unit will be compared to the lower BTV in order to maintain conservatism (**Table 5-31**).

A discussion of the results of the statistical comparisons for the remaining metals and PAHs is presented in the following section (**Table 5-31**).

Metals

- Aluminum – Ps and Pd surface geologic unit data collected from the surface soil interval (0-1 ft bgs) can be combined (**Appendix G.2**).
- Lead – Ps and Pd surface geologic unit data collected from the surface soil interval (0-1 ft bgs) can be combined (**Appendix G.2**).
- Magnesium – Psc and Ps surface geologic unit data collected from the 1-5 ft bgs soil interval can be combined. For the 5-10 ft bgs interval, all surface geologic units can be combined (**Appendix G.2**).
- Manganese – No combination of soil data between soil geologic units was determined to be appropriate (**Appendix G.2**).
- Potassium – Psc and Pd surface geologic unit data from 0-10 ft bgs can be combined (**Appendix G.2**).
- Vanadium – Ps and Pd surface geologic unit data from 0-1 ft bgs can be combined (**Appendix G.2**).
- Zinc – No combination of soil data between soil geologic units was determined to be appropriate (**Appendix G.2**).

PAHs

- 1-Methylnaphthalene – Ps and Pd surface geologic unit data can be combined for 1-methylnaphthalene at 0-1 bgs and at 1-10 ft bgs (**Appendix G.2**).
- 2-Methylnaphthalene – Ps and Pd surface geologic unit data can be combined at 0-1 bgs and at 1-10 ft bgs (**Appendix G.2**).
- Acenaphthylene – Ps and Ps surface geologic unit data can be combined for acenaphthylene at the 1-10 ft bgs soil intervals (**Appendix G.2**).

- Acenaphthene – No combination of soil data between soil geologic units was determined to be appropriate for acenaphthene (**Appendix G.2**).
- Anthracene – Psc and Pd surface geologic data can be combined for anthracene for 0-10 ft bgs soil (**Appendix G.2**).
- Naphthalene – Psc and Ps surface geologic data can be combined for 0-10 ft bgs soil (**Appendix G.2**).
- Phenanthrene – Psc and Pd surface geologic data can be combined for the 0-1 ft bgs soil interval and for the 1-10 ft bgs soil interval (**Appendix G.2**).

**Table 5-31** summarizes the results of the surface geologic units that were combined with depth intervals.

#### *5.4.1.3 Background Threshold Value Calculation*

Background soil datasets determined in **Subsection 5.4.1** and data from the nine background wells were used to calculate soil and groundwater BTVs, respectively. As noted in **Subsection 5.4.1**, all of the background groundwater wells were located outside the area of influence of the site and data from the nine wells were used to calculate groundwater BTVs.

For the purposes of the Phase 1 Risk Screening, soil BTVs were calculated for each dataset determined in **Subsection 5.4.1**. If the project proceeds to Phase 2, background soil may need to be collected via ISM techniques for comparability with anticipated additional site data.

For the BTV calculations, non-detects were included in the ProUCL input at the LOD and potential outliers were not removed. BTVs were calculated in ProUCL assuming a 95% confidence limit to develop 95% Upper Tolerance Limits (UTLs) or Upper Prediction Limits (UPLs), depending upon sample size. UPLs are more effective for reducing false positives in small (< 25 samples) datasets. BTVs were selected as follows.

- When all of the detections for an analyte are less than the LOQ (i.e., J-qualified due to trace concentrations), the BTV was judgmentally set as less than the Site sample-specific LOQ.
- When the dataset contained less than 3 detects that were also above the LOQ, the BTV was a non-parametric BTV.
- When the dataset contains at least 3 detects above the LOQ and has < 50 samples, parametric KM BTVs were selected preferentially over non-parametric BTVs.
- When the dataset contains at least 3 detects above the LOQ and has ≥ 50 samples, the data distribution was used to determine if the parametric or non-parametric KM BTV was selected.

If an analyte within a background dataset does not have any detections, a BTV was calculated as the 95$^{th}$ percentile of the LODs that are less than the PAL identified in the QAPP (USACE, 2020).

Groundwater and soil BTVs are presented in **Table 5-32 and 5-33**, respectively. Backup for the calculations is presented in **Appendix H**. BTVs that were developed using a non-detected dataset were only for groundwater analytes as follows: 1-methylnaphthalene, 2-methylnaphthalene, anthracene, fluoranthene, fluorene, naphthalene, pyrene, beryllium, silver, and zinc. In addition, groundwater BTVs were not developed for antimony, cadmium, mercury, selenium, and thallium because they were never detected in background dissolved groundwater and the LODs are greater than the respective screening level. BTVs developed using a non-detected dataset are discussed in the uncertainty analysis (**Subsection 6.3**).

### 5.4.2 Comparisons of Site Concentrations to BTVs

Comparisons between site and background were made for AOCs 1, 3, and AOC 5 subareas separately. To date, AOC 4 soil and groundwater samples have been analyzed only for site-specific contaminants of concern (COCs); therefore, a background comparison is not appropriate. Site soil datasets were compiled based on the depth intervals for the AOC-specific exposure scenarios.

Depending upon how the soil depth intervals were combined for BTV calculation and site exposure units (EUs), there are variations on how comparisons to BTVs were made. If BTVs were not available for an EU depth interval, the approach was to either:

- compare the concentrations in the EU depth interval to BTVs that span the EU depth interval (e.g., a 0 to 1 ft bgs EU might be compared with a BTV that was developed by combining data from 0 to 10 ft bgs), or
- compare the concentrations in the EU depth interval to the most conservative BTV developed for depth intervals within the EU depth interval range (e.g., a 0 to 5 ft bgs EU might be compared to the lower of the BTVs developed for 0 to 1 ft and 1 to 5 ft bgs).

As noted in **Section 2**, BTVs were not developed for fill material. Based on the site history, it is assumed that on-site fill is related to DoD activities. Therefore, in order to not be considered a potential source, site fill should not contain concentrations of metals and PAHs exceeding native soil background concentrations. As such, site sample concentrations located in fill were compared with the BTV developed for the geologic unit identified for the surrounding site locations. If the fill is surrounded by site locations from more than one geologic unit, the most conservative BTV (i.e., lowest) for the applicable units was used in the comparison. See **Table 5-34** for geologic unit assignments for site fill locations.

As noted in the field report covering AOC 1 activities (USACE, 2021), existing concrete building foundations and steep slopes prohibited drill rig access and the sampling plan was changed from collecting samples at three depths to collection shallow (0 to 1 ft bgs) samples biased to downgradient areas. Therefore, data were not available from the 1 to 5 ft bgs and 5 to 10 ft bgs depths to assign a geologic unit for the location. In order to compare the site concentrations with BTVs, site sample concentrations from locations where only the 0 to 1 ft bgs interval was sampled were compared with the BTV developed for the geologic unit identified based on the inferred geology. See **Table 5-35** for geologic unit assignments for AOC 1 locations with samples collected only from 0 to 1 ft bgs.

A conclusion of a potential site-related release was made for soil if the maximum concentration for site datasets with ≤ 20 samples was greater than the BTV or if more than 5% of the results for site datasets > 20 samples was greater than the BTV. When the BTV was set at less than the LOQ and the site concentration was not less than any sample-specific LOQ for the exposure interval, a conclusion of a potential site-related release for an analyte was made.

Only one round of groundwater data are available from temporary wells located mainly to determine groundwater flow direction. At this time there are no identifiable plumes. As such, the conclusion of a potential site-related release was made if the maximum detected groundwater concentration for AOC 1, AOC 3, or the AOC 5 subarea exceeded the BTV.

Comparisons with BTVs are presented by AOC for groundwater and for EUs per geologic unit for surface soil exposure at 0 to 1 ft bgs, and subsurface soil exposures at 0 to 5 ft bgs and 0 to 10 ft bgs. For AOC 4,

statistics for the surface soil discrete data and for each of the twelve ISM DUs were to be calculated and presented separately, for a total of at least 13 AOC 4 surface soil datasets. However, all of the analytes in AOC 4 ISM surface soil samples were non-detect. Comparisons of site concentrations to BTVs are presented in **Appendix I**. A summary of the background comparison results is presented in **Table 5-36**.

For AOCs 1 and 3, PAHs and metals with concentrations considered to be within background were not evaluated further. In the case of AOC 5 where the investigation is an initial SI, comparisons with background are for informational purposes and not used to eliminate analytes from further investigation because insufficient site data are available to perform a robust statistical comparison. Further sampling may be proposed for AOC 5 for analytes detected above screening levels or with uncertainties surrounding the relationship between the screening level and LOQ.

Whether an analyte advances to the screening-level comparison based on the initial screening steps is presented for human health and ecological receptors in **Subsections 5.6 and 5.7**, respectively.

Given how BTVs are defined (i.e., the null hypothesis is that the site concentrations are consistent with background concentrations), false positives (Type I error or the incorrect rejection of the null hypothesis) overestimate contamination and false negatives (Type II error or failure to reject the null hypothesis) underestimate contamination. BTVs typically control false positives only. From a statistical perspective, results greater than BTVs demonstrate likely site-related releases but results less than BTVs are inconclusive. PDT concurrence will be achieved prior to eliminating contaminants less than BTVs from further Phase 1 evaluation. Stakeholder concurrence will be sought prior to Phase 2 sampling activities. Hypothesis testing for centrality can simultaneously control Type I and Type II errors for background comparisons and may be undertaken during Phase 2.

### 5.4.3 Initial Conclusions – Background Comparisons

Background comparisons were not made for the analytes in AOC 4 and in the case of AOC 5 where the investigation is an initial SI, comparisons with background are for informational purposes and should not be used to eliminate analytes from further investigation because insufficient site data are available to perform a robust statistical comparison.

As noted in **Subsection 5.4.2**, from a statistical perspective, results greater than BTVs demonstrate likely site-related releases but results less than BTVs are inconclusive. The following is a summary of analytes in AOCs 1 and 3 with maximum detected concentrations below BTVs that were eliminated from the comparison with screening levels. These analytes could be considered for elimination from analysis in future sampling events.

| | AOC 1 | | | |
|---|---|---|---|---|
| | Soil | | | |
| Analyte | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs | Groundwater |
| Aluminum | | | | X |
| Antimony | | | | X |
| Barium | | | X | |
| Beryllium | | | | X |
| Cadmium | | | | X |
| Cobalt | | | | X |

| Analyte | AOC 1 | | | |
|---|---|---|---|---|
| | Soil | | | Groundwater |
| | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs | |
| Mercury | | | | X |
| Selenium | | | | X |
| Silver | | | | X |
| Thallium | X | X | X | X |
| Vanadium | X | | | |

| Analyte | AOC 3 | | |
|---|---|---|---|
| | Soil | | Groundwater |
| | 0 to 1 ft bgs | 0 to 5 ft bgs | |
| PAHs | | Naphthalene only | All 18 PAH analytes |
| Aluminum | | | X |
| Antimony | | | X |
| Arsenic | X | | |
| Barium | X | X | X |
| Beryllium | | | X |
| Cadmium | | X | X |
| Chromium | X | X | X |
| Copper | | | X |
| Iron | | | X |
| Mercury | X | | X |
| Selenium | | | X |
| Silver | | | X |
| Thallium | | | X |

Note: AOC 3 0 to 10 ft bgs – no analytes had maximum detected concentrations less than the BTV.

## 5.5 NATURE, FREQUENCY OF DETECTION, MAGNITUDE, AND SPATIAL DISTRIBUTION

For chemicals with a frequency of detection (FOD) ≤ 5% across media and depth intervals (see **Table 5-29**), the nature, frequency, magnitude, and spatial clustering of exceedances was evaluated to determine if there was a decision point surrounding the data (e.g., does it elucidate a data gap where additional sampling may be needed). Chemicals with no detected results (e.g., FOD = 0%) were not further evaluated within the context of this subsection. Chemicals detected in 5% or less of samples across media and depth intervals are listed below per exposure area; **bolded** chemicals had an exceedance of their respective human health and/or ecological screening levels and will be discussed further within this subsection.

- AOC 1
  - **Picric acid** (1/62 detected)
- AOC 3
  - Cumene (1/25 detected)
  - m,p-Xylene (1/25 detected)

- **4-Nitroaniline** (1/43 detected)
- Bis(2-ethylhexyl)phthalate (2/43 detected)
- Caprolactam (1/43 detected)
- **Cresols, m- & p-** (1/43 detected)
- **Dibenzofuran** (2/43 detected)

- AOC 5

- **Benzaldehyde** (1/74 detected)
- Caprolactam (1/75 detected)
- **Dibenzofuran** (3/75 detected)
- **di-n-Butyl phthalate** (1/75 detected)
- Phenol (1/77 detected)
- Silver (1/87 detected)

For AOC 1, picric acid had a single detection at surface soil location NYOW-01-026, which was located near the perimeter of the northernmost former ammonium picrate building (**Figure 2-2**). The detected concentration exceeded ecological screening levels (soil invertebrate and mammal); however, analytical limits (i.e., the LOD) exceeded the screening levels in all soil samples.

For AOC 3, only 4-nitroaniline, m- & p-cresols, and dibenzofuran exceeded a human health and/or ecological screening level. The single occurrence of 4-nitroaniline was in groundwater (NYOW-03-015; **Figure 2-3**) in the northwest quadrant of the former landfill area, just south of the June 1949 dumping extent. The concentration exceeded the human health screening level; however, analytical limits (i.e., the LOD) exceeded the screening level in all groundwater samples. For m- & p-cresols and dibenzofuran, the exceedances were limited to soil invertebrates in surface soil (0 to 1 ft bgs) at sample locations NYOW-03-011 (dibenzofuran only) and NYOW-03-012 (**Figure 2-3**). These two locations are in the southeast quadrant of the former landfill area, outside the extents of the August 1944 and June 1949 dumping, between the parking lot and Potter Road. Both chemicals were only detected below the LOQ, therefore, the detected concentrations of each chemical were censored at the LOQ.

For AOC 5, only benzaldehyde, dibenzofuran, and di-n-butyl phthalate exceeded an ecological screening level. Dibenzofuran was detected in sample NYOW-05-024 at 1 to 5 ft bgs, which is located just to the west of the dual A and B Coal Aggregate Bins, between the Coal Storage Area and the bins (**Figure 2-9**). Two additional exceedances of the soil invertebrate screening level for dibenzofuran occurred in surface soil at NYOW-05-003 and -005 within the Possible Dump Area (**Figure 2-9**). The other exceedances in the Possible Dump Area in surface soil: benzaldehyde (NYOW-05-001, soil invertebrates) and di-n-butyl phthalate (NYOW-05-005, birds and soil invertebrates). The detections of benzaldehyde and dibenzofuran were censored at the LOQ and exceeded the soil invertebrate ecological screening level.

### 5.5.1 Initial Conclusions – Nature, Frequency of Detection, Magnitude, and Spatial Distribution

For constituents detected in 5% or less of samples across media and depth intervals, initial conclusions are presented by AOC.

AOC 1

The picric acid (detected in 1 of 62 samples) concentration was censored at the LOQ and exceeded the soil invertebrate and mammal screening levels. This trace-level result was the only detect among a combined 269 groundwater and soil samples (0 to 1, 1 to 5, and 5 to 10 ft bgs) between AOC 1 – Ammonium Picrate Area and AOC 4 – Bunker Area (where the ammonium picrate was stored). These sampling results support the hypothesis that picric acid remaining on site would have been degraded since the cessation of ammonium picrate manufacturing almost 80 years ago. There does not appear to be a data gap for picric acid that would elicit further sampling.

AOC 3

4-Nitroaniline was detected in 1 of 43 samples that was censored at the LOQ. The detect was in groundwater but not soil. However, the sample was collected along what would be an most upgradient estimated edge of the historical 1949 dumping with no groundwater samples collected within the historical dumping area. Although the one detection does not necessarily indicate a release, the lack of concentration data within the historical footprint of the dumping is a potential data gap.

Dibenzofuran (detected in 2 of 43 samples) and m- & p-cresols (detected in 1 of 43 samples) concentrations were censored at the LOQ and exceeded only the soil invertebrate screening level. All of these detects were in surface soil in the southeast quadrant of the former landfill area, outside the extents of the historical dumping, between the parking lot and Potter Road. Given the reworking of the soil in that area and the proximity to the road, attribution of surface soil concentrations in that area to DoD activities is suspect. Therefore, a substantial data gap for these analytes does not seem to exist.

AOC 4

Not applicable. There were no detections in groundwater or discrete or ISM soil samples collected from AOC 4.

AOC 5

Benzaldehyde (detected in 1 of 74 samples) and dibenzofuran (detected in 3 of 75 samples) concentrations were censored at the LOQ and exceeded only the soil invertebrate screening level. Di-n-butyl phthalate (detected in 1 of 75 samples) was the only phthalate detected in AOC 5. Therefore, a substantial data gap for these analytes does not seem to exist given there is no discernible pattern of hits or source area identified.

## 5.6 HUMAN HEALTH RISK SCREENING

With the exception of essential nutrients (calcium, magnesium, potassium, and sodium), for analytes remaining after the steps presented in **Subsections 5.1 through 5.4**, a risk-based human health screening was performed. A summary of the results of the completed steps and whether the analyte advances to the screening-level comparison is presented for groundwater and soil in **Table 5-37 and Table 5-38**, respectively.

The human health screening was limited to groundwater and soils (both surface and subsurface) and was conducted in accordance with CERCLA guidance, and the procedures documented in the Phase 1 Risk Screening Approach (**Appendix A**). Published guidance from USACE and New York State Department of Environmental Conservation (NYSDEC) were also considered. Sources include but are not limited to:

- USACE *Risk Assessment Handbook, Volume I: Human Health Evaluation* (EM 200-1-4) (USACE, 1999)
- Risk Assessment Guidance for Superfund (RAGS):
  - *Volume I: Human Health Evaluation Manual (Part A) (Interim Final)* (EPA, 1989);
  - *Volume I: Human Health Evaluation Manual: Supplemental Guidance – "Update of Standard Default Exposure Factors"* (EPA, 2014a);
  - *Volume I: Human Health Evaluation Manual (Part D, Standardized Planning, Reporting and Review of Superfund Risk Assessments)* (EPA, 2001);
  - *Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) (Final)* (EPA, 2004);
  - *Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment) (Final)* (EPA, 2009);
- EPA *Child Exposure Factors Handbook* (EPA, 2008)
- EPA *Exposure Factors Handbook: 2011 Edition* (EPA, 2011) and relevant chapter updates
- EPA *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens* (EPA, 2005)
- EPA RSL Table (EPA, 2022, or latest version)
- EPA *Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors* (EPA, 2014)
- USACE *Environmental Quality, Standard Scopes of Work for Environmental Risk Assessments* (EP 200-1-15) (USACE, 2016)
- Input from NYSDEC

The human health screening was completed stepwise to focus the COPC list to those chemicals that may pose a potential risk to human receptors. A brief description of the process is noted below.

- Compare the site screening concentrations to the most recent versions of the Residential Soil and Tap Water RSLs (EPA, 2022). For discrete samples, the screening concentration was the maximum detected concentration regardless of the size of the dataset. For ISM samples, 2x the maximum detected concentration was used as a conservative screening concentration in lieu of the recommended 95% upper confidence limit (UCL) from the ITRC ISM-2 calculator; however, there were no detections in the 2021 ISM samples. For an analyte with all non-detect results, the highest LOQ was used for screening in order to inform the data gaps analysis. If a data gap is identified due to poor sensitivity, analytical alternatives that may improve sensitivity will be assessed. In general, a chemical was selected as a COPC if the screening concentration exceeded the screening value or if a screening value was not available for a potential receptor. The essential and generally non-toxic "macro elements," calcium, magnesium, potassium, and sodium were not considered COPCs.
- Groundwater and soil sample results (surface and subsurface) were compared to relevant human health screening levels on a sample-by-sample basis.
- Screening level comparison tables are presented by medium per AOC with detected concentrations exceeding screening levels highlighted (**Appendix J**). Tables presenting sample by sample comparisons are presented in **Appendix J.1** and **Appendix J.2** for groundwater and soil, respectively.

- RAGS D Table 2s (EPA, 2001) are also provided to summarize the results. Groundwater tables are presented in **Appendix J.3** and soil tables are presented in **Appendix J.4**.
- Risk characterization modeling (including blood lead modeling) and derivation of exposure point concentrations (EPCs), hazard quotients, hazard indices, and incremental lifetime cancer risks were not completed.

## 5.7 ECOLOGICAL RISK SCREENING

In general, for analytes remaining after the steps presented in **Subsections 5.1 through 5.4**, a risk-based ecological screening will be completed. Exceptions include essential nutrients and generally non-toxic "macro elements," calcium, magnesium, potassium, and sodium (Henry and Miles 2001), which are required for proper organism growth and function. If these elements are not detected at the Site at levels elevated above typical ambient conditions, they are not expected to pose any substantial ecological risk to receptors and, therefore, would not be considered constituents of potential ecological concern (COPECs) (see **Subsection 6.2.2** for results).

Other exceptions are aluminum and iron, which do not have chemical-specific bulk soil toxicity screening levels but are evaluated based on whether the soil pH is conducive to bioavailability. Site soil pH data are not available, therefore if these elements are not detected at the Site at levels elevated above typical ambient conditions, they are not expected to pose any substantial ecological risk to receptors and, therefore, would not be considered COPECs (see **Subsection 6.2.2** for results). A summary of the results of the completed steps and whether an analyte advanced to the ecological screening-level comparison is presented on a receptor basis in **Tables 5-39** through **5-42**.

The ecological screening was prepared in accordance with EPA's Risk Assessment Guidance under CERCLA and the procedures documented in the Phase 1 Risk Screening Approach (**Appendix A**). The primary guidance that used to perform the screening is EPA's *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (EPA, 1997) and the USACE's *Environmental Quality – Risk Assessment Handbook, Volume II: Environmental Evaluation* (USACE, 2010).

As specified in the UFP-QAPP (USACE, 2020; Section 10.6.4 Potential Ecological Receptors and Exposure Routes), the media of concern for the ecological screening is limited to soils (both surface and 1 to 5 ft bgs subsurface). Ecological receptor exposures to the 5 to 10 ft bgs depth interval is limited to the roots of larger plants (e.g., shrubs and trees) as the interval is deeper than the biologically active zone for invertebrates (EPA, 2015b) and deeper than what birds and burrowing mammals would be anticipated to reach. Therefore, the 5 to 10 ft bgs depth interval was not evaluated in Phase 1, but may be evaluated in Phase 2, if deemed appropriate.

The ecological screening was completed in a stepwise manner to focus the COPEC list to those chemicals that may pose a potential risk to ecological receptors. A brief description of the process is noted below. This Phase 1 Ecological Risk Screening process is also described in the attached ecological risk assessment flow chart (**Figure 5-1**). The Phase 1 Ecological Risk Screening can be seen in-context of the screening-level ecological risk assessment process when viewed with **Figure 5-2**.

- The site screening concentration was compared to conservative benchmarks. For discrete samples, the screening concentration was the maximum detected concentration regardless of the size of the

dataset. For ISM samples, 2x the maximum detected concentration would have been used as a conservative screening concentration in lieu of the recommended 95% UCL from the ITRC ISM-2 calculator; however, there were no detections in the 2021 ISM samples. Analytes with all non-detect results were not advanced to the screening level comparisons, but the LOQs were compared in **Subsection 5.1.2** to inform the data gaps analysis. If a data gap is identified due to poor sensitivity, analytical alternatives that may improve sensitivity will be assessed in a future UFP-QAPP, should the analyte be recommended for evaluation in Phase 2.

- Direct exposure to surface soil in AOC 1, AOC 4, and AOC 5 was evaluated for plants and soil invertebrates using soil screening values. Indirect exposure to bioaccumulative constituents in surface soil was evaluated using soil screening values based on food chain modeling for representative invertivorous birds and/or small mammal receptors. Receptor selection was guided by the results of the receptor resource inventory (see **Appendix K**). AOC 3 is mostly a paved parking lot for a golf course. Due to the limited area and low quality ecological habitat, AOC 3 surface soils were not considered an ecological exposure medium (see **Section 7,** Conceptual Site Model Updates).
- Direct exposure to subsurface soil (0 to 5 ft bgs only) in AOC 1, AOC 3, AOC 4, and AOC 5 was evaluated for the plants and soil invertebrates using soil screening values. Habitat within AOCs 1 and 4 is potentially suitable to support burrowing mammalian receptors (e.g., red fox); therefore, indirect exposure to bioaccumulative constituents in subsurface soil was evaluated using soil screening values based on food chain modeling for mammals (see **Section 7,** Conceptual Site Model Updates).
- Screenings were completed on a receptor basis so it can be determined which receptor categories do not need further evaluation for each constituent. The receptors evaluated in each AOC are noted below. Phase 2-based ecological risk assessments may evaluate other receptors, if deemed appropriate.
    - AOC 1
        - 0 to 1 ft bgs – plants, soil invertebrates, birds, and mammals
        - 0 to 5 ft bgs – plants, soil invertebrates, and mammals
    - AOC 3
        - 0 to 5 ft bgs – plants and soil invertebrates
    - AOC 4 – discrete
        - 0 to 1 ft bgs – plants, soil invertebrates, birds, and mammals
        - 0 to 5 bgs plants, soil invertebrates, and mammals
    - AOC 4 – ISM
        - 0 to 1 ft bgs – plants, soil invertebrates, birds, and mammals
    - AOC 5 (subareas separate)
        - 0 to 1 ft bgs – plants, soil invertebrates, birds, and mammals
        - 0 to 5 ft bgs plants, soil invertebrates, and mammals

- Screening level comparison tables are presented by medium per AOC with detected concentrations exceeding screening levels highlighted (**Appendix L**) as follow:
    - **Appendix L.1** Sample by Sample Screening – Plants;
    - **Appendix L.2** Sample by Sample Screening – Soil Invertebrates;
    - **Appendix L.3** Sample by Sample Screening – Birds; and
    - **Appendix L.4** Sample by Sample Screening – Mammals.
- RAGS D Table 2s (EPA, 2001) also are provided to summarize the results in **Appendix L** as follows:
    - **Appendix L.5** Screening Summary – Plants;
    - **Appendix L.6** Screening Summary – Soil Invertebrates;
    - **Appendix L.7** Screening Summary – Birds; and
    - **Appendix L.8** Screening Summary – Mammals.

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# 6.0 RISK SCREENING RESULTS AND DISCUSSION

## 6.1 INTRODUCTION

After the comparison of media concentrations to calculated background threshold values was completed, analytes with maximum detection concentration (MDC) greater than the BTV were carried forward for further comparison to risk-based screening values (**Subsections 5.6 and 5.7**). The following sections provide the results of the risk screening results and a discussion of the media and COPCs that will be carried into subsequent Phase 2 investigations.

## 6.2 RESULTS

The results of the human health and ecological risk screenings, including constituents identified as site COPCs by media and the associated receptor populations is presented in the sections below.

### 6.2.1 Human Health

Risk screening for human health was completed in accordance with **Subsection 5.6**. Screening level comparison tables are provided by medium per AOC in **Appendix J**. The COPCs in soil were identified by comparing the maximum detected concentrations to the Residential Soil RSLs (EPA, 2022). COPCs in groundwater were identified by comparing the maximum detected concentrations to the Tap Water RSLs (EPA, 2022).

#### *6.2.1.1 AOC 1 Human Health Risk Screening*

Ten metal analytes were carried forward to the risk-based screening step for shallow groundwater at AOC 1. Aluminum, barium, iron, manganese, nickel, and vanadium had MDCs greater than their respective Tap Water RSLs and were identified as groundwater COPCs (**Table J.3-1**).

Picric acid and 17 metal analytes were carried forward to the risk-based screening step for surface soil at AOC 1. Arsenic, cadmium, cobalt, iron, and manganese had MDCs greater than the Residential Soil RSL and were identified as surface soil COPCs (**Table J.4-1**). Picric acid and 18 metal analytes were carried forward to the risk-based screening step for surface and subsurface soil (0-5 ft bgs) at AOC 1. Aluminum, arsenic, cadmium, cobalt, iron, and manganese had MDCs greater than the Residential Soil RSL and were identified as soil COPCs in the 0-5 ft bgs interval (**Table J.4-2**). Picric acid and 17 metal analytes were carried forward to the risk-based screening step for all soil (0-10 ft bgs) at AOC 1. Aluminum, arsenic, cadmium, cobalt, iron, and manganese had MDCs greater than the Residential Soil RSL and were identified as soil COPCs in the 0-10 ft bgs interval (**Table J.4-3**).

#### *6.2.1.2 AOC 3 Human Health Risk Screening*

Four VOCs (acetone, benzene, m,p-xylenes, toluene), 3 SVOCs, and seven metals were carried forward to the risk-based screening step for shallow groundwater at AOC 3. Benzene, 4-nitroaniline, arsenic, cobalt, manganese, nickel, and vanadium had MDCs greater than their respective Tap Water RSLs and were identified as groundwater COPCs (**Table J.3-2**).

Five SVOCs, 18 PAHs, Aroclor-1260, and 15 metal analytes were carried forward to the risk-based screening step for surface soil at AOC 3. Five PAHs (benzo(a)anthracene, benzo(a)pyrene,

benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene) and five metals (aluminum, cobalt, iron, manganese, and thallium) had MDCs greater than the Residential Soil RSL and were identified as surface soil COPCs (**Table J.4-4**). Four VOCs, five SVOCs, 17 PAHs, Aroclor-1260, and 16 metal analytes were carried forward to the risk-based screening step for surface and subsurface soil (0-5 ft bgs) at AOC 3. Five PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene) and five metals (aluminum, arsenic, cobalt, iron, manganese, and thallium) had MDCs greater than the Residential Soil RSL and were identified as soil COPCs for all soil (0-5 ft bgs) (**Table J.4-5**).

#### *6.2.1.3 AOC 5 Boiler House Human Health Risk Screening*

Caprolactam, 16 PAHs, and eight metals were carried forward to the risk-based screening step for shallow groundwater at the AOC 5 Boiler House area. Five PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and naphthalene) and five metals (antimony, arsenic, cobalt, manganese, and vanadium) had MDCs greater than the Residential Tap Water RSL and were identified as groundwater COPCs (**Table J.3-3**).

Eighteen PAHs and 18 metal analytes were carried forward to the risk-based screening step for surface soil at the AOC 5 Boiler House area. Five metals (arsenic, cobalt, iron, manganese, and thallium) had MDCs greater than the Residential Soil RSL and were identified as surface soil COPCs (**Table J.4-6**). Eighteen PAHs and 18 metal analytes were carried forward to the risk-based screening step for surface and subsurface soil (0-5 ft bgs) at the AOC 5 Boiler House area. Six metals (aluminum, arsenic, cobalt, iron, manganese, and thallium) had MDCs greater than the Residential Soil RSL and were identified as surface and subsurface soil COPCs (**Table J.4-7**). Eighteen PAHs and 18 metal analytes were carried forward to the risk-based screening step for all soil (0-10 ft bgs) at the AOC 5 Boiler House area. Six metals (aluminum, arsenic, cobalt, iron, manganese, and thallium) had MDCs greater than the Residential Soil RSL and were identified as surface and subsurface soil COPCs (**Table J.4-8**).

#### *6.2.1.4 AOC 5 Coal Aggregate Bins Area Human Health Risk Screening*

Phenol, five PAHs, and 12 metals were carried forward to the risk-based screening step for shallow groundwater at the AOC 5 Coal Aggregate Bins area. Naphthalene and seven metals (aluminum, arsenic, cobalt, iron, manganese, nickel, and vanadium) had MDCs greater than the Residential Tap Water RSL and were identified as groundwater COPCs (**Table J.3-4**).

Eighteen PAHs and 18 metal analytes were carried forward to the risk-based screening step for surface soil at the AOC 5 Coal Aggregate Bins area. Five PAHs (benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and naphthalene) and six metals (aluminum, arsenic, cobalt, iron, manganese, and thallium) had MDCs greater than the Residential Soil RSL and were identified as surface soil COPCs (**Table J.4-9**). Dibenzofuran, 18 PAHs and 18 metal analytes were carried forward to the risk-based screening step for surface and subsurface soil (0-5 ft bgs) at the AOC 5 Coal Aggregate Bins area. Five PAHs (benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and naphthalene) and six metals (aluminum, arsenic, cobalt, iron, manganese, and thallium) had MDCs greater than the Residential Soil RSL and were identified as surface and subsurface soil COPCs (**Table J.4-10**). Dibenzofuran, 18 PAHs and 18 metal analytes were carried forward to the risk-based screening step for all soil (0-10 ft bgs) at the AOC 5 Coal Aggregate Bins area. Five PAHs (benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and naphthalene) and six metals

(aluminum, arsenic, cobalt, iron, manganese, and thallium) had MDCs greater than the Residential Soil RSL and were identified as soil COPCs (**Table J.4-11**).

#### *6.2.1.5 AOC 5 Coal Storage Area Human Health Risk Screening*

Four PAHs (1-methylnaphthalene, 2-methylnaphthalene, naphthalene, and phenanthrene) and seven metals were carried forward to the risk-based screening step for shallow groundwater at the AOC 5 Coal Storage area. Naphthalene, antimony, arsenic, cobalt, iron, manganese, and nickel had MDCs greater than their respective Tap Water RSLs and were identified as groundwater COPCs (**Table J.3-5**).

Eighteen PAHs and 18 metal analytes were carried forward to the risk-based screening step for surface soil at the AOC 5 Coal Storage area. Two PAHs (benzo(a)pyrene and naphthalene) and five metals (arsenic, cobalt, iron, manganese, and thallium) had MDCs greater than the Residential Soil RSL and were identified as surface soil COPCs (**Table J.4-12**). Eighteen PAHs and 18 metal analytes were carried forward to the risk-based screening step for surface and subsurface soil (0-5 ft bgs) at the AOC 5 Coal Storage area. Two PAHs (benzo(a)pyrene and naphthalene) and five metals (arsenic, cobalt, iron, manganese, and thallium) had MDCs greater than the Residential Soil RSL and were identified as surface and subsurface soil COPCs (**Table J.4-13**). Eighteen PAHs and 18 metal analytes were carried forward to the risk-based screening step for all soil (0-10 ft bgs) at the AOC 5 Coal Storage area. Two PAHs (benzo(a)pyrene and naphthalene) and six metals (aluminum, arsenic, cobalt, iron, manganese, and thallium) had MDCs greater than the Residential Soil RSL and were identified as surface and subsurface soil COPCs (**Table J.4-14**).

#### *6.2.1.6 AOC 5 Electric Substation Human Health Risk Screening*

Naphthalene, arsenic, barium, cobalt, iron, and manganese were carried forward to the risk-based screening step for shallow groundwater at the AOC 5 Electric Substation. Naphthalene, arsenic, cobalt, and manganese had MDCs greater than their respective Tap Water RSLs and were identified as groundwater COPCs (**Table J.3-6**).

Eighteen PAHs, Aroclor-1260, and 18 metal analytes were carried forward to the risk-based screening step for surface soil at the AOC 5 Electric Substation. Six metals (aluminum, arsenic, cobalt, iron, manganese, and thallium) had MDCs greater than the Residential Soil RSL and were identified as surface soil COPCs (**Table J.4-15**). Eighteen PAHs, Aroclor-1260, and 18 metal analytes were carried forward to the risk-based screening step for surface and subsurface soil (0-5 ft bgs) at the AOC 5 Electric Substation. Six metals (aluminum, arsenic, cobalt, iron, manganese, and thallium) had MDCs greater than the Residential Soil RSL and were identified as surface and subsurface soil COPCs (**Table J.4-16**). Eighteen PAHs, Aroclor-1260, and 18 metal analytes were carried forward to the risk-based screening step for all soil (0-10 ft bgs) at the AOC 5 Electric Substation. Six metals (aluminum, arsenic, cobalt, iron, manganese, and thallium) had MDCs greater than the Residential Soil RSL and were identified as surface and subsurface soil COPCs (**Table J.4-17**).

#### *6.2.1.7 AOC 5 Possible Dump Area Human Health Risk Screening*

The VOC 1,2,3-trichlorobenzene, eight PAHs and seven metals were carried forward to the risk-based screening step for shallow groundwater at the AOC 5 Possible Dump area. 1,2,3-Trichlorobenzene, naphthalene, arsenic, cobalt, manganese, and nickel had MDCs greater than their respective Tap Water RSLs and were identified as groundwater COPCs (**Table J.3-7**).

Three SVOCs (benzaldehyde, dibenzofuran, and di-n-butyl phthalate), 17 PAHs, and 19 metal analytes were carried forward to the risk-based screening step for surface soil at the AOC 5 Possible Dump. Six metals (arsenic, cadmium, cobalt, iron, manganese, and thallium) had MDCs greater than the Residential Soil RSL and were identified as surface soil COPCs (**Table J.4-18**). Four VOCs (2-butanone, acetone, benzene, toluene), three SVOCs (benzaldehyde, dibenzofuran, and di-n-butyl phthalate), 17 PAHs, and 19 metal analytes were carried forward to the risk-based screening step for surface and subsurface soil (0-5 ft bgs) at the AOC 5 Possible Dump. Seven metals (aluminum, arsenic, cadmium, cobalt, iron, manganese, and thallium) had MDCs greater than the Residential Soil RSL and were identified as surface and subsurface soil COPCs (**Table J.4-19**). Four VOCs (2-butanone, acetone, benzene, toluene), three SVOCs (benzaldehyde, dibenzofuran, and di-n-butyl phthalate), 17 PAHs, and 19 metal analytes were carried forward to the risk-based screening step for all soil (0-10 ft bgs) at the AOC 5 Possible Dump. Seven metals (aluminum, arsenic, cadmium, cobalt, iron, manganese, and thallium) had MDCs greater than the Residential Soil RSL and were identified as soil COPCs (**Table J.4-20**).

#### *6.2.1.8 Human Health Risk Screening Discussion*

Metals were identified as COPCs in shallow groundwater in every investigation area. Manganese and arsenic were the most frequently identified groundwater COPCs and the only metals that were identified as a COPC in all areas (AOC 1, AOC 3, and each of the five AOC 5 subareas). Cobalt was identified as a COPC in every area except AOC 1. Nickel was identified as a COPC in five of the seven areas, including AOC 1, AOC 3, AOC 5 Coal Aggregate Bins, AOC 5 Coal Storage, and the AOC 5 Possible Dump. Vanadium was identified as a COPC in four of the seven areas (AOC 1, AOC3, AOC 5 Coal Aggregate Bins, and AOC 5 Boiler House). Iron was identified as a COPC in three of the seven areas (AOC 1, AOC 5 Coal Aggregate Bins, and AOC 5 Coal Storage). Antimony was identified as COPCs in two areas (AOC 5 Boiler House and AOC 5 Coal Storage,). Barium and antimony were only identified as COPCs in AOC 1 and AOC 5 Coal Aggregate Bins shallow groundwater, respectively.

Benzene at AOC 3 and 1,2,3-trichlorobenzene at the AOC 5 Possible Dump were the only VOCs detected in groundwater above their respective Tap Water RSLs and identified as groundwater COPCs. 4-Nitroanaline at AOC 3 was the only SVOC detected above the Tap Water RSL and identified as a groundwater COPC. Naphthalene was identified as a groundwater COPC in all AOC 5 subareas. The AOC 5 Boiler House was the only AOC with carcinogenic PAHs as groundwater COPCs, including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)fluoranthene.

The preliminary CSMs for each AOC included potable use pathways for current and future nearby resident receptors. Based on the results of the risk screening, the ingestion and dermal contact with drinking water pathways must be retained. Inhalation of benzene and 1,2,3-trichlorobenzene are potentially complete pathways associated with potable use of groundwater and should be added to the human health CSMs for AOC 3 and the AOC 5 Possible Dump. The maximum detected benzene concentration (raised to the LOQ of 1 microgram per liter [µg/L] at multiple locations) is below the EPA Vapor Intrusion Screening Level (VISL, EPA, 2022) for groundwater set to a target cancer risk (TRC) of 1E-06 and a hazard quotient (HQ) of 0.1 (1.59 µg/L). There is no groundwater VISL for 1,2,3-trichlorobenzene because there is insufficient inhalation toxicity information. The maximum detected 1,2,3-trichlorobenzene concentration (raised to the LOQ of 1 µg/L at NYOW-05-004) is below the 1,2,4-trichlorobenzene VISL for groundwater set to a TRC of 1E-06 and an HQ of 0.1 (3.59 µg/L).

Metals were identified as COPCs in surface and subsurface soil in every investigation area. Cobalt, iron, and manganese were the most frequently identified surface and subsurface soil COPCs and the only metals

that were identified as COPCs in all areas and at all depths. Aluminum, arsenic, cadmium, and thallium were the only other metals identified as potentially site-related soil COPCs.

Carcinogenic PAHs including benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were identified as COPCs in surface and subsurface soil at AOC 3 and the AOC 5 Coal Aggregate Bins. Benzo(a)pyrene and benzo(a)anthracene were also identified as COPCs in the AOC 5 Coal Storage subarea and in AOC 3, respectively. Naphthalene was identified as a surface and subsurface soil COPC in the AOC 5 Coal Aggregate Bins and Coal Storage areas.

The preliminary CSMs for AOC 1, AOC 3, and AOC 5 included surface soil exposure pathways for worker populations, recreators, or trespassers. Based on the results of the risk screening, the ingestion, dermal contact, and inhalation pathways associated with surface soil must be retained. The AOC 3 CSM included subsurface soil exposure for future utility workers. Based on the results of the risk screening, the ingestion, dermal contact, and dust inhalation pathways associated with surface and subsurface soil must be retained.

### 6.2.2 Ecological

Risk screening for ecological receptors was completed in accordance with **Subsection 5.7**. Screening level comparison tables are provided per receptor group and AOC in **Appendix L**. The COPECs in soil were identified by comparing the maximum detected concentrations to applicable receptor category (plants, soil invertebrates, birds and mammals) ecological screening benchmarks.

#### *6.2.2.1 AOC 1 Ecological Risk Screening*

Plants

Fifteen metal analytes and one explosive were carried forward to the risk-based screening step for surface soils at AOC 1. Eight metals: barium, chromium, copper, lead, manganese, mercury, selenium, and zinc had MDCs greater than plant-based screening value and were identified as COPECs (**Table L.5-1**). Eighteen metals and one explosive were carried forward to the risk-based screening step for subsurface soils (0-5 ft bgs) at AOC 1. The same eight metals had MDCs greater than the plant-based screening value and were identified as COPECs for subsurface soils (**Table L.5-2**).

Soil Invertebrates

Thirteen metal analytes and one explosive were carried forward to the risk-based screening step for surface soils at AOC 1. Five metals: arsenic, chromium, manganese, mercury, and zinc; and one explosive (picric acid) had MDCs greater than plant-based screening value and were identified as COPECs (**Table L.6-1**). Thirteen metals and one explosive were carried forward to the risk-based screening step for subsurface soils (0-5 ft bgs) at AOC 1. The same five metals and one explosive had MDCs greater than the soil invertebrate-based screening value and were identified as COPECs for subsurface soils (**Table L.6-2**).

Birds

Thirteen metal analytes and one explosive were carried forward to the risk-based screening step for surface soils at AOC 1. Five metals: cadmium, copper, lead, mercury, and zinc had MDCs greater than avian-based screening value and were identified as COPECs (**Table L.7-1**).

Mammals

Fifteen metal analytes and one explosive were carried forward to the risk-based screening step for surface soils at AOC 1. Six metals: antimony, cadmium, copper, lead, selenium, and zinc; and one explosive (picric acid) had MDCs greater than mammal-based screening value and were identified as COPECs (**Table L.8-1**). Sixteen metals and one explosive were carried forward to the risk-based screening step for subsurface soils (0-5 ft bgs) at AOC 1. The same six metals (plus manganese) and one explosive had MDCs greater than the mammal-based screening value and were identified as COPECs for subsurface soils (**Table L.8-2**).

#### *6.2.2.2 AOC 3 Ecological Risk Screening*

Plants

One VOC, two SVOCs, seven PAHs, one PCB and 16 metal analytes were carried forward to the risk-based screening step for subsurface soils at AOC 3. Two PAHs (acenaphthene and anthracene) and three metals (manganese, selenium, and thallium) had MDCs greater than plant-based screening value and were identified as COPECs (**Table L.5-3**).

Soil Invertebrates

Four VOCs, five SVOCs, HMW and LMW PAHs, one PCB and ten metal analytes were carried forward to the risk-based screening step for subsurface soils at AOC 3. One VOC (acetone), four SVOCs: benzaldehyde, carbazole, m&p cresols, and dibenzofuran; and two metals (manganese and mercury) had MDCs greater than soil invertebrate-based screening value and were identified as COPECs (**Table L.6-3**).

#### *6.2.2.3 AOC 5 Boiler House Ecological Risk Screening*

Plants

Seven PAHs and 16 metal analytes and were carried forward to the risk-based screening step for surface soils at AOC 5 (Boiler House). Four metals: arsenic, chromium, manganese, and thallium had MDCs greater than plant-based screening value and were identified as COPECs (**Table L.5-4**). The same PAHs and metals were carried forward to the risk-based screening step for subsurface soils (0-5 ft bgs) at AOC 1 (Boiler House). The same four metals as the surface soils had MDCs greater than the plant-based screening value and were identified as COPECs for subsurface soils (**Table L.5-5**).

Soil Invertebrates

HMW and LMW PAHs and 13 metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (Boiler House). Four metals: arsenic, chromium, manganese, and mercury had MDCs greater than soil invertebrate-based screening value and were identified as COPECs (**Table L.6-4**). The same PAHs and metals were carried forward to the risk-based screening step for subsurface soils (0-5 ft bgs) at AOC 5 (Boiler House). The same four metals and zinc as the surface soils had MDCs greater than the soil invertebrate-based screening value and were identified as COPECs for subsurface soils (**Table L.6-5**).

Birds

Six metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (Boiler House). No metals had MDCs greater than avian-based screening value and were identified as COPECs (**Table L.7-2**).

Mammals

HMW and LMW PAHs and eight metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (Boiler House). No metals had MDCs greater than mammal-based screening value and were identified as COPECs (**Table L.8-3**). HMW and LMW PAHs and 15 metals and were carried forward to the risk-based screening step for subsurface soils (0-5 ft bgs) at AOC 5 (Boiler House). Only zinc had a MDCs greater than the mammal-based screening value and were identified as COPECs for subsurface soils (**Table L.8-4**).

#### *6.2.2.4 AOC 5 Coal Aggregate Bins Area Ecological Risk Screening*

Plants

Eight PAHs and 16 metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (coal aggregate bins). Three PAHs: 1-methylnaphthalene, 2-methylnapthalene and naphthalene and, four metals: chromium, manganese, selenium, and thallium had MDCs greater than plant-based screening value and were identified as COPECs (**Table L.5-6**). One SVOC and the same PAHs and metals were carried forward to the risk-based screening step for subsurface soils (0-5 ft bgs) at AOC 5 (coal aggregate bins). The same three PAHs and four metals as the surface soils had MDCs greater than the plant-based screening value and were identified as COPECs for subsurface soils (**Table L.5-7**).

Soil Invertebrates

HMW and LMW PAHs and 13 metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (Coal Aggregate Bins). Four metals: arsenic, chromium, manganese, and mercury had MDCs greater than soil invertebrate-based screening value and were identified as COPECs (**Table L.6-6**). One SVOC, the same PAHs and metals were carried forward to the risk-based screening step for subsurface soils (0-5 ft bgs) at AOC 5 (Coal Aggregate Bins). The same four metals as the surface soils had MDCs greater than the soil invertebrate-based screening value and were identified as COPECs for subsurface soils (**Table L.6-7**).

Birds

Five PAHs and 11 metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (coal aggregate bins). Three PAHs: 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene and three metals: lead, vanadium and zinc had MDCs greater than avian-based screening value and were identified as COPECs (**Table L.7-3**).

Mammals

HMW and LMW PAHs and 13 metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (coal aggregate bins). HMW PAHs and two metals: antimony and selenium had MDCs greater than mammal-based screening value and were identified as COPECs (**Table L.8-5**). HMW and LMW PAHs and 15 metals and were carried forward to the risk-based screening step for subsurface soils (0-5 ft bgs) at AOC 5 (coal aggregate bins). HMW PAHs and three metals: antimony, cadmium and

selenium had MDCs greater than the mammal-based screening value and were identified as COPECs for subsurface soils (**Table L.8-6**).

#### *6.2.2.5 AOC 5 Coal Storage Area Ecological Risk Screening*

Plants

Eight PAHs and 16 metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (Coal Storage Area). Four PAHs: 1-methylnaphthalene, 2-methylnapthalene, acenaphthene and naphthalene, and five metals: arsenic, chromium, manganese, selenium, and thallium had MDCs greater than plant-based screening value and were identified as COPECs (**Table L.5-8**). The same PAHs and metals were carried forward to the risk-based screening step for subsurface soils (0-5 ft bgs) at AOC 5 (coal storage area). The same four PAHs and five metals as the surface soils had MDCs greater than the plant-based screening value and were identified as COPECs for subsurface soils (**Table L.5-9**).

Soil Invertebrates

HMW and LMW PAHs and 13 metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (Coal Storage Area). LMW PAHs and three metals: arsenic, chromium and mercury had MDCs greater than soil invertebrate-based screening value and were identified as COPECs (**Table L.6-8**). The same PAHs and metals were carried forward to the risk-based screening step for subsurface soils (0-5 ft bgs) at AOC 5 (coal storage area). The same PAHs and metals (plus manganese) as the surface soils had MDCs greater than the soil invertebrate-based screening value and were identified as COPECs for subsurface soils (**Table L.6-9**).

Birds

Five PAHs and nine metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (Coal Storage Area). Four PAHs: 1-methylnaphthalene, 2-methylnaphthalene, benzo(a)anthracene and naphthalene and four metals: lead, selenium, vanadium, and zinc had MDCs greater than avian-based screening value and were identified as COPECs (**Table L.7-4**).

Mammals

HMW and LMW PAHs and 11 metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (Coal Storage Area). HMW PAHs and three metals: antimony, selenium and thallium had MDCs greater than mammal-based screening value and were identified as COPECs (**Table L.8-7**). HMW and LMW PAHs and 15 metals and were carried forward to the risk-based screening step for subsurface soils (0-5 ft bgs) at AOC 5 (coal aggregate bins). HMW PAHs and four metals: antimony, cadmium, selenium, and thallium had MDCs greater than the mammal-based screening value and were identified as COPECs for subsurface soils (**Table L.8-8**).

#### *6.2.2.6 AOC 5 Electric Substation Ecological Risk Screening*

Plants

Eight PAHs, one PCB and 16 metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (Electric Substation). One Aroclor and four metals: chromium, manganese, selenium, and thallium had MDCs greater than plant-based screening value and were identified as COPECs (**Table L.5-10**). The same PAHs, Aroclor, and metals were carried forward to the risk-based screening step

for subsurface soils (0-5 ft bgs) at AOC 5 (Electric Substation). The same four metals as the surface soils had MDCs greater than the plant-based screening value and were identified as COPECs for subsurface soils (**Table L.5-11**).

Soil Invertebrates

HMW and LMW PAHs, one PCB and 13 metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (Electric Substation). Three metals: chromium, manganese, and mercury had MDCs greater than soil invertebrate-based screening value and were identified as COPECs (**Table L.6-10**). The same PAHs and metals were carried forward to the risk-based screening step for subsurface soils (0-5 ft bgs) at AOC 5 (Electric Substation). The same three metals as the surface soils had MDCs greater than the soil invertebrate-based screening value and were identified as COPECs for subsurface soils (**Table L.6-11**).

Birds

Three PAHs, one PCB and 11 metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (Electric Substation). The one Aroclor and three metals: PCB-1260, lead, mercury, and zinc had MDCs greater than avian-based screening value and were identified as COPECs (**Table L.7-5**).

Mammals

HMW and LMW PAHs, one Aroclor and 13 metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (Electric Substation). Only cadmium had MDCs greater than mammal-based screening value and was identified as a COPEC (**Table L.8-9**). HMW and LMW PAHs, one Aroclor and 16 metals and were carried forward to the risk-based screening step for subsurface soils (0-5 ft bgs) at AOC 5 (Electric Substation). Two metals: cadmium and copper had MDCs greater than the mammal-based screening value and were identified as COPECs for subsurface soils (**Table L.8-10**).

#### *6.2.2.7 AOC 5 Possible Dump Area Ecological Risk Screening*

Plants

Two SVOCs, eight PAHs and 17 metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (Possible Dump Area). Two SVOCs and six metals: dibenzofuran, di-n-butyl phthalate, chromium, copper, lead, manganese, thallium, and zinc had MDCs greater than plant-based screening value and were identified as COPECs (**Table L.5-12**). Two VOCs, and the same SVOCs, PAHs and metals were carried forward to the risk-based screening step for subsurface soils (0-5 ft bgs) at AOC 5 (Possible Dump Area). The same six metals and selenium had MDCs greater than the plant-based screening value and were identified as COPECs for subsurface soils (**Table L.5-13**).

Soil Invertebrates

Three SVOCs, HMW and LMW PAHs, one Aroclor and 13 metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (Possible Dump Area). Three SVOCs: benzaldehyde, dibenzofuran, and di-n-butyl phthalate, and six metals: arsenic, chromium, copper, manganese, mercury, and zinc had MDCs greater than soil invertebrate-based screening value and were identified as COPECs (**Table L.6-12**). Four VOCs and the same, SVOCs, PAHs, Aroclor and metals were carried forward to the risk-based screening step for subsurface soils (0-5 ft bgs) at AOC 5 (Possible Dump Area). Acetone, and

the same three SVOCs and six metals as the surface soils had MDCs greater than the soil invertebrate-based screening value and were identified as COPECs for subsurface soils (**Table L.6-13**).

Birds

One SVOC, three PAHs, and ten metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (Possible Dump Area). One SVOC (di-n-butyl phthalate) and four metals: cadmium, copper, lead, and zinc had MDCs greater than avian-based screening value and were identified as COPECs (**Table L.7-6**).

Mammals

Two SVOCs, HMW and LMW PAHs, and 12 metal analytes were carried forward to the risk-based screening step for surface soils at AOC 5 (Possible Dump Area). Five metals: antimony, cadmium, copper, lead and zinc had MDCs greater than mammal-based screening value and were identified as COPECs (**Table L.8-11**). Four VOCs, two SVOCs, HMW and LMW PAHs, and 17 metals and were carried forward to the risk-based screening step for subsurface soils (0-5 ft bgs) at AOC 5 (Possible Dump Area). Five metals: antimony, cadmium. copper, lead, and zinc had MDCs greater than the mammal-based screening value and were identified as COPECs for subsurface soils (**Table L.8-12**).

#### *6.2.2.8 Ecological Risk Screening Discussion*

The ecological risk screening results are summarized below. These results were considered in light of the uncertainties (**Subsection 6.3**) and AOC-specific COPEC lists are presented in **Subsection 6.4.2.2**.

Plants

Metals were identified as COPECs in surface and subsurface soils in AOC 1, AOC 3, and AOC 5 (all subareas). The most frequently encountered metal COPECs were chromium, manganese, selenium, and thallium. Of the 13 area/subarea depth intervals evaluated: chromium was a COPEC in 12, manganese was a COPEC in 13, selenium was a COPEC in ten and thallium was a COPEC in 11. PAHs were only identified as COPECs in AOC 5- Coal Aggregate Bins and Coal Storage Areas. The identification of petrogenic or pyrogenic fingerprints would be key to determining eligibility for any potential cleanup under FUDS.

Soil Invertebrates

Metals were identified as COPECs in surface and subsurface soils in AOC 1, AOC 3, and AOC 5 (all subareas). The most frequently encountered metal COPECs were arsenic, chromium, manganese, mercury, and zinc. Of the 13 area/subarea depth intervals evaluated: arsenic was a COPEC in ten, chromium was a COPEC in 12, manganese was a COPEC in 12, mercury was a COPEC in 12 and zinc was a COPEC in five. Picric acid was only detected and selected as a COPEC in AOC 1 (surface and subsurface soils). Acetone was the only VOC selected as a COPEC; it was a COPEC in AOC 3 and AOC 5 (Potential Dump Area) subsurface soils. SVOCs: benzaldehyde, carbazole, m&p cresol, and dibenzofuran were identified as COPECs in AOC 3 subsurface soils. Benzaldehyde, dibenzofuran, and di-n-butyl phthalate were identified as COPECs in AOC 5 (Potential Dump Area) surface and subsurface soils. Dibenzofuran was identified and a COPEC in AOC 5 (Coal Aggregate Area) subsurface soils. LMW PAHs were only identified as COPECs in AOC 5 (Coal Storage Area) surface and subsurface soils. The identification of petrogenic or pyrogenic fingerprints would be key to determining eligibility for any potential cleanup under FUDS.

Birds

Metals were identified as COPECs in surface and subsurface soils in AOC 1 and AOC 5 (all subareas). The most frequently encountered metal COPECs were copper, lead, and zinc. Of the six area/subarea depth intervals evaluated: copper was a COPEC in two, lead was a COPEC in five and zinc was a COPEC in five. PAHs were only identified as COPECs in AOC 5- Coal Aggregate Bins and Coal Storage Areas. The identification of petrogenic or pyrogenic fingerprints would be key to determining eligibility for any potential cleanup under FUDS. Di-n-butyl phthalate was the only SVOC identified, and it was in AOC 5 Possible Dump Area.

Mammals

Metals were identified as COPECs in surface and subsurface soils in AOC 1, AOC 3, and AOC 5 (all subareas). The most frequently encountered metal COPECs were antimony, cadmium, copper, lead, selenium, and zinc. Of the 12 area/subarea depth intervals evaluated; antimony was a COPEC in eight, cadmium was a COPEC in seven, copper was a COPEC in four, lead was a COPEC in four, selenium was a COPEC in five, and zinc was a COPEC in five. Picric acid was only detected and selected as a COPEC in AOC 1 (surface and subsurface soils). HMW PAHs were identified as COPECs in AOC 5 (Coal Aggregate Area and Coal Storage Area) surface and subsurface soils. The identification of petrogenic or pyrogenic fingerprints would be key to determining eligibility for any potential cleanup under FUDS.

### 6.2.3 Initial Conclusions – Risk Screening Results and Discussion

Based on the comparisons of Site concentrations with human health and ecological screening levels, summaries of COPCs/COPECs are provided for each AOC below. These summaries do not incorporate uncertainties or site-specific considerations aside from those presented **Sections 4 and 5**. See **Section 9** – Recommendations for a final list of COPCs/COPECs.

| AOC 1 | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Groundwater | | Soil | | | | |
| COPC/COPECs | Temp. Well | ND & LOQ>SL | 0-1 ft bgs | 0-5 ft bgs | 0-10 ft bgs | ND & LOQ>SL | Detected but No SL |
| **SVOCs** | | | | | | | |
| 2,4-DNCB | -- | HA | -- | -- | -- | HS, TPA, SIS, MS | -- |
| 2,4-DNP | -- | HA | -- | -- | -- | HS, SIA, MA | -- |
| **Explosives** | | | | | | | |
| Picric acid | -- | -- | E | E | -- | -- | -- |
| **Metals** | | | | | | | |
| Aluminum | -- | -- | H | H | H | -- | -- |
| Antimony | -- | -- | E | E | -- | -- | B |
| Arsenic | H | -- | H, E | H, E | H | -- | -- |
| Barium | H | -- | E | E | -- | -- | -- |
| Beryllium | -- | -- | -- | -- | -- | -- | B |
| Cadmium | -- | -- | H, E | H, E | H | -- | -- |
| Chromium | -- | -- | E | E | -- | -- | -- |
| Cobalt | -- | -- | H | H | H | -- | SI |
| Copper | -- | -- | E | E | -- | -- | -- |
| Iron | H | -- | H | H | H | -- | -- |
| Lead | -- | -- | E | E | -- | -- | -- |
| Manganese | H | -- | H, E | H, E | H | -- | -- |
| Mercury | -- | HA | E | E | -- | -- | -- |
| Nickel | H | -- | -- | -- | -- | -- | -- |
| Selenium | -- | HA | E | E | -- | -- | |
| Silver | -- | HA | -- | -- | -- | -- | SI |
| Thallium | -- | HA | -- | -- | -- | -- | -- |
| Vanadium | H | -- | -- | -- | -- | -- | SI |
| Zinc | -- | -- | E | E | -- | -- | -- |

B = bird
E = based on ecological receptor(s)
H = based on human health
HA = all LOQs > human health screening level
HS = some LOQs > human health screening level
LOQ = limit of quantitation
MA = mammal all LOQs > mammal screening level
MS = mammal some LOQs > mammal screening level
ND = not detected
SI = soil invertebrate
SIA = soil invertebrate all LOQs > soil invertebrate screening level
SIS = soil invertebrate some LOQs > soil invertebrate screening level
SL = screening level
TPA = terrestrial plant all LOQs > terrestrial plant screening level

| AOC 3 | | | | | | |
|---|---|---|---|---|---|---|
| | Groundwater | | Soil | | | |
| COPC/COPECs | Temp. Well | ND & LOQ>SL | 0-1 ft bgs | 0-5 ft bgs | ND & LOQ>SL | Detected but No SL |
| **VOCs** | | | | | | |
| 2-Butanone | -- | -- | -- | | -- | TP |
| Acetone | -- | -- | -- | E | -- | TP |
| Benzene | H | -- | -- | -- | -- | -- |
| **SVOCs** | | | | | | |
| 2,4-DNCB | -- | HA | -- | -- | TPA | -- |
| 2,4-DNP | -- | HA | -- | -- | SIA | -- |
| 2-Nitroaniline | -- | HA | -- | -- | SIA | -- |
| 2-Nitrophenol | -- | HA | -- | -- | SIA | -- |
| 3-Nitroaniline | -- | HA | -- | -- | SIA | -- |
| 4-Chloroaniline | -- | HA | -- | -- | -- | -- |
| 4-Nitroaniline | H | -- | -- | -- | SIA | TP |
| 4-Nitrophenol | -- | HA | -- | -- | -- | -- |
| Benzaldehyde | -- | -- | -- | E | -- | TP |
| Carbazole | -- | -- | -- | E | -- | TP |
| Cresols, m- & p- | -- | -- | -- | E | -- | -- |
| Dibenzofuran | -- | HA | -- | E | -- | -- |
| **PAHs** | | | | | | |
| Acenaphthene | --- | --- | --- | E | --- | -- |
| Acenaphthylene | --- | --- | --- | --- | --- | TP |
| Anthracene | -- | -- | -- | E | -- | -- |
| Benzo(a)anthracene | -- | HA | H | H | -- | -- |
| Benzo(a)pyrene | -- | HA | H | H | -- | TP |
| Benzo(b)fluoranthene | -- | -- | H | H | -- | -- |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | TP |
| Chrysene | -- | -- | -- | -- | -- | TP |
| Dibenz(a,h)anthracene | -- | HA | H | H | -- | TP |
| Fluoranthene | -- | -- | -- | -- | -- | TP |
| Fluorene | -- | -- | -- | -- | -- | TP |
| Indeno(1,2,3-cd)pyrene | -- | -- | H | H | -- | TP |
| Phenanthrene | -- | -- | -- | -- | -- | TP |
| Pyrene | -- | -- | -- | -- | -- | TP |
| **PCBs** | | | | | | |
| PCB-1016 (Aroclor 1016) | -- | HA | -- | -- | -- | -- |
| PCB-1221 (Aroclor 1221) | -- | HA | -- | -- | -- | -- |
| PCB-1232 (Aroclor 1232) | -- | HA | -- | -- | -- | -- |
| PCB-1242 (Aroclor 1242) | -- | HA | -- | -- | -- | -- |
| PCB-1248 (Aroclor 1248) | -- | HA | -- | -- | -- | -- |
| PCB-1254 (Aroclor 1254) | -- | HA | -- | -- | -- | -- |
| PCB-1260 (Aroclor 1260) | -- | HA | -- | -- | -- | -- |
| PCB-1262 (Aroclor 1262) | -- | HA | -- | -- | -- | -- |
| PCB-1268 (Aroclor 1268) | -- | HA | -- | -- | -- | -- |
| **Explosives** | | | | | | |
| Picric Acid | -- | -- | -- | -- | SIA | -- |
| **Metals** | | | | | | |
| Aluminum | -- | -- | H | H | -- | -- |
| Antimony | -- | HA | -- | -- | -- | |
| Arsenic | H | -- | -- | H | -- | -- |
| Cadmium | -- | HA | -- | -- | -- | -- |
| Cobalt | H | -- | H | H | -- | SI |
| Iron | -- | -- | H | H | -- | -- |
| Manganese | H | -- | H | H, E | -- | -- |
| Mercury | -- | HA | -- | E | -- | -- |
| Nickel | H | -- | -- | -- | -- | -- |
| Selenium | -- | -- | -- | E | -- | -- |
| Silver | -- | HA | -- | -- | -- | SI |
| Thallium | -- | -- | H | H, E | -- | SI |
| Vanadium | H | -- | -- | -- | -- | SI |

E = based on ecological receptor(s)
H = based on human health
HA = all LOQs > human health screening level
LOQ = limit of quantitation
ND = not detected
SI = soil invertebrate
SIA = soil invertebrate all LOQs > soil invertebrate screening level
SL = screening level
TP = terrestrial plant
TPA = terrestrial plant all LOQs > terrestrial plant screening level

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| AOC 4 | | | |
|---|---|---|---|
| | ND & LOQ>SL | | |
| COPC/COPECs | Groundwater | Soil – Discrete | Soil – ISM |
| **SVOCs** | | | |
| 2,4-DNCB | HA | TPA | HS, TPS, SIS, MS |
| 2,4-DNP | HA | SIA, MA | SIA, MA |
| **Explosives** | | | |
| Picric acid | HS | SIA, MA | SIA, MA |

HA = all LOQs > human health screening level
HS = some LOQs > human health screening level
LOQ = limit of quantitation
MA = mammal all LOQs > soil invertebrate screening level
MS = mammal some LOQs > soil invertebrate screening level
ND = not detected
SIA = soil invertebrate all LOQs > soil invertebrate screening level
SIS = soil invertebrate some LOQs > soil invertebrate screening level
SL = screening level
TPA = terrestrial plant all LOQs > terrestrial plant screening level
TPS = terrestrial plant some LOQs > terrestrial plant screening level

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| AOC 5 – Boiler House | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Groundwater | | Soil | | | | |
| COPC/COPECs | Temp. Well | ND & LOQ>SL | 0-1 ft bgs | 0-5 ft bgs | 0-10 ft bgs | ND & LOQ>SL | Detected but No SL |
| **SVOCs** | | | | | | | |
| 2-Nitroaniline | -- | HA | -- | -- | -- | SIA | -- |
| 3-Nitroaniline | -- | HA | -- | -- | -- | SIA | -- |
| 4-Chloroaniline | -- | HA | -- | -- | -- | -- | -- |
| 4-Nitroaniline | -- | HA | -- | -- | -- | SIA | -- |
| **PAHs** | | | | | | | |
| Acenaphthylene | -- | -- | -- | -- | -- | -- | TP, B |
| Anthracene | -- | -- | -- | -- | -- | -- | B |
| Benzo(a)anthracene | H | -- | -- | -- | -- | -- | -- |
| Benzo(a)pyrene | H | -- | -- | -- | -- | -- | TP, B |
| Benzo(b)fluoranthene | H | -- | -- | -- | -- | -- | B |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | -- | TP, B |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | -- | B |
| Chrysene | -- | -- | -- | -- | -- | -- | TP, B |
| Dibenz(a,h)anthracene | H | -- | -- | -- | -- | -- | TP, B |
| Fluoranthene | -- | -- | -- | -- | -- | -- | TP, B |
| Fluorene | -- | -- | -- | -- | -- | -- | TP, B |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | -- | TP, B |
| Naphthalene | H | -- | -- | -- | -- | -- | -- |
| Phenanthrene | -- | -- | -- | -- | -- | -- | TP, B |
| Pyrene | -- | -- | -- | -- | -- | -- | TP |
| **Metals** | | | | | | | |
| Aluminum | -- | -- | -- | H | H | -- | -- |
| Antimony | H | -- | -- | -- | -- | -- | B |
| Arsenic | H | -- | H, E | H, E | H | -- | -- |
| Beryllium | -- | -- | -- | -- | -- | -- | B |
| Cadmium | -- | HA | -- | -- | -- | -- | -- |
| Chromium | -- | -- | E | E | -- | -- | -- |
| Cobalt | H | -- | H | H | H | -- | SI |
| Iron | -- | -- | H | H | H | -- | -- |
| Manganese | H | -- | H, E | H, E | H | -- | -- |
| Mercury | -- | HA | E | E | -- | -- | -- |
| Nickel | -- | HA | -- | -- | -- | -- | -- |
| Selenium | -- | HA | -- | -- | -- | -- | -- |
| Silver | -- | HA | -- | -- | -- | -- | -- |
| Thallium | -- | HA | H, E | H, E | H | -- | SI |
| Vanadium | H | -- | -- | -- | -- | -- | SI |
| Zinc | -- | -- | -- | E | -- | -- | -- |

B = birds
E = based on ecological receptor(s)
H = based on human health
HA = all LOQs > human health screening level
LOQ = limit of quantitation
ND = not detected
SI = soil invertebrates
SIA = soil invertebrate all LOQs > soil invertebrate screening level
SL = screening level
TP = terrestrial plants

| AOC 5 – Coal Aggregate Bins | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Groundwater | | Soil | | | | |
| COPC/COPECs | Temp. Well | ND & LOQ>SL | 0-1 ft bgs | 0-5 ft bgs | 0-10 ft bgs | ND & LOQ>SL | Detected but No SL |
| **SVOCs** | | | | | | | |
| 2-Nitroaniline | -- | HA | -- | -- | -- | SIA | -- |
| 3-Nitroaniline | -- | HA | -- | -- | -- | SIA | -- |
| 4-Chloroaniline | -- | HA | -- | -- | -- | -- | -- |
| 4-Nitroaniline | -- | HA | -- | -- | -- | SIA | -- |
| Dibenzofuran | -- | -- | -- | E | -- | -- | -- |
| **PAHs** | | | | | | | |
| 1-Methylnaphthalene | -- | -- | E | E | -- | -- | -- |
| 2-Methylnaphthalene | -- | -- | E | E | -- | -- | -- |
| Acenaphthene | -- | -- | -- | -- | -- | -- | B |
| Acenaphthylene | -- | -- | -- | -- | -- | -- | TP, B |
| Anthracene | -- | -- | -- | -- | -- | -- | B |
| Benzo(a)anthracene | -- | HA | -- | -- | -- | -- | -- |
| Benzo(a)pyrene | -- | HA | H | H | H | -- | TP, B |
| Benzo(b)fluoranthene | -- | -- | H | H | H | -- | B |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | -- | TP, B |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | -- | B |
| Chrysene | -- | -- | -- | -- | -- | -- | TP, B |
| Dibenz(a,h)anthracene | -- | HA | H | H | H | -- | TP, B |
| Fluoranthene | -- | -- | -- | -- | -- | -- | TP, B |
| Fluorene | -- | -- | -- | -- | -- | -- | TP, B |
| Indeno(1,2,3-c,d)pyrene | -- | -- | H | H | H | -- | TP, B |
| Naphthalene | H | -- | H, E | H, E | H | -- | -- |
| Phenanthrene | -- | -- | -- | -- | -- | -- | TP, B |
| Pyrene | -- | -- | -- | -- | -- | -- | TP |
| High Molecular Weight PAHs | -- | -- | E | E | -- | -- | -- |
| **Metals** | | | | | | | |
| Aluminum | H | -- | H | H | H | -- | -- |
| Antimony | -- | HA | E | E | -- | -- | B |
| Arsenic | H | -- | H, E | H, E | H | -- | -- |
| Barium | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | -- | -- | -- | -- | -- | -- | B |
| Cadmium | -- | HA | -- | E | -- | -- | -- |
| Chromium | -- | -- | E | E | -- | -- | -- |
| Cobalt | H | -- | H | H | H | -- | SI |
| Copper | -- | -- | -- | -- | -- | -- | -- |
| Iron | H | -- | H | H | H | -- | -- |
| Lead | -- | -- | E | -- | -- | -- | -- |
| Manganese | H | -- | H, E | H, E | H | -- | -- |
| Mercury | -- | HA | E | E | -- | -- | -- |
| Nickel | H | -- | -- | -- | -- | -- | -- |
| Selenium | -- | HA | E | E | -- | -- | -- |
| Silver | -- | HA | -- | -- | -- | -- | -- |
| Thallium | -- | HA | H, E | H, E | H | -- | SI |
| Vanadium | H | -- | E | -- | -- | -- | SI |
| Zinc | -- | -- | E | -- | -- | -- | -- |

B = birds
E = based on ecological receptor(s)
H = based on human health
HA = all LOQs > human health screening level
LOQ = limit of quantitation
ND = not detected
SI = soil invertebrates
SIA = soil invertebrate all LOQs > soil invertebrate screening level
SL = screening level
TP = terrestrial plants

| AOC 5 – Coal Storage Area | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Groundwater | | Soil | | | | |
| COPC/COPECs | Temp. Well | ND & LOQ>SL | 0-1 ft bgs | 0-5 ft bgs | 0-10 ft bgs | ND & LOQ>SL | Detected but No SL |
| **SVOCs** | | | | | | | |
| 2-Nitroaniline | -- | HA | -- | -- | -- | SIA | -- |
| 3-Nitroaniline | -- | HA | -- | -- | -- | SIA | -- |
| 4-Chloroaniline | -- | HA | -- | -- | -- | -- | -- |
| 4-Nitroaniline | -- | HA | -- | -- | -- | SIA | -- |
| **PAHs** | | | | | | | |
| 1-Methylnaphthalene | -- | -- | E | E | -- | -- | -- |
| 2-Methylnaphthalene | -- | -- | E | E | -- | -- | -- |
| Acenaphthene | -- | -- | E | E | -- | -- | B |
| Acenaphthylene | -- | -- | -- | -- | -- | -- | TP, B |
| Anthracene | -- | -- | -- | -- | -- | -- | B |
| Benzo(a)anthracene | -- | HA | E | -- | -- | -- | -- |
| Benzo(a)pyrene | -- | HA | H | H | H | -- | TP, B |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | -- | B |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | -- | TP, B |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | -- | B |
| Chrysene | -- | -- | -- | -- | -- | -- | B |
| Dibenz(a,h)anthracene | -- | HA | -- | -- | -- | -- | B |
| Fluoranthene | -- | -- | -- | -- | -- | -- | TP, B |
| Fluorene | -- | -- | -- | -- | -- | -- | TP, B |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | -- | TP, B |
| Naphthalene | H | -- | H, E | H, E | H | -- | -- |
| Phenanthrene | -- | -- | -- | -- | -- | -- | TP, B |
| Pyrene | -- | -- | -- | -- | -- | -- | TP |
| High Molecular Weight PAHs | -- | -- | E | E | -- | -- | -- |
| Low Molecular Weight PAHs | -- | -- | E | E | -- | -- | -- |
| **Metals** | | | | | | | |
| Aluminum | -- | -- | -- | -- | H | -- | -- |
| Antimony | H | -- | E | E | -- | -- | B |
| Arsenic | H | -- | H, E | H, E | H | -- | -- |
| Beryllium | -- | -- | -- | -- | -- | -- | B |
| Cadmium | -- | HA | -- | E | -- | -- | -- |
| Chromium | -- | -- | E | E | -- | -- | -- |
| Cobalt | H | -- | H | H | H | -- | SI |
| Iron | H | -- | H | H | H | -- | -- |
| Lead | -- | -- | E | -- | -- | -- | -- |
| Manganese | H | -- | H, E | H, E | H | -- | -- |
| Mercury | -- | HA | E | E | -- | -- | -- |
| Nickel | H | -- | -- | -- | -- | -- | -- |
| Selenium | -- | HA | E | E | -- | -- | -- |
| Silver | -- | HA | -- | -- | -- | -- | -- |
| Thallium | -- | HA | H, E | H, E | H | -- | SI |
| Vanadium | -- | HA | E | -- | -- | -- | SI |
| Zinc | -- | -- | E | -- | -- | -- | -- |

B = birds
E = based on ecological receptor(s)
H = based on human health
HA = all LOQs > human health screening level
LOQ = limit of quantitation
ND = not detected
SI = soil invertebrates
SIA = soil invertebrate all LOQs > soil invertebrate screening level
SL = screening level
TP = terrestrial plants

| AOC 5 – Electric Substation | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Groundwater | | Soil | | | | |
| COPC/COPECs | Temp. Well | ND & LOQ>SL | 0-1 ft bgs | 0-5 ft bgs | 0-10 ft bgs | ND & LOQ>SL | Detected but No SL |
| **SVOCs** | | | | | | | |
| 2-Nitroaniline | -- | HA | -- | -- | -- | SIA | -- |
| 3-Nitroaniline | -- | HA | -- | -- | -- | SIA | -- |
| 4-Chloroaniline | -- | HA | -- | -- | -- | -- | -- |
| 4-Nitroaniline | -- | HA | -- | -- | -- | SIA | -- |
| **PAHs** | | | | | | | |
| Acenaphthene | -- | -- | -- | -- | -- | -- | B |
| Acenaphthylene | -- | -- | -- | -- | -- | -- | TP, B |
| Anthracene | -- | -- | -- | -- | -- | -- | B |
| Benzo(a)anthracene | -- | HA | -- | -- | -- | -- | -- |
| Benzo(a)pyrene | -- | HA | -- | -- | -- | -- | TP, B |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | -- | B |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | -- | TP, B |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | -- | B |
| Chrysene | -- | -- | -- | -- | -- | -- | TP, B |
| Dibenz(a,h)anthracene | -- | HA | -- | -- | -- | -- | TP, B |
| Fluoranthene | -- | -- | -- | -- | -- | -- | TP, B |
| Fluorene | -- | -- | -- | -- | -- | -- | TP, B |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | -- | TP, B |
| Naphthalene | H | -- | -- | -- | -- | -- | -- |
| Phenanthrene | -- | -- | -- | -- | -- | -- | TP, B |
| Pyrene | -- | -- | -- | -- | -- | -- | TP |
| **PCBs** | | | | | | | |
| PCB-1016 (Aroclor 1016) | NA | -- | -- | -- | -- | BA | -- |
| PCB-1221 (Aroclor 1221) | NA | -- | -- | -- | -- | BA | -- |
| PCB-1232 (Aroclor 1232) | NA | -- | -- | -- | -- | BA | -- |
| PCB-1242 (Aroclor 1242) | NA | -- | -- | -- | -- | BA | -- |
| PCB-1248 (Aroclor 1248) | NA | -- | -- | -- | -- | BA | -- |
| PCB-1254 (Aroclor 1254) | NA | -- | -- | -- | -- | BA | -- |
| PCB-1260 (Aroclor 1260) | NA | -- | E | -- | -- | -- | -- |
| PCB-1262 (Aroclor 1262) | NA | -- | -- | -- | -- | BA | -- |
| PCB-1268 (Aroclor 1268) | NA | -- | -- | -- | -- | BA | -- |
| **Metals** | | | | | | | |
| Aluminum | -- | -- | H | H | H | -- | -- |
| Antimony | -- | HA | -- | -- | -- | -- | B |
| Arsenic | H | -- | H | H | H | -- | -- |
| Barium | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | -- | -- | -- | -- | -- | -- | B |
| Cadmium | -- | HA | E | E | -- | -- | -- |
| Chromium | -- | -- | E | E | -- | -- | -- |
| Cobalt | H | -- | H | H | H | -- | SI |
| Copper | -- | -- | -- | E | -- | -- | -- |
| Iron | -- | -- | H | H | H | -- | -- |
| Lead | -- | -- | E | -- | -- | -- | -- |
| Manganese | H | -- | H, E | H, E | H | -- | -- |
| Mercury | -- | HA | -- | -- | -- | -- | -- |
| Nickel | -- | HA | -- | -- | -- | -- | -- |
| Selenium | -- | HA | E | E | -- | -- | -- |
| Silver | -- | HA | -- | -- | -- | -- | -- |
| Thallium | -- | HA | H, E | H, E | H | -- | SI |
| Vanadium | -- | HA | -- | -- | -- | -- | SI |
| Zinc | -- | -- | E | -- | -- | -- | -- |

B = birds
BA = all LOQs > bird screening level
E = based on ecological receptor(s)
H = based on human health
HA = all LOQs > human health screening level
LOQ = limit of quantitation
NA = not analyzed
ND = not detected
SI = soil invertebrates
SIA = soil invertebrate all LOQs > soil invertebrate screening level
SL = screening level
TP = terrestrial plants

| AOC 5 – Possible Dump | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Groundwater | | Soil | | | | |
| COPC/COPECs | Temp. Well | ND & LOQ>SL | 0-1 ft bgs | 0-5 ft bgs | 0-10 ft bgs | ND & LOQ>SL | Detected but No SL |
| **VOCs** | | | | | | | |
| 1,2,3-Trichlorobenzene | H | -- | -- | -- | -- | -- | -- |
| 2-Butanone (MEK) | -- | -- | -- | -- | -- | -- | TP |
| Acetone | -- | -- | -- | E | -- | -- | TP |
| Benzene | -- | HA | -- | -- | -- | -- | -- |
| **SVOCs** | | | | | | | |
| 2-Nitroaniline | -- | HA | -- | -- | -- | SIA | -- |
| 3-Nitroaniline | -- | HA | -- | -- | -- | SIA | -- |
| 4-Chloroaniline | -- | HA | -- | -- | -- | -- | -- |
| 4-Nitroaniline | -- | HA | -- | -- | -- | SIA | -- |
| Benzaldehyde | -- | -- | E | E | -- | -- | -- |
| Dibenzofuran | -- | HA | E | E | -- | -- | -- |
| Di-n-butyl phthalate | -- | -- | E | E | -- | -- | -- |
| **PAHs** | | | | | | | |
| Acenaphthene | -- | -- | -- | -- | -- | -- | B |
| Acenaphthylene | -- | -- | -- | -- | -- | -- | TP, B |
| Anthracene | -- | -- | -- | -- | -- | -- | B |
| Benzo(a)anthracene | -- | HA | -- | -- | -- | -- | -- |
| Benzo(a)pyrene | -- | HA | -- | -- | -- | -- | TP, B |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | -- | B |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | -- | TP, B |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | -- | B |
| Chrysene | -- | -- | -- | -- | -- | -- | TP, B |
| Dibenz(a,h)anthracene | -- | HA | -- | -- | -- | -- | TP |
| Fluoranthene | -- | -- | -- | -- | -- | -- | TP, B |
| Fluorene | -- | -- | -- | -- | -- | -- | TP, B |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | -- | TP, B |
| Naphthalene | H | -- | -- | -- | -- | -- | -- |
| Phenanthrene | -- | -- | -- | -- | -- | -- | TP, B |
| Pyrene | -- | -- | -- | -- | -- | -- | TP |
| **PCBs** | | | | | | | |
| PCB-1016 (Aroclor 1016) | -- | HA | -- | -- | -- | BA | -- |
| PCB-1221 (Aroclor 1221) | -- | HA | -- | -- | -- | BA | -- |
| PCB-1232 (Aroclor 1232) | -- | HA | -- | -- | -- | BA | -- |
| PCB-1242 (Aroclor 1242) | -- | HA | -- | -- | -- | BA | -- |
| PCB-1248 (Aroclor 1248) | -- | HA | -- | -- | -- | BA | -- |
| PCB-1254 (Aroclor 1254) | -- | HA | -- | -- | -- | BA | -- |
| PCB-1260 (Aroclor 1260) | -- | HA | -- | -- | -- | BA | -- |
| PCB-1262 (Aroclor 1262) | -- | HA | -- | -- | -- | BA | -- |
| PCB-1268 (Aroclor 1268) | -- | HA | -- | -- | -- | BA | -- |
| **Metals** | | | | | | | |
| Aluminum | -- | -- | -- | H | H | -- | -- |
| Antimony | -- | HA | E | E | -- | -- | B |
| Arsenic | H | -- | H, E | H, E | H | -- | -- |
| Beryllium | -- | -- | -- | -- | -- | -- | B |
| Cadmium | -- | HA | H, E | H, E | H | -- | -- |
| Chromium | -- | -- | E | E | -- | -- | -- |
| Cobalt | H | -- | H | H | H | -- | SI |
| Copper | -- | -- | E | E | -- | -- | -- |
| Iron | -- | -- | H | H | H | -- | -- |
| Lead | -- | -- | E | E | -- | -- | -- |
| Manganese | H | -- | H, E | H, E | H | -- | -- |
| Mercury | -- | HA | E | E | -- | -- | -- |
| Nickel | H | -- | -- | -- | -- | -- | -- |
| Selenium | -- | HA | -- | E | -- | -- | -- |
| Silver | -- | HA | -- | -- | -- | -- | SI |
| Thallium | -- | HA | H, E | H, E | H | -- | SI |
| Vanadium | -- | HA | -- | -- | -- | -- | SI |
| Zinc | -- | -- | E | E | -- | -- | -- |

B = birds
BA = all LOQs > bird screening level
E = based on ecological receptor(s)
H = based on human health
HA = all LOQs > human health screening level
LOQ = limit of quantitation
ND = not detected
SI = soil invertebrates
SIA = soil invertebrate all LOQs > soil invertebrate screening level
SL = screening level
TP = terrestrial plants

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## 6.3 UNCERTAINTY ANALYSIS

Uncertainties associated with the screenings and overall Phase 1 evaluation are classified as belonging to one of the four following categories and are discussed in the subsections below.

- Data and Information
- COPC Selection
- Exposure
- Toxicity

### 6.3.1 Data

Uncertainties associated with the data are grouped into one of the four following categories and are discussed in the subsections below.

- Media
- Analytes with Screening Levels Not Achieved at the LOQ
- Data Reduction
- Sample Size

#### *6.3.1.1 Media*

Turbidity of groundwater — the use of temporary wells resulted in groundwater samples with elevated turbidity. The turbid samples lead to uncertainties in the groundwater sample results due to sorption of insoluble analytes to particulate matter in the sample and clogging of SPE cartridges (**Section 3.2.3**). Turbid samples may lead to an overestimation of analyte concentrations unless the extraction efficiency is affected. It is noted that 9 of 16 groundwater samples clogged the SPE cartridge (i.e., flow rate <4mL/min) during extraction for the explosives analysis in AOC 4 and one sample (NYOW-04-WL005-A) required vacuum filtration through glass fiber filter paper prior to analysis due to turbidity. Low bias qualifiers primarily attributable to low surrogate recoveries indicative of poor extraction efficiency were identified at a frequency greater than 20% of samples for 2,4-DNCB and picric acid. The picric acid result for one groundwater sample (NYOW-04-WL080-A) was rejected based on surrogate recovery of less than 10%.

Soil heterogeneity — Soil samples exhibited heterogeneity as demonstrated by the analysis of FD and MS/MSD analysis, primarily affecting metals and PAHs (**Appendix B Section 2.2.1**). Soil heterogeneity results in measurements that are imprecise but does not affect the accuracy of individual measurements and the results are considered usable.

#### *6.3.1.2 Analytes with Screening Levels Not Achieved at the LOQ*

Non-DoD-related analytes with screening levels not achieved at the LOQ that were not detected are discussed in the bullets below.

- **Table 5-29** presents the DoD-relatedness categories for all analytes potentially screened within this Phase 1 evaluation. Analytes that were not detected in any media and are unlikely to be DoD-related are restricted to AOC 3 and AOC 5.

  - Within AOC 3, 82 analytes were not detected and considered unlikely to be DoD-related.
  - Within AOC 5, 87 analytes were not detected and considered unlikely to be DoD-related.

- **Tables 5-22 through 5-27** present a summary of non-detected analytes with LOQs all above various Phase 1 screening levels (e.g., human health and ecological).
- **Appendix E** contains the ratios used to develop **Tables 5-22 through 5-27** expressed as the LOQ divided by the screening level – ratios above one represent analytes with varying degrees of uncertainty regarding the presence of false negatives. The ratios were used to assign each chemical to the appropriate category in the **Table 5-22 through 5-27** series.
- Although these non-DoD-related analytes could represent potential false negatives, the lack of detections across media (soil and groundwater) and no historical record of DoD-relatedness minimizes the likelihood of these uncertainties.

The referral to Phase 2 of DoD-related analytes with screening levels not achieved at the LOQ that were not detected are discussed in the bullets below.

- **Table 5-28** presents DoD-related items associated with the known historical use of the Site. **Table 5-29** presents the DoD-relatedness categories for all analytes potentially screened within this Phase 1 evaluation. Analytes that were not detected in any media and potentially DoD-related are present in all AOCs.
- **Appendix E** contains the ratios used to develop **Tables 5-22 through 5-27** expressed as the LOQ divided by the screening level – ratios above one represent analytes with varying degrees of uncertainty regarding the presence of false negatives. The ratios were used to assign each chemical to the appropriate category in the **Table 5-22 through 5-27** series.
- DoD-related analytes with at least one screening level not achieved at the LOQ and were not detected for each AOC include:

  - Within AOC 1 – 2,4-DNP and 2,4-DNCB had a LOQ exceed at least one screening level.
  - Within AOC 3 – 2,4-DNP, 2,4-DNCB, picric acid, 2-nitroaniline, 2-nitrophenol, 3-nitroaniline, 4-chloroaniline, 4-nitrophenol, and all eight PCBs had a LOQ exceed at least one screening level.
  - Within AOC 4 (Discrete) – 2,4-DNP, 2,4-DNCB, and picric acid had a LOQ exceed at least one screening level.
  - Within AOC 4 (ISM) – 2,4-DNP, 2,4-DNCB, and picric acid had a LOQ exceed at least one screening level.
  - Within AOC 5 – 2-nitroaniline, 3-nitroaniline, 4-chloroaniline, 4-nitroaniline, and all eight PCBs had a LOQ exceed at least one screening level.
  - **Tables 5-22 through 5-27** present a summary of non-detected analytes with LOQs all above various Phase 1 screening levels (e.g., human health and ecological).

- The decision to carry these DoD-related analytes into Phase 2 minimizes the uncertainty for these DoD-related compounds to contribute towards potential false negatives.

Non-DoD-related analytes with screening levels not achieved at the LOQ that were detected at low frequency are discussed in the bullets below.

- **Table 5-28** presents DoD-related items associated with the known historical use of the Site. **Table 5-29** presents the DoD-relatedness categories for all analytes potentially screened within this Phase 1 evaluation. Analytes that were detected in less than 5% of samples in any media and unlikely to be DoD-related are restricted to AOC 3 and AOC 5.
    - Within AOC 3 – bis(2-ethylhexyl)phthalate and dibenzofuran had a LOQ exceed at least one screening level.
    - Within AOC 5 – benzaldehyde, dibenzofuran, and di-n-butyl phthalate had a LOQ exceed at least one screening level.
    - **Appendix E** contains a summary of ratios expressed as the LOQ divided by the screening level – ratios above one represent a LOQ exceeding the respective screening level and represent analytes with varying degrees of uncertainty regarding the presence of false negatives.
- These non-DoD-related analytes were not retained for Phase 1 screening or comparison of screening levels to LOQs due to the unlikelihood of these analytes being DoD-related and limited detections.
- Given these non-DoD-related analytes were detected at low frequencies, the uncertainties related to analytical sensitivity are unlikely to be significant.

#### *6.3.1.3 Data Reduction*

Use of "J" qualified results – Following EMCX direction, all analytical data with "J" qualifiers were assumed to be positive identifications at the LOQ which may result in high biases that can overestimate sample concentrations.

Rejected data – As noted in **Subsection 3.2**, occasionally, data are rejected due to quality control parameters not being met. Rejected data cannot be included in the risk assessment. In general exclusion of rejected data has little impact on the risk assessment; however, when the majority of results for a particular analyte are rejected, this adds uncertainty in the risk screening.

- Within the reduced analytical dataset, 627 results were "R" flagged and rejected during data validation.
- Across the AOCs, the number of results impacted were 1 in AOC 1, 521 in AOC 3, 1 in AOC 4 (Discrete), 9 in AOC 4 (ISM), 81 in AOC 5, and 14 within background (all related to grain size).
- Within AOC 3 (the most impacted), the 521 rejections are all for SVOCs across 6 sample locations. Of these, 520 analytes were resampled, thus, eliminating the uncertainty due to rejected data. Within AOC 5, 76 of the rejections were related to groundwater sampling. Analytes in AOC 5 that were unlikely to be DoD-related were largely non-detect – detected analytes did not exceed 5% across all samples for the AOC. DoD-related or potentially DoD-related analytes with rejected results were all not detected.

#### *6.3.1.4 Sample Size*

A sample size of n = 8 is typically too small to do reliable statistical background comparisons. Unless the site concentrations are demonstrated to be less than the PALs, especially if results are near but above the PALs and potentially near background concentrations, larger sample sizes (e.g., n = 20 – 30) should be

considered for the background comparisons to avoid false positives. From a statistical perspective, comparisons of grab sample maxima with screening levels when sample sizes are small do not conservatively demonstrate the population means are less than the screening levels but potentially underestimate mean concentrations.

### 6.3.2 COPC Selection

PAH and metal concentrations unrelated to historical DoD activities.

- Across all AOCs and media, only calcium, magnesium, potassium, and sodium in AOC 1 were determined to be unrelated to historical DoD activities.
- These analytes represent essential nutrients and would not be carried into Phase 1 screening regardless of DoD-relatedness.

COPCs with unknown source — The risk screening includes all detected analytes that exceed screening criteria and are not consistent with background, regardless of source. Inclusion of analytes, such as 4-nitroaniline and 1,2,3-trichlorobenzene, may result in an overestimate of the number of COPCs potentially resulting from DoD activities that are included in Phase 2 assessment activities.

### 6.3.3 Exposure

Evaluation of soils below 10 ft bgs – Deep soils collected from deeper than 10 ft bgs or below the water table are not generally considered following accepted CERCLA practice and were not collected as part of the Phase 1 investigation. It is unknown if future redevelopment would entail the excavating and redistribution of soils greater than 10 ft bgs. The lack of inclusion of deeper soils at AOC 4 and AOC 5 may lead to an underestimate of sample concentrations overall if the soils greater than 10 ft bgs are higher than the soils within 10 ft of ground surface and such deep soils are brought to the surface under a future use scenario. For much of the site (AOC 1 and AOC 3), soils below 10 ft are within the water table and not likely to be brought to the surface; therefore, excluding soils below 10 ft is not likely to contribute significant to uncertainty at this site.

Evaluation of site groundwater as drinking water — No potable wells are currently located on the site or near the source areas. Potable water is supplied to communities in Onondaga County by the Onondaga County Water Authority, which draws water from several sources, including Otisco Lake, Lake Ontario, and/or Skaneateles Lake. For the Lysander-Baldwinsville area (including the Radisson Community and Golf Course), potable water is obtained from Otisco Lake and Lake Ontario and then treated and distributed to the community. Therefore, the risk screening using the EPA Tap Water RSLs for the on-site resident scenario results in a likely overestimation of site COPCs.

### 6.3.4 Toxicity

Benchmarks do not address possible synergistic, antagonistic, or additive effects of contaminant mixtures. The risk may be over or underestimated, depending on the interactions among the various chemicals present in each AOC.

The soil conditions (soil type, pH, temperature, and % TOC) in the studies from which the benchmarks were derived may not mimic those conditions found at each AOC.

The benchmarks used do not consider factors that influence chemical bioavailability (e.g., site-specific organic carbon concentrations, redox potential [Eh], pH). Particularly for metals, the use of total concentration, rather than an estimate of the bioavailable fraction, represents a conservative estimate of exposure, and may overestimate risk. In addition, most toxicological benchmarks developed for metals in soils are based on soluble salts. In general, it is expected that soluble salts would most likely be quickly leached from soils either through rainfall infiltration to groundwater, or surface runoff to surface waters. Additionally, the Site occurs in a recently glaciated area with young soils that are not significantly weathered and soluble salts would not be anticipated at high concentrations. Consequently, it is unlikely that the form of the metal used in the toxicity study would occur to a significant degree in weathered soils.

Different species of plants and animals exhibit varying degrees of sensitivity to chemical stressors. The species used to derive the screening benchmarks do not necessarily have the same sensitivities as those found at the AOCs. Consequently, the inclusion or exclusion of those chemicals may under- or overestimated risk potential.

In general, ecological soil screening levels (Eco SSLs) developed for plants and soil invertebrates are conservative in nature as tests in which the COPC would be highly bioavailable were favored as study used to derive those SSLs. This may result in conservatively including those chemicals as potential COPCs.

Surrogate screening values — Surrogate screening values were selected for DoD-related and potentially DoD-related analytes (**Table 5-29**) as described in **Subsection 5.1.1.1** and **Tables 5-2 through 5-7.** Although surrogate values were selected on the basis of structural similarity to chemicals with known activities and properties and were verified through the use of predictive tools (i.e., EPA TEST), the toxicity information of these analytes has not been studied to the extent necessary to develop a primary screening value. For analytes that are known to be DoD-related (i.e., picric acid and 2,4-DNCB) with screening values developed in Appendix A of the UFP-QAPP (USACE, 2020), a safety factor of 10x was applied to the ecological screening levels to account for this uncertainty. **Subsection 8.2.7** presents an evaluation of potential data gaps associated with each chemical with a surrogate human health or ecological screening level.

- Analytes without surrogate plant screening values — Surrogate plant screening values could not be selected for the potentially or likely DoD-related analytes shown in **Table 5-13**. These include VOCs (1,2,3-trichlorobenzene, 2-butanone, acetone), SVOCs (nitroanilines, nitrophenols, benzaldehyde, and carbazole), and PAHs. The VOCs are primarily used as solvents or intermediates to produce other chemicals. The SVOCs are used as intermediates in various manufacturing process (e.g., dyes, pharmaceuticals) or derivative of combustion (carbazole and PAHs). Historical volatile releases are generally not an issue for phytotoxicity, as surficial VOCs would have dispersed or leached to groundwater. The lack of SVOC and PAH phytotoxicity values represents a data gap.
- Analytes without surrogate soil invertebrate screening values — Surrogate soil invertebrate screening values could not be selected for the potentially or likely DoD-related analytes shown in **Table 5-14**. These include cobalt, silver, thallium, and vanadium. Alloys that contain cobalt are used in military and industrial applications. Silver and thallium may be present in electronic equipment. Vanadium is associated with various steels, magnets, fuel oil, and coal. For invertebrates, the lack of cobalt, silver, thallium, and vanadium toxicity data represents a data gap.

- Analytes without surrogate avian screening values — Surrogate avian screening values could not be selected for the potentially or likely DoD-related analytes shown in **Table 5-15**. These include VOCs (1,2,3-trichlorobenzene and benzene), SVOCs (nitroanilines, nitrophenols, 4-chloroaniline, benzaldehyde, carbazole, and phenol), PAHs, antimony, and beryllium. The VOCs are solvents or associated with petroleum use. The SVOCs are used as intermediates in various manufacturing process (e.g., dyes, pharmaceuticals) or a derivative of combustion (carbazole and PAHs). Antimony is released by incinerators and coal-burning power plants. Beryllium is used in electronics, aerospace, and defense industries because it is a rigid, lightweight metal. Historical volatile releases are generally not an issue for avian toxicity as surficial VOCs would have dispersed or leached to groundwater and are generally not considered bioaccumulative; therefore, they would not be evaluated through food chain exposures. For birds, the lack of SVOC, PAH, and metals toxicity data represents a data gap.

Analytes without screening values — A number of detected analytes did not have screening values available and could not be assigned a surrogate value for ecological screening. In these cases, there may be evidence of low toxicity, an absence of data indicating toxicity, or insufficient toxicity data available to develop screening values. These analytes were not included as COPCs because they do not have toxicity values, and risk-based screening cannot be performed. It is possible that site COPCs are underestimated as a result. Of the analytes potentially or likely to be DoD-related, at least one of the four receptors (e.g., plant, soil invertebrate, bird, and mammal) had a screening level available, thus, minimizing this potential uncertainty.

## 6.4 DISCUSSION

A summary of the risk screening results and major uncertainties is presented below by medium.

### 6.4.1 Groundwater

As a result of the human health risk screenings, the following analytes were identified as COPCs in site groundwater:

| Analyte | COPC? | | |
|---|---|---|---|
| | AOC 1 | AOC 3 | AOC 5 |
| VOCs | | | |
| Benzene | -- | Yes | -- |
| 1,2,3-Trichlorobenzene | -- | -- | Yes(1) |
| SVOCs | | | |
| 4-Nitroaniline | -- | Yes | -- |
| PAHs | | | |
| Benzo(a)anthracene | -- | -- | Yes(2) |
| Benzo(a)pyrene | -- | -- | Yes(2) |
| Benzo(b)fluoranthene | -- | -- | Yes(2) |
| Dibenz(a,h)fluoranthene | -- | -- | Yes(2) |
| Naphthalene | -- | -- | Yes |
| Metals | | | |
| Aluminum | -- | -- | Yes(3) |
| Antimony | -- | -- | Yes(4) |

| Analyte | COPC? | | |
|---|---|---|---|
| | AOC 1 | AOC 3 | AOC 5 |
| Arsenic | Yes | Yes | Yes |
| Barium | Yes | -- | -- |
| Cobalt | -- | Yes | Yes |
| Iron | Yes | -- | Yes(5) |
| Manganese | Yes | Yes | Yes |
| Nickel | Yes | Yes | Yes(6) |
| Vanadium | Yes | Yes | Yes(7) |

(1) Only a COPC for AOC 5 Possible Dump.
(2) Only a COPC for AOC 5 Boiler House.
(3) Only a COPC for AOC 5 Coal Aggregate Bins.
(4) COPC for AOC 5 Boiler House and Coal Storage Area.
(5) COPC for AOC 5 Coal Aggregate Bins and Coal Storage Area.
(6) COPC for AOC 5 Coal Aggregate Bins, Coal Storage Area, and Possible Dump.
(7) COPC for AOC 5 Boiler House and Coal Aggregate Bins.

The relevant uncertainties described in **Subsection 6.3** that result in a potential overestimation of site COPCs for the analytes listed above include: (1) inclusion of COPCs with an unknown source (e.g., 4-nitroaniline); (2) use of the MDC of grab groundwater data for screening purposes (unknown uncertainty); (3) use of analyte concentrations with "J+" (positive bias) qualifiers that were raised to the LOQ; (4) inclusion of analytes with low FOD (e.g., benzene); (5) use of surrogate screening levels (unknown uncertainty); (6) evaluation of groundwater as potable water; (7) use of turbid groundwater data; (8) exclusion of results due to rejection during data validation (unknown uncertainty); and (9) limited sample size (unknown uncertainty). No analytes were included as COPCs based on the selection of surrogate screening levels for groundwater.

The relevant uncertainties described in **Subsection 6.3** that result in a potential underestimation of site COPCs for groundwater include: (1) exclusion of analytes with LOQs that are greater than the Tap Water RSLs that are potentially site-related (e.g., PCBs, 2,4-DNP); (2) use of the MDC of grab groundwater data for screening purposes (unknown uncertainty); (3) use of analyte concentrations with "J-" or "UJ" (negative bias) qualifiers (e.g., 2,4-DNCB, 2,4-DNP); (4) use of surrogate screening levels (unknown uncertainty); (5) exclusion of elements considered essential human nutrients; (6) exclusion of results due to rejection during data validation (unknown uncertainty); and (7) limited sample size (unknown uncertainty).

The overall direction of uncertainty is not known due to the unknown magnitude of the individual uncertainties. However, results of the screening may overestimate potential risk, particularly when analytes are recommended for inclusion in the Phase 2 sampling that are not detected with LOQs greater than human health screening levels. Exceptions to the potential overestimate include PCBs and 2,4-DNP, which were not detected with LOQs exceeding available screening levels and/or the data were affected by a negative bias (based on low surrogate and/or matrix spike recoveries). The analytes recommended to be carried forward in Phase 2 are presented in **Section 9**.

### 6.4.2 Soil

The following sections describe the analytes that were identified as COPCs in soil as a result of the human health and ecological risk screenings.

#### *6.4.2.1 Human Health*

As a result of the human health risk screenings, the following analytes were identified as COPCs in site soil:

| Analyte | COPC? AOC 1 (0-1 ft bgs) (0-5 ft bgs) (0-10 ft bgs) | AOC 3 (0-1 ft bgs) (0-5 ft bgs) | AOC 5 (0-1 ft bgs) (0-5 ft bgs) (0-10 ft bgs) |
|---|---|---|---|
| PAHs | | | |
| Benzo(a)anthracene | -- | Yes | -- |
| Benzo(a)pyrene | -- | Yes | Yes(9) |
| Benzo(b)fluoranthene | -- | Yes | Yes(10) |
| Dibenz(a,h)fluoranthene | -- | Yes | Yes(10) |
| Indeno(1,2,3-cd)pyrene | -- | Yes | Yes(10) |
| Naphthalene | -- | -- | Yes(9) |
| Metals | | | |
| Aluminum | Yes | Yes | Yes(11) |
| Arsenic | Yes | Yes(8) | Yes |
| Cadmium | Yes | -- | Yes(12) |
| Cobalt | Yes | Yes | Yes |
| Iron | Yes | Yes | Yes |
| Manganese | Yes | Yes | Yes |
| Thallium | -- | Yes | Yes |

(8) Only a COPC for the 0-5 ft bgs interval.
(9) COPC for all depths at AOC 5 Coal Aggregate Bins and Coal Storage Area.
(10) Only a COPC for all depths at AOC 5 Coal Aggregate Bins.
(11) COPC for all depths and subareas except: AOC 5 Boiler House (0-1 ft bgs), AOC 5 Coal Storage Area (0-1 and 0-5 ft bgs), and AOC 5 Possible Dump (0-1 ft bgs).
(12) Only a COPC for all depths at AOC 5 Possible Dump.

The relevant uncertainties described in **Subsection 6.3** that result in a potential overestimation of site COPCs for the analytes listed above include: (1) use of the MDC of the discrete soil data for screening purposes (unknown uncertainty); (2) use of analyte concentrations with "J+" (positive bias) qualifiers that were raised to the LOQ; (3) use of surrogate screening levels (unknown uncertainty); (4) soil heterogeneity (unknown uncertainty); (5) exclusion of results due to rejection during data validation (unknown uncertainty); and (6) limited sample size (unknown uncertainty). No analytes were included as COPCs based on the selection of surrogate screening levels for soil.

The relevant uncertainties described in **Subsection 6.3** that result in a potential underestimation of site COPCs for soil include: (1) use of the MDC of discrete soil data for screening purposes (unknown uncertainty); (2) use of analyte concentrations with "J-" or "UJ" (negative bias) qualifiers (e.g., 2,4-DNCB, 2,4-DNP, picric acid); (3) use of surrogate screening levels (unknown uncertainty); (4) exclusion of elements considered essential human nutrients; (5) exclusion of results due to rejection during data validation (unknown uncertainty); and (6) limited sample size (unknown uncertainty).

The overall direction of uncertainty is not known due to the unknown magnitude of the individual uncertainties. However, risk screenings are generally designed to be conservative (i.e., overestimate risk). Exceptions to the overestimate include 2,4-DNCB and 2,4-DNP, which were affected by a negative bias (based on low surrogate and/or matrix spike recoveries). The analytes recommended to be carried forward in Phase 2 are presented in **Section 9**.

#### *6.4.2.2 Ecological*

As a result of the ecological risk screenings, the following were identified as COPECs in AOC 1 soil:

| Analyte | COPEC? | | | |
|---|---|---|---|---|
| | **Plant (0-1 ft bgs) (0-5 ft bgs)** | **Soil Invertebrate (0-1 ft bgs) (0-5 ft bgs)** | **Bird (0-1 ft bgs)** | **Mammal (0-1 ft bgs) (0-5 ft bgs)** |
| Explosives | | | | |
| Picric acid | -- | Yes | -- | Yes |
| Metals | | | | |
| Antimony | -- | -- | NSL | Yes |
| Arsenic | -- | Yes | -- | -- |
| Barium | Yes | -- | -- | -- |
| Cadmium | -- | -- | Yes | Yes |
| Chromium | Yes | Yes | -- | -- |
| Copper | Yes | -- | Yes | Yes |
| Lead | Yes | -- | Yes | Yes |
| Manganese | Yes | Yes | -- | Yes(1) |
| Mercury | Yes | Yes | Yes | -- |
| Selenium | Yes | -- | -- | Yes |
| Zinc | Yes | Yes | Yes | Yes |

NSL = no screening level

(1) Only a COPEC for the 0-5 ft bgs interval.

As a result of the ecological risk screenings, the following were identified as COPECs in AOC 3 soil:

| Analyte | COPEC? | |
|---|---|---|
| | **Plant (0-5 ft bgs)** | **Soil Invertebrate (0-5 ft bgs)** |
| VOCs | | |
| Acetone | NSL | Yes |
| SVOCs | | |
| Benzaldehyde | NSL | Yes |
| Carbazole | NSL | Yes |
| Cresols, m- & p- | -- | Yes |
| Dibenzofuran | -- | Yes |
| PAHs | | |
| Acenaphthene | Yes | -- |
| Anthracene | Yes | -- |
| Metals | | |
| Manganese | Yes | Yes |
| Mercury | -- | Yes |
| Selenium | Yes | -- |
| Thallium | Yes | -- |

NSL = no screening level

As a result of the ecological risk screenings, the following were identified as COPECs in AOC 5 Boiler House soil:

| Analyte | COPEC? | | | |
|---|---|---|---|---|
| | **Plant (0-1 ft bgs) (0-5 ft bgs)** | **Soil Invertebrate (0-1 ft bgs) (0-5 ft bgs)** | **Bird (0-1 ft bgs)** | **Mammal (0-1 ft bgs) (0-5 ft bgs)** |
| Metals | | | | |
| Arsenic | Yes | Yes | -- | -- |
| Chromium | Yes(1) | Yes(1) | BKG | -- |
| Manganese | Yes | Yes | -- | -- |
| Mercury | -- | Yes(1) | BKG | -- |
| Thallium | Yes(1) | -- | BKG | -- |
| Zinc | -- | Yes(1) | -- | Yes(1) |

BKG = eliminated from screening based on background comparison

(1) Only a COPEC for the 0-5 ft bgs interval.

As a result of the ecological risk screenings, the following were identified as COPECs in AOC 5 Coal Aggregate Bins soil:

| Analyte | COPEC? | | | |
|---|---|---|---|---|
| | **Plant (0-1 ft bgs) (0-5 ft bgs)** | **Soil Invertebrate (0-1 ft bgs) (0-5 ft bgs)** | **Bird (0-1 ft bgs)** | **Mammal (0-1 ft bgs) (0-5 ft bgs)** |
| PAHs | | | | |
| 1-Methylnaphthalene | Yes | (2) | Yes | (2) |
| 2-Methylnaphthalene | Yes | (2) | Yes | (2) |
| Naphthalene | Yes | (2) | Yes | (2) |
| High Molecular Weight PAHs | (3) | -- | (3) | Yes |
| Metals | | | | |
| Antimony | -- | -- | NSL | Yes |
| Arsenic | -- | Yes | -- | -- |
| Cadmium | -- | -- | -- | Yes(1) |
| Chromium | Yes(1) | Yes(1) | BKG | -- |
| Lead | -- | -- | Yes | -- |
| Manganese | Yes | Yes | -- | -- |
| Mercury | -- | Yes(1) | BKG | -- |
| Selenium | Yes | -- | -- | Yes |
| Thallium | Yes | -- | -- | -- |
| Vanadium | -- | -- | Yes | -- |
| Zinc | -- | -- | Yes | -- |

BKG = eliminated from screening based on background comparison
NA = not analyzed
NSL = no screening level
(1) Only a COPEC for the 0-5 ft bgs interval.
(2) Evaluated as "Low Molecular Weight PAHs".
(3) Evaluated as individual PAHs.
(4) The one detected concentration of dibenzofuran in ten samples exceeded the soil invertebrate screening level; however, it is not considered a COPEC for the Coal Aggregate Bins. Throughout the whole of AOC 5 it was detected in only 3 of 65 soils samples, all below the LOQ, and in no groundwater samples. There are no historical data indicating dibenzofuran is DoD-related and the low frequency of detection does not indicate a release.

As a result of the ecological risk screenings, the following were identified as COPECs in AOC 5 Coal Storage Area soil:

| Analyte | COPEC? | | | |
|---|---|---|---|---|
| | **Plant (0-1 ft bgs) (0-5 ft bgs)** | **Soil Invertebrate (0-1 ft bgs) (0-5 ft bgs)** | **Bird (0-1 ft bgs)** | **Mammal (0-1 ft bgs) (0-5 ft bgs)** |
| PAHs | | | | |
| 1-Methylnaphthalene | Yes | (1) | Yes | (1) |
| 2-Methylnaphthalene | Yes | (1) | Yes | (1) |
| Acenaphthene | Yes | (1) | NSL | (1) |
| Benzo(a)anthracene | -- | (1) | Yes | (1) |
| Naphthalene | Yes | (1) | Yes | (1) |
| High Molecular Weight PAHs | (2) | -- | (2) | Yes |
| Low Molecular Weight PAHs | (2) | Yes | (2) | -- |
| Metals | | | | |
| Antimony | -- | -- | NSL | Yes |
| Arsenic | Yes | Yes | -- | -- |
| Cadmium | -- | -- | ND | Yes(3) |
| Lead | -- | -- | Yes | -- |
| Manganese | Yes(3) | Yes(3) | -- | -- |
| Mercury | -- | Yes(3) | ND | -- |
| Selenium | Yes | -- | Yes | Yes |
| Thallium | Yes | -- | -- | Yes |
| Vanadium | -- | -- | Yes | -- |
| Zinc | -- | -- | Yes | -- |

ND = not detected

NSL = no screening level

(1) Evaluated as PAH sums, either "High Molecular Weight PAHs" or "Low Molecular PAHs as appropriate.

(2) Evaluated as individual PAHs.

(3) Only a COPEC for the 0-5 ft bgs interval.

As a result of the ecological risk screenings, the following were identified as COPECs in AOC 5 Electric Substation soil:

| Analyte | COPEC? | | | |
|---|---|---|---|---|
| | **Plant (0-1 ft bgs) (0-5 ft bgs)** | **Soil Invertebrate (0-1 ft bgs) (0-5 ft bgs)** | **Bird (0-1 ft bgs)** | **Mammal (0-1 ft bgs) (0-5 ft bgs)** |
| PCBs | | | | |
| PCB-1260 (Aroclor 1260) | -- | -- | Yes | -- |
| Metals | | | | |
| Cadmium | -- | -- | -- | Yes |
| Chromium | Yes(1) | Yes(1) | BKG | -- |
| Copper | Yes(1) | -- | -- | Yes(1) |
| Lead | -- | -- | Yes | -- |
| Manganese | Yes | Yes | -- | -- |
| Mercury | -- | Yes | Yes | -- |
| Selenium | Yes | -- | -- | -- |
| Thallium | Yes | -- | -- | -- |
| Zinc | -- | -- | Yes | -- |

BKG = eliminated from screening based on background comparison

(1) Only a COPEC for the 0-5 ft bgs interval.

As a result of the ecological risk screenings, the following were identified as COPECs in AOC 5 Possible Dump soil:

| Analyte | COPEC? | | | |
|---|---|---|---|---|
| | **Plant (0-1 ft bgs) (0-5 ft bgs)** | **Soil Invertebrate (0-1 ft bgs) (0-5 ft bgs)** | **Bird (0-1 ft bgs)** | **Mammal (0-1 ft bgs) (0-5 ft bgs)** |
| VOCs | | | | |
| Acetone | NSL | Yes(1) | NA | -- |
| SVOCs | | | | |
| Benzaldehyde | NSL | Yes | NSL | -- |
| Dibenzofuran | -- | Yes | NSL | -- |
| Di-n-butyl phthalate | -- | Yes | Yes | -- |
| Metals | | | | |
| Antimony | -- | -- | NSL | Yes |
| Arsenic | -- | Yes | -- | -- |
| Cadmium | -- | -- | Yes | Yes |
| Chromium | Yes | Yes | -- | -- |
| Copper | Yes | Yes | Yes | Yes |
| Lead | Yes | -- | Yes | Yes |
| Manganese | Yes | Yes | -- | -- |
| Mercury | -- | Yes(1) | BKG | -- |
| Selenium | Yes(1) | -- | BKG | -- |
| Thallium | Yes | -- | -- | -- |
| Zinc | Yes | Yes | Yes | Yes |

BKG = eliminated from screening based on background comparison
NA = not analyzed
NSL = no screening level
(1) Only a COPEC for the 0-5 ft bgs interval.

The relevant uncertainties described in **Subsection 6.3** that result in a potential overestimation of site COPECs for the analytes listed above include: (1) inclusion of COPECs with an unknown source (e.g., benzaldehyde); (2) selection of surrogate screening values; (3) use of the MDC for screening purposes; (4) use of analyte concentrations with "J+" (positive bias) qualifiers that were raised to the LOQ; and (5) selection of conservative Eco SSLs assuming high bioavailability.

The relevant uncertainties described in **Subsection 6.3** that result in a potential underestimate of site COPECs (i.e., analytes not listed above) include: (1) non-detected analytes with LOQs greater than ecological screening levels; (2) use of analyte concentrations with "J-" or "UJ" (negative bias) qualifiers; (3) removal of results due to rejection during data validation; and (4) exclusion of analytes with no screening level or applicable surrogate.

The overall direction of uncertainty is not known due to the unknown magnitude of the individual uncertainties. However, results of the screening may overestimate potential risk, particularly when analytes are recommended for inclusion in the Phase 2 sampling that are either not detected with LOQs greater than ecological screening levels or without a screening level. Exceptions to the overestimate include 2,4-DNCB

and 2,4-DNP, which were not detected with LOQs exceeding available screening levels and/or the data were affected by a negative bias (based on low surrogate and/or matrix spike recoveries). The analytes recommended to be carried forward in Phase 2 are presented in **Section 9**.

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# 7.0 CONCEPTUAL SITE MODEL UPDATES

The following sections present updates to the CSM based on observations from the RI Phase 1 field investigations. The RI Phase 1 field investigations were completed in 2021 and were detailed in the *Final RI Phase 1 Field Report – AOC 4 and AOC 5* (USACE, 2021) and the *Final RI Phase 1 Field Report – AOCs 1, 3, 4 ISM, and Background* (USACE, 2022).

## 7.1 SURFACE GEOLOGY

Bluestone refined the distribution of the three surface geologic units previously mapped by Pair (2014) (i.e., Psc, Ps, and Pd) based on the logging of site and background soil borings advanced during the Phase 1 field investigation. As discussed in the UFP-QAPP (USACE, 2020), surface geology was more broadly mapped by Muller and Cadwell in 1986 and by Pair in 2014. While the exact level of effort applied in developing this previous mapping is not fully understood, it is assumed to be of a smaller scale as compared with Bluestone's site-specific investigation. Of these two available resources, the Pair (2014) mapping was selected as the basis for refining surface geology because it more accurately aligns with known landforms and more precisely defines the extent of various surface geologic units (USACE, 2020). Bluestone's evaluation and refinement of surface geologic distribution was informed by field observations for soil structure and gradation, photographs of the associated soil samples, and laboratory gradation test results. In instances where multiple soil types were observed in the vertical profile, the uppermost soil type identified beyond the 0 to 1 ft bgs depth interval was used for classification and mapping purposes.

The inferred distribution of the 161 site soil borings and 45 background soil borings are shown on **Figures 7-1 through 7-5** overlain on the historical soil distribution based on Pair (2014). The surface geologic unit Hw (wetland deposit) can be seen on some of the figures; however, this unit was identified by Pair (2014) adjacent to but not within AOC boundaries. The figures also show that fill was encountered in 10 of the 161 site soil borings and two of the 45 background soil borings. Also shown on the figures, there are 19 soil borings advanced along the toe of the drumlin in AOC 1 that were sampled from the 0 to 1 ft bgs depth interval only and are therefore classified as topsoil. It is noted that fill material observed in the upper 3 to 6 ft of the AOC 1, AOC 5, and background borings appears to be indicative of localized backfilling or grading activities, as opposed to landfilling or dumping activities.

The following observations were made regarding AOC 1 surface geology:

- The previously mapped Psc and Pd units along the northeastern boundary were determined to consist of Ps soils.
- The previously mapped Ps unit along the toe of the drumlin was predominantly classified as topsoil because the Phase 1 investigation in this area was limited to hand-augured borings to a depth of 1 ft bgs. Pockets of Pd and Ps soils were also observed in this area.
- The previously mapped Pd unit along the top of the drumlin was confirmed to consist of Pd soils.

Regarding AOC 3 surface geology, the previously mapped Psc unit was confirmed to consist of Psc soils.

Regarding AOC 4 surface geology, the previously mapped Psc unit was confirmed to predominantly consist of Psc soils, except for pockets of Ps soils along the northeastern and southeastern boundaries.

Regarding AOC 5 surface geology, the previously mapped Pd and Psc units in the eastern and western portions of the AOC, respectively, were determined to consist of a mix of Psc and Ps soils, as well as fill that is indicative of localized backfilling or grading activities.

The following observations were made regarding surface geology in the background areas located southwest of AOC 1 and northwest of AOC 5:

- The previously mapped Psc unit was determined to consist of both Psc and Ps soils.
- The previously mapped Ps unit was confirmed to predominantly consist of Ps soils, except for the former borrow pit area located southwest of AOC 1. The former borrow pit area was classified as fill based on field observations of recent backfilling activities in that area.
- The previously mapped Pd unit was confirmed to predominantly consist of Pd soils, except for pockets of Ps soils, Psc soils, and fill in the northern and southern extents. The fill observed in these areas is indicative of localized backfilling or grading activities.

Bluestone's field observations generally confirmed the previous understanding of site geology and depositional history at the Site. The distribution of the three known surface geologic units (i.e., Psc, Ps, and Pd) were refined by this investigation but generally aligned with previous mapping from Pair (2014). Surface geology at the Site is controlled by glacial deposition and marked by a higher relief drumlin hill spanning the southwestern edge of AOC 1, the eastern edge of the background area, and the northeast edge of AOC 5. The drumlin hill is composed of poorly-sorted diamicton (till) reflective of direct glacial deposition (i.e., Pd unit) and is flanked by coarser water-worked deposits of well-sorted sand and gravel (i.e., Ps unit) present in the northeastern edge of AOC 1 and the center of the background area. As previously mapped by Pair (2014), lacustrine beach deposits composed of finer-grained, water-worked deposits of well-sorted silt and clay (i.e., Psc unit) are predominant within AOCs 3, 4, and 5 and along the western edge of the background area.

These observations indicate a data gap for surface geology along the toe of the drumlin in AOC 1. This area should be investigated further to better understand soil types beyond the 0 to 1 ft bgs depth interval.

## 7.2 BEDROCK

The site and background soil borings that were advanced to refusal during the Phase 1 investigation provided additional insight into bedrock depth and elevation. **Table 7-1** presents depths and elevations where refusal was encountered, presumably due to bedrock. Instances where shallow refusal was encountered due to circumstances other than bedrock were omitted from this table for the purpose of evaluating bedrock depth only.

In AOC 1, a distinction can be made between investigations conducted along the top of the drumlin and the bottom of the drumlin. Along the top of the drumlin, refusal depth ranged from 7 to 18.7 ft bgs (average 12.84 ft bgs), and refusal elevation ranged from 426.33 to 489.23 ft above mean sea level (AMSL) (average 450.83 ft AMSL). Along the bottom of the drumlin, refusal depth ranged from 9.1 to 16 ft bgs (average 14.51 ft bgs), and refusal elevation ranged from 412.59 to 423.47 ft AMSL (average 418.77 ft AMSL). Investigations conducted prior to the Bluestone Phase 1 investigation indicated refusal, presumably due to bedrock, at a maximum depth of 51 ft bgs along the bottom of the drumlin (USACE, 2020). This varies significantly from the Phase 1 investigation findings; however, many of the Phase 1 borings at the bottom of the drumlin where advanced along the northeastern boundary of the AOC, as opposed to the toe of the

drumlin located approximately 500 ft to the southwest. Phase 1 investigations along the toe of the drumlin were limited to hand-augured borings to a depth of 1 ft bgs because the area could not be accessed with the drill rig due to site condition limitations. The lack of direct push borings closer to the toe of the drumlin is a data gap.

In AOC 3, refusal depth ranged from 6 to 18.9 ft bgs (average 12.96 ft bgs), and refusal elevation ranged from 384.10 to 394 ft AMSL (average 389.4 ft AMSL). These observations generally correspond with investigations conducted prior to the Phase 1 investigation, which indicated bedrock at depths of approximately 15 ft bgs and elevations ranging from 385 to 389 ft AMSL (USACE, 2020).

In AOC 4, refusal depth ranged from 10.5 to 20.5 ft bgs (average 15.49 ft bgs), and refusal elevation ranged from 389.54 to 415.64 ft AMSL (average 402.94 ft AMSL). Investigations conducted prior to the Phase 1 investigation indicated that bedrock was encountered at a depth of 9 ft bgs and an elevation of approximately 400 ft AMSL at a well location about halfway between AOC 3 and AOC 4 (USACE, 2020). The Phase 1 investigation indicates that both the depth to bedrock and bedrock elevation increase moving west-northwest from AOC 3 to AOC 4.

In AOC 5, refusal depth ranged from 19 to 29 ft bgs (average 23.39 ft bgs), and refusal elevation ranged from 420.22 to 437.07 ft AMSL (average 426.14 ft AMSL). No boreholes had been completed in AOC 5 under previous investigations for comparison with these observations (USACE, 2020). The Phase 1 investigation indicates that although the depth to bedrock increases, the bedrock elevation decreases moving south from the top of the AOC 1 drumlin to AOC 5.

Bluestone's field observations confirmed the previous understanding that surface relief at the Site is not controlled by bedrock but by glacial deposition, as discussed in the UFP-QAPP (USACE, 2020). This is evident in variations between the surface elevation and bedrock depth observed throughout the Site. It is possible that many of the refusal depths observed during the Phase 1 investigation are attributable to till or saprolite (weathered shale) as opposed to competent bedrock. Bedrock composition below refusal could not be fully characterized during the Phase 1 investigation.

## 7.3 HYDROGEOLOGY

The shallow groundwater elevations and contours observed during the Phase 1 investigation are shown on **Figures 7-6 through 7-10**. The groundwater contours shown on these figures were developed using water level data from the temporary site and background monitoring wells installed throughout the site. The groundwater depth and elevation data collected from these wells are presented in **Table 7-2**.

In AOC 1, a distinction can be made between the wells installed along the top of the drumlin and those installed along the bottom of the drumlin. Along the top of the drumlin, the depth to groundwater ranged from 1.38 to 7.07 ft bgs (average 3.19 ft bgs), and the groundwater elevation ranged from 441.64 to 475.2 ft AMSL (average 452.10 ft AMSL). Along the bottom of the drumlin, the depth to groundwater ranged from 0.89 to 9.06 ft bgs (average 3.77 ft bgs), and the groundwater elevation ranged from 426.14 to 452.82 ft AMSL (average 434.2 ft AMSL). The general direction of groundwater flow in AOC 1 is northeast; however, background wells located to the southwest of AOC 1 demonstrate flow to the southwest of the drumlin ridge that controls the direction of shallow groundwater flow in this area.

In AOC 3, the depth to groundwater ranged from 1.92 to 10.44 ft bgs (average 6.93 ft bgs), and the groundwater elevation ranged from 393.4 to 400.87 ft AMSL (average 396.02 ft AMSL). The general direction of groundwater flow in AOC 3 is northeast.

In AOC 4, the depth to groundwater ranged from 0.53 to 4.75 ft bgs (average 2.63 ft bgs), and the groundwater elevation ranged from 406.3 to 423.89 ft AMSL (average 415.79 ft AMSL). The general direction of groundwater flow in AOC 4 is northeast.

In AOC 5, the depth to groundwater ranged from 0.72 to 12.03 ft bgs (average 4.77 ft bgs), and the groundwater elevation ranged from 438.96 to 451.16 ft AMSL (average 443.56 ft AMSL). The general direction of groundwater flow in AOC 5 is west-southwest.

The Phase 1 observations confirmed the previous understanding that shallow groundwater at the site mimics the land surface and is influenced by local topography, as discussed in the UFP-QAPP (USACE, 2020). The Phase 1 observations demonstrate that the direction of shallow groundwater flow in AOC 1, AOC 3, and AOC 4 is generally northeast toward the Oswego River. The exceptions are the background areas southwest of the AOC 3 drumlin where flow is to the southwest and in AOC 5 where flow is to the west-southwest; both areas flow toward wetlands located west of the site and indicate that shallow groundwater flow is controlled by nearby surface water features, as discussed in the UFP-QAPP (USACE, 2020).

The temporary wells installed during the Phase 1 investigation are not sufficient to evaluate hydraulic properties of the shallow aquifer, such as hydraulic conductivity, which represents a data gap.

Furthermore, the Phase 1 investigation was not sufficient to provide a comprehensive understanding of deep aquifer characteristics and the hydraulic communication between the deep and shallow aquifers, which also represents a data gap.

## 7.4 SOURCES OF DRINKING WATER

As presented in the *RI Phase 1 Field Report – AOCs 1,3, 4 ISM, and Background* (USACE, 2022), Bluestone conducted a potable well survey in September 2021 to identify active public and/or private domestic wells located within a 2-mile radius of the Site for the purpose of evaluating potential impacts from any off-site migration of DoD-related contaminants. The survey included a desktop component, in addition to a windshield survey.

The desktop component identified 471 parcels with a private water supply, such as a well, according to the Onondaga and Oswego Counties' 2020 Assessment Roll (331 in Onondaga County and 140 in Oswego County). The desktop component also identified 83 water well locations according to NYSDEC Water Well Completion Reports. These parcels and water well locations are shown on **Figure 7-10**.

During the windshield survey, Bluestone attempted to view, from public roadways, each parcel with private water supply (471) and each NYSDEC well location (83) within the 2-mile site boundary radius. A total of 118 potential wells at 115 parcels were identified, as listed in **Table 7-3**.

In summary, the potable well survey identified a total of 554 potential well locations (471 parcels with private water supply and 83 NYSDEC water wells) that are available for further evaluation with respect to potential impacts from any off-site migration of DoD-related contaminants.

## 7.5 WETLANDS AND AQUATIC RESOURCES

A wetland delineation and vernal pool survey was performed at AOCs 1, 3, and 5 in 2020. The results of these field investigations are presented in the *Wetland Delineation and Vernal Pool Survey Report* (Bluestone, 2020). No formal wetland delineation was performed for AOC 4.

There are several forested wetland areas scattered throughout AOC 1, with the majority located in the lower elevation areas adjacent to residential properties. In total, 17.33 acres of Palustrine Forested Wetland (PFO) were identified across four areas. The largest wetland area (Wetland 1C, 10.81 acres) was identified along the northeast basal plain, with pockets of upland hills, between former Dryer Houses 29 and 31. Wetland 1B was identified along the southern portion of the basal plain, between former Dryer Houses 27 and 28. The remaining two wetlands were delineated along the second terrace (Wetlands 1A and 1F). See **Appendix K**, **Figure 2-1** for locations of wetlands and candidate vernal pools and the Phase 1 sampling locations at AOC 1.

In total, 0.26 acres of PFO/Palustrine Emergent Wetland (PEM) were identified within AOC 3, just north of the parking lot along the stream's floodplain. See **Appendix K**, **Figure 2-2** for locations of delineated wetlands and sampling locations at AOC 3. The only wetland areas associated with AOC 3 are closely associated with the unnamed stream and the northern stream bank.

Roughly 50% (the whole western side) of AOC 5 consists of a forested wetland habitat (see **Appendix K**, **Figure 2-4**). Similar to AOC 1, AOC 5 has highly mosaic microtopography throughout and an extensive network of drainage ditches from its previous land use. Therefore, wetland boundaries had to be averaged to mappable lines. This means in some areas there are many small wetland depressions and upland mounds on both sides of the boundary. The western portion of AOC 5 was confirmed to have 3.35 acres of PFO wetlands, which likely extends westward beyond the AOC boundary. See **Figure 2-4** for locations of wetlands and candidate vernal pools at AOC 5.

Based on the results of the wetland delineation efforts and vernal pool assessments, approximately 20.44 wetland acres were delineated across the AOCs 1, 3, and 5. Based on the observations of the field teams, vernal pool resources do not warrant additional consideration as unique or exceptional resources. However, the pools were all found to occur within, or to have nexus to, areas that are probable Jurisdictional Wetlands as defined and regulated by USACE under the Clean Water Act.

NYSDEC regulates wetlands that are 12.4 acres (5 hectares) or larger. The NYSDEC Freshwater Wetlands Act protects wetlands smaller than this if they are considered of unusual local importance. None of the wetlands delineated at the NYOW AOCs are larger than 12.4 acres; none are identified as part of a state-mapped New York State (NYS) freshwater wetland; and none contain features of unusual local importance.

According to the National Wetlands Inventory Map (see **Appendix K, Attachment A** and **Figure 2-3**), there is a small PEM in the southwestern portion on the Site and two small, PFOs adjacent to western AOC 4 boundary. There are also several larger PFO and PEM areas west of AOC 4 and numerous smaller Palustrine Forested Wetlands south and east of AOC 4.

## 7.6 AOC 3 GEOPHYSICAL SURVEY – SUSPECTED LANDFILL AREA

A geophysical survey was conducted at the AOC 3 Former Landfill Area to meet the DQOs of assessing the area for evidence of buried containerized waste or large metallic debris below the parking lot and

delineating the horizontal and vertical extents of the former landfill. The survey was conducted using a Geonics EM-61 MKII metal detector (EM-61) followed by ground penetrating radar (GPR) profiles to scan any anomalies identified by the electromagnetic (EM) survey that were not attributed to surficial features. The results of the survey are shown on **Figure 7-12** and discussed below.

The EM-61 survey identified several anomalies due to metallic surface interference from light poles, buried pipes, fences, vehicles, and scattered metallic debris. The survey also identified a suspected landfill signature between the stream and the parking lot.

The GPR profiles did not return a signature characteristic of buried metallic debris when scanning the suspected landfill anomaly. This may be because the metallic targets were deeper than the GPR signal was able to penetrate (approximately 4 ft bgs). However, a distinct signal response change (i.e., horizontal reflector) indicative of possible fill material in this area was observed in GPR Profile 173. The GPR Profile 174 confirmed that the northwestern anomaly was attributed to a buried metal pipe that conveys stream water. The GPR Profile 176 identified a buried slab of reinforced concrete where scattered metallic debris was observed north of the stream.

The geophysical survey conducted at the AOC 3 Former Landfill Area satisfied the DQO of assessing the area for evidence of buried containerized waste or large metallic debris. The survey did not indicate historic landfill below the parking lot but did indicate historic landfill north of the parking lot, between the parking lot and the stream. The survey also satisfied the DQO of delineating the horizontal extent of the former landfill; however, the vertical extent remains unknown and represents a data gap.

## 7.7 AOC 5 GEOPHYSICAL SURVEY – POSSIBLE DUMP AREA

A geophysical survey was conducted at the AOC 5 Possible Dump Area to meet the DQOs of assessing the area for evidence of demolition debris or disposal of other waste and delineating the horizontal and vertical extents of observed waste. The survey was conducted using a Geonics EM-31 MKII terrain conductivity meter (EM-31). The results of the survey are shown on **Figure 7-13** and discussed below.

The EM-31 survey indicated that the subsurface conductivity data were indicative of natural terrain and not fill material, buried metallic objects, or dissolved salts/solids that are typically associated with landfills; however, metallic responses were observed at several locations. It was confirmed in the field that the metallic responses aligned with the presence of visible, surficial metallic debris, such as discarded paint cans, drums, and tire rims, as well as the presence of a buried steel drainpipe.

It has been suggested that there is potential that the geophysical survey conducted at the AOC 5 Possible Dump Area did not entirely satisfy the DQOs of assessing the area for evidence of demolition debris or disposal of other waste and delineating the horizontal and vertical extents of observed waste. This is because it is possible that buried metallic objects beneath the surficial metallic debris may have gone undetected due to interference from the surficial metallic debris. However, the EM-31 survey covered approximately 90% of the Possible Dump area in addition to area north of the mapped footprint without any evidence of subsurface disposal activities and detected analytes and associated concentrations in the Possible Dump area are not substantially above background (**Tables I-65 through I-75**) or human health and ecological screening levels (**Tables J.1-7, J.2-7, L.1-7, L.2-7, L.3-6, and L.4-6**) and are not indicative of DoD-related disposal activities. Therefore, the DQO of assessing the area for evidence of demolition debris or disposal

of other waste has been met and the absence of such debris and waste negates the need to delineate the horizontal and vertical extent of waste.

## 7.8 AOC 5 – OTHER POTENTIAL SOURCES

### 7.8.1 Historical Drainage Ditch

While reviewing the historical photographic analysis (USACE, 2019), a drainage ditch was identified that ran parallel to and just west of the railroad spur, east of the coal piles. The ditch appears to be unlined except for where conduit was placed underneath intersecting roadways. The ditch is no longer visible and was likely filled in during Site decommissioning or reworked and regraded during roadway improvements to Willett Parkway. However, there is the potential that DoD-related contaminants leached into the soil and groundwater beneath the ditch and/or were transported downstream (south) to low-lying wetlands. The lack of data for characterization of this potential transport pathway is a data gap.

### 7.8.2 Source of PAHs and Metals

As noted in **Section 2**, five primary surface soil samples were collected at two AOC 5 subareas, the Coal Aggregate Bins and Coal Storage Area, and analyzed for coal and coal ash for a total of ten primary samples at AOC 5 (plus one duplicate sample). Coal was detected in moderate to very heavy concentrations in all samples submitted for analysis, excluding sample NYOW-05-SL022-A (in the Coal Aggregate Bins subarea). Coal ash was detected in trace to moderate concentrations in samples NYOW-05-SL022-A and NYOW-05-SL024-A in the Coal Aggregate Bins subarea. Coal, coal dust, and coal ash are not regulated under CERCLA (40 CFR Part 257), and therefore are not eligible for remediation under FUDS; however, contaminants that have leached from these materials are regulated under these policies.

PAHs were generally not detected above background in the Boiler House, Electric Substation, or Possible Dump areas (see **Appendix I**). Concentrations of PAHs in the Coal Aggregate Bins and Coal Storage Area are above background and human health screening levels in the 0 to 1 ft bgs soil interval (see **Tables I-32, I-37, I-43, I-48, J.2-4, and J.2-5**) and are markedly decreased (generally below background and often not detected) progressing through the 1-5 bgs and 5-10 bgs depth intervals (see **Tables I-33, I-34, I-38, I-39, I-44, I-45, I-49, and I-50**). Also of interest is that in sample NYOW-05-SL022-A, the only sample where coal ash was detected but coal was not, PAHs were not detected above background or human health screening levels (see **Table I-32 and J.2-4**). Lastly, boring locations -009, -010, and -024 were the only locations among the AOCs where the PAH ratios indicated a petrogenic source (see **Table F.7**). Although more data are needed to verify, it appears that PAH concentrations are associated with the coal particles and not the soil.

The patterns of metals concentrations in AOC 5 are less obvious; however, the higher concentrations tend to be at the Boiler House, Coal Aggregate Bins, and Coal Storage Area and maximum detected concentrations within a boring tend to be seen at depth. For example, the highest groundwater dissolved arsenic concentration among all of the AOCs was detected at the Boiler House in NYOW-05-WL019-A (140 µg/L) with the second highest soil concentration detected in the 5 to 10 ft bgs interval from the same location (40 mg/kg). The highest soil concentration of arsenic was detected in NYOW-05-PH010-C in the 5 to 10 ft bgs interval (79 mg/kg) where the third highest groundwater concentration was detected (7.9

µg/L) . The source of the elevated metals concentrations in the lower depths of the soil borings is likely due to leaching from coal and/or coal ash.

## 7.9 POTENTIAL RECEPTORS AND EXPOSURE PATHWAYS

As defined in *Engineer Manual 200-1-12 - Environmental Quality, Conceptual Site Models* (USACE, 2012), a CSM describes sources of impacts, as well as complete, potentially complete, or incomplete human and ecological exposure pathways; current, determined, or reasonably anticipated future use of property; and human and ecological potential receptors (USACE, 2012). A CSM is an iterative planning and communication tool that provides a structure to summarize and display information and to identify additional information needed to develop technically sound decisions. Revised CSMs for this Site are presented as **Figures 7-14a through d** (for human receptors) and **Figures 7-15a through d** (for ecological receptors). The current and future land uses and ecological settings for the four AOCs are provided below.

- AOC 1 – Ammonium Picrate Area: The Ammonium Picrate Area is currently within a primarily residential area of the Radisson Community with some undeveloped land with maintained paved walkways and recreational grassy areas. Homes are not built on areas of potential impacts; however, paved walking paths and grassy areas wind between homes and wooded areas containing the old loading ramps, storage bunkers, and loading dock structures. Old concrete structures in disrepair exist in wooded areas of varying density. Terrestrial habitats, including maintained grassy areas and woodlands (eastern deciduous forest), are present. Forested wetlands are located within AOC 1. Current residential properties are located within AOC 1 and some apartment buildings and residences in the Radisson Community appear to be constructed on the sites of former dryer houses, change houses, and other historical site features. Future residential development at AOC 1 is not currently expected in potentially impacted areas.

- AOC 3 – Former Landfill Area: The Former Landfill Area is currently within the Radisson Golf Course property. As discussed in the UFP-QAPP (USACE, 2020), golf courses and recreational use land are shown as commercial land use. Based on historical documentation, the Former Landfill Area is located under the current Radisson Golf Course club house parking lot. However, as discussed in **Subsection 7.6**, the geophysical survey of the suspected landfill area did not indicate historic landfill below the golf course parking lot but did indicate historic landfill north of the parking lot, between the parking lot and the stream. The former open storage area is located southwest of the landfill area across Potter Road and straddles one of the golf course fairways, with wooded areas to the north and south. At the landfill, a grassy strip with light poles extends along the middle and grassy landscaped areas surround the parking lot. The grassy center strip was not evaluated because it is likely reworked and above the landfill cap. Surface soils of potential concern are limited to the perimeter of the parking lot due to pavement. The area is paved so no surficial ecological habitat is present. Suitable subsurface soil habitat was found within the 1-5 ft interval, and select terrestrial ecological receptors were evaluated. The portion of the former open storage area that is located on what is the existing fairway was not investigated; however, the portions of the former open storage area that are covered by woody vegetation were evaluated for terrestrial ecological receptors. Lastly, there is a small stream north of the landfill that may be receiving runoff or groundwater recharge that should be evaluated for impacts to aquatic organisms, thus representing a data gap. Future use of this area is expected to remain the same as current use.

- AOC 4 – Bunker Area: The Bunker Area is currently located within Three Rivers Wildlife Management Area (WMA). NYSDEC is using several of the remaining bunkers for equipment and vehicle storage. The terrestrial habitat consists primarily of grassy fields and northern deciduous forest. Several small forested and emergent wetlands are located along the southeastern border of the Bunker Area. Future use of this area is likely to remain wildlife management.

- AOC 5 – Former Power Plant Area: The Former Power Plant Area is currently a mostly wooded area west of a residential area. Terrestrial habitats, primarily woodlands (eastern deciduous forest), are present. Review of the Radisson Community General Project Plan (1971) and recent amendments through November 2012, indicates potential future use of AOC 5 as commercial/ retail. During an inspection of AOC 5 on 02 October 2020, NYSDEC noted stakes, flagging, and survey pins that appeared to have been placed recently. NYSDEC inquired about the survey with Empire State Development (ESD) and ESD informed NYDEC that they are considering marketing and selling the area along Willett Parkway (USACE, 2020). No other potential future uses were identified during the Phase 1 investigation. The Town of Lysander Comprehensive Land Use Plan December 2014 draft shows the AOC 5 area on the map depicting Commercial and Industrial Sites. However, AOC 5 is in a district that includes Planned Unit Development, which provides flexibility in land use for a combination of single family homes, apartments, and higher density condominium/townhouse development.

Chemicals used or produced on-site during operations included 2,4-DNCB, 2,4-DNP, and picric acid. Historical groundwater sampling results indicated low levels of 2,4-DNCB were detected and 2,4-DNP was reported as non-detect in groundwater (USACE, 2020). Neither of the two SVOCs were detected in soil samples collected from historical borings. Picric acid was present at low concentrations in subsurface soil and historical groundwater samples collected from monitoring wells in the Former Ammonium Picrate Area and Former Administration Area (USACE, 2020). The Phase 1 analytical results for 2,4-DNCB, 2,4-DNP, and picric acid were mostly non-detect and the findings of the Phase 1 Investigation are consistent with the historical soil and groundwater sample results.

Although the sensitivity of the selected analytical methods was not able to meet project PALs as described in **Section 3.2**, picric acid and its precursors are not stable or persistent in environmental matrices; therefore, significant detections were not expected. Picric acid is soluble in water and would likely leach through soil to groundwater where it is expected to dissociate, especially when present at low concentrations (Army, 1987). Picric acid that is bound to soil may be transformed via photolysis in surface soil and is subject to anaerobic degradation in subsurface soils (Army, 1987). The leaching of 2,4-DNP and 2,4-DNCB from soils is dependent on pH and organic carbon content and some degradation may occur in both soil and groundwater by aerobic and anaerobic processes (ATSDR, 2021). The residence time of DNPs for aerobic biodegradation of soil has been measured to range between 8 to 120 days (ATSDR, 2021). Consequently, the non-detect values with LOQs greater than PALs for these site-related COCs are of minor significance.

### 7.9.1 Potential Human and Ecological Exposure Pathways

The human and ecological exposure pathways identified in the subsections below were updated from those presented in the UFP-QAPP (USACE, 2020) as appropriate based on data collected during the Phase 1 investigation. A re-assessment of potential human and ecological exposure pathways will be needed after completion of the data collection and analysis from the Phase 2 investigation. **Figures 7-14a through d**

and **Figures 7-15a through d** summarize the potential human health and ecological receptors and exposure routes.

#### *7.9.1.1 Potential Human Health Receptors and Exposure Routes*

Below is a brief summary of the currently identified potential receptors and exposure routes. All risk assessment activities will be performed during the Phase 2 investigation, based on Phase 1 investigation exceedances of residential risk-based screening levels and background levels. These receptors will be re-visited and further refined in the Phase 2 investigation. Based on Office of Solid Waste and Emergency Response (OSWER) guidance (EPA, OSWER Directive 9355.7, 2010) and Defense Environmental Restoration Program (DERP)-FUDS guidance (DERP management guidance, 4715.20 4.b.(5)(a)3.b.), receptors evaluated will be limited to current receptors and those associated with reasonably foreseeable future site uses. As noted above, future residential development at AOCs 1 and 5 are not currently expected in potentially impacted areas. If future development is indicated, future residents, future commercial/industrial workers, future construction workers, and/or future utility workers may be considered at AOCs 1 and 5.

Nearby Resident Using Groundwater as Drinking Water and Vapor Intrusion (AOCs 1, 3, 4, and 5)

A nearby resident using a domestic well for potable water could be exposed to groundwater from the Site. Exposure pathways would include ingestion of groundwater and dermal contact with groundwater (while showering or bathing), inhalation while showering, and vapor intrusion. Only benzene and 1,2,3-trichlorobenzene were identified above the EPA Tap Water RSL in AOCs 3 (Former Landfill Area) and the AOC 5 Possible Dump, respectively. The maximum detected benzene concentration (raised to the LOQ of 1 µg/L at multiple locations) is below the EPA VISL (EPA, 2022) for groundwater set to a TRC of 1E-06 and an HQ of 0.1 (1.59 µg/L). There is no groundwater VISL for 1,2,3-trichlorobenzene because there is insufficient inhalation toxicity information. The maximum detected 1,2,3-trichlorobenzene concentration (raised to the LOQ of 1 µg/L at NYOW-05-004 (2021-01-14)) is below the 1,2,4-trichlorobenzene VISL for groundwater set to a TRC of 1E-06 and an HQ of 0.1 (3.59 µg/L). Only trace levels (concentrations below the LOQ) of acetone, benzene, xylenes, toluene, and 1,2,3-trichlorobenzene were detected in groundwater at the Site and the Tap Water RSL is lower than the VISL for each chemical. Based on these results, the vapor intrusion (VI) pathway for offsite residents can be eliminated from further consideration.

On-site Recreational Visitor (AOC 1 and AOC 5)

An on-site recreational visitor could be exposed to surface soil while visiting the Ammonium Picrate Area (AOC 1) and Former Power Plant Area (AOC 5). It is assumed that exposure is occurring now and will continue to occur in the future at AOC 1 (no changes to site use). Soil exposure pathways would include incidental ingestion, dermal contact, and inhalation of dust emissions released from soil.

Utility Worker (AOC 3)

Underground utilities are common in residential and commercial areas, and often are located around roads and the areas between the roads and buildings. A utility worker could be exposed on a short-term basis to surface and subsurface soil at areas surrounding the former landfill at AOC 3. Exposure routes could include incidental soil ingestion, dermal contact with soil, and inhalation of dust emissions released from soil.

On-site Adolescent Trespasser (AOCs 1 and 3)

Adolescent Trespassers in the wooded areas of the Ammonium Picrate Area (AOC 1) could encounter site surface soil as part of their typical outdoor activities. During the Phase 1 investigation, evidence of trespassing or recreating (e.g., empty bottles) was found near the small stream in the northern portion of AOC 3 (Former Landfill Area). Potentially complete soil exposure pathways include incidental ingestion, dermal contact, and inhalation of dust emissions released from soil.

Outdoor Maintenance Worker (AOCs 1, 3, and 4)

An outdoor maintenance worker, representing WMA workers, could encounter site surface soils as part of their typical outdoor maintenance or landscaping activities. WMA employees are assumed to spend the majority of their 8-hour workday outdoors with exposure to DoD-related chemicals through incidental ingestion of surface soils, dermal contact with soils, and inhalation of airborne DoD-related chemicals because of wind erosion. Maintenance workers at AOC 4 (Bunker Area) would be visiting the grassy areas between bunkers as well as the apron areas, thus their area of exposure and associated activities is greater than the expected impacted area.

#### *7.9.1.2 Potential Ecological Receptors and Exposure Routes*

Below is a brief summary of the currently identified potential receptors and exposure routes. All risk assessment activities will be performed during Phase 2, based on Phase 1 investigation exceedances of ecological risk-based screening levels and background levels. These receptors will be re-visited and further refined in Phase 2, if necessary, based on actual or expected changes to land use and habitat. A detailed discussion of habitat conditions and potential receptors is provided in **Appendix K**.

The vegetative community and soil infaunal invertebrate community would have direct exposure to surface soil in AOC 1, AOC 4, and AOC 5; whereas avian and mammalian receptors would have indirect exposure to bioaccumulative constituents in surface soil.

Habitat within AOCs 1, 3, 4, and 5 is suitable to support plants and soil invertebrates that would be directly exposed to subsurface soils (1 to 5 ft bgs interval). Habitat within AOCs 1 and 4 is potentially suitable to support burrowing mammalian receptors (e.g., red fox) that would have indirect exposure to bioaccumulative constituents in subsurface soil.

In AOC 1, DoD-related chemicals could be migrating from groundwater into the wetlands downgradient of the Ammonium Picrate Buildings but upgradient from the Dryer Houses. Therefore, aquatic and benthic life in AOC 1 could be directly exposed to DoD-related constituents in surface water, sediment, and/or pore water. In AOC 3, the extent of the potential impacts downgradient from the former landfill area are uncharacterized, and aquatic and benthic life could be directly exposed to DoD-related constituents in surface water, sediment, and/or pore water in the unnamed stream north of the landfill. Wetland areas east and west of AOC 4 for are unlikely to be impacted by DoD-related constituents. The wetlands to the west of AOC 4 are upgradient from the bunkers and the drainage swale and the elevated roadway provide barriers to overland transport to the wetlands east. Lastly, in AOC 5, DoD-related chemicals could be migrating from groundwater into the wetlands west of the coal storage area and downgradient of the former drainage ditch; therefore, aquatic and benthic life could be directly exposed to DoD-related constituents in surface water, sediment, and/or pore water.

## 7.10 INITIAL CONCLUSIONS – CONCEPTUAL SITE MODEL UPDATES

Surface Geology

The distribution of the surface geologic units previously mapped by Pair (2014) were refined and the inferred distributions are shown on **Figures 7-1 through 7-5**. The mapped Ps unit along the toe of the drumlin was not verified due to issues with sampling below 1 ft bgs. This represents a potential data gap.

Bedrock

Refusal depth and elevation (see **Table 7-1**) compared with previous studies indicated the following for each of the AOCs.

- AOC 1 – Borings were not advanced in the same general area as previously; therefore good comparisons could not be made. The data collected during the Phase 1 sampling indicated that refusal depth ranged from 7 to 18.7 ft bgs (average 12.84 ft bgs) and refusal elevation ranged from 426.33 to 489.23 ft AMSL (average 450.83 ft AMSL) along the top of the drumlin, and refusal depth ranged from 9.1 to 16 ft bgs (average 14.51 ft bgs) and refusal elevation ranged from 412.59 to 423.47 ft AMSL (average 418.77 ft AMSL) at the bottom of the drumlin.
- AOC 3 – Observations generally correspond with investigations conducted prior to the Phase 1 investigation, with refusal depth ranging from 6 to 18.9 ft bgs (average 12.96 ft bgs), and refusal elevation ranging from 384.10 to 394 ft AMSL (average 389.4 ft AMSL).
- AOC 4 – USACE (2020) indicated that bedrock was encountered at a depth of 9 ft bgs and an elevation of approximately 400 ft AMSL at a well location about halfway between AOC 3 and AOC 4. The Phase 1 sampling indicated that refusal depth ranged from 10.5 to 20.5 ft bgs (average 15.49 ft bgs), and refusal elevation ranged from 389.54 to 415.64 ft AMSL (average 402.94 ft AMSL).
- AOC 5 – Previous investigations do not exist. Refusal depth ranged from 19 to 29 ft bgs (average 23.39 ft bgs) and refusal elevation ranged from 420.22 to 437.07 ft AMSL (average 426.14 ft AMSL).

The Phase 1 investigation indicates that although the depth to bedrock increases, the bedrock elevation decreases moving south from the top of the AOC 1 drumlin to AOC 5, confirming that surface relief at the Site is not controlled by bedrock but by glacial deposition.

Hydrogeology

The groundwater contours were developed using water level data from the temporary site and background monitoring wells installed throughout the site. The shallow groundwater flow observed during the Phase 1 investigation is shown on **Figures 7-6 through 7-9**. The groundwater depth and elevation data collected from these wells are presented in **Table 7-2**.

The Phase 1 observations support that shallow groundwater at the Site mimics the land surface and is influenced by local topography. The Phase 1 observations also support that the direction of groundwater flow in AOC 1, AOC 3, and AOC 4 is generally northeast toward the Oswego River. The exceptions are the background areas southwest of the AOC 3 drumlin where flow is to the southwest and in AOC 5 where

flow is to the west-southwest. Both of these areas flow toward wetlands located west of the site and indicate that shallow groundwater flow is controlled by nearby surface water features.

Potential data gaps are that the temporary wells installed during the Phase 1 investigation are not sufficient to evaluate hydraulic properties of the shallow aquifer or to provide a comprehensive understanding of deep aquifer characteristics and the hydraulic communication between the deep and shallow aquifers.

Sources of Drinking Water

The potable well survey identified a total of 554 potential well locations (471 parcels with private water supply and 83 NYSDEC water wells) that are available for further evaluation with respect to potential impacts from any off-site migration of DoD-related contaminants.

Wetlands and Aquatic Resources

Based on the results of the wetland delineation efforts and vernal pool assessments, approximately 20.44 wetland acres were delineated across the AOCs 1, 3, and 5 (see **Appendix K, Figures 2-1, 2-2, and 2-4**). Based on the observations of the field teams, vernal pool resources do not warrant additional consideration as unique or exceptional resources. However, the pools were all found to occur within, or to have nexus to, areas that are probable Jurisdictional Wetlands as defined and regulated by USACE under the Clean Water Act. None are identified as part of a state-mapped NYS freshwater wetland, all are under 5 hectares, and none contain features of unusual local importance. Therefore, the wetlands would not be regulated under NYSDEC Freshwater Wetlands Act.

AOC 4 was evaluated using National Wetlands Inventory Maps (see **Appendix K, Attachment A** and **Figure 2-3**). There is a small PEM in the southwestern portion on the Site and two small PFOs adjacent to western AOC 4 boundary. There are also several larger PFO and PEM areas west of AOC 4 and numerous smaller PFOs south and east of AOC 4.

AOC 3 Geophysical Survey – Suspected Landfill Area

The geophysical survey conducted at the AOC 3 Former Landfill Area satisfied the DQO of assessing the area for evidence of buried containerized waste or large metallic debris. The survey did not indicate historic landfill below the parking lot but did indicate historic landfill north of the parking lot, between the parking lot and the stream. The survey also satisfied the DQO of delineating the horizontal extent of the former landfill; however, the vertical extent remains unknown and represents a data gap.

AOC 5 Geophysical Survey – Possible Dump Area

The EM-31 survey covered approximately 90% of the Possible Dump area in addition to area north of the mapped footprint without any evidence of subsurface disposal activities and detected analytes and associated concentrations in the Possible Dump area are not substantially above background (**Tables I-65 through I-75**) or human health and ecological screening levels (**Tables J.1-7, J.2-7, L.1-7, L.2-7, L.3-6, and L.4-6**) and are not indicative of DoD-related disposal activities. Therefore, the DQO of assessing the area for evidence of demolition debris or disposal of other waste has been met and the absence of such debris and waste negates the need to delineate the horizontal and vertical extent of waste is negated and no data gap exists.

AOC 5 – Other Potential Sources

A drainage ditch was identified that ran parallel to and just west of the railroad spur, east of the coal piles. There is the potential that DoD-related contaminants leached into the soil and groundwater beneath the ditch and/or were transported downstream (south) to low-lying wetlands. The lack of data for characterization of this potential transport pathway is a data gap.

Integrating the results of the analytical chemistry and coal/coal ash microscopy data, it appears that the source of the elevated metals concentrations in the lower depths of the soil borings is due to leaching from coal and/or coal ash. Although more data are needed to verify, it appears that PAH concentrations are associated with the coal particles and not the soil.

Potential Receptors and Exposure Pathways

*Human Health*

The following are the current and reasonably foreseeable future site use human health receptors:

- Nearby residents using groundwater as drinking water (AOCs 1,3,4, and 5);
- On-site Recreational Visitor (AOC 1 and AOC 5);
- Utility Worker (AOC 3);
- On-site Adolescent Trespasser (AOCs 1 and 3); and
- Outdoor Maintenance Worker (AOCs 1, 3, and 4).

Future residential development at AOC 1 is not currently expected in potentially impacted areas. If future development is indicated, future residents, future commercial/industrial workers, future construction workers, and/or future utility workers may be considered at AOC 1.

*Ecological*

The following are the currently identified potential ecological receptors and exposure routes.

- vegetative community
    - direct exposure to surface soil in AOCs 1, 4, and 5
    - direct exposure to subsurface soils (1 to 5 ft bgs) in AOCs 1, 3, 4, and 5
- soil infaunal invertebrate community
    - direct exposure to surface soil in AOCs 1, 4, and 5
    - direct exposure to subsurface soils (1 to 5 ft bgs) in AOCs 1, 3, 4, and 5
- avian receptors
    - indirect exposure to bioaccumulative constituents in surface soil in AOCs 1, 4, and 5
- mammalian receptors
    - indirect exposure to bioaccumulative constituents in surface soil in AOCs 1, 4, and 5
    - specific to burrowing mammals (e.g., red fox) – indirect exposure to bioaccumulative constituents in subsurface soil in AOCs 1 and 4

- benthic invertebrate community
    - direct exposure to wetlands pore water and hydric soils/sediment in AOCs 1 and 5
    - direct exposure to pore water and sediments in the unnamed stream north of the landfill in AOC 3
- aquatic communities
    - direct exposure to surface water in AOCs 1 and 5 wetlands and in the unnamed stream north of the landfill in AOC 3

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# 8.0 DATA GAPS ANALYSIS

Data gaps need to be determined, in part, based on whether the objectives of this report were met. As such, an evaluation of whether the objectives were met (**Subsection 8.1**) precedes the potential data gaps discussion (**Subsection 8.2**) below.

## 8.1 PHASE 1 RISK SCREENING AND DATA GAPS ANALYSIS OBJECTIVES

As presented in **Subsection 1.1,** the objectives of this report were as follows.

- Assess the usability of the analytical data collected as part of the Phase 1 field investigations.
- Assess if any CERCLA constituents related to historical DoD activities are present, and if these constituents are present above risk-based screening levels and background concentrations.
- Identify potential source areas and/or areas of higher concentrations.
- Focus additional fieldwork to collect data for an RI and to meet risk assessment-related DQOs if potential impacts from DoD-related constituents are indicated.

Whether each objective was met is described below.

### 8.1.1 Assess Data Usability

Objective met—**Appendix B** is the data usability assessment for the analytical data collected as part of the Phase 1 field investigations. **Subsection 3.2** presents a summary of the data usability assessment, with initial conclusions presented in **Subsection 3.3** and repeated below to be proximal to the data gaps discussion as well as recommendations (**Section 9**).

Based on the assessment of DQIs, the data obtained during the site investigation for all datasets except for AOC 4 ISM samples are of sufficient quantity and quality to support the Phase 1 investigation and human health and ecological risk screenings. Overarching data usability issues to be considered during the development of potential data gaps and recommendations are noted below.

The validated data are usable for the Phase 1 Risk Screening with the exception of the rejected data. The overall usability of the AOC 1 and AOC 4 discrete datasets are not affected by the rejected results. Three valid ISM replicates are considered necessary to provide information regarding the reproducibility and heterogeneity of the data; three DUs did not meet this criteria for at least one of the three analytes. The rejected results in AOC 5 are for compounds not likely to be DoD-related nor likely to be risk drivers; however, because of these rejections, analytical completeness for B/N extractable SVOCs was less than 90% for many compounds in groundwater. None of the AOC 3 results were rejected.

All groundwater samples were collected from temporary wells that were not developed or purged and samples tended to be turbid. The field team often experienced issues with slow and at times insufficient recharge while collecting samples.

All 2,4-DNP results and all but one picric acid result were non-detects, but the soil PALs for 2,4-DNP and picric acid and the groundwater PAL for 2,4-DNP are not attainable with contemporary analytical methodology and almost all ND.

Cadmium and selenium were analyzed by Method 6010C; changing to Method 6020A may be warranted for future sampling events to improve analytical sensitivity. The groundwater PALs for PCBs were not met and any future sampling of PCBs could employ concentrated extracts during sample preparation.

### 8.1.2 Determine Presence or Absence of DoD-related CERCLA Constituents Above Risk-based Screening Levels and Background Concentrations

Objective partially met—The objective of determining the presence or absence of DoD-related CERCLA constituents above risk-based screening levels and background concentrations was not obtained for every medium sampled at every AOC. Potential data gaps are presented on an AOC-basis in **Subsection 8.2**. Recommendations and rationale for either filling a data gap or considering the data gap permanent and taking no action is presented in **Section 9**.

### 8.1.3 Identify Potential Source Areas and/or Areas of Higher Concentrations

Objective partially met—The exercise to identify potential source areas and/or areas of higher concentrations was undertaken, in general, for only COPCs/COPECs presented in the **Section 6.4** summary tables, comparisons with background presented in **Appendix I**, and concentrations presented in **Appendices J and L**. Results of the exercise are presented by AOC below.

AOC 1

Sampling was biased towards potential source areas (e.g., Ammonium Picrate Buildings, Dryer Houses, Change Houses, Laboratory) and picric acid was detected in only one soil sample, 2,4-DNCB and 2,4-DNP were not detected, and metals were detected in concentrations relatively consistent with background. However, subsurface soil was not collected from any of the Ammonium Picrate Buildings and groundwater was not collected from the vicinity of 5 of the 6 Ammonium Picrate Buildings. Therefore, potential areas of release were not adequately characterized to make the determination of whether they are source areas.

AOC 3

Sample locations were placed around the perimeter of the suspected source areas, i.e., the former landfill and the open storage areas. Concentrations of a few VOCs, SVOCs, PAHs, and metals exceeded human health and/or ecological screening levels (see **Subsection 6.2.3**), but not at concentrations indicating a substantial source. However, the results from the geophysical surveys (see **Figure 7-12**) indicate that the landfill footprint extends more northwesterly than thought when samples were sited. The extended area is topographically downgradient and there were no samples located passed the most downgradient edge; therefore, the area was not adequately characterized to make the determination of whether the former landfill is a source area.

AOC 4

AOC 4 sample collection was biased towards known source areas (e.g., bunker outlets, bunker aprons, drainage swales between bunkers). The results were all non-detect for the three analytes: 2,4-DNCB, 2,4-DNP, and picric acid; therefore, no areas of higher concentrations were identified. However, the surficial ISM results from the bunker aprons had low bias for the SVOCs; therefore, the bunker aprons were not adequately characterized to make the determination of whether they remain source areas because there is no other data.

AOC 5

AOC 5 had not been investigated previously; therefore, 5 soil borings per potential source area (i.e., Boiler House, Coal Aggregate Bins, Coal Storage Area, Electric Substation, and Potential Dump) and 12 temporary groundwater wells AOC-wide were sampled. Concentrations detected in the Electric Substation and Potential Dump are not indicative of a substantial release/source area. However, metals concentrations in soil and groundwater (particularly arsenic), are greater than background and human health screening levels in the Boiler House, Coal Aggregate Bins, and Coal Storage Area. PAH concentrations are also above background and risk-based screening levels in the 0 to 1 ft bgs soil intervals in the Coal Aggregate Bins and Coal Storage Area. Coal and coal ash can be sources of PAHs and metals. Of the ten surficial soil samples in these coal areas, microscopy indicated that eight contained coal, one contained coal ash, and one contained both coal and coal ash. Coal, coal dust, and coal ash are not regulated under CERCLA (40 CFR Part 257), and therefore are not eligible for remediation under FUDS; however, contaminants that have leached from these materials are regulated under these policies. The source of the elevated metals concentrations in the soil borings is likely due to leaching from coal and/or coal ash. Elevated PAHs were not found at depth or in the sample that contained coal ash only; and the working hypothesis is that the PAH concentrations are associated with the coal particles and not the soil. Additional sampling is needed to determine the source of PAHs.

### 8.1.4 Focus Additional Fieldwork

Objective met—**Section 9** (Recommendations) presents the recommendations to focus the RI data collection to meet site characterization and risk assessment-related DQOs based on the potential impacts from DoD-related constituents indicated in the Phase 1 Risk Screening.

## 8.2 POTENTIAL DATA GAPS

The results of the data usability assessment and screening comparisons were used to identify data gaps at the Site and within each AOC, the background area, and within the sampling and analysis program. Recommendations for Phase 2 sampling to address the data gaps identified in this section are presented in **Section 9** for discussion with the PDT.

The data gaps that were identified generally resulted from:

1) Inaccessible sample locations where alternate locations to satisfy the project's DQOs were not identified and sampled. A comprehensive Data Collection Assessment is presented in **Appendix B**. Refer to the DUA for a comparison of all planned samples and collected samples, and an assessment of whether DQOs were achieved.

2) Areas of investigation or media that were not included in the scope of the Phase 1 investigation.

3) Sampling techniques (i.e., temporary well sampling, discrete soil sampling) that are not suitable to support RI or risk assessment activities.

4) Analytical techniques that require modification to meet project DQOs (i.e., precision, accuracy, or sensitivity requirements).

5) Availability of appropriate screening levels for potentially DoD-related or DoD-related analytes.

The following sections describe the potential data gaps that were identified. Discussions regarding whether the issue is considered a true data gap and whether to/how to resolve it are reserved for **Section 9**.

### 8.2.1 AOC 1

- Groundwater data were not collected from permanent wells. Grab groundwater samples were collected from temporary groundwater monitoring wells that were not developed prior to sampling. Temporary wells can result in concentrations both above and below the corresponding data from a permanent monitoring well; therefore, the groundwater data may not be representative of groundwater conditions. The effect of the well installation technique on the reported groundwater concentrations cannot be assessed during data validation. Additionally, temporary wells provide only limited hydrogeologic information; therefore, they are not sufficient to fully evaluate hydrogeologic conditions and aquifer characteristics. Lastly, human health risk assessment requires the use of total, not dissolved metals concentrations.

- A temporary well could not be installed at planned location NYOW-01-003 because Bluestone did not have ROE for the property. The planned groundwater sample could not be collected and represents a potential data gap for the evaluation of hydrogeology and potable water use for current/future nearby residents.

- Several planned soil sample locations could not be accessed due to ROE restrictions, including NYOW-01-002, NYOW-01-003, NYOW-01-004 (Change Houses), NYOW-01-005 (Laboratory Building), and NYOW-01-017 (Ammonium Picrate Magazine). These borings could not be relocated and represent a potential data gap in the evaluation of AOC 1 human and ecological receptors.

- Several planned soil and groundwater sample locations could not be accessed do to old concrete building foundations in the Ammonium Picrate Area along the toe of the drumlin. These borings could not be relocated within the building footprints and represent a potential data gap in the evaluation of AOC 1 surface geology, hydrogeology, and human and ecological receptors.

- Wetland areas in AOC 1 were not sampled to reduce the impact to sensitive habitats. Surface water runoff and groundwater seeps may have impacted low-lying wetland areas; therefore, absence of samples in the wetland areas constitutes a potential data gap.

- Soil samples were not collected from the former wastewater ditches outside of the AOC boundary along the northeastern side of the Ammonium Picrate Area and Administration Area. Much of the area of the former wastewater ditches is now residential property. The lack of sampling in the former wastewater ditches represents a potential data gap.

- Soil samples were not collected from within the Former Borrow Pit, representing a data gap in the evaluation of AOC 1 human and ecological receptors. Samples were not planned within the Former Borrow Pit because aerial photography shows excavation and later backfilling of the area post-DoD use.

### 8.2.2 AOC 3

- Groundwater data were not collected from permanent wells. Grab groundwater samples were collected from temporary groundwater monitoring wells that were not developed prior to sampling. Temporary wells can result in concentrations both above and below the corresponding data from a permanent monitoring well; therefore, the groundwater data may not be representative of groundwater conditions. The effect of the well installation technique on the reported groundwater concentrations cannot be assessed during data validation. Additionally, temporary wells provide only limited hydrogeologic information; therefore, they are not sufficient to fully evaluate hydrogeologic conditions and aquifer characteristics. Lastly, human health risk assessment requires the use of total, not dissolved metals concentrations.

- To avoid disturbance, surface and subsurface soil samples were not collected from the greens or the golf course fairway southwest of the Former Landfill where a portion of the open storage area is located, representing a potential data gap.

- Soil samples were not collected from the wooded area northeast of the parking lot. During the Phase 1 investigation, evidence of human activity indicative of receptor exposure to surface soil (e.g., empty bottles and debris) was found near the small northern stream. Therefore, a data gap exists in the northeast, wooded portion of the AOC.

- Sediments/pore water/surface water samples in the unnamed stream north of the parking lot were not planned for collection during Phase 1. However, based on the results of the Phase 1 investigation, samples in the unnamed stream north of the parking lot are needed to assess potential ecological risk. In addition, it is not known if the stream is gaining or losing in this area, the information regarding which is needed characterize fate and transport. These represent data gaps.

- The geophysical survey conducted at the AOC 3 Suspected Landfill Area satisfied the DQO of assessing the area for evidence of buried containerized waste or large metallic debris. The survey did not indicate historical landfill below the parking lot but did indicate historical landfill north of the parking lot, between the parking lot and the stream. Because the Phase 1 investigation assumed historical landfill below the parking lot, the area north of the parking lot was not fully characterized to address potential impacts from the newly identified landfill area. The absence of complete characterization of soil and groundwater in this area, as well as the unknown vertical extent of the landfill, represent a data gap.

### 8.2.3 AOC 4

- Surface water, pore water, and sediment data were not collected; therefore, ecological screenings in the wetland areas east and west of AOC 4 were not completed. Recommendations for sampling during Phase 2 will be dependent upon the results of the Phase 1 sampling, topography and/or potential groundwater flow (see **Section 9**).

- 2,4-DNCB in ISM surface soil had low bias attributable to low surrogate recoveries for 33 of 34 samples (97%). 2,4-DNP had low bias attributable to low surrogate recoveries for 27 of 29 samples (93%). Picric acid had low bias attributable to low surrogate and matrix spike recoveries at a

frequency of 9 of 36 samples (25%). The uniformly low bias of results reported as non-detect represents a data gap within the bunker areas at AOC 4.

- For ISM DU 1, all three replicates had results rejected for low bias of 2,4-DNP based on low MS/MSD recoveries. For ISM DU 5, one replicate had results rejected for 2,4-DNCB and 2,4-DNP due to holding time exceedances. For ISM DU 9, all three replicates had results rejected for low bias of 2,4-DNP due to an MSD that did not recover. For DU 10, one replicate had the result for 2,4-DNCB rejected based on a low surrogate recovery. Three valid ISM replicates are considered necessary to provide information regarding the reproducibility and heterogeneity of the data; therefore, the lack of three valid replicates represent a data gap within the bunker areas at AOC 4.

### 8.2.4 AOC 5

- Groundwater data were not collected from permanent wells. Grab groundwater samples were collected from temporary groundwater monitoring wells that were not developed prior to sampling. Temporary wells can result in concentrations both above and below the corresponding data from a permanent monitoring well; therefore, the groundwater data may not be representative of groundwater conditions. The effect of the well installation technique on the reported groundwater concentrations cannot be assessed during data validation. Additionally, temporary wells provide only limited hydrogeologic information; therefore, they are not sufficient to fully evaluate hydrogeologic conditions and aquifer characteristics. Lastly, human health risk assessment requires the use of total, not dissolved metals concentrations.

- At the time the UFP-QAPP was written (USACE, 2020), it was determined that for human health, the trespasser scenario was most appropriate based on the land use of AOC 5. However, the most recent developer Master Plan in the project files is from 2012. Projected future land use is considered a data gap.

- The background and screening level comparisons for groundwater discrete soil samples resulted in the identification of COPCs and COPECs within the surface and subsurface soil intervals in the Boiler House, Coal Aggregate Bins, and Coal Storage Area subareas (Subsection 6.2). Of particular note is that arsenic was detected in groundwater at the Boiler House at 140 µg/L. Therefore, additional sampling is necessary to characterize the extent of soil and groundwater impacts and estimate representative mean sample concentrations to conduct human health and ecological risk assessments.

  Data gaps were not identified for either the Electric Substation or the Possible Dump. At the Electric Substation detected constituents were at concentrations not substantially different from background and/or screening levels. As noted in **Subsection 7.10,** there is no evidence of subsurface disposal activities in the Possible Dump area and concentrations are not indicative of DoD-related disposal activities.

- Due to a laboratory equipment failure, all soil samples were analyzed outside the holding time period for TOC (i.e., 28 days) but within the holding time rejection threshold (56 days). Although microbial degradation is significantly reduced by storing samples at 4°C, some loss of organic material can occur, and the loss is exacerbated by prolonged storage. The TOC concentrations in AOC 5 were used to evaluate the suitability of background soil for comparison to site soil;

therefore, the uniformly low-biased TOC data obtained for the AOC 5 data may impact the risk screening and future ecological risk assessment and represents a potential data gap.

- Wetland surface soils were not sampled to reduce the impact to sensitive habitats. Surface water runoff and groundwater seeps may have impacted low-lying wetland areas; therefore, absence of samples in the wetland areas constitutes a potential data gap, predicated on land use. I.e., if the future land use is potentially residential, sampling within the wetland may be needed to provide sufficient coverage for residential-size lots.

- Coal and coal ash are not hazardous waste under CERCLA; therefore, the PAH and metal analytes that were identified as COPCs or COPECs within the AOC 5 Coal Aggregate Bins subarea may not be subject to further evaluation if it is determined that they are associated only with solid waste material. Surface soil samples were submitted for the analysis of coal and coal ash by a combination of microscopy techniques to determine presence/absence. A study would have to be designed to obtain additional data in order to evaluate the potential DoD-relatedness of COPCs/COPEC concentrations. This represents a data gap.

- There is the potential that DoD-related contaminants leached into the soil and groundwater beneath the newly identified ditch and/or were transported downstream (south) to low-lying wetlands. The lack of data for characterization of this potential transport pathway is a data gap.

### 8.2.5 Background

- Groundwater data were not collected from permanent wells. Grab groundwater samples were collected from temporary groundwater monitoring wells that were not developed prior to sampling. Temporary wells can result in concentrations both above and below the corresponding data from a permanent monitoring well; therefore, the groundwater data may not be representative of groundwater conditions. The effect of the well installation technique on the reported groundwater concentrations cannot be assessed during data validation. Filtered background data is not comparable to total metal results for future onsite groundwater sampling.

- Due to a laboratory equipment failure, 74 soil samples were analyzed outside the holding time period for TOC. The TOC concentrations in background soils were also used to evaluate the suitability of background soil for comparison to site soil; therefore, the uniformly low-biased TOC data obtained for the background data may impact the risk screening and represents a potential data gap.

- The mapped but not ground-truthed Psc surface geologic unit could not be sampled south of the edge of the wetland, resulting in significant relocation distances. Wetland avoidance results in a potential data gap for collection of spatially representative soil samples within the background reference area.

### 8.2.6 Sampling and Analytical

- Given that Aroclor-1260 was present in soil at AOC 3 and the AOC 5 Electric Substation subarea, the inability of the SW-846 Method 8082A to attain the Tap Water RSL represents a data gap for

the AOC 3 and AOC 5 groundwater investigations and assessment of potable use pathways for current/future nearby residents.

- The ISM samples for SVOC analysis for 2,4-DNP and 2,4-DNCB underwent the complete ISM processing and subsampling procedures, rather than having aliquots removed for SVOC analysis/moisture content prior to drying, as was specified in the UFP-QAPP. The decision to process ISM samples for the SVOC analysis was based on information provided in the ISM-2 guidance regarding the loss potential of SVOCs during air drying and the consideration that air exposure at the laboratory was not likely to produce analyte loss for surface soils that had been exposed to ambient air for many years (ITRC, 2020). There is no LCSSRM available that contains the SVOC analytes 2,4-DNCB and 2,4-DNP, and the explosives LCSSRM does not contain picric acid. As a result, the impact that air drying and sample milling to generate a flour-like matrix may have had on the recovery of all analytes cannot be quantified, and the potential low bias of non-detect ISM data constitutes a potential data gap.

- The PALs for all metals analytes in groundwater that were not met by LOQs were either attained by the LOD or were analyzed by the more sensitive analytical technique (i.e., ICP-MS), with the exception of cadmium and selenium, representing a data gap for the groundwater investigations and assessment of potable use pathways for current/future nearby residents.

- Mixing of a strongly aggregated soil (e.g., clay) to reduce intra-sample variability is difficult due to the presence of cohesive clumps that require mechanical disaggregation. Soil samples that were clay could not be thoroughly homogenized at the laboratory before sub-sampling was performed; non-homogeneous samples can impact the apparent method precision through elevated MS/MSD RPDs or FD RPDs. **Appendix B Section 2.2.1** describes the MS/MSD and FD RPDs that were greater than the upper warning limits for PAHs (phenanthrene, acenaphthylene, fluorene, anthracene, fluoranthene, benzo(a)anthracene, pyrene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and benzo(g,h,i)perylene) and metals (antimony, calcium, magnesium, mercury, manganese, thallium, arsenic, barium, potassium, aluminum, cadmium, selenium, sodium, beryllium, vanadium, chromium, iron, cobalt, lead, zinc, nickel, and copper) representing an uncertainty and potential data gap.

- Universally low surrogate recoveries were associated with the ISM samples for SVOC analysis. An equivalent mass of Ottawa Sand was added to the samples before reanalysis in order to increase contact with the solvent, with the intent to improve surrogate recoveries. This approach did not typically improve surrogate recoveries, and the low bias of non-detect ISM data constitutes a potential data gap.

- The ecological PALs for 2,4-DNP and picric acid and the human health PAL for 2,4-DNP in groundwater are not attainable with contemporary analytical methodology; exceedances of these PALs were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020) and alternative methods were not identified; therefore, analytical sensitivity represents a data gap.

- The PALs for all PAH analytes in groundwater were met by the LOQs, with the exception of benzo(a)anthracene, benzo(a)pyrene, and dibenz(a,h)anthracene. PAHs in groundwater were analyzed by the more sensitive analytical method (BNASIM), therefore, analytical sensitivity for PAHs in groundwater represents a data gap.

### 8.2.7 Surrogate Chemicals and Chemicals Without Screening Levels

- As presented in **Table 5-2**, four SVOCs, three PAHs, and two PCBs did not have an EPA Tap Water RSL, and surrogate chemicals were selected for screening purposes.
    - 2,4-DNT was selected as the surrogate for 2,4-DNCB. 2,4-DNCB was not detected in site groundwater and a significant data gap is not identified.
    - 2-Chlorophenol was selected as the surrogate for 2-nitrophenol and 4-nitrophenol. Neither 2-nitrophenol or 4-nitrophenol were detected in site groundwater; therefore, a significant data gap is not identified.
    - Fluorene was selected as the surrogate for carbazole. Carbazole was not detected in site groundwater and a significant data gap is not identified.
    - Acenaphthene was selected as the surrogate for acenaphthylene. Acenaphthylene was not detected in site groundwater and a significant data gap is not identified.
    - Benzo(g,h,i)perylene was detected in two groundwater samples from the AOC 5 Boiler House with a maximum concentration of 0.17 µg/L. Pyrene is an appropriate surrogate based on structural similarity and the low potential for benzo(g,h,i)perylene to drive risk; therefore, a significant data gap is not identified.
    - Phenanthrene was detected in six site groundwater samples from AOC 5 with a maximum concentration of 0.42 µg/L. Anthracene is an appropriate surrogate based on structural similarity and the low potential for phenanthrene to drive risk; therefore, a significant data gap is not identified.
    - Aroclor 1260 was selected as the surrogate for Aroclors 1262 and 1268. Aroclors 1262 and 1268 were not detected in site groundwater and a significant data gap is not identified.
- As presented in **Table 5-3**, five SVOCs, three PAHs, and two PCBs did not have an EPA Resident Soil RSL, and surrogate chemicals were selected for screening purposes.
    - 2,4-DNT was selected as the surrogate for 2,4-DNCB. 2,4-DNCB was not detected in surface or subsurface soil and a significant data gap is not identified.
    - 2-Chlorophenol was selected as the surrogate for 2-nitrophenol and 4-nitrophenol. Neither 2-nitrophenol or 4-nitrophenol were detected in surface or subsurface soil; therefore, a significant data gap is not identified.
    - 4-Nitroaniline was selected as the surrogate for 3-nitroaniline. 3-Nitroaniline was not detected in surface or subsurface soil; therefore, a significant data gap is not identified.
    - Fluorene was selected as the surrogate for carbazole. Carbazole was detected in three soil samples within AOC 3 with a maximum concentration of 0.55 mg/kg. Fluorene is an appropriate surrogate based on structural similarity and the low potential for carbazole to drive risk; therefore, a significant data gap is not identified.
    - Acenaphthene was selected as the surrogate for acenaphthylene. Acenaphthylene was detected in 38 soil samples within AOC 3 and the AOC 5 subareas with a maximum concentration of 1.6 mg/kg. Acenaphthene is an appropriate surrogate based on structural similarity and the low potential for acenaphthylene to drive risk; therefore, a significant data gap is not identified.
    - Benzo(g,h,i)perylene was detected in 22 surface and subsurface soil samples from AOC 3 and 34 surface and subsurface soil samples from the AOC 5 subareas with a maximum

detected concentration of 4.7 mg/kg. Pyrene is an appropriate surrogate based on structural similarity and the low potential for benzo(g,h,i)perylene to drive risk; therefore, a significant data gap is not identified.

- Phenanthrene was detected in 23 surface and subsurface soil samples from AOC 3 and 42 surface and subsurface soil samples from the AOC 5 subareas with a maximum detected concentration of 27 mg/kg in AOC 3 surface soil. Anthracene is an appropriate surrogate based on structural similarity and the low potential for phenanthrene to drive risk; therefore, a significant data gap is not identified.
- Aroclor 1260 was selected as the surrogate for Aroclors 1262 and 1268. Aroclors 1262 and 1268 were not detected in surface or subsurface soil and a significant data gap is not identified.

- As presented in **Table 5-4**, four VOCs, seven SVOCs, and 15 PAHs (including high molecular weight PAHs and low molecular weight PAHs) did not have phytotoxicity screening levels, and an attempt was made to select surrogate chemicals were selected for screening purposes (see **Subsection 5.1.1.1**).
  - 1,2,3-Trichlorobenzene, 2-nitroaniline, 2-nitrophenol, 3-nitroaniline, 4-nitroaniline, and 4-nitrophenol were not detected in the 0 to 1 ft bgs or 1 to 5 ft bgs soil intervals; therefore, a significant data gap is not identified.
  - Surrogates were selected for one VOC and three PAHs as noted below.
    - Toluene was selected as the surrogate for benzene. Toluene is an appropriate surrogate based on structural similarity and the low potential for benzene to drive phytotoxicity risk; therefore, a significant data gap is not identified.
    - Naphthalene was selected as the surrogate for both 1-methylnaphthalene and 2-methylnaphthalene. Naphthalene is an appropriate surrogate based on structural similarities; therefore, a significant data gap is not identified.
    - Benzo(b)fluoranthene was selected as the surrogate for benzo(k)fluoranthene. Benzo(b)fluoranthene is an appropriate surrogate based on structural similarities; therefore, a significant data gap is not identified.
  - Surrogates were not selected for the following detected analytes: 2-butanone, acetone, benzaldehyde, carbazole, and 12 PAHs (including high molecular weight PAHs and low molecular weight PAHs).
    - 2-Butanone was detected in the 0 to 5 ft bgs depth intervals at a frequency of five of 18 samples in AOC 3 and two of five samples in the AOC 5 Possible Dump Area; therefore, the lack of a surrogate for 2-butanone may represent a significant data gap.
    - Acetone was detected in the 0 to 5 ft bgs depth intervals at a frequency of six of 18 samples in AOC 3 and one of five samples in the AOC 5 Possible Dump Area; therefore, the lack of a surrogate for acetone may represent a significant data gap.
    - Benzaldehyde was detected in the 0 to 5 ft bgs depth intervals at a frequency of 6 of 36 samples in AOC 3 and 1 of 10 samples in the AOC 5 Possible Dump Area; therefore, the lack of a surrogate for benzaldehyde may represent a significant data gap.

- Carbazole was detected in the 0 to 5 ft bgs depth interval at a frequency of three of 36 samples in AOC 3; therefore, the lack of a surrogate for carbazole may represent a significant data gap.
- PAHs were frequently detected in AOC 3 and all five subareas of AOC 5. In addition, background comparisons indicated the potential for site-related releases. Therefore, lack of phytotoxicity surrogates for acenaphthylene, benzo(a)pyrene, benzo(g,h,i)perylene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, phenanthrene, and pyrene may represent a significant data gap.

- As presented in **Table 5-5**, four SVOCs and four metals did not have soil invertebrate screening levels, and an attempt was made to select surrogate chemicals were selected for screening purposes (see **Subsection 5.1.1.1**).
  - 2-Nitrophenol, 3-nitroaniline, and 4-nitroaniline were not detected in the 0 to 1 ft bgs or 1 to 5 ft bgs soil intervals; therefore, a significant data gap is not identified.
  - Benzyl alcohol was selected as the surrogate for benzaldehyde. Benzaldehyde is an appropriate surrogate based on structural similarity; therefore, a significant data gap is not identified.
  - Surrogates were not selected for the following detected analytes: cobalt, silver, thallium, and vanadium. In the 0 to 5 ft bgs depth interval, cobalt and vanadium were detected in every sample; silver was detected in at least 10% of the samples in AOC 1, AOC 3, and the AOC 5 Possible Dump subarea; and thallium was detected in at least 30% in each AOC/subarea. Background comparisons indicated the potential for site-related releases with the exception of thallium in AOC 1 and silver in AOC 5 subareas (excluding the Possible Dump Area). Therefore, lack of soil invertebrate surrogates for cobalt, silver, thallium, and vanadium may represent a significant data gap.

- As presented in **Table 5-6**, four VOCs, 11 SVOCs, 17 PAHs (including high molecular weight PAHs and low molecular weight PAHs), picric acid, and two metals did not have avian screening levels, and an attempt was made to select surrogate chemicals were selected for screening purposes (see **Subsection 5.1.1.1**).
  - Although surrogates were identified for 2-butanone and toluene, avian exposure was limited to the 0 to 1 ft bgs interval and VOCs were not analyzed within this interval. Therefore, the use of surrogates for VOCs or the lack thereof for 1,2,3-trichlorobenzene and benzene does not constitute a significant data gap.
  - 2-Nitroaniline, 2-nitrophenol, 3-nitroaniline, 4-chloroaniline, 4-nitroaniline, 4-nitrophenol, carbazole, and phenol were not detected in the 0 to 1 ft bgs soil interval of AOC 5; therefore, a significant data gap is not identified.
  - Surrogates were selected for two SVOCs, two PAHs, and picric acid as noted below.
    - Surrogates were identified for 2,4-DNCB and 2,4-DNP; however, these analytes were not detected in the 0 to 1 ft bgs soil interval. These analytes are site-specific COPECs and there were analytical issues in some datasets that potentially biased the concentrations low. 2,6-DNT is an appropriate surrogate for both 2,4-DNCB and 2,4-DNP based on structural similarity; therefore, a significant data gap is not identified.

        - Naphthalene was selected as the surrogate for both 1-methylnaphthalene and 2-methylnaphthalene. Naphthalene is an appropriate surrogate based on structural similarities; therefore, a significant data gap is not identified.
        - 2,4,6-Trinitrotoluene was selected as the surrogate for picric acid. 2,4,6-trinitrotoluene is an appropriate surrogate based on structural similarities; therefore, a significant data gap is not identified.
    - Surrogates were not selected for the following detected analytes: benzaldehyde, and 15 PAHs (including high molecular weight PAHs and low molecular weight PAHs), antimony, and beryllium.
        - Benzaldehyde was detected in the 0 to 1 ft bgs depth intervals at a frequency of one of five samples in the AOC 5 Possible Dump Area; therefore, the lack of a surrogate for benzaldehyde may represent a significant data gap.
        - PAHs were frequently detected in all five subareas of AOC 5. In addition, background comparisons indicated the potential for site-related releases mostly in the in the Coal Aggregate Bins and Coal Storage Area. Therefore, lack of avian surrogates for acenaphthene, acenaphthylene, anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, and phenanthrene may represent a significant data gap.
        - Antimony and beryllium were detected in almost every sample collected in AOC 1 and AOC 5. Background comparisons indicated the potential for site-related releases; therefore, lack of avian surrogates for antimony and beryllium may represent a significant data gap.

- As presented in **Table 5-7**, one VOCs and one SVOC did not have mammal screening levels, and an attempt was made to select surrogate chemicals were selected for screening purposes (see **Subsection 5.1.1.1**).
    - Although a surrogate was identified for 1,2,3-trichlorobenzene, it was not detected in the 0 to 1 ft bgs or 1 to 5 ft bgs soil intervals; therefore, a significant data gap is not identified.
    - Benzyl alcohol was selected as the surrogate for benzaldehyde. Benzaldehyde is an appropriate surrogate based on structural similarity; therefore, a significant data gap is not identified.

- Surrogate plant screening values could not be selected for the potentially or likely DoD-related analytes shown in **Table 5-13**. These include VOCs (1,2,3-trichlorobenzene, 2-butanone, acetone), SVOCs (nitroanilines, nitrophenols, benzaldehyde, and carbazole), and PAHs. The VOCs are primarily used as solvents or intermediates to produce other chemicals. The SVOCs are used as intermediates in various manufacturing process (e.g., dyes, pharmaceuticals) or derivative of combustion (carbazole and PAHs). Historical volatile releases are generally not an issue for phytotoxicity, as surficial VOCs would have dispersed or leached to groundwater. The lack of SVOC and PAH phytotoxicity values represents a data gap.

- Surrogate soil invertebrate screening values could not be selected for the potentially or likely DoD-related analytes shown in **Table 5-14**. These include cobalt, silver, thallium, and vanadium. Alloys that contain cobalt are used in military and industrial applications. Silver and thallium may be present in electronic equipment. Vanadium is associated with various steels, magnets, fuel oil, and

coal. For invertebrates, the lack of cobalt, silver, thallium, and vanadium toxicity data represents a data gap.

Surrogate avian screening values could not be selected for the potentially or likely DoD-related analytes shown in Table 5-15. These include VOCs (1,2,3-trichlorobenzene and benzene), SVOCs (nitroanilines, nitrophenols, 4-chloroaniline, benzaldehyde, carbazole, and phenol), PAHs, antimony, and beryllium. The VOCs are solvents or associated with petroleum use. The SVOCs are used as intermediates in various manufacturing process (e.g., dyes, pharmaceuticals) or derivative of combustion (carbazole and PAHs). Antimony is released by incinerators and coal-burning power plants. Beryllium is used in electronics, aerospace, and defense industries because it is a rigid, lightweight metal. Historical volatile releases are generally not an issue for avian toxicity as surficial VOCs would have dispersed or leached to groundwater and are generally not considered bioaccumulative; therefore, they would not be evaluated through food chain exposures. For birds, the lack of SVOC, PAH, and metals toxicity data represents a data gap.

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# 9.0 RECOMMENDATIONS FOR PHASE 2

Prior to the formulation of Phase 2 recommendations, the results of the Phase 1 risk screening, assessment of uncertainties, updates to the CSM, and analysis of data gaps were considered. Recommendations for the Phase 2 RI are provided below and presented in **Table 9-1**. The sampling recommendations below are designed to fulfill the unmet Phase 1 objectives noted in **Section 8**, fill data gaps, and provide information to support an RI, including Human Health and Ecological Risk Assessment.

The recommendations below are general, with exact locations and sample numbers not specified. Generic analytical category recommendations are presented. Specific locations, sample numbers, and analytical methods are the purview of the sampling design to be presented in a future UFP-QAPP and are not within the scope of this document.

## 9.1 AOC 1

- Install permanent groundwater monitoring wells when additional groundwater sampling is recommended to; collect representative samples for total and dissolved metals, picric acid, 2,4-DNCB, and 2,4-DNP; and evaluate hydrogeologic conditions and aquifer characteristics.
- Additional information was gained regarding the DoD activities at the Change Houses. These structures were used for workers to change from street clothes to work clothes prior to their shift and change back into their street clothes prior to returning home. The contamination expected based on this activity is minimal and soil data from the Change House represented by the soil boring at NYOW-01-002 was non-detect for picric acid, 2,4-DNCB, and 2,4-DNP and concentrations of metals were not substantially different from background (see **Tables I-3, I-6, and I-9**). Therefore, it is not recommend to obtain ROE at NYOW-01-003 or identify an appropriate alternative location for installation and sampling of a groundwater monitoring well.
- Develop a soil sampling program for one of the locations that were inaccessible during Phase 1 field activities due to ROE restrictions and analyze samples for metals, picric acid, 2,4-DNCB, and 2,4-DNP. Data from only one of the inaccessible locations is necessary to meet the Phase 1 objective of characterizing a potential source area. ROE will need to be obtained to sample NYOW-01-017 (Ammonium Picrate Magazine) as proposed in the UFP-QAPP for the Phase 1 investigation (USACE, 2020). ROE does not need to be obtained for the following samples because data from the locations is deemed unnecessary at this time for the reasons noted below.
    - NYOW-01-003 and NYOW-01-004 (Change Houses) – as noted in the bullet above, The contamination expected based on the activities at the Change Houses is minimal and soil data from the boring at NYOW-01-002 was non-detect for picric acid, 2,4-DNCB, and 2,4-DNP and concentrations of metals were not substantially different from background (see **Tables I-3, I-6, and I-9**).
    - NYOW-01-005 (Laboratory Building) – A residence occupies the location of the former Laboratory Building and the soil has been reworked. Sample NYOW-01-005 was relocated from the proposed location approximately 171 feet to the northeast. Picric acid, 2,4-DNCB, and 2,4-DNP were not detected in groundwater or the three soil intervals. Metals were detected at concentrations not substantially different from

background (see **Tables I-3, I-6, I-9, I-16**) or the other locations within AOC 1. The Laboratory Building was used to quality test small quantities of the ammonium picrate product; therefore, there is no reason to suspect the area to be a source of metals contamination. In addition, the volume of ammonium picrate studied at the laboratory and the potential for release was far less than at the Ammonium Picrate Buildings and Dryer Houses where picric acid was detected in only 1 of 55 samples at a concentration below the LOD.

- Develop a soil and groundwater sampling program for metals, picric acid, 2,4-DNCB, and 2,4-DNP at locations around the former ammonium picrate buildings (near NYOW-01-007 through NYOW-01-018, along the toe of the drumlin) that were inaccessible during Phase 1 field activities. These data will be used to fill the gap in the evaluation of AOC 1 surface geology, hydrogeology, and human and ecological receptors as well as meet the objective of determining source areas.

- Develop a sampling program for wetland surface and subsurface soils for metals, picric acid, 2,4-DNCB, and 2,4-DNP to assess potential ecological risk. These samples will bridge the spatial data gap between the Ammonium Picrate Buildings and Dryer Houses where historical releases could have drained to the low lying areas. Sampling is recommended in wetlands between the Ammonium Picrate Buildings and the Dryer Houses only in the non-developed areas to avoid soils disturbed during development (i.e., areas of filling and mixing of soils). It is recommended that cribbing or a similar technique be used to mitigate potential damage to the wetlands by the drill rig.

- A soil sampling program within the former wastewater ditches along the northeastern side of the Ammonium Picrate Area and Administration Area is not recommended because the area has been heavily redeveloped and native soil cannot be identified.

- A soil sampling program within the former borrow pit is not recommended because the area was backfilled with non-native soil and is subject to active dumping by onsite workers.

## 9.2 AOC 3

- Install permanent groundwater monitoring wells when additional groundwater sampling is recommended to collect representative samples for total and dissolved metals, VOCs, SVOCs, PAHs, PCBs, and picric acid; and evaluate hydrogeologic conditions and aquifer characteristics.

- Based on the lack of any remarkable concentrations in the samples collected around the perimeter of the open storage area, additional sampling to evaluate the edges of the greens and fairway is not recommended.

- The CSM does not indicate the potential for DoD-related constituents to be present within the wooded area northeast of the parking lot where the evidence for recreator/trespasser scenarios were found. Therefore. additional sampling in the wooded area northeast of the parking lot is not recommended. The recreator/trespasser scenarios will be evaluated in a future risk assessment using the sampling results from the former landfill area.

- Develop a sampling program for sediments/pore water/surface water in the unnamed stream north of the parking lot for metals, VOCs, SVOCs, PAHs, PCBs, TOC (sediment only), and grain size (sediment only) to assess potential ecological risk. In addition, take field measurements to whether the stream is gaining or losing. These data should assist in determining if the former landfill is a source area and meet a Phase 1 objective.
- Develop a groundwater sampling program to characterize potential impacts from the newly identified landfill area north of the parking lot to evaluate if the landfill is a continuous source of contamination and meet a Phase 1 objective. A soil sampling program is not recommended because there is little to no soil present between the new boundary of landfilling and the stream. It is also not recommended to delineate the vertical extent of the landfill unless a removal action is determined to be necessary.

## 9.3 AOC 4

- Temporary well sample results indicated that picric acid, 2,4-DNCB, and 2,4-DNP were not detected, and the results were usable for their intended purpose; therefore, installation of permanent monitoring wells at AOC 4 is not necessary.
- Discrete soil sample results collected from within the AOC were non-detect for picric acid, 2,4-DNCB, and 2,4-DNP, and the results were considered usable for their intended purpose; therefore, additional discrete soil sampling outside of the AOC 4 bunkers is not recommended.
- A sampling program for sediments/pore water/surface water in the wetland areas east and west of AOC 4 for 2,4-DNCB and 2,4-DNP to assess potential ecological risk is not recommended. The wetlands to the west are upgradient from the bunkers. To the east, drainage swale and the elevated roadway provide barriers to overland transport to the wetlands and picric acid, 2,4-DNCB, and 2,4-DNP were not detected in any of the 16 groundwater (or 117 discrete soil) samples in AOC 4.
- Develop a discrete surface soil sampling program in the DUs for 2,4-DNCB and 2,4-DNP in surface soil to address the low bias that is prevalent in the analytical data seemingly due to using ISM sample processing. Analyze for picric acid from the samples for confirmation of ISM sampling results. Obtaining this data should meet the Phase 1 objectives of determining presence/absence and characterizing a potential source area.

## 9.4 AOC 5

- Install permanent groundwater monitoring wells when additional groundwater sampling is recommended to collect representative samples for total and dissolved metals, PAHs, and if the well(s) are sited directly downgradient from the Electric Substation, PCBs; and evaluate hydrogeologic conditions and aquifer characteristics.
- Contact the developer and/or the township to determine most likely anticipated future land use.

- Based on the results of the Phase 1 sampling, additional sampling in the Electric Substation and the Possible Dump area is not recommended. As noted in **Subsection 8.2.4,** detected constituents in the Electric Substation were at concentrations not substantially different from background and/or screening. As noted in **Subsection 7.10,** there is no evidence of subsurface disposal activities in the Possible Dump area and concentrations are not indicative of DoD-related disposal activities.
- Develop a surface and subsurface soil sampling program for metals, and PAHs to characterize soil impacts and estimate representative concentrations for risk assessment.
- Develop a groundwater sampling program for total and dissolved metals and PCBs (if sampling directly downgradient from the Electric Substation) to characterize groundwater impacts and estimate representative concentrations for risk assessment.
- Analyze TOC in the additional surface and subsurface samples program to support ecological risk assessment.
- If future land use indicates residential use, develop a program to sample wetland surface soils for metals and PAHs to provide sufficient coverage to assess risk based on residential-size lots. If sampling in the wetlands is undertaken, it is recommended that cribbing or a similar technique be used to mitigate potential damage to the wetlands by the drill rig.
- Further evaluation of the 1 to 5 ft bgs intervals proximal to the already sampled locations by microscopy to differentiate coal/coal ash from native soil is recommended to make a determination of DoD-relatedness and programmatic requirements for site cleanup. If new locations are sited in AOC 5, microscopy should be considered for those samples. Coal and coal ash are not hazardous waste under CERCLA; therefore, the PAH and metal analytes that were identified as COPCs within the AOC 5 Coal Aggregate Bins Area may not be subject to further evaluation where it is determined that they are associated only with the solid waste material (see additional discussion in Subsection 8.1.3). This will aid in meeting the Phase 1 objective of characterizing a potential source area.
- Develop a soil and groundwater sampling program to characterize the newly identified drainage ditch as to whether DoD-related contaminants leached into the soil and groundwater and/or were transported downstream (south) to low-lying wetlands.

## 9.5 BACKGROUND AREA

- Install permanent groundwater monitoring wells to collect representative samples for total and dissolved metals and PAHs; and obtain data comparable to the recommended AOC 1, AOC 3, and AOC 5 permanent well data. A minimum of six permanent background wells should be installed in the general vicinity of the Phase 1 temporary wells. A minimum of two rounds of sampling should be performed on the wells to account for seasonal variability and to provide a minimum of 12 data points for statistical evaluation to determine if site groundwater concentrations exceed background concentrations.
- Analyze TOC in any additional surface and subsurface samples to support ecological risk assessment.

- Develop a program to sample wetland surface soils for metals to assess potential for risk in the AOC 1 wetlands. If wetlands are sampled in AOC 5, PAHs also should be analyzed in background wetland samples. It is recommended that cribbing or a similar technique be used to mitigate potential damage to the wetlands by the drill rig.

## 9.6 SAMPLING AND ANALYTICAL

- Modify the aqueous extraction method for PCBs in future groundwater investigations to achieve Tap Water RSLs to assess potable use pathways for current/future nearby residents. Katahdin Analytical Service of Scarborough, Maine, can perform this extraction technique.

- Do not use ISM techniques to collect or prepare samples for SVOC analysis. If ISM techniques are retained, request that the laboratory pull an aliquot for SVOCs (including 2,4-DNCB and 2,4-DNP) and percent moisture analyses from ISM sample bags prior to subjecting the ISM samples to laboratory ISM methodology (e.g., drying and subsampling) in order to reduce potential loss from volatilization during air drying. For PAHs, large losses are associated with air drying samples analyzed for naphthalene. Moderate losses from air drying are associated with other PAHs that have been well-studied, including acenaphthene and acenaphthylene. The use of the drying step for PAHs should be evaluated based on the PAHs to be analyzed within an AOC. In general, ISM sample processing should be avoided for any analyte, not limited to SVOCs, for which unacceptable loss as a result of any ISM processing step is suspected based on the analyte's properties.

- If ISM techniques are retained, require that the laboratory purchase or develop LCSSRMs that contain all target analytes so that the effect of sample grinding on analyte recovery can be assessed and demonstrated to be acceptable; otherwise, exclude the analytes from ISM processing. Furthermore, unacceptably low SVOC surrogate recoveries were encountered due to poor solvent contact with the flour-like milled soil matrix during microwave-assisted extraction. If ISM techniques are retained, the selected particle size reduction and sample extraction processes must generate acceptable surrogate and target analyte recoveries.

- To improve analytical sensitivity for evaluation of potable use pathways for current/future nearby residents, it is recommended that EPA Method 6020A be used for analysis of cadmium and selenium in aqueous samples.

- To improve the heterogeneity of the soil matrix, the field team should homogenize any future discrete soil samples sequentially, first in quarter-sample segments and then in combined half-sample and full sample segments.

- More sensitive, commercially available methodology for the analysis of 2,4-DNP and picric acid (e.g., BNASIM, Gas Chromatography-Electron Capture Detector) are not currently available. Therefore, EPA SW-846 Method 8270 should be retained.

- Modification of the extraction or analytical methods for PAHs in groundwater is not recommended. PAHs are analyzed by the more sensitive technique (i.e., BNASIM).

- It is recommended that measures be taken to prevent the analytical laboratories from submitting data for which the laboratory QC samples' surrogate recoveries are outside of acceptance criteria.

## 9.7 SURROGATE CHEMICALS AND CHEMICALS WITHOUT SCREENING LEVELS

- Based on the data gap analysis performed in **Subsection 8.2.7**, no data gaps were identified on the basis of surrogate chemical selection for analytes without human health screening levels. Derivation of a site-specific screening level based on published literature values is not recommended for any analyte.
- Based on the data gap analysis performed in **Subsection 8..2.7**, the following data gaps were identified on the basis of surrogate chemical selection for analytes without ecological screening levels.
    - Plants: benzaldehyde, carbazole, and PAHs
    - Soil invertebrates: cobalt, silver, thallium, and vanadium
    - Birds: benzaldehyde, PAHs, antimony, and beryllium
    - Mammals: None.

    As noted in **Subsection 5.1.1.1,** an effort was undertaken to identify **s**urrogates for analytes without screening levels specified in the UFP-QAPP based on similarities to the COPEC in structure and functional groups. Notes regarding detected analytes for which surrogates were not selected (noted above) are as follows.
    - Benzaldehyde and carbazole – included as potentially DoD-related because of being detected at a frequency of 5% or greater and not due to knowledge of historical site use.
    - PAHs – rapidly metabolized, which precludes substantial bioaccumulation.
    - PAHs and metals – sufficient toxicity data were not available with which to calculate Eco-SSLs or EPA Region 4 screening levels and therefore, it is unlikely that appropriate data are available with which to derive robust screening levels.
- A significant data gap does not exist with respect to ecological screening values for benzaldehyde and carbazole, and it appears that a permanent data gap exists for PAHs and metals. Therefore, the derivation of a site-specific screening level based on published literature values is not recommended for any analyte. Although the derivation of screening levels is not recommended, PAHs and metals are potentially site-related and are present at AOCs 1 (metals only), 3, and 5 at concentrations greater than BTVs or toxicity values available for other ecological receptors. Therefore, it is recommended that Phase 2 sampling for AOC 1 includes metals and for AOCs 3 and 5 includes PAHs and metals.

## 9.8 CONSTITUENTS OF POTENTIAL CONCERN FOR EVALUATION DURING PHASE 2

Based on the totality of this Phase 1 Risk Screening and Data Gaps Analysis, the constituents below are noted to be of potential concern and recommended for evaluation through additional sampling and risk assessment or risk assessment alone during Phase 2. The lists were generated on an AOC- and medium-basis and include potentially DoD- and likely DoD-related constituents as follows:

- Groundwater – PAHs and metals: exceeding the BTV and the human health screening level;
- Groundwater – Other constituents: exceeding the human health screening level;
- Soil – PAHs and metals: exceeding the BTV and at least one human health or ecological screening level; and
- Soil – Other constituents: exceeding at least one human health or ecological screening level.

Also included are analytes without screening values (as noted in **Subsection 9.7)** with maximum concentrations greater than the BTV and analytes for which the LOQs were greater than the PAL as noted in **Subsection 6.3.1**. The analytes without screening values included as COPCs/COPECs likely represent permanent data gaps that would be discussed in the RI uncertainty analysis. Analytes with an LOQ greater than a PAL would be evaluated during future UFP-QAPP development to determine if a different preparatory or analytical methods could be used that would yield LOQs less than PALs.

| AOC 1 | | | | |
|---|---|---|---|---|
| | Groundwater | | Soil | |
| COPC/COPECs | COPC | Rationale for Inclusion | COPC/COPEC | Rationale for Inclusion |
| **SVOCs** | | | | |
| 2,4-DNCB | X | ND & LOQ> SL | X | ND & LOQ> SL |
| 2,4-DNP | X | ND & LOQ> SL | X | ND & LOQ> SL |
| **Explosives** | | | | |
| Picric acid | -- | -- | X | > SL |
| **Metals** | | | | |
| Aluminum | -- | -- | X | >BTV and SL |
| Antimony | -- | -- | X | >BTV and SL |
| Arsenic | X | >BTV and SL | X | >BTV and SL |
| Barium | X | >BTV and SL | X | >BTV and SL |
| Beryllium | -- | -- | X | >BTV and missing avian SL |
| Cadmium | -- | -- | X | >BTV and SL |
| Chromium | -- | -- | X | >BTV and SL |
| Cobalt | -- | -- | X | >BTV and SL |
| Copper | -- | -- | X | >BTV and SL |
| Iron | X | >BTV and SL | X | >BTV and SL |
| Lead | -- | -- | X | >BTV and SL |
| Manganese | X | >BTV and SL | X | >BTV and SL |
| Mercury | X | ND & LOQ> SL | X | >BTV and SL |
| Nickel | X | >BTV and SL | -- | -- |
| Selenium | X | ND & LOQ> SL | X | >BTV and SL |
| Silver | X | ND & LOQ> SL | X | >BTV and missing soil invertebrate SL |
| Thallium | X | ND & LOQ> SL | -- | -- |
| Vanadium | X | >BTV and SL | X | >BTV and missing soil invertebrate SL |
| Zinc | -- | -- | X | >BTV and SL |

"--" = No
BTV = Background threshold value
LOQ = Limit of quantitation
ND = Non-detect
SL = Screening level
X = Yes

| AOC 3 | | | | |
|---|---|---|---|---|
| | Groundwater | | Soil | |
| COPC/COPECs | COPC | Rationale for Inclusion | COPC/COPEC | Rationale for Inclusion |
| **VOCs** | | | | |
| Acetone | -- | -- | X | > SL |
| Benzene | X | > SL | -- | -- |
| **SVOCs** | | | | |
| 2,4-DNCB | X | ND & LOQ>SL | X | ND & LOQ>SL |
| 2,4-DNP | X | ND & LOQ>SL | X | ND & LOQ>SL |
| 2-Nitroaniline | X | ND & LOQ>SL | X | ND & LOQ>SL |
| 2-Nitrophenol | X | ND & LOQ>SL | X | ND & LOQ>SL |
| 3-Nitroaniline | X | ND & LOQ>SL | X | ND & LOQ>SL |
| 4-Chloroaniline | X | ND & LOQ>SL | -- | -- |
| 4-Nitroaniline | X | > SL | X | ND & LOQ>SL |
| 4-Nitrophenol | X | ND & LOQ>SL | -- | -- |
| Benzaldehyde | -- | -- | X | > SL |
| Carbazole | -- | -- | X | > SL |
| Cresols, m- & p- | -- | -- | X | > SL |
| Dibenzofuran | X | ND & LOQ>SL | X | > SL |
| **PAHs** | | | | |
| Acenaphthene | -- | -- | X | >BTV and SL |
| Anthracene | -- | -- | X | >BTV and SL |
| Benzo(a)anthracene | X | ND & LOQ>SL | X | >BTV and SL |
| Benzo(a)pyrene | X | ND & LOQ>SL | X | >BTV and SL |
| Benzo(b)fluoranthene | -- | -- | X | >BTV and SL |
| Dibenz(a,h)anthracene | X | ND & LOQ>SL | X | >BTV and SL |
| Indeno(1,2,3-cd)pyrene | -- | -- | X | >BTV and SL |
| PAHs | -- | -- | X | >BTV and missing plant SLs |
| **PCBs** | | | | |
| PCB-1016 (Aroclor 1016) | X | ND & LOQ>SL | -- | -- |
| PCB-1221 (Aroclor 1221) | X | ND & LOQ>SL | -- | -- |
| PCB-1232 (Aroclor 1232) | X | ND & LOQ>SL | -- | -- |
| PCB-1242 (Aroclor 1242) | X | ND & LOQ>SL | -- | -- |
| PCB-1248 (Aroclor 1248) | X | ND & LOQ>SL | -- | -- |
| PCB-1254 (Aroclor 1254) | X | ND & LOQ>SL | -- | -- |
| PCB-1260 (Aroclor 1260) | X | ND & LOQ>SL | -- | -- |
| PCB-1262 (Aroclor 1262) | X | ND & LOQ>SL | -- | -- |
| PCB-1268 (Aroclor 1268) | X | ND & LOQ>SL | -- | -- |
| **Explosives** | | | | |
| Picric Acid | -- | -- | X | ND & LOQ>SL |
| **Metals** | | | | |
| Aluminum | -- | -- | X | >BTV and SL |
| Antimony | -- | ND & LOQ>SL | -- | -- |
| Arsenic | X | >BTV and SL | X | >BTV and SL |
| Cadmium | -- | ND & LOQ>SL | -- | -- |
| Cobalt | X | >BTV and SL | X | >BTV and SL |
| Iron | -- | -- | X | >BTV and SL |
| Manganese | X | >BTV and SL | X | >BTV and SL |
| Mercury | -- | ND & LOQ>SL | X | >BTV and SL |
| Nickel | X | >BTV and SL | -- | -- |
| Selenium | -- | -- | X | >BTV and SL |
| Silver | -- | ND & LOQ>SL | X | >BTV and missing soil invertebrate SL |
| Thallium | -- | -- | X | >BTV and SL |
| Vanadium | X | >BTV and SL | X | >BTV and missing soil invertebrate SL |

"--" = No
BTV = Background threshold value
LOQ = Limit of quantitation
ND = Non-detect
SL = Screening level
X = Yes

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| AOC 4 | | | | |
|---|---|---|---|---|
| | Groundwater | | Soil | |
| COPC/COPECs | COPC | Rationale for Inclusion | COPC/COPEC | Rationale for Inclusion |
| **SVOCs** | | | | |
| 2,4-DNCB | * | -- | X | ND & LOQ> SL |
| 2,4-DNP | * | -- | X | ND & LOQ> SL |
| **Explosives** | | | | |
| Picric acid | * | -- | X | ND & LOQ> SL |

* As noted in **Subsection 9.4**, the results from the temporary well samples and discrete soil samples were non-detected for picric acid, 2,4-DNCB, and 2,4-DNP, the data were considered usable for their intended purpose, and additional discrete soil sampling outside of the bunkers and groundwater sampling is not recommended.
"--" = No
LOQ = Limit of quantitation
ND = Non-detect
SL = Screening level
X = Yes

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| AOC 5 – Boiler House | | | | |
|---|---|---|---|---|
| | Groundwater | | Soil | |
| COPC/COPECs | COPC | Rationale for Inclusion | COPC/ COPEC | Rationale for Inclusion |
| **SVOCs** | | | | |
| 2-Nitroaniline | -- | * | -- | * |
| 3-Nitroaniline | -- | * | -- | * |
| 4-Chloroaniline | -- | * | -- | -- |
| 4-Nitroaniline | -- | * | -- | * |
| **PAHs** | | | | |
| Acenaphthylene | -- | -- | X | >BTV and missing plant and avian SLs |
| Anthracene | -- | -- | X | >BTV and missing plant and avian SLs |
| Benzo(a)anthracene | X | >BTV and SL | -- | -- |
| Benzo(a)pyrene | X | >BTV and SL | -- | -- |
| Benzo(b)fluoranthene | X | >BTV and SL | -- | -- |
| Dibenz(a,h)anthracene | X | >BTV and SL | -- | -- |
| Naphthalene | X | >BTV and SL | -- | -- |
| Phenanthrene | -- | -- | X | >BTV and missing plant and avian SLs |
| **Metals** | | | | |
| Aluminum | -- | -- | X | >BTV and SL |
| Antimony | X | >SL | X | >BTV and missing avian SL |
| Arsenic | X | >BTV and SL | X | >BTV and SL |
| Beryllium | -- | -- | X | >BTV and missing avian SL |
| Cadmium | X | ND & LOQ>SL | -- | -- |
| Chromium | -- | -- | X | >BTV and SL |
| Cobalt | X | >SL | X | >BTV and SL |
| Iron | -- | -- | X | >BTV and SL |
| Manganese | X | >SL | X | >BTV and SL |
| Mercury | X | ND & LOQ>SL | X | >BTV and SL |
| Nickel | X | ND & LOQ>SL | -- | -- |
| Selenium | X | ND & LOQ>SL | -- | -- |
| Silver | X | ND & LOQ>SL | -- | -- |
| Thallium | X | ND & LOQ>SL | X | >BTV and SL |
| Vanadium | X | >BTV and SL | X | >BTV and missing soil invertebrate SL |
| Zinc | -- | -- | X | >BTV and SL |

*Anilines were not detected but the LOQs were greater than the SLs. As noted in **Subsection 9.7**, there was potential historical evidence that these constituents were associated with AOC 5. Anilines are components of pigments and dyes and were associated with AOC 5 solely because of the potential for paint cans to have been disposed of in the Possible Dump. Therefore, anilines are not considered COPCs or COPECs for the Boiler House Area and do not need to be included in future sampling associated with the Boiler House.
"--" = No
BTV = Background threshold value
LOQ = Limit of quantitation
ND = Non-detect
SL = Screening level
X = Yes

| AOC 5 – Coal Aggregate Bins | | | | |
|---|---|---|---|---|
| | Groundwater | | Soil | |
| COPC/COPECs | COPC | Rationale for Inclusion | COPC/COPEC | Rationale for Inclusion |
| **SVOCs** | | | | |
| 2-Nitroaniline | -- | * | -- | * |
| 3-Nitroaniline | -- | * | -- | * |
| 4-Chloroaniline | -- | * | -- | -- |
| 4-Nitroaniline | -- | * | -- | * |
| **PAHs** | | | | |
| 1-Methylnaphthalene | -- | -- | X | >BTV and SL |
| 2-Methylnaphthalene | -- | -- | X | >BTV and SL |
| Benzo(a)anthracene | X | ND & LOQ>SL | -- | -- |
| Benzo(a)pyrene | X | ND & LOQ>SL | X | >BTV and SL |
| Benzo(b)fluoranthene | -- | -- | X | >BTV and SL |
| Dibenz(a,h)anthracene | X | ND & LOQ>SL | X | >BTV and SL |
| Indeno(1,2,3-c,d)pyrene | -- | -- | X | >BTV and SL |
| Naphthalene | X | >BTV and SL | X | >BTV and SL |
| High Molecular Weight PAHs | -- | -- | X | >BTV and SL |
| PAHs | -- | -- | X | >BTV and missing plant and avian SLs |
| **Metals** | | | | |
| Aluminum | X | >BTV and SL | X | >BTV and SL |
| Antimony | X | ND & LOQ>SL | X | >BTV and SL |
| Arsenic | X | >BTV and SL | X | >BTV and SL |
| Beryllium | -- | -- | X | >BTV and missing avian SL |
| Cadmium | X | ND & LOQ>SL | X | >BTV and SL |
| Chromium | -- | -- | X | >BTV and SL |
| Cobalt | X | >SL | X | >BTV and SL |
| Iron | X | >BTV and SL | X | >BTV and SL |
| Lead | -- | -- | X | >BTV and SL |
| Manganese | X | >SL | X | >BTV and SL |
| Mercury | X | ND & LOQ>SL | X | >BTV and SL |
| Nickel | X | >BTV and SL | -- | -- |
| Selenium | X | ND & LOQ>SL | X | >BTV and SL |
| Silver | X | ND & LOQ>SL | -- | -- |
| Thallium | X | ND & LOQ>SL | X | >BTV and SL |
| Vanadium | X | >BTV and SL | X | >BTV and SL |
| Zinc | -- | -- | X | >BTV and SL |

*Anilines were not detected but the LOQs were greater than the SLs. As noted in **Subsection 9.7**, there was potential historical evidence that these constituents were associated with AOC 5. Anilines are components of pigments and dyes and were associated with AOC 5 solely because of the potential for paint cans to have been disposed of in the Possible Dump Area. Therefore, anilines are not considered COPCs or COPECs for the Coal Aggregate Bins and do not need to be included in future sampling associated with the Coal Aggregate Bins.

"—" = No
BTV = Background threshold value
LOQ = Limit of quantitation
ND = Non-detect
SL = Screening level
X = Yes

| AOC 5 – Coal Storage Area | | | | |
|---|---|---|---|---|
| | Groundwater | | Soil | |
| COPC/COPECs | COPC | Rationale for Inclusion | COPC/ COPEC | Rationale for Inclusion |
| **SVOCs** | | | | |
| 2-Nitroaniline | -- | * | -- | * |
| 3-Nitroaniline | -- | * | -- | * |
| 4-Chloroaniline | -- | * | -- | -- |
| 4-Nitroaniline | -- | * | -- | * |
| **PAHs** | | | | |
| 1-Methylnaphthalene | -- | -- | X | >BTV and SL |
| 2-Methylnaphthalene | -- | -- | X | >BTV and SL |
| Acenaphthene | -- | -- | X | >BTV and SL |
| Benzo(a)anthracene | X | ND & LOQ>SL | X | >BTV and SL |
| Benzo(a)pyrene | X | ND & LOQ>SL | X | >BTV and SL |
| Dibenz(a,h)anthracene | X | ND & LOQ>SL | -- | -- |
| Naphthalene | X | >BTV and SL | X | >BTV and SL |
| High Molecular Weight PAHs | -- | -- | X | >BTV and SL and missing plant and avian SLs |
| Low Molecular Weight PAHs | -- | -- | X | >BTV and SL and missing plant and avian SLs |
| **Metals** | | | | |
| Aluminum | -- | -- | X | >BTV and SL |
| Antimony | X | >SL | X | >BTV and SL |
| Arsenic | X | >BTV and SL | X | >BTV and SL |
| Beryllium | -- | -- | X | >BTV and missing avian SL |
| Cadmium | X | ND & LOQ>SL | X | >BTV and SL |
| Chromium | -- | -- | X | >BTV and SL |
| Cobalt | X | >SL | X | >BTV and SL |
| Iron | X | >SL | X | >BTV and SL |
| Lead | -- | -- | X | >BTV and SL |
| Manganese | X | >SL | X | >BTV and SL |
| Mercury | X | ND & LOQ>SL | X | >BTV and SL |
| Nickel | X | >BTV and SL | -- | -- |
| Selenium | X | ND & LOQ>SL | X | >BTV and SL |
| Silver | X | ND & LOQ>SL | -- | -- |
| Thallium | X | ND & LOQ>SL | X | >BTV and SL |
| Vanadium | X | ND & LOQ>SL | X | >BTV and SL |
| Zinc | -- | -- | X | >BTV and SL |

*Anilines were not detected but the LOQs were greater than the SLs. **As noted in Subsection 9.7**, there was potential historical evidence that these constituents were associated with AOC 5. Anilines are components of pigments and dyes and were associated with AOC 5 solely because of the potential for paint cans to have been disposed of in the Possible Dump Area. Therefore, anilines are not considered COPCs or COPECs for the Coal Storage Area and do not need to be included in future sampling associated with the Coal Storage Area.

"—" = No
BTV = Background threshold value
LOQ = Limit of quantitation
ND = Non-detect
SL = Screening level
X = Yes

As noted in **Subsection 8.2.4** detected constituents in the Electric Substation were at concentrations not substantially different from background and/or screening levels and additional sampling in the Electric Substation is not recommended. However, COPCs/COPECs for the Electric Substation are presented in the table below to indicate which analytes will be carried through to the Phase 2 risk assessments either for quantitative evaluation or qualitative discussion in the Uncertainty Analysis.

| AOC 5 – Electric Substation | | | | |
|---|---|---|---|---|
| | Groundwater | | Soil | |
| COPC/COPECs | COPC | Rationale for Inclusion | COPC/ COPEC | Rationale for Inclusion |
| **SVOCs** | | | | |
| 2-Nitroaniline | -- | * | -- | * |
| 3-Nitroaniline | -- | * | -- | * |
| 4-Chloroaniline | -- | * | -- | -- |
| 4-Nitroaniline | -- | * | -- | * |
| **PAHs** | | | | |
| Acenaphthene | -- | -- | X | > BTV and missing avian SLs |
| Acenaphthylene | -- | -- | X | > BTV and missing plant and avian SLs |
| Anthracene | -- | -- | -- | -- |
| Benzo(a)anthracene | X | ND & LOQ>SL | -- | -- |
| Benzo(a)pyrene | X | ND & LOQ>SL | -- | -- |
| Dibenz(a,h)anthracene | X | ND & LOQ>SL | -- | -- |
| Phenanthrene | -- | -- | X | > BTV and missing plant SLs |
| **PCBs** | | | | |
| PCB-1016 (Aroclor 1016) | NA | -- | X | ND & LOQ>SL |
| PCB-1221 (Aroclor 1221) | NA | -- | X | ND & LOQ>SL |
| PCB-1232 (Aroclor 1232) | NA | -- | X | ND & LOQ>SL |
| PCB-1242 (Aroclor 1242) | NA | -- | X | ND & LOQ>SL |
| PCB-1248 (Aroclor 1248) | NA | -- | X | ND & LOQ>SL |
| PCB-1254 (Aroclor 1254) | NA | -- | X | ND & LOQ>SL |
| PCB-1260 (Aroclor 1260) | NA | -- | X | >SL |
| PCB-1262 (Aroclor 1262) | NA | -- | X | ND & LOQ>SL |
| PCB-1268 (Aroclor 1268) | NA | -- | X | ND & LOQ>SL |
| **Metals** | | | | |
| Aluminum | -- | -- | X | >BTV and SL |
| Antimony | X | ND & LOQ>SL | X | >BTV and missing avian SL |
| Arsenic | X | >BTV and SL | X | >BTV and SL |
| Beryllium | -- | -- | X | >BTV and missing avian SL |
| Cadmium | X | ND & LOQ>SL | X | >BTV and SL |
| Chromium | -- | -- | X | >BTV and SL |
| Cobalt | X | >SL | X | >BTV and SL |
| Copper | -- | -- | X | >BTV and SL |
| Iron | -- | -- | X | >BTV and SL |
| Lead | -- | -- | X | >BTV and SL |
| Manganese | X | >SL | X | >BTV and SL |
| Mercury | X | ND & LOQ>SL | -- | -- |
| Nickel | X | ND & LOQ>SL | -- | -- |
| Selenium | X | ND & LOQ>SL | X | >BTV and SL |
| Silver | X | ND & LOQ>SL | -- | -- |
| Thallium | X | ND & LOQ>SL | X | >BTV and SL |
| Vanadium | X | ND & LOQ>SL | X | >BTV and missing soil invertebrate SL |
| Zinc | -- | -- | X | >BTV and SL |

*Anilines were not detected but the LOQs were greater than the SLs. **As noted in Subsection 9.7**, there was potential historical evidence that these constituents were associated with AOC 5. Anilines are components of pigments and dyes and were associated with AOC 5 solely because of the potential for paint cans to have been disposed of in the Possible Dump Area. Therefore, anilines are not considered COPCs or COPECs for the Electric Substation .

"—" = No
BTV = Background threshold value
LOQ = Limit of quantitation
NA = Not analyzed
ND = Non-detect
SL = Screening level
X = Yes

As noted in **Subsection 7.10,** there is no evidence of subsurface disposal activities in the Possible Dump area and concentrations are not indicative of DoD-related disposal activities. Therefore, additional sampling in the Possible Dump is not recommended. However, COPCs/COPECs for the Possible Dump are presented in the table below to indicate which analytes will be carried through to the Phase 2 risk assessments either for quantitative evaluation or qualitative discussion in the Uncertainty Analysis.

| AOC 5 – Possible Dump | | | | |
|---|---|---|---|---|
| | Groundwater | | Soil | |
| COPC/COPECs | COPC | Rationale for Inclusion | COPC/ COPEC | Rationale for Inclusion |
| **VOCs** | | | | |
| 1,2,3-Trichlorobenzene | X | >SL | -- | -- |
| Acetone | -- | -- | X | >SL |
| Benzene | X | ND & LOQ>SL | -- | -- |
| **SVOCs** | | | | |
| 2-Nitroaniline | X | ND & LOQ>SL | X | ND & LOQ>SL |
| 3-Nitroaniline | X | ND & LOQ>SL | X | ND & LOQ>SL |
| 4-Chloroaniline | X | ND & LOQ>SL | -- | -- |
| 4-Nitroaniline | X | ND & LOQ>SL | X | ND & LOQ>SL |
| Benzaldehyde | -- | -- | X | >SL |
| Dibenzofuran | X | ND & LOQ>SL | X | >SL |
| Di-n-butyl phthalate | -- | -- | X | >SL |
| **PAHs** | | | | |
| Acenaphthene | -- | -- | X | >BTV and missing avian SLs |
| Benzo(a)pyrene | X | ND & LOQ>SL | -- | -- |
| Dibenz(a,h)anthracene | X | ND & LOQ>SL | -- | -- |
| Phenanthrene | -- | -- | X | >BTV and missing plant and avian SLs |
| **PCBs** | | | | |
| PCB-1016 (Aroclor 1016) | X | ND & LOQ>SL | X | ND & LOQ>SL |
| PCB-1221 (Aroclor 1221) | X | ND & LOQ>SL | X | ND & LOQ>SL |
| PCB-1232 (Aroclor 1232) | X | ND & LOQ>SL | X | ND & LOQ>SL |
| PCB-1242 (Aroclor 1242) | X | ND & LOQ>SL | X | ND & LOQ>SL |
| PCB-1248 (Aroclor 1248) | X | ND & LOQ>SL | X | ND & LOQ>SL |
| PCB-1254 (Aroclor 1254) | X | ND & LOQ>SL | X | ND & LOQ>SL |
| PCB-1260 (Aroclor 1260) | X | ND & LOQ>SL | X | ND & LOQ>SL |
| PCB-1262 (Aroclor 1262) | X | ND & LOQ>SL | X | ND & LOQ>SL |
| PCB-1268 (Aroclor 1268) | X | ND & LOQ>SL | X | ND & LOQ>SL |
| **Metals** | | | | |
| Aluminum | -- | -- | X | >BTV and SL |
| Antimony | X | ND & LOQ>SL | X | >BTV and SL |
| Arsenic | X | >BTV and SL | X | >BTV and SL |
| Beryllium | -- | -- | X | >BTV and missing avian SL |
| Cadmium | X | ND & LOQ>SL | X | >BTV and SL |
| Chromium | -- | -- | X | >BTV and SL |
| Cobalt | X | >SL | X | >BTV and SL |
| Copper | -- | -- | X | >BTV and SL |
| Iron | -- | -- | X | >BTV and SL |
| Lead | -- | -- | X | >BTV and SL |
| Manganese | X | >SL | X | >BTV and SL |
| Mercury | X | ND & LOQ>SL | X | >BTV and SL |
| Nickel | X | >BTV and SL | -- | -- |
| Selenium | X | ND & LOQ>SL | X | >BTV and SL |
| Silver | X | ND & LOQ>SL | X | >BTV and missing soil invertebrate SL |
| Thallium | X | ND & LOQ>SL | X | >BTV and SL |
| Vanadium | X | ND & LOQ>SL | X | >BTV and missing soil invertebrate SL |
| Zinc | -- | -- | X | >BTV and SL |

"—" = No
BTV = Background threshold value
LOQ = Limit of quantitation
ND = Non-detect
SL = Screening level
X = Yes

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## 9.9 SUMMARY OF SUGGESTED PHASE 2 FIELD SAMPLING

The following is a summary of the suggested Phase 2 Field Sampling. Note that the number of samples, method specifications, and location siting are not within the scope of this document and will be addressed in the Phase 2 Investigation UFP-QAPP.

AOC 1

- Ammonium Picrate Buildings
  - Soil 0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs– 2,4-DNCB, 2,4-DNP, picric acid, metals, and TOC
  - Groundwater (permanent wells) – 2,4-DNCB, 2,4-DNP, picric acid, and total and dissolved metals
- Wetlands between the Ammonium Picrate Buildings and the Dryer Houses
  - Soil 0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs– 2,4-DNCB, 2,4-DNP, picric acid, metals, and TOC

AOC 3

- Groundwater (permanent well) – VOCs, SVOCs (including 2,4-DNCB, 2,4-DNP), PAHs, PCBs, picric acid, and total and dissolved metals
- Unnamed stream north of the historical landfill
  - Pore water and surface water – VOCs, SVOCs (including 2,4-DNCB, 2,4-DNP), PAHs, PCBs, picric acid, and total and dissolved metals
  - Sediment – Soil 0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs – VOCs, SVOCs (including 2,4-DNCB, 2,4-DNP), PAHs, PCBs, picric acid, metals, TOC, and grain size

AOC 4

- Soil 0 to 1 ft bgs –2,4-DNCB, 2,4-DNP, and picric acid

AOC 5

- Groundwater (permanent wells) – PAHs, PCBs (if directly downgradient from the Electric Substation), and total and dissolved metals
- Soil 0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs – PAHs, metals, TOC, and coal/coal ash microscopy (0 to 1 ft bgs, 1 to 5 ft bgs only)

Background

- Groundwater (permanent wells) – PAHs and total and dissolved metals
- Hydric soils (0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs) within the Psc surface geologic unit – PAHs (if wetlands are sampled in AOC 5), metals, and TOC.

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# FIGURES

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# FIGURES
## Section 2

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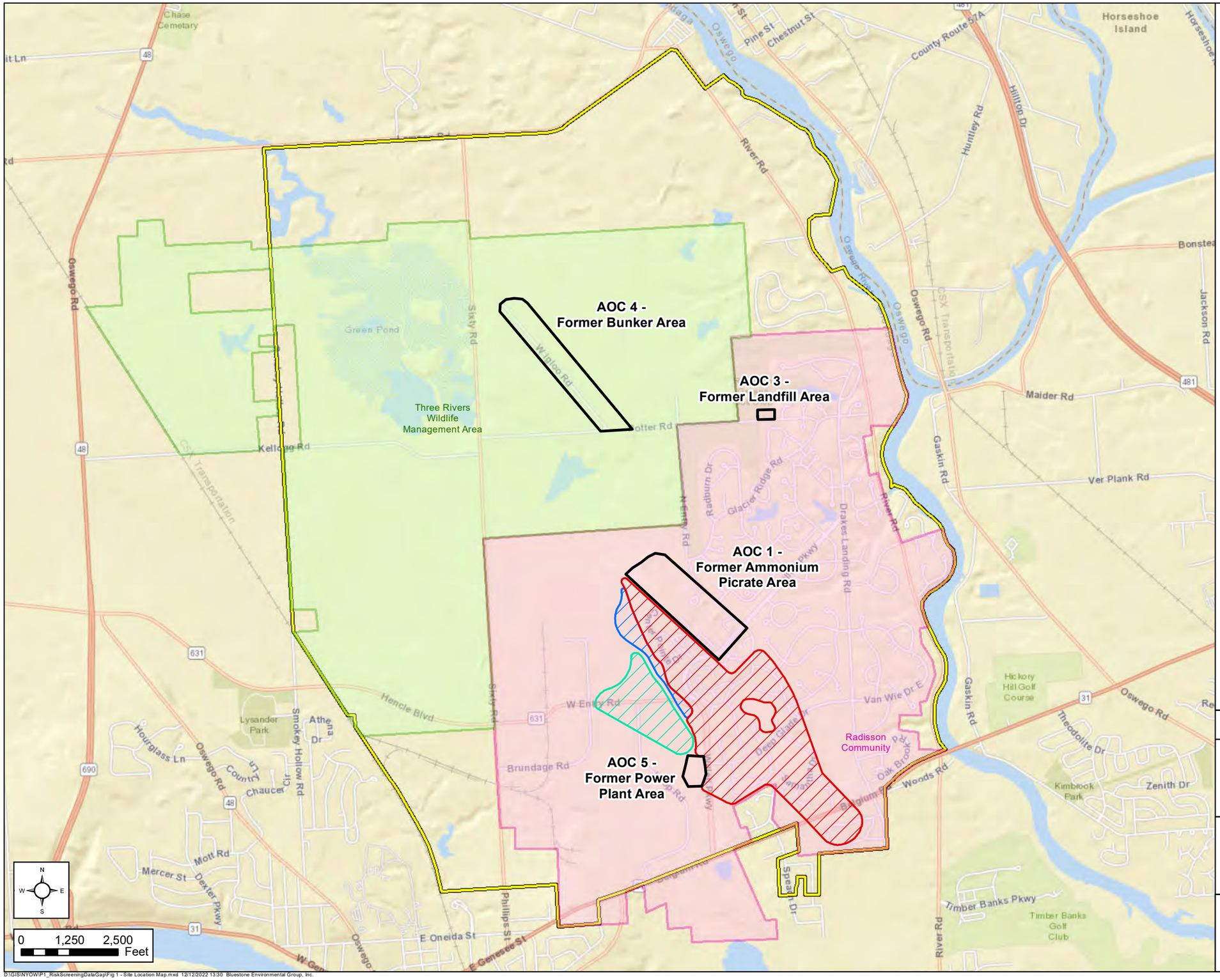



## Legend

- Areas of Concern (approx.)

**Background Sample Areas Based on Historic Soil Distribution (Pair, 2014)**

- Pd Unit
- Ps Unit
- Psc Unit
- Three Rivers Wildlife Management Area
- Radisson Community
- Former New York Ordnance Works

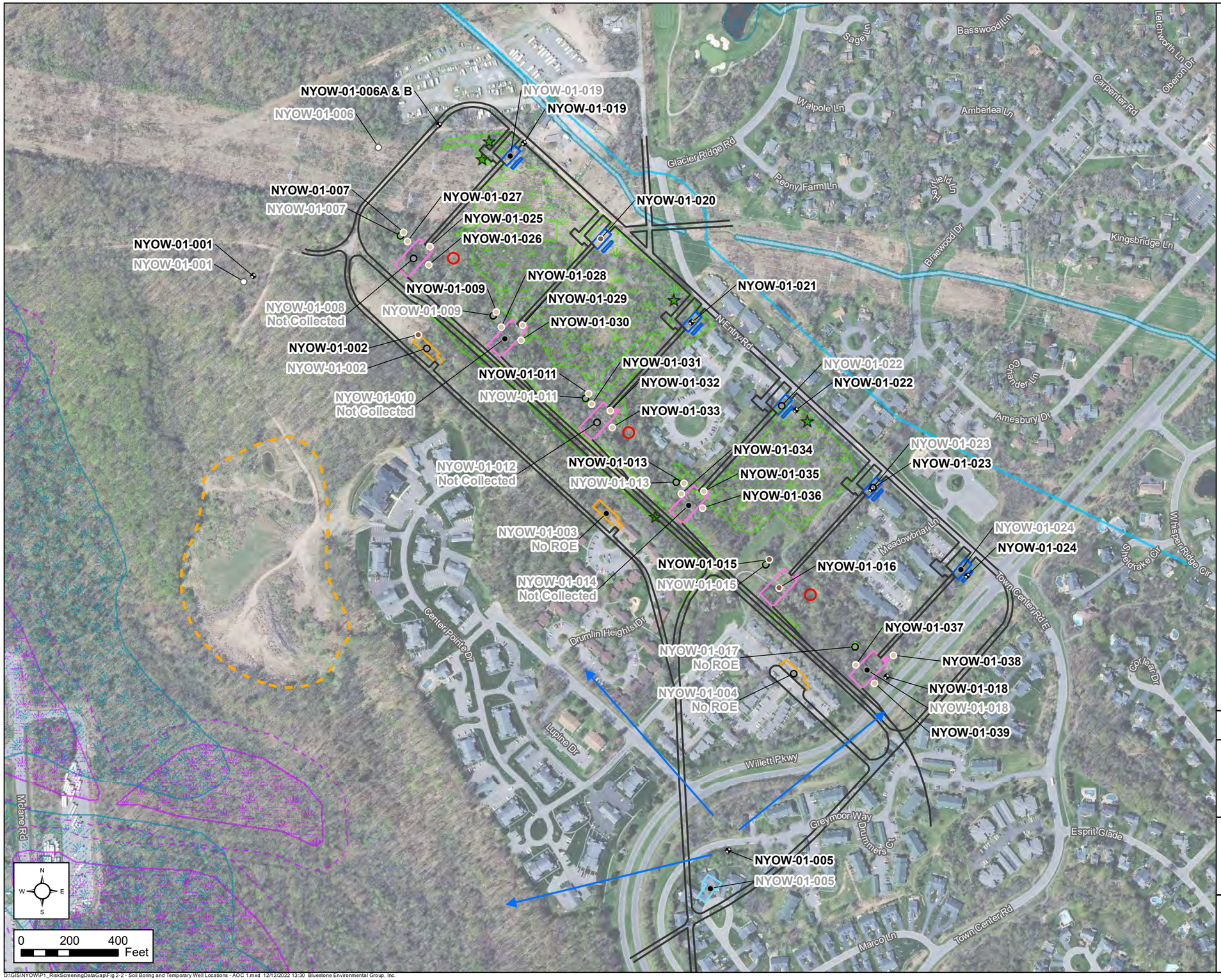
1. Surficial Geology of the Baldwinsville 7.5-Minute Quadrangle - Pair, 2014
2. NYOW FUDS boundary provided by USACE.
3. Three Rivers WMA and Radisson Community boundaries are approximate.
4. Basemap: Esri World Street Map
5. Inset Basemap: Esri USA, Major Cities,USA States, and Counties

**Figure 2-1**

**Site Location Map**

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 1 - Site Location Map.mxd 12/12/2022 13:30 Bluestone Environmental Group, Inc.




## Legend

**AOC 1 Sample Locations**

- Temporary Well and Co-located Surface/Subsurface Soil
- Surface/Subsurface Soil
- Surface Soil

**Proposed Sample Locations (Not Collected or Later Relocated)**

- Temporary Well and Co-located Surface/Subsurface Soil
- Temporary Well
- Surface/Subsurface Soil

Note: Proposed sample locations (labeled with gray text) are only shown where they differed from actual sample locations (labeled with black text).

- Extent of Observed Fill

**Historic Site Features (Approx.)**

- Ammonium Picrate Building
- Ammonium Picrate Magazine
- Change House
- Dryer House
- Former Acid Tank (Not FUDS-Eligible)
- Historical Site Feature
- Laboratory Building

- Local Groundwater Flow Direction
- Candidate Vernal Pool (May 2020)
- Former Wastewater Ditch
- Stream
- Wetland (May 2020)
- USFWS NWI Wetland
- NYS Freshwater Wetland 100-ft Buffer
- NYS Freshwater Wetland

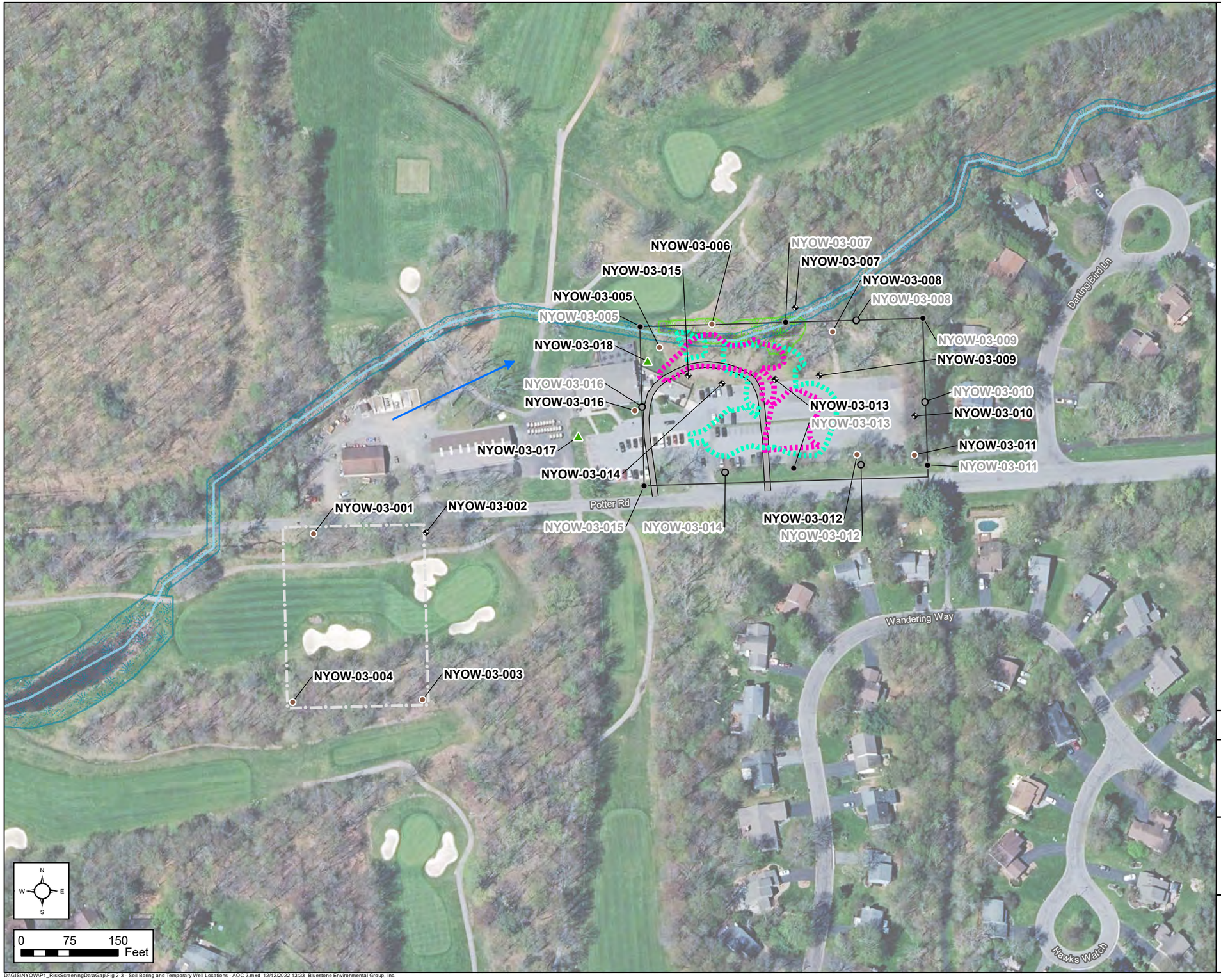
1. Historic site features - Site history brochure by RFC, undated
2. Local groundwater flow direction determined by monitoring well gauging in May 2021.
3. Candidate vernal pools and wetlands delineated in May 2020 by WRS.
4. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
5. NHD flowline - USGS, 2019
6. NWI wetlands - USFWS, 1981
7. NYS freshwater wetlands, Onondaga Co. - NYSDEC, 2010
8. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 2-2**

# Soil Boring and Temporary Well Locations - AOC 1

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 2-2 - Soil Boring and Temporary Well Locations - AOC 1.mxd 12/12/2022 13:30 Bluestone Environmental Group, Inc.




## Legend

**AOC 3 Sample Locations**

- Temporary Well and Co-located Surface/Subsurface Soil
- Surface/Subsurface Soil
- Vapor Intrusion

**Proposed Sample Locations (Later Relocated)**

- Temporary Well and Co-located Surface/Subsurface Soil
- Temporary Well
- Surface/Subsurface Soil Sample
- Proposed Vapor Intrusion Point

Note: Proposed sample locations (labeled with gray text) are only shown where they differed from actual sample locations (labeled with black text).

**Historic Site Features**

- August 1944 Dumping Extent
- Former Open Storage Area
- June 1949 Dumping Extent
- Former Landfill and Area of Concern
- Former U-Road

- Local Groundwater Flow Direction
- Stream
- Wetland (May 2020)
- USFWS NWI Wetland

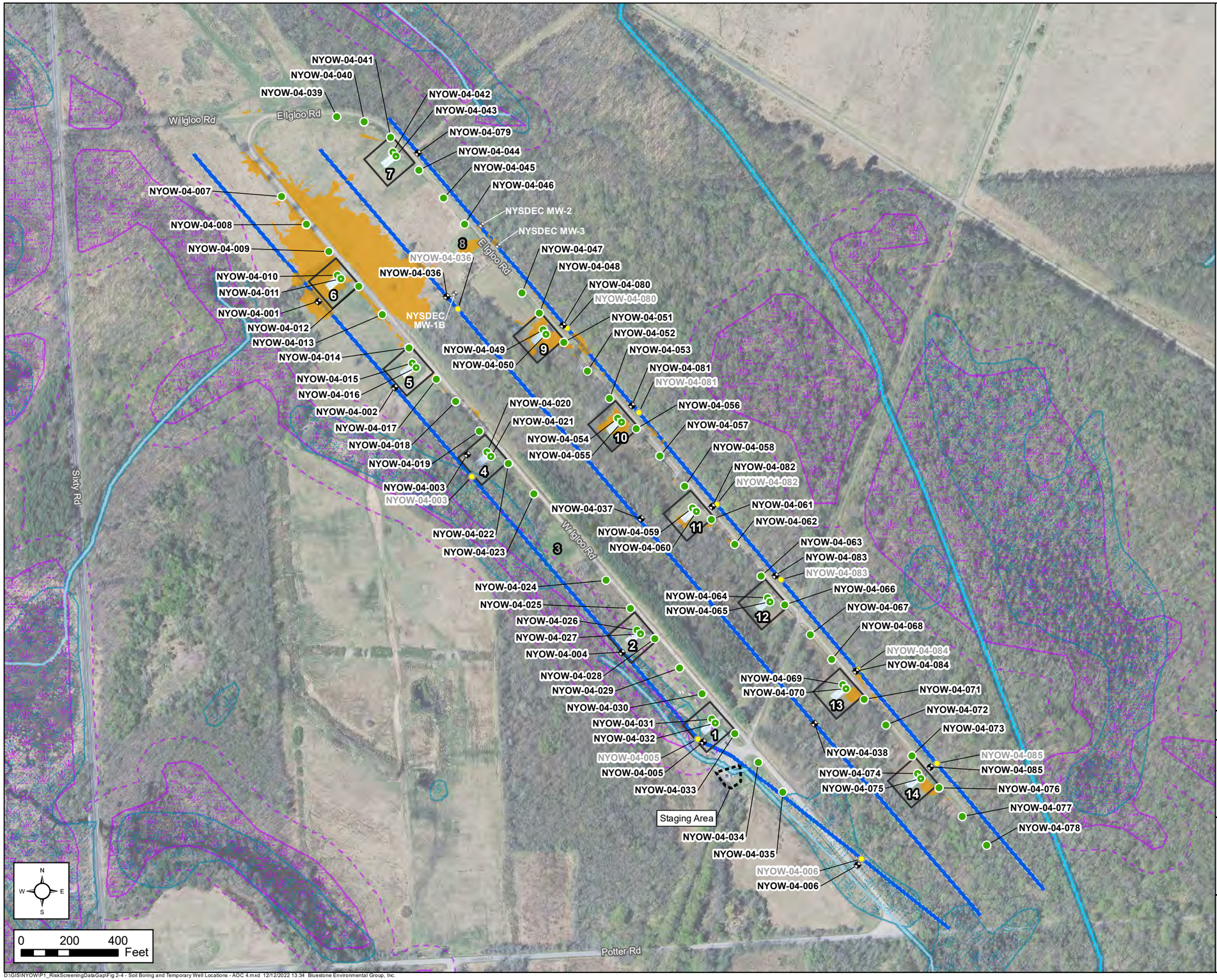
1. Historic Site Features - NYOW Historical Photographic Analysis Draft Report prepared by USACE Army Geospatial Center, Nov. 2019
2. Local groundwater flow direction determined by monitoring well gauging in May 2021
3. Wetlands delineated in May 2020 by WRS
4. NHD flowline - USGS, 2019
5. NWI wetlands - USFWS, 1981
6. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 2-3**

# Soil Boring and Temporary Well Locations - AOC 3

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 2-3 - Soil Boring and Temporary Well Locations - AOC 3.mxd 12/12/2022 13:33 Bluestone Environmental Group, Inc.




## Legend

**AOC 4 Sample Locations**

- Temporary Well and Co-located Surface/Subsurface Soil
- Subsurface Soil at Outlet
- Subsurface Soil in Swale

**Proposed Sample Locations (Later Relocated)**

- Temporary Well and Co-located Surface/Subsurface Soil

Note: Proposed sample locations (labeled with gray text) are only shown where they differed from actual sample locations (labeled with black text).

- Existing Bunker Number / ISM Decision Unit
- Former Bunker Number
- Pre-Existing Monitoring Well (NYSDEC, 1990)
- DPT Transect
- Staging Area
- ISM Decision Unit (0.5 acre)
- Former Wastewater Ditch
- Stream
- USFWS NWI Wetland
- NYS Freshwater Wetland 100-ft Buffer
- NYS Freshwater Wetland
- Swallow-wort Locations as of Jan 2021

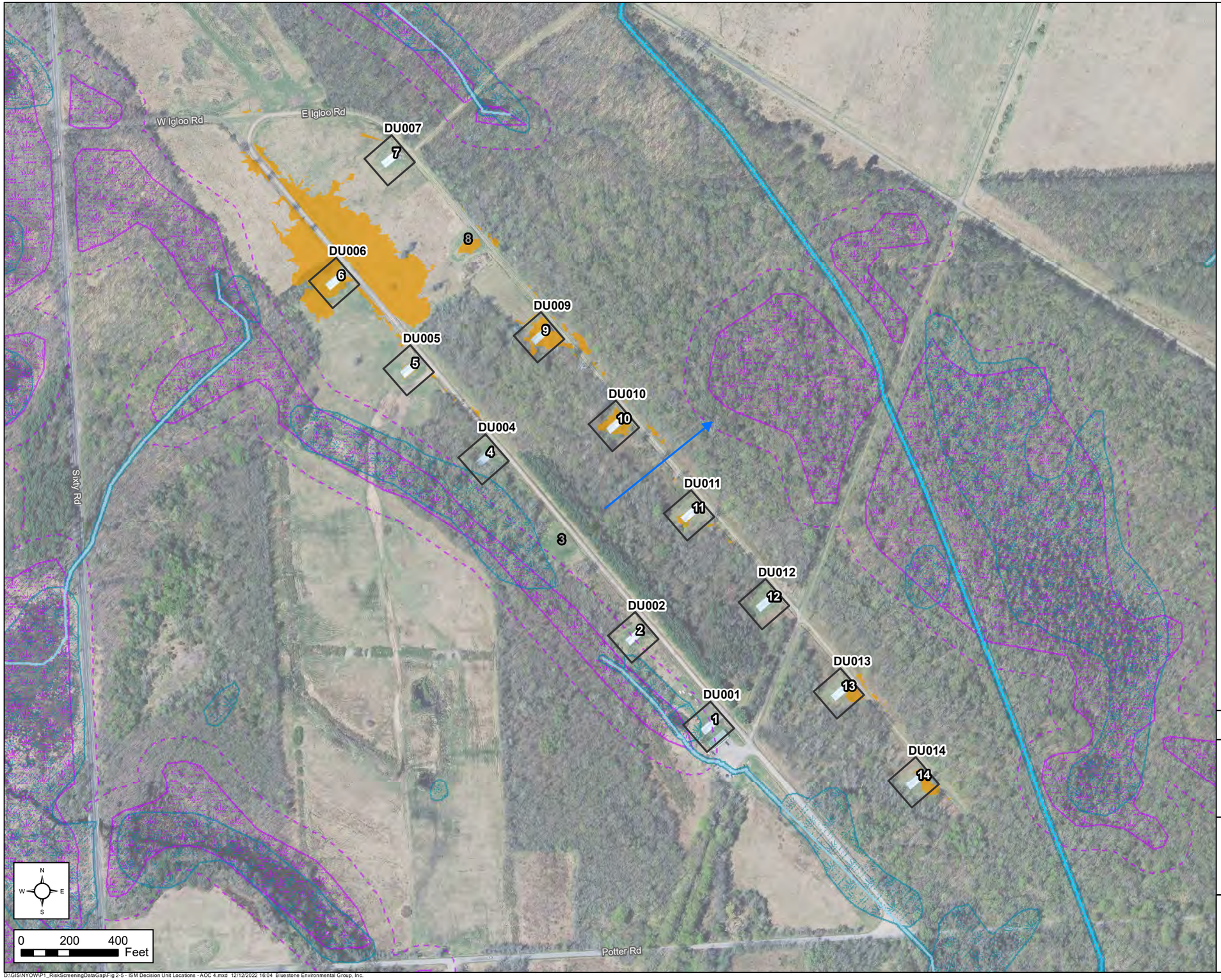
1. Pre-existing monitoring wells - NYSDEC, 1990
2. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
3. NHD flowline - USGS, 2019
4. NWI wetlands - USFWS, 1981
5. NYS freshwater wetlands, Onondaga Co. - NYSDEC, 2010
6. Swallow-wort mapping provided by NYSDEC in Jan. 2021.
7. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 2-4**

# Soil Boring and Temporary Well Locations - AOC 4

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 2-4 - Soil Boring and Temporary Well Locations - AOC 4.mxd 12/12/2022 13:34 Bluestone Environmental Group, Inc.




**Legend**

- Surface Soil ISM Decision Unit (DU) (0.5 acre)
- 1 Existing Bunker Number
- 8 Former Bunker Number
- Local Groundwater Flow Direction
- Former Wastewater Ditch
- Stream
- USFWS NWI Wetland
- NYS Freshwater Wetland 100-ft Buffer
- NYS Freshwater Wetland
- Swallow-wort Locations as of Jan 2021

1. Local groundwater flow direction determined by monitoring well gauging in May 2021
2. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
3. NHD flowline - USGS, 2019
4. NWI wetlands - USFWS, 1981
5. NYS freshwater wetlands, Onondaga Co. - NYSDEC, 2010
6. Swallow-wort mapping provided by NYSDEC in Jan. 2021
7. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 2-5**

**ISM Decision Unit Locations - AOC 4**

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

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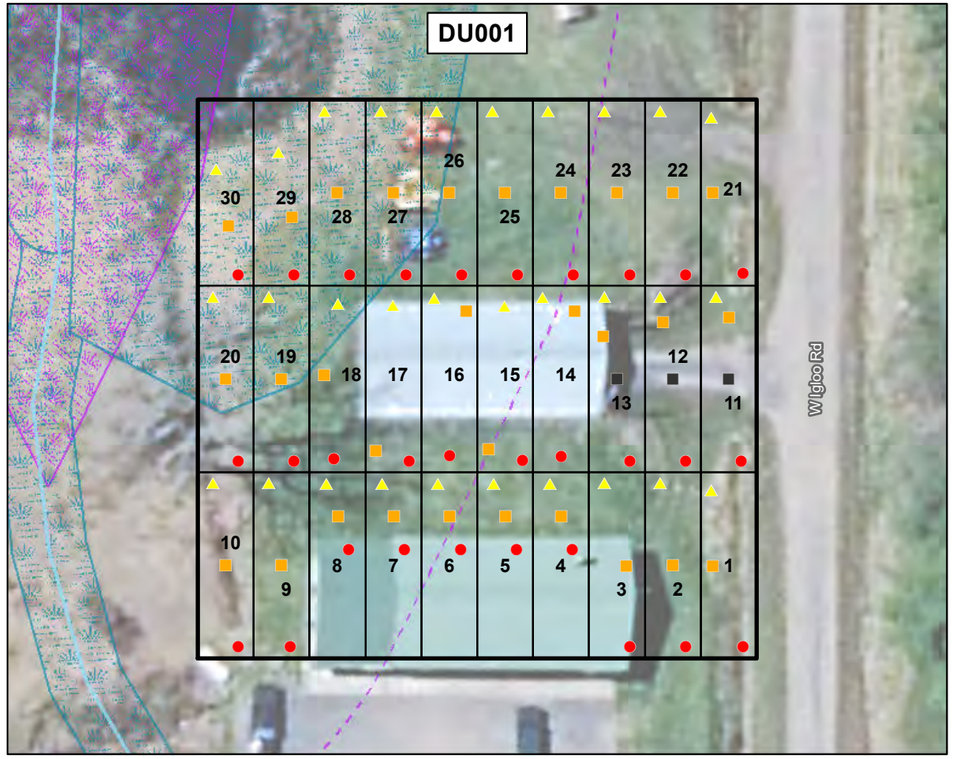


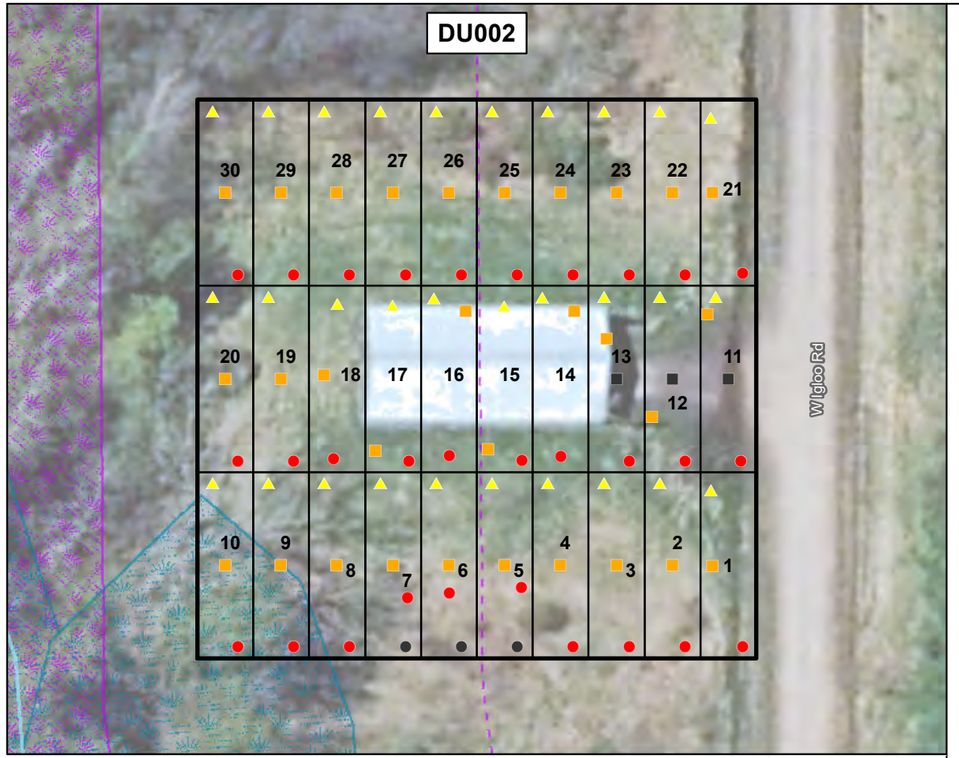


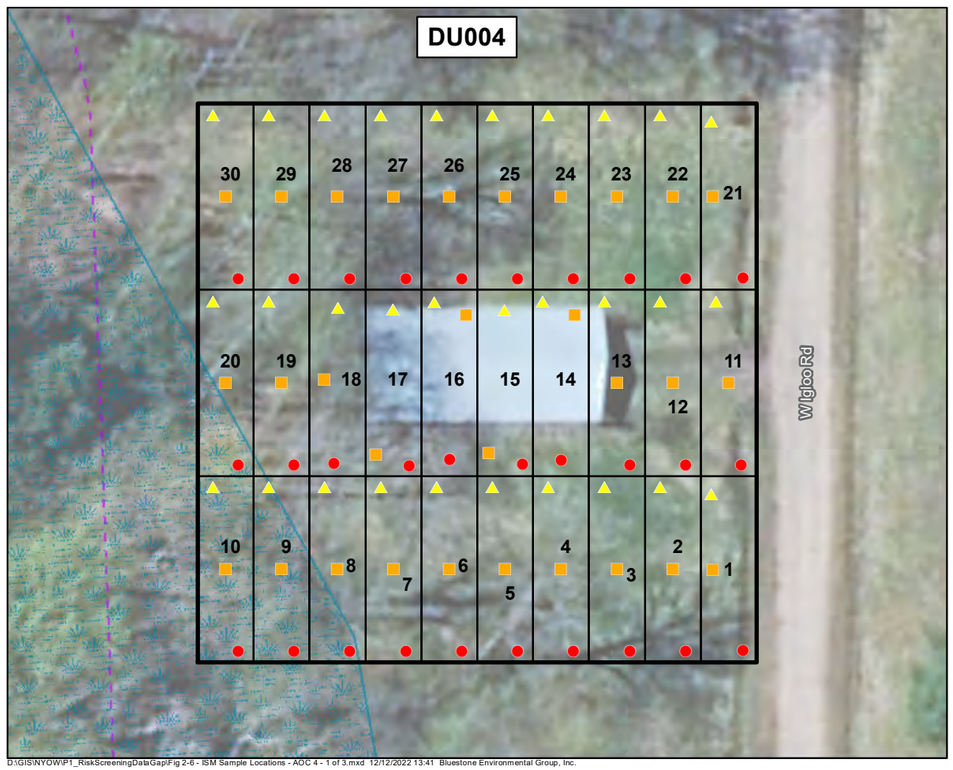


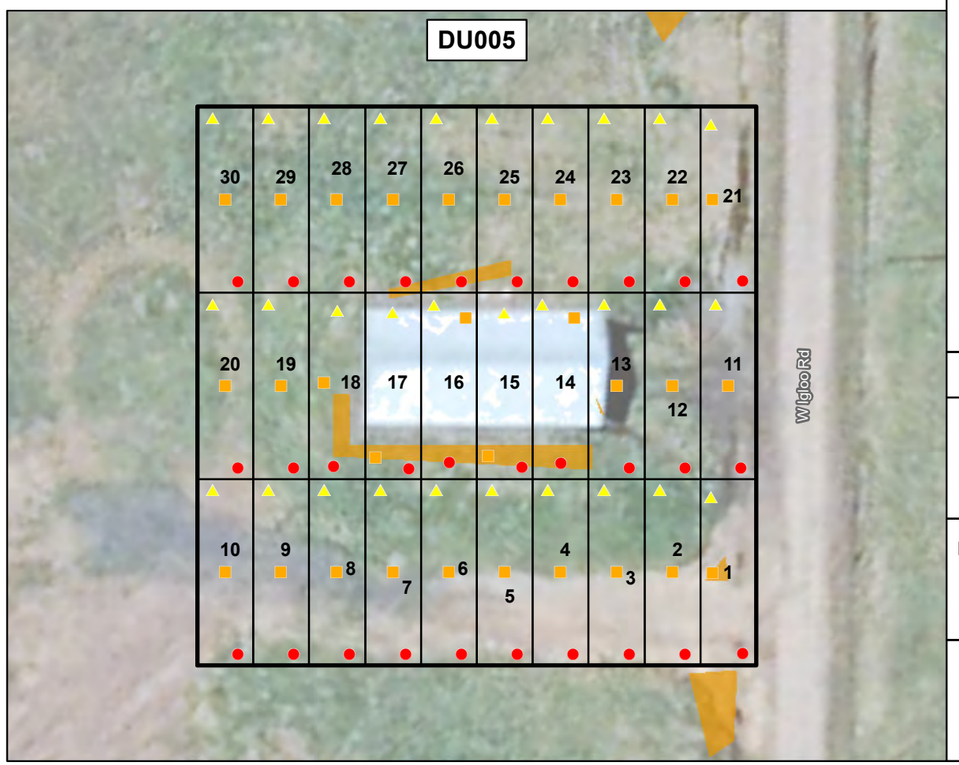


## Legend

**Surface Soil ISM Sample Locations**

- A
- B
- C

**Proposed Sample Locations (Later Relocated)**

- A
- B
- C

Note:
- Samples were collected in June 2021.
- Proposed sample locations are only shown where they differed from actual sample locations.
- No constituents exceeded Project Action Limits (PALs).

- ISM Decision Unit (DU) Increment (#1 through 30)
- Surface Soil ISM DU (0.5 acre)
- Stream
- USFWS NWI Wetland
- NYS Freshwater Wetland 100-ft Buffer
- NYS Freshwater Wetland
- Swallow-wort Locations as of Jan 2021

0 20 40 Feet

1. NHD flowline - USGS, 2019
2. NWI wetlands - USFWS, 1981
3. NYS freshwater wetlands, Onondaga Co. - NYSDEC, 2010
4. Swallow-wort mapping provided by NYSDEC in Jan. 2021
5. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 2-6**

# ISM Sample Locations - AOC 4 - DU001, 002, 004, and 005

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

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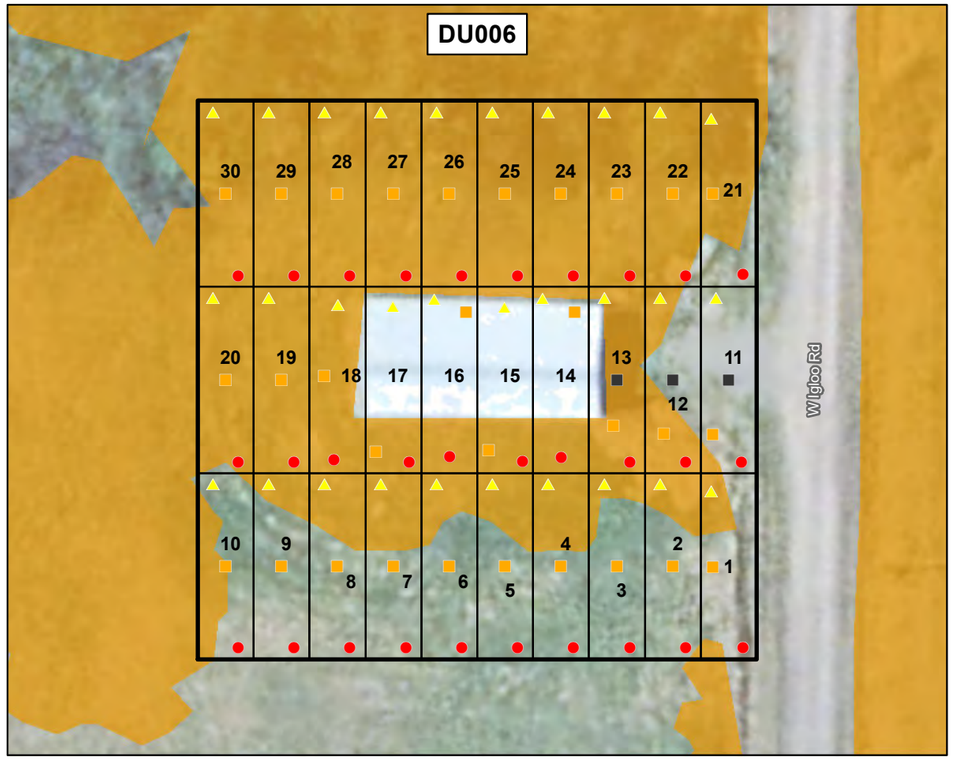
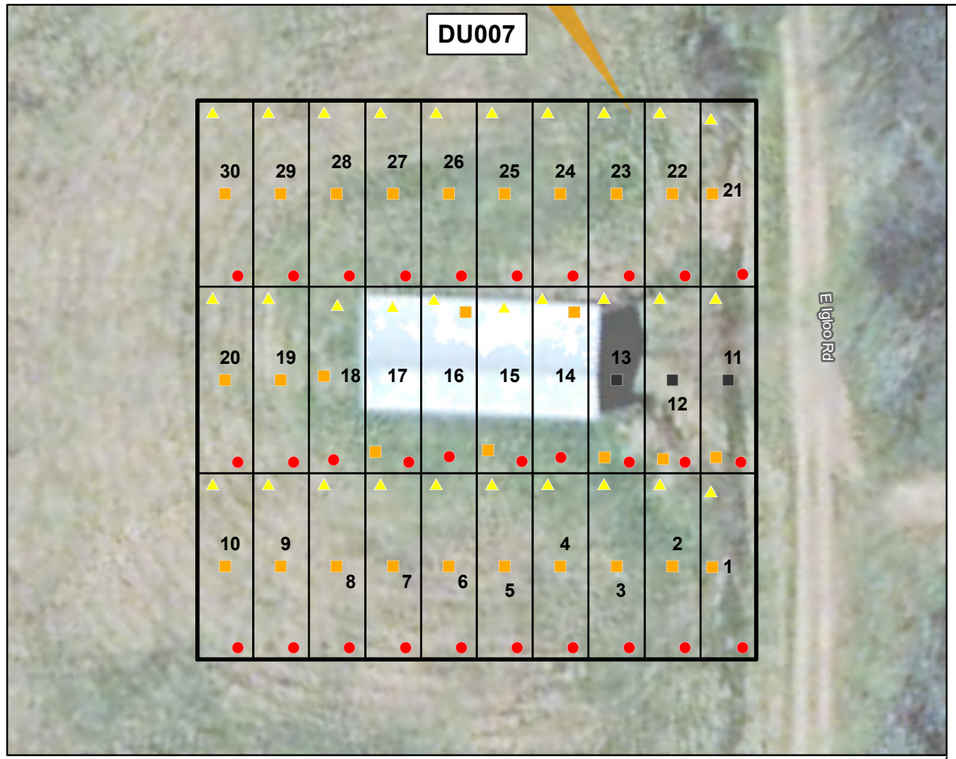
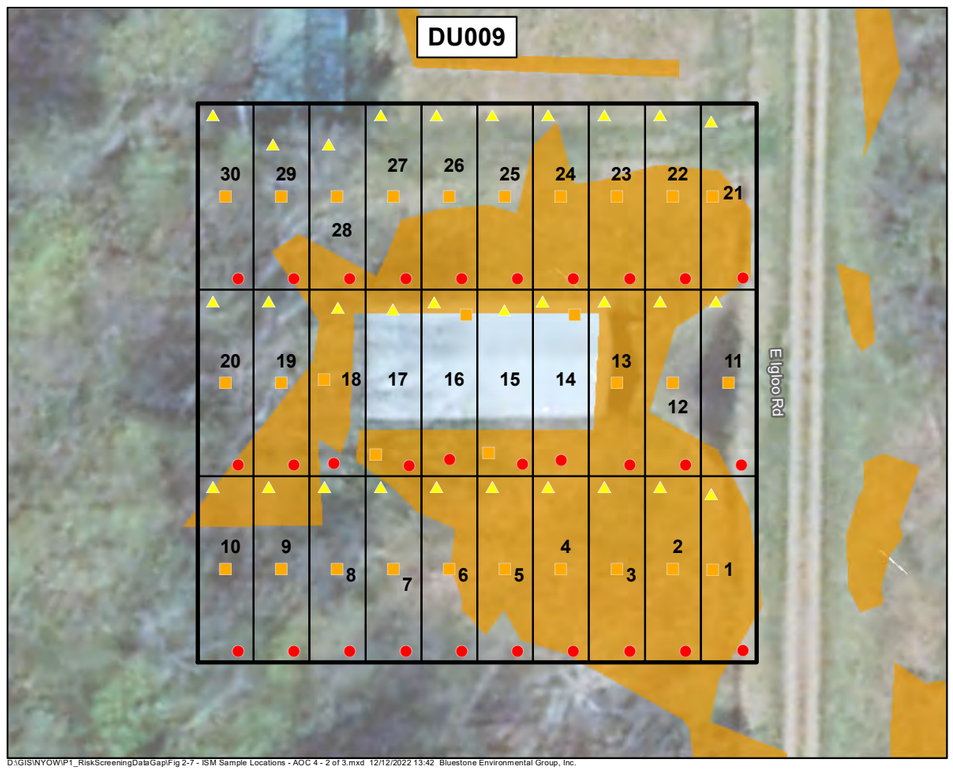
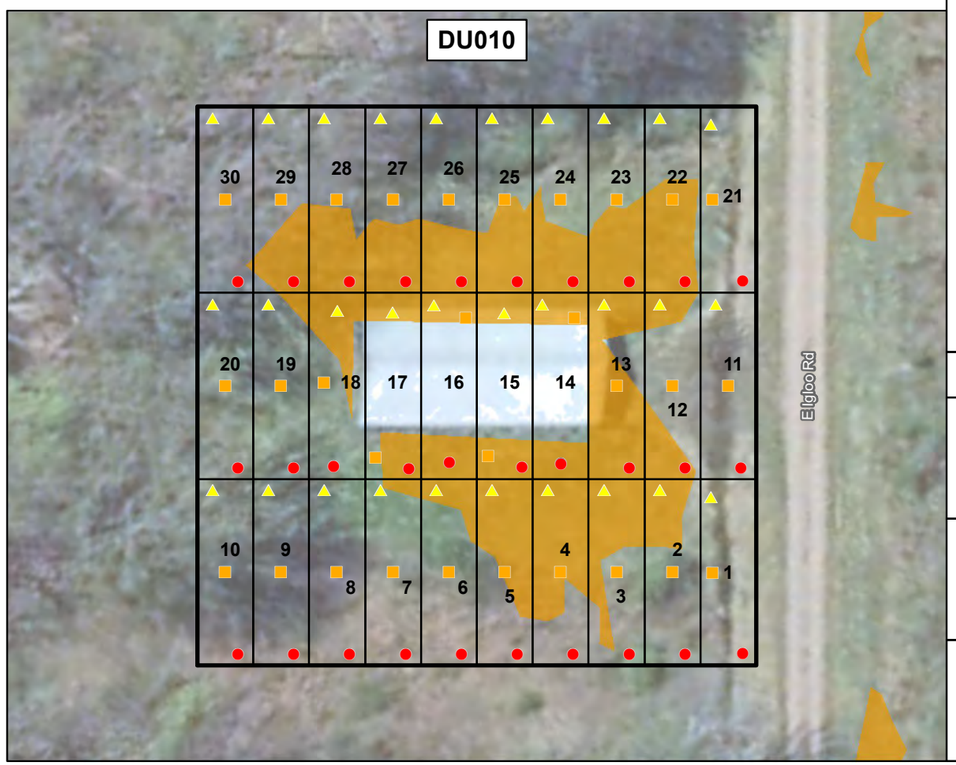



## Legend

**Surface Soil ISM Sample Locations**

- A
- B
- C

**Proposed Sample Locations (Later Relocated)**

- A
- B
- C

Note:
- Samples were collected in June 2021.
- Proposed sample locations are only shown where they differed from actual sample locations.
- No constituents exceeded Project Action Limits (PALs).

ISM Decision Unit (DU) Increment (#1 through 30)

Surface Soil ISM DU (0.5 acre)

Swallow-wort Locations as of Jan 2021

0 20 40 Feet

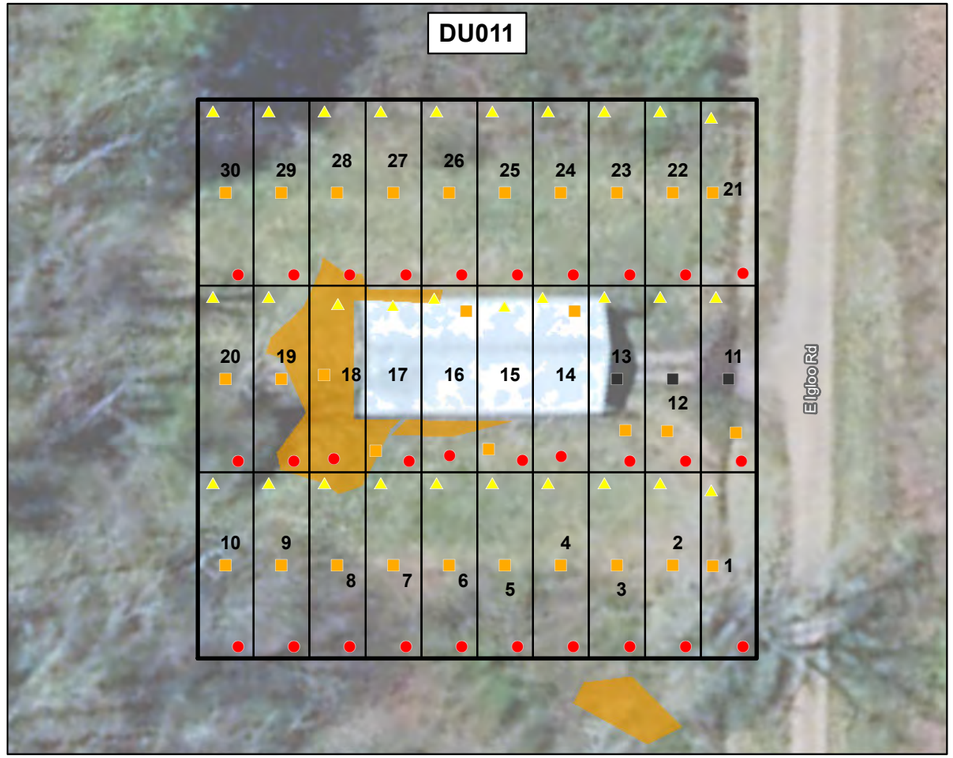
1. Swallow-wort mapping provided by NYSDEC in Jan. 2021
2. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

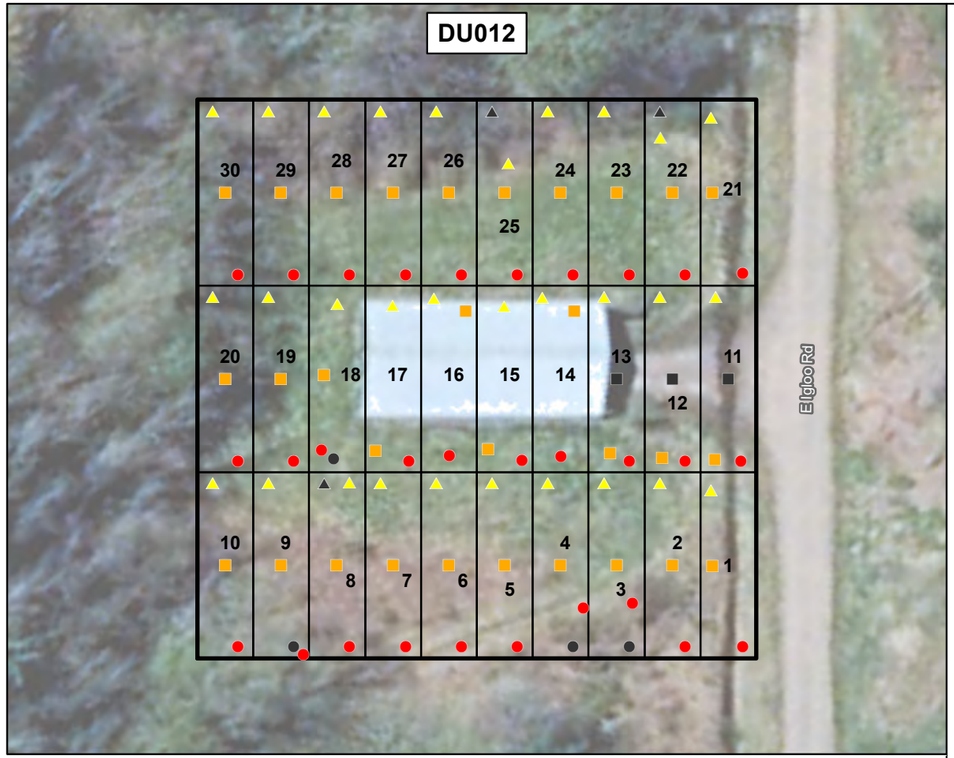
**Figure 2-7**

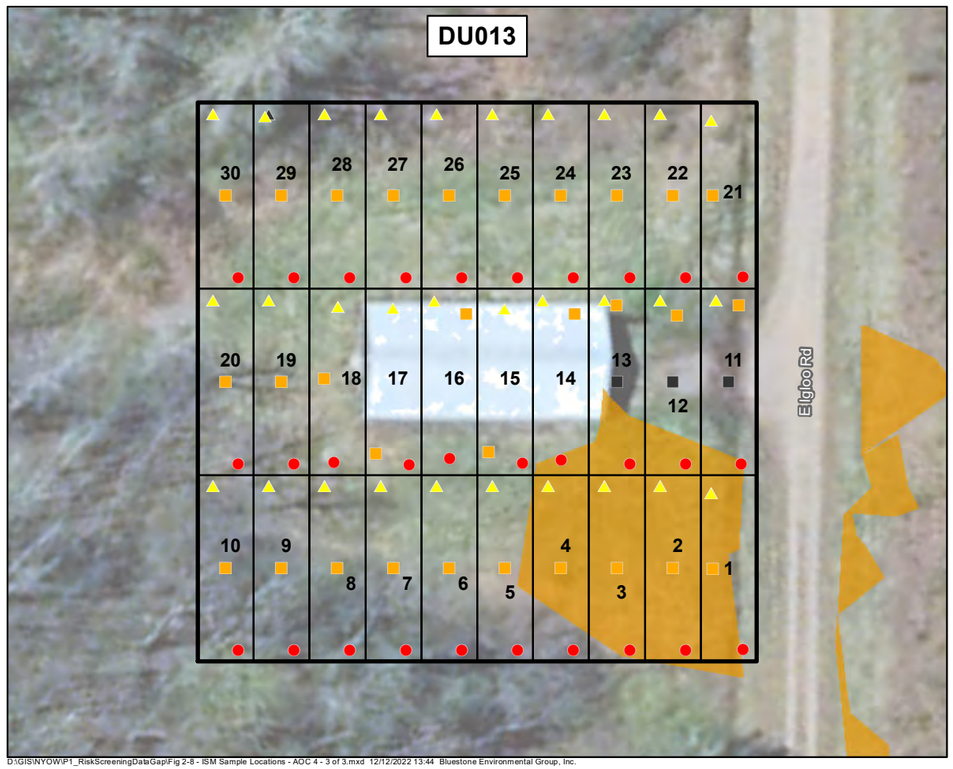
# ISM Sample Locations - AOC 4 - DU006, 007, 008, and 010

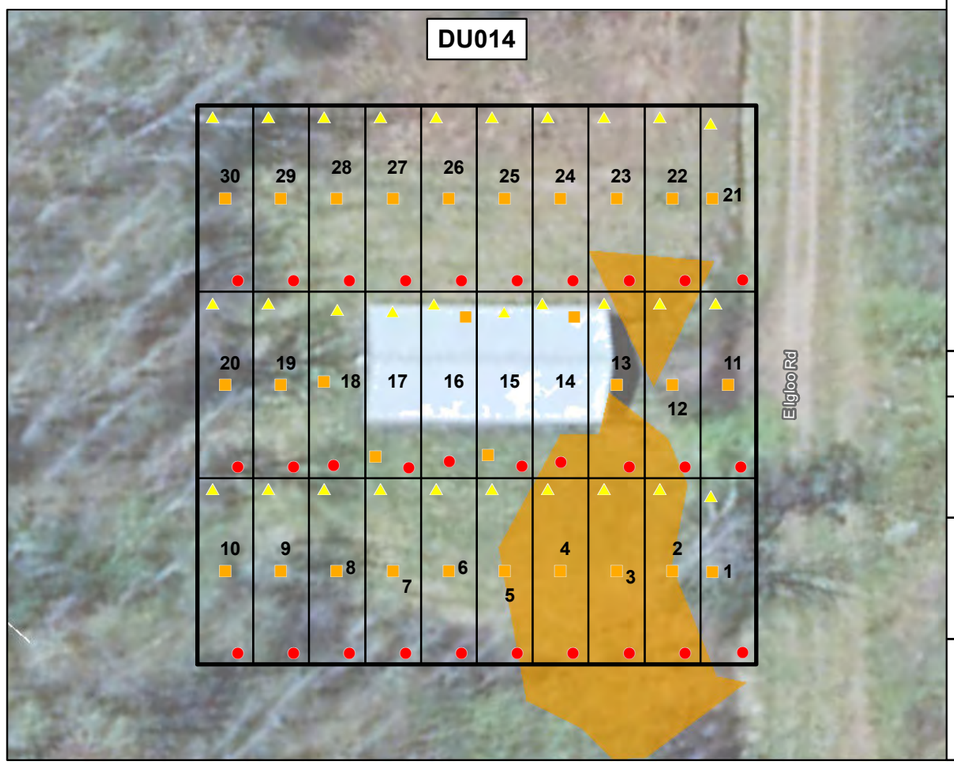
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 2-7 - ISM Sample Locations - AOC 4 - 2 of 3.mxd 12/12/2022 13:42 Bluestone Environmental Group, Inc.




## Legend

**Surface Soil ISM Sample Locations**

- A
- B
- C

**Proposed Sample Locations (Later Relocated)**

- A
- B
- C

Note:
- Samples were collected in June 2021.
- Proposed sample locations are only shown where they differed from actual sample locations.
- No constituents exceeded Project Action Limits (PALs).

ISM Decision Unit (DU) Increment (#1 through 30)

Surface Soil ISM DU (0.5 acre)

Swallow-wort Locations as of Jan 2021

0 20 40 Feet

1. Swallow-wort mapping provided by NYSDEC in Jan. 2021
2. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 2-8**

# ISM Sample Locations - AOC 4 - DU011, 012, 013, and 014

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 2-8 - ISM Sample Locations - AOC 4 - 3 of 3.mxd 12/12/2022 13:44 Bluestone Environmental Group, Inc.

## Legend

**AOC 5 Sample Locations**

- Temporary Well and Co-located Surface/Subsurface Soil
- Surface/Subsurface Soil

**Proposed Sample Locations (Later Relocated)**

- Temporary Well and Co-located Surface/Subsurface Soil

Note: Proposed sample locations (labeled with gray text) are only shown where they differed from actual sample locations (labeled with black text).

- Area of Concern (approx.)

**Historic Site Features**

- Drainage Ditch
- Railroad
- Road
- Road - Track
- Aboveground Storage Tank (AST)
- Coal Aggregate Bin (CAB)
- Coal Storage (Eroded)
- Boiler House
- Electric Substation
- Possible Dump
- Pipeline

- Candidate Vernal Pool (May 2020)
- Former Wastewater Ditch
- Wetland (May 2020)
- USFWS NWI Wetland

1. Historic site features provided by USACE in 2019.
2. Former wastewater ditch - RFC, undated; Dames & Moore, 1981
3. Wetland delineation - WRS, May 2020
4. NWI wetlands - USFWS, 1981
5. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery.

**Figure 2-9**

# Soil Boring and Temporary Well Locations - AOC 5

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**March 2023**

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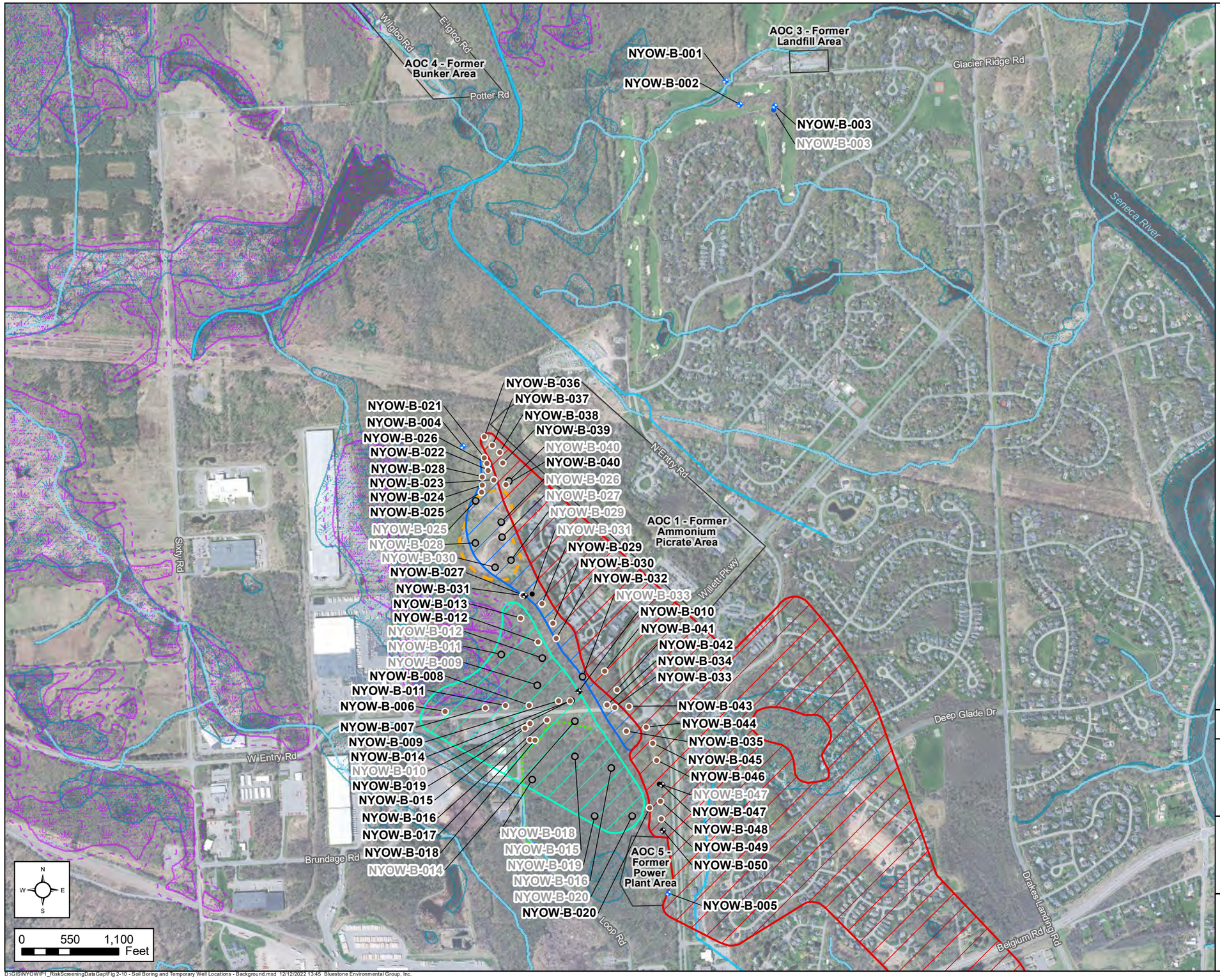


## Legend

**AOC 1 Sample Locations**

- Temporary Well
- Temporary Well and Co-located Surface/Subsurface Soil
- Surface/Subsurface Soil

**Proposed Sample Locations (Later Relocated)**

- Temporary Well and Co-Located Surface/ Subsurface Soil
- Grab Groundwater
- Surface/Subsurface Soil

Note: Proposed sample locations (labeled with gray text) are only shown where they differed from actual sample locations (labeled with black text).

**Proposed Background Sample Areas Based on Historic Soil Distribution (Pair, 2014)**

- Pd Unit - Diamicton
- Ps Unit - Stratified silt, sand, and gravel
- Psc Unit - Silt and clay

- Areas of Concern (AOCs)
- Extent of Observed Fill
- Former Wastewater Ditch
- Stream
- Approximate Edge of Wetland
- USFWS NWI Wetland
- NYS Freshwater Wetland 100-ft Buffer
- NYS Freshwater Wetland

1. Surficial Geology of the Baldwinsville 7.5-Minute Quadrangle - Pair, 2014
2. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
3. NHD flowline - USGS, 2019
4. NWI wetlands - USFWS, 1981
5. NYS freshwater wetlands, Onondaga Co. - NYSDEC, 2010
6. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 2-10**

# Soil Boring and Temporary Well Locations - Background

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 2-10 - Soil Boring and Temporary Well Locations - Background.mxd 12/12/2022 13:45 Bluestone Environmental Group, Inc.

# FIGURES
# Section 5

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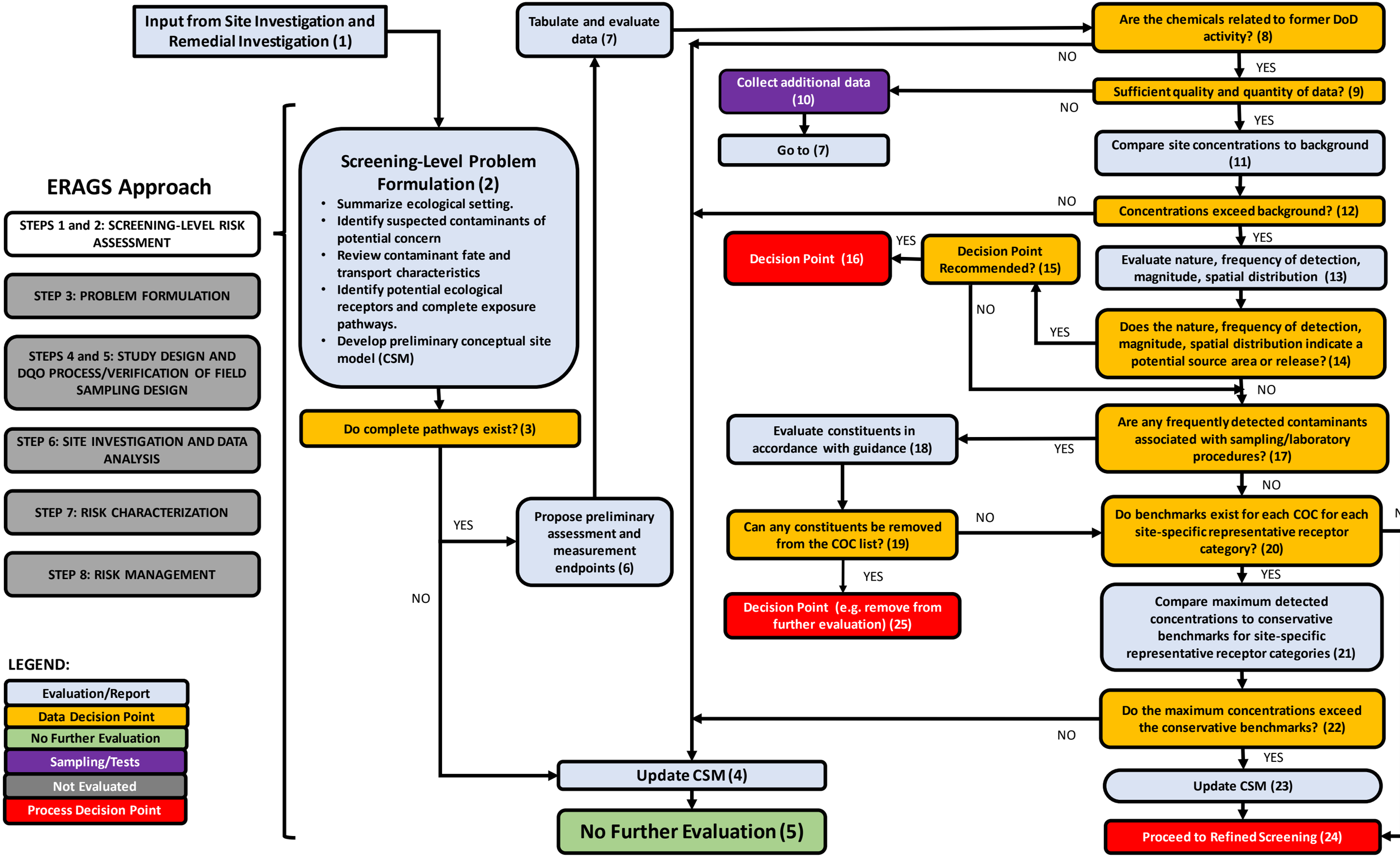
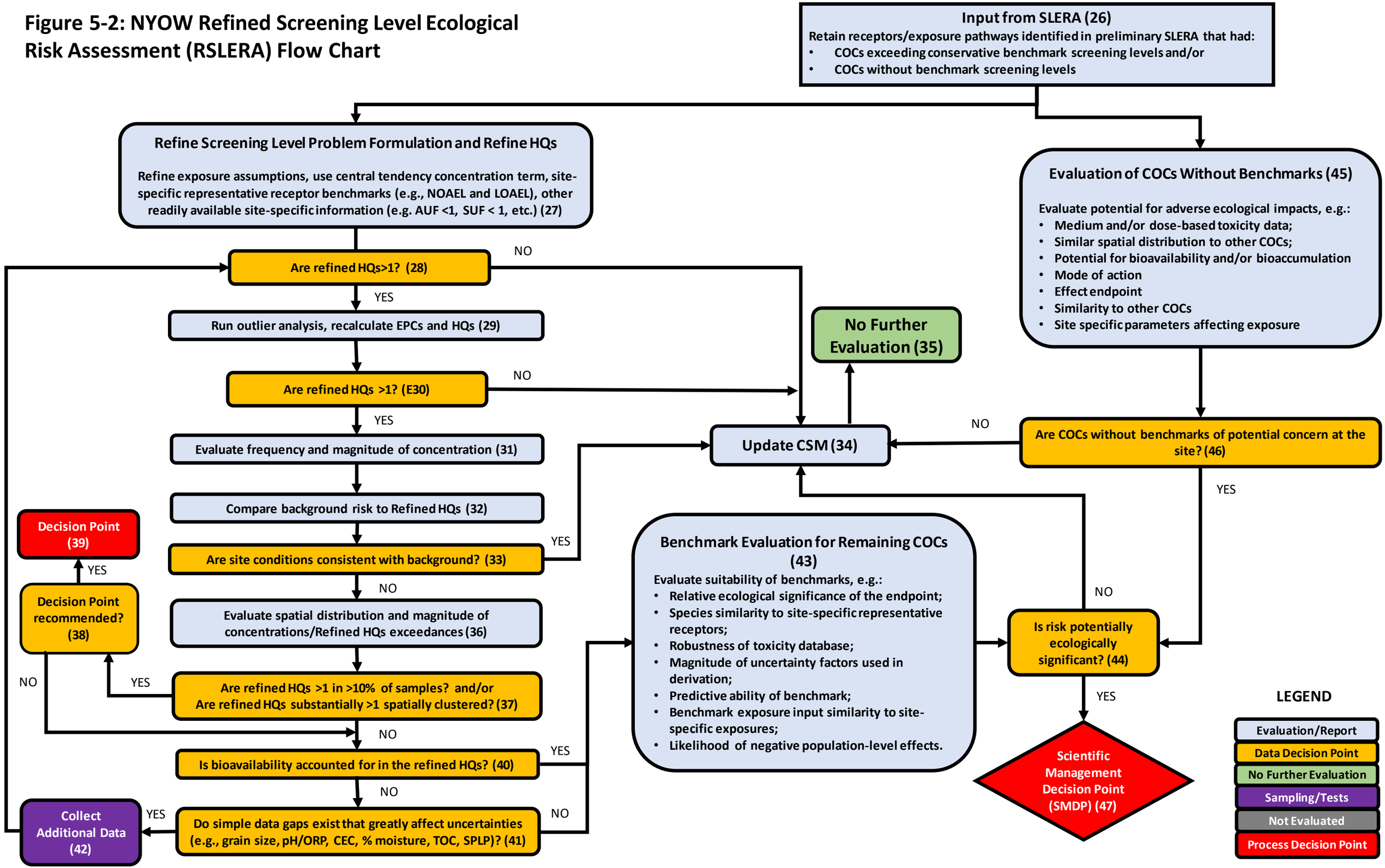
# Figure 5-1: NYOW - Screening Level Ecological Risk Assessment (SLERA) Flow Chart



# Figure 5-2: NYOW Refined Screening Level Ecological Risk Assessment (RSLERA) Flow Chart



# FIGURES
# Section 7

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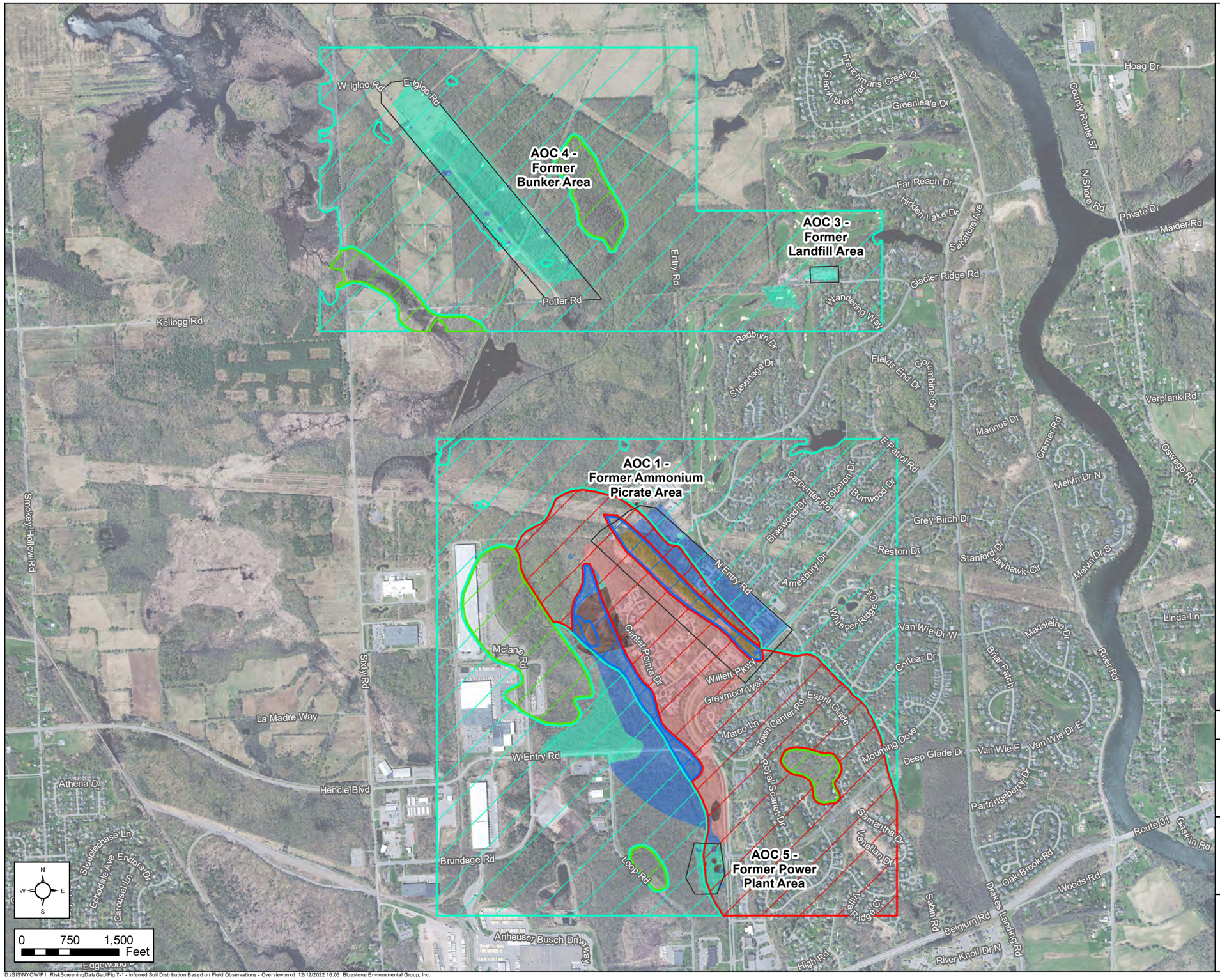



D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 7-1 - Inferred Soil Distribution Based on Field Observations - Overview.mxd 12/12/2022 16:03 Bluestone Environmental Group, Inc.

## Legend

- Area of Concern

**Historic Soil Distribution (Pair, 2014)**

- Pd
- Ps
- Psc
- Hw

**Inferred Soil Distribution Based on Field Observations**

- Fill
- Topsoil*
- Pd
- Ps
- Psc

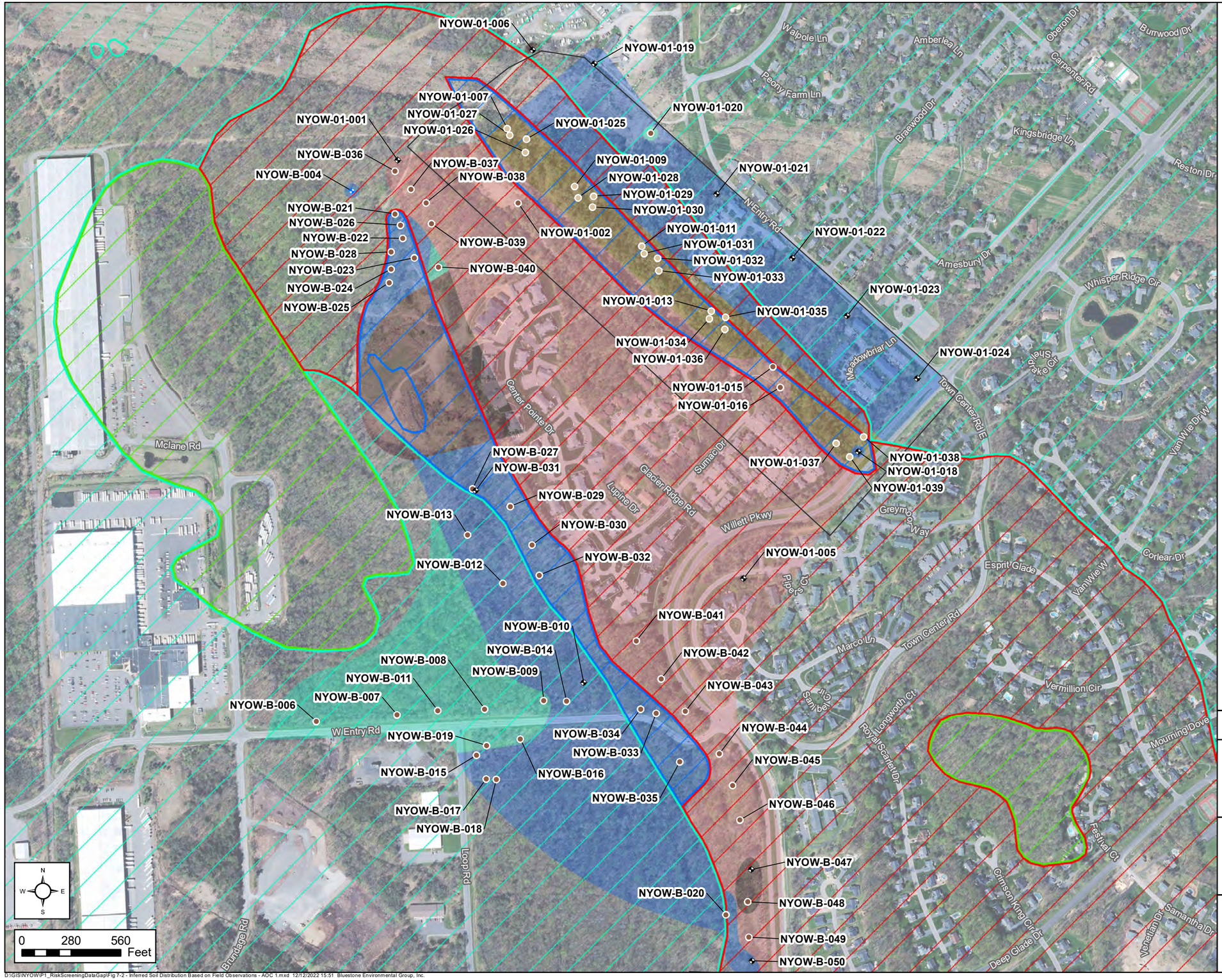
*Location sampled from the 0 to 1 ft bgs depth interval only; therefore, classified as topsoil.

1. Historic soil distribution from Surficial Geology of the Baldwinsville 7.5-Minute Quadrangle, Onondaga and Oswego Counties, New York(Pair, 2014).
2. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 7-1**

**Inferred Soil Distribution Based on Field Observations - Overview**

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**




## Legend

**Phase 1 Sample Location**

- Temporary Well
- Temporary Well and Co-located Surface/Subsurface Soil
- Surface/Subsurface Soil
- Surface Soil
- Area of Concern

**Historic Soil Distribution (Pair, 2014)**

- Pd
- Ps
- Psc
- Hw

**Inferred Soil Distribution Based on Field Observations**

- Fill
- Topsoil*
- Pd
- Ps
- Psc

*Location sampled from the 0 to 1 ft bgs depth interval only; therefore, classified as topsoil.

1. Historic soil distribution from Surficial Geology of the Baldwinsville 7.5-Minute Quadrangle, Onondaga and Oswego Counties, New York(Pair, 2014).
2. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 7-2**

# Inferred Soil Distribution Based on Field Observations - AOC 1

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 7-2 - Inferred Soil Distribution Based on Field Observations - AOC 1.mxd 12/12/2022 15:51 Bluestone Environmental Group, Inc.

## Legend

**Phase 1 Sample Location**

- Temporary Well
- Temporary Well and Co-located Surface/Subsurface Soil
- Surface/Subsurface Soil
- Vapor Intrusion
- Area of Concern

**Historic Soil Distribution (Pair, 2014)**

- Psc

**Inferred Soil Distribution Based on Field Observations**

- Psc

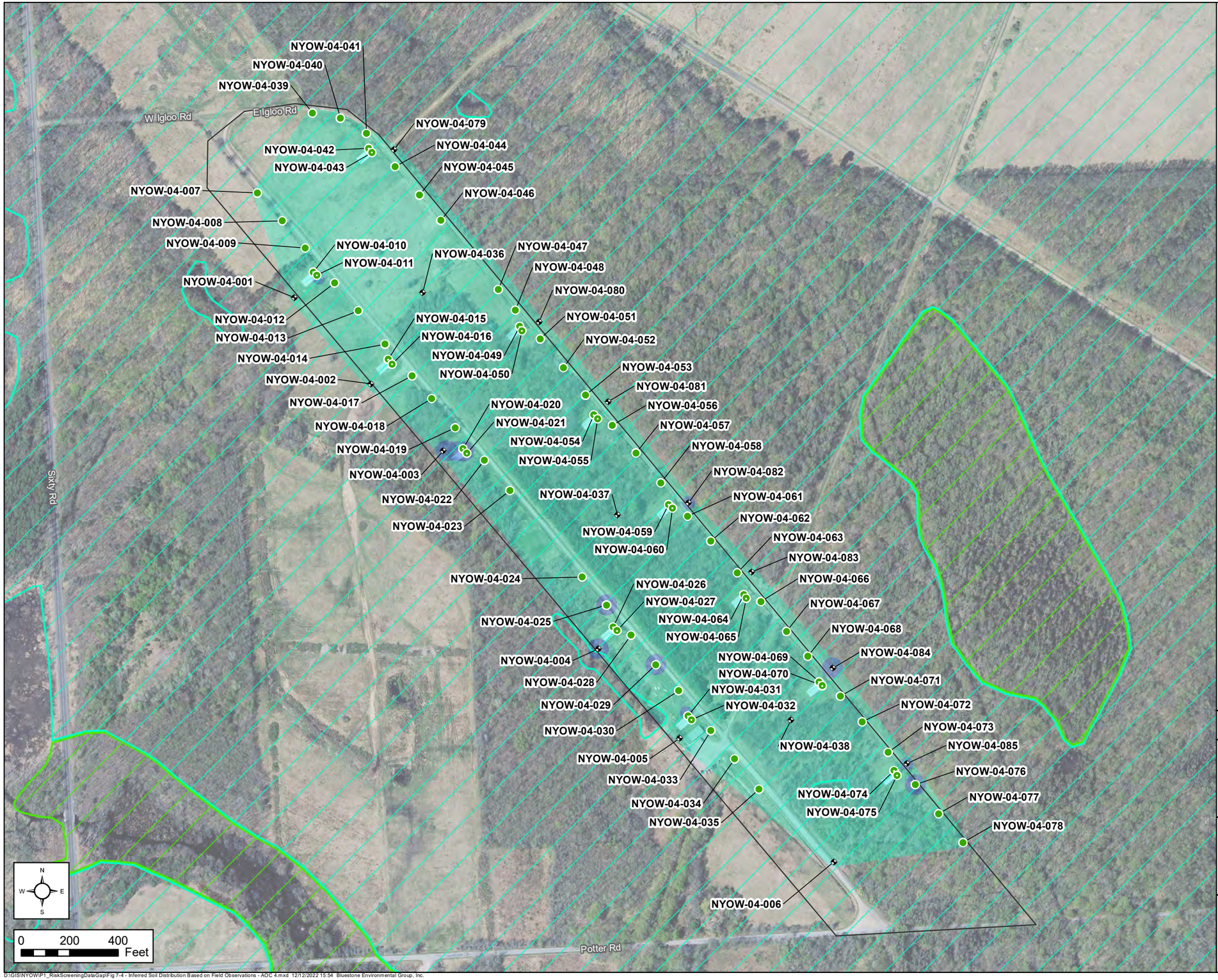
1. Historic soil distribution from Surficial Geology of the Baldwinsville 7.5-Minute Quadrangle, Onondaga and Oswego Counties, New York(Pair, 2014).
2. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 7-3**

# Inferred Soil Distribution Based on Field Observations - AOC 3

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 7-3 - Inferred Soil Distribution Based on Field Observations - AOC 3.mxd 12/12/2022 15:54 Bluestone Environmental Group, Inc.




D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 7-4 - Inferred Soil Distribution Based on Field Observations - AOC 4.mxd 12/12/2022 15:54 Bluestone Environmental Group, Inc.

## Legend

**Phase 1 Sample Location**

- Temporary Well and Co-located Surface/Subsurface Soil
- Subsurface Soil at Outlet
- Subsurface Soil in Swale
- Area of Concern

**Historic Soil Distribution (Pair, 2014)**

- Psc
- Hw

**Inferred Soil Distribution Based on Field Observations**

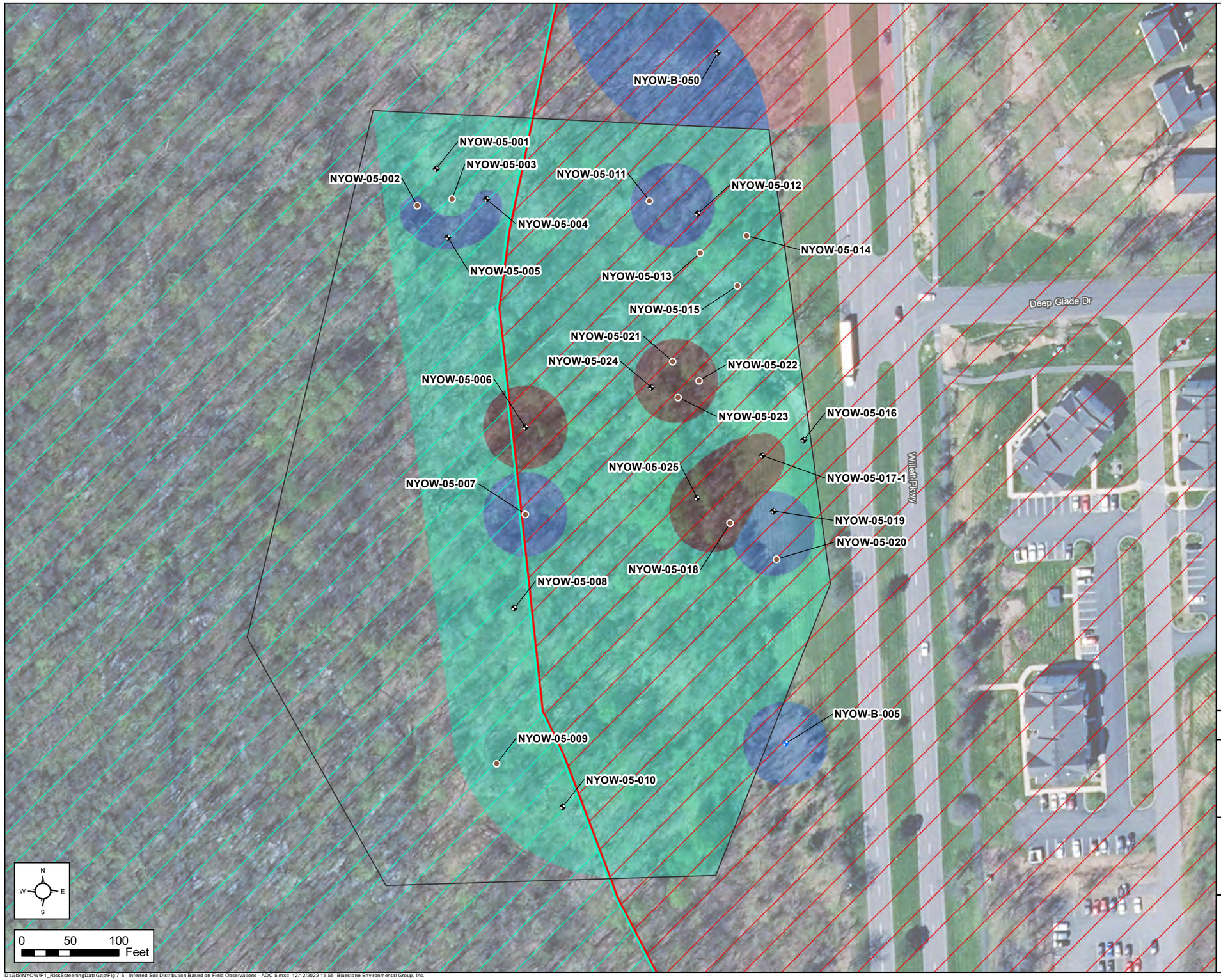
- Ps
- Psc

1. Historic soil distribution from Surficial Geology of the Baldwinsville 7.5-Minute Quadrangle, Onondaga and Oswego Counties, New York(Pair, 2014).
2. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 7-4**

# Inferred Soil Distribution Based on Field Observations - AOC 4

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**




## Legend

**Phase 1 Sample Location**

- Temporary Well
- Temporary Well and Co-located Surface/Subsurface Soil
- Surface/Subsurface Soil
- Area of Concern

**Historic Soil Distribution (Pair, 2014)**

- Pd
- Psc

**Inferred Soil Distribution Based on Field Observations**

- Fill
- Pd
- Ps
- Psc

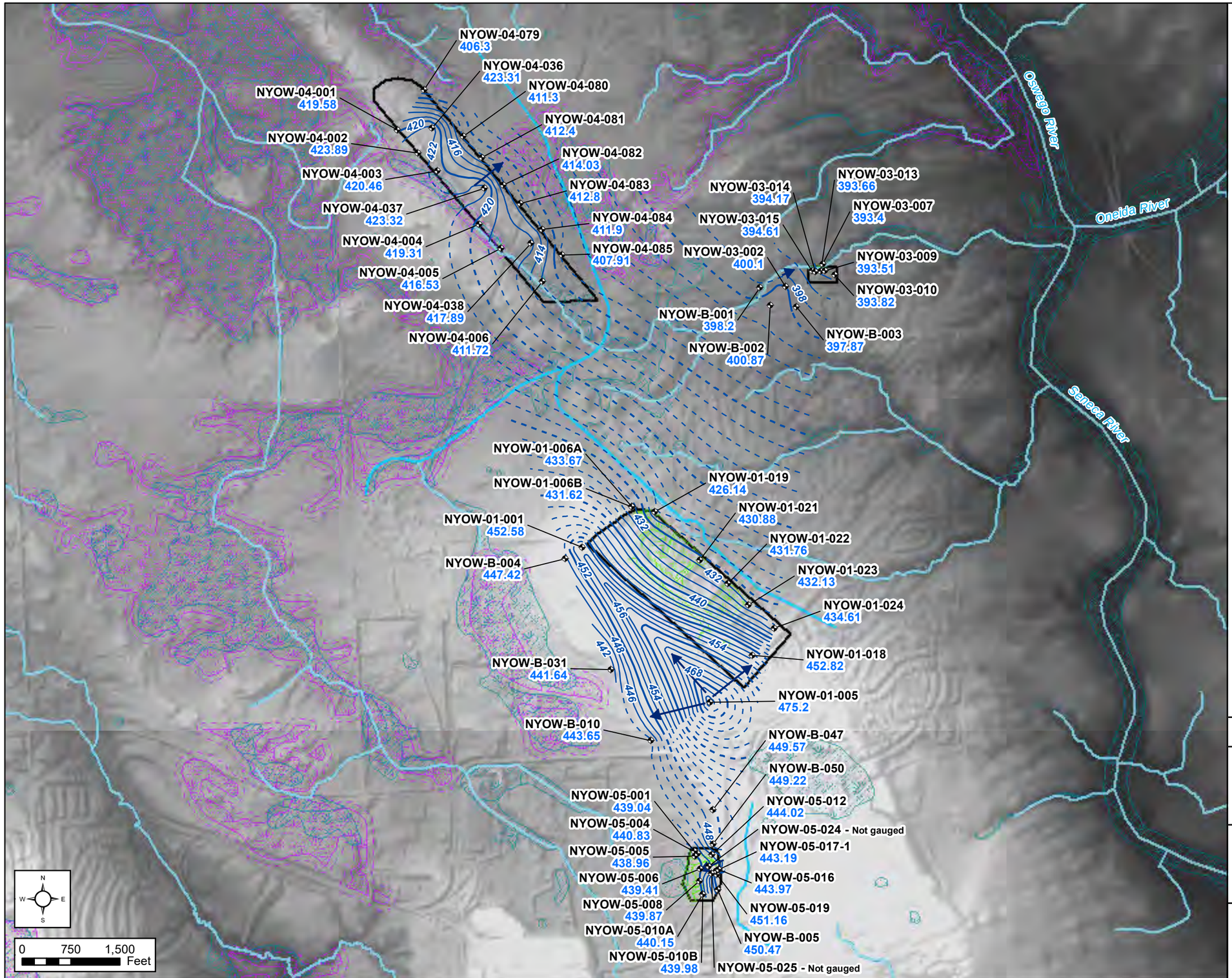
1. Historic soil distribution from Surficial Geology of the Baldwinsville 7.5-Minute Quadrangle, Onondaga and Oswego Counties, New York(Pair, 2014).
2. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 7-5**

# Inferred Soil Distribution Based on Field Observations - AOC 5

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 7-5 - Inferred Soil Distribution Based on Field Observations - AOC 5.mxd 12/12/2022 15:55 Bluestone Environmental Group, Inc.




## Legend

- Monitoring Well — Labeled with May 2021 Groundwater Elevation (ft)

**Groundwater Contour - May 2021**

**Dashed where inferred**

- 10 ft
- 2 ft
- Flow Direction
- Former Wastewater Ditch
- Stream
- Wetland (May 2020)
- USFWS NWI Wetland
- NYS Freshwater Wetland 100-ft Buffer
- NYS Freshwater Wetland
- Area of Concern

**Ground Surface Elevation**

High : 519 feet

Low : 358 feet

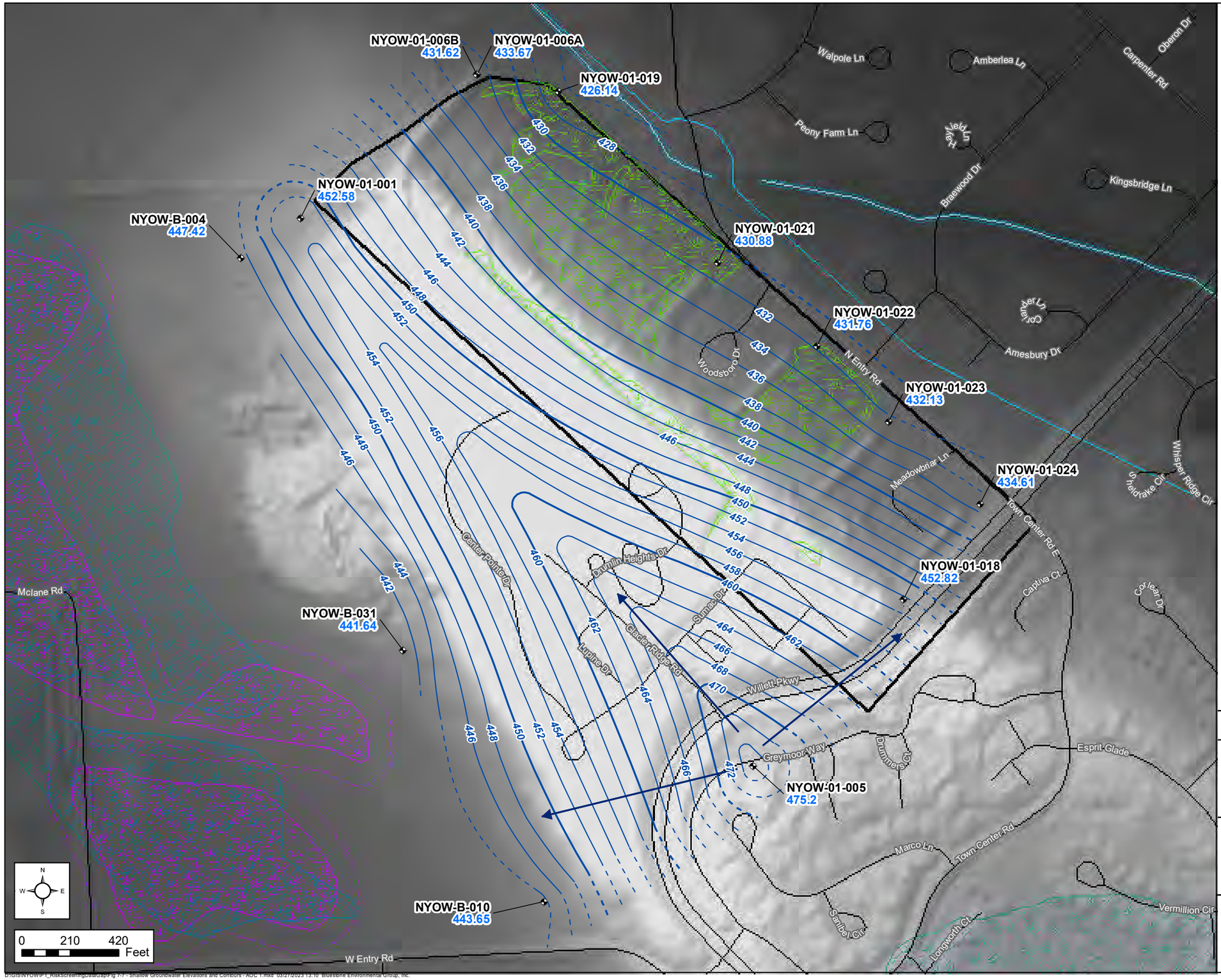
1. Local groundwater flow direction determined by monitoring well gauging in May 2021.
2. Wetlands delineated in May 2020 by WRS.
3. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
4. NHD flowline - USGS, 2019
5. NWI wetlands - USFWS, 1981
6. NYS freshwater wetlands, Onondaga Co. - NYSDEC, 2010
7. Basemap: Esri Terrain 3D. Source data for areas shown include 2012 FEMA USGS Seneca Watershed Lidar and 2018 NYS Cayuga-Oswego County Lidar.

**Figure 7-6**

# Shallow Groundwater Elevations and Contours - Overview

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**March 2023**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 7-6 - Shallow Groundwater Elevations and Contours - Overview.mxd 03/27/2023 13:08 Bluestone Environmental Group, Inc.




## Legend

- Monitoring Well — Labeled with May 2021 Groundwater Elevation (ft)

**Groundwater Contour - May 2021**

**Dashed where inferred**

- 10 ft
- 2 ft
- Flow Direction
- Road
- Former Wastewater Ditch
- Stream
- Wetland (May 2020)
- USFWS NWI Wetland
- NYS Freshwater Wetland 100-ft Buffer
- NYS Freshwater Wetland
- Area of Concern

**Ground Surface Elevation**

High : 519 feet

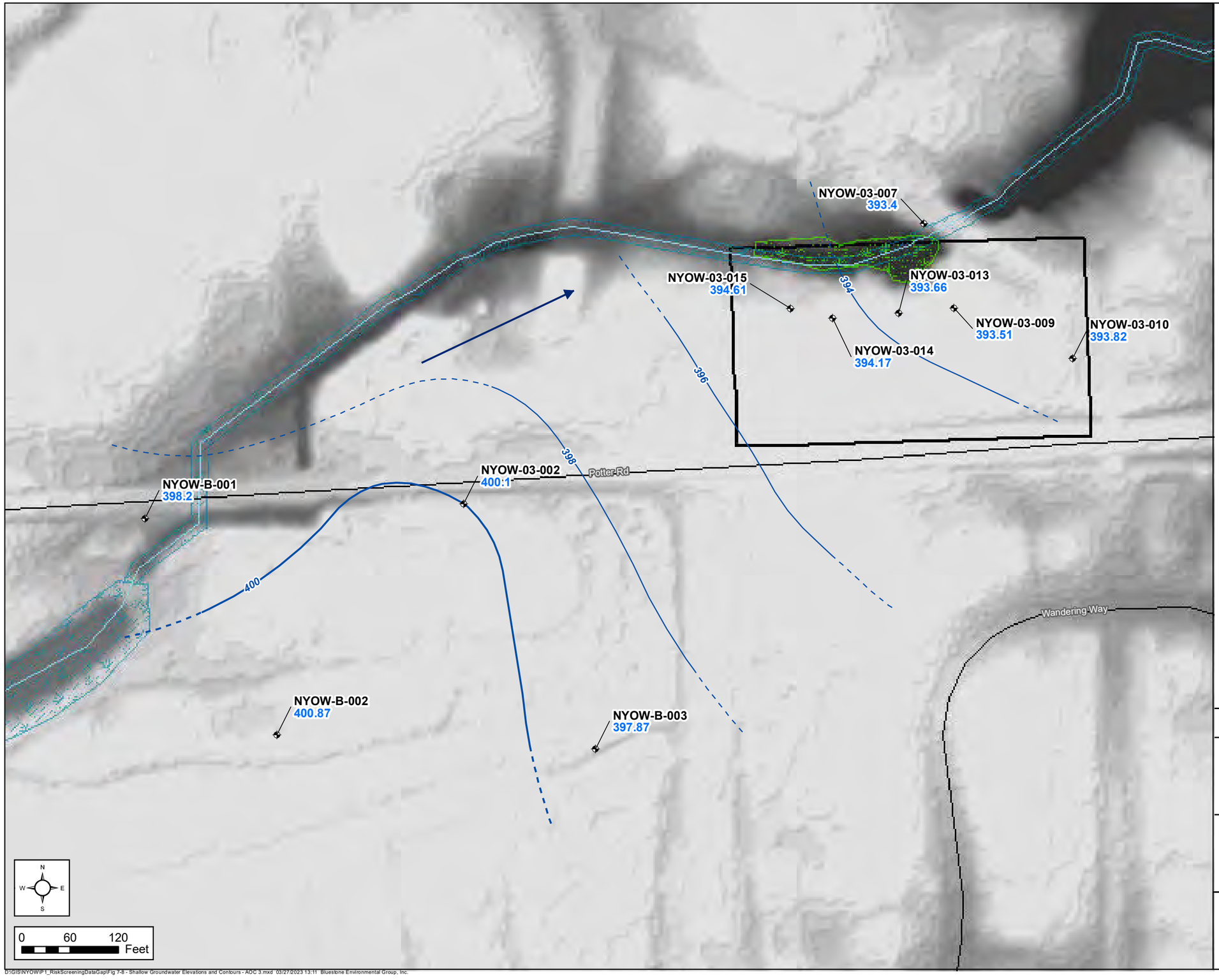
Low : 407 feet

1. Local groundwater flow direction determined by monitoring well gauging in May 2021.
2. Wetlands delineated in May 2020 by WRS.
3. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
4. NHD flowline - USGS, 2019
5. NWI wetlands - USFWS, 1981
6. NYS freshwater wetlands, Onondaga Co. - NYSDEC, 2010
7. Basemap: Esri Terrain 3D. Source data for areas shown include 2012 FEMA USGS Seneca Watershed Lidar and 2018 NYS Cayuga-Oswego County Lidar.

**Figure 7-7**

# Shallow Groundwater Elevations and Contours - AOC 1

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**March 2023**




## Legend

- Monitoring Well — Labeled with May 2021 Groundwater Elevation (ft)

**Groundwater Contour - May 2021**

**Dashed where inferred**

- 10 ft
- 2 ft
- Flow Direction
- Road
- Stream
- Wetland (May 2020)
- USFWS NWI Wetland
- Area of Concern

**Ground Surface Elevation**

High : 413 feet

Low : 385 feet

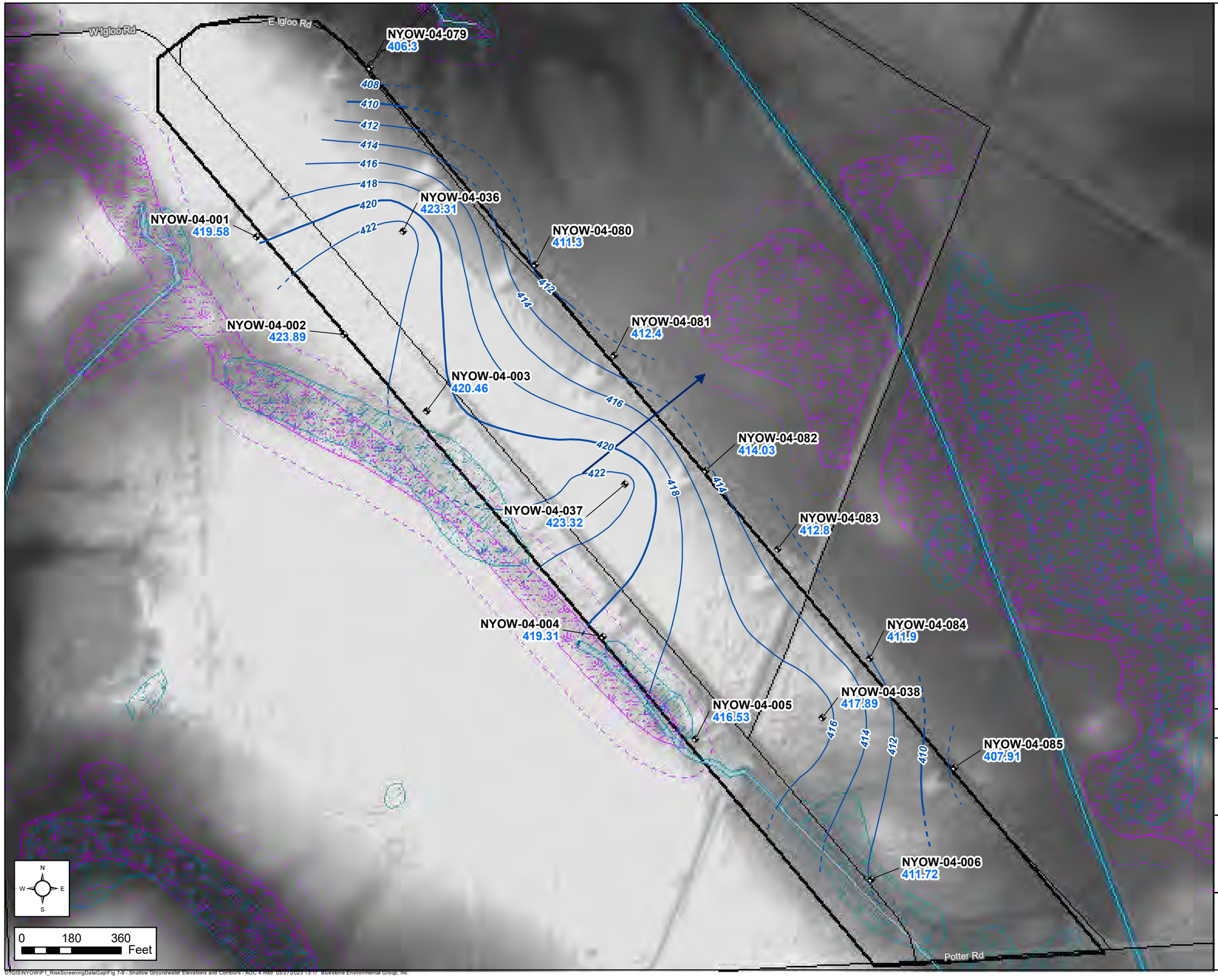
1. Local groundwater flow direction determined by monitoring well gauging in May 2021.
2. Wetlands delineated in May 2020 by WRS.
3. NHD flowline - USGS, 2019
4. NWI wetlands - USFWS, 1981
5. Basemap: Esri Terrain 3D. Source data for areas shown include 2012 FEMA USGS Seneca Watershed Lidar and 2018 NYS Cayuga-Oswego County Lidar.

**Figure 7-8**

# Shallow Groundwater Elevations and Contours - AOC 3

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**March 2023**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 7-8 - Shallow Groundwater Elevations and Contours - AOC 3.mxd 03/27/2023 13:11 Bluestone Environmental Group, Inc.




D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 7-9 - Shallow Groundwater Elevations and Contours - AOC 4.mxd 03/27/2023 13:17 Bluestone Environmental Group, Inc.

## Legend

- Monitoring Well — Labeled with May 2021 Groundwater Elevation (ft)

**Groundwater Contour - May 2021**

**Dashed where inferred**

- 10 ft
- 2 ft
- Flow Direction
- Road
- Former Wastewater Ditch
- Stream
- USFWS NWI Wetland
- NYS Freshwater Wetland 100-ft Buffer
- NYS Freshwater Wetland
- Area of Concern

**Ground Surface Elevation**

High : 437 feet

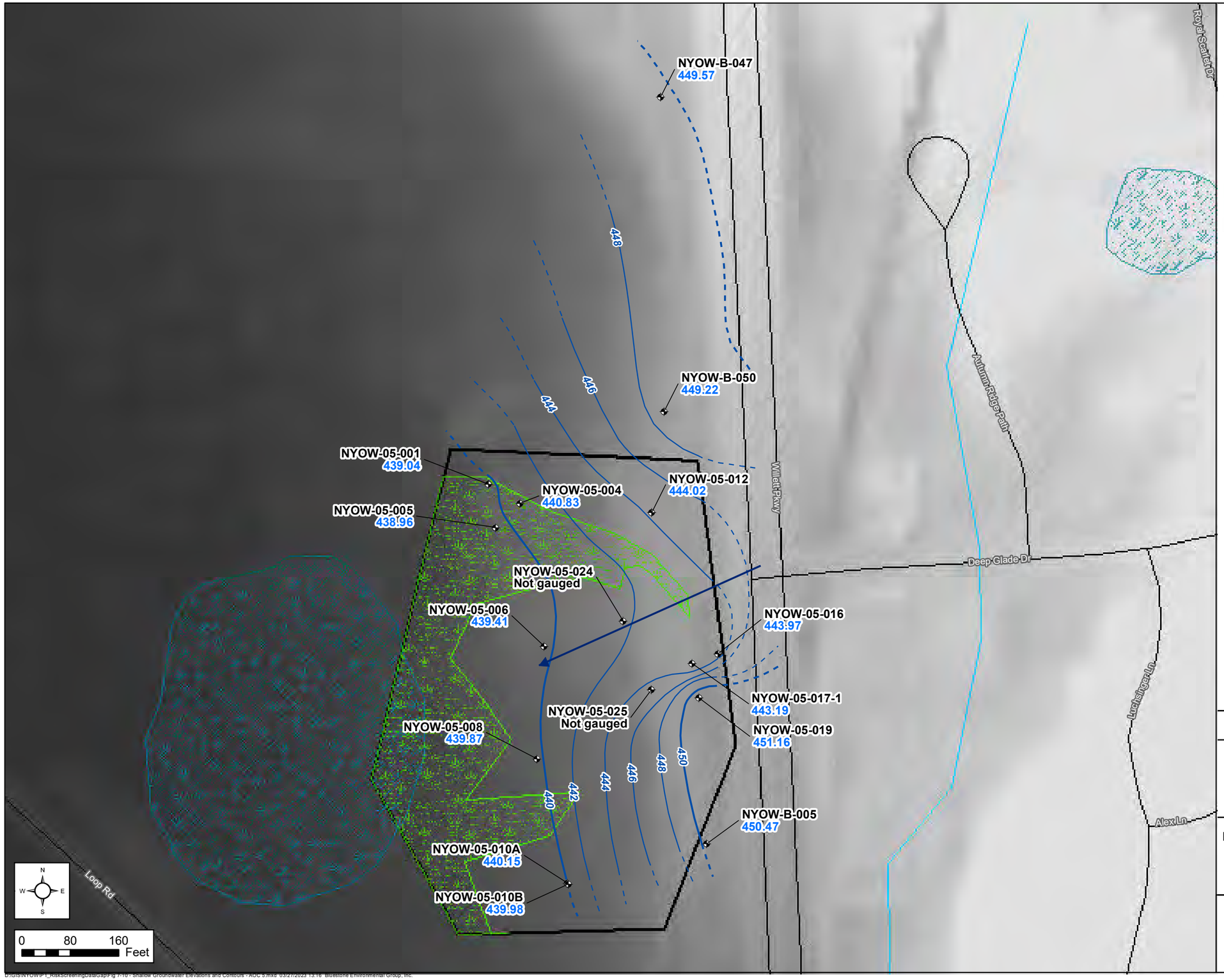
Low : 400 feet

1. Local groundwater flow direction determined by monitoring well gauging in May 2021.
2. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
3. NHD flowline - USGS, 2019
4. NWI wetlands - USFWS, 1981
5. NYS freshwater wetlands, Onondaga Co. - NYSDEC, 2010
6. Basemap: Esri Terrain 3D. Source data for areas shown include 2012 FEMA USGS Seneca Watershed Lidar and 2018 NYS Cayuga-Oswego County Lidar.

**Figure 7-9**

# Shallow Groundwater Elevations and Contours - AOC 4

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**March 2023**




## Legend

- Monitoring Well — Labeled with May 2021 Groundwater Elevation (ft)

**Groundwater Contour - May 2021**

**Dashed where inferred**

- 10 ft
- 2 ft
- Flow Direction
- Road
- Former Wastewater Ditch
- Wetland (May 2020)
- USFWS NWI Wetland
- Area of Concern

**Ground Surface Elevation**

High : 499 feet

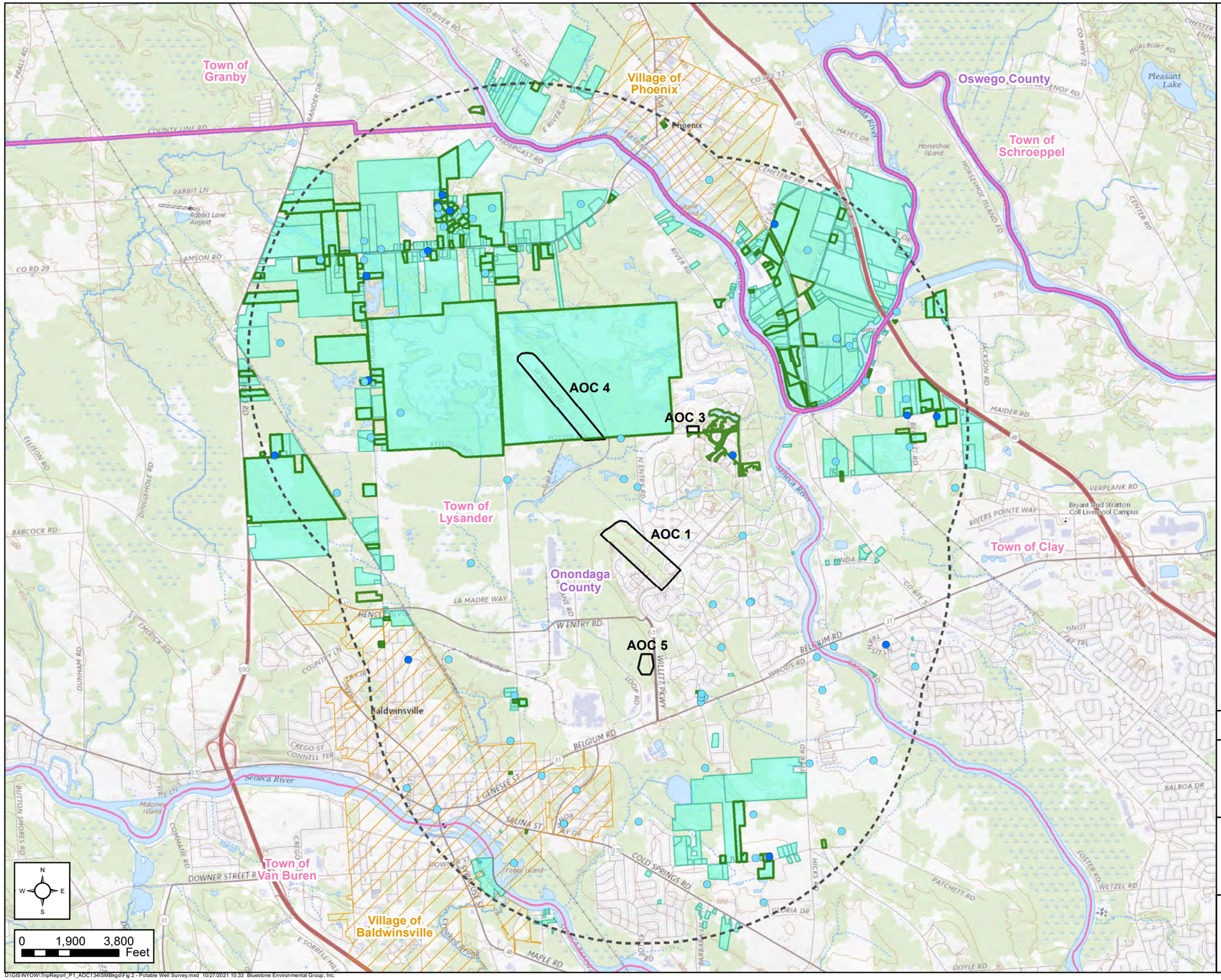
Low : 430 feet

1. Local groundwater flow direction determined by monitoring well gauging in May 2021.
2. Wetlands delineated in May 2020 by WRS.
3. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
4. NWI wetlands - USFWS, 1981
5. Basemap: Esri Terrain 3D. Source data for areas shown include 2012 FEMA USGS Seneca Watershed Lidar and 2018 NYS Cayuga-Oswego County Lidar.

**Figure 7-10**

# Shallow Groundwater Elevations and Contours - AOC 5

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**March 2023**




**Legend**

**NYSDEC Water Well**

- Well observed (15)
- Well not observed (68)
- Parcel with Possible Well Observed (115)
- Parcel with Private Water Supply in 2020 Assessment Roll (471)
- Area of Concern (AOC)
- 2-Mile Buffer from AOCs
- Village
- Town
- County

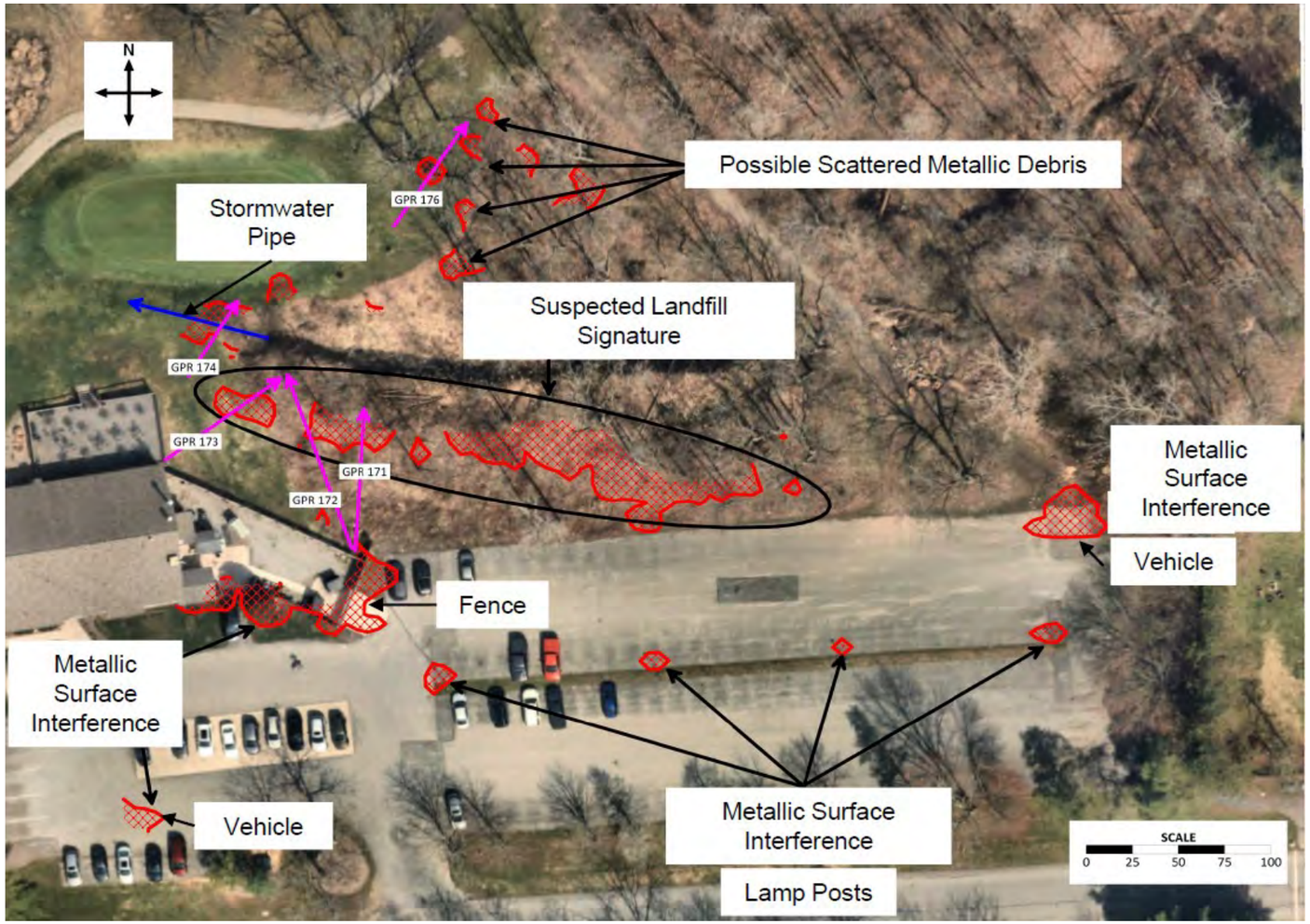
1. NYSDEC Water Well Program - June 2021. Downloaded 7/8/21 from NYS GIS.
2. 2020 Tax Parcel Centroid Points with Water Supply - NYS GPO, June 2021. Downloaded 7/13/21 from NYS GIS.
3. Onondaga County Tax Parcel Polygons - Onondaga County, March 2021. Received 3/16/21.
4. Oswego County Tax Parcel Polygons - Real Property Tax Services Dept., Nov. 2020. Downloaded 7/9/21 from NYS GIS.
5. NYS Civil Boundaries - NYS GIS, April 2021. Accessed 10/27/21.
6. Basemap: USGS Topo - The National Map.

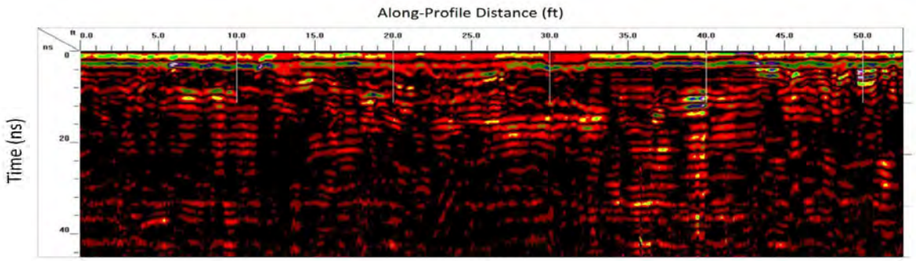
**Figure 7-11**

**Potable Well Survey**

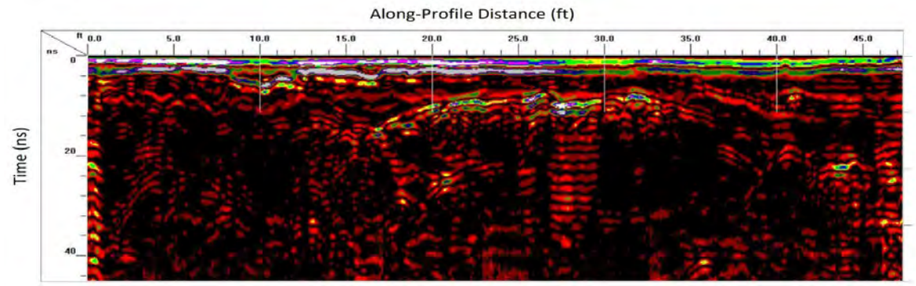
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\TripReport_P1_AOC134ISMBkgd\Fig 2 - Potable Well Survey.mxd 10/27/2021 10:33 Bluestone Environmental Group, Inc.

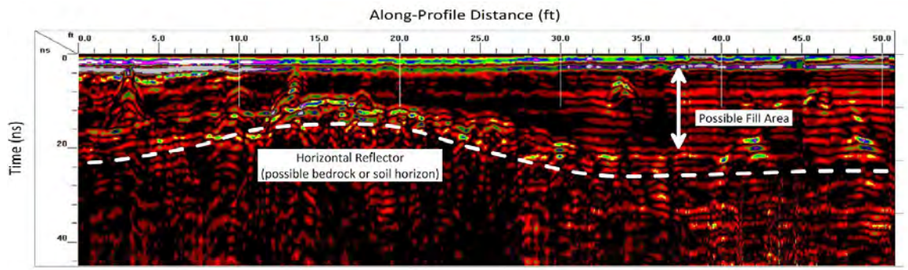


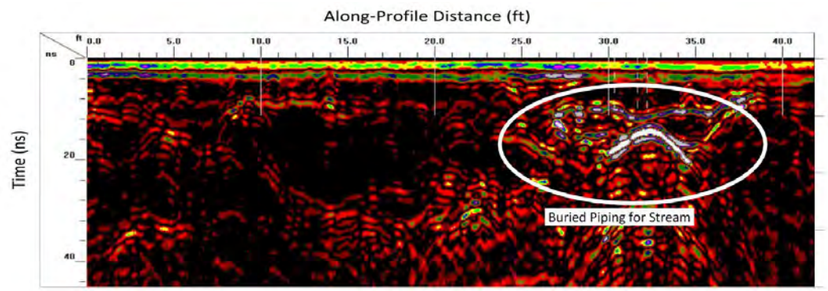

GPR 171



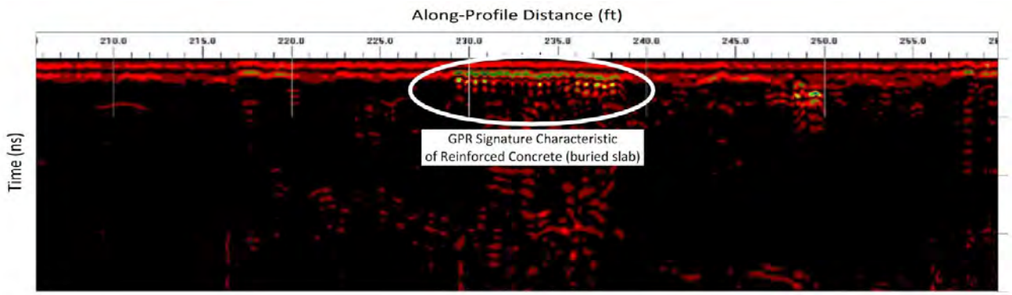

GPR 172




GPR 173




GPR 174




GPR 176

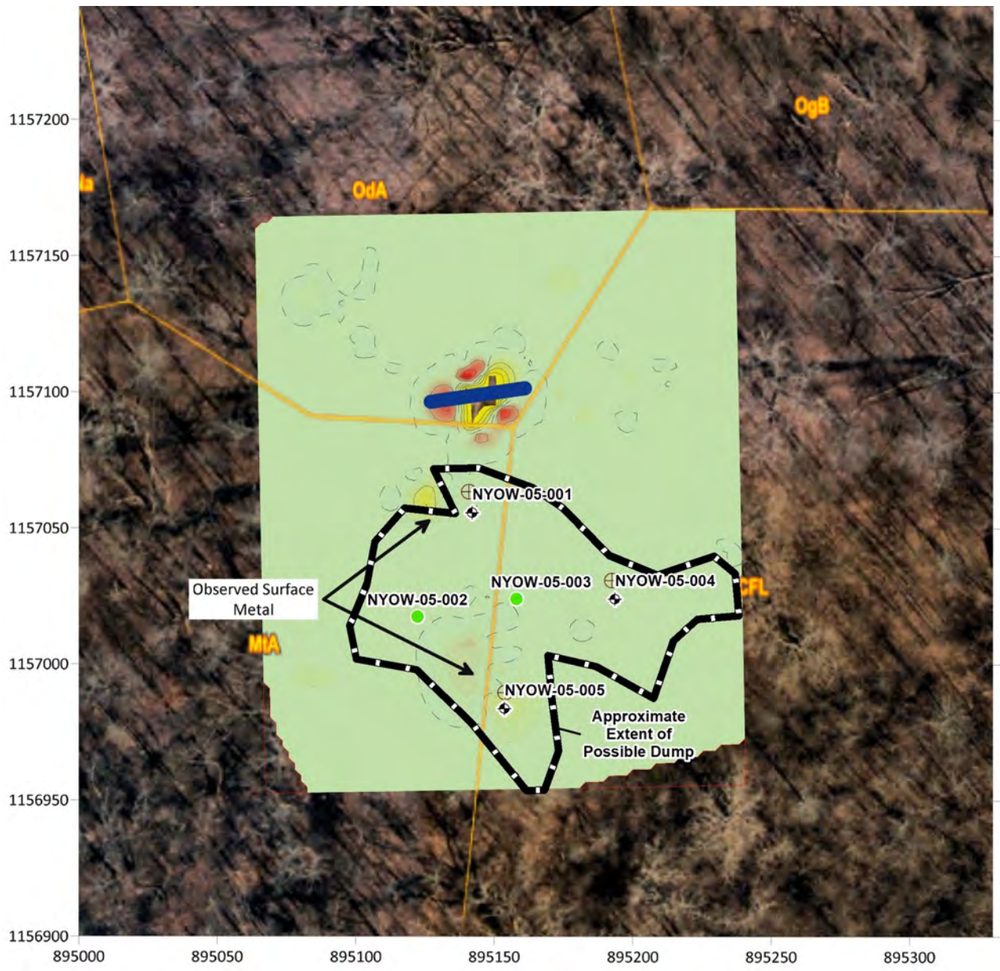
1. The geophysical survey was completed on 30 March 2021 by Rettew Field Services, Inc.

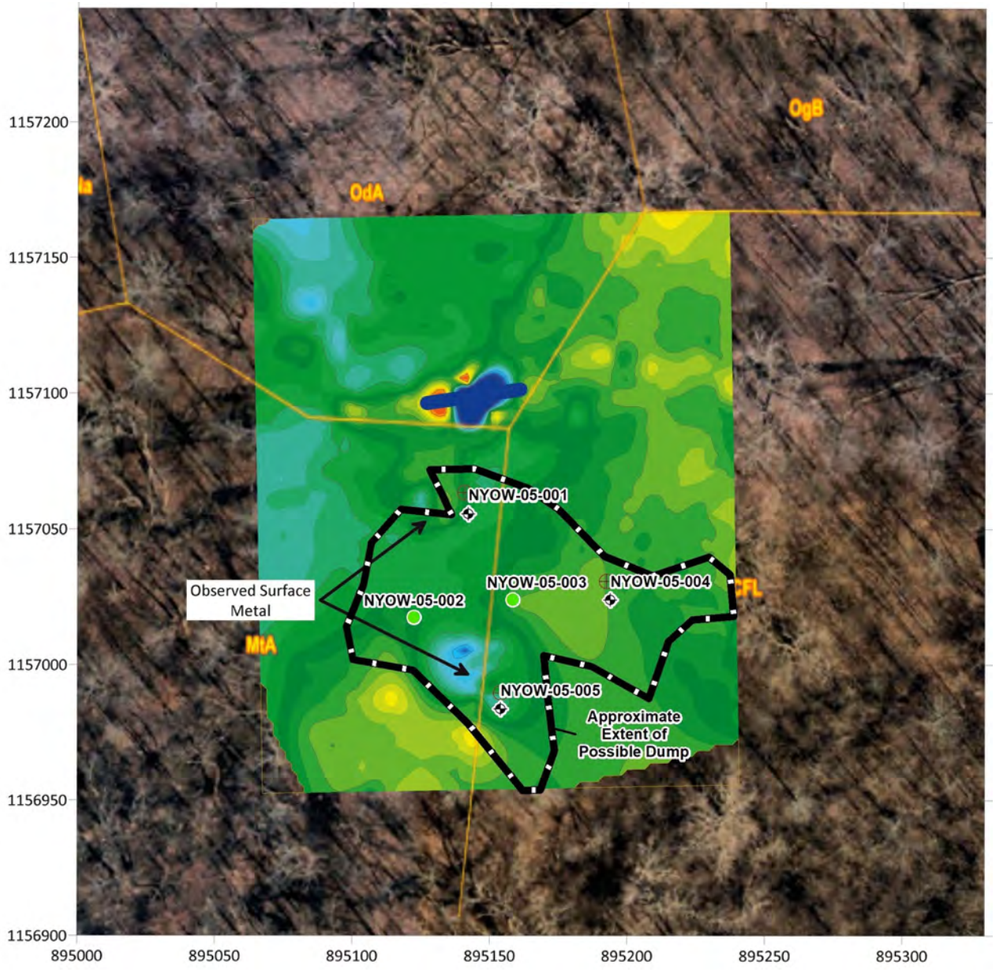
**Figure 7-12**

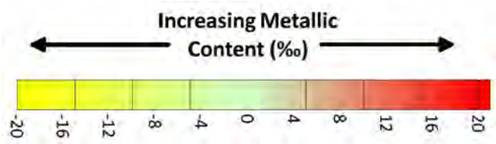
**AOC 3 Geophysical Survey - Suspected Landfill Area**

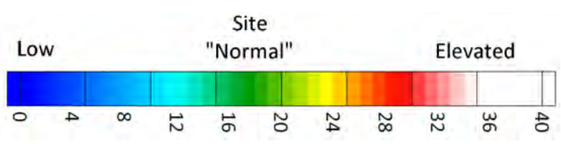
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 7-12 - AOC 3 Geophysical Survey.mxd 12/14/2022 13:14 Bluestone Environmental Group, Inc.



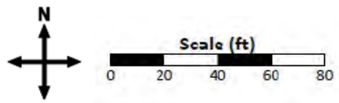




**Geophysical Map Legend**

- Well Location
- Metallic Drainage Pipe
- CFL — Cut and Fill Land
- MtA — Minoa fine sandy loam
- OdA — Odessa silty clay loam
- OgB — Oquaga channery silt loam




**Note: The geophysical survey at AOC 5 was within the U.S. Department of Agriculture (USDA) soil types indicated on this map and within the Psc soil unit as mapped on the Surficial Geologic Map, Baldwinsville Quadrangle (Pair, 2014).**

1. The geophysical survey was completed on 13 January 2021 by Rettew Field Services, Inc.

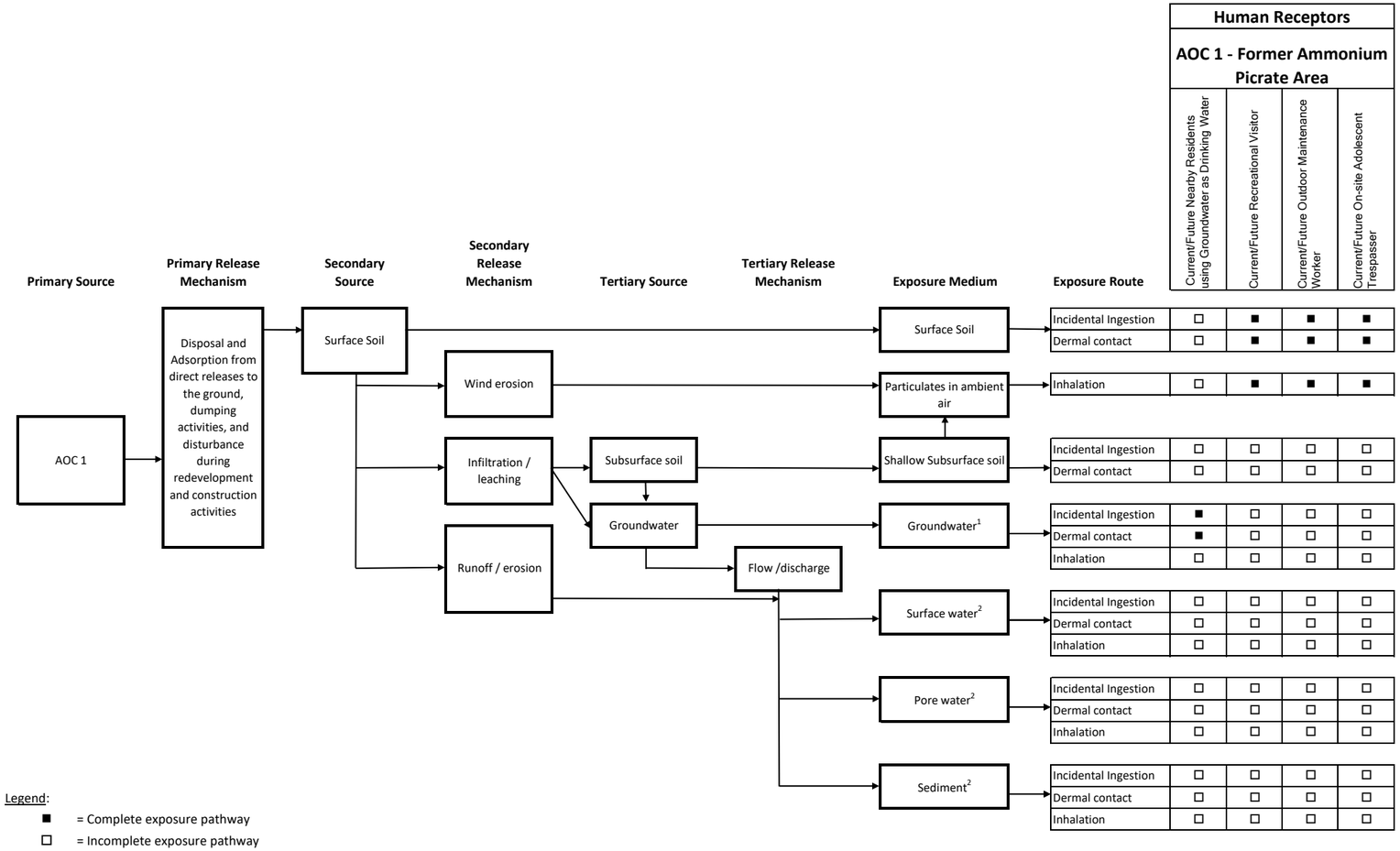
**Figure 7-13**

**AOC 5 Geophysical Survey - Possible Dump Area**

**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\P1_RiskScreeningDataGap\Fig 7-13 - AOC 5 Geophysical Survey.mxd 12/14/2022 14:59 Bluestone Environmental Group, Inc.

**Figure 7-14a**
**Revised Conceptual Site Model - AOC 1 - Former Ammonium Picrate Area - Human Health Receptors**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**




Notes:

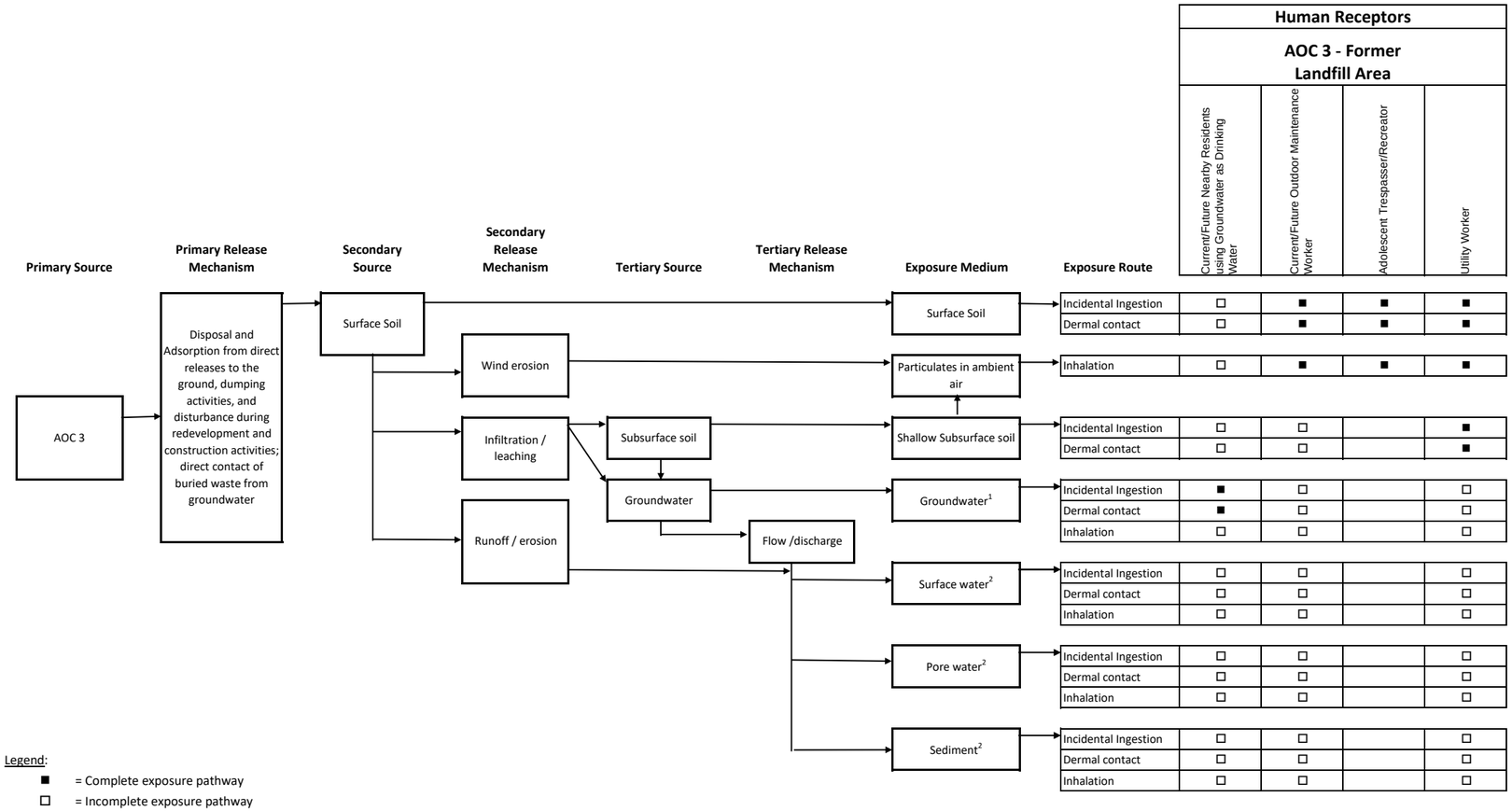
1 Groundwater on-site is not currently used as a drinking water source; therefore, groundwater exposure to on-site residents is currently considered an incomplete exposure pathway. However, some residences in the surrounding area may have private groundwater wells and no restrictions are in place preventing groundwater use in the area as drinking water. Therefore, ingestion and dermal exposures to groundwater used as a drinking water resource at each of the AOCs are considered potentially complete pathways for current/future nearby residents. There are no VOCs among contaminants of concern; therefore, groundwater exposure via vapor intrusion and/or inhalation of volatiles from groundwater used as drinking water by current or future on-site residents or nearby residents are considered incomplete pathways.

2 Surface water, pore water, and sediment may be sampled as part of a phased assessment of groundwater contamination and potential migration. No complete human exposure pathways.

3 The following analyses were performed per medium in AOC 1 during Phase 1:

- Surface soil: TAL metals, DNCB and 2,4-DNP, picric acid; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
- Subsurface soil: TAL metals, DNCB and 2,4-DNP, picric acid, and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
- Groundwater (grab samples): TAL metals (field-filtered), DNCB and 2,4-DNP, and picric acid; and water quality field parameters (i.e., temperature, pH, conductivity, DO, ORP, and turbidity).

**Figure 7-14b**
**Revised Conceptual Site Model - AOC 3 - Former Landfill Area - Human Health Receptors**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

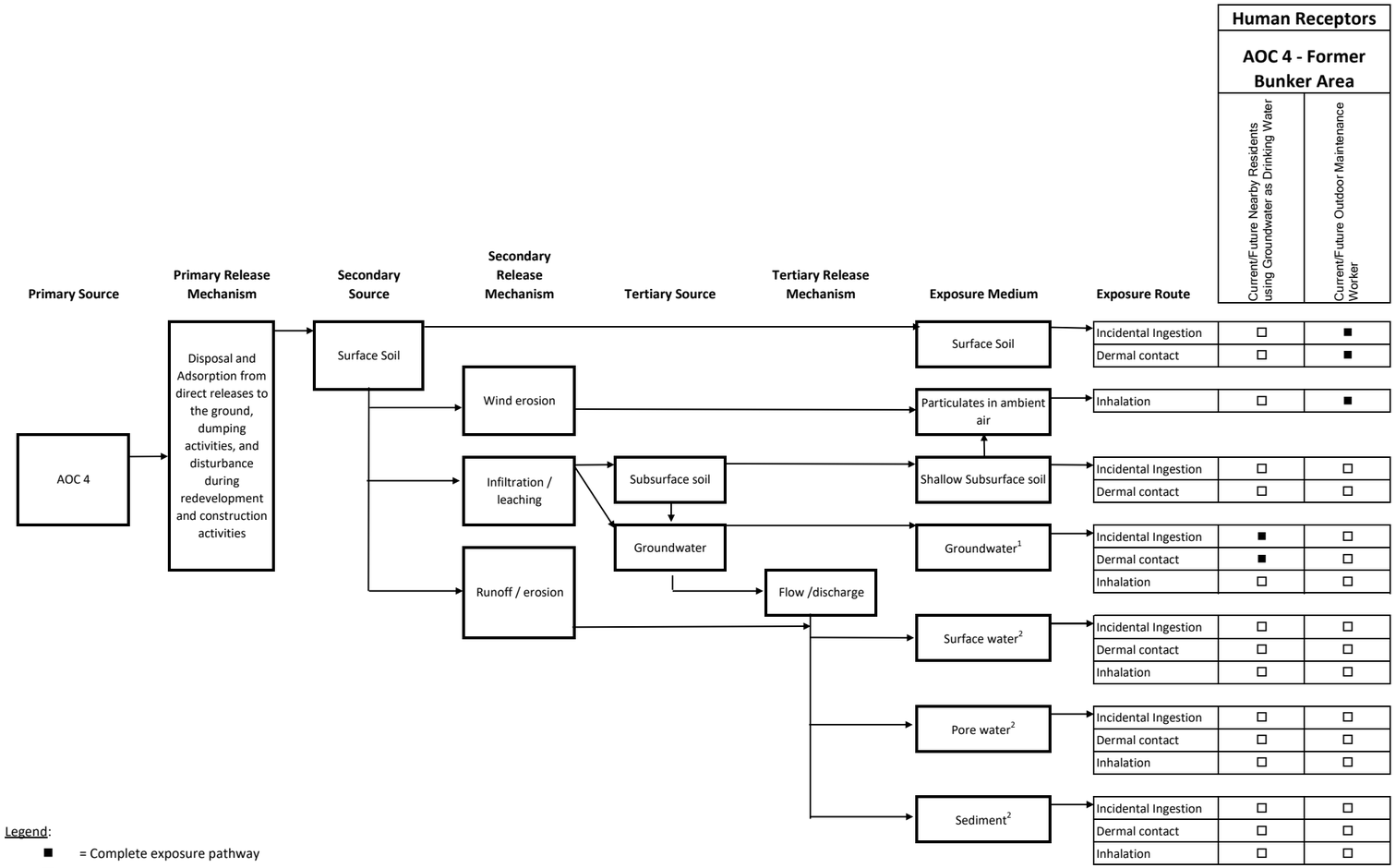



Legend:
■ = Complete exposure pathway
☐ = Incomplete exposure pathway

Notes:
1 Groundwater on-site is not currently used as a drinking water source; therefore, groundwater exposure to on-site residents is currently considered an incomplete exposure pathway. However, some residences in the surrounding area may have private groundwater wells and no restrictions are in place preventing groundwater use in the area as drinking water. Therefore, ingestion and dermal exposures to groundwater used as a drinking water resource at each of the AOCs are considered potentially complete pathways for current/future nearby residents. Benzene was a COPC in AOC 3; therefore, groundwater exposure via inhalation of volatiles from groundwater used as drinking water by current or future on-site residents or nearby residents are considered potentially pathways. Benzene was not detected above the Vapor Intrusion Screening Level; therefore, groundwater exposure via vapor intrusion is considered an incomplete pathway.

2 Surface water, pore water, and sediment may be sampled during Phase 2. No complete human exposure pathways.
3 The following analyses were performed in AOC 3 during Phase 1:
*Landfill Area*
• Surface soil – TAL metals, SVOCs (including DNCB and 2,4-DNP), PAHs, picric acid, PCBs, and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
• Subsurface soil – TAL metals, VOCs, SVOCs (including DNCB and 2,4-DNP), PAHs, picric acid, PCBs, and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
• Groundwater (grab samples): TAL metals (field-filtered), VOCs, SVOCs (including DNCB and 2,4-DNP), PAHs, picric acid, and PCBs; and water quality field parameters (i.e., temperature, pH, conductivity, DO, ORP, and turbidity).
• VOCs in subsurface soil adjacent to the golf club house.
*Open Storage Area*
• Surface soil – TAL metals, SVOCs (including DNCB and 2,4-DNP), PAHs, picric acid, and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
• Subsurface soil – TAL metals, VOCs, SVOCs (including DNCB and 2,4-DNP), PAHs, picric acid, and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
• Groundwater (grab samples) – TAL metals (field-filtered), VOCs, SVOCs (including DNCB and 2,4-DNP), PAHs, and picric acid; and water quality field parameters (i.e., temperature, pH, conductivity, DO, ORP, and turbidity).

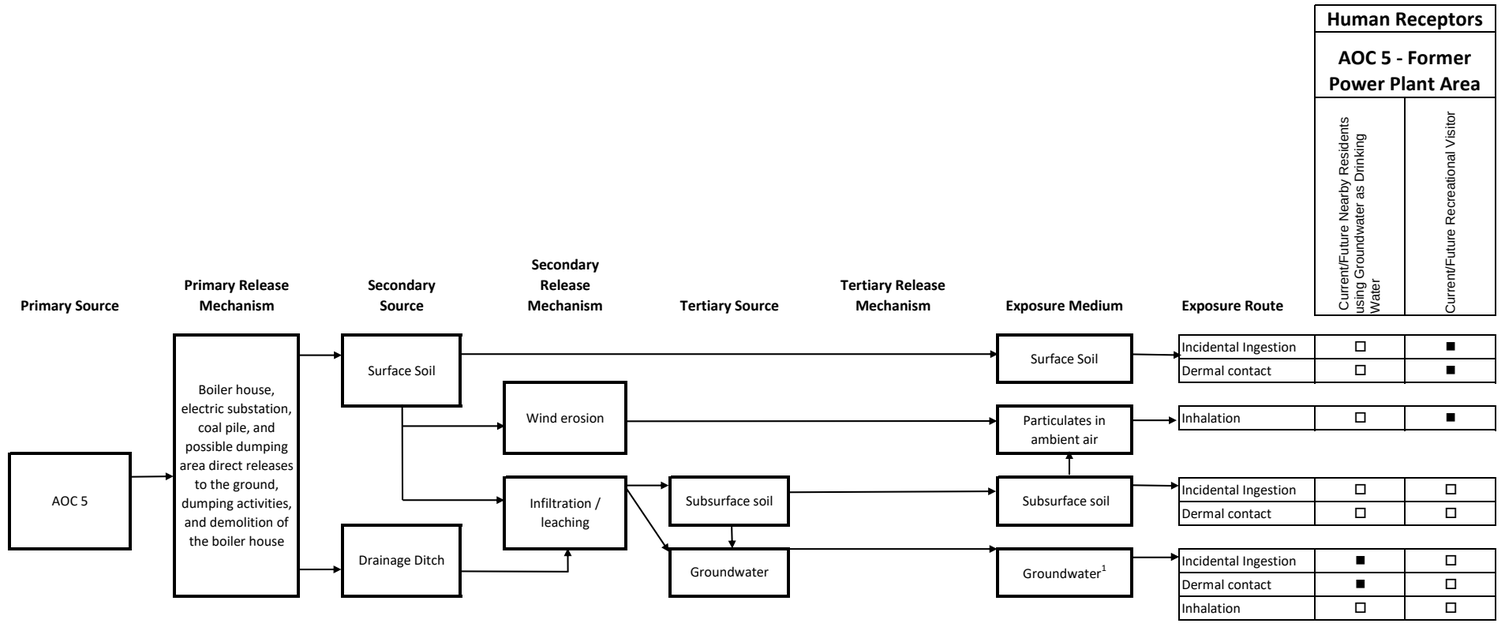
**Figure 7-14c**
**Revised Conceptual Site Model - AOC 4 - Former Bunker Area - Human Health Receptors**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**




Legend:
■ = Complete exposure pathway
☐ = Incomplete exposure pathway

Notes:
1 Groundwater on-site is not currently used as a drinking water source; therefore, groundwater exposure to on-site residents is currently considered an incomplete exposure pathway. However, some residences in the surrounding area may have private groundwater wells and no restrictions are in place preventing groundwater use in the area as drinking water. Therefore, ingestion and dermal exposures to groundwater used as a drinking water resource at each of the AOCs are considered potentially complete pathways for current/future nearby residents. There are no VOCs among contaminants of concern; therefore, groundwater exposure via vapor intrusion and/or inhalation of volatiles from groundwater used as drinking water by current or future on-site residents or nearby residents are considered incomplete pathways.
2 Surface water, pore water, and sediment may be sampled as part of a phased assessment of groundwater contamination and potential migration. No complete human exposure pathways.
3 The following analyses were performed in AOC 4 during Phase 1:
- Surface soil: DNCB and 2,4-DNP, picric acid.
- Subsurface soil: DNCB and 2,4-DNP, picric acid.
- Groundwater (grab samples): DNCB and 2,4-DNP, and picric acid; and water quality field parameters (i.e., temperature, pH, conductivity, DO, ORP, and turbidity).

**Figure 7-14d**
**Revised Conceptual Site Model - AOC 5 - Former Power Plant Area - Human Health Receptors**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**




Legend:

■ = Complete exposure pathway

□ = Incomplete exposure pathway

Notes:

1 Groundwater on-site is not currently used as a drinking water source; therefore, groundwater exposure to on-site residents is currently considered an incomplete exposure pathway. However, some residences in the surrounding area may have private groundwater wells and no restrictions are in place preventing groundwater use in the area as drinking water. Therefore, ingestion and dermal exposures to groundwater used as a drinking water resource at each of the AOCs are considered potentially complete pathways for current/future nearby residents. 1,2,3-Trichlorobenzene was a groundwater COPC in AOC 5; therefore, groundwater exposure via inhalation of volatiles from groundwater used as drinking water by current or future on-site residents or nearby residents are considered incomplete pathways. 1,2,3-Trichlorobenzene was not detected above the Vapor Intrusion Screening Level; therefore, groundwater exposure via vapor intrusion is considered an incomplete pathway.

2 The following analyses were performed at AOC 5 during Phase 1:

*Boiler House*
- Surface soil: TAL metals, SVOCs, and PAHs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
- Subsurface soil: TAL metals, SVOCs, and PAHs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
- Groundwater (grab samples): TAL metals (field-filtered), SVOCs, and PAHs; and water quality field parameters (i.e., temperature, pH, conductivity, DO, ORP, and turbidity).

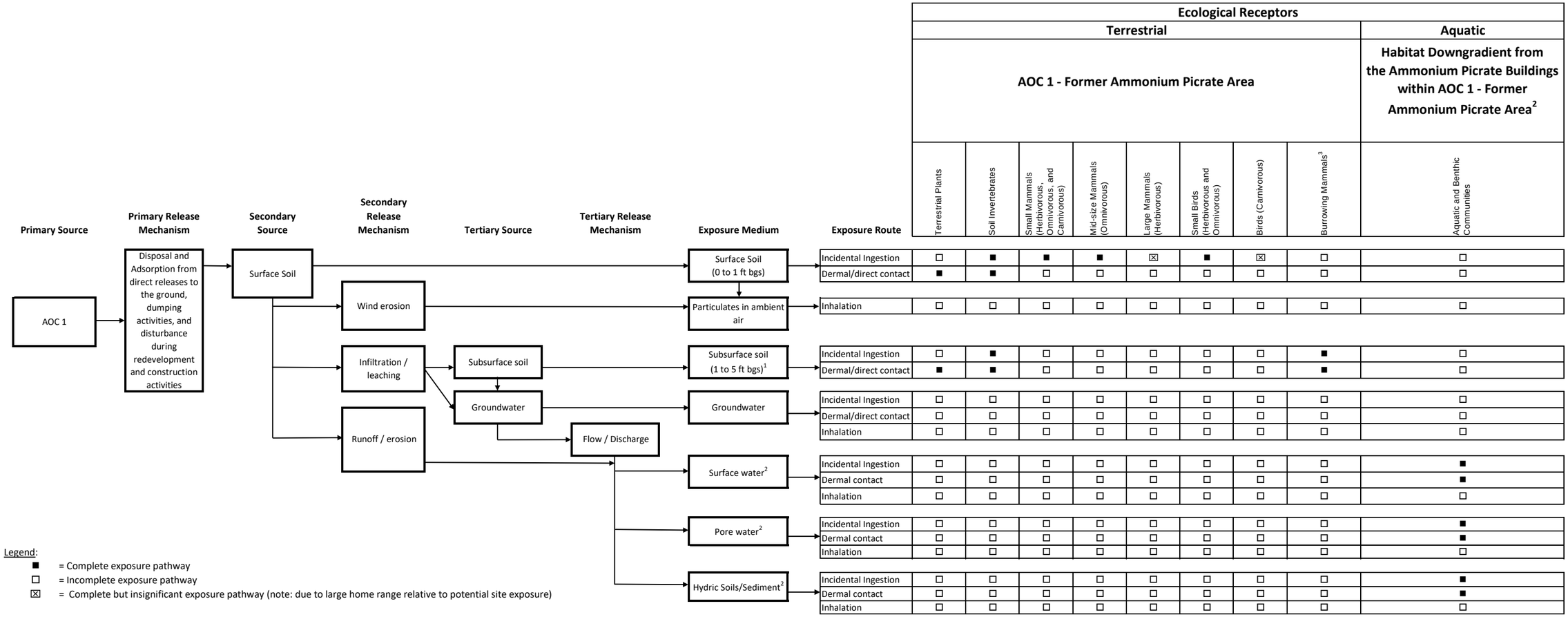
*Coal Storage Area*
- Surface soil: Coal Ash, TAL metals, PAHs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
- Subsurface soil: TAL metals, SVOCs, and PAHs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
- Groundwater (grab samples): TAL metals (field-filtered), SVOCs, and PAHs; and water quality field parameters (i.e., temperature, pH, conductivity, DO, ORP, and turbidity).

*Sub-Station*
- Surface soil: TAL metals, SVOCs, PAHs, and PCBs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
- Subsurface soil: TAL metals, SVOCs, and PAHs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
- Groundwater (grab samples): TAL metals (field-filtered), SVOCs, and PAHs; and water quality field parameters (i.e., temperature, pH, conductivity, DO, ORP, and turbidity).

*Possible Dump*
- Surface soil: TAL metals, SVOCs, PAHs, and PCBs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
- Subsurface soil: TAL metals, VOCs, SVOCs, PAHs, and PCBs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
- Groundwater (grab samples): TAL metals (field-filtered), VOCs, SVOCs, PAHs, and PCBs; and water quality field parameters (i.e., temperature, pH, conductivity, DO, ORP, and turbidity).

*Coal Aggregate Bins Area*
- Surface soil: Coal Ash, TAL metals, and PAHs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
- Subsurface soil: TAL metals, SVOCs, and PAHs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
- Groundwater (grab samples): TAL metals (field-filtered), SVOCs, and PAHs; and water quality field parameters (i.e., temperature, pH, conductivity, DO, ORP, and turbidity).

**Figure 7-15a**
**Revised Conceptual Site Model - AOC 1 - Former Ammonium Picrate Area - Ecological Receptors**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

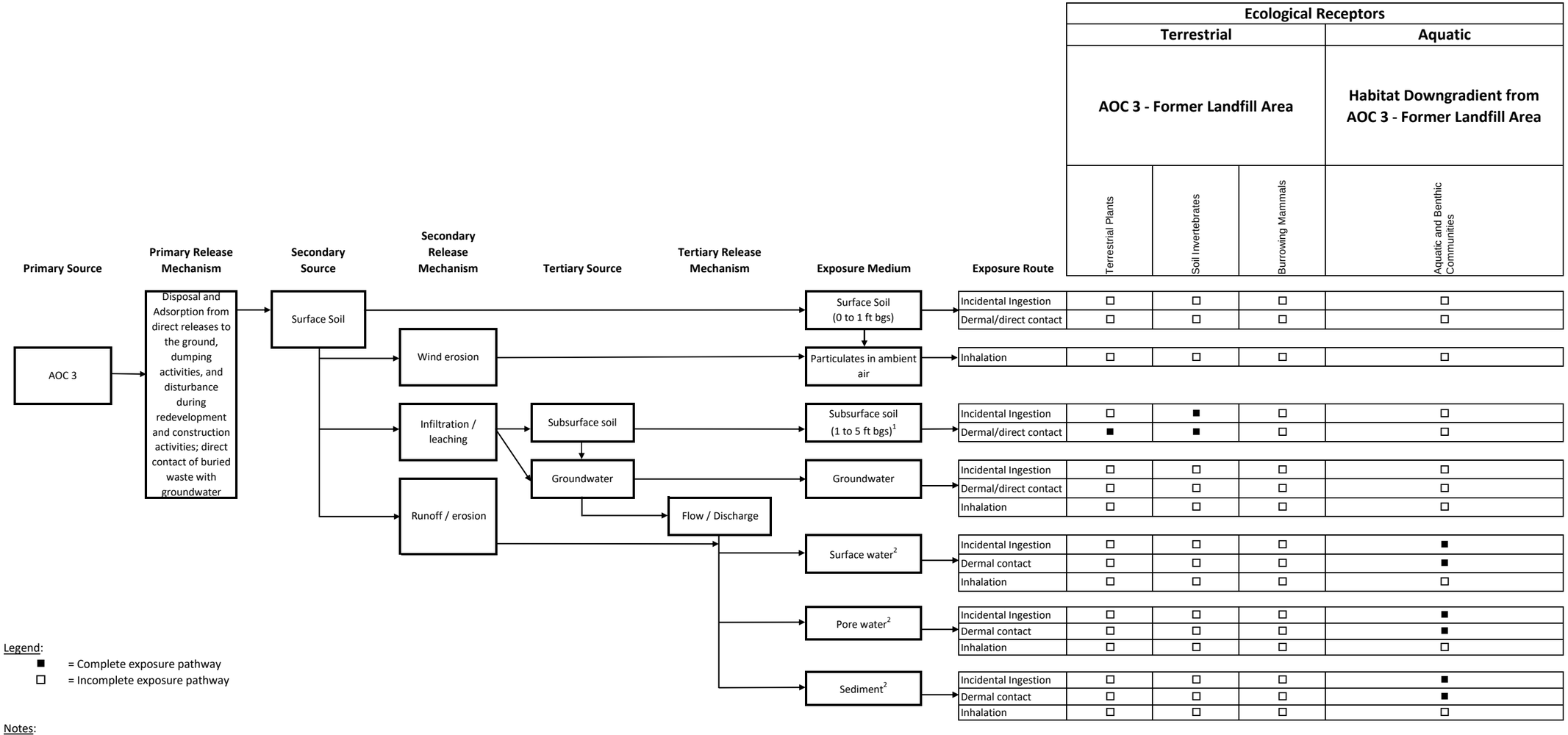



| Exposure Route | Ecological Receptors: Terrestrial — AOC 1 - Former Ammonium Picrate Area: Terrestrial Plants | Soil Invertebrates | Small Mammals (Herbivorous, Omnivorous, and Carnivorous) | Mid-size Mammals (Omnivorous) | Large Mammals (Herbivorous) | Small Birds (Herbivorous and Omnivorous) | Birds (Carnivorous) | Burrowing Mammals[3] | Ecological Receptors: Aquatic — Habitat Downgradient from the Ammonium Picrate Buildings within AOC 1 - Former Ammonium Picrate Area[2]: Aquatic and Benthic Communities |
|---|---|---|---|---|---|---|---|---|---|
| Surface Soil (0 to 1 ft bgs) — Incidental Ingestion | ☐ | ■ | ■ | ■ | ☒ | ■ | ☒ | ☐ | ☐ |
| Surface Soil (0 to 1 ft bgs) — Dermal/direct contact | ■ | ■ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Particulates in ambient air — Inhalation | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Subsurface soil (1 to 5 ft bgs)[1] — Incidental Ingestion | ☐ | ■ | ☐ | ☐ | ☐ | ☐ | ☐ | ■ | ☐ |
| Subsurface soil (1 to 5 ft bgs)[1] — Dermal/direct contact | ■ | ■ | ☐ | ☐ | ☐ | ☐ | ☐ | ■ | ☐ |
| Groundwater — Incidental Ingestion | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Groundwater — Dermal/direct contact | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Groundwater — Inhalation | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Surface water[2] — Incidental Ingestion | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ■ |
| Surface water[2] — Dermal contact | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ■ |
| Surface water[2] — Inhalation | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Pore water[2] — Incidental Ingestion | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ■ |
| Pore water[2] — Dermal contact | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ■ |
| Pore water[2] — Inhalation | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Hydric Soils/Sediment[2] — Incidental Ingestion | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ■ |
| Hydric Soils/Sediment[2] — Dermal contact | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ■ |
| Hydric Soils/Sediment[2] — Inhalation | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

Legend:
- ■ = Complete exposure pathway
- ☐ = Incomplete exposure pathway
- ☒ = Complete but insignificant exposure pathway (note: due to large home range relative to potential site exposure)

Notes:
1 Chemical concentrations in discrete subsurface soil samples were compared to appropriate ecological screening levels as part of the risk screening (**Subsection 5.7**) process and will be used to determine the need for additional sampling and subsequent risk evaluation.
2 Surface water, pore water, and sediment may be sampled as part of a phased assessment of groundwater contamination and will only be considered if DOD-related COPECs identified in groundwater are potentially discharging to nearby wetland areas.
3 Burrowing mammals are included in the "small mammal" receptor category when considering surface soil exposure.
4 The following analyses were performed per medium in AOC 1 during Phase 1:
- Surface soil: TAL metals, DNCB and 2,4-DNP, picric acid; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
- Subsurface soil: TAL metals, DNCB and 2,4-DNP, picric acid, and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.

**Figure 7-15b. New York Ordnance Works**
**Revised Conceptual Site Model - AOC 3 - Former Landfill Area - Ecological Receptors**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

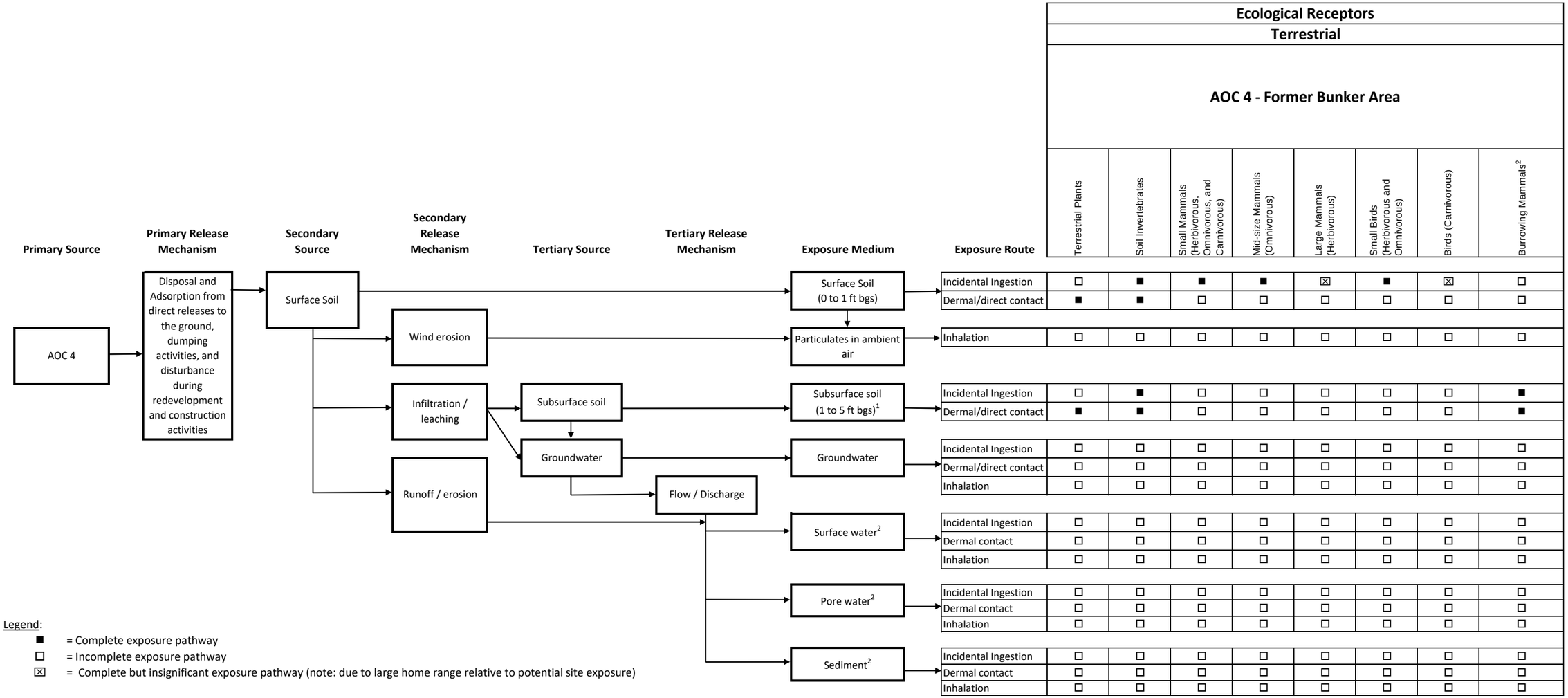



| Exposure Route | Ecological Receptors: Terrestrial: AOC 3 - Former Landfill Area: Terrestrial Plants | Ecological Receptors: Terrestrial: AOC 3 - Former Landfill Area: Soil Invertebrates | Ecological Receptors: Terrestrial: AOC 3 - Former Landfill Area: Burrowing Mammals | Ecological Receptors: Aquatic: Habitat Downgradient from AOC 3 - Former Landfill Area: Aquatic and Benthic Communities |
|---|---|---|---|---|
| Surface Soil (0 to 1 ft bgs) | | | | |
| Incidental Ingestion | ☐ | ☐ | ☐ | ☐ |
| Dermal/direct contact | ☐ | ☐ | ☐ | ☐ |
| Particulates in ambient air | | | | |
| Inhalation | ☐ | ☐ | ☐ | ☐ |
| Subsurface soil (1 to 5 ft bgs)[1] | | | | |
| Incidental Ingestion | ☐ | ■ | ☐ | ☐ |
| Dermal/direct contact | ■ | ■ | ☐ | ☐ |
| Groundwater | | | | |
| Incidental Ingestion | ☐ | ☐ | ☐ | ☐ |
| Dermal/direct contact | ☐ | ☐ | ☐ | ☐ |
| Inhalation | ☐ | ☐ | ☐ | ☐ |
| Surface water[2] | | | | |
| Incidental Ingestion | ☐ | ☐ | ☐ | ■ |
| Dermal contact | ☐ | ☐ | ☐ | ■ |
| Inhalation | ☐ | ☐ | ☐ | ☐ |
| Pore water[2] | | | | |
| Incidental Ingestion | ☐ | ☐ | ☐ | ■ |
| Dermal contact | ☐ | ☐ | ☐ | ■ |
| Inhalation | ☐ | ☐ | ☐ | ☐ |
| Sediment[2] | | | | |
| Incidental Ingestion | ☐ | ☐ | ☐ | ■ |
| Dermal contact | ☐ | ☐ | ☐ | ■ |
| Inhalation | ☐ | ☐ | ☐ | ☐ |

Legend:
■ = Complete exposure pathway
☐ = Incomplete exposure pathway

Notes:
1 Chemical concentrations in discrete subsurface soil samples were compared to appropriate ecological screening levels as part of the risk screening (**Subsection 5.7**) process and will be used to determine the need for additional sampling and subsequent risk evaluation.
2 Surface water, pore water, and sediment may be sampled as part of a phased assessment of soil and groundwater contamination and will only be considered if DOD-related COPECs identified in soil and groundwater are potentially affecting the unnamed stream north of the landfill.
3 The following analyses were performed in AOC 3 during Phase 1:
*Landfill Area*
• Surface soil – TAL metals, SVOCs (including DNCB and 2,4-DNP), PAHs, picric acid, PCBs, and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
• Subsurface soil – TAL metals, VOCs, SVOCs (including DNCB and 2,4-DNP), PAHs, picric acid, PCBs, and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
*Open Storage Area*
• Surface soil – TAL metals, SVOCs (including DNCB and 2,4-DNP), PAHs, picric acid, and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
• Subsurface soil – TAL metals, VOCs, SVOCs (including DNCB and 2,4-DNP), PAHs, picric acid, and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.

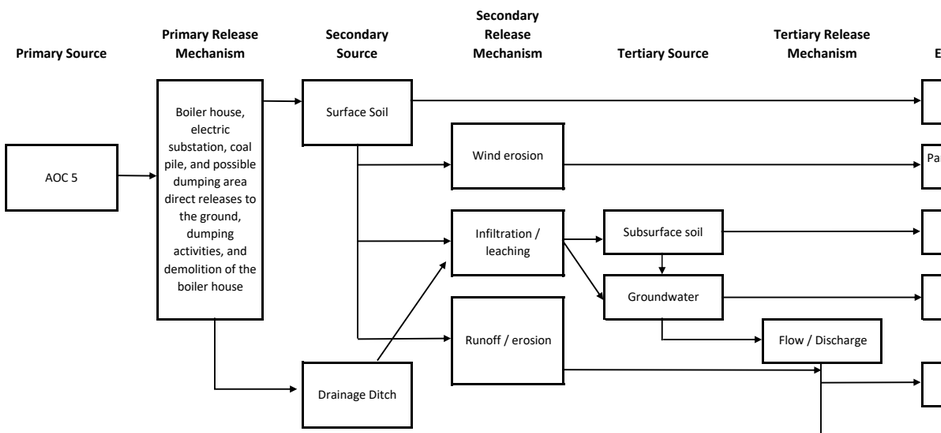
**Figure 7-15c. New York Ordnance Works**
**Revised Conceptual Site Model - AOC 4 - Former Bunker Area - Ecological Receptors**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**




Legend:
- ■ = Complete exposure pathway
- ☐ = Incomplete exposure pathway
- ☒ = Complete but insignificant exposure pathway (note: due to large home range relative to potential site exposure)

Notes:
1 Chemical concentrations in discrete subsurface soil samples were compared to appropriate ecological screening levels as part of the risk screening (**Subsection 5.7**) process and will be used to determine the need for additional sampling and subsequent risk evaluation.
2 Burrowing mammals are included in the "small mammal" receptor category when considering surface soil exposure.
3 The following analyses were be performed in AOC 4 during Phase 1:
- Surface soil: DNCB and 2,4-DNP, picric acid.
- Subsurface soil: DNCB and 2,4-DNP, picric acid.

**Figure 7-15d. New York Ordnance Works**
**Revised Conceptual Site Model - AOC 5 - Former Power Plant Area - Ecological Receptors**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**




| Exposure Route | Terrestrial Plants | Soil Invertebrates | Small Mammals (Herbivorous, Omnivorous, and Carnivorous) | Mid-size Mammals (Omnivorous) | Large Mammals (Herbivorous) | Small Birds (Herbivorous and Omnivorous)[3] | Birds (Carnivorous) | Burrowing Mammals[4] | Aquatic and Benthic Communities |
|---|---|---|---|---|---|---|---|---|---|
| | **Ecological Receptors** | | | | | | | | |
| | **Terrestrial** | | | | | | | | **Aquatic** |
| | **AOC 5 - Former Power Plant Area** | | | | | | | | **Habitat Downgradient from AOC 5 - Former Power Plant Area[2]** |
| Surface Soil (0 to 1 ft bgs) | | | | | | | | | |
| Incidental Ingestion | ☐ | ■ | ■ | ■ | ☒ | ■ | ☒ | ☐ | ☐ |
| Dermal/direct contact | ■ | ■ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Particulates in ambient air | | | | | | | | | |
| Inhalation | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Subsurface soil (1 to 5 ft bgs)[1] | | | | | | | | | |
| Incidental Ingestion | ☐ | ■ | ☐ | ☐ | ☐ | ☐ | ☐ | ■ | ☐ |
| Dermal/direct contact | ■ | ■ | ☐ | ☐ | ☐ | ☐ | ☐ | ■ | ☐ |
| Groundwater | | | | | | | | | |
| Incidental Ingestion | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Dermal/direct contact | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Inhalation | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Surface water[2] | | | | | | | | | |
| Incidental Ingestion | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ■ |
| Dermal contact | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ■ |
| Inhalation | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Pore water[2] | | | | | | | | | |
| Incidental Ingestion | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ■ |
| Dermal contact | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ■ |
| Inhalation | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Sediment[2] | | | | | | | | | |
| Incidental Ingestion | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ■ |
| Dermal contact | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ■ |
| Inhalation | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

Legend:
■ = Complete exposure pathway
☐ = Incomplete exposure pathway
☒ = Complete but insignificant exposure pathway (note: due to large home range relative to potential site exposure)

Notes:
1 Chemical concentrations in discrete subsurface soil samples were compared to appropriate ecological screening levels as part of the risk screening (**Subsection 5.7**) process and will be used to determine the need for additional sampling and subsequent risk evaluation.
2 Surface water, pore water, and sediment may be sampled as part of a phased assessment of groundwater contamination and will only be considered if DOD-related COPECs identified in groundwater are potentially discharging to nearby wetland areas.
3 Based on the risk screening evaluation results presented in **Subsection 6.2.2**, small birds are not receptors of concern at the Boiler House.
4 Burrowing mammals are included in the "small mammal" receptor category when considering surface soil exposure.
5 The following analyses were performed at AOC 5 during Phase 1:
*Boiler House*
• Surface soil: TAL metals, SVOCs, and PAHs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
• Subsurface soil: TAL metals, SVOCs, and PAHs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
*Coal Storage Area*
• Surface soil: Coal Ash, TAL metals and PAHs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
• Subsurface soil: TAL metals, SVOCs, and PAHs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
*Sub-Station*
• Surface soil: TAL metals, SVOCs, PAHs, and PCBs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
• Subsurface soil: TAL metals, SVOCs, and PAHs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
*Possible Dump*
• Surface soil: TAL metals, SVOCs, PAHs, and PCBs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
• Subsurface soil: TAL metals, VOCs, SVOCs, PAHs, and PCBs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
*Coal Aggregate Bins Area*
• Surface soil: Coal Ash, TAL metals, and PAHs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.
• Subsurface soil: TAL metals, SVOCs, and PAHs; and a subset for TOC, grain size distribution (including hydrometer analysis), and CEC.

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# TABLES

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# TABLES

## Section 2

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**Table 2-1**
**Phase 1 Sampling Summary**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Subarea | Groundwater | Soil | | |
|---|---|---|---|---|
| | | 0 to 1 ft bgs | 1 to 5 ft bgs | 5 to 10 ft bgs |
| AOC 1 | 10 | 30 | 11 | 11 |
| AOC 3 | 7 | 16 | 18 | None |
| AOC 4 - Discrete | 16 | 16 | 85 | 16 |
| AOC 4 - ISM | None | 36 | None | None |
| AOC 5 - Boiler House | 3 | 5 | 5 | 5 |
| AOC 5 - Coal Aggregate Bins | 2 | 5 | 5 | 5 |
| AOC 5 - Coal Storage Area | 3 | 5 | 5 | 5 |
| AOC 5 - Electric Substation | 1 | 5 | 5 | 5 |
| AOC 5 - Possible Dump | 3 | 5 | 5 | 5 |
| Background | 9 | 45 | 45 | 45 |

**Notes:**
AOC = area of concern
ft bgs = feet below ground surface
ISM = incremental sampling methodology

**Table 2-2**
**Samples Available for Use in the Phase 1 Risk Screening – AOC 1**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Matrix | Sample ID | Date | Depth (ft bgs) | SVOCs (2,4-DNP and DNCB only) | Inorganics | Picric Acid | Solids | TOC | CEC | Grain Size |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AOC 1 | WG | NYOW-01-WL001-A | 4/12/2021 | 0.00-10.00 | X | X | X | | | | |
| AOC 1 | WG | NYOW-01-WL005-A | 4/12/2021 | 0.00-10.00 | X | X | X | | | | |
| AOC 1 | WG | NYOW-01-WL006-A | 4/8/2021 | 0.00-10.00 | | | X | | | | |
| AOC 1 | WG | NYOW-01-WL006-B | 4/8/2021 | 0.00-10.00 | X | X | X | | | | |
| AOC 1 | WG | NYOW-01-WL018-A | 4/12/2021 | 0.00-10.00 | X | X | X | | | | |
| AOC 1 | WG | NYOW-01-WL019-A | 4/8/2021 | 0.00-10.00 | X | X | X | | | | |
| AOC 1 | WG | NYOW-01-WL021-A | 4/9/2021 | 0.00-10.00 | X | X | X | | | | |
| AOC 1 | WG | NYOW-01-WL022-A | 4/9/2021 | 0.00-10.00 | | X | | | | | |
| AOC 1 | WG | NYOW-01-WL022-A_R | 5/14/2021 | 0.00-10.00 | X | | X | | | | |
| AOC 1 | WG | NYOW-01-WL023-A | 4/9/2021 | 0.00-10.00 | | X | | | | | |
| AOC 1 | WG | NYOW-01-WL023-A_R | 5/14/2021 | 0.00-10.00 | X | | X | | | | |
| AOC 1 | WG | NYOW-01-WL024-A | 4/12/2021 | 0.00-10.00 | X | X | X | | | | |
| AOC 1 | SO | NYOW-01-PH002-B | 4/9/2021 | 1.00-5.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-PH002-C | 4/9/2021 | 5.00-10.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-PH005-B | 4/8/2021 | 1.00-5.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-PH005-C | 4/8/2021 | 5.00-10.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-PH015-B | 4/2/2021 | 1.00-5.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-PH015-C | 4/2/2021 | 5.00-10.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-PH016-B | 4/2/2021 | 1.00-5.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-PH016-C | 4/2/2021 | 5.00-10.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-PH018-B | 4/8/2021 | 1.00-5.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-PH018-C | 4/8/2021 | 5.00-10.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-PH019-B | 4/6/2021 | 1.00-5.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-PH019-C | 4/6/2021 | 5.00-10.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-PH020-B | 4/6/2021 | 1.00-5.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-PH020-C | 4/6/2021 | 5.00-10.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-PH021-B | 4/7/2021 | 1.00-5.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-PH021-C | 4/7/2021 | 5.00-10.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-PH022-B | 4/7/2021 | 1.00-5.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-PH022-C | 4/7/2021 | 5.00-10.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-PH023-B | 4/2/2021 | 1.00-5.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-PH023-C | 4/2/2021 | 5.00-10.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-PH024-B | 4/7/2021 | 1.00-5.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-PH024-C | 4/7/2021 | 5.00-10.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-SL002-A | 4/9/2021 | 0.00-1.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-SL005-A | 4/8/2021 | 0.00-1.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-SL007-A | 4/13/2021 | 0.00-1.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-SL009-A | 4/13/2021 | 0.00-1.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-SL011-A | 4/13/2021 | 0.00-1.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-SL013-A | 4/14/2021 | 0.00-1.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-SL015-A | 4/2/2021 | 0.00-1.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-SL016-A | 4/2/2021 | 0.00-1.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-SL018-A | 4/8/2021 | 0.00-1.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-SL019-A | 4/6/2021 | 0.00-1.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-SL020-A | 4/6/2021 | 0.00-1.00 | X | X | X | X | | | |

**Table 2-2**
**Samples Available for Use in the Phase 1 Risk Screening – AOC 1**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Matrix | Sample ID | Date | Depth (ft bgs) | SVOCs (2,4-DNP and DNCB only) | Inorganics | Picric Acid | Solids | TOC | CEC | Grain Size |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AOC 1 | SO | NYOW-01-SL021-A | 4/7/2021 | 0.00-1.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-SL022-A | 4/7/2021 | 0.00-1.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-SL023-A | 4/2/2021 | 0.00-1.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-SL024-A | 4/7/2021 | 0.00-1.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-SL025-A | 4/13/2021 | 0.00-1.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-SL026-A | 4/13/2021 | 0.00-1.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-SL027-A | 4/13/2021 | 0.00-1.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-SL028-A | 4/13/2021 | 0.00-1.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-SL029-A | 4/13/2021 | 0.00-1.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-SL030-A | 4/13/2021 | 0.00-1.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-SL031-A | 4/13/2021 | 0.00-1.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-SL032-A | 4/13/2021 | 0.00-1.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-SL033-A | 4/13/2021 | 0.00-1.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-SL034-A | 4/14/2021 | 0.00-1.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-SL035-A | 4/14/2021 | 0.00-1.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-SL036-A | 4/14/2021 | 0.00-1.00 | X | X | X | X | | | |
| AOC 1 | SO | NYOW-01-SL037-A | 4/13/2021 | 0.00-1.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-SL038-A | 4/13/2021 | 0.00-1.00 | X | X | X | X | X | X | X |
| AOC 1 | SO | NYOW-01-SL039-A | 4/13/2021 | 0.00-1.00 | X | X | X | X | X | X | X |

**Notes:**

2,4-DNP = 2,4-dinitrophenol

AOC = area of concern

CEC = cation exchange capacity

DNCB = 2,4-dinitrochlorobenzene

ft bgs = feet below ground surface

SO = soil

SVOCs = semivolatile organic compounds

TOC = total organic carbon

WG = groundwater

X = Data available for method class.

**Table 2-3**
**Samples Available for Use in the Phase 1 Risk Screening – AOC 3**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Matrix | Sample ID | Date | Depth (ft bgs) | VOCs | SVOCs (TAL) | PAHs | PCBs (Aroclors) | Inorganics | Picric Acid | Solids | TOC | CEC | Grain Size |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AOC 3 | WG | NYOW-03-WL002-A | 4/2/2021 | 0.00-10.00 | X | X | X | | X | X | | | | |
| AOC 3 | WG | NYOW-03-WL007-A | 4/2/2021 | 0.00-10.00 | X | X | X | X | X | X | | | | |
| AOC 3 | WG | NYOW-03-WL009-A | 4/7/2021 | 0.00-10.00 | X | X | X | X | X | X | | | | |
| AOC 3 | WG | NYOW-03-WL010-A | 4/2/2021 | 0.00-10.00 | X | X | X | X | X | X | | | | |
| AOC 3 | WG | NYOW-03-WL013-A | 4/7/2021 | 0.00-10.00 | X | X | X | X | X | X | | | | |
| AOC 3 | WG | NYOW-03-WL014-A | 4/7/2021 | 0.00-10.00 | X | X | X | X | X | X | | | | |
| AOC 3 | WG | NYOW-03-WL015-A | 4/7/2021 | 0.00-10.00 | X | X | X | X | X | X | | | | |
| AOC 3 | SO | NYOW-03-PH001-B | 3/31/2021 | 1.00-5.00 | X | X | X | | X | X | X | X | X | X |
| AOC 3 | SO | NYOW-03-PH002-B | 3/31/2021 | 1.00-5.00 | X | X | X | | X | X | X | | | |
| AOC 3 | SO | NYOW-03-PH003-B | 3/31/2021 | 1.00-5.00 | X | X | X | | X | X | X | X | X | X |
| AOC 3 | SO | NYOW-03-PH004-B | 3/31/2021 | 1.00-5.00 | X | X | X | | X | X | X | | | |
| AOC 3 | SO | NYOW-03-PH005-B | 4/1/2021 | 1.00-5.00 | | X | X | X | X | X | X | X | X | X |
| AOC 3 | SO | NYOW-03-PH005-B_R | 5/4/2021 | 1.00-5.00 | X | X | | | | | X | | | |
| AOC 3 | SO | NYOW-03-PH006-B | 4/1/2021 | 1.00-5.00 | | X | X | X | X | X | X | | | |
| AOC 3 | SO | NYOW-03-PH006-B_R | 5/4/2021 | 1.00-5.00 | X | X | | | | | X | | | |
| AOC 3 | SO | NYOW-03-PH007-B | 4/1/2021 | 1.00-5.00 | | X | X | X | X | X | X | X | X | X |
| AOC 3 | SO | NYOW-03-PH007-B_R | 5/4/2021 | 1.00-5.00 | X | X | | | | | X | | | |
| AOC 3 | SO | NYOW-03-PH008-B | 4/5/2021 | 1.00-5.00 | X | | X | X | X | X | X | | | |
| AOC 3 | SO | NYOW-03-PH008-B_R | 5/4/2021 | 1.00-5.00 | | X | | | | | X | | | |
| AOC 3 | SO | NYOW-03-PH009-B | 4/5/2021 | 1.00-5.00 | X | | X | X | X | X | X | X | X | X |
| AOC 3 | SO | NYOW-03-PH009-B_R | 5/4/2021 | 1.00-5.00 | | X | | | | | X | | | |
| AOC 3 | SO | NYOW-03-PH010-B | 3/31/2021 | 1.00-5.00 | X | X | X | X | X | X | X | | | |
| AOC 3 | SO | NYOW-03-PH011-B | 3/31/2021 | 1.00-5.00 | X | X | X | X | X | X | X | X | X | X |
| AOC 3 | SO | NYOW-03-PH012-B | 3/31/2021 | 1.00-5.00 | X | X | X | X | X | X | X | | | |
| AOC 3 | SO | NYOW-03-PH013-B | 4/5/2021 | 1.00-5.00 | X | | X | X | X | X | X | X | X | X |
| AOC 3 | SO | NYOW-03-PH013-B_R | 5/4/2021 | 1.00-5.00 | | X | | | | | X | | | |
| AOC 3 | SO | NYOW-03-PH014-B | 4/5/2021 | 1.00-5.00 | X | | X | X | X | X | X | | | |
| AOC 3 | SO | NYOW-03-PH014-B_R | 5/4/2021 | 1.00-5.00 | | X | | | | | X | | | |
| AOC 3 | SO | NYOW-03-PH015-B | 4/5/2021 | 1.00-5.00 | X | | X | X | X | X | X | X | X | X |
| AOC 3 | SO | NYOW-03-PH015-B_R | 5/4/2021 | 1.00-5.00 | | X | | | | | X | | | |
| AOC 3 | SO | NYOW-03-PH016-B | 4/1/2021 | 1.00-5.00 | | X | X | X | X | X | X | | | |
| AOC 3 | SO | NYOW-03-PH016-B_R | 5/4/2021 | 1.00-5.00 | X | X | | | | | X | | | |
| AOC 3 | SO | NYOW-03-PH017-B | 4/1/2021 | 1.00-5.00 | | | | | | | X | | | |
| AOC 3 | SO | NYOW-03-PH017-B_R | 5/4/2021 | 1.00-5.00 | X | | | | | | X | | | |
| AOC 3 | SO | NYOW-03-PH018-B | 4/1/2021 | 1.00-5.00 | | | | | | | X | | | |
| AOC 3 | SO | NYOW-03-PH018-B_R | 5/4/2021 | 1.00-5.00 | X | | | | | | X | | | |
| AOC 3 | SO | NYOW-03-SL001-A | 3/31/2021 | 0.00-1.00 | | X | X | | X | X | X | X | X | X |
| AOC 3 | SO | NYOW-03-SL002-A | 3/31/2021 | 0.00-1.00 | | X | X | | X | X | X | | | |
| AOC 3 | SO | NYOW-03-SL003-A | 3/31/2021 | 0.00-1.00 | | X | X | | X | X | X | X | X | X |
| AOC 3 | SO | NYOW-03-SL004-A | 3/31/2021 | 0.00-1.00 | | X | X | | X | X | X | | | |
| AOC 3 | SO | NYOW-03-SL005-A | 4/1/2021 | 0.00-1.00 | | X | X | X | X | X | X | X | X | X |
| AOC 3 | SO | NYOW-03-SL006-A | 4/1/2021 | 0.00-1.00 | | X | X | X | X | X | X | | | |
| AOC 3 | SO | NYOW-03-SL007-A | 4/1/2021 | 0.00-1.00 | | X | X | X | X | X | X | X | X | X |
| AOC 3 | SO | NYOW-03-SL008-A | 4/5/2021 | 0.00-1.00 | | | X | X | X | X | X | | | |
| AOC 3 | SO | NYOW-03-SL008-A_R | 5/4/2021 | 0.00-1.00 | | X | | | | | X | | | |

**Table 2-3**
**Samples Available for Use in the Phase 1 Risk Screening – AOC 3**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Matrix | Sample ID | Date | Depth (ft bgs) | VOCs | SVOCs (TAL) | PAHs | PCBs (Aroclors) | Inorganics | Picric Acid | Solids | TOC | CEC | Grain Size |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AOC 3 | SO | NYOW-03-SL009-A | 4/5/2021 | 0.00-1.00 | | | X | X | X | X | X | X | X | X |
| AOC 3 | SO | NYOW-03-SL009-A_R | 5/4/2021 | 0.00-1.00 | | X | | | | | X | | | |
| AOC 3 | SO | NYOW-03-SL010-A | 3/31/2021 | 0.00-1.00 | | X | X | X | X | X | X | | | |
| AOC 3 | SO | NYOW-03-SL011-A | 3/31/2021 | 0.00-1.00 | | X | X | X | X | X | X | X | X | X |
| AOC 3 | SO | NYOW-03-SL012-A | 3/31/2021 | 0.00-1.00 | | X | X | X | X | X | X | | | |
| AOC 3 | SO | NYOW-03-SL013-A | 4/5/2021 | 0.00-1.00 | | | X | X | X | X | X | X | X | X |
| AOC 3 | SO | NYOW-03-SL013-A_R | 5/4/2021 | 0.00-1.00 | | X | | | | | X | | | |
| AOC 3 | SO | NYOW-03-SL014-A | 4/5/2021 | 0.00-1.00 | | | X | X | X | X | X | | | |
| AOC 3 | SO | NYOW-03-SL014-A_R | 5/4/2021 | 0.00-1.00 | | X | | | | | X | | | |
| AOC 3 | SO | NYOW-03-SL015-A | 4/5/2021 | 0.00-1.00 | | | X | X | X | X | X | X | X | X |
| AOC 3 | SO | NYOW-03-SL015-A_R | 5/4/2021 | 0.00-1.00 | | X | | | | | X | | | |
| AOC 3 | SO | NYOW-03-SL016-A | 4/1/2021 | 0.00-1.00 | | X | X | X | X | X | X | | | |

**Notes:**

AOC = area of concern

CEC = cation exchange capacity

ft bgs = feet below ground surface

PAHs = polycyclic aromatic hydrocarbons

PCBs = polycholorinated biphenyls

SO = soil

SVOCs = semivolatile organic compounds

TAL = target analyte list plus 2,4-dinitrophenol and 2,4-dinitrochlorobenzene

TOC = total organic carbon

VOCs = volatile organic compounds

WG = groundwater

X = Data available for method class.

**Table 2-4**
**Samples Available for Use in the Phase 1 Risk Screening – AOC 4**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Matrix | Sample ID | Date | Depth (ft bgs) | SVOCs (2,4-DNP and DNCB only) | Picric Acid | Solids |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | WG | NYOW-04-WL001-A | 2/5/2021 | 0.00-10.00 | X | X | |
| AOC 4 - Discrete | WG | NYOW-04-WL002-A | 2/1/2021 | 0.00-10.00 | X | X | |
| AOC 4 - Discrete | WG | NYOW-04-WL003-A | 2/5/2021 | 0.00-10.00 | X | X | |
| AOC 4 - Discrete | WG | NYOW-04-WL004-A | 2/1/2021 | 0.00-10.00 | X | X | |
| AOC 4 - Discrete | WG | NYOW-04-WL005-A | 2/1/2021 | 0.00-10.00 | X | X | |
| AOC 4 - Discrete | WG | NYOW-04-WL006-A | 2/4/2021 | 0.00-10.00 | X | X | |
| AOC 4 - Discrete | WG | NYOW-04-WL036-A | 2/4/2021 | 0.00-10.00 | X | X | |
| AOC 4 - Discrete | WG | NYOW-04-WL037-A | 2/4/2021 | 0.00-10.00 | X | X | |
| AOC 4 - Discrete | WG | NYOW-04-WL038-A | 2/5/2021 | 0.00-10.00 | X | X | |
| AOC 4 - Discrete | WG | NYOW-04-WL079-A | 2/1/2021 | 0.00-10.00 | X | X | |
| AOC 4 - Discrete | WG | NYOW-04-WL080-A | 2/4/2021 | 0.00-10.00 | X | | |
| AOC 4 - Discrete | WG | NYOW-04-WL081-A | 2/1/2021 | 0.00-10.00 | X | X | |
| AOC 4 - Discrete | WG | NYOW-04-WL082-A | 2/4/2021 | 0.00-10.00 | X | X | |
| AOC 4 - Discrete | WG | NYOW-04-WL083-A | 2/1/2021 | 0.00-10.00 | X | X | |
| AOC 4 - Discrete | WG | NYOW-04-WL084-A | 2/4/2021 | 0.00-10.00 | X | X | |
| AOC 4 - Discrete | WG | NYOW-04-WL085-A | 2/4/2021 | 0.00-10.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU001-SL-A | 6/7/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU001-SL-B | 6/7/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU001-SL-C | 6/7/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU002-SL-A | 6/7/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU002-SL-B | 6/7/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU002-SL-C | 6/7/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU004-SL-A | 6/8/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU004-SL-B | 6/8/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU004-SL-C | 6/8/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU005-SL-A | 6/8/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU005-SL-B | 6/8/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU005-SL-C | 6/8/2021 | 0.00-1.00 | | X | |
| AOC 4 - ISM | SO | NYOW-04-DU006-SL-A | 6/9/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU006-SL-B | 6/9/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU006-SL-C | 6/9/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU007-SL-A | 6/8/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU007-SL-B | 6/8/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU007-SL-C | 6/8/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU009-SL-A | 6/8/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU009-SL-B | 6/8/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU009-SL-C | 6/8/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU010-SL-A | 6/9/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU010-SL-B | 6/9/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU010-SL-C | 6/9/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU011-SL-A | 6/9/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU011-SL-B | 6/9/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU011-SL-C | 6/9/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU012-SL-A | 6/8/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU012-SL-B | 6/8/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU012-SL-C | 6/8/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU013-SL-A | 6/9/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU013-SL-B | 6/9/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU013-SL-C | 6/9/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU014-SL-A | 6/9/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU014-SL-B | 6/9/2021 | 0.00-1.00 | X | X | |
| AOC 4 - ISM | SO | NYOW-04-DU014-SL-C | 6/9/2021 | 0.00-1.00 | X | X | |
| AOC 4 - Discrete | SO | NYOW-04-PH001-B | 2/4/2021 | 1.00-5.00 | X | X | X |

**Table 2-4**
**Samples Available for Use in the Phase 1 Risk Screening – AOC 4**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Matrix | Sample ID | Date | Depth (ft bgs) | SVOCs (2,4-DNP and DNCB only) | Picric Acid | Solids |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | SO | NYOW-04-PH001-C | 2/4/2021 | 5.00-10.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH002-B | 1/28/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH002-C | 1/28/2021 | 5.00-10.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH003-B | 2/4/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH003-C | 2/4/2021 | 5.00-10.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH004-B | 1/29/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH004-C | 1/29/2021 | 5.00-10.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH005-B | 1/29/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH005-C | 1/29/2021 | 5.00-10.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH006-B | 2/3/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH006-C | 2/3/2021 | 5.00-10.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH007-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH008-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH009-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH010-B | 2/4/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH011-B | 2/4/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH012-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH013-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH014-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH015-B | 1/27/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH016-B | 1/27/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH017-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH018-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH019-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH020-B | 1/27/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH021-B | 1/27/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH022-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH023-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH024-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH025-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH026-B | 1/27/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH027-B | 1/27/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH028-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH029-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH030-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH031-B | 1/27/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH032-B | 1/27/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH033-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH034-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH035-B | 1/25/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH036-B | 2/2/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH036-C | 2/2/2021 | 5.00-10.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH037-B | 2/3/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH037-C | 2/3/2021 | 5.00-10.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH038-B | 2/3/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH038-C | 2/3/2021 | 5.00-10.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH039-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH040-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH041-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH042-B | 1/27/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH043-B | 1/27/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH044-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH045-B | 1/26/2021 | 1.00-5.00 | X | X | X |

**Table 2-4**
**Samples Available for Use in the Phase 1 Risk Screening – AOC 4**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Matrix | Sample ID | Date | Depth (ft bgs) | SVOCs (2,4-DNP and DNCB only) | Picric Acid | Solids |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | SO | NYOW-04-PH046-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH047-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH048-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH049-B | 2/4/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH050-B | 2/4/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH051-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH052-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH053-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH054-B | 2/4/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH055-B | 2/4/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH056-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH057-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH058-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH059-B | 1/27/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH060-B | 1/27/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH061-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH062-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH063-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH064-B | 1/27/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH065-B | 1/27/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH066-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH067-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH068-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH069-B | 2/4/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH070-B | 2/4/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH071-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH072-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH073-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH074-B | 2/3/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH075-B | 2/3/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH076-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH077-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH078-B | 1/26/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH079-B | 1/28/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH079-C | 1/28/2021 | 5.00-10.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH080-B | 2/2/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH080-C | 2/2/2021 | 5.00-10.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH081-B | 1/28/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH081-C | 1/28/2021 | 5.00-10.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH082-B | 2/2/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH082-C | 2/2/2021 | 5.00-10.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH083-B | 1/27/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH083-C | 1/27/2021 | 5.00-10.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH084-B | 2/3/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH084-C | 2/3/2021 | 5.00-10.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH085-B | 2/3/2021 | 1.00-5.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-PH085-C | 2/3/2021 | 5.00-10.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-SL001-A | 2/4/2021 | 0.00-1.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-SL002-A | 1/28/2021 | 0.00-1.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-SL003-A | 2/4/2021 | 0.00-1.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-SL004-A | 1/29/2021 | 0.00-1.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-SL005-A | 1/29/2021 | 0.00-1.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-SL006-A | 2/3/2021 | 0.00-1.00 | X | X | X |

**Table 2-4**
**Samples Available for Use in the Phase 1 Risk Screening – AOC 4**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Matrix | Sample ID | Date | Depth (ft bgs) | SVOCs (2,4-DNP and DNCB only) | Picric Acid | Solids |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | SO | NYOW-04-SL036-A | 2/2/2021 | 0.00-1.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-SL037-A | 2/3/2021 | 0.00-1.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-SL038-A | 2/3/2021 | 0.00-1.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-SL079-A | 1/28/2021 | 0.00-1.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-SL080-A | 2/2/2021 | 0.00-1.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-SL081-A | 1/28/2021 | 0.00-1.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-SL082-A | 2/2/2021 | 0.00-1.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-SL083-A | 1/27/2021 | 0.00-1.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-SL084-A | 2/3/2021 | 0.00-1.00 | X | X | X |
| AOC 4 - Discrete | SO | NYOW-04-SL085-A | 2/3/2021 | 0.00-1.00 | X | X | X |

**Notes:**
2,4-DNP = 2,4-dinitrophenol
AOC = area of concern
DNCB = 2,4-dinitrochlorobenzene
ft bgs = feet below ground surface
SO = soil
SVOCs = semivolatile organic compounds
WG = groundwater
X = Data available for method class.

**Table 2-5**
**Samples Available for Use in the Phase 1 Risk Screening – AOC 5**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Date | Depth (ft bgs) | VOCs | SVOCs (TAL) | PAHs | PCBs (Aroclors) | Inorganics | Solids | TOC | CEC | Grain Size |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | WG | NYOW-05-WL016-A | 1/15/2021 | 0.00-10.00 | | X | X | | X | | | | |
| AOC 5 | Boiler_House | WG | NYOW-05-WL017-1-A | 1/15/2021 | 0.00-10.00 | | X | X | | X | | | | |
| AOC 5 | Boiler_House | WG | NYOW-05-WL019-A | 1/15/2021 | 0.00-10.00 | | X | X | | X | | | | |
| AOC 5 | Boiler_House | SO | NYOW-05-PH016-B | 1/14/2021 | 1.00-5.00 | | X | X | | X | X | X | X | X |
| AOC 5 | Boiler_House | SO | NYOW-05-PH016-C | 1/14/2021 | 5.00-10.00 | | X | X | | X | X | X | X | X |
| AOC 5 | Boiler_House | SO | NYOW-05-PH017-1-B | 1/14/2021 | 1.00-5.00 | | X | X | | X | X | | | |
| AOC 5 | Boiler_House | SO | NYOW-05-PH017-1-C | 1/14/2021 | 5.00-10.00 | | X | X | | X | X | | | |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-B | 1/11/2021 | 1.00-5.00 | | X | X | | X | X | | | |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-C | 1/11/2021 | 5.00-6.00 | | X | X | | X | X | | | |
| AOC 5 | Boiler_House | SO | NYOW-05-PH019-B | 1/11/2021 | 1.00-5.00 | | X | X | | X | X | | | |
| AOC 5 | Boiler_House | SO | NYOW-05-PH019-C | 1/11/2021 | 5.00-10.00 | | X | X | | X | X | | | |
| AOC 5 | Boiler_House | SO | NYOW-05-PH020-B | 1/8/2021 | 1.00-5.00 | | X | X | | X | X | | | |
| AOC 5 | Boiler_House | SO | NYOW-05-PH020-C | 1/8/2021 | 5.00-10.00 | | X | X | | X | X | | | |
| AOC 5 | Boiler_House | SO | NYOW-05-SL016-A | 1/14/2021 | 0.00-1.00 | | X | X | | X | X | X | X | X |
| AOC 5 | Boiler_House | SO | NYOW-05-SL017-1-A | 1/14/2021 | 0.00-1.00 | | X | X | | X | X | | | |
| AOC 5 | Boiler_House | SO | NYOW-05-SL018-A | 1/11/2021 | 0.00-1.00 | | X | X | | X | X | | | |
| AOC 5 | Boiler_House | SO | NYOW-05-SL019-A | 1/11/2021 | 0.00-1.00 | | X | X | | X | X | | | |
| AOC 5 | Boiler_House | SO | NYOW-05-SL020-A | 1/8/2021 | 0.00-1.00 | | X | X | | X | X | | | |
| AOC 5 | Coal_Aggregate_Bins | WG | NYOW-05-WL024-A | 1/11/2021 | 0.00-10.00 | | X | X | | X | | | | |
| AOC 5 | Coal_Aggregate_Bins | WG | NYOW-05-WL025-A | 1/12/2021 | 0.00-10.00 | | X | X | | X | | | | |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH021-B | 1/8/2021 | 1.00-5.00 | | X | X | | X | X | | | |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH021-C | 1/8/2021 | 5.00-10.00 | | X | X | | X | X | | | |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH022-B | 1/8/2021 | 1.00-5.00 | | X | X | | X | X | | | |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH022-C | 1/8/2021 | 5.00-10.00 | | X | X | | X | X | | | |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH023-B | 1/8/2021 | 1.00-5.00 | | X | X | | X | X | | | |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH023-C | 1/8/2021 | 5.00-10.00 | | X | X | | X | X | | | |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH024-B | 1/8/2021 | 1.00-5.00 | | X | X | | X | X | | | |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH024-C | 1/8/2021 | 5.00-10.00 | | X | X | | X | X | | | |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH025-B | 1/11/2021 | 1.00-5.00 | | X | X | | X | X | X | X | X |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH025-C | 1/11/2021 | 5.00-10.00 | | X | X | | X | X | X | X | X |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-SL021-A | 1/8/2021 | 0.00-1.00 | | | X | | X | X | | | |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-SL022-A | 1/8/2021 | 0.00-1.00 | | | X | | X | X | | | |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-SL023-A | 1/8/2021 | 0.00-1.00 | | | X | | X | X | | | |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-SL024-A | 1/8/2021 | 0.00-1.00 | | | X | | X | X | | | |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-SL025-A | 1/11/2021 | 0.00-1.00 | | | X | | X | X | X | X | X |
| AOC 5 | Coal_Storage | WG | NYOW-05-WL006-A | 1/11/2021 | 0.00-10.00 | | X | X | | X | | | | |
| AOC 5 | Coal_Storage | WG | NYOW-05-WL008-A | 1/11/2021 | 0.00-10.00 | | X | X | | X | | | | |
| AOC 5 | Coal_Storage | WG | NYOW-05-WL010-A | 1/12/2021 | 0.00-10.00 | | X | X | | X | | | | |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH006-B | 1/8/2021 | 1.00-5.00 | | X | X | | X | X | X | X | X |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH006-C | 1/8/2021 | 5.00-10.00 | | X | X | | X | X | X | X | X |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH007-B | 1/7/2021 | 1.00-5.00 | | X | X | | X | X | | | |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH007-C | 1/7/2021 | 5.00-10.00 | | X | X | | X | X | | | |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH008-B | 1/7/2021 | 1.00-5.00 | | X | X | | X | X | | | |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH008-C | 1/7/2021 | 5.00-10.00 | | X | X | | X | X | | | |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH009-B | 1/7/2021 | 1.00-5.00 | | X | X | | X | X | | | |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH009-C | 1/7/2021 | 5.00-10.00 | | X | X | | X | X | | | |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH010-B | 1/7/2021 | 1.00-5.00 | | X | X | | X | X | | | |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH010-C | 1/7/2021 | 5.00-10.00 | | X | X | | X | X | | | |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL006-A | 1/8/2021 | 0.00-1.00 | | | X | | X | X | X | X | X |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL007-A | 1/7/2021 | 0.00-1.00 | | | X | | X | X | | | |

**Table 2-5**
**Samples Available for Use in the Phase 1 Risk Screening – AOC 5**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Date | Depth (ft bgs) | VOCs | SVOCs (TAL) | PAHs | PCBs (Aroclors) | Inorganics | Solids | TOC | CEC | Grain Size |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | SO | NYOW-05-SL008-A | 1/7/2021 | 0.00-1.00 | | | X | | X | X | | | |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL009-A | 1/7/2021 | 0.00-1.00 | | | X | | X | X | | | |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL010-A | 1/7/2021 | 0.00-1.00 | | | X | | X | X | | | |
| AOC 5 | Electric_Substation | WG | NYOW-05-WL012-A | 1/14/2021 | 0.00-10.00 | | X | X | | X | | | | |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH011-B | 1/13/2021 | 1.00-5.00 | | X | X | | X | X | | | |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH011-C | 1/13/2021 | 5.00-10.00 | | X | X | | X | X | | | |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH012-B | 1/13/2021 | 1.00-5.00 | | X | X | | X | X | X | X | |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH012-C | 1/13/2021 | 5.00-10.00 | | X | X | | X | X | X | X | X |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH013-B | 1/13/2021 | 1.00-5.00 | | X | X | | X | X | | | |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH013-C | 1/13/2021 | 5.00-10.00 | | X | X | | X | X | | | |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH014-B | 1/13/2021 | 1.00-5.00 | | X | X | | X | X | | | |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH014-C | 1/13/2021 | 5.00-10.00 | | X | X | | X | X | | | |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH015-B | 1/13/2021 | 1.00-5.00 | | X | X | | X | X | | | |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH015-C | 1/13/2021 | 5.00-10.00 | | X | X | | X | X | | | |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL011-A | 1/13/2021 | 0.00-1.00 | | X | X | X | X | X | | | |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL012-A | 1/13/2021 | 0.00-1.00 | | X | X | X | X | X | X | X | X |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL013-A | 1/13/2021 | 0.00-1.00 | | X | X | X | X | X | | | |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL014-A | 1/13/2021 | 0.00-1.00 | | X | X | X | X | X | | | |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL015-A | 1/13/2021 | 0.00-1.00 | | X | X | X | X | X | | | |
| AOC 5 | Possible_Dump | WG | NYOW-05-WL001-A | 1/13/2021 | 0.00-10.00 | X | X | X | X | X | | | | |
| AOC 5 | Possible_Dump | WG | NYOW-05-WL004-A | 1/14/2021 | 0.00-10.00 | X | X | X | X | X | | | | |
| AOC 5 | Possible_Dump | WG | NYOW-05-WL005-A | 1/14/2021 | 0.00-10.00 | X | X | X | X | X | | | | |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH001-B | 1/12/2021 | 1.00-5.00 | X | X | X | X | X | X | | | |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH001-C | 1/12/2021 | 5.00-10.00 | X | X | X | X | X | X | | | |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH002-B | 1/12/2021 | 1.00-5.00 | X | X | X | X | X | X | | | |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH002-C | 1/12/2021 | 5.00-10.00 | X | X | X | X | X | X | | | |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-B | 1/12/2021 | 1.00-5.00 | X | X | X | X | X | X | X | X | X |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-C | 1/12/2021 | 5.00-10.00 | X | X | X | X | X | X | X | X | X |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH004-B | 1/12/2021 | 1.00-5.00 | X | X | X | X | X | X | | | |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH004-C | 1/12/2021 | 5.00-10.00 | X | X | X | X | X | X | | | |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH005-B | 1/12/2021 | 1.00-5.00 | X | X | X | X | X | X | | | |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH005-C | 1/12/2021 | 5.00-10.00 | X | X | X | X | X | X | | | |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL001-A | 1/12/2021 | 0.00-1.00 | | X | X | X | X | X | | | |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL002-A | 1/12/2021 | 0.00-1.00 | | X | X | X | X | X | | | |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL003-A | 1/12/2021 | 0.00-1.00 | | X | X | X | X | X | X | X | X |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL004-A | 1/12/2021 | 0.00-1.00 | | X | X | X | X | X | | | |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL005-A | 1/12/2021 | 0.00-1.00 | | X | X | X | X | X | | | |

**Notes:**

AOC = area of concern
CEC = cation exchange capacity
ft bgs = feet below ground surface
PAHs = polycyclic aromatic hydrocarbons
PCBs = polycholorinated biphenyls
SO = soil
SVOCs = semivolatile organic compounds
TAL = target analyte list
TOC = total organic carbon
VOCs = volatile organic compounds
WG = groundwater
X = Data available for method class.

**Table 2-6**
**Samples Available for Use in the Phase 1 Risk Screening – Background**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Matrix | Sample ID | Date | Depth (ft bgs) | PAHs | Inorganics | Solids | TOC | CEC | Grain Size |
|---|---|---|---|---|---|---|---|---|---|---|
| Background | WG | NYOW-B-WL001-A | 5/13/2021 | 0.00-10.00 | X | X | | | | |
| Background | WG | NYOW-B-WL002-A | 5/14/2021 | 0.00-10.00 | X | X | | | | |
| Background | WG | NYOW-B-WL003-A | 5/14/2021 | 0.00-10.00 | X | X | | | | |
| Background | WG | NYOW-B-WL004-A | 5/13/2021 | 0.00-10.00 | X | X | | | | |
| Background | WG | NYOW-B-WL005-A | 5/17/2021 | 0.00-10.00 | X | X | | | | |
| Background | WG | NYOW-B-WL010-A | 5/18/2021 | 0.00-10.00 | X | X | | | | |
| Background | WG | NYOW-B-WL031-A | 5/13/2021 | 0.00-10.00 | X | X | | | | |
| Background | WG | NYOW-B-WL047-A | 5/17/2021 | 0.00-10.00 | X | X | | | | |
| Background | WG | NYOW-B-WL050-A | 5/17/2021 | 0.00-10.00 | X | X | | | | |
| Background | SO | NYOW-B-PH006-B | 5/18/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH006-C | 5/18/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH007-B | 5/18/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH007-C | 5/18/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH008-B | 5/17/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH008-C | 5/17/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH009-B | 5/17/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH009-C | 5/17/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH010-B | 5/17/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH010-C | 5/17/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH011-B | 5/18/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH011-C | 5/18/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH012-B | 5/12/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH012-C | 5/12/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH013-B | 5/12/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH013-C | 5/12/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH014-B | 5/17/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH014-C | 5/17/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH015-B | 5/13/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH015-C | 5/13/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH016-B | 5/13/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH016-C | 5/13/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH017-B | 5/13/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH017-C | 5/13/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH018-B | 5/13/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH018-C | 5/13/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH019-B | 5/13/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH019-C | 5/13/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH020-B | 5/14/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH020-C | 5/14/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH021-B | 5/10/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH021-C | 5/10/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH022-B | 5/10/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH022-C | 5/10/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH023-B | 5/11/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH023-C | 5/11/2021 | 5.00-10.00 | X | X | X | X | X | X |

**Table 2-6**
**Samples Available for Use in the Phase 1 Risk Screening – Background**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Matrix | Sample ID | Date | Depth (ft bgs) | PAHs | Inorganics | Solids | TOC | CEC | Grain Size |
|---|---|---|---|---|---|---|---|---|---|---|
| Background | SO | NYOW-B-PH024-B | 5/11/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH024-C | 5/11/2021 | 5.00-10.00 | X | X | X | X | X | |
| Background | SO | NYOW-B-PH025-B | 5/11/2021 | 1.00-5.00 | X | X | X | X | X | |
| Background | SO | NYOW-B-PH025-C | 5/11/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH026-B | 5/10/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH026-C | 5/10/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH027-B | 5/11/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH027-C | 5/11/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH028-B | 5/11/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH028-C | 5/11/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH029-B | 5/12/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH029-C | 5/12/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH030-B | 5/12/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH030-C | 5/12/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH031-B | 5/11/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH031-C | 5/11/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH032-B | 5/12/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH032-C | 5/12/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH033-B | 5/7/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH033-C | 5/7/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH034-B | 5/7/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH034-C | 5/7/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH035-B | 5/7/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH035-C | 5/7/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH036-B | 5/10/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH036-C | 5/10/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH037-B | 5/10/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH037-C | 5/10/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH038-B | 5/10/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH038-C | 5/10/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH039-B | 5/10/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH039-C | 5/10/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH040-B | 5/11/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH040-C | 5/11/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH041-B | 5/7/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH041-C | 5/7/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH042-B | 5/6/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH042-C | 5/6/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH043-B | 5/6/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH043-C | 5/6/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH044-B | 5/6/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH044-C | 5/6/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH045-B | 5/6/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH045-C | 5/6/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH046-B | 5/6/2021 | 1.00-5.00 | X | X | X | X | X | X |

**Table 2-6**
**Samples Available for Use in the Phase 1 Risk Screening – Background**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Matrix | Sample ID | Date | Depth (ft bgs) | PAHs | Inorganics | Solids | TOC | CEC | Grain Size |
|---|---|---|---|---|---|---|---|---|---|---|
| Background | SO | NYOW-B-PH046-C | 5/6/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH047-B | 5/6/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH047-C | 5/6/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH048-B | 5/5/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH048-C | 5/5/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH049-B | 5/5/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH049-C | 5/5/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH050-B | 5/5/2021 | 1.00-5.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-PH050-C | 5/5/2021 | 5.00-10.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL006-A | 5/18/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL007-A | 5/18/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL008-A | 5/17/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL009-A | 5/17/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL010-A | 5/17/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL011-A | 5/18/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL012-A | 5/12/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL013-A | 5/12/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL014-A | 5/17/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL015-A | 5/13/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL016-A | 5/13/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL017-A | 5/13/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL018-A | 5/13/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL019-A | 5/13/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL020-A | 5/14/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL021-A | 5/10/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL022-A | 5/10/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL023-A | 5/11/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL024-A | 5/11/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL025-A | 5/11/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL026-A | 5/10/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL027-A | 5/11/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL028-A | 5/11/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL029-A | 5/12/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL030-A | 5/12/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL031-A | 5/11/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL032-A | 5/12/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL033-A | 5/7/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL034-A | 5/7/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL035-A | 5/7/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL036-A | 5/10/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL037-A | 5/10/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL038-A | 5/10/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL039-A | 5/10/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL040-A | 5/11/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL041-A | 5/7/2021 | 0.00-1.00 | X | X | X | X | X | X |

**Table 2-6**
**Samples Available for Use in the Phase 1 Risk Screening – Background**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Matrix | Sample ID | Date | Depth (ft bgs) | PAHs | Inorganics | Solids | TOC | CEC | Grain Size |
|---|---|---|---|---|---|---|---|---|---|---|
| Background | SO | NYOW-B-SL042-A | 5/6/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL043-A | 5/6/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL044-A | 5/6/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL045-A | 5/6/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL046-A | 5/6/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL047-A | 5/6/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL048-A | 5/5/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL049-A | 5/5/2021 | 0.00-1.00 | X | X | X | X | X | X |
| Background | SO | NYOW-B-SL050-A | 5/5/2021 | 0.00-1.00 | X | X | X | X | X | X |

**Notes:**

AOC = area of concern

CEC = cation exchange capacity

ft bgs = feet below ground surface

PAHs = polycyclic aromatic hydrocarbons

SO = soil

TOC = total organic carbon

WG = groundwater

X = Data available for method class.

Table 2-7
Boring Distribution per Geologic Unit
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | Psc<br>Lacustrine Silt and Clay | Ps<br>Sorted Sand and Gravel | Pd<br>Diamicton (till) | Other |
|---|---|---|---|---|
| AOC 1 Borings | NYOW-01-020* | NYOW-01-018****<br>NYOW-01-019<br>NYOW-01-021<br>NYOW-01-022***<br>NYOW-01-023***<br>NYOW-01-024**** | NYOW-01-001<br>NYOW-01-002<br>NYOW-01-005<br>NYOW-01-015<br>NYOW-01-016 | Fill[1]<br>NYOW-01-006A<br>NYOW-01-006B**<br><br>Topsoil<br>NYOW-01-007<br>NYOW-01-009<br>NYOW-01-011<br>NYOW-01-013<br>NYOW-01-025<br>NYOW-01-026<br>NYOW-01-027<br>NYOW-01-028<br>NYOW-01-029<br>NYOW-01-030<br>NYOW-01-031<br>NYOW-01-032<br>NYOW-01-033<br>NYOW-01-034<br>NYOW-01-035<br>NYOW-01-036<br>NYOW-01-037<br>NYOW-01-038<br>NYOW-01-039 |
| AOC 3 Borings | NYOW-03-001<br>NYOW-03-002<br>NYOW-03-003<br>NYOW-03-004<br>NYOW-03-005<br>NYOW-03-006<br>NYOW-03-007<br>NYOW-03-008<br>NYOW-03-009<br>NYOW-03-010<br>NYOW-03-011<br>NYOW-03-012<br>NYOW-03-013<br>NYOW-03-014<br>NYOW-03-015<br>NYOW-03-016<br>NYOW-03-017<br>NYOW-03-018 | Not Observed | Not Observed | Not Observed |
| AOC 4 Borings | NYOW-04-001<br>NYOW-04-002<br>NYOW-04-005<br>NYOW-04-006<br>NYOW-04-007<br>NYOW-04-008<br>NYOW-04-009<br>NYOW-04-010*<br>NYOW-04-012<br>NYOW-04-013<br>NYOW-04-014*<br>NYOW-04-015<br>NYOW-04-016<br>NYOW-04-017<br>NYOW-04-018*<br>NYOW-04-019*<br>NYOW-04-022<br>NYOW-04-023<br>NYOW-04-024<br>NYOW-04-026<br>NYOW-04-027<br>NYOW-04-028<br>NYOW-04-030<br>NYOW-04-032<br>NYOW-04-033*<br>NYOW-04-034<br>NYOW-04-035<br>NYOW-04-036<br>NYOW-04-037*<br>NYOW-04-038*<br>NYOW-04-039 thru<br>NYOW-04-050<br>NYOW-04-051*<br>NYOW-04-052 thru<br>NYOW-04-074<br>NYOW-04-075*<br>NYOW-04-077<br>NYOW-04-078<br>NYOW-04-079<br>NYOW-04-080<br>NYOW-04-081<br>NYOW-04-083 | NYOW-04-003***<br>NYOW-04-004***<br>NYOW-04-011<br>NYOW-04-020<br>NYOW-04-021***<br>NYOW-04-025***<br>NYOW-04-029***<br>NYOW-04-031<br>NYOW-04-076***<br>NYOW-04-082***<br>NYOW-04-084***<br>NYOW-04-085*** | Not Observed | Not Observed |

Table 2-7
Boring Distribution per Geologic Unit
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | Psc<br>Lacustrine Silt and Clay | Ps<br>Sorted Sand and Gravel | | Pd<br>Diamicton (till) | Other |
|---|---|---|---|---|---|
| AOC 5 Borings | NYOW-05-001*<br>NYOW-05-003<br>NYOW-05-008*<br>NYOW-05-009<br>NYOW-05-010*<br>NYOW-05-013*<br>NYOW-05-014*<br>NYOW-05-015**<br>NYOW-05-016** | NYOW-05-002***<br>NYOW-05-004***<br>NYOW-05-005***<br>NYOW-05-007***<br>NYOW-05-011***<br>NYOW-05-012***<br>NYOW-05-019****<br>NYOW-05-020*** | | Not Observed | Fill[1]<br>NYOW-05-006**<br>NYOW-05-017<br>NYOW-05-017-1**<br>NYOW-05-018<br>NYOW-05-021<br>NYOW-05-022<br>NYOW-05-023<br>NYOW-05-024**<br>NYOW-05-025*** |
| Background Borings | NYOW-B-006<br>NYOW-B-007<br>NYOW-B-008<br>NYOW-B-009*<br>NYOW-B-011<br>NYOW-B-016<br>NYOW-B-019*<br>NYOW-B-040**<br><br>Temporary Wells Only<br>NYOW-B-001**<br>NYOW-B-002**<br>NYOW-B-003 | NYOW-B-010<br>NYOW-B-012***<br>NYOW-B-013<br>NYOW-B-014***<br>NYOW-B-015***<br>NYOW-B-017<br>NYOW-B-018***<br>NYOW-B-020<br>NYOW-B-021<br>NYOW-B-022<br>NYOW-B-023<br>NYOW-B-024***[2]<br><br>Temporary Wells Only<br>NYOW-B-004***<br>NYOW-B-005*** | NYOW-B-025[3]<br>NYOW-B-026<br>NYOW-B-027<br>NYOW-B-028<br>NYOW-B-029<br>NYOW-B-030****<br>NYOW-B-031****<br>NYOW-B-032****<br>NYOW-B-033<br>NYOW-B-034<br>NYOW-B-035<br>NYOW-B-050*** | NYOW-B-036<br>NYOW-B-037<br>NYOW-B-038<br>NYOW-B-039<br>NYOW-B-041<br>NYOW-B-042<br>NYOW-B-043<br>NYOW-B-044<br>NYOW-B-045<br>NYOW-B-046<br>NYOW-B-049 | Fill[1]<br>NYOW-B-047<br>NYOW-B-048 |

Notes:
*Psc observed above Ps in boring profile
**Psc observed above Pd in boring profile
***Ps observed above Psc in boring profile
****Ps observed above Pd in boring profile
AOC = area of concern

[1] Fill was observed in the shallow interval above native soil.

[2] The laboratory gradation test results for the 5 to 10 ft bgs depth interval were rejected due to melted ice water infiltrating the sample during transit between laboratories; therefore, the laboratory gradation test results were not used to inform the boring log for this depth interval. Gradation for this depth interval was estimated based on field observations.

[3] The laboratory gradation test results for the 1 to 5 ft bgs depth interval were rejected due to melted ice water infiltrating the sample during transit between laboratories; therefore, the laboratory gradation test results were not used to inform the boring log for this depth interval. Gradation for this depth interval was estimated based on field observations.

Soil types from Surficial Geologic Map, Baldwinsville Quadrangle (Pair, 2014)

Table 2-8
Geologic Unit Distribution Summary
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | Total | Psc | Ps | Pd | Psc/Ps | Psc/Pd | Ps/Psc | Ps/Pd | Fill |
|---|---|---|---|---|---|---|---|---|---|
| AOC 1* | 13 | 0 | 2 | 5 | 1 | -- | 2 | 2 | 1 |
| AOC 3 | 18 | 18 | -- | -- | -- | -- | -- | -- | -- |
| AOC 4 | 85 | 64 | 3 | -- | 9 | -- | 9 | -- | -- |
| AOC 5 | 26 | 2 | -- | -- | 5 | 2 | 7 | 1 | 9 |
| TOTAL Site | 142 | 84 | 5 | 5 | 15 | 2 | 18 | 3 | 10 |
| | | | | | | | | | |
| Background** | 45 | 5 | 15 | 11 | 2 | 1 | 6 | 3 | 2 |

Notes:
*Topsoil borings in AOC 1 are not included.
**Temporary wells NYOW-B-001 through NYOW-B-005 are not included because no soil samples were collected at these locations.
AOC = area of concern

# TABLES

## Section 5

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Table 5-1
UFP-QAPP Screening Value Availability
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | Screening Value Available? | | | | | |
|---|---|---|---|---|---|---|
| | Human Health | | Ecological - Soil Only | | | |
| Analyte | Groundwater | Soil | Plants | Invertebrates | Birds | Mammals |
| Volatile Organic Compounds (VOCs) | | | | | | |
| 1,1,1-Trichloroethane | Yes | Yes | No | Yes | No | Yes |
| 1,1,2,2-Tetrachloroethane | Yes | Yes | No | Yes | No | Yes |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | Yes | Yes | No | No | No | No |
| 1,1,2-Trichloroethane | Yes | Yes | No | Yes | No | Yes |
| 1,1-Dichloroethane | Yes | Yes | No | Yes | No | Yes |
| 1,1-Dichloroethene | Yes | Yes | No | Yes | No | Yes |
| 1,2,3-Trichlorobenzene | Yes | Yes | No | Yes | No | No |
| 1,2,4-Trichlorobenzene | Yes | Yes | No | Yes | No | Yes |
| 1,2-Dibromo-3-chloropropane | Yes | Yes | No | No | No | Yes |
| 1,2-Dibromoethane (EDB) | Yes | Yes | No | No | No | Yes |
| 1,2-Dichlorobenzene | Yes | Yes | No | Yes | No | Yes |
| 1,2-Dichloroethane | Yes | Yes | No | Yes | Yes | Yes |
| 1,2-Dichloropropane | Yes | Yes | No | Yes | No | Yes |
| 1,3-Dichlorobenzene | Yes | No | No | Yes | No | Yes |
| 1,3-Dichloropropane | Yes | Yes | No | No | No | No |
| 1,4-Dichlorobenzene | Yes | Yes | No | Yes | No | Yes |
| 2-Butanone (MEK) | Yes | Yes | No | Yes | No | Yes |
| 2-Hexanone | Yes | Yes | No | Yes | Yes | Yes |
| 4-Methyl-2-pentanone (MIBK) | Yes | Yes | No | No | No | Yes |
| Acetone | Yes | Yes | No | Yes | Yes | Yes |
| Benzene | Yes | Yes | No | Yes | No | Yes |
| Bromochloromethane | Yes | Yes | No | No | No | No |
| Bromodichloromethane | Yes | Yes | No | No | No | Yes |
| Bromoform | Yes | Yes | No | Yes | No | Yes |
| Bromomethane | Yes | Yes | No | Yes | No | Yes |
| Carbon disulfide | Yes | Yes | No | Yes | No | Yes |
| Carbon tetrachloride | Yes | Yes | No | Yes | No | Yes |
| Chlorobenzene | Yes | Yes | No | Yes | No | Yes |
| Chloroethane | Yes | Yes | No | No | No | No |
| Chloroform | Yes | Yes | No | Yes | No | Yes |
| Chloromethane | Yes | Yes | No | No | No | Yes |
| cis-1,2-Dichloroethene | Yes | Yes | No | Yes | No | No |
| cis-1,3-Dichloropropene | Yes | Yes | No | Yes | No | Yes |
| Cumene | Yes | Yes | No | Yes | No | No |
| Cyclohexane | Yes | Yes | No | No | No | No |
| Dibromochloromethane | Yes | Yes | No | No | No | Yes |
| Dichlorodifluoromethane | Yes | Yes | No | No | No | Yes |
| Ethylbenzene | Yes | Yes | No | Yes | No | Yes |
| m,p-Xylene | Yes | Yes | Yes | Yes | Yes | Yes |
| Methyl acetate | Yes | Yes | No | No | No | No |
| Methyl tert-butyl ether (MTBE) | Yes | Yes | No | No | No | No |
| Methylcyclohexane | No | No | No | No | No | No |
| Methylene chloride | Yes | Yes | Yes | Yes | No | Yes |
| o-Xylene | Yes | Yes | Yes | Yes | Yes | Yes |
| Styrene | Yes | Yes | Yes | Yes | No | Yes |
| Tetrachloroethene (PCE) | Yes | Yes | Yes | Yes | No | Yes |
| Toluene | Yes | Yes | Yes | Yes | No | Yes |
| trans-1,2-Dichloroethene | Yes | Yes | No | Yes | No | Yes |
| trans-1,3-Dichloropropene | Yes | Yes | No | Yes | No | Yes |
| Trichlorofluoromethane | Yes | Yes | No | No | No | Yes |
| Vinyl chloride | Yes | Yes | No | Yes | No | Yes |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | |

Table 5-1
UFP-QAPP Screening Value Availability
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | Screening Value Available? | | | | | |
|---|---|---|---|---|---|---|
| | Human Health | | Ecological - Soil Only | | | |
| Analyte | Groundwater | Soil | Plants | Invertebrates | Birds | Mammals |
| 1,2,4,5-Tetrachlorobenzene | Yes | Yes | No | Yes | No | Yes |
| 1,4-Dioxane | Yes | Yes | No | No | No | Yes |
| 2,2'-Oxybis(1-chloropropane) | Yes | Yes | No | No | No | Yes |
| 2,3,4,6-Tetrachlorophenol | Yes | Yes | No | Yes | No | Yes |
| 2,4,5-Trichlorophenol | Yes | Yes | Yes | Yes | No | Yes |
| 2,4,6-Trichlorophenol | Yes | Yes | No | Yes | No | Yes |
| 2,4-Dichlorophenol | Yes | Yes | No | Yes | No | Yes |
| 2,4-Dimethylphenol | Yes | Yes | Yes | Yes | No | No |
| 2,4-Dinitrochlorobenzene | No | No | Yes | Yes | No | Yes |
| 2,4-Dinitrophenol | No | Yes | Yes | Yes | No | Yes |
| 2,4-Dinitrotoluene | Yes | Yes | Yes | Yes | No | Yes |
| 2,6-Dinitrotoluene | Yes | Yes | No | Yes | Yes | Yes |
| 2-Chloronaphthalene | Yes | Yes | No | No | No | Yes |
| 2-Chlorophenol | Yes | Yes | No | Yes | Yes | Yes |
| 2-Methylphenol (o-Cresol) | Yes | Yes | Yes | Yes | No | Yes |
| 2-Nitroaniline | Yes | Yes | No | Yes | No | Yes |
| 2-Nitrophenol | No | No | No | No | No | Yes |
| 3,3'-Dichlorobenzidine | Yes | Yes | No | Yes | No | Yes |
| 3-Nitroaniline | Yes | No | No | No | No | Yes |
| 4,6-Dinitro-2-methylphenol | Yes | Yes | No | No | No | Yes |
| 4-Bromophenyl phenyl ether | No | No | No | No | No | No |
| 4-Chloro-3-methylphenol | Yes | Yes | No | No | No | Yes |
| 4-Chloroaniline | Yes | Yes | Yes | Yes | No | Yes |
| 4-Chlorophenyl phenyl ether | No | No | No | No | No | No |
| 4-Nitroaniline | Yes | Yes | No | No | No | Yes |
| 4-Nitrophenol | No | No | No | Yes | No | Yes |
| Acetophenone | Yes | Yes | No | No | No | Yes |
| Atrazine | Yes | Yes | No | Yes | No | No |
| Benzaldehyde | Yes | Yes | No | No | No | No |
| Benzyl butyl phthalate | Yes | Yes | No | Yes | No | Yes |
| Biphenyl (Diphenyl) | Yes | Yes | Yes | Yes | No | No |
| Bis(2-chloroethoxy)methane | Yes | Yes | No | No | No | Yes |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | Yes | Yes | No | No | No | Yes |
| Bis(2-ethylhexyl)phthalate | Yes | Yes | No | Yes | Yes | Yes |
| Caprolactam | Yes | Yes | No | No | No | No |
| Carbazole | No | No | No | Yes | No | Yes |
| Cresols, m- & p- | Yes | Yes | Yes | Yes | No | Yes |
| Dibenzofuran | Yes | Yes | Yes | Yes | No | No |
| Diethyl phthalate | Yes | Yes | Yes | Yes | No | Yes |
| Dimethyl phthalate | No | No | No | Yes | No | Yes |
| Di-n-butyl phthalate | Yes | Yes | Yes | Yes | Yes | Yes |
| di-n-Octyl phthalate | Yes | Yes | No | Yes | No | Yes |
| Hexachlorobenzene | Yes | Yes | Yes | Yes | Yes | Yes |
| Hexachlorobutadiene | Yes | Yes | No | Yes | No | Yes |
| Hexachlorocyclopentadiene | Yes | Yes | Yes | Yes | No | Yes |
| Hexachloroethane | Yes | Yes | No | Yes | No | Yes |
| Isophorone | Yes | Yes | No | No | No | Yes |
| Nitrobenzene | Yes | Yes | No | Yes | No | Yes |
| N-Nitrosodi-n-propylamine | Yes | Yes | No | No | No | Yes |
| N-Nitrosodiphenylamine | Yes | Yes | No | Yes | No | Yes |
| Pentachlorophenol | Yes | Yes | Yes | Yes | Yes | Yes |
| Phenol | Yes | Yes | Yes | Yes | No | Yes |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | |

Table 5-1
UFP-QAPP Screening Value Availability
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | Screening Value Available? | | | | | |
|---|---|---|---|---|---|---|
| | Human Health | | Ecological - Soil Only | | | |
| Analyte | Groundwater | Soil | Plants | Invertebrates | Birds | Mammals |
| 1-Methylnaphthalene | Yes | Yes | No | Yes | No | Yes |
| 2-Methylnaphthalene | Yes | Yes | No | Yes | No | Yes |
| Acenaphthene | Yes | Yes | Yes | Yes | No | Yes |
| Acenaphthylene | No | No | No | Yes | No | Yes |
| Anthracene | Yes | Yes | Yes | Yes | No | Yes |
| Benzo(a)anthracene | Yes | Yes | Yes | Yes | Yes | Yes |
| Benzo(a)pyrene | Yes | Yes | No | Yes | No | Yes |
| Benzo(b)fluoranthene | Yes | Yes | Yes | Yes | No | Yes |
| Benzo(g,h,i)perylene | No | No | No | Yes | No | Yes |
| Benzo(k)fluoranthene | Yes | Yes | No | Yes | No | Yes |
| Chrysene | Yes | Yes | No | Yes | No | Yes |
| Dibenz(a,h)anthracene | Yes | Yes | No | Yes | No | Yes |
| Fluoranthene | Yes | Yes | No | Yes | No | Yes |
| Fluorene | Yes | Yes | No | Yes | No | Yes |
| Indeno(1,2,3-c,d)pyrene | Yes | Yes | No | Yes | No | Yes |
| Naphthalene | Yes | Yes | Yes | Yes | Yes | Yes |
| Phenanthrene | No | No | No | Yes | No | Yes |
| Pyrene | Yes | Yes | No | Yes | Yes | Yes |
| High Molecular Weight PAHs | No | No | No | Yes | No | Yes |
| Low Molecular Weight PAHs | No | No | No | Yes | No | Yes |
| Explosives | | | | | | |
| Picric acid | Yes | Yes | Yes | Yes | No | Yes |
| Polychlorinated Biphenyls (PCBs) | | | | | | |
| PCB-1016 (Aroclor 1016) | Yes | Yes | Yes | Yes | Yes | Yes |
| PCB-1221 (Aroclor 1221) | Yes | Yes | Yes | Yes | Yes | Yes |
| PCB-1232 (Aroclor 1232) | Yes | Yes | Yes | Yes | Yes | Yes |
| PCB-1242 (Aroclor 1242) | Yes | Yes | Yes | Yes | Yes | Yes |
| PCB-1248 (Aroclor 1248) | Yes | Yes | Yes | Yes | Yes | Yes |
| PCB-1254 (Aroclor 1254) | Yes | Yes | Yes | Yes | Yes | Yes |
| PCB-1260 (Aroclor 1260) | Yes | Yes | Yes | Yes | Yes | Yes |
| PCB-1262 (Aroclor 1262) | No | No | Yes | Yes | Yes | Yes |
| PCB-1268 (Aroclor 1268) | No | No | Yes | Yes | Yes | Yes |
| Total PCBs | No | No | Yes | Yes | Yes | Yes |
| Metals | | | | | | |
| Aluminum | Yes | Yes | Yes | Yes | Yes | Yes |
| Antimony | Yes | Yes | Yes | Yes | No | Yes |
| Arsenic | Yes | Yes | Yes | Yes | Yes | Yes |
| Barium | Yes | Yes | Yes | Yes | Yes | Yes |
| Beryllium | Yes | Yes | Yes | Yes | No | Yes |
| Cadmium | Yes | Yes | Yes | Yes | Yes | Yes |
| Calcium | No | No | No | No | No | No |
| Chromium | Yes | Yes | Yes | Yes | Yes | Yes |
| Cobalt | Yes | Yes | Yes | No | Yes | Yes |
| Copper | Yes | Yes | Yes | Yes | Yes | Yes |
| Iron | Yes | Yes | Yes | Yes | Yes | Yes |
| Lead | Yes | Yes | Yes | Yes | Yes | Yes |
| Magnesium | No | No | No | No | No | No |
| Manganese | Yes | Yes | Yes | Yes | Yes | Yes |
| Mercury | Yes | Yes | Yes | Yes | Yes | Yes |
| Nickel | Yes | Yes | Yes | Yes | Yes | Yes |
| Potassium | No | No | No | No | No | No |
| Selenium | Yes | Yes | Yes | Yes | Yes | Yes |
| Silver | Yes | Yes | Yes | No | Yes | Yes |

Table 5-1
UFP-QAPP Screening Value Availability
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Analyte | Screening Value Available? | | | | | |
|---|---|---|---|---|---|---|
| | Human Health | | Ecological - Soil Only | | | |
| | Groundwater | Soil | Plants | Invertebrates | Birds | Mammals |
| Sodium | Yes | No | No | No | No | No |
| Thallium | Yes | Yes | Yes | No | Yes | Yes |
| Vanadium | Yes | Yes | Yes | No | Yes | Yes |
| Zinc | Yes | Yes | Yes | Yes | Yes | Yes |

Notes:
QAPP = quality assurance project plan

List of analytes based on Phase 1 field sampling.
Shading indicates a screening value is not available for the analyte based on the hierarchy of sources presented in Subsection 5.1.1.1.

**Table 5-2**
**Groundwater Analytes without Human Health Screening Levels Identified in the UFP-QAPP with Selected Surrogates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Analyte | Selected Surrogate | |
|---|---|---|
| | **Chemical** | **Rationale** |
| **Semi-Volatile Organic Compounds (SVOCs)** | | |
| 2,4-Dinitrochlorobenzene | 2,4-Dinitrotoluene | Analogous to approach used to derive ecological value in UFP-QAPP Appendix A. |
| 2-Nitrophenol | 2-Chlorophenol | Structural similarity; both compounds are monosubstituted phenols. |
| 4-Nitrophenol | 2-Chlorophenol | Structural similarity; both compounds are monosubstituted phenols. |
| Carbazole | Fluorene | Structural similarity; both compounds consist of two benzene rings bonded with a five membered ring between them. |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | |
| Acenaphthylene | Acenaphthene | Classified as non-carcinogen; number of rings (2) and acenaphthene structure representative. |
| Benzo(g,h,i)perylene | Pyrene | Classified as non-carcinogen; number of rings in the pyrene structure (4) more representative than naphthalene. |
| Phenanthrene | Anthracene | Classified as non-carcinogen; number of rings (3) and anthracene structure representative. |
| **Polychlorinated Biphenyls (PCBs)** | | |
| PCB-1262 (Aroclor 1262) | Aroclor 1260 | Degree of chlorination, assigned to high risk/persistence tier. |
| PCB-1268 (Aroclor 1268) | Aroclor 1260 | Degree of chlorination, assigned to high risk/persistence tier. |

**Notes:**
UFP-QAPP = Uniform Federal Program - Quality Assurance Project Plan

1) List indicates screening value is not available for the analyte based on the hierarchy of sources presented in Section 5.1.1.1.
AND
Analytes are likely to be or potentially DoD-related as presented in Subsection 5.3.2.

**Table 5-3**
**Soil Analytes without Human Health Screening Levels Identified in the UFP-QAPP with Selected Surrogates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Analyte | Selected Surrogate | |
|---|---|---|
| | **Chemical** | **Rationale** |
| **Semi-Volatile Organic Compounds (SVOCs)** | | |
| 2,4-Dinitrochlorobenzene | 2,4-Dinitrotoluene | Analogous to approach used to derive ecological value in UFP-QAPP Appendix A. |
| 2-Nitrophenol | 2-Chlorophenol | Structural similarity; both compounds are monosubstituted phenols. |
| 3-Nitroaniline | 4-Nitroaniline | Structural similarity; PPRTV identification of studies comparing "near equivalent" non-cancer toxicity. |
| 4-Nitrophenol | 2-Chlorophenol | Structural similarity; both compounds are monosubstituted phenols. |
| Carbazole | Fluorene | Structural similarity; both compounds consist of two benzene rings bonded with a five membered ring between them. |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | |
| Acenaphthylene | Acenaphthene | Classified as non-carcinogen; number of rings (2) and acenaphthene structure representative. |
| Benzo(g,h,i)perylene | Pyrene | Classified as non-carcinogen; number of rings in the pyrene structure (4) more representative than naphthalene. |
| Phenanthrene | Anthracene | Classified as non-carcinogen; number of rings (3) and anthracene structure representative. |
| **Polychlorinated Biphenyls (PCBs)** | | |
| PCB-1262 (Aroclor 1262) | Aroclor 1260 | Degree of chlorination, assigned to high risk/persistence tier. |
| PCB-1268 (Aroclor 1268) | Aroclor 1260 | Degree of chlorination, assigned to high risk/persistence tier. |

**Notes:**
PPRTV = Provisional Peer-Reviewed Toxicity Values
UFP-QAPP = Uniform Federal Program - Quality Assurance Project Plan

1) List indicates screening value is not available for the analyte based on the hierarchy of sources presented in Section 5.1.1.1.
AND
Analytes are likely to be or potentially DoD-related as presented in Subsection 5.3.2.

**Table 5-4**
**Soil Analytes without Phytotoxicity Screening Levels Identified in the UFP-QAPP with Selected Surrogates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Analyte | Selected Surrogate | |
|---|---|---|
| | Chemical | Rationale |
| **Volatile Organic Compounds (VOCs)** | | |
| 1,2,3-Trichlorobenzene | N/A | VOC phytotoxicity data limited. No appropriate surrogate. |
| 2-Butanone (MEK) | N/A | VOC phytotoxicity data limited. No appropriate surrogate. |
| Acetone | N/A | VOC phytotoxicity data limited. No appropriate surrogate. |
| Benzene | Toluene | Structural similarity; methyl functional group on benzene ring. |
| **Semi-Volatile Organic Compounds (SVOCs)** | | |
| 2-Nitroaniline | N/A | Phytotoxicity values for structurally similar compound not available. |
| 2-Nitrophenol | N/A | Phytotoxicity values for structurally similar compound not available. |
| 3-Nitroaniline | N/A | Phytotoxicity values for structurally similar compound not available. |
| 4-Nitroaniline | N/A | Phytotoxicity values for structurally similar compound not available. |
| 4-Nitrophenol | N/A | Phytotoxicity values for structurally similar compound not available. |
| Benzaldehyde | N/A | Phytotoxicity values for structurally similar compound not available. |
| Carbazole | N/A | Phytotoxicity values for structurally similar compound not available. |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | |
| 1-Methylnaphthalene | Naphthalene | Structural similarity; lacking methyl functional group. |
| 2-Methylnaphthalene | Naphthalene | Structural similarity; lacking methyl functional group. |
| Acenaphthylene | N/A | Phytotoxicity toxicity values for structurally similar PAHs range in values too greatly to select a surrogate with confidence. |
| Benzo(a)pyrene | N/A | Phytotoxicity values for structurally similar PAHs not available. |
| Benzo(g,h,i)perylene | N/A | Phytotoxicity values for structurally similar PAHs not available. |
| Benzo(k)fluoranthene | Benzo(b)fluoranthene | Number of rings (4 six-sided and 1 five-sided) and benzo(b)fluoranthene structure representative. |
| Chrysene | N/A | Phytotoxicity toxicity values for structurally similar PAHs range in values too greatly to select a surrogate with confidence. |
| Dibenz(a,h)anthracene | N/A | Phytotoxicity toxicity values for structurally similar PAHs range in values too greatly to select a surrogate with confidence. |
| Fluoranthene | N/A | Phytotoxicity toxicity values for structurally similar PAHs range in values too greatly to select a surrogate with confidence. |
| Fluorene | N/A | Phytotoxicity toxicity values for structurally similar PAHs range in values too greatly to select a surrogate with confidence. |
| Indeno(1,2,3-c,d)pyrene | N/A | Phytotoxicity toxicity values for structurally similar PAHs range in values too greatly to select a surrogate with confidence. |
| Phenanthrene | N/A | Phytotoxicity toxicity values for structurally similar PAHs range in values too greatly to select a surrogate with confidence. |
| Pyrene | N/A | Phytotoxicity toxicity values for structurally similar PAHs range in values too greatly to select a surrogate with confidence. |
| High Molecular Weight PAHs | N/A | Phytotoxicity toxicity values for structurally similar PAHs range in values too greatly to select a surrogate with confidence. |

**Table 5-4**
**Soil Analytes without Phytotoxicity Screening Levels Identified in the UFP-QAPP with Selected Surrogates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Analyte | Selected Surrogate | |
|---|---|---|
| | Chemical | Rationale |
| Low Molecular Weight PAHs | N/A | Phytotoxicity toxicity values for structurally similar PAHs range in values too greatly to select a surrogate with confidence. |

**Notes:**
UFP-QAPP = Uniform Federal Program - Quality Assurance Project Plan

1) List indicates screening value is not available for the analyte based on the hierarchy of sources presented in Section 5.1.1.1.
AND
Analytes are likely to be or potentially DoD-related as presented in Subsection 5.3.2.

**Table 5-5**
**Soil Analytes without Soil Invertebrate Screening Levels Identified in the UFP-QAPP with Selected Surrogates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Analyte | Selected Surrogate | |
|---|---|---|
| | **Chemical** | **Rationale/Comment** |
| **Semi-Volatile Organic Compounds (SVOCs)** | | |
| 2-Nitrophenol | 2-Chlorophenol | Structural similarity: chlorinated functional group on benzene ring instead of nitro functional group |
| 3-Nitroaniline | 2-Nitroaniline | Structural similarity; however, will not have the same reactivity because of ortho- versus meta-substitution |
| 4-Nitroaniline | 2-Nitroaniline | Structural similarity. As noted in Table 5-3; PPRTV identification of studies comparing "near equivalent" non-cancer toxicity between 3-nitroaniline and 4-nitroaniline, implying similar reactivity. Therefore ortho- verus para-substitution would not have the same reactivity. |
| Benzaldehyde | Benzyl alcohol | Structural similarity; alcohol functional group on benzene ring instead of aldehyde functional group. Benzaldehyde will most likely degrade faster because of decarboxylation |
| **Metals** | | |
| Cobalt | N/A | Not appropriate to use another metal for a surrogate toxicity value. |
| Silver | N/A | Not appropriate to use another metal for a surrogate toxicity value. |
| Thallium | N/A | Not appropriate to use another metal for a surrogate toxicity value. |
| Vanadium | N/A | Not appropriate to use another metal for a surrogate toxicity value. |

**Notes:**
UFP-QAPP = Uniform Federal Program - Quality Assurance Project Plan

1) List indicates screening value is not available for the analyte based on the hierarchy of sources presented in Section 5.1.1.1.
AND
Analytes are likely to be or potentially DoD-related as presented in Subsection 5.3.2.

**Table 5-6**
**Soil Analytes without Avian Screening Levels Identified in the UFP-QAPP with Selected Surrogates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Analyte | Selected Surrogate | |
|---|---|---|
| | Chemical | Rationale |
| **Volatile Organic Compounds (VOCs)** | | |
| 1,2,3-Trichlorobenzene | N/A | VOC avian toxicity data limited and generally not considered for food chain exposures. In addition, chlorinated phenols would be much more reactive so not ideal for use as surrogates. |
| 2-Butanone (MEK) | 2-Hexanone | Structural similarity; additional carbon in chain. |
| Benzene | N/A | VOC avian toxicity data limited and because EPA (2000) does not consider them persistent or bioaccumulative, VOCs generally are not considered for food chain exposures. |
| Toluene | total Xylene | Structural similarity; additional methyl functional group on ring. Toluene expected to be more reactive as the methyl group will hydrolyze and then be decarboxylated by soil microbes. |
| **Semi-Volatile Organic Compounds (SVOCs)** | | |
| 2,4-Dinitrochlorobenzene | 2,6-Dinitrotoluene | 2,4-Dinitrotoluene selected as ecological surrogate in UFP-QAPP Appendix A. The 2,4- and 2,6- ortho-/para- substitution patterns chemically show similar reactivitiy for the nitros, but the methyl substituent is not equivalent. However, avian toxicity data only exist for the 2,6-isomer. |
| 2,4-Dinitrophenol | 2,6-Dinitrotoluene | Dinitro-substituted aromatic; methyl functional group instead of hydroxyl. |
| 2-Nitroaniline | N/A | No avian toxicity data available for mono-substituted anilines. |
| 2-Nitrophenol | N/A | No avian toxicity data available for mono-substituted phenols. |
| 3-Nitroaniline | N/A | No avian toxicity data available for mono-substituted anilines. |
| 4-Chloroaniline | N/A | No avian toxicity data available for mono-substituted anilines. |
| 4-Nitroaniline | N/A | No avian toxicity data available for mono-substituted anilines. |
| 4-Nitrophenol | N/A | No avian toxicity data available for mono-substituted phenols. |
| Benzaldehyde | N/A | Avian toxicity values for structurally similar aldehyde not available. |
| Carbazole | N/A | Avian toxicity values for structurally similar aromatic compound not available. |
| Phenol | N/A | Avian toxicity values for structurally similar compound not available. |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | |
| 1-Methylnaphthalene | Naphthalene | Structural similarity; lacking methyl functional group. |
| 2-Methylnaphthalene | Naphthalene | Structural similarity; lacking methyl functional group. |
| Acenaphthene | N/A | Avian toxicity values for structurally similar PAHs not available. |
| Acenaphthylene | N/A | Avian toxicity values for structurally similar PAHs not available. |
| Anthracene | N/A | Avian toxicity values for structurally similar PAHs range in values too greatly to select a surrogate with confidence. |
| Benzo(a)pyrene | N/A | Avian toxicity values for structurally similar PAHs range in values too greatly to select a surrogate with confidence. |
| Benzo(b)fluoranthene | N/A | Avian toxicity values for structurally similar PAHs not available. |

**Table 5-6**
**Soil Analytes without Avian Screening Levels Identified in the UFP-QAPP with Selected Surrogates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Analyte | Selected Surrogate | |
|---|---|---|
| | Chemical | Rationale |
| Benzo(g,h,i)perylene | N/A | Avian toxicity values for structurally similar PAHs range in values too greatly to select a surrogate with confidence. |
| Benzo(k)fluoranthene | N/A | Avian toxicity values for structurally similar PAHs not available. |
| Chrysene | N/A | Avian toxicity values for structurally similar PAHs range in values too greatly to select a surrogate with confidence. |
| Dibenz(a,h)anthracene | N/A | Avian toxicity values for structurally similar PAHs range in values too greatly to select a surrogate with confidence. |
| Fluoranthene | N/A | Avian toxicity values for structurally similar PAHs not available. |
| Fluorene | N/A | Avian toxicity values for structurally similar PAHs not available. |
| Indeno(1,2,3-c,d)pyrene | N/A | Avian toxicity values for structurally similar PAHs not available. |
| Phenanthrene | N/A | Avian toxicity values for structurally similar PAHs range in values too greatly to select a surrogate with confidence. |
| High Molecular Weight PAHs | N/A | Avian toxicity values for structurally similar PAHs range in values too greatly to select a surrogate with confidence. |
| Low Molecular Weight PAHs | N/A | Avian toxicity values for structurally similar PAHs range in values too greatly to select a surrogate with confidence. |
| **Explosives** | | |
| Picric acid | 2,4,6-Trinitrotoluene | Trinitro-substituted aromatic; methyl functional group instead of hydroxyl. |
| **Metals** | | |
| Antimony | N/A | Not appropriate to use another metal for a surrogate toxicity value. |
| Beryllium | N/A | Not appropriate to use another metal for a surrogate toxicity value. |

**Notes:**

UFP-QAPP = Uniform Federal Program - Quality Assurance Project Plan

1) List indicates screening value is not available for the analyte based on the hierarchy of sources presented in Section 5.1.1.1.
AND

Analytes are likely to be or potentially DoD-related as presented in Subsection 5.3.2.

EPA (2000). Bioaccumulation Testing and Interpretation for the Purpose of Sediment Quality Assessment: Status and Needs EPA/823/R-00/001. https://archive.epa.gov/water/archive/polwaste/web/pdf/bioaccum.pdf

**Table 5-7**
**Soil Analytes without Mammal Screening Levels Identified in the UFP-QAPP with Selected Surrogates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Analyte | Selected Surrogate | |
|---|---|---|
| | Chemical | Rationale/Comment |
| **Volatile Organic Compounds (VOCs)** | | |
| 1,2,3-Trichlorobenzene | 1,2,4-Trichlorobenzene | Structural similarity; both compounds are trichlorinated benzenes; however, 1,2,4 is more likely to dechlorinate dute to para- resonance. |
| **Semi-Volatile Organic Compounds (SVOCs)** | | |
| Benzaldehyde | Benzyl alcohol | Structural similarity; alcohol functional group on benzene ring instead of aldehyde functional group |

**Notes:**
UFP-QAPP = Uniform Federal Program - Quality Assurance Project Plan

1) List indicates screening value is not available for the analyte based on the hierarchy of sources presented in Section 5.1.1.1.
AND
Analytes are likely to be or potentially DoD-related as presented in Subsection 5.3.2.

Table 5-8
Analytes with Human Health Screening Levels
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Groundwater | Soil |
|---|---|
| Volatile Organic Compounds (VOCs) | |
| 1,1,1-Trichloroethane | 1,1,1-Trichloroethane |
| 1,1,2,2-Tetrachloroethane | 1,1,2,2-Tetrachloroethane |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 1,1,2-Trichloro-1,2,2-trifluoroethane |
| 1,1,2-Trichloroethane | 1,1,2-Trichloroethane |
| 1,1-Dichloroethane | 1,1-Dichloroethane |
| 1,1-Dichloroethene | 1,1-Dichloroethene |
| 1,2,3-Trichlorobenzene | 1,2,3-Trichlorobenzene |
| 1,2,4-Trichlorobenzene | 1,2,4-Trichlorobenzene |
| 1,2-Dibromo-3-chloropropane | 1,2-Dibromo-3-chloropropane |
| 1,2-Dibromoethane (EDB) | 1,2-Dibromoethane (EDB) |
| 1,2-Dichlorobenzene | 1,2-Dichlorobenzene |
| 1,2-Dichloroethane | 1,2-Dichloroethane |
| 1,2-Dichloropropane | 1,2-Dichloropropane |
| 1,3-Dichlorobenzene | 1,3-Dichloropropane |
| 1,3-Dichloropropane | 1,4-Dichlorobenzene |
| 1,4-Dichlorobenzene | 2-Butanone (MEK) |
| 2-Butanone (MEK) | 2-Hexanone |
| 2-Hexanone | 4-Methyl-2-pentanone (MIBK) |
| 4-Methyl-2-pentanone (MIBK) | Acetone |
| Acetone | Benzene |
| Benzene | Bromochloromethane |
| Bromochloromethane | Bromodichloromethane |
| Bromodichloromethane | Bromoform |
| Bromoform | Bromomethane |
| Bromomethane | Carbon disulfide |
| Carbon disulfide | Carbon tetrachloride |
| Carbon tetrachloride | Chlorobenzene |
| Chlorobenzene | Chloroethane |
| Chloroethane | Chloroform |
| Chloroform | Chloromethane |
| Chloromethane | cis-1,2-Dichloroethene |
| cis-1,2-Dichloroethene | cis-1,3-Dichloropropene |
| cis-1,3-Dichloropropene | Cumene |
| Cumene | Cyclohexane |
| Cyclohexane | Dibromochloromethane |
| Dibromochloromethane | Dichlorodifluoromethane |
| Dichlorodifluoromethane | Ethylbenzene |
| Ethylbenzene | m,p-Xylene |
| m,p-Xylene | Methyl acetate |
| Methyl acetate | Methyl tert-butyl ether (MTBE) |
| Methyl tert-butyl ether (MTBE) | Methylene chloride |
| Methylene chloride | o-Xylene |
| o-Xylene | Styrene |
| Styrene | Tetrachloroethene (PCE) |
| Tetrachloroethene (PCE) | Toluene |
| Toluene | trans-1,2-Dichloroethene |
| trans-1,2-Dichloroethene | trans-1,3-Dichloropropene |
| trans-1,3-Dichloropropene | Trichlorofluoromethane |
| Trichlorofluoromethane | Vinyl chloride |
| Vinyl chloride | |

Table 5-8
Analytes with Human Health Screening Levels
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Groundwater | Soil |
|---|---|
| Semi-Volatile Organic Compounds (SVOCs) | |
| 1,2,4,5-Tetrachlorobenzene | 1,2,4,5-Tetrachlorobenzene |
| 1,4-Dioxane | 1,4-Dioxane |
| 2,2'-Oxybis(1-chloropropane) | 2,2'-Oxybis(1-chloropropane) |
| 2,3,4,6-Tetrachlorophenol | 2,3,4,6-Tetrachlorophenol |
| 2,4,5-Trichlorophenol | 2,4,5-Trichlorophenol |
| 2,4,6-Trichlorophenol | 2,4,6-Trichlorophenol |
| 2,4-Dichlorophenol | 2,4-Dichlorophenol |
| 2,4-Dimethylphenol | 2,4-Dimethylphenol |
| 2,4-Dinitrochlorobenzene | 2,4-Dinitrochlorobenzene |
| 2,4-Dinitrophenol | 2,4-Dinitrophenol |
| 2,4-Dinitrotoluene | 2,4-Dinitrotoluene |
| 2,6-Dinitrotoluene | 2,6-Dinitrotoluene |
| 2-Chloronaphthalene | 2-Chloronaphthalene |
| 2-Chlorophenol | 2-Chlorophenol |
| 2-Methylphenol (o-Cresol) | 2-Methylphenol (o-Cresol) |
| 2-Nitroaniline | 2-Nitroaniline |
| 2-Nitrophenol | 2-Nitrophenol |
| 3,3'-Dichlorobenzidine | 3,3'-Dichlorobenzidine |
| 3-Nitroaniline | 3-Nitroaniline |
| 4,6-Dinitro-2-methylphenol | 4,6-Dinitro-2-methylphenol |
| 4-Chloro-3-methylphenol | 4-Chloro-3-methylphenol |
| 4-Chloroaniline | 4-Chloroaniline |
| 4-Nitroaniline | 4-Nitroaniline |
| 4-Nitrophenol | 4-Nitrophenol |
| Acetophenone | Acetophenone |
| Atrazine | Atrazine |
| Benzaldehyde | Benzaldehyde |
| Benzyl butyl phthalate | Benzyl butyl phthalate |
| Biphenyl (Diphenyl) | Biphenyl (Diphenyl) |
| Bis(2-chloroethoxy)methane | Bis(2-chloroethoxy)methane |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | Bis(2-chloroethyl) ether (2-Chloroethyl ether) |
| Bis(2-ethylhexyl)phthalate | Bis(2-ethylhexyl)phthalate |
| Caprolactam | Caprolactam |
| Carbazole | Carbazole |
| Cresols, m- & p- | Cresols, m- & p- |
| Dibenzofuran | Dibenzofuran |
| Diethyl phthalate | Diethyl phthalate |
| Di-n-butyl phthalate | Di-n-butyl phthalate |
| di-n-Octyl phthalate | di-n-Octyl phthalate |
| Hexachlorobenzene | Hexachlorobenzene |
| Hexachlorobutadiene | Hexachlorobutadiene |
| Hexachlorocyclopentadiene | Hexachlorocyclopentadiene |
| Hexachloroethane | Hexachloroethane |
| Isophorone | Isophorone |
| Nitrobenzene | Nitrobenzene |
| N-Nitrosodi-n-propylamine | N-Nitrosodi-n-propylamine |
| N-Nitrosodiphenylamine | N-Nitrosodiphenylamine |
| Pentachlorophenol | Pentachlorophenol |
| Phenol | Phenol |

Table 5-8
Analytes with Human Health Screening Levels
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Groundwater | Soil |
|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | |
| 1-Methylnaphthalene | 1-Methylnaphthalene |
| 2-Methylnaphthalene | 2-Methylnaphthalene |
| Acenaphthene | Acenaphthene |
| Acenaphthylene | Acenaphthylene |
| Anthracene | Anthracene |
| Benzo(a)anthracene | Benzo(a)anthracene |
| Benzo(a)pyrene | Benzo(a)pyrene |
| Benzo(b)fluoranthene | Benzo(b)fluoranthene |
| Benzo(g,h,i)perylene | Benzo(g,h,i)perylene |
| Benzo(k)fluoranthene | Benzo(k)fluoranthene |
| Chrysene | Chrysene |
| Dibenz(a,h)anthracene | Dibenz(a,h)anthracene |
| Fluoranthene | Fluoranthene |
| Fluorene | Fluorene |
| Indeno(1,2,3-c,d)pyrene | Indeno(1,2,3-c,d)pyrene |
| Naphthalene | Naphthalene |
| Phenanthrene | Phenanthrene |
| Pyrene | Pyrene |
| Explosives | |
| Picric acid | Picric acid |
| Polychlorinated Biphenyls (PCBs) | |
| PCB-1016 (Aroclor 1016) | PCB-1016 (Aroclor 1016) |
| PCB-1221 (Aroclor 1221) | PCB-1221 (Aroclor 1221) |
| PCB-1232 (Aroclor 1232) | PCB-1232 (Aroclor 1232) |
| PCB-1242 (Aroclor 1242) | PCB-1242 (Aroclor 1242) |
| PCB-1248 (Aroclor 1248) | PCB-1248 (Aroclor 1248) |
| PCB-1254 (Aroclor 1254) | PCB-1254 (Aroclor 1254) |
| PCB-1260 (Aroclor 1260) | PCB-1260 (Aroclor 1260) |
| PCB-1262 (Aroclor 1262) | PCB-1262 (Aroclor 1262) |
| PCB-1268 (Aroclor 1268) | PCB-1268 (Aroclor 1268) |
| Metals | |
| Aluminum | Aluminum |
| Antimony | Antimony |
| Arsenic | Arsenic |
| Barium | Barium |
| Beryllium | Beryllium |
| Cadmium | Cadmium |
| Chromium | Chromium |
| Cobalt | Cobalt |
| Copper | Copper |
| Iron | Iron |
| Lead | Lead |
| Manganese | Manganese |
| Mercury | Mercury |
| Nickel | Nickel |
| Selenium | Selenium |
| Silver | Silver |
| Sodium | Thallium |
| Thallium | Vanadium |
| Vanadium | Zinc |
| Zinc | |

Notes:

1) List indicates screening value is available for the analyte based on the hierarchy of sources presented in Subsection 5.1.1.1.

2) Includes surrogates for groundwater and soil as identified in Table 5-2 and Table 5-3, respectively.

Table 5-9
Analytes with Phototoxicity Screening Levels
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Volatile Organic Compounds (VOCs) |
|---|
| Benzene |
| m,p-Xylene |
| Methylene chloride |
| o-Xylene |
| Styrene |
| Tetrachloroethene (PCE) |
| Toluene |
| Semi-Volatile Organic Compounds (SVOCs) |
| 2,4,5-Trichlorophenol |
| 2,4-Dimethylphenol |
| 2,4-Dinitrochlorobenzene |
| 2,4-Dinitrophenol |
| 2,4-Dinitrotoluene |
| 2-Methylphenol (o-Cresol) |
| 4-Chloroaniline |
| Biphenyl (Diphenyl) |
| Cresols, m- & p- |
| Dibenzofuran |
| Diethyl phthalate |
| Di-n-butyl phthalate |
| Hexachlorobenzene |
| Hexachlorocyclopentadiene |
| Pentachlorophenol |
| Phenol |
| Polycyclic Aromatic Hydrocarbons (PAHs) |
| Acenaphthene |
| 1-Methylnaphthalene |
| 2-Methylnaphthalene |
| Anthracene |
| Benzo(a)anthracene |
| Benzo(b)fluoranthene |
| Benzo(k)fluoranthene |
| Naphthalene |
| Explosives |
| Picric acid |
| Polychlorinated Biphenyls (PCBs) |
| PCB-1016 (Aroclor 1016) |
| PCB-1221 (Aroclor 1221) |
| PCB-1232 (Aroclor 1232) |
| PCB-1242 (Aroclor 1242) |
| PCB-1248 (Aroclor 1248) |
| PCB-1254 (Aroclor 1254) |
| PCB-1260 (Aroclor 1260) |
| PCB-1262 (Aroclor 1262) |
| PCB-1268 (Aroclor 1268) |
| Total PCBs |
| Metals |
| Aluminum |
| Antimony |
| Arsenic |
| Barium |
| Beryllium |
| Cadmium |
| Chromium |
| Cobalt |
| Copper |
| Iron |
| Lead |
| Manganese |

Table 5-9
Analytes with Phototoxicity Screening Levels
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| |
|---|
| Mercury |
| Nickel |
| Selenium |
| Silver |
| Thallium |
| Vanadium |
| Zinc |

Notes:

1) List indicates screening value is available for the analyte based on the hierarchy of sources presented in Subsection 5.1.1.1.

2) Includes surrogates as identified in Table 5-4.

Table 5-10
Analytes with Soil Invertebrate Screening Levels
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Volatile Organic Compounds (VOCs) |
|---|
| 1,1,1-Trichloroethane |
| 1,1,2,2-Tetrachloroethane |
| 1,1,2-Trichloroethane |
| 1,1-Dichloroethane |
| 1,1-Dichloroethene |
| 1,2,3-Trichlorobenzene |
| 1,2,4-Trichlorobenzene |
| 1,2-Dichlorobenzene |
| 1,2-Dichloroethane |
| 1,2-Dichloropropane |
| 1,3-Dichlorobenzene |
| 1,4-Dichlorobenzene |
| 2-Butanone (MEK) |
| 2-Hexanone |
| Acetone |
| Benzene |
| Bromoform |
| Bromomethane |
| Carbon disulfide |
| Carbon tetrachloride |
| Chlorobenzene |
| Chloroform |
| cis-1,2-Dichloroethene |
| cis-1,3-Dichloropropene |
| Cumene |
| Ethylbenzene |
| m,p-Xylene |
| Methylene chloride |
| o-Xylene |
| Styrene |
| Tetrachloroethene (PCE) |
| Toluene |
| trans-1,2-Dichloroethene |
| trans-1,3-Dichloropropene |
| Vinyl chloride |
| Semi-Volatile Organic Compounds (SVOCs) |
| 1,2,4,5-Tetrachlorobenzene |
| 2,3,4,6-Tetrachlorophenol |
| 2,4,5-Trichlorophenol |
| 2,4,6-Trichlorophenol |
| 2,4-Dichlorophenol |
| 2,4-Dimethylphenol |
| 2,4-Dinitrochlorobenzene |
| 2,4-Dinitrophenol |
| 2,4-Dinitrotoluene |
| 2,6-Dinitrotoluene |
| 2-Chlorophenol |
| 2-Methylphenol (o-Cresol) |
| 2-Nitroaniline |
| 2-Nitrophenol |
| 3,3'-Dichlorobenzidine |
| 3-Nitroaniline |
| 4-Chloroaniline |
| 4-Nitroaniline |
| 4-Nitrophenol |
| Atrazine |
| Benzaldehyde |
| Benzyl butyl phthalate |
| Biphenyl (Diphenyl) |
| Bis(2-ethylhexyl)phthalate |
| Carbazole |
| Cresols, m- & p- |
| Dibenzofuran |
| Diethyl phthalate |

Table 5-10
Analytes with Soil Invertebrate Screening Levels
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| |
|---|
| Dimethyl phthalate |
| Di-n-butyl phthalate |
| di-n-Octyl phthalate |
| Hexachlorobenzene |
| Hexachlorobutadiene |
| Hexachlorocyclopentadiene |
| Hexachloroethane |
| Nitrobenzene |
| N-Nitrosodiphenylamine |
| Pentachlorophenol |
| Phenol |
| Polycyclic Aromatic Hydrocarbons (PAHs) |
| 1-Methylnaphthalene |
| 2-Methylnaphthalene |
| Acenaphthene |
| Acenaphthylene |
| Anthracene |
| Benzo(a)anthracene |
| Benzo(a)pyrene |
| Benzo(b)fluoranthene |
| Benzo(g,h,i)perylene |
| Benzo(k)fluoranthene |
| Chrysene |
| Dibenz(a,h)anthracene |
| Fluoranthene |
| Fluorene |
| Indeno(1,2,3-c,d)pyrene |
| Naphthalene |
| Phenanthrene |
| Pyrene |
| High Molecular Weight PAHs |
| Low Molecular Weight PAHs |
| Explosives |
| Picric acid |
| Polychlorinated Biphenyls (PCBs) |
| PCB-1016 (Aroclor 1016) |
| PCB-1221 (Aroclor 1221) |
| PCB-1232 (Aroclor 1232) |
| PCB-1242 (Aroclor 1242) |
| PCB-1248 (Aroclor 1248) |
| PCB-1254 (Aroclor 1254) |
| PCB-1260 (Aroclor 1260) |
| PCB-1262 (Aroclor 1262) |
| PCB-1268 (Aroclor 1268) |
| Total PCBs |
| Metals |
| Aluminum |
| Antimony |
| Arsenic |
| Barium |
| Beryllium |
| Cadmium |
| Chromium |
| Copper |
| Iron |
| Lead |
| Manganese |
| Mercury |
| Nickel |
| Selenium |
| Zinc |

Table 5-10
Analytes with Soil Invertebrate Screening Levels
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Notes:

1) List indicates screening value is available for the analyte based on the hierarchy of sources presented in Subection 5.1.1.1.

2) Includes surrogates as identified in Table 5-5.

Table 5-11
Analytes with Avian Screening Levels
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| |
|---|
| Volatile Organic Compounds (VOCs) |
| 1,2-Dichloroethane |
| 2-Hexanone |
| 2-Butanone (MEK) |
| Acetone |
| Toluene |
| m,p-Xylene |
| o-Xylene |
| Semi-Volatile Organic Compounds (SVOCs) |
| 2,4-Dinitrochlorobenzene |
| 2,4-Dinitrophenol |
| 2,6-Dinitrotoluene |
| 2-Chlorophenol |
| Bis(2-ethylhexyl)phthalate |
| Di-n-butyl phthalate |
| Hexachlorobenzene |
| Pentachlorophenol |
| Explosives |
| Picric acid |
| Polycyclic Aromatic Hydrocarbons (PAHs) |
| Benzo(a)anthracene |
| 1-Methylnaphthalene |
| 2-Methylnaphthalene |
| Naphthalene |
| Pyrene |
| Polychlorinated Biphenyls (PCBs) |
| PCB-1016 (Aroclor 1016) |
| PCB-1221 (Aroclor 1221) |
| PCB-1232 (Aroclor 1232) |
| PCB-1242 (Aroclor 1242) |
| PCB-1248 (Aroclor 1248) |
| PCB-1254 (Aroclor 1254) |
| PCB-1260 (Aroclor 1260) |
| PCB-1262 (Aroclor 1262) |
| PCB-1268 (Aroclor 1268) |
| Total PCBs |
| Metals |
| Aluminum |
| Arsenic |
| Barium |
| Cadmium |
| Chromium |
| Cobalt |
| Copper |
| Iron |
| Lead |
| Manganese |
| Mercury |
| Nickel |
| Selenium |
| Silver |
| Thallium |
| Vanadium |
| Zinc |

Notes:
1) List indicates screening value is available for the analyte based on the hierarchy of sources presented in Subsection 5.1.1.1.
2) Includes surrogates as identified in Table 5-6.

Table 5-12
Analytes with Mammal Screening Levels
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Volatile Organic Compounds (VOCs) |
|---|
| 1,1,1-Trichloroethane |
| 1,1,2,2-Tetrachloroethane |
| 1,1,2-Trichloroethane |
| 1,1-Dichloroethane |
| 1,1-Dichloroethene |
| 1,2,3-Trichlorobenzene |
| 1,2,4-Trichlorobenzene |
| 1,2-Dibromo-3-chloropropane |
| 1,2-Dibromoethane (EDB) |
| 1,2-Dichlorobenzene |
| 1,2-Dichloroethane |
| 1,2-Dichloropropane |
| 1,3-Dichlorobenzene |
| 1,4-Dichlorobenzene |
| 2-Butanone (MEK) |
| 2-Hexanone |
| 4-Methyl-2-pentanone (MIBK) |
| Acetone |
| Benzene |
| Bromodichloromethane |
| Bromoform |
| Bromomethane |
| Carbon disulfide |
| Carbon tetrachloride |
| Chlorobenzene |
| Chloroform |
| Chloromethane |
| cis-1,3-Dichloropropene |
| Dibromochloromethane |
| Dichlorodifluoromethane |
| Ethylbenzene |
| m,p-Xylene |
| Methylene chloride |
| o-Xylene |
| Styrene |
| Tetrachloroethene (PCE) |
| Toluene |
| trans-1,2-Dichloroethene |
| trans-1,3-Dichloropropene |
| Trichlorofluoromethane |
| Vinyl chloride |
| Semi-Volatile Organic Compounds (SVOCs) |
| 1,2,4,5-Tetrachlorobenzene |
| 1,4-Dioxane |
| 2,2'-Oxybis(1-chloropropane) |
| 2,3,4,6-Tetrachlorophenol |
| 2,4,5-Trichlorophenol |
| 2,4,6-Trichlorophenol |
| 2,4-Dichlorophenol |
| 2,4-Dinitrochlorobenzene |
| 2,4-Dinitrophenol |
| 2,4-Dinitrotoluene |
| 2,6-Dinitrotoluene |
| 2-Chloronaphthalene |
| 2-Chlorophenol |
| 2-Methylphenol (o-Cresol) |
| 2-Nitroaniline |
| 2-Nitrophenol |
| 3,3'-Dichlorobenzidine |
| 3-Nitroaniline |
| 4,6-Dinitro-2-methylphenol |
| 4-Chloro-3-methylphenol |
| 4-Chloroaniline |
| 4-Nitroaniline |

Table 5-12
Analytes with Mammal Screening Levels
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| |
|---|
| 4-Nitrophenol |
| Acetophenone |
| Benzaldehyde |
| Benzyl butyl phthalate |
| Bis(2-chloroethoxy)methane |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) |
| Bis(2-ethylhexyl)phthalate |
| Carbazole |
| Cresols, m- & p- |
| Diethyl phthalate |
| Dimethyl phthalate |
| Di-n-butyl phthalate |
| di-n-Octyl phthalate |
| Hexachlorobenzene |
| Hexachlorobutadiene |
| Hexachlorocyclopentadiene |
| Hexachloroethane |
| Isophorone |
| Nitrobenzene |
| N-Nitrosodi-n-propylamine |
| N-Nitrosodiphenylamine |
| Pentachlorophenol |
| Phenol |
| Polycyclic Aromatic Hydrocarbons (PAHs) |
| 1-Methylnaphthalene |
| 2-Methylnaphthalene |
| Acenaphthene |
| Acenaphthylene |
| Anthracene |
| Benzo(a)anthracene |
| Benzo(a)pyrene |
| Benzo(b)fluoranthene |
| Benzo(g,h,i)perylene |
| Benzo(k)fluoranthene |
| Chrysene |
| Dibenz(a,h)anthracene |
| Fluoranthene |
| Fluorene |
| Indeno(1,2,3-c,d)pyrene |
| Naphthalene |
| Phenanthrene |
| Pyrene |
| High Molecular Weight PAHs |
| Low Molecular Weight PAHs |
| Explosives |
| Picric acid |
| Polychlorinated Biphenyls (PCBs) |
| PCB-1016 (Aroclor 1016) |
| PCB-1221 (Aroclor 1221) |
| PCB-1232 (Aroclor 1232) |
| PCB-1242 (Aroclor 1242) |
| PCB-1248 (Aroclor 1248) |
| PCB-1254 (Aroclor 1254) |
| PCB-1260 (Aroclor 1260) |
| PCB-1262 (Aroclor 1262) |
| PCB-1268 (Aroclor 1268) |
| Total PCBs |
| Metals |
| Aluminum |
| Antimony |
| Arsenic |
| Barium |
| Beryllium |
| Cadmium |
| Chromium |

Table 5-12
Analytes with Mammal Screening Levels
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| |
|---|
| Cobalt |
| Copper |
| Iron |
| Lead |
| Manganese |
| Mercury |
| Nickel |
| Selenium |
| Silver |
| Thallium |
| Vanadium |
| Zinc |

Notes:

1) List indicates screening value is available for the analyte based on the hierarchy of sources presented in Subsection 5.1.1.1.

2) Includes surrogates as identified in Table 5-7.

Table 5-13
Soil Analytes without Plant Screening Levels and Potentially or Likely to be DoD-related
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Analyte |
|---|
| Volatile Organic Compounds (VOCs) |
| 1,2,3-Trichlorobenzene |
| 2-Butanone (MEK) |
| Acetone |
| Semi-Volatile Organic Compounds (SVOCs) |
| 2-Nitroaniline |
| 2-Nitrophenol |
| 3-Nitroaniline |
| 4-Nitroaniline |
| 4-Nitrophenol |
| Benzaldehyde |
| Carbazole |
| Polycyclic Aromatic Hydrocarbons (PAHs) |
| Acenaphthylene |
| Benzo(a)pyrene |
| Benzo(g,h,i)perylene |
| Chrysene |
| Dibenz(a,h)anthracene |
| Fluoranthene |
| Fluorene |
| Indeno(1,2,3-c,d)pyrene |
| Phenanthrene |
| Pyrene |
| High Molecular Weight PAHs |
| Low Molecular Weight PAHs |

Notes:

1) List indicates screening value is not available for the analyte based on the hierarchy of sources presented in Subsection 5.1.1.1 and considering surrogates.

AND

Analytes are potentially or likely to be DoD-related as presented in Subsection 5.1.2.1.

Table 5-14
Soil Analytes without Soil Invertebrate Screening Levels and Potentially or Likely to be DoD-related
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Analyte |
|---|
| Metals |
| Cobalt |
| Silver |
| Thallium |
| Vanadium |

Notes:

1) List indicates screening value is not available for the analyte based on the hierarchy of sources presented in Subsection 5.1.1.1 and considering surrogates.

AND

Analytes are potentially or likely to be DoD-related as presented in Subsection 5.1.2.1.

Table 5-15
Soil Analytes without Avian Screening Levels and Potentially or Likely to be DoD-related
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Analyte |
|---|
| Volatile Organic Compounds (VOCs) |
| 1,2,3-Trichlorobenzene |
| Benzene |
| Semi-Volatile Organic Compounds (SVOCs) |
| 2-Nitroaniline |
| 2-Nitrophenol |
| 3-Nitroaniline |
| 4-Chloroaniline |
| 4-Nitroaniline |
| 4-Nitrophenol |
| Benzaldehyde |
| Carbazole |
| Phenol |
| Polycyclic Aromatic Hydrocarbons (PAHs) |
| Acenaphthene |
| Acenaphthylene |
| Anthracene |
| Benzo(a)pyrene |
| Benzo(b)fluoranthene |
| Benzo(g,h,i)perylene |
| Benzo(k)fluoranthene |
| Chrysene |
| Dibenz(a,h)anthracene |
| Fluoranthene |
| Fluorene |
| Indeno(1,2,3-c,d)pyrene |
| Phenanthrene |
| High Molecular Weight PAHs |
| Low Molecular Weight PAHs |
| Metals |
| Antimony |
| Beryllium |

Notes:

1) List indicates screening value is not available for the analyte based on the hierarchy of sources presented in Subsection 5.1.1.1 and considering surrogates.

AND

Analytes are potentially or likely to be DoD-related as presented in Subsection 5.1.2.1.

Table 5-16
Groundwater Analytes without Human Health Screening Levels and Unlikely to be DoD-related
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Analyte |
|---|
| Volatile Organic Compounds (VOCs) |
| Methylcyclohexane |
| Semi-Volatile Organic Compounds (SVOCs) |
| 4-Bromophenyl phenyl ether |
| 4-Chlorophenyl phenyl ether |
| Dimethyl phthalate |

Notes:

1) List indicates screening value is not available for the analyte based on the hierarchy of sources presented in Subsection 5.1.1.1.

AND

Analytes are unlikely to be DoD-related as presented in Subsection 5.1.2.2.

2) Surrogate screening levels do not need to be identified for these analytes.

Table 5-17
Soil Analytes without Human Health Screening Levels and Unlikely to be DoD-related
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Analyte |
|---|
| Volatile Organic Compounds (VOCs) |
| 1,3-Dichlorobenzene |
| Methylcyclohexane |
| Semi-Volatile Organic Compounds (SVOCs) |
| 4-Bromophenyl phenyl ether |
| 4-Chlorophenyl phenyl ether |
| Dimethyl phthalate |

Notes:

1) List indicates screening value is not available for the analyte based on the hierarchy of sources presented in Subsection 5.1.1.1.

AND

Analytes are unlikely to be DoD-related as presented in Subsection 5.1.2.2.

2) Surrogate screening levels do not need to be identified for these analytes.

Table 5-18
Soil Analytes without Plant Screening Levels and Unlikely to be DoD-related
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Analyte |
|---|
| Volatile Organic Compounds (VOCs) |
| 1,1,1-Trichloroethane |
| 1,1,2,2-Tetrachloroethane |
| 1,1,2-Trichloro-1,2,2-trifluoroethane |
| 1,1,2-Trichloroethane |
| 1,1-Dichloroethane |
| 1,1-Dichloroethene |
| 1,2,4-Trichlorobenzene |
| 1,2-Dibromo-3-chloropropane |
| 1,2-Dibromoethane (EDB) |
| 1,2-Dichlorobenzene |
| 1,2-Dichloroethane |
| 1,2-Dichloropropane |
| 1,3-Dichlorobenzene |
| 1,3-Dichloropropane |
| 1,4-Dichlorobenzene |
| 2-Hexanone |
| 4-Methyl-2-pentanone (MIBK) |
| Bromochloromethane |
| Bromodichloromethane |
| Bromoform |
| Bromomethane |
| Carbon disulfide |
| Carbon tetrachloride |
| Chlorobenzene |
| Chloroethane |
| Chloroform |
| Chloromethane |
| cis-1,2-Dichloroethene |
| cis-1,3-Dichloropropene |
| Cumene |
| Cyclohexane |
| Dibromochloromethane |
| Dichlorodifluoromethane |
| Ethylbenzene |
| Methyl acetate |
| Methyl tert-butyl ether (MTBE) |
| Methylcyclohexane |
| trans-1,2-Dichloroethene |
| trans-1,3-Dichloropropene |
| Trichlorofluoromethane |
| Vinyl chloride |

Table 5-18
Soil Analytes without Plant Screening Levels and Unlikely to be DoD-related
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Analyte |
|---|
| Semi-Volatile Organic Compounds (SVOCs) |
| 1,2,4,5-Tetrachlorobenzene |
| 1,4-Dioxane |
| 2,2'-Oxybis(1-chloropropane) |
| 2,3,4,6-Tetrachlorophenol |
| 2,4,6-Trichlorophenol |
| 2,4-Dichlorophenol |
| 2,6-Dinitrotoluene |
| 2-Chloronaphthalene |
| 2-Chlorophenol |
| 3,3'-Dichlorobenzidine |
| 4,6-Dinitro-2-methylphenol |
| 4-Bromophenyl phenyl ether |
| 4-Chloro-3-methylphenol |
| 4-Chlorophenyl phenyl ether |
| Acetophenone |
| Atrazine |
| Benzyl butyl phthalate |
| Bis(2-chloroethoxy)methane |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) |
| Bis(2-ethylhexyl)phthalate |
| Caprolactam |
| Dimethyl phthalate |
| di-n-Octyl phthalate |
| Hexachlorobutadiene |
| Hexachloroethane |
| Isophorone |
| Nitrobenzene |
| N-Nitrosodi-n-propylamine |
| N-Nitrosodiphenylamine |

Notes:

1) List indicates screening value is not available for the analyte based on the hierarchy of sources presented in Subsection 5.1.1.1.

AND

Analytes are unlikely to be DoD-related as presented in Subsection 5.1.2.2.

2) Surrogate screening levels do not need to be identified for these analytes.

Table 5-19
Soil Analytes without Soil Invertebrate Screening Levels and Unlikely to be DoD-related
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Analyte |
|---|
| Volatile Organic Compounds (VOCs) |
| 1,1,2-Trichloro-1,2,2-trifluoroethane |
| 1,2-Dibromo-3-chloropropane |
| 1,2-Dibromoethane (EDB) |
| 1,3-Dichloropropane |
| 4-Methyl-2-pentanone (MIBK) |
| Bromochloromethane |
| Bromodichloromethane |
| Chloroethane |
| Chloromethane |
| Cyclohexane |
| Dibromochloromethane |
| Dichlorodifluoromethane |
| Methyl acetate |
| Methyl tert-butyl ether (MTBE) |
| Methylcyclohexane |
| Trichlorofluoromethane |
| Semi-Volatile Organic Compounds (SVOCs) |
| 1,4-Dioxane |
| 2,2'-Oxybis(1-chloropropane) |
| 2-Chloronaphthalene |
| 4,6-Dinitro-2-methylphenol |
| 4-Bromophenyl phenyl ether |
| 4-Chloro-3-methylphenol |
| 4-Chlorophenyl phenyl ether |
| Acetophenone |
| Bis(2-chloroethoxy)methane |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) |
| Caprolactam |
| Isophorone |
| N-Nitrosodi-n-propylamine |

Notes:

1) List indicates screening value is not available for the analyte based on the hierarchy of sources presented in Subsection 5.1.1.1.

AND

Analytes are unlikely to be DoD-related as presented in Subsection 5.1.2.2.

2) Surrogate screening levels do not need to be identified for these analytes.

Table 5-20
Soil Analytes without Avian Screening Levels and Unlikely to be DoD-related
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Analyte |
|---|
| Volatile Organic Compounds (VOCs) |
| 1,1,1-Trichloroethane |
| 1,1,2,2-Tetrachloroethane |
| 1,1,2-Trichloro-1,2,2-trifluoroethane |
| 1,1,2-Trichloroethane |
| 1,1-Dichloroethane |
| 1,1-Dichloroethene |
| 1,2,4-Trichlorobenzene |
| 1,2-Dibromo-3-chloropropane |
| 1,2-Dibromoethane (EDB) |
| 1,2-Dichlorobenzene |
| 1,2-Dichloropropane |
| 1,3-Dichlorobenzene |
| 1,3-Dichloropropane |
| 1,4-Dichlorobenzene |
| 4-Methyl-2-pentanone (MIBK) |
| Bromochloromethane |
| Bromodichloromethane |
| Bromoform |
| Bromomethane |
| Carbon disulfide |
| Carbon tetrachloride |
| Chlorobenzene |
| Chloroethane |
| Chloroform |
| Chloromethane |
| cis-1,2-Dichloroethene |
| cis-1,3-Dichloropropene |
| Cumene |
| Cyclohexane |
| Dibromochloromethane |
| Dichlorodifluoromethane |
| Ethylbenzene |
| Methyl acetate |
| Methyl tert-butyl ether (MTBE) |
| Methylcyclohexane |
| Methylene chloride |
| Styrene |
| Tetrachloroethene (PCE) |
| trans-1,2-Dichloroethene |
| trans-1,3-Dichloropropene |
| Trichlorofluoromethane |
| Vinyl chloride |

Table 5-20
Soil Analytes without Avian Screening Levels and Unlikely to be DoD-related
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Analyte |
|---|
| Semi-Volatile Organic Compounds (SVOCs) |
| 1,2,4,5-Tetrachlorobenzene |
| 1,4-Dioxane |
| 2,2'-Oxybis(1-chloropropane) |
| 2,3,4,6-Tetrachlorophenol |
| 2,4,5-Trichlorophenol |
| 2,4,6-Trichlorophenol |
| 2,4-Dichlorophenol |
| 2,4-Dimethylphenol |
| 2,4-Dinitrotoluene |
| 2-Chloronaphthalene |
| 2-Methylphenol (o-Cresol) |
| 3,3'-Dichlorobenzidine |
| 4,6-Dinitro-2-methylphenol |
| 4-Bromophenyl phenyl ether |
| 4-Chloro-3-methylphenol |
| 4-Chlorophenyl phenyl ether |
| Acetophenone |
| Atrazine |
| Benzyl butyl phthalate |
| Biphenyl (Diphenyl) |
| Bis(2-chloroethoxy)methane |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) |
| Caprolactam |
| Cresols, m- & p- |
| Dibenzofuran |
| Diethyl phthalate |
| Dimethyl phthalate |
| di-n-Octyl phthalate |
| Hexachlorobutadiene |
| Hexachlorocyclopentadiene |
| Hexachloroethane |
| Isophorone |
| Nitrobenzene |
| N-Nitrosodi-n-propylamine |
| N-Nitrosodiphenylamine |

Notes:

1) List indicates screening value is not available for the analyte based on the hierarchy of sources presented in Subsection 5.1.1.1.

AND

Analytes are unlikely to be DoD-related as presented in Subsection 5.1.2.2.

2) Surrogate screening levels do not need to be identified for these analytes.

Table 5-21
Soil Analytes without Mammal Screening Levels and Unlikely to be DoD-related
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Analyte |
|---|
| Volatile Organic Compounds (VOCs) |
| 1,1,2-Trichloro-1,2,2-trifluoroethane |
| 1,3-Dichloropropane |
| Bromochloromethane |
| Chloroethane |
| cis-1,2-Dichloroethene |
| Cumene |
| Cyclohexane |
| Methyl acetate |
| Methyl tert-butyl ether (MTBE) |
| Methylcyclohexane |
| Semi-Volatile Organic Compounds (SVOCs) |
| 2,4-Dimethylphenol |
| 4-Bromophenyl phenyl ether |
| 4-Chlorophenyl phenyl ether |
| Atrazine |
| Biphenyl (Diphenyl) |
| Caprolactam |
| Dibenzofuran |

Notes:

1) List indicates screening value is not available for the analyte based on the hierarchy of sources presented in Subsection 5.1.1.1.

AND

Analytes are unlikely to be DoD-related as presented in Subsection 5.1.2.2.

2) Surrogate screening levels do not need to be identified for these analytes.

Table 5-22
Non-detected Groundwater Analytes and the Relationship Between the LOQ and the Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| AOC 1 | | |
| Picric acid | 2,4-Dinitrochlorobenzene | None |
| Beryllium | 2,4-Dinitrophenol | |
| | Mercury | |
| | Selenium | |
| | Silver | |
| | Thallium | |
| AOC 3 | | |
| 1,1,1-Trichloroethane | 1,1,2,2-Tetrachloroethane | Benzyl butyl phthalate |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 1,1,2-Trichloroethane | N-Nitrosodiphenylamine |
| 1,1-Dichloroethane | 1,2,3-Trichlorobenzene | |
| 1,1-Dichloroethene | 1,2,4-Trichlorobenzene | |
| 1,2-Dichlorobenzene | 1,2-Dibromo-3-chloropropane | |
| 1,3-Dichlorobenzene | 1,2-Dibromoethane (EDB) | |
| 1,3-Dichloropropane | 1,2-Dichloroethane | |
| 2-Butanone (MEK) | 1,2-Dichloropropane | |
| 4-Methyl-2-pentanone (MIBK) | 1,4-Dichlorobenzene | |
| Bromochloromethane | 2-Hexanone | |
| Bromoform | Bromodichloromethane | |
| Carbon disulfide | Bromomethane | |
| Chlorobenzene | Carbon Tetrachloride | |
| Chloroethane | Chloroform | |
| Chloromethane | cis-1,3-Dichloropropene | |
| cis-1,2-Dichloroethene | Dibromochloromethane | |
| Cumene | trans-1,3-Dichloropropene | |
| Cyclohexane | Vinyl chloride | |
| Dichlorodifluoromethane | 1,2,4,5-Tetrachlorobenzene | |
| Ethylbenzene | 1,4-Dioxane | |
| Methyl acetate | 2,4,6-Trichlorophenol | |
| Methyl tert-butyl ether (MTBE) | 2,4-Dichlorophenol | |
| Methylene chloride | 2,4-Dinitrochlorobenzene | |
| o-Xylene | 2,4-Dinitrophenol | |
| Styrene | 2,4-Dinitrotoluene | |
| Tetrachloroethene (PCE) | 2,6-Dinitrotoluene | |
| trans-1,2-Dichloroethene | 2-Chlorophenol | |
| Trichlorofluoromethane | 2-Nitroaniline | |
| 2,2'-Oxybis(1-chloropropane) | 2-Nitrophenol | |
| 2,3,4,6-Tetrachlorophenol | 3,3'-Dichlorobenzidine | |
| 2,4,5-Trichlorophenol | 3-Nitroaniline | |
| 2,4-Dimethylphenol | 4,6-Dinitro-2-methylphenol | |
| 2-Chloronaphthalene | 4-Chloroaniline | |
| 2-Methylphenol (o-Cresol) | 4-Nitrophenol | |
| 4-Chloro-3-methylphenol | Atrazine | |
| Acetophenone | Biphenyl (Diphenyl) | |
| Carbazole | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | |
| Cresols, m- & p- | Bis(2-chloroethoxy)methane | |
| Diethyl phthalate | Bis(2-ethylhexyl)phthalate | |
| di-n-Butyl phthalate | Dibenzofuran | |
| di-n-Octyl phthalate | Hexachlorobenzene | |
| Isophorone | Hexachlorobutadiene | |
| Phenol | Hexachlorocyclopentadiene | |
| 1-Methylnaphthalene | Hexachloroethane | |
| 2-Methylnaphthalene | Nitrobenzene | |
| Acenaphthene | N-Nitrosodi-n-propylamine | |
| Acenaphthylene | Pentachlorophenol | |
| Anthracene | Benzo(a)anthracene | |
| Benzo(b)fluoranthene | Benzo(a)pyrene | |
| Benzo(g,h,i)perylene | Dibenz(a,h)anthracene | |
| Benzo(k)fluoranthene | PCB-1016 (Aroclor 1016) | |
| Chrysene | PCB-1221 (Aroclor 1221) | |
| Fluoranthene | PCB-1232 (Aroclor 1232) | |
| Fluorene | PCB-1242 (Aroclor 1242) | |
| Indeno(1,2,3-c,d)pyrene | PCB-1248 (Aroclor 1248) | |

Table 5-22
Non-detected Groundwater Analytes and the Relationship Between the LOQ and the Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| Naphthalene | PCB-1254 (Aroclor 1254) | |
| Phenanthrene | PCB-1260 (Aroclor 1260) | |
| Pyrene | PCB-1262 (Aroclor 1262) | |
| Picric acid | PCB-1268 (Aroclor 1268) | |
| Beryllium | Antimony | |
| Chromium | Cadmium | |
| Copper | Mercury | |
| | Silver | |
| | Thallium | |
| AOC 4 | | |
| None | 2,4-Dinitrochlorobenzene | Picric acid |
| | 2,4-Dinitrophenol | |
| AOC 5 - Boiler House | | |
| 2,3,4,6-Tetrachlorophenol | 1,2,4,5-Tetrachlorobenzene | None |
| 2,4,5-Trichlorophenol | 1,4-Dioxane | |
| 2,4-Dimethylphenol | 2,4,6-Trichlorophenol | |
| 2-Chloronaphthalene | 2,4-Dichlorophenol | |
| 2-Methylphenol (o-Cresol) | 2,4-Dinitrotoluene | |
| 2,2'-Oxybis(1-chloropropane) | 2,6-Dinitrotoluene | |
| 4-Chloro-3-methylphenol | 2-Chlorophenol | |
| Acetophenone | 2-Nitroaniline | |
| Benzaldehyde | 2-Nitrophenol | |
| Benzyl butyl phthalate | 3,3'-Dichlorobenzidine | |
| Carbazole | 3-Nitroaniline | |
| Cresols, m- & p- | 4,6-Dinitro-2-methylphenol | |
| Diethyl phthalate | 4-Chloroaniline | |
| di-n-Butyl phthalate | 4-Nitroaniline | |
| di-n-Octyl phthalate | 4-Nitrophenol | |
| Isophorone | Atrazine | |
| N-Nitrosodiphenylamine | Biphenyl (Diphenyl) | |
| Phenol | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | |
| Acenaphthylene | Bis(2-chloroethoxy)methane | |
| Fluorene | Bis(2-ethylhexyl)phthalate | |
| Beryllium | Dibenzofuran | |
| Chromium | Hexachlorobenzene | |
| Copper | Hexachlorobutadiene | |
| Lead | Hexachlorocyclopentadiene | |
| Zinc | Hexachloroethane | |
| | Nitrobenzene | |
| | N-Nitrosodi-n-propylamine | |
| | Pentachlorophenol | |
| | Cadmium | |
| | Mercury | |
| | Nickel | |
| | Selenium | |
| | Silver | |
| | Thallium | |
| AOC 5 - Coal Aggregate Bins | | |
| 2,3,4,6-Tetrachlorophenol | 1,2,4,5-Tetrachlorobenzene | None |
| 2,4,5-Trichlorophenol | 1,4-Dioxane | |
| 2,4-Dimethylphenol | 2,4,6-Trichlorophenol | |
| 2-Chloronaphthalene | 2,4-Dichlorophenol | |
| 2-Methylphenol (o-Cresol) | 2,4-Dinitrotoluene | |
| 4-Chloro-3-methylphenol | 2,6-Dinitrotoluene | |
| Acetophenone | 2-Chlorophenol | |
| Benzaldehyde | 2-Nitroaniline | |
| Benzyl butyl phthalate | 2-Nitrophenol | |
| Caprolactam | 3,3'-Dichlorobenzidine | |
| Carbazole | 3-Nitroaniline | |
| Cresols, m- & p- | 4,6-Dinitro-2-methylphenol | |
| Diethyl phthalate | 4-Chloroaniline | |
| di-n-Butyl phthalate | 4-Nitroaniline | |

Table 5-22
Non-detected Groundwater Analytes and the Relationship Between the LOQ and the Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| di-n-Octyl phthalate | 4-Nitrophenol | |
| Isophorone | Atrazine | |
| N-Nitrosodiphenylamine | Biphenyl (Diphenyl) | |
| Acenaphthene | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | |
| Acenaphthylene | Bis(2-chloroethoxy)methane | |
| Anthracene | Bis(2-ethylhexyl)phthalate | |
| Benzo(b)fluoranthene | Dibenzofuran | |
| Benzo(g,h,i)perylene | Hexachlorobenzene | |
| Benzo(k)fluoranthene | Hexachlorobutadiene | |
| Fluoranthene | Hexachlorocyclopentadiene | |
| Fluorene | Hexachloroethane | |
| Indeno(1,2,3-c,d)pyrene | Nitrobenzene | |
| Pyrene | N-Nitrosodi-n-propylamine | |
| Beryllium | Pentachlorophenol | |
| | Benzo(a)anthracene | |
| | Benzo(a)pyrene | |
| | Dibenz(a,h)anthracene | |
| | Antimony | |
| | Cadmium | |
| | Mercury | |
| | Selenium | |
| | Silver | |
| | Thallium | |
| AOC 5 - Coal Storage Area | | |
| 2,3,4,6-Tetrachlorophenol | 1,2,4,5-Tetrachlorobenzene | None |
| 2,4,5-Trichlorophenol | 1,4-Dioxane | |
| 2,4-Dimethylphenol | 2,4,6-Trichlorophenol | |
| 2-Chloronaphthalene | 2,4-Dichlorophenol | |
| 2-Methylphenol (o-Cresol) | 2,4-Dinitrotoluene | |
| 4-Chloro-3-methylphenol | 2,6-Dinitrotoluene | |
| Acetophenone | 2-Chlorophenol | |
| Benzaldehyde | 2-Nitroaniline | |
| Benzyl butyl phthalate | 2-Nitrophenol | |
| Caprolactam | 3,3'-Dichlorobenzidine | |
| Carbazole | 3-Nitroaniline | |
| Cresols, m- & p- | 4,6-Dinitro-2-methylphenol | |
| Diethyl phthalate | 4-Chloroaniline | |
| di-n-Butyl phthalate | 4-Nitroaniline | |
| di-n-Octyl phthalate | 4-Nitrophenol | |
| Isophorone | Atrazine | |
| N-Nitrosodiphenylamine | Biphenyl (Diphenyl) | |
| Phenol | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | |
| Acenaphthene | Bis(2-chloroethoxy)methane | |
| Acenaphthylene | Bis(2-ethylhexyl)phthalate | |
| Anthracene | Dibenzofuran | |
| Benzo(b)fluoranthene | Hexachlorobenzene | |
| Benzo(g,h,i)perylene | Hexachlorobutadiene | |
| Benzo(k)fluoranthene | Hexachlorocyclopentadiene | |
| Chrysene | Hexachloroethane | |
| Fluoranthene | Nitrobenzene | |
| Fluorene | N-Nitrosodi-n-propylamine | |
| Indeno(1,2,3-c,d)pyrene | Pentachlorophenol | |
| Pyrene | Benzo(a)anthracene | |
| Aluminum | Benzo(a)pyrene | |
| Beryllium | Dibenz(a,h)anthracene | |
| Chromium | Cadmium | |
| Copper | Mercury | |
| Lead | Selenium | |
| Zinc | Silver | |
| | Thallium | |
| | Vanadium | |

Table 5-22
Non-detected Groundwater Analytes and the Relationship Between the LOQ and the Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| AOC 5 - Electric Substation | | |
| 2,3,4,6-Tetrachlorophenol | 1,2,4,5-Tetrachlorobenzene | None |
| 2,4,5-Trichlorophenol | 1,4-Dioxane | |
| 2,4-Dimethylphenol | 2,4,6-Trichlorophenol | |
| 2-Chloronaphthalene | 2,4-Dichlorophenol | |
| 2-Methylphenol (o-Cresol) | 2,4-Dinitrotoluene | |
| 2,2'-Oxybis(1-chloropropane) | 2,6-Dinitrotoluene | |
| 4-Chloro-3-methylphenol | 2-Chlorophenol | |
| Acetophenone | 2-Nitroaniline | |
| Benzaldehyde | 2-Nitrophenol | |
| Benzyl butyl phthalate | 3,3'-Dichlorobenzidine | |
| Caprolactam | 3-Nitroaniline | |
| Carbazole | 4,6-Dinitro-2-methylphenol | |
| Cresols, m- & p- | 4-Chloroaniline | |
| Diethyl phthalate | 4-Nitroaniline | |
| di-n-Butyl phthalate | 4-Nitrophenol | |
| di-n-Octyl phthalate | Atrazine | |
| Isophorone | Biphenyl (Diphenyl) | |
| N-Nitrosodiphenylamine | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | |
| Phenol | Bis(2-chloroethoxy)methane | |
| 1-Methylnaphthalene | Bis(2-ethylhexyl)phthalate | |
| 2-Methylnaphthalene | Dibenzofuran | |
| Acenaphthene | Hexachlorobenzene | |
| Acenaphthylene | Hexachlorobutadiene | |
| Anthracene | Hexachlorocyclopentadiene | |
| Benzo(b)fluoranthene | Hexachloroethane | |
| Benzo(g,h,i)perylene | Nitrobenzene | |
| Benzo(k)fluoranthene | N-Nitrosodi-n-propylamine | |
| Chrysene | Pentachlorophenol | |
| Fluoranthene | Benzo(a)anthracene | |
| Fluorene | Benzo(a)pyrene | |
| Indeno(1,2,3-c,d)pyrene | Dibenz(a,h)anthracene | |
| Phenanthrene | Antimony | |
| Pyrene | Cadmium | |
| Aluminum | Mercury | |
| Beryllium | Nickel | |
| Chromium | Selenium | |
| Copper | Silver | |
| Lead | Thallium | |
| Zinc | Vanadium | |
| AOC 5 - Possible Dump | | |
| 1,1,1-Trichloroethane | 1,1,2,2-Tetrachloroethane | None |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 1,1,2-Trichloroethane | |
| 1,1-Dichloroethane | 1,2,4-Trichlorobenzene | |
| 1,1-Dichloroethene | 1,2-Dibromo-3-chloropropane | |
| 1,2-Dichlorobenzene | 1,2-Dibromoethane (EDB) | |
| 1,3-Dichlorobenzene | 1,2-Dichloroethane | |
| 1,3-Dichloropropane | 1,2-Dichloropropane | |
| 2-Butanone (MEK) | 1,4-Dichlorobenzene | |
| 4-Methyl-2-pentanone (MIBK) | 2-Hexanone | |
| Acetone | Benzene | |
| Acetophenone | Bromodichloromethane | |
| Benzaldehyde | Bromomethane | |
| Bromochloromethane | Carbon Tetrachloride | |
| Bromoform | Chloroform | |
| Carbon disulfide | cis-1,3-Dichloropropene | |
| Chlorobenzene | Dibromochloromethane | |
| Chloroethane | trans-1,3-Dichloropropene | |
| Chloromethane | Vinyl chloride | |
| cis-1,2-Dichloroethene | 1,2,4,5-Tetrachlorobenzene | |
| Cumene | 1,4-Dioxane | |
| Cyclohexane | 2,4,6-Trichlorophenol | |

Table 5-22
Non-detected Groundwater Analytes and the Relationship Between the LOQ and the Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| Dichlorodifluoromethane | 2,4-Dichlorophenol | |
| Ethylbenzene | 2,4-Dinitrotoluene | |
| m,p-Xylene | 2,6-Dinitrotoluene | |
| Methyl acetate | 2-Chlorophenol | |
| Methyl tert-butyl ether (MTBE) | 2-Nitroaniline | |
| Methylene chloride | 2-Nitrophenol | |
| o-Xylene | 3,3'-Dichlorobenzidine | |
| Styrene | 3-Nitroaniline | |
| Tetrachloroethene (PCE) | 4,6-Dinitro-2-methylphenol | |
| Toluene | 4-Chloroaniline | |
| trans-1,2-Dichloroethene | 4-Nitroaniline | |
| Trichlorofluoromethane | 4-Nitrophenol | |
| 2,2'-Oxybis(1-chloropropane) | Atrazine | |
| 2,3,4,6-Tetrachlorophenol | Biphenyl (Diphenyl) | |
| 2,4,5-Trichlorophenol | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | |
| 2,4-Dimethylphenol | Bis(2-chloroethoxy)methane | |
| 2-Chloronaphthalene | Bis(2-ethylhexyl)phthalate | |
| 2-Methylphenol (o-Cresol) | Dibenzofuran | |
| 4-Chloro-3-methylphenol | Hexachlorobenzene | |
| Benzyl butyl phthalate | Hexachlorobutadiene | |
| Caprolactam | Hexachlorocyclopentadiene | |
| Carbazole | Hexachloroethane | |
| Cresols, m- & p- | Nitrobenzene | |
| Diethyl phthalate | N-Nitrosodi-n-propylamine | |
| di-n-Butyl phthalate | Pentachlorophenol | |
| di-n-Octyl phthalate | Benzo(a)anthracene | |
| Isophorone | Benzo(a)pyrene | |
| N-Nitrosodiphenylamine | Dibenz(a,h)anthracene | |
| Phenol | PCB-1016 (Aroclor 1016) | |
| 1-Methylnaphthalene | PCB-1221 (Aroclor 1221) | |
| Acenaphthene | PCB-1232 (Aroclor 1232) | |
| Acenaphthylene | PCB-1242 (Aroclor 1242) | |
| Anthracene | PCB-1248 (Aroclor 1248) | |
| Benzo(g,h,i)perylene | PCB-1254 (Aroclor 1254) | |
| Fluorene | PCB-1260 (Aroclor 1260) | |
| Indeno(1,2,3-c,d)pyrene | PCB-1262 (Aroclor 1262) | |
| Beryllium | PCB-1268 (Aroclor 1268) | |
| Chromium | Antimony | |
| Copper | Cadmium | |
| Lead | Mercury | |
| Zinc | Selenium | |
| | Silver | |
| | Thallium | |
| | Vanadium | |

Notes:
AOC = Area of Concern.
LOQ = Limit of Quantitation.
SL = Screening Level.

Table 5-23
Non-detected Soil Analytes and the Relationship Between the LOQ and the Human Health Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| AOC 1 (0 to 10 ft bgs) | | |
| None | None | 2,4-Dinitrochlorobenzene<br>2,4-Dinitrophenol |
| AOC 3 (0 to 5 ft bgs) | | |
| 1,1,1-Trichloroethane<br>1,1,2,2-Tetrachloroethane<br>1,1,2-Trichloro-1,2,2-trifluoroethane<br>1,1,2-Trichloroethane<br>1,1-Dichloroethane<br>1,1-Dichloroethene<br>1,2,3-Trichlorobenzene<br>1,2,4-Trichlorobenzene<br>1,2-Dibromoethane (EDB)<br>1,2-Dichlorobenzene<br>1,2-Dichloroethane<br>1,2-Dichloropropane<br>1,3-Dichloropropane<br>1,4-Dichlorobenzene<br>2-Hexanone<br>4-Methyl-2-pentanone (MIBK)<br>Benzene<br>Bromochloromethane<br>Bromodichloromethane<br>Bromoform<br>Bromomethane<br>Carbon disulfide<br>Carbon Tetrachloride<br>Chlorobenzene<br>Chloroethane<br>Chloroform<br>Chloromethane<br>cis-1,2-Dichloroethene<br>cis-1,3-Dichloropropene<br>Cyclohexane<br>Dibromochloromethane<br>Dichlorodifluoromethane<br>Ethylbenzene<br>Hexachloroethane<br>m,p-Xylene<br>Methyl acetate<br>Methyl tert-butyl ether (MTBE)<br>Methylene chloride<br>o-Xylene<br>Styrene<br>Tetrachloroethene (PCE)<br>trans-1,2-Dichloroethene<br>trans-1,3-Dichloropropene<br>Trichlorofluoromethane<br>Vinyl chloride<br>1,4-Dioxane<br>2,3,4,6-Tetrachlorophenol<br>2,4,5-Trichlorophenol<br>2,4,6-Trichlorophenol<br>2,2'-Oxybis(1-chloropropane)<br>2,4-Dichlorophenol<br>2,4-Dimethylphenol<br>2,4-Dinitrochlorobenzene<br>2,4-Dinitrophenol<br>2,4-Dinitrotoluene<br>2-Chloronaphthalene<br>2-Chlorophenol<br>2-Methylphenol (o-Cresol)<br>2-Nitroaniline<br>2-Nitrophenol | 1,2-Dibromo-3-chloropropane<br>1,2,4,5-Tetrachlorobenzene<br>4,6-Dinitro-2-methylphenol<br>Bis(2-chloroethyl) ether (2-Chloroethyl ether)<br>Hexachlorobenzene<br>Hexachlorocyclopentadiene<br>N-Nitrosodi-n-propylamine<br>Pentachlorophenol | 2,6-Dinitrotoluene |

Table 5-23
Non-detected Soil Analytes and the Relationship Between the LOQ and the Human Health Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| 3,3'-Dichlorobenzidine | | |
| 3-Nitroaniline | | |
| 4-Chloro-3-methylphenol | | |
| 4-Chloroaniline | | |
| 4-Nitroaniline | | |
| 4-Nitrophenol | | |
| Acetophenone | | |
| Atrazine | | |
| Benzyl butyl phthalate | | |
| Biphenyl (Diphenyl) | | |
| Bis(2-chloroethoxy)methane | | |
| Caprolactam | | |
| Diethyl phthalate | | |
| di-n-Butyl phthalate | | |
| di-n-Octyl phthalate | | |
| Hexachlorobutadiene | | |
| Isophorone | | |
| Nitrobenzene | | |
| N-Nitrosodiphenylamine | | |
| Phenol | | |
| PCB-1016 (Aroclor 1016) | | |
| PCB-1221 (Aroclor 1221) | | |
| PCB-1232 (Aroclor 1232) | | |
| PCB-1242 (Aroclor 1242) | | |
| PCB-1248 (Aroclor 1248) | | |
| PCB-1254 (Aroclor 1254) | | |
| PCB-1262 (Aroclor 1262) | | |
| PCB-1268 (Aroclor 1268) | | |
| Picric acid | | |
| AOC 4 Discrete Samples (0 to 10 ft bgs) | | |
| 2,4-Dinitrochlorobenzene | None | None |
| 2,4-Dinitrophenol | | |
| Picric acid | | |
| AOC 4 ISM Samples (0 to 1 ft bgs) | | |
| 2,4-Dinitrophenol | None | 2,4-Dinitrochlorobenzene |
| Picric acid | | |
| AOC 5 - Boiler House (0 to 10 ft bgs) | | |
| Hexachloroethane | 1,2,4,5-Tetrachlorobenzene | 2,6-Dinitrotoluene |
| 1,4-Dioxane | 4,6-Dinitro-2-methylphenol | |
| 2,3,4,6-Tetrachlorophenol | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | |
| 2,4,5-Trichlorophenol | Hexachlorobenzene | |
| 2,4,6-Trichlorophenol | Hexachlorocyclopentadiene | |
| 2,2'-Oxybis(1-chloropropane) | N-Nitrosodi-n-propylamine | |
| 2,4-Dichlorophenol | Pentachlorophenol | |
| 2,4-Dimethylphenol | | |
| 2,4-Dinitrotoluene | | |
| 2-Chloronaphthalene | | |
| 2-Chlorophenol | | |
| 2-Methylphenol (o-Cresol) | | |
| 2-Nitroaniline | | |
| 2-Nitrophenol | | |
| 3,3'-Dichlorobenzidine | | |
| 3-Nitroaniline | | |
| 4-Chloro-3-methylphenol | | |
| 4-Chloroaniline | | |
| 4-Nitroaniline | | |
| 4-Nitrophenol | | |
| Acetophenone | | |
| Atrazine | | |
| Benzaldehyde | | |
| Benzyl butyl phthalate | | |
| Biphenyl (Diphenyl) | | |
| Bis(2-chloroethoxy)methane | | |

Table 5-23
Non-detected Soil Analytes and the Relationship Between the LOQ and the Human Health Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| Bis(2-ethylhexyl)phthalate | | |
| Caprolactam | | |
| Carbazole | | |
| Cresols, m- & p- | | |
| Dibenzofuran | | |
| Diethyl phthalate | | |
| di-n-Butyl phthalate | | |
| di-n-Octyl phthalate | | |
| Hexachlorobutadiene | | |
| Isophorone | | |
| Nitrobenzene | | |
| N-Nitrosodiphenylamine | | |
| Phenol | | |
| Silver | | |
| AOC 5 - Coal Aggregate Bins (0 to 10 ft bgs) | | |
| Hexachloroethane | 1,2,4,5-Tetrachlorobenzene | 2,6-Dinitrotoluene |
| 1,4-Dioxane | 4,6-Dinitro-2-methylphenol | |
| 2,3,4,6-Tetrachlorophenol | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | |
| 2,4,5-Trichlorophenol | Hexachlorobenzene | |
| 2,4,6-Trichlorophenol | Hexachlorocyclopentadiene | |
| 2,2'-Oxybis(1-chloropropane) | N-Nitrosodi-n-propylamine | |
| 2,4-Dichlorophenol | Pentachlorophenol | |
| 2,4-Dimethylphenol | | |
| 2,4-Dinitrotoluene | | |
| 2-Chloronaphthalene | | |
| 2-Chlorophenol | | |
| 2-Methylphenol (o-Cresol) | | |
| 2-Nitroaniline | | |
| 2-Nitrophenol | | |
| 3,3'-Dichlorobenzidine | | |
| 3-Nitroaniline | | |
| 4-Chloro-3-methylphenol | | |
| 4-Chloroaniline | | |
| 4-Nitroaniline | | |
| 4-Nitrophenol | | |
| Acetophenone | | |
| Atrazine | | |
| Benzaldehyde | | |
| Benzyl butyl phthalate | | |
| Biphenyl (Diphenyl) | | |
| Bis(2-chloroethoxy)methane | | |
| Bis(2-ethylhexyl)phthalate | | |
| Caprolactam | | |
| Carbazole | | |
| Cresols, m- & p- | | |
| Diethyl phthalate | | |
| di-n-Butyl phthalate | | |
| di-n-Octyl phthalate | | |
| Hexachlorobutadiene | | |
| Isophorone | | |
| Nitrobenzene | | |
| N-Nitrosodiphenylamine | | |
| Phenol | | |
| Silver | | |
| AOC 5 - Coal Storage Area (0 to 10 ft bgs) | | |
| Hexachloroethane | 1,2,4,5-Tetrachlorobenzene | 2,6-Dinitrotoluene |
| 1,4-Dioxane | 4,6-Dinitro-2-methylphenol | |
| 2,3,4,6-Tetrachlorophenol | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | |
| 2,4,5-Trichlorophenol | Hexachlorobenzene | |
| 2,4,6-Trichlorophenol | Hexachlorocyclopentadiene | |
| 2,2'-Oxybis(1-chloropropane) | N-Nitrosodi-n-propylamine | |
| 2,4-Dichlorophenol | Pentachlorophenol | |
| 2,4-Dimethylphenol | | |

Table 5-23
Non-detected Soil Analytes and the Relationship Between the LOQ and the Human Health Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| 2,4-Dinitrotoluene | | |
| 2-Chloronaphthalene | | |
| 2-Chlorophenol | | |
| 2-Methylphenol (o-Cresol) | | |
| 2-Nitroaniline | | |
| 2-Nitrophenol | | |
| 3,3'-Dichlorobenzidine | | |
| 3-Nitroaniline | | |
| 4-Chloro-3-methylphenol | | |
| 4-Chloroaniline | | |
| 4-Nitroaniline | | |
| 4-Nitrophenol | | |
| Acetophenone | | |
| Atrazine | | |
| Benzaldehyde | | |
| Benzyl butyl phthalate | | |
| Biphenyl (Diphenyl) | | |
| Bis(2-chloroethoxy)methane | | |
| Bis(2-ethylhexyl)phthalate | | |
| Caprolactam | | |
| Carbazole | | |
| Cresols, m- & p- | | |
| Dibenzofuran | | |
| Diethyl phthalate | | |
| di-n-Butyl phthalate | | |
| di-n-Octyl phthalate | | |
| Hexachlorobutadiene | | |
| Isophorone | | |
| Nitrobenzene | | |
| N-Nitrosodiphenylamine | | |
| Phenol | | |
| Silver | | |
| AOC 5 - Electric Substation (0 to 10 ft bgs) | | |
| Hexachloroethane | 1,2,4,5-Tetrachlorobenzene | 2,6-Dinitrotoluene |
| 1,4-Dioxane | 4,6-Dinitro-2-methylphenol | |
| 2,3,4,6-Tetrachlorophenol | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | |
| 2,4,5-Trichlorophenol | Hexachlorobenzene | |
| 2,4,6-Trichlorophenol | Hexachlorocyclopentadiene | |
| 2,2'-Oxybis(1-chloropropane) | N-Nitrosodi-n-propylamine | |
| 2,4-Dichlorophenol | Pentachlorophenol | |
| 2,4-Dimethylphenol | | |
| 2,4-Dinitrotoluene | | |
| 2-Chloronaphthalene | | |
| 2-Chlorophenol | | |
| 2-Methylphenol (o-Cresol) | | |
| 2-Nitroaniline | | |
| 2-Nitrophenol | | |
| 3,3'-Dichlorobenzidine | | |
| 3-Nitroaniline | | |
| 4-Chloro-3-methylphenol | | |
| 4-Chloroaniline | | |
| 4-Nitroaniline | | |
| 4-Nitrophenol | | |
| Acetophenone | | |
| Atrazine | | |
| Benzaldehyde | | |
| Benzyl butyl phthalate | | |
| Biphenyl (Diphenyl) | | |
| Bis(2-chloroethoxy)methane | | |
| Bis(2-ethylhexyl)phthalate | | |
| Caprolactam | | |
| Carbazole | | |
| Cresols, m- & p- | | |

Table 5-23
Non-detected Soil Analytes and the Relationship Between the LOQ and the Human Health Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| Dibenzofuran | | |
| Diethyl phthalate | | |
| di-n-Butyl phthalate | | |
| di-n-Octyl phthalate | | |
| Hexachlorobutadiene | | |
| Isophorone | | |
| Nitrobenzene | | |
| N-Nitrosodiphenylamine | | |
| Phenol | | |
| PCB-1016 (Aroclor 1016) | | |
| PCB-1221 (Aroclor 1221) | | |
| PCB-1232 (Aroclor 1232) | | |
| PCB-1242 (Aroclor 1242) | | |
| PCB-1248 (Aroclor 1248) | | |
| PCB-1254 (Aroclor 1254) | | |
| PCB-1262 (Aroclor 1262) | | |
| PCB-1268 (Aroclor 1268) | | |
| Silver | | |
| AOC 5 - Possible Dump (0 to 10 ft bgs) | | |
| 1,1,1-Trichloroethane | 1,2-Dibromo-3-chloropropane | 2,6-Dinitrotoluene |
| 1,1,2,2-Tetrachloroethane | 1,2,4,5-Tetrachlorobenzene | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 4,6-Dinitro-2-methylphenol | |
| 1,1,2-Trichloroethane | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | |
| 1,1-Dichloroethane | Hexachlorobenzene | |
| 1,1-Dichloroethene | Hexachlorocyclopentadiene | |
| 1,2,3-Trichlorobenzene | N-Nitrosodi-n-propylamine | |
| 1,2,4-Trichlorobenzene | Pentachlorophenol | |
| 1,2-Dibromoethane (EDB) | | |
| 1,2-Dichlorobenzene | | |
| 1,2-Dichloroethane | | |
| 1,2-Dichloropropane | | |
| 1,3-Dichloropropane | | |
| 1,4-Dichlorobenzene | | |
| 2-Hexanone | | |
| 4-Methyl-2-pentanone (MIBK) | | |
| Acetophenone | | |
| Bromochloromethane | | |
| Bromodichloromethane | | |
| Bromoform | | |
| Bromomethane | | |
| Carbon disulfide | | |
| Carbon Tetrachloride | | |
| Chlorobenzene | | |
| Chloroethane | | |
| Chloroform | | |
| Chloromethane | | |
| cis-1,2-Dichloroethene | | |
| cis-1,3-Dichloropropene | | |
| Cumene | | |
| Cyclohexane | | |
| Dibromochloromethane | | |
| Dichlorodifluoromethane | | |
| Ethylbenzene | | |
| Hexachloroethane | | |
| m,p-Xylene | | |
| Methyl acetate | | |
| Methyl tert-butyl ether (MTBE) | | |
| Methylene chloride | | |
| o-Xylene | | |
| Styrene | | |
| Tetrachloroethene (PCE) | | |
| trans-1,2-Dichloroethene | | |
| trans-1,3-Dichloropropene | | |

Table 5-23
Non-detected Soil Analytes and the Relationship Between the LOQ and the Human Health Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| Trichlorofluoromethane | | |
| Vinyl chloride | | |
| 1,4-Dioxane | | |
| 2,3,4,6-Tetrachlorophenol | | |
| 2,4,5-Trichlorophenol | | |
| 2,4,6-Trichlorophenol | | |
| 2,2'-Oxybis(1-chloropropane) | | |
| 2,4-Dichlorophenol | | |
| 2,4-Dimethylphenol | | |
| 2,4-Dinitrotoluene | | |
| 2-Chloronaphthalene | | |
| 2-Chlorophenol | | |
| 2-Methylphenol (o-Cresol) | | |
| 2-Nitroaniline | | |
| 2-Nitrophenol | | |
| 3,3'-Dichlorobenzidine | | |
| 3-Nitroaniline | | |
| 4-Chloro-3-methylphenol | | |
| 4-Chloroaniline | | |
| 4-Nitroaniline | | |
| 4-Nitrophenol | | |
| Atrazine | | |
| Benzyl butyl phthalate | | |
| Biphenyl (Diphenyl) | | |
| Bis(2-chloroethoxy)methane | | |
| Bis(2-ethylhexyl)phthalate | | |
| Caprolactam | | |
| Carbazole | | |
| Cresols, m- & p- | | |
| Diethyl phthalate | | |
| di-n-Octyl phthalate | | |
| Hexachlorobutadiene | | |
| Isophorone | | |
| Nitrobenzene | | |
| N-Nitrosodiphenylamine | | |
| Phenol | | |
| Dibenz(a,h)anthracene | | |
| PCB-1016 (Aroclor 1016) | | |
| PCB-1221 (Aroclor 1221) | | |
| PCB-1232 (Aroclor 1232) | | |
| PCB-1242 (Aroclor 1242) | | |
| PCB-1248 (Aroclor 1248) | | |
| PCB-1254 (Aroclor 1254) | | |
| PCB-1260 (Aroclor 1260) | | |
| PCB-1262 (Aroclor 1262) | | |
| PCB-1268 (Aroclor 1268) | | |

Notes:
AOC = Area of Concern.
LOQ = Limit of Quantitation.
SL = Screening Level.

Table 5-24
Non-detected Soil Analytes and the Relationship Between the LOQ and the Plant Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| AOC 1 (0 to 5 ft bgs) | | |
| 2,4-Dinitrophenol | 2,4-Dinitrochlorobenzene | None |
| AOC 3 (0 to 5 ft bgs) | | |
| Benzene<br>m,p-Xylene<br>Methylene chloride<br>o-Xylene<br>Styrene<br>Tetrachloroethene (PCE)<br>2,4,5-Trichlorophenol<br>2,4-Dinitrophenol<br>2,4-Dinitrotoluene<br>2-Methylphenol (o-Cresol)<br>4-Chloroaniline<br>Biphenyl (Diphenyl)<br>Diethyl phthalate<br>di-n-Butyl phthalate<br>Hexachlorobenzene<br>Hexachlorocyclopentadiene<br>Pentachlorophenol<br>Phenol<br>PCB-1016 (Aroclor 1016)<br>PCB-1221 (Aroclor 1221)<br>PCB-1232 (Aroclor 1232)<br>PCB-1242 (Aroclor 1242)<br>PCB-1248 (Aroclor 1248)<br>PCB-1254 (Aroclor 1254)<br>PCB-1262 (Aroclor 1262)<br>PCB-1268 (Aroclor 1268)<br>Picric acid | 2,4-Dimethylphenol<br>2,4-Dinitrochlorobenzene | None |
| AOC 4 - Discrete (0 to 5 ft bgs) | | |
| 2,4-Dinitrophenol<br>Picric acid | 2,4-Dinitrochlorobenzene | None |
| AOC 4 - ISM (0 to 1 ft bgs) | | |
| 2,4-Dinitrophenol<br>Picric acid | None | 2,4-Dinitrochlorobenzene |
| AOC 5 - Boiler House (0 to 5 ft bgs) | | |
| 2,4,5-Trichlorophenol<br>2,4-Dinitrotoluene<br>2-Methylphenol (o-Cresol)<br>4-Chloroaniline<br>Biphenyl (Diphenyl)<br>Cresols, m- & p-<br>Dibenzofuran<br>Diethyl phthalate<br>di-n-Butyl phthalate<br>Hexachlorobenzene<br>Hexachlorocyclopentadiene<br>Pentachlorophenol<br>Phenol<br>Acenaphthene<br>Silver | 2,4-Dimethylphenol | None |

Table 5-24
Non-detected Soil Analytes and the Relationship Between the LOQ and the Plant Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| AOC 5 - Coal Aggregate Bins (0 to 5 ft bgs) | | |
| 2,4,5-Trichlorophenol<br>2,4-Dinitrotoluene<br>2-Methylphenol (o-Cresol)<br>4-Chloroaniline<br>Biphenyl (Diphenyl)<br>Cresols, m- & p-<br>Diethyl phthalate<br>di-n-Butyl phthalate<br>Hexachlorobenzene<br>Hexachlorocyclopentadiene<br>Pentachlorophenol<br>Phenol<br>Silver | 2,4-Dimethylphenol | None |
| AOC 5 - Coal Storage Area (0 to 5 ft bgs) | | |
| 2,4,5-Trichlorophenol<br>2,4-Dinitrotoluene<br>2-Methylphenol (o-Cresol)<br>4-Chloroaniline<br>Biphenyl (Diphenyl)<br>Cresols, m- & p-<br>Dibenzofuran<br>Diethyl phthalate<br>di-n-Butyl phthalate<br>Hexachlorobenzene<br>Hexachlorocyclopentadiene<br>Pentachlorophenol<br>Phenol<br>Silver | 2,4-Dimethylphenol | None |
| AOC 5 - Electric Substation (0 to 5 ft bgs) | | |
| 2,4,5-Trichlorophenol<br>2,4-Dinitrotoluene<br>2-Methylphenol (o-Cresol)<br>4-Chloroaniline<br>Biphenyl (Diphenyl)<br>Cresols, m- & p-<br>Dibenzofuran<br>Diethyl phthalate<br>di-n-Butyl phthalate<br>Hexachlorobenzene<br>Hexachlorocyclopentadiene<br>Pentachlorophenol<br>Phenol<br>PCB-1016 (Aroclor 1016)<br>PCB-1221 (Aroclor 1221)<br>PCB-1232 (Aroclor 1232)<br>PCB-1242 (Aroclor 1242)<br>PCB-1248 (Aroclor 1248)<br>PCB-1254 (Aroclor 1254)<br>PCB-1262 (Aroclor 1262)<br>PCB-1268 (Aroclor 1268)<br>Silver | 2,4-Dimethylphenol | None |
| AOC 5 - Possible Dump (0 to 5 ft bgs) | | |
| m,p-Xylene<br>Methylene chloride<br>o-Xylene<br>Styrene<br>Tetrachloroethene (PCE)<br>2,4,5-Trichlorophenol<br>2,4-Dinitrotoluene<br>2-Methylphenol (o-Cresol)<br>4-Chloroaniline<br>Biphenyl (Diphenyl) | 2,4-Dimethylphenol | None |

Table 5-24
Non-detected Soil Analytes and the Relationship Between the LOQ and the Plant Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| Cresols, m- & p- | | |
| Diethyl phthalate | | |
| Hexachlorobenzene | | |
| Hexachlorocyclopentadiene | | |
| Pentachlorophenol | | |
| Phenol | | |
| PCB-1016 (Aroclor 1016) | | |
| PCB-1221 (Aroclor 1221) | | |
| PCB-1232 (Aroclor 1232) | | |
| PCB-1242 (Aroclor 1242) | | |
| PCB-1248 (Aroclor 1248) | | |
| PCB-1254 (Aroclor 1254) | | |
| PCB-1260 (Aroclor 1260) | | |
| PCB-1262 (Aroclor 1262) | | |
| PCB-1268 (Aroclor 1268) | | |

Notes:
AOC = Area of Concern.
LOQ = Limit of Quantitation.
SL = Screening Level.

Table 5-25
Non-detected Soil Analytes and the Relationship Between the LOQ and the Soil Invertebrate Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| AOC 1 (0 to 5 ft bgs) | | |
| None | 2,4-Dinitrophenol | 2,4-Dinitrochlorobenzene |
| AOC 3 (0 to 5 ft bgs) | | |
| 1,1,1-Trichloroethane | Bromomethane | Carbon disulfide |
| 1,1,2,2-Tetrachloroethane | cis-1,3-Dichloropropene | |
| 1,1,2-Trichloroethane | trans-1,3-Dichloropropene | |
| 1,1-Dichloroethane | 1,2,4,5-Tetrachlorobenzene | |
| 1,1-Dichloroethene | 2,3,4,6-Tetrachlorophenol | |
| 1,2,3-Trichlorobenzene | 2,4-Dichlorophenol | |
| 1,2,4-Trichlorobenzene | 2,4-Dimethylphenol | |
| 1,2-Dichlorobenzene | 2,4-Dinitrophenol | |
| 1,2-Dichloroethane | 2-Chlorophenol | |
| 1,2-Dichloropropane | 2-Methylphenol (o-Cresol) | |
| 1,3-Dichlorobenzene | 2-Nitroaniline | |
| 1,4-Dichlorobenzene | 2-Nitrophenol | |
| 2-Hexanone | 3,3'-Dichlorobenzidine | |
| Benzene | 3-Nitroaniline | |
| Bromoform | 4-Nitroaniline | |
| Carbon Tetrachloride | Atrazine | |
| Chlorobenzene | Biphenyl (Diphenyl) | |
| Chloroform | Diethyl phthalate | |
| cis-1,2-Dichloroethene | di-n-Butyl phthalate | |
| Ethylbenzene | Hexachlorobutadiene | |
| m,p-Xylene | Hexachlorocyclopentadiene | |
| Methylene chloride | Hexachloroethane | |
| o-Xylene | Picric acid | |
| Styrene | | |
| Tetrachloroethene (PCE) | | |
| trans-1,2-Dichloroethene | | |
| Vinyl chloride | | |
| 2,4,5-Trichlorophenol | | |
| 2,4,6-Trichlorophenol | | |
| 2,4-Dinitrochlorobenzene | | |
| 2,4-Dinitrotoluene | | |
| 2,6-Dinitrotoluene | | |
| 4-Chloroaniline | | |
| 4-Nitrophenol | | |
| Benzyl butyl phthalate | | |
| Dimethyl phthalate | | |
| di-n-Octyl phthalate | | |
| Hexachlorobenzene | | |
| Nitrobenzene | | |
| N-Nitrosodiphenylamine | | |
| Pentachlorophenol | | |
| Phenol | | |
| PCB-1016 (Aroclor 1016) | | |
| PCB-1221 (Aroclor 1221) | | |
| PCB-1232 (Aroclor 1232) | | |
| PCB-1242 (Aroclor 1242) | | |
| PCB-1248 (Aroclor 1248) | | |
| PCB-1254 (Aroclor 1254) | | |
| PCB-1262 (Aroclor 1262) | | |
| PCB-1268 (Aroclor 1268) | | |

Table 5-25
Non-detected Soil Analytes and the Relationship Between the LOQ and the Soil Invertebrate Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| AOC 4 - Discrete (0 to 5 ft bgs) | | |
| 2,4-Dinitrochlorobenzene | 2,4-Dinitrophenol<br>Picric acid | None |
| AOC 4 - ISM (0 to 1 ft bgs) | | |
| None | 2,4-Dinitrophenol<br>Picric acid | 2,4-Dinitrochlorobenzene |
| AOC 5 - Boiler House (0 to 5 ft bgs) | | |
| 2,4,5-Trichlorophenol<br>2,4,6-Trichlorophenol<br>2,4-Dinitrotoluene<br>2,6-Dinitrotoluene<br>4-Chloroaniline<br>4-Nitrophenol<br>Benzyl butyl phthalate<br>Bis(2-ethylhexyl)phthalate<br>Dimethyl phthalate<br>di-n-Octyl phthalate<br>Hexachlorobenzene<br>Nitrobenzene<br>N-Nitrosodiphenylamine<br>Pentachlorophenol<br>Phenol<br>Acenaphthene | 1,2,4,5-Tetrachlorobenzene<br>2,3,4,6-Tetrachlorophenol<br>2,4-Dichlorophenol<br>2,4-Dimethylphenol<br>2-Chlorophenol<br>2-Methylphenol (o-Cresol)<br>2-Nitroaniline<br>2-Nitrophenol<br>3,3'-Dichlorobenzidine<br>3-Nitroaniline<br>4-Nitroaniline<br>Atrazine<br>Benzaldehyde<br>Biphenyl (Diphenyl)<br>Carbazole<br>Cresols, m- & p-<br>Dibenzofuran<br>Diethyl phthalate<br>di-n-Butyl phthalate<br>Hexachlorobutadiene<br>Hexachlorocyclopentadiene<br>Hexachloroethane | None |
| AOC 5 - Coal Aggregate Bins (0 to 5 ft bgs) | | |
| 2,4,5-Trichlorophenol<br>2,4,6-Trichlorophenol<br>2,4-Dinitrotoluene<br>2,6-Dinitrotoluene<br>4-Chloroaniline<br>4-Nitrophenol<br>Benzyl butyl phthalate<br>Bis(2-ethylhexyl)phthalate<br>Dimethyl phthalate<br>di-n-Octyl phthalate<br>Hexachlorobenzene<br>Nitrobenzene<br>N-Nitrosodiphenylamine<br>Pentachlorophenol<br>Phenol | 1,2,4,5-Tetrachlorobenzene<br>2,3,4,6-Tetrachlorophenol<br>2,4-Dichlorophenol<br>2,4-Dimethylphenol<br>2-Chlorophenol<br>2-Methylphenol (o-Cresol)<br>2-Nitroaniline<br>2-Nitrophenol<br>3,3'-Dichlorobenzidine<br>3-Nitroaniline<br>4-Nitroaniline<br>Atrazine<br>Benzaldehyde<br>Biphenyl (Diphenyl)<br>Carbazole<br>Cresols, m- & p-<br>Diethyl phthalate<br>di-n-Butyl phthalate<br>Hexachlorobutadiene<br>Hexachlorocyclopentadiene<br>Hexachloroethane | None |

Table 5-25
Non-detected Soil Analytes and the Relationship Between the LOQ and the Soil Invertebrate Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| AOC 5 - Coal Storage Area (0 to 5 ft bgs) | | |
| 2,4,5-Trichlorophenol | 1,2,4,5-Tetrachlorobenzene | None |
| 2,4,6-Trichlorophenol | 2,3,4,6-Tetrachlorophenol | |
| 2,4-Dinitrotoluene | 2,4-Dichlorophenol | |
| 2,6-Dinitrotoluene | 2,4-Dimethylphenol | |
| 4-Chloroaniline | 2-Chlorophenol | |
| 4-Nitrophenol | 2-Methylphenol (o-Cresol) | |
| Benzyl butyl phthalate | 2-Nitroaniline | |
| Bis(2-ethylhexyl)phthalate | 2-Nitrophenol | |
| Dimethyl phthalate | 3,3'-Dichlorobenzidine | |
| di-n-Octyl phthalate | 3-Nitroaniline | |
| Hexachlorobenzene | 4-Nitroaniline | |
| Nitrobenzene | Atrazine | |
| N-Nitrosodiphenylamine | Benzaldehyde | |
| Pentachlorophenol | Biphenyl (Diphenyl) | |
| Phenol | Carbazole | |
| | Cresols, m- & p- | |
| | Dibenzofuran | |
| | Diethyl phthalate | |
| | di-n-Butyl phthalate | |
| | Hexachlorobutadiene | |
| | Hexachlorocyclopentadiene | |
| | Hexachloroethane | |
| AOC 5 - Electric Substation (0 to 5 ft bgs) | | |
| 2,4,5-Trichlorophenol | 1,2,4,5-Tetrachlorobenzene | None |
| 2,4,6-Trichlorophenol | 2,3,4,6-Tetrachlorophenol | |
| 2,4-Dinitrotoluene | 2,4-Dichlorophenol | |
| 2,6-Dinitrotoluene | 2,4-Dimethylphenol | |
| 4-Chloroaniline | 2-Chlorophenol | |
| 4-Nitrophenol | 2-Methylphenol (o-Cresol) | |
| Benzyl butyl phthalate | 2-Nitroaniline | |
| Bis(2-ethylhexyl)phthalate | 2-Nitrophenol | |
| Dimethyl phthalate | 3,3'-Dichlorobenzidine | |
| di-n-Octyl phthalate | 3-Nitroaniline | |
| Hexachlorobenzene | 4-Nitroaniline | |
| Nitrobenzene | Atrazine | |
| N-Nitrosodiphenylamine | Benzaldehyde | |
| Pentachlorophenol | Biphenyl (Diphenyl) | |
| Phenol | Carbazole | |
| PCB-1016 (Aroclor 1016) | Cresols, m- & p- | |
| PCB-1221 (Aroclor 1221) | Dibenzofuran | |
| PCB-1232 (Aroclor 1232) | Diethyl phthalate | |
| PCB-1242 (Aroclor 1242) | di-n-Butyl phthalate | |
| PCB-1248 (Aroclor 1248) | Hexachlorobutadiene | |
| PCB-1254 (Aroclor 1254) | Hexachlorocyclopentadiene | |
| PCB-1262 (Aroclor 1262) | Hexachloroethane | |
| PCB-1268 (Aroclor 1268) | | |
| AOC 5 - Possible Dump (0 to 5 ft bgs) | | |
| 1,1,1-Trichloroethane | Bromomethane | None |
| 1,1,2,2-Tetrachloroethane | cis-1,3-Dichloropropene | |
| 1,1,2-Trichloroethane | trans-1,3-Dichloropropene | |
| 1,1-Dichloroethane | 1,2,4,5-Tetrachlorobenzene | |
| 1,1-Dichloroethene | 2,3,4,6-Tetrachlorophenol | |
| 1,2,3-Trichlorobenzene | 2,4-Dichlorophenol | |
| 1,2,4-Trichlorobenzene | 2,4-Dimethylphenol | |
| 1,2-Dichlorobenzene | 2-Chlorophenol | |
| 1,2-Dichloroethane | 2-Methylphenol (o-Cresol) | |
| 1,2-Dichloropropane | 2-Nitroaniline | |
| 1,3-Dichlorobenzene | 2-Nitrophenol | |
| 1,4-Dichlorobenzene | 3,3'-Dichlorobenzidine | |
| 2-Hexanone | 3-Nitroaniline | |
| Bromoform | 4-Nitroaniline | |
| Carbon disulfide | Atrazine | |

Table 5-25
Non-detected Soil Analytes and the Relationship Between the LOQ and the Soil Invertebrate Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| Carbon Tetrachloride | Biphenyl (Diphenyl) | |
| Chlorobenzene | Carbazole | |
| Chloroform | Cresols, m- & p- | |
| cis-1,2-Dichloroethene | Diethyl phthalate | |
| Cumene | Hexachlorobutadiene | |
| Ethylbenzene | Hexachlorocyclopentadiene | |
| m,p-Xylene | Hexachloroethane | |
| Methylene chloride | | |
| o-Xylene | | |
| Styrene | | |
| Tetrachloroethene (PCE) | | |
| trans-1,2-Dichloroethene | | |
| Vinyl chloride | | |
| 2,4,5-Trichlorophenol | | |
| 2,4,6-Trichlorophenol | | |
| 2,4-Dinitrotoluene | | |
| 2,6-Dinitrotoluene | | |
| 4-Chloroaniline | | |
| 4-Nitrophenol | | |
| Benzyl butyl phthalate | | |
| Bis(2-ethylhexyl)phthalate | | |
| Dimethyl phthalate | | |
| di-n-Octyl phthalate | | |
| Hexachlorobenzene | | |
| Nitrobenzene | | |
| N-Nitrosodiphenylamine | | |
| Pentachlorophenol | | |
| Phenol | | |
| Dibenz(a,h)anthracene | | |
| PCB-1016 (Aroclor 1016) | | |
| PCB-1221 (Aroclor 1221) | | |
| PCB-1232 (Aroclor 1232) | | |
| PCB-1242 (Aroclor 1242) | | |
| PCB-1248 (Aroclor 1248) | | |
| PCB-1254 (Aroclor 1254) | | |
| PCB-1260 (Aroclor 1260) | | |
| PCB-1262 (Aroclor 1262) | | |
| PCB-1268 (Aroclor 1268) | | |

Notes:
AOC = Area of Concern.
LOQ = Limit of Quantitation.
SL = Screening Level.

Table 5-26
Non-detected Soil Analytes and the Relationship Between the LOQ and the Avian Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| AOC 1 (0 to 1 ft bgs) | | |
| 2,4-Dinitrochlorobenzene<br>2,4-Dinitrophenol | None | None |
| AOC 4 - DIscrete (0 to 1 ft bgs) | | |
| 2,4-Dinitrochlorobenzene<br>2,4-Dinitrophenol<br>Picric acid | None | None |
| AOC 4 - ISM (0 to 1 ft bgs) | | |
| 2,4-Dinitrochlorobenzene<br>2,4-Dinitrophenol<br>Picric acid | None | None |
| AOC 5 - Boiler House (0 to 1 ft bgs) | | |
| 2,6-Dinitrotoluene<br>2-Chlorophenol<br>Pentachlorophenol<br>Silver | Bis(2-ethylhexyl)phthalate<br>di-n-Butyl phthalate<br>Hexachlorobenzene | None |
| AOC 5 - Coal Aggregate Bins (0 to 1 ft bgs) | | |
| Silver | None | None |
| AOC 5 - Coal Storage Area (0 to 1 ft bgs) | | |
| Silver | None | None |
| AOC 5 - Electric Substation (0 to 1 ft bgs) | | |
| 2,6-Dinitrotoluene<br>2-Chlorophenol<br>Pentachlorophenol<br>Silver | Bis(2-ethylhexyl)phthalate<br>di-n-Butyl phthalate<br>Hexachlorobenzene<br>PCB-1016 (Aroclor 1016)<br>PCB-1221 (Aroclor 1221)<br>PCB-1232 (Aroclor 1232)<br>PCB-1242 (Aroclor 1242)<br>PCB-1248 (Aroclor 1248)<br>PCB-1254 (Aroclor 1254)<br>PCB-1262 (Aroclor 1262)<br>PCB-1268 (Aroclor 1268) | None |
| AOC 5 - Possible Dump (0 to 1 ft bgs) | | |
| 2,6-Dinitrotoluene<br>2-Chlorophenol<br>Pentachlorophenol | Bis(2-ethylhexyl)phthalate<br>Hexachlorobenzene<br>PCB-1016 (Aroclor 1016)<br>PCB-1221 (Aroclor 1221)<br>PCB-1232 (Aroclor 1232)<br>PCB-1242 (Aroclor 1242)<br>PCB-1248 (Aroclor 1248)<br>PCB-1254 (Aroclor 1254)<br>PCB-1260 (Aroclor 1260)<br>PCB-1262 (Aroclor 1262)<br>PCB-1268 (Aroclor 1268) | None |

Notes:
AOC = Area of Concern.
LOQ = Limit of Quantitation.
SL = Screening Level.

Table 5-27
Non-detected Soil Analytes and the Relationship Between the LOQ and the Mammal Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| AOC 1 (0 to 5 ft bgs) | | |
| None | 2,4-Dinitrophenol | 2,4-Dinitrochlorobenzene |
| AOC 4 - Discrete (0 to 5 ft bgs) | | |
| 2,4-Dinitrochlorobenzene | 2,4-Dinitrophenol<br>Picric acid | None |
| AOC 4 - ISM (0 to 1 ft bgs) | | |
| None | 2,4-Dinitrophenol<br>Picric acid | 2,4-Dinitrochlorobenzene |
| AOC 5 - Boiler House (0 to 5 ft bgs) | | |
| 1,2,4,5-Tetrachlorobenzene | 2,3,4,6-Tetrachlorophenol | None |
| 1,4-Dioxane | 2-Chloronaphthalene | |
| 2,2'-Oxybis(1-chloropropane) | 3,3'-Dichlorobenzidine | |
| 2,4,5-Trichlorophenol | 4,6-Dinitro-2-methylphenol | |
| 2,4,6-Trichlorophenol | Bis(2-chloroethoxy)methane | |
| 2,4-Dichlorophenol | Hexachlorobenzene | |
| 2,4-Dinitrotoluene | Hexachlorobutadiene | |
| 2,6-Dinitrotoluene | | |
| 2-Chlorophenol | | |
| 2-Methylphenol (o-Cresol) | | |
| 2-Nitroaniline | | |
| 2-Nitrophenol | | |
| 3-Nitroaniline | | |
| 4-Chloro-3-methylphenol | | |
| 4-Chloroaniline | | |
| 4-Nitroaniline | | |
| 4-Nitrophenol | | |
| Acetophenone | | |
| Benzaldehyde | | |
| Benzyl butyl phthalate | | |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | | |
| Bis(2-ethylhexyl)phthalate | | |
| Carbazole | | |
| Cresols, m- & p- | | |
| Diethyl phthalate | | |
| Dimethyl phthalate | | |
| di-n-Butyl phthalate | | |
| di-n-Octyl phthalate | | |
| Hexachlorocyclopentadiene | | |
| Hexachloroethane | | |
| Isophorone | | |
| Nitrobenzene | | |
| N-Nitrosodi-n-propylamine | | |
| N-Nitrosodiphenylamine | | |
| Pentachlorophenol | | |
| Phenol | | |
| Acenaphthene | | |
| Silver | | |

Table 5-27
Non-detected Soil Analytes and the Relationship Between the LOQ and the Mammal Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| AOC 5 - Coal Aggregate Bins (0 to 5 ft bgs) | | |
| 1,2,4,5-Tetrachlorobenzene | 2,3,4,6-Tetrachlorophenol | None |
| 1,4-Dioxane | 2-Chloronaphthalene | |
| 2,2'-Oxybis(1-chloropropane) | 3,3'-Dichlorobenzidine | |
| 2,4,5-Trichlorophenol | 4,6-Dinitro-2-methylphenol | |
| 2,4,6-Trichlorophenol | Bis(2-chloroethoxy)methane | |
| 2,4-Dichlorophenol | Hexachlorobenzene | |
| 2,4-Dinitrotoluene | Hexachlorobutadiene | |
| 2,6-Dinitrotoluene | | |
| 2-Chlorophenol | | |
| 2-Methylphenol (o-Cresol) | | |
| 2-Nitroaniline | | |
| 2-Nitrophenol | | |
| 3-Nitroaniline | | |
| 4-Chloro-3-methylphenol | | |
| 4-Chloroaniline | | |
| 4-Nitroaniline | | |
| 4-Nitrophenol | | |
| Acetophenone | | |
| Benzaldehyde | | |
| Benzyl butyl phthalate | | |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | | |
| Bis(2-ethylhexyl)phthalate | | |
| Carbazole | | |
| Cresols, m- & p- | | |
| Diethyl phthalate | | |
| Dimethyl phthalate | | |
| di-n-Butyl phthalate | | |
| di-n-Octyl phthalate | | |
| Hexachlorocyclopentadiene | | |
| Hexachloroethane | | |
| Isophorone | | |
| Nitrobenzene | | |
| N-Nitrosodi-n-propylamine | | |
| N-Nitrosodiphenylamine | | |
| Pentachlorophenol | | |
| Phenol | | |
| Silver | | |
| AOC 5 - Coal Storage Area (0 to 5 ft bgs) | | |
| 1,2,4,5-Tetrachlorobenzene | 2,3,4,6-Tetrachlorophenol | None |
| 1,4-Dioxane | 2-Chloronaphthalene | |
| 2,2'-Oxybis(1-chloropropane) | 3,3'-Dichlorobenzidine | |
| 2,4,5-Trichlorophenol | 4,6-Dinitro-2-methylphenol | |
| 2,4,6-Trichlorophenol | Bis(2-chloroethoxy)methane | |
| 2,4-Dichlorophenol | Hexachlorobenzene | |
| 2,4-Dinitrotoluene | Hexachlorobutadiene | |
| 2,6-Dinitrotoluene | | |
| 2-Chlorophenol | | |
| 2-Methylphenol (o-Cresol) | | |
| 2-Nitroaniline | | |
| 2-Nitrophenol | | |
| 3-Nitroaniline | | |
| 4-Chloro-3-methylphenol | | |
| 4-Chloroaniline | | |
| 4-Nitroaniline | | |
| 4-Nitrophenol | | |
| Acetophenone | | |
| Benzaldehyde | | |
| Benzyl butyl phthalate | | |

Table 5-27
Non-detected Soil Analytes and the Relationship Between the LOQ and the Mammal Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | | |
| Bis(2-ethylhexyl)phthalate | | |
| Carbazole | | |
| Cresols, m- & p- | | |
| Diethyl phthalate | | |
| Dimethyl phthalate | | |
| di-n-Butyl phthalate | | |
| di-n-Octyl phthalate | | |
| Hexachlorocyclopentadiene | | |
| Hexachloroethane | | |
| Isophorone | | |
| Nitrobenzene | | |
| N-Nitrosodi-n-propylamine | | |
| N-Nitrosodiphenylamine | | |
| Pentachlorophenol | | |
| Phenol | | |
| Silver | | |
| AOC 5 - Electric Substation (0 to 5 ft bgs) | | |
| 1,2,4,5-Tetrachlorobenzene | 2,3,4,6-Tetrachlorophenol | None |
| 1,4-Dioxane | 2-Chloronaphthalene | |
| 2,2'-Oxybis(1-chloropropane) | 3,3'-Dichlorobenzidine | |
| 2,4,5-Trichlorophenol | 4,6-Dinitro-2-methylphenol | |
| 2,4,6-Trichlorophenol | Bis(2-chloroethoxy)methane | |
| 2,4-Dichlorophenol | Hexachlorobenzene | |
| 2,4-Dinitrotoluene | Hexachlorobutadiene | |
| 2,6-Dinitrotoluene | | |
| 2-Chlorophenol | | |
| 2-Methylphenol (o-Cresol) | | |
| 2-Nitroaniline | | |
| 2-Nitrophenol | | |
| 3-Nitroaniline | | |
| 4-Chloro-3-methylphenol | | |
| 4-Chloroaniline | | |
| 4-Nitroaniline | | |
| 4-Nitrophenol | | |
| Acetophenone | | |
| Benzaldehyde | | |
| Benzyl butyl phthalate | | |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | | |
| Bis(2-ethylhexyl)phthalate | | |
| Carbazole | | |
| Cresols, m- & p- | | |
| Diethyl phthalate | | |
| Dimethyl phthalate | | |
| di-n-Butyl phthalate | | |
| di-n-Octyl phthalate | | |
| Hexachlorocyclopentadiene | | |
| Hexachloroethane | | |
| Isophorone | | |
| Nitrobenzene | | |
| N-Nitrosodi-n-propylamine | | |
| N-Nitrosodiphenylamine | | |
| Pentachlorophenol | | |
| Phenol | | |
| PCB-1016 (Aroclor 1016) | | |
| PCB-1221 (Aroclor 1221) | | |
| PCB-1232 (Aroclor 1232) | | |
| PCB-1242 (Aroclor 1242) | | |
| PCB-1248 (Aroclor 1248) | | |

Table 5-27
Non-detected Soil Analytes and the Relationship Between the LOQ and the Mammal Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| PCB-1254 (Aroclor 1254) | | |
| PCB-1262 (Aroclor 1262) | | |
| PCB-1268 (Aroclor 1268) | | |
| Silver | | |
| AOC 5 - Possible Dump (0 to 5 ft bgs) | | |
| 1,1,1-Trichloroethane | 2,3,4,6-Tetrachlorophenol | None |
| 1,1,2,2-Tetrachloroethane | 2-Chloronaphthalene | |
| 1,1,2-Trichloroethane | 3,3'-Dichlorobenzidine | |
| 1,1-Dichloroethane | 4,6-Dinitro-2-methylphenol | |
| 1,1-Dichloroethene | Bis(2-chloroethoxy)methane | |
| 1,2,3-Trichlorobenzene | Hexachlorobenzene | |
| 1,2,4-Trichlorobenzene | Hexachlorobutadiene | |
| 1,2-Dibromo-3-chloropropane | | |
| 1,2-Dibromoethane (EDB) | | |
| 1,2-Dichlorobenzene | | |
| 1,2-Dichloroethane | | |
| 1,2-Dichloropropane | | |
| 1,3-Dichlorobenzene | | |
| 1,4-Dichlorobenzene | | |
| 2-Hexanone | | |
| 4-Methyl-2-pentanone (MIBK) | | |
| Bromodichloromethane | | |
| Bromoform | | |
| Bromomethane | | |
| Carbon disulfide | | |
| Carbon Tetrachloride | | |
| Chlorobenzene | | |
| Chloroform | | |
| Chloromethane | | |
| cis-1,3-Dichloropropene | | |
| Dibromochloromethane | | |
| Dichlorodifluoromethane | | |
| Ethylbenzene | | |
| m,p-Xylene | | |
| Methylene chloride | | |
| o-Xylene | | |
| Styrene | | |
| Tetrachloroethene (PCE) | | |
| trans-1,2-Dichloroethene | | |
| trans-1,3-Dichloropropene | | |
| Trichlorofluoromethane | | |
| Vinyl chloride | | |
| 1,2,4,5-Tetrachlorobenzene | | |
| 1,4-Dioxane | | |
| 2,2'-Oxybis(1-chloropropane) | | |
| 2,4,5-Trichlorophenol | | |
| 2,4,6-Trichlorophenol | | |
| 2,4-Dichlorophenol | | |
| 2,4-Dinitrotoluene | | |
| 2,6-Dinitrotoluene | | |
| 2-Chlorophenol | | |
| 2-Methylphenol (o-Cresol) | | |
| 2-Nitroaniline | | |
| 2-Nitrophenol | | |
| 3-Nitroaniline | | |
| 4-Chloro-3-methylphenol | | |
| 4-Chloroaniline | | |
| 4-Nitroaniline | | |
| 4-Nitrophenol | | |

Table 5-27
Non-detected Soil Analytes and the Relationship Between the LOQ and the Mammal Screening Level
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| All LOQs < SL | All LOQs > SL | Some LOQs < SL and Some LOQs > SL |
|---|---|---|
| Acetophenone | | |
| Benzyl butyl phthalate | | |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | | |
| Bis(2-ethylhexyl)phthalate | | |
| Carbazole | | |
| Cresols, m- & p- | | |
| Diethyl phthalate | | |
| Dimethyl phthalate | | |
| di-n-Octyl phthalate | | |
| Hexachlorocyclopentadiene | | |
| Hexachloroethane | | |
| Isophorone | | |
| Nitrobenzene | | |
| N-Nitrosodi-n-propylamine | | |
| N-Nitrosodiphenylamine | | |
| Pentachlorophenol | | |
| Phenol | | |
| Dibenz(a,h)anthracene | | |
| PCB-1016 (Aroclor 1016) | | |
| PCB-1221 (Aroclor 1221) | | |
| PCB-1232 (Aroclor 1232) | | |
| PCB-1242 (Aroclor 1242) | | |
| PCB-1248 (Aroclor 1248) | | |
| PCB-1254 (Aroclor 1254) | | |
| PCB-1260 (Aroclor 1260) | | |
| PCB-1262 (Aroclor 1262) | | |
| PCB-1268 (Aroclor 1268) | | |

Notes:
AOC = Area of Concern.
LOQ = Limit of Quantitation.
SL = Screening Level.

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**Table 5-28**
**DoD-related Items, Constituents, and Environmental Degradation Products**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Known DoD-related Constituent/Item[1] | Components and/or Breakdown Product(s) | Associated AOC | | | |
|---|---|---|---|---|---|
| | | AOC 1 | AOC 3 | AOC 4 | AOC 5 |
| Ammonia | N/A | X | | | |
| Ammonium picrate | nitrogen oxides[2] | X | | X | |
| Canvas filters | likely made from cotton | | X | | |
| Coal | carbon, hydrogen, oxygen, nitrogen ash, and sulfur[3]; PAHs[4]; VOCs and heavy metals[5] | | | | X |
| Dinitrochlorobenzene | no specific information found; expected to be the same as nitrophenols plus chloride | X | | | |
| Dinitrophenol | nitrite ions, amines, amino groups, and phenol[6] | X | | | |
| Fly ash | silica, aluminum oxide, iron oxide, calcium oxide, magnesium oxide, sulfite, sodium oxide, potassium oxide, and carbon[7] | | X | | X |
| Nitric acid | water, nitrogen dioxide, and oxygen[8] | X | | | |
| NYOW Trash | unknown | | X | | X |
| Paint | pigments (various metals[9] and nitroanilines[10]), organic solvents[9] | | X | | |
| PCBs | N/A | | | | X |
| Picric acid | nitrite ions, amines, amino groups, and phenol[11] , picramic acid eventually to complete mineralization[12] | X | | | |
| Sodium hydroxide | sodium oxide and water[13] | X | | | |
| Solid waste | Unknown | | X | | |
| Stainless steel “spiders” | iron, chromium, potentially nickel, carbon, manganese, molybdenum, nitrogen, sulfur, copper, silicon[14] | X | X | | |
| Sulfuric acid | sulfite and water[15] | X | | | |
| Wood | sugars and lignan[16] | | X | | |

N/A = Not applicable.

1 = See Subsection 5.3.

2 = National Center for Biotechnology Information, 2022a.

3 = Kentucky Coal Education, 2007.

4 = ATSDR, 1995.

5 = Breeze, 2015.

6 = ATSDR, 2021.

7 = FHWA, 2016.

8 = Britannica, 2021.

9 = Essential Chemical Industry, 2013.

10 = National Center for Biotechnology Information, 2022b.

11 = based on chemical properties, assuming the same as dinitrophenols

12 = Brannon and Pennington, 2002.

13 = Ck12 Science, 2013.

14 = Unified Alloys, 2022.

15 = Thompson, 2008.

16 = Worrall et al., 1997.

Table 5-29
AOC-specific Analyte Screening for Relationship to DoD Activities
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Analyte | Detected | Specific Evidence for Analyte at AOC?[1] | FOD Fraction[2] | % FOD[2] | DoD-relatedness Category | Rationale |
|---|---|---|---|---|---|---|---|
| AOC 1 | 2,4-Dinitrochlorobenzene | No | Yes | 0/61 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 1 | 2,4-Dinitrophenol | No | Yes | 0/60 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 1 | Picric acid | Yes | Yes | 1/62 | 1.6 | DoD-related | Evidence of historical presence at AOC. |
| AOC 1 | Aluminum | Yes | No | 59/61 | 97 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 1 | Antimony | Yes | No | 50/61 | 82 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 1 | Arsenic | Yes | No | 59/61 | 97 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 1 | Barium | Yes | No | 61/61 | 100 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 1 | Beryllium | Yes | No | 49/61 | 80 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 1 | Cadmium | Yes | No | 53/61 | 87 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 1 | Calcium | Yes | No | 61/61 | 100 | Unlikely | Nutrient |
| AOC 1 | Chromium | Yes | Yes | 56/61 | 92 | DoD-related | Evidence of historical presence at AOC. |
| AOC 1 | Cobalt | Yes | No | 61/61 | 100 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 1 | Copper | Yes | Yes | 54/61 | 89 | DoD-related | Evidence of historical presence at AOC. |
| AOC 1 | Iron | Yes | Yes | 61/61 | 100 | DoD-related | Evidence of historical presence at AOC. |
| AOC 1 | Lead | Yes | No | 56/61 | 92 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 1 | Magnesium | Yes | No | 61/61 | 100 | Unlikely | Nutrient |
| AOC 1 | Manganese | Yes | Yes | 61/61 | 100 | DoD-related | Evidence of historical presence at AOC. |
| AOC 1 | Mercury | Yes | No | 41/61 | 67 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 1 | Nickel | Yes | Yes | 56/61 | 92 | DoD-related | Evidence of historical presence at AOC. |
| AOC 1 | Potassium | Yes | No | 61/61 | 100 | Unlikely | Nutrient |
| AOC 1 | Selenium | Yes | No | 40/61 | 66 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 1 | Silver | Yes | No | 18/61 | 30 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 1 | Sodium | Yes | No | 55/61 | 90 | Unlikely | Nutrient |
| AOC 1 | Thallium | Yes | No | 47/61 | 77 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 1 | Vanadium | Yes | No | 57/61 | 93 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 1 | Zinc | Yes | No | 55/61 | 90 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | 1,1,1-Trichloroethane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 1,1,2,2-Tetrachloroethane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 1,1,2-Trichloro-1,2,2-trifluoroethane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 1,1,2-Trichloroethane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 1,1-Dichloroethane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 1,1-Dichloroethene | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 1,2,3-Trichlorobenzene | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 1,2,4-Trichlorobenzene | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 1,2-Dibromo-3-chloropropane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 1,2-Dibromoethane (EDB) | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 1,2-Dichlorobenzene | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 1,2-Dichloroethane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 1,2-Dichloropropane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 1,3-Dichlorobenzene | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 1,3-Dichloropropane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 1,4-Dichlorobenzene | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 2-Butanone (MEK) | Yes | No | 5/25 | 20 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | 2-Hexanone | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 4-Methyl-2-pentanone (MIBK) | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Acetone | Yes | No | 9/25 | 36 | Potentially DoD-related | Detected in at least 5% of samples. |

Table 5-29
AOC-specific Analyte Screening for Relationship to DoD Activities
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Analyte | Detected | Specific Evidence for Analyte at AOC?[1] | FOD Fraction[2] | % FOD[2] | DoD-relatedness Category | Rationale |
|---|---|---|---|---|---|---|---|
| AOC 3 | Benzene | Yes | No | 2/25 | 8.0 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Bromochloromethane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Bromodichloromethane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Bromoform | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Bromomethane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Carbon disulfide | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Carbon Tetrachloride | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Chlorobenzene | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Chloroethane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Chloroform | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Chloromethane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | cis-1,2-Dichloroethene | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | cis-1,3-Dichloropropene | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Cumene | Yes | No | 1/25 | 4.0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Cyclohexane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Dibromochloromethane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Dichlorodifluoromethane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Ethylbenzene | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | m,p-Xylene | Yes | No | 1/25 | 4.0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Methyl acetate | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Methyl tert-butyl ether (MTBE) | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Methylcyclohexane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Methylene chloride | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | o-Xylene | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Styrene | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Tetrachloroethene (PCE) | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Toluene | Yes | No | 6/25 | 24 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | trans-1,2-Dichloroethene | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | trans-1,3-Dichloropropene | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Trichlorofluoromethane | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Vinyl chloride | No | No | 0/25 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 1,2,4,5-Tetrachlorobenzene | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 1,4-Dioxane | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 2,2'-Oxybis(1-chloropropane) | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 2,3,4,6-Tetrachlorophenol | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 2,4,5-Trichlorophenol | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 2,4,6-Trichlorophenol | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 2,4-Dichlorophenol | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 2,4-Dimethylphenol | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 2,4-Dinitrochlorobenzene | No | Yes | 0/43 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 3 | 2,4-Dinitrophenol | No | Yes | 0/43 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 3 | 2,4-Dinitrotoluene | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 2,6-Dinitrotoluene | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 2-Chloronaphthalene | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 2-Chlorophenol | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 2-Methylphenol (o-Cresol) | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |

Table 5-29
AOC-specific Analyte Screening for Relationship to DoD Activities
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Analyte | Detected | Specific Evidence for Analyte at AOC?[1] | FOD Fraction[2] | % FOD[2] | DoD-relatedness Category | Rationale |
|---|---|---|---|---|---|---|---|
| AOC 3 | 2-Nitroaniline | No | Yes | 0/43 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 3 | 2-Nitrophenol | No | Yes | 0/43 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 3 | 3,3'-Dichlorobenzidine | No | No | 0/42 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 3-Nitroaniline | No | Yes | 0/43 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 3 | 4,6-Dinitro-2-methylphenol | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 4-Bromophenyl phenyl ether | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 4-Chloro-3-methylphenol | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 4-Chloroaniline | No | Yes | 0/43 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 3 | 4-Chlorophenyl phenyl ether | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | 4-Nitroaniline | Yes | Yes | 1/43 | 2.3 | DoD-related | Evidence of historical presence at AOC. |
| AOC 3 | 4-Nitrophenol | No | Yes | 0/43 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 3 | Acetophenone | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Atrazine | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Benzaldehyde | Yes | No | 7/43 | 16 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Benzyl butyl phthalate | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Biphenyl (Diphenyl) | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Bis(2-chloroethoxy)methane | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Bis(2-ethylhexyl)phthalate | Yes | No | 2/43 | 4.7 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Caprolactam | Yes | No | 1/43 | 2.3 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Carbazole | Yes | No | 3/43 | 7.0 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Cresols, m- & p- | Yes | No | 1/43 | 2.3 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Dibenzofuran | Yes | No | 2/43 | 4.7 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Diethyl phthalate | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Dimethyl phthalate | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | di-n-Butyl phthalate | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | di-n-Octyl phthalate | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Hexachlorobenzene | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Hexachlorobutadiene | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Hexachlorocyclopentadiene | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Hexachloroethane | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Isophorone | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Nitrobenzene | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | N-Nitrosodi-n-propylamine | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | N-Nitrosodiphenylamine | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Pentachlorophenol | No | No | 0/43 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 3 | Phenol | No | Yes | 0/43 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 3 | 1-Methylnaphthalene | Yes | No | 17/39 | 44 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | 2-Methylnaphthalene | Yes | No | 18/39 | 46 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Acenaphthene | Yes | No | 10/39 | 26 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Acenaphthylene | Yes | No | 18/39 | 46 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Anthracene | Yes | No | 22/39 | 56 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Benzo(a)anthracene | Yes | No | 24/39 | 62 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Benzo(a)pyrene | Yes | No | 24/39 | 62 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Benzo(b)fluoranthene | Yes | No | 24/39 | 62 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Benzo(g,h,i)perylene | Yes | No | 22/39 | 56 | Potentially DoD-related | Detected in at least 5% of samples. |

Table 5-29
AOC-specific Analyte Screening for Relationship to DoD Activities
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Analyte | Detected | Specific Evidence for Analyte at AOC?[1] | FOD Fraction[2] | % FOD[2] | DoD-relatedness Category | Rationale |
|---|---|---|---|---|---|---|---|
| AOC 3 | Benzo(k)fluoranthene | Yes | No | 22/39 | 56 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Chrysene | Yes | No | 24/39 | 62 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Dibenz(a,h)anthracene | Yes | No | 14/39 | 36 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Fluoranthene | Yes | No | 24/39 | 62 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Fluorene | Yes | No | 20/39 | 51 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Indeno(1,2,3-c,d)pyrene | Yes | No | 22/39 | 56 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Naphthalene | Yes | No | 19/39 | 49 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Phenanthrene | Yes | No | 23/39 | 59 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Pyrene | Yes | No | 24/39 | 62 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Picric acid | No | Yes | 0/39 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 3 | PCB-1016 (Aroclor 1016) | No | No | 0/30 | 0 | Potentially DoD-related | Aroclor 1260 detected in at least 5% of the AOC samples. |
| AOC 3 | PCB-1221 (Aroclor 1221) | No | No | 0/30 | 0 | Potentially DoD-related | Aroclor 1260 detected in at least 5% of the AOC samples. |
| AOC 3 | PCB-1232 (Aroclor 1232) | No | No | 0/30 | 0 | Potentially DoD-related | Aroclor 1260 detected in at least 5% of the AOC samples. |
| AOC 3 | PCB-1242 (Aroclor 1242) | No | No | 0/30 | 0 | Potentially DoD-related | Aroclor 1260 detected in at least 5% of the AOC samples. |
| AOC 3 | PCB-1248 (Aroclor 1248) | No | No | 0/30 | 0 | Potentially DoD-related | Aroclor 1260 detected in at least 5% of the AOC samples. |
| AOC 3 | PCB-1254 (Aroclor 1254) | No | No | 0/30 | 0 | Potentially DoD-related | Aroclor 1260 detected in at least 5% of the AOC samples. |
| AOC 3 | PCB-1260 (Aroclor 1260) | Yes | No | 6/30 | 20 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | PCB-1262 (Aroclor 1262) | No | No | 0/30 | 0 | Potentially DoD-related | Aroclor 1260 detected in at least 5% of the AOC samples. |
| AOC 3 | PCB-1268 (Aroclor 1268) | No | No | 0/30 | 0 | Potentially DoD-related | Aroclor 1260 detected in at least 5% of the AOC samples. |
| AOC 3 | Aluminum | Yes | Yes | 39/39 | 100 | DoD-related | Evidence of historical presence at AOC. |
| AOC 3 | Antimony | Yes | No | 29/39 | 74 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Arsenic | Yes | No | 34/39 | 87 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Barium | Yes | No | 39/39 | 100 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Beryllium | Yes | No | 32/39 | 82 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Cadmium | Yes | No | 32/39 | 82 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Calcium | Yes | Yes | 39/39 | 100 | DoD-related | Constituent of fly ash. |
| AOC 3 | Chromium | Yes | Yes | 32/39 | 82 | DoD-related | Evidence of historical presence at AOC. |
| AOC 3 | Cobalt | Yes | No | 38/39 | 97 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Copper | Yes | Yes | 32/39 | 82 | DoD-related | Evidence of historical presence at AOC. |
| AOC 3 | Iron | Yes | Yes | 36/39 | 92 | DoD-related | Evidence of historical presence at AOC. |
| AOC 3 | Lead | Yes | Yes | 36/39 | 92 | DoD-related | Evidence of historical presence at AOC. |
| AOC 3 | Magnesium | Yes | Yes | 39/39 | 100 | DoD-related | Constituent of fly ash. |
| AOC 3 | Manganese | Yes | Yes | 39/39 | 100 | DoD-related | Evidence of historical presence at AOC. |
| AOC 3 | Mercury | Yes | No | 31/39 | 79 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Nickel | Yes | Yes | 36/39 | 92 | DoD-related | Evidence of historical presence at AOC. |
| AOC 3 | Potassium | Yes | Yes | 39/39 | 100 | DoD-related | Constituent of fly ash. |
| AOC 3 | Selenium | Yes | No | 31/39 | 79 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Silver | Yes | No | 4/39 | 10 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Sodium | Yes | Yes | 35/39 | 90 | DoD-related | Constituent of fly ash. |
| AOC 3 | Thallium | Yes | No | 21/39 | 54 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Vanadium | Yes | No | 38/39 | 97 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 3 | Zinc | Yes | No | 33/39 | 85 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 4 - Discrete | 2,4-Dinitrochlorobenzene | No | Yes | 0/133 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 4 - Discrete | 2,4-Dinitrophenol | No | Yes | 0/133 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 4 - Discrete | Picric acid | No | Yes | 0/132 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 4 - ISM | 2,4-Dinitrochlorobenzene | No | Yes | 0/34 | 0 | DoD-related | Evidence of historical presence at AOC. |

Table 5-29
AOC-specific Analyte Screening for Relationship to DoD Activities
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Analyte | Detected | Specific Evidence for Analyte at AOC?[1] | FOD Fraction[2] | % FOD[2] | DoD-relatedness Category | Rationale |
|---|---|---|---|---|---|---|---|
| AOC 4 - ISM | 2,4-Dinitrophenol | No | Yes | 0/29 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 4 - ISM | Picric acid | No | Yes | 0/36 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | 1,1,1-Trichloroethane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 1,1,2,2-Tetrachloroethane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 1,1,2-Trichloro-1,2,2-trifluoroethane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 1,1,2-Trichloroethane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 1,1-Dichloroethane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 1,1-Dichloroethene | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 1,2,3-Trichlorobenzene | Yes | No | 1/13 | 7.7 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | 1,2,4-Trichlorobenzene | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 1,2-Dibromo-3-chloropropane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 1,2-Dibromoethane (EDB) | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 1,2-Dichlorobenzene | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 1,2-Dichloroethane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 1,2-Dichloropropane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 1,3-Dichlorobenzene | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 1,3-Dichloropropane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 1,4-Dichlorobenzene | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 2-Butanone (MEK) | Yes | No | 2/13 | 15 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | 2-Hexanone | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 4-Methyl-2-pentanone (MIBK) | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Acetone | Yes | No | 1/13 | 7.7 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | Benzene | Yes | No | 1/13 | 7.7 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | Bromochloromethane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Bromodichloromethane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Bromoform | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Bromomethane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Carbon disulfide | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Carbon Tetrachloride | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Chlorobenzene | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Chloroethane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Chloroform | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Chloromethane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | cis-1,2-Dichloroethene | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | cis-1,3-Dichloropropene | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Cumene | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Cyclohexane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Dibromochloromethane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Dichlorodifluoromethane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Ethylbenzene | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | m,p-Xylene | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Methyl acetate | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Methyl tert-butyl ether (MTBE) | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Methylcyclohexane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Methylene chloride | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | o-Xylene | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |

Table 5-29
AOC-specific Analyte Screening for Relationship to DoD Activities
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Analyte | Detected | Specific Evidence for Analyte at AOC?[1] | FOD Fraction[2] | % FOD[2] | DoD-relatedness Category | Rationale |
|---|---|---|---|---|---|---|---|
| AOC 5 | Styrene | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Tetrachloroethene (PCE) | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Toluene | Yes | No | 1/13 | 7.7 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | trans-1,2-Dichloroethene | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | trans-1,3-Dichloropropene | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Trichlorofluoromethane | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Vinyl chloride | No | No | 0/13 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 1,2,4,5-Tetrachlorobenzene | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 1,4-Dioxane | No | No | 0/74 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 2,2'-Oxybis(1-chloropropane) | No | No | 0/69 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 2,3,4,6-Tetrachlorophenol | No | No | 0/77 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 2,4,5-Trichlorophenol | No | No | 0/77 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 2,4,6-Trichlorophenol | No | No | 0/77 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 2,4-Dichlorophenol | No | No | 0/77 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 2,4-Dimethylphenol | No | No | 0/77 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 2,4-Dinitrotoluene | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 2,6-Dinitrotoluene | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 2-Chloronaphthalene | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 2-Chlorophenol | No | No | 0/77 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 2-Methylphenol (o-Cresol) | No | No | 0/77 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 2-Nitroaniline | No | Yes | 0/75 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | 2-Nitrophenol | No | No | 0/77 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 3,3'-Dichlorobenzidine | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 3-Nitroaniline | No | Yes | 0/75 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | 4,6-Dinitro-2-methylphenol | No | No | 0/77 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 4-Bromophenyl phenyl ether | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 4-Chloro-3-methylphenol | No | No | 0/77 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 4-Chloroaniline | No | Yes | 0/75 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | 4-Chlorophenyl phenyl ether | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 4-Nitroaniline | No | Yes | 0/75 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | 4-Nitrophenol | No | No | 0/77 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Acetophenone | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Atrazine | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Benzaldehyde | Yes | No | 1/74 | 1.4 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Benzyl butyl phthalate | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Biphenyl (Diphenyl) | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Bis(2-chloroethoxy)methane | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Bis(2-ethylhexyl)phthalate | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Caprolactam | Yes | No | 1/75 | 1.3 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Carbazole | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Cresols, m- & p- | No | No | 0/77 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Dibenzofuran | Yes | No | 3/75 | 4.0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Diethyl phthalate | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Dimethyl phthalate | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | di-n-Butyl phthalate | Yes | No | 1/75 | 1.3 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |

Table 5-29
AOC-specific Analyte Screening for Relationship to DoD Activities
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Analyte | Detected | Specific Evidence for Analyte at AOC?[1] | FOD Fraction[2] | % FOD[2] | DoD-relatedness Category | Rationale |
|---|---|---|---|---|---|---|---|
| AOC 5 | di-n-Octyl phthalate | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Hexachlorobenzene | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Hexachlorobutadiene | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Hexachlorocyclopentadiene | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Hexachloroethane | No | No | 0/74 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Isophorone | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Nitrobenzene | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | N-Nitrosodi-n-propylamine | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | N-Nitrosodiphenylamine | No | No | 0/75 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Pentachlorophenol | No | No | 0/77 | 0 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | Phenol | Yes | No | 1/77 | 1.3 | Unlkely | No evidence of historical presence at AOC and less than 5% detects. |
| AOC 5 | 1-Methylnaphthalene | Yes | Yes | 42/87 | 48 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | 2-Methylnaphthalene | Yes | Yes | 49/87 | 56 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Acenaphthene | Yes | Yes | 9/87 | 10 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Acenaphthylene | Yes | Yes | 20/87 | 23 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Anthracene | Yes | Yes | 23/87 | 26 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Benzo(a)anthracene | Yes | Yes | 45/87 | 52 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Benzo(a)pyrene | Yes | Yes | 43/87 | 49 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Benzo(b)fluoranthene | Yes | Yes | 50/87 | 57 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Benzo(g,h,i)perylene | Yes | Yes | 36/87 | 41 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Benzo(k)fluoranthene | Yes | Yes | 34/87 | 39 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Chrysene | Yes | Yes | 57/87 | 66 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Dibenz(a,h)anthracene | Yes | Yes | 14/87 | 16 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Fluoranthene | Yes | Yes | 51/87 | 59 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Fluorene | Yes | Yes | 20/87 | 23 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Indeno(1,2,3-c,d)pyrene | Yes | Yes | 36/87 | 41 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Naphthalene | Yes | Yes | 70/87 | 80 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Phenanthrene | Yes | Yes | 48/87 | 55 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Pyrene | Yes | Yes | 52/87 | 60 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | PCB-1016 (Aroclor 1016) | No | Yes | 0/23 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | PCB-1221 (Aroclor 1221) | No | Yes | 0/23 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | PCB-1232 (Aroclor 1232) | No | Yes | 0/23 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | PCB-1242 (Aroclor 1242) | No | Yes | 0/23 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | PCB-1248 (Aroclor 1248) | No | Yes | 0/23 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | PCB-1254 (Aroclor 1254) | No | Yes | 0/23 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | PCB-1260 (Aroclor 1260) | Yes | Yes | 4/23 | 17 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | PCB-1262 (Aroclor 1262) | No | Yes | 0/23 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | PCB-1268 (Aroclor 1268) | No | Yes | 0/23 | 0 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Aluminum | Yes | Yes | 81/87 | 93 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Antimony | Yes | No | 69/87 | 79 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | Arsenic | Yes | No | 87/87 | 100 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | Barium | Yes | No | 87/87 | 100 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | Beryllium | Yes | No | 75/87 | 86 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | Cadmium | Yes | No | 75/87 | 86 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | Calcium | Yes | Yes | 87/87 | 100 | DoD-related | Constituent of fly ash. |
| AOC 5 | Chromium | Yes | No | 77/87 | 89 | Potentially DoD-related | Detected in at least 5% of samples. |

Table 5-29
AOC-specific Analyte Screening for Relationship to DoD Activities
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Analyte | Detected | Specific Evidence for Analyte at AOC?[1] | FOD Fraction[2] | % FOD[2] | DoD-relatedness Category | Rationale |
|---|---|---|---|---|---|---|---|
| AOC 5 | Cobalt | Yes | No | 87/87 | 100 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | Copper | Yes | No | 76/87 | 87 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | Iron | Yes | Yes | 83/87 | 95 | DoD-related | Evidence of historical presence at AOC. |
| AOC 5 | Lead | Yes | No | 76/87 | 87 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | Magnesium | Yes | Yes | 87/87 | 100 | DoD-related | Constituent of fly ash. |
| AOC 5 | Manganese | Yes | No | 87/87 | 100 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | Mercury | Yes | No | 57/87 | 66 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | Nickel | Yes | No | 79/87 | 91 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | Potassium | Yes | Yes | 87/87 | 100 | DoD-related | Constituent of fly ash. |
| AOC 5 | Selenium | Yes | No | 51/87 | 59 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | Silver | Yes | No | 1/87 | 1.1 | Potentially DoD-related | Althought there is bo evidence of historical presence at AOC there are less than 5% detects, metals are not being eliminated at this stage of the risk screenings. |
| AOC 5 | Sodium | Yes | Yes | 44/87 | 51 | DoD-related | Constituent of fly ash. |
| AOC 5 | Thallium | Yes | No | 43/87 | 49 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | Vanadium | Yes | No | 77/87 | 89 | Potentially DoD-related | Detected in at least 5% of samples. |
| AOC 5 | Zinc | Yes | No | 76/87 | 87 | Potentially DoD-related | Detected in at least 5% of samples. |

AOC = Area of Concern.
DoD = Department of Defense.
FOD = Frequency of detection.

[1]See Table 5-28 for AOC-specific DOD-related items, constituents, and environmental degradation products.
[2]Based on analytical data from Phase 1 field sampling.

**Table 5-30**
**Site to Background Comparability Scoring**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Geologic Unit and Depth (ft bgs)[1] | Overall[2] | | | | | | | | | | Final | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cation Exchange Capacity | Total Organic Carbon | Grain Size Box Plot | | | Grain Size Ternary Chart | Cluster Analysis (Al/Fe) | HMW PAHs | LMW PAHs | Pryogenic/ Petrogenic PAHs | + | 0 | − | Total |
| | | | Clay | Silt | Sand | | | | | | | | | |
| Psc 0-1 | 0 | + | + | − | − | 0 | + | − | − | + | 4 | 2 | -4 | **1** |
| Psc 1-5 | − | − | 0 | + | 0 | 0 | − | 0 | + | + | 3 | 4 | -3 | **2** |
| Psc 5-10 | − | − | − | + | 0 | 0 | + | + | + | + | 5 | 2 | -3 | **3** |
| Ps 0-1 | + | + | + | + | 0 | + | − | − | − | + | 6 | 1 | -3 | **3.5** |
| Ps 1-5 | + | + | + | + | + | + | − | + | + | + | 9 | 0 | -1 | **8** |
| Ps 5-10 | + | + | + | + | + | + | − | + | + | + | 9 | 0 | -1 | **8** |
| Pd 0-1 | + | − | − | + | − | 0 | + | N/A | N/A | + | 4 | 1 | -3 | **1.5** |
| Pd 1-5 | + | + | + | 0 | 0 | + | + | N/A | N/A | + | 6 | 2 | 0 | **7** |
| Pd 5-10 | + | + | + | + | 0 | + | + | N/A | N/A | + | 7 | 1 | 0 | **7.5** |

**Notes**

(1) Each row represents a different geologic unit/depth interval combination used to compare background and site data (e.g., Psc 0-1 only compares lacustrine silt and clay from 0-1 ft bgs).

(2) Similarity determinations were conducted based on the results of multiple statistical tests (as described in **Section 5.4**) and assessment of box plots, Q-Q plots, and overall summary statistics for site and background data.

**Scoring Definitions**

"+" = Highly similar = 1 point

0 = Moderately similar = 0.5 points

"-" = Dissimilar = -1 points

Al = Aluminum
Fe = Iron
ft bgs = feet below ground surface
HMW = High Molecular Weight
LMW = Low Molecular Weight
N/A = Not Applicable
PAH = Polycyclic Aromatic Hydrocarbons
Pd = Diamicton (Till)
Ps = Sorted Sand and Gravel
Psc = Lacustrine Silt and Clay

**Table 5-31**
**Intra-background Soil Concentration Comparisons - Depth Interval and Surface Geologic Unit Results**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Geology | Analyte | | |
|---|---|---|---|
| Notes: Patterned = Indicates where surface geologic units were combined; Green = Indicates where depth intervals were combined; Green Patterned = Indicates where surface geologic units and depth intervals were combined; Blue Patterned = Indicates more than one combination was evaluated and the lowest BTV was selected (see text for further details)<br><br>Psc = Lacustrine Silt and Clay; Ps = Sorted Sand and Gravel; and Pd = Diamicton (Till)<br><br>A = 0 to 1 ft bgs; B = 1 to 5 ft bgs; and C = 5 to 10 ft bgs | | | |
| | Aluminum | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Antimony | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Arsenic | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Barium | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Beryllium | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Cadmium | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Calcium | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Chromium | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Cobalt | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |

**Table 5-31**
**Intra-background Soil Concentration Comparisons - Depth Interval and Surface Geologic Unit Results**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Geology | Analyte | | |
|---|---|---|---|
| Notes: Patterned = Indicates where surface geologic units were combined; Green = Indicates where depth intervals were combined; Green Patterned = Indicates where surface geologic units and depth intervals were combined; Blue Patterned = Indicates more than one combination was evaluated and the lowest BTV was selected (see text for further details)<br><br>Psc = Lacustrine Silt and Clay; Ps = Sorted Sand and Gravel; and Pd = Diamicton (Till)<br><br>A = 0 to 1 ft bgs; B = 1 to 5 ft bgs; and C = 5 to 10 ft bgs | | | |
| | Copper | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Iron | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Lead | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Magnesium | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Manganese | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Mercury | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Nickel | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Potassium | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Selenium | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |

**Table 5-31**
**Intra-background Soil Concentration Comparisons - Depth Interval and Surface Geologic Unit Results**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Geology | Analyte | | |
|---|---|---|---|
| Notes: Patterned = Indicates where surface geologic units were combined; Green = Indicates where depth intervals were combined; Green Patterned = Indicates where surface geologic units and depth intervals were combined; Blue Patterned = Indicates more than one combination was evaluated and the lowest BTV was selected (see text for further details)<br><br>Psc = Lacustrine Silt and Clay; Ps = Sorted Sand and Gravel; and Pd = Diamicton (Till)<br><br>A = 0 to 1 ft bgs; B = 1 to 5 ft bgs; and C = 5 to 10 ft bgs | | | |
| | Silver | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Sodium | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Thallium | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Vanadium | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Zinc | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | 1-Methylnaphthalene | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | 2-Methylnaphthalene | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Acenaphthene | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Acenaphthylene | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |

**Table 5-31**
**Intra-background Soil Concentration Comparisons - Depth Interval and Surface Geologic Unit Results**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Geology | Analyte | | |
|---|---|---|---|
| Notes: Patterned = Indicates where surface geologic units were combined; Green = Indicates where depth intervals were combined; Green Patterned = Indicates where surface geologic units and depth intervals were combined; Blue Patterned = Indicates more than one combination was evaluated and the lowest BTV was selected (see text for further details)<br><br>Psc = Lacustrine Silt and Clay; Ps = Sorted Sand and Gravel; and Pd = Diamicton (Till)<br><br>A = 0 to 1 ft bgs; B = 1 to 5 ft bgs; and C = 5 to 10 ft bgs | | | |
| | Anthracene | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Benzo(a)anthracene | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Benzo(a)pyrene | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Benzo(b)fluoranthene | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Benzo(g,h,i)perylene | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Benzo(k)fluoranthene | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Chrysene | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Dibenz(a,h)anthracene | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Fluoranthene | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |

**Table 5-31**
**Intra-background Soil Concentration Comparisons - Depth Interval and Surface Geologic Unit Results**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Geology | Analyte | | |
|---|---|---|---|
| Notes: Patterned = Indicates where surface geologic units were combined; Green = Indicates where depth intervals were combined; Green Patterned = Indicates where surface geologic units and depth intervals were combined; Blue Patterned = Indicates more than one combination was evaluated and the lowest BTV was selected (see text for further details)<br><br>Psc = Lacustrine Silt and Clay; Ps = Sorted Sand and Gravel; and Pd = Diamicton (Till)<br><br>A = 0 to 1 ft bgs; B = 1 to 5 ft bgs; and C = 5 to 10 ft bgs | | | |
| | Fluorene | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Indeno(1,2,3-c,d)pyrene | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Naphthalene | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Phenanthrene | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |
| | Pyrene | | |
| Psc | A | B | C |
| Ps | A | B | C |
| Pd | A | B | C |

**Table 5-32**
**Groundwater Background Threshold Values (BTVs)**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Analyte | CASRN | Groundwater BTV |
|---|---|---|
| **Polycyclic Aromatic Hydrocarbons (PAHs) (µg/L)** | | |
| 1-Methylnaphthalene | 90-12-0 | 0.05 |
| 2-Methylnaphthalene | 91-57-6 | 0.063 |
| Acenaphthene | 83-32-9 | < LOQ |
| Acenaphthylene | 208-96-8 | 0.25 |
| Anthracene | 120-12-7 | 0.13 |
| Benzo(a)anthracene | 56-55-3 | < LOQ |
| Benzo(a)pyrene | 50-32-8 | < LOQ |
| Benzo(b)fluoranthene | 205-99-2 | < LOQ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.14 |
| Benzo(k)fluoranthene | 207-08-9 | 0.21 |
| Chrysene | 218-01-9 | < LOQ |
| Dibenz(a,h)anthracene | 53-70-3 | < LOQ |
| Fluoranthene | 206-44-0 | 0.13 |
| Fluorene | 86-73-7 | 0.05 |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | < LOQ |
| Naphthalene | 91-20-3 | 0.063 |
| Phenanthrene | 85-01-8 | < LOQ |
| Pyrene | 129-00-0 | 0.13 |
| **Metals (µg/L)** | | |
| Aluminum | 7429-90-5 | 1300 |
| Antimony | 7440-36-0 | N/A |
| Arsenic | 7440-38-2 | < LOQ |
| Barium | 7440-39-3 | 280 |
| Beryllium | 7440-41-7 | 0.5 |
| Cadmium | 7440-43-9 | N/A |
| Calcium | 7440-70-2 | 160000 |
| Chromium | 7440-47-3 | < LOQ |
| Cobalt | 7440-48-4 | 4 |
| Copper | 7440-50-8 | < LOQ |
| Iron | 7439-89-6 | 4900 |
| Lead | 7439-92-1 | < LOQ |
| Magnesium | 7439-95-4 | 75000 |
| Manganese | 7439-96-5 | 2600 |
| Mercury | 7439-97-6 | N/A |
| Nickel | 7440-02-0 | < LOQ |
| Potassium | 7440-09-7 | 9900 |
| Selenium | 7782-49-2 | N/A |
| Silver | 7440-22-4 | 5 |
| Sodium | 7440-23-5 | 140000 |
| Thallium | 7440-28-0 | N/A |
| Vanadium | 7440-62-2 | < LOQ |
| Zinc | 7440-66-6 | 15 |

Notes
< LOQ = Less than the limit of quantiation
N/A = None Available
µg/L = micrograms per liter

Table 5-33
Soil Background Threshold Values (BTVs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | | 0 - 1 ft bgs | | | 0 - 5 ft bgs | | | 0 - 10 ft bgs | | | 1 - 5 ft bgs | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | CASRN | Psc | Ps | Pd | Psc | Ps | Pd | Psc | Ps | Pd | Psc | Ps | Pd |
| Polycyclic Aromatic Hydrocarbons (PAHs) (mg/kg) | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 0.011 | 0.011 | 0.014 | 0.011 | 0.011 | 0.014 | 0.011 | 0.011 | 0.014 | < LOQ | < LOQ |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 0.013 | 0.013 | 0.014 | 0.013 | 0.013 | 0.014 | 0.013 | 0.013 | 0.014 | < LOQ | < LOQ |
| Acenaphthene | 83-32-9 | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ |
| Acenaphthylene | 208-96-8 | 0.01 | 0.053 | 0.068 | 0.01 | 0.013 | 0.013 | 0.01 | 0.013 | 0.013 | 0.01 | 0.013 | 0.013 |
| Anthracene | 120-12-7 | 0.048 | 0.033 | 0.048 | 0.048 | 0.0052 | 0.048 | 0.048 | 0.0052 | 0.048 | 0.048 | 0.0052 | 0.048 |
| Benzo(a)anthracene | 56-55-3 | 0.14 | 0.14 | 0.14 | 0.089 | 0.089 | 0.089 | 0.089 | 0.089 | 0.089 | 0.089 | 0.089 | 0.089 |
| Benzo(a)pyrene | 50-32-8 | 0.15 | 0.15 | 0.15 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| Benzo(b)fluoranthene | 205-99-2 | 0.18 | 0.18 | 0.18 | 0.099 | 0.099 | 0.099 | 0.099 | 0.099 | 0.099 | 0.099 | 0.099 | 0.099 |
| Benzo(g,h,i)perylene | 191-24-2 | 0.095 | 0.095 | 0.095 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Benzo(k)fluoranthene | 207-08-9 | 0.08 | 0.08 | 0.08 | 0.046 | 0.046 | 0.046 | 0.046 | 0.046 | 0.046 | 0.046 | 0.046 | 0.046 |
| Chrysene | 218-01-9 | 0.14 | 0.14 | 0.14 | 0.081 | 0.081 | 0.081 | 0.081 | 0.081 | 0.081 | 0.081 | 0.081 | 0.081 |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 |
| Fluoranthene | 206-44-0 | 0.24 | 0.24 | 0.24 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| Fluorene | 86-73-7 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.11 | 0.11 | 0.11 | 0.058 | 0.058 | 0.058 | 0.058 | 0.058 | 0.058 | 0.058 | 0.058 | 0.058 |
| Naphthalene | 91-20-3 | 0.012 | 0.012 | 0.022 | 0.012 | 0.012 | 0.0098 | 0.012 | 0.012 | 0.0098 | 0.012 | 0.012 | 0.0098 |
| Phenanthrene | 85-01-8 | 0.17 | 0.086 | 0.17 | 0.012 | 0.086 | 0.012 | 0.012 | 0.086 | 0.012 | 0.012 | 0.086 | 0.012 |
| Pyrene | 129-00-0 | 0.22 | 0.22 | 0.22 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| Metals (mg/kg) | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 10000 | 10000 | 6500 | 8400 | 8100 | 6500 | 8400 | 5700 | 6500 | 8400 | 8100 |
| Antimony | 7440-36-0 | 0.15 | 0.15 | 0.41 | 0.15 | 0.15 | 0.41 | 0.15 | 0.15 | 0.41 | 0.15 | 0.15 | 0.41 |
| Arsenic | 7440-38-2 | 4.7 | 21 | 21 | 4.7 | 21 | 21 | 4.7 | 21 | 21 | 4.7 | 21 | 21 |
| Barium | 7440-39-3 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Beryllium | 7440-41-7 | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | 0.56 | 0.56 | 0.56 | < LOQ | < LOQ | < LOQ |
| Cadmium | 7440-43-9 | 0.38 | 0.38 | 0.38 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
| Calcium | 7440-70-2 | 120000 | 120000 | 120000 | 120000 | 120000 | 120000 | 71000 | 110000 | 71000 | 120000 | 120000 | 120000 |
| Chromium | 7440-47-3 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| Cobalt | 7440-48-4 | 5.5 | 8.3 | 8.3 | 5.5 | 8.3 | 8.3 | 5.5 | 8.3 | 8.3 | 5.5 | 8.3 | 8.3 |
| Copper | 7440-50-8 | 13 | 28 | 28 | 13 | 28 | 28 | 13 | 28 | 28 | 13 | 28 | 28 |
| Iron | 7439-89-6 | 14000 | 24000 | 24000 | 14000 | 24000 | 24000 | 14000 | 24000 | 24000 | 14000 | 24000 | 24000 |
| Lead | 7439-92-1 | 9.8 | 320 | 320 | 6.3 | 33 | 14 | 6.3 | 33 | 8.3 | 6.3 | 33 | 14 |
| Magnesium | 7439-95-4 | 2000 | 6300 | 13000 | 2000 | 6300 | 13000 | 2000 | 6300 | 13000 | 35000 | 35000 | 13000 |
| Manganese | 7439-96-5 | 520 | 1700 | 1300 | 520 | 1700 | 1300 | 520 | 1700 | 620 | 520 | 1700 | 1300 |
| Mercury | 7439-97-6 | 0.19 | 0.19 | 0.19 | 0.027 | 0.056 | 0.056 | 0.027 | 0.056 | 0.056 | 0.027 | 0.056 | 0.056 |
| Nickel | 7440-02-0 | 9.7 | 13 | 13 | 9.7 | 13 | 13 | 9.7 | 13 | 13 | 9.7 | 13 | 13 |
| Potassium | 7440-09-7 | 1200 | 1100 | 1200 | 1200 | 1100 | 1200 | 1200 | 1100 | 1200 | 1200 | 1100 | 1200 |
| Selenium | 7782-49-2 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 |
| Silver | 7440-22-4 | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ |
| Sodium | 7440-23-5 | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ |
| Thallium | 7440-28-0 | 0.11 | 0.12 | 0.11 | 0.11 | 0.12 | 0.11 | 0.11 | 0.12 | 0.11 | 0.11 | 0.12 | 0.11 |
| Vanadium | 7440-62-2 | 14 | 21 | 21 | 14 | 17 | 16 | 14 | 17 | 12 | 14 | 17 | 16 |
| Zinc | 7440-66-6 | 23 | 57 | 250 | 23 | 57 | 250 | 23 | 57 | 22 | 23 | 57 | 250 |

Notes
< LOQ = Less than the limit of quantiation
ft bgs = feet below ground surface
mg/kg = milligram per kilogram
N/A = None Available
Ps = Sorted Sand and Gravel
Psc = Lacustrine Silt and Clay
Pd = Diamicton (Till)

Table 5-33
Soil Background Threshold Values (BTVs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | | 5 - 10 ft bgs | | | 1 - 10 ft bgs | | |
|---|---|---|---|---|---|---|---|
| Analyte | CASRN | Psc | Ps | Pd | Psc | Ps | Pd |
| Polycyclic Aromatic Hydrocarbons (PAHs) (n | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | < LOQ | < LOQ | 0.014 | < LOQ | < LOQ |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | < LOQ | < LOQ | 0.014 | < LOQ | < LOQ |
| Acenaphthene | 83-32-9 | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ |
| Acenaphthylene | 208-96-8 | 0.01 | 0.013 | 0.013 | 0.01 | 0.013 | 0.013 |
| Anthracene | 120-12-7 | 0.048 | 0.0052 | 0.048 | 0.048 | 0.0052 | 0.048 |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 0.089 | 0.089 | 0.089 | 0.089 | 0.089 |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 0.099 | 0.099 | 0.099 | 0.099 | 0.099 |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 0.046 | 0.046 | 0.046 | 0.046 | 0.046 |
| Chrysene | 218-01-9 | 0.081 | 0.081 | 0.081 | 0.081 | 0.081 | 0.081 |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 |
| Fluoranthene | 206-44-0 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| Fluorene | 86-73-7 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 0.058 | 0.058 | 0.058 | 0.058 | 0.058 |
| Naphthalene | 91-20-3 | 0.012 | 0.012 | 0.0098 | 0.012 | 0.012 | 0.0098 |
| Phenanthrene | 85-01-8 | 0.012 | 0.086 | 0.012 | 0.012 | 0.086 | 0.012 |
| Pyrene | 129-00-0 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| Metals (mg/kg) | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 8400 | 5700 | 6500 | 8400 | 5700 |
| Antimony | 7440-36-0 | 0.15 | 0.15 | 0.41 | 0.15 | 0.15 | 0.41 |
| Arsenic | 7440-38-2 | 4.7 | 21 | 21 | 4.7 | 21 | 21 |
| Barium | 7440-39-3 | 100 | 100 | 100 | 100 | 100 | 100 |
| Beryllium | 7440-41-7 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 |
| Cadmium | 7440-43-9 | 0.31 | 0.31 | 0.31 | 0.16 | 0.16 | 0.16 |
| Calcium | 7440-70-2 | 71000 | 110000 | 71000 | 71000 | 110000 | 71000 |
| Chromium | 7440-47-3 | 11 | 11 | 11 | 11 | 11 | 11 |
| Cobalt | 7440-48-4 | 5.5 | 8.3 | 8.3 | 5.5 | 8.3 | 8.3 |
| Copper | 7440-50-8 | 13 | 28 | 28 | 13 | 28 | 28 |
| Iron | 7439-89-6 | 14000 | 24000 | 24000 | 14000 | 24000 | 24000 |
| Lead | 7439-92-1 | 6.3 | 33 | 8.3 | 6.3 | 33 | 8.3 |
| Magnesium | 7439-95-4 | 27000 | 27000 | 27000 | 27000 | 27000 | 27000 |
| Manganese | 7439-96-5 | 520 | 1700 | 620 | 520 | 1700 | 620 |
| Mercury | 7439-97-6 | 0.027 | 0.056 | 0.056 | 0.027 | 0.056 | 0.056 |
| Nickel | 7440-02-0 | 9.7 | 13 | 13 | 9.7 | 13 | 13 |
| Potassium | 7440-09-7 | 1200 | 1800 | 1200 | 1200 | 1800 | 1200 |
| Selenium | 7782-49-2 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 |
| Silver | 7440-22-4 | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ |
| Sodium | 7440-23-5 | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ |
| Thallium | 7440-28-0 | 0.11 | 0.12 | 0.11 | 0.11 | 0.12 | 0.11 |
| Vanadium | 7440-62-2 | 14 | 17 | 12 | 14 | 17 | 12 |
| Zinc | 7440-66-6 | 23 | 57 | 22 | 23 | 57 | 22 |

Notes
< LOQ = Less than the limit of quantiation
ft bgs = feet below ground surface
mg/kg = milligram per kilogram
N/A = None Available
Ps = Sorted Sand and Gravel
Psc = Lacustrine Silt and Clay
Pd = Diamicton (Till)

Table 5-34
Site Fill Location Nearest Neighbor Geologic Unit
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC/Subarea | Sample ID | Assigned Geologic Unit |
|---|---|---|
| AOC 1 | NYOW-01-006A | Psc |
| | NYOW-01-006B | Psc |
| AOC 5 – Boiler House | NYOW-05-017 | Psc |
| | NYOW-05-017-1 | Psc |
| | NYOW-05-018 | Ps |
| AOC 5 – Coal Aggregate Bins | NYOW-05-021 | Psc |
| | NYOW-05-022 | Psc |
| | NYOW-05-023 | Psc |
| | NYOW-05-024 | Psc |
| | NYOW-05-025 | Ps |
| AOC 5 – Coal Storage Area | NYOW-05-006 | Psc |

Table 5-35
AOC 1 Locations Where Samples Collected only from 0 to 1 ft bgs Geologic Unit Assignments
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Location | Assigned Geologic Unit |
|---|---|
| NYOW-01-007 | Ps |
| NYOW-01-009 | Ps |
| NYOW-01-011 | Ps |
| NYOW-01-013 | Ps |
| NYOW-01-025 | Ps |
| NYOW-01-026 | Pd |
| NYOW-01-027 | Pd |
| NYOW-01-028 | Pd |
| NYOW-01-029 | Ps |
| NYOW-01-030 | Pd |
| NYOW-01-031 | Pd |
| NYOW-01-032 | Ps |
| NYOW-01-033 | Pd |
| NYOW-01-034 | Pd |
| NYOW-01-035 | Ps |
| NYOW-01-036 | Pd |
| NYOW-01-037 | Pd |
| NYOW-01-038 | Ps |
| NYOW-01-039 | Pd |

Table 5-36
Site Concentration to BTV Comparison Results Summary
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Area of Concern (AOC) 1 | | | | | | | | | | | | | | | | AOC 3 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Psc | | | | | Ps | | | | | Pd | | | | | WG | Psc | | | WG |
| | | 0 - 1 | 1 - 5 | 5 - 10 | 0 - 5 | 0 - 10 | 0 - 1 | 1 - 5 | 5 - 10 | 0 - 5 | 0 - 10 | 0 - 1 | 1 - 5 | 5 - 10 | 0 - 5 | 0 - 10 | | 0 - 1 | 1 - 5 | 0 - 5 | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | No |
| 2-Methylnaphthalene | 91-57-6 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | No |
| Acenaphthene | 83-32-9 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | No |
| Acenaphthylene | 208-96-8 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | No |
| Anthracene | 120-12-7 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | No |
| Benzo(a)anthracene | 56-55-3 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | No |
| Benzo(a)pyrene | 50-32-8 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | No |
| Benzo(b)fluoranthene | 205-99-2 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | No |
| Benzo(g,h,i)perylene | 191-24-2 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | No |
| Benzo(k)fluoranthene | 207-08-9 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | No |
| Chrysene | 218-01-9 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | No |
| Dibenz(a,h)anthracene | 53-70-3 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | No |
| Fluoranthene | 206-44-0 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | No |
| Fluorene | 86-73-7 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | No |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | No |
| Naphthalene | 91-20-3 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes | No |
| Phenanthrene | 85-01-8 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | No |
| Pyrene | 129-00-0 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | No |
| Metals | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | No | No | Yes | No | Yes | No | No | No | No | No | Yes | No | No | Yes | Yes | No | Yes | Yes | Yes | No |
| Antimony | 7440-36-0 | No | Yes | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | No | Yes | Yes | No | Yes | Yes | Yes | No |
| Arsenic | 7440-38-2 | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | No | No | No | No | No | Yes | No | Yes | Yes | Yes |
| Barium | 7440-39-3 | No | No | No | No | No | No | Yes | No | No | No | Yes | No | No | Yes | No | Yes | No | No | No | No |
| Beryllium | 7440-41-7 | Yes | Yes | No | Yes | No | Yes | Yes | No | Yes | Yes | Yes | Yes | No | Yes | Yes | No | Yes | Yes | Yes | No |
| Cadmium | 7440-43-9 | No | No | No | No | No | Yes | Yes | No | Yes | Yes | Yes | No | No | Yes | Yes | No | Yes | No | Yes | No |
| Calcium | 7440-70-2 | No | No | Yes | No | Yes | No | No | No | No | No | No | No | Yes | No | Yes | No | No | No | No | Yes |
| Chromium | 7440-47-3 | No | No | No | No | No | No | No | No | No | No | Yes | No | No | Yes | Yes | Yes | No | No | No | No |
| Cobalt | 7440-48-4 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes |
| Copper | 7440-50-8 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| Iron | 7439-89-6 | Yes | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | No | No | No | No | Yes | Yes | Yes | Yes | No |
| Lead | 7439-92-1 | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Magnesium | 7439-95-4 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No | Yes | Yes | Yes | Yes | No | Yes | No | Yes | No |
| Manganese | 7439-96-5 | Yes | Yes | No | Yes | Yes | No | Yes | No | No | No | Yes | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Mercury | 7439-97-6 | No | No | No | No | No | No | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No | Yes | Yes | No |
| Nickel | 7440-02-0 | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes |
| Potassium | 7440-09-7 | No | No | Yes | No | Yes | Yes | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| Selenium | 7782-49-2 | Yes | Yes | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No | Yes | Yes | Yes | No |
| Silver | 7440-22-4 | No | No | No | No | No | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | No |
| Sodium | 7440-23-5 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | No |
| Thallium | 7440-28-0 | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | Yes | Yes | Yes | No |
| Vanadium | 7440-62-2 | No | No | No | No | No | No | Yes | No | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Zinc | 7440-66-6 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | No | No | Yes | No | Yes | Yes | Yes | Yes | Yes | Yes |

Notes

(1) All depth intervals (for example, 0 - 1, 1 - 5) expressed in feet below ground surface
(2) Comparisons for AOC 5 subareas are provided only for informational purposes and not used to eliminate analytes from further screening.
(3) "Yes/No" designation summarized from Appendix I. "Yes" indicates a potential site-related release and that Site concentrations were not determined to be comparable with Background concentrations.

-- Not Analyzed within the AOC
CASRN = Chemical Abstracts Service Registry Number
WG = Groundwater

Surface Soil Geologic Unit Definitions

Ps = Sorted Sand and Gravel
Psc = Lacustrine Silt and Clay
Pd = Diamicton (Till)

Table 5-36
Site Concentration to BTV Comparison Results Summary
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | AOC 5 (Boiler House)[2] | | | | | | | | | | | AOC 5 (Coal Aggregate Bins)[2] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Psc | | | | | Ps | | | | | WG | Psc | | | | | Ps | | | | | WG |
| | | 0 - 1 | 1 - 5 | 5 - 10 | 0 - 5 | 0 - 10 | 0 - 1 | 1 - 5 | 5 - 10 | 0 - 5 | 0 - 10 | | 0 - 1 | 1 - 5 | 5 - 10 | 0 - 5 | 0 - 10 | 0 - 1 | 1 - 5 | 5 - 10 | 0 - 5 | 0 - 10 | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | No | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes |
| 2-Methylnaphthalene | 91-57-6 | No | No | No | No | No | No | Yes | Yes | No | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes |
| Acenaphthene | 83-32-9 | No | No | No | No | No | No | No | Yes | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No |
| Acenaphthylene | 208-96-8 | Yes | No | No | Yes | Yes | No | No | No | No | No | No | Yes | Yes | No | Yes | Yes | No | No | No | No | No | No |
| Anthracene | 120-12-7 | No | No | No | No | No | No | Yes | Yes | Yes | Yes | No | Yes | No | No | Yes | Yes | No | No | No | No | No | No |
| Benzo(a)anthracene | 56-55-3 | No | No | No | No | No | No | No | No | No | No | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No |
| Benzo(a)pyrene | 50-32-8 | No | No | No | No | No | No | No | No | No | No | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No |
| Benzo(b)fluoranthene | 205-99-2 | No | No | No | No | No | No | No | No | No | No | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No |
| Benzo(g,h,i)perylene | 191-24-2 | No | No | No | No | No | No | No | No | No | No | Yes | Yes | No | No | Yes | Yes | No | No | No | Yes | Yes | No |
| Benzo(k)fluoranthene | 207-08-9 | No | No | No | No | No | No | No | No | No | No | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No |
| Chrysene | 218-01-9 | No | No | No | No | No | No | No | No | No | No | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | Yes |
| Dibenz(a,h)anthracene | 53-70-3 | No | No | No | No | No | No | No | No | No | No | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No |
| Fluoranthene | 206-44-0 | No | No | No | No | No | No | No | No | No | No | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No |
| Fluorene | 86-73-7 | No | No | No | No | No | No | No | No | No | No | No | Yes | No | No | Yes | Yes | No | No | No | No | No | No |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | No | No | No | No | No | No | No | No | No | No | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No |
| Naphthalene | 91-20-3 | No | No | No | No | No | No | No | Yes | No | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes |
| Phenanthrene | 85-01-8 | No | No | No | Yes | Yes | No | No | Yes | No | Yes | Yes | Yes | Yes | No | Yes | Yes | No | No | No | No | No | Yes |
| Pyrene | 129-00-0 | No | No | No | No | No | No | No | No | No | No | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No |
| Metals | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | No | Yes | Yes | Yes | Yes | No | No | Yes | No | Yes | No | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| Antimony | 7440-36-0 | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| Arsenic | 7440-38-2 | Yes | Yes | Yes | Yes | Yes | No | No | Yes | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | Yes |
| Barium | 7440-39-3 | No | No | No | No | No | No | No | Yes | No | Yes | No | No | No | No | No | No | No | No | No | No | No | No |
| Beryllium | 7440-41-7 | Yes | Yes | No | Yes | No | Yes | No | No | Yes | No | No | Yes | Yes | Yes | Yes | Yes | No | Yes | No | Yes | Yes | No |
| Cadmium | 7440-43-9 | No | No | No | No | No | No | No | No | No | No | No | No | Yes | No | Yes | Yes | No | No | No | No | No | No |
| Calcium | 7440-70-2 | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | Yes | No | No | No | No | No | No |
| Chromium | 7440-47-3 | No | Yes | Yes | Yes | Yes | No | No | Yes | No | Yes | No | Yes | No | No | Yes | Yes | No | No | Yes | No | Yes | Yes |
| Cobalt | 7440-48-4 | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | No |
| Copper | 7440-50-8 | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | Yes |
| Iron | 7439-89-6 | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | Yes |
| Lead | 7439-92-1 | No | Yes | Yes | Yes | Yes | No | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | Yes |
| Magnesium | 7439-95-4 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No | Yes | No | Yes | Yes | Yes | Yes | No | No | Yes | Yes | No |
| Manganese | 7439-96-5 | Yes | No | Yes | Yes | Yes | No | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | No |
| Mercury | 7439-97-6 | No | No | No | Yes | Yes | No | No | Yes | No | Yes | No | No | Yes | No | Yes | Yes | No | No | No | No | No | No |
| Nickel | 7440-02-0 | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| Potassium | 7440-09-7 | No | Yes | Yes | Yes | Yes | No | No | No | No | Yes | No | No | No | No | No | No | No | No | No | No | Yes | No |
| Selenium | 7782-49-2 | No | No | No | No | No | No | No | No | No | No | No | No | Yes | No | Yes | Yes | No | No | No | No | No | No |
| Silver | 7440-22-4 | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No |
| Sodium | 7440-23-5 | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No |
| Thallium | 7440-28-0 | No | Yes | No | Yes | Yes | No | Yes | Yes | Yes | Yes | No | Yes | Yes | No | Yes | Yes | No | No | No | No | No | No |
| Vanadium | 7440-62-2 | No | Yes | Yes | Yes | Yes | No | No | Yes | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | Yes |
| Zinc | 7440-66-6 | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | Yes |

Notes

(1) All depth intervals (for example, 0 - 1, 1 - 5) expressed in feet below ground surface
(2) Comparisons for AOC 5 subareas are provided only for informational purposes and not used to eliminate analytes from further screening.
(3) "Yes/No" designation summarized from Appendix I. "Yes" indicates a potential site-related release and that Site concentrations were not determined to be comparable with Background concentrations.

-- Not Analyzed within the AOC
CASRN = Chemical Abstracts Service Registry Number
WG = Groundwater

Surface Soil Geologic Unit Definitions

Ps = Sorted Sand and Gravel
Psc = Lacustrine Silt and Clay
Pd = Diamicton (Till)

Table 5-36
Site Concentration to BTV Comparison Results Summary
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | AOC 5 (Coal Storage Area)[2] | | | | | | | | | | | AOC 5 (Electric Substation)[2] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Psc | | | | | Ps | | | | | WG | Psc | | | | | Ps | | | | | WG |
| | | 0 - 1 | 1 - 5 | 5 - 10 | 0 - 5 | 0 - 10 | 0 - 1 | 1 - 5 | 5 - 10 | 0 - 5 | 0 - 10 | | 0 - 1 | 1 - 5 | 5 - 10 | 0 - 5 | 0 - 10 | 0 - 1 | 1 - 5 | 5 - 10 | 0 - 5 | 0 - 10 | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No | No | No | No | No | Yes | No | No | Yes | Yes | No |
| 2-Methylnaphthalene | 91-57-6 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No | No | No | No | No | Yes | Yes | No | Yes | Yes | No |
| Acenaphthene | 83-32-9 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No |
| Acenaphthylene | 208-96-8 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No | Yes | No | No | Yes | Yes | No | No | No | No | No | No |
| Anthracene | 120-12-7 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No | No | No | No | Yes | Yes | No |
| Benzo(a)anthracene | 56-55-3 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No | No | No | No | No | No | No |
| Benzo(a)pyrene | 50-32-8 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No | No | No | No | No | No | No |
| Benzo(b)fluoranthene | 205-99-2 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No | No | No | No | No | No | No |
| Benzo(g,h,i)perylene | 191-24-2 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No | No | No | No | No | No | No |
| Benzo(k)fluoranthene | 207-08-9 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No | No | No | No | No | No | No |
| Chrysene | 218-01-9 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No | No | No | No | No | No | No |
| Dibenz(a,h)anthracene | 53-70-3 | Yes | No | No | Yes | Yes | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No |
| Fluoranthene | 206-44-0 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No | No | No | No | No | No | No |
| Fluorene | 86-73-7 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No | No | No | No | No | No | No |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | No | No | No | Yes | Yes | No | No | No | Yes | Yes | No | No | No | No | No | No | No | No | No | No | No | No |
| Naphthalene | 91-20-3 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No | No | No | No | No | Yes | No | No | Yes | Yes | Yes |
| Phenanthrene | 85-01-8 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes | No | No | No | Yes | Yes | No | No | No | No | No | No |
| Pyrene | 129-00-0 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No | No | No | No | No | No | No |
| Metals | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | No | No | Yes | No | Yes | No | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| Antimony | 7440-36-0 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| Arsenic | 7440-38-2 | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | Yes |
| Barium | 7440-39-3 | No | Yes | No | Yes | Yes | No | No | No | No | No | No | No | No | No | No | No | No | Yes | Yes | Yes | Yes | No |
| Beryllium | 7440-41-7 | Yes | Yes | No | Yes | Yes | Yes | Yes | No | Yes | Yes | No | Yes | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| Cadmium | 7440-43-9 | No | Yes | No | Yes | Yes | No | No | No | Yes | Yes | No | Yes | Yes | No | Yes | Yes | No | No | No | No | No | No |
| Calcium | 7440-70-2 | No | No | Yes | No | Yes | No | No | No | No | No | No | No | No | No | No | Yes | No | No | No | No | No | No |
| Chromium | 7440-47-3 | No | No | Yes | No | Yes | No | No | No | No | No | No | No | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| Cobalt | 7440-48-4 | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| Copper | 7440-50-8 | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | No |
| Iron | 7439-89-6 | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| Lead | 7439-92-1 | Yes | Yes | No | Yes | Yes | No | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | No |
| Magnesium | 7439-95-4 | Yes | No | No | Yes | Yes | No | No | No | No | Yes | No | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No |
| Manganese | 7439-96-5 | No | Yes | Yes | Yes | Yes | No | No | No | No | No | No | Yes | Yes | No | Yes | Yes | No | No | No | No | No | No |
| Mercury | 7439-97-6 | No | Yes | No | Yes | Yes | No | No | No | Yes | Yes | No | No | Yes | No | Yes | Yes | Yes | Yes | No | Yes | Yes | No |
| Nickel | 7440-02-0 | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| Potassium | 7440-09-7 | No | No | Yes | No | Yes | No | No | No | No | No | No | No | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes |
| Selenium | 7782-49-2 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No | Yes | No | No | Yes | Yes | No | No | No | No | No | No |
| Silver | 7440-22-4 | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No |
| Sodium | 7440-23-5 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | No | No | No | No | No | No | No |
| Thallium | 7440-28-0 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes | No |
| Vanadium | 7440-62-2 | Yes | No | Yes | Yes | Yes | No | No | No | No | No | No | No | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| Zinc | 7440-66-6 | Yes | Yes | Yes | Yes | Yes | Yes | No | No | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes | No | No | No | No | No | No |

Notes

(1) All depth intervals (for example, 0 - 1, 1 - 5) expressed in feet below ground surface
(2) Comparisons for AOC 5 subareas are provided only for informational purposes and not used to eliminate analytes from further screening.
(3) "Yes/No" designation summarized from Appendix I. "Yes" indicates a potential site-related release and that Site concentrations were not determined to be comparable with Background concentrations.

-- Not Analyzed within the AOC
CASRN = Chemical Abstracts Service Registry Number
WG = Groundwater

Surface Soil Geologic Unit Definitions

Ps = Sorted Sand and Gravel
Psc = Lacustrine Silt and Clay
Pd = Diamicton (Till)

Table 5-36
Site Concentration to BTV Comparison Results Summary
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | AOC 5 (Possible Dump Area)[2] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Psc | | | | | Ps | | | | | WG |
| | | 0 - 1 | 1 - 5 | 5 - 10 | 0 - 5 | 0 - 10 | 0 - 1 | 1 - 5 | 5 - 10 | 0 - 5 | 0 - 10 | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | Yes | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| 2-Methylnaphthalene | 91-57-6 | Yes | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Acenaphthene | 83-32-9 | No | No | No | No | No | Yes | No | No | Yes | Yes | No |
| Acenaphthylene | 208-96-8 | No | No | No | No | No | No | No | No | No | No | No |
| Anthracene | 120-12-7 | No | No | No | No | No | No | No | No | Yes | Yes | No |
| Benzo(a)anthracene | 56-55-3 | No | No | No | No | No | No | No | No | No | No | No |
| Benzo(a)pyrene | 50-32-8 | No | No | No | No | No | No | No | No | No | No | No |
| Benzo(b)fluoranthene | 205-99-2 | No | No | No | No | No | No | No | No | No | No | Yes |
| Benzo(g,h,i)perylene | 191-24-2 | No | No | No | No | No | No | No | No | No | No | No |
| Benzo(k)fluoranthene | 207-08-9 | No | No | No | No | No | No | No | No | No | No | No |
| Chrysene | 218-01-9 | No | No | No | No | No | No | No | No | No | No | Yes |
| Dibenz(a,h)anthracene | 53-70-3 | No | No | No | No | No | No | No | No | No | No | No |
| Fluoranthene | 206-44-0 | No | No | No | No | No | No | No | No | No | No | No |
| Fluorene | 86-73-7 | No | No | No | No | No | No | No | No | No | No | No |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | No | No | No | No | No | No | No | No | No | No | No |
| Naphthalene | 91-20-3 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes |
| Phenanthrene | 85-01-8 | No | No | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes |
| Pyrene | 129-00-0 | No | No | No | No | No | No | No | No | No | No | No |
| Metals | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | No | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| Antimony | 7440-36-0 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| Arsenic | 7440-38-2 | Yes | No | Yes | Yes | Yes | No | No | No | No | No | Yes |
| Barium | 7440-39-3 | No | Yes | Yes | Yes | Yes | No | No | Yes | No | Yes | No |
| Beryllium | 7440-41-7 | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | No |
| Cadmium | 7440-43-9 | No | No | No | No | No | Yes | No | No | Yes | Yes | No |
| Calcium | 7440-70-2 | No | No | No | No | Yes | No | No | No | No | No | No |
| Chromium | 7440-47-3 | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| Cobalt | 7440-48-4 | No | Yes | Yes | Yes | Yes | No | No | Yes | No | Yes | No |
| Copper | 7440-50-8 | Yes | Yes | Yes | Yes | Yes | Yes | No | No | Yes | Yes | No |
| Iron | 7439-89-6 | No | Yes | Yes | Yes | Yes | No | No | Yes | No | Yes | No |
| Lead | 7439-92-1 | Yes | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | No |
| Magnesium | 7439-95-4 | Yes | No | No | Yes | Yes | Yes | No | No | Yes | Yes | No |
| Manganese | 7439-96-5 | Yes | Yes | No | Yes | Yes | No | No | No | No | No | No |
| Mercury | 7439-97-6 | No | Yes | No | Yes | Yes | No | No | No | Yes | Yes | No |
| Nickel | 7440-02-0 | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Potassium | 7440-09-7 | No | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| Selenium | 7782-49-2 | No | No | No | No | No | No | Yes | No | Yes | Yes | No |
| Silver | 7440-22-4 | No | No | No | No | No | Yes | No | No | Yes | Yes | No |
| Sodium | 7440-23-5 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| Thallium | 7440-28-0 | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | No |
| Vanadium | 7440-62-2 | No | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | No |
| Zinc | 7440-66-6 | Yes | Yes | Yes | Yes | Yes | Yes | No | No | Yes | Yes | No |

Notes

(1) All depth intervals (for example, 0 - 1, 1 - 5) expressed in feet below ground surface
(2) Comparisons for AOC 5 subareas are provided only for informational purposes and not used to eliminate analytes from further screening.
(3) "Yes/No" designation summarized from Appendix I. "Yes" indicates a potential site-related release and that Site concentrations were not determined to be comparable with Background concentrations.

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CASRN = Chemical Abstracts Service Registry Number
WG = Groundwater

Surface Soil Geologic Unit Definitions

Ps = Sorted Sand and Gravel
Psc = Lacustrine Silt and Clay
Pd = Diamicton (Till)

**Table 5-37**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Groundwater Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison and Summary Table[4] |
|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | | |
| **AOC 1** | | | | | | | |
| 2,4-Dinitrochlorobenzene | -- | -- | -- | X | -- | -- | No |
| 2,4-Dinitrophenol | -- | -- | -- | X | -- | -- | No |
| Picric acid | -- | -- | X | -- | -- | -- | No |
| Aluminum | -- | -- | -- | -- | -- | No | No |
| Antimony | -- | -- | -- | -- | -- | No | No |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | Yes | Yes |
| Beryllium | -- | -- | X | -- | -- | No | No |
| Cadmium | -- | -- | -- | -- | -- | No | No |
| Chromium | -- | -- | -- | -- | -- | Yes | Yes |
| Cobalt | -- | -- | -- | -- | -- | No | No |
| Copper | -- | -- | -- | -- | -- | Yes | Yes |
| Iron | -- | -- | -- | -- | -- | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes |
| Mercury | -- | -- | -- | X | -- | No | No |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes |
| Selenium | -- | -- | -- | X | -- | No | No |
| Silver | -- | -- | -- | X | -- | No | No |
| Thallium | -- | -- | -- | X | -- | No | No |
| Vanadium | -- | -- | -- | -- | -- | Yes | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes |
| **AOC 3** | | | | | | | |
| 1,1,1-Trichloroethane | -- | -- | X | -- | -- | -- | No |
| 1,1,2,2-Tetrachloroethane | -- | -- | -- | X | -- | -- | No |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | -- | -- | X | -- | -- | -- | No |
| 1,1,2-Trichloroethane | -- | -- | -- | X | -- | -- | No |
| 1,1-Dichloroethane | -- | -- | X | -- | -- | -- | No |
| 1,1-Dichloroethene | -- | -- | X | -- | -- | -- | No |
| 1,2,3-Trichlorobenzene | -- | -- | -- | X | -- | -- | No |
| 1,2,4-Trichlorobenzene | -- | -- | -- | X | -- | -- | No |
| 1,2-Dibromo-3-chloropropane | -- | -- | -- | X | -- | -- | No |
| 1,2-Dibromoethane (EDB) | -- | -- | -- | X | -- | -- | No |
| 1,2-Dichlorobenzene | -- | -- | X | -- | -- | -- | No |
| 1,2-Dichloroethane | -- | -- | -- | X | -- | -- | No |
| 1,2-Dichloropropane | -- | -- | -- | X | -- | -- | No |
| 1,3-Dichlorobenzene | -- | -- | X | -- | -- | -- | No |
| 1,3-Dichloropropane | -- | -- | X | -- | -- | -- | No |
| 1,4-Dichlorobenzene | -- | -- | -- | X | -- | -- | No |
| 2-Butanone (MEK) | -- | -- | X | -- | -- | -- | No |
| 2-Hexanone | -- | -- | -- | X | -- | -- | No |
| 4-Methyl-2-pentanone (MIBK) | -- | -- | X | -- | -- | -- | No |
| Acetone | -- | -- | -- | -- | -- | -- | Yes |
| Benzene | -- | -- | -- | -- | -- | -- | Yes |

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**Phase 1 Risk Screening and Data Gaps Analysis**
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| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison and Summary Table[4] |
|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | | |
| Bromochloromethane | -- | -- | X | -- | -- | -- | No |
| Bromodichloromethane | -- | -- | -- | X | -- | -- | No |
| Bromoform | -- | -- | X | -- | -- | -- | No |
| Bromomethane | -- | -- | -- | X | -- | -- | No |
| Carbon disulfide | -- | -- | X | -- | -- | -- | No |
| Carbon Tetrachloride | -- | -- | -- | X | -- | -- | No |
| Chlorobenzene | -- | -- | X | -- | -- | -- | No |
| Chloroethane | -- | -- | X | -- | -- | -- | No |
| Chloroform | -- | -- | -- | X | -- | -- | No |
| Chloromethane | -- | -- | X | -- | -- | -- | No |
| cis-1,2-Dichloroethene | -- | -- | X | -- | -- | -- | No |
| cis-1,3-Dichloropropene | -- | -- | -- | X | -- | -- | No |
| Cumene | -- | -- | X | -- | -- | -- | No |
| Cyclohexane | -- | -- | X | -- | -- | -- | No |
| Dibromochloromethane | -- | -- | -- | X | -- | -- | No |
| Dichlorodifluoromethane | -- | -- | X | -- | -- | -- | No |
| Ethylbenzene | -- | -- | X | -- | -- | -- | No |
| m,p-Xylene | -- | -- | -- | -- | -- | -- | Yes |
| Methyl acetate | -- | -- | X | -- | -- | -- | No |
| Methyl tert-butyl ether (MTBE) | -- | -- | X | -- | -- | -- | No |
| Methylcyclohexane | X | -- | -- | -- | -- | -- | No |
| Methylene chloride | -- | -- | X | -- | -- | -- | No |
| o-Xylene | -- | -- | X | -- | -- | -- | No |
| Styrene | -- | -- | X | -- | -- | -- | No |
| Tetrachloroethene (PCE) | -- | -- | X | -- | -- | -- | No |
| Toluene | -- | -- | -- | -- | -- | -- | Yes |
| trans-1,2-Dichloroethene | -- | -- | X | -- | -- | -- | No |
| trans-1,3-Dichloropropene | -- | -- | -- | X | -- | -- | No |
| Trichlorofluoromethane | -- | -- | X | -- | -- | -- | No |
| Vinyl chloride | -- | -- | -- | X | -- | -- | No |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | -- | X | -- | -- | No |
| 1,4-Dioxane | -- | -- | -- | X | -- | -- | No |
| 2,2'-Oxybis(1-chloropropane) | -- | -- | X | -- | -- | -- | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | X | -- | -- | -- | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | No |
| 2,4,6-Trichlorophenol | -- | -- | -- | X | -- | -- | No |
| 2,4-Dichlorophenol | -- | -- | -- | X | -- | -- | No |
| 2,4-Dimethylphenol | -- | -- | X | -- | -- | -- | No |
| 2,4-Dinitrochlorobenzene | -- | -- | -- | X | -- | -- | No |
| 2,4-Dinitrophenol | -- | -- | -- | X | -- | -- | No |
| 2,4-Dinitrotoluene | -- | -- | -- | X | -- | -- | No |
| 2,6-Dinitrotoluene | -- | -- | -- | X | -- | -- | No |
| 2-Chloronaphthalene | -- | -- | X | -- | -- | -- | No |
| 2-Chlorophenol | -- | -- | -- | X | -- | -- | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | No |

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| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison and Summary Table[4] |
|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | | |
| 2-Nitroaniline | -- | -- | -- | X | -- | -- | No |
| 2-Nitrophenol | -- | -- | -- | X | -- | -- | No |
| 3,3'-Dichlorobenzidine | -- | -- | -- | X | -- | -- | No |
| 3-Nitroaniline | -- | -- | -- | X | -- | -- | No |
| 4,6-Dinitro-2-methylphenol | -- | -- | -- | X | -- | -- | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | No |
| 4-Chloro-3-methylphenol | -- | -- | X | -- | -- | -- | No |
| 4-Chloroaniline | -- | -- | -- | X | -- | -- | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | No |
| 4-Nitroaniline | -- | -- | -- | -- | -- | -- | Yes |
| 4-Nitrophenol | -- | -- | -- | X | -- | -- | No |
| Acetophenone | -- | -- | X | -- | -- | -- | No |
| Atrazine | -- | -- | -- | X | -- | -- | No |
| Benzaldehyde | -- | -- | -- | -- | -- | -- | Yes |
| Benzyl butyl phthalate | -- | -- | -- | -- | X | -- | No |
| Biphenyl (Diphenyl) | -- | -- | -- | X | -- | -- | No |
| Bis(2-chloroethoxy)methane | -- | -- | -- | X | -- | -- | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | -- | -- | -- | X | -- | -- | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | -- | X | -- | -- | No |
| Caprolactam | -- | -- | -- | -- | -- | -- | Yes |
| Carbazole | -- | -- | X | -- | -- | -- | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | No |
| Dibenzofuran | -- | -- | -- | X | -- | -- | No |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | No |
| Hexachlorobutadiene | -- | -- | -- | X | -- | -- | No |
| Hexachlorocyclopentadiene | -- | -- | -- | X | -- | -- | No |
| Hexachloroethane | -- | -- | -- | X | -- | -- | No |
| Isophorone | -- | -- | X | -- | -- | -- | No |
| Nitrobenzene | -- | -- | -- | X | -- | -- | No |
| N-Nitrosodi-n-propylamine | -- | -- | -- | X | -- | -- | No |
| N-Nitrosodiphenylamine | -- | -- | -- | -- | X | -- | No |
| Pentachlorophenol | -- | -- | -- | X | -- | -- | No |
| Phenol | -- | -- | X | -- | -- | -- | No |
| 1-Methylnaphthalene | -- | -- | X | -- | -- | No | No |
| 2-Methylnaphthalene | -- | -- | X | -- | -- | No | No |
| Acenaphthene | -- | -- | X | -- | -- | No | No |
| Acenaphthylene | -- | -- | X | -- | -- | No | No |
| Anthracene | -- | -- | X | -- | -- | No | No |
| Benzo(a)anthracene | -- | -- | -- | X | -- | No | No |
| Benzo(a)pyrene | -- | -- | -- | X | -- | No | No |
| Benzo(b)fluoranthene | -- | -- | X | -- | -- | No | No |

**Table 5-37**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Groundwater Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison and Summary Table[4] |
|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | | |
| Benzo(g,h,i)perylene | -- | -- | X | -- | -- | No | No |
| Benzo(k)fluoranthene | -- | -- | X | -- | -- | No | No |
| Chrysene | -- | -- | X | -- | -- | No | No |
| Dibenz(a,h)anthracene | -- | -- | -- | X | -- | No | No |
| Fluoranthene | -- | -- | X | -- | -- | No | No |
| Fluorene | -- | -- | X | -- | -- | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | -- | X | -- | -- | No | No |
| Naphthalene | -- | -- | X | -- | -- | No | No |
| Phenanthrene | -- | -- | X | -- | -- | No | No |
| Pyrene | -- | -- | X | -- | -- | No | No |
| Picric acid | -- | -- | X | -- | -- | -- | No |
| PCB-1016 (Aroclor 1016) | -- | -- | -- | X | -- | -- | No |
| PCB-1221 (Aroclor 1221) | -- | -- | -- | X | -- | -- | No |
| PCB-1232 (Aroclor 1232) | -- | -- | -- | X | -- | -- | No |
| PCB-1242 (Aroclor 1242) | -- | -- | -- | X | -- | -- | No |
| PCB-1248 (Aroclor 1248) | -- | -- | -- | X | -- | -- | No |
| PCB-1254 (Aroclor 1254) | -- | -- | -- | X | -- | -- | No |
| PCB-1260 (Aroclor 1260) | -- | -- | -- | X | -- | -- | No |
| PCB-1262 (Aroclor 1262) | -- | -- | -- | X | -- | -- | No |
| PCB-1268 (Aroclor 1268) | -- | -- | -- | X | -- | -- | No |
| Aluminum | -- | -- | -- | -- | -- | No | No |
| Antimony | -- | -- | -- | X | -- | No | No |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | No |
| Beryllium | -- | -- | X | -- | -- | No | No |
| Cadmium | -- | -- | -- | X | -- | No | No |
| Chromium | -- | -- | X | -- | -- | No | No |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes |
| Copper | -- | -- | X | -- | -- | No | No |
| Iron | -- | -- | -- | -- | -- | No | No |
| Lead | -- | -- | -- | -- | -- | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes |
| Mercury | -- | -- | -- | X | -- | No | No |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | No | No |
| Silver | -- | -- | -- | X | -- | No | No |
| Thallium | -- | -- | -- | X | -- | No | No |
| Vanadium | -- | -- | -- | -- | -- | Yes | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes |
| **AOC 4** | | | | | | | |
| 2,4-Dinitrochlorobenzene | -- | -- | -- | X | -- | -- | No |
| 2,4-Dinitrophenol | -- | -- | -- | X | -- | -- | No |
| Picric acid | -- | -- | -- | -- | X | -- | No |
| **AOC 5 - Boiler House** | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | -- | X | -- | -- | No |

**Table 5-37**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Groundwater Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison and Summary Table[4] |
|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | | |
| 1,4-Dioxane | -- | -- | -- | X | -- | -- | No |
| 2,2'-Oxybis(1-chloropropane) | -- | -- | X | -- | -- | -- | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | X | -- | -- | -- | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | No |
| 2,4,6-Trichlorophenol | -- | -- | -- | X | -- | -- | No |
| 2,4-Dichlorophenol | -- | -- | -- | X | -- | -- | No |
| 2,4-Dimethylphenol | -- | -- | X | -- | -- | -- | No |
| 2,4-Dinitrotoluene | -- | -- | -- | X | -- | -- | No |
| 2,6-Dinitrotoluene | -- | -- | -- | X | -- | -- | No |
| 2-Chloronaphthalene | -- | -- | X | -- | -- | -- | No |
| 2-Chlorophenol | -- | -- | -- | X | -- | -- | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | No |
| 2-Nitroaniline | -- | -- | -- | X | -- | -- | No |
| 2-Nitrophenol | -- | -- | -- | X | -- | -- | No |
| 3,3'-Dichlorobenzidine | -- | -- | -- | X | -- | -- | No |
| 3-Nitroaniline | -- | -- | -- | X | -- | -- | No |
| 4,6-Dinitro-2-methylphenol | -- | -- | -- | X | -- | -- | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | No |
| 4-Chloro-3-methylphenol | -- | -- | X | -- | -- | -- | No |
| 4-Chloroaniline | -- | -- | -- | X | -- | -- | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | No |
| 4-Nitroaniline | -- | -- | -- | X | -- | -- | No |
| 4-Nitrophenol | -- | -- | -- | X | -- | -- | No |
| Acetophenone | -- | -- | X | -- | -- | -- | No |
| Atrazine | -- | -- | -- | X | -- | -- | No |
| Benzaldehyde | -- | -- | X | -- | -- | -- | No |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | No |
| Biphenyl (Diphenyl) | -- | -- | -- | X | -- | -- | No |
| Bis(2-chloroethoxy)methane | -- | -- | -- | X | -- | -- | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | -- | -- | -- | X | -- | -- | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | -- | X | -- | -- | No |
| Caprolactam | -- | -- | -- | -- | -- | -- | Yes |
| Carbazole | -- | -- | X | -- | -- | -- | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | No |
| Dibenzofuran | -- | -- | -- | X | -- | -- | No |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | No |
| Hexachlorobutadiene | -- | -- | -- | X | -- | -- | No |
| Hexachlorocyclopentadiene | -- | -- | -- | X | -- | -- | No |
| Hexachloroethane | -- | -- | -- | X | -- | -- | No |
| Isophorone | -- | -- | X | -- | -- | -- | No |
| Nitrobenzene | -- | -- | -- | X | -- | -- | No |

**Table 5-37**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Groundwater Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison and Summary Table[4] |
|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | | |
| N-Nitrosodi-n-propylamine | -- | -- | -- | X | -- | -- | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | No |
| Pentachlorophenol | -- | -- | -- | X | -- | -- | No |
| Phenol | -- | -- | X | -- | -- | -- | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes |
| Acenaphthylene | -- | -- | X | -- | -- | No | No |
| Anthracene | -- | -- | -- | -- | -- | No | Yes |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | Yes | Yes |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | Yes | Yes |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | Yes | Yes |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes |
| Chrysene | -- | -- | -- | -- | -- | Yes | Yes |
| Dibenz(a,h)anthracene | -- | -- | -- | -- | -- | Yes | Yes |
| Fluoranthene | -- | -- | -- | -- | -- | Yes | Yes |
| Fluorene | -- | -- | X | -- | -- | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | Yes | Yes |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes |
| Phenanthrene | -- | -- | -- | -- | -- | Yes | Yes |
| Pyrene | -- | -- | -- | -- | -- | Yes | Yes |
| Aluminum | -- | -- | -- | -- | -- | No | Yes |
| Antimony | -- | -- | -- | -- | -- | No | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes |
| Beryllium | -- | -- | X | -- | -- | No | No |
| Cadmium | -- | -- | -- | X | -- | No | No |
| Chromium | -- | -- | X | -- | -- | No | No |
| Cobalt | -- | -- | -- | -- | -- | No | Yes |
| Copper | -- | -- | X | -- | -- | No | No |
| Iron | -- | -- | -- | -- | -- | No | Yes |
| Lead | -- | -- | X | -- | -- | No | No |
| Manganese | -- | -- | -- | -- | -- | No | Yes |
| Mercury | -- | -- | -- | X | -- | No | No |
| Nickel | -- | -- | -- | X | -- | No | No |
| Selenium | -- | -- | -- | X | -- | No | No |
| Silver | -- | -- | -- | X | -- | No | No |
| Thallium | -- | -- | -- | X | -- | No | No |
| Vanadium | -- | -- | -- | -- | -- | Yes | Yes |
| Zinc | -- | -- | X | -- | -- | No | No |
| **AOC 5 - Coal Aggregate Bins** | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | -- | X | -- | -- | No |
| 1,4-Dioxane | -- | -- | -- | X | -- | -- | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | X | -- | -- | -- | No |

**Table 5-37**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Groundwater Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison and Summary Table[4] |
|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | | |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | No |
| 2,4,6-Trichlorophenol | -- | -- | -- | X | -- | -- | No |
| 2,4-Dichlorophenol | -- | -- | -- | X | -- | -- | No |
| 2,4-Dimethylphenol | -- | -- | X | -- | -- | -- | No |
| 2,4-Dinitrotoluene | -- | -- | -- | X | -- | -- | No |
| 2,6-Dinitrotoluene | -- | -- | -- | X | -- | -- | No |
| 2-Chloronaphthalene | -- | -- | X | -- | -- | -- | No |
| 2-Chlorophenol | -- | -- | -- | X | -- | -- | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | No |
| 2-Nitroaniline | -- | -- | -- | X | -- | -- | No |
| 2-Nitrophenol | -- | -- | -- | X | -- | -- | No |
| 3,3'-Dichlorobenzidine | -- | -- | -- | X | -- | -- | No |
| 3-Nitroaniline | -- | -- | -- | X | -- | -- | No |
| 4,6-Dinitro-2-methylphenol | -- | -- | -- | X | -- | -- | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | No |
| 4-Chloro-3-methylphenol | -- | -- | X | -- | -- | -- | No |
| 4-Chloroaniline | -- | -- | -- | X | -- | -- | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | No |
| 4-Nitroaniline | -- | -- | -- | X | -- | -- | No |
| 4-Nitrophenol | -- | -- | -- | X | -- | -- | No |
| Acetophenone | -- | -- | X | -- | -- | -- | No |
| Atrazine | -- | -- | -- | X | -- | -- | No |
| Benzaldehyde | -- | -- | X | -- | -- | -- | No |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | No |
| Biphenyl (Diphenyl) | -- | -- | -- | X | -- | -- | No |
| Bis(2-chloroethoxy)methane | -- | -- | -- | X | -- | -- | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | -- | -- | -- | X | -- | -- | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | -- | X | -- | -- | No |
| Caprolactam | -- | -- | X | -- | -- | -- | No |
| Carbazole | -- | -- | X | -- | -- | -- | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | No |
| Dibenzofuran | -- | -- | -- | X | -- | -- | No |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | No |
| Hexachlorobutadiene | -- | -- | -- | X | -- | -- | No |
| Hexachlorocyclopentadiene | -- | -- | -- | X | -- | -- | No |
| Hexachloroethane | -- | -- | -- | X | -- | -- | No |
| Isophorone | -- | -- | X | -- | -- | -- | No |
| Nitrobenzene | -- | -- | -- | X | -- | -- | No |
| N-Nitrosodi-n-propylamine | -- | -- | -- | X | -- | -- | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | No |
| Pentachlorophenol | -- | -- | -- | X | -- | -- | No |

**Table 5-37**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Groundwater Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison and Summary Table[4] |
|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | | |
| Phenol | -- | -- | -- | -- | -- | -- | Yes |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes |
| Acenaphthene | -- | -- | X | -- | -- | No | No |
| Acenaphthylene | -- | -- | X | -- | -- | No | No |
| Anthracene | -- | -- | X | -- | -- | No | No |
| Benzo(a)anthracene | -- | -- | -- | X | -- | No | No |
| Benzo(a)pyrene | -- | -- | -- | X | -- | No | No |
| Benzo(b)fluoranthene | -- | -- | X | -- | -- | No | No |
| Benzo(g,h,i)perylene | -- | -- | X | -- | -- | No | No |
| Benzo(k)fluoranthene | -- | -- | X | -- | -- | No | No |
| Chrysene | -- | -- | -- | -- | -- | Yes | Yes |
| Dibenz(a,h)anthracene | -- | -- | -- | X | -- | No | No |
| Fluoranthene | -- | -- | X | -- | -- | No | No |
| Fluorene | -- | -- | X | -- | -- | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | -- | X | -- | -- | No | No |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes |
| Phenanthrene | -- | -- | -- | -- | -- | Yes | Yes |
| Pyrene | -- | -- | X | -- | -- | No | No |
| Aluminum | -- | -- | -- | -- | -- | Yes | Yes |
| Antimony | -- | -- | -- | X | -- | No | No |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes |
| Beryllium | -- | -- | X | -- | -- | No | No |
| Cadmium | -- | -- | -- | X | -- | No | No |
| Chromium | -- | -- | -- | -- | -- | Yes | Yes |
| Cobalt | -- | -- | -- | -- | -- | No | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes |
| Iron | -- | -- | -- | -- | -- | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | No | Yes |
| Mercury | -- | -- | -- | X | -- | No | No |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes |
| Selenium | -- | -- | -- | X | -- | No | No |
| Silver | -- | -- | -- | X | -- | No | No |
| Thallium | -- | -- | -- | X | -- | No | No |
| Vanadium | -- | -- | -- | -- | -- | Yes | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes |
| **AOC 5 - Coal Storage Area** | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | -- | X | -- | -- | No |
| 1,4-Dioxane | -- | -- | -- | X | -- | -- | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | X | -- | -- | -- | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | No |
| 2,4,6-Trichlorophenol | -- | -- | -- | X | -- | -- | No |
| 2,4-Dichlorophenol | -- | -- | -- | X | -- | -- | No |

**Table 5-37**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Groundwater Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison and Summary Table[4] |
|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | | |
| 2,4-Dimethylphenol | -- | -- | X | -- | -- | -- | No |
| 2,4-Dinitrotoluene | -- | -- | -- | X | -- | -- | No |
| 2,6-Dinitrotoluene | -- | -- | -- | X | -- | -- | No |
| 2-Chloronaphthalene | -- | -- | X | -- | -- | -- | No |
| 2-Chlorophenol | -- | -- | -- | X | -- | -- | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | No |
| 2-Nitroaniline | -- | -- | -- | X | -- | -- | No |
| 2-Nitrophenol | -- | -- | -- | X | -- | -- | No |
| 3,3'-Dichlorobenzidine | -- | -- | -- | X | -- | -- | No |
| 3-Nitroaniline | -- | -- | -- | X | -- | -- | No |
| 4,6-Dinitro-2-methylphenol | -- | -- | -- | X | -- | -- | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | No |
| 4-Chloro-3-methylphenol | -- | -- | X | -- | -- | -- | No |
| 4-Chloroaniline | -- | -- | -- | X | -- | -- | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | No |
| 4-Nitroaniline | -- | -- | -- | X | -- | -- | No |
| 4-Nitrophenol | -- | -- | -- | X | -- | -- | No |
| Acetophenone | -- | -- | X | -- | -- | -- | No |
| Atrazine | -- | -- | -- | X | -- | -- | No |
| Benzaldehyde | -- | -- | X | -- | -- | -- | No |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | No |
| Biphenyl (Diphenyl) | -- | -- | -- | X | -- | -- | No |
| Bis(2-chloroethoxy)methane | -- | -- | -- | X | -- | -- | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | -- | -- | -- | X | -- | -- | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | -- | X | -- | -- | No |
| Caprolactam | -- | -- | X | -- | -- | -- | No |
| Carbazole | -- | -- | X | -- | -- | -- | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | No |
| Dibenzofuran | -- | -- | -- | X | -- | -- | No |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | No |
| Hexachlorobutadiene | -- | -- | -- | X | -- | -- | No |
| Hexachlorocyclopentadiene | -- | -- | -- | X | -- | -- | No |
| Hexachloroethane | -- | -- | -- | X | -- | -- | No |
| Isophorone | -- | -- | X | -- | -- | -- | No |
| Nitrobenzene | -- | -- | -- | X | -- | -- | No |
| N-Nitrosodi-n-propylamine | -- | -- | -- | X | -- | -- | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | No |
| Pentachlorophenol | -- | -- | -- | X | -- | -- | No |
| Phenol | -- | -- | X | -- | -- | -- | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes |

**Table 5-37**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Groundwater Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison and Summary Table[4] |
|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | | |
| Acenaphthene | -- | -- | X | -- | -- | No | No |
| Acenaphthylene | -- | -- | X | -- | -- | No | No |
| Anthracene | -- | -- | X | -- | -- | No | No |
| Benzo(a)anthracene | -- | -- | -- | X | -- | No | No |
| Benzo(a)pyrene | -- | -- | -- | X | -- | No | No |
| Benzo(b)fluoranthene | -- | -- | X | -- | -- | No | No |
| Benzo(g,h,i)perylene | -- | -- | X | -- | -- | No | No |
| Benzo(k)fluoranthene | -- | -- | X | -- | -- | No | No |
| Chrysene | -- | -- | X | -- | -- | No | No |
| Dibenz(a,h)anthracene | -- | -- | -- | X | -- | No | No |
| Fluoranthene | -- | -- | X | -- | -- | No | No |
| Fluorene | -- | -- | X | -- | -- | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | -- | X | -- | -- | No | No |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes |
| Phenanthrene | -- | -- | -- | -- | -- | Yes | Yes |
| Pyrene | -- | -- | X | -- | -- | No | No |
| Aluminum | -- | -- | X | -- | -- | No | No |
| Antimony | -- | -- | -- | -- | -- | No | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes |
| Beryllium | -- | -- | X | -- | -- | No | No |
| Cadmium | -- | -- | -- | X | -- | No | No |
| Chromium | -- | -- | X | -- | -- | No | No |
| Cobalt | -- | -- | -- | -- | -- | No | Yes |
| Copper | -- | -- | X | -- | -- | No | No |
| Iron | -- | -- | -- | -- | -- | No | Yes |
| Lead | -- | -- | X | -- | -- | No | No |
| Manganese | -- | -- | -- | -- | -- | No | Yes |
| Mercury | -- | -- | -- | X | -- | No | No |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes |
| Selenium | -- | -- | -- | X | -- | No | No |
| Silver | -- | -- | -- | X | -- | No | No |
| Thallium | -- | -- | -- | X | -- | No | No |
| Vanadium | -- | -- | -- | X | -- | No | No |
| Zinc | -- | -- | X | -- | -- | No | No |
| **AOC 5 - Electric Substation** | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | -- | X | -- | -- | No |
| 1,4-Dioxane | -- | -- | -- | X | -- | -- | No |
| 2,2'-Oxybis(1-chloropropane) | -- | -- | X | -- | -- | -- | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | X | -- | -- | -- | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | No |
| 2,4,6-Trichlorophenol | -- | -- | -- | X | -- | -- | No |
| 2,4-Dichlorophenol | -- | -- | -- | X | -- | -- | No |
| 2,4-Dimethylphenol | -- | -- | X | -- | -- | -- | No |
| 2,4-Dinitrotoluene | -- | -- | -- | X | -- | -- | No |

**Table 5-37**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Groundwater Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison and Summary Table[4] |
|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | | |
| 2,6-Dinitrotoluene | -- | -- | -- | X | -- | -- | No |
| 2-Chloronaphthalene | -- | -- | X | -- | -- | -- | No |
| 2-Chlorophenol | -- | -- | -- | X | -- | -- | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | No |
| 2-Nitroaniline | -- | -- | -- | X | -- | -- | No |
| 2-Nitrophenol | -- | -- | -- | X | -- | -- | No |
| 3,3'-Dichlorobenzidine | -- | -- | -- | X | -- | -- | No |
| 3-Nitroaniline | -- | -- | -- | X | -- | -- | No |
| 4,6-Dinitro-2-methylphenol | -- | -- | -- | X | -- | -- | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | No |
| 4-Chloro-3-methylphenol | -- | -- | X | -- | -- | -- | No |
| 4-Chloroaniline | -- | -- | -- | X | -- | -- | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | No |
| 4-Nitroaniline | -- | -- | -- | X | -- | -- | No |
| 4-Nitrophenol | -- | -- | -- | X | -- | -- | No |
| Acetophenone | -- | -- | X | -- | -- | -- | No |
| Atrazine | -- | -- | -- | X | -- | -- | No |
| Benzaldehyde | -- | -- | X | -- | -- | -- | No |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | No |
| Biphenyl (Diphenyl) | -- | -- | -- | X | -- | -- | No |
| Bis(2-chloroethoxy)methane | -- | -- | -- | X | -- | -- | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | -- | -- | -- | X | -- | -- | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | -- | X | -- | -- | No |
| Caprolactam | -- | -- | X | -- | -- | -- | No |
| Carbazole | -- | -- | X | -- | -- | -- | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | No |
| Dibenzofuran | -- | -- | -- | X | -- | -- | No |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | No |
| Hexachlorobutadiene | -- | -- | -- | X | -- | -- | No |
| Hexachlorocyclopentadiene | -- | -- | -- | X | -- | -- | No |
| Hexachloroethane | -- | -- | -- | X | -- | -- | No |
| Isophorone | -- | -- | X | -- | -- | -- | No |
| Nitrobenzene | -- | -- | -- | X | -- | -- | No |
| N-Nitrosodi-n-propylamine | -- | -- | -- | X | -- | -- | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | No |
| Pentachlorophenol | -- | -- | -- | X | -- | -- | No |
| Phenol | -- | -- | X | -- | -- | -- | No |
| 1-Methylnaphthalene | -- | -- | X | -- | -- | No | No |
| 2-Methylnaphthalene | -- | -- | X | -- | -- | No | No |
| Acenaphthene | -- | -- | X | -- | -- | No | No |
| Acenaphthylene | -- | -- | X | -- | -- | No | No |

**Table 5-37**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Groundwater Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison and Summary Table[4] |
|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | | |
| Anthracene | -- | -- | X | -- | -- | No | No |
| Benzo(a)anthracene | -- | -- | -- | X | -- | No | No |
| Benzo(a)pyrene | -- | -- | -- | X | -- | No | No |
| Benzo(b)fluoranthene | -- | -- | X | -- | -- | No | No |
| Benzo(g,h,i)perylene | -- | -- | X | -- | -- | No | No |
| Benzo(k)fluoranthene | -- | -- | X | -- | -- | No | No |
| Chrysene | -- | -- | X | -- | -- | No | No |
| Dibenz(a,h)anthracene | -- | -- | -- | X | -- | No | No |
| Fluoranthene | -- | -- | X | -- | -- | No | No |
| Fluorene | -- | -- | X | -- | -- | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | -- | X | -- | -- | No | No |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes |
| Phenanthrene | -- | -- | X | -- | -- | No | No |
| Pyrene | -- | -- | X | -- | -- | No | No |
| Aluminum | -- | -- | X | -- | -- | No | No |
| Antimony | -- | -- | -- | X | -- | No | No |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes |
| Beryllium | -- | -- | X | -- | -- | No | No |
| Cadmium | -- | -- | -- | X | -- | No | No |
| Chromium | -- | -- | X | -- | -- | No | No |
| Cobalt | -- | -- | -- | -- | -- | No | Yes |
| Copper | -- | -- | X | -- | -- | No | No |
| Iron | -- | -- | -- | -- | -- | No | Yes |
| Lead | -- | -- | X | -- | -- | No | No |
| Manganese | -- | -- | -- | -- | -- | No | Yes |
| Mercury | -- | -- | -- | X | -- | No | No |
| Nickel | -- | -- | -- | X | -- | No | No |
| Selenium | -- | -- | -- | X | -- | No | No |
| Silver | -- | -- | -- | X | -- | No | No |
| Thallium | -- | -- | -- | X | -- | No | No |
| Vanadium | -- | -- | -- | X | -- | No | No |
| Zinc | -- | -- | X | -- | -- | No | No |
| **AOC 5 - Possible Dump** | | | | | | | Yes |
| 1,1,1-Trichloroethane | -- | -- | X | -- | -- | -- | No |
| 1,1,2,2-Tetrachloroethane | -- | -- | -- | X | -- | -- | No |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | -- | -- | X | -- | -- | -- | No |
| 1,1,2-Trichloroethane | -- | -- | -- | X | -- | -- | No |
| 1,1-Dichloroethane | -- | -- | X | -- | -- | -- | No |
| 1,1-Dichloroethene | -- | -- | X | -- | -- | -- | No |
| 1,2,3-Trichlorobenzene | -- | -- | -- | -- | -- | -- | Yes |
| 1,2,4-Trichlorobenzene | -- | -- | -- | X | -- | -- | No |
| 1,2-Dibromo-3-chloropropane | -- | -- | -- | X | -- | -- | No |
| 1,2-Dibromoethane (EDB) | -- | -- | -- | X | -- | -- | No |
| 1,2-Dichlorobenzene | -- | -- | X | -- | -- | -- | No |

**Table 5-37**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Groundwater Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison and Summary Table[4] |
|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | | |
| 1,2-Dichloroethane | -- | -- | -- | X | -- | -- | No |
| 1,2-Dichloropropane | -- | -- | -- | X | -- | -- | No |
| 1,3-Dichlorobenzene | -- | -- | X | -- | -- | -- | No |
| 1,3-Dichloropropane | -- | -- | X | -- | -- | -- | No |
| 1,4-Dichlorobenzene | -- | -- | -- | X | -- | -- | No |
| 2-Butanone (MEK) | -- | -- | X | -- | -- | -- | No |
| 2-Hexanone | -- | -- | -- | X | -- | -- | No |
| 4-Methyl-2-pentanone (MIBK) | -- | -- | X | -- | -- | -- | No |
| Acetone | -- | -- | X | -- | -- | -- | No |
| Benzene | -- | -- | -- | X | -- | -- | No |
| Bromochloromethane | -- | -- | X | -- | -- | -- | No |
| Bromodichloromethane | -- | -- | -- | X | -- | -- | No |
| Bromoform | -- | -- | X | -- | -- | -- | No |
| Bromomethane | -- | -- | -- | X | -- | -- | No |
| Carbon disulfide | -- | -- | X | -- | -- | -- | No |
| Carbon Tetrachloride | -- | -- | -- | X | -- | -- | No |
| Chlorobenzene | -- | -- | X | -- | -- | -- | No |
| Chloroethane | -- | -- | X | -- | -- | -- | No |
| Chloroform | -- | -- | -- | X | -- | -- | No |
| Chloromethane | -- | -- | X | -- | -- | -- | No |
| cis-1,2-Dichloroethene | -- | -- | X | -- | -- | -- | No |
| cis-1,3-Dichloropropene | -- | -- | -- | X | -- | -- | No |
| Cumene | -- | -- | X | -- | -- | -- | No |
| Cyclohexane | -- | -- | X | -- | -- | -- | No |
| Dibromochloromethane | -- | -- | -- | X | -- | -- | No |
| Dichlorodifluoromethane | -- | -- | X | -- | -- | -- | No |
| Ethylbenzene | -- | -- | X | -- | -- | -- | No |
| m,p-Xylene | -- | -- | X | -- | -- | -- | No |
| Methyl acetate | -- | -- | X | -- | -- | -- | No |
| Methyl tert-butyl ether (MTBE) | -- | -- | X | -- | -- | -- | No |
| Methylcyclohexane | X | -- | -- | -- | -- | -- | No |
| Methylene chloride | -- | -- | X | -- | -- | -- | No |
| o-Xylene | -- | -- | X | -- | -- | -- | No |
| Styrene | -- | -- | X | -- | -- | -- | No |
| Tetrachloroethene (PCE) | -- | -- | X | -- | -- | -- | No |
| Toluene | -- | -- | X | -- | -- | -- | No |
| trans-1,2-Dichloroethene | -- | -- | X | -- | -- | -- | No |
| trans-1,3-Dichloropropene | -- | -- | -- | X | -- | -- | No |
| Trichlorofluoromethane | -- | -- | X | -- | -- | -- | No |
| Vinyl chloride | -- | -- | -- | X | -- | -- | No |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | -- | X | -- | -- | No |
| 1,4-Dioxane | -- | -- | -- | X | -- | -- | No |
| 2,2'-Oxybis(1-chloropropane) | -- | -- | X | -- | -- | -- | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | X | -- | -- | -- | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | No |

**Table 5-37**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Groundwater Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison and Summary Table[4] |
|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | | |
| 2,4,6-Trichlorophenol | -- | -- | -- | X | -- | -- | No |
| 2,4-Dichlorophenol | -- | -- | -- | X | -- | -- | No |
| 2,4-Dimethylphenol | -- | -- | X | -- | -- | -- | No |
| 2,4-Dinitrotoluene | -- | -- | -- | X | -- | -- | No |
| 2,6-Dinitrotoluene | -- | -- | -- | X | -- | -- | No |
| 2-Chloronaphthalene | -- | -- | X | -- | -- | -- | No |
| 2-Chlorophenol | -- | -- | -- | X | -- | -- | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | No |
| 2-Nitroaniline | -- | -- | -- | X | -- | -- | No |
| 2-Nitrophenol | -- | -- | -- | X | -- | -- | No |
| 3,3'-Dichlorobenzidine | -- | -- | -- | X | -- | -- | No |
| 3-Nitroaniline | -- | -- | -- | X | -- | -- | No |
| 4,6-Dinitro-2-methylphenol | -- | -- | -- | X | -- | -- | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | No |
| 4-Chloro-3-methylphenol | -- | -- | X | -- | -- | -- | No |
| 4-Chloroaniline | -- | -- | -- | X | -- | -- | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | No |
| 4-Nitroaniline | -- | -- | -- | X | -- | -- | No |
| 4-Nitrophenol | -- | -- | -- | X | -- | -- | No |
| Acetophenone | -- | -- | X | -- | -- | -- | No |
| Atrazine | -- | -- | -- | X | -- | -- | No |
| Benzaldehyde | -- | -- | X | -- | -- | -- | No |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | No |
| Biphenyl (Diphenyl) | -- | -- | -- | X | -- | -- | No |
| Bis(2-chloroethoxy)methane | -- | -- | -- | X | -- | -- | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | -- | -- | -- | X | -- | -- | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | -- | X | -- | -- | No |
| Caprolactam | -- | -- | X | -- | -- | -- | No |
| Carbazole | -- | -- | X | -- | -- | -- | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | No |
| Dibenzofuran | -- | -- | -- | X | -- | -- | No |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | No |
| Hexachlorobutadiene | -- | -- | -- | X | -- | -- | No |
| Hexachlorocyclopentadiene | -- | -- | -- | X | -- | -- | No |
| Hexachloroethane | -- | -- | -- | X | -- | -- | No |
| Isophorone | -- | -- | X | -- | -- | -- | No |
| Nitrobenzene | -- | -- | -- | X | -- | -- | No |
| N-Nitrosodi-n-propylamine | -- | -- | -- | X | -- | -- | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | No |
| Pentachlorophenol | -- | -- | -- | X | -- | -- | No |
| Phenol | -- | -- | X | -- | -- | -- | No |

**Table 5-37**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Groundwater Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison and Summary Table[4] |
|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | | |
| 1-Methylnaphthalene | -- | -- | X | -- | -- | No | No |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes |
| Acenaphthene | -- | -- | X | -- | -- | No | No |
| Acenaphthylene | -- | -- | X | -- | -- | No | No |
| Anthracene | -- | -- | X | -- | -- | No | No |
| Benzo(a)anthracene | -- | -- | -- | X | -- | No | No |
| Benzo(a)pyrene | -- | -- | -- | X | -- | No | No |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes |
| Benzo(g,h,i)perylene | -- | -- | X | -- | -- | No | No |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | No | Yes |
| Chrysene | -- | -- | -- | -- | -- | Yes | Yes |
| Dibenz(a,h)anthracene | -- | -- | -- | X | -- | No | No |
| Fluoranthene | -- | -- | -- | -- | -- | No | Yes |
| Fluorene | -- | -- | X | -- | -- | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | -- | X | -- | -- | No | No |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes |
| Phenanthrene | -- | -- | -- | -- | -- | Yes | Yes |
| Pyrene | -- | -- | -- | -- | -- | No | Yes |
| PCB-1016 (Aroclor 1016) | -- | -- | -- | X | -- | -- | No |
| PCB-1221 (Aroclor 1221) | -- | -- | -- | X | -- | -- | No |
| PCB-1232 (Aroclor 1232) | -- | -- | -- | X | -- | -- | No |
| PCB-1242 (Aroclor 1242) | -- | -- | -- | X | -- | -- | No |
| PCB-1248 (Aroclor 1248) | -- | -- | -- | X | -- | -- | No |
| PCB-1254 (Aroclor 1254) | -- | -- | -- | X | -- | -- | No |
| PCB-1260 (Aroclor 1260) | -- | -- | -- | X | -- | -- | No |
| PCB-1262 (Aroclor 1262) | -- | -- | -- | X | -- | -- | No |
| PCB-1268 (Aroclor 1268) | -- | -- | -- | X | -- | -- | No |
| Aluminum | -- | -- | -- | -- | -- | No | Yes |
| Antimony | -- | -- | -- | X | -- | No | No |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes |
| Beryllium | -- | -- | X | -- | -- | No | No |
| Cadmium | -- | -- | -- | X | -- | No | No |
| Chromium | -- | -- | X | -- | -- | No | No |
| Cobalt | -- | -- | -- | -- | -- | No | Yes |
| Copper | -- | -- | X | -- | -- | No | No |
| Iron | -- | -- | -- | -- | -- | No | Yes |
| Lead | -- | -- | X | -- | -- | No | No |
| Manganese | -- | -- | -- | -- | -- | No | Yes |
| Mercury | -- | -- | -- | X | -- | No | No |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes |
| Selenium | -- | -- | -- | X | -- | No | No |
| Silver | -- | -- | -- | X | -- | No | No |
| Thallium | -- | -- | -- | X | -- | No | No |
| Vanadium | -- | -- | -- | X | -- | No | No |

**Table 5-37**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Groundwater Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison and Summary Table[4] |
|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | | |
| Zinc | -- | -- | X | -- | -- | No | No |

[1]As presented in Subsection 5.1.1.1, analytes without screening levels do not advance to the screening level comparison step.
Analytes without screening levels that are "unlikely" to be DoD-related are noted in Table 5-16.
There are no groundwater analytes that are "likely to be" or "potentially" DoD-related without human health screening levels.

[2]As presented in Subsection 5.2, analytes that were never detected in a medium within an AOC/Subarea do not advance to the screening level comparison step. A summary of non-detected analytes and the relationship of the LOQ to the SLs is presented in Table 5-22.

[3]The "potential for site-related release" is based on the background comparisons presented in Subsection 5.4.2.

[4]The analyte does not advance to the sample by sample screening level comparison if there is no screening level, if it is never detected, or if it is a PAH or metal and is not considered to be potentially resulting from a site-related release based on the aggregate results from the exposure interval background comparisons.

[5]The analyte is not presented on the screening summary tables if there is no screening level, if it is never detected, or if it is a PAH or metal and is not considered to be potentially resulting from a site-related release.

**Table 5-38**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Soil Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs |
| **AOC 1** | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | -- | -- | -- | -- | X | -- | -- | -- | No | No | No | No |
| 2,4-Dinitrophenol | -- | -- | -- | -- | X | -- | -- | -- | No | No | No | No |
| Picric acid | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes |
| Aluminum | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | Yes | Yes | No | Yes | Yes | Yes | No |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Chromium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Iron | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Silver | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Thallium | -- | -- | -- | -- | -- | No | No | No | No | No | No | No |
| Vanadium | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **AOC 3** | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 1,1,2,2-Tetrachloroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 1,1,2-Trichloroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 1,1-Dichloroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 1,1-Dichloroethene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 1,2,3-Trichlorobenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 1,2,4-Trichlorobenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 1,2-Dibromo-3-chloropropane | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | N/A |
| 1,2-Dibromoethane (EDB) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 1,2-Dichlorobenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 1,2-Dichloroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 1,2-Dichloropropane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 1,3-Dichlorobenzene | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | N/A |
| 1,3-Dichloropropane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 1,4-Dichlorobenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 2-Butanone (MEK) | -- | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes | N/A |
| 2-Hexanone | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 4-Methyl-2-pentanone (MIBK) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Acetone | -- | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes | N/A |
| Benzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |

**Table 5-38**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Soil Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs |
| Bromochloromethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Bromodichloromethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Bromoform | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Bromomethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Carbon disulfide | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Carbon Tetrachloride | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Chlorobenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Chloroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Chloroform | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Chloromethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| cis-1,2-Dichloroethene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| cis-1,3-Dichloropropene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Cumene | -- | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes | N/A |
| Cyclohexane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Dibromochloromethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Dichlorodifluoromethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Ethylbenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| m,p-Xylene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Methyl acetate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Methyl tert-butyl ether (MTBE) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Methylcyclohexane | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | N/A |
| Methylene chloride | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| o-Xylene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Styrene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Tetrachloroethene (PCE) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Toluene | -- | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes | N/A |
| trans-1,2-Dichloroethene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| trans-1,3-Dichloropropene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Trichlorofluoromethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Vinyl chloride | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | N/A |
| 1,4-Dioxane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 2,2'-Oxybis(1-chloropropane) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 2,3,4,6-Tetrachlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 2,4,6-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 2,4-Dichlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 2,4-Dimethylphenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 2,4-Dinitrochlorobenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 2,4-Dinitrophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 2,6-Dinitrotoluene | -- | -- | -- | -- | X | -- | -- | -- | No | No | No | N/A |
| 2-Chloronaphthalene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 2-Chlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |

**Table 5-38**
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**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs |
| 2-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 2-Nitrophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 3,3'-Dichlorobenzidine | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 3-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 4,6-Dinitro-2-methylphenol | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | N/A |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | N/A |
| 4-Chloro-3-methylphenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | N/A |
| 4-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 4-Nitrophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Acetophenone | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Atrazine | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Benzaldehyde | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | N/A |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Biphenyl (Diphenyl) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Bis(2-chloroethoxy)methane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | N/A |
| Bis(2-ethylhexyl)phthalate | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | N/A |
| Caprolactam | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Carbazole | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | N/A |
| Cresols, m- & p- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | N/A |
| Dibenzofuran | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | N/A |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | N/A |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | N/A |
| Hexachlorobutadiene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Hexachlorocyclopentadiene | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | N/A |
| Hexachloroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Isophorone | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Nitrobenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| N-Nitrosodi-n-propylamine | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | N/A |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Pentachlorophenol | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | N/A |
| Phenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Acenaphthylene | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Anthracene | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |

**Table 5-38**
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**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Chrysene | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Dibenz(a,h)anthracene | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Fluorene | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Naphthalene | -- | -- | -- | -- | -- | Yes | No | -- | Yes | Yes | No | N/A |
| Phenanthrene | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Pyrene | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Picric acid | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| PCB-1016 (Aroclor 1016) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| PCB-1221 (Aroclor 1221) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| PCB-1232 (Aroclor 1232) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| PCB-1242 (Aroclor 1242) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| PCB-1248 (Aroclor 1248) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| PCB-1254 (Aroclor 1254) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| PCB-1260 (Aroclor 1260) | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | N/A |
| PCB-1262 (Aroclor 1262) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| PCB-1268 (Aroclor 1268) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | N/A |
| Aluminum | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Arsenic | -- | -- | -- | -- | -- | No | Yes | -- | Yes | No | Yes | N/A |
| Barium | -- | -- | -- | -- | -- | No | No | -- | No | No | No | N/A |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Cadmium | -- | -- | -- | -- | -- | Yes | No | -- | Yes | Yes | No | N/A |
| Chromium | -- | -- | -- | -- | -- | No | No | -- | No | No | No | N/A |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Iron | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Mercury | -- | -- | -- | -- | -- | No | Yes | -- | Yes | No | Yes | N/A |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Silver | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Thallium | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Vanadium | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | -- | Yes | Yes | Yes | N/A |
| **AOC 4 - Discrete** | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4-Dinitrophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Picric acid | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| **AOC 4 - ISM** | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | -- | -- | -- | -- | X | -- | -- | -- | No | No | No | No |

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**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs |
| 2,4-Dinitrophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Picric acid | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| **AOC 5 - Boiler House** | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| 1,4-Dioxane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4,6-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4-Dichlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4-Dimethylphenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,6-Dinitrotoluene | -- | -- | -- | -- | X | -- | -- | -- | No | No | No | No |
| 2-Chloronaphthalene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Chlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Nitrophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 3,3'-Dichlorobenzidine | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 3-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4,6-Dinitro-2-methylphenol | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Chloro-3-methylphenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Nitrophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Acetophenone | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Atrazine | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Benzaldehyde | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Biphenyl (Diphenyl) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Bis(2-chloroethoxy)methane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Caprolactam | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Carbazole | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Dibenzofuran | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Hexachlorobutadiene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |

**Table 5-38**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Soil Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs |
| Hexachlorocyclopentadiene | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Hexachloroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Isophorone | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Nitrobenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| N-Nitrosodi-n-propylamine | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Pentachlorophenol | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | No | No | Yes | Yes | No | No | Yes |
| Acenaphthene | -- | -- | -- | -- | -- | No | No | Yes | Yes | No | No | Yes |
| Acenaphthylene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Anthracene | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Chrysene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Dibenz(a,h)anthracene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Fluoranthene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Fluorene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Naphthalene | -- | -- | -- | -- | -- | No | No | Yes | Yes | No | No | Yes |
| Phenanthrene | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Pyrene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Aluminum | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | No | Yes | Yes | No | No | Yes |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | No | Yes | Yes | Yes | No |
| Cadmium | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Chromium | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Iron | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Silver | -- | -- | X | -- | -- | No | No | No | No | No | No | No |
| Thallium | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Vanadium | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

**Table 5-38**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Soil Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs |
| **AOC 5 - Coal Aggregate Bins** | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| 1,4-Dioxane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4,6-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4-Dichlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4-Dimethylphenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,6-Dinitrotoluene | -- | -- | -- | -- | X | -- | -- | -- | No | No | No | No |
| 2-Chloronaphthalene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Chlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Nitrophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 3,3'-Dichlorobenzidine | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 3-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4,6-Dinitro-2-methylphenol | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Chloro-3-methylphenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Nitrophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Acetophenone | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Atrazine | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Benzaldehyde | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Biphenyl (Diphenyl) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Bis(2-chloroethoxy)methane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Caprolactam | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Carbazole | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Dibenzofuran | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Hexachlorobutadiene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Hexachloroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |

**Table 5-38**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Soil Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs |
| Isophorone | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Nitrobenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| N-Nitrosodi-n-propylamine | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Pentachlorophenol | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Acenaphthylene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Anthracene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Chrysene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Dibenz(a,h)anthracene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Fluorene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Phenanthrene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Pyrene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Aluminum | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Chromium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Iron | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Silver | -- | -- | X | -- | -- | No | No | No | No | No | No | No |
| Thallium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Vanadium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **AOC 5 - Coal Storage Area** | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |

**Table 5-38**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Soil Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs |
| 1,4-Dioxane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4,6-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4-Dichlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4-Dimethylphenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,6-Dinitrotoluene | -- | -- | -- | -- | X | -- | -- | -- | No | No | No | No |
| 2-Chloronaphthalene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Chlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Nitrophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 3,3'-Dichlorobenzidine | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 3-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4,6-Dinitro-2-methylphenol | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Chloro-3-methylphenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Nitrophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Acetophenone | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Atrazine | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Benzaldehyde | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Biphenyl (Diphenyl) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Bis(2-chloroethoxy)methane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Caprolactam | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Carbazole | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Dibenzofuran | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Hexachlorobutadiene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Hexachloroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Isophorone | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Nitrobenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |

**Table 5-38**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Soil Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs |
| N-Nitrosodi-n-propylamine | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Pentachlorophenol | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Acenaphthylene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Anthracene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Chrysene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Dibenz(a,h)anthracene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Fluorene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Phenanthrene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Pyrene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Aluminum | -- | -- | -- | -- | -- | No | No | Yes | Yes | No | No | Yes |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Chromium | -- | -- | -- | -- | -- | No | No | Yes | Yes | No | No | Yes |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Iron | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Silver | -- | -- | X | -- | -- | No | No | No | No | No | No | No |
| Thallium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Vanadium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **AOC 5 - Electric Substation** | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| 1,4-Dioxane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |

**Table 5-38**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Soil Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs |
| 2,3,4,6-Tetrachlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4,6-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4-Dichlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4-Dimethylphenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,6-Dinitrotoluene | -- | -- | -- | -- | X | -- | -- | -- | No | No | No | No |
| 2-Chloronaphthalene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Chlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Nitrophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 3,3'-Dichlorobenzidine | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 3-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4,6-Dinitro-2-methylphenol | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Chloro-3-methylphenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Nitrophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Acetophenone | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Atrazine | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Benzaldehyde | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Biphenyl (Diphenyl) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Bis(2-chloroethoxy)methane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Caprolactam | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Carbazole | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Dibenzofuran | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Hexachlorobutadiene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Hexachloroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Isophorone | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Nitrobenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| N-Nitrosodi-n-propylamine | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |

**Table 5-38**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Soil Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs |
| Pentachlorophenol | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Acenaphthylene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Anthracene | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Chrysene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Dibenz(a,h)anthracene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Fluoranthene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Fluorene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Phenanthrene | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Pyrene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| PCB-1016 (Aroclor 1016) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| PCB-1221 (Aroclor 1221) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| PCB-1232 (Aroclor 1232) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| PCB-1242 (Aroclor 1242) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| PCB-1248 (Aroclor 1248) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| PCB-1254 (Aroclor 1254) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| PCB-1260 (Aroclor 1260) | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes |
| PCB-1262 (Aroclor 1262) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| PCB-1268 (Aroclor 1268) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Aluminum | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Chromium | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Iron | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Silver | -- | -- | X | -- | -- | No | No | No | No | No | No | No |

**Table 5-38**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Soil Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs |
| Thallium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Vanadium | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **AOC 5 - Possible Dump** | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1,1,2,2-Tetrachloroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1,1,2-Trichloroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1,1-Dichloroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1,1-Dichloroethene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1,2,3-Trichlorobenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1,2,4-Trichlorobenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1,2-Dibromo-3-chloropropane | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| 1,2-Dibromoethane (EDB) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1,2-Dichlorobenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1,2-Dichloroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1,2-Dichloropropane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1,3-Dichlorobenzene | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | No |
| 1,3-Dichloropropane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1,4-Dichlorobenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Butanone (MEK) | -- | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes | Yes |
| 2-Hexanone | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Methyl-2-pentanone (MIBK) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Acetone | -- | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes | Yes |
| Benzene | -- | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes | Yes |
| Bromochloromethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Bromodichloromethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Bromoform | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Bromomethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Carbon disulfide | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Carbon Tetrachloride | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Chlorobenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Chloroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Chloroform | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Chloromethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| cis-1,2-Dichloroethene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| cis-1,3-Dichloropropene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Cumene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Cyclohexane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Dibromochloromethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Dichlorodifluoromethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Ethylbenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| m,p-Xylene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Methyl acetate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Methyl tert-butyl ether (MTBE) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |

**Table 5-38**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Soil Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs |
| Methylcyclohexane | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | No |
| Methylene chloride | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| o-Xylene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Styrene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Tetrachloroethene (PCE) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Toluene | -- | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes | Yes |
| trans-1,2-Dichloroethene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| trans-1,3-Dichloropropene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Trichlorofluoromethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Vinyl chloride | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| 1,4-Dioxane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4,6-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4-Dichlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4-Dimethylphenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2,6-Dinitrotoluene | -- | -- | -- | -- | X | -- | -- | -- | No | No | No | No |
| 2-Chloronaphthalene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Chlorophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 2-Nitrophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 3,3'-Dichlorobenzidine | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 3-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4,6-Dinitro-2-methylphenol | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Chloro-3-methylphenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Nitroaniline | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 4-Nitrophenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Acetophenone | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Atrazine | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Benzaldehyde | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Biphenyl (Diphenyl) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Bis(2-chloroethoxy)methane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Caprolactam | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Carbazole | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |

**Table 5-38**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Soil Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs |
| Dibenzofuran | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | -- | -- | No | No | No | No |
| di-n-Butyl phthalate | -- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Hexachlorobutadiene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Hexachloroethane | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Isophorone | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Nitrobenzene | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| N-Nitrosodi-n-propylamine | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Pentachlorophenol | -- | -- | -- | X | -- | -- | -- | -- | No | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Acenaphthylene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Anthracene | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Chrysene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Dibenz(a,h)anthracene | -- | -- | X | -- | -- | No | No | No | No | No | No | No |
| Fluoranthene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Fluorene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Phenanthrene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Pyrene | -- | -- | -- | -- | -- | No | No | No | Yes | No | No | No |
| PCB-1016 (Aroclor 1016) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| PCB-1221 (Aroclor 1221) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| PCB-1232 (Aroclor 1232) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| PCB-1242 (Aroclor 1242) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| PCB-1248 (Aroclor 1248) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| PCB-1254 (Aroclor 1254) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| PCB-1260 (Aroclor 1260) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| PCB-1262 (Aroclor 1262) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| PCB-1268 (Aroclor 1268) | -- | -- | X | -- | -- | -- | -- | -- | No | No | No | No |
| Aluminum | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

**Table 5-38**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Human Health - Soil Exposure**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs | 0 to 10 ft bgs |
| Barium | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Chromium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cobalt | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Iron | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Silver | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Thallium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Vanadium | -- | -- | -- | -- | -- | No | Yes | Yes | Yes | No | Yes | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

[1]As presented in Subsection 5.1.1.1, analytes without screening levels do not advance to the screening level comparison step.
Analytes without screening levels that are "unlikely" to be DoD-related are noted in Table 5-17.
There are no soil analytes that are "likely to be" or "potentially" DoD-related without human health screening levels.

[2]As presented in Subsection 5.2, analytes that were never detected in a medium within an AOC/Subarea do not advance to the screening level comparison step. A summary of non-detected analytes and the relationship of the LOQ to the SLs is presented in Table 5-23.

[3]The "potential for site-related release" is based on the background comparisons presented in Subsection 5.4.2. The result noted in this table is for all geologic units within the AOC/Subarea combined. If at least one of the geologic unit background comparisons within the interval showed the potential for site-related release, the potential for such was considered "yes".

[4]The analyte does not advance to the sample by sample screening level comparison if there is no screening level, if it is never detected, or if it is a PAH or metal and is not considered to be potentially resulting from a site-related release based on the aggregate results from the exposure interval background comparisons.

[5]The analyte is not presented on the screening summary tables if there is no screening level, if it is never detected, or if it is a PAH or metal and is not considered to be potentially resulting from a site-related release based on the results from the exposure interval-specific background comparisons.

**Table 5-39**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Plants**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| **AOC 1** | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dinitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Picric acid | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Chromium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Silver | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Thallium | -- | -- | -- | -- | -- | No | No | No | No | No |
| Vanadium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| **AOC 3** | -- | -- | | | | | | | | |
| 1,1,1-Trichloroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,1,2,2-Tetrachloroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,1,2-Trichloroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,1-Dichloroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,1-Dichloroethene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,2,3-Trichlorobenzene | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 1,2,4-Trichlorobenzene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,2-Dibromo-3-chloropropane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,2-Dibromoethane (EDB) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,2-Dichlorobenzene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,2-Dichloroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,2-Dichloropropane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,3-Dichlorobenzene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,3-Dichloropropane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,4-Dichlorobenzene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Butanone (MEK) | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 2-Hexanone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Methyl-2-pentanone (MIBK) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Acetone | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Benzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Bromochloromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bromodichloromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |

**Table 5-39**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Plants**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Bromoform | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bromomethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbon disulfide | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbon Tetrachloride | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Chlorobenzene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Chloroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Chloroform | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Chloromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| cis-1,2-Dichloroethene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| cis-1,3-Dichloropropene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Cumene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Cyclohexane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Dibromochloromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Dichlorodifluoromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Ethylbenzene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| m,p-Xylene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Methyl acetate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Methyl tert-butyl ether (MTBE) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Methylcyclohexane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Methylene chloride | -- | -- | X | -- | -- | -- | -- | No | No | No |
| o-Xylene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Styrene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Tetrachloroethene (PCE) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Toluene | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes |
| trans-1,2-Dichloroethene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| trans-1,3-Dichloropropene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Trichlorofluoromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Vinyl chloride | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,2,4,5-Tetrachlorobenzene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,4-Dioxane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,3,4,6-Tetrachlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4,6-Trichlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4-Dichlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4-Dimethylphenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dinitrochlorobenzene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dinitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,6-Dinitrotoluene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Chloronaphthalene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Chlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 2-Nitrophenol | -- | X | -- | -- | -- | -- | -- | No | No | No |

**Table 5-39**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Plants**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| 3,3'-Dichlorobenzidine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 3-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 4,6-Dinitro-2-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloro-3-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitrophenol | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Acetophenone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Atrazine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Benzaldehyde | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Benzyl butyl phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Biphenyl (Diphenyl) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethoxy)methane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-ethylhexyl)phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbazole | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Cresols, m- & p- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Dibenzofuran | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Octyl phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Hexachlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobutadiene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachloroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Isophorone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Nitrobenzene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| N-Nitrosodi-n-propylamine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| N-Nitrosodiphenylamine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Acenaphthylene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Anthracene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Benzo(a)pyrene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Benzo(g,h,i)perylene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |

**Table 5-39**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Plants**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Chrysene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Dibenz(a,h)anthracene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Fluoranthene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Fluorene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Naphthalene | -- | -- | -- | -- | -- | Yes | No | Yes | Yes | No |
| Phenanthrene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Pyrene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| High Molecular Weight PAHs | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Low Molecular Weight PAHs | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Picric acid | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1016 (Aroclor 1016) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1221 (Aroclor 1221) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1232 (Aroclor 1232) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1242 (Aroclor 1242) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1248 (Aroclor 1248) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1254 (Aroclor 1254) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1260 (Aroclor 1260) | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| PCB-1262 (Aroclor 1262) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1268 (Aroclor 1268) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Barium | -- | -- | -- | -- | -- | No | No | No | No | No |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | Yes | No | Yes | Yes | No |
| Chromium | -- | -- | -- | -- | -- | No | No | No | No | No |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Silver | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Thallium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Vanadium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| **AOC 4 - Discrete** | -- | -- | | | | | | | | |
| 2,4-Dinitrochlorobenzene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dinitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Picric acid | -- | -- | X | -- | -- | -- | -- | No | No | No |
| **AOC 4 - ISM** | -- | -- | | | | | | | | |
| 2,4-Dinitrochlorobenzene | -- | -- | -- | -- | X | -- | -- | No | No | No |
| 2,4-Dinitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Picric acid | -- | -- | X | -- | -- | -- | -- | No | No | No |

**Table 5-39**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Plants**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| **AOC 5 - Boiler House** | -- | -- | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,4-Dioxane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,3,4,6-Tetrachlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4,6-Trichlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4-Dichlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4-Dimethylphenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,6-Dinitrotoluene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Chloronaphthalene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Chlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 2-Nitrophenol | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 3,3'-Dichlorobenzidine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 3-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 4,6-Dinitro-2-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloro-3-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitrophenol | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Acetophenone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Atrazine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Benzaldehyde | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Benzyl butyl phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Biphenyl (Diphenyl) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethoxy)methane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-ethylhexyl)phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbazole | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dibenzofuran | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Octyl phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Hexachlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobutadiene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachloroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |

**Table 5-39**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Plants**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Isophorone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Nitrobenzene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| N-Nitrosodi-n-propylamine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| N-Nitrosodiphenylamine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Acenaphthene | -- | -- | X | -- | -- | No | No | No | No | No |
| Acenaphthylene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Anthracene | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Benzo(a)pyrene | -- | X | -- | -- | -- | No | No | No | No | No |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Benzo(g,h,i)perylene | -- | X | -- | -- | -- | No | No | No | No | No |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Chrysene | -- | X | -- | -- | -- | No | No | No | No | No |
| Dibenz(a,h)anthracene | -- | X | -- | -- | -- | No | No | No | No | No |
| Fluoranthene | -- | X | -- | -- | -- | No | No | No | No | No |
| Fluorene | -- | X | -- | -- | -- | No | No | No | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | X | -- | -- | -- | No | No | No | No | No |
| Naphthalene | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Phenanthrene | -- | X | -- | -- | -- | No | Yes | No | No | No |
| Pyrene | -- | X | -- | -- | -- | No | No | No | No | No |
| High Molecular Weight PAHs | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Low Molecular Weight PAHs | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Chromium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Silver | -- | -- | X | -- | -- | No | No | No | No | No |
| Thallium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Vanadium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| **AOC 5 - Coal Aggregate Bins** | -- | -- | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | X | -- | -- | -- | -- | -- | -- | No | No | No |

**Table 5-39**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Plants**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| 1,4-Dioxane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,3,4,6-Tetrachlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4,6-Trichlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4-Dichlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4-Dimethylphenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,6-Dinitrotoluene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Chloronaphthalene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Chlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 2-Nitrophenol | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 3,3'-Dichlorobenzidine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 3-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 4,6-Dinitro-2-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloro-3-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitrophenol | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Acetophenone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Atrazine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Benzaldehyde | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Benzyl butyl phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Biphenyl (Diphenyl) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethoxy)methane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-ethylhexyl)phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbazole | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dibenzofuran | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Octyl phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Hexachlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobutadiene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachloroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Isophorone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Nitrobenzene | X | -- | -- | -- | -- | -- | -- | No | No | No |

**Table 5-39**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Plants**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| N-Nitrosodi-n-propylamine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| N-Nitrosodiphenylamine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Acenaphthylene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Anthracene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Benzo(a)pyrene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Benzo(g,h,i)perylene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Chrysene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Dibenz(a,h)anthracene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Fluoranthene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Fluorene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Phenanthrene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Pyrene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| High Molecular Weight PAHs | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Low Molecular Weight PAHs | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Chromium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Silver | -- | -- | X | -- | -- | No | No | No | No | No |
| Thallium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Vanadium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| **AOC 5 - Coal Storage Area** | -- | -- | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,4-Dioxane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | X | -- | -- | -- | -- | -- | -- | No | No | No |

**Table 5-39**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Plants**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| 2,3,4,6-Tetrachlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4,6-Trichlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4-Dichlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4-Dimethylphenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,6-Dinitrotoluene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Chloronaphthalene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Chlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 2-Nitrophenol | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 3,3'-Dichlorobenzidine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 3-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 4,6-Dinitro-2-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloro-3-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitrophenol | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Acetophenone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Atrazine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Benzaldehyde | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Benzyl butyl phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Biphenyl (Diphenyl) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethoxy)methane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-ethylhexyl)phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbazole | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dibenzofuran | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Octyl phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Hexachlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobutadiene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachloroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Isophorone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Nitrobenzene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| N-Nitrosodi-n-propylamine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| N-Nitrosodiphenylamine | X | -- | -- | -- | -- | -- | -- | No | No | No |

**Table 5-39**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Plants**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| Acenaphthylene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Anthracene | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| Benzo(a)pyrene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| Benzo(g,h,i)perylene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| Chrysene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Dibenz(a,h)anthracene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Fluoranthene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Fluorene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | X | -- | -- | -- | No | Yes | No | No | No |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| Phenanthrene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Pyrene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| High Molecular Weight PAHs | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Low Molecular Weight PAHs | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| Barium | -- | -- | -- | -- | -- | No | Yes | Yes | No | No |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| Cadmium | -- | -- | -- | -- | -- | No | Yes | Yes | No | No |
| Chromium | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| Manganese | -- | -- | -- | -- | -- | No | Yes | Yes | No | No |
| Mercury | -- | -- | -- | -- | -- | No | Yes | Yes | No | No |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| Silver | -- | -- | X | -- | -- | No | No | No | No | No |
| Thallium | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| Vanadium | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | No | No |
| **AOC 5 - Electric Substation** | -- | -- | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,4-Dioxane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,3,4,6-Tetrachlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |

**Table 5-39**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Plants**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| 2,4,6-Trichlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4-Dichlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4-Dimethylphenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,6-Dinitrotoluene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Chloronaphthalene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Chlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 2-Nitrophenol | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 3,3'-Dichlorobenzidine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 3-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 4,6-Dinitro-2-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloro-3-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitrophenol | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Acetophenone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Atrazine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Benzaldehyde | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Benzyl butyl phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Biphenyl (Diphenyl) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethoxy)methane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-ethylhexyl)phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbazole | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dibenzofuran | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Octyl phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Hexachlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobutadiene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachloroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Isophorone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Nitrobenzene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| N-Nitrosodi-n-propylamine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| N-Nitrosodiphenylamine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | No | No | No |

**Table 5-39**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Plants**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Acenaphthylene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Anthracene | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Benzo(a)pyrene | -- | X | -- | -- | -- | No | No | No | No | No |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Benzo(g,h,i)perylene | -- | X | -- | -- | -- | No | No | No | No | No |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Chrysene | -- | X | -- | -- | -- | No | No | No | No | No |
| Dibenz(a,h)anthracene | -- | X | -- | -- | -- | No | No | No | No | No |
| Fluoranthene | -- | X | -- | -- | -- | No | No | No | No | No |
| Fluorene | -- | X | -- | -- | -- | No | No | No | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | X | -- | -- | -- | No | No | No | No | No |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Phenanthrene | -- | X | -- | -- | -- | No | Yes | No | No | No |
| Pyrene | -- | X | -- | -- | -- | No | No | No | No | No |
| High Molecular Weight PAHs | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Low Molecular Weight PAHs | -- | X | -- | -- | -- | -- | -- | No | No | No |
| PCB-1016 (Aroclor 1016) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1221 (Aroclor 1221) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1232 (Aroclor 1232) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1242 (Aroclor 1242) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1248 (Aroclor 1248) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1254 (Aroclor 1254) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1260 (Aroclor 1260) | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| PCB-1262 (Aroclor 1262) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1268 (Aroclor 1268) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Chromium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Silver | -- | -- | X | -- | -- | No | No | No | No | No |
| Thallium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Vanadium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |

**Table 5-39**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Plants**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| **AOC 5 - Possible Dump** | -- | -- | | | | | | | | |
| 1,1,1-Trichloroethane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| 1,1,2,2-Tetrachloroethane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| 1,1,2-Trichloroethane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| 1,1-Dichloroethane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| 1,1-Dichloroethene | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| 1,2,3-Trichlorobenzene | -- | X | -- | -- | -- | -- | -- | No | No | Yes |
| 1,2,4-Trichlorobenzene | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| 1,2-Dibromo-3-chloropropane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| 1,2-Dibromoethane (EDB) | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| 1,2-Dichlorobenzene | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| 1,2-Dichloroethane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| 1,2-Dichloropropane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| 1,3-Dichlorobenzene | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| 1,3-Dichloropropane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| 1,4-Dichlorobenzene | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| 2-Butanone (MEK) | -- | X | -- | -- | -- | -- | -- | No | No | Yes |
| 2-Hexanone | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| 4-Methyl-2-pentanone (MIBK) | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Acetone | -- | X | -- | -- | -- | -- | -- | No | No | Yes |
| Benzene | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes |
| Bromochloromethane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Bromodichloromethane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Bromoform | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Bromomethane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Carbon disulfide | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Carbon Tetrachloride | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Chlorobenzene | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Chloroethane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Chloroform | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Chloromethane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| cis-1,2-Dichloroethene | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| cis-1,3-Dichloropropene | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Cumene | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Cyclohexane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Dibromochloromethane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Dichlorodifluoromethane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Ethylbenzene | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| m,p-Xylene | -- | -- | X | -- | -- | -- | -- | No | No | Yes |
| Methyl acetate | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Methyl tert-butyl ether (MTBE) | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Methylcyclohexane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Methylene chloride | -- | -- | X | -- | -- | -- | -- | No | No | Yes |

**Table 5-39**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Plants**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| o-Xylene | -- | -- | X | -- | -- | -- | -- | No | No | Yes |
| Styrene | -- | -- | X | -- | -- | -- | -- | No | No | Yes |
| Tetrachloroethene (PCE) | -- | -- | X | -- | -- | -- | -- | No | No | Yes |
| Toluene | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes |
| trans-1,2-Dichloroethene | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| trans-1,3-Dichloropropene | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Trichlorofluoromethane | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| Vinyl chloride | X | -- | -- | -- | -- | -- | -- | No | No | Yes |
| 1,2,4,5-Tetrachlorobenzene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,4-Dioxane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,3,4,6-Tetrachlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4,6-Trichlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4-Dichlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4-Dimethylphenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,6-Dinitrotoluene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Chloronaphthalene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Chlorophenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 2-Nitrophenol | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 3,3'-Dichlorobenzidine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 3-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 4,6-Dinitro-2-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloro-3-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitroaniline | -- | X | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitrophenol | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Acetophenone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Atrazine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Benzaldehyde | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Benzyl butyl phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Biphenyl (Diphenyl) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethoxy)methane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-ethylhexyl)phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbazole | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dibenzofuran | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |

**Table 5-39**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Plants**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| di-n-Butyl phthalate | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| di-n-Octyl phthalate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Hexachlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobutadiene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachloroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Isophorone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Nitrobenzene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| N-Nitrosodi-n-propylamine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| N-Nitrosodiphenylamine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Acenaphthylene | -- | X | -- | -- | -- | No | No | No | No | No |
| Anthracene | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Benzo(a)pyrene | -- | X | -- | -- | -- | No | No | No | No | No |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Benzo(g,h,i)perylene | -- | X | -- | -- | -- | No | No | No | No | No |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Chrysene | -- | X | -- | -- | -- | No | No | No | No | No |
| Dibenz(a,h)anthracene | -- | X | -- | -- | -- | No | No | No | No | No |
| Fluoranthene | -- | X | -- | -- | -- | No | No | No | No | No |
| Fluorene | -- | X | -- | -- | -- | No | No | No | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | X | -- | -- | -- | No | No | No | No | No |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Phenanthrene | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Pyrene | -- | X | -- | -- | -- | No | No | No | No | No |
| High Molecular Weight PAHs | -- | X | -- | -- | -- | -- | -- | No | No | No |
| Low Molecular Weight PAHs | -- | X | -- | -- | -- | -- | -- | No | No | No |
| PCB-1016 (Aroclor 1016) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1221 (Aroclor 1221) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1232 (Aroclor 1232) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1242 (Aroclor 1242) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1248 (Aroclor 1248) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1254 (Aroclor 1254) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1260 (Aroclor 1260) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1262 (Aroclor 1262) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1268 (Aroclor 1268) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |

**Table 5-39**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Plants**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Chromium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cobalt | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Silver | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Thallium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Vanadium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |

[1]As presented in Subsection 5.1.1.1, analytes without screening levels do not advance to the screening level comparison step.
Analytes without screening levels that are "unlikely" to be DoD-related are noted in Table 5-18.
Analytes without screening levels that are "likely to be" or "potentially" DoD-related are noted in Table 5-13.

[2]As presented in Subsection 5.2, analytes that were never detected in a medium within an AOC/Subarea do not advance to the screening level comparison step. A summary of non-detected analytes and the relationship of the LOQ to the SLs is presented in Table 5-24.

[3]The "potential for site-related release" is based on the background comparisons presented in Subsection 5.4.2. The result noted in this table is for all geologic units within the AOC/Subarea combined. If at least one of the geologic unit background comparisons within the interval showed the potential for site-related release, the potential for such was considered "yes".

[4]The analyte does not advance to the sample by sample screening level comparison if there is no screening level, if it is never detected, or if it is a PAH or metal and is not considered to be potentially resulting from a site-related release based on the aggregate results from the exposure interval background comparisons.

[5]The analyte is not presented on the screening summary tables if there is no screening level, if it is never detected, or if it is a PAH or metal and is not considered to be potentially resulting from a site-related release based on the results from the exposure interval-specific background comparisons.

**Table 5-40**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Soil Invertebrates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| **AOC 1** | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | -- | -- | -- | -- | X | -- | -- | No | No | No |
| 2,4-Dinitrophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Picric acid | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Chromium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cobalt | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Silver | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Thallium | -- | X | -- | -- | -- | No | No | No | No | No |
| Vanadium | -- | X | -- | -- | -- | No | Yes | No | No | No |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| **AOC 3** | -- | -- | | | | | | | | |
| 1,1,1-Trichloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,1,2,2-Tetrachloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,1,2-Trichloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,1-Dichloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,1-Dichloroethene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,2,3-Trichlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,2,4-Trichlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,2-Dibromo-3-chloropropane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,2-Dibromoethane (EDB) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,2-Dichlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,2-Dichloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,2-Dichloropropane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,3-Dichlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,3-Dichloropropane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,4-Dichlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Butanone (MEK) | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes |
| 2-Hexanone | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Methyl-2-pentanone (MIBK) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Acetone | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes |
| Benzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Bromochloromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bromodichloromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |

**Table 5-40**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Soil Invertebrates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Bromoform | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Bromomethane | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Carbon disulfide | -- | -- | -- | -- | X | -- | -- | No | No | No |
| Carbon Tetrachloride | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Chlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Chloroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Chloroform | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Chloromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| cis-1,2-Dichloroethene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| cis-1,3-Dichloropropene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Cumene | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes |
| Cyclohexane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Dibromochloromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Dichlorodifluoromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Ethylbenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| m,p-Xylene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Methyl acetate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Methyl tert-butyl ether (MTBE) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Methylcyclohexane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Methylene chloride | -- | -- | X | -- | -- | -- | -- | No | No | No |
| o-Xylene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Styrene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Tetrachloroethene (PCE) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Toluene | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes |
| trans-1,2-Dichloroethene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| trans-1,3-Dichloropropene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Trichlorofluoromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Vinyl chloride | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 1,4-Dioxane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4,6-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dichlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dimethylphenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dinitrochlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dinitrophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,6-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Chloronaphthalene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Chlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Nitroaniline | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Nitrophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |

**Table 5-40**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Soil Invertebrates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| 3,3'-Dichlorobenzidine | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 3-Nitroaniline | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 4,6-Dinitro-2-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloro-3-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitroaniline | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 4-Nitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Acetophenone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Atrazine | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Benzaldehyde | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Biphenyl (Diphenyl) | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Bis(2-chloroethoxy)methane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Caprolactam | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbazole | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Cresols, m- & p- | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Dibenzofuran | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Diethyl phthalate | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Dimethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Butyl phthalate | -- | -- | -- | X | -- | -- | -- | No | No | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobutadiene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachloroethane | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Isophorone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Nitrobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| N-Nitrosodi-n-propylamine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Acenaphthylene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Anthracene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |

**Table 5-40**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Soil Invertebrates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Chrysene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Dibenz(a,h)anthracene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Fluorene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Naphthalene | -- | -- | -- | -- | -- | Yes | No | No[6] | No[6] | No[6] |
| Phenanthrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Pyrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| High Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Low Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Picric acid | -- | -- | -- | X | -- | -- | -- | No | No | No |
| PCB-1016 (Aroclor 1016) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1221 (Aroclor 1221) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1232 (Aroclor 1232) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1242 (Aroclor 1242) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1248 (Aroclor 1248) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1254 (Aroclor 1254) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1260 (Aroclor 1260) | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| PCB-1262 (Aroclor 1262) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1268 (Aroclor 1268) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Barium | -- | -- | -- | -- | -- | No | No | No | No | No |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | Yes | No | Yes | Yes | No |
| Chromium | -- | -- | -- | -- | -- | No | No | No | No | No |
| Cobalt | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Silver | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Thallium | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Vanadium | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| **AOC 4 - Discrete** | -- | -- | | | | | | | | |
| 2,4-Dinitrochlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dinitrophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Picric acid | -- | -- | -- | X | -- | -- | -- | No | No | No |
| **AOC 4 - ISM** | -- | -- | | | | | | | | |
| 2,4-Dinitrochlorobenzene | -- | -- | -- | -- | X | -- | -- | No | No | No |

**Table 5-40**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Soil Invertebrates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| 2,4-Dinitrophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Picric acid | -- | -- | -- | X | -- | -- | -- | No | No | No |
| **AOC 5 - Boiler House** | -- | -- | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 1,4-Dioxane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4,6-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dichlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dimethylphenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,6-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Chloronaphthalene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Chlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Nitroaniline | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Nitrophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 3,3'-Dichlorobenzidine | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 3-Nitroaniline | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 4,6-Dinitro-2-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloro-3-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitroaniline | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 4-Nitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Acetophenone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Atrazine | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Benzaldehyde | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Biphenyl (Diphenyl) | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Bis(2-chloroethoxy)methane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbazole | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Cresols, m- & p- | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Dibenzofuran | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Diethyl phthalate | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Dimethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Butyl phthalate | -- | -- | -- | X | -- | -- | -- | No | No | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobutadiene | -- | -- | -- | X | -- | -- | -- | No | No | No |

**Table 5-40**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Soil Invertebrates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Hexachlorocyclopentadiene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachloroethane | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Isophorone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Nitrobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| N-Nitrosodi-n-propylamine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | No | Yes | No[6] | No[6] | No[6] |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Acenaphthene | -- | -- | X | -- | -- | No | No | No[6] | No[6] | No[6] |
| Acenaphthylene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Anthracene | -- | -- | -- | -- | -- | No | Yes | No[6] | No[6] | No[6] |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Chrysene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Dibenz(a,h)anthracene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Fluoranthene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Fluorene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Naphthalene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Phenanthrene | -- | -- | -- | -- | -- | No | Yes | No[6] | No[6] | No[6] |
| Pyrene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| High Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Low Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Chromium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Cobalt | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Silver | -- | X | -- | -- | -- | No | No | No | No | No |
| Thallium | -- | X | -- | -- | -- | No | Yes | No | No | No |
| Vanadium | -- | X | -- | -- | -- | No | Yes | No | No | No |

**Table 5-40**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Soil Invertebrates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| **AOC 5 - Coal Aggregate Bins** | -- | -- | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 1,4-Dioxane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4,6-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dichlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dimethylphenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,6-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Chloronaphthalene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Chlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Nitroaniline | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Nitrophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 3,3'-Dichlorobenzidine | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 3-Nitroaniline | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 4,6-Dinitro-2-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloro-3-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitroaniline | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 4-Nitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Acetophenone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Atrazine | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Benzaldehyde | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Biphenyl (Diphenyl) | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Bis(2-chloroethoxy)methane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbazole | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Cresols, m- & p- | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Dibenzofuran | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Diethyl phthalate | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Dimethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Butyl phthalate | -- | -- | -- | X | -- | -- | -- | No | No | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobutadiene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | -- | X | -- | -- | -- | No | No | No |

**Table 5-40**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Soil Invertebrates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Hexachloroethane | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Isophorone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Nitrobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| N-Nitrosodi-n-propylamine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Acenaphthylene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Anthracene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Chrysene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Dibenz(a,h)anthracene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Fluorene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Phenanthrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Pyrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| High Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Low Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Chromium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cobalt | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Silver | -- | X | -- | -- | -- | No | No | No | No | No |
| Thallium | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Vanadium | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |

**Table 5-40**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Soil Invertebrates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| **AOC 5 - Coal Storage Area** | -- | -- | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 1,4-Dioxane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4,6-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dichlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dimethylphenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,6-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Chloronaphthalene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Chlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Nitroaniline | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Nitrophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 3,3'-Dichlorobenzidine | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 3-Nitroaniline | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 4,6-Dinitro-2-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloro-3-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitroaniline | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 4-Nitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Acetophenone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Atrazine | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Benzaldehyde | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Biphenyl (Diphenyl) | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Bis(2-chloroethoxy)methane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbazole | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Cresols, m- & p- | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Dibenzofuran | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Diethyl phthalate | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Dimethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Butyl phthalate | -- | -- | -- | X | -- | -- | -- | No | No | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobutadiene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachloroethane | -- | -- | -- | X | -- | -- | -- | No | No | No |

**Table 5-40**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Soil Invertebrates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Isophorone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Nitrobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| N-Nitrosodi-n-propylamine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Acenaphthylene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Anthracene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Chrysene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Dibenz(a,h)anthracene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Fluorene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | No | Yes | No[6] | No[6] | No[6] |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Phenanthrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Pyrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| High Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Low Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Chromium | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Cobalt | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Silver | -- | X | -- | -- | -- | No | No | No | No | No |
| Thallium | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Vanadium | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| **AOC 5 - Electric Substation** | -- | -- | | | | | | | | |

**Table 5-40**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Soil Invertebrates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 1,4-Dioxane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4,6-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dichlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dimethylphenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,6-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Chloronaphthalene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Chlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Nitroaniline | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Nitrophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 3,3'-Dichlorobenzidine | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 3-Nitroaniline | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 4,6-Dinitro-2-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloro-3-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitroaniline | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 4-Nitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Acetophenone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Atrazine | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Benzaldehyde | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Biphenyl (Diphenyl) | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Bis(2-chloroethoxy)methane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbazole | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Cresols, m- & p- | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Dibenzofuran | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Diethyl phthalate | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Dimethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Butyl phthalate | -- | -- | -- | X | -- | -- | -- | No | No | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobutadiene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachloroethane | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Isophorone | X | -- | -- | -- | -- | -- | -- | No | No | No |

**Table 5-40**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Soil Invertebrates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Nitrobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| N-Nitrosodi-n-propylamine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Acenaphthylene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Anthracene | -- | -- | -- | -- | -- | No | Yes | No[6] | No[6] | No[6] |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Chrysene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Dibenz(a,h)anthracene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Fluoranthene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Fluorene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Phenanthrene | -- | -- | -- | -- | -- | No | Yes | No[6] | No[6] | No[6] |
| Pyrene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| High Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Low Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| PCB-1016 (Aroclor 1016) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1221 (Aroclor 1221) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1232 (Aroclor 1232) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1242 (Aroclor 1242) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1248 (Aroclor 1248) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1254 (Aroclor 1254) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1260 (Aroclor 1260) | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| PCB-1262 (Aroclor 1262) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1268 (Aroclor 1268) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Chromium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Cobalt | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |

**Table 5-40**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Soil Invertebrates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Mercury | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Silver | -- | X | -- | -- | -- | No | No | No | No | No |
| Thallium | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Vanadium | -- | X | -- | -- | -- | No | Yes | No | No | No |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| **AOC 5 - Possible Dump** | -- | -- | | | | | | | | |
| 1,1,1-Trichloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,1,2,2-Tetrachloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,1,2-Trichloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,1-Dichloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,1-Dichloroethene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,2,3-Trichlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,2,4-Trichlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,2-Dibromo-3-chloropropane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,2-Dibromoethane (EDB) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,2-Dichlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,2-Dichloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,2-Dichloropropane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,3-Dichlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,3-Dichloropropane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,4-Dichlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Butanone (MEK) | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes |
| 2-Hexanone | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Methyl-2-pentanone (MIBK) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Acetone | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes |
| Benzene | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes |
| Bromochloromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bromodichloromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bromoform | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Bromomethane | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Carbon disulfide | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Carbon Tetrachloride | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Chlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Chloroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Chloroform | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Chloromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| cis-1,2-Dichloroethene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| cis-1,3-Dichloropropene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Cumene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Cyclohexane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Dibromochloromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Dichlorodifluoromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |

**Table 5-40**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Soil Invertebrates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Ethylbenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| m,p-Xylene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Methyl acetate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Methyl tert-butyl ether (MTBE) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Methylcyclohexane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Methylene chloride | -- | -- | X | -- | -- | -- | -- | No | No | No |
| o-Xylene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Styrene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Tetrachloroethene (PCE) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Toluene | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes |
| trans-1,2-Dichloroethene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| trans-1,3-Dichloropropene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Trichlorofluoromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Vinyl chloride | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 1,4-Dioxane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4,6-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dichlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dimethylphenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,6-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Chloronaphthalene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2-Chlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Nitroaniline | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Nitrophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 3,3'-Dichlorobenzidine | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 3-Nitroaniline | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 4,6-Dinitro-2-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloro-3-methylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitroaniline | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 4-Nitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Acetophenone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Atrazine | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Benzaldehyde | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Biphenyl (Diphenyl) | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Bis(2-chloroethoxy)methane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | X | -- | -- | -- | -- | -- | -- | No | No | No |

**Table 5-40**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Soil Invertebrates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Bis(2-ethylhexyl)phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbazole | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Cresols, m- & p- | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Dibenzofuran | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Diethyl phthalate | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Dimethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Butyl phthalate | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobutadiene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachloroethane | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Isophorone | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Nitrobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| N-Nitrosodi-n-propylamine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Acenaphthylene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Anthracene | -- | -- | -- | -- | -- | No | Yes | No[6] | No[6] | No[6] |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Chrysene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Dibenz(a,h)anthracene | -- | -- | X | -- | -- | No | No | No[6] | No[6] | No[6] |
| Fluoranthene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Fluorene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Phenanthrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Pyrene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| High Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Low Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| PCB-1016 (Aroclor 1016) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1221 (Aroclor 1221) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1232 (Aroclor 1232) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1242 (Aroclor 1242) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1248 (Aroclor 1248) | -- | -- | X | -- | -- | -- | -- | No | No | No |

**Table 5-40**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Soil Invertebrates**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| PCB-1254 (Aroclor 1254) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1260 (Aroclor 1260) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1262 (Aroclor 1262) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1268 (Aroclor 1268) | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Chromium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cobalt | -- | X | -- | -- | -- | No | Yes | No | No | No |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Silver | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Thallium | -- | X | -- | -- | -- | Yes | Yes | No | No | No |
| Vanadium | -- | X | -- | -- | -- | No | Yes | No | No | No |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |

[1]As presented in Subsection 5.1.1.1, analytes without screening levels do not advance to the screening level comparison step.
Analytes without screening levels that are "unlikely" to be DoD-related are noted in Table 5-19.
Analytes without screening levels that are "likely to be" or "potentially" DoD-related are noted in Table 5-14.

[2]As presented in Subsection 5.2, analytes that were never detected in a medium within an AOC/Subarea do not advance to the screening level comparison step. A summary of non-detected analytes and the relationship of the LOQ to the SLs is presented in Table 5-25.

[3]The "potential for site-related release" is based on the background comparisons presented in Subsection 5.4.2. The result noted in this table is for all geologic units within the AOC/Subarea combined. If at least one of the geologic unit background comparisons within the interval showed the potential for site-related release, the potential for such was considered "yes".

[4]The analyte does not advance to the sample by sample screening level comparison if there is no screening level, if it is never detected, or if it is a PAH or metal and is not considered to be potentially resulting from a site-related release based on the aggregate results from the exposure interval background comparisons.

[5]The analyte is not presented on the screening summary tables if there is no screening level, if it is never detected, or if it is a PAH or metal and is not considered to be potentially resulting from a site-related release based on the results from the exposure interval-specific background comparisons.

[6]If screening levels for low molecular weight PAHs and high molecular weight PAHs, the PAH category is evaluated as the sum and not as individual PAHs.

**Table 5-41**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Birds**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] |
|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | | 0 to 1 ft bgs |
| **AOC 1** | | | | | | | | |
| 2,4-Dinitrochlorobenzene | -- | -- | X | -- | -- | -- | No | No |
| 2,4-Dinitrophenol | -- | -- | X | -- | -- | -- | No | No |
| Picric acid | -- | -- | -- | -- | -- | -- | Yes | Yes |
| Antimony | -- | X | -- | -- | -- | Yes | No | No |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Beryllium | -- | X | -- | -- | -- | Yes | No | No |
| Cadmium | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Chromium | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Silver | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Thallium | -- | -- | -- | -- | -- | No | No | No |
| Vanadium | -- | -- | -- | -- | -- | No | No | No |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| **AOC 4 - Discrete** | | | | | | | | |
| 2,4-Dinitrochlorobenzene | -- | -- | X | -- | -- | -- | No | No |
| 2,4-Dinitrophenol | -- | -- | X | -- | -- | -- | No | No |
| Picric acid | -- | -- | X | -- | -- | -- | No | No |
| **AOC 4 - ISM** | | | | | | | | |
| 2,4-Dinitrochlorobenzene | -- | -- | X | -- | -- | -- | No | No |
| 2,4-Dinitrophenol | -- | -- | X | -- | -- | -- | No | No |
| Picric acid | -- | -- | X | -- | -- | -- | No | No |
| **AOC 5 - Boiler House** | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | X | -- | -- | -- | -- | -- | No | No |
| 1,4-Dioxane | X | -- | -- | -- | -- | -- | No | No |
| 2,2'-Oxybis(1-chloropropane) | X | -- | -- | -- | -- | -- | No | No |
| 2,3,4,6-Tetrachlorophenol | X | -- | -- | -- | -- | -- | No | No |
| 2,4,5-Trichlorophenol | X | -- | -- | -- | -- | -- | No | No |
| 2,4,6-Trichlorophenol | X | -- | -- | -- | -- | -- | No | No |
| 2,4-Dichlorophenol | X | -- | -- | -- | -- | -- | No | No |
| 2,4-Dimethylphenol | X | -- | -- | -- | -- | -- | No | No |
| 2,4-Dinitrotoluene | X | -- | -- | -- | -- | -- | No | No |
| 2,6-Dinitrotoluene | -- | -- | X | -- | -- | -- | No | No |
| 2-Chloronaphthalene | X | -- | -- | -- | -- | -- | No | No |
| 2-Chlorophenol | -- | -- | X | -- | -- | -- | No | No |
| 2-Methylphenol (o-Cresol) | X | -- | -- | -- | -- | -- | No | No |
| 2-Nitroaniline | -- | X | -- | -- | -- | -- | No | No |
| 2-Nitrophenol | -- | X | -- | -- | -- | -- | No | No |

**Table 5-41**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Birds**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] |
|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | | 0 to 1 ft bgs |
| 3,3'-Dichlorobenzidine | X | -- | -- | -- | -- | -- | No | No |
| 3-Nitroaniline | -- | X | -- | -- | -- | -- | No | No |
| 4,6-Dinitro-2-methylphenol | X | -- | -- | -- | -- | -- | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | No | No |
| 4-Chloro-3-methylphenol | X | -- | -- | -- | -- | -- | No | No |
| 4-Chloroaniline | -- | X | -- | -- | -- | -- | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | No | No |
| 4-Nitroaniline | -- | X | -- | -- | -- | -- | No | No |
| 4-Nitrophenol | -- | X | -- | -- | -- | -- | No | No |
| Acetophenone | X | -- | -- | -- | -- | -- | No | No |
| Atrazine | X | -- | -- | -- | -- | -- | No | No |
| Benzaldehyde | -- | X | -- | -- | -- | -- | No | No |
| Benzyl butyl phthalate | X | -- | -- | -- | -- | -- | No | No |
| Biphenyl (Diphenyl) | X | -- | -- | -- | -- | -- | No | No |
| Bis(2-chloroethoxy)methane | X | -- | -- | -- | -- | -- | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | X | -- | -- | -- | -- | -- | No | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | -- | X | -- | -- | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | No | No |
| Carbazole | -- | X | -- | -- | -- | -- | No | No |
| Cresols, m- & p- | X | -- | -- | -- | -- | -- | No | No |
| Dibenzofuran | X | -- | -- | -- | -- | -- | No | No |
| Diethyl phthalate | X | -- | -- | -- | -- | -- | No | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | No | No |
| di-n-Butyl phthalate | -- | -- | -- | X | -- | -- | No | No |
| di-n-Octyl phthalate | X | -- | -- | -- | -- | -- | No | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | No | No |
| Hexachlorobutadiene | X | -- | -- | -- | -- | -- | No | No |
| Hexachlorocyclopentadiene | X | -- | -- | -- | -- | -- | No | No |
| Hexachloroethane | X | -- | -- | -- | -- | -- | No | No |
| Isophorone | X | -- | -- | -- | -- | -- | No | No |
| Nitrobenzene | X | -- | -- | -- | -- | -- | No | No |
| N-Nitrosodi-n-propylamine | X | -- | -- | -- | -- | -- | No | No |
| N-Nitrosodiphenylamine | X | -- | -- | -- | -- | -- | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | No | No |
| Phenol | -- | X | -- | -- | -- | -- | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | No | Yes | No |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | No | Yes | No |
| Acenaphthene | -- | X | -- | -- | -- | No | No | No |
| Acenaphthylene | -- | X | -- | -- | -- | Yes | No | No |
| Anthracene | -- | X | -- | -- | -- | No | No | No |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | No | Yes | No |
| Benzo(a)pyrene | -- | X | -- | -- | -- | No | No | No |
| Benzo(b)fluoranthene | -- | X | -- | -- | -- | No | No | No |
| Benzo(g,h,i)perylene | -- | X | -- | -- | -- | No | No | No |
| Benzo(k)fluoranthene | -- | X | -- | -- | -- | No | No | No |

**Table 5-41**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Birds**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] |
|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | | 0 to 1 ft bgs |
| Chrysene | -- | X | -- | -- | -- | No | No | No |
| Dibenz(a,h)anthracene | -- | X | -- | -- | -- | No | No | No |
| Fluoranthene | -- | X | -- | -- | -- | No | No | No |
| Fluorene | -- | X | -- | -- | -- | No | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | X | -- | -- | -- | No | No | No |
| Naphthalene | -- | -- | -- | -- | -- | No | Yes | No |
| Phenanthrene | -- | X | -- | -- | -- | No | No | No |
| Pyrene | -- | -- | -- | -- | -- | No | Yes | No |
| High Molecular Weight PAHs | -- | X | -- | -- | -- | -- | No | No |
| Low Molecular Weight PAHs | -- | X | -- | -- | -- | -- | No | No |
| Antimony | -- | X | -- | -- | -- | Yes | No | No |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes | No |
| Beryllium | -- | X | -- | -- | -- | Yes | No | No |
| Cadmium | -- | -- | -- | -- | -- | No | Yes | No |
| Chromium | -- | -- | -- | -- | -- | No | Yes | No |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | No | Yes | No |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | No |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | No | Yes | No |
| Silver | -- | -- | X | -- | -- | No | No | No |
| Thallium | -- | -- | -- | -- | -- | No | Yes | No |
| Vanadium | -- | -- | -- | -- | -- | No | Yes | No |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| **AOC 5 - Coal Aggregate Bins** | | | | | | | | |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Acenaphthene | -- | X | -- | -- | -- | Yes | No | No |
| Acenaphthylene | -- | X | -- | -- | -- | Yes | No | No |
| Anthracene | -- | X | -- | -- | -- | Yes | No | No |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Benzo(a)pyrene | -- | X | -- | -- | -- | Yes | No | No |
| Benzo(b)fluoranthene | -- | X | -- | -- | -- | Yes | No | No |
| Benzo(g,h,i)perylene | -- | X | -- | -- | -- | Yes | No | No |
| Benzo(k)fluoranthene | -- | X | -- | -- | -- | Yes | No | No |
| Chrysene | -- | X | -- | -- | -- | Yes | No | No |
| Dibenz(a,h)anthracene | -- | X | -- | -- | -- | Yes | No | No |
| Fluoranthene | -- | X | -- | -- | -- | Yes | No | No |
| Fluorene | -- | X | -- | -- | -- | Yes | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | X | -- | -- | -- | Yes | No | No |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Phenanthrene | -- | X | -- | -- | -- | Yes | No | No |

**Table 5-41**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Birds**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] |
|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | | 0 to 1 ft bgs |
| Pyrene | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| High Molecular Weight PAHs | -- | X | -- | -- | -- | -- | No | No |
| Low Molecular Weight PAHs | -- | X | -- | -- | -- | -- | No | No |
| Antimony | -- | X | -- | -- | -- | Yes | No | No |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes | No |
| Beryllium | -- | X | -- | -- | -- | Yes | No | No |
| Cadmium | -- | -- | -- | -- | -- | No | Yes | No |
| Chromium | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | No |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Silver | -- | -- | X | -- | -- | No | No | No |
| Thallium | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Vanadium | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| **AOC 5 - Coal Storage Area** | | | | | | | | |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Acenaphthene | -- | X | -- | -- | -- | Yes | No | No |
| Acenaphthylene | -- | X | -- | -- | -- | Yes | No | No |
| Anthracene | -- | X | -- | -- | -- | Yes | No | No |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Benzo(a)pyrene | -- | X | -- | -- | -- | Yes | No | No |
| Benzo(b)fluoranthene | -- | X | -- | -- | -- | Yes | No | No |
| Benzo(g,h,i)perylene | -- | X | -- | -- | -- | Yes | No | No |
| Benzo(k)fluoranthene | -- | X | -- | -- | -- | Yes | No | No |
| Chrysene | -- | X | -- | -- | -- | Yes | No | No |
| Dibenz(a,h)anthracene | -- | X | -- | -- | -- | Yes | No | No |
| Fluoranthene | -- | X | -- | -- | -- | Yes | No | No |
| Fluorene | -- | X | -- | -- | -- | Yes | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | X | -- | -- | -- | No | No | No |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Phenanthrene | -- | X | -- | -- | -- | Yes | No | No |
| Pyrene | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| High Molecular Weight PAHs | -- | X | -- | -- | -- | -- | No | No |
| Low Molecular Weight PAHs | -- | X | -- | -- | -- | -- | No | No |
| Antimony | -- | X | -- | -- | -- | Yes | No | No |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes | No |
| Beryllium | -- | X | -- | -- | -- | Yes | No | No |

**Table 5-41**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Birds**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] |
|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | | 0 to 1 ft bgs |
| Cadmium | -- | -- | -- | -- | -- | No | Yes | No |
| Chromium | -- | -- | -- | -- | -- | No | Yes | No |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | No | Yes | No |
| Mercury | -- | -- | -- | -- | -- | No | Yes | No |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Silver | -- | -- | X | -- | -- | No | No | No |
| Thallium | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Vanadium | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| **AOC 5 - Electric Substation** | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | X | -- | -- | -- | -- | -- | No | No |
| 1,4-Dioxane | X | -- | -- | -- | -- | -- | No | No |
| 2,2'-Oxybis(1-chloropropane) | X | -- | -- | -- | -- | -- | No | No |
| 2,3,4,6-Tetrachlorophenol | X | -- | -- | -- | -- | -- | No | No |
| 2,4,5-Trichlorophenol | X | -- | -- | -- | -- | -- | No | No |
| 2,4,6-Trichlorophenol | X | -- | -- | -- | -- | -- | No | No |
| 2,4-Dichlorophenol | X | -- | -- | -- | -- | -- | No | No |
| 2,4-Dimethylphenol | X | -- | -- | -- | -- | -- | No | No |
| 2,4-Dinitrotoluene | X | -- | -- | -- | -- | -- | No | No |
| 2,6-Dinitrotoluene | -- | -- | X | -- | -- | -- | No | No |
| 2-Chloronaphthalene | X | -- | -- | -- | -- | -- | No | No |
| 2-Chlorophenol | -- | -- | X | -- | -- | -- | No | No |
| 2-Methylphenol (o-Cresol) | X | -- | -- | -- | -- | -- | No | No |
| 2-Nitroaniline | -- | X | -- | -- | -- | -- | No | No |
| 2-Nitrophenol | -- | X | -- | -- | -- | -- | No | No |
| 3,3'-Dichlorobenzidine | X | -- | -- | -- | -- | -- | No | No |
| 3-Nitroaniline | -- | X | -- | -- | -- | -- | No | No |
| 4,6-Dinitro-2-methylphenol | X | -- | -- | -- | -- | -- | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | No | No |
| 4-Chloro-3-methylphenol | X | -- | -- | -- | -- | -- | No | No |
| 4-Chloroaniline | -- | X | -- | -- | -- | -- | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | No | No |
| 4-Nitroaniline | -- | X | -- | -- | -- | -- | No | No |
| 4-Nitrophenol | -- | X | -- | -- | -- | -- | No | No |
| Acetophenone | X | -- | -- | -- | -- | -- | No | No |
| Atrazine | X | -- | -- | -- | -- | -- | No | No |
| Benzaldehyde | -- | X | -- | -- | -- | -- | No | No |
| Benzyl butyl phthalate | X | -- | -- | -- | -- | -- | No | No |
| Biphenyl (Diphenyl) | X | -- | -- | -- | -- | -- | No | No |
| Bis(2-chloroethoxy)methane | X | -- | -- | -- | -- | -- | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | X | -- | -- | -- | -- | -- | No | No |

**Table 5-41**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Birds**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] |
|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | | 0 to 1 ft bgs |
| Bis(2-ethylhexyl)phthalate | -- | -- | -- | X | -- | -- | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | No | No |
| Carbazole | -- | X | -- | -- | -- | -- | No | No |
| Cresols, m- & p- | X | -- | -- | -- | -- | -- | No | No |
| Dibenzofuran | X | -- | -- | -- | -- | -- | No | No |
| Diethyl phthalate | X | -- | -- | -- | -- | -- | No | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | No | No |
| di-n-Butyl phthalate | -- | -- | -- | X | -- | -- | No | No |
| di-n-Octyl phthalate | X | -- | -- | -- | -- | -- | No | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | No | No |
| Hexachlorobutadiene | X | -- | -- | -- | -- | -- | No | No |
| Hexachlorocyclopentadiene | X | -- | -- | -- | -- | -- | No | No |
| Hexachloroethane | X | -- | -- | -- | -- | -- | No | No |
| Isophorone | X | -- | -- | -- | -- | -- | No | No |
| Nitrobenzene | X | -- | -- | -- | -- | -- | No | No |
| N-Nitrosodi-n-propylamine | X | -- | -- | -- | -- | -- | No | No |
| N-Nitrosodiphenylamine | X | -- | -- | -- | -- | -- | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | No | No |
| Phenol | -- | X | -- | -- | -- | -- | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Acenaphthene | -- | X | -- | -- | -- | Yes | No | No |
| Acenaphthylene | -- | X | -- | -- | -- | Yes | No | No |
| Anthracene | -- | X | -- | -- | -- | No | No | No |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | No | Yes | No |
| Benzo(a)pyrene | -- | X | -- | -- | -- | No | No | No |
| Benzo(b)fluoranthene | -- | X | -- | -- | -- | No | No | No |
| Benzo(g,h,i)perylene | -- | X | -- | -- | -- | No | No | No |
| Benzo(k)fluoranthene | -- | X | -- | -- | -- | No | No | No |
| Chrysene | -- | X | -- | -- | -- | No | No | No |
| Dibenz(a,h)anthracene | -- | X | -- | -- | -- | No | No | No |
| Fluoranthene | -- | X | -- | -- | -- | No | No | No |
| Fluorene | -- | X | -- | -- | -- | No | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | X | -- | -- | -- | No | No | No |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Phenanthrene | -- | X | -- | -- | -- | No | No | No |
| Pyrene | -- | -- | -- | -- | -- | No | Yes | No |
| High Molecular Weight PAHs | -- | X | -- | -- | -- | -- | No | No |
| Low Molecular Weight PAHs | -- | X | -- | -- | -- | -- | No | No |
| PCB-1016 (Aroclor 1016) | -- | -- | -- | X | -- | -- | No | No |
| PCB-1221 (Aroclor 1221) | -- | -- | -- | X | -- | -- | No | No |
| PCB-1232 (Aroclor 1232) | -- | -- | -- | X | -- | -- | No | No |
| PCB-1242 (Aroclor 1242) | -- | -- | -- | X | -- | -- | No | No |
| PCB-1248 (Aroclor 1248) | -- | -- | -- | X | -- | -- | No | No |
| PCB-1254 (Aroclor 1254) | -- | -- | -- | X | -- | -- | No | No |

**Table 5-41**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Birds**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] |
|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | | 0 to 1 ft bgs |
| PCB-1260 (Aroclor 1260) | -- | -- | -- | -- | -- | -- | Yes | Yes |
| PCB-1262 (Aroclor 1262) | -- | -- | -- | X | -- | -- | No | No |
| PCB-1268 (Aroclor 1268) | -- | -- | -- | X | -- | -- | No | No |
| Antimony | -- | X | -- | -- | -- | Yes | No | No |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes | No |
| Beryllium | -- | X | -- | -- | -- | Yes | No | No |
| Cadmium | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Chromium | -- | -- | -- | -- | -- | No | Yes | No |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Silver | -- | -- | X | -- | -- | No | No | No |
| Thallium | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Vanadium | -- | -- | -- | -- | -- | No | Yes | No |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| **AOC 5 - Possible Dump** | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | X | -- | -- | -- | -- | -- | No | No |
| 1,4-Dioxane | X | -- | -- | -- | -- | -- | No | No |
| 2,2'-Oxybis(1-chloropropane) | X | -- | -- | -- | -- | -- | No | No |
| 2,3,4,6-Tetrachlorophenol | X | -- | -- | -- | -- | -- | No | No |
| 2,4,5-Trichlorophenol | X | -- | -- | -- | -- | -- | No | No |
| 2,4,6-Trichlorophenol | X | -- | -- | -- | -- | -- | No | No |
| 2,4-Dichlorophenol | X | -- | -- | -- | -- | -- | No | No |
| 2,4-Dimethylphenol | X | -- | -- | -- | -- | -- | No | No |
| 2,4-Dinitrotoluene | X | -- | -- | -- | -- | -- | No | No |
| 2,6-Dinitrotoluene | -- | -- | X | -- | -- | -- | No | No |
| 2-Chloronaphthalene | X | -- | -- | -- | -- | -- | No | No |
| 2-Chlorophenol | -- | -- | X | -- | -- | -- | No | No |
| 2-Methylphenol (o-Cresol) | X | -- | -- | -- | -- | -- | No | No |
| 2-Nitroaniline | -- | X | -- | -- | -- | -- | No | No |
| 2-Nitrophenol | -- | X | -- | -- | -- | -- | No | No |
| 3,3'-Dichlorobenzidine | X | -- | -- | -- | -- | -- | No | No |
| 3-Nitroaniline | -- | X | -- | -- | -- | -- | No | No |
| 4,6-Dinitro-2-methylphenol | X | -- | -- | -- | -- | -- | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | No | No |
| 4-Chloro-3-methylphenol | X | -- | -- | -- | -- | -- | No | No |
| 4-Chloroaniline | -- | X | -- | -- | -- | -- | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | No | No |
| 4-Nitroaniline | -- | X | -- | -- | -- | -- | No | No |
| 4-Nitrophenol | -- | X | -- | -- | -- | -- | No | No |

**Table 5-41**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Birds**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] |
|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | | 0 to 1 ft bgs |
| Acetophenone | X | -- | -- | -- | -- | -- | No | No |
| Atrazine | X | -- | -- | -- | -- | -- | No | No |
| Benzaldehyde | -- | X | -- | -- | -- | -- | No | No |
| Benzyl butyl phthalate | X | -- | -- | -- | -- | -- | No | No |
| Biphenyl (Diphenyl) | X | -- | -- | -- | -- | -- | No | No |
| Bis(2-chloroethoxy)methane | X | -- | -- | -- | -- | -- | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | X | -- | -- | -- | -- | -- | No | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | -- | X | -- | -- | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | No | No |
| Carbazole | -- | X | -- | -- | -- | -- | No | No |
| Cresols, m- & p- | X | -- | -- | -- | -- | -- | No | No |
| Dibenzofuran | X | -- | -- | -- | -- | -- | No | No |
| Diethyl phthalate | X | -- | -- | -- | -- | -- | No | No |
| Dimethyl phthalate | X | -- | -- | -- | -- | -- | No | No |
| di-n-Butyl phthalate | -- | -- | -- | -- | -- | -- | Yes | Yes |
| di-n-Octyl phthalate | X | -- | -- | -- | -- | -- | No | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | No | No |
| Hexachlorobutadiene | X | -- | -- | -- | -- | -- | No | No |
| Hexachlorocyclopentadiene | X | -- | -- | -- | -- | -- | No | No |
| Hexachloroethane | X | -- | -- | -- | -- | -- | No | No |
| Isophorone | X | -- | -- | -- | -- | -- | No | No |
| Nitrobenzene | X | -- | -- | -- | -- | -- | No | No |
| N-Nitrosodi-n-propylamine | X | -- | -- | -- | -- | -- | No | No |
| N-Nitrosodiphenylamine | X | -- | -- | -- | -- | -- | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | No | No |
| Phenol | -- | X | -- | -- | -- | -- | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Acenaphthene | -- | X | -- | -- | -- | Yes | No | No |
| Acenaphthylene | -- | X | -- | -- | -- | No | No | No |
| Anthracene | -- | X | -- | -- | -- | No | No | No |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | No | Yes | No |
| Benzo(a)pyrene | -- | X | -- | -- | -- | No | No | No |
| Benzo(b)fluoranthene | -- | X | -- | -- | -- | No | No | No |
| Benzo(g,h,i)perylene | -- | X | -- | -- | -- | No | No | No |
| Benzo(k)fluoranthene | -- | X | -- | -- | -- | No | No | No |
| Chrysene | -- | X | -- | -- | -- | No | No | No |
| Dibenz(a,h)anthracene | -- | X | -- | -- | -- | No | No | No |
| Fluoranthene | -- | X | -- | -- | -- | No | No | No |
| Fluorene | -- | X | -- | -- | -- | No | No | No |
| Indeno(1,2,3-c,d)pyrene | -- | X | -- | -- | -- | No | No | No |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Phenanthrene | -- | X | -- | -- | -- | Yes | No | No |
| Pyrene | -- | -- | -- | -- | -- | No | Yes | No |
| High Molecular Weight PAHs | -- | X | -- | -- | -- | -- | No | No |

**Table 5-41**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Birds**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] |
|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | | 0 to 1 ft bgs |
| Low Molecular Weight PAHs | -- | X | -- | -- | -- | -- | No | No |
| PCB-1016 (Aroclor 1016) | -- | -- | -- | X | -- | -- | No | No |
| PCB-1221 (Aroclor 1221) | -- | -- | -- | X | -- | -- | No | No |
| PCB-1232 (Aroclor 1232) | -- | -- | -- | X | -- | -- | No | No |
| PCB-1242 (Aroclor 1242) | -- | -- | -- | X | -- | -- | No | No |
| PCB-1248 (Aroclor 1248) | -- | -- | -- | X | -- | -- | No | No |
| PCB-1254 (Aroclor 1254) | -- | -- | -- | X | -- | -- | No | No |
| PCB-1260 (Aroclor 1260) | -- | -- | -- | X | -- | -- | No | No |
| PCB-1262 (Aroclor 1262) | -- | -- | -- | X | -- | -- | No | No |
| PCB-1268 (Aroclor 1268) | -- | -- | -- | X | -- | -- | No | No |
| Antimony | -- | X | -- | -- | -- | Yes | No | No |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes | No |
| Beryllium | -- | X | -- | -- | -- | Yes | No | No |
| Cadmium | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Chromium | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Cobalt | -- | -- | -- | -- | -- | No | Yes | No |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | No |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | No | Yes | No |
| Silver | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Thallium | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Vanadium | -- | -- | -- | -- | -- | No | Yes | No |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes |

[1]As presented in Subsection 5.1.1.1, analytes without screening levels do not advance to the screening level comparison step.
Analytes without screening levels that are "unlikely" to be DoD-related are noted in Table 5-20.
Analytes without screening levels that are "likely to be" or "potentially" DoD-related are noted in Table 5-15.

[2]As presented in Subsection 5.2, analytes that were never detected in a medium within an AOC/Subarea do not advance to the screening level comparison step. A summary of non-detected analytes and the relationship of the LOQ to the SLs is presented in Table 5-26.

[3]The "potential for site-related release" is based on the background comparisons presented in Subsection 5.4.2. The result noted in this table is for all geologic units within the AOC/Subarea combined. If at least one of the geologic unit background comparisons within the interval showed the potential for site-related release, the potential for such was considered "yes".

[4]The analyte does not advance to the sample by sample screening level comparison if there is no screening level, if it is never detected, or if it is a PAH or metal and is not considered to be potentially resulting from a site-related release based on the aggregate results from the exposure interval background comparisons.

[5]The analyte is not presented on the screening summary tables if there is no screening level, if it is never detected, or if it is a PAH or metal and is not considered to be potentially resulting from a site-related release based on the results from the exposure interval-specific background comparisons.

**Table 5-42**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Mammals**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| **AOC 1** | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | -- | -- | -- | -- | X | -- | -- | No | No | No |
| 2,4-Dinitrophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Picric acid | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Chromium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Silver | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Thallium | -- | -- | -- | -- | -- | No | No | No | No | No |
| Vanadium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| **AOC 4 - Discrete** | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dinitrophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Picric acid | -- | -- | -- | X | -- | -- | -- | No | No | No |
| **AOC 4 - ISM** | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | -- | -- | -- | -- | X | -- | -- | No | No | No |
| 2,4-Dinitrophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Picric acid | -- | -- | -- | X | -- | -- | -- | No | No | No |
| **AOC 5 - Boiler House** | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,4-Dioxane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4,6-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dimethylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,6-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Chloronaphthalene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Chlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Nitroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Nitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |

**Table 5-42**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Mammals**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| 3,3'-Dichlorobenzidine | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 3-Nitroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4,6-Dinitro-2-methylphenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloro-3-methylphenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Nitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Acetophenone | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Atrazine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Benzaldehyde | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Biphenyl (Diphenyl) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethoxy)methane | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbazole | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dibenzofuran | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dimethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachlorobutadiene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Isophorone | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Nitrobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| N-Nitrosodi-n-propylamine | -- | -- | X | -- | -- | -- | -- | No | No | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | No | Yes | No[6] | No[6] | No[6] |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Acenaphthene | -- | -- | X | -- | -- | No | No | No[6] | No[6] | No[6] |
| Acenaphthylene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Anthracene | -- | -- | -- | -- | -- | No | Yes | No[6] | No[6] | No[6] |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |

**Table 5-42**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Mammals**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Chrysene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Dibenz(a,h)anthracene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Fluoranthene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Fluorene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Naphthalene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Phenanthrene | -- | -- | -- | -- | -- | No | Yes | No[6] | No[6] | No[6] |
| Pyrene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| High Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Low Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Chromium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Silver | -- | -- | X | -- | -- | No | No | No | No | No |
| Thallium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Vanadium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| **AOC 5 - Coal Aggregate Bins** | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,4-Dioxane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4,6-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dimethylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,6-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Chloronaphthalene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Chlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Nitroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Nitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |

**Table 5-42**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Mammals**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| 3,3'-Dichlorobenzidine | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 3-Nitroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4,6-Dinitro-2-methylphenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloro-3-methylphenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Nitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Acetophenone | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Atrazine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Benzaldehyde | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Biphenyl (Diphenyl) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethoxy)methane | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbazole | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dibenzofuran | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dimethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachlorobutadiene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Isophorone | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Nitrobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| N-Nitrosodi-n-propylamine | -- | -- | X | -- | -- | -- | -- | No | No | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Acenaphthylene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Anthracene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |

**Table 5-42**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Mammals**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Chrysene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Dibenz(a,h)anthracene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Fluorene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Phenanthrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Pyrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| High Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Low Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Chromium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Silver | -- | -- | X | -- | -- | No | No | No | No | No |
| Thallium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Vanadium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| **AOC 5 - Coal Storage Area** | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,4-Dioxane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4,6-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dimethylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,6-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Chloronaphthalene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Chlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Nitroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Nitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |

**Table 5-42**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Mammals**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| 3,3'-Dichlorobenzidine | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 3-Nitroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4,6-Dinitro-2-methylphenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloro-3-methylphenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Nitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Acetophenone | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Atrazine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Benzaldehyde | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Biphenyl (Diphenyl) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethoxy)methane | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbazole | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dibenzofuran | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dimethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachlorobutadiene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Isophorone | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Nitrobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| N-Nitrosodi-n-propylamine | -- | -- | X | -- | -- | -- | -- | No | No | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Acenaphthylene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Anthracene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |

**Table 5-42**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Mammals**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Chrysene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Dibenz(a,h)anthracene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Fluoranthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Fluorene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | No | Yes | No[6] | No[6] | No[6] |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Phenanthrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Pyrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| High Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Low Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Chromium | -- | -- | -- | -- | -- | No | No | Yes | No | No |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Mercury | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Silver | -- | -- | X | -- | -- | No | No | No | No | No |
| Thallium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Vanadium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| **AOC 5 - Electric Substation** | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,4-Dioxane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4,6-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dimethylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,6-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Chloronaphthalene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Chlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Nitroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Nitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |

**Table 5-42**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Mammals**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| 3,3'-Dichlorobenzidine | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 3-Nitroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4,6-Dinitro-2-methylphenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloro-3-methylphenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Nitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Acetophenone | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Atrazine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Benzaldehyde | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Biphenyl (Diphenyl) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethoxy)methane | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbazole | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dibenzofuran | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dimethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachlorobutadiene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Isophorone | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Nitrobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| N-Nitrosodi-n-propylamine | -- | -- | X | -- | -- | -- | -- | No | No | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Acenaphthylene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Anthracene | -- | -- | -- | -- | -- | No | Yes | No[6] | No[6] | No[6] |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |

**Table 5-42**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Mammals**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Chrysene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Dibenz(a,h)anthracene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Fluoranthene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Fluorene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Phenanthrene | -- | -- | -- | -- | -- | No | Yes | No[6] | No[6] | No[6] |
| Pyrene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| High Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Low Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| PCB-1016 (Aroclor 1016) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1221 (Aroclor 1221) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1232 (Aroclor 1232) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1242 (Aroclor 1242) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1248 (Aroclor 1248) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1254 (Aroclor 1254) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1260 (Aroclor 1260) | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| PCB-1262 (Aroclor 1262) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1268 (Aroclor 1268) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Chromium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Cobalt | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Mercury | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Silver | -- | -- | X | -- | -- | No | No | No | No | No |
| Thallium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Vanadium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| **AOC 5 - Possible Dump** | | | | | | | | | | |
| 1,1,1-Trichloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,1,2,2-Tetrachloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,1,2-Trichloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,1-Dichloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,1-Dichloroethene | -- | -- | X | -- | -- | -- | -- | No | No | No |

**Table 5-42**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Mammals**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| 1,2,3-Trichlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,2,4-Trichlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,2-Dibromo-3-chloropropane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,2-Dibromoethane (EDB) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,2-Dichlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,2-Dichloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,2-Dichloropropane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,3-Dichlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,3-Dichloropropane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 1,4-Dichlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Butanone (MEK) | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes |
| 2-Hexanone | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Methyl-2-pentanone (MIBK) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Acetone | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes |
| Benzene | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes |
| Bromochloromethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bromodichloromethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Bromoform | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Bromomethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Carbon disulfide | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Carbon Tetrachloride | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Chlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Chloroethane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Chloroform | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Chloromethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| cis-1,2-Dichloroethene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| cis-1,3-Dichloropropene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Cumene | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Cyclohexane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Dibromochloromethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dichlorodifluoromethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Ethylbenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| m,p-Xylene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Methyl acetate | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Methyl tert-butyl ether (MTBE) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Methylcyclohexane | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Methylene chloride | -- | -- | X | -- | -- | -- | -- | No | No | No |
| o-Xylene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Styrene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Tetrachloroethene (PCE) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Toluene | -- | -- | -- | -- | -- | -- | -- | Yes | No | Yes |
| trans-1,2-Dichloroethene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| trans-1,3-Dichloropropene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Trichlorofluoromethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Vinyl chloride | -- | -- | X | -- | -- | -- | -- | No | No | No |

**Table 5-42**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Mammals**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| 1,2,4,5-Tetrachlorobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1,4-Dioxane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,2'-Oxybis(1-chloropropane) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,3,4,6-Tetrachlorophenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2,4,5-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4,6-Trichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dichlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,4-Dimethylphenol | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 2,4-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2,6-Dinitrotoluene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Chloronaphthalene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 2-Chlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Methylphenol (o-Cresol) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Nitroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 2-Nitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 3,3'-Dichlorobenzidine | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 3-Nitroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4,6-Dinitro-2-methylphenol | -- | -- | -- | X | -- | -- | -- | No | No | No |
| 4-Bromophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Chloro-3-methylphenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chloroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Chlorophenyl phenyl ether | X | -- | -- | -- | -- | -- | -- | No | No | No |
| 4-Nitroaniline | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 4-Nitrophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Acetophenone | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Atrazine | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Benzaldehyde | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Benzyl butyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Biphenyl (Diphenyl) | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Bis(2-chloroethoxy)methane | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Bis(2-ethylhexyl)phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Caprolactam | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Carbazole | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Cresols, m- & p- | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dibenzofuran | X | -- | -- | -- | -- | -- | -- | No | No | No |
| Diethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Dimethyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| di-n-Butyl phthalate | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| di-n-Octyl phthalate | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachlorobenzene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachlorobutadiene | -- | -- | -- | X | -- | -- | -- | No | No | No |
| Hexachlorocyclopentadiene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Hexachloroethane | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Isophorone | -- | -- | X | -- | -- | -- | -- | No | No | No |

**Table 5-42**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Mammals**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Nitrobenzene | -- | -- | X | -- | -- | -- | -- | No | No | No |
| N-Nitrosodi-n-propylamine | -- | -- | X | -- | -- | -- | -- | No | No | No |
| N-Nitrosodiphenylamine | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Pentachlorophenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Phenol | -- | -- | X | -- | -- | -- | -- | No | No | No |
| 1-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| 2-Methylnaphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Acenaphthene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Acenaphthylene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Anthracene | -- | -- | -- | -- | -- | No | Yes | No[6] | No[6] | No[6] |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Chrysene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Dibenz(a,h)anthracene | -- | -- | X | -- | -- | No | No | No[6] | No[6] | No[6] |
| Fluoranthene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Fluorene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Indeno(1,2,3-c,d)pyrene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| Naphthalene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Phenanthrene | -- | -- | -- | -- | -- | Yes | Yes | No[6] | No[6] | No[6] |
| Pyrene | -- | -- | -- | -- | -- | No | No | No[6] | No[6] | No[6] |
| High Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| Low Molecular Weight PAHs | -- | -- | -- | -- | -- | -- | -- | Yes | Yes | Yes |
| PCB-1016 (Aroclor 1016) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1221 (Aroclor 1221) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1232 (Aroclor 1232) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1242 (Aroclor 1242) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1248 (Aroclor 1248) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1254 (Aroclor 1254) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1260 (Aroclor 1260) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1262 (Aroclor 1262) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| PCB-1268 (Aroclor 1268) | -- | -- | X | -- | -- | -- | -- | No | No | No |
| Antimony | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Arsenic | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Barium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Beryllium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cadmium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Chromium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Cobalt | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Copper | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Lead | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Manganese | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |

**Table 5-42**
**Analytes Advancing to Sample by Sample Screening Level Comparisons and Exposure Summary Tables - Ecological - Mammals**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC/Analyte | No Screening Level[1] | | All Non-detects[2] | | | Background Comparison Result Potential for Site-related Release[3] | | Advance to Sample by Sample Screening Level Comparison[4] | Advance to Summary Table[5] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Unlikely DoD-related | Likely or Potentially DoD-related | LOQ < SL | LOQ > SL | Mixed | 0 to 1 ft bgs | 0 to 5 ft bgs | | 0 to 1 ft bgs | 0 to 5 ft bgs |
| Mercury | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Nickel | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Selenium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Silver | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Thallium | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |
| Vanadium | -- | -- | -- | -- | -- | No | Yes | Yes | No | Yes |
| Zinc | -- | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes |

[1]As presented in Subsection 5.1.1.1, analytes without screening levels do not advance to the screening level comparison step.
Analytes without screening levels that are "unlikely" to be DoD-related are noted in Table 5-21.
There are no soil analytes that are "likely to be" or "potentially" DoD-related without mammal screening levels.

[2]As presented in Subsection 5.2, analytes that were never detected in a medium within an AOC/Subarea do not advance to the screening level comparison step. A summary of non-detected analytes and the relationship of the LOQ to the SLs is presented in Table 5-27.

[3]The "potential for site-related release" is based on the background comparisons presented in Subsection 5.4.2. The result noted in this table is for all geologic units within the AOC/Subarea combined. If at least one of the geologic unit background comparisons within the interval showed the potential for site-related release, the potential for such was considered "yes".

[4]The analyte does not advance to the sample by sample screening level comparison if there is no screening level, if it is never detected, or if it is a PAH or metal and is not considered to be potentially resulting from a site-related release based on the aggregate results from the exposure interval background comparisons.

[5]The analyte is not presented on the screening summary tables if there is no screening level, if it is never detected, or if it is a PAH or metal and is not considered to be potentially resulting from a site-related release based on the results from the exposure interval-specific background comparisons.

[6]If screening levels for low molecular weight PAHs and high molecular weight PAHs, the PAH category is evaluated as the sum and not as individual PAHs.

# TABLES

## Section 7

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**Table 7-1**
**Soil Boring Refusal Depth and Elevation**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, New York**

| Location | Boring ID | Ground Elevation [1] (ft AMSL) | Refusal Depth [2] (ft bgs) | Refusal Elevation (ft AMSL) |
|---|---|---|---|---|
| AOC 1 Top of Drumlin | NYOW-01-001 | 454.62 | 13.50 | 441.12 |
| | NYOW-01-002 | ***502.73*** | 13.50 | 489.23 |
| | NYOW-01-005 | 478.32 | 13.80 | 464.52 |
| | NYOW-01-015 | ***460.00*** | 7.00 | 453.00 |
| | NYOW-01-016 | ***472.00*** | 9.00 | 463.00 |
| | NYOW-01-018 | 461.88 | 14.50 | 447.38 |
| | NYOW-B-004 | 449.79 | 11.10 | 438.69 |
| | NYOW-B-010 | 445.03 | 18.70 | 426.33 |
| | NYOW-B-031 | 448.71 | 14.50 | 434.21 |
| AOC 1 Bottom of Drumlin | NYOW-01-006B | 438.97 | 15.50 | 423.47 |
| | NYOW-01-019 | 428.09 | 15.50 | 412.59 |
| | NYOW-01-020 | ***430.00*** | 14.50 | 415.50 |
| | NYOW-01-021 | 431.77 | 9.10 | 422.67 |
| | NYOW-01-022 | 432.69 | 15.50 | 417.19 |
| | NYOW-01-023 | 434.60 | 15.50 | 419.10 |
| | NYOW-01-024 | 436.89 | 16.00 | 420.89 |
| AOC 3 | NYOW-03-001 | ***400.00*** | 11.40 | 388.60 |
| | NYOW-03-002 | 403.31 | 15.50 | 387.81 |
| | NYOW-03-003 | ***403.00*** | 18.90 | 384.10 |
| | NYOW-03-004 | ***404.00*** | 15.40 | 388.60 |
| | NYOW-03-005 | ***400.00*** | 10.00 | 390.00 |
| | NYOW-03-006 | ***396.00*** | 6.00 | 390.00 |
| | NYOW-03-007 | 402.18 | 12.50 | 389.68 |
| | NYOW-03-008 | ***402.00*** | 13.00 | 389.00 |
| | NYOW-03-009 | 403.95 | 14.00 | 389.95 |
| | NYOW-03-010 | 403.17 | 13.50 | 389.67 |
| | NYOW-03-011 | ***403.00*** | 10.50 | 392.50 |
| | NYOW-03-012 | ***404.00*** | 10.00 | 394.00 |
| | NYOW-03-013 | 403.89 | 13.50 | 390.39 |
| | NYOW-03-014 | 403.67 | 13.00 | 390.67 |
| | NYOW-03-015 | 402.11 | 11.50 | 390.61 |
| | NYOW-03-016 | ***404.00*** | 14.50 | 389.50 |
| | NYOW-03-017 | ***403.00*** | 15.50 | 387.50 |
| | NYOW-03-018 | ***401.00*** | 10.50 | 390.50 |
| | NYOW-B-001 | 400.40 | 13.00 | 387.40 |
| | NYOW-B-002 | 402.79 | 14.50 | 388.29 |
| | NYOW-B-003 | 404.06 | 15.50 | 388.56 |
| AOC 4 | NYOW-04-001 | 423.25 | 17.00 | 406.25 |
| | NYOW-04-002 | 427.64 | 12.00 | 415.64 |
| | NYOW-04-003 | 423.55 | 16.00 | 407.55 |
| | NYOW-04-004 | 421.99 | 16.00 | 405.99 |
| | NYOW-04-005 | 419.57 | 17.00 | 402.57 |
| | NYOW-04-006 | 412.32 | 12.00 | 400.32 |
| | NYOW-04-036 | 424.77 | 15.50 | 409.27 |
| | NYOW-04-037 | 423.85 | 13.00 | 410.85 |
| | NYOW-04-038 | 418.98 | 11.00 | 407.98 |
| | NYOW-04-079 | 409.34 | 19.80 | 389.54 |
| | NYOW-04-080 | 414.26 | 15.00 | 399.26 |
| | NYOW-04-081 | 414.78 | 18.50 | 396.28 |
| | NYOW-04-082 | 417.51 | 15.00 | 402.51 |
| | NYOW-04-083 | 415.72 | 20.50 | 395.22 |
| | NYOW-04-084 | 416.65 | 19.00 | 397.65 |
| | NYOW-04-085 | 410.59 | 10.50 | 400.09 |
| AOC 5 | NYOW-05-001 | 441.61 | 21.00 | 420.61 |
| | NYOW-05-004 | 442.22 | 22.00 | 420.22 |
| | NYOW-05-005 | 441.44 | 21.00 | 420.44 |
| | NYOW-05-006 | 443.76 | 23.00 | 420.76 |
| | NYOW-05-008 | 440.87 | 19.00 | 421.87 |
| | NYOW-05-010 | 440.87 | 20.00 | 420.87 |
| | NYOW-05-012 | 453.93 | 26.50 | 427.43 |
| | NYOW-05-015 | ***455.00*** | 25.50 | 429.50 |
| | NYOW-05-016 | 453.29 | 28.00 | 425.29 |
| | NYOW-05-017-1 | 455.22 | 29.00 | 426.22 |
| | NYOW-05-019 | 454.98 | 21.00 | 433.98 |
| | NYOW-05-024 | 448.92 | 22.00 | 426.92 |
| | NYOW-05-025 | 452.82 | 22.00 | 430.82 |
| | NYOW-B-005 | 454.04 | 25.30 | 428.74 |
| | NYOW-B-047 | 459.57 | 22.50 | 437.07 |
| | NYOW-B-050 | 453.93 | 26.40 | 427.53 |

**Notes**

1 - Regular font indicates as surveyed in April or May 2021. Bold and italic font indicates as estimated from Z-FEMA Bare Earth DEM (2 Meter) Seneca Watershed 2012 (+/- 3.21 m horizontal, 0.145 m vertical).

2 - As measured in the field and recorded in the soil boring and temporary monitoring well installation logs.

AMSL - above mean sea level

AOC - area of concern

bgs - below ground surface

ft - feet

ID - identification

**Table 7-2**
**Temporary Monitoring Well Groundwater Depth and Elevation**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, New York**

| Location [1] | Monitoring Well ID | Inner Casing Elevation [2] (ft AMSL) | Ground Surface Elevation [2] (ft AMSL) | Depth to Water [2] (ft btoc) | Depth to Bottom [2] (ft btoc) | Depth to Groundwater (ft bgs) | Groundwater Elevation (ft AMSL) |
|---|---|---|---|---|---|---|---|
| AOC 1 Top of Drumlin | NYOW-01-001 | 457.54 | 454.62 | 4.96 | 13.44 | 2.04 | 452.58 |
| | NYOW-01-005 | 478.01 | 478.32 | 2.81 | 13.23 | 3.12 | 475.20 |
| | NYOW-B-004 | 452.70 | 449.79 | 5.28 | 13.65 | 2.37 | 447.42 |
| | NYOW-B-010 | 447.62 | 445.03 | 3.97 | 20.61 | 1.38 | 443.65 |
| | NYOW-B-031 | 451.51 | 448.71 | 9.87 | 16.88 | 7.07 | 441.64 |
| AOC 1 Bottom of Drumlin | NYOW-01-006A | 442.00 | 438.91 | 8.33 | 8.33 | 5.24 | 433.67 |
| | NYOW-01-006B | 441.46 | 438.97 | 9.84 | 17.62 | 7.35 | 431.62 |
| | NYOW-01-018 | 461.58 | 461.88 | 8.76 | 14.01 | 9.06 | 452.82 |
| | NYOW-01-019 | 430.02 | 428.09 | 3.88 | 18.01 | 1.94 | 426.14 |
| | NYOW-01-021 | 433.99 | 431.77 | 3.11 | 11.42 | 0.89 | 430.88 |
| | NYOW-01-022 | 435.63 | 432.69 | 3.87 | 18.44 | 0.93 | 431.76 |
| | NYOW-01-023 | 434.28 | 434.60 | 2.15 | 15.03 | 2.47 | 432.13 |
| | NYOW-01-024 | 436.60 | 436.89 | 1.99 | 15.00 | 2.28 | 434.61 |
| AOC 3 | NYOW-03-002 | 403.21 | 403.31 | 3.11 | 14.85 | 3.21 | 400.10 |
| | NYOW-03-007 | 405.23 | 402.18 | 11.83 | 15.53 | 8.78 | 393.40 |
| | NYOW-03-009 | 403.81 | 403.95 | 10.30 | 13.12 | 10.44 | 393.51 |
| | NYOW-03-010 | 402.89 | 403.17 | 9.07 | 12.80 | 9.35 | 393.82 |
| | NYOW-03-013 | 403.77 | 403.89 | 10.11 | 12.90 | 10.23 | 393.66 |
| | NYOW-03-014 | 403.47 | 403.67 | 9.30 | 9.45 | 9.50 | 394.17 |
| | NYOW-03-015 | 401.97 | 402.11 | 7.36 | 8.80 | 7.50 | 394.61 |
| | NYOW-B-001 | 400.28 | 400.40 | 2.08 | 11.24 | 2.20 | 398.20 |
| | NYOW-B-002 | 402.68 | 402.79 | 1.81 | 11.53 | 1.92 | 400.87 |
| | NYOW-B-003 | 403.88 | 404.06 | 6.01 | 13.52 | 6.19 | 397.87 |
| AOC 4 | NYOW-04-001 | 425.95 | 423.25 | 6.37 | 17.43 | 3.67 | 419.58 |
| | NYOW-04-002 | 430.37 | 427.64 | 6.48 | 16.68 | 3.75 | 423.89 |
| | NYOW-04-003 | 426.35 | 423.55 | 5.89 | 17.12 | 3.09 | 420.46 |
| | NYOW-04-004 | 424.73 | 421.99 | 5.42 | 18.34 | 2.68 | 419.31 |
| | NYOW-04-005 | 422.24 | 419.57 | 5.71 | 18.05 | 3.04 | 416.53 |
| | NYOW-04-006 | 415.07 | 412.32 | 3.35 | 14.58 | 0.60 | 411.72 |
| | NYOW-04-036 | 427.53 | 424.77 | 4.22 | 14.73 | 1.46 | 423.31 |
| | NYOW-04-037 | 426.37 | 423.85 | 3.05 | 15.46 | 0.53 | 423.32 |
| | NYOW-04-038 | 421.50 | 418.98 | 3.61 | 13.86 | 1.09 | 417.89 |
| | NYOW-04-079 | 412.11 | 409.34 | 5.81 | 20.96 | 3.04 | 406.30 |
| | NYOW-04-080 | 416.97 | 414.26 | 5.67 | 14.51 | 2.96 | 411.30 |
| | NYOW-04-081 | 417.86 | 414.78 | 5.46 | 21.51 | 2.37 | 412.40 |
| | NYOW-04-082 | 420.16 | 417.51 | 6.13 | 18.10 | 3.48 | 414.03 |
| | NYOW-04-083 | 418.97 | 415.72 | 6.17 | 23.25 | 2.92 | 412.80 |
| | NYOW-04-084 | 419.61 | 416.65 | 7.71 | 19.77 | 4.75 | 411.90 |
| | NYOW-04-085 | 413.49 | 410.59 | 5.58 | 12.61 | 2.68 | 407.91 |
| AOC 5 | NYOW-05-001 | 443.11 | 441.61 | 4.07 | 22.39 | 2.57 | 439.04 |
| | NYOW-05-004 | 444.16 | 442.22 | 3.33 | 23.34 | 1.39 | 440.83 |
| | NYOW-05-005 | 443.02 | 441.44 | 4.06 | 22.69 | 2.48 | 438.96 |
| | NYOW-05-006 | 445.38 | 443.76 | 5.97 | 24.44 | 4.35 | 439.41 |
| | NYOW-05-008 | 441.98 | 440.87 | 2.11 | 20.16 | 1.00 | 439.87 |
| | NYOW-05-010A | 443.51 | 440.87 | 3.36 | 21.63 | 0.72 | 440.15 |
| | NYOW-05-010B | 442.06 | 440.90 | 2.08 | 13.03 | 0.92 | 439.98 |
| | NYOW-05-012 | 456.01 | 453.93 | 11.99 | 28.18 | 9.91 | 444.02 |
| | NYOW-05-016 | 455.84 | 453.29 | 11.87 | 26.02 | 9.32 | 443.97 |
| | NYOW-05-017-1 | 455.04 | 455.22 | 11.85 | 27.63 | 12.03 | 443.19 |
| | NYOW-05-019 | 454.73 | 454.98 | 3.57 | 19.78 | 3.82 | 451.16 |
| | NYOW-05-024 | 450.07 | 448.92 | Not gauged | N/A | N/A | N/A |
| | NYOW-05-025 | 454.99 | 452.82 | Not gauged | N/A | N/A | N/A |
| | NYOW-B-005 | 456.79 | 454.04 | 6.32 | 26.64 | 3.57 | 450.47 |
| | NYOW-B-047 | 462.31 | 459.57 | 12.74 | 24.49 | 10.00 | 449.57 |
| | NYOW-B-050 | 456.66 | 453.93 | 7.44 | 27.86 | 4.70 | 449.22 |

**Notes**

1 - Locations include temporary site wells and background wells in the vicinity.
2 - Data collected from temporary wells during the April/May 2021 survey and synoptic gauging event.
AMSL - above mean sea level
AOC - area of concern
bgs - below ground surface
btoc - below top of casing
ft - feet
ID - identification
N/A - not available

Table 7-3
Parcels with Potential Wells from Potable Well Survey
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Windshield Survey Notes | 2020 Assessment Roll Water Description | Print Key | County | Municipality | Parcel Address |
|---|---|---|---|---|---|
| DEC well mapped here | Commercial/public | 002.-02-01.0 | Onondaga | Baldwinsville | 39 Echodale Ave |
| | Commercial/public | 006.-02-01.0 | Onondaga | Baldwinsville | 16 Pine St |
| | Commercial/public | 008.-01-05.3 | Onondaga | Baldwinsville | 56 Salina St |
| | Private | 015.-01-02.1 | Onondaga | Clay | 3681 Bonstead Rd |
| | Private | 015.-01-04.0 | Onondaga | Clay | 3689 Bonstead Rd |
| | Private | 016.-01-09.1 | Onondaga | Clay | 3543 Bonstead Rd |
| | Private | 016.-01-10.1 | Onondaga | Clay | 3547 Bonstead Rd |
| | Private | 016.-01-24.0 | Onondaga | Clay | 3629 Bonstead Rd |
| | Private | 016.-01-31.3 | Onondaga | Clay | 3655 Maider Rd |
| DEC well mapped here | Private | 016.-01-33.1 | Onondaga | Clay | 3589 Maider Rd |
| | Commercial/public | 017.-03-13.0 | Onondaga | Clay | 8851 Bennett Rd |
| | Private | 017.-03-18.0 | Onondaga | Clay | 3435 Ver Plank Rd |
| DEC well mapped here | Private | 018.-01-01.1 | Onondaga | Lysander | 2667 Lamson Rd |
| | Private | 018.-01-04.0 | Onondaga | Lysander | 2547 Lamson Rd |
| | Private | 018.-01-09.3 | Onondaga | Lysander | 2471 Lamson Rd |
| | Private | 018.-01-13.0 | Onondaga | Lysander | 2319 Lamson Rd |
| | Private | 018.-01-15.1 | Onondaga | Lysander | 2301 Lamson Rd |
| | Private | 018.-01-22.2 | Onondaga | Lysander | 9344 Oswego Rd |
| | Private | 018.-01-47.6 | Onondaga | Lysander | 2380 Sourwood Dr |
| | Commercial/public | 018.-03-01.0 | Onondaga | Clay | 3436 Ver Plank Rd |
| | Private | 019.-01-01.0 | Onondaga | Lysander | 9289 Runnymede Rd |
| | Private | 019.-01-04.0 | Onondaga | Lysander | 2597 Fallen Timber Path |
| | Private | 019.-01-05.0 | Onondaga | Lysander | 2593 Fallen Timber Path |
| DEC well mapped here | Private | 019.-02-02.0 | Onondaga | Lysander | 2404 Sourwood Dr |
| | Private | 019.-02-06.0 | Onondaga | Lysander | 9305 Runnymede Rd |
| | Private | 019.-02-07.0 | Onondaga | Lysander | 9309 Runnymede Rd |
| | Private | 019.-02-08.1 | Onondaga | Lysander | 2396 Sourwood Dr |
| | Private | 019.-03-01.2 | Onondaga | Lysander | 2593 Lamson Rd |
| | Private | 019.-03-03.0 | Onondaga | Lysander | 9280 Runnymede Rd |
| | Private | 019.-03-05.0 | Onondaga | Lysander | 9288 Runnymede Rd |
| Two wells observed | Private | 019.-03-06.0 | Onondaga | Lysander | 9292 Runnymede Rd |
| | Private | 019.-03-10.0 | Onondaga | Lysander | 2420 Sourwood Dr |
| | Private | 019.-03-11.1 | Onondaga | Lysander | 2416 Sourwood Dr |
| | Private | 019.-03-13.0 | Onondaga | Lysander | 9300 Runnymede Rd |
| | Private | 019.-04-05.0 | Onondaga | Lysander | 2392 Sourwood Dr |
| DEC well mapped here | Private | 019.-04-06.0 | Onondaga | Lysander | 2388 Sourwood Dr |
| | Private | 019.-04-07.0 | Onondaga | Lysander | 2384 Sourwood Dr |
| DEC well mapped here | Private | 019.-05-03.0 | Onondaga | Lysander | 2397 Sourwood Dr |
| | Private | 019.-05-04.0 | Onondaga | Lysander | 2393 Sourwood Dr |
| | Private | 022.-01-02.2 | Onondaga | Clay | 3670 Maider Rd |
| DEC well mapped here | Private | 022.-01-02.4 | Onondaga | Clay | 3660 Maider Rd |
| | Private | 022.-01-09.2 | Onondaga | Lysander | 2929 Lamson Rd |
| | Private | 022.-01-11.0 | Onondaga | Clay | 8828 Bennett Rd |
| | Private | 022.-02-01.2 | Onondaga | Lysander | 9190 Sixty Rd |
| | Private | 022.-02-05.0 | Onondaga | Lysander | 2704 Lamson Rd |
| | Private | 022.-02-12.0 | Onondaga | Lysander | 2744 Lamson Rd |
| | Private | 022.-02-13.2 | Onondaga | Lysander | 2764 Lamson Rd |
| | Private | 022.-03-01.0 | Onondaga | Lysander | 9100 River Rd |
| DEC well mapped here | Private | 023.-01-01.1 | Onondaga | Lysander | Sixty-Potter-Kellog |
| | Private | 023.-01-04.0 | Onondaga | Lysander | 8838 Smokey Hollow Rd |
| | None | 023.-01-06.1 | Onondaga | Lysander | 8856 Smokey Hollow Rd |
| | Private | 023.-01-09.2 | Onondaga | Lysander | 8970 Smokey Hollow Rd |
| | Private | 023.-01-09.4 | Onondaga | Lysander | 8968 Smokey Hollow Rd |
| | Private | 024.-01-01.1 | Onondaga | Lysander | 9220 Oswego Rd |
| | Private | 024.-01-01.2 | Onondaga | Lysander | 2260 Lamson Rd |
| | Private | 024.-01-04.0 | Onondaga | Lysander | 2300 Lamson Rd |
| | Private | 024.-01-06.0 | Onondaga | Lysander | 2318 Lamson Rd |
| | Private | 024.-01-07.0 | Onondaga | Lysander | 2346 Lamson Rd |
| | Private | 024.-01-09.0 | Onondaga | Lysander | 9213 Smokey Hollow Rd |
| | Private | 024.-01-14.1 | Onondaga | Lysander | 9117 Smokey Hollow Rd |
| | Private | 024.-01-20.0 | Onondaga | Lysander | 9041 Smokey Hollow Rd |
| DEC well mapped here | Private | 024.-01-22.1 | Onondaga | Lysander | 8971 Smokey Hollow Rd |
| | Private | 024.-01-25.0 | Onondaga | Lysander | 8899 Smokey Hollow Rd |
| DEC well mapped here | Private | 024.-01-32.1 | Onondaga | Lysander | 2177 Kellogg Rd |
| | Private | 024.-01-34.0 | Onondaga | Lysander | 2149 Kellogg Rd |
| | Private | 024.-01-44.0 | Onondaga | Lysander | 8948 Oswego Rd |
| | Private | 024.-01-47.0 | Onondaga | Lysander | 8992 Oswego Rd |
| | Private | 024.-01-54.2 | Onondaga | Lysander | 9146 Oswego Rd |
| DEC well mapped here | Private | 024.-02-01.1 | Onondaga | Lysander | 9198 Smokey Hollow Rd |
| | Private | 024.-02-04.1 | Onondaga | Lysander | 2470 Lamson Rd |
| DEC well mapped here | Private | 024.-02-10.0 | Onondaga | Lysander | 2522 Lamson Rd |
| | Private | 024.-02-11.0 | Onondaga | Lysander | 2534 Lamson Rd |
| | Private | 024.-02-17.0 | Onondaga | Lysander | 9269 Sixty Rd |
| | Private | 024.-02-20.3 | Onondaga | Lysander | 9195 Sixty Rd |
| DEC well mapped here | Commercial/public | 052.-29-06.0 | Onondaga | Clay | 8410 Transit Ln |

Table 7-3
Parcels with Potential Wells from Potable Well Survey
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Windshield Survey Notes | 2020 Assessment Roll Water Description | Print Key | County | Municipality | Parcel Address |
|---|---|---|---|---|---|
| | Private | 055.-01-01.0 | Onondaga | Lysander | 2156 Kellogg Rd |
| | Private | 055.-01-04.2 | Onondaga | Lysander | 8719 Smokey Hollow Rd |
| | Private | 055.-01-05.2 | Onondaga | Lysander | 8545 Smokey Hollow Rd |
| | Commercial/public | 055.-01-14.1 | Onondaga | Lysander | 8489 Smokey Hollow Rd |
| | Private | 055.-02-06.0 | Onondaga | Lysander | 8440 Smokey Hollow Rd |
| | Private | 055.-03-17.0 | Onondaga | Lysander | 8383 Smokey Hollow Rd |
| | Private | 055.-03-18.0 | Onondaga | Lysander | 8381 Smokey Hollow Rd |
| | Private | 058.-01-04.1 | Onondaga | Lysander | 8263 Sixty Rd |
| | Private | 058.-02-13.0 | Onondaga | Lysander | 8254 Sixty Rd |
| | Private | 060.-02-04.6 | Onondaga | Lysander | 3260 Patchett Rd |
| | Commercial/public | 072.-01-03.2 | Onondaga | Lysander | 3391 Patchett Rd |
| DEC well mapped here | Commercial/public | 073.1-01-30.0 | Onondaga | Lysander | 3255 Patchett Rd |
| Two wells observed | Private | 073.1-01-34.1 | Onondaga | Lysander | 3201 Patchett Rd |
| | Private | 073.1-01-34.2 | Onondaga | Lysander | 3211 Patchett Rd |
| | Private | 073.1-01-37.2 | Onondaga | Lysander | 3175 Patchett Rd |
| DEC well mapped here | Commercial/public | 075.-03-18.0 | Onondaga | Lysander | 8258 Byron Rd |
| | Commercial/public | 075.-03-22.0 | Onondaga | Lysander | 3096 High Rd |
| DEC well mapped here, appears to be an irrigation well | Commercial/public | 081.-01-29.3 | Onondaga | Lysander | Drakes Lndg |
| | Commercial/public | 303.03-01-15.12 | Oswego | Granby | 24 Pendergast Rd |
| | Commercial/public | 303.04-01-19 | Oswego | Schroeppel | 105 Oswego River Rd |
| | Private | 303.20-04-07 | Oswego | Phoenix | Jefferson St |
| | Commercial/public | 303.20-04-09 | Oswego | Phoenix | 106 Jefferson St |
| | Private | 314.00-01-13 | Oswego | Schroeppel | 174 Huntley Rd |
| | Private | 314.00-01-16 | Oswego | Schroeppel | 136 Huntley Rd |
| | Private | 314.00-01-26 | Oswego | Schroeppel | 40 Huntley Rd |
| | Unknown | 314.00-01-27.04 | Oswego | | |
| DEC well mapped here | Private | 314.00-01-31 | Oswego | Schroeppel | 56 Co Rt 57A |
| | Private | 314.00-01-49.01 | Oswego | Schroeppel | 23 Hoag Dr |
| | Private | 314.01-01-06 | Oswego | Schroeppel | 248 Co Rt 57 |
| | Private | 314.01-01-07 | Oswego | Schroeppel | 16 Co Rt 57A |
| | Private | 314.01-01-15 | Oswego | Schroeppel | 259 Co Rt 57 |
| | Private | 314.01-01-25.02 | Oswego | Schroeppel | 224 Co Rt 57 |
| Two wells observed | Private | 314.03-01-03 | Oswego | Schroeppel | Co Rt 57 |
| | Private | 314.03-01-06.2 | Oswego | Schroeppel | 75 Co Rt 57 |
| | Private | 314.03-01-10.08 | Oswego | Schroeppel | 19 Three Rivers Ln |
| | Private | 314.03-01-14 | Oswego | Schroeppel | 149 Co Rt 57 |
| | Private | 314.03-01-22.2 | Oswego | Schroeppel | 32 Hilton Rd |
| | Private | 314.03-01-30 | Oswego | Schroeppel | Co Rt 57 |
| | Private | 314.03-01-32.02 | Oswego | Schroeppel | 6 Hoag Dr |
| | Private | 318.01-02-02 | Oswego | Schroeppel | Co Rt 57 |

Notes

The windshield survey was conducted from 7-9 September, 2021.

Parcel information from NYS Tax Parcel Centroid Points GIS layer, last updated June 2021 to reflect 2020 Assessment Roll tabular data

# TABLES

## Section 9

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**Table 9-1**
**Data Gaps/DQOs/Problem Statement Summary - Recommended Sampling - AOC 1**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Area of Concern | Problem Statement/Data Gaps | Media | Goals | Type of Sampling and Analytes or Analytical Methods | Study Boundaries |
|---|---|---|---|---|---|
| AOC 1<br>Ammonium Picrate Area | Planned soil sample location, NYOW-01-017 (Ammonium Picrate Magazine), could not be accessed due to ROE restrictions. This boring could not be relocated and represents a data gap in the evaluation of AOC 1 human and ecological receptors.<br><br>ROE will need to be obtained, where possible, to sample NYOW-01-017 (Ammonium Picrate Magazine) as proposed in the UFP-QAPP for the Phase 1 investigation (USACE, 2020). | Soil | Meet the Phase 1 objective of characterizing a potential source area.<br><br>Collect additional data for calculating representative exposure unit concentrations for risk assessment. | Discrete soil boring at 0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs soil intervals.<br><br>2,4-DNCB, 2,4-DNP, picric acid, metals, and TOC | Vicinity of NYOW-01-017 |
| | Several planned soil and groundwater sample locations could not be accessed do to old concrete building foundations in the Ammonium Picrate Area along the toe of the drumlin. These borings could not be relocated within the building footprints and represents a potential data gap in the evaluation of AOC 1 surface geology, hydrogeology, and human and ecological receptors. | Soil and Groundwater | These data will be used to fill the gap in the evaluation of AOC 1 surface geology, hydrogeology, and human and ecological receptors as well as meet the objective of determining source areas.<br><br>Collect additional data for calculating representative exposure unit concentrations for risk assessment. | Discrete soil boring at 0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs soil intervals.<br><br>Grab groundwater samples from permanent wells.<br><br>Soil: 2,4-DNCB, 2,4-DNP, picric acid, metals, and TOC<br><br>Groundwater: 2,4-DNCB, 2,4-DNP, picric acid, and total and dissolved metals | Around or within the footprint of the former Ammonium Picrate Buildings. |
| | Wetland areas in AOC 1 were not sampled to reduce the impact to sensitive habitats. Surface water runoff and groundwater seeps may have impacted low-lying wetland areas; therefore, absence of samples in the wetland areas constitutes a potential data gap. | Soil | Bridge the spatial data gap between picrate buildings and dryer house where historical releases could have drained to the low lying areas.<br><br>Collect samples using procedures to mitigate impacts to the wetlands.<br><br>Collect additional data for calculating representative exposure unit concentrations for risk assessment. | Discrete soil borings at 0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs soil intervals.<br><br>2,4-DNCB, 2,4-DNP, picric acid, metals, and TOC | The three non-developed wetland areas between the Ammonium Picrate Buildings and the Dryer Houses. |

Note: See Section 9 for discussion of potential data gaps for which additional sampling was not recommended.

**Table 9-2**
**Data Gaps/DQOs/Problem Statement Summary - Recommended Sampling - AOC 3**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Area of Concern | Problem Statement/Data Gaps | Media | Goals | Type of Sampling and Analytes or Analytical Methods | Study Boundaries |
|---|---|---|---|---|---|
| AOC 3<br>Former Landfill Area | Sediments/pore water/surface water samples in the unnamed stream north of the parking lot were not planned for collection during Phase 1. However, based on the results of the Phase 1 investigation (e.g., analytes detected above soil invertebrate screening levels and groundwater with detections of VOCs, SVOCs, and metals flowing towards the stream), samples in the unnamed stream north of the parking lot are needed to assess potential ecological risk. In addition, it is not known if the stream is gaining or losing in this area, the information regarding which is needed characterize fate and transport. These represent data gaps. | Sediment, Pore Water, and Surface Water | Develop a sampling program for sediments/pore water/surface water in the unnamed stream north of the parking lot to assess potential ecological risk. Include sediment TOC and grain size to evaluate similarities/dissimilarities among sampling locations.<br><br>Take field measurements to determine whether the stream is gaining or losing.<br><br>These data should assist in determining if the former landfill is a source area, and meet a Phase 1 objective. | Grab sediment, pore water, and surface water samples for VOCs, SVOCs, PAHs, PCBs, picric acid, total and dissolved metals, TOC (sediment only), and grain size (sediment only).<br><br>Field measurements to determine whether groundwater is recharging the stream. | Stream channel upstream of, adjacent to, and downstream of AOC 3 as far as but not into the ponded area. |
| | The geophysical survey did not indicate historical landfilling below the parking lot but did indicate historical landfill north of the parking lot, between the parking lot and the stream. Because the Phase 1 investigation assumed historical landfill below the parking lot, the area north of the parking lot was not fully characterized to address potential impacts from the newly identified landfill area. The absence of complete characterization of groundwater in this area represents a data gap.<br><br>In addition, Aroclor-1260 was present in soil at AOC 3 and the SW-846 Method 8082A used to analyze for PCBs could not attain the Tap Water RSL. This represents a data gap for the AOC 3 groundwater investigation and assessment of potable use pathways for current/future nearby residents. | Groundwater | Develop a groundwater sampling program to characterize potential impacts from the newly identified landfill area north of the parking lot to evaluate if the landfill is a continuous source of contamination and meet a Phase 1 objective. | Grab groundwater samples from permanent wells.<br><br>VOCs, SVOCs, PAHs, PCBs, picric acid, and total and dissolved metals. | The wooded area north of the stream but south of the fairway and greens across from the newly identified landfill area. |

Note: See Section 9 for discussion of potential data gaps for which additional sampling was not recommended.

**Table 9-3**
**Data Gaps/DQOs/Problem Statement Summary - Recommended Sampling - AOC 4**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Area of Concern | Problem Statement/Data Gaps | Media | Goals | Type of Sampling and Analytes or Analytical Methods | Study Boundaries |
|---|---|---|---|---|---|
| AOC 4<br>Bunker Area | For ISM data, four DUs (1, 5, 9, and 10) had at least one replicate result for at least one COPC rejected. Three valid ISM replicates are considered necessary to provide information regarding the reproducibility and heterogeneity of the data. In addition, of the valid ISM results, 97% of the 2,4-DNCB, 93% of the 2,4-DNP, and 25% of the picric acid results had low bias attributable to low surrogate recoveries and/or low matrix spike recoveries. The lack of three valid replicates and the uniformly low bias of the non-detected results represent a data gap within the bunker areas at AOC 4.<br><br>However, discrete soil data associated with the 16 gw wells (0-1, 1-5, and 5-10 bgs) and the 24 outlet/45 swale (1-5 bgs) are good data and all non-detect. Therefore, the data gap is limited to the surface soil within the bunker aprons. | Soil | Meet the Phase 1 objectives of determining presence/absence and characterizing a potential source area. | Discrete surface soil samples at the 0 to 1 ft bgs interval.<br><br>2,4-DNCB, 2,4-DNP, and picric acid | The bunker aprons just downgradient of the bunker outlets. |

Note: See Section 9 for discussion of potential data gaps for which additional sampling was not recommended.

**Table 9-4**
**Data Gaps/DQOs/Problem Statement Summary - Recommended Sampling - AOC 5**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Area of Concern | Problem Statement/Data Gaps | Media | Goals | Type of Sampling and Analytes or Analytical Methods | Study Boundaries |
|---|---|---|---|---|---|
| AOC 5 | At the time the UFP-QAPP was written (USACE, 2020), it was determined that for human health, the trespasser scenario was most appropriate based on the land use of AOC 5. However, the most recent developer Master Plan in the project files is from 2012. Projected future land use is considered a data gap. | Not Applicable | Determine whether residential development is a reasonable future land use for AOC 5. | Not Applicable | AOC 5 |
| | The background and screening level comparisons for discrete soil samples resulted in the identification of COPCs and COPECs within the surface and subsurface soil intervals in the Boiler House, Coal Aggregate Bins, and Coal Storage Area subareas (**Subsection 6.2**); therefore, additional sampling is necessary to characterize soil the extent of soil and groundwater impacts, estimate representative mean sample concentrations, and to conduct human health and ecological risk assessments. | Soil and Groundwater | Characterize soil the extent of soil and groundwater impacts, estimate representative mean sample concentrations, and to conduct human health and ecological risk assessments. | Discrete soil boring at 0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs soil intervals.<br><br>Grab groundwater samples from permanent wells.<br><br>Soil: PAHs and metals<br><br>Groundwater: PAHs and total and dissolved metals and PCBs (if sampling directly downgradient from the Electric Substation) | Boiler House, Coal Aggregate Bins, and Coal Storage Area |
| | Due to a laboratory equipment failure, all soil samples were analyzed outside the holding time period for TOC (i.e., 28 days) but within the holding time rejection threshold (56 days). While microbial degradation is significantly reduced by storing samples at 4°C, some loss of organic material can occur, and the loss is exacerbated by prolonged storage. The TOC concentrations in AOC 5 were used to evaluate the suitability of background soil for comparison to site soil; therefore, the uniformly low-biased TOC data obtained for the AOC 5 data may impact the risk screening and future ecological risk assessment and represents a potential data gap. | Soil | Obtain TOC data for any additional soil samples with sufficient quality to support risk assessment. | Discrete soil boring at 0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs soil intervals.<br><br>TOC | Wherever soil samples are collected for other parameters in AOC 5. |
| | Wetland surface soils were not sampled to reduce the impact to sensitive habitats. Surface water runoff and groundwater seeps may have impacted low-lying wetland areas; therefore, absence of samples in the wetland areas constitutes a potential data gap, predicated on land use. I.e., if the future land use is potentially residential, sampling within the wetland may be needed to provide sufficient coverage for residential-size lots. | Soil | If a reasonably foreseeable future use of AOC 5 is residential, sample within the wetland to provide sufficient coverage to evaluate risks based on residential-size lots. | Discrete surface soil samples at the 0 to 1 ft bgs interval.<br><br>PAHs and metals | Wetlands on the west side of AOC 5 |

**Table 9-4**
**Data Gaps/DQOs/Problem Statement Summary - Recommended Sampling - AOC 5**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Area of Concern | Problem Statement/Data Gaps | Media | Goals | Type of Sampling and Analytes or Analytical Methods | Study Boundaries |
|---|---|---|---|---|---|
| AOC 5, Continued | Coal and coal ash are not hazardous waste under CERCLA; therefore, the PAH and metal analytes that were identified as COPCs or COPECs within the AOC 5 Coal Aggregate Bins subarea may not be subject to further evaluation if it is determined that they are associated only with solid waste material. Surface soil samples were submitted for the analysis of coal and coal ash by a combination of microscopy techniques to determine presence/absence. A study would have to be designed to obtain additional data in order to evaluate the potential DoD-relatedness of COPCs/COPEC concentrations. This represents a data gap. | Soil | Further evaluation of the 1 to 5 ft bgs intervals proximal to the already sampled locations by microscopy to differentiate coal/coal ash from native soil is recommended to make a determination of DoD-relatedness and programmatic requirements for site cleanup. If new locations sited in AOC 5, microscopy should be considered for those samples also. This will aid in meeting the Phase 1 objective of characterizing a potential source area. | Discrete soil borings at locations where surface soil was submitted for microscopy at the 1 to 5 ft bgs interval.<br><br>Discrete soil boring at 0 to 1 ft bgs and 1 to 5 ft bgs at any new locations.<br><br>PAHs, metals, and microscopy for coal and coal ash | Boiler House, Coal Aggregate Bins, and Coal Storage Area |
| | There is the potential that DoD-related contaminants leached into the soil and groundwater beneath the newly identified ditch and/or were transported downstream (south) to low-lying wetlands. The lack of data for characterization of this potential transport pathway is a data gap. | Soil and Groundwater | To characterize the newly identified drainage ditch as to whether DoD-related contaminants leached into the soil and groundwater and/or were transported downstream (south) to low-lying wetlands | Discrete soil boring at 0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs soil intervals.<br><br>Grab groundwater samples from permanent wells.<br><br>Soil: PAHs and metals<br><br>Groundwater: PAHs and total and dissolved metals | Area of the former drainage ditch to the west of and parallel to the railway on AOC 5. |

Note: See Section 9 for discussion of potential data gaps for which additional sampling was not recommended.

**Table 9-5**
**Data Gaps/DQOs/Problem Statement Summary - Recommended Sampling - Background**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Area of Concern | Problem Statement/Data Gaps | Media | Goals | Type of Sampling and Analytes or Analytical Methods | Study Boundaries |
|---|---|---|---|---|---|
| Background | Phase 1 groundwater metals data are dissolved concentrations obtained from filtered samples from temporary wells. Phase 2 sampling includes the installation of permanent wells and sampling including total metals. Data from the two phases will not be comparable and the lack of permanent groundwater well data is a data gap. | Groundwater | Install permanent groundwater monitoring wells to collect representative samples for total and dissolved metals and PAHs; and obtain data comparable to the recommended AOC 1, AOC 3, and AOC 5 permanent well data. | Grab groundwater samples from permanent wells.<br><br>PAHs and total and dissolved metals | Upgradient of AOC groundwater influence |
| | Due to a laboratory equipment failure, 74 soil samples were analyzed outside the holding time period for TOC. The TOC concentrations in background soils were also used to evaluate the suitability of background soil for comparison to site soil; therefore, the uniformly low-biased TOC data obtained for the background data may impact the risk screening and represents a data gap. | Soil | For any additional soil samples, obtain TOC data with sufficient quality to support risk assessment. | Discrete soil boring at 0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs soil intervals.<br><br>TOC | Wherever soil samples are collected for other parameters in background. |
| | The mapped but not ground-truthed Psc surface geologic unit could not be sampled south of the edge of the wetland, resulting in significant relocation distances. Wetland avoidance results in a data gap for collection of spatially representative soil samples within the background reference area. | Soil | To assess potential for DoD-related COPC exposure risk in the AOC 1 wetlands. If wetlands are sampled in AOC 5, PAHs should also be analyzed in background wetland samples. It is recommended that cribbing or a similar technique be used to mitigate potential damage to the wetlands by the drill rig. | Discrete soil boring at 0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs soil intervals.<br><br>Metals and if wetlands are sampled in AOC 5, PAHs | Psc geologic unit outside of AOC-related influence |

Note: See Section 9 for discussion of potential data gaps for which additional sampling was not recommended.

**Table 9-6**
**Data Gaps/DQOs/Problem Statement Summary - Recommended Sampling and Analytical Changes**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| Area of Concern | Problem Statement/Data Gaps | Media | Goals | Type of Sampling and Analytes or Analytical Methods | Study Boundaries |
|---|---|---|---|---|---|
| AOCs 3 and 5 | Aroclor-1260 was present in soil at AOCs 3 and 5 and the SW-846 Method 8082A used to analyze for PCBs in groundwater could not attain the Tap Water RSL. This represents a data gap for the AOCs 3 and 5 groundwater investigations and assessment of potable use pathways for current/future nearby residents. | Groundwater | Use an extraction method with SW-846 Method 8082A that will achieve the Tap Water RSL at the LOQ. | Grab groundwater samples from permanent wells.<br><br>PCBs with low level extraction | Permanent groundwater wells wherever sampled for PCBs |
| All AOCs and Background | The PALs for all metals analytes in groundwater that were not met by LOQs were either attained by the LOD or were analyzed by the more sensitive analytical technique (i.e., ICP-MS), with the exception of cadmium and selenium, representing a data gap for the groundwater investigations and assessment of potable use pathways for current/future nearby residents. | Groundwater | Use EPA Method 6020A to analyze of cadmium and selenium in aqueous samples to achieve the Tap Water RSL at the LOQ (and if not, at the LOD). | Grab groundwater samples from permanent wells.<br><br>Total and dissolved metals by EPA Method 6020A | Permanent groundwater wells wherever sampled for metals |
| All AOCs and Background | Soil samples that were clay could not be thoroughly homogenized at the laboratory before sub-sampling was performed; non-homogeneous samples may have impacted the apparent method precision through elevated MS/MSD RPDs or FD RPDs. | Soil | The field team should homogenize any future discrete soil samples sequentially, first in quarter-sample segments and then in combined half-sample and full sample segments to more thoroughly homogenize soil samples to increase apparent method precision. | Discrete soil sampling - all methods | Discrete soil wherever sampled |

Note: See Section 9 for discussion of potential data gaps for which additional sampling was not recommended.

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# PHASE 1 RISK SCREENING AND DATA GAPS ANALYSIS

# FORMER NEW YORK ORDNANCE WORKS
# FORMERLY USED DEFENSE SITE
# BALDWINSVILLE, NEW YORK

## VOLUME 2 – APPENDICES

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# PHASE 1 RISK SCREENING AND DATA GAPS ANALYSIS
# FORMER NEW YORK ORDNANCE WORKS, BALDWINSVILLE, NEW YORK

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# APPENDIX A

# Phase 1 Risk Screening Approach Technical Memorandum

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# NEW YORK ORDNANCE WORKS
# PHASE 1 RISK SCREENING APPROACH
# TECHNICAL MEMORANDUM
# FINAL
# 17 JUNE 2022

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# NEW YORK ORDNANCE WORKS
# PHASE 1 RISK SCREENING APPROACH
# TECHNICAL MEMORANDUM
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# 17 JUNE 2022

## 1.0 INTRODUCTION

The Phase 1 Risk Screening approach has been developed in conjunction with the New York Ordnance Works (NYOW) site U.S. Army Corps of Engineers (USACE) project delivery team (PDT) and Environmental and Munitions Center of Expertise (EMCX). The approach is organized as follows:

- Section 2 – Phase 1 Risk Screening Objectives
- Section 3 – Background Threshold Values
- Section 4 – Site Data Set
- Section 5 – Risk Screenings
- Section 6 – References

## 2.0 PHASE 1 RISK SCREENING OBJECTIVES

The objectives of the Phase 1 Risk Screening are:

- To assess if there are any Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) constituents present and related to historical Department of Defense (DoD) activities, as well as present above risk-based screening levels and background concentrations.
- To identify potential source areas and/or areas of higher concentrations.
- To focus additional fieldwork to collect data for an RI and to meet risk assessment-related Data Quality Objectives (DQOs) if potential impacts from DoD-related constituents are indicated.

## 3.0 BACKGROUND THRESHOLD VALUES

### 3.1 INTRODUCTION

Background threshold values (BTVs) are being developed for use in the phased site assessment process. Additional sampling may need to occur prior to commencing the risk screenings if there are data gaps in the background soil data set(s) that would prohibit the development of appropriate BTVs for areas of concern (AOCs) 1, 3, and 5 at the NYOW site. Therefore, the section regarding BTVs is presented in this Technical Memorandum before the comprehensive risk screening approach (Section 5).

Prior to developing soil BTVs for use in determining whether polycyclic aromatic hydrocarbon (PAH) and metal concentrations at AOCs 1, 3, and 5 are within background concentrations, the background data set must be compiled. To date, AOC 4 soil and groundwater samples have been analyzed only for site-specific constituents of potential concern (COPCs), i.e., picric acid, dinitrochlorobenzene, and 2,4-dinitrophenol. Therefore, BTVs for AOC 4 are not required.

In order to determine that the background data set is both robust and appropriate to the site, the following objectives must be achieved:

1) Determine if data from differing soil sampling intervals (0 to 1 foot below ground surface [ft bgs], 1 to 5 ft bgs, and 5 to 10 ft bgs) within the assigned surface geologic units (diamicton [Pd], lacustrine deposits of silt and clay [Psc], and beach deposits of stratified silt, sand, and gravel [Ps]) for the background locations can be combined.
2) Determine if surface geologic units within the background locations can be combined.
3) Determine whether background location geophysical/geochemical characteristics are representative of site location characteristics.
4) Determine if there are data gaps in the background soil data set(s) that would prohibit the development of appropriate background threshold values for AOCs 1, 3, and 5 at the NYOW site.

If data gaps exist after these four evaluation steps, a sampling program would need to be developed and executed. Resulting data would be combined with existing data as appropriate and the exercise in Background Data Set Objectives 1-4 would be repeated.

The data set for calculating groundwater BTVs is less complicated in that data from all wells located outside the area of influence of the site may be combined regardless of geologic units. Therefore, Sections 3.2 and 3.3 below are not applicable to groundwater. All nine of the wells will be used to calculate groundwater BTVs as described in Section 3.4.

## 3.2 INTRA-BACKGROUND SOIL CONCENTRATION COMPARISONS

The intra-background comparison will satisfy Background Data Set Objectives 1 and 2.

### 3.2.1 Background Soil Data Set

Background data consists of discrete soil samples collected from 0 to 10 ft bgs (i.e., 0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs). Figures showing all sample locations will be provided. The surface soil interval (i.e., 0 to 1 ft bgs) is categorized as top soil. Geologic units assigned to the soil borings are presented in Table 1 below. The significance of the geology will be discussed in a future document.

**Table 1: Soil Boring Surface Geologic Units**

| **Psc Lacustrine Silt and Clay** | **Ps Sorted Sand and Gravel** | | | **Pd Diamicton (till)** | |
|---|---|---|---|---|---|
| NYOW-B-006 | NYOW-B-010 | NYOW-B-021 | NYOW-B-029 | NYOW-B-036 | NYOW-B-045 |
| NYOW-B-007 | NYOW-B-012*** | NYOW-B-022 | NYOW-B-030**** | NYOW-B-037 | NYOW-B-046 |
| NYOW-B-008 | NYOW-B-013 | NYOW-B-023 | NYOW-B-031**** | NYOW-B-038 | NYOW-B-049 |
| NYOW-B-009* | NYOW-B-014*** | NYOW-B-024*** | NYOW-B-032**** | NYOW-B-039 | |
| NYOW-B-011 | NYOW-B-015*** | NYOW-B-025 | NYOW-B-033 | NYOW-B-041 | |
| NYOW-B-016 | NYOW-B-017 | NYOW-B-026 | NYOW-B-034 | NYOW-B-042 | |
| NYOW-B-019* | NYOW-B-018* | NYOW-B-027 | NYOW-B-035 | NYOW-B-043 | |
| NYOW-B-040** | NYOW-B-020 | NYOW-B-028 | NYOW-B-050*** | NYOW-B-044 | |
| **n=8** | **n=24** | | | **n=11** | |

**Notes:**
*Psc observed above Ps in boring profile
**Psc observed above Pd in boring profile
***Ps observed above Psc in boring profile
****Ps observed above Pd in boring profile

Two background sample borings (NYOW-B-047 and NYOW-B-048) were determined to be fill due to the presence of non-native materials, such as brick and concrete fragments, in the shallow interval above the native soil. Samples from borings in fill will be excluded from the BTV data set as they may contain concentrations not representative of native soil.

Deposition from anthropogenic sources are more likely to remain bound to organic matter at the surface, resulting in a potential accumulation of metals and PAHs in the 0 to 1 ft bgs soil interval. Although it is anticipated that the 0 to 1 ft bgs soil interval will have differing PAH and metal concentrations from the subsurface intervals, the statistical comparisons among all three intervals will be undertaken in order to compile the most robust data set for the calculation of BTVs. During the Phase 1 Risk Screening, exposure interval specific data sets will be compared with BTVs.

### 3.2.2 Data Reduction

Field duplicates and associated discrete primary samples will be reduced to obtain only one result per location/depth/analyte combination using the following approach.

- When two non-detections are reported, the non-detection with the lowest limit of detection (LOD) (to reduce data censoring), will be selected.
- When a detection and a non-detection are reported, the detection (to reduce data censoring) will be selected.
- When two detections are reported, the mean of the two values will be selected.

PAHs sums (total, high molecular weight [HMW], and low molecular weight [LMW]) will be calculated as follows:

- Low molecular weight PAHs will be considered those with ≤ 3 benzene rings and high molecular weight PAHs will be considered those with ≥ 4 benzene rings (EPA, 2007 – Eco Guidance for Developing Ecological Soil Screening Levels (Eco-SSLs), Attachment 4-1; https://www.epa.gov/sites/default/files/2015-09/documents/ecossl_attachment_4-1.pdf )

**Table 2: PAH Categories**

| LMW PAHs | HMW PAHs |
|---|---|
| 1-Methylnaphthalene | Benzo(a)anthracene |
| 2-Methylnaphthalene | Benzo(a)pyrene |
| Acenaphthene | Benzo(b)fluoranthene |
| Acenaphthylene | Benzo(g,h,i)perylene |
| Anthracene | Benzo(k)fluoranthene |
| Fluoranthene | Chrysene |
| Fluorene | Dibenz(a,h)anthracene |
| Naphthalene | Indeno(1,2,3-c,d)pyrene |
| Phenanthrene | Pyrene |

- Within a sample, if all of the analytes within a PAH category are detected, the total will be the sum of the results for the category.
- Within a sample, if any of the analytes within a PAH category are non-detect, the total will be the Kaplan-Meier (KM) sum for the PAH category. This approach is after Helsel (2009) Summing Nondetects: Incorporating Low-level Contaminants in Risk Assessment. *Integrated Environmental*

*Assessment and Management*. 6(3):361-366. The use of the LMW PAH and HMW PAH categories are based on ecological risk assessment; therefore, there are no relative toxicity weighting factors to consider.

### 3.2.3 Comparisons

Initial comparisons (Background Data Set Objective 1) will be based on the chemistry (i.e., PAHs and metals) from 0 to 1 ft bgs, 1 to 5 ft bgs, and the 5 to 10 ft bgs intervals within a surface geologic unit to determine if the depth intervals can be combined. The second set of comparisons (Background Data Set Objective 2) will be between surface geologic units using the data sets resulting from the Background Data Set Objective 1 exercise. Comparisons will be made by using a combination of box plots and statistical tests. Standard side-by-side box plots will be presented only for analytes that have at least five samples within the data set and that meet the following criteria:

- n = 5 – at least 3 detects;
- n = 6 to 10 – at least 4 detects;
- n = 11 to 20 – at least 5 detects; and
- n > 20 – greater than 20% detects.

If an analytes does not have at least five samples within the data set, scatter plots will be used to qualitatively compare data sets.

Multiple comparison tests for centrality will be used initially to determine whether or not data can be grouped because they are more effective in controlling false positives than multiple pairwise tests alone. False positive and false negative error rates are inversely related. Controlling false positives (i.e., rejecting the null hypothesis incorrectly) is more desirable in this context so that the most robust data sets may be compiled.

Data distributions will be determined using Q-Q plots and goodness of fit tests performed in ProUCL and interpreted in accordance with guidance provided in the ProUCL Technical Guide (EPA, 2015). Normally and non-normally distributed datasets will be treated in accordance with guidance provided in the ProUCL Technical Guide (EPA, 2015) as follows. For normally distributed data sets with equal variance, the Tukey's test will be run. For data sets without a normal distribution, the nonparametric Dunn's test will be run. When a significant difference is detected using a multiple comparison test, pairwise tests will be done to determine which data sets significantly differ.

Pairwise statistical tests will be dependent upon the distribution and the frequency of detection as follows:

- Means of datasets exhibiting normal distributions will be compared using a Student's t-test using the most recent version of EPA's ProUCL software (assuming a null hypothesis of the data set 1 mean is less than or equal to the data set 2 mean at $p \leq 0.05$). Assumptions associated with the execution of the Student's t-test include: normally distributed populations and equal population variances. If variances are unequal, the t-test for unequal variances (Welch-Satterthwaite t-test) will be done and associated p-values presented.
- Means of datasets exhibiting non-normal distributions and containing at least 50% detects will be compared using a Permutation test. The only assumption associated with the permutation test is population equivalence [i.e., data from the two groups being compared are exchangeable (Helsel et al., 2020)]. If the dataset does not contain at least 50% detects, the Mann-Whitney test will be used.

If the null hypothesis is rejected during a pairwise test, the Benjamini-Hochberg (BH) method will be used to reduce the overall false discovery rate (FDR; i.e., the expected proportion of incorrect rejections of the null hypothesis) for the pairwise tests. The BH approach is implemented as described below. For k groups there are c = k(k-1)/2 possible pairwise (combinations) comparisons.

- Set the FDR rate to the desired p-value (i.e., 0.05).
- Order the observed p-values the c pairwise hypothesis tests from high to low.
- Compare each p-value with the product (i/c)FDR, where i = c, c-1, c-2,…1.

A pairwise difference is significant if the observed p-value < (i/c)FDR. Data groupings that are statistically significantly different will not be combined.

### 3.3 SITE VERSUS BACKGROUND SURFACE GEOLOGIC UNIT COMPARISON

Exploratory graphics will be created and hypothesis testing will be performed as noted below for each of the site surface geologic units for each of the following parameters in each of the three collected soil intervals (0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs) for the site discrete sample data (all AOCs combined) versus the background data set(s) resulting from the comparisons in Subsection 3.2.3.

- Grain size (table with sample name, corresponding textural classes, and sand/silt/clay data; ternary charts and box plots)
    - Sand
    - Silt
    - Clay
- Total organic carbon (TOC; box plots)
- Cation exchange capacity (CEC; box plots)
- Geochemical ratios – Al to Fe (cluster analysis; see EPA's 2019 *Summary Report. Separating Anthropogenic Metals Contamination from Background, A Critical Review of Geochemical Evaluations and Proposal of Alternative Methodology*. at https://cfpub.epa.gov/ncea/erasc/recordisplay.cfm?deid=347774 )
- HMW and LMW PAHs (hypothesis testing)
- Pyrogenic PAHs and Petrogenic PAHs (hypothesis testing)

The three site soil sample intervals will be kept separate for this exercise to align with the exposure intervals for the receptors to be evaluated in the Phase 1 Risk Screening.

The site data set reduction will follow the same procedure outlined in Subsection 3.2.2.

Data summary tables will be presented in an augmented RAGS D Table 2 format (EPA, 2001) that includes the following:

- Frequency of detection;
- Range of detects;
- Range of LODs for non-detects;
- Mean;
- Median; and
- Standard deviation.

Note that the KM method will be used to calculate the mean and standard deviation for data sets that contain non-detects.

Exploratory graphics and hypothesis tests also will be evaluated to determine if site and background data sets are similar. The exploratory graphics evaluation will be conducted using the guidelines below.

- Box plots – similarity indicated when there is substantial (approximately 50% or more) overlap in the interquartile ranges and the median concentrations are similar. Scatter plots may be used to qualitatively compare highly censored data sets.
- Ternary graphs – similarity indicated for ternary graph evaluation when background plots within the general density patterns of the site.

Comparisons made with hypothesis testing will use the same procedure as presented in Subsection 3.2.3.

The Phase 1 Screening will present the use for/significance of each of the data types compared (i.e., grain size, TOC, CEC, geochemical ratios, HMW and LMW PAHs, and pyrogenic and petrogenic PAHs). Best professional judgment will be used to determine if site and background locations are similar based on the magnitude of differences and utility of the parameters. Q-Q plots and box plots will be used to identify locations that are potentially different between site and background. Background locations that are deemed potentially different from the site will be removed from the data set and the graphics and hypothesis testing will be re-run as often as necessary to obtain a background data set representative of site soil conditions. The rationale for removing any location from the background data set will be described in detail.

As noted in Subsection 3.2.1, ProUCL guidance (EPA, 2015) indicates that background data sets should have a minimum of 10 observations (i.e., samples) and that 8 to 10 observations are needed to perform statistical inference. Ground-truthing of the geologic units resulted in the following number of locations within units for which BTVs will be developed:

- top soil – n = 45;
- Psc – n = 8;
- Ps – n = 24; and
- Pd – n = 11.

After a background data set is considered representative, if there are not at least eight samples within the data set, recommendations regarding additional sampling will be developed. If eight or more samples remain in a data set, BTVs will be calculated.

## 3.4 BACKGROUND THRESHOLD VALUE CALCULATION

Background soil data sets determined in Subsections 3.2 and 3.3 and data from the nine background wells will be used to calculate soil and groundwater BTVs, respectively. As noted in Subsection 3.1, all of the background groundwater wells were located outside the area of influence of the site and data from the nine wells may be used to calculate groundwater BTVs.

For the purposes of the Phase 1 Risk Screening, soil BTVs will be calculated for each data set determined in Subsections 3.2 and 3.3. If the project proceeds to Phase 2, background soil may need to be collected via incremental sampling methodology (ISM) techniques for comparability with anticipated additional site data.

For the BTV calculations, non-detects will be included in the ProUCL input at the LOD and potential outliers will not be removed. BTVs will be calculated in ProUCL assuming a 95 percent confidence limit

to develop 95 percent Upper Tolerance Limits (UTLs) or Upper Probability Limits (UPLs), depending upon sample size. UPLs are more effective for reducing false positives in small (< 25 samples) data sets. BTVs will be selected as follows.

- If all of the detections for an analyte are less than the limit of quantitation (LOQ), the BTV will be judgmentally set as less than the LOQ.
- If the data set contains less than 3 detects that are also above the LOQ, the BTV will be a non-parametric BTV.
- If the data set contains at least 3 detects above the LOQ and has < 50 samples, parametric KM BTVs will be selected preferentially over non-parametric BTVs.
- If the data set contains at least 3 detects above the LOQ and has ≥ 50 samples, the data distribution will be used to determine if the parametric or non-parametric KM BTVs will be selected.

95% UCLs also will be calculated and presented alongside the BTVs.

If an analyte within a background data set does not have any detections, a BTV will be calculated as the 95$^{th}$ percentile of the LODs that are less than the project action level (PAL) identified in the quality assurance project plan (QAPP) (USACE, 2020). If none of the LODs are less than the PAL, the issue will be discussed with the PDT. Any BTVs developed using a non-detected data set will be discussed in the uncertainty analysis.

## 3.5 COMPARING SITE CONCENTRATIONS TO BTVS

Comparisons between site and background will be made for AOCs 1, 3, and AOC 5 subareas separately. (To date, AOC 4 soil and groundwater samples have been analyzed only for site-specific COCs; therefore, a background comparison is not appropriate.) Site soil data sets will be compiled based on the depth intervals for the AOC-specific exposure scenarios and sample geologic unit. If the exercise outlined in Subsection 3.2 indicates that geologic units may be combined for the background data set, the site soils will be combined likewise.

Depending upon how the soil depth intervals are combined for BTV calculation and site exposure units (EUs), there could be a few variations on how comparisons to BTVs are made. If BTVs are not available for an EU depth interval, the approach will be to either:

- compare the concentrations in the EU depth interval to BTVs that span the EU depth interval (e.g., a 0 to 1 ft bgs EU might be compared with a BTV that was developed by combining data from 0 to 10 ft bgs), or
- compare the concentrations in the EU depth interval to the most conservative BTV developed for depth intervals within the EU depth interval range (e.g., a 0 to 5 ft bgs EU might be compared to the lower of the BTVs developed for 0 to 1 ft and 1 to 5 ft bgs).

As noted in Subsection 3.1, BTVs will not be developed for fill material. Based on the site history, it is assumed that on-site fill is related to DoD activities. Therefore, in order to not be considered a potential source, site fill should not contain concentrations of metals and PAHs exceeding native soil background concentrations. As such, site sample concentrations located in fill will be compared with the BTV developed for the geologic unit identified for the surrounding site locations. If the fill is surrounded by site locations from more than one geologic unit, the most conservative BTV (i.e., lowest) for the applicable units will be used in the comparison.

A conclusion of a potential site-related release will be made for soil if the maximum concentration for site data sets with ≤ 20 samples is greater than the BTV or if more than 5% of the results for site data sets > 20 samples are greater than the BTV. Only one round of groundwater data is available from temporary wells located mainly to determine groundwater flow direction. At this time there are no identifiable plumes. As such, the conclusion of a potential site-related release will be made if the maximum detected groundwater concentration for AOC 1, AOC 3, or the AOC 5 subarea exceeds the BTV.

# 4.0 SITE DATA SET

The Phase 1 field collection efforts were completed in 2021. Figures showing all sample locations will be provided. With the exception of ISM) samples collected from surface soil (0 to 1 ft bgs) in the bunker aprons of AOC 4, all samples collected were discrete. ISM data were not collected from the same sampling units as discrete samples and will be grouped and screened, as described below, independently of data collected using conventional discrete samples. If, in the future, based on the Phase 1 Risk Screening and data gaps analysis, ISM samples were to be collected from a sampling unit (SU) overlapping existing discrete samples used in the Phase 1 risk screening, only the ISM results would be evaluated in the risk assessment.

The site data groupings will include only data collected as part of the Phase 1 sampling. Each of the following four AOCs will be screened, as described below, separately:

- Ammonium Picrate Area (AOC 1);
- Former Landfill Area (AOC 3);
- Bunker Area (AOC 4); and
- Former Power Plant Area (AOC 5).

The sample by sample presentation of the data will be AOC-, medium-, and depth interval-specific (i.e., surface soil, subsurface soil – 1 to 5 ft bgs, subsurface soil – 5 to 10 ft bgs, and groundwater) for each AOC, with the exception of AOC 4. For AOC 4, the surface soil data from the discrete and ISM samples will be presented on separate tables.

The data summary tables and comparisons with BTVs will be presented by AOC for groundwater and for EUs per geologic unit for surface soil exposure at 0 to 1 ft bgs, and subsurface soil exposures at 0 to 5 ft bgs and 0 to 10 ft bgs. For AOC 4, statistics for the surface soil discrete data and for each of the twelve ISM decision units (DUs) will be calculated and presented separately, for a total of at least 13 AOC 4 surface soil data sets. As noted in Subsection 3.5, if geologic units may be combined for the background data set, the site soils will be combined likewise.

# 5.0 RISK SCREENINGS

Several steps in the human health and ecological risk screenings are essentially the same. Where specific details of the similar steps differ, the more conservative of the two was selected to streamline and provide uniformity in the Phase 1 risk screenings. The common steps are presented in Subsections 5.1 through 5.4. The remainder of the human health and ecological risk screenings will be performed in parallel, with approaches specific each presented in Subsections, 5.5 and 5.6, respectively.

## 5.1 ANALYTES WITHOUT SCREENING VALUES OR FOR WHICH THE LOQ IS GREATER THAN THE PAL

There are almost always analytes without screening values or for which the LOQ is greater than the PAL. Worksheet #15 of the *Uniform Federal Policy Quality Assurance Project Plan, Former New York Ordnance Works, Baldwinsville, New York, Final* (USACE, 2020) indicates the analytes for which it was known that PALs do not exist or for which PALs would not be achieved at the LOQ. During the QAPP development, ecological PALs were either available or derived for all of the known COPCs (i.e., picric acid, 2,4-dinitrochlorobenzene [DNCB], and 2,4-dinitrophenol [2,4-DNP]) in AOCs 1 and 4. The analyte lists for AOCs 3 and 5 were longer than for AOCs 1 and 4 based on their historical uses. The selection of surrogates for PALs for additional AOCs 3 and 5 analytes was not performed during the QAPP development phase. Research to determine DoD-related COPCs other than the ammonium picrate-related analytes (i.e., picric acid, DNCB, and 2,4-DNP) was not within the QAPP task scope. That research is within the Phase 1 Risk Screening task scope and is described in Subsection 5.2.

The approaches for evaluating analytes without screening values and for which the LOQ is greater than the PAL are discussed in Subsections 5.1.1 and 5.1.2, respectively.

### 5.1.1 Analytes Without Screening Values

Screening values are medium-specific (i.e., soil or groundwater) and are needed for each of the AOC-specific receptors for the Phase 1 Risk Screening. During QAPP development, routine analytes for which there is no PAL and which were not related to the manufacture of ammonium picrate were considered for elimination from the analysis unless there was a PAL for that analyte in another matrix. Based on these criteria, no analytes were eliminated. VOCs without PALs were retained at AOC 3 and AOC 5 because they are frequently associated with landfills and therefore will allow for a more comprehensive assessment of potential risk.

The approach for evaluating analytes without screening values is dependent upon whether it is DoD-related/potentially DoD-related or unlikely to be DoD-related as described in Subsections 5.1.1.1 and 5.1.1.2, respectively.

#### *5.1.1.1 DoD-related and Potentially DoD-related Analytes*

Analytes without a screening value that are either DoD-related or potential DoD-related will be discussed with the PDT risk assessors to determine if a surrogate screening value may be used for risk screening; and if so, what value should be used. Human health surrogate screening values will be limited to regional screening levels (RSLs) current at the time of the screening as appropriate for the medium. Ecological surrogate screening values will be limited to the hierarchy of benchmarks for use in the Phase 1 Ecological Risk Screening noted in Subsection 5.6.

Surrogates are generally selected based on similarities to the COPC in structure and functional groups. Justification for each of the surrogates will be provided for transparency and for input as needed in the uncertainty analysis. Screening values will not be derived. Derivation of screening values is beyond the current scope of the Phase 1 Risk Screening but may be considered in Phase 2.

Uncertainties regarding the use of surrogates will be discussed in the Phase 1 Risk Screening Uncertainty section.

#### *5.1.1.2 Analytes that are Unlikely to be DoD-related*

As noted in Subsection 5.2.3, with the exception of PAHs and metals, analytes that are unlikely to be DoD-related will be noted as such and not evaluated further.

### 5.1.2 Analytes for Which the LOQ is Greater than the PAL

To meet measurement quality objectives for sensitivity, the LOQs for detections and LODs for non-detections must be less than the PALs. When MQOs for sensitivity are not met, the results are typically unusable for reliably determining whether concentrations are above or below the PALs.

As noted in Subsection 5.1, the analytes for which it was known that PALs would not be achieved at the LOQ were presented in the QAPP. Prior to the finalization of the QAPP, methods were changed for known constituents of potential concern when possible to meet PALs; however, many analytes did not have alternatives to achieve lower limits. Any additional analytes that did not achieve the PAL at the LOQ based on analytical issues associated with the Phase 1 sample collection effort (conducted in 2021) will be identified in the Data Usability Assessment. If the data gaps analysis identifies COPCs for analysis during Phase 2 sampling for which the LOQ did not meet PALs during the Phase 1 analyses, analytical method, laboratory, and laboratory location options will be explored in an attempt to lower the LOQs below PALs.

The approach for evaluating an analyte that did not achieve the PAL at the LOQ is dependent upon whether it is DoD-related/potentially DoD-related or unlikely to be DoD-related as described in Subsections 5.1.2.1 and 5.1.2.2, respectively.

#### *5.1.2.1 DoD-related and Potentially DoD-related Analytes*

Analytes with PALs not achieved at the LOQ that were not detected within a medium on an AOC-basis in the Phase 1 samples collected in 2021 and are potentially site-related (see Subsection 5.2) are typically unusable for reliably determining whether concentrations are above or below the PALs and will not proceed through the remaining screening steps. These analytes will be discussed in the uncertainty analysis with respect to any historical use, analytical, or toxicological reasons as to why the analyte is believed to be site-related and subsequently presented in the data gaps analysis for potential investigation during Phase 2.

#### *5.1.2.2 Analytes that are Unlikely to be DoD-related*

As noted in Subsection 5.2.3, with the exception of PAHs and metals, analytes that are unlikely to be DoD-related will be noted as such and not evaluated further.

## 5.2 ANALYTES NOT RELATED TO DOD ACTIVITIES

Prior to the specific human health and ecological risk screenings, it will be determined if detected analytes or non-detected analytes with LOQs greater than the PAL may be present as a result of historical DoD-related activities. Non-detected analytes for which the LOQ is less than the PAL for each of the appropriate receptors will be noted as such and not evaluated further.

Site chemistry will be tabulated and evaluated on an AOC-specific basis because each of the four AOCs had different uses. AOCs 1 and 4 likely have similar and constituents and the analytical methods were limited as to what was expected based on the manufacture of picric acid. AOCs 3 and 5 are different in that AOC 3 was a landfill and AOC 5 was a power plant and had not been investigated previously; therefore, sufficient information regarding the site-specific constituents of concern was not available to cull the

analyte lists. Given the site history and AOC-specific uses, it is not likely that constituents will be eliminated from either AOC 3 or AOC 5.

With the exception of PAHs and metals, analytes unlikely to be associated with historical DoD-related activities at the former NYOW will be discussed with the PDT and potentially eliminated from the risk screenings, as well as additional sampling efforts and risk assessment. If PAHs and metals are unlikely to be site-related, they will be carried through the remaining screening steps as appropriate and discussed in the uncertainty section.

The identification of analytes as DoD-related, potentially DoD-related, and unlikely to be DoD-related is described below.

### 5.2.1 DoD-related Analytes

Research for identifying DoD-related analytes will be limited to DoD-produced site-specific documents provided by the PDT (e.g., Industrial Waste Surveys). Analytes noted as being used at the site will be considered DoD-related.

### 5.2.2 Potentially DoD-related Analytes

If an analyte is not confirmed in the reviewed literature as site-related, but is detected in at least 5% of the AOC-specific samples, the analyte will be considered potentially DoD-related.

### 5.2.3 Analytes Unlikely to be DoD-related

If an analyte is not confirmed in the reviewed literature as site-related and is detected in less than 5% of the AOC-specific samples, the analyte will be considered unlikely to be DoD-related. Analytes that are unlikely to be DoD-related will be noted as such and not evaluated further.

## 5.3 BACKGROUND COMPARISONS

For each AOC, site and background concentrations will be compared as detailed in Subsection 3.5. For AOCs 1 and 3, PAHs and metals with concentrations considered to be within background will not be evaluated further.

In the case of AOC 5 where the investigation is an initial Site Investigation (SI), any comparisons with background would be for informational purposes and not used to eliminate analytes from further investigation because insufficient site data are available to perform a robust statistical comparison. Further sampling may be proposed for AOC 5 for analytes detected above screening levels or with uncertainties surrounding the relationship between the PAL and LOQ.

Given how BTVs are defined (i.e., the null hypothesis is that the site concentrations are consistent with background concentrations), false positives (Type I error or the incorrect rejection of the null hypothesis) overestimate contamination and false negatives (Type II error or failure to reject the null hypothesis) underestimate contamination. BTVs typically control false positives only. From a statistical perspective, results greater than BTVs demonstrate likely site-related releases but results less than BTVs are inconclusive. PDT concurrence will be achieved prior to eliminating contaminants less than BTVs from further Phase 1 evaluation. Stakeholder concurrence will be sought prior to Phase 2 sampling activities. Hypothesis testing for centrality can simultaneously control Type I and Type II errors for background comparisons and may be undertaken during Phase 2.

### 5.4 NATURE, FREQUENCY OF DETECTION, MAGNITUDE, AND SPATIAL DISTRIBUTION

Evaluate the nature, frequency of detection, magnitude, and spatial distribution. If a chemical has a frequency of detection (FOD) ≤ 5% across media and depth intervals, the nature, frequency, magnitude, and spatial clustering of exceedances will be evaluated to determine if there is a decision point surrounding the data (e.g., does it elucidate a data gap or where additional sampling is needed). All analytes, regardless of FOD, will continue to the next step in the initial risk screening.

If any frequently detected constituents are associated with sampling/laboratory procedures (e.g., detected in blanks), then they will be evaluated during data validation according to the procedures detailed in the QAPP (2020). If analytical results cannot be used for the COPC screening evaluation (e.g., rejected results) because of data quality issues documented during data validation, then they will be discussed in the data usability assessment and the uncertainty section of the risk screening.

### 5.5 HUMAN HEALTH RISK SCREENING

For analytes remaining after the steps presented in Subsections 5.1 through 5.4, a risk-based human health screening will be completed. The human health screening will be conducted in accordance with CERCLA guidance. Published guidance from USACE and New York State Department of Environmental Conservation (NYSDEC) will also be considered. Sources include but are not limited to:

- United States Army Corps of Engineers (USACE) Risk Assessment Handbook, Volume I: Human Health Evaluation (EM 200-1-4) (USACE, 1999)
- EPA RAGS Volume I:
- Human Health Evaluation Manual, Part A (EPA, 1989)
- Human Health Evaluation Manual, Part E, Supplemental Guidance for Dermal Risk Assessment (EPA, 2004)
- Human Health Evaluation Manual, Part F, Supplemental Guidance for Inhalation Risk Assessment (EPA, 2009)
- EPA Child Exposure Factors Handbook (EPA, 2008)
- EPA Exposure Factors Handbook: 2011 Edition (EPA, 2011) and relevant chapter updates
- EPA Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (EPA, 2005)
- EPA RSL Table (EPA, 2021, or latest version)
- EPA Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors (EPA, 2014)
- USACE Environmental Quality, Standard Scopes of Work for Environmental Risk Assessments (EP 200-1-15) (USACE, 2016)
- Input from NYSDEC

The media of concern for the human health screening will be limited to groundwater and soils (both surface and subsurface).

The human health screening will be completed stepwise to focus the COPC list to those chemicals that may pose a potential risk to human receptors. A brief description of the process is noted below.

- Compare the site screening concentrations to the most recent versions of the residential soil and tap water screening values identified in the QAPP. For discrete samples, the screening concentration

will be the maximum detected concentration regardless of the size of the data set. For ISM samples, 2x the maximum detected concentration would be used as a conservative screening concentration in lieu of the recommended 95% UCL from the ITRC ISM-2 calculator; however, there were no detections in the 2021 ISM samples. For an analyte with all non-detect results, the highest LOQ will be used for screening in order to inform the data gaps analysis. If a data gap is identified due to poor sensitivity, analytical alternatives that may improve sensitivity will be assessed. In general, a chemical will be selected as a COPC if the screening concentration exceeds the screening value or if a screening value is not available for a potential receptor. The essential and generally non-toxic "macro elements," calcium, magnesium, potassium, and sodium will not be considered COPCs.

- Groundwater and soil (surface and subsurface) will be compared to relevant human health screening levels on a sample-by-sample basis.
- The groundwater data does not account for leaching potential in the future (i.e., constituent mass that has not mobilized to the aquifer yet); therefore, the soil to groundwater values will be used to evaluate potential future groundwater COPCs to support the refinement of any Phase 2 sampling.
- Screening level comparison tables will be presented by medium per AOC with detected concentrations exceeding screening levels highlighted. RAGS D Table 2s (EPA, 2001) will also be provided to summarize the results.
- Modeling and calculation of exposure point concentrations, hazard quotients, hazard indices, incremental lifetime cancer risks are not included.
- Blood lead modeling is not included in the Phase 1 deliverable.

## 5.6 ECOLOGICAL RISK SCREENING

For analytes remaining after the steps presented in Subsections 5.1 through 5.4, a risk-based ecological screening will be completed. The ecological screening will be prepared in accordance with EPA's Risk Assessment Guidance under CERCLA. The primary guidance that will be used to perform the screening is EPA's *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (EPA, 1997) and the USACE's *Environmental Quality – Risk Assessment Handbook, Volume II: Environmental Evaluation* (USACE, 2010).

The media of concern for the ecological screening will be limited to soils (both surface and 1 to 5 ft bgs subsurface). Ecological receptor exposures to the 5 to 10 ft bgs depth interval is limited and, therefore, will not be evaluated in Phase 1, but may be evaluated in Phase 2, if deemed appropriate.

Ecological receptors to be evaluated in the Phase 1 Risk Screening will be AOC-specific; limited to plants, soil invertebrates invertivorous small mammals and birds, and if suitable subsurface soil habitat exists, burrowing mammals (e.g., red fox); and will be guided by the results of the receptor resource inventory. Phase 2-based ecological risk assessments may evaluate other receptors, if deemed appropriate.

The results of the Phase 1 ecological resource and receptor inventory will be presented. This inventory will include updated natural heritage database searches and a US Fish and Wildlife Services (USFWS) Information for Planning and Consultation (IPaC) review. A comprehensive table of receptors identified as possibly present (including common name, Latin name, and Federal and State listing categories) will be compiled as the result of literature surveys. All species observations made during the wetland delineation and vernal pool surveys, as well as incidental observations during other Phase 1 field investigations and discussions with the Three Rivers Wildlife Management Area staff will be identified on the comprehensive table developed during the literature surveys.

The ecological screening will be completed in a stepwise manner to focus the constituent of potential ecological concern (COPEC) list to those chemicals that may pose a potential risk to ecological receptors. A brief description of the process sequence is noted below. This Phase 1 Ecological Risk Screening process is also described in the attached ecological risk assessment flow chart (Figure 1). The Phase 1 Ecological Risk Screening can be seen in-context of the screening-level ecological risk assessment process when viewed with Figure 2.

- Compare the site screening concentration to conservative benchmarks. For discrete samples, the screening concentration will be the maximum detected concentration regardless of the size of the data set. For ISM samples, 2x the maximum detected concentration would be used as a conservative screening concentration in lieu of the recommended 95% UCL from the ITRC ISM-2 calculator; however, there were no detections in the 2021 ISM samples. For an analyte with all non-detect results, the highest LOQ will be used for screening in order to inform the data gaps analysis. If a data gap is identified due to poor sensitivity, analytical alternatives that may improve sensitivity will be assessed. Toxicity benchmark references will be limited to those used in QAPP Worksheet 15 for PAL selection. Toxicity benchmarks will not be derived during the Phase 1 Ecological Risk Screening; however, derived values for site-specific analytes presented in QAPP Appendix A.1 will be used. For analytes without site-specific derived values, the hierarchy of benchmarks for use in the Phase 1 Ecological Risk Screening is as follows:

    - EPA Eco-SSLs (Eco-SSLs; various dates) (https://www.epa.gov/chemical-research/interim-ecological-soil-screening-level-documents),
    - EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) –Soil Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf),
    - EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf), and
    - Los Alamos National Laboratory (LANL) ECORISK Database Ecological Screening Levels (2017) (accessed at https://www.lanl.gov/environment/protection/eco-risk-assessment.php - no longer available on-line).

    In general, a chemical will be selected as a COPEC if the screening concentration exceeds the screening benchmark or if a screening benchmark is not available for a potential receptor. The essential nutrients and generally non-toxic "macro elements," calcium, chloride, magnesium, potassium, and sodium, as well as the "micro" or "trace" element, iron (Henry and Miles 2001), are required for proper organism growth and function. If these elements are not detected at the site at levels elevated above typical ambient conditions, they are not expected to pose any substantial ecological risk to receptors and, therefore, will not be considered COPECs.

- Direct exposure to surface soil in AOC 1, AOC 4, and AOC 5 will be evaluated for plants and soil invertebrates using soil screening values. Indirect exposure to bioaccumulative constituents in surface soil will also be evaluated using soil screening values based on food chain modeling for representative invertivorous birds and/or small mammal receptors. Receptors selected will be guided by the results of the receptor resource inventory. AOC 3 is mostly a paved parking lot for a golf course. Due to the limited area and low quality ecological habitat, AOC 3 surface soils will not be considered an ecological exposure medium. As noted in the previous bullet, toxicity benchmark references will be limited to those used in QAPP Worksheet 15 for PAL selection.

Toxicity benchmarks will not be derived during the Phase 1 Ecological Risk Screening; however, derived values for site-specific analytes presented in QAPP Appendix A.1 will be used. As noted in the previous bullet, if a screening benchmark is not available for a potential receptor, the chemical will be retained as a COPEC.

- Direct exposure to subsurface soil (1 to 5 ft bgs only) in AOC 1, AOC 3, AOC 4, and AOC 5 will be evaluated for the plants and soil invertebrates using soil screening values. If suitable habitat is present within an AOC, indirect exposure to bioaccumulative constituents in subsurface soil will also be evaluated using soil screening values based on food chain modeling for representative burrowing mammalian receptors (e.g., red fox).
- Screenings will be done on a receptor basis so it can be determined which receptor categories do not need further evaluation for each constituent.
- Refined screenings, exposure point concentrations, baseline risk assessment, and food-chain modeling are not included in the Phase 1 deliverable.

### 5.7 RESULTS AND DISCUSSION

After both of the risk screenings, details regarding what media/constituents/receptors may be eliminated from further study for each AOC will be presented.

Uncertainties associated with the screenings also will be provided. Topics will include uncertainties associated with the following, if applicable:

- non-DoD-related analytes with PALs not achieved at the LOQ that were not detected;
- the referral to Phase 2 of DoD-related analytes with PALs not achieved at the LOQ that were not detected;
- non-DoD-related analytes with PALs not achieved at the LOQ that were detected at low frequency;
- PAH and metal concentrations unrelated to historical DoD activities;
- analytical results unable to be used for the risk screening evaluation (e.g., rejected results) because of data quality issues documented during data validation; and
- surrogate toxicity values and analytes for which surrogate values were not identified.

The results of the data usability assessment and screening comparisons will be used to inform the data gaps analysis. The data gaps analysis will present recommendations for Phase 2 sampling (if needed) for discussion with the PDT.

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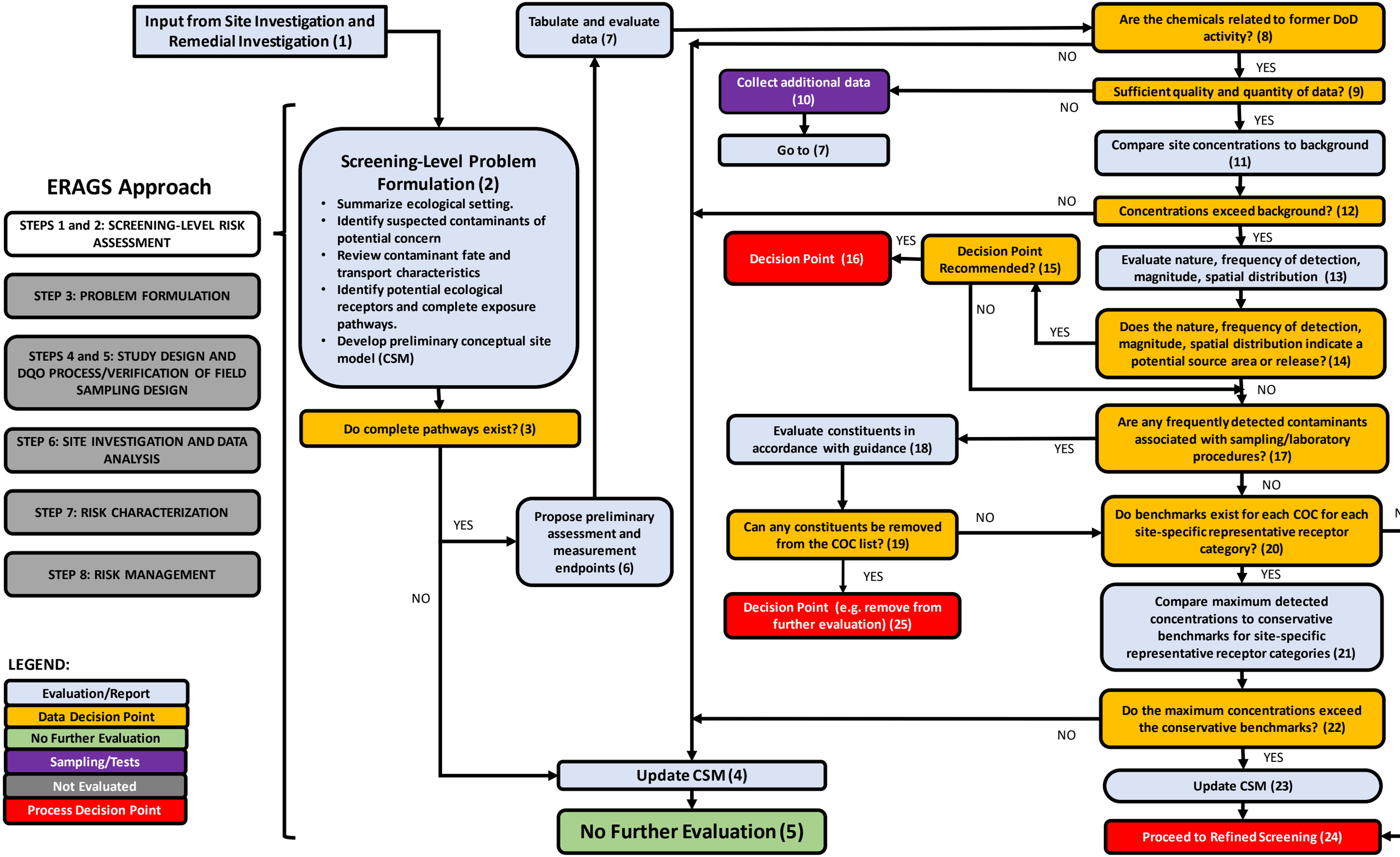
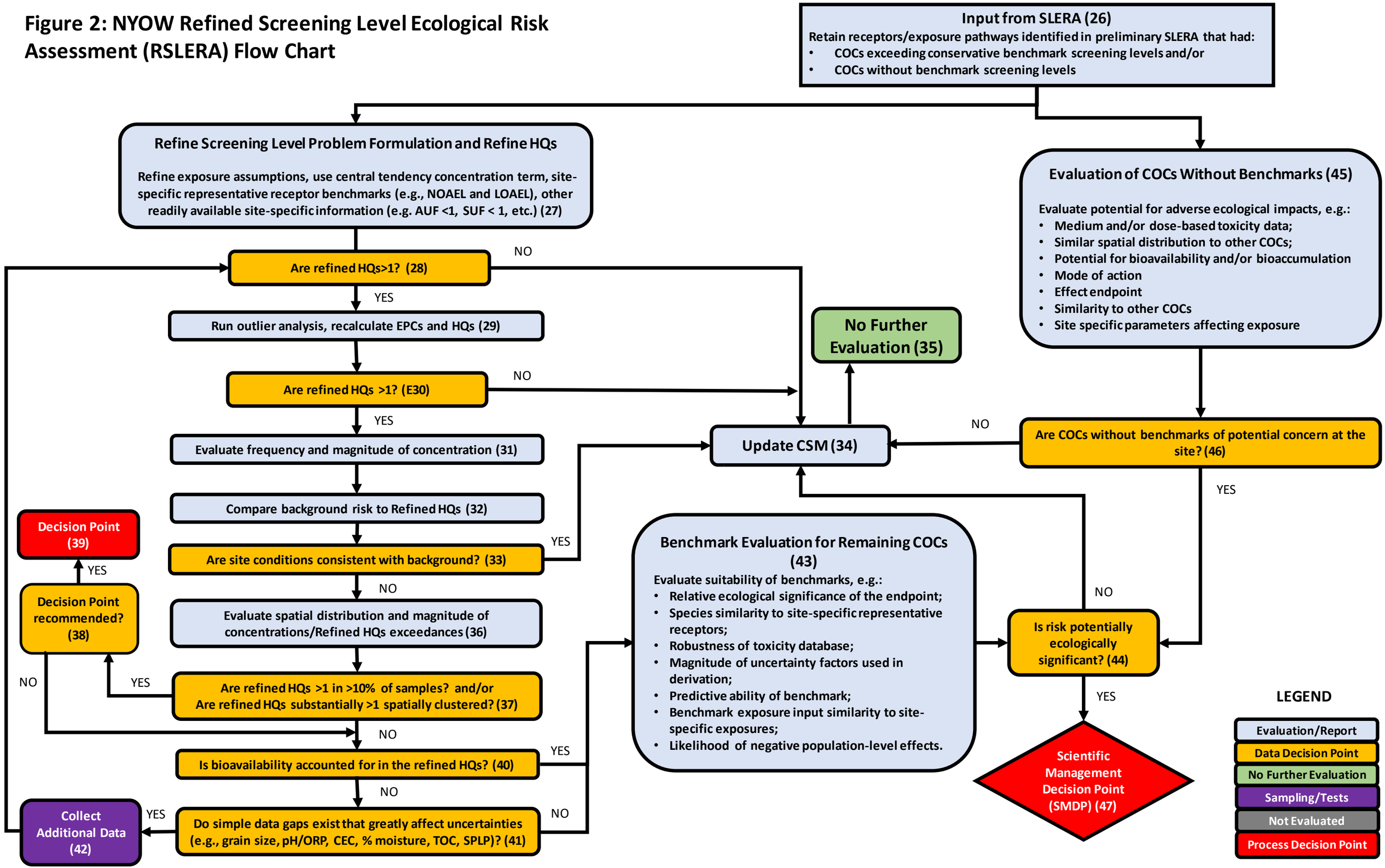
# Figure 1: NYOW - Screening Level Ecological Risk Assessment (SLERA) Flow Chart



# Figure 2: NYOW Refined Screening Level Ecological Risk Assessment (RSLERA) Flow Chart



# APPENDIX B

# Data Usability Assessment

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# 1.0 DATA VALIDATION

Data validation establishes that the data generated by the field sampling and laboratory analyses are complete, compliant with the required methods and standard operating procedures, within accepted Quality Assurance (QA)/Quality Control (QC) limits, usable for established data quality objectives (DQOs), and properly documented.

Data validation was performed in accordance with the U.S. Department of Defense (DoD) General Data Validation Guidelines (September 16, 2019), the DoD Data Validation Guidelines Module 1 (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) National Functional Guidelines for Organic Superfund Methods Data Review (January 2017), the EPA's National Functional Guidelines for Inorganic Superfund Methods Data Review (January 2017), the Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP) (USACE, 2020), and the specifics of the methods employed. Data validation reports were generated for all laboratory analytical data upon completion of the review. Data validation reports are included in **Appendix A**.

Bluestone's data validation was performed to conform with Stage 2B guidelines as defined by EPA in "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use, EPA 540-R-08-005" for combined automated and manual data verification and validation. Automated data review was performed using the Automated Data Review (ADR) module in FUDSChem for all quality control summary results as provided by the Laboratory in the Staged Electronic Data Deliverable (SEDD) files submitted with the data packages. No calibration information is included in this file format; therefore, all calibrations (initial and continuing) were evaluated manually. Sample results for grain size and cation exchange capacity (CEC) underwent Stage 1 manual validation.

# 2.0 DATA USABILITY ASSESSMENT

The purpose of the data usability assessment report is to determine if the DQOs outlined in the Uniform Federal Policy-Quality Assurance Project Plan (USACE, 2020) were met. The laboratory sample delivery groups (SDGs) that are included in the data usability assessment for each investigation are listed in **Appendix B**. In accordance with Worksheet #37 (Data Usability Assessment) of the UFP-QAPP, this assessment will include the following elements:

- Data Collection Objective and Sampling Design – determine whether the collected data are of the right type and quantity to support decision-making for the project.
- Data Quality Indicator (DQI) Evaluation – evaluate data quality indicators (precision, accuracy/bias, representativeness, comparability, completeness, and sensitivity).
- Statistical Method Evaluation – verify whether the underlying assumptions for the selected statistical method are valid; consider the consequences for selecting the incorrect alternative and/or the tolerance for uncertainty in measurements.
- Conclusions – describe how data quality issues will be addressed and how limitations of the use of the data will be handled.

## 2.1 DATA COLLECTION ASSESSMENT

The overall project objective was to determine if Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) constituents related to DoD operations at the Site may have been released to

the environment (USACE, 2020). If the Phase 1 sampling results indicate that further investigation is necessary, then additional sampling will be conducted during Phase 2. The following subsections detail Phase I investigation objectives for the Areas of Concern (AOCs) at the Site.

### 2.1.1 AOC 5

The Phase 1 investigation objectives for AOC 5 (Former Power Plant) are summarized below:

| Activity/Objective | Data Needs |
|---|---|
| Activity: Collect surface soil samples (0-1 feet below ground surface [ft bgs]) in the Coal Storage Area and around the Coal Aggregate Bins. Characterize soil lithology within soil borings.<br><br>Objective: To determine if coal ash is present and characterize soil constituent concentrations. To determine soil types within the AOC. | Data Planned: 25 surface soil samples planned.<br><br>Data Collected: 25 surface soil samples collected. Soil boring logs completed.<br><br>Soil samples analyzed for:<br>• Semi-volatile organic compounds (SVOCs) by SW-846 Method 8270D<br>• Polycyclic aromatic hydrocarbons (PAHs) by SW-846 Method 8270D with Selected Ion Monitoring (SIM)<br>• Polychlorinated biphenyls (PCBs) by SW-846 Method 8082A<br>• Metals by Inductively Coupled Plasma (ICP) SW-846 Method 6010C and by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) Method 6020A<br>• Mercury (Hg) by SW-846 Method 7471B,<br>• Percent moisture (%M) by American Society for Testing and Materials (ASTM) Method D2216,<br>• Total organic carbon (TOC) by Method 9060A,<br>• Cation exchange capacity (CEC) by SW-846 Method 9081<br>• Grain Size Distribution by ASTM Method D422 |
| Activity: Advance direct push technology (DPT) soil borings to collect 50 subsurface soil samples. Characterize soil lithology within soil borings.<br><br>Objective: To determine if coal ash is present and characterize soil constituent concentrations. To determine soil types within the AOC. | Data Planned: 50 subsurface soil samples, including ten samples analyzed for volatile organic compounds (VOCs).<br><br>Data Collected: 50 subsurface soil samples collected. Soil boring logs completed.<br><br>Soil samples analyzed for:<br>• VOCs by SW-846 Method 8260C<br>• SVOCs by SW-846 Method 8270D<br>• PAHs by SW-846 Method 8270D with SIM<br>• PCBs by SW-846 Method 8082A |

| Activity/Objective | Data Needs |
|---|---|
| | • Metals by ICP SW-846 Method 6010C and by ICP-MS Method 6020A<br>• Hg by SW-846 Method 7471B,<br>• %M by ASTM Method D2216,<br>• TOC by Method 9060A,<br>• CEC by SW-846 Method 9081<br>• Grain Size Distribution by ASTM Method D422 |
| Activity: Collect grab groundwater samples from temporary monitoring wells. Collect water quality parameters (WQP) to demonstrate groundwater stabilization.<br><br>Objective: To assess whether DoD-related chemicals associated with the former power plant operations (i.e., Boiler House, Coal Storage Area, Electrical Substation, Possible Dump Area, and Coal Aggregate Bins) are present above human health risk-based screening levels in groundwater. To collect representative groundwater samples. | Data Planned: 12 grab groundwater samples collected from within the Electrical Substation, Boiler House, Coal Storage Area and Possible Dump Area. Water quality field parameters (pH, oxidation reduction potential [ORP], turbidity, temperature, dissolved oxygen [DO], and specific conductivity) to be collected at each location.<br><br>Data Collected: 12 groundwater samples collected. WQP were collected until stabilization.<br><br>Groundwater samples analyzed for:<br>• VOCs by SW-846 Method 8260C<br>• SVOCs by SW-846 Method 8270D<br>• PAHs by SW-846 Method 8270D with SIM<br>• PCBs by SW-846 Method 8082A<br>• Dissolved metals by ICP SW-846 Method 6010C and ICP-MS Method 6020A<br>• Dissolved Hg by SW-846 Method 7470A |

Deviations from the UFP-QAPP

The sampling procedures for the Phase 1 investigation are presented in Worksheet #17 (Sampling Design and Rationale) of the UFP-QAPP and the required frequency of sample collection is presented in Worksheet #18 (Sampling Locations and Methods). Field QC samples (field duplicate [FD]) and matrix spike [MS]/matrix spike duplicate [MSD]) were collected by Bluestone during the Phase I investigation at AOC 5 at the frequency shown in **Table 1**. As presented in Worksheet #20 (Field QC Summary) in the UFP-QAPP, the minimum FD sampling frequency (10%) and MS/MSD frequencies (5%) for aqueous and solid samples were met at AOC 5.

Table 1 – Field QC Sample Frequency – AOC 5

| Matrix/Analysis | FD | | MS | | MSD | |
|---|---|---|---|---|---|---|
| **Aqueous** | **Count** | **%** | **Count** | **%** | **Count** | **%** |
| BNASIMD/SW3510C | 2 | 17% | 1 | 8.3% | 1 | 8.3% |
| SW7470A/FLDFLT | 2 | 17% | 1 | 8.3% | 1 | 8.3% |
| SW8082A/SW3510C | 1 | 33% | 1 | 33% | 1 | 33% |
| SW8270D/SW3520C | 2 | 33% | 1 | 8.3% | 1 | 8.3% |
| SW6010C/FLDFLT | 2 | 17% | 2 | 17% | 2 | 17% |
| SW6020A/FLDFLT | 2 | 17% | 2 | 17% | 2 | 17% |
| SW8260C/SW5030B | 1 | 33% | 1 | 33% | 1 | 33% |
| **Solid** | **Count** | **%** | **Count** | **%** | **Count** | **%** |
| SW9081/METHOD | -- | -- | -- | -- | -- | -- |
| BNASIMD/SW3546 | 8 | 11% | 10 | 13% | 10 | 13% |
| SW7471B/TOTAL | 8 | 11% | 5 | 6.7% | 5 | 6.7% |
| D2216 | 8 | 11% | -- | -- | -- | -- |
| SW8082A/SW3546 | 2 | 10% | 3 | 15% | 3 | 15% |
| SW8270D/ SW3546 | 7 | 11% | 6 | 9.2% | 6 | 9.2% |
| SW9060A | -- | -- | 2 | 13% | 2 | 13% |
| SW6010C/3050B | 8 | 11% | 8 | 11% | 8 | 11% |
| SW6020A/3050B | 8 | 11% | 8 | 11% | 8 | 11% |
| SW8260C/SW5035 | 1 | 10% | 1 | 10% | 1 | 10% |

Two soil sample locations were modified from the proposed locations as described in the Phase 1 Field Report (USACE, 2021a). The soil samples (NYOW-05-006 and NYOW-05-010) were relocated to avoid mapped wetland areas. Sample NYOW-05-006 was relocated 20 feet south; however, the revised sample location remained in the north-central portion of the Coal Storage Area. Sample NYOW-05-010 was relocated 35 feet north-east. The revised sample location remained in the south-central portion of the Coal Storage Area and the intended spatial coverage and sample size were achieved.

The proposed monitoring well location NYOW-05-017 (soil and groundwater location) hit shallow refusal at 5 ft bgs; therefore, the location was offset 5 feet to the north, designated NYOW-05-017-1, and advanced to 29 ft bgs. As this new location falls within the footprint of the former Boiler House, the DQO was achieved.

The proposed monitoring well location NYOW-05-015 hit refusal at 25.5 ft bgs (above the saturated zone). Soil samples were collected from this boring, but no monitoring well was installed. Instead, a monitoring well was installed at the NYOW-05-016 location in the saturated zone at a depth of 28 ft bgs. Both soil and groundwater samples were collected from location NYOW-05-016. NYOW-05-015 was intended to evaluate groundwater conditions, in conjunction with NYOW-05-012, at the former substation. Relocation of the temporary monitoring well to NYOW-05-016, adjacent to the former Boiler House, maintained the DQO of evaluating groundwater at AOC 5. Groundwater samples were obtained from both the former substation at NYOW-05-012 and from the former boiler house at NYOW-05-016.

NYOW-05-018 was installed to 6 ft bgs after three attempts (shallow refusal was due to concrete). A soil sample was collected from the 5–6-foot interval instead of the 5–10-foot interval. Soil was collected from the 5–10-foot interval in the four other soil borings associated with the former boiler house. The AOC-5 preliminary conceptual site model (CSM) (USACE, 2020) indicates that recreational visitors potentially exposed to surface soil are the only human receptor population identified. Therefore, subsurface soil

exposure is not anticipated. The subsurface soil sample collected at NYOW-05-018 is sufficient to assess vertical delineation of soil impacts and the soil-to-groundwater pathway; therefore, adequate information was obtained to achieve the DQO at the Boiler House.

### 2.1.2 AOC 4

The Phase 1 investigation objectives for AOC 4 (Former Bunker Area) are summarized below:

| Activity/Objective | Data Needs |
|---|---|
| Activity: Advance 16 DPT soil borings along three transects and collect a discrete surface soil (0-1 ft bgs) sample from each DPT. Characterize soil lithology within soil borings.<br><br>Objective: To determine soil constituent concentrations. To determine soil types within the AOC. | Data Planned: 16 surface soil samples planned.<br><br>Data Collected: 16 surface soil samples collected. Soil boring logs completed.<br><br>Soil samples analyzed for:<br>• SVOCs dinitrochlorobenzene (DNCB) and 2,4- dinitrophenol (DNP) by SW-846 Method 8270D<br>• Picric acid by SW-846 Method 8330A<br>• %M by ASTM Method D2216. |
| Activity: Collect subsurface soil (1-5 ft bgs and 5-10 ft bgs) samples from each DPT. Collect subsurface (1-5 ft bgs) soil samples from discharge points of the bunker trench drains and from locations spaced along the length of the drainage swales.<br><br>Objective: To determine soil constituent concentrations. To determine soil types within the AOC. | Data Planned: 101 subsurface soil samples planned.<br><br>Data Collected: 101 subsurface soil samples collected. Soil boring logs completed.<br><br>Soil samples analyzed for:<br>• SVOCs DNCB and 2,4-DNP by SW-846 Method 8270D<br>• Picric acid by SW-846 Method 8330A<br>• %M by ASTM Method D2216. |
| Activity: Collect groundwater grab samples from the DPT soil borings. Collect WQP to demonstrate groundwater stabilization.<br><br>Objective: To assess the quality of groundwater in the vicinity of the bunkers. To collect representative groundwater samples. | Data Planned: Up to 16 grab groundwater samples were planned. Water quality field parameters (pH, ORP, turbidity, temperature, DO, and specific conductivity) to be collected at each location.<br><br>Data Collected: 16 groundwater samples collected. WQP were collected until stabilization.<br><br>Groundwater samples analyzed for:<br>• SVOCs DNCB and 2,4-DNP by SW-846 Method 8270D<br>• Picric acid by SW-846 Method 8330B |

Deviations from the UFP-QAPP

The sampling procedures for the remedial investigation (RI) are presented in Worksheet #17 (Sampling Design and Rationale) of the UFP-QAPP and the required frequency of sample collection is presented in Worksheet #18 (Sampling Locations and Methods). Field QC samples (FD and MS/MSD) were collected by Bluestone during the Phase I investigation at AOC 4 at the frequency shown in **Table 2**. As presented in Worksheet #20 (Field QC Summary) in the UFP-QAPP, the minimum FD sampling frequency (10%) and MS/MSD frequencies (5%) for aqueous and solid samples were achieved at AOC 4.

Table 2 – Field QC Sample Frequency – AOC 4, Discrete

| **Matrix/Analysis** | **FD** | | **MS** | | **MSD** | |
|---|---|---|---|---|---|---|
| **Aqueous** | **Count** | **%** | **Count** | **%** | **Count** | **%** |
| SW8330B/SW3535 | 2 | 13% | 1 | 6.3% | 1 | 6.3% |
| SW8270D/SW3520C | 2 | 13% | 1 | 6.3% | 1 | 6.3% |
| **Solid** | **Count** | **%** | **Count** | **%** | **Count** | **%** |
| SW8330A/METHOD | 13 | 11% | 10 | 8.5% | 10 | 8.5% |
| D2216 | 13 | 11% | -- | -- | -- | -- |
| SW8270D/SW3546 | 13 | 11% | 9 | 7.7% | 9 | 7.7% |

A total of ten AOC 4 boring locations were modified from the proposed locations as described in the Phase 1 Field Report (USACE, 2021a).

Five boring locations (NYOW-04-080, NYOW-04-081, NYOW-04-082, NYOW-04-084 and NYOW-04-085) were relocated to avoid mapped swallow-wort areas. NYOW-04-080 was relocated 20 feet west, NYOW-04-081 was relocated 40 feet northwest, NYOW-04-082 was relocated 20 feet west, NYOW-04-084 was relocated 15 feet west and NYOW-04-085 was relocated 35 feet west. The revised locations were sufficiently close to the original locations along the Eastern Transect to achieve the DQOs.

Two boring locations (NYOW-04-003 and NYOW-04-005) were relocated to avoid mapped wetland areas. NYOW-04-003 was relocated 75 feet north and NYOW-04-005 was relocated 20 feet northeast. The revised locations were sufficiently close to the original locations along the Western Transect to achieve the DQOs.

One boring location (NYOW-04-083) was relocated approximately 30 feet northwest along East Igloo Road to avoid a gravel pile that was present in the original location. The revised location was sufficiently close to the original location along the Eastern Transect to achieve the DQO.

One boring location (NYOW-04-036) was relocated approximately 70 feet northwest to add a buffer between the boring location and a nearby red-tailed hawk nest. The revised location was sufficiently close to the original location along the Middle Transect to achieve the DQO.

One monitoring well location (NYOW-04-006) was shifted 30 feet southwest to a location closer to the road, to avoid a roadside drainage swale that the drill rig was unable to traverse. The rig was also unable to access the original location from the north along the service road between West Igloo and East Igloo Roads due to soft ground beneath the snowpack. This DPT location was originally sited at the southern end of the Western Transect to determine if groundwater discharges to the surface water body to the southwest. The new location was sufficiently close to the original to achieve the DQO.

Insufficient recharge was encountered at three monitoring well locations (NYOW-04-037, NYOW-04-082, and NYOW-04-038). As a result, only the minimum required volume of water was collected for SW-846

Method 8270D (one liter) and SW-846 Method 8330B (one-half liter). The reduced volume did not cause an elevation in reporting limits for Method 8270D, and the reporting limits for Method 8330B remained below the project action limit (PAL); thus, the DQO was achieved.

### 2.1.3 AOC 1

The Phase 1 investigation objectives for AOC 1 (Former Ammonium Picrate Area) are summarized below:

| **Activity/Objective** | **Data Needs** |
|---|---|
| Activity: Collect discrete surface soil (0-1 ft bgs) samples. Characterize soil lithology within soil borings.<br><br>Objective: To assess whether DoD-related chemicals associated with the production area are present above risk-based human health and ecological screening and background levels. To determine soil types within the AOC. | Data Planned: 22 surface soil samples were planned.<br><br>Data Collected: 30 surface soil samples collected. Soil boring logs completed.<br><br>Surface soil samples analyzed for:<br>• Metals by ICP SW-846 Method 6010C and ICP-MS Method 6020A<br>• Hg by SW-846 Method 7471B<br>• SVOCs DNCB and 2,4-DNP by SW-846 Method 8270D<br>• Picric acid by SW-846 Method 8330A<br>• %M by ASTM Method D2216.<br>A subset of samples was analyzed for:<br>• TOC by Method 9060A<br>• CEC by SW-846 Method 9081<br>• Grain Size Distribution by ASTM Method D422 |
| Activity: Advance DPT soil borings and collect subsurface soil (1-5 ft bgs and 5-10 ft bgs) samples. Characterize soil lithology within soil borings.<br><br>Objective: To assess whether DoD-related chemicals associated with the production area are present above risk-based human health and ecological screening and background levels. To determine soil types within the AOC. | Data Planned: 44 subsurface soil samples were planned.<br><br>Data Collected: 22 subsurface soil samples collected. Soil boring logs completed.<br><br>Subsurface soil samples analyzed for:<br>• Metals by ICP SW-846 Method 6010C and ICP-MS Method 6020A<br>• Hg by SW-846 Method 7471B<br>• SVOCs DNCB and 2,4-DNP by SW-846 Method 8270D<br>• Picric acid by SW-846 Method 8330A<br>• %M by ASTM Method D2216.<br>A subset of samples was analyzed for:<br>• TOC by Method 9060A<br>• CEC by SW-846 Method 9081<br>• Grain Size Distribution by ASTM Method D422 |

| Activity/Objective | Data Needs |
|---|---|
| Activity: Collect grab groundwater samples from temporary monitoring wells Collect WQP to demonstrate groundwater stabilization.<br><br>Objective: To assess whether DoD-related chemicals associated with the production area are present above risk-based human health screening and background levels in groundwater. To collect representative groundwater samples. | Data Planned: ten grab groundwater samples were planned. Water quality field parameters (pH, ORP, turbidity, temperature, DO, and specific conductivity) to be collected at each location.<br><br>Data Collected: nine groundwater samples collected. WQP were collected until stabilization.<br><br>Groundwater samples were analyzed for:<br>• Dissolved Metals by ICP SW-846 Method 6010C and ICP-MS Method 6020A<br>• Dissolved Hg by SW-846 Method 7470A<br>• SVOCs DNCB and 2,4-DNP by SW-846 Method 8270D<br>• Picric acid by SW-846 Method 8330B. |

Deviations from the UFP-QAPP

The sampling procedures for the RI are presented in Worksheet #17 (Sampling Design and Rationale) of the UFP-QAPP, and the required frequency of sample collection is presented in Worksheet #18 (Sampling Locations and Methods). Field QC samples (FD and MS/MSD) were collected by Bluestone during the Phase I investigation at AOC 1 (and AOC 3) at the frequency shown in **Table 3**. As presented in Worksheet #20 (Field QC Summary) in the UFP-QAPP, the minimum FD sampling frequency (10%) and MS/MSD frequencies (5%) for aqueous and solid samples were met at AOC 1 and AOC 3.

Table 3 – Field QC Sample Frequency – AOCs 1 and 3

| Matrix/Analysis | FD | | MS | | MSD | |
|---|---|---|---|---|---|---|
| **Aqueous** | **Count** | **%** | **Count** | **%** | **Count** | **%** |
| BNASIMD/SW3510C | 1 | 14% | 1 | 14% | 1 | 14% |
| SW7470A/FLDFLT | 2 | 13% | 3 | 19% | 3 | 19% |
| SW8330B/SW3535 | 2 | 12% | 2 | 12% | 2 | 12% |
| SW8082A/SW3510C | 1 | 17% | 1 | 17% | 1 | 17% |
| SW8270D/SW3520C | 2 | 13% | 2 | 13% | 2 | 13% |
| SW6010C/FLDFLT | 2 | 13% | 3 | 19% | 3 | 19% |
| SW6020A/FLDFLT | 2 | 13% | 2 | 13% | 2 | 13% |
| SW8260C/SW5030B | 1 | 14% | 1 | 14% | 1 | 14% |
| **Solid** | **Count** | **%** | **Count** | **%** | **Count** | **%** |
| SW9081/METHOD | 6 | 14% | -- | -- | -- | -- |
| BNASIMD/SW3546 | 4 | 13% | 4 | 13% | 4 | 13% |
| SW7471B/TOTAL | 11 | 13% | 8 | 9.5% | 8 | 9.5% |
| SW8330A/METHOD | 11 | 13% | 9 | 11% | 9 | 11% |
| D2216 | 13 | 13% | -- | -- | -- | -- |
| SW8082A/SW3546 | 4 | 17% | 4 | 17% | 4 | 17% |
| SW8270D/ SW3546 | 12 | 12% | 19 | 19% | 19 | 19% |
| SW9060A | 6 | 14% | 9 | 21% | 9 | 21% |

| Table 3 – Field QC Sample Frequency – AOCs 1 and 3 | | | | | | |
|---|---|---|---|---|---|---|
| **Matrix/Analysis** | **FD** | | **MS** | | **MSD** | |
| SW6010C/3050B | 11 | 13% | 9 | 11% | 9 | 11% |
| SW6020A/3050B | 11 | 13% | 8 | 9.5% | 8 | 9.5% |
| SW8260C/SW5035 | 2 | 11% | 1 | 5.6% | 1 | 5.6% |

Note: The QC frequencies for AOC 1 and AOC 3 are of the combined data sets as imported to the FUDSChem database

A total of fourteen AOC 1 boring locations were modified from the proposed locations as described in the Phase 1 Field Report (USACE, 2021a). One boring location (NYOW-01-019) was relocated approximately 10 feet northwest to avoid an area of wetlands and surface water. The revised location was sufficiently close to the original location near a former dryer house structure to achieve the DQO.

Four boring locations (NYOW-01-005, NYOW-01-022, NYOW-01-023, and NYOW-01-024) were relocated based on field observations prior to installation to be within the Radisson Community green space. NYOW-01-005 was relocated 171 feet northeast, NYOW-01-022 was relocated 60 feet east, NYOW-01-023 was relocated 12 feet southwest, and NYOW-01-024 was relocated 36 feet southeast. The revised locations were sufficiently close to the original locations to achieve the DQOs.

Eight boring locations (NYOW-01-001, NYOW-01-006, NYOW-01-007, NYOW-01-009, NYOW-01-011, NYOW-01-013, NYOW-01-015, and NYOW-01-018) were relocated to avoid areas with steep slopes that the DPT rig was unable to access. NYOW-01-001 was relocated 46 feet northeast, NYOW-01-006 was relocated 266 feet east, NYOW-01-007 was relocated 21 feet northeast, NYOW-01-009 was relocated 20 feet northeast, NYOW-01-011 was relocated 23 feet northeast, NYOW-01-013 was relocated 31 feet east, NYOW-01-015 was relocated 24 feet northeast, and NYOW-01-018 was relocated 84 feet east. The revised locations were sufficiently close to the original locations along the Eastern Transect to achieve the DQOs. Subsurface samples were not collected from NYOW-01-007, NYOW-01-009, NYOW-01-011, and NYOW-01-013.

One boring location (NYOW-01-002) was relocated, due to a right-of-entry concern, 67 feet northeast to be within the Radisson Community property. The revised location was sufficiently close to the original location near a former change house structure to achieve the DQO.

Insufficient recharge was encountered at NYOW-01-021. As a result, only the minimum required volume of water was collected for SW-846 Method 8270D (one liter). The reduced volume did not cause an elevation in reporting limits for Method 8270D.

Samples were not collected at two locations (NYOW-01-003 and NYOW-01-004) because Bluestone did not have a right of entry (ROE) for either property. These borings could not be relocated onto Radisson Community property because the former change houses that these borings were proposed to characterize are located at the top of a near-vertical slope. The only safe, accessible locations within the Radisson Community property that these borings could have been relocated to would not have satisfied the DQOs because these locations would have been at the base of a 25-foot tall, steep (approximately 60 to 70 degree) slope. In addition, one location (NYOW-01-017), proposed at a former magazine (No. 107), was not installed because this location is located on private property and ROE was not agreed to by the property owner. Therefore, these three borings have been postponed until ROE can be acquired and represent an existing and potentially permanent data gap.

The existing concrete building foundations and steep slopes prompted a change in the sampling plan to collect shallow (0-1 ft bgs) samples biased to potential receptors (i.e., downgradient areas and beneath

existing drain discharges). Borings at four locations (NYOW-01-008, NYOW-01-010, NYOW-01-012, and NYOW-01-014) were not installed because these borings were proposed in the center of the concrete floors and were not accessible by the DPT rig due to the presence of sidewalls. Instead, surface soil samples were collected from NYOW-01-025 through NYOW-01-039 using hand augers. Around each former manufacturing building, a hand auger surface soil sample was collected from the nearest downgradient point along the northeast side of the concrete footprint. In support of the DQO to determine presences/absence, these unplanned discrete samples were located in areas where the preliminary site conceptual model indicates site-related constituents, if present, should be found in higher concentrations, decreasing the possibility of incorrectly eliminating a constituent from further evaluation. Additional samples were collected near observed drain discharge points on the northwest and southeast sides of each former manufacturing building. Hand auger sample collection was conducted at these locations as DPT rig access was limited by steep slopes to the northwest, west, and south, and by wetlands to the north, east, and southeast.

Groundwater samples at two locations (NYOW-01-WL022-A and NYOW-01-WL023-A) were recollected for explosives and SVOC analyses because the original samples were received at the laboratory outside of the required temperature criteria due to shipment delays. Because the compromised samples were recollected, data usability is not impacted.

### 2.1.4 AOC 3

The Phase 1 investigation objectives for AOC 3 (Former Landfill) are summarized below:

| Activity/Objective | Data Needs |
|---|---|
| Activity: Advance 16 DPT soil borings and collect discrete a discrete surface soil (0-1 ft bgs) sample from each DPT location. Characterize soil lithology within soil borings.<br><br>Objective: To assess whether DoD-related chemicals associated with the former landfill and former open storage areas are present above risk-based human health and ecological screening and background levels. To determine soil types within the AOC. | Data Planned: 16 surface soil samples were planned.<br><br>Data Collected: 16 surface soil samples collected. Soil boring logs completed.<br><br>Surface soil samples analyzed for:<br>• Metals by ICP SW-846 Method 6010C and ICP-MS Method 6020A<br>• Hg by SW-846 Method 7471B<br>• SVOCs by SW-846 Method 8270D<br>• PAHs by SW-846 Method 8270D with SIM<br>• Picric acid by SW-846 Method 8330A<br>• PCBs by SW-846 8082A (former landfill area samples only)<br>• %M by ASTM Method D2216.<br><br>A subset of samples was analyzed for:<br>• TOC by Method 9060A<br>• CEC by SW-846 Method 9081<br>• Grain Size Distribution by ASTM Method D422 |

| Activity/Objective | Data Needs |
|---|---|
| Activity: Advance DPT soil borings and collect a subsurface soil (1-5 ft bgs) sample from each DPT boring. Characterize soil lithology within soil borings.<br><br>Objective: To assess whether DoD-related chemicals associated with the former landfill and former open storage areas are present above risk-based human health and ecological screening and background levels. To determine soil types within the AOC. | Data Planned: 16 subsurface soil samples were planned.<br><br>Data Collected: 16 subsurface soil samples collected. Soil boring logs completed.<br><br>Subsurface soil samples analyzed for:<br>• Metals by ICP SW-846 Method 6010C and ICP-MS Method 6020A<br>• Hg by SW-846 Method 7471B<br>• VOCs by SW-846 Method 8260C<br>• SVOCs by SW-846 Method 8270D<br>• PAHs by SW-846 Method 8270D with SIM<br>• Picric acid by SW-846 Method 8330A<br>• PCBs by SW-846 8082A (former landfill area samples only)<br>• %M by ASTM Method D2216<br><br>A subset of samples was analyzed for:<br>• TOC by Method 9060A<br>• CEC by SW-846 Method 9081<br>• Grain Size Distribution by ASTM Method D422 |
| Activity: Collect grab groundwater samples from the DPT soil borings. Collect WQP to demonstrate groundwater stabilization.<br><br>Objective: To assess the quality of groundwater in the former landfill and former open storage areas. To collect representative groundwater samples. | Data Planned: Up to seven grab groundwater samples were planned. Water quality field parameters (pH, ORP, turbidity, temperature, DO, and specific conductivity) to be collected at each location.<br><br>Data Collected: seven groundwater samples collected. WQP were collected until stabilization.<br><br>Groundwater samples were analyzed for:<br>• Dissolved Metals by ICP SW-846 Method 6010C and ICP-MS Method 6020A<br>• Dissolved Hg by SW-846 Method 7470A<br>• VOCs by SW-846 Method 8260C<br>• SVOCs by SW-846 Method 8270D<br>• PAHs by SW-846 Method 8270D with SIM<br>• Picric acid by SW-846 Method 8330B<br>• PCBs by SW-846 8082A (Former Landfill Area samples only) |

Deviations from the QAPP

The sampling procedures for the RI are presented in Worksheet #17 (Sampling Design and Rationale) of the UFP-QAPP and the required frequency of sample collection is presented in Worksheet #18 (Sampling Locations and Methods). Field QC samples (FD and MS/MSD) were collected by Bluestone during the Phase I investigation at AOC 3 (and AOC 1) at the frequency shown in **Table 3,** below. As presented in Worksheet #20 (Field QC Summary) in the UFP-QAPP, the minimum FD sampling frequency (10%) and MS/MSD frequencies (5%) for aqueous and solid samples were met at AOC 3 and AOC 1.

Table 3 – Field QC Sample Frequency – AOCs 1 and 3

| **Matrix/Analysis** | **FD** | | **MS** | | **MSD** | |
|---|---|---|---|---|---|---|
| **Aqueous** | **Count** | **%** | **Count** | **%** | **Count** | **%** |
| BNASIMD/SW3510C | 1 | 14% | 1 | 14% | 1 | 14% |
| SW7470A/FLDFLT | 2 | 13% | 3 | 19% | 3 | 19% |
| SW8330B/SW3535 | 2 | 12% | 2 | 12% | 2 | 12% |
| SW8082A/SW3510C | 1 | 17% | 1 | 17% | 1 | 17% |
| SW8270D/SW3520C | 2 | 13% | 2 | 13% | 2 | 13% |
| SW6010C/FLDFLT | 2 | 13% | 3 | 19% | 3 | 19% |
| SW6020A/FLDFLT | 2 | 13% | 2 | 13% | 2 | 13% |
| SW8260C/SW5030B | 1 | 14% | 1 | 14% | 1 | 14% |
| **Solid** | **Count** | **%** | **Count** | **%** | **Count** | **%** |
| SW9081/METHOD | 6 | 14% | -- | -- | -- | -- |
| BNASIMD/SW3546 | 4 | 13% | 4 | 13% | 4 | 13% |
| SW7471B/TOTAL | 11 | 13% | 8 | 9.5% | 8 | 9.5% |
| SW8330A/METHOD | 11 | 13% | 9 | 11% | 9 | 11% |
| D2216 | 13 | 13% | -- | -- | -- | -- |
| SW8082A/SW3546 | 4 | 17% | 4 | 17% | 4 | 17% |
| SW8270D/ SW3546 | 12 | 12% | 19 | 19% | 19 | 19% |
| SW9060A | 6 | 14% | 9 | 21% | 9 | 21% |
| SW6010C/3050B | 11 | 13% | 9 | 11% | 9 | 11% |
| SW6020A/3050B | 11 | 13% | 8 | 9.5% | 8 | 9.5% |
| SW8260C/SW5035 | 2 | 11% | 1 | 5.6% | 1 | 5.6% |

Note: The QC frequencies for AOC 1 and AOC 3 are of the combined data sets as imported to the FUDSChem database

A total of 14 AOC 3 boring locations were modified from the proposed locations as described in the Phase 1 Field Report (USACE, 2021a).

Five boring locations (NYOW-03-011, NYOW-03-012, NYOW-03-013, NYOW-03-014, and NYOW-03-015) were relocated based on geophysical survey findings, which indicated that the former landfill is located north of the golf course parking lot. NYOW-03-011 was relocated 25 feet northwest, NYOW-03-012 was relocated 16 feet northwest, NYOW-03-013 was relocated 140 feet north, NYOW-03-014 was relocated 137 feet north, and NYOW-03-015 was relocated 184 feet north. The revised locations were sufficient to characterize subsurface soil conditions adjacent to the former landfill and achieve the DQOs.

Three boring locations (NYOW-03-009, NYOW-03-010, and NYOW-03-018) were relocated based on field observations prior to installation. NYOW-03-009 (relocated 183 feet southwest) and NYOW-03-010 (relocated 27 feet southwest) were relocated due to proximity to the property line based on field observations of the fence line. NYOW-03-018 was relocated 178 feet northeast to be a potential soil vapor

intercept location between the former landfill and the existing clubhouse building. The revised locations were still located within the footprint of the former landfill area of concern and therefore achieve the DQOs.

One boring location (NYOW-03-016) was relocated 12 feet to the southwest to avoid underground utilities that were located during the private utility clearance. The revised location was sufficiently close to the original location to achieve the DQO.

Five boring locations (NYOW-03-001, NYOW-03-002, NYOW-03-005, NYOW-03-007, and NYOW-03-008) were relocated to avoid areas with steep slopes that the DPT rig was unable to access. NYOW-03-001 was relocated 39 feet east, NYOW-03-002 was relocated 12 feet east, NYOW-03-005 was relocated 44 feet southeast, NYOW-03-007 was relocated 27 feet northeast, and NYOW-03-008 was relocated 40 feet southwest. The revised locations were sufficiently close to the original locations to achieve the DQOs.

The proposed monitoring well location NYOW-03-011 (soil and groundwater location) hit shallow refusal at 10.5 ft bgs and water was not encountered; therefore, no well was installed at location NYOW-03-011. A well was installed at NYOW-03-010 instead, which provides sufficient groundwater information on the eastern extent of AOC 3 to achieve the DQO.

A total of 11 surface and subsurface soil samples (NYOW-03-PH008-B, NYOW-03-PH009-B, NYOW-03-PH013-B, NYOW-03-PH014-B, NYOW-03-PH015-B, NYOW-03-SL008-A, NYOW-03- SL009-A, NYOW-03- SL013-A, NYOW-03- SL014-A, NYOW-03- SL015-A, and SL-DUP-001_210405) were recollected for the SVOC analysis because the original samples were received at the laboratory outside of the required temperature criteria due to shipment delays. Because the compromised samples were recollected, data usability is not impacted.

Seven subsurface soil samples (NYOW-03-PH005-B, NYOW-03-PH006-B, NYOW-03-PH007-B, NYOW-03-PH016-B, NYOW-03-PH017-B, NYOW-03-PH018-B, and PH-DUP-001_210401) were recollected for the VOC analysis because a sample control technician inadvertently place the original sample vials in the refrigerator instead of the freezer. Because the compromised samples were recollected, data usability is not impacted.

Four subsurface soil samples (NYOW-03-PH005-B, NYOW-03-PH006-B, NYOW-03-PH007-B, and NYOW-03-PH016-B) were inadvertently recollected for SVOC analysis due to a transcription error where both VOCs and SVOCs, instead of VOCs only, were marked in the matrix provided to the field sampling team. Because both sets of analytical results represent valid, discrete soil data collected from unique soil boring locations, the SVOC results from both samples (original and re-sample) have been reported and uploaded to FUDSChem.

### 2.1.5 AOC 4 Incremental Sampling Methodology (ISM)

The Phase 1 investigation objectives for ISM sampling at AOC 4 (Former Bunker Area) are summarized below:

| Activity/Objective | Data Needs |
|---|---|
| Activity: Identify 12 DUs that correspond to each of the ammonium picrate bunkers. Collect three ISM samples, each comprised of 30 surface soil (0-1 ft bgs) increments, at each DU. Characterize soil lithology and complete a boring log for each DU. | Data Planned: 36 surface soil ISM samples were planned. |

| Activity/Objective | Data Needs |
|---|---|
| Objective: To generate a versatile data suite that may be applied to risk-based objectives and to provide opportunities to evaluate total concentrations of any contaminants. To characterize soil within each DU. | Data Collected: 36 surface soil ISM samples were collected. Soil description and boring logs completed.<br><br>ISM samples were analyzed for:<br>• SVOCs (DNCB and 2,4-DNP) by SW-846 Method 8270D<br>• Picric acid by SW-846 Method 8330B |

Deviations from the QAPP

The sampling procedures for the RI are presented in Worksheet #17 (Sampling Design and Rationale) of the UFP-QAPP and the required frequency of sample collection is presented on Worksheet #18 (Sampling Locations and Methods). ISM field replicates (FR) were collected by Bluestone at each of the 12 DUs during the Phase I investigation at AOC 4. Four MS samples were aliquoted by the laboratory after ISM processing was complete (**Table 4**). As presented in Worksheet #20 (Field QC Summary) in the UFP-QAPP, the minimum MS sampling frequency (10%) was met for ISM samples at AOC 4.

Table 4 – Field QC Sample Frequency – AOC 4, ISM

| Matrix/Analysis | FD | | MS | | MSD | |
|---|---|---|---|---|---|---|
| **Solid** | **Count** | **%** | **Count** | **%** | **Count** | **%** |
| SW8330A/METHOD | -- | -- | 4 | 11% | 4 | 11% |
| SW8270D/SW3546 | -- | -- | 4 | 11% | 4 | 11% |

A total of 21 ISM increments within seven decision units (DU001, DU002, DU006, DU007, DU011, DU012, and DU013) were relocated to be outside of their respective bunker driveway aprons due to the presence of gravel that was preventing sample collection by hand tools. The relocated increments were still collected from within their respective DUs, and the DQOs were achieved.

The ISM samples for SVOC analysis underwent the complete ISM processing and subsampling procedures, rather than having aliquots removed for SVOC analysis/moisture content prior to drying, as was specified in the UFP-QAPP. The decision to process ISM samples for the SVOC analysis was based on information provided in the ISM-2 guidance regarding the loss potential of SVOCs during air drying and the consideration that air exposure at the laboratory was not likely to produce analyte loss for surface soils that had been exposed to ambient air for many years (ITRC, 2021).

While only MS samples were included in the QAPP in accordance with programmatic requirements, both MS and MSDs were inadvertently performed for ISM samples in the SVOC and explosives analyses by the laboratory.

### 2.1.6 Background

The Phase 1 investigation objectives for Background are summarized below:

| Activity/Objective | Data Needs |
|---|---|
| Activity: Select 15 background sample locations. Advance DPT soil borings and collect a discrete surface soil (0-1 ft bgs) sample from each location. Characterize soil lithology within soil borings.<br><br>Objective: To assess background threshold values at locations not impacted by DoD operations. To determine soil types for background. | Data Planned: 45 surface soil samples were planned.<br><br>Data Collected: 45 surface soil samples were collected. Soil boring logs completed.<br>Surface soil samples were analyzed for:<br>• Metals by ICP SW-846 Method 6010C and ICP-MS Method 6020A<br>• Hg by SW-846 Method 7471B<br>• PAHs by SW-846 Method 8270D with SIM<br>• %M by ASTM Method D2216<br>• TOC by Method 9060A<br>• CEC by SW-846 Method 9081<br>• Grain Size Distribution by ASTM Method D422 |
| Activity: Collect discrete subsurface soil (1-5 ft bgs and 5-10 ft bgs) samples from each DPT location for each of the three major soil types (Ps, Pd, and Psc). Characterize soil lithology within soil borings.<br><br>Objective: To assess background threshold values at locations not impacted by DoD operations. To determine soil types for background. | Data Planned: 90 subsurface soil samples were planned.<br><br>Data Collected: 90 subsurface soil samples were collected. Soil boring logs completed.<br><br>Subsurface soil samples were analyzed for:<br>• Metals by ICP SW-846 Method 6010C and ICP-MS Method 6020A<br>• Hg by SW-846 Method 7471B<br>• PAHs by SW-846 Method 8270D with SIM<br>• %M by ASTM Method D2216<br>• TOC by Method 9060A<br>• CEC by SW-846 Method 9081<br>• Grain Size Distribution by ASTM Method D422 |
| Activity: Collect upgradient groundwater samples from DPT soil borings. Collect WQP to demonstrate groundwater stabilization.<br><br>Objective: To compare background concentrations to the concentrations of DoD-related constituents measured in site groundwater samples. To collect representative groundwater samples. | Data Planned: nine background groundwater samples were planned. Water quality field parameters (pH, ORP, turbidity, temperature, DO, and specific conductivity) to be collected at each location.<br><br>Data Collected: nine background groundwater samples were collected. WQP were collected until stabilization.<br>Background groundwater samples were analyzed for:<br>• Dissolved metals by ICP SW-846 Method 6010C and ICP-MS Method 6020A |

| Activity/Objective | Data Needs |
|---|---|
| | • Dissolved Hg by SW-846 Method 7470A<br>• PAHs by SW-846 Method 8270D with SIM |

Deviations from the UFP-QAPP

Soil background samples must represent regional surficial geology to the respective AOC surface and subsurface media. TOC, CEC, and grain size were used to evaluate subsurface soil lithology to establish the number of viable soil samples for each soil type (Ps, Pd, and Psc). The following sample sizes were obtained during the subsurface soil sampling event:

- Ps (sand and gravel), *n = 24*
- Pd (diamicton), *n = 11*
- Psc (lacustrine silt and clay), *n = 8*

The objective of the subsurface soil sampling to obtain 15 samples for each soil type was not achieved; however, the sample size is sufficient (i.e., n ≥ 8) to compare site soil to background using summary statistics (e.g., ranges, means, medians, standard deviations), exploratory graphical displays (e.g., side-by-side box plots, histograms, and quantile-quantile plots), and to calculate BTVs (Bluestone, 2022). In the case of AOC 5, where the investigation is an initial Site Investigation (SI), any comparisons with background is for informational purposes and not used to eliminate methods and/or analytes from further investigation (Bluestone, 2022).

The sampling procedures for the RI are presented in Worksheet #17 (Sampling Design and Rationale) of the UFP-QAPP and the required frequency of sample collection is presented in Worksheet #18 (Sampling Locations and Methods). Field QC samples (FD and MS/MSD) were collected by Bluestone during the Phase I investigation for Background at the frequency shown in **Table 5**. As presented in Worksheet #20 (Field QC Summary) in the UFP-QAPP, the minimum FD sampling frequency (10%) and MS/MSD frequencies (5%) for aqueous and solid samples were met for background sampling.

Table 5 – Field QC Sample Frequency – Background

| Matrix/Analysis | FD | | MS | | MSD | |
|---|---|---|---|---|---|---|
| **Aqueous** | **Count** | **%** | **Count** | **%** | **Count** | **%** |
| BNASIMD/SW3510C | 1 | 11% | 1 | 11% | 1 | 11% |
| SW7470A/FLDFLT | 1 | 11% | 1 | 11% | 1 | 11% |
| SW6010C/FLDFLT | 1 | 11% | 1 | 11% | 1 | 11% |
| SW6020A/FLDFLT | 1 | 11% | 1 | 11% | 1 | 11% |
| **Solid** | **Count** | **%** | **Count** | **%** | **Count** | **%** |
| SW9081/METHOD | 14 | 10% | -- | -- | -- | -- |
| BNASIMD/SW3546 | 14 | 10% | 15 | 11% | 15 | 11% |
| SW7471B/TOTAL | 14 | 10% | 14 | 10% | 14 | 10% |
| D2216 | 14 | 10% | -- | -- | -- | -- |
| SW9060A | 14 | 10% | 14 | 10% | 14 | 10% |
| SW6010C/3050B | 14 | 10% | 15 | 11% | 15 | 11% |
| SW6020A/3050B | 14 | 10% | 15 | 11% | 15 | 11% |

A total of 21 Background boring locations were modified from the proposed locations to avoid areas of wetlands and surface water as described in the Phase 1 Field Report (USACE, 2021a) and presented below in **Table 6**.

**Table 6**: Relocated Background Boring Locations

| Sample ID | Relocation Distance and Direction | Sample ID | Relocation Distance and Direction |
|---|---|---|---|
| NYOW-B-003 | 47 feet north | NYOW-B-009 | 300 feet southeast |
| NYOW-B-010 | 132 feet northeast | NYOW-B-011 | 586 feet south |
| NYOW-B-012 | 185 feet north | NYOW-B-014 | 233 feet north |
| NYOW-B-015 | 652 feet northwest | NYOW-B-016 | 912 feet northwest |
| NYOW-B-018 | 451 feet north | NYOW-B-019 | 1281 feet northwest |
| NYOW-B-020 | 217 feet northwest | NYOW-B-025 | 115 feet northeast |
| NYOW-B-026 | 685 feet north | NYOW-B-027 | 700 feet south |
| NYOW-B-028 | 753 feet north | NYOW-B-029 | 611 feet southeast |
| NYOW-B-030 | 913 feet southeast | NYOW-B-031 | 88 feet west |
| NYOW-B-033 | 503 feet southeast | NYOW-B-040 | 52 feet southwest |
| NYOW-B-047 | 37 feet southeast | | |

Each of the background soil borings was relocated to an area still within the historic soil units. The Psc unit could not be sampled south of the edge of the wetland, resulting in the greatest overall relocation distances (e.g., NYOW-B-019, NYOW-B-016). The background soil sampling yielded the lowest sample size for Psc.

## 2.2 DATA QUALITY INDICATOR EVALUATION

### 2.2.1 Precision

Precision measures the agreement among a set of replicate measurements. Analytical precision is estimated using laboratory control spike (LCS)/laboratory control spike duplicate (LCSD) pairs or MS/MSD pairs. Field and analytical precision are evaluated using FD sample pairs. The most commonly used estimates of precision when only two samples are available is the relative percent difference (RPD). The RPD is calculated as the absolute value of the difference between two results divided by the arithmetic mean of the results. The RPDs for QC sample pairs were within the precision limits presented in the UFP-QAPP (USACE, 2020), with the exceptions noted below.

#### *2.2.1.1 AOC 5*

Surface Soil

**Table 7** summarizes the number of surface soil results that were qualified due to parent/FD RPD exceedances:

| **Table 7:** AOC5 Surface Soil Summary – Analytical and Field Precision (3 parent/FD pairs) | |
|---|---|
| Total number of Surface Soil results for parent/FD pairs | 470 |
| Surface Soil results qualified for parent/FD RPD exceedances | 24 (5.1%) |

The notable surface soil parent/FD RPD exceedances are as follows:

- NYOW-05-SL002-A: FD RPDs > 50% for phenanthrene (157%), fluoranthene (141%), benzo(a)anthracene (137%), pyrene (137%), benzo(a)pyrene (133%), indeno(1,2,3-cd)pyrene (123%), benzo(b)fluoranthene (116%), chrysene (115%), calcium (78%), and magnesium (57%).
- NYOW-05-SL023-A: FD RPD > 50% for calcium (136%).

Surface soils are inherently heterogeneous; therefore, elevated RPDs for PAH and metal analytes are commonly encountered.

**Table 8** summarizes the number of surface soil results that were qualified due to MS/MSD RPD exceedances:

| **Table 8:** AOC5 Surface Soil Summary – Analytical Precision (MS/MSD pairs) | |
|---|---|
| Total Number of Surface Soil Results | 2134 |
| Surface Soil results qualified for MS/MSD RPD exceedances | 16 (<1%) |

The notable surface soil MS/MSD RPD exceedances are as follows:

- NYOW-05-SL003-A: MS/MSD RPD > 20% for magnesium (43%) and dibenzofuran (21%).
- NYOW-05-SL010-A: MS/MSD RPDs > 20% for manganese (57%), calcium (33%), aluminum (25%), antimony (25%), and magnesium (24%).
- NYOW-05-SL022-A: MS/MSD RPDs > 20% for manganese (109%), calcium (92%), magnesium (37%), iron (30%), potassium (26%), and barium (23%).
- NYOW-05-SL025-A: MS/MSD RPDs > 40% for benzo(a)anthracene (52%), chrysene (40%), and pyrene (40%).

There were no surface soil results qualified for LCS/LCSD RPD exceedances, indicating acceptable laboratory precision.

Subsurface Soil

**Table 9** summarizes the number of subsurface soil results that were qualified due to parent/FD RPD exceedances:

| **Table 9:** AOC 5 Subsurface Soil Summary – Analytical and Field Precision (5 parent/FD pairs) | |
|---|---|
| Total number of Subsurface Soil results for parent/FD pairs | 1040 |
| Subsurface Soil results qualified for parent/FD RPD exceedances | 25 (2.4%) |

The notable subsurface soil parent/FD RPD exceedances are as follows:

- NYOW-05-PH001-C: FD RPDs > 50% for arsenic (103%), barium (93%), potassium (77%), aluminum (74%), vanadium (69%), chromium (67%), magnesium (63%), iron (58%), and cobalt (52%).
- NYOW-05-PH022-B: FD RPDs > 50% for benzo(g,h,i)perylene (172%), calcium (67%), and lead (62%).

**Table 10** summarizes the number of subsurface soil results that were qualified due to MS/MSD RPD exceedances:

| **Table 10:** AOC5 Subsurface Soil Summary – Analytical Precision (MS/MSD pairs) | |
|---|---|
| Total number of Subsurface Soil results | 5736 |
| Subsurface Soil results qualified for MS/MSD RPD exceedances | 12 (<1%) |

The notable surface soil MS/MSD RPD exceedances are as follows:

- NYOW-05-PH003-B: MS/MSD RPDs > 20% for manganese (123%), thallium (38%), selenium (36%), antimony (35%), cadmium (35%), and arsenic (28%).
- NYOW-05-PH011-B: MS/MSD RPD > 20% for antimony (29%).
- NYOW-05-PH021-C: MS/MSD RPDs > 20% for zinc (50%), manganese (36%), cadmium (23%), thallium (23%), and selenium (22%).

There were no subsurface soil results qualified for LCS/LCSD RPD exceedances.

Groundwater

**Table 11** summarizes the number of groundwater results that were qualified due to parent/FD RPD exceedances:

| **Table 11:** AOC 5 Groundwater Summary – Analytical and Field Precision (2 parent/FD pairs) | |
|---|---|
| Total number of groundwater (GW) results for parent/FD pair | 484 |
| GW results qualified for parent/FD RPD exceedances | 2 (<1%) |

The notable groundwater parent/FD RPD exceedances are as follows:

- NYOW-05-WL012-A: FD RPD > 30% for dissolved iron (61.8%).

There were no groundwater results qualified for MS/MSD or LCS/LCSD RPD exceedances.

#### *2.2.1.2 AOC 4*

Surface Soil

There were no target analytes detected in any of the surface soil samples; therefore, there were no surface soil results qualified for parent/FD RPD exceedances. There were no surface soil results qualified for MS/MSD or LCS/LCSD RPD exceedances. The DQOs for the project were achieved regarding precision for AOC 4 surface soil sampling.

Subsurface Soil

There were no target analytes detected in any of the subsurface soil samples; therefore, there were no subsurface soil results qualified for parent/FD RPD exceedances. There were no subsurface soil results qualified for MS/MSD or LCS/LCSD RPD exceedances. The DQOs for the project were achieved regarding precision for AOC 4 subsurface soil sampling.

Groundwater

There were no target analytes detected in any of the groundwater samples; therefore, there were no groundwater results qualified for parent/FD RPD exceedances. There were no groundwater results qualified for MS/MSD or LCS/LCSD RPD exceedances. The DQOs for the project were achieved regarding precision for AOC 4 groundwater sampling.

#### *2.2.1.3 AOC 1*

Surface Soil

**Table 12** summarizes the number of surface soil results that were qualified due to parent/FD RPD exceedances:

| **Table 12:** AOC 1 Surface Soil Summary – Analytical and Field Precision (2 parent/FD pairs) | |
|---|---|
| Total number of Surface Soil results for parent/FD pairs | 112 |
| Surface Soil results qualified for parent/FD RPD exceedances | 22 (19.6%) |

The notable surface soil parent/FD RPD exceedances are as follows:

- NYOW-01-SL005-A: FD RPD > 50% for zinc (165%).
- NYOW-01-SL019-A: FD RPDs > 50% for TOC (139%), aluminum (84%), nickel (82%), chromium (77%), copper (69%), barium (64%), vanadium (62%), cobalt (59%), potassium (57%), and lead (57%).

**Table 13** summarizes the number of surface soil results that were qualified due to MS/MSD RPD exceedances:

| **Table 13:** AOC 1 Surface Soil Summary – Analytical Precision (MS/MSD pairs) | |
|---|---|
| Total number of Surface Soil results | 897 |
| Surface Soil results qualified for MS/MSD RPD exceedances | 6 (<1%) |

The notable surface soil MS/MSD RPD exceedances are as follows:

- NYOW-01-SL002-A: MS/MSD RPD > 20% for TOC (48%).
- NYOW-01-SL021-A: MS/MSD RPDs > 20% for zinc (70%), calcium (59%), and magnesium (23%).
- NYOW-01-SL029-A: MS/MSD RPD > 20% for TOC (20.03%).

There were no surface soil results qualified for LCS/LCSD RPD exceedances. Surface soil sample NYOW-01-SL026-A exhibited dual column RPD greater than the control limit (40%) for picric acid at 194%. No obvious chromatographic interference was identified. Consistent with the Quality System Manual and SW-846 Method 8000D, the lower result from the primary column was reported.

Subsurface Soil

**Table 14** summarizes the number of subsurface soil results that were qualified due to parent/FD RPD exceedances:

| **Table 14:** AOC 1 Subsurface Soil Summary – Analytical and Field Precision (5 parent/FD pairs) | |
|---|---|
| Total number of Subsurface Soil results for parent/FD pairs | 282 |
| Subsurface Soil results qualified for parent/FD RPD exceedances | 16 (5.7%) |

The notable subsurface soil parent/FD RPD exceedances are as follows:

- NYOW-05-PH019-C: FD RPDs > 50% for TOC (152%), copper (58%), and zinc (57%).
- NYOW-05-PH023-C: FD RPDs > 50% for calcium (83%), cobalt (65%), magnesium (61%), and nickel (60%).

**Table 15** summarizes the number of subsurface soil results that were qualified due to MS/MSD RPD exceedances:

| **Table 15:** AOC 1 Subsurface Soil Summary – Analytical Precision (MS/MSD pairs) | |
|---|---|
| Total number of Subsurface Soil results | 755 |
| Subsurface Soil results qualified for MS/MSD RPD exceedances | 23 (3.0%) |

The notable subsurface soil MS/MSD RPD exceedances are as follows:

- NYOW-01-PH002-B: MS/MSD RPDs > 20% for calcium (58%), TOC (30%), cobalt (23%), cadmium (21%), beryllium (21%), sodium (21%) and nickel (21%).
- NYOW-01-PH019-B: MS/MSD RPDs > 20% for iron (40%), antimony (24%), and cadmium (22%).
- NYOW-01-PH023-B: MS/MSD RPDs > 20% for TOC (61%), sodium (29%), beryllium (28%), silver (26%), chromium (26%), nickel (26%), lead (26%), vanadium (25%), cobalt (25%), zinc (24%), copper (21%), potassium (21%), and calcium (21%).

There were no subsurface soil results qualified for LCS/LCSD RPD exceedances.

Groundwater

**Table 16** summarizes the number of groundwater results that were qualified due to parent/FD RPD exceedances:

| **Table 16:** AOC 1 Groundwater Summary – Analytical and Field Precision (1 parent/FD pair) | |
|---|---|
| Total number of GW results for parent/FD pair | 52 |
| GW results qualified for parent/FD RPD exceedances | 4 (7.7%) |

The notable groundwater parent/FD RPD exceedances are as follows:

- NYOW-01-WL005-A: FD RPDs > 30% for dissolved aluminum (137%) and dissolved iron (79%).

There were no groundwater results qualified for MS/MSD or LCS/LCSD RPD exceedances.

#### *2.2.1.4 AOC 3*

Surface Soil

**Table 17** summarizes the number of surface soil results that were qualified due to parent/FD RPD exceedances:

| **Table 17:** AOC 3 Surface Soil Summary – Analytical and Field Precision (3 parent/FD pairs) | |
|---|---|
| Total number of Surface Soil results for parent/FD pairs | 422 |
| Surface Soil results qualified for parent/FD RPD exceedances | 48 (11.4%) |

The notable surface soil parent/FD RPD exceedances are as follows:

- NYOW-03-SL006-A: FD RPD > 50% for calcium (161%), magnesium (112%), benzo(a)anthracene (103%), cadmium (97%), fluoranthene (84%), pyrene (84%), benzo(k)fluoranthene (81%), benzo(a)pyrene (72%), chrysene (70%), indeno(1,2,3-cd)pyrene (67%), benzo(b)fluoranthene (60%), benzo(g,h,i)perylene (51%), and percent solids (20.1%).
- NYOW-03-SL013-A: FD RPDs > 50% for anthracene (73%), chrysene (70%), acenaphthylene (69%), TOC (67%), benzo(g,h,i)perylene (65%), benzo(a)anthracene (63%), CEC (63%), benzo(a)pyrene (61%), benzo(b)fluoranthene (59%), fluoranthene (59%), and benzo(k)fluoranthene (54%).

**Table 18** summarizes the number of surface soil results that were qualified due to MS/MSD RPD exceedances:

| **Table 18:** AOC 3 Surface Soil Summary – Analytical Precision (MS/MSD pairs) | |
|---|---|
| Total number of Surface Soil results | 1859 |
| Surface Soil results qualified for MS/MSD RPD exceedances | 20 (1.1%) |

The notable surface soil MS/MSD RPD exceedances are as follows:

- NYOW-03-SL004-A: MS/MSD RPDs > 20% for thallium (35%), cadmium (33%), selenium (32%), and arsenic (30%).
- NYOW-03-SL009-A: MS/MSD RPD > 20% for phenanthrene (42%), sodium (41%), beryllium (40%), calcium (40%), barium (39%), cobalt (39%), chromium (38%), copper (38%), potassium (38%), nickel (37%), lead (37%), magnesium (35%), vanadium (35%), antimony (31%), zinc (30%), and manganese (22%).

**Table 19** summarizes the number of surface soil results that were qualified due to LCS/LCSD RPD exceedances:

| **Table 19:** AOC 3 Surface Soil Summary – Analytical Precision (LCS/LCSD pairs) | |
|---|---|
| Total number of Surface Soil results | 1859 |
| Surface Soil results qualified for LCS/LCSD RPD exceedances | 5 (<1%) |

The notable surface soil LCS/LCSD RPD exceedances are as follows:

- LCS/LCSD RPDs > 20% for carbazole (70% and 27%), benzaldehyde (52%), *m,p*-cresols (33%), and dibenzofuran (24%).

Surface soil samples NYOW-03-SL008-A, NYOW-03-SL010-A, NYOW-03-SL013-A, and NYOW-03-SL015-A exhibited dual column RPDs for PCB-1260 greater than the control limit (40%) at 68%, 64%, 52%, and 104%, respectively.

Subsurface Soil

**Table 20** summarizes the number of subsurface soil results that were qualified due to parent/FD RPD exceedances:

| **Table 20:** AOC 3 Subsurface Soil Summary – Analytical and Field Precision (3 parent/FD pairs) | |
|---|---|
| Total number of Subsurface Soil results for parent/FD pairs | 616 |
| Subsurface Soil results qualified for parent/FD RPD exceedances | 41 (6.7%) |

The notable subsurface soil parent/FD RPD exceedances are as follows:

- NYOW-03-PH005-B: FD RPDs > 50% for calcium (80%) and manganese (57%).
- NYOW-03-PH006-B_R: FD RPD > 50% for acetone (60%).
- NYOW-03-PH012-B: FD RPD > 50% for naphthalene (144%), fluorene (113%), magnesium (110%), phenanthrene (94%), cadmium (92%), calcium (90%), thallium (62%), potassium (59%), lead (56%), and benzo(g,h,i)perylene (52%).

**Table 21** summarizes the number of subsurface soil results that were qualified due to MS/MSD RPD exceedances:

| **Table 21:** AOC 3 Subsurface Soil Summary – Analytical Precision (MS/MSD pairs) | |
|---|---|
| Total number of Subsurface Soil results | 3096 |
| Subsurface Soil results qualified for MS/MSD RPD exceedances | 4 (<1%) |

The notable subsurface soil MS/MSD RPD exceedances are as follows:

- NYOW-03-PH005-B: MS/MSD RPDs > 40% for benzo(b)fluoranthene (47%), benzo(a)pyrene (44%), and benzo(k)fluoranthene (41%).
- NYOW-03-PH008-B: MS/MSD RPD > 20% for calcium (56%).

There were no subsurface soil results qualified for LCS/LCSD RPD exceedances.

Groundwater

**Table 22** summarizes the number of groundwater results that were qualified due to parent/FD RPD exceedances:

| **Table 22:** AOC 3 Groundwater Summary – Analytical and Field Precision (1 parent/FD pair) | |
|---|---|
| Total number of GW results for parent/FD pair | 308 |
| GW results qualified for parent/FD RPD exceedances | 3 (1.0%) |

The notable groundwater parent/FD RPD exceedances are as follows:

- NYOW-03-WL013-A: FD RPD > 30% for dissolved manganese (46%).

**Table 23** summarizes the number of groundwater results that were qualified due to MS/MSD RPD exceedances:

| **Table 23:** AOC 3 Groundwater Summary – Analytical Precision (MS/MSD pairs) | |
|---|---|
| Total number of Groundwater results | 1223 |
| Groundwater results qualified for MS/MSD RPD exceedances | 1 (<1%) |

The notable groundwater MS/MSD RPD exceedances are as follows:

- NYOW-03-WL009-A: MS/MSD RPD > 20% for picric acid (73%).

There were no groundwater results qualified for LCS/LCSD RPD exceedances.

#### *2.2.1.5 AOC 4 ISM*

There were no target analytes detected in any of the AOC 4 ISM samples. Therefore, there were no ISM results qualified for field replicate RSD exceedances. There were also no ISM soil results qualified due to MS/MSD RPD or LCS/LCSD RPD exceedances. The DQOs for the project were achieved with regard to precision for the AOC 4 ISM sampling event.

#### *2.2.1.6 Background*

Surface Soil

**Table 24** summarizes the number of surface soil results that were qualified due to parent/FD RPD exceedances:

| **Table 24:** Background Surface Soil Summary – Analytical and Field Precision (5 parent/FD pairs) | |
|---|---|
| Total number of Surface Soil results for parent/FD pairs | 440 |
| Surface Soil results qualified for parent/FD RPD exceedances | 18 (4.1%) |

The notable surface soil parent/FD RPD exceedances are as follows:

- NYOW-B-SL007-A: FD RPDs >50% for fluoranthene (127%), pyrene (124%), benzo(a)pyrene (111%), benzo(b)fluoranthene (109%), mercury (104%), and CEC (68%).
- NYOW-B-SL017-A: FD RPD >50% for TOC (55%).
- NYOW-B-SL027-A: FD RPD >50% for calcium (61%).
- NYOW-B-SL037-A: FD RPD >50% for calcium (65%).

**Table 25** summarizes the number of surface soil results that were qualified due to MS/MSD RPD exceedances:

| **Table 25:** Background Surface Soil Summary – Analytical Precision (MS/MSD pairs) | |
|---|---|
| Total number of Surface Soil results | 2200 |
| Surface Soil results qualified for MS/MSD RPD exceedances | 41 (1.9%) |

The notable surface soil MS/MSD RPD exceedances are as follows:

- NYOW-B-SL006-A: MS/MSD RPDs >20% for manganese (26%), calcium (24%), and TOC (22%).
- NYOW-B-SL016-A: MS/MSD RPDs >20% for cadmium (40%), thallium (39%), selenium (37%), arsenic (34%), beryllium (31%), cobalt (31%), lead (31%), nickel (30%), sodium (29%), chromium (29%), copper (29%), vanadium (28%), magnesium (24%), zinc (24%), barium (23%), and potassium (22%).
- NYOW-B-SL026-A: MS/MSD RPDs >20% for selenium (22%) and thallium (21%).
- NYOW-B-SL046-A: MS/MSD RPD >20% for magnesium (36%). MS/MSD RPDs >40% for phenanthrene (113%), fluoranthene (81%), anthracene (81%), benzo(a)anthracene (73%), pyrene (72%), chrysene (61%), benzo(a)pyrene (55%), benzo(b)fluoranthene (53%), benzo(k)fluoranthene (49%), indeno(1,2,3-cd)pyrene (48%), fluorene (47%), and benzo(g,h,i)perylene (43%).
- NYOW-B-SL050-A: MS/MSD RPDs >20% for calcium (62%), beryllium (22%), cobalt (22%), nickel (21%), sodium (21%), and chromium (20%).

**Table 26** summarizes the number of surface soil results that were qualified due to LCS/LCSD RPD exceedances:

| **Table 26:** Background Surface Soil Summary – Analytical Precision (LCS/LCSD pairs) | |
|---|---|
| Total number of Surface Soil results | 2200 |
| Surface Soil results qualified for LCS/LCSD RPD exceedances | 26 (1.2%) |

The notable surface soil LCS/LCSD RPD exceedances are as follows:

- LCS/LCSD RPDs > 40% for benzo(g,h,i)perylene (91%), indeno(1,2,3-c,d)pyrene (91%), dibenz(a,h)anthracene (79%), naphthalene (78%), and benzo(a)pyrene (42%).

Subsurface Soil

**Table 27** summarizes the number of subsurface soil results that were qualified due to parent/FD RPD exceedances:

| **Table 27:** Background Subsurface Soil Summary – Analytical and Field Precision (9 parent/FD pairs) | |
|---|---|
| Total number of Subsurface Soil results for parent/FD pairs | 792 |
| Subsurface Soil results qualified for parent/FD RPD exceedances | 43 (5.4%) |

The notable subsurface soil parent/FD RPD exceedances are as follows:

- NYOW-B-PH011-C: FD RPDs >50% for chrysene (126%), CEC (78%), and TOC (77%).
- NYOW-B-PH018-B: FD RPDs >50% for CEC (136%), cobalt (76%), arsenic (64%), and TOC (54%).
- NYOW-B-PH018-C: FD RPDs >50% for TOC (106%), magnesium (68%), lead (63%), chromium (59%), and vanadium (52%).
- NYOW-B-PH021-C: FD RPDs >50% for calcium (128%) and magnesium (69%).
- NYOW-B-PH026-C: FD RPDs >50% for calcium (111%) and TOC (77%).
- NYOW-B-PH031-C: FD RPD >50% for TOC (55%).
- NYOW-B-PH036-C: FD RPD >50% for antimony (74%).
- NYOW-B-PH041-C: FD RPDs >50% for CEC (87%) and TOC (73%).
- NYOW-B-PH046-C: FD RPD >50% for TOC (170%).

**Table 28** summarizes the number of subsurface soil results that were qualified due to MS/MSD RPD exceedances:

| **Table 28:** Background Subsurface Soil Summary – Analytical Precision (MS/MSD pairs) | |
|---|---|
| Total number of Subsurface Soil results | 4356 |
| Subsurface Soil results qualified for MS/MSD RPD exceedances | 48 (1.1%) |

The notable subsurface soil MS/MSD RPD exceedances are as follows:

- NYOW-B-PH007-C: MS/MSD RPDs > 20% for calcium (38%), barium (29%), manganese (24%), beryllium (23%), cobalt (23%), copper (23%), lead (23%), magnesium (23%), sodium (23%), vanadium (23%), nickel (22%), potassium (22%), chromium (22%), and zinc (21%).
- NYOW-B-PH026-C: MS/MSD RPD >20% for manganese (81%).
- NYOW-B-PH028-B: MS/MSD RPDs > 20% for sodium (34%), beryllium (33%), chromium (33%), cobalt (33%), lead (33%), nickel (33%), potassium (32%), vanadium (31%), barium (31%), copper (31%), zinc (27%), magnesium (24%), and calcium (21%).
- NYOW-B-PH046-B: MS/MSD RPDs > 20% for calcium (105%), cobalt (35%), nickel (34%), lead (33%), beryllium (32%), chromium (32%), sodium (32%), barium (31%), copper (30%), vanadium (30%), zinc (29%), magnesium (28%), and potassium (28%).
- NYOW-B-PH033-C: MS/MSD RPD for TOC >20% (56%).

**Table 29** summarizes the number of subsurface soil results that were qualified due to LCS/LCSD RPD exceedances:

| **Table 29:** Background Subsurface Soil Summary – Analytical Precision (LCS/LCSD pairs) | |
|---|---|
| Total number of Subsurface Soil results | 4356 |
| Subsurface Soil results qualified for LCS/LCSD RPD exceedances | 10 (<1%) |

The notable subsurface soil LCS/LCSD RPD exceedances are as follows:

- LCS/LCSD RPDs > 40% for benzo(g,h,i)perylene (91%), indeno(1,2,3-c,d)pyrene (91%), dibenz(a,h)anthracene (79%), naphthalene (78%), and benzo(a)pyrene (42%).

Groundwater

**Table 30** summarizes the number of groundwater results that were qualified due to parent/FD RPD exceedances:

| **Table 30:** Background Groundwater Summary – Analytical and Field Precision (1 parent/FD pair) | |
|---|---|
| Total number of GW results for parent/FD pair | 82 |
| GW results qualified for parent/FD RPD exceedances | 1 (1.2%) |

The notable groundwater parent/FD RPD exceedances are as follows:

- Field Duplicate WL-DUP-001_210514 (collected from NYOW-B-WL003-A): FD RPD >30% for dissolved iron (119%).

There were no background groundwater results qualified due to MS/MSD RPD exceedances.

**Table 31** summarizes the number of groundwater results that were qualified due to LCS/LCSD RPD exceedances:

| **Table 31:** Background Groundwater Summary – Analytical Precision (LCS/LCSD pairs) | |
|---|---|
| Total number of GW results | 410 |
| Number of GW results qualified for LCS/LCSD RPD exceedances | 9 (2.2%) |

The notable groundwater LCS/LCSD RPD exceedances are as follows:

- LCS/LCSD RPDs > 40% for naphthalene (69%), 2-methylnaphthalene (69%), 1-methylnaphthalene (68%), acenaphthene (64%), acenaphthylene (64%), fluorene (58%), phenanthrene (51%), anthracene (51%), benzo(k)fluoranthene (46%), chrysene (45%), fluoranthene (44%), benzo(a)anthracene (43%), benzo(a)pyrene (41%), and pyrene (41%), and benzo(b)fluoranthene (40%).

### 2.2.2 Accuracy

Accuracy is the closeness of a measured result to an accepted reference value and is usually measured as a percent recovery (%R). Warning limits are defined as minor QC excursions that often result in the associated data being qualified as estimated (J/UJ). Control limits are defined as significant QC excursions which may result in the rejection of the associated data. QC analyses used to measure accuracy include LCSs, MSs, and surrogates. Upper and lower QC limits are provided in the UFP-QAPP (USACE, 2020). The total numbers of analytical results qualified for surrogate, LCS/LCSD, and MS/MSD recovery anomalies are summarized for each AOC/matrix combination. However, results with a final bias of indeterminate nature were not further evaluated for usability and are therefore not included in the analytical bias summary tables. The QC samples demonstrated that the analytical system was in control during sample preparation and analysis (i.e., operating correctly), with the exceptions noted below.

#### *2.2.2.1 AOC 5*

Surface Soil

**Table 32** summarizes the number of AOC 5 surface soil results that were qualified for non-conformances related to accuracy:

| **Table 32:** AOC 5 Surface Soil Summary – Accuracy (Surrogate, LCS/LCSD, and MS/MSD %R) | |
|---|---|
| Total number of Surface Soil results | 2134 |
| Surface Soil results qualified for surrogate %R anomalies | 112 (5.2%) |
| Surface Soil results qualified for LCS/LCSD %R anomalies | 20 (<1%) |
| Surface Soil results qualified for MS/MSD %R anomalies | 80 (3.7%) |

Two surface soil samples from the Possible Dump (NYOW-05-SL001-A, NYOW-05-SL002-A) exhibited surrogate recoveries below the lower warning limit but greater than the lower control limit for SVOCs. All of the sample results were non-detect and qualified as "UJ" on the basis of low bias. The remaining three soil samples from the Possible Dump had SVOC surrogates recover within control.

Three surface soil samples from within and around the Boiler House (NYOW-05-SL018-A, NYOW-05-SL019-A, and NYOW-05-SL020-A) exhibited surrogate recoveries below the lower warning limit but greater than the lower control limit for PAHs, indicating potential low bias. Other soil samples within and around the Boiler House (NYOW-05-SL016, NYOW-05-SL017, and NYOW-05-SL025) had acceptable recoveries.

Five surface soil samples from the Electric Substation (NYOW-05-SL011-A, NYOW-05-SL012-A, NYOW-05-SL013-A, NYOW-05-SL014-A, and NYOW-05-SL015-A) had LCS/LCSD recoveries less than the lower warning limit for dibenz(a,h)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, and indeno(1,2,3-c,d)pyrene. The recoveries were greater than the lower control limit and the results are usable with potential low bias.

Five MS/MSD samples for surface soil at AOC-5 had results that required qualification (NYOW-05-SL003-A, NYOW-05-SL010-A, NYOW-05-SL017-1-A, NYOW-05-SL022-A, and NYOW-05-SL025-A). The results are discussed in the sections below.

- MS/MSD sample NYOW-05-SL003-A exhibited recoveries less than the lower warning limits for SVOCs carbazole (19%), hexachlorobenzene (43%), atrazine (46%), dimethyl phthalate (47%), diethyl phthalate (47%), and di-n-butyl phthalate (50%). The associated sample results were non-detect and were qualified as "UJ" for low bias. MS/MSD sample NYOW-05-SL003-A exhibited recoveries above the upper warning limits for PAHs fluoranthene (122%, 125%), pyrene (126%, 134%), phenanthrene (282%, 295%), naphthalene (481%, 444%), 1-methylnaphthalene (492%, 484%), 2-methylnaphthalene (622%, 606%), and chrysene (124%). The associated positive detections were qualified "J+", indicating high bias. MS/MSD sample NYOW-05-SL003-A exhibited recoveries above the upper warning limit for arsenic (134%, 120%). The associated positive detection was qualified "J+", for high bias. MS/MSD sample NYOW-05-SL003-A exhibited recoveries below the lower warning limit for zinc (62%), manganese (69%), lead (79%), nickel (81%), cobalt (81%), and chromium (84%). The associated sample results were qualified as "J-", indicating low bias.
- MS/MSD sample NYOW-05-SL010-A exhibited recoveries below the lower warning limit for PAHs phenanthrene (0%), naphthalene (23%), 1-methylnaphthalene, (27%), benzo(b)fluoranthene (35%), pyrene (45%), and chrysene (53%). The associated sample results were positive detections and are qualified as "J-" for low bias. Calcium recovered above the upper warning limit at 128% and the result was qualified as "J+" for high bias. Manganese did not recover in MSD sample NYOW-05-SL010-A; the associated detected result was qualified as "J-" for low bias.
- MS/MSD sample NYOW-05-SL017-1-A exhibited low recoveries of SVOCs bis(2-chloroethyl) ether (26%), 2,2'-oxybis(1-chloropropane) (29%), N-nitroso-di-n-propylamine (33%), nitrobenzene (34%), 2-nitrophenol (35%), biphenyl (35%), 2-chloronaphthalene (36%), 1,2,4,5-tetrachlorobenzene (37%), 2,4-dichlorophenol (38%), dibenzofuran (43%), di-n-octyl phthalate (44%), benzyl butyl phthalate (44%), and bis(2-ethylhexyl)phthalate (45%). The associated non-detect results are qualified "UJ", indicating low bias. Fluoranthene and benzo(b)fluoranthene recovered below the lower warning limits, at 53% and 47%, respectively, and the results were qualified as "J-" for low bias. Multiple metal analytes (calcium, magnesium, barium, zinc, nickel, lead, cobalt, and silver) recovered below the lower warning limit and the results were qualified as "J-" or "UJ", indicating low bias.
- MS/MSD sample NYOW-05-SL022-A exhibited recoveries less than the lower warning limit for lead (76%), sodium (80%), beryllium (81%), cobalt (81%), and chromium (82%), and the results were qualified as "J-" or "UJ", indicating low bias. Potassium and barium recovered above the upper warning limit, at 132% and 122%, respectively, and the results were qualified as "J+" for high bias. Calcium and magnesium recovered above the upper warning limit; however, the results were affected by additional anomalies and a bias indicator was not assigned (i.e., "J" qualifiers).
- MS/MSD sample NYOW-05-SL025-A exhibited recoveries greater than the upper warning limit for benzo(a)anthracene (139%), chrysene (129%), fluoranthene (121%), and pyrene (125%). The results were qualified as "J+" for high bias. Multiple metal analytes (zinc, cobalt, lead, nickel, beryllium, silver, chromium, and magnesium) recovered below the lower warning limit and the results were qualified as "J-"or "UJ", indicating low bias. Manganese recovered once above and once below the associated warning limits and was qualified as "J" for indeterminate bias.

**Table 33**, below, summarizes the number of AOC 5 surface soil results that are biased based on the non-conformances discussed above.

**Table 33**
**Analytical Bias Summary - AOC 5 - Soil 0-1 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Biased Samples | Reason Code(s) | Number of High Biased Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| BNASIMD | 1-Methylnaphthalene | 25 | 4 (16%) | I/M | 1 (4%) | M | 20 |
| BNASIMD | 2-Methylnaphthalene | 25 | 3 (12%) | I | 1 (4%) | M | 21 |
| BNASIMD | Acenaphthene | 25 | 4 (16%) | I | -- | -- | 21 |
| BNASIMD | Acenaphthylene | 25 | 4 (16%) | I | -- | -- | 21 |
| BNASIMD | Anthracene | 25 | 3 (12%) | I | -- | -- | 22 |
| BNASIMD | Benzo(a)anthracene | 25 | 4 (16%) | I | 1 (4%) | M | 20 |
| BNASIMD | Benzo(a)pyrene | 25 | 8 (32%) | C/I | -- | -- | 17 |
| BNASIMD | Benzo(b)fluoranthene | 25 | 5 (20%) | I/M | -- | -- | 20 |
| BNASIMD | Benzo(g,h,i)perylene | 25 | 8 (32%) | C/I | -- | -- | 17 |
| BNASIMD | Benzo(k)fluoranthene | 25 | 4 (16%) | I | -- | -- | 21 |
| BNASIMD | Chrysene | 25 | 4 (16%) | I/M | 2 | M | 19 |
| BNASIMD | Dibenz(a,h)anthracene | 25 | 8 (32%) | C/I | -- | -- | 17 |
| BNASIMD | Fluoranthene | 25 | 5 (20%) | I/M | 2 | M | 18 |
| BNASIMD | Fluorene | 25 | 4 (16%) | I | -- | -- | 21 |
| BNASIMD | Indeno(1,2,3-c,d)pyrene | 25 | 8 (32%) | C/I | -- | -- | 17 |
| BNASIMD | Naphthalene | 25 | 4 (16%) | I/M | 1 (4%) | M | 20 |
| BNASIMD | Phenanthrene | 25 | 4 (16%) | I/M | 1 (4%) | M | 20 |
| BNASIMD | Pyrene | 25 | 5 (20%) | I/M | 2 | M | 18 |
| SW6010C | Barium | 25 | 1 (4%) | M | 1 (4%) | M | 23 |
| SW6010C | Beryllium | 25 | 2 (8%) | M | -- | -- | 23 |
| SW6010C | Calcium | 25 | 1 (4%) | M | 1 (4%) | M | 23 |
| SW6010C | Chromium | 25 | 4 (16%) | M | -- | -- | 21 |
| SW6010C | Cobalt | 25 | 4 (16%) | M | -- | -- | 21 |
| SW6010C | Copper | 25 | 1 (4%) | M | -- | -- | 24 |
| SW6010C | Lead | 25 | 4 (16%) | M | -- | -- | 21 |
| SW6010C | Magnesium | 25 | 2 (8%) | M | -- | -- | 23 |
| SW6010C | Manganese | 25 | 2 (8%) | M | -- | -- | 23 |
| SW6010C | Nickel | 25 | 3 (12%) | M | -- | -- | 22 |
| SW6010C | Potassium | 25 | -- | -- | 1 (4%) | M | 24 |
| SW6010C | Silver | 25 | 1 (4%) | M | -- | -- | 24 |
| SW6010C | Sodium | 25 | 1 (4%) | M | -- | -- | 24 |
| SW6010C | Vanadium | 25 | 1 (4%) | M | -- | -- | 24 |
| SW6010C | Zinc | 25 | 4 (16%) | M | -- | -- | 21 |

**Table 33**
**Analytical Bias Summary - AOC 5 - Soil 0-1 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Biased Samples | Reason Code(s) | Number of High Biased Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW6020A | Arsenic | 25 | -- | -- | 1 (4%) | M | 24 |
| SW8270D | 1,2,4,5-Tetrachlorobenzene | 15 | 2 (8%) | I/M | -- | -- | 13 |
| SW8270D | 1,4-Dioxane | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | 2,2'-Oxybis(1-chloropropane) | 14 | 2 (8%) | I/M | -- | -- | 12 |
| SW8270D | 2,3,4,6-Tetrachlorophenol | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | 2,4,5-Trichlorophenol | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | 2,4,6-Trichlorophenol | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | 2,4-Dichlorophenol | 15 | 2 (8%) | I/M | -- | -- | 13 |
| SW8270D | 2,4-Dimethylphenol | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | 2,4-Dinitrotoluene | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | 2,6-Dinitrotoluene | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | 2-Chloronaphthalene | 15 | 2 (8%) | I/M | -- | -- | 13 |
| SW8270D | 2-Chlorophenol | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | 2-Methylphenol | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | 2-Nitroaniline | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | 2-Nitrophenol | 15 | 2 (8%) | I/M | -- | -- | 13 |
| SW8270D | 3,3'-Dichlorobenzidine | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | 3-Nitroaniline | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | 4,6-Dinitro-2-methylphenol | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | 4-Bromophenyl phenyl ether | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | 4-Chloro-3-methylphenol | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | 4-Chloroaniline | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | 4-Chlorophenyl phenyl ether | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | 4-Nitroaniline | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | 4-Nitrophenol | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | Acetophenone | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | Atrazine | 15 | 2 (8%) | I/M | -- | -- | 13 |
| SW8270D | Benzaldehyde | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | Benzyl butyl phthalate | 15 | 2 (8%) | I/M | -- | -- | 13 |
| SW8270D | Biphenyl | 15 | 2 (8%) | I/M | -- | -- | 13 |

**Table 33**
**Analytical Bias Summary - AOC 5 - Soil 0-1 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Biased Samples | Reason Code(s) | Number of High Biased Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW8270D | Bis(2-chloroethoxy)methane | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | Bis(2-chloroethyl) ether | 15 | 2 (8%) | I/M | -- | -- | 13 |
| SW8270D | Bis(2-ethylhexyl)phthalate | 15 | 2 (8%) | I/M | -- | -- | 13 |
| SW8270D | Caprolactam | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | Carbazole | 15 | 2 (8%) | I/M | -- | -- | 13 |
| SW8270D | Cresols, m- & p- | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | Dibenzofuran | 15 | 2 (8%) | I/M | -- | -- | 13 |
| SW8270D | Diethyl phthalate | 15 | 2 (8%) | I/M | -- | -- | 13 |
| SW8270D | Dimethyl phthalate | 15 | 2 (8%) | I/M | -- | -- | 13 |
| SW8270D | di-n-Butyl phthalate | 15 | 2 (8%) | I/M | -- | -- | 13 |
| SW8270D | di-n-Octyl phthalate | 15 | 2 (8%) | I/M | -- | -- | 13 |
| SW8270D | Hexachlorobenzene | 15 | 2 (8%) | I/M | -- | -- | 13 |
| SW8270D | Hexachlorobutadiene | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | Hexachlorocyclo-pentadiene | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | Hexachloroethane | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | Isophorone | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | Nitrobenzene | 15 | 2 (8%) | I/M | -- | -- | 13 |
| SW8270D | N-Nitrosodi-n-propylamine | 15 | 2 (8%) | I/M | -- | -- | 13 |
| SW8270D | N-Nitrosodiphenylamine | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | Pentachlorophenol | 15 | 1 (4%) | I | -- | -- | 14 |
| SW8270D | Phenol | 15 | 1 (4%) | I | -- | -- | 14 |

Notes: I = Surrogate Recovery, C = LCS Recovery, M = MS/MSD Recovery

Subsurface Soil

**Table 34** summarizes the number of AOC 5 subsurface soil results that were qualified for non-conformances related to accuracy:

| **Table 34:** AOC 5 Subsurface Soil Summary – Accuracy (Surrogate, LCS/LCSD, and MS/MSD %R) | |
|---|---|
| Total number of Subsurface Soil results | 5736 |
| Subsurface Soil results qualified for surrogate %R anomalies | 197 (3.4%) |
| Subsurface Soil results qualified for LCS/LCSD %R anomalies | 66 (1.2%) |

| **Table 34:** AOC 5 Subsurface Soil Summary – Accuracy (Surrogate, LCS/LCSD, and MS/MSD %R) | |
|---|---|
| Subsurface Soil results qualified for MS/MSD %R anomalies | 17 (<1%) |

One subsurface soil sample from the Possible Dump (NYOW-05-PH003-B) exhibited surrogate recoveries below the lower warning limit but greater than the lower control limit for SVOCs. All of the sample results were non-detect and qualified as "UJ" on the basis of low bias. The other nine soil samples from the Possible Dump had surrogates recover within control.

One subsurface soil sample from the Coal Storage Area (NYOW-05-PH007-C) exhibited surrogate recoveries between the lower warning and the lower control limits for PAHs, indicating low bias. The 13 other soil samples within the Coal Storage Area had acceptable recoveries.

Three subsurface soil samples from the Dual Coal Aggregate Bins A&B (NYOW-05-PH021-C, NYOW-05-PH024-B, NYOW-05-PH024-C) had surrogate recoveries between the lower warning and lower control limits for PAHs, indicating low bias. The five other soil samples within the Dual Coal Aggregate Bins A&B had acceptable recoveries.

Two subsurface soil samples from within the Boiler House (NYOW-05-PH017-1-C and NYOW-05-PH019-B) had surrogate recoveries between the lower warning and control limits for PAHs, indicating low bias. The eight other soil samples within and surrounding the Boiler House had acceptable recoveries.

Both of the "B" and "C" interval subsurface soil samples from the Electric Substation (NYOW-05-SL011, NYOW-05-SL012, NYOW-05-SL013, NYOW-05-SL014, and NYOW-05-SL015) had LCS/LCSD recoveries less than the lower warning limit for benzo(a)pyrene, benzo(g,h,i)perylene, indeno(1,2,3-cd)pyrene, and dibenz(a,h)anthracene. The recoveries were greater than the lower control limit and the results are usable with potential low bias.

Three MS/MSD subsurface soil samples at AOC 5 had results that required qualification (NYOW-05-PH003-B, NYOW-05-PH011-B, and NYOW-05-PH021-C). The results are discussed in the sections below.

- MS/MSD sample NYOW-05-PH003-B exhibited a recovery greater than the upper warning limit for potassium at 155%; the sample result was qualified as "J+" for high bias. Magnesium and zinc recovered below the lower warning limit, at 66% and 73%, respectively and were qualified as "J-" for low bias. Antimony and manganese recovered below the lower warning limit were qualified as "J", for indeterminate bias.
- MS/MSD sample NYOW-05-PH011-B exhibited recoveries greater than the upper warning limit for potassium (119%, 117%) and magnesium (133%, 144%). The sample results were qualified as "J+", indicating high bias.
- The recoveries of SVOCs hexachlorobenzene (45%), 4-bromophenyl phenyl ether (45%), di-n-butyl phthalate (47%), and 2,4-dinitrotoluene (47%) were less than the lower warning limits for MS/MSD sample NYOW-05-PH021-C. The results were non-detect and were qualified as "UJ" for low bias. Zinc recovered above the upper control limit at 203% and the positive detection was qualified as "J+" for high bias.

**Table 35**, below, summarizes the number of AOC 5 subsurface soil results that are biased based on the non-conformances discussed above.

**Table 35**
**Analytical Bias Summary - AOC 5 - Soil 1-10 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Biased Samples | Reason Code(s) | Number of High Biased Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| BNASIMD | 1-Methylnaphthalene | 50 | 9 (18%) | C/I/M | -- | -- | 41 |
| BNASIMD | 2-Methylnaphthalene | 50 | 8 (16%) | C/I/M | -- | -- | 42 |
| BNASIMD | Acenaphthene | 50 | 8 (16%) | C/I | -- | -- | 42 |
| BNASIMD | Acenaphthylene | 50 | 7 (14%) | C/I | -- | -- | 43 |
| BNASIMD | Anthracene | 50 | 8 (16%) | C/I | -- | -- | 42 |
| BNASIMD | Benzo(a)anthracene | 50 | 7 (14%) | I | -- | -- | 43 |
| BNASIMD | Benzo(a)pyrene | 50 | 17 (34%) | C/I | -- | -- | 33 |
| BNASIMD | Benzo(b)fluoranthene | 50 | 7 (14%) | I | -- | -- | 43 |
| BNASIMD | Benzo(g,h,i)perylene | 50 | 17 (34%) | C/I | -- | -- | 33 |
| BNASIMD | Benzo(k)fluoranthene | 50 | 8 (16%) | I | -- | -- | 42 |
| BNASIMD | Chrysene | 50 | 7 (14%) | I | -- | -- | 43 |
| BNASIMD | Dibenz(a,h)anthracene | 50 | 18 (36%) | C/I | -- | -- | 32 |
| BNASIMD | Fluoranthene | 50 | 7 (14%) | I | -- | -- | 43 |
| BNASIMD | Fluorene | 50 | 8 (16%) | C/I | -- | -- | 42 |
| BNASIMD | Indeno(1,2,3-c,d)pyrene | 50 | 17 (34%) | C/I | -- | -- | 33 |
| BNASIMD | Naphthalene | 50 | 7 (14%) | C/I/M | -- | -- | 43 |
| BNASIMD | Phenanthrene | 50 | 8 (16%) | C/I | -- | -- | 42 |
| BNASIMD | Pyrene | 50 | 7 (14%) | I | -- | -- | 43 |
| SW6010C | Magnesium | 50 | 1 (2%) | M | 1 (2%) | M | 48 |
| SW6010C | Potassium | 50 | -- | -- | 2 (4%) | M | 48 |
| SW6010C | Zinc | 50 | 1 (2%) | M | 1 (2%) | M | 48 |
| SW8270D | 1,2,4,5-Tetrachlorobenzene | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | 1,4-Dioxane | 49 | 1 (2%) | I | -- | -- | 48 |
| SW8270D | 2,2'-Oxybis(1-chloropropane) | 49 | 1 (2%) | C | -- | -- | 48 |
| SW8270D | 2,4-Dichlorophenol | 50 | 1 (2%) | C | -- | -- | 49 |
| SW8270D | 2,4-Dinitrotoluene | 50 | 2 (4%) | I/M | -- | -- | 48 |
| SW8270D | 2,6-Dinitrotoluene | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | 2-Chloronaphthalene | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | 2-Chlorophenol | 50 | 1 (2%) | C | -- | -- | 49 |
| SW8270D | 2-Methylphenol | 50 | 1 (2%) | C | -- | -- | 49 |
| SW8270D | 2-Nitroaniline | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | 2-Nitrophenol | 50 | 1 (2%) | C | -- | -- | 49 |
| SW8270D | 3,3'-Dichlorobenzidine | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | 3-Nitroaniline | 50 | 1 (2%) | I | -- | -- | 49 |

**Table 35**
**Analytical Bias Summary - AOC 5 - Soil 1-10 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Biased Samples | Reason Code(s) | Number of High Biased Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW8270D | 4-Bromophenyl phenyl ether | 50 | 2 (4%) | I/M | -- | -- | 48 |
| SW8270D | 4-Chloroaniline | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | 4-Chlorophenyl phenyl ether | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | 4-Nitroaniline | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | Acetophenone | 50 | 2 (4%) | C/I | -- | -- | 48 |
| SW8270D | Atrazine | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | Benzaldehyde | 49 | 1 (2%) | I | -- | -- | 48 |
| SW8270D | Benzyl butyl phthalate | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | Biphenyl (Diphenyl) | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | Bis(2-chloroethoxy)methane | 50 | 2 (4%) | C/I | -- | -- | 48 |
| SW8270D | Bis(2-chloroethyl) ether | 50 | 2 (4%) | C/I | -- | -- | 48 |
| SW8270D | Bis(2-ethylhexyl)phthalate | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | Caprolactam | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | Carbazole | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | Cresols, m- & p- | 50 | 1 (2%) | C | -- | -- | 49 |
| SW8270D | Dibenzofuran | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | Diethyl phthalate | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | Dimethyl phthalate | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | di-n-Butyl phthalate | 50 | 2 (4%) | I/M | -- | -- | 48 |
| SW8270D | di-n-Octyl phthalate | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | Hexachlorobenzene | 50 | 2 (4%) | I/M | -- | -- | 48 |
| SW8270D | Hexachlorobutadiene | 50 | 2 (4%) | C/I | -- | -- | 48 |
| SW8270D | Hexachlorocyclo-pentadiene | 50 | 2 (4%) | C/I | -- | -- | 48 |
| SW8270D | Hexachloroethane | 49 | 1 (2%) | I | -- | -- | 48 |
| SW8270D | Isophorone | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | Nitrobenzene | 50 | 2 (4%) | C/I | -- | -- | 48 |
| SW8270D | N-Nitrosodi-n-propylamine | 50 | 2 (4%) | C/I | -- | -- | 48 |
| SW8270D | N-Nitrosodiphenylamine | 50 | 1 (2%) | I | -- | -- | 49 |
| SW8270D | Phenol | 50 | 1 (2%) | C | -- | -- | 49 |

Notes: I = Surrogate Recovery, C = LCS Recovery, M = MS/MSD Recovery

Groundwater

**Table 36** summarizes the number of AOC 5 groundwater results that were qualified for non-conformances related to accuracy:

| **Table 36:** AOC 5 Groundwater Summary – Accuracy (Surrogate, LCS/LCSD, and MS/MSD %R) | |
|---|---|
| Total number of GW results | 1,438 |
| Groundwater results qualified for surrogate %R anomalies | 536 (37%) |
| Groundwater results qualified for LCS/LCSD %R anomalies | 85 (5.9%) |
| Groundwater results qualified for MS/MSD %R anomalies | 25 (1.7%) |

All 12 groundwater samples had base/neutral (B/N) surrogates recover below the lower warning limit for SVOCs. Two of the groundwater samples recovered below the lower control limit and the results were rejected (**Section 2.2.4.1**). The only SVOC analytes detected in groundwater were caprolactam (NYOW-05-WL019-A) and the acid-extractable compound phenol (NYOW-05-WL025-A). Caprolactam and phenol were not detected above their respective PALs.

Seven groundwater samples (NYOW-05-WL006-A, NYOW-05-WL010-A, NYOW-05-WL016-A, NYOW-05-WL017-1-A, NYOW-05-WL019-A, NYOW-05-WL024-A, and NYOW-05-WL025-A) exhibited surrogate recoveries between the lower warning and control limits for PAHs, indicating low bias. The surrogates for the other five samples recovered within the acceptance limits.

Three groundwater samples (NYOW-05-WL004-A, NYOW-05-WL017-1-A, and NYOW-05-WL019-A) had low LCS/LCSD recoveries for acid and B/N extractable SVOCs. The recoveries were greater than the lower control limit and the results are usable with potential low bias.

Three groundwater samples (NYOW-05-WL006-A, NYOW-05-WL008-A, and NYOW-05-WL024-A) had low LCS/LCSD recoveries for benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, and indeno(1,2,3-cd)pyrene. The recoveries were greater than the lower control limit and the results are usable with potential low bias.

All 12 groundwater samples had low LCS/LCSD recoveries for dibenz(a,h)anthracene. The recoveries were greater than the lower control limit and the results are usable with potential low bias.

One MS/MSD sample for groundwater (NYOW-05-WL001-A) had low recoveries for PAHs: benzo(a)pyrene, benzo(g,h,i)perylene, indeno(1,2,3-cd)pyrene, and dibenz(a,h)anthracene; SVOCs: hexachlorobenzene; and, multiple VOCs, including ethylbenzene and tetrachloroethylene. The recoveries were greater than the lower control limit and the non-detect results are usable with low bias.

**Table 37**, below, summarizes the number of AOC 5 groundwater results that are biased based on the non-conformances discussed above.

**Table 37**
**Analytical Bias Summary - AOC 5 - Groundwater**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Biased Samples | Reason Code(s) | Number of High Biased Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| BNASIMD | 1-Methylnaphthalene | 12 | 6 (50%) | I | -- | -- | 6 |
| BNASIMD | 2-Methylnaphthalene | 12 | 7 (58%) | I | -- | -- | 5 |
| BNASIMD | Acenaphthene | 12 | 7 (58%) | I | -- | -- | 5 |
| BNASIMD | Acenaphthylene | 12 | 7 (58%) | I | -- | -- | 5 |
| BNASIMD | Anthracene | 12 | 7 (58%) | I | -- | -- | 5 |
| BNASIMD | Benzo(a)anthracene | 12 | 6 (50%) | I | -- | -- | 6 |
| BNASIMD | Benzo(a)pyrene | 12 | 8 (67%) | C/I/M | -- | -- | 4 |
| BNASIMD | Benzo(b)fluoranthene | 12 | 7 (58%) | C/I | -- | -- | 5 |
| BNASIMD | Benzo(g,h,i)perylene | 12 | 8 (67%) | C/I/M | -- | -- | 4 |
| BNASIMD | Benzo(k)fluoranthene | 12 | 7 (58%) | C/I | -- | -- | 5 |
| BNASIMD | Chrysene | 12 | 6 (50%) | I | -- | -- | 6 |
| BNASIMD | Dibenz(a,h)anthracene | 12 | 12 (100%) | C/I/M | -- | -- | 0 |
| BNASIMD | Fluoranthene | 12 | 6 (50%) | I | -- | -- | 6 |
| BNASIMD | Fluorene | 12 | 7 (58%) | I | -- | -- | 5 |
| BNASIMD | Indeno(1,2,3-c,d)pyrene | 12 | 8 (67%) | C/I/M | -- | -- | 4 |
| BNASIMD | Naphthalene | 12 | 4 (33%) | I | -- | -- | 8 |
| BNASIMD | Phenanthrene | 12 | 6 (50%) | I | -- | -- | 6 |
| BNASIMD | Pyrene | 12 | 6 (50%) | I | -- | -- | 6 |
| SW8260C | 1,1,1-Trichloroethane | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8260C | 1,1,2-Trichloro-1,2,2-trifluoroethane | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8260C | 1,1-Dichloroethene | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8260C | 1,2-Dibromo-3-chloropropane | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8260C | 1,2-Dichlorobenzene | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8260C | 1,2-Dichloropropane | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8260C | 1,3-Dichlorobenzene | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8260C | 1,4-Dichlorobenzene | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8260C | Bromodichloromethane | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8260C | Bromoform | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8260C | Carbon Tetrachloride | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8260C | Chlorobenzene | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8260C | cis-1,3-Dichloropropene | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8260C | Cyclohexane | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8260C | Dibromochloromethane | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8260C | Ethylbenzene | 3 | 1 (33%) | M | -- | -- | 2 |

**Table 37**
**Analytical Bias Summary - AOC 5 - Groundwater**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Biased Samples | Reason Code(s) | Number of High Biased Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW8260C | m,p-Xylene | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8260C | Methylcyclohexane | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8260C | Tetrachloroethene (PCE) | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8260C | trans-1,3-Dichloropropene | 3 | 1 (33%) | M | -- | -- | 2 |
| SW8270D | 1,2,4,5-Tetrachlorobenzene | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | 1,4-Dioxane | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | 2,2'-Oxybis(1-chloropropane) | 6 | 6 (100%) | C/I | -- | -- | 0 |
| SW8270D | 2,4,5-Trichlorophenol | 12 | 3 (25%) | C | -- | -- | 9 |
| SW8270D | 2,4,6-Trichlorophenol | 12 | 3 (25%) | C | -- | -- | 9 |
| SW8270D | 2,4-Dichlorophenol | 12 | 3 (25%) | C | -- | -- | 9 |
| SW8270D | 2,4-Dinitrotoluene | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | 2,6-Dinitrotoluene | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | 2-Chloronaphthalene | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | 2-Nitroaniline | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | 2-Nitrophenol | 12 | 3 (25%) | C | -- | -- | 9 |
| SW8270D | 3,3'-Dichlorobenzidine | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | 3-Nitroaniline | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | 4-Bromophenyl phenyl ether | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | 4-Chloro-3-methylphenol | 12 | 3 (25%) | C | -- | -- | 9 |
| SW8270D | 4-Chloroaniline | 10 | 10 (100%) | C/I | -- | -- | 0 |
| SW8270D | 4-Chlorophenyl phenyl ether | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | 4-Nitroaniline | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | Acetophenone | 10 | 10 (100%) | C/I | -- | -- | 0 |
| SW8270D | Atrazine | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | Benzaldehyde | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | Benzyl butyl phthalate | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | Biphenyl | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | Bis(2-chloroethoxy)methane | 10 | 10 (100%) | C/I | -- | -- | 0 |
| SW8270D | Bis(2-chloroethyl) ether | 10 | 10 (100%) | C/I | -- | -- | 0 |
| SW8270D | Bis(2-ethylhexyl)phthalate | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | Caprolactam | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | Carbazole | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | Dibenzofuran | 10 | 10 (100%) | C/I | -- | -- | 0 |

**Table 37**
**Analytical Bias Summary - AOC 5 - Groundwater**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Biased Samples | Reason Code(s) | Number of High Biased Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW8270D | Diethyl phthalate | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | Dimethyl phthalate | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | di-n-Butyl phthalate | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | di-n-Octyl phthalate | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | Hexachlorobenzene | 10 | 9 (90%) | I/M | -- | -- | 1 |
| SW8270D | Hexachlorobutadiene | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | Hexachlorocyclo-pentadiene | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | Hexachloroethane | 10 | 9 (90%) | I | -- | -- | 1 |
| SW8270D | Isophorone | 10 | 10 (100%) | C/I | -- | -- | 0 |
| SW8270D | Nitrobenzene | 10 | 10 (100%) | C/I | -- | -- | 0 |
| SW8270D | N-Nitrosodi-n-propylamine | 10 | 10 (100%) | C/I | -- | -- | 0 |
| SW8270D | N-Nitrosodiphenylamine | 10 | 9 (75%) | I | -- | -- | 1 |

Notes: I = Surrogate Recovery, C = LCS Recovery, M = MS/MSD Recovery

#### *2.2.2.2 AOC 4*

Surface Soil

**Table 38** summarizes the number of AOC 4 surface soil results that were qualified for non-conformances related to accuracy:

| **Table 38:** AOC 4 Surface Soil Summary – Accuracy (Surrogate, LCS/LCSD, and MS/MSD %R) | |
|---|---|
| Total number of Surface Soil results | 72 |
| Surface Soil results qualified for surrogate %R anomalies | 0 |
| Surface Soil results qualified for LCS/LCSD %R anomalies | 0 |
| Surface Soil results qualified for MS/MSD %R anomalies | 1 (1.4%) |

One MS/MSD sample (NYOW-04-SL001-A) for AOC 4 surface soil exhibited recoveries less than the lower warning limit but greater than the lower control limit for picric acid at 38% and 41%, respectively. The associated non-detect picric acid result was qualified "UJ".

**Table 39**, below, summarizes the number of AOC 4 surface soil results that are biased based on the non-conformances discussed above.

**Table 39**
**Analytical Bias Summary - AOC 4 - Discrete Soil 0-1 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Biased Samples | Reason Code(s) | Number of High Biased Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW8330A | Picric acid | 16 | 1 (6.3%) | M | -- | -- | 15 |

Notes: M = MS/MSD Recovery

Subsurface Soil

**Table 40** summarizes the number of AOC 4 subsurface soil results that were qualified for non-conformances related to accuracy:

| **Table 40:** AOC 4 Subsurface Soil Summary – Accuracy (Surrogate, LCS/LCSD, and MS/MSD %R) | |
|---|---|
| Total number of Subsurface Soil results | 448 |
| Subsurface Soil results qualified for surrogate %R anomalies | 8 (1.8%) |
| Subsurface Soil results qualified for LCS/LCSD %R anomalies | 0 |
| Subsurface Soil results qualified for MS/MSD %R anomalies | 4 (<1%) |

Two subsurface soil samples (NYOW-04-PH040-B and NYOW-04-PH071-B) exhibited surrogate recoveries for B/N-extractable and acid-extractable surrogates between the lower warning and lower control limits for SVOCs, indicating low bias. The associated results for DNCB and 2,4-DNP were non-detect and were qualified "UJ".

Two subsurface soil samples (NYOW-04-PH007-B and NYOW-04-PH041-B) exhibited B/N-extractable surrogate recoveries between the lower warning and lower control limits for SVOCs, indicating low bias. The associated results for DNCB were non-detect and were qualified "UJ".

One subsurface soil sample (NYOW-04-PH079-B) exhibited acid-extractable surrogate recoveries between the lower warning and lower control limits for SVOCs, indicating low bias. The associated results for 2,4-DNP were non-detect and were qualified "UJ".

One subsurface soil sample (NYOW-04-PH002-C) exhibited a surrogate recovery for 1,2-dinitrobenzene (DNB) between the lower warning and lower control limits for explosives, indicating low bias. The associated picric acid result was non-detect and was qualified "UJ".

Four MS/MSD subsurface soil samples at AOC 4 had results that required qualification:

- MSD sample NYOW-04-PH052-B exhibited a recovery less than the lower warning limit but greater than the lower control limit for picric acid at 46%. The associated sample result was non-detect and was qualified as "UJ" for low bias.

- MS/MSD sample NYOW-04-PH084-B exhibited recoveries less than the lower warning limit but greater than the lower control limit for picric acid at 28% and 26%, respectively. The associated sample result was non-detect and was qualified as "UJ" for low bias.
- MS/MSD sample NYOW-04-PH085-C exhibited recoveries less than the lower warning limit but greater than the lower control limit for picric acid at 38% and 40%, respectively. The associated sample result was non-detect and was qualified as "UJ" for low bias.
- MS/MSD sample PH-DUP-001_210202 exhibited recoveries less than the lower warning limit but greater than the lower control limit for picric acid at 34% and 33%, respectively. The associated sample result was non-detect and was qualified as "UJ" for low bias.

**Table 41**, below, summarizes the number of AOC 4 subsurface soil results that are biased based on the non-conformances discussed above.

**Table 41**
**Analytical Bias Summary - AOC 4 - Discrete Soil 1-10 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW8270D | 2,4-Dinitrochlorobenzene | 101 | 4 (4.0%) | I | -- | -- | 97 |
| SW8270D | 2,4-Dinitrophenol | 101 | 3 (3.0%) | I | -- | -- | 98 |
| SW8330A | Picric acid | 101 | 5 (5.0%) | I/M | -- | -- | 96 |

Notes: I = Surrogate Recovery, M = MS/MSD Recovery

Groundwater

**Table 42** summarizes the number of AOC 4 groundwater results that were qualified for non-conformances related to accuracy:

| **Table 42:** AOC 4 Groundwater Summary – Accuracy (Surrogate, LCS/LCSD, and MS/MSD %R) | |
|---|---|
| Total number of GW results | 53 |
| Groundwater results qualified for surrogate %R exceedances | 16 (30.2%) |
| Groundwater results qualified for LCS/LCSD %R exceedances | 0 |
| Groundwater results qualified for MS/MSD %R exceedances | 0 |

Eight groundwater samples (NYOW-04-WL001-A, NYOW-04-WL002-A, NYOW-04-WL004-A, NYOW-04-WL005-A, NYOW-04-WL079-A, NYOW-04-WL080-A, NYOW-04-WL081-A, and NYOW-04-WL083-A) exhibited surrogate recoveries for terphenyl-d14 between the lower warning and lower control limits for SVOCs, indicating low bias. The associated results for DNCB were non-detect and were qualified "UJ". One groundwater sample (NYOW-04-WL082-A) exhibited surrogate recoveries for 2,4,6-tribromophenol, nitrobenzene-d5, 2-fluorobiphenyl, and terphenyl-d14 between the lower warning and

lower control limits for SVOCs, indicating low bias. The associated results for DNCB and 2,4-DNP were non-detect and were qualified "UJ".

Five groundwater samples (NYOW-04-WL001-A, NYOW-04-WL004-A, NYOW-04-WL006-A, NYOW-04-WL037-A, and NYOW-04-WL079-A) exhibited surrogate recoveries between the lower warning and lower control limits for the explosives analysis, indicating low bias. The associated picric acid results were non-detect and were qualified "UJ".

**Table 43**, below, summarizes the number of AOC 4 groundwater results that are biased based on the non-conformances discussed above.

**Table 43**
**Analytical Bias Summary - AOC 4 - Groundwater**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW8270D | 2,4-Dinitrochlorobenzene | 16 | 7 (44%) | I | -- | -- | 9 |
| SW8270D | 2,4-Dinitrophenol | 16 | 1 (6.3%) | I | -- | -- | 15 |
| SW8330B | Picric acid | 15 | 5 (33%) | I | -- | -- | 10 |

Notes: I = Surrogate Recovery

#### *2.2.2.3 AOC 1*

Surface Soil

**Table 44** summarizes the number of AOC 1 surface soil results that were qualified for non-conformances related to accuracy:

| **Table 44:** AOC 1 Surface Soil Summary – Accuracy (Surrogate, LCS/LCSD, and MS/MSD %R) | |
|---|---|
| Total number of Surface Soil results | 897 |
| Surface Soil results qualified for surrogate %R anomalies | 9 (1.0%) |
| Surface Soil results qualified for LCS/LCSD %R anomalies | 6 (<1%) |
| Surface Soil results qualified for MS/MSD %R anomalies | 12 (1.3%) |

One surface soil sample (NYOW-01-SL030-A) exhibited surrogate recoveries for B/N-extractable and acid-extractable surrogates between the lower warning and lower control limits for SVOCs, indicating low bias. The associated results for DNCB and 2,4-DNP were non-detect and were qualified "UJ".

Seven surface soil samples (NYOW-01-SL016-A, NYOW-01-SL022-A, NYOW-01-SL023-A, NYOW-01-SL033-A, NYOW-01-SL034-A, NYOW-01-SL035-A, and NYOW-01-SL036-A) exhibited B/N-

extractable surrogate recoveries between the lower warning and lower control limits for SVOCs, indicating low bias. The associated results for DNCB were non-detect and were qualified "UJ".

Two surface soil samples (NYOW-01-SL005-A and NYOW-01-SL018-A) had LCS/LCSD recoveries greater than the upper warning limit for barium (113%) at 114%. The associated positive detections were qualified as "J+".

Three surface soil samples (NYOW-01-SL026-A, NYOW-01-SL029-A, and NYOW-01-SL030-A) were associated with an LCSD that exhibited a 0% recovery for TOC. The LCS recovered within criteria. The associated TOC results were positive detections and were qualified as "J-".

Six MS/MSD samples for surface soil at AOC 1 had results that required qualification (NYOW-01-SL002-A, NYOW-01-SL021-A, NYOW-01-SL023-A, NYOW-01-SL025-A, NYOW-01-SL029-A, and NYOW-01-SL036-A). The results are discussed below:

- For MS/MSD sample NYOW-01-SL002-A, potassium recovered above the upper warning limit and the positive detection was qualified "J+", for high bias. Chromium, magnesium, and antimony recovered below the lower warning limits and the results were qualified as "J-", indicating low bias. TOC recovered above the upper warning limit at 259% and 157%, respectively. The positive TOC detection was qualified as "J+". Picric acid recovered below the lower warning limit at 15% and 15%, respectively. The non-detect picric acid sample result was qualified "UJ".
- For MS/MSD sample NYOW-01-SL021-A, calcium recovered above the upper warning limit and zinc recovered below the lower warning limit at 36%. The associated positive detections were affected by additional anomalies and were qualified "J", without bias indicators.
- For MS/MSD sample NYOW-01-SL023-A, TOC recovered below the lower control limit at 0% and the sample result was qualified as "J-".
- For MS/MSD sample NYOW-01-SL029-A, TOC recovered above the upper warning limit at 171%. The sample result was affected by additional anomalies and was qualified "J", without a bias indicator.
- MS/MSD sample NYOW-01-SL025-A exhibited recoveries for picric acid below the lower warning limit at 26% and 23%, respectively, and the non-detect sample result was qualified as "UJ".
- MS/MSD sample NYOW-01-SL036-A exhibited recoveries for picric acid below the lower warning limit at 15% and 16%, respectively, and the non-detect sample result was qualified as "UJ".

**Table 45,** below, summarizes the number of AOC 1 surface soil results that are biased based on the non-conformances discussed above.

**Table 45**
**Analytical Bias Summary - AOC 1 - Soil 0-1 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW6010C | Barium | 30 | -- | -- | 2 (6.7%) | C | 28 |
| SW6010C | Chromium | 30 | 1 (3.3%) | M | -- | -- | 29 |
| SW6010C | Magnesium | 30 | 1 (3.3%) | M | -- | -- | 29 |
| SW6010C | Potassium | 30 | -- | | 1 (3.3%) | M | 29 |
| SW6020A | Antimony | 30 | 1 (3.3%) | M | -- | -- | 29 |
| SW8270D | 2,4-Dinitrochlorobenzene | 30 | 8 (27%) | I | -- | -- | 22 |
| SW8270D | 2,4-Dinitrophenol | 29 | 1 (3.3%) | I | -- | -- | 28 |
| SW8330A | Picric acid | 30 | 3 (10%) | M | -- | -- | 27 |

Notes: I = Surrogate Recovery, M = MS/MSD Recovery

Subsurface Soil

**Table 46** summarizes the number of AOC 1 subsurface soil results that were qualified for non-conformances related to accuracy:

| **Table 46:** AOC 1 Subsurface Soil Summary – Accuracy (Surrogate, LCS/LCSD, and MS/MSD %R) | |
|---|---|
| Total number of Subsurface Soil results | 755 |
| Subsurface Soil results qualified for surrogate %R anomalies | 8 (1.1%) |
| Subsurface Soil results qualified for LCS/LCSD %R anomalies | 6 (<1%) |
| Subsurface Soil results qualified for MS/MSD %R anomalies | 28 (3.7%) |

One subsurface soil sample (NYOW-01-PH015-B) exhibited surrogate recoveries for B/N-extractable and acid-extractable surrogates between the lower warning and lower control limits for SVOCs, indicating low bias. The associated results for DNCB and 2,4-DNP were non-detect and were qualified "UJ".

Six subsurface soil samples (NYOW-01-PH016-B, NYOW-01-PH016-C, NYOW-01-PH020-B, NYOW-01-PH020-C, NYOW-01-PH023-C, and NYOW-01-PH024-C) exhibited B/N-extractable surrogate recoveries between the lower warning and lower control limits for SVOCs, indicating low bias. The associated results for DNCB were non-detect and were qualified "UJ".

Four subsurface soil samples (NYOW-01-PH005-B, NYOW-01-PH005-C, NYOW-01-PH018-B, and NYOW-01-PH018-C) had LCS/LCSD recoveries greater than the upper warning limit for barium (113%) at 114%. The associated positive detections were qualified as "J+".

Three MS/MSD samples for subsurface soil at AOC 1 had results that required qualification (NYOW-01-PH002-B, NYOW-01-PH019-B, and NYOW-01-PH023-B). The results are discussed below:

- MS/MSD sample NYOW-01-PH002-B exhibited picric acid recoveries less than the lower warning limit at 23% and 21%, respectively. The associated non-detect sample result was qualified "UJ". MS/MSD sample NYOW-01-PH002-B exhibited recoveries outside of warning limits for magnesium (71% and 125%) and potassium (126% and 122%). The positive detection for magnesium is qualified as "J" and the detection for potassium is qualified as "J+". MSD sample NYOW-01-PH002-B exhibited a recovery greater than the upper warning limit for TOC at 147%. The associated positive detection is qualified as "J+".
- MS/MSD sample NYOW-01-PH019-B exhibited picric acid recoveries less than the lower warning limit at 37% and 41%, respectively. The associated non-detect sample result was qualified "UJ". MS/MSD sample NYOW-01-PH019-B exhibited TOC recoveries less than the lower warning limit at 35% and 19%, respectively. The associated positive detection is qualified as "J-". MS/MSD sample NYOW-01-PH019-B exhibited recoveries below the warning limits for silver, barium, beryllium, calcium, cobalt, chromium, magnesium, manganese, sodium, nickel, lead, vanadium, and zinc. The associated positive detections for all analytes were qualified as "J-", except for the non-detect silver result, which was qualified as "UJ".
- MS/MSD sample NYOW-01-PH023-B exhibited low TOC recoveries at -69% and 17%, respectively. The associated positive detection was affected by additional anomalies and was qualified "J". MS/MSD sample NYOW-01-PH023-B exhibited recoveries below the warning limits for cobalt, chromium, copper, magnesium, sodium, nickel, lead, and zinc. The associated positive detections were qualified as "J-".

**Table 47**, below, summarizes the number of AOC 1 subsurface soil results that are biased based on the non-conformances discussed above.

**Table 47**
**Analytical Bias Summary - AOC 1 - Soil 1-10 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW6010C | Barium | 22 | 1 (4.5%) | M | 4 (18%) | C | 17 |
| SW6010C | Beryllium | 22 | 1 (4.5%) | M | -- | -- | 21 |
| SW6010C | Calcium | 22 | 1 (4.5%) | M | -- | -- | 21 |
| SW6010C | Chromium | 22 | 2 (9.1%) | M | -- | -- | 20 |
| SW6010C | Cobalt | 22 | 2 (9.1%) | M | -- | -- | 20 |
| SW6010C | Copper | 22 | 1 (4.5%) | M | -- | -- | 21 |
| SW6010C | Lead | 22 | 2 (9.1%) | M | -- | -- | 20 |
| SW6010C | Magnesium | 22 | 2 (9.1%) | M | -- | -- | 20 |
| SW6010C | Manganese | 22 | 1 (4.5%) | M | -- | -- | 21 |
| SW6010C | Nickel | 22 | 2 (9.1%) | M | -- | -- | 20 |
| SW6010C | Potassium | 22 | -- | | 1 (4.5%) | M | 21 |

**Table 47**
**Analytical Bias Summary - AOC 1 - Soil 1-10 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW6010C | Silver | 22 | 1 (4.5%) | M | -- | -- | 21 |
| SW6010C | Sodium | 22 | 2 (9.1%) | M | -- | -- | 20 |
| SW6010C | Vanadium | 22 | 1 (4.5%) | M | -- | -- | 21 |
| SW6010C | Zinc | 22 | 2 (9.1%) | M | -- | -- | 20 |
| SW8270D | 2,4-Dinitrochlorobenzene | 22 | 6 (27%) | I | -- | -- | 16 |
| SW8270D | 2,4-Dinitrophenol | 22 | 1 (4.5%) | I | -- | -- | 21 |
| SW8330A | Picric acid | 22 | 2 (9.1%) | M | -- | -- | 20 |

Notes: I = Surrogate Recovery, M = MS/MSD Recovery

Groundwater

**Table 48** summarizes the number of AOC 1 groundwater results that were qualified for non-conformances related to accuracy:

| **Table 48:** AOC 1 Groundwater Summary – Accuracy (Surrogate, LCS/LCSD, and MS/MSD %R) | |
|---|---|
| Total number of GW results | 261 |
| Groundwater results qualified for surrogate %R anomalies | 11 (4.2%) |
| Groundwater results qualified for LCS/LCSD %R anomalies | 0 |
| Groundwater results qualified for MS/MSD %R anomalies | 2 (<1%) |

Eight groundwater samples (NYOW-01-WL001-A, NYOW-01-WL005-A, NYOW-01-WL006-B, NYOW-01-WL018-A, NYOW-01-WL019-A, NYOW-01-WL021-A, NYOW-01-WL022-A_R, and NYOW-01-WL024-A) exhibited surrogate recoveries between the lower warning and control limits for SVOCs, indicating low bias. The associated non-detect DNCB results were qualified "UJ".

Two groundwater samples (NYOW-01-WL019-A and NYOW-01-WL024-A) exhibited surrogate recoveries between the lower warning and lower control limits for 1,2-DNB in the explosives analysis, indicating low bias. The associated picric acid results were non-detect and were qualified "UJ".

The NYOW-01-WL001-A MS/MSD sample exhibited recoveries less than the lower warning limit for dissolved antimony (85%) at 80% and 82%, respectively. The associated sample result is qualified as "J-".

The NYOW-01-WL001-A MSD sample exhibited a recovery less than the lower warning limit for picric acid (80%) at 57%. The associated non-detect sample result is qualified as "UJ".

**Table 49**, below, summarizes the number of AOC 1 groundwater results that are biased based on the non-conformances discussed above.

**Table 49**
**Analytical Bias Summary - AOC 1 - Groundwater**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW6020A | Antimony | 9 | 1 (11%) | M | -- | -- | 8 |
| SW8270D | 2,4-Dinitrochlorobenzene | 9 | 8 (89%) | I | -- | -- | 1 |
| SW8330B | Picric acid | 10 | 3 (30%) | I/M | -- | -- | 7 |

Notes: I = Surrogate Recovery, M = MS/MSD Recovery

#### *2.2.2.4 AOC 3*

Surface Soil

**Table 50** summarizes the number of AOC 3 surface soil results that were qualified for non-conformances related to accuracy:

| **Table 50:** AOC 3 Surface Soil Summary – Accuracy (Surrogate, LCS/LCSD, and MS/MSD %R) | |
|---|---|
| Total number of Surface Soil results | 1859 |
| Surface Soil results qualified for surrogate %R anomalies | 201 (10.8%) |
| Surface Soil results qualified for LCS/LCSD %R anomalies | 82 (4.4%) |
| Surface Soil results qualified for MS/MSD %R anomalies | 50 (2.7%) |

Two surface soil samples (NYOW-03-SL007-A and NYOW-03-SL008-A) exhibited surrogate recoveries greater than the upper warning limits for PAHs, indicating high bias. The associated positive detections were qualified "J+".

One surface soil sample (NYOW-03-SL012-A) exhibited surrogate recoveries between the lower warning and lower control limits for PAHs, indicating low bias. The associated results were qualified "J-".

Five surface soil samples (NYOW-03-SL004-A, NYOW-03-SL005-A, NYOW-03-SL006-A, NYOW-03-SL012-A, and NYOW-03-SL015-A) exhibited surrogate recoveries between the lower warning and lower control limits for SVOCs, indicating low bias. The associated non-detect results were qualified "UJ" and the associated detections were qualified "J-".

One surface soil sample (NYOW-03-SL008-A) exhibited a recovery greater than the upper warning limit for decachlorobiphenyl. The associated PCB-1260 sample result was qualified as "J+".

Two surface soil samples (NYOW-03-SL006-A and NYOW-03-SL012-A) were associated with LCS/LCSD recoveries between the lower warning and lower control limits for SVOCs, indicating low bias. The associated non-detect results were qualified "UJ" and the associated detections were qualified "J-".

Five MS/MSD samples for surface soil at AOC 3 had results that required qualification (NYOW-03-SL002-A, NYOW-03-SL004-A, NYOW-03-SL005-A, NYOW-03-SL009-A, and NYOW-03-SL009-A_R). The results are discussed below:

- MS/MSD sample NYOW-03-SL002-A exhibited recoveries for picric acid below the lower warning limit (50%) at 34% and 35%, respectively, and the non-detect sample result was qualified as "UJ".
- MS/MSD sample NYOW-03-SL004-A exhibited recoveries less than the lower warning limits but greater than the lower control limits for atrazine (43%), 4-chloroaniline (13%, 15%), 3-nitroaniline (30%), and 4-nitroaniline (33%) in the SVOCs analysis. The associated sample results were non-detect and were qualified as "UJ".
- MS/MSD sample NYOW-03-SL004-A exhibited recoveries less than the lower warning limits but greater than the lower control limits for benzo(b)fluoranthene (48%), benzo(g,h,i)perylene (41%), and indeno(1,2,3-cd)pyrene (46%). The associated sample results were positive detections and were qualified as "J-".
- MS/MSD sample NYOW-03-SL004-A exhibited recoveries less than the lower warning limits for manganese (75%) and lead (80%). The associated sample results were positive detections and were qualified as "J-".
- MS/MSD sample NYOW-03-SL005-A exhibited recoveries less than the lower warning limits but greater than the lower control limits for 2,4-dinitrotoluene (42%, 45%), 2-nitroaniline (43%), atrazine (40%, 42%), benzyl butyl phthalate (45%), bis(2-ethylhexyl)phthalate (46%), caprolactam (41%), carbazole (47%), di-n-butyl phthalate (47%), diethyl phthalate (46%), dimethyl phthalate (47%), and N-nitroso-di-n-propylamine (35%) in the SVOCs analysis. The associated sample results were non-detect and were qualified as "UJ".
- MS/MSD sample NYOW-03-SL005-A exhibited recoveries greater than the upper warning limit for potassium (118%). The positive detection for potassium is qualified as "J+".
- MS/MSD sample NYOW-03-SL009-A exhibited recoveries less than the lower warning limits and lower control limits for acenaphthylene (19%, 4%), anthracene (49%), benzo(a)anthracene (-15%, 2%), benzo(a)pyrene (-13%, -15%), benzo(b)fluoranthene (-76%, -90%), benzo(g,h,i)perylene (13%, -7%), benzo(k)fluoranthene (10%, 6%), chrysene (-38%, -32%), fluoranthene (-141%, -74%), fluorene (46%), indeno(1,2,3-c,d)pyrene (5%, -6%), phenanthrene (-122%, -63%), and pyrene (-83%, -52%). The associated sample results were positive detections and were qualified as "J-".
- MS/MSD sample NYOW-03-SL009-A exhibited recoveries for picric acid below the lower warning limit (50%) at 30% and 28%, respectively, and the non-detect sample result was qualified as "UJ".
- MS/MSD sample NYOW-03-SL009-A exhibited recoveries outside of warning limits for calcium (130%), manganese (123%), copper (78%), silver (78%), vanadium (77%), barium (76%), chromium (76%), cobalt (75%), nickel (75%), beryllium (74%), sodium (74%), and lead (73%). The associated sample results were qualified as "UJ", "J-", or "J+".

- MSD sample NYOW-03-SL009-A_R exhibited recoveries less than the lower warning limits for caprolactam (46%) and hexachlorocyclopentadiene (28%) at 41% and 27%, respectively. The associated sample results were non-detect and were qualified as "UJ".

**Table 51**, below, summarizes the number of AOC 3 surface soil results that are biased based on the non-conformances discussed above.

**Table 51**
**Analytical Bias Summary - AOC 3 - Soil 0-1 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| BNASIMD | 1-Methylnaphthalene | 16 | 1 (6.3%) | I | 2 (13%) | I | 13 |
| BNASIMD | 2-Methylnaphthalene | 16 | 1 (6.3%) | I | 2 (13%) | I | 13 |
| BNASIMD | Acenaphthene | 16 | 1 (6.3%) | I | 2 (13%) | I | 13 |
| BNASIMD | Acenaphthylene | 16 | 2 (13%) | I/M | -- | -- | 14 |
| BNASIMD | Anthracene | 16 | 2 (13%) | I/M | 1 (6.3%) | I | 13 |
| BNASIMD | Benzo(a)anthracene | 16 | 2 (13%) | I/M | -- | -- | 14 |
| BNASIMD | Benzo(a)pyrene | 16 | 2 (13%) | I/M | -- | -- | 14 |
| BNASIMD | Benzo(b)fluoranthene | 16 | 3 (19%) | I/M | -- | -- | 13 |
| BNASIMD | Benzo(g,h,i)perylene | 16 | 3 (19%) | I/M | -- | -- | 13 |
| BNASIMD | Benzo(k)fluoranthene | 16 | 2 (13%) | I/M | -- | -- | 14 |
| BNASIMD | Chrysene | 16 | 2 (13%) | I/M | -- | -- | 14 |
| BNASIMD | Dibenz(a,h)anthracene | 16 | 1 (6.3%) | I | 1 (6.3%) | I | 14 |
| BNASIMD | Fluoranthene | 16 | 2 (13%) | I/M | -- | -- | 14 |
| BNASIMD | Fluorene | 16 | 2 (13%) | I/M | 1 (6.3%) | I | 13 |
| BNASIMD | Indeno(1,2,3-c,d)pyrene | 16 | 3 (19%) | I/M | -- | -- | 13 |
| BNASIMD | Naphthalene | 16 | 1 (6.3%) | I | 2 (13%) | I | 13 |
| BNASIMD | Phenanthrene | 16 | 2 (13%) | I/M | -- | -- | 14 |
| BNASIMD | Pyrene | 16 | 2 (13%) | I/M | -- | -- | 14 |
| SW6010C | Barium | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Beryllium | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Calcium | 16 | -- | | 1 (6.3%) | M | 15 |
| SW6010C | Chromium | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Cobalt | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Copper | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Lead | 16 | 2 (13%) | M | -- | -- | 14 |
| SW6010C | Manganese | 16 | 1 (6.3%) | M | 1 (6.3%) | M | 14 |
| SW6010C | Nickel | 16 | 1 (6.3%) | M | -- | -- | 15 |

**Table 51**
**Analytical Bias Summary - AOC 3 - Soil 0-1 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW6010C | Potassium | 16 | -- | | 1 (6.3%) | M | 15 |
| SW6010C | Silver | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Sodium | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Vanadium | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW8082A | PCB-1260 (Aroclor 1260) | 12 | -- | | 1 (6.3%) | I | 11 |
| SW8270D | 1,2,4,5-Tetrachlorobenzene | 16 | 5 (31%) | C/I | -- | -- | 11 |
| SW8270D | 1,4-Dioxane | 16 | 4 (25%) | I | -- | -- | 12 |
| SW8270D | 2,2'-Oxybis(1-chloropropane) | 16 | 5 (31%) | C/I | -- | -- | 11 |
| SW8270D | 2,3,4,6-Tetrachlorophenol | 16 | 2 (13%) | C/I | -- | -- | 14 |
| SW8270D | 2,4,5-Trichlorophenol | 16 | 2 (13%) | C/I | -- | -- | 14 |
| SW8270D | 2,4,6-Trichlorophenol | 16 | 2 (13%) | C/I | -- | -- | 14 |
| SW8270D | 2,4-Dichlorophenol | 16 | 2 (13%) | C/I | -- | -- | 14 |
| SW8270D | 2,4-Dimethylphenol | 16 | 2 (13%) | I | -- | -- | 14 |
| SW8270D | 2,4-Dinitrochlorobenzene | 16 | 4 (25%) | I | -- | -- | 12 |
| SW8270D | 2,4-Dinitrophenol | 16 | 2 (13%) | I | -- | -- | 14 |
| SW8270D | 2,4-Dinitrotoluene | 16 | 5 (31%) | C/I/M | -- | -- | 11 |
| SW8270D | 2,6-Dinitrotoluene | 16 | 5 (31%) | C/I | -- | -- | 11 |
| SW8270D | 2-Chloronaphthalene | 16 | 5 (31%) | C/I | -- | -- | 11 |
| SW8270D | 2-Chlorophenol | 16 | 2 (13%) | C/I | -- | -- | 14 |
| SW8270D | 2-Methylphenol (o-Cresol) | 16 | 2 (13%) | C/I | -- | -- | 14 |
| SW8270D | 2-Nitroaniline | 16 | 5 (31%) | C/I/M | -- | -- | 11 |
| SW8270D | 2-Nitrophenol | 16 | 2 (13%) | C/I | -- | -- | 14 |
| SW8270D | 3,3'-Dichlorobenzidine | 15 | 3 (20%) | I | -- | -- | 12 |
| SW8270D | 3-Nitroaniline | 16 | 5 (31%) | C/I/M | -- | -- | 11 |
| SW8270D | 4,6-Dinitro-2-methylphenol | 16 | 2 (13%) | I | -- | -- | 14 |
| SW8270D | 4-Bromophenyl phenyl ether | 16 | 5 (31%) | C/I | -- | -- | 11 |
| SW8270D | 4-Chloro-3-methylphenol | 16 | 2 (13%) | C/I | -- | -- | 14 |
| SW8270D | 4-Chloroaniline | 16 | 4 (25%) | I/M | -- | -- | 12 |
| SW8270D | 4-Chlorophenyl phenyl ether | 16 | 5 (31%) | C/I | -- | -- | 11 |
| SW8270D | 4-Nitroaniline | 16 | 5 (31%) | C/I/M | -- | -- | 11 |
| SW8270D | 4-Nitrophenol | 16 | 2 (13%) | I | -- | -- | 14 |
| SW8270D | Acetophenone | 16 | 5 (31%) | C/I | -- | -- | 11 |

**Table 51**
**Analytical Bias Summary - AOC 3 - Soil 0-1 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW8270D | Atrazine | 16 | 5 (31%) | C/I/M | -- | -- | 11 |
| SW8270D | Benzaldehyde | 16 | 4 (25%) | I | -- | -- | 12 |
| SW8270D | Benzyl butyl phthalate | 16 | 5 (31%) | C/I/M | -- | -- | 11 |
| SW8270D | Biphenyl (Diphenyl) | 16 | 5 (31%) | C/I | -- | -- | 11 |
| SW8270D | Bis(2-chloroethoxy)methane | 16 | 5 (31%) | C/I | -- | -- | 11 |
| SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 16 | 5 (31%) | C/I | -- | -- | 11 |
| SW8270D | Bis(2-ethylhexyl)phthalate | 16 | 5 (31%) | C/I/M | -- | -- | 11 |
| SW8270D | Caprolactam | 16 | 6 (38%) | C/I/M | -- | -- | 10 |
| SW8270D | Carbazole | 16 | 5 (31%) | C/I/M | -- | -- | 11 |
| SW8270D | Cresols, m- & p- | 16 | 2 (13%) | C/I | -- | -- | 14 |
| SW8270D | Dibenzofuran | 16 | 5 (31%) | C/I | -- | -- | 11 |
| SW8270D | Diethyl phthalate | 16 | 5 (31%) | C/I/M | -- | -- | 11 |
| SW8270D | Dimethyl phthalate | 16 | 5 (31%) | C/I/M | -- | -- | 11 |
| SW8270D | di-n-Butyl phthalate | 16 | 4 (25%) | C/I/M | -- | -- | 12 |
| SW8270D | di-n-Octyl phthalate | 16 | 5 (31%) | C/I | -- | -- | 11 |
| SW8270D | Hexachlorobenzene | 16 | 5 (31%) | C/I | -- | -- | 11 |
| SW8270D | Hexachlorobutadiene | 16 | 5 (31%) | C/I | -- | -- | 11 |
| SW8270D | Hexachlorocyclopentadiene | 16 | 6 (38%) | C/I/M | -- | -- | 10 |
| SW8270D | Hexachloroethane | 16 | 5 (31%) | C/I | -- | -- | 11 |
| SW8270D | Isophorone | 16 | 4 (25%) | I | -- | -- | 12 |
| SW8270D | Nitrobenzene | 16 | 5 (31%) | C/I | -- | -- | 11 |
| SW8270D | N-Nitrosodi-n-propylamine | 16 | 5 (31%) | C/I/M | -- | -- | 11 |
| SW8270D | N-Nitrosodiphenylamine | 16 | 5 (31%) | C/I | -- | -- | 11 |
| SW8270D | Pentachlorophenol | 16 | 2 (13%) | I | -- | -- | 14 |
| SW8270D | Phenol | 16 | 2 (13%) | C/I | -- | -- | 14 |
| SW8330A | Picric acid | 16 | 2 (13%) | M | -- | -- | 14 |

Notes: I = Surrogate Recovery, C = LCS Recovery, M = MS/MSD Recovery

Subsurface Soil

**Table 52** summarizes the number of AOC 3 subsurface soil results that were qualified for non-conformances related to accuracy:

| **Table 52:** AOC 3 Subsurface Soil Summary – Accuracy (Surrogate, LCS/LCSD, and MS/MSD %R) | |
|---|---|
| Total number of Subsurface Soil results | 3096 |
| Subsurface Soil results qualified for surrogate %R anomalies | 255 (8.2%) |
| Subsurface Soil results qualified for LCS/LCSD %R anomalies | 28 (<1%) |
| Subsurface Soil results qualified for MS/MSD %R anomalies | 39 (1.3%) |

Subsurface soil sample NYOW-03-PH009-B exhibited recoveries less than the lower warning limits for surrogates 2-fluorobiphenyl and nitrobenzene-d5 at 38% and 41%, respectively. The associated sample results were non-detect and were qualified as "UJ".

Five subsurface soil samples (NYOW-03-PH004-B, NYOW-03-PH005-B_R, NYOW-03-PH008-B_R, NYOW-03-PH013-B_R, and NYOW-03-PH015-B_R) exhibited surrogate recoveries between the lower warning and lower control limits for SVOCs, indicating low bias. The associated non-detect results were qualified "UJ".

Six subsurface soil samples (NYOW-03-PH005-B_R, NYOW-03-PH006-B_R, NYOW-03-PH007-B_R, NYOW-03-PH016-B_R, NYOW-03-PH017-B_R, and NYOW-03-PH018-B_R) were associated with an LCS recovery less than the lower warning limit for chloroform (78%) at 77%, indicating low bias. The associated non-detect results were qualified "UJ".

Three subsurface soil samples (NYOW-03-PH006-B_R, NYOW-03-PH007-B_R, and NYOW-03-PH008-B_R) were associated with LCS/LCSD recoveries less than the lower warning limits for 2,2'-oxybis[1-chloropropane] (31% and 30%), 2,6-dinitrotoluene (43%), bis(2-ethylhexyl)phthalate (50% and 26%), hexachlorocyclopentadiene (26% and 23%), butyl benzyl phthalate (46%), bis(2-chloroethyl)ether (26%), and N-nitroso-di-n-propylamine (32%). The associated soil sample results were non-detect and were qualified as "UJ".

Four MS/MSD samples for subsurface soil at AOC 3 had results that required qualification (NYOW-03-PH005-B, NYOW-03-PH008-B, NYOW-03-PH008-B_R, and NYOW-03-PH016-B). The results are discussed below:

- MS/MSD sample NYOW-03-PH005-B exhibited recoveries less than the lower control limit for anthracene (33%), fluoranthene (-13%, -66%), phenanthrene (36%, 32%), dibenz(a,h)anthracene (-37%, -155%), and pyrene (6%, -81%) . The associated positive detections were qualified as "J-".
- MS/MSD sample NYOW-03-PH008-B exhibited recoveries less than the lower warning limits for barium (68%, 70%), beryllium (68%, 69%), calcium (2.5%), chromium (69%, 70%), cobalt (67%, 69%), copper (69%, 70%), magnesium (65%, 47%), manganese (63%, 76%), nickel (66%, 68%), potassium (79%), silver (70%, 71%), sodium (67%, 68%), vanadium (70%, 71%), zinc (65%, 58%), and lead (63%, 65%). The associated sample results were qualified as "UJ" or "J-".
- MS/MSD sample NYOW-03-PH008-B exhibited recoveries for picric acid below the lower warning limit (50%) at 17% and 18%, respectively, and the non-detect sample result was qualified as "UJ".
- MS/MSD sample NYOW-03-PH008-B_R exhibited recoveries less than the lower warning limits for multiple analytes in the SVOCs analysis: hexachlorocyclopentadiene (16%, 27%), 2,2'-

oxybis[1-chloropropane] (27%), bis(2-chloroethyl)ether (27%), phenol (32%), N-nitroso-di-n-propylamine (35%), 2-chloronaphthalene (39%), 2,6-dinitrotoluene (40%), 4-chlorophenyl phenyl ether (42%), 2-nitroaniline (42%), 4-bromophenyl phenyl ether (44%), 2,4-dinitrotoluene (44%), butyl benzyl phthalate (47%), carbazole (48%), diethyl phthalate (48%), dimethyl phthalate (50%), di-n-butyl phthalate (50%), and bis(2-ethylhexyl) phthalate (50%). The associated sample results were non-detect and were qualified as "UJ".

- MS/MSD sample NYOW-03-PH016-B exhibited recoveries for picric acid below the lower warning limit (50%) at 25% and 26%, respectively, and the non-detect sample result was qualified as "UJ".

**Table 53**, below, summarizes the number of AOC 3 subsurface soil results that are biased based on the non-conformances discussed above.

**Table 53**
**Analytical Bias Summary - AOC 3 - Soil 1-10 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| BNASIMD | 1-Methylnaphthalene | 16 | 1 (6.3%) | I | -- | -- | 15 |
| BNASIMD | 2-Methylnaphthalene | 16 | 1 (6.3%) | I | -- | -- | 15 |
| BNASIMD | Acenaphthene | 16 | 1 (6.3%) | I | -- | -- | 15 |
| BNASIMD | Acenaphthylene | 16 | 1 (6.3%) | I | -- | -- | 15 |
| BNASIMD | Anthracene | 16 | 2 (13%) | I/M | -- | -- | 14 |
| BNASIMD | Benzo(a)anthracene | 16 | 1 (6.3%) | I | -- | -- | 15 |
| BNASIMD | Benzo(a)pyrene | 16 | 1 (6.3%) | I | -- | -- | 15 |
| BNASIMD | Benzo(b)fluoranthene | 16 | 1 (6.3%) | I | -- | -- | 15 |
| BNASIMD | Benzo(g,h,i)perylene | 16 | 1 (6.3%) | I | -- | -- | 15 |
| BNASIMD | Benzo(k)fluoranthene | 16 | 1 (6.3%) | I | -- | -- | 15 |
| BNASIMD | Chrysene | 16 | 1 (6.3%) | I | -- | -- | 15 |
| BNASIMD | Dibenz(a,h)anthracene | 16 | 2 (13%) | I/M | -- | -- | 14 |
| BNASIMD | Fluoranthene | 16 | 2 (13%) | I/M | -- | -- | 14 |
| BNASIMD | Fluorene | 16 | 1 (6.3%) | I | -- | -- | 15 |
| BNASIMD | Indeno(1,2,3-c,d)pyrene | 16 | 1 (6.3%) | I | -- | -- | 15 |
| BNASIMD | Naphthalene | 16 | 1 (6.3%) | I | -- | -- | 15 |
| BNASIMD | Phenanthrene | 16 | 2 (13%) | I/M | -- | -- | 14 |
| BNASIMD | Pyrene | 16 | 2 (13%) | I/M | -- | -- | 14 |
| SW6010C | Barium | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Beryllium | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Calcium | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Chromium | 16 | 1 (6.3%) | M | -- | -- | 15 |

**Table 53**
**Analytical Bias Summary - AOC 3 - Soil 1-10 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW6010C | Cobalt | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Copper | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Lead | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Magnesium | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Manganese | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Nickel | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Potassium | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Silver | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Sodium | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Vanadium | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW6010C | Zinc | 16 | 1 (6.3%) | M | -- | -- | 15 |
| SW8260C | Chloroform | 18 | 6 (33%) | C | -- | -- | 12 |
| SW8270D | 1,2,4,5-Tetrachlorobenzene | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | 1,4-Dioxane | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | 2,2'-Oxybis(1-chloropropane) | 20 | 7 (35%) | C/I/M | -- | -- | 13 |
| SW8270D | 2,3,4,6-Tetrachlorophenol | 20 | 1 (5.0%) | I | -- | -- | 19 |
| SW8270D | 2,4,5-Trichlorophenol | 20 | 1 (5.0%) | I | -- | -- | 19 |
| SW8270D | 2,4,6-Trichlorophenol | 20 | 1 (5.0%) | I | -- | -- | 19 |
| SW8270D | 2,4-Dichlorophenol | 20 | 1 (5.0%) | I | -- | -- | 19 |
| SW8270D | 2,4-Dimethylphenol | 20 | 1 (5.0%) | I | -- | -- | 19 |
| SW8270D | 2,4-Dinitrochlorobenzene | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | 2,4-Dinitrophenol | 20 | 1 (5.0%) | I | -- | -- | 19 |
| SW8270D | 2,4-Dinitrotoluene | 20 | 5 (25%) | I/M | -- | -- | 15 |
| SW8270D | 2,6-Dinitrotoluene | 20 | 7 (35%) | C/I/M | -- | -- | 13 |
| SW8270D | 2-Chloronaphthalene | 20 | 5 (25%) | I/M | -- | -- | 15 |
| SW8270D | 2-Chlorophenol | 20 | 1 (5.0%) | I | -- | -- | 19 |
| SW8270D | 2-Methylphenol (o-Cresol) | 20 | 1 (5.0%) | I | -- | -- | 19 |
| SW8270D | 2-Nitroaniline | 20 | 5 (25%) | I/M | -- | -- | 15 |
| SW8270D | 2-Nitrophenol | 20 | 1 (5.0%) | I | -- | -- | 19 |
| SW8270D | 3,3'-Dichlorobenzidine | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | 3-Nitroaniline | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | 4,6-Dinitro-2-methylphenol | 20 | 1 (5.0%) | I | -- | -- | 19 |
| SW8270D | 4-Bromophenyl phenyl ether | 20 | 5 (25%) | I/M | -- | -- | 15 |
| SW8270D | 4-Chloro-3-methylphenol | 20 | 1 (5.0%) | I | -- | -- | 19 |

**Table 53**
**Analytical Bias Summary - AOC 3 - Soil 1-10 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW8270D | 4-Chloroaniline | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | 4-Chlorophenyl phenyl ether | 20 | 5 (25%) | I/M | -- | -- | 15 |
| SW8270D | 4-Nitroaniline | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | 4-Nitrophenol | 20 | 1 (5.0%) | I | -- | -- | 19 |
| SW8270D | Acetophenone | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | Atrazine | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | Benzaldehyde | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | Benzyl butyl phthalate | 20 | 7 (35%) | C/I/M | -- | -- | 13 |
| SW8270D | Biphenyl (Diphenyl) | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | Bis(2-chloroethoxy)methane | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 20 | 7 (35%) | C/I/M | -- | -- | 13 |
| SW8270D | Bis(2-ethylhexyl)phthalate | 20 | 7 (35%) | C/I/M | -- | -- | 13 |
| SW8270D | Caprolactam | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | Carbazole | 20 | 5 (25%) | I/M | -- | -- | 15 |
| SW8270D | Cresols, m- & p- | 20 | 1 (5.0%) | I | -- | -- | 19 |
| SW8270D | Dibenzofuran | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | Diethyl phthalate | 20 | 5 (25%) | I/M | -- | -- | 15 |
| SW8270D | Dimethyl phthalate | 20 | 5 (25%) | I/M | -- | -- | 15 |
| SW8270D | di-n-Butyl phthalate | 20 | 5 (25%) | I/M | -- | -- | 15 |
| SW8270D | di-n-Octyl phthalate | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | Hexachlorobenzene | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | Hexachlorobutadiene | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | Hexachlorocyclopentadiene | 20 | 7 (35%) | C/I/M | -- | -- | 13 |
| SW8270D | Hexachloroethane | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | Isophorone | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | Nitrobenzene | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | N-Nitrosodi-n-propylamine | 20 | 7 (35%) | C/I/M | -- | -- | 13 |
| SW8270D | N-Nitrosodiphenylamine | 20 | 5 (25%) | I | -- | -- | 15 |
| SW8270D | Pentachlorophenol | 20 | 1 (5.0%) | I | -- | -- | 19 |
| SW8270D | Phenol | 20 | 1 (5.0%) | I/M | -- | -- | 19 |
| SW8330A | Picric acid | 16 | 2 (13%) | M | -- | -- | 14 |

Notes: I = Surrogate Recovery, C = LCS Recovery, M = MS/MSD Recovery

Groundwater

**Table 54** summarizes the number of AOC 3 groundwater results that were qualified for non-conformances related to accuracy:

| **Table 54:** AOC 3 Groundwater Summary – Accuracy (Surrogate, LCS/LCSD, and MS/MSD %R) | |
|---|---|
| Total number of GW results | 1223 |
| Groundwater results qualified for surrogate %R anomalies | 204 (16.7%) |
| Groundwater results qualified for LCS/LCSD %R anomalies | 0 |
| Groundwater results qualified for MS/MSD %R anomalies | 3 (<1%) |

Five groundwater samples (NYOW-03-WL002-A, NYOW-03-WL007-A, NYOW-03-WL013-A, NYOW-03-WL014-A, and NYOW-03-WL015-A) exhibited surrogate recoveries between the lower warning and lower control limits for SVOCs, indicating low bias. The associated non-detect results were qualified "UJ" and the associated detections were qualified "J-". The remaining three groundwater samples did not have any results qualified on the basis of SVOC surrogate recoveries.

Three groundwater samples (NYOW-03-WL007-A, NYOW-03-WL009-A, and NYOW-03-WL015-A) exhibited surrogate recoveries between the lower warning and lower control limits for 1,2-DNB in the explosives analysis, indicating low bias. The associated picric acid results were non-detect and were qualified "UJ".

The NYOW-03-WL009-A MSD sample exhibited a recovery less than the lower warning limit for dissolved calcium (87%) at 80%. The associated sample result is qualified as "J-".

The NYOW-03-WL009-A MS/MSD sample exhibited recoveries less than the lower warning limit for N-nitroso-diphenylamine (51%) at 27% and 24%, respectively. The associated non-detect sample result is qualified as "UJ".

The NYOW-03-WL009-A MSD sample exhibited a recovery less than the lower warning limit for picric acid (80%) at 50%. The associated sample result is qualified as "UJ".

**Table 55**, below, summarizes the number of AOC 3 groundwater results that are biased based on the non-conformances discussed above.

**Table 55**
**Analytical Bias Summary - AOC 3 - Groundwater**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW6010C | Calcium | 7 | 1 (14%) | M | -- | -- | 6 |
| SW8270D | 1,2,4,5-Tetrachlorobenzene | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | 1,4-Dioxane | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | 2,2'-Oxybis(1-chloropropane) | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | 2,3,4,6-Tetrachlorophenol | 7 | 1 (14%) | I | -- | -- | 6 |
| SW8270D | 2,4,5-Trichlorophenol | 7 | 1 (14%) | I | -- | -- | 6 |
| SW8270D | 2,4,6-Trichlorophenol | 7 | 1 (14%) | I | -- | -- | 6 |
| SW8270D | 2,4-Dichlorophenol | 7 | 1 (14%) | I | -- | -- | 6 |
| SW8270D | 2,4-Dimethylphenol | 7 | 1 (14%) | I | -- | -- | 6 |
| SW8270D | 2,4-Dinitrochlorobenzene | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | 2,4-Dinitrophenol | 7 | 1 (14%) | I | -- | -- | 6 |
| SW8270D | 2,4-Dinitrotoluene | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | 2,6-Dinitrotoluene | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | 2-Chloronaphthalene | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | 2-Chlorophenol | 7 | 1 (14%) | I | -- | -- | 6 |
| SW8270D | 2-Methylphenol (o-Cresol) | 7 | 1 (14%) | I | -- | -- | 6 |
| SW8270D | 2-Nitroaniline | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | 2-Nitrophenol | 7 | 1 (14%) | I | -- | -- | 6 |
| SW8270D | 3,3'-Dichlorobenzidine | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | 3-Nitroaniline | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | 4,6-Dinitro-2-methylphenol | 7 | 1 (14%) | I | -- | -- | 6 |
| SW8270D | 4-Bromophenyl phenyl ether | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | 4-Chloro-3-methylphenol | 7 | 1 (14%) | I | -- | -- | 6 |
| SW8270D | 4-Chloroaniline | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | 4-Chlorophenyl phenyl ether | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | 4-Nitroaniline | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | 4-Nitrophenol | 7 | 1 (14%) | I | -- | -- | 6 |
| SW8270D | Acetophenone | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | Atrazine | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | Benzaldehyde | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | Benzyl butyl phthalate | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | Biphenyl (Diphenyl) | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | Bis(2-chloroethoxy)methane | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | Bis(2-chloroethyl) ether | 7 | 5 (71%) | I | -- | -- | 2 |

**Table 55**
**Analytical Bias Summary - AOC 3 - Groundwater**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW8270D | Bis(2-ethylhexyl)phthalate | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | Caprolactam | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | Carbazole | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | Cresols, m- & p- | 7 | 1 (14%) | I | -- | -- | 6 |
| SW8270D | Dibenzofuran | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | Diethyl phthalate | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | Dimethyl phthalate | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | di-n-Butyl phthalate | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | di-n-Octyl phthalate | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | Hexachlorobenzene | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | Hexachlorobutadiene | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | Hexachlorocyclopentadiene | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | Hexachloroethane | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | Isophorone | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | Nitrobenzene | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | N-Nitrosodi-n-propylamine | 7 | 5 (71%) | I | -- | -- | 2 |
| SW8270D | N-Nitrosodiphenylamine | 7 | 6 (86%) | I/M | -- | -- | 1 |
| SW8270D | Pentachlorophenol | 7 | 1 (14%) | I | -- | -- | 6 |
| SW8270D | Phenol | 7 | 1 (14%) | I | -- | -- | 6 |
| SW8330B | Picric acid | 7 | 4 (57%) | I/M | -- | -- | 3 |

Notes: I = Surrogate Recovery, M = MS/MSD Recovery

#### *2.2.2.5 AOC 4 ISM*

**Table 56** summarizes the number of AOC 4 ISM soil results that were qualified for non-conformances related to accuracy:

| **Table 56:** AOC 4 ISM Soil Summary – Accuracy (Surrogate, LCS/LCSD, and MS/MSD %R) | |
|---|---|
| Total number of ISM Soil results | 99 |
| ISM Soil results qualified for surrogate %R anomalies | 60 (60.6%) |
| ISM Soil results qualified for LCS/LCSD %R anomalies | 0 |
| ISM Soil results qualified for MS/MSD %R anomalies | 9 (9.1%) |

Surrogate recoveries were less than the lower warning limits but greater than the lower control limits for 34 ISM replicates in the SVOC analysis. The associated sample results were non-detect and were qualified as "UJ" to indicate low bias.

Three AOC 4 ISM soil samples (NYOW-04-DU001-SL-A, NYOW-04-DU005-SL-B, and NYOW-04-DU013-SL-A) exhibited MS/MSD recoveries that were less than the lower warning limit but greater than the lower control limit for picric acid. The associated non-detect sample results for all replicates within the three affected DUs were qualified "UJ" to indicate low bias.

There is no grinding LCS (laboratory control sample standard reference material [LCSSRM]) that contains the analytes in the SVOC list. The explosives LCSSRM does not contain picric acid. As a result, the impact of sample milling on the SVOCs and explosive analyte recoveries could not be quantified.

**Table 57**, below, summarizes the number of AOC 4 ISM soil results that are biased based on the non-conformances discussed above.

**Table 57**
**Analytical Bias Summary - AOC 4 - ISM Soil - 0 to 1 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW8270D | 2,4-Dinitrochlorobenzene | 34 | 33 (97%) | I | -- | -- | 1 |
| SW8270D | 2,4-Dinitrophenol | 29 | 27 (93%) | I | -- | -- | 2 |
| SW8330B | Picric acid | 36 | 9 (25%) | M | -- | -- | 27 |

Notes: I = Surrogate Recovery, M = MS/MSD Recovery

#### *2.2.2.6 Background*

Surface Soil

**Table 58** summarizes the number of Background surface soil results that were qualified for non-conformances related to accuracy:

| **Table 58:** Background Surface Soil Summary – Accuracy (Surrogate, LCS/LCSD, and MS/MSD %R) | |
|---|---|
| Total number of Surface Soil results | 2200 |
| Surface Soil results qualified for surrogate %R anomalies | 190 (8.6%) |
| Surface Soil results qualified for LCS/LCSD %R anomalies | 43 (2.0%) |
| Surface Soil results qualified for MS/MSD %R anomalies | 45 (2.0%) |

Eleven surface soil samples (NYOW-B-SL024-A, NYOW-B-SL025-A, NYOW-B-SL027-A, NYOW-B-SL031-A, NYOW-B-SL038-A, NYOW-B-SL040-A, NYOW-B-SL041-A, NYOW-B-SL046-A, NYOW-B-SL048-A, NYOW-B-SL049-A, and NYOW-B-SL050-A) exhibited surrogate recoveries below the lower

warning limit but greater than the lower control limit for PAHs. The sample results were qualified as "J-" or "UJ" on the basis of low bias. The remaining 34 surface soil samples had surrogates recover within control.

Five surface soil samples (NYOW-B-SL015-A, NYOW-B-SL016-A, NYOW-B-SL017-A, NYOW-B-SL018-A, and NYOW-B-SL019-A) were associated with LCS/LCSD recoveries less than the lower warning limit for cobalt (85%), at 84.7%. The results are usable, with low bias, and were qualified "J-".

Fourteen surface soil samples (NYOW-B-SL021-A, NYOW-B-SL026-A, NYOW-B-SL036-A, NYOW-B-SL037-A, NYOW-B-SL038-A, NYOW-B-SL039-A, NYOW-B-SL042-A, NYOW-B-SL043-A, NYOW-B-SL044-A, NYOW-B-SL045-A, NYOW-B-SL046-A, NYOW-B-SL047-A, NYOW-B-SL048-A, and NYOW-B-SL050-A) were associated with LCS/LCSD recoveries less than the lower warning limits for indeno(1,2,3-c,d)pyrene (49%), benzo(g,h,i)perylene (49%), benzo(k)fluoranthene (56%), and dibenz(a,h)anthracene (50%) at 29.8%, 27.8%, 52.3%, and 34.3%, respectively. In addition, the LCS/LCSD recovery was greater than the upper warning limit for naphthalene (111%) at 140%. All results are usable, and were qualified "J-", "UJ", or "J+" as appropriate.

Seven Background surface soil MS/MSD samples had metals results that required qualification (NYOW-B-SL006-A, NYOW-B-SL016-A, NYOW-B-SL020-A, NYOW-B-SL026-A, NYOW-B-SL029-A, NYOW-B-SL046-A, and NYOW-B-SL050-A) for percent recoveries that were less than or greater than the warning limits for aluminum, arsenic, barium, beryllium, calcium, chromium, cobalt, iron, lead, magnesium, manganese, mercury, nickel, potassium, sodium, vanadium, and zinc. All results are usable, and were qualified "J-", "UJ", or "J+" as appropriate.

Three Background surface soil MS/MSD samples had PAH results that required qualification (NYOW-B-SL006-A, NYOW-B-SL023-A, and NYOW-B-SL046-A) for percent recoveries that were less than or greater than the warning limits for anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, phenanthrene, and pyrene. All results are usable and were qualified "J-" or "J+" as appropriate.

**Table 59**, below, summarizes the number of Background surface soil results that are biased based on the non-conformances discussed above.

**Table 59**
**Analytical Bias Summary - Background - Soil 0-1 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| BNASIMD | 1-Methylnaphthalene | 45 | 8 (18%) | I | -- | -- | 37 |
| BNASIMD | 2-Methylnaphthalene | 45 | 8 (18%) | I | -- | -- | 37 |
| BNASIMD | Acenaphthene | 45 | 9 (20%) | I | -- | -- | 36 |
| BNASIMD | Acenaphthylene | 45 | 8 (18%) | I | -- | -- | 37 |
| BNASIMD | Anthracene | 45 | 9 (20%) | I | -- | -- | 36 |
| BNASIMD | Benzo(a)anthracene | 45 | 9 (20%) | I | -- | -- | 36 |
| BNASIMD | Benzo(a)pyrene | 45 | 9 (20%) | I | -- | -- | 36 |

**Table 59**
**Analytical Bias Summary - Background - Soil 0-1 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| BNASIMD | Benzo(b)fluoranthene | 45 | 9 (20%) | I | 1 (2.2%) | M | 35 |
| BNASIMD | Benzo(g,h,i)perylene | 45 | 15 (33%) | C/M | -- | -- | 30 |
| BNASIMD | Benzo(k)fluoranthene | 45 | 15 (33%) | C/I/M | -- | -- | 30 |
| BNASIMD | Chrysene | 45 | 11 (24%) | I/M | -- | -- | 34 |
| BNASIMD | Dibenz(a,h)anthracene | 45 | 15 (33%) | C/I | -- | -- | 30 |
| BNASIMD | Fluoranthene | 45 | 12 (27%) | I/M | -- | -- | 33 |
| BNASIMD | Fluorene | 45 | 9 (20%) | I | -- | -- | 36 |
| BNASIMD | Indeno(1,2,3-c,d)pyrene | 45 | 19 (42%) | C/I | -- | -- | 26 |
| BNASIMD | Naphthalene | 45 | 7 (16%) | I | 1 (2.2%) | C | 37 |
| BNASIMD | Phenanthrene | 45 | 9 (20%) | I | -- | -- | 36 |
| BNASIMD | Pyrene | 45 | 12 (27%) | I/M | -- | -- | 33 |
| SW6010C | Aluminum | 45 | -- | | 1 (2.2%) | M | 44 |
| SW6010C | Barium | 45 | 1 (2.2%) | M | -- | -- | 44 |
| SW6010C | Beryllium | 45 | 2 (4.4%) | M | -- | -- | 43 |
| SW6010C | Calcium | 45 | -- | | 1 (2.2%) | M | 44 |
| SW6010C | Chromium | 45 | 2 (4.4%) | M | -- | -- | 43 |
| SW6010C | Cobalt | 45 | 7 (16%) | C/M | -- | -- | 38 |
| SW6010C | Lead | 45 | 1 (2.2%) | M | -- | -- | 44 |
| SW6010C | Magnesium | 45 | 1 (2.2%) | M | 1 (2.2%) | M | 43 |
| SW6010C | Manganese | 45 | 1 (2.2%) | M | 2 (4.4%) | M | 42 |
| SW6010C | Nickel | 45 | 2 (4.4%) | M | -- | -- | 43 |
| SW6010C | Potassium | 45 | -- | | 1 (2.2%) | M | 44 |
| SW6010C | Sodium | 45 | 2 (4.4%) | M | -- | -- | 43 |
| SW6010C | Vanadium | 45 | 2 (4.4%) | M | -- | -- | 43 |
| SW6010C | Zinc | 45 | 1 (2.2%) | M | 1 (2.2%) | M | 43 |
| SW6020A | Arsenic | 45 | 1 (2.2%) | M | -- | -- | 44 |
| SW7471B | Mercury | 45 | 1 (2.2%) | M | -- | -- | 44 |

Notes: I = Surrogate Recovery, C = LCS Recovery, M = MS/MSD Recovery

Subsurface Soil

**Table 60** summarizes the number of Background subsurface soil results that were qualified for non-conformances related to accuracy:

| **Table 60:** Background Subsurface Soil Summary – Accuracy (Surrogate, LCS/LCSD, and MS/MSD %R) | |
|---|---|
| Total number of Subsurface Soil results | 4,356 |
| Subsurface Soil results qualified for surrogate %R anomalies | 144 (3.3%) |
| Subsurface Soil results qualified for LCS/LCSD %R anomalies | 81 (1.9%) |
| Subsurface Soil results qualified for MS/MSD %R anomalies | 51 (1.2%) |

Eight subsurface soil samples (NYOW-B-PH025-B, NYOW-B-PH028-C, NYOW-B-PH029-B, NYOW-B-PH039-C, NYOW-B-PH046-C, NYOW-B-PH048-B, NYOW-B-PH048-C, and NYOW-B-PH050-C) exhibited surrogate recoveries below the lower warning limit but greater than the lower control limit for PAHs. The sample results were qualified as "J-" or "UJ" on the basis of low bias. The remaining 82 subsurface soil samples had surrogates recover within control.

Ten subsurface soil samples (NYOW-B-PH015-B, NYOW-B-PH015-C, NYOW-B-PH016-B, NYOW-B-PH016-C, NYOW-B-PH017-B, NYOW-B-PH017-C, NYOW-B-PH018-B, NYOW-B-PH018-C, NYOW-B-PH019-B and NYOW-B-PH019-C) were associated with LCS/LCSD recoveries less than the lower warning limit for cobalt (85%), at 84.7%. The results are usable, with low bias, and were qualified "J-".

Twenty-three subsurface soil samples were associated with LCS/LCSD recoveries less than the lower warning limits for indeno(1,2,3-c,d)pyrene (130%), benzo(g,h,i)perylene (127%), benzo(k)fluoranthene (123%), and dibenz(a,h)anthracene (129%) at 29.8%/48.8%, 27.8%, 52.3%, and 34.3%, respectively. In addition, the LCS/LCSD recovery was greater than the upper warning limit for naphthalene (111%) at 140%. All results are usable, and were qualified "J-", "UJ", or "J+" as appropriate.

Seven Background subsurface soil MS/MSD samples (NYOW-B-PH006-B, NYOW-B-PH007-C, NYOW-B-PH026-B, NYOW-B-PH026-C, NYOW-B-PH028-B, NYOW-B-PH036-B, and NYOW-B-PH046-B) had metals results that required qualification for percent recoveries that were less than or greater than the warning limits for aluminum, barium, beryllium, calcium, chromium, cobalt, copper, lead, magnesium, manganese, nickel, potassium, sodium, thallium, vanadium, and zinc. All results are usable, and were qualified "J-", "UJ", or "J+" as appropriate.

Three Background subsurface soil MS/MSD samples (NYOW-B-PH018-B, NYOW-B-PH036-B, and NYOW-B-PH048-B) had PAH results that required qualification for percent recoveries that were less than the warning limits for 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, acenaphthylene, chrysene, fluoranthene, and pyrene. All results are usable and were qualified "J-" or "UJ" as appropriate.

One Background subsurface soil MS/MSD sample (NYOW-B-PH033-C) had a TOC result that required qualification for a %R that was less than the lower warning limit but greater than the lower control limit at 12%. The results are usable and were qualified "J-" for low bias.

**Table 61**, below, summarizes the number of Background subsurface soil results that are biased based on the non-conformances discussed above.

**Table 61**
**Analytical Bias Summary - Background - Soil 1-10 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| BNASIMD | 1-Methylnaphthalene | 90 | 8 (8.9%) | I/M | -- | -- | 82 |
| BNASIMD | 2-Methylnaphthalene | 90 | 8 (8.9%) | I/M | -- | -- | 82 |
| BNASIMD | Acenaphthene | 90 | 8 (8.9%) | I/M | -- | -- | 82 |
| BNASIMD | Acenaphthylene | 90 | 8 (8.9%) | I/M | -- | -- | 82 |
| BNASIMD | Anthracene | 90 | 7 (7.8%) | I | -- | -- | 83 |
| BNASIMD | Benzo(a)anthracene | 90 | 7 (7.8%) | I | -- | -- | 83 |
| BNASIMD | Benzo(a)pyrene | 90 | 7 (7.8%) | I | -- | -- | 83 |
| BNASIMD | Benzo(b)fluoranthene | 90 | 7 (7.8%) | I | -- | -- | 83 |
| BNASIMD | Benzo(g,h,i)perylene | 90 | 19 (21%) | C/I | -- | -- | 71 |
| BNASIMD | Benzo(k)fluoranthene | 90 | 19 (21%) | C/I | -- | -- | 71 |
| BNASIMD | Chrysene | 90 | 8 (8.9%) | I/M | -- | -- | 82 |
| BNASIMD | Dibenz(a,h)anthracene | 90 | 19 (21%) | C/I | -- | -- | 71 |
| BNASIMD | Fluoranthene | 90 | 6 (6.7%) | I | -- | -- | 84 |
| BNASIMD | Fluorene | 90 | 7 (7.8%) | I | -- | -- | 83 |
| BNASIMD | Indeno(1,2,3-c,d)pyrene | 90 | 29 (32%) | C/I | -- | -- | 61 |
| BNASIMD | Naphthalene | 90 | 5 (5.6%) | I | 2 (2.2%) | C | 83 |
| BNASIMD | Phenanthrene | 90 | 7 (7.8%) | I | -- | -- | 83 |
| BNASIMD | Pyrene | 90 | 6 (6.7%) | I | -- | -- | 84 |
| SW6010C | Aluminum | 90 | -- | | 1 (1.1%) | M | 89 |
| SW6010C | Barium | 90 | 2 (2.2%) | M | -- | -- | 88 |
| SW6010C | Beryllium | 90 | 4 (4.4%) | M | -- | -- | 86 |
| SW6010C | Calcium | 90 | 1 (1.1%) | M | 1 (1.1%) | M | 88 |
| SW6010C | Chromium | 90 | 3 (3.3%) | M | -- | -- | 87 |
| SW6010C | Cobalt | 90 | 15 (17%) | C/M | -- | -- | 75 |
| SW6010C | Copper | 90 | 2 (2.2%) | M | -- | -- | 88 |
| SW6010C | Lead | 90 | 3 (3.3%) | M | -- | -- | 87 |
| SW6010C | Magnesium | 90 | 1 (1.1%) | M | 1 (1.1%) | M | 88 |
| SW6010C | Manganese | 90 | -- | | 2 (2.2%) | M | 88 |
| SW6010C | Nickel | 90 | 4 (4.4%) | M | -- | -- | 86 |
| SW6010C | Potassium | 90 | -- | | 1 (1.1%) | M | 89 |
| SW6010C | Sodium | 90 | 4 (4.4%) | M | -- | -- | 86 |
| SW6010C | Vanadium | 90 | 1 (1.1%) | M | -- | -- | 89 |
| SW6010C | Zinc | 90 | 3 (3.3%) | M | -- | -- | 87 |
| SW6020A | Thallium | 90 | 1 (1.1%) | M | -- | -- | 89 |

**Table 61**
**Analytical Bias Summary - Background - Soil 1-10 ft bgs**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| SW9060A | Total Organic Carbon | 90 | 1 (1.1%) | M | -- | -- | 89 |

Notes: I = Surrogate Recovery, C = LCS Recovery, M = MS/MSD Recovery

Groundwater

**Table 62** summarizes the number of Background groundwater results that were qualified for non-conformances related to accuracy:

| **Table 62:** Background Groundwater Summary – Accuracy (Surrogate, LCS/LCSD, and MS/MSD %R) | |
|---|---|
| Total number of GW results | 410 |
| Groundwater results qualified for surrogate %R anomalies | 53 (12.9%) |
| Groundwater results qualified for LCS/LCSD %R anomalies | 12 (2.9%) |
| Groundwater results qualified for MS/MSD %R anomalies | 6 (1.5%) |

Two groundwater samples (NYOW-B-WL001-A and NYOW-B-WL004-A) exhibited surrogate recoveries below the lower warning limit but greater than the lower control limit for PAHs. The sample results were qualified as "J-" or "UJ" on the basis of low bias. The remaining seven groundwater samples had surrogates recover within control.

Five groundwater samples (NYOW-B-WL003-A, NYOW-B-WL005-A , NYOW-B-WL010-A, NYOW-B-WL047-A, and NYOW-B-WL050-A) were associated with low LCS/LCSD recoveries for fluorene (49%), anthracene (51%), benzo(a)pyrene (45%), benzo(g,h,i)perylene (38%), benzo(k)fluoranthene (49%), dibenz(a,h)anthracene (43%), and indeno(1,2,3-c,d)pyrene (41%). In addition, one groundwater sample (NYOW-B-WL031-A) was associated with high LCS/LCSD recoveries for benzo(a)anthracene (122%) and chrysene (124%). All results are usable, and were qualified "J-", "UJ", or "J+" as appropriate.

One MS/MSD sample for groundwater (NYOW-B-WL001-A) had low recoveries for PAHs benzo(a)pyrene (44%, 49%), benzo(b)fluoranthene (47%, 51%), benzo(g,h,i)perylene (28%, 33%), benzo(k)fluoranthene (46%, 50%), dibenz(a,h)anthracene (29%, 35%), and indeno(1,2,3-c,d)pyrene (26%, 32%). The recoveries were greater than the lower control limit; the non-detect results are usable and were qualified "UJ" for low bias.

**Table 63** summarizes the number of Background groundwater results that are biased based on the non-conformances discussed above.

**Table 63**
**Analytical Bias Summary - Background - Groundwater**
**Data Usability Assessment**
**Former New York Ordnance Works, Onondaga, NY**

| Test Method | Analyte | Number of Samples | Number of Low Bias Samples | Reason Code(s) | Number of High Bias Samples | Reason Code(s) | Number of Samples Not Affected |
|---|---|---|---|---|---|---|---|
| BNASIMD | 1-Methylnaphthalene | 9 | 2 (22%) | I | -- | -- | 7 |
| BNASIMD | 2-Methylnaphthalene | 9 | 2 (22%) | I | -- | -- | 7 |
| BNASIMD | Acenaphthene | 9 | 3 (33%) | I | -- | -- | 6 |
| BNASIMD | Acenaphthylene | 9 | 2 (22%) | I | -- | -- | 7 |
| BNASIMD | Anthracene | 9 | 3 (33%) | C/I | -- | -- | 6 |
| BNASIMD | Benzo(a)anthracene | 9 | 2 (22%) | I | 1 (11%) | C | 6 |
| BNASIMD | Benzo(a)pyrene | 9 | 3 (33%) | C/I/M | -- | -- | 6 |
| BNASIMD | Benzo(b)fluoranthene | 9 | 2 (22%) | C/I/M | -- | -- | 7 |
| BNASIMD | Benzo(g,h,i)perylene | 9 | 3 (33%) | I/M | -- | -- | 6 |
| BNASIMD | Benzo(k)fluoranthene | 9 | 3 (33%) | C/I/M | -- | -- | 6 |
| BNASIMD | Chrysene | 9 | 2 (22%) | I | 1 (11%) | C | 6 |
| BNASIMD | Dibenz(a,h)anthracene | 9 | 3 (33%) | C/I/M | -- | -- | 6 |
| BNASIMD | Fluoranthene | 9 | 2 (22%) | I | -- | -- | 7 |
| BNASIMD | Fluorene | 9 | 6 (67%) | C/I | -- | -- | 3 |
| BNASIMD | Indeno(1,2,3-c,d)pyrene | 9 | 3 (33%) | C/I/M | -- | -- | 6 |
| BNASIMD | Naphthalene | 9 | 2 (22%) | I | -- | -- | 7 |
| BNASIMD | Phenanthrene | 9 | 2 (22%) | I | -- | -- | 7 |
| BNASIMD | Pyrene | 9 | 2 (22%) | I | -- | -- | 7 |

Notes: I = Surrogate Recovery, C = LCS Recovery, M = MS/MSD Recovery

### 2.2.3 Representativeness

Representativeness qualitatively expresses the degree to which data accurately reflect Site conditions. Factors that affect the representativeness of analytical data include proper sample collection and preservation techniques, use of standard analytical methods, sampling design, and determination of matrix or analyte interferences. Field sampling representativeness was attained through strict adherence to the UFP-QAPP and use of field sampling standard operating procedures (SOPs) for field data collection (USACE, 2020). The rationale supporting the number and type of samples for chemical analysis is described in Worksheet #17 of the UFP-QAPP (USACE, 2020b). No deviations from the field sampling SOPs were identified.

#### *2.2.3.1 AOC 5*

Sampling design deviations (**Section 2.1.1**) included the relocation of two soil samples to avoid wetland areas and one dry monitoring well. The alternate locations are consistent with the soil and groundwater sampling objectives for AOC 5 and do not adversely affect representativeness.

Surface and Subsurface Soil:

Due to a laboratory equipment failure, all soil samples were analyzed outside the holding time period for TOC (i.e., 28 days) but within the holding time rejection threshold (56 days). While microbial degradation is significantly reduced by storing samples at 4°C, some loss of organic material can occur, and the loss is exacerbated by prolonged storage. All positive detections for TOC were qualified as "J-" and all non-detect results were qualified as "UJ" to indicate low bias for TOC results.

Subsurface soil samples NYOW-05-PH016-B and NYOW-05-PH019-B were extracted outside of the 14-day holding time period for SVOCs. All of the sample results were non-detect and were qualified as "UJ" and are usable.

A total of 38 of the 83 surface and subsurface soil samples collected from AOC 5 (46%) could not be thoroughly homogenized before sub-sampling and extraction for SVOC and PAH analyses due to their clay matrix. The affected samples include: NYOW-05-PH001-C, NYOW-05-PH002-B, NYOW-05-PH002-C, NYOW-05-PH003-B, NYOW-05-PH004-C, NYOW-05-PH005-B, NYOW-05-PH005-C, NYOW-05-PH006-C, NYOW-05-SL011-A, NYOW-05-PH011-B, NYOW-05-PH011-C, NYOW-05-SL012-A, NYOW-05-PH012-B, NYOW-05-PH012-C, NYOW-05-SL013-A, NYOW-05-PH013-B, NYOW-05-PH013-C, NYOW-05-SL014-A, NYOW-05-PH014-B, NYOW-05-PH014-C, NYOW-05-SL015-A, NYOW-05-PH015-B, NYOW-05-PH015-C, NYOW-05-SL018-A, NYOW-05-PH018-B, NYOW-05-PH018-C, NYOW-05-SL019-A, NYOW-05-PH019-C, NYOW-05-PH020-C, NYOW-05-PH021-B, NYOW-05-PH021-C, NYOW-05-PH022-C, NYOW-05-PH023-C, NYOW-05-PH024-C, NYOW-05-PH025-B, and NYOW-05-PH025-C.

Mixing of a strongly aggregated soil (e.g., clay) to reduce intra-sample variability is difficult due to the presence of cohesive clumps that require mechanical disaggregation. Nonetheless, the two parent/FD pairs that were affected by homogenization difficulties did not exhibit RPD exceedances in the SVOC and PAH analyses. The resulting uncertainty was partially addressed by implementing a robust, biased soil sampling program targeted to potential source areas. The sample results are considered usable.

Groundwater:

Groundwater sample NYOW-05-WL016-A was extracted outside of the 7-day holding time for SVOCs. All of the sample results were non-detect and were qualified as "UJ". The data is considered usable for its intended purpose.

Daily calibrations of the water quality meter were acceptable and WQP were allowed to stabilize at each location prior to sampling; therefore, groundwater data are considered to be representative of the aquifer.

#### *2.2.3.2 AOC 4*

Sampling design deviations (**Section 2.1.2**) included the relocation of ten planned borings. The alternate locations are consistent with the soil and groundwater sampling objectives for AOC 4 and do not adversely affect representativeness.

Surface and Subsurface Soil:

There were no non-conformances related to soil sampling or analysis that adversely affected representativeness.

Groundwater:

Nine of the 16 groundwater samples collected from AOC 4 clogged the solid phase extraction (SPE) cartridge (i.e., flow rate <4 mL/minute) during extraction in the explosives analysis. The extracted volumes indicated that sufficient volume encountered the solid phase media to support sample analysis and avoid repreparation of the samples at a dilution. The sample LOQs were adjusted accordingly. One sample (NYOW-04-WL003-A) that clogged the SPE cartridge exhibited a surrogate recovery of 1,2-DNB that was greater than the upper control limit; however, the sample result was non-detect and not affected by positive bias. Given that a limited sample volume (7.1 milliliters [mL]) was extracted before the cartridge clogged, the non-detect picric acid result was qualified as "UJ" on the basis of professional judgment.

Consistent with the laboratory SOP and Method 3535A, sample NYOW-04-WL005-A required vacuum filtration through glass fiber filter paper prior to analysis due to turbidity. The filtered sample was returned to the original sample container after filtration and the surrogate was added to the container. Method 3535A indicates that use of a filter aid will not result in a loss of method performance if clogging is encountered; therefore, the representativeness of the temporary well sample was maintained.

Daily calibrations of the water quality meter were acceptable and WQP were allowed to stabilize at each location prior to sampling; therefore, groundwater data are considered to be representative of the aquifer.

#### *2.2.3.3 AOC 1*

Sampling design deviations (**Section 2.1.3**) included the relocation of 14 boring locations. The alternate locations are consistent with the soil and groundwater sampling objectives for AOC 1 and do not adversely affect representativeness.

Surface and Subsurface Soil:

Nine SVOC soil samples (NYOW-01-SL021-A, NYOW-01-PH021-B, NYOW-01-PH021-C, NYOW-01-SL022-A, NYOW-01-PH022-B, NYOW-01-PH022-C, NYOW-01-SL024-A, NYOW-01-PH024-B, and NYOW-01-PH024-C) were received at the laboratory at temperatures of 8.7°C, 10.9°C, and 10.5°C, due to a shipping delay. The associated non-detect sample results were qualified as "UJ" and may be affected by low bias.

Sample PH-DUP-002_210408 contained free liquid in the sample container for Method 8330A. There was no indication that the sample container was compromised or infiltrated by melted ice water and the boring location was documented to contain mud. The sample was air dried to remove moisture and sieved prior to analysis, consistent with the methodology. The impact on data quality is considered negligible.

Groundwater:

Two of the three groundwater samples required a sulfuric acid clean-up via EPA Method 3665A to reduce matrix interferences prior to PCB analysis. There was no associated impact on data quality. There were no non-conformances related to groundwater sampling or analysis that adversely affected representativeness.

#### *2.2.3.4 AOC 3*

Sampling design deviations (**Section 2.1.4**) included the relocation of 14 planned borings. The alternate locations are consistent with the soil and groundwater sampling objectives for AOC 3 and do not adversely affect representativeness.

Surface and Subsurface Soil:

Sample NYOW-03-PH005-B appeared to contain PCBs based on the chromatogram; however, due to weathering or other environmental processes, the PCBs in the sample did not closely match any of the laboratory's Aroclor standards used for instrument calibration. The sample has been quantified and reported as PCB-1260 and the result was qualified as "NJ" to indicate that the Aroclor peak exhibited a marginal pattern-matching quality and is considered quantitatively and qualitatively estimated.

A total of 27 of the 32 soil samples required a sulfuric acid clean-up via EPA Method 3665A to reduce matrix interferences prior to PCB analysis. Sample NYOW-03-PH005-B required a mercury clean-up via EPA Method 3660A, to reduce matrix interferences caused by sulfur. There was no associated impact on data quality.

The following samples were not analyzed at minimum starting mass (i.e., 15 grams) for %M analysis due to limited sample volume: NYOW-03-PH001-B (10.81 grams [g]), NYOW-03-PH002-B (11.12 grams), NYOW-03-PH003-B (11.64 g), NYOW-03-PH004-B (11.77 g), NYOW-03-PH010-B (11.18 g), and NYOW-03-PH011-B (10.11 g). The laboratory SOP indicates that 13g to 17g of representative, wet, soil sample should be weighed. Since the solids fraction is the ratio of the weight of the dried soil to the weight of the wet soil, the small reduction in starting mass (i.e., 10g to 11g) is not significant if the initial weighed mass was representative.

Eight of the 32 soil samples collected from AOC 3 (NYOW-03-SL001-A, NYOW-03-SL002-A, NYOW-03-PH002-B, NYOW-03-SL003-A, NYOW-03-PH003-B, NYOW-03-PH004-B, NYOW-03-SL010-A, and NYOW-03-PH011-B) could not be thoroughly homogenized before sub-sampling and extraction for PCBs, SVOC, and EPA Method 8270D-SIM analyses were performed, due to their clay matrix. Mixing of a strongly aggregated soil (e.g., clay) to reduce intra-sample variability is difficult due to the presence of cohesive clumps that require mechanical disaggregation. The resulting uncertainty was partially addressed by implementing a robust, biased soil sampling program targeted to potential source areas.

Groundwater:

Four SVOC groundwater samples (NYOW-03-WL009-A, NYOW-03-WL013-A, NYOW-03-WL014-A, and NYOW-03-WL015-A). were received at the laboratory at temperatures of 8.7°C, 10.9°C, and 10.5°C, due to a shipping delay. The associated sample results were qualified as "J-" or "UJ" and may be affected by low bias.

Groundwater sample NYOW-03-WL002-A was received with a pH > 2 and was analyzed outside of the 7-day holding time period for unpreserved samples. The associated positive detections are qualified as "J-" and non-detects are qualified as "UJ".

Groundwater sample NYOW-03-WL010-A contained headspace greater than 6mm; the associated positive detections were qualified as "J-" and non-detects were qualified as "UJ".

Groundwater sample NYOW-03-WL013-A was collected in a properly preserved vial for VOCs; however, the pH of 7 was outside the required criteria of pH<2 when verified by the laboratory. The sample was

analyzed outside the 7-day holding time specified for unpreserved samples (11 days). The associated sample results were non-detect and were qualified as "UJ".

A portion of sample NYOW-03-WL010-A was used for PCBs analysis, rather than testing the entire sample amount in the original container, due to a significant sediment layer in the bottles. Consequently, the required solvent rinse of the original container could not be performed. The impact on data quality is considered negligible.

Five of the eight groundwater samples required a sulfuric acid clean-up via EPA Method 3665A to reduce matrix interferences prior to PCB analysis. There was no associated impact on data quality.

#### *2.2.3.5 AOC 4 ISM*

Sampling design deviations (**Section 2.1.5**) included the relocation of 21 ISM replicates to avoid areas of gravel. The alternate locations are consistent with the ISM soil sampling objectives for AOC 4 and do not adversely affect representativeness.

Upon being submitted for reanalysis, ISM replicates NYOW-04-DU005-SL-A and NYOW-04-DU005-SL-B were extracted outside of the 14-day holding time period but within two times the holding time for SVOCs. All of the associated sample results were non-detect and were qualified as "UJ".

ISM soil sample results are not adjusted for moisture content but the impact to the moisture correction is not likely to be significant. The soil samples are dried to constant weight prior to analysis; therefore, it is unlikely that significant moisture remains after drying. If there is moisture not accounted for, the concentrations at which the non-detects are reported are lower than what would be reported for the moisture-adjusted results.

#### *2.2.3.6 Background*

Sampling design deviations (**Section 2.1.6**) included the relocation of 21 soil boring locations to avoid wetland and surface water areas. The alternate locations are still within historic soil units and do not adversely affect representativeness. Daily calibrations of the water quality meter were acceptable and WQP were allowed to stabilize at each location prior to sampling; therefore, groundwater data are considered to be representative of the aquifer. All parameters related to analytical representativeness were in control with the exceptions noted below.

<u>Surface and Subsurface Soil:</u>

Due to a laboratory equipment failure, 74 samples were analyzed outside the holding time period for TOC (i.e., 28 days) but within the holding time rejection threshold (56 days). While microbial degradation is significantly reduced by storing samples at 4°C, some loss of organic material can occur, and the loss is exacerbated by prolonged storage. All positive detections for TOC were qualified as "J-" and all non-detect results were qualified as "UJ" to indicate low bias for the affected TOC results.

Eight of the 135 soil samples collected from the background area (NYOW-B-PH006-C, NYOW-B-PH007-B, NYOW-B-PH007-C, NYOW-B-PH011-B, NYOW-B-SL022-A, NYOW-B-PH022-B, NYOW-B-PH022-C, and NYOW-B-PH026-C) could not be thoroughly homogenized before sub-sampling and extraction for the EPA Method BNASIM analysis was performed due to their clay matrix. Mixing of a strongly aggregated soil (e.g., clay) to reduce intra-sample variability is difficult due to the presence of

cohesive clumps that require mechanical disaggregation. The resulting uncertainty was partially addressed by implementing a robust, biased soil sampling program targeted to potential source areas.

### 2.2.4 Completeness

Field completeness represents a comparison of the number of samples collected to the number of samples planned. Analytical completeness is a measure of the amount of valid data obtained compared to the amount of data expected. Measurements are considered valid if they are unqualified or are qualified as estimated during data validation. Trace results, defined as results that are qualified as estimated because they fall between the detection limit (DL) and the LOQ, are not counted in the total number of qualified results summarized below.

#### *2.2.4.1 AOC 5*

For the Phase 1 investigation at AOC 5, all planned samples were collected, and the field completeness is 100%. A total of 2,324 of 9,308 chemistry results for investigative samples were qualified during the data validation process and 81 results were rejected based on a serious deficiency. The analytical completeness for AOC 5 is 99.1%. A description of the chemistry sample results that were rejected is presented below by matrix.

Surface Soil

One surface soil sample result for 2,2'-oxybis[1-chloropropane] was rejected for sample NYOW-05-SL003-A. The result was rejected based on a gross exceedance of the closing continuing calibration percent difference criteria. All other surface soil sample results are usable. The analytical completeness for 2,2'-oxybis[1-chloropropane] results in surface soil samples is 94%.

Subsurface Soil

One subsurface soil sample result for 2,2'-oxybis[1-chloropropane] was rejected for sample NYOW-05-PH003-B. The result was rejected based on a gross exceedance of the closing continuing calibration percent difference criteria. All other subsurface soil sample results for 2,2'-oxybis[1-chloropropane] are usable.

One soil sample (NYOW-05-PH016-B) had results rejected for low bias of benzaldehyde, hexachloroethane, and 1,4-dioxane based on low LCS recoveries of 1%, 6%, and 0%, respectively. All other subsurface soil sample results are usable.

**Table 64** presents a summary of subsurface soil results rejected during data validation:

**Table 64: AOC 5 Subsurface Soil - Rejected Results**

| Analyte | Total Results | Results Rejected | Reason | Completeness for Matrix/Analyte |
|---|---|---|---|---|
| 2,2'-oxybis[1-chloropropane] | 55 | 1 | Closing CCV %D | 98% |
| Benzaldehyde | 55 | 1 | LCS %R | 98% |
| Hexachloroethane | 55 | 1 | LCS %R | 98% |
| 1,4-Dioxane | 55 | 1 | LCS %R | 98% |

Notes: CCV = continuing calibration verification %D = Percent deviation

Groundwater

Results for B/N SVOCs associated with groundwater samples collected from AOC 5 temporary well locations NYOW-05-WL-024-A (west of the Dual Coal Aggregate Bins A&B) and NYOW-05-WL-010-A (within the southern portion of the Coal Storage Area) were rejected based on surrogate recoveries less than the rejection threshold (i.e., 10%) resulting in low bias. The analytical completeness for each of the following B/N-extractable analytes in groundwater samples is 86%:

- 1,2,4,5-Tetrachlorobenzene
- 1,4-Dioxane
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- 2-Chloronaphthalene
- 2-Nitroaniline
- 3,3'-Dichlorobenzidine
- 3-Nitroaniline
- 4-Bromophenyl phenyl ether
- 4-Chloroaniline
- 4-Chlorophenyl phenyl ether
- 4-Nitroaniline
- Acetophenone
- Atrazine
- Benzaldehyde
- Benzyl butyl phthalate
- Biphenyl (Diphenyl)
- Bis(2-chloroethoxy)methane
- Bis(2-chloroethyl) ether (2-Chloroethyl ether)
- Bis(2-ethylhexyl)phthalate
- Caprolactam
- Carbazole
- Dibenzofuran
- Diethyl phthalate
- Dimethyl phthalate
- di-n-Butyl phthalate
- di-n-Octyl phthalate
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- Isophorone
- Nitrobenzene
- N-Nitrosodi-n-propylamine
- N-Nitrosodiphenylamine

The B/N sample results from the remaining temporary wells are considered usable and less than the PALs, with the exception of 3,3'-dichlorobenzidine, discussed in **Section 2.2.6** (Sensitivity). 3,3'-Dichlorobenzidine was historically used in the production of dyes and pigments (National Center for Biotechnology Information [NCBI], 2021). The affected sample locations are within the Coal Storage Area and Coal Aggregate Bin where disposal of dyed material is unlikely to have occurred.

Six of 12 temporary well groundwater sample results for 2,2'-oxybis[1-chloropropane] were recommended for rejection based on the closing continuing calibration percent difference. Usable groundwater results from the six remaining wells were non-detect with LOQs below the PAL. 2,2'-Oxybis[1-chloropropane] is highly water soluble and was potentially applied to surface soil as an agricultural pesticide; the AOC 5 soil sample results for 2,2'-oxybis[1-chloropropane] were non-detect, indicating that the analyte is not likely associated with activities at the Site.

**Table 65** presents a summary of groundwater results rejected during data validation:

**Table 65: AOC 5 Groundwater - Rejected Results**

| Analyte | Total Results | Results Rejected | Reason | Completeness for Matrix/Analyte |
|---|---|---|---|---|
| 2,2'-oxybis[1-chloropropane] | 14 | 6 | Closing CCV %D | 57% |
| B/N-extractable SVOCs | 490 | 70 | Surrogate %R | 86% |

Lithology

All soil borings were complete, and characterization of lithology is 100%. All of the grain size distribution sample results were determined to be valid, without qualification during data validation.

#### *2.2.4.2 AOC 4*

For the Phase 1 investigation at AOC 4, all planned samples were collected, and the field completeness is 100%. A total of 92 out of 573 chemistry results were qualified during the data validation process and one result was rejected based on a serious deficiency. The analytical completeness for AOC 4 is 99.8%. Analytical completeness was 100% for all analyte/matrix combinations with the exception noted below.

The picric acid result for one groundwater sample (NYOW-04-WL080-A) was rejected based on surrogate recovery of less than 10%. It should be noted that picric acid was not detected in any groundwater sample collected within AOC 4, including adjacent temporary wells NYOW-04-WL-036-A, NYOW-04-WL-081-A, and NYOW-04-WL-003-A. The direction of groundwater flow is toward NYOW-04-080 from west to east (NYOW-04-036 toward NYOW-04-080), indicating that upgradient locations are not impacted by picric acid. The picric acid data set is sufficient to support the Phase I evaluation and the rejected result does not affect the overall usability of the data set. The analytical completeness of picric acid results in groundwater samples is 94.4%. All other groundwater sample results are usable.

Lithology

All soil borings were complete, and characterization of lithology is 100%.

#### *2.2.4.3 AOC 1*

For the Phase 1 investigation at AOC 1, the overall field completeness is 80.3%. For surface soil, 30 samples were collected while 22 were planned; the field completeness is 136%. For subsurface soil, 22 samples were collected of the 44 that were planned; the field completeness is 50%. For groundwater, 9 samples were collected of the 10 that were planned; the field completeness is 90%. A total of 568 out of 1,913 chemistry results were qualified during the data validation process and one result was rejected based on a serious deficiency. The analytical completeness for AOC 1 is 99.9%. Analytical completeness was 100% for all analyte/matrix combinations with the exception noted below.

The non-detect 2,4-DNP result for one surface soil sample (NYOW-01-SL036-A) was rejected based on low MS/MSD recoveries below 10% at 0% and 0%, respectively. The 2,4-DNP data set is sufficient to support the Phase I evaluation and the rejected result does not affect the overall usability of the data set. The analytical completeness of 2,4-DNP results in AOC 1 surface soil samples is 96.9%.

#### *2.2.4.4 AOC 3*

For the Phase 1 investigation at AOC 3, all planned samples were collected, and the field completeness is 100%. A total of 1,702 out of 6,178 chemistry results were qualified during the data validation process and one result was rejected based on a serious deficiency.

The following samples for method 8270D were received at the Eurofins/TestAmerica Savannah laboratory outside the required temperature criteria: NYOW-03-SL008-A, NYOW-03-PH008-B, NYOW-03-SL009-A, NYOW-03-PH009-B, NYOW-03-SL013-A, SL-DUP-001_210405, NYOW-03-PH013-B, NYOW-03-

SL014-A, NYOW-03-PH014-B, NYOW-03-SL015-A, NYOW-03-PH015-B, and EB-01_210405. Bluestone instructed the laboratory to cancel sample analysis; however, the analysis was inadvertently performed. The results were qualified as "X" and were subsequently rejected. The affected sample locations were resampled; therefore, the initial results are not included in the completeness evaluation. No further validation of the rejected data was conducted.

The analytical completeness for AOC 3 is >99.9%. Analytical completeness was 100% for all analyte/matrix combinations with the exception noted below.

The non-detect 3,3'-dichlorobenzidine result for one surface soil sample (NYOW-03-SL004-A) was rejected based on low MS/MSD recoveries below 10% at 3% and 1%, respectively. The 3,3'-dichlorobenzidine data set is sufficient to support the Phase I evaluation and the rejected result does not affect the overall usability of the data set. The analytical completeness of 3,3'-dichlorobenzidine results in AOC 3 surface soil samples is 94.4%.

#### *2.2.4.5 AOC 4 ISM*

For the Phase 1 investigation at AOC 4, all planned ISM samples were collected, and the field completeness is 100%. A total of 69 of 99 chemistry results were qualified during the data validation process and nine results were rejected based on a serious deficiency. The analytical completeness for AOC 4 ISM is 91.7%. Analytical completeness was 100% for the ISM soil analyte picric acid. Analytical completeness percentages for the ISM soil analytes 2,4-DNP and DNCB were 80.6% and 94.4%, respectively. Details are provided below for the chemistry sample results that were rejected.

One ISM soil sample (NYOW-04-DU001-SL-A) and its collocated replicates (NYOW-04-DU001-SL-B and NYOW-04-DU001-SL-C) had results rejected for low bias of 2,4-dinitrophenol based on low MS/MSD recoveries of 0% and 8%, respectively.

One ISM soil sample (NYOW-04-DU005-SL-C) had its non-detect DNCB and 2,4-DNP SVOC results rejected because the sample was extracted more than two times beyond the 14-day preparatory holding time period during reanalysis.

One ISM soil sample (NYOW-04-DU009-SL-C) and its collocated replicates (NYOW-04-DU009-SL-A and NYOW-04-DU009-SL-B) had results rejected for low bias of 2,4-dinitrophenol based on a low MSD recovery of 0%.

One ISM soil sample (NYOW-04-DU010-SL-C) had results rejected for low bias of DNCB based on a low recovery of 6% for surrogate nitrobenzene-d5.

**Table 66** presents a summary of ISM soil results rejected during data validation:

**Table 66: AOC 4 ISM Soil - Rejected Results**

| Analyte | Total Results | Results Rejected | Reason(s) | Completeness for Matrix/Analyte |
|---|---|---|---|---|
| 2,4-Dinitrophenol | 36 | 7 | MS/MSD %Recovery (6)<br>Preparatory hold time (1) | 80.6% |
| 2,4-Dinitrochlorobenzene | 36 | 2 | Preparatory hold time (1)<br>Surrogate %Recovery (1) | 94.4% |

Lithology

All soil borings were complete, and characterization of lithology is 100%.

#### *2.2.4.6 Background*

For the Phase 1 investigation of soil and groundwater background, all planned samples were collected, and the field completeness is 100%. A total of 2,189 of the 6,966 chemistry results were qualified during the data validation process and zero results were rejected based on a serious deficiency. Analytical completeness was 100% for all background analyte/matrix combinations.

Lithology

All soil borings were complete, and characterization of lithology is 100%. Samples NYOW-B-PH024-C and NYOW-B-PH025-B appeared as though cooler water had entered the sample container for geotechnical analysis (grain size distribution). The laboratory proceeded with analysis and the results for grain size were qualified as "X" and recommended for rejection. The completeness percent for grain size is 95.5% (946 of 990 results). The affected samples were categorized as Ps based on the soil boring logs.

### 2.2.5 Comparability

Comparability expresses the degree of confidence with which one data set can be compared to either past data from the current project or data from another study. It is dependent upon the proper design of the sampling program and is satisfied by ensuring that the approved plans are followed, and that proper sampling and analysis techniques are applied. Further, when assessing comparability, data sets should be of known and documented quality. The use of standardized sampling and analytical methods, units of reporting, and site selection procedures help to ensure comparability.

For the Phase 1 sampling events, standard field sampling and typical laboratory protocols were used and are considered to have generated data with an acceptable level of comparability to similarly scoped background sampling or future investigative sampling events for surface soil, subsurface soil, and temporary well data. Any recommendations to adjust future sampling and analytical techniques are expected to result in data that can be combined with the Phase 1 data, with the exception of temporary well data.

### 2.2.6 Sensitivity

Sensitivity refers to an instrument's or method's minimum concentration that can be reliably measured or reported, i.e., the LOQ. In order to meet the needs of data users, project data must meet the measurement performance criteria (MPC) for sensitivity and project LOQs specified in Worksheet #15 of the UFP-QAPP (USACE, 2020). The laboratory reported all field sample results at the lowest possible dilution. Additionally, any analytes that were detected below the LOQ and above the DL were reported and qualified "J", as estimated values, by the laboratory. In the following sections, the impact of method sensitivity on the ability to meet PALs will be discussed. Summary statistics for human health and ecological PALs have been compiled and are presented in **Appendix C** (**Tables #1 - #30**) of this data usability assessment report. Analytes that are italicized below attain the PAL at the LOD.

#### *2.2.6.1 AOC 5*

Surface Soil

- In AOC 5, the PALs for all SVOC analytes in surface soil were met by the LOQs, with the exception of *1,2,4,5-tetrachlorobenzene*, 2,3,4,6-tetrachlorophenol, 2,4-dichlorophenol, 2,4-dimethylphenol, *2,6-dinitrotoluene*, 2-chloronapthalene, 2-chlorophenol, *2-methylphenol*, 2-nitroaniline, 3,3'-dichlorobenzidine, 4,6-dinitro-2-methylphenol, atrazine, biphenyl, *bis(2-chloroethoxy)methane*, bis(2-chloroethyl) ether, bis(2-ethylhexyl)phthalate, carbazole, *m-&p-cresols*, *dibenzofuran*, *diethyl phthalate*, di-n-butyl phthalate, *hexachlorobenzene*, hexachlorobutadiene, hexachlorocyclopentadiene, hexachloroethane, *N-nitroso-di-n-propylamine*, and *pentachlorophenol*. (**Appendix C Tables #26 through #30**).
- The PALs for all PAH analytes in surface soil were met by the LOQs, with the exception of dibenz(a,h)anthracene (**Appendix C Table #26**) and acenaphthene (**Appendix C Table #27**). Five samples that were non-detect for dibenz(a,h)anthracene had LOQs that exceeded the PAL. Of those five samples, one sample had an LOD that met the PAL. Two samples that were non-detect for acenaphthene had LOQs that exceeded the PAL; both samples had LODs that met the PAL.
- None of the PALs for PCBs analytes in surface soil were met by the LOQs. The PALs were met by the LODs for PCB-1016, PCB-1232, PCB-1248, PCB-1254, PCB-1260, PCB-1262, and PCB-1268. (**Appendix C Table #29**).
- The PALs for all metals analytes in surface soil were met by the LOQs, with the exception of thallium (**Appendix C Tables #26 and #27**) and mercury (**Appendix Table #29**).

Subsurface Soil

- In AOC 5, the PALs for all VOC analytes in subsurface soil were met by the LOQs, with the exception of 1,2-dibromo-3-chloropropane, acetone, bromomethane, *cis-1,2-dichloropropene*, and *trans-1,2-dichloropropene*. (**Appendix C Tables #26 and #28**).
- In AOC 5, the PALs for all SVOC analytes in subsurface soil were met by the LOQs, with the exception of: *1,2,4,5-tetrachlorobenzene*, 2,3,4,6-tetrachlorophenol, 2,4-dichlorophenol, 2,4-dimethylphenol, *2,6-dinitrotoluene*, 2-chloronapthalene, 2-chlorophenol, *2-methylphenol*, 2-nitroaniline, 3,3'-dichlorobenzidine, 4,6-dinitro-2-methylphenol, atrazine, biphenyl, *bis(2-chloroethoxy)methane*, *bis(2-chloroethyl) ether*, bis(2-ethylhexyl)phthalate, carbazole, *m-&p-cresols*, *dibenzofuran*, *diethyl phthalate*, di-n-butyl phthalate, *hexachlorobenzene*, hexachlorobutadiene, hexachlorocyclopentadiene, hexachloroethane, *N-nitroso-di-n-propylamine*, and *pentachlorophenol*. (**Appendix C Tables #26 through #30**).
- The PALs for all PAH analytes in subsurface soil were met by the LOQs.
- None of the PALs for PCBs analytes in subsurface soil were met by the LOQs. The PALs were met by the LODs for PCB-1016, PCB-1232, PCB-1248, PCB-1260, PCB-1262, and PCB-1268. (**Appendix C Table #29**).
- The PALs for all metals analytes in subsurface soil were met by the LOQs, with the exception of thallium (**Appendix C Tables #26 and #27**), mercury (**Appendix C Table #29**), and silver (**Appendix C Table #29**). One sample that was non-detect for silver had an LOQ that exceeded the PAL; however, the sample's LOD met the PAL.

Groundwater

- In AOC 5, the PALs for all VOC analytes in groundwater were met by the LOQs, with the exception of 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, 1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene, 1,2-dibromo-3-chloropropane, 1,2-dibromoethane, 1,2-dichloroethane, *1,2-dichloropropane*, *1,4-dichlorobenzene*, 2-hexanone, *benzene*, bromodichloromethane, bromomethane, *carbon tetrachloride*, chloroform, *cis-dichloropropene*, *dibromochloromethane*, *trans-dichloropropene*, and vinyl chloride. (**Appendix C Table #26**).
- In AOC 5, the PALs for all SVOC analytes in groundwater were met by the LOQs, with the exception of 1,2,4,5-tetrachlorobenzene, 1,4-dioxane, 2,4,6-trichlorophenol, *2,4-dichlorophenol*, 2,4-dinitrotoluene, 2,6-dinitrotoluene, *2-chlorophenol*, *2-nitroaniline*, 3,3'-dichlorobenzidine, 3-nitroaniline, 4,6-dinitro-2-methylphenol, 4-chloroaniline, 4-nitroaniline, atrazine, biphenyl, *bis(2-chloroethoxy)methane*, bis(2-chloroethyl) ether, *bis(2-ethylhexyl)phthalate*, dibenzofuran, hexachlorobenzene, hexachlorobutadiene, hexachlorocyclopentadiene, hexachloroethane, nitrobenzene, N-nitroso-di-n-propylamine, and pentachlorophenol. (**Appendix C Table #26**).
- The PALs for all PAH analytes in groundwater were met by the LOQs, with the exception of benzo(a)anthracene, benzo(a)pyrene, and dibenz(a,h)anthracene (**Appendix C Table #26**).
- The PALs for PCBs analytes in groundwater were not met by the LOQs for PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, and PCB-1260. (**Appendix C Table #26**).
- The PALs for all metals analytes in groundwater were met by the LOQs, with the exception of antimony, cadmium, mercury, *nickel*, selenium, *silver*, thallium, and *vanadium* (**Appendix C Table #26**).

#### *2.2.6.2 AOC 4*

Surface Soil

- All of the 2,4-DNP and picric acid surface soil sample results were non-detect, with the LOQs and LODs greater than the invertebrate and mammal ecological PALs (**Appendix C Tables #18 and #20**). The PALs for 2,4-DNP and picric acid are not attainable with contemporary analytical methodology; exceedances of these PALs were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020).
- All of the DNCB surface soil sample results were non-detect, with the LOQs exceeding the ecological PAL for plant receptors; however, the PAL was achieved with the LODs (**Appendix C Table #17**).

Subsurface Soil

- All of the 2,4-DNP and picric acid subsurface soil sample results were non-detect, with the LOQs and LODs greater than the invertebrate and mammal ecological PALs (**Appendix C Tables #18 and #20**). The PALs for 2,4-DNP and picric acid are not attainable with contemporary analytical methodology; exceedances of these PALs were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020).
- All of the DNCB subsurface soil sample results were non-detect, with the LOQs exceeding the ecological PAL for plant receptors; however, the PAL was achieved with the LODs (**Appendix C Table #17**).

Groundwater

- In AOC 4, all groundwater 2,4-DNP sample results were non-detect, with the LOQs and LODs greater than the human health PAL (**Appendix C Table #16**). The PAL for 2,4-DNP is not attainable with contemporary analytical methodology; exceedance of this PAL was anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020).
- All groundwater DNCB results were non-detect; however, a PAL has not been established for DNCB.
- All groundwater picric acid results were non-detect; the human health PAL was achieved by the LOQ in 13 of the 15 samples, and by the LOD in 14 of the 15 samples, indicating that sensitivity objectives were substantially met, and that the data are usable (**Appendix C Table #16**).

#### *2.2.6.3 AOC 1*

Surface Soil

- At AOC 1, all of the 2,4-DNP surface soil sample results were non-detect, with the LOQ and LOD greater than the PAL (**Appendix C Tables #8 and #10**). The PAL for 2,4-DNP is not attainable with contemporary analytical methodology; exceedances of the PAL were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020).
- At AOC 1, all of the DNCB surface soil sample results were non-detect, with the LOQ exceeding the PAL; however, the PAL was achieved with the LOD (**Appendix C Table #7**).
- At AOC 1, one surface soil sample had a positive detection for picric acid; the remaining 29 results were non-detect, with the LOQs and LODs greater than the PAL (**Appendix C Tables #8 and #10**). The PAL for picric acid is not attainable with contemporary analytical methodology; exceedances of the PAL were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020).
- At AOC 1, the PALs for all metals analytes in surface soil were met by the LOQs, with the exception of thallium (**Appendix C Tables #6 and #7**) and mercury (**Appendix C Table #9**). Exceedances of these PALs were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020). One sample that was non-detect for beryllium had an LOQ that exceeded the PAL; however, the sample's LOD met the PAL (**Appendix C Table #7**).

Subsurface Soil

- At AOC 1, all of the 2,4-DNP subsurface soil sample results were non-detect, with the LOQ and LOD greater than the PAL (**Appendix C Tables #8 and #10**). The PAL for 2,4-DNP is not attainable with contemporary analytical methodology; exceedances of the PAL were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020).
- At AOC 1, all of the DNCB subsurface soil sample results were non-detect, with the LOQ exceeding the PAL; however, the PAL was achieved with the LOD (**Appendix C Table #7**).
- At AOC 1, all of the picric acid subsurface soil sample results were non-detect, with the LOQs and LODs greater than the PAL (**Appendix C Tables #8 and #10**). The PAL for picric acid is not attainable with contemporary analytical methodology; exceedances of the PAL were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020).
- At AOC 1, the PALs for all metals analytes in subsurface soil were met by the LOQs, with the exception of thallium (**Appendix C Tables #6 and #7**) and mercury (**Appendix C Table #9**). Exceedances of these PALs were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020). One

sample that was non-detect for selenium had an LOQ that exceeded the PAL; however, the sample's LOD met the PAL (**Appendix C Table #7**).

Groundwater

- At AOC 1, all of the 2,4-DNP groundwater sample results were non-detect, with the LOQ and LOD greater than the PAL (**Appendix C Table #6**). The PAL for 2,4-DNP is not attainable with contemporary analytical methodology; exceedances of the PAL were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020).
- At AOC 1, all of the DNCB groundwater sample results were non-detect; however, a PAL has not been established for DNCB.
- At AOC 1, all of the picric acid groundwater sample results were non-detect, and the PAL was achieved by the LOQ (**Appendix C Table #6**).
- At AOC 1, the PALs for all metals analytes in groundwater were met by the LOQs, with the exception of antimony, arsenic, cadmium, mercury, nickel, selenium, silver, thallium, and vanadium (**Appendix C Table #6**). Of those analytes, the PALs were met by the LODs for nickel, silver, and vanadium.

#### *2.2.6.4 AOC 3*

Surface Soil

- In AOC 3, the PALs for all SVOC analytes in surface soil were met by the LOQs, with the exception of *1,2,4,5-tetrachlorobenzene*, 2,3,4,6-tetrachlorophenol, 2,4-dichlorophenol, 2,4-dimethylphenol, *DNCB*, 2,4-dinitrophenol, *2,6-dinitrotoluene*, 2-chloronapthalene, 2-chlorophenol, *2-methylphenol*, 2-nitroaniline, 3,3'-dichlorobenzidine, 4,6-dinitro-2-methylphenol, atrazine, biphenyl, *bis(2-chloroethoxy)methane*, *bis(2-chloroethyl) ether*, bis(2-ethylhexyl)phthalate, carbazole, m- & p-cresols, *dibenzofuran*, *diethyl phthalate*, di-n-butyl phthalate, *hexachlorobenzene*, hexachlorobutadiene, hexachlorocyclopentadiene, hexachloroethane, N-nitroso-di-n-propylamine, and *pentachlorophenol*. (**Appendix C Tables #11 through #15**).
- At AOC 3, all of the picric acid surface soil sample results were non-detect, with the LOQs and LODs greater than the PAL (**Appendix C Tables #13 and #15**). The PAL for picric acid is not attainable with contemporary analytical methodology; exceedances of the PAL were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020).
- The PALs for all PAH analytes in surface soil were met by the LOQs.
- None of the PALs for PCBs analytes in surface soil were met by the LOQs. The PALs were met by the LODs for PCB-1248, PCB-1260, PCB-1262, and PCB-1268. (**Appendix C Table #14**).
- The PALs for all metals analytes in surface soil were met by the LOQs, with the exception of thallium (**Appendix C Tables #11 and #12**).

Subsurface Soil

- In AOC 3, the PALs for all VOC analytes in subsurface soil were met by the LOQs, with the exception of 1,2-dibromo-3-chloropropane, acetone, bromomethane, *cis-1,2-dichloropropene*, and *trans-1,2-dichloropropene*. (**Appendix C Tables #11 and #13**).
- In AOC 3, the PALs for all SVOC analytes in subsurface soil were met by the LOQs, with the exception of *1,2,4,5-tetrachlorobenzene*, 2,3,4,6-tetrachlorophenol, 2,4-dichlorophenol, 2,4-dimethylphenol, *DNCB*, 2,4-dinitrophenol, *2,6-dinitrotoluene*, 2-chloronapthalene, 2-chlorophenol, *2-methylphenol*, 2-nitroaniline, 3,3'-dichlorobenzidine, 4,6-dinitro-2-methylphenol, atrazine, biphenyl, *bis(2-*

*chloroethoxy)methane*, *bis(2-chloroethyl) ether*, bis(2-ethylhexyl)phthalate, carbazole, m- & p-cresols, *dibenzofuran*, *diethyl phthalate*, di-n-butyl phthalate, *hexachlorobenzene*, hexachlorobutadiene, hexachlorocyclopentadiene, hexachloroethane, N-nitroso-di-n-propylamine, and *pentachlorophenol*. (**Appendix C Tables #11 through #15**).

- At AOC 3, all of the picric acid subsurface soil sample results were non-detect, with the LOQs and LODs greater than the PAL (**Appendix C Tables #13 and #15**). The PAL for picric acid is not attainable with contemporary analytical methodology; exceedances of the PAL were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020).
- The PALs for all PAH analytes in subsurface soil were met by the LOQs, with the exception of benzo(a)pyrene and dibenz(a,h)anthracene (**Appendix C Table #11**). One sample that was non-detect for benzo(a)pyrene had an LOQ that exceeded the PAL; however, the sample's LOD met the PAL. One sample that was non-detect for dibenz(a,h)anthracene had an LOQ and LOD that exceeded the PAL.
- None of the PALs for PCBs analytes in subsurface soil were met by the LOQs. The PALs were met by the LODs for PCB-1016, PCB-1232, PCB-1248, PCB-1260, PCB-1262, and PCB-1268. (**Appendix C Table #14**).
- The PALs for all metals analytes in subsurface soil were met by the LOQs, with the exception of thallium (**Appendix C** Tables #11 and #12), *selenium* (**Appendix C Table #12**) and mercury (**Appendix C Table #14**).

Groundwater

- In AOC 3, the PALs for all VOC analytes in groundwater were met by the LOQs, with the exception of 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, 1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene, 1,2-dibromo-3-chloropropane, 1,2-dibromoethane, 1,2-dichloroethane, *1,2-dichloropropane*, *1,4-dichlorobenzene*, 2-hexanone, *benzene*, bromodichloromethane, bromomethane, *carbon tetrachloride*, chloroform, *cis-dichloropropene*, *dibromochloromethane*, *trans-dichloropropene*, and vinyl chloride. (**Appendix C Table #11**).
- In AOC 3, the PALs for all SVOC analytes in groundwater were met by the LOQs, with the exception of 1,2,4,5-tetrachlorobenzene, 1,4-dioxane, 2,4,6-trichlorophenol, *2,4-dichlorophenol*, 2,4-DNP, 2,4-dinitrotoluene, 2,6-dinitrotoluene, *2-chlorophenol*, *2-nitroaniline*, 3,3'-dichlorobenzidine, 3-nitroaniline, 4,6-dinitro-2-methylphenol, 4-chloroaniline, 4-nitroaniline, atrazine, biphenyl, *bis(2-chloroethoxy)methane*, bis(2-chloroethyl) ether, *bis(2-ethylhexyl)phthalate*, dibenzofuran, hexachlorobenzene, hexachlorobutadiene, hexachlorocyclopentadiene, hexachloroethane, nitrobenzene, N-nitroso-di-n-propylamine, and pentachlorophenol. (**Appendix C Table #11**).
- At AOC 3, all of the picric acid groundwater sample results were non-detect, and the PAL was achieved by the LOQ (**Appendix C Table #11**).
- The PALs for all PAH analytes in groundwater were met by the LOQs, with the exception of benzo(a)anthracene, benzo(a)pyrene, and dibenz(a,h)anthracene (**Appendix C Table #11**).
- The PALs for PCBs analytes in groundwater were not met by the LOQs for PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, and PCB-1260. (**Appendix C Table #11**).
- The PALs for all metals analytes in groundwater were met by the LOQs, with the exception of antimony, arsenic, cadmium, *cobalt*, mercury, *nickel*, selenium, *silver*, thallium, and *vanadium* (**Appendix C Table #11**).

#### *2.2.6.5 AOC 4 ISM*

- All of the 2,4-DNP and picric acid ISM soil sample results were non-detect, with the LOQs and LODs greater than the invertebrate and mammal ecological PALs (**Appendix C Tables #23 and #25**). The PALs for 2,4-DNP and picric acid are not attainable with contemporary analytical methodology; exceedances of these PALs were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020).
- All of the DNCB ISM soil sample results were non-detect, and the LOQs were lower than the PALs for 32 of the 34 samples, indicating that sensitivity objectives were substantially met (**Appendix C Table #22**).

#### *2.2.6.6 Background*

Surface Soil

- The PALs for all PAH analytes in surface soil were met by the LOQs.
- The PALs for all metals analytes in surface soil were met by the LOQs, with the exception of thallium (**Appendix C Tables #1 and #2**), *selenium* (**Appendix C Table #2**), and *antimony* (**Appendix C Table #5**).

Subsurface Soil

- The PALs for all PAH analytes in subsurface soil were met by the LOQs.
- The PALs for all metals analytes in subsurface soil were met by the LOQs, with the exception of thallium (**Appendix C Tables #1 and #2**), *selenium* (**Appendix C Table #2**), and mercury (**Appendix C Table #4**).

Groundwater

- The PALs for all PAH analytes in groundwater were met by the LOQs, with the exception of benzo(a)anthracene, benzo(a)pyrene, *naphthalene*, and dibenz(a,h)anthracene (**Appendix C Table #1**).
- The PALs for all metals analytes in groundwater were met by the LOQs, with the exception of antimony, arsenic, cadmium, *cobalt*, mercury, *nickel*, selenium, *silver*, thallium, and *vanadium* (**Appendix C Table #1**).

### 2.2.7 Statistical Method Evaluation

Statistical methods that are used for the project are documented in the NYOW Phase 1 Risk Screening Approach Technical Memorandum (Bluestone, 2022). The objectives of the statistical analysis are:

- To assess if there are any CERCLA constituents present and related to historical DoD activities, as well as present above risk-based screening levels and background concentrations.
- To identify potential source areas and/or areas of higher concentrations.
- To focus additional fieldwork to collect data for an RI and to meet risk assessment-related DQOs if potential impacts from DoD-related constituents are indicated.

To meet these objectives, a site versus background comparison was performed. To complete the site versus background comparison, the data sets were required to have a minimum of 8 samples. Both the site and background data sets met the minimum sample size requirement, and the data are considered representative.

A systemic sampling design was implemented at AOC 4 to specifically address spatial coverage and media variability (i.e., soil heterogeneity). Within the other AOCs and the background reference area, judgmental sampling was used to evaluate suspected or likely contamination areas. For the Phase 1 risk screening, the maximum detection concentration (MDC) is the statistic used to inform Phase 2 decision-making; therefore, adequate spatial coverage, rather than calculation of an alternative statistic, is the paramount concern. With the exception of the locations that could not be sampled and represent potentially permanent data gaps (**Section 2.1)** the purposive sampling design was adequately executed to identify source areas and/or areas of higher concentrations. Summary statistics are provided as **Appendix C**.

### 2.2.8 Summary and Conclusions

#### *2.2.8.1 AOC 5*

Based on this assessment of DQIs for AOC 5, the data obtained during the site investigation are of sufficient quantity and quality to support the Phase 1 investigation and human health and ecological risk screenings. Furthermore, the quantity and quality of data are sufficient to update the CSM and support the identification of data gaps. The rejected results in AOC 5 are for compounds not likely to be DoD-related nor risk drivers; however, analytical completeness for B/N extractable SVOCs was less than 90% for many compounds in groundwater. The data needs will continue to be assessed by the project team as findings are evaluated and the CSM evolves. A description of the findings that may affect future remedial investigation activities at AOC 5 is presented below.

Surface and Subsurface Soil Conclusions

The bioavailability of many constituents is dependent upon the TOC content. In general, higher TOC leads to lower bioavailability and subsequently, a lower potential for toxicity. When TOC is biased low, toxicity may be overestimated; therefore, the uniformly low-biased TOC data obtained for AOC 5 may impact future ecological risk evaluations. Analysis of TOC is recommended for future Phase 2 soil sampling.

Soil sample heterogeneity was documented through the analysis of field duplicate and MS/MSD sample pairs, affecting primarily PAHs and metals in surface soil and metals in subsurface soil. Surface soil heterogeneity of PAHs is likely attributable to their anthropogenic (pyrogenic) disposition and the depositional mechanism of PAH transport to the shallow soil interval. Implementation of an ISM sampling approach during the Phase 2 investigation will improve soil characterization and support the calculation of representative mean sample concentrations for metals and PAHs.

The following analytes in surface soil had low bias primarily attributable to low surrogate or MS/MSD recoveries at a frequency greater than 20% of samples (5 in 25 samples): benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and pyrene. Analytes in subsurface soil with low surrogate or MS/MSD recoveries affecting more than 20% of samples (10 in 50 samples) included benzo(a)pyrene, benzo(g,h,i)perylene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. These low recoveries may be associated with the significantly greater difficulty in homogenizing clay soil and extracting PAHs from high clay content soil because of the strong adsorption of PAHs to clay surfaces. The extraction efficiency of EPA Method 3546 (microwave extraction) is comparable or better than available alternatives (e.g., Soxhlet and ultrasonic extraction); therefore, the selected extraction method should be retained for future sampling events. For the Phase 1 sampling event, samples were field homogenized by thorough mixing in a Ziplock bag. It is recommended that future

discrete soil samples be homogenized sequentially, first in quarter-sample segments and then in combined half-sample and full sample segments.

To reduce the impact to sensitive habitat areas, mapped wetland areas were avoided by relocating two soil borings. Wetland avoidance will result in a permanent data gap for collection of spatially representative soil samples at AOC 5.

Chemicals with a significant potential to be both risk-driving and site-related met analytical sensitivity requirements (i.e., attainment of the PAL with the LOQ) or attained the PAL with the LOD for soil.

Groundwater Conclusions

Temporary monitoring wells were not developed, and discrete groundwater samples were collected using a peristaltic pump as grab samples in accordance with the UFP-QAPP. Upon initial discharge of groundwater from the sampling tubing, the field water quality parameters were measured, and samples were collected without development, purging, or field parameter stabilization. Sample turbidity ranged from 30.2 NTU (NYOW-05-008) to the upper instrument limit (> 1,000 NTU). The presence of particles in the sample may result in an overestimation of groundwater concentrations for metals and SVOCs. Installation of permanent monitoring wells is recommended to obtain representative groundwater samples from AOC 5.

All three groundwater samples collected from the Possible Dump (NYOW-05-WL001-A, NYOW-05-WL004-A, and NYOW-05-WL005-A) did not attain PALs for PCBs. For NYOW-05-WL001-A, only 800 mL of muddy groundwater was received by the laboratory. Submission of full volume aliquots is necessary to achieve the laboratory LOQ. All three samples were affected by matrix interference and two samples required sulfuric acid cleanup to reduce interferences. Similarly, all 12 groundwater samples from AOC 5 had low base/neutral surrogate recoveries, indicating potential matrix effects. Results for B/N SVOCs associated with well locations NYOW-05-WL-024-A (west of the Dual Coal Aggregate Bins A&B) and NYOW-05-WL-010-A (within the southern portion of the Coal Storage Area) were rejected based on surrogate recoveries less than 10%. Installation of permanent wells may lessen matrix effects in Phase 2. PCBs and SVOCs represent a current data gap in the AOC 5 Possible Dump groundwater investigation area.

The PALs for PAHs in groundwater (benzo(a)anthracene, benzo(a)pyrene, and dibenz(a,h)anthracene) that were not met by LOQs were already analyzed by the most sensitive analytical technique (i.e., BNASIM). The PALs for all metals analytes in groundwater that were not met by LOQs were either attained by the LOD or were already analyzed by the most sensitive analytical technique (i.e., ICP-MS), with the exception of cadmium and selenium. It is recommended that cadmium and selenium be analyzed by Method 6020A during Phase 2 Sampling events. The groundwater PALs for PCBs were not met. Future sampling of PCBs could employ concentrated extracts during sample preparation; however, PCBs were not identified as risk-drivers in soil and are not soluble in water.

#### *2.2.8.2 AOC 4*

Based on this assessment of DQIs for AOC 4, the data obtained during the site investigation are of sufficient quantity and quality to support the Phase 1 investigation and human health and ecological risk screenings. Furthermore, the quantity and quality of data are sufficient to update the CSM and support the identification of data gaps. The rejected groundwater result for picric acid in AOC 4 is downgradient and bounded by results are considered usable. The data needs will continue to be assessed by the project team as findings

are evaluated and the CSM evolves. A description of the findings that may affect future remedial investigation activities at AOC 4 is presented below.

Surface and Subsurface Soil Conclusions

There were no non-conformances related to soil sampling or analysis that adversely affected data usability.

All of the 2,4-DNP and picric acid surface soil sample results were non-detect, with the LOQs and LODs greater than ecological PALs. All of the 2,4-DNP and picric acid subsurface soil sample results were non-detect, with the LOQs and LODs greater than ecological PALs. The PALs for 2,4-DNP and picric acid are not attainable with contemporary analytical methodology; exceedances of these PALs were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020).

Groundwater Conclusions

Temporary monitoring wells were not developed, and discrete groundwater samples were collected using a peristaltic pump as grab samples in accordance with the UFP-QAPP. Upon initial discharge of groundwater from the sampling tubing, the field water quality parameters were measured, and samples were collected without development, purging, or field parameter stabilization. Sample turbidity ranged from 10.8 NTU (NYOW-04-004) to the upper instrument limit (> 1,000 NTU). The presence of particles in the sample may result in an overestimation of groundwater concentrations; however, all of the groundwater sample results were non-detect. It is noted that 9 of 16 groundwater samples clogged the SPE cartridge (i.e., flow rate <4 mL/minute) during extraction in the explosives analysis and one sample (NYOW-04-WL005-A) required vacuum filtration through glass fiber filter paper prior to analysis due to turbidity. It is possible that the extraction efficiency was compromised for samples with high particulate load, and installation of permanent wells is recommended.

The following analytes in groundwater had low bias qualifiers primarily attributable to low surrogate recoveries at a frequency greater than 20% of samples: DNCB (44% and picric acid (33%). The picric acid result for one groundwater sample (NYOW-04-WL080-A) was rejected based on surrogate recovery of less than 10%. Installation of permanent monitoring wells is recommended to obtain representative groundwater samples from AOC 4.

In AOC 4, all 2,4-DNP sample results in groundwater were non-detect, with the LOQs and LODs greater than the human health PAL. The PAL for 2,4-DNP is not attainable with contemporary analytical methodology; exceedance of this PAL was anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020). All groundwater picric acid results were non-detect; the human health PAL was achieved by the LOQ in 13 of the 15 samples, and by the LOD in 14 of the 15 samples, indicating that sensitivity objectives were substantially met.

#### *2.2.8.3 AOC 1*

Based on this assessment of DQIs for AOC 1, the data obtained during the site investigation are of sufficient quantity and quality to support the Phase 1 investigation and human health and ecological risk screenings. Furthermore, the quantity and quality of data are sufficient to update the CSM and support the identification of data gaps. The rejected result for 2,4-DNP in AOC 1 does not affect the overall usability of the dataset. The data needs will continue to be assessed by the project team as findings are evaluated and the CSM evolves. A description of the findings that may affect future remedial investigation activities at AOC 1 is presented below.

Surface and Subsurface Soil Conclusions

Subsurface soil samples could not be collected from NYOW-01-007, NYOW-01-009, NYOW-01-011, and NYOW-01-013. Due to the existing concrete building foundations and steep slopes, borings NYOW-01-008, NYOW-01-010, NYOW-01-012, and NYOW-01-014 were not installed. The sampling plan was modified to include additional surface soil samples from NYOW-01-025 through NYOW-01-039. The preliminary human health and ecological CSMs include receptors only exposed to surface soil; therefore, the usability of the data for risk screening is not affected.

Samples were not collected at two locations (NYOW-01-003 and NYOW-01-004) because Bluestone did not have ROE for either property. These borings could not be relocated and represent an existing and potentially permanent data gap.

Soil sample heterogeneity was documented through the analysis of field duplicate and MS/MSD sample pairs, affecting primarily metals in surface soil and subsurface soil. Implementation of an ISM sampling approach during the Phase 2 investigation will improve soil characterization and support the calculation of representative mean sample concentrations for metals.

DNCB in surface soil had low bias attributable to low surrogate recoveries at a frequency greater than 20% of samples (8 in 30 samples). DNCB in subsurface soil also had low bias attributable to low surrogate recoveries at a frequency greater than 20% of samples (6 in 22 samples). There was no indication that matrix interference was responsible for the low recoveries. The extraction efficiency of EPA Method 3546 is comparable or better than available; therefore, the selected extraction method should be retained for future sampling events.

The non-detect 2,4-DNP result for one surface soil sample (NYOW-01-SL036-A) was rejected based on low MS/MSD recoveries below 10% at 0% and 0%, respectively. The 2,4-DNP data set is sufficient to support the Phase I evaluation and the rejected result does not affect the overall usability of the data set.

Chemicals with a significant potential to be both risk-driving and site-related met analytical sensitivity requirements (i.e., attainment of the PAL with the LOQ) or attained the PAL with the LOD. All of the 2,4-DNP surface and subsurface soil sample results were non-detect, with the LOQs and LODs greater than the ecological PALs. One surface soil sample had a positive detection for picric acid; the remaining surface and subsurface soil results were non-detect, with the LOQs and LODs greater than the PAL. The PALs for 2,4-DNP and picric acid are not attainable with contemporary analytical methodology; exceedances of these PALs were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020). The PALs for all metals analytes in surface and subsurface soil were met by the LOQs, with the exception of thallium and mercury. Exceedances of these PALs were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020).

Groundwater Conclusions

The planned groundwater sample from NYOW-01-003 could also not be collected because Bluestone did not have ROE for either property. The unsampled location represents a data gap.

DNCB in groundwater had low bias attributable to low surrogate recoveries at a frequency greater than 20% of samples (8 in 9 samples). Picric acid in groundwater had low bias attributable to low surrogate and matrix spike recoveries at a frequency greater than 20% of samples (3 in 10 samples). No groundwater data was rejected at AOC 1.

At AOC 1, all of the 2,4-DNP groundwater sample results were non-detect, with the LOQ and LOD greater than the PAL. The PAL for 2,4-DNP is not attainable with contemporary analytical methodology; exceedances of the PAL were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020). The PALs for all metals analytes in groundwater were met by the LOQs, with the exception of antimony, arsenic, cadmium, mercury, nickel, selenium, silver, thallium, and vanadium. Of those analytes, the PALs were met by the LODs for nickel, silver, and vanadium. Cadmium and selenium were analyzed by Method 6010C; changing to Method 6020A may be warranted for future sampling events.

#### *2.2.8.4 AOC 3*

Based on this assessment of DQIs for AOC 3, the data obtained during the site investigation are of sufficient quantity and quality to support the Phase 1 investigation and human health and ecological risk screenings. Furthermore, the quantity and quality of data are sufficient to update the CSM and support the identification of data gaps. The rejected result for 3,3'-dichlorobenzidine, a compound that is not likely to be DoD-related nor a risk driver, does not adversely affect data usability. The data needs will continue to be assessed by the project team as findings are evaluated and the CSM evolves. A description of the findings that may affect future remedial investigation activities at AOC 3 is presented below.

Surface and Subsurface Soil Conclusions

Soil sample heterogeneity was documented through the analysis of field duplicate and MS/MSD sample pairs, affecting primarily PAHs in surface soil and PAHs and metals in subsurface soil. Implementation of an ISM sampling approach during the Phase 2 investigation will improve soil characterization and support the calculation of representative mean sample concentrations for metals and PAHs.

SVOCs in surface and subsurface soil had low bias attributable to low surrogate, LCS/LCSD, and MS/MSD recoveries at a frequency greater than 20% of samples; however, none of the affected compounds are likely to be risk drivers at the site.

Eight of the 32 soil samples collected from AOC 3 could not be thoroughly homogenized before sub-sampling and extraction for PCBs, SVOC, and EPA Method BNASIM analyses were performed, due to their clay matrix. Implementation of an ISM sampling approach during the Phase 2 investigation will improve soil characterization and support the calculation of representative mean sample concentrations for PCBs and PAHs.

Chemicals with a significant potential to be both risk-driving and site-related met analytical sensitivity requirements (i.e., attainment of the PAL with the LOQ) or attained the PAL with the LOD. All of the 2,4-DNP and picric acid surface soil sample results were non-detect, with the LOQs and LODs greater than the ecological PALs. All of the 2,4-DNP and picric acid subsurface soil sample results were non-detect, with the LOQs and LODs greater than the ecological PALs. The PALs for 2,4-DNP and picric acid are not attainable with contemporary analytical methodology; exceedances of these PALs were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020). The PALs for all metals analytes in surface and subsurface soil were met by the LOQs, with the exception of thallium and mercury. Exceedances of these PALs were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020).

Groundwater Conclusions

SVOCs in surface and subsurface soil had low bias attributable to low surrogate, LCS/LCSD, and MS/MSD recoveries at a frequency greater than 20% of samples; however, none of the affected compounds are likely to be risk drivers at the site.

The PALs for all PAH analytes in groundwater were met by the LOQs, with the exception of benzo(a)anthracene, benzo(a)pyrene, and dibenz(a,h)anthracene. PAHs in groundwater were already analyzed by the most sensitive analytical method (i.e., BNASIM). The PALs for all metals analytes in groundwater that were not met by LOQs were either attained by the LOD or were already analyzed by the more sensitive analytical technique (i.e., ICP-MS), with the exception of cadmium and selenium. It is recommended that cadmium and selenium be analyzed by Method 6020A during Phase 2 Sampling events. The groundwater PALs for PCBs were not met. Future sampling of PCBs could employ concentrated extracts during sample preparation; however, PCBs were not identified as risk-drivers in soil and are not soluble in water. All groundwater 2,4-DNP sample results were non-detect, with the LOQs and LODs greater than the human health PAL. The PAL for 2,4-DNP is not attainable with contemporary analytical methodology; exceedance of this PAL was anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020).

#### *2.2.8.5 AOC 4 ISM*

Based on this assessment of DQIs for AOC 4 ISM, the data obtained during the site investigation are not of sufficient quantity and quality to support the Phase 1 investigation and human health and ecological risk screenings in all of the decision units. A description of the findings that may affect future remedial investigation activities at AOC 4 is presented below.

ISM Surface Soil Conclusions

The ISM samples for SVOC analysis underwent the complete ISM processing and subsampling procedures, rather than having aliquots removed for SVOC analysis/moisture content prior to drying, as was specified in the UFP-QAPP. The decision to process ISM samples for the SVOC analysis was based on information provided in the ISM-2 guidance regarding the loss potential of SVOCs during air drying and the consideration that air exposure at the laboratory was not likely to produce analyte loss for surface soils that had been exposed to ambient air for many years (ITRC, 2021). There is no LCSSRM available that contains the SVOC analytes DNCB and 2,4-DNP, and the explosives LCSSRM does not contain picric acid. As a result, the impact that sample milling may have on the recovery of all analytes cannot be quantified. In addition, generally low surrogate recoveries were associated with the ISM samples for SVOC analysis. An equivalent mass of Ottowa Sand was added to the samples before reanalysis in order to increase contact with the solvent, with the intent to improve surrogate recoveries. This approach did not typically improve surrogate recoveries.

DNCB in ISM surface soil had low bias attributable to low surrogate recoveries at a frequency greater than 20% of samples (33 in 34 samples). 2,4-DNP in ISM surface soil had low bias attributable to low surrogate recoveries at a frequency greater than 20% of samples (27 in 29 samples). Picric acid in ISM surface soil had low bias attributable to low surrogate and matrix spike recoveries at a frequency greater than 20% of samples (9 in 36 samples).

For DU 1, all three replicates had results rejected for low bias of 2,4-dinitrophenol based on low MS/MSD recoveries and an exposure point concentration (EPC) based on the upper confidence limit (UCL) of three replicates cannot be calculated. For DU 5, I replicate had results rejected for DNCB and 2,4-DNP due to holding time exceedances and the UCL of three replicate samples cannot be calculated. At DU 9, three replicates had results rejected for low bias of 2,4-DNP due to an MSD that did not recover. For DU 10, one replicate had the result for DNCB rejected based on a low surrogate recovery and the UCL of the sample replicate cannot be calculated.

All of the 2,4-DNP and picric acid ISM soil sample results were non-detect, with the LOQs and LODs greater than the invertebrate and mammal ecological PALs. The PALs for 2,4-DNP and picric acid are not attainable with contemporary analytical methodology; exceedances of these PALs were anticipated prior to sampling as documented in the UFP-QAPP (USACE, 2020). All of the DNCB ISM soil sample results were non-detect, and the LOQs were lower than the PALs for 32 of the 34 samples, indicating that sensitivity objectives were substantially met.

#### *2.2.8.6 Background*

Based on this assessment of DQIs for Background, the data obtained during the site investigation are of sufficient quantity and quality to support the Phase 1 investigation and human health and ecological risk screenings. Furthermore, the quantity and quality of data are sufficient to update the CSM and support the identification of data gaps. The data needs will continue to be assessed by the project team as findings are evaluated and the CSM evolves. A description of the findings that may affect future remedial investigation activities is presented below.

Surface and Subsurface Soil Conclusions

The objective of the subsurface soil sampling to obtain 15 samples for each soil type was not achieved; however, the sample size is sufficient (i.e., $n \geq 8$) to compare site soil to background using summary statistics (e.g., ranges, means, medians, standard deviations), exploratory graphical displays (e.g., side-by-side box plots) and to calculate BTVs (Bluestone, 2022). In the case of AOC 5, where the investigation is an initial SI, any comparisons with background is for informational purposes and not used to eliminate methods and/or analytes from further investigation (Bluestone, 2022). The Psc unit could not be sampled south of the edge of the wetland, resulting in the greatest overall relocation distances and a potential data gap.

Soil sample heterogeneity was documented through the analysis of field duplicate and MS/MSD sample pairs, affecting PAHs and metals in surface soil and subsurface soil. Implementation of an ISM sampling approach during the Phase 2 investigation will improve soil characterization and support the calculation of representative mean sample concentrations for metals and PAHs.

The following analytes in surface soil had low bias primarily attributable to low surrogate, LCS/LCSD, or MS/MSD recoveries at a frequency greater than 20% of samples (9 in 45 samples): benzo(g,h,i)perylene, benzo(k)fluoranthene, fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and pyrene. Analytes in subsurface soil with low surrogate, LCS/LCSD, or MS/MSD recoveries affecting more than 20% of samples (18 in 90 samples) included benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. These low recoveries may be associated with the significantly greater difficulty in homogenizing clay soil and extracting PAHs from high clay content soil because of the strong adsorption of PAHs to clay surfaces. The extraction efficiency of EPA Method 3546 (microwave extraction) is comparable or better than available alternatives (e.g., Soxhlet and ultrasonic extraction); therefore, the

selected extraction method should be retained for future sampling events. For the Phase 1 sampling event, samples were field homogenized by thorough mixing in a Ziplock bag. It is recommended that future discrete soil samples be homogenized sequentially, first in quarter-sample segments and then in combined half-sample and full sample segments.

Due to a laboratory equipment failure, 74 samples were analyzed outside the holding time period for TOC (i.e., 28 days) but within the holding time rejection threshold (56 days). While microbial degradation is significantly reduced by storing samples at 4°C, some loss of organic material can occur, and the loss is exacerbated by prolonged storage. The bioavailability of many constituents is dependent upon the TOC content. In general, higher TOC leads to lower bioavailability and subsequently, a lower potential for toxicity. When TOC is biased low, toxicity may be overestimated; therefore, the uniformly low-biased TOC data obtained for the background data may impact the risk screening. Analysis of TOC is recommended for future Phase 2 soil sampling.

Eight of the 135 soil samples collected from the background area could not be thoroughly homogenized before sub-sampling and extraction for the EPA Method BNASIM analysis was performed due to their clay matrix. Mixing of a strongly aggregated soil (e.g., clay) to reduce intra-sample variability is difficult due to the presence of cohesive clumps that require mechanical disaggregation. The resulting uncertainty was partially addressed by implementing a robust, biased soil sampling program targeted to potential source areas. It is recommended that future discrete soil samples be homogenized sequentially, first in quarter-sample segments and then in combined half-sample and full sample segments. It is noted that an ISM processing will also address homogenization issues.

The PALs for all metal analytes in surface and subsurface soil were met by the LOQs or limits of detection (LODs), with the exception of thallium and mercury.

Groundwater Conclusions

All PAHs in groundwater had low bias primarily attributable to low surrogate, LCS/LCSD, or MS/MSD recoveries at a frequency greater than 20% of samples (2 in 9 samples).

The PALs for all PAH analytes in groundwater were met by the LOQs or LODs, with the exception of benzo(a)anthracene, benzo(a)pyrene, and dibenz(a,h)anthracene. PAHs in groundwater were already analyzed by the most sensitive analytical method (i.e., BNASIM). The PALs for all metals analytes in groundwater that were not met by LOQs were either attained by the LOD or were already analyzed by the more sensitive analytical technique (i.e., ICP-MS), with the exception of cadmium and selenium. It is recommended that cadmium and selenium be analyzed by Method 6020A during Phase 2 Sampling events.

# APPENDICES

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# APPENDIX A
# Data Validation Reports

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# AOC 1 and 3 Data Packages

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 3 May 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-146929-2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in March 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-146929-2 | 280-146929-3 | NYOW-03-SL003-A | 3/31/2021 | CEC |
| 280-146929-2 | 280-146929-4 | NYOW-03-PH003-B | 3/31/2021 | CEC |
| 280-146929-2 | 280-146929-5 | NYOW-03-SL001-A | 3/31/2021 | CEC |
| 280-146929-2 | 280-146929-6 | NYOW-03-PH001-B | 3/31/2021 | CEC |
| 280-146929-2 | 280-146929-11 | NYOW-03-SL011-A | 3/31/2021 | CEC |
| 280-146929-2 | 280-146929-12 | NYOW-03-PH011-B | 3/31/2021 | CEC |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the

originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Three coolers were received by the laboratory at temperatures of 1.7°C, 2.8°C, and 2.9°C. All requested target analytes were reported.

The majority of the containers were received with the first FedEx receipt at 10:15 AM; however, the containers for the following samples were received in a second receipt which occurred at 14:35 PM: NYOW-03-SL011-A and NYOW-03-PH011-B. Due to a LIMS limitation, only one receipt time is allowed per login; therefore, the receipt time of 10:15 AM was applied to all samples.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |

| Verification Criteria | Yes | No |
|---|---|---|
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-146929-1.

## COMMENTS

No field duplicate and parent sample pairs were collected as part of this SDG. No field blanks were collected as part of this SDG.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 2 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM Rev 1: 280-146964-2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-146964-2 | 280-146964-2 | NYOW-03-SL005-A | 4/1/2021 | CEC |
| 280-146964-2 | 280-146964-3 | NYOW-03-PH005-B | 4/1/2021 | CEC |
| 280-146964-2 | 280-146964-4 | [1]PH-DUP-001_210401 | 4/1/2021 | CEC |
| 280-146964-2 | 280-146964-9 | NYOW-03-SL007-A | 4/1/2021 | CEC |
| 280-146964-2 | 280-146964-10 | NYOW-03-PH007-B | 4/1/2021 | CEC |

[1]PH-DUP-001_210401 collected from NYOW-03-PH005-B

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the

originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 1.0°C, 1.3°C, 1.9°C, 3.6°C, and 5.4°C. All requested target analytes were reported.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

**SAMPLE RESULTS**

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-146964-1.

**COMMENTS**

No field blanks were collected as part of this SDG.

One field duplicate and parent sample pair was collected and analyzed for CEC (PH-DUP-001_210401 and NYOW-03-PH005-B). The RPD must be less than 50% when at least one result is greater than the LOQ. The field duplicate pair met the precision criteria for CEC with an RPD of 26%.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 2 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM Rev 1: 280-146997-2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-146997-2 | 280-146997-1 | NYOW-01-SL023-A | 4/2/2021 | CEC |
| 280-146997-2 | 280-146997-2 | NYOW-01-PH023-B | 4/2/2021 | CEC |
| 280-146997-2 | 280-146997-3 | NYOW-01-PH023-C | 4/2/2021 | CEC |
| 280-146997-2 | 280-146997-4 | [1]PH-DUP-001_210402 | 4/2/2021 | CEC |
| 280-146997-2 | 280-146997-5 | NYOW-01-SL015-A | 4/2/2021 | CEC |
| 280-146997-2 | 280-146997-6 | NYOW-01-PH015-B | 4/2/2021 | CEC |
| 280-146997-2 | 280-146997-7 | NYOW-01-PH015-C | 4/2/2021 | CEC |

[1]PH-DUP-001_210402 collected from NYOW-01-PH023-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Six coolers were received by the laboratory at temperatures of 0.5°C, 0.7°C, 1.2°C, 1.3°C, 2.5°C, and 3.3°C. All requested target analytes were reported.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

**SAMPLE RESULTS**

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-146997-1.

**COMMENTS**

No field blanks were collected as part of this SDG.

One field duplicate and parent sample pair was collected and analyzed for CEC (PH-DUP-001_210402 and NYOW-01-PH023-C). The RPD must be less than 50% when at least one result is greater than the LOQ. The field duplicate pair met the precision criteria for CEC with an RPD of 7%.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 2 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM Rev 2: 280-147031-2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-147031-2 | 280-147031-3 | NYOW-03-SL009-A | 4/5/2021 | CEC |
| 280-147031-2 | 280-147031-4 | NYOW-03-PH009-B | 4/5/2021 | CEC |
| 280-147031-2 | 280-147031-5 | NYOW-03-SL013-A | 4/5/2021 | CEC |
| 280-147031-2 | 280-147031-6 | [1]SL-DUP-001_210405 | 4/5/2021 | CEC |
| 280-147031-2 | 280-147031-7 | NYOW-03-PH013-B | 4/5/2021 | CEC |
| 280-147031-2 | 280-147031-10 | NYOW-03-SL015-A | 4/5/2021 | CEC |
| 280-147031-2 | 280-147031-11 | NYOW-03-PH015-B | 4/5/2021 | CEC |

[1]SL-DUP-001_210405 collected from NYOW-03-SL013-A

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January

2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 1.5°C, 1.8°C, 2.2°C, 3.7°C, and 4.2°C. All requested target analytes were reported.

One 8-ounce soil jar did not have a collection time on the label for sample NYOW-03-PH009-B. The sample was logged in accordance with the COC.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |

| Verification Criteria | Yes | No |
|---|---|---|
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | | X |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-147031-1.

## COMMENTS

No field blanks were collected as part of this SDG.

One field duplicate and parent sample pair was collected and analyzed for CEC (SL-DUP-001_210405 and NYOW-03-SL013-A). The RPD must be less than 50% when at least one result is greater than the LOQ. The field duplicate and parent sample pair did not meet the precision criteria (RPD = 63%) and the results are qualified as "J" as shown in the table below.

| Sample | Analyte | Result | Qualifier |
|---|---|---|---|
| NYOW-03-SL013-A | CEC | 21 | J |
| SL-DUP-001_210405 | CEC | 11 | J |

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-SL013-A | 280-147031-5 | SW9081 | Cation-Exchange Capacity | | MEQ/100 G | 21.0 | | J | D3 |
| SL-DUP-001_210405 | 280-147031-6 | SW9081 | Cation-Exchange Capacity | | MEQ/100 G | 11.0 | | J | D3 |

Reason Code Definition

D3 Field Duplicate RPD

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 2 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM Rev 1: 280-147085-2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-147085-2 | 280-147085-5 | NYOW-01-SL019-A | 4/6/2021 | CEC |
| 280-147085-2 | 280-147085-6 | [1]SL-DUP-001_210406 | 4/6/2021 | CEC |
| 280-147085-2 | 280-147085-7 | NYOW-01-PH019-B | 4/6/2021 | CEC |
| 280-147085-2 | 280-147085-8 | NYOW-01-PH019-C | 4/6/2021 | CEC |
| 280-147085-2 | 280-147085-9 | [2]PH-DUP-002_210406 | 4/6/2021 | CEC |

[1]SL-DUP-001_210406 collected from NYOW-01-SL019-A
[2]PH-DUP-002_210406 collected from NYOW-01-PH019-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the

originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Four coolers were received by the laboratory at temperatures of 1.2°C, 1.9°C, 2.8°C, and 3.3°C. All requested target analytes were reported.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

**SAMPLE RESULTS**

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-147085-1.

**COMMENTS**

No field blanks were collected as part of this SDG.

Two field duplicate and parent sample pairs were collected and analyzed for CEC (SL-DUP-001_210406 and NYOW-01-SL019-A, and PH-DUP-002_210406 and NYOW-01-PH019-C). The RPD must be less than 50% when at least one result is greater than the LOQ. CEC met the precision criteria for both field duplicate pairs with RPDs of 27% and 10%, respectively.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 28 April 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-147159-2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-147159-2 | 280-147159-1 | NYOW-01-SL021-A | 4/7/2021 | CEC |
| 280-147159-2 | 280-147159-2 | NYOW-01-PH021-B | 4/7/2021 | CEC |
| 280-147159-2 | 280-147159-3 | NYOW-01-PH021-C | 4/7/2021 | CEC |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Ten coolers were received by the laboratory at temperatures of 0.6°C, 0.7°C, 0.8°C, 1.2°C, 1.3°C, 1.6°C, 2.3°C, 2.4°C, 2.9°C, and 3.7°C. All requested target analytes were reported.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-147159-1.

## COMMENTS

No field duplicate and parent sample pairs were collected as part of this SDG. No field blanks were collected as part of this SDG.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 2 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM Rev 1: 280-147306-2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-147306-2 | 280-147306-4 | NYOW-01-SL002-A | 4/9/2021 | CEC |
| 280-147306-2 | 280-147306-5 | NYOW-01-PH002-B | 4/9/2021 | CEC |
| 280-147306-2 | 280-147306-6 | NYOW-01-PH002-C | 4/9/2021 | CEC |
| 280-147306-2 | 280-147306-7 | [1]PH-DUP-001_210409 | 4/9/2021 | CEC |

[1]PH-DUP-001_210409 collected from NYOW-01-PH002-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and

include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Three coolers were received by the laboratory at temperatures of 0.7°C, 0.8°C, and 0.9°C. All requested target analytes were reported.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

**SAMPLE RESULTS**

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-147306-1.

**COMMENTS**

No field blanks were collected as part of this SDG.

One field duplicate and parent sample pair was collected and analyzed for CEC (PH-DUP-001_210409 and NYOW-01-PH002-C). The RPD must be less than 50% when at least one result is greater than the LOQ. The field duplicate and parent sample pair met the acceptance criteria with an RPD of 15%.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 17 May 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-147423-2 Revision 1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-147423-2 | 280-147423-1 | NYOW-01-SL007-A | 4/13/2021 | CEC |
| 280-147423-2 | 280-147423-2 | NYOW-01-SL027-A | 4/13/2021 | CEC |
| 280-147423-2 | 280-147423-3 | NYOW-01-SL026-A | 4/13/2021 | CEC |
| 280-147423-2 | 280-147423-4 | NYOW-01-SL025-A | 4/13/2021 | CEC |
| 280-147423-2 | 280-147423-5 | NYOW-01-SL009-A | 4/13/2021 | CEC |
| 280-147423-2 | 280-147423-6 | NYOW-01-SL028-A | 4/13/2021 | CEC |
| 280-147423-2 | 280-147423-7 | NYOW-01-SL029-A | 4/13/2021 | CEC |
| 280-147423-2 | 280-147423-8 | NYOW-01-SL030-A | 4/13/2021 | CEC |
| 280-147423-2 | 280-147423-13 | NYOW-01-SL039-A | 4/13/2021 | CEC |
| 280-147423-2 | 280-147423-14 | NYOW-01-SL038-A | 4/13/2021 | CEC |
| 280-147423-2 | 280-147423-15 | NYOW-01-SL037-A | 4/13/2021 | CEC |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's

(EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Four coolers were received by the laboratory at temperatures of 0.5°C, 0.9°C, 1.5°C, and 3.7°C. All requested target analytes were reported.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |

| Verification Criteria | Yes | No |
|---|---|---|
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-147423-1.

## COMMENTS

No field duplicate and parent sample pairs were collected as part of this SDG. No field blanks were collected as part of this SDG.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 28 April 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-146931-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in March 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the method specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-146931-1 | 280-146931-1 | NYOW-03-SL003-A | 3/31/2021 | Grain Size |
| 280-146931-1 | 280-146931-2 | NYOW-03-PH003-B | 3/31/2021 | Grain Size |
| 280-146931-1 | 280-146931-3 | NYOW-03-SL001-A | 3/31/2021 | Grain Size |
| 280-146931-1 | 280-146931-4 | NYOW-03-PH001-B | 3/31/2021 | Grain Size |
| 280-146931-1 | 280-146931-5 | NYOW-03-SL011-A | 3/31/2021 | Grain Size |
| 280-146931-1 | 280-146931-6 | NYOW-03-PH011-B | 3/31/2021 | Grain Size |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Four coolers were received by the laboratory at temperatures of 1.7°C, 2.3°C, 2.8°C, and 2.9°C. All requested target analytes were reported.

The majority of the containers were received with the first FedEx receipt at 10:15; however, the containers for two samples (NYOW-03-SL011-A and NYOW-03-PH011-B) were received with a second receipt which occurred at 14:35 on the same day. Due to a LIMS limitation, only one receipt time is allowed with each SDG. The receipt time of 10:15 was applied to all samples by the laboratory.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |

| Verification Criteria | Yes | No |
|---|---|---|
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No field quality control (QC) samples were submitted with this SDG. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field duplicate and parent sample pairs were collected as part of this SDG. No field blanks were collected as part of this SDG.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 28 April 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-146990-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the method specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-146990-1 | 280-146990-1 | NYOW-03-SL005-A | 4/1/2021 | Grain Size |
| 280-146990-1 | 280-146990-2 | NYOW-03-PH005-B | 4/1/2021 | Grain Size |
| 280-146990-1 | 280-146990-3 | [1]PH-DUP-001_210401 | 4/1/2021 | Grain Size |
| 280-146990-1 | 280-146990-4 | NYOW-03-SL007-A | 4/1/2021 | Grain Size |
| 280-146990-1 | 280-146990-5 | NYOW-03-PH007-B | 4/1/2021 | Grain Size |

[1]PH-DUP-001_210401 collected from NYOW-03-PH005-B

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the

originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 1.0°C, 1.3°C, 1.9°C, 3.6°C, and 5.4°C. All requested target analytes were reported. .

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field blanks were collected as part of this SDG.

One field duplicate and parent sample pair was collected and analyzed for grain size (PH-DUP-001_210401 and NYOW-03-PH005-B). The RPD must be less than 50% for each soil type. Gravel and coarse sand did not meet the precision criteria for this field duplicate pair. Results greater than 0% are qualified as “J” and results reported as equal to 0% are qualified as “UJ” as shown in the table below:

| Sample | Soil Type | Result | Qualifier |
|---|---|---|---|
| NYOW-03-PH005-B | Gravel | 0.0 | UJ |
| PH-DUP-001_210401 | Gravel | 0.4 | J |
| NYOW-03-PH005-B | Coarse Sand | 0.2 | J |
| PH-DUP-001_210401 | Coarse Sand | 0.8 | J |

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 28 April 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-147005-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the method specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-147005-1 | 280-147005-1 | NYOW-01-SL023-A | 4/2/2021 | Grain Size |
| 280-147005-1 | 280-147005-2 | NYOW-01-PH023-B | 4/2/2021 | Grain Size |
| 280-147005-1 | 280-147005-3 | NYOW-01-PH023-C | 4/2/2021 | Grain Size |
| 280-147005-1 | 280-147005-4 | [1]PH-DUP-001_210402 | 4/2/2021 | Grain Size |
| 280-147005-1 | 280-147005-5 | NYOW-01-SL015-A | 4/2/2021 | Grain Size |
| 280-147005-1 | 280-147005-6 | NYOW-01-PH015-B | 4/2/2021 | Grain Size |
| 280-147005-1 | 280-147005-7 | NYOW-01-PH015-C | 4/2/2021 | Grain Size |

[1]PH-DUP-001_210402 collected from NYOW-01-PH023-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Six coolers were received by the laboratory at temperatures of 0.5°C, 0.7°C, 1.2°C, 1.3°C, 3.3°C, and 3.5°C. All requested target analytes were reported. .

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field blanks were collected as part of this SDG.

One field duplicate and parent sample pair was collected and analyzed for grain size (PH-DUP-001_210402 and NYOW-01-PH023-C). The RPD must be less than 50% for each soil type. All soil types met the precision criteria for the field duplicate pair.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 28 April 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-147033-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the method specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-147033-1 | 280-147033-1 | NYOW-03-SL009-A | 4/5/2021 | Grain Size |
| 280-147033-1 | 280-147033-2 | NYOW-03-PH009-B | 4/5/2021 | Grain Size |
| 280-147033-1 | 280-147033-3 | NYOW-03-SL013-A | 4/5/2021 | Grain Size |
| 280-147033-1 | 280-147033-4 | [1]SL-DUP-001_210405 | 4/5/2021 | Grain Size |
| 280-147033-1 | 280-147033-5 | NYOW-03-PH013-B | 4/5/2021 | Grain Size |
| 280-147033-1 | 280-147033-6 | NYOW-03-SL015-A | 4/5/2021 | Grain Size |
| 280-147033-1 | 280-147033-7 | NYOW-03-PH015-B | 4/5/2021 | Grain Size |

[1]SL-DUP-001_210405 collected from NYOW-03-SL013-A

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 1.5°C, 1.8°C, 2.2°C, 3.7°C, and 4.2°C. All requested target analytes were reported. .

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field blanks were collected as part of this SDG.

One field duplicate and parent sample pair was collected and analyzed for grain size (SL-DUP-001_210405 and NYOW-03-SL013-A). The RPD must be less than 50% for each soil type. Gravel, coarse sand, medium sand, and clay did not meet the precision criteria for this field duplicate pair. Results greater than 0% are qualified as "J" as shown in the table below:

| Sample | Soil Type | Result | Qualifier |
|---|---|---|---|
| NYOW-03-SL013-A | Gravel | 11.4 | J |
| SL-DUP-001_210405 | Gravel | 4.3 | J |
| NYOW-03-SL013-A | Coarse Sand | 1.7 | J |
| SL-DUP-001_210405 | Coarse Sand | 0.8 | J |
| NYOW-03-SL013-A | Medium Sand | 4.3 | J |
| SL-DUP-001_210405 | Medium Sand | 1.4 | J |
| NYOW-03-SL013-A | Clay | 0.9 | J |
| SL-DUP-001_210405 | Clay | 1.8 | J |

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 3 May 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-147088-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the method specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-147088-1 | 280-147088-1 | NYOW-01-SL019-A | 4/6/2021 | Grain Size |
| 280-147088-1 | 280-147088-2 | [1]SL-DUP-001_210406 | 4/6/2021 | Grain Size |
| 280-147088-1 | 280-147088-3 | NYOW-01-PH019-B | 4/6/2021 | Grain Size |
| 280-147088-1 | 280-147088-4 | NYOW-01-PH019-C | 4/6/2021 | Grain Size |
| 280-147088-1 | 280-147088-5 | [2]PH-DUP-002_210406 | 4/6/2021 | Grain Size |

[1]SL-DUP-001_210406 collected from NYOW-01-SL019-A
[2]PH-DUP-002_210406 collected from NYOW-01-PH019-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Four coolers were received by the laboratory at temperatures of 1.2°C, 1.9°C, 2.8°C, and 3.3°C. All requested target analytes were reported. .

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field blanks were collected as part of this SDG.

Two field duplicate and parent sample pairs were collected and analyzed for grain size (SL-DUP-001_210406 collected from NYOW-01-SL019-A, and PH-DUP-002_210406 collected from NYOW-01-PH019-C). The RPD must be less than 50% for each soil type. Gravel and clay did not meet the precision criteria for PH-DUP-002_210406 collected from NYOW-01-PH019-C. Results greater than 0% are qualified as "J" as shown in the table below:

| Sample | Soil Type | Result | Qualifier |
|---|---|---|---|
| PH-DUP-002_210406 | Gravel | 2.6 | J |
| NYOW-01-PH019-C | Gravel | 25.9 | J |
| PH-DUP-002_210406 | Clay | 14.1 | J |
| NYOW-01-PH019-C | Clay | 5.8 | J |

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 28 April 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-147168-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the method specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-147168-1 | 280-147168-1 | NYOW-01-SL021-A | 4/7/2021 | Grain Size |
| 280-147168-1 | 280-147168-2 | NYOW-01-PH021-B | 4/7/2021 | Grain Size |
| 280-147168-1 | 280-147168-3 | NYOW-01-PH021-C | 4/7/2021 | Grain Size |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and

include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Ten coolers were received by the laboratory at temperatures of 0.6°C, 0.7°C, 0.8°C, 1.2°C, 1.3°C, 1.6°C, 2.2°C, 2.4°C, 2.9°C, and 3.7°C. All requested target analytes were reported.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No field quality control (QC) samples were submitted with this SDG. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field duplicate and parent sample pairs were collected as part of this SDG. No field blanks were collected as part of this SDG.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 3 May 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-147309-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the method specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-147309-1 | 280-147309-1 | NYOW-01-SL002-A | 4/9/2021 | Grain Size |
| 280-147309-1 | 280-147309-2 | NYOW-01-PH002-B | 4/9/2021 | Grain Size |
| 280-147309-1 | 280-147309-3 | NYOW-01-PH002-C | 4/9/2021 | Grain Size |
| 280-147309-1 | 280-147309-4 | [1]PH-DUP-001_210409 | 4/9/2021 | Grain Size |

[1]PH-DUP-001_210409 collected from NYOW-01-PH002-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and

include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Three coolers were received by the laboratory at temperatures of 0.7°C, 0.8°C, and 0.9°C. All requested target analytes were reported. .

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field blanks were collected as part of this SDG.

One field duplicate and parent sample pair was collected and analyzed for grain size (PH-DUP-001_210409 and NYOW-01-PH002-C). The RPD must be less than 50% for each soil type. All soil types met the precision criteria for the field duplicate pair.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 17 May 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-147421-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the methods specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-147421-1 | 280-147421-1 | NYOW-01-SL007-A | 4/13/2021 | Grain Size |
| 280-147421-1 | 280-147421-2 | NYOW-01-SL027-A | 4/13/2021 | Grain Size |
| 280-147421-1 | 280-147421-3 | NYOW-01-SL026-A | 4/13/2021 | Grain Size |
| 280-147421-1 | 280-147421-4 | NYOW-01-SL025-A | 4/13/2021 | Grain Size |
| 280-147421-1 | 280-147421-5 | NYOW-01-SL009-A | 4/13/2021 | Grain Size |
| 280-147421-1 | 280-147421-6 | NYOW-01-SL028-A | 4/13/2021 | Grain Size |
| 280-147421-1 | 280-147421-7 | NYOW-01-SL029-A | 4/13/2021 | Grain Size |
| 280-147421-1 | 280-147421-8 | NYOW-01-SL030-A | 4/13/2021 | Grain Size |
| 280-147421-1 | 280-147421-9 | NYOW-01-SL039-A | 4/13/2021 | Grain Size |
| 280-147421-1 | 280-147421-10 | NYOW-01-SL038-A | 4/13/2021 | Grain Size |
| 280-147421-1 | 280-147421-11 | NYOW-01-SL037-A | 4/13/2021 | Grain Size |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition. Due to a commercial shipping delay, the following samples were received at the Seattle laboratory above the required temperature criteria at 13.3ºC: NYOW-01-SL007-A, NYOW-01-SL027-A, NYOW-01-SL026-A, NYOW-01-SL025-A, NYOW-01-SL009-A, NYOW-01-SL028-A, NYOW-01-SL029-A, NYOW-01-SL030-A, NYOW-01-SL039-A, NYOW-01-SL038-A and NYOW-01-SL037-A. Water was present in the cooler, indicating evidence of melted ice. To prevent evaporation from occurring, refrigeration is

necessary; however, given the marginal temperature exceedance and the improbability of significant evaporation from soil jars maintained below room temperature, qualification of the data is not necessary.

All requested target analytes were reported.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | X | |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | | X |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No field quality control (QC) samples were submitted with this SDG. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field duplicate and parent sample pairs were collected as part of this SDG. No field blanks were collected as part of this SDG.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method with the exception of errors discussed above. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 3 September 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM Rev 1: 280-146964-1 Revision 1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) by SW-846 Method 8270D
- SVOCs with SIM by SW-846 Method 8270D
- Picric Acid by SW-846 Method 8330A (soils)
- Picric Acid by SW-846 Method 8330B (aqueous)
- Polychlorinated Biphenyls (PCBs) by SW-846 Method 8082A
- Metals by ICP SW-846 Method 6010C
- Metals by ICP-MS SW-846 Method 6020A
- Mercury (Hg) by SW-846 Method 7470A
- Hg by SW-846 Method 7471B
- Total Organic Carbon (TOC) by SW-846 Method 9060A
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG) collected 1 April 2021, laboratory and client sample identification numbers, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

## TABLE 1: SAMPLE SUMMARY

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6020A | SW7470A | SW7471B | SW8082A | SW8270D | SW8330A | SW8330B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-PH005-B | 280-146964-3 | Solid | Field Sample/N | X | X | X | X | | X | X | X | X | | X |
| NYOW-03-PH006-B | 280-146964-13 | Solid | Field Sample/N | X | X | X | X | | X | X | X | X | | |
| NYOW-03-PH007-B | 280-146964-10 | Solid | Field Sample/N | X | X | X | X | | X | X | X | X | | X |
| NYOW-03-PH016-B | 280-146964-7 | Solid | Field Sample/N | X | X | X | X | | X | X | X | X | | |
| NYOW-03-PH017-B | 280-146964-8 | Solid | Field Sample/N | | X | | | | | | | | | |
| NYOW-03-PH018-B | 280-146964-5 | Solid | Field Sample/N | | X | | | | | | | | | |
| NYOW-03-SL005-A | 280-146964-2 | Solid | Field Sample/N | X | X | X | X | | X | X | X | X | | X |
| NYOW-03-SL006-A | 280-146964-11 | Solid | Field Sample/N | X | X | X | X | | X | X | X | X | | |
| NYOW-03-SL007-A | 280-146964-9 | Solid | Field Sample/N | X | X | X | X | | X | X | X | X | | X |
| NYOW-03-SL016-A | 280-146964-6 | Solid | Field Sample/N | X | X | X | X | | X | X | X | X | | |
| PH-DUP-001_210401 | 280-146964-4 | Solid | Field Duplicate/FD | X | X | X | X | | X | X | X | X | | X |
| SL-DUP-001_210401 | 280-146964-12 | Solid | Field Duplicate/FD | X | X | X | X | | X | X | X | X | | |
| EB-01_210401 | 280-146964-14 | Water | Equipment Blank/EB | X | | X | X | X | | X | X | | X | |

Notes: PH-DUP-001_210401 collected from NYOW-03-PH005-B and SL-DUP-001_210401 collected from NYOW-03-SL006-A

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

N – The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were initially received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 1.0°C, 1.3ºC, 1.9ºC, 3.6ºC and 5.4ºC.

As a result of improper storage of the deionized water Terra Core® samplers, volatile organic compounds (VOCs) were cancelled and resampled. The VOCs are not included in the completeness calculation.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | | X |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial instrument calibrations and at the start of each sample analysis batch for SVOCs and SVOCs with SIM. The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification (ICV) results and frequencies were subject to review. Minimum

calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

SVOCs Method 8270D:

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

PCBs Method 8082A:

ICV 280-533282/10 exhibited a percent difference (%D) greater than 20% for one PCB-1016 peak at 22%. The associated sample results are qualified as “UJ”.

**CONTINUING CALIBRATION VERIFICATION**

The continuing calibration RRFs, CFs, %Ds, and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

SVOCs by Method 8270D:

CCV 680-664086/3 exhibited %Ds greater than 20% for benzaldehyde (-23.7%) and caprolactam (-28.7%). The associated aqueous sample results were non-detect and are qualified as “UJ”.

CCV 680-664585/2 exhibited a %D greater than 20% for pentachlorophenol at -20.9%. The associated soil sample results were non-detect and are qualified as “UJ”.

CCVs 680-663652/2 and 680-663652/29 exhibited %Ds greater than 20% for DNP at 21.3% and -57.6%. There are no associated investigative samples.

CCV 680-664524/2 exhibited %Ds greater than 20% for 1,4-dioxane at 27.4%, 2-nitroaniline at 20.2%, 2,4-dinitrophenol at 20.2%, 4-nitrophenol at 32.3%, and di-n-octyl phthalate at 20.1%. The associated soil sample result was non-detect and is qualified as “UJ”.

The closing CCV for analysis batch 680-664086/27 was performed 20 minutes outside of the tune window. The associated non-detect equipment blank sample result for DNCB is qualified as “UJ”.

PCBs by Method 8082A:

CCV 280-533592/29 exhibited %Ds greater than 20% for all 5 PCB 1016 peaks and for 3 of 5 PCB 1260 peaks ranging from 20.1% to 45.5% on the secondary column. The associated detected soil sample results are qualified as “J” and non-detects are qualified as “UJ”.

CCV 280-533592/30 exhibited %Ds greater than 20% for all 5 PCB 1016 peaks and for 3 of 5 PCB 1260 peaks ranging from 20.3% to 45.5% on the secondary column. The associated soil sample results were previously qualified; no further action is necessary.

CCV 280-533592/14 exhibited %Ds greater than 20% for all 5 PCB 1016 peaks ranging from 28.1% to 45.6% on the secondary column. The associated soil sample results were previously qualified; no further action is necessary.

CCV 280-533273/34 exhibited %Ds greater than 20% for 2 PCB-1016 peaks and 1 PCB-1260 peak ranging from -20.4% to -22.4% on the primary column. The associated soil sample results are qualified as “UJ”.

CCV 280-533273/45 exhibited %Ds greater than 20% for all 5 PCB 1016 peaks and for 3 of 5 PCB 1260 peaks ranging from -21% to -44.3% on the primary column. The associated soil sample results were previously qualified; no further action is necessary.

CCV 280-533273/55 exhibited %Ds greater than 20% for 3 PCB-1016 peaks ranging from -20.5% to -23% on the primary column. The associated soil sample results were previously qualified; no further action is necessary.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

**BLANK SAMPLE RESULTS**

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, continuing calibration blanks, and equipment blanks with the exceptions noted below.

SVOCs by Method 8270D:

Method blank sample 680-663747/10-A exhibited a positive detection for di-n-butyl phthalate at 44 µg/kg. The associated positive detections less than the LOQ are qualified as “U” at the LOD or LOQ.

Method blank sample 680-664082/10-A exhibited a positive detection for di-n-butyl phthalate at 105 µg/kg. The associated positive detection is less than the LOQ and is qualified as “U” at the LOD or LOQ.

Method blank sample 680-664738/15-A exhibited positive detections for bis(2-ethylhexyl)phthalate (BEHP) at 114 µg/kg and di-n-butyl phthalate at 73 µg/kg. The associated results for BEHP were non-detect; qualification is not necessary. The associated positive results for di-n-butyl phthalate less than the LOQ are qualified as “U” at the LOQ or LOQ.

SVOCs with SIM by Method 8270D:

Method blank sample 80-531849/1-A exhibited positive detections for 1-methylnaphthalene at 0.0185 µg/L and 2-methylnaphthalene at 0.0275 µg/L. The associated sample results were non-detect; qualification is not necessary.

Metals by Method 6010C:

Preparation blank sample 280-532085/1-A exhibited positive detections greater than the detection limit but less than the LOQ for manganese and zinc at 0.134 mg/kg and 0.805 mg/kg, respectively. The associated sample results were non-detect; qualification is not required.

Equipment blank sample EB-01_210401 exhibited positive detections below the LOQ for iron at 56 µg/L and barium at 1.8 µg/L. The associated soil sample results are not qualified on the basis of aqueous equipment blanks.

CCB 280-532444/96 exhibited positive detections for beryllium and manganese below their LOQs at 0.376 µg/L and 5.23 µg/L, respectively. The results for beryllium and manganese were greater than the aqueous LOQ; on the basis of professional judgment, qualification is not necessary.

CCB 280-532444/108 exhibited positive detections for beryllium, calcium, and iron below their LOQs at 0.276 µg/L, 266 µg/L and 49.2 µg/L, respectively. The results for beryllium, calcium and iron were greater than the aqueous LOQ; on the basis of professional judgment, qualification is not necessary.

CCB 280-532444/121 exhibited positive detections for aluminum, beryllium, and iron below their LOQs at 21.1 µg/L, 0.339 µg/L and 46.9 µg/L, respectively. The results for aluminum, beryllium, and iron were greater than the aqueous LOQ; on the basis of professional judgment, qualification is not necessary.

Metals by Method 6020A:

Equipment blank sample EB-01_210401 exhibited positive detections below the LOQ for cobalt at 0.23 µg/L, thallium at 0.37 µg/L, and lead at 0.21 µg/L. The associated soil sample results are not qualified on the basis of aqueous equipment blanks.

Preparation blank sample 280-532089/1-A exhibited a positive detection for thallium below the LOQ at 0.141 µg/L. The associated equipment blank sample result is qualified as “U” at the LOQ.

CCB 280-532447/42 exhibited a positive detection for thallium below the LOQ at 0.121 µg/L. The CCB did not bracket the analysis of investigative samples; qualification is not necessary.

CCBs 280-532447/96 and 280-532447/109 exhibited positive detections for thallium below the LOQ at 0.098 µg/L and 0.105 µg/L, respectively. The associated equipment blank sample result was previously qualified as non-detect; further action is not necessary.

CCB 280-532167/137 exhibited a positive detection for thallium below the LOQ at 0.137 µg/L. The associated sample results were greater than the aqueous LOQ; qualification is not necessary on the basis of professional judgment.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Sample NYOW-03-SL005-A exhibited recoveries less than the lower warning limits for base/neutral (B/N) extractable surrogates nitrobenzene-d5 (34%), 2-fluorobiphenyl (43%) and terphenyl-d14 (50%). The associated B/N sample results were non-detect and are qualified as "UJ".

Sample NYOW-03-SL006-A exhibited recoveries less than the lower warning limits for acid extractable surrogates 2-fluorophenol (22%) and phenol-d5 (25%). The associated acid extractable sample results were non-detect and are qualified as "UJ".

SVOCs with SIM by Method 8270D:

Sample NYOW-03-PH005-B did not recover for terphenyl-d14. The sample was analyzed at a 20X dilution; qualification is not necessary.

Sample NYOW-03-PH005-B exhibited a recovery greater than the upper control limit for fluoranthene-d10 at 105%. The sample was analyzed at a 20X dilution; qualification is not necessary.

Sample NYOW-03-SL007-A exhibited a recovery greater than the upper control limit for fluoranthene-d10 at 126%. The associated positive detections are qualified as "J+".

Sample NYOW-03-SL007-A exhibited a recovery greater than the upper control limit for fluoranthene-d10 at 129%. The sample was analyzed at a 40X dilution; qualification is not necessary.

Sample NYOW-03-SL007-A did not recover for nitrobenzene. The sample was analyzed at a 40X dilution; qualification is not necessary.

PCBs by Method 8082A:

Sample NYOW-03-PH007-B exhibited a retention time (RT) shift for surrogate DCB on the primary columns at -0.037 minutes. The RT shift is less than ±0.1 minutes, the surrogates recovered within control, and PCBs were not detected in the sample; qualification is not necessary.

Picric Acid by Method 8330B:

Sample EB-01_210401 exhibited a recovery less than the lower warning limit for 1,2-dinitrobenzene at 79%. The associated sample results were non-detect and are qualified as “UJ”.

**LABORATORY CONTROL SAMPLES**

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

LCS/LCSD 680-663391/9-A/10-A exhibited recoveries less than the lower warning limit for atrazine at 14% and 12%. The associated equipment blank sample result was non-detect and is qualified as “UJ”. The recoveries for nitrobenzene were greater than the upper warning limit at 122% and 130%. The associated sample results were non-detect; qualification is not necessary.

LCS 680-664082/11-A exhibited multiple recoveries less than the lower warning limit. The LCS/LCSD pair also exhibited multiple RPDs greater than the control limit as shown in the tables below. The associated soil sample results were non-detect and are qualified as “UJ”.

| | | |
|---|---|---|
| 1,2,4,5-Tetrachlorobenzene | 26.44 | 37 - 119 |
| 2,2'-Oxybis(1-chloropropane) | 25.23 | 33 - 131 |
| 2,3,4,6-Tetrachlorophenol | 32.78 | 44 - 125 |
| 2,4,5-Trichlorophenol | 31.42 | 41 - 124 |
| 2,4,6-Trichlorophenol | 31.72 | 39 - 126 |
| 2,4-Dichlorophenol | 31.87 | 40 - 122 |
| 2,4-Dinitrotoluene | 31.27 | 48 - 126 |
| 2,6-Dinitrotoluene | 31.42 | 46 - 124 |
| 2-Chloronaphthalene | 30.21 | 41 - 114 |
| 2-Chlorophenol | 29.15 | 34 - 121 |
| 2-Methylphenol (o-Cresol) | 28.70 | 32 - 122 |
| 2-Nitroaniline | 36.56 | 44 - 127 |
| 2-Nitrophenol | 28.10 | 36 - 123 |
| 3-Nitroaniline | 24.92 | 33 - 119 |
| 4-Bromophenyl phenyl ether | 33.38 | 46 - 124 |
| 4-Chloro-3-methylphenol | 34.44 | 45 - 122 |
| 4-Chlorophenyl phenyl ether | 31.57 | 45 - 121 |

| | | |
|---|---|---|
| Bis(2-ethylhexyl)phthalate | 33.53 | 51 - 133 |
| Caprolactam | 38.67 | 46 - 117 |
| Carbazole | 33.84 | 50 - 123 |
| Cresols, m- & p- | 30.06 | 34 - 119 |
| Di-n-butyl phthalate | 35.65 | 51 - 128 |
| di-n-Octyl phthalate | 35.05 | 45 - 140 |
| Dibenzofuran | 31.42 | 44 - 120 |
| Diethyl phthalate | 33.84 | 50 - 124 |
| Dimethyl phthalate | 33.53 | 48 - 124 |
| Hexachlorobenzene | 32.02 | 45 - 122 |
| Hexachlorobutadiene | 29.46 | 32 - 123 |
| Hexachlorocyclopentadiene | 23.41 | 28 - 130 |
| Hexachloroethane | 25.83 | 28 - 117 |
| N-Nitrosodi-n-propylamine | 28.70 | 36 - 120 |
| N-Nitrosodiphenylamine | 33.69 | 38 - 127 |
| Nitrobenzene | 30.82 | 34 - 122 |
| Phenol | 31.72 | 34 - 121 |

| | | |
|---|---|---|
| 4-Nitroaniline | 29.00 | 41 - 130 |
| Acetophenone | 28.70 | 33 - 115 |
| Atrazine | 40.03 | 47 - 127 |
| Benzyl butyl phthalate | 31.42 | 48 - 132 |
| Biphenyl (Diphenyl) | 30.21 | 40 - 117 |
| Bis(2-chloroethoxy)methane | 28.85 | 36 - 121 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 26.89 | 31 - 120 |

LCSD 680-663747/12-A exhibited RPDs greater than 20% for multiple analytes as shown below. The associated positive detection for carbazole in sample NYOW-03-SL007-A is qualified as “J”.

| | |
|---|---|
| 1,2,4,5-Tetrachlorobenzene | 24.79 |
| 1,4-Dioxane (p-Dioxane) | 26.16 |
| 2,2'-Oxybis(1-chloropropane) | 27.52 |
| 2,3,4,6-Tetrachlorophenol | 26.46 |
| 2,4,5-Trichlorophenol | 27.13 |
| 2,4,6-Trichlorophenol | 26.69 |
| 2,4-Dichlorophenol | 29.68 |
| 2,4-Dimethylphenol | 29.65 |
| 2,4-Dinitrotoluene | 26.38 |
| 2,6-Dinitrotoluene | 29.28 |
| 2-Chloronaphthalene | 24.54 |
| 2-Chlorophenol | 31.06 |
| 2-Methylphenol (o-Cresol) | 28.21 |
| 2-Nitrophenol | 34.24 |
| 4-Bromophenyl phenyl ether | 23.66 |
| 4-Chloro-3-methylphenol | 29.04 |

| | |
|---|---|
| Caprolactam | 27.55 |
| Carbazole | 26.47 |
| Cresols, m- & p- | 32.69 |
| Di-n-butyl phthalate | 27.56 |
| di-n-Octyl phthalate | 26.89 |
| Dibenzofuran | 24.02 |
| Diethyl phthalate | 23.46 |
| Dimethyl phthalate | 24.53 |
| Hexachlorobenzene | 27.74 |
| Hexachlorobutadiene | 30.77 |
| Hexachlorocyclopentadiene | 28.69 |
| Hexachloroethane | 27.60 |
| Isophorone | 27.89 |
| N-Nitrosodi-n-propylamine | 32.24 |
| N-Nitrosodiphenylamine | 30.94 |
| Nitrobenzene | 27.96 |
| Phenol | 29.55 |

| | |
|---|---|
| 4-Chlorophenyl phenyl ether | 29.35 |
| Acetophenone | 26.41 |
| Atrazine | 28.51 |
| Benzyl butyl phthalate | 31.44 |
| Bis(2-chloroethoxy)methane | 26.97 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 26.29 |
| Bis(2-ethylhexyl)phthalate | 30.40 |

LCSD 680-664082/12-A exhibited multiple RPDs greater than 20% as shown in the table below. The associated sample results were non-detect; qualification is not necessary.

| | |
|---|---|
| 2,4-Dinitrophenol | 84 |
| 4,6-Dinitro-2-methylphenol | 74 |
| 4-Nitrophenol | 78 |
| Pentachlorophenol | 81 |
| 1,2,4,5-Tetrachlorobenzene | 68.42 |
| 2,2'-Oxybis(1-chloropropane) | 52.54 |
| 2,3,4,6-Tetrachlorophenol | 77.92 |

| | |
|---|---|
| 2,4,5-Trichlorophenol | 65.15 |
| 2,4,6-Trichlorophenol | 67.72 |
| 2,4-Dichlorophenol | 61.87 |
| 2,4-Dimethylphenol | 57.70 |
| 2,4-Dinitrotoluene | 81.21 |
| 2,6-Dinitrotoluene | 74.51 |
| 2-Chloronaphthalene | 62.54 |

| | |
|---|---|
| 2-Chlorophenol | 50.10 |
| 2-Methylphenol (o-Cresol) | 54.68 |
| 2-Nitrophenol | 61.19 |
| 4-Bromophenyl phenyl ether | 67.66 |
| 4-Chloro-3-methylphenol | 70.64 |
| 4-Chlorophenyl phenyl ether | 70.59 |
| Acetophenone | 55.79 |

| | |
|---|---|
| Atrazine | 60.34 |
| Benzyl butyl phthalate | 80.63 |
| Bis(2-chloroethoxy)methane | 58.26 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 42.48 |
| Bis(2-ethylhexyl)phthalate | 75.11 |
| Caprolactam | 72.95 |
| Carbazole | 69.58 |
| Cresols, m- & p- | 50.94 |
| Di-n-butyl phthalate | 70.33 |
| di-n-Octyl phthalate | 73.74 |

| | |
|---|---|
| Dibenzofuran | 68.56 |
| Diethyl phthalate | 69.01 |
| Dimethyl phthalate | 68.83 |
| Hexachlorobenzene | 72.29 |
| Hexachlorobutadiene | 57.14 |
| Hexachloroethane | 53.53 |
| Isophorone | 67.77 |
| N-Nitrosodi-n-propylamine | 55.79 |
| N-Nitrosodiphenylamine | 66.87 |
| Nitrobenzene | 57.09 |

| | |
|---|---|
| Phenol | 44.73 |
| 1,4-Dioxane (p-Dioxane) | 48 |
| Benzaldehyde | 52 |
| Hexachlorocyclopentadiene | 72 |
| 3,3'-Dichlorobenzidine | 76 |

LCSD 680-664738/17-A exhibited RPDs greater than 20% for multiple analytes as shown in the table below. The associated sample results were non-detect; qualification is not necessary.

| | |
|---|---|
| 1,2,4,5-Tetrachlorobenzene | 20.60 |
| 2,2'-Oxybis(1-chloropropane) | 24.93 |
| 2,3,4,6-Tetrachlorophenol | 29.97 |
| 2,4,5-Trichlorophenol | 25.29 |
| 2,4,6-Trichlorophenol | 23.81 |
| 2,4-Dichlorophenol | 21.92 |
| 2,4-Dinitrophenol | 29.51 |
| 2,4-Dinitrotoluene | 26.19 |
| 2,6-Dinitrotoluene | 29.88 |

| | |
|---|---|
| Dimethyl phthalate | 25.98 |
| Hexachlorobenzene | 25.76 |
| Hexachlorobutadiene | 22.46 |
| Hexachlorocyclopentadiene | 23.58 |
| Hexachloroethane | 23.13 |
| Isophorone | 24.68 |
| N-Nitrosodi-n-propylamine | 25.70 |
| N-Nitrosodiphenylamine | 26.57 |
| Nitrobenzene | 20.17 |
| Pentachlorophenol | 24.79 |
| Phenol | 25.11 |

| | |
|---|---|
| 2-Chloronaphthalene | 24.92 |
| 2-Chlorophenol | 23.31 |
| 2-Methylphenol (o-Cresol) | 27.85 |
| 2-Nitrophenol | 21.44 |
| 4,6-Dinitro-2-methylphenol | 24.56 |
| 4-Bromophenyl phenyl ether | 24.86 |
| 4-Chloro-3-methylphenol | 27.57 |
| 4-Chloroaniline | 23.83 |
| 4-Chlorophenyl phenyl ether | 26.55 |
| 4-Nitrophenol | 24.26 |
| Acetophenone | 21.74 |
| Atrazine | 24.76 |

| | |
|---|---|
| Benzaldehyde | 22.54 |
| Benzyl butyl phthalate | 26.38 |
| Bis(2-chloroethoxy)methane | 21.62 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 22.80 |
| Bis(2-ethylhexyl)phthalate | 28.52 |
| Caprolactam | 25.43 |
| Carbazole | 23.55 |
| Cresols, m- & p- | 28.57 |
| Di-n-butyl phthalate | 25.15 |
| di-n-Octyl phthalate | 27.95 |
| Dibenzofuran | 24.92 |
| Diethyl phthalate | 26.49 |

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

MS/SD sample NYOW-03-SL005-A exhibited recoveries less than the lower warning limits for multiple analytes as shown below. The associated sample results were non-detect and are qualified as "UJ".

| Analyte | MS Recovery | SD Recovery |
|---|---|---|
| 2,4-Dinitrotoluene | 42 | 45 |
| 2-Nitroaniline | 43 | -- |
| Atrazine | 40 | 42 |
| Benzyl butyl phthalate | 45 | -- |
| Bis(2-ethylhexyl)phthalate | 46 | -- |
| Caprolactam | 41 | -- |
| Carbazole | 47 | -- |
| Di-n-butyl phthalate | 47 | -- |
| Diethyl phthalate | 46 | -- |
| Dimethyl phthalate | 47 | -- |
| N-Nitrosodi-n-propylamine | 35 | -- |

MS/SD sample NYOW-03-SL006 exhibited an RPD greater than 20% for DNCB at 22%. The associated sample result was non-detect; qualification is not required.

SVOCs with SIM by Method 8270D:

MS/SD sample NYOW-03-PH005-B exhibited recoveries less than the lower control limit for benzo(a)anthracene (16%, -80%), benzo(a)pyrene (-346%, -929%), benzo(b)fluoranthene (-369%, 1291%), benzo(g,h,i)perylene (-224%, -531%), benzo(k)fluoranthene (-228%, -571%), chrysene (-218%, -499%), dibenz(a,h)anthracene (-37%, -155%), and indeno(1,2,3-cd)pyrene (-403%, -763%) at a 20X dilution. The sample concentrations were greater than 4X the spiked amount with the exception of dibenz(a,h)anthracene. In addition, the MS/SD RPDs were greater

than 40% for benzo(a)pyrene (44%), benzo(b)fluoranthene (47%), and benzo(k)fluoranthene (41%),The associated detection for dibenz(a,h)anthracene is qualified as “J-“.

MS/SD sample NYOW-03-PH005-B exhibited recoveries less than the lower control limit for anthracene (33%), fluoranthene (-13%, -66%), phenanthrene (36%, 32%), and pyrene (6%, -81%) at a 1X dilution. The associated positive detections are qualified as “J-“.

Picric Acid by Method 8330A:

MS/SD sample NYOW-03-PH016-B exhibited recoveries less than 50% at 25% and 26%, respectively. The associated sample result was non-detect and is qualified as “UJ”.

Metals by Method 6010C:

MS/SD sample NYOW-03-SL005-A exhibited recoveries outside of control limits for aluminum (607%, 608%), calcium (-1801%, -1910%), iron (379%, 451%), manganese (36%), and potassium (118%). The sample concentrations were greater than 4X the spiked amount for aluminum, calcium, iron, and manganese. The positive detection for potassium is qualified as “J+”.

## DUAL COLUMN IMPRECISION

All positive detections for dual column methods had RPDs less than 40%.

## POST-DIGESTION SPIKE

Metals by Method 6010C:

A post-digestion spike (PDS) was performed for MS/SD sample NYOW-03-SL005-A. Aluminum (-1%), calcium (-10%), iron (-67%), and manganese (-32%) recovered below the lower control limit. The aluminum, calcium, iron, and manganese concentrations were greater than 4X the spiked amount in the MS. Silver recovered below the lower control limit at 75%. The MS/SD recoveries for silver were within warning limits. Therefore, the post-digestion spike was not used to evaluate these MS/SD recovery failures.

## ICP SERIAL DILUTION

Metals by Method 6010C:

An ICP serial dilution was performed for sample NYOW-03-SL005-A. The %Ds were greater than the control limit for calcium (14%), magnesium (11%), and manganese (15%). The associated sample results are qualified as “J”.

## LOW-LEVEL CHECK STANDARD

Low-level check standards (CCVL) for methods 6010C and 6020A were performed using the low-level CCV standard. All recoveries were within the control limits with the exceptions noted below.

Metals by Method 6010C:

CCVL 280-532444/109 exhibited a recovery greater than the upper control limit for calcium at 124%. The associated sample results were greater than ICV and CCV concentrations; qualification is not necessary.

CCVL 280-532444/122 exhibited a recovery greater than the upper control limit for iron at 126%. The associated sample results were greater than ICV and CCV concentrations; qualification is not necessary.

**INTERFERENCE CHECK SAMPLES**

Interference check samples A and AB recoveries were evaluated and met the acceptance criteria.

Metals by Method 6010C:

The Interference Check Solution A (ICSA) associated with batch 280-532444 had barium present above the LOD at 12.45 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium (2 µg/L); qualification is not necessary.

The ICSA associated with batch 280-532171 had barium present above the LOD at 12 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium (2 µg/L); qualification is not necessary.

Metals by Method 6020A:

The ICSA associated with batch 280-532447 had cobalt present above the LOD at 0.439 µg/L. The ICS vendor has noted that cobalt is a trace impurity in the ICSA with a trace concentration of 3 µg/L; qualification is not necessary.

**COMMENTS**

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

The VOC soil samples were cancelled prior to analysis; however, the laboratory data package contains VOC results for the trip blank and equipment blank samples. The results were not validated.

There was insufficient sample volume to perform a MS/SD associated with aqueous SVOC sample batch 680-663391. An LCS and LCSD were performed.

There was insufficient sample volume to perform a MS/SD associated with aqueous SVOC SIM sample batch 280-531849. An LCS and LCSD were performed.

There was insufficient sample volume to perform a MS/SD associated with aqueous PCB sample batch 280-531871. An LCS and LCSD were performed.

There was insufficient sample volume to perform a MS/SD associated with aqueous picric acid sample batch 280-531661. An LCS and LCSD were performed.

Two field duplicate and parent sample pairs were collected and analyzed for all parameters (PH-DUP-001_210401 collected from NYOW-03-PH005-B and SL-DUP-001_210401 collected from NYOW-03-SL006-A). The RPD must be less than 50% when at least one result is greater than the LOQ. For percent solids, the RPD must be less than 20%. The following analytes did not meet the precision criteria:

- PH-DUP-001_210401 collected from NYOW-03-PH005-B:

| Analyte | Parent Result | Parent LOQ | Duplicate Result | Duplicate LOQ | RPD | Qualifier |
|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | 18 | 12 | ND | 12 | NA | J |
| 2-Methylnaphthalene | 16 | 12 | ND | 12 | NA | J |
| Acenaphthylene | 40 | 12 | ND | 12 | NA | J |
| Anthracene | 65 | 12 | ND | 12 | NA | J |
| Benzo(a)anthracene | 430 | 240 | ND | 12 | NA | J |
| Benzo(a)pyrene | 1300 | 240 | ND | 12 | NA | J |
| Benzo(b)fluoranthene | 1900 | 240 | ND | 12 | NA | J |
| Benzo(g,h,i)perylene | 820 | 240 | ND | 12 | NA | J |
| Benzo(k)fluoranthene | 840 | 240 | ND | 12 | NA | J |
| Chrysene | 1200 | 240 | ND | 12 | NA | J |
| Dibenz(a,h)anthracene | 290 | 240 | ND | 12 | NA | J |
| Fluoranthene | 190 | 12 | ND | 12 | NA | J |
| Indeno(1,2,3-cd)pyrene | 1000 | 240 | ND | 12 | NA | J |
| Phenanthrene | 50 | 12 | ND | 12 | NA | J |
| Pyrene | 260 | 12 | ND | 12 | NA | J |
| Calcium | 10000 | 95 | 4300 | 110 | 80 | J |
| Manganese | 150 | 4.3 | 270 | 4.8 | 57 | J |

- SL-DUP-001_210401 collected from NYOW-03-SL006-A:

| Analyte | Parent Result | Parent LOQ | Duplicate Result | Duplicate LOQ | RPD | Qualifier |
|---|---|---|---|---|---|---|
| Benzo(a)anthracene | 17 | 12 | 53 | 14 | 103 | J |
| Benzo(a)pyrene | 24 | 12 | 51 | 14 | 72 | J |
| Benzo(b)fluoranthene | 36 | 12 | 67 | 14 | 60 | J |
| Benzo(g,h,i)perylene | 16 | 12 | 27 | 14 | 51 | J |
| Benzo(k)fluoranthene | 11 | 12 | 26 | 14 | 81 | J |
| Chrysene | 24 | 12 | 50 | 14 | 70 | J |

| Analyte | Parent Result | Parent LOQ | Duplicate Result | Duplicate LOQ | RPD | Qualifier |
|---|---|---|---|---|---|---|
| Fluoranthene | 34 | 12 | 83 | 14 | 84 | J |
| Indeno(1,2,3-cd)pyrene | 17 | 12 | 34 | 14 | 67 | J |
| Pyrene | 31 | 12 | 76 | 14 | 84 | J |
| Calcium | 1400 | 110 | 13000 | 140 | 161 | J |
| Magnesium | 2000 | 32 | 7100 | 41 | 112 | J |
| Cadmium | 0.18 | 0.09 | 0.52 | 0.15 | 97 | J |
| % Solids | 78.8 | 0.1 | 64.4 | 0.1 | 20.11 | J |

The following samples were air dried and sieved in accordance with the procedure; however, the samples contained rocks, vegetation, and a small piece of glass that would not pass through the sieve: NYOW-03-SL005-A, NYOW-03-PH005-B, PH-DUP-001_210401, NYOW-03-SL016-A, NYOW-03-PH016-B, NYOW-03-SL007-A, NYOW-03-PH007-B, NYOW-03-SL006-A, SL-DUP-001_210401, and NYOW-03-PH006-B. The material was removed and not extracted.

The following samples required a sulfuric acid clean-up, via EPA Method 3665A, to reduce matrix interferences prior to PCB analysis: NYOW-03-SL005-A, NYOW-03-PH005-B, PH-DUP-001_210401, NYOW-03-SL016-A, NYOW-03-PH016-B, NYOW-03-SL007-A, NYOW-03-PH007-B, NYOW-03-SL006-A, SL-DUP-001_210401, NYOW-03-PH006-B, associated with preparation batch 280-531464 and analytical batch 280-533273.

The following samples required a sulfuric acid clean-up, via EPA Method 3665A, to reduce matrix interferences: EB-01_210401 associated with preparation batch 280-531871 and analytical batch 280-533282. Equipment blank extracts undergo cleanup when the associated sample extracts are treated with sulfuric acid to facilitate comparison of the analytical results. Method requirements indicate that blanks must be subjected to the same cleanup as the associated samples.

The following sample appears to contain PCBs based on the chromatogram; however, due to weathering or other environmental processes, the PCBs in the sample do not closely match any of the laboratory's Aroclor standards used for instrument calibration: NYOW-03-PH005-B. The sample has been quantified and reported as PCB-1260 and the result is qualified as “NJ”.

The following sample required a mercury clean-up, via EPA Method 3660A, to reduce matrix interferences caused by sulfur: NYOW-03-PH005-B.

LOQs were greater than Project Quantitation Limit Goals (PQLGs) for SVOC with SIM analysis of two soil samples due to sample dilution. Several metal analytes (antimony, arsenic, selenium, thallium, mercury) had LOQs greater than PQLGs due to percent moisture adjustments. Several Aroclors and SVOCs had LOQs greater than PQLGs due to percent moisture adjustments.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210401 | 280-146964-14 | SW6020A | Thallium | 7440-28-0 | ug/L | 1.00 | | U | L/B2 |
| EB-01_210401 | 280-146964-14 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/L | 0.410 | | UJ | V1 |
| EB-01_210401 | 280-146964-14 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 9.60 | | UJ | Z6 |
| EB-01_210401 | 280-146964-14 | SW8270D | Atrazine | 1912-24-9 | ug/L | 1.90 | | UJ | C |
| EB-01_210401 | 280-146964-14 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 1.90 | | UJ | V2 |
| EB-01_210401 | 280-146964-14 | SW8270D | Caprolactam | 105-60-2 | ug/L | 1.90 | | UJ | V2 |
| EB-01_210401 | 280-146964-14 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.130 | | UJ | I |
| NYOW-03-PH005-B | 280-146964-3 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 40.0 | | J | D3 |
| NYOW-03-PH005-B | 280-146964-3 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 65.0 | - | J | D3/M |
| NYOW-03-PH005-B | 280-146964-3 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 430 | | J | D3 |
| NYOW-03-PH005-B | 280-146964-3 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 1300 | | J | D3/D |
| NYOW-03-PH005-B | 280-146964-3 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 1900 | | J | D3/D |
| NYOW-03-PH005-B | 280-146964-3 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 820 | | J | D3 |
| NYOW-03-PH005-B | 280-146964-3 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 840 | | J | D3/D |
| NYOW-03-PH005-B | 280-146964-3 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 1200 | | J | D3 |
| NYOW-03-PH005-B | 280-146964-3 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 290 | - | J | D3/M |
| NYOW-03-PH005-B | 280-146964-3 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 190 | - | J | D3/M |
| NYOW-03-PH005-B | 280-146964-3 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 1000 | | J | D3 |
| NYOW-03-PH005-B | 280-146964-3 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 18.0 | | J | D3 |
| NYOW-03-PH005-B | 280-146964-3 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/kg | 16.0 | | J | D3 |
| NYOW-03-PH005-B | 280-146964-3 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 7.30 | | J | TR |
| NYOW-03-PH005-B | 280-146964-3 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 50.0 | - | J | D3/M |
| NYOW-03-PH005-B | 280-146964-3 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 260 | - | J | D3/M |
| NYOW-03-PH005-B | 280-146964-3 | SW6010C | Calcium | 7440-70-2 | mg/kg | 10000 | | J | D3/A |
| NYOW-03-PH005-B | 280-146964-3 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 1400 | | J | A |
| NYOW-03-PH005-B | 280-146964-3 | SW6010C | Manganese | 7439-96-5 | mg/kg | 150 | | J | D3/A |
| NYOW-03-PH005-B | 280-146964-3 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 40.0 | | UJ | V2 |
| NYOW-03-PH005-B | 280-146964-3 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 11.0 | | NJ | TR/F1/V2 |
| NYOW-03-PH005-B | 280-146964-3 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 87.0 | | U | L |
| NYOW-03-PH005-B | 280-146964-3 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 870 | | UJ | V2 |
| NYOW-03-PH006-B | 280-146964-13 | SW6010C | Calcium | 7440-70-2 | mg/kg | 4800 | | J | A |
| NYOW-03-PH006-B | 280-146964-13 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 2900 | | J | A |
| NYOW-03-PH006-B | 280-146964-13 | SW6010C | Manganese | 7439-96-5 | mg/kg | 500 | | J | A |
| NYOW-03-PH006-B | 280-146964-13 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 40.0 | | UJ | V2 |
| NYOW-03-PH006-B | 280-146964-13 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 8.60 | | UJ | V2 |
| NYOW-03-PH006-B | 280-146964-13 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 84.0 | | U | L |
| NYOW-03-PH006-B | 280-146964-13 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 840 | | UJ | V2 |
| NYOW-03-PH007-B | 280-146964-10 | SW6010C | Calcium | 7440-70-2 | mg/kg | 60000 | | J | A |
| NYOW-03-PH007-B | 280-146964-10 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 16000 | | J | A |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-PH007-B | 280-146964-10 | SW6010C | Manganese | 7439-96-5 | mg/kg | 520 | | J | A |
| NYOW-03-PH007-B | 280-146964-10 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 38.0 | | UJ | V2 |
| NYOW-03-PH007-B | 280-146964-10 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 8.30 | | UJ | V2 |
| NYOW-03-PH007-B | 280-146964-10 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 410 | | U | L |
| NYOW-03-PH007-B | 280-146964-10 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 830 | | UJ | V2 |
| NYOW-03-PH016-B | 280-146964-7 | SW6010C | Calcium | 7440-70-2 | mg/kg | 2200 | | J | A |
| NYOW-03-PH016-B | 280-146964-7 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 1400 | | J | A |
| NYOW-03-PH016-B | 280-146964-7 | SW6010C | Manganese | 7439-96-5 | mg/kg | 210 | | J | A |
| NYOW-03-PH016-B | 280-146964-7 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 37.0 | | UJ | V2 |
| NYOW-03-PH016-B | 280-146964-7 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 8.10 | | UJ | V2 |
| NYOW-03-PH016-B | 280-146964-7 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 82.0 | | U | L |
| NYOW-03-PH016-B | 280-146964-7 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 820 | | UJ | V2 |
| NYOW-03-PH016-B | 280-146964-7 | SW8330A | Picric acid | 88-89-1 | ug/kg | 160 | | UJ | M |
| NYOW-03-SL005-A | 280-146964-2 | SW6010C | Calcium | 7440-70-2 | mg/kg | 110000 | | J | A |
| NYOW-03-SL005-A | 280-146964-2 | SW6010C | Potassium | 7440-09-7 | mg/kg | 750 | + | J | M |
| NYOW-03-SL005-A | 280-146964-2 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 3300 | | J | A |
| NYOW-03-SL005-A | 280-146964-2 | SW6010C | Manganese | 7439-96-5 | mg/kg | 480 | | J | A |
| NYOW-03-SL005-A | 280-146964-2 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 38.0 | | UJ | V2 |
| NYOW-03-SL005-A | 280-146964-2 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 8.20 | | UJ | V2 |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 410 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 83.0 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 83.0 | | UJ | M/I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 83.0 | | UJ | M/I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 83.0 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 410 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl | 111-44-4 | ug/kg | 100 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 83.0 | | UJ | M/I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 83.0 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 210 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 83.0 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 210 | | UJ | M/I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Carbazole | 86-74-8 | ug/kg | 83.0 | | UJ | M/I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 100 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 83.0 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 83.0 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 83.0 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 83.0 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 83.0 | | UJ | M/I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 410 | | UJ | I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 83.0 | | UJ | M/I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 83.0 | | UJ | L/M/I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 83.0 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 100 | | UJ | M/I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 83.0 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 83.0 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 83.0 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 83.0 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 83.0 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Isophorone | 78-59-1 | ug/kg | 83.0 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 83.0 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 83.0 | | UJ | M/I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 210 | | UJ | M/I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 100 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 100 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 83.0 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 83.0 | | UJ | I |
| NYOW-03-SL005-A | 280-146964-2 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 830 | | UJ | V2 |
| NYOW-03-SL006-A | 280-146964-11 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 17.0 | | J | D3 |
| NYOW-03-SL006-A | 280-146964-11 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 24.0 | | J | D3 |
| NYOW-03-SL006-A | 280-146964-11 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 36.0 | | J | D3 |
| NYOW-03-SL006-A | 280-146964-11 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 16.0 | | J | D3 |
| NYOW-03-SL006-A | 280-146964-11 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 11.0 | | J | D3/TR |
| NYOW-03-SL006-A | 280-146964-11 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 24.0 | | J | D3 |
| NYOW-03-SL006-A | 280-146964-11 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 34.0 | | J | D3 |
| NYOW-03-SL006-A | 280-146964-11 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 17.0 | | J | D3 |
| NYOW-03-SL006-A | 280-146964-11 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 31.0 | | J | D3 |
| NYOW-03-SL006-A | 280-146964-11 | D2216 | Solids | | PERCENT | 78.8 | | J | D3 |
| NYOW-03-SL006-A | 280-146964-11 | SW6010C | Calcium | 7440-70-2 | mg/kg | 1400 | | J | D3/A |
| NYOW-03-SL006-A | 280-146964-11 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 2000 | | J | D3/A |
| NYOW-03-SL006-A | 280-146964-11 | SW6010C | Manganese | 7439-96-5 | mg/kg | 440 | | J | A |
| NYOW-03-SL006-A | 280-146964-11 | SW6020A | Cadmium | 7440-43-9 | mg/kg | 0.180 | | J | D3 |
| NYOW-03-SL006-A | 280-146964-11 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 36.0 | | UJ | V2 |
| NYOW-03-SL006-A | 280-146964-11 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 7.80 | | UJ | V2 |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 400 | | UJ | C |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl | 111-44-4 | ug/kg | 100 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 82.0 | | UJ | C/I |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 210 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Carbazole | 86-74-8 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 82.0 | | UJ | C/I |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/kg | 82.0 | | UJ | C/I |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 400 | | UJ | V2 |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 82.0 | | UJ | I |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/kg | 400 | | UJ | I |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 400 | | UJ | L/C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 82.0 | | UJ | C/V2 |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1600 | | UJ | I/V2 |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 100 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Cresols, m- & p- | | ug/kg | 82.0 | | UJ | C/I |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/kg | 82.0 | | UJ | C/I |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 210 | | UJ | C/V2 |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 100 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 100 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/kg | 82.0 | | UJ | C/I |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 820 | | UJ | I/V2 |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 82.0 | | UJ | C |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 820 | | UJ | I |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | Phenol | 108-95-2 | ug/kg | 82.0 | | UJ | C/I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 100 | | UJ | C/I |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/kg | 82.0 | | UJ | C/I |
| NYOW-03-SL006-A | 280-146964-11 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/kg | 82.0 | | UJ | C/I |
| NYOW-03-SL007-A | 280-146964-9 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 29.0 | + | J | I |
| NYOW-03-SL007-A | 280-146964-9 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 350 | + | J | I |
| NYOW-03-SL007-A | 280-146964-9 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 350 | + | J | I |
| NYOW-03-SL007-A | 280-146964-9 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 120 | + | J | I |
| NYOW-03-SL007-A | 280-146964-9 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 26.0 | + | J | I |
| NYOW-03-SL007-A | 280-146964-9 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/kg | 31.0 | + | J | I |
| NYOW-03-SL007-A | 280-146964-9 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 54.0 | + | J | I |
| NYOW-03-SL007-A | 280-146964-9 | SW6010C | Calcium | 7440-70-2 | mg/kg | 18000 | | J | A |
| NYOW-03-SL007-A | 280-146964-9 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 6200 | | J | A |
| NYOW-03-SL007-A | 280-146964-9 | SW6010C | Manganese | 7439-96-5 | mg/kg | 480 | | J | A |
| NYOW-03-SL007-A | 280-146964-9 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 36.0 | | UJ | V2 |
| NYOW-03-SL007-A | 280-146964-9 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 7.70 | | UJ | V2 |
| NYOW-03-SL007-A | 280-146964-9 | SW8270D | Carbazole | 86-74-8 | ug/kg | 45.0 | | J | Z/TR |
| NYOW-03-SL007-A | 280-146964-9 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 79.0 | | U | L |
| NYOW-03-SL007-A | 280-146964-9 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 790 | | UJ | V2 |
| NYOW-03-SL016-A | 280-146964-6 | SW6010C | Calcium | 7440-70-2 | mg/kg | 32000 | | J | A |
| NYOW-03-SL016-A | 280-146964-6 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 9200 | | J | A |
| NYOW-03-SL016-A | 280-146964-6 | SW6010C | Manganese | 7439-96-5 | mg/kg | 560 | | J | A |
| NYOW-03-SL016-A | 280-146964-6 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 35.0 | | UJ | V2 |
| NYOW-03-SL016-A | 280-146964-6 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 7.60 | | UJ | V2 |
| NYOW-03-SL016-A | 280-146964-6 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 76.0 | | U | L |
| NYOW-03-SL016-A | 280-146964-6 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 760 | | UJ | V2 |
| PH-DUP-001_210401 | 280-146964-4 | SW6010C | Calcium | 7440-70-2 | mg/kg | 4300 | | J | D3/A |
| PH-DUP-001_210401 | 280-146964-4 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 1800 | | J | A |
| PH-DUP-001_210401 | 280-146964-4 | SW6010C | Manganese | 7439-96-5 | mg/kg | 270 | | J | D3/A |
| PH-DUP-001_210401 | 280-146964-4 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 37.0 | | UJ | V2 |
| PH-DUP-001_210401 | 280-146964-4 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 8.00 | | UJ | V2 |
| PH-DUP-001_210401 | 280-146964-4 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 86.0 | | U | L |
| PH-DUP-001_210401 | 280-146964-4 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 860 | | UJ | V2 |
| SL-DUP-001_210401 | 280-146964-12 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 53.0 | | J | D3 |
| SL-DUP-001_210401 | 280-146964-12 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 51.0 | | J | D3 |
| SL-DUP-001_210401 | 280-146964-12 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 67.0 | | J | D3 |
| SL-DUP-001_210401 | 280-146964-12 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 27.0 | | J | D3 |
| SL-DUP-001_210401 | 280-146964-12 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 26.0 | | J | D3 |
| SL-DUP-001_210401 | 280-146964-12 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 50.0 | | J | D3 |
| SL-DUP-001_210401 | 280-146964-12 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 83.0 | | J | D3 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| SL-DUP-001_210401 | 280-146964-12 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 34.0 | | J | D3 |
| SL-DUP-001_210401 | 280-146964-12 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 76.0 | | J | D3 |
| SL-DUP-001_210401 | 280-146964-12 | D2216 | Solids | | PERCENT | 64.4 | | J | D3 |
| SL-DUP-001_210401 | 280-146964-12 | SW6010C | Calcium | 7440-70-2 | mg/kg | 13000 | | J | D3/A |
| SL-DUP-001_210401 | 280-146964-12 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 7100 | | J | D3/A |
| SL-DUP-001_210401 | 280-146964-12 | SW6010C | Manganese | 7439-96-5 | mg/kg | 660 | | J | A |
| SL-DUP-001_210401 | 280-146964-12 | SW6020A | Cadmium | 7440-43-9 | mg/kg | 0.520 | | J | D3 |
| SL-DUP-001_210401 | 280-146964-12 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 43.0 | | UJ | V2 |
| SL-DUP-001_210401 | 280-146964-12 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 9.40 | | UJ | V2 |
| SL-DUP-001_210401 | 280-146964-12 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 100 | | U | L |
| SL-DUP-001_210401 | 280-146964-12 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 1000 | | UJ | V2 |

Reason Code Definitions

| | | | |
|---|---|---|---|
| A | Serial Dilution | V1 | ICV |
| I | Surrogate Recovery | Z | LCS RPD |
| C | LCS Recovery | Z6 | 12-Hour Tune |
| V2 | CCV | TR | Trace Detect |
| D3 | FD RPD | L | Lab Blank |
| M | MS Recovery | F1 | Pattern does not match standard |
| D | MS/SD RPD | B2 | CCB |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 20 July 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM: 280-146929-1 Revision 1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in March 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Volatile Organic Compounds (VOCs) by SW-846 Method 8260C
- Semi-Volatile Organic Compounds (SVOCs) by SW-846 Method 8270D
- SVOCs with SIM by SW-846 Method 8270D
- Picric Acid by SW-846 Method 8330A (soils)
- Picric Acid by SW-846 Method 8330B (aqueous)
- Polychlorinated Biphenyls (PCBs) by SW-846 Method 8082A
- Metals by ICP SW-846 Method 6010C
- Metals by ICP-MS SW-846 Method 6020A
- Mercury (Hg) by SW-846 Method 7470A
- Hg by SW-846 Method 7471B
- Total Organic Carbon (TOC) by SW-846 Method 9060A
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG) collected 31 March 2021, laboratory and client sample identification numbers, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

## TABLE 1: SAMPLE SUMMARY

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6020A | SW7470A | SW7471B | SW8082A | SW8260C | SW8270D | SW8330A | SW8330B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-PH001-B | 280-146929-6 | Solid | Field Sample/N | X | X | X | X | | X | | | X | X | | X |
| NYOW-03-PH001-B | 280-146994-3 | Solid | Field Sample/N | | | | | | | | X | | | | |
| NYOW-03-PH002-B | 280-146929-8 | Solid | Field Sample/N | X | X | X | X | | X | | | X | X | | |
| NYOW-03-PH002-B | 280-146994-4 | Solid | Field Sample/N | | | | | | | | X | | | | |
| NYOW-03-PH003-B | 280-146929-4 | Solid | Field Sample/N | X | X | X | X | | X | | | X | X | | X |
| NYOW-03-PH003-B | 280-146994-2 | Solid | Field Sample/N | | | | | | | | X | | | | |
| NYOW-03-PH004-B | 280-146929-2 | Solid | Field Sample/N | X | X | X | X | | X | | | X | X | | |
| NYOW-03-PH004-B | 280-146994-1 | Solid | Field Sample/N | | | | | | | | X | | | | |
| NYOW-03-PH010-B | 280-146929-10 | Solid | Field Sample/N | X | X | X | X | | X | X | | X | X | | |
| NYOW-03-PH010-B | 280-146994-5 | Solid | Field Sample/N | | | | | | | | X | | | | |
| NYOW-03-PH011-B | 280-146929-12 | Solid | Field Sample/N | X | X | X | X | | X | X | | X | X | | X |
| NYOW-03-PH011-B | 280-146994-6 | Solid | Field Sample/N | | | | | | | | X | | | | |
| NYOW-03-PH012-B | 280-146929-14 | Solid | Field Sample/N | X | X | X | X | | X | X | | X | X | | |
| NYOW-03-PH012-B | 280-146994-8 | Solid | Field Sample/N | | | | | | | | X | | | | |
| NYOW-03-SL001-A | 280-146929-5 | Solid | Field Sample/N | X | X | X | X | | X | | | X | X | | X |
| NYOW-03-SL002-A | 280-146929-7 | Solid | Field Sample/N | X | X | X | X | | X | | | X | X | | |
| NYOW-03-SL003-A | 280-146929-3 | Solid | Field Sample/N | X | X | X | X | | X | | | X | X | | X |
| NYOW-03-SL004-A | 280-146929-1 | Solid | Field Sample/N | X | X | X | X | | X | | | X | X | | |
| NYOW-03-SL010-A | 280-146929-9 | Solid | Field Sample/N | X | X | X | X | | X | X | | X | X | | |
| NYOW-03-SL011-A | 280-146929-11 | Solid | Field Sample/N | X | X | X | X | | X | X | | X | X | | X |
| NYOW-03-SL012-A | 280-146994-7 | Solid | Field Sample/N | X | X | X | X | | X | X | | X | X | | |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6020A | SW7470A | SW7471B | SW8082A | SW8260C | SW8270D | SW8330A | SW8330B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210331 | 280-146929-15 | Solid | Field Duplicate/FD | X | X | X | X | | X | X | | X | X | | |
| PH-DUP-001_210331 | 280-146994-9 | Solid | Field Duplicate/FD | | | | | | | | X | | | | |
| EB-01_210331 | 280-146929-16 | Water | Equipment Blank/EB | X | | X | X | X | | X | | X | | X | |
| EB-01_210331 | 280-146994-10 | Water | Equipment Blank/EB | | | | | | | | X | | | | |
| TB-01_210331 | 280-146994-11 | Water | Trip Blank/TB | | | | | | | | X | | | | |

Notes: PH-DUP-001_210331 collected from NYOW-03-PH012-B

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were initially received in good condition, properly preserved on ice. Four coolers were received by the laboratory at temperatures of 1.7ºC, 2.8ºC, 2.9ºC and 5.9ºC.

The majority of the containers were received with the first FedEx receipt at 10:15am; however, the containers for the following samples were received in a second receipt which occurred at 14:35pm on the same day: NYOW-03-SL010-A, NYOW-03-PH010-B, NYOW-03-SL011-A, NYOW-03-PH011-B, NYOW-03-PH012-B and EB-01_210331. Due to a LIMS limitation, only one receipt time is allowed for each login; therefore, the receipt time of 10:15am was applied to all samples.

The containers for the following samples were received on 4/2/2021 at 10:50am, logged in under 280-146994-1 and reported under 280-146929-1: NYOW-03-SL012-A and TB-01_210331. Containers for VOC analysis were not initially received for the following samples: NYOW-03-PH004-B, NYOW-03-PH003-B, NYOW-03-PH001-B, NYOW-03-PH002-B, NYOW-03-PH010-B, NYOW-03-PH011-B, NYOW-03-PH012-B, PH-DUP-001_210331, and EB-01_210331.

Sample NYOW-03-SL012-A was re-extracted 4 days outside of the holding time period and reanalyzed for SVOCs. The initial analysis should be used for data interpretation; qualification is not necessary.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | X | |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A bromofluorobenzene instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for VOCs (i.e., each 12-hour period). The tunes met the ion abundance criteria. A decafluorotriphenylphosphine instrument performance check was performed prior to the initial instrument calibrations and at the start of each sample analysis batch for SVOCs and SVOCs with SIM. The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification (ICV) results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

SVOCs Method 8270D:

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

PCBs Method 8082A:

ICV 280-533282/10 exhibited a percent difference (%D) greater than 20% for one PCB-1016 peak at 22%. The associated sample results are qualified as “UJ”.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration RRFs, CFs, %Ds, and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

SVOCs by Method 8270D:

CCV 680-663985/17 exhibited %Ds greater than 20% for benzaldehyde (-21.7%) and atrazine (24.2%). The associated aqueous sample results were non-detect and are qualified as "UJ".

CCV 680-664758/2 exhibited a %D greater than 20% for 4-nitrophenol at 30.5%. The associated soil sample results were non-detect and are qualified as "UJ".

CCV 680-664524/2 exhibited %Ds greater than 20% for 1,4-dioxane at 27.4%, 2-nitroaniline at 20.2%, 2,4-dinitrophenol at 20.2%, 4-nitrophenol at 32.3%, and di-n-octyl phthalate at 20.1%. The associated soil sample result was non-detect and is qualified as "UJ".

CCV 680-6 65758/3 exhibited %Ds greater than 20% for benzaldehyde (23.8%) and caprolactam (32%). The associated soil sample results were non-detect and are qualified as "UJ".

PCBs by Method 8081A:

CCV 280-533293/38 exhibited %Ds greater than 20% for all 5 PCB 1016 peaks ranging from 24.1% to 30.4% on the secondary column. The associated non-detect soil sample results are qualified as "UJ".

## INTERNAL STANDARDS

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, trip blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, continuing calibration blanks, and equipment blanks with the exceptions noted below.

VOCs by Method 8260C:

Method blank sample 280-532314/9 exhibited positive detections for 1,2,3-trichlorobenzene and 1,2,4-trichlorobenzene at 0.404 µg/L and 0.427 µg/L, respectively. The associated equipment blank and trip blank sample results were non-detect; qualification is not necessary.

SVOCs by Method 8270D:

Method blank sample 680-663321/10-A exhibited a positive detection for di-n-butyl phthalate at 149 µg/kg. The associated positive detections less than the LOQ are qualified as "U" at the LOQ.

Method blank sample 680-664082/10-A exhibited a positive detection for di-n-butyl phthalate at 105 µg/kg. The associated positive detection is less than the LOQ and is qualified as "U" at the LOQ.

Method blank sample 680-664738/15-A exhibited positive detections for bis(2-ethylhexyl)phthalate at 114 µg/kg and di-n-butyl phthalate at 73 µg/kg. The associated results were for the reanalysis of sample NYOW-03-SL012-A. The initial results should be used for data interpretation; qualification is not necessary.

SVOCs with SIM by Method 8270D:

Method blank sample 280-531832/1-A exhibited positive detections below the LOQ for acenaphthene at 0.428 µg/kg and acenaphthylene at 1.9 µg/kg. The associated sample results were greater than 5X the blank amount; qualification is not necessary.

Metals by Method 6010C:

Preparation blank sample 280-531353/1-A exhibited a positive detection greater than the detection limit but less than the LOQ for aluminum at 3.69 mg/kg. The associated sample results were greater than the LOQ; qualification is not necessary on the basis of professional judgment.

Equipment blank sample EB-01_210331 exhibited positive detections below the LOQ for cadmium at 0.64 µg/L and magnesium at 31 µg/L. The associated soil sample results are not qualified on the basis of aqueous equipment blanks.

CCB 280-538331/35 exhibited a positive detection for beryllium at 0.201 µg/L. The associated equipment blank sample result was non-detect; qualification is not required.

CCB 280-531674/77 exhibited a positive detection for lead at 2.93 µg/L. The associated sample results were greater than the LOQ; qualification is not necessary on the basis of professional judgment.

Mercury by Method 7470A:

Equipment blank sample EB-01_210331 exhibited a positive detection below the LOQ for mercury at 0.035 µg/L. The associated soil sample results are not qualified on the basis of aqueous equipment blanks.

Method blank sample 280-532311/1-A exhibited a positive detection at 0.0417 µg/L. The associated equipment blank sample result is qualified as "U" at the LOD.

Mercury by Method 7471B:

Initial calibration blank (ICB) 280-532125/9 and subsequent CCBs 280-532125/12, 280-532125/24, and 280-532125/36 exhibited positive detections at 0.0652 µg/L, 0.0654 µg/L, 0.0637 µg/L, and 0.0626 µg/L, respectively. The associated sample results less than the aqueous LOQ are qualified as "U" at the LOQ.

Metals by Method 6020A:

Preparation blank sample 280-531347/1-A exhibited a positive detection for thallium below the LOQ at 0.0043 mg/kg. The associated positive detections below the LOQ are qualified as "U" at the LOQ.

ICB 280-531619/7 exhibited a positive detection for thallium at 0.137 µg/L. The subsequent CCBs (280-531619/30, 280-531619/49, 280-531619/55, 280-531619/66, and 280-531619/79) exhibited positive detections below the LOQ ranging from 0.118 µg/L to 0.170 µg/L. The associated positive detections were greater than the aqueous LOQ; qualification is not necessary on the basis of professional judgment.

CCB 280-532167/137 exhibited a positive detection for thallium below the LOQ at 0.137 µg/L. The associated sample result was previously qualified on the basis of method blank contamination; no further action is necessary.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Sample NYOW-03-PH004-B exhibited a recovery less than the lower warning limit for base/neutral (B/N) extractable surrogate terphenyl-d14 at 49%. The associated B/N sample results were non-detect and are qualified as "UJ".

Sample NYOW-03-SL004-A exhibited a recovery less than the lower warning limit for B/N extractable surrogate terphenyl-d14 at 45%. The associated positive B/N sample results are qualified as "J-" and non-detects are qualified as "UJ".

Sample PH-DUP-001_210331 exhibited a recovery less than the lower warning limit for B/N extractable surrogate terphenyl-d14 at 47%. The associated positive B/N sample results are qualified as "J-" and non-detects are qualified as "UJ".

Sample NYOW-03-SL012-A exhibited recoveries less than the lower warning limits for 2-fluorophenol (23%), terphenyl-d14 (52%), and phenol-d5 (28%). The associated positive detections are qualified as J-" and non-detects are qualified as "UJ".

SVOCs with SIM by Method 8270D:

Sample NYOW-03-PH010-B did not recover for any of the five surrogate spikes. The sample was analyzed at a 10X dilution; qualification is not necessary.

Sample NYOW-03-SL010-A exhibited a recovery greater than the upper control limit for fluoranthene-d10 at 107%. The sample was analyzed at a 10X dilution; qualification is not necessary.

Sample NYOW-03-SL012-A exhibited a recovery less than the lower warning limit for nitrobenzene-d5 at 43%. The associated sample results are qualified as “J-”.

Picric Acid by Method 8330B:

Sample EB-01_210331 exhibited a recovery less than the lower warning limit for 1,2-dinitrobenzene at 70%. The associated sample results were non-detect and are qualified as “UJ”.

**LABORATORY CONTROL SAMPLES**

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

LCS/LCSD 680-663202/11-A/12-A exhibited recoveries less than the lower warning limit for atrazine at 15% and 15%. The associated equipment blank sample result was non-detect and is qualified as “UJ”.

LCS 680-664082/11-A exhibited multiple recoveries less than the lower warning limit. The associated positive detections are qualified as “J-“ and non-detects are qualified as “UJ”.

| | | |
|---|---|---|
| 1,2,4,5-Tetrachlorobenzene | 26.44 | 37 - 119 |
| 2,2'-Oxybis(1-chloropropane) | 25.23 | 33 - 131 |
| 2,3,4,6-Tetrachlorophenol | 32.78 | 44 - 125 |
| 2,4,5-Trichlorophenol | 31.42 | 41 - 124 |
| 2,4,6-Trichlorophenol | 31.72 | 39 - 126 |
| 2,4-Dichlorophenol | 31.87 | 40 - 122 |
| 2,4-Dinitrotoluene | 31.27 | 48 - 126 |
| 2,6-Dinitrotoluene | 31.42 | 46 - 124 |
| 2-Chloronaphthalene | 30.21 | 41 - 114 |
| 2-Chlorophenol | 29.15 | 34 - 121 |
| 2-Methylphenol (o-Cresol) | 28.70 | 32 - 122 |
| 2-Nitroaniline | 36.56 | 44 - 127 |
| 2-Nitrophenol | 28.10 | 36 - 123 |
| 3-Nitroaniline | 24.92 | 33 - 119 |
| 4-Bromophenyl phenyl ether | 33.38 | 46 - 124 |
| 4-Chloro-3-methylphenol | 34.44 | 45 - 122 |
| 4-Chlorophenyl phenyl ether | 31.57 | 45 - 121 |

| | | |
|---|---|---|
| Bis(2-ethylhexyl)phthalate | 33.53 | 51 - 133 |
| Caprolactam | 38.67 | 46 - 117 |
| Carbazole | 33.84 | 50 - 123 |
| Cresols, m- & p- | 30.06 | 34 - 119 |
| Di-n-butyl phthalate | 35.65 | 51 - 128 |
| di-n-Octyl phthalate | 35.05 | 45 - 140 |
| Dibenzofuran | 31.42 | 44 - 120 |
| Diethyl phthalate | 33.84 | 50 - 124 |
| Dimethyl phthalate | 33.53 | 48 - 124 |
| Hexachlorobenzene | 32.02 | 45 - 122 |
| Hexachlorobutadiene | 29.46 | 32 - 123 |
| Hexachlorocyclopentadiene | 23.41 | 28 - 130 |
| Hexachloroethane | 25.83 | 28 - 117 |
| N-Nitrosodi-n-propylamine | 28.70 | 36 - 120 |
| N-Nitrosodiphenylamine | 33.69 | 38 - 127 |
| Nitrobenzene | 30.82 | 34 - 122 |
| Phenol | 31.72 | 34 - 121 |

| | | |
|---|---|---|
| 4-Nitroaniline | 29.00 | 41 - 130 |
| Acetophenone | 28.70 | 33 - 115 |
| Atrazine | 40.03 | 47 - 127 |
| Benzyl butyl phthalate | 31.42 | 48 - 132 |
| Biphenyl (Diphenyl) | 30.21 | 40 - 117 |
| Bis(2-chloroethoxy)methane | 28.85 | 36 - 121 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 26.89 | 31 - 120 |

LCSD 680-664082/12-A exhibited multiple RPDs greater than 20% as shown in the table below. The associated positive detections are qualified as “J”.

| | |
|---|---|
| Atrazine | 60.34 |
| Benzyl butyl phthalate | 80.63 |
| Bis(2-chloroethoxy)methane | 58.26 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 42.48 |
| Bis(2-ethylhexyl)phthalate | 75.11 |
| Caprolactam | 72.95 |
| Carbazole | 69.58 |
| Cresols, m- & p- | 50.94 |
| Di-n-butyl phthalate | 70.33 |
| di-n-Octyl phthalate | 73.74 |

| | |
|---|---|
| Dibenzofuran | 68.56 |
| Diethyl phthalate | 69.01 |
| Dimethyl phthalate | 68.83 |
| Hexachlorobenzene | 72.29 |
| Hexachlorobutadiene | 57.14 |
| Hexachloroethane | 53.53 |
| Isophorone | 67.77 |
| N-Nitrosodi-n-propylamine | 55.79 |
| N-Nitrosodiphenylamine | 66.87 |
| Nitrobenzene | 57.09 |

| | |
|---|---|
| 2,4,5-Trichlorophenol | 65.15 |
| 2,4,6-Trichlorophenol | 67.72 |
| 2,4-Dichlorophenol | 61.87 |
| 2,4-Dimethylphenol | 57.70 |
| 2,4-Dinitrotoluene | 81.21 |
| 2,6-Dinitrotoluene | 74.51 |
| 2-Chloronaphthalene | 62.54 |
| 2-Chlorophenol | 50.10 |
| 2-Methylphenol (o-Cresol) | 54.68 |
| 2-Nitrophenol | 61.19 |
| 4-Bromophenyl phenyl ether | 67.66 |
| 4-Chloro-3-methylphenol | 70.64 |
| 4-Chlorophenyl phenyl ether | 70.59 |
| Acetophenone | 55.79 |

| | |
|---|---|
| 2,4-Dinitrophenol | 84 |
| 4,6-Dinitro-2-methylphenol | 74 |
| 4-Nitrophenol | 78 |
| Pentachlorophenol | 81 |
| 1,2,4,5-Tetrachlorobenzene | 68.42 |
| 2,2'-Oxybis(1-chloropropane) | 52.54 |
| 2,3,4,6-Tetrachlorophenol | 77.92 |
| Phenol | 44.73 |
| 1,4-Dioxane (p-Dioxane) | 48 |
| Benzaldehyde | 52 |
| Hexachlorocyclopentadiene | 72 |
| 3,3'-Dichlorobenzidine | 76 |

LCSD 680-664738/17-A exhibited RPDs greater than 20% for multiple analytes as shown in the table below. The associated sample results were non-detect; qualification is not necessary.

| | |
|---|---|
| 1,2,4,5-Tetrachlorobenzene | 20.60 |
| 2,2'-Oxybis(1-chloropropane) | 24.93 |
| 2,3,4,6-Tetrachlorophenol | 29.97 |
| 2,4,5-Trichlorophenol | 25.29 |
| 2,4,6-Trichlorophenol | 23.81 |
| 2,4-Dichlorophenol | 21.92 |
| 2,4-Dinitrophenol | 29.51 |
| 2,4-Dinitrotoluene | 26.19 |
| 2,6-Dinitrotoluene | 29.88 |
| 2-Chloronaphthalene | 24.92 |
| 2-Chlorophenol | 23.31 |
| 2-Methylphenol (o-Cresol) | 27.85 |
| 2-Nitrophenol | 21.44 |
| 4,6-Dinitro-2-methylphenol | 24.56 |
| 4-Bromophenyl phenyl ether | 24.86 |
| 4-Chloro-3-methylphenol | 27.57 |
| 4-Chloroaniline | 23.83 |
| 4-Chlorophenyl phenyl ether | 26.55 |
| 4-Nitrophenol | 24.26 |
| Acetophenone | 21.74 |
| Atrazine | 24.76 |
| Dimethyl phthalate | 25.98 |
| Hexachlorobenzene | 25.76 |
| Hexachlorobutadiene | 22.46 |
| Hexachlorocyclopentadiene | 23.58 |
| Hexachloroethane | 23.13 |
| Isophorone | 24.68 |
| N-Nitrosodi-n-propylamine | 25.70 |
| N-Nitrosodiphenylamine | 26.57 |
| Nitrobenzene | 20.17 |
| Pentachlorophenol | 24.79 |
| Phenol | 25.11 |
| Benzaldehyde | 22.54 |
| Benzyl butyl phthalate | 26.38 |
| Bis(2-chloroethoxy)methane | 21.62 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 22.80 |
| Bis(2-ethylhexyl)phthalate | 28.52 |
| Caprolactam | 25.43 |
| Carbazole | 23.55 |
| Cresols, m- & p- | 28.57 |
| Di-n-butyl phthalate | 25.15 |
| di-n-Octyl phthalate | 27.95 |
| Dibenzofuran | 24.92 |
| Diethyl phthalate | 26.49 |

Metals by Method 6020A:

LCS 280-531341/2-A exhibited a recovery less than 85% for antimony at 84.75%. The associated equipment blank sample result is qualified as “UJ”.

**MATRIX SPIKE/MATRIX SPIKE DUPLICATES**

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

MS/SD sample NYOW-03-SL004-A exhibited recoveries less than the lower control limit for multiple analytes as shown below. The associated sample results were non-detect and are qualified as “UJ” with the exception of 3,3’-dichlorobenzidine, which is qualified as “X” and recommended for rejection.

| Analyte | MS Recovery | SD Recovery |
|---|---|---|
| 3-Nitroaniline | -- | 30% |

| Analyte | MS Recovery | SD Recovery |
|---|---|---|
| 4-Chloroaniline | 13% | 15% |
| Atrazine | 43% | -- |
| 3,3'-Dichlorobenzidine | 3% | 1% |
| 4-Nitroaniline | -- | 33% |

MS/SD sample NYOW-03-SL004-A exhibited RPDs greater than 20% for 3,3'-dichlorobenzidine at 79%, 3-nitroaniline at 31%, and 4-nitroaniline at 28%. The associated sample results were non-detect; qualification is not required.

MS/SD sample NYOW-03-PH012-B exhibited an RPD greater than 20% for DNCB at 33%. The associated sample result was non-detect; qualification is not necessary.

SVOCs with SIM by Method 8270D:

MS/SD sample NYOW-03-SL004-A exhibited recoveries less than the lower warning limits for benzo(b)fluoranthene (48%), benzo(g,h,i)perylene (41%), and indeno(1,2,3-cd)pyrene (46%). The associated sample results were positive detections and are qualified as "J-".

Picric Acid by Method 8330A:

MS/SD sample NYOW-03-SL002-A exhibited recoveries less than 50% at 35% and 34%, respectively. The associated sample result was non-detect and is qualified as "UJ".

Metals by Method 6010C:

MS/SD sample NYOW-03-SL004-A exhibited recoveries outside of control limits for aluminum (284%, 276%), iron (127%), lead (80%), and manganese (75%). The sample concentrations were greater than 4X the spiked amount for aluminum and iron. The positive detections for lead and manganese are qualified as "J-".

Metals by Method 6020A:

MS/SD sample NYOW-03-SL004-A exhibited RPDs greater than 20% for arsenic (30%), cadmium (33%), selenium (32%), and thallium (35%). The associated positive detections are qualified as "J" and the associated non-detect for thallium is qualified as "UJ".

**DUAL COLUMN IMPRECISION**

PCBs by Method 8082A:

Sample NYOW-03-SL010-A exhibited dual column imprecision greater than 40% for PCB-1260 at 64%. The associated positive detection is qualified as "J".

## SAMPLE POST-DIGESTION SPIKE

Metals by Method 6010C:

A post-digestion spike (PDS) was performed for MS/SD sample NYOW-03-SL004-A. Aluminum (-41%), iron (11%), and manganese (77%) recovered below the lower control limit. The aluminum, iron, and manganese concentrations were greater than 4X the spiked amount in the MS; therefore, the PDS was not used to evaluate these MS/SD recovery failures.

A PDS was performed on equipment blank sample EB-01_210331. Silver did not meet the recovery criteria; however, PDS are not required for silver.

## ICP SERIAL DILUTION

Metals by Method 6010C:

An ICP serial dilution was performed for sample NYOW-03-PH004-B. All %Ds were less than 10%.

Metals by Method 6020A:

An ICP serial dilution was performed for sample NYOW-03-PH004-B. All %Ds were less than 10%.

Mercury by Method 7471B:

An ICP serial dilution was performed for sample NYOW-03-PH004-B. All %Ds were less than 10%.

## LOW-LEVEL CHECK STANDARD

Low-level check standards (CCVL) for methods 6010C and 6020A were performed using the low-level CCV standard. All recoveries were within the control limits with the exceptions noted below.

Metals by Method 6010C:

CCVL 280-531674/89 exhibited a recovery greater than the upper control limit for lead at 121%. The associated sample results less than the CCV concentration are qualified as “J+”.

## INTERFERENCE CHECK SAMPLES

Interference check samples A and AB recoveries were evaluated and met the acceptance criteria.

Metals by Method 6010C:

The Interference Check Solution A (ICSA) associated with batch 280-531674 had barium present above the LOD at 12 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium (2 µg/L); qualification is not necessary.

The ICSA associated with batch 280-532597 had barium present above the LOD at 12.5 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium (2 µg/L); qualification is not necessary.

**COMMENTS**

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

There was insufficient sample volume to perform a MS/SD associated with VOC sample batches 280-531755 and 280-532314. An LCS and LCSD were performed.

There was insufficient sample volume to perform a MS/SD associated with aqueous SVOC SIM sample batch 280-531382 and solid sample batch 280-531832. An LCS and LCSD were performed.

There was insufficient sample volume to perform a MS/SD associated with aqueous PCB sample batch 280-531871 and soil sample batch 280-531867. An LCS and LCSD were performed.

There was insufficient sample volume to perform a MS/SD associated with aqueous picric acid sample batch 280-531661. An LCS and LCSD were performed.

The following samples in preparation batch 280-531308 and analytical batch 280-533288 were diluted for SVOC SIM analysis due to the nature of the sample matrix: NYOW-03-SL010-A, NYOW-03-PH010-B, and NYOW-03-SL011-A. The samples could not be concentrated to the final method required volume and the LOQs were proportionally elevated. The samples were reported to be black and viscous.

One field duplicate and parent sample pair was collected and analyzed for all parameters (PH-DUP-001_210331 collected from NYOW-03-PH012-B). The RPD must be less than 50% when at least one result is greater than the LOQ. The following analytes did not meet the precision criteria:

- PH-DUP-001_210331 collected from NYOW-03-PH012-B: benzo(g,h,i)perylene (52%), fluorene (113%), naphthalene (144%), phenanthrene (94%), calcium (90%), lead (56%), magnesium (110%), potassium (59%), cadmium (92%), and thallium (62%).

The following samples were air dried and sieved in accordance with the procedure; however, the samples contained rocks, sticks, vegetation, and wood chips that would not pass through the sieve: NYOW-03-SL004-A, NYOW-03-PH004-B, NYOW-03-SL003-A, NYOW-03-PH003-B, NYOW-03-SL001-A, NYOW-03-PH001-B, NYOW-03-SL002-A, NYOW-03-PH002-B, NYOW-03-SL010-A, NYOW-03-PH010-B, NYOW-03-SL011-A, NYOW-03-PH011-B, NYOW-03-SL012-A, NYOW-03-PH012-B, PH-DUP-001_210331. The material was removed and not extracted.

The following samples required a sulfuric acid clean-up, via EPA Method 3665A, to reduce matrix interferences prior to PCB analysis: NYOW-03-SL010-A, NYOW-03-PH010-B, NYOW-03-SL011-

A, NYOW-03-PH011-B, NYOW-03-PH012-B, and PH-DUP-001_210331 associated with preparation batch 280-531309 and analytical batch 280-533282.

The following samples required a sulfuric acid clean-up, via EPA Method 3665A, to reduce matrix interferences: NYOW-03-SL012-A associated with preparation batch 280-531871 and analytical batch 280-533293.

Sample EB-01_210331 required a sulfuric acid clean-up, via EPA Method 3665A, to reduce matrix interferences.

In preparation batch 280-531309 for PCB analysis, the following samples could not be thoroughly homogenized before sub-sampling was performed due to sample matrix: NYOW-03-SL010-A, NYOW-03-PH011-B, and PH-DUP-001_210331. Sample NYOW-03-PH011-B was clay. Sample NYOW-03-SL010-A contained a lot of vegetation. Samples NYOW-03-SL010-A and PH-DUP-001_210331 contained many rocks.

In preparation batch 280-531308 for SVOC SIM analysis, the following samples could not be thoroughly homogenized before sub-sampling was performed due to sample matrix: NYOW-03-PH004-B, NYOW-03-SL003-A, NYOW-03-PH003-B, NYOW-03-SL001-A, NYOW-03-SL002-A, NYOW-03-PH002-B, NYOW-03-SL010-A, NYOW-03-PH011-B, and PH-DUP-001_210331. Samples NYOW-03-PH004-B, NYOW-03-PH003-B, NYOW-03-PH002-B, and NYOW-03-PH011-B were clay. Samples NYOW-03-SL003-A, NYOW-03-SL001-A, and NYOW-03-SL010-A contained a lot of vegetation. Samples NYOW-03-SL010-A and PH-DUP-001_210331 contained rocks.

The following samples were not analyzed at minimum starting mass (i.e., 15 grams) for percent moisture analysis due to limited sample volume: NYOW-03-PH004-B (11.77 g), NYOW-03-PH003-B (11.64 g), NYOW-03-PH001-B (10.81 g), NYOW-03-PH002-B (11.12 g), NYOW-03-PH010-B (11.18 g), and NYOW-03-PH011-B (10.11 g).

LOQs were greater than Project Quantitation Limit Goals (PQLGs) for SVOC with SIM analysis of soil samples due to sample dilution. Several metal analytes (antimony, arsenic, cobalt, selenium, thallium, mercury) had LOQs greater than PQLGs due to percent moisture adjustments. Several VOCs (carbon disulfide, cis-1,3-dichloropropene, 1,2-dibromo-3-chloropropane, bromomethane, and trans-1,3-dichloroproapne) Aroclors and SVOCs had LOQs greater than PQLGs due to percent moisture adjustments.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified, with the exception of the rejected result. In addition,

analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 99%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210331 | 280-146929-16 | SW6020A | Antimony | 7440-36-0 | ug/L | 1.00 | | UJ | C |
| EB-01_210331 | 280-146929-16 | SW7470A | Mercury | 7439-97-6 | ug/L | 0.0800 | | U | L |
| EB-01_210331 | 280-146929-16 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.30 | | UJ | C/V2 |
| EB-01_210331 | 280-146929-16 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.30 | | UJ | V2 |
| EB-01_210331 | 280-146929-16 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.130 | | UJ | I |
| NYOW-03-PH001-B | 280-146929-6 | SW6010C | Lead | 7439-92-1 | mg/kg | 3.30 | + | J | V6 |
| NYOW-03-PH001-B | 280-146929-6 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.100 | | U | L |
| NYOW-03-PH001-B | 280-146929-6 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 210 | | UJ | V2 |
| NYOW-03-PH001-B | 280-146929-6 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 210 | | UJ | V2 |
| NYOW-03-PH001-B | 280-146929-6 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 410 | | U | L |
| NYOW-03-PH001-B | 280-146929-6 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 820 | | UJ | V2 |
| NYOW-03-PH002-B | 280-146929-8 | SW6010C | Lead | 7439-92-1 | mg/kg | 2.70 | + | J | V6 |
| NYOW-03-PH002-B | 280-146929-8 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0870 | | U | L |
| NYOW-03-PH002-B | 280-146929-8 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | V2 |
| NYOW-03-PH002-B | 280-146929-8 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 200 | | UJ | V2 |
| NYOW-03-PH002-B | 280-146929-8 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 390 | | U | L |
| NYOW-03-PH002-B | 280-146929-8 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 800 | | UJ | V2 |
| NYOW-03-PH003-B | 280-146929-4 | SW6010C | Lead | 7439-92-1 | mg/kg | 3.50 | + | J | V6 |
| NYOW-03-PH003-B | 280-146929-4 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.110 | | U | L |
| NYOW-03-PH003-B | 280-146929-4 | SW7471B | Mercury | 7439-97-6 | mg/kg | 0.0180 | | U | L |
| NYOW-03-PH003-B | 280-146929-4 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 210 | | UJ | V2 |
| NYOW-03-PH003-B | 280-146929-4 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 210 | | UJ | V2 |
| NYOW-03-PH003-B | 280-146929-4 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 410 | | U | L |
| NYOW-03-PH003-B | 280-146929-4 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 830 | | UJ | V2 |
| NYOW-03-PH004-B | 280-146929-2 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.110 | | U | L |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 420 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 420 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 110 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 220 | | UJ | I/V2 |

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|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 220 | | UJ | I/V2 |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Carbazole | 86-74-8 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 110 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 420 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 420 | | UJ | L/I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 110 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Isophorone | 78-59-1 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 220 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 110 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 110 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 860 | | UJ | V2 |
| NYOW-03-PH004-B | 280-146929-2 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 86.0 | | UJ | I |
| NYOW-03-PH010-B | 280-146929-10 | SW6010C | Lead | 7439-92-1 | mg/kg | 8.30 | + | J | V6 |
| NYOW-03-PH010-B | 280-146929-10 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.100 | | U | L |
| NYOW-03-PH010-B | 280-146929-10 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 35.0 | | UJ | V1 |
| NYOW-03-PH010-B | 280-146929-10 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | V2 |
| NYOW-03-PH010-B | 280-146929-10 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 190 | | UJ | V2 |
| NYOW-03-PH010-B | 280-146929-10 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 370 | | U | L |
| NYOW-03-PH010-B | 280-146929-10 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 750 | | UJ | V2 |
| NYOW-03-PH011-B | 280-146929-12 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 34.0 | | UJ | V1 |
| NYOW-03-PH011-B | 280-146929-12 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | V2 |

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|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-PH011-B | 280-146929-12 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 200 | | UJ | V2 |
| NYOW-03-PH011-B | 280-146929-12 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 390 | | U | L |
| NYOW-03-PH011-B | 280-146929-12 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 790 | | UJ | V2 |
| NYOW-03-PH012-B | 280-146929-14 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 23.0 | | J | D3 |
| NYOW-03-PH012-B | 280-146929-14 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 25.0 | | J | D3 |
| NYOW-03-PH012-B | 280-146929-14 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 11.0 | | J | D3 |
| NYOW-03-PH012-B | 280-146929-14 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 160 | | J | D3 |
| NYOW-03-PH012-B | 280-146929-14 | SW6010C | Calcium | 7440-70-2 | mg/kg | 22000 | | J | D3 |
| NYOW-03-PH012-B | 280-146929-14 | SW6010C | Potassium | 7440-09-7 | mg/kg | 760 | | J | D3 |
| NYOW-03-PH012-B | 280-146929-14 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 6100 | | J | D3 |
| NYOW-03-PH012-B | 280-146929-14 | SW6010C | Lead | 7439-92-1 | mg/kg | 27.0 | | J | D3/V6 |
| NYOW-03-PH012-B | 280-146929-14 | SW6020A | Cadmium | 7440-43-9 | mg/kg | 0.130 | | J | D3 |
| NYOW-03-PH012-B | 280-146929-14 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.100 | | J | D3 |
| NYOW-03-PH012-B | 280-146929-14 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 33.0 | | UJ | V1 |
| NYOW-03-PH012-B | 280-146929-14 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 180 | | UJ | V2 |
| NYOW-03-PH012-B | 280-146929-14 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 180 | | UJ | V2 |
| NYOW-03-PH012-B | 280-146929-14 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 350 | | U | L |
| NYOW-03-PH012-B | 280-146929-14 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 710 | | UJ | V2 |
| NYOW-03-SL001-A | 280-146929-5 | SW6010C | Lead | 7439-92-1 | mg/kg | 9.90 | + | J | V6 |
| NYOW-03-SL001-A | 280-146929-5 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.110 | | U | L |
| NYOW-03-SL001-A | 280-146929-5 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 230 | | UJ | V2 |
| NYOW-03-SL001-A | 280-146929-5 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 450 | | U | L |
| NYOW-03-SL001-A | 280-146929-5 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 910 | | UJ | V2 |
| NYOW-03-SL002-A | 280-146929-7 | SW6010C | Lead | 7439-92-1 | mg/kg | 9.90 | + | J | V6 |
| NYOW-03-SL002-A | 280-146929-7 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0980 | | U | L/B2 |
| NYOW-03-SL002-A | 280-146929-7 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 220 | | UJ | V2 |
| NYOW-03-SL002-A | 280-146929-7 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 220 | | UJ | V2 |
| NYOW-03-SL002-A | 280-146929-7 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 430 | | U | L |
| NYOW-03-SL002-A | 280-146929-7 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 880 | | UJ | V2 |
| NYOW-03-SL002-A | 280-146929-7 | SW8330A | Picric acid | 88-89-1 | ug/kg | 160 | | UJ | M |
| NYOW-03-SL003-A | 280-146929-3 | SW6010C | Lead | 7439-92-1 | mg/kg | 7.10 | + | J | V6 |
| NYOW-03-SL003-A | 280-146929-3 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.100 | | U | L |
| NYOW-03-SL003-A | 280-146929-3 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 220 | | UJ | V2 |
| NYOW-03-SL003-A | 280-146929-3 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 220 | | UJ | V2 |
| NYOW-03-SL003-A | 280-146929-3 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 420 | | U | L |
| NYOW-03-SL003-A | 280-146929-3 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 850 | | UJ | V2 |
| NYOW-03-SL004-A | 280-146929-1 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 29.0 | - | J | M |

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|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-SL004-A | 280-146929-1 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 14.0 | - | J | M/TR |
| NYOW-03-SL004-A | 280-146929-1 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 17.0 | - | J | M |
| NYOW-03-SL004-A | 280-146929-1 | SW6010C | Manganese | 7439-96-5 | mg/kg | 65.0 | - | J | M |
| NYOW-03-SL004-A | 280-146929-1 | SW6010C | Lead | 7439-92-1 | mg/kg | 13.0 | - | J | M |
| NYOW-03-SL004-A | 280-146929-1 | SW6020A | Arsenic | 7440-38-2 | mg/kg | 2.40 | | J | D |
| NYOW-03-SL004-A | 280-146929-1 | SW6020A | Cadmium | 7440-43-9 | mg/kg | 0.150 | | J | D |
| NYOW-03-SL004-A | 280-146929-1 | SW6020A | Selenium | 7782-49-2 | mg/kg | 0.610 | | J | D |
| NYOW-03-SL004-A | 280-146929-1 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.120 | | UJ | L/D |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 490 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 99.0 | | UJ | M/I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 490 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 120 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 120 | - | J | I/TR |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 250 | | UJ | I/V2 |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Carbazole | 86-74-8 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 120 | | UJ | M/I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 99.0 | | X | M/I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 490 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 490 | | UJ | L/I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 120 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 99.0 | | UJ | I |

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|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Isophorone | 78-59-1 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 250 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 120 | | UJ | M/I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 120 | | UJ | M/I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 990 | | UJ | V2 |
| NYOW-03-SL004-A | 280-146929-1 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 99.0 | | UJ | I |
| NYOW-03-SL010-A | 280-146929-9 | SW6010C | Lead | 7439-92-1 | mg/kg | 21.0 | + | J | V6 |
| NYOW-03-SL010-A | 280-146929-9 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0940 | | U | L |
| NYOW-03-SL010-A | 280-146929-9 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 37.0 | | UJ | V1 |
| NYOW-03-SL010-A | 280-146929-9 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 5.90 | | J | TR/P1 |
| NYOW-03-SL010-A | 280-146929-9 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 210 | | UJ | V2 |
| NYOW-03-SL010-A | 280-146929-9 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 210 | | UJ | V2 |
| NYOW-03-SL010-A | 280-146929-9 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 410 | | U | L |
| NYOW-03-SL010-A | 280-146929-9 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 830 | | UJ | V2 |
| NYOW-03-SL011-A | 280-146929-11 | SW6010C | Lead | 7439-92-1 | mg/kg | 11.0 | + | J | V6 |
| NYOW-03-SL011-A | 280-146929-11 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.100 | | U | L |
| NYOW-03-SL011-A | 280-146929-11 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 41.0 | | UJ | V1 |
| NYOW-03-SL011-A | 280-146929-11 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 220 | | UJ | V2 |
| NYOW-03-SL011-A | 280-146929-11 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 220 | | UJ | V2 |
| NYOW-03-SL011-A | 280-146929-11 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 420 | | U | L |
| NYOW-03-SL011-A | 280-146929-11 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 860 | | UJ | V2 |
| NYOW-03-SL012-A | 280-146994-7 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 18.0 | - | J | I |
| NYOW-03-SL012-A | 280-146994-7 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 390 | - | J | I |
| NYOW-03-SL012-A | 280-146994-7 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 150 | - | J | I |
| NYOW-03-SL012-A | 280-146994-7 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 640 | - | J | I |
| NYOW-03-SL012-A | 280-146994-7 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 760 | - | J | I |
| NYOW-03-SL012-A | 280-146994-7 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 1100 | - | J | I |
| NYOW-03-SL012-A | 280-146994-7 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 340 | - | J | I |
| NYOW-03-SL012-A | 280-146994-7 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 350 | - | J | I |
| NYOW-03-SL012-A | 280-146994-7 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 720 | - | J | I |
| NYOW-03-SL012-A | 280-146994-7 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 97.0 | - | J | I |
| NYOW-03-SL012-A | 280-146994-7 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 92.0 | - | J | I |
| NYOW-03-SL012-A | 280-146994-7 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 1500 | - | J | I |

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| NYOW-03-SL012-A | 280-146994-7 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 640 | - | J | I |
| NYOW-03-SL012-A | 280-146994-7 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 25.0 | - | J | I |
| NYOW-03-SL012-A | 280-146994-7 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/kg | 28.0 | - | J | I |
| NYOW-03-SL012-A | 280-146994-7 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 52.0 | - | J | I |
| NYOW-03-SL012-A | 280-146994-7 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 710 | - | J | I |
| NYOW-03-SL012-A | 280-146994-7 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 1100 | - | J | I |
| NYOW-03-SL012-A | 280-146994-7 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 35.0 | | UJ | V2 |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 390 | | UJ | I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 390 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 97.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 230 | - | J | Z/I/TR |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 200 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Carbazole | 86-74-8 | ug/kg | 120 | - | J | C/Z/I/TR |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 97.0 | | UJ | I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 120 | - | J | C/Z/I/TR |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 79.0 | | UJ | I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 390 | | UJ | I/V2 |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 79.0 | | UJ | I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/kg | 390 | | UJ | I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 390 | | UJ | L/C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 79.0 | | UJ | C/I/V2 |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | I/V2 |

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| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 97.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Isophorone | 78-59-1 | ug/kg | 79.0 | | UJ | I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Cresols, m- & p- | | ug/kg | 130 | - | J | C/Z/I/TR |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 200 | | UJ | C/I/V2 |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 97.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 97.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 790 | | UJ | I/V2 |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 790 | | UJ | I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | Phenol | 108-95-2 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 97.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/kg | 79.0 | | UJ | C/I |
| NYOW-03-SL012-A | 280-146994-7 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/kg | 79.0 | | UJ | C/I |
| PH-DUP-001_210331 | 280-146929-15 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 39.0 | | J | D3 |
| PH-DUP-001_210331 | 280-146929-15 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 7.00 | | J | D3/TR |
| PH-DUP-001_210331 | 280-146929-15 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 1.80 | | J | D3/TR |
| PH-DUP-001_210331 | 280-146929-15 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 58.0 | | J | D3 |
| PH-DUP-001_210331 | 280-146929-15 | SW6010C | Calcium | 7440-70-2 | mg/kg | 58000 | | J | D3 |
| PH-DUP-001_210331 | 280-146929-15 | SW6010C | Potassium | 7440-09-7 | mg/kg | 1400 | | J | D3 |
| PH-DUP-001_210331 | 280-146929-15 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 21000 | | J | D3 |
| PH-DUP-001_210331 | 280-146929-15 | SW6010C | Lead | 7439-92-1 | mg/kg | 48.0 | | J | D3/V6 |
| PH-DUP-001_210331 | 280-146929-15 | SW6020A | Cadmium | 7440-43-9 | mg/kg | 0.0480 | | J | D3/TR |
| PH-DUP-001_210331 | 280-146929-15 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.190 | | J | D3 |
| PH-DUP-001_210331 | 280-146929-15 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 35.0 | | UJ | V1 |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 360 | | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 74.0 | | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 74.0 | | UJ | I |

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| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 360 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 91.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | UJ | I/V2 |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 190 | UJ | I/V2 |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Carbazole | 86-74-8 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 91.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 360 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 360 | UJ | L/I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 91.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Isophorone | 78-59-1 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 190 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 91.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 91.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 74.0 | UJ | I |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 740 | UJ | V2 |
| PH-DUP-001_210331 | 280-146929-15 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 74.0 | UJ | I |

Reason Code Definitions

| | | | |
|---|---|---|---|
| C | LCS Recovery | V6 | LLCCV |
| I | Surrogate Recovery | L | Lab Blank |
| V2 | CCV | B2 | CCB |
| Z | LCS RPD | M | MS Recovery |
| TR | Trace Detect | P1 | Column RPD |
| D | MS RPD | V1 | ICV |
| D3 | FD RPD | | |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 19 August 2021

**SUBJECT:** New York Ordnance Works Soil and Groundwater S2BVEM Rev 1: 280-146997-1 Revision 2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil and groundwater samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Volatile Organic Compounds (VOCs) by SW-846 Method 8260C
- Semi-Volatile Organic Compounds (SVOCs) by SW-846 Method 8270D
- SVOCs with SIM by SW-846 Method 8270D
- SVOCs 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D
- Picric Acid by SW-846 Method 8330A (soils)
- Picric Acid by SW-846 Method 8330B (aqueous)
- Polychlorinated Biphenyls (PCBs) by SW-846 Method 8082A
- Metals by ICP SW-846 Method 6010C
- Metals by ICP-MS SW-846 Method 6020A
- Mercury (Hg) by SW-846 Method 7470A
- Hg by SW-846 Method 7471B
- Total Organic Carbon (TOC) by SW-846 Method 9060A
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG) collected 2 April 2021, laboratory and client sample identification numbers, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

## TABLE 1: SAMPLE SUMMARY

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6010C - Dissolved | SW6020A | SW6020A - Dissolved | SW7470A | SW7470A - Dissolved | SW7471B | SW8082A | SW8260C | SW8270D | SW8330A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-01-PH015-B | 280-146997-6 | Solid | Field Sample/N | | X | X | | X | | | | X | | | X | X |
| NYOW-01-PH015-C | 280-146997-7 | Solid | Field Sample/N | | X | X | | X | | | | X | | | X | X |
| NYOW-01-PH016-B | 280-146997-9 | Solid | Field Sample/N | | X | X | | X | | | | X | | | X | X |
| NYOW-01-PH016-C | 280-146997-10 | Solid | Field Sample/N | | X | X | | X | | | | X | | | X | X |
| NYOW-01-PH023-B | 280-146997-2 | Solid | Field Sample/N | | X | X | | X | | | | X | | | X | X |
| NYOW-01-PH023-C | 280-146997-3 | Solid | Field Sample/N | | X | X | | X | | | | X | | | X | X |
| NYOW-01-SL015-A | 280-146997-5 | Solid | Field Sample/N | | X | X | | X | | | | X | | | X | X |
| NYOW-01-SL016-A | 280-146997-8 | Solid | Field Sample/N | | X | X | | X | | | | X | | | X | X |
| NYOW-01-SL023-A | 280-146997-1 | Solid | Field Sample/N | | X | X | | X | | | | X | | | X | X |
| PH-DUP-001_210402 | 280-146997-4 | Solid | Field Duplicate/FD | | X | X | | X | | | | X | | | X | X |
| EB-01_210402 | 280-146997-11 | Water | Equipment Blank/EB | | | X | | X | | X | | | | | X | |
| EB-02_210402 | 280-146997-15 | Water | Equipment Blank/EB | | | | | | | | | | | X | | |
| EB-02_210402 | 280-147011-1 | Water | Equipment Blank/EB | X | | | X | | X | | X | | X | | X | |
| NYOW-03-WL002-A | 280-146997-13 | Water | Field Sample/N | X | | | X | | X | | X | | | X | X | |
| NYOW-03-WL007-A | 280-146997-14 | Water | Field Sample/N | X | | | X | | X | | X | | X | X | X | |
| NYOW-03-WL010-A | 280-146997-12 | Water | Field Sample/N | X | | | X | | X | | X | | X | X | X | |
| TB-01_210402 | 280-146997-16 | Water | Trip Blank/TB | | | | | | | | | | | X | | |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | SW8330B | SW9060A |
|---|---|---|---|---|---|
| NYOW-01-PH015-B | 280-146997-6 | Solid | Field Sample/N | | X |
| NYOW-01-PH015-C | 280-146997-7 | Solid | Field Sample/N | | X |
| NYOW-01-PH016-B | 280-146997-9 | Solid | Field Sample/N | | |
| NYOW-01-PH016-C | 280-146997-10 | Solid | Field Sample/N | | |
| NYOW-01-PH023-B | 280-146997-2 | Solid | Field Sample/N | | X |
| NYOW-01-PH023-C | 280-146997-3 | Solid | Field Sample/N | | X |
| NYOW-01-SL015-A | 280-146997-5 | Solid | Field Sample/N | | X |
| NYOW-01-SL016-A | 280-146997-8 | Solid | Field Sample/N | | |
| NYOW-01-SL023-A | 280-146997-1 | Solid | Field Sample/N | | X |
| PH-DUP-001_210402 | 280-146997-4 | Solid | Field Duplicate/FD | | X |
| EB-01_210402 | 280-146997-11 | Water | Equipment Blank/EB | X | |
| EB-02_210402 | 280-146997-15 | Water | Equipment Blank/EB | | |
| EB-02_210402 | 280-147011-1 | Water | Equipment Blank/EB | X | |
| NYOW-03-WL002-A | 280-146997-13 | Water | Field Sample/N | X | |
| NYOW-03-WL007-A | 280-146997-14 | Water | Field Sample/N | X | |
| NYOW-03-WL010-A | 280-146997-12 | Water | Field Sample/N | X | |
| TB-01_210402 | 280-146997-16 | Water | Trip Blank/TB | | |

Notes: PH-DUP-001_210402 collected from NYOW-01-PH023-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were initially received in good condition, properly preserved on ice. Seven coolers were received by the laboratory at temperatures of 0.5ºC, 0.7ºC, 0.7°C, 1.2ºC, 1.3ºC, 2.5ºC and 3.3ºC.

One cooler was received late at a temperature of 0.7°C. For sample NYOW-03-WL010-A, only the VOC vials were initially received. Sample containers for EB-02_210402 were received on 5 April 2021 and logged in under SDG 280-147011-1.

One 1L glass amber was received broken for sample NYOW-03-WL010-A; however, sufficient sample volume remained to perform the analysis for SVOCs.

Sample NYOW-03-WL010-A contained headspace greater than 6mm; the associated positive detections are qualified as "J-" and non-detects are qualified as "UJ".

Sample NYOW-03-WL002-A was received with a pH > 2 and was analyzed outside of the 7-day holding time period for unpreserved samples. The associated positive detections are qualified as "J-" and non-detects are qualified as "UJ".

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | X | |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | | X |
| Were all samples analyzed within the specified holding time? | | X |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A bromofluorobenzene instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for VOCs (i.e., each 12-hour period). The tunes met the ion abundance criteria. A decafluorotriphenylphosphine instrument performance check was performed prior to the initial instrument calibrations and at the start of each sample analysis batch for SVOCs and  SVOCs with SIM. The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification (ICV) results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

SVOCs Method 8270D:

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP

certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

PCBs Method 8082A:

ICV 280-533282/10 exhibited a percent difference (%D) greater than 20% for one PCB-1016 peak at 22%. The associated sample results are qualified as “UJ”.

TOC by Method 9060A:

The ICV analyzed on 4/6/2021 at 11:34 exhibited a recovery greater than 110% at 115%. The associated positive detection is qualified as “J”.

Metals by Method 6010C:

Low level initial calibration verification (ICVL) 280-535905/12 exhibited a recovery greater than the upper control limit for selenium at 124%. The associated equipment blank sample result was non-detect; qualification is not necessary.

**CONTINUING CALIBRATION VERIFICATION**

The continuing calibration RRFs, CFs, %Ds, and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

VOCs by Method 8260C:

Continuing calibration verification (CCV) 280-532441/2 exhibited %Ds greater than the control limit for bromoform at -21.4% and bromomethane at -23.3%. The associated sample results were non-detect and are qualified as “UJ”.

SVOCs by Method 8270D:

Closing CCV 664086 was analyzed 20 minutes outside of the 12-hour tune window. The associated aqueous sample results for DNCB are qualified as “UJ”.

CCV 680-664086/3 exhibited %Ds greater than 20% for benzaldehyde (-23.7%) and caprolactam (-46.1%). The associated aqueous sample positive detections are qualified “J-“ and non-detect results are qualified as “UJ”.

TOC by Method 9060A:

The CCVs analyzed on 4/6/2021 at 13:53 and 17:39 exhibited recoveries greater than 110% at 111% and 135%, respectively. The associated sample result was previously qualified; no further action is necessary.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, trip blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, continuing calibration blanks, trip blanks, and equipment blanks with the exceptions noted below.

VOCs by Method 8260C:

Method blank sample 280-532441/10 exhibited a positive detection for carbon disulfide at 0.7790 µg/L. The associated sample results were non-detect; qualification is not necessary.

SVOCs with SIM by Method 8270D:

Method blank sample 80-531849/1-A exhibited positive detections for 1-methylnaphthalene at 0.0185 µg/L and 2-methylnaphthalene at 0.0275 µg/L. The associated sample results were non-detect; qualification is not necessary.

Metals by Method 6010C:

Preparation blank sample 280-532238/1-A exhibited a positive detection greater than the detection limit but less than the LOQ for iron at 23.9 µg/L. The associated dissolved iron concentrations were greater than the LOQ; qualification is not necessary on the basis of professional judgment.

Preparation blank sample 280-535695/1-A exhibited a positive detection greater than the detection limit but less than the LOQ for sodium at 386 µg/L. The associated equipment blank sample result was non-detect; qualification is not required.

Equipment blank sample EB-02_210402 exhibited a positive detection below the LOQ for iron at 24 µg/L. The associated sample results were greater than the LOQ; qualification is not necessary on the basis of professional judgment.

Equipment blank sample EB-01_210402 exhibited positive detections below the LOQ for barium (2.4 µg/L) and iron (57 µg/L). The associated soil sample results are not qualified on the basis of aqueous equipment blanks.

Continuing calibration blanks (CCB) 280-535905/119 and 280-535905/128 exhibited positive detections less than the LOQ for beryllium at 0.243 µg/L and 0.328 µg/L, respectively. The associated equipment blank sample result is qualified as “U” at the LOD.

CCB 280-532597/38 exhibited a positive detection for potassium below the LOQ at 244 µg/L. The associated soil sample results were greater than the aqueous LOQ; qualification is not necessary on the basis of professional judgment.

Metals by Method 6020A:

Preparation blank sample 280-532234/1-A exhibited positive detections greater than the detection limit but less than the LOQ for cobalt, lead and thallium at 0.213 µg/L, 0.191 µg/L, and

0.165 µg/L, respectively. The associated equipment blank sample result for thallium was less than the LOQ and is qualified as "U" at the LOD. The results for cobalt and lead were non-detect; qualification is not necessary.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Sample NYOW-01-SL023-A exhibited a recovery less than the lower warning limit for base/neutral (B/N) extractable surrogate terphenyl-d14 at 45%. The associated B/N sample result (DNCB) was non-detect and is qualified as "UJ".

Sample NYOW-01-SL016-A exhibited a recovery less than the lower warning limit for B/N extractable surrogate terphenyl-d14 at 45%. The associated B/N sample result (DNCB) was non-detect and is qualified as "UJ".

Sample NYOW-01-PH016-B exhibited a recovery less than the lower warning limit for B/N extractable surrogate terphenyl-d14 at 48%. The associated B/N sample result (DNCB) was non-detect and is qualified as "UJ".

Sample NYOW-01-PH016-C exhibited a recovery less than the lower warning limit for B/N extractable surrogate terphenyl-d14 at 49%. The associated B/N sample result (DNCB) was non-detect and is qualified as "UJ".

Sample NYOW-01-PH023-C exhibited recoveries less than the lower warning limits for B/N extractable surrogates nitrobenzene-d5 and 2-fluorobiphenyl at 34% and 41%, respectively. The associated B/N sample result for DNCB was non-detect and is qualified as "UJ".

Sample NYOW-03-WL002-A exhibited a recovery less than the lower warning limit for B/N extractable surrogate terphenyl-d14 at 21%. The associated positive detections for B/N sample results are qualified as "J-" and non-detect results are qualified as "UJ".

Sample NYOW-03-WL007-A exhibited a recovery less than the lower warning limit for B/N extractable surrogate terphenyl-d14 at 45%. The associated B/N sample results were non-detect and are qualified as "UJ".

Sample NYOW-01-PH015-B exhibited recoveries less than the lower warning limits for 2,4,6-tribromophenol (37%), 2-fluorobiphenyl (38%), nitrobenzene-d5 (32%), and terphenyl-d14 (43%). The associated sample results were non-detect and are qualified as "UJ".

Picric Acid by Method 8330B:

Sample NYOW-03-WL007-A exhibited a recovery less than the lower warning limit for 1,2-dinitrobenzene at 62%. The associated sample results were non-detect and are qualified as "UJ".

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

VOCs by Method 8260C:

LCS 280-532441/6 exhibited a recovery greater than the upper warning limit for 1,2-dichlorobenzene at 129%. The LCS/LCSD pair also exhibited a RPD greater than 20% at 24%. The associated sample results were non-detect; qualification is not required.

SVOCs by Method 8270D:

LCSD 680-663756/13-A exhibited an RPD greater than 20% for DNP at 28%. The associated sample results were non-detect; qualification is not necessary.

Picric Acid by Method 8330B:

LCSD 280-531805/3-A exhibited an RPD greater than 20% at 22%. The associated sample result was non-detect; qualification is not necessary.

Metals by Method 6010C:

LCS 280-532862/2-A exhibited a recovery equal to the upper control limit for barium at 113%. Qualification is not required.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

MS/SD sample NYOW-01-PH023-B exhibited a RPD greater than the control limit for DNCB at 22%. The associated sample result was non-detect; qualification is not required.

Metals by Method 6010C:

MS/SD sample NYOW-01-PH023-B exhibited recoveries less than the lower warning limits and/or RPDs greater than the control limit for multiple analytes as shown below. The associated positive detections and are qualified as “J-“ or “J” and non-detects are qualified as “UJ”.

| Analyte | MS Recovery | SD Recovery | RPD | Qualifier |
|---|---|---|---|---|
| Beryllium | -- | -- | 28 | J |

| Analyte | MS Recovery | SD Recovery | RPD | Qualifier |
|---|---|---|---|---|
| Calcium | -- | -- | 21 | J |
| Chromium | 81 | -- | 26 | J- |
| Cobalt | 74 | 83 | 25 | J- |
| Copper | 65 | 77 | 21 | J- |
| Lead | 73 | -- | 26 | J- |
| Magnesium | 35 | 58 | -- | J- |
| Nickel | 71 | 82 | 26 | J- |
| Potassium | -- | -- | 21 | J |
| Silver | -- | -- | 26 | UJ |
| Sodium | 76 | -- | 29 | J- |
| Vanadium | -- | -- | 25 | J |
| Zinc | 68 | -- | 24 | J- |

MS/SD sample NYOW-01-PH023-B exhibited recoveries outside of control limits for aluminum (421%, 412%), calcium (-156%, -3%), iron (-28%, -13%), and manganese (9%, 8%). The sample concentrations were greater than 4X the spiked amount; qualification is not required.

TOC by Method 9060A:

MS/SD sample NYOW-01-PH023-B exhibited recoveries less than 10% at -66% and 20%. The MS/SD RPD was also greater than 20% at 61%. The associated positive detection is qualified as "J".

MS sample NYOW-01-SL023-A did not recover (i.e., 0%). The MS/SD RPD was also reported as greater than 20% by the laboratory. The associated positive detection is qualified as "J-".

## DUAL COLUMN IMPRECISION

All sample results were non-detect; therefore, column comparisons were not performed.

## POST-DIGESTION SPIKE

Metals by Method 6010C:

A post-digestion spike (PDS) was performed for MS/SD sample NYOW-01-PH023-B. Aluminum recovered above the upper control limit at 421%. Calcium (-156%), iron (-28%), and manganese (9%) recovered below the lower control imit. The aluminum, calcium, iron, and manganese

concentrations were greater than 4X the spiked amount in the MS; therefore, the post-digestion spike was not used to evaluate MS/SD recovery failures.

The PDS for NYOW-01-PH023-B exhibited recoveries less than the lower control limit for chromium (81%), cobalt (74%), copper (65%), lead (76%), magnesium (35%), nickel (71%), sodium (76%) and zinc (68%). The associated sample results were previously qualified; no further action is necessary.

**ICP SERIAL DILUTION**

Metals by Method 6010C:

An ICP serial dilution was performed for sample NYOW-01-PH023-B. The %Ds were greater than the control limit for calcium (14%) and iron (13%). The associated sample results are qualified as "J".

**LOW-LEVEL CHECK STANDARD**

Low-level check standards for methods 6010C and 6020A were performed using the low-level CCV standard. All recoveries were within the control limits.

**INTERFERENCE CHECK SAMPLES**

Interference check samples A and AB recoveries were evaluated and met the acceptance criteria.

The Interference Check Solution A (ICSA) associated with batches 280-532597 and 280-532171 had barium present above the LOD at 12.5 µg/L and 12 µg/L, respectively. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA results minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium (2 µg/L); qualification is not necessary.

The ICSA associated with batch 280-532447 had cobalt present above the LOD at 0 0.439 µg/L. The ICS vendor has noted that cobalt is a trace impurity in the ICSA with a trace concentration of 3 µg/L; qualification is not necessary.

The ICSA associated with batch 280-532747 had barium present above the LOD at 13.4 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium (2 µg/L); qualification is not necessary.

**COMMENTS**

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

There was insufficient sample volume to perform a MS/SD associated with aqueous VOC sample batch 280-532441. An LCS and LCSD were performed.

Sample NYOW-03-WL010-A clogged the syringe for the screening analysis of VOCs by GC/FID used to determine the workable dilution for final analysis by method 8260C. The sample was decanted to remove sediment before screening. The primary sample was analyzed at a 1X dilution and is not affected by selected dilution or screening anomaly.

There was insufficient sample volume to perform a MS/SD associated with aqueous SVOC batch 680-663561. An LCS and LCSD were performed.

There was insufficient sample volume to perform a MS/SD associated with aqueous SVOC reanalysis batch 680-665102. An LCS and LCSD were performed.

There was insufficient sample volume to perform a MS/SD associated with aqueous SVOC SIM sample batch 280-531849. An LCS and LCSD were performed.

There was insufficient sample volume to perform a MS/SD associated with aqueous PCB sample batch 280-531871. An LCS and LCSD were performed.

There was insufficient sample volume to perform a MS/SD associated with aqueous picric acid sample batches 280-531661 and 280-531805. An LCS and LCSD were performed.

One field duplicate and parent sample pair was collected and analyzed for all parameters (PH-DUP-001_210402 collected from NYOW-01-PH023-C). The RPD must be less than 50% when at least one result is greater than the LOQ. Calcium (83%), cobalt (65%), magnesium (61%), nickel (59%), and TOC did not meet the precision criteria.

The following samples were air dried and sieved in accordance with the procedure; however, the samples contained rocks and vegetation that would not pass through the sieve: NYOW-01-SL023-A, NYOW-01-PH023-B, NYOW-01-PH023-C, PH-DUP-001_210402, NYOW-01-SL015-A, NYOW-01-PH015-B, NYOW-01-PH015-C, NYOW-01-SL016-A, NYOW-01-PH016-B, and NYOW-01-PH016-C. The material was removed and not extracted.

The following samples required a sulfuric acid clean-up, via EPA Method 3665A, to reduce matrix interferences prior to PCB analysis: NYOW-03-WL010-A, NYOW-03-WL007-A, and EB-02_210402.

A portion of sample NYOW-03-WL010-A was used for analysis, rather than testing the entire sample amount in the original container, due to significant sediment layer in the bottles. As such, the required solvent rinse of the original container could not be performed.

LOQs were slightly greater than Project Quantitation Limit Goals (PQLGs) for SVOC analysis of aqueous sample NYOW-03-WL010-A and for multiple analytes associated with all aqueous SVOC analyses. Two aqueous samples had slightly elevated LOQs relative to the PQLGs. Mercury, DNP, and DNCB, and several 6020A metals had LOQs for soil greater than PQLGs due to percent moisture adjustments.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210402 | 280-146997-11 | SW6010C | Beryllium | 7440-41-7 | ug/L | 0.500 | | U | B2 |
| EB-01_210402 | 280-146997-11 | SW6020A | Thallium | 7440-28-0 | ug/L | 0.200 | | U | L |
| EB-01_210402 | 280-146997-11 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 10.0 | | UJ | Z6 |
| EB-02_210402 | 280-146997-15 | SW8260C | Bromomethane | 74-83-9 | ug/L | 0.800 | | UJ | V2 |
| EB-02_210402 | 280-146997-15 | SW8260C | Bromoform | 75-25-2 | ug/L | 1.00 | | UJ | V2 |
| EB-02_210402 | 280-147011-1 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/L | 0.380 | | UJ | V1 |
| EB-02_210402 | 280-147011-1 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 9.60 | | UJ | Z6 |
| EB-02_210402 | 280-147011-1 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 1.90 | | UJ | V2 |
| EB-02_210402 | 280-147011-1 | SW8270D | Caprolactam | 105-60-2 | ug/L | 1.90 | | UJ | V2 |
| NYOW-01-PH015-B | 280-146997-6 | SW6010C | Calcium | 7440-70-2 | mg/kg | 76000 | | J | A |
| NYOW-01-PH015-B | 280-146997-6 | SW6010C | Iron | 7439-89-6 | mg/kg | 14000 | | J | A |
| NYOW-01-PH015-B | 280-146997-6 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 350 | | UJ | I |
| NYOW-01-PH015-B | 280-146997-6 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | I |
| NYOW-01-PH015-C | 280-146997-7 | SW6010C | Calcium | 7440-70-2 | mg/kg | 84000 | | J | A |
| NYOW-01-PH015-C | 280-146997-7 | SW6010C | Iron | 7439-89-6 | mg/kg | 15000 | | J | A |
| NYOW-01-PH016-B | 280-146997-9 | SW6010C | Calcium | 7440-70-2 | mg/kg | 50000 | | J | A |
| NYOW-01-PH016-B | 280-146997-9 | SW6010C | Iron | 7439-89-6 | mg/kg | 20000 | | J | A |
| NYOW-01-PH016-B | 280-146997-9 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 340 | | UJ | I |
| NYOW-01-PH016-C | 280-146997-10 | SW6010C | Calcium | 7440-70-2 | mg/kg | 92000 | | J | A |
| NYOW-01-PH016-C | 280-146997-10 | SW6010C | Iron | 7439-89-6 | mg/kg | 14000 | | J | A |
| NYOW-01-PH016-C | 280-146997-10 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 340 | | UJ | I |
| NYOW-01-PH023-B | 280-146997-2 | SW6010C | Silver | 7440-22-4 | mg/kg | 0.520 | | UJ | D |
| NYOW-01-PH023-B | 280-146997-2 | SW6010C | Beryllium | 7440-41-7 | mg/kg | 0.230 | | J | D/TR |
| NYOW-01-PH023-B | 280-146997-2 | SW6010C | Calcium | 7440-70-2 | mg/kg | 32000 | | J | D/TR/A |
| NYOW-01-PH023-B | 280-146997-2 | SW6010C | Cobalt | 7440-48-4 | mg/kg | 9.70 | - | J | M/D/M2 |
| NYOW-01-PH023-B | 280-146997-2 | SW6010C | Chromium | 7440-47-3 | mg/kg | 7.90 | - | J | M/D/M2 |
| NYOW-01-PH023-B | 280-146997-2 | SW6010C | Copper | 7440-50-8 | mg/kg | 39.0 | - | J | M/D/M2 |
| NYOW-01-PH023-B | 280-146997-2 | SW6010C | Iron | 7439-89-6 | mg/kg | 14000 | | J | A |
| NYOW-01-PH023-B | 280-146997-2 | SW6010C | Potassium | 7440-09-7 | mg/kg | 740 | | J | D |
| NYOW-01-PH023-B | 280-146997-2 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 7900 | - | J | M/M2 |
| NYOW-01-PH023-B | 280-146997-2 | SW6010C | Sodium | 7440-23-5 | mg/kg | 55.0 | - | J | M/D/TR/M2 |
| NYOW-01-PH023-B | 280-146997-2 | SW6010C | Nickel | 7440-02-0 | mg/kg | 12.0 | - | J | M/D/M2 |
| NYOW-01-PH023-B | 280-146997-2 | SW6010C | Lead | 7439-92-1 | mg/kg | 7.30 | - | J | M/D/M2 |
| NYOW-01-PH023-B | 280-146997-2 | SW6010C | Vanadium | 7440-62-2 | mg/kg | 15.0 | | J | D |

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|---|---|---|---|---|---|---|---|---|---|
| NYOW-01-PH023-B | 280-146997-2 | SW6010C | Zinc | 7440-66-6 | mg/kg | 31.0 | - | J | M/D/M2 |
| NYOW-01-PH023-B | 280-146997-2 | SW9060A | Total Organic Carbon | | mg/kg | 18000 | | J | M/D/V2/V1 |
| NYOW-01-PH023-C | 280-146997-3 | SW6010C | Calcium | 7440-70-2 | mg/kg | 17000 | | J | D3/A |
| NYOW-01-PH023-C | 280-146997-3 | SW6010C | Cobalt | 7440-48-4 | mg/kg | 3.20 | | J | D3 |
| NYOW-01-PH023-C | 280-146997-3 | SW6010C | Iron | 7439-89-6 | mg/kg | 8800 | | J | A |
| NYOW-01-PH023-C | 280-146997-3 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 5300 | | J | D3 |
| NYOW-01-PH023-C | 280-146997-3 | SW6010C | Nickel | 7440-02-0 | mg/kg | 6.50 | | J | D3 |
| NYOW-01-PH023-C | 280-146997-3 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 350 | | UJ | I |
| NYOW-01-SL015-A | 280-146997-5 | SW6010C | Calcium | 7440-70-2 | mg/kg | 25000 | | J | A |
| NYOW-01-SL015-A | 280-146997-5 | SW6010C | Iron | 7439-89-6 | mg/kg | 17000 | | J | A |
| NYOW-01-SL016-A | 280-146997-8 | SW6010C | Calcium | 7440-70-2 | mg/kg | 40000 | | J | A |
| NYOW-01-SL016-A | 280-146997-8 | SW6010C | Iron | 7439-89-6 | mg/kg | 12000 | | J | A |
| NYOW-01-SL016-A | 280-146997-8 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 390 | | UJ | I |
| NYOW-01-SL023-A | 280-146997-1 | SW6010C | Calcium | 7440-70-2 | mg/kg | 33000 | | J | A |
| NYOW-01-SL023-A | 280-146997-1 | SW6010C | Iron | 7439-89-6 | mg/kg | 14000 | | J | A |
| NYOW-01-SL023-A | 280-146997-1 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 400 | | UJ | I |
| NYOW-01-SL023-A | 280-146997-1 | SW9060A | Total Organic Carbon | | mg/kg | 11000 | - | J | M/D |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Acetone | 67-64-1 | ug/L | 10.0 | - | J | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Bromodichloromethane | 75-27-4 | ug/L | 0.400 | | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Bromochloromethane | 74-97-5 | ug/L | 0.200 | | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Bromomethane | 74-83-9 | ug/L | 0.800 | | UJ | H1/V2 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Benzene | 71-43-2 | ug/L | 0.310 | - | J | TR/H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Toluene | 108-88-3 | ug/L | 0.400 | | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Carbon disulfide | 75-15-0 | ug/L | 0.800 | | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Methylcyclohexane | 108-87-2 | ug/L | 0.400 | | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Chlorobenzene | 108-90-7 | ug/L | 0.400 | | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Chloroethane | 75-00-3 | ug/L | 1.60 | | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Chloromethane | 74-87-3 | ug/L | 0.800 | | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Carbon tetrachloride | 56-23-5 | ug/L | 0.400 | | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Cyclohexane | 110-82-7 | ug/L | 0.800 | | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Dibromochloromethane | 124-48-1 | ug/L | 0.400 | | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 1,2-Dibromo-3-chloropropane | 96-12-8 | ug/L | 1.60 | | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 1,1-Dichloroethane | 75-34-3 | ug/L | 0.800 | | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 1,2-Dichloroethane | 107-06-2 | ug/L | 0.400 | | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 1,2-Dichlorobenzene | 95-50-1 | ug/L | 0.400 | | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 1,3-Dichlorobenzene | 541-73-1 | ug/L | 0.400 | | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 1,4-Dichlorobenzene | 106-46-7 | ug/L | 0.400 | | UJ | H1 |

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|---|---|---|---|---|---|---|---|---|
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 1,1-Dichloroethene | 75-35-4 | ug/L | 0.800 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | cis-1,2-Dichloroethene | 156-59-2 | ug/L | 0.400 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | trans-1,2-Dichloroethene | 156-60-5 | ug/L | 0.400 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | cis-1,3-Dichloropropene | 10061-01-5 | ug/L | 0.400 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | trans-1,3-Dichloropropene | 10061-02-6 | ug/L | 0.400 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 1,2-Dichloropropane | 78-87-5 | ug/L | 0.400 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 1,3-Dichloropropane | 142-28-9 | ug/L | 0.200 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Ethylbenzene | 100-41-4 | ug/L | 0.400 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 1,2-Dibromoethane (EDB) | 106-93-4 | ug/L | 0.400 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Trichlorofluoromethane | 75-69-4 | ug/L | 0.800 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | ug/L | 0.400 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Dichlorodifluoromethane | 75-71-8 | ug/L | 0.800 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 2-Hexanone | 591-78-6 | ug/L | 4.00 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Isopropylbenzene (Cumene) | 98-82-8 | ug/L | 0.400 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Methyl acetate | 79-20-9 | ug/L | 4.00 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 2-Butanone (MEK) | 78-93-3 | ug/L | 4.00 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 4-Methyl-2-pentanone (MIBK) | 108-10-1 | ug/L | 3.20 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Methylene chloride | 75-09-2 | ug/L | 2.00 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 1,1,2,2-Tetrachloroethane | 79-34-5 | ug/L | 0.800 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Tetrachloroethene (PCE) | 127-18-4 | ug/L | 0.400 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Styrene | 100-42-5 | ug/L | 0.800 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Bromoform | 75-25-2 | ug/L | 1.00 | UJ | H1/V2 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Methyl tert-butyl ether (MTBE) | 1634-04-4 | ug/L | 0.800 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 1,1,1-Trichloroethane | 71-55-6 | ug/L | 0.400 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 1,1,2-Trichloroethane | 79-00-5 | ug/L | 0.800 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 1,2,3-Trichlorobenzene | 87-61-6 | ug/L | 0.800 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | 1,2,4-Trichlorobenzene | 120-82-1 | ug/L | 0.800 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Chloroform | 67-66-3 | ug/L | 0.400 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | Vinyl chloride | 75-01-4 | ug/L | 0.200 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | m,p-Xylene | 179601-23-1 | ug/L | 0.800 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8260C | o-Xylene | 95-47-6 | ug/L | 0.400 | UJ | H1 |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 11.0 | UJ | I/Z6 |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.10 | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.10 | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.10 | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.10 | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.10 | UJ | I |

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|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.70 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.00 | - | J | I/TR/V2 |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Caprolactam | 105-60-2 | ug/L | 0.890 | - | J | I/TR/V2 |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.30 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 64.0 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 11.0 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.70 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 5.30 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 11.0 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 11.0 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL002-A | 280-146997-13 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.10 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/L | 0.430 | | UJ | V1 |
| NYOW-03-WL007-A | 280-146997-14 | SW8260C | Bromomethane | 74-83-9 | ug/L | 0.800 | | UJ | V2 |
| NYOW-03-WL007-A | 280-146997-14 | SW8260C | Bromoform | 75-25-2 | ug/L | 1.00 | | UJ | V2 |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 19.0 | | UJ | I/Z6 |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Acetophenone | 98-86-2 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Atrazine | 1912-24-9 | ug/L | 3.80 | | UJ | I |

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|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Bis(2-chloroethyl) ether (2- | 111-44-4 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 4.70 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 3.80 | | UJ | I/V2 |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Caprolactam | 105-60-2 | ug/L | 3.80 | | UJ | I/V2 |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Carbazole | 86-74-8 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 9.50 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 110 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 19.0 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 4.70 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 9.50 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Isophorone | 78-59-1 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 19.0 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 19.0 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 3.80 | | UJ | I |
| NYOW-03-WL007-A | 280-146997-14 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.130 | | UJ | I |
| NYOW-03-WL010-A | 280-146997-12 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/L | 0.440 | | UJ | V1 |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Acetone | 67-64-1 | ug/L | 5.00 | - | J | TR/P |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Bromodichloromethane | 75-27-4 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Bromochloromethane | 74-97-5 | ug/L | 0.200 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Bromomethane | 74-83-9 | ug/L | 0.800 | | UJ | P/V2 |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Benzene | 71-43-2 | ug/L | 0.350 | - | J | TR/P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Toluene | 108-88-3 | ug/L | 0.560 | - | J | TR/P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Carbon disulfide | 75-15-0 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Methylcyclohexane | 108-87-2 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Chlorobenzene | 108-90-7 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Chloroethane | 75-00-3 | ug/L | 1.60 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Chloromethane | 74-87-3 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Carbon tetrachloride | 56-23-5 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Cyclohexane | 110-82-7 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Dibromochloromethane | 124-48-1 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 1,2-Dibromo-3-chloropropane | 96-12-8 | ug/L | 1.60 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 1,1-Dichloroethane | 75-34-3 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 1,2-Dichloroethane | 107-06-2 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 1,2-Dichlorobenzene | 95-50-1 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 1,3-Dichlorobenzene | 541-73-1 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 1,4-Dichlorobenzene | 106-46-7 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 1,1-Dichloroethene | 75-35-4 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | cis-1,2-Dichloroethene | 156-59-2 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | trans-1,2-Dichloroethene | 156-60-5 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | cis-1,3-Dichloropropene | 10061-01-5 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | trans-1,3-Dichloropropene | 10061-02-6 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 1,2-Dichloropropane | 78-87-5 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 1,3-Dichloropropane | 142-28-9 | ug/L | 0.200 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Ethylbenzene | 100-41-4 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 1,2-Dibromoethane (EDB) | 106-93-4 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Trichlorofluoromethane | 75-69-4 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Dichlorodifluoromethane | 75-71-8 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 2-Hexanone | 591-78-6 | ug/L | 4.00 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Isopropylbenzene (Cumene) | 98-82-8 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Methyl acetate | 79-20-9 | ug/L | 4.00 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 2-Butanone (MEK) | 78-93-3 | ug/L | 4.00 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 4-Methyl-2-pentanone (MIBK) | 108-10-1 | ug/L | 3.20 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Methylene chloride | 75-09-2 | ug/L | 2.00 | | UJ | P |

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|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 1,1,2,2-Tetrachloroethane | 79-34-5 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Tetrachloroethene (PCE) | 127-18-4 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Styrene | 100-42-5 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Bromoform | 75-25-2 | ug/L | 1.00 | | UJ | P/V2 |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Methyl tert-butyl ether (MTBE) | 1634-04-4 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 1,1,1-Trichloroethane | 71-55-6 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 1,1,2-Trichloroethane | 79-00-5 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 1,2,3-Trichlorobenzene | 87-61-6 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | 1,2,4-Trichlorobenzene | 120-82-1 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Chloroform | 67-66-3 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | Vinyl chloride | 75-01-4 | ug/L | 0.200 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | m,p-Xylene | 179601-23-1 | ug/L | 0.570 | - | J | TR/P |
| NYOW-03-WL010-A | 280-146997-12 | SW8260C | o-Xylene | 95-47-6 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL010-A | 280-146997-12 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 10.0 | | UJ | Z6 |
| NYOW-03-WL010-A | 280-146997-12 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.10 | | UJ | V2 |
| NYOW-03-WL010-A | 280-146997-12 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.10 | | UJ | V2 |
| PH-DUP-001_210402 | 280-146997-4 | SW6010C | Calcium | 7440-70-2 | mg/kg | 41000 | | J | D3/A |
| PH-DUP-001_210402 | 280-146997-4 | SW6010C | Cobalt | 7440-48-4 | mg/kg | 6.30 | | J | D3 |
| PH-DUP-001_210402 | 280-146997-4 | SW6010C | Iron | 7439-89-6 | mg/kg | 12000 | | J | A |
| PH-DUP-001_210402 | 280-146997-4 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 10000 | | J | D3 |
| PH-DUP-001_210402 | 280-146997-4 | SW6010C | Nickel | 7440-02-0 | mg/kg | 12.0 | | J | D3 |
| PH-DUP-001_210402 | 280-146997-4 | SW9060A | Total Organic Carbon | | mg/kg | 4500 | | J | D3 |
| TB-01_210402 | 280-146997-16 | SW8260C | Bromomethane | 74-83-9 | ug/L | 0.800 | | UJ | V2 |
| TB-01_210402 | 280-146997-16 | SW8260C | Bromoform | 75-25-2 | ug/L | 1.00 | | UJ | V2 |

Reason Code Definitions

| | | | |
|---|---|---|---|
| A | Serial Dilution | L | Lab Blank |
| D | MS/SD RPD | M | MS Recovery |
| TR | Trace Detect | M2 | PDS Recovery |
| D3 | FD RPD | V1 | ICV |
| H1 | Test Hold Time | P | Sample Preservation |
| V2 | CCV | Z6 | 12-Hour Tune |
| I | Surrogate Recover | B2 | CCB |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 4 July 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM Revision 2: 280-147031-1 Revision 1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Volatile Organic Compounds (VOCs) by SW-846 Method 8260C
- Semi-Volatile Organic Compounds (SVOCs) by SW-846 Method 8270D
- SVOCs with SIM by SW-846 Method 8270D (BNASIMD)
- Picric Acid by SW-846 Method 8330A (soils)
- Picric Acid by SW-846 Method 8330B (equipment blank)
- Polychlorinated Biphenyls (PCBs) by SW-846 Method 8082A
- Metals by ICP SW-846 Method 6010C
- Metals by ICP-MS SW-846 Method 6020A
- Mercury (Hg) by SW-846 Method 7470A
- Hg by SW-846 Method 7471B
- Total Organic Carbon (TOC) by SW-846 Method 9060A
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG) for samples collected on 5 April 2021, laboratory and client sample identification numbers, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

## TABLE 1: SAMPLE SUMMARY

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6020A | SW7470A | SW7471B | SW8082A | SW8260C | SW8270D | SW8330A | SW8330B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-PH008-B | 280-147031-2 | Solid | Field Sample/N | X | X | X | X | | X | X | X | X | X | | |
| NYOW-03-PH009-B | 280-147031-4 | Solid | Field Sample/N | X | X | X | X | | X | X | X | X | X | | X |
| NYOW-03-PH013-B | 280-147031-7 | Solid | Field Sample/N | X | X | X | X | | X | X | X | X | X | | X |
| NYOW-03-PH014-B | 280-147031-9 | Solid | Field Sample/N | X | X | X | X | | X | X | X | X | X | | |
| NYOW-03-PH015-B | 280-147031-11 | Solid | Field Sample/N | X | X | X | X | | X | X | X | X | X | | X |
| NYOW-03-SL008-A | 280-147031-1 | Solid | Field Sample/N | X | X | X | X | | X | X | | X | X | | |
| NYOW-03-SL009-A | 280-147031-3 | Solid | Field Sample/N | X | X | X | X | | X | X | | X | X | | X |
| NYOW-03-SL013-A | 280-147031-5 | Solid | Field Sample/N | X | X | X | X | | X | X | | X | X | | X |
| NYOW-03-SL014-A | 280-147031-8 | Solid | Field Sample/N | X | X | X | X | | X | X | | X | X | | |
| NYOW-03-SL015-A | 280-147031-10 | Solid | Field Sample/N | X | X | X | X | | X | X | | X | X | | X |
| SL-DUP-001_210405 | 280-147031-6 | Solid | Field Duplicate/FD | X | X | X | X | | X | X | | X | X | | X |
| EB-01_210405 | 280-147031-12 | Water | Equipment Blank/EB | X | | X | X | X | | X | X | X | | X | |
| TB-01_210405 | 280-147031-13 | Water | Trip Blank/TB | | | | | | | | X | | | | |

Notes: SL-DUP-001_210405 collected from NYOW-03-SL013-A

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 1.5°C, 1.8°C, 2.2°C, 3.7°C, and 4.2°C.

One of two 8-ounce soil jars appeared to contain cooler water for sample NYOW-03-PH008-B[MSD]. The container was marked "Do Not Use". Sufficient volume remained to perform the matrix spike duplicate.

One of two 8-ounce soil jars did not have a collection time on the label: NYOW-03-PH009-B. The sample was logged in accordance with the COC.

No labels were present on the vials for sample TB-01_210405. The sample was logged in accordance with the COC.

The following samples for method 8270D were received at the Savannah laboratory outside the required temperature criteria: NYOW-03-SL008-A, NYOW-03-PH008-B, NYOW-03-SL009-A, NYOW-03-PH009-B, NYOW-03-SL013-A, SL-DUP-001_210405, NYOW-03-PH013-B, NYOW-03-SL014-A, NYOW-03-PH014-B, NYOW-03-SL015-A, NYOW-03-PH015-B, and EB-01_210405. The cooler was shipped out priority overnight from Denver to Savannah; however, due to a FedEx transit delay, the cooler arrived on 4/12 at a temperature of 17.6°C. Bluestone was contacted and the laboratory was instructed to cancel sample analysis; however, the laboratory inadvertently performed the analysis. The results are qualified as "X" and recommended for rejection. The affected sample locations will be resampled and are not included in the completeness calculation. No further validation of the rejected data was conducted.

Surrogates 2-Fluorobiphenyl and Nitrobenzene-d5 recovered below the lower warning limit for sample NYOW-03-PH009-B for ***SVOC SIM*** analysis. Evidence of matrix interferences was not obvious. The sample was re-extracted/reanalyzed, and surrogates were in control. Both sets of results were reported; however, the re-extraction was performed 2 days outside of the 14-day extraction holding time. Therefore, the initial results are recommended for data interpretation.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | X | |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | | X |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | | X |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A bromofluorobenzene instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for VOCs (i.e., each 12-hour period). The tunes met the ion abundance criteria. A decafluorotriphenylphosphine instrument performance check was performed prior to the initial instrument calibrations and at the start of each sample analysis batch for SVOCs and  SVOCs with SIM. The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exception noted below.

PCBs by Method 8082A:

Initial calibration sample 280-533282/10 exhibited a %D greater than the control limit for PCB-1016 Peak 5 at 22%. Two passing calibration verifications were performed prior to the analysis of the equipment blank sample; qualification is not necessary.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

VOCs by Method 8260C:

Continuing calibration verification (CCV) 280-531986/2 exhibited a %D greater than the control limit for acetone at 21.5%. The associated sample results were non-detect and are qualified as “UJ”.

PCBs by Method 8082A:

CCV 280-533293/38 exhibited %Ds greater than the control limit with positive biases for PCB-1016 peaks ranging from 24.1% to 30.4%. The associated soil sample results for SL-DUP-001_210405 are qualified as “UJ”.

Opening CCV 280-533290/3 exhibited a %D greater than the control limit with negative bias for a PCB-1016 peak at 42.9%. The CCV did not bracket the analysis of investigative samples; qualification is not necessary.

CCV 280-533290/19 exhibited a %D greater than the control limit with negative bias for a PCB-1016 peak at 37.6%. The CCV did not bracket the analysis of investigative samples; qualification is not necessary.

CCV 280-533290/32 exhibited %Ds greater than the control limit with negative biases for PCB-1016 peaks ranging from 20.5% to 21.5%. The associated soil sample results are qualified as "UJ".

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

**BLANK SAMPLE RESULTS**

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, trip blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, continuing calibration blanks, trip blanks, and equipment blanks with the exceptions noted below.

VOCs by Method 8260C:

Method blank sample MB 280-531982/3-A exhibited a positive detection methylene chloride (4.48 µg/kg). The associated sample results were non-detect; qualification is not required.

SVOCs by Method 8270D with SIM:

Method blank sample MB 280-531849/1-A exhibited positive detections for 1-methylnaphthalene (0.0185 µg/L) and 2-methylnaphthalene (0.0275 µg/L). The associated equipment blank sample results were non-detect; qualification is not required.

Method blank sample MB 280-531832/1-A exhibited positive detections below the LOQ for acenaphthene (0.428 µg/kg) and acenaphthylene (1.9 µg/kg). The associated soil sample results less than the LOD or LOQ are qualified as "U" at the LOD or LOQ.

Metals by Method 6010C:

Preparation blank sample 280-532642/1-A exhibited positive detections greater than the detection limit but less than the LOQ for aluminum (1.85 mg/kg), cobalt (0.07 mg/kg), nickel (0.2 mg/kg), and zinc (1.05 mg/kg). The associated positive detections for were greater than the LOQ; qualification is not necessary.

Equipment blank sample EB-01_210405 exhibited positive detections below the LOQ for aluminum (26 µg/L) and beryllium (0.55 µg/L). The associated soil sample results are not qualified on the basis of aqueous equipment blanks.

Continuing calibration blank (CCB) 280-532973/48 exhibited a positive detection below the LOQ for cobalt at 1.28 µg/L. The associated sample results were greater than the LOQ; qualification is not necessary.

CCB 280-532444/96 exhibited positive detections for beryllium and manganese at 0.376 µg/L and 5.23 µg/L, respectively. The associated equipment blank sample result for beryllium is qualified as "U" at the LOQ. The manganese result was non-detect; qualification is not necessary.

Metals by Method 6020A:

Initial calibration blank (ICB) 280-532776/15 exhibited a positive detection for antimony. The ICB did not bracket the analysis of investigative samples; qualification is not necessary.

ICB 280-533080/15 exhibited a positive detection for antimony. The ICB did not bracket the analysis of investigative samples; qualification is not necessary.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

VOCs by Method 8260C:

Samples EB-01_210405 and TB-01_210405 exhibited recoveries greater than the upper warning limit for toluene-d8 at 113% and 113%, respectively. The associated sample results were non-detect; qualification is not required.

SVOCs by Method 8270D with SIM:

Sample NYOW-03-PH009-B exhibited recoveries less than the lower warning limits for 2-fluorobiphenyl and nitrobenzene-d5 at 38% and 41%, respectively. The associated sample results were non-detect and are qualified as "UJ".

Sample NYOW-03-SL008-A exhibited a recovery greater than the upper control limit for fluoranthene-d10 at 113% for the 1X dilution analysis. The associated positive detections are qualified as "J+". Results reported from the reanalysis performed at 40X were not qualified on the basis of surrogate recoveries.

Sample NYOW-03-SL015-A was analyzed at 10X and 100X dilutions. The sample results were not qualified on the basis of surrogate recoveries.

Sample EB-01_210405 exhibited recoveries less than the lower warning limits for 2-fluorobiphenyl and nitrobenzene-d5 at 50% and 46%, respectively. The associated sample results were non-detect and are qualified as "UJ".

PCBs by Method 8082A:

Sample NYOW-03-SL008-A exhibited a recovery greater than the upper control limit for decachlorobiphenyl at 213%. The associated positive detection for PCB-1260 is qualified as "J+".

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D with SIM:

Aqueous LCS/LCSD 280-531849/2-A/3-A exhibited relative percent differences greater than the control limit for benzo(g,h,i)perylene (20%), dibenz(a,h)anthracene (25%), and indeno(1,2,3-cd)pyrene (22%). The associated equipment blank sample results were non-detect; qualification is not necessary.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

VOCs by Method 8260C:

MSD sample NYOW-03-PH008-B exhibited a recovery greater than the control limit for methyl tert-butyl ether at 126%. The associated sample result was non-detect; qualification is not required.

SVOCs by Method 8270D with SIM:

MS/SD sample NYOW-03-SL009-A exhibited recoveries less than the lower warning limits and control limit as shown in the table below. In addition, the MS/SD RPD for phenanthrene was greater than the control limit at 42%. The associated sample results were positive detections and are qualified as "J-".

| Analyte | MS % Recovery | SD % Recovery | MS/SD RPD | Qualifier |
|---|---|---|---|---|
| Acenaphthylene | 19 | 4 | -- | J- |
| Anthracene | 49 | -- | -- | J- |
| Benzo(a)anthracene | -15 | 2 | -- | J- |
| Benzo(a)pyrene | -13 | -15 | -- | J- |
| Benzo(b)fluoranthene | -76 | -90 | -- | J- |
| Benzo(g,h,i)perylene | 13 | -7 | -- | J- |

| Analyte | MS % Recovery | SD % Recovery | MS/SD RPD | Qualifier |
|---|---|---|---|---|
| Benzo(k)fluoranthene | 10 | 6 | -- | J- |
| Chrysene | -38 | -32 | -- | J- |
| Fluoranthene | -141 | -74 | -- | J- |
| Fluorene | -- | 46 | -- | J- |
| Indeno(1,2,3-c,d)pyrene | 5 | -6 | -- | J- |
| Phenanthrene | -122 | -63 | 42 | J- |
| Pyrene | -83 | -52 | -- | J- |

Picric Acid by Method 8330A:

MS/SD sample NYOW-03-PH008-B exhibited recoveries less than the lower control limit at 17% and 18%, respectively. The associated sample result is qualified as “UJ”.

MS/SD sample NYOW-03-SL009-A exhibited recoveries less than the lower control limit at 30% and 28%, respectively. The associated sample result is qualified as “UJ”.

Metals by Method 6010C:

MS/SD sample NYOW-03-PH008-B exhibited recoveries outside of control limits for aluminum. The associated sample concentrations were greater than 4X the spiked amount; qualification is not necessary.

MS/SD sample NYOW-03-PH008-B exhibited recoveries and RPDs outside of warning limits for the analytes shown below. The associated sample results were qualified as “UJ” or “J-“.

| Analyte | MS % Recovery | SD % Recovery | MS/SD RPD | Qualifier |
|---|---|---|---|---|
| Barium | 68 | 70 | -- | J- |
| Beryllium | 68 | 69 | -- | J- |
| Calcium | -- | 2.5 | 56 | J- |
| Chromium | 69 | 70 | -- | J- |
| Cobalt | 67 | 69 | -- | J- |
| Copper | 69 | 70 | -- | J- |
| Magnesium | 65 | 47 | -- | J- |
| Manganese | 63 | 76 | -- | J- |
| Nickel | 66 | 68 | -- | J- |
| Potassium | -- | 79 | -- | J- |
| Silver | 70 | 71 | -- | UJ |
| Sodium | 67 | 68 | -- | J- |
| Vanadium | 70 | 71 | -- | J- |

| Analyte | MS % Recovery | SD % Recovery | MS/SD RPD | Qualifier |
|---|---|---|---|---|
| Zinc | 65 | 58 | -- | J- |
| Lead | 63 | 65 | -- | J- |

MS/SD sample NYOW-03-SL009-A exhibited recoveries and a RPD outside of control limits for aluminum and recoveries outside of control limits for iron. The associated sample concentrations were greater than 4X the spiked amount; qualification is not necessary.

MS/SD sample NYOW-03-SL009-A exhibited recoveries and RPDs outside of warning limits for the analytes shown below. The associated sample results were qualified as "UJ", "J", "J-", or "J+".

| Analyte | MS % Recovery | SD % Recovery | MS/SD RPD | Qualifier |
|---|---|---|---|---|
| Barium | -- | 76 | 39 | J- |
| Beryllium | -- | 74 | 40 | J- |
| Calcium | 130 | -- | 40 | J+ |
| Chromium | -- | 76 | 38 | J- |
| Cobalt | -- | 75 | 39 | J- |
| Copper | -- | 78 | 38 | J- |
| Magnesium | -- | -- | 35 | J |
| Manganese | 123 | -- | 22 | J+ |
| Nickel | -- | 75 | 37 | J- |
| Potassium | -- | -- | 38 | J |
| Silver | -- | 78 | -- | UJ |
| Sodium | -- | 74 | 41 | J- |
| Vanadium | -- | 77 | 35 | J- |
| Zinc | -- | -- | 30 | J |
| Lead | -- | 73 | 37 | J- |

Metals by Method 6020A:

MS/SD sample NYOW-03-SL009-A exhibited a RPD outside of control limits for antimony at 31%. The associated sample result is qualified as "J".

## DUAL COLUMN IMPRECISION

PCBs by Method 8082A:

Sample NYOW-03-SL008-A exhibited dual column imprecision greater than the control limit (i.e., 40%) for PCB-1260 at 68%. The associated sample result was previously qualified; no further action is necessary.

Sample NYOW-03-SL013-A exhibited dual column imprecision greater than the control limit for PCB-1260 at 52%. The associated sample result is qualified as "J".

Sample NYOW-03-SL015-A exhibited dual column imprecision greater than the control limit for PCB-1260 at 104%. The associated sample result is qualified as “J”.

Sample NYOW-03-SL014-A exhibited dual column imprecision greater than the control limit for PCB-1260 at 52%; the non-detect result from the primary column was reported. The secondary column result was below the LOD. On the basis of professional judgment, qualification is not necessary.

**POST-DIGESTION SPIKE**

Metals by Method 6010C:

A post-digestion spike (PDS) was performed for MS/SD sample NYOW-03-PH008-B. Aluminum (-128%), iron (-214%), and manganese (-16%) recovered below the lower control limit. The aluminum concentration was greater than 4X the spiked amount in the MS. Iron recovered within control in the MS/SD sample; therefore, the post-digestion spike was not used to evaluate MS/SD recovery failures. The result for manganese was previously qualified; no further action is necessary.

Metals by Method 6020A:

A PDS was performed for MS/SD sample NYOW-03-PH008-B and all recoveries were acceptable.

**ICP SERIAL DILUTION**

Metals by Method 6010C:

An ICP serial dilution was performed for sample NYOW-03-PH008-B. The %Ds were greater than the control limit for aluminum (17%), calcium (23%), iron (20%), and magnesium (21%). The associated sample results are qualified as “J”.

**LOW-LEVEL CHECK STANDARD**

Low-level check standards for methods 6010C and 6020A were performed using the low-level CCV standard. All recoveries were within the control limits.

**INTERFERENCE CHECK SAMPLES**

Interference check samples A and AB recoveries were evaluated and met the acceptance criteria.

The Interference Check Solution A (ICSA) associated with batch 280-532980 had cobalt present above the LOD at 0.428 µg/L. The ICS vendor has noted that cobalt is a trace impurity in the ICSA with a trace concentration of 3 µg/L; qualification is not necessary.

The ICSA associated with batch 280-532973 had barium present above the LOD at 13.3 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium (2 µg/L); qualification is not necessary.

The ICSA associated with batch 280-532316 had barium present above the LOD at 12.4 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium (2 µg/L); qualification is not necessary.

The ICSA associated with batch 280-532808 had cobalt present above the LOD at 0.475 µg/L. The ICS vendor has noted that cobalt is a trace impurity in the ICSA with a trace concentration of 3 µg/L; qualification is not necessary.

The initial and closing ICSA associated with batch 280-533080 had cobalt present above the LOD at 0.472 µg/L and 0.455 µg/L, respectively. The ICS vendor has noted that cobalt is a trace impurity in the ICSA with a trace concentration of 3 µg/L; qualification is not necessary.

**COMMENTS**

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

There was insufficient sample volume to perform a MS/SD associated with aqueous VOC batch 280-532592. An LCS and LCSD were performed.

There was insufficient sample volume to perform a MS/SD associated with PCB batch 280-531867. An LCS and LCSD were performed.

One field duplicate and parent sample pair was collected and analyzed for all parameters (SL-DUP-001_210405 and NYOW-03-SL013-A). The RPD must be less than 50% when at least one result is greater than the LOQ. The following RPDs did not meet the precision criteria: acenaphthylene (69%), anthracene (73%), benzo(a)anthracene (63%), benzo(a)pyrene (61%), benzo(b)fluoranthene (59%), benzo(g,h,i)perylene (65%), benzo(k)fluoranthene (54%), chrysene (70%), fluoranthene (59%), and phenanthrene (200%). The TOC RPD (67%) also did not meet the precision criteria.

The following samples required a sulfuric acid clean-up, via EPA Method 3665A, to reduce matrix interferences prior to PCB analysis: NYOW-03-SL008-A, NYOW-03-PH008-B, SL-DUP-001_210405, NYOW-03-SL009-A, NYOW-03-PH009-B, NYOW-03-SL013-A, NYOW-03-PH013-B, NYOW-03-SL014-A, NYOW-03-PH014-B, NYOW-03-SL015-A, and NYOW-03-PH015-B.

Samples NYOW-03-SL008-A (40X), SL-DUP-001_210405 (10X), NYOW-03-SL014-A (10X), NYOW-03-SL015-A (10X), and NYOW-03-SL015-A (100X) required dilution prior to analysis. The reporting limits have been adjusted accordingly. Samples SL-DUP-001_210405, NYOW-03-SL014-A, and NYOW-03-SL015-A produced a dark viscous extract.

LOQs were greater than Project Quantitation Limit Goals (PQLGs) for SVOCs with SIM due to sample dilution. Metal analytes, PCBs, and three VOCs (carbon disulfide, cis-1,3-dichloropropene, and trans-1,3-dichloropropene) had LOQs greater than the PQLG due to percent moisture adjustments.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified. As noted in the section on Sample Receipt and Holding Times, all data for SVOC 8270D analysis of samples NYOW-03-SL008-A, NYOW-03-PH008-B, NYOW-03-SL009-A, NYOW-03-PH009-B, NYOW-03-SL013-A, SL-DUP-001_210405, NYOW-03-PH013-B, NYOW-03-SL014-A, NYOW-03-PH014-B, NYOW-03-SL015-A, NYOW-03-PH015-B, and EB-01_210405 are rejected based on shipping delays that resulted in temperature exceedances. Re-sampling will be conducted to replace these data; therefore, completeness is calculated for this SDG based only on the remaining data.

Analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210405 | 280-147031-12 | BNASIMD | Acenaphthene | 83-32-9 | ug/L | 0.0130 | | UJ | I |
| EB-01_210405 | 280-147031-12 | BNASIMD | Acenaphthylene | 208-96-8 | ug/L | 0.0220 | | UJ | I |
| EB-01_210405 | 280-147031-12 | BNASIMD | Anthracene | 120-12-7 | ug/L | 0.110 | | UJ | I |
| EB-01_210405 | 280-147031-12 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/L | 0.110 | | UJ | I |
| EB-01_210405 | 280-147031-12 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/L | 0.0550 | | UJ | I |
| EB-01_210405 | 280-147031-12 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/L | 0.110 | | UJ | I |
| EB-01_210405 | 280-147031-12 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/L | 0.110 | | UJ | I |
| EB-01_210405 | 280-147031-12 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/L | 0.0550 | | UJ | I |
| EB-01_210405 | 280-147031-12 | BNASIMD | Chrysene | 218-01-9 | ug/L | 0.110 | | UJ | I |
| EB-01_210405 | 280-147031-12 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.110 | | UJ | I |
| EB-01_210405 | 280-147031-12 | BNASIMD | Fluorene | 86-73-7 | ug/L | 0.0440 | | UJ | I |
| EB-01_210405 | 280-147031-12 | BNASIMD | Fluoranthene | 206-44-0 | ug/L | 0.110 | | UJ | I |
| EB-01_210405 | 280-147031-12 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/L | 0.110 | | UJ | I |
| EB-01_210405 | 280-147031-12 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/L | 0.0440 | | UJ | I |
| EB-01_210405 | 280-147031-12 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/L | 0.0550 | | UJ | I |
| EB-01_210405 | 280-147031-12 | BNASIMD | Naphthalene | 91-20-3 | ug/L | 0.0550 | | UJ | I |
| EB-01_210405 | 280-147031-12 | BNASIMD | Phenanthrene | 85-01-8 | ug/L | 0.110 | | UJ | I |
| EB-01_210405 | 280-147031-12 | BNASIMD | Pyrene | 129-00-0 | ug/L | 0.110 | | UJ | I |
| EB-01_210405 | 280-147031-12 | SW6010C | Beryllium | 7440-41-7 | ug/L | 1.50 | | U | L |
| EB-01_210405 | 280-147031-12 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 10.0 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.50 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.10 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/L | 2.00 | | X | U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210405 | 280-147031-12 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 61.0 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 10.0 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/L | 10.0 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/L | 20.0 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.50 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/L | 20.0 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 5.10 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Cresols, m- & p- | | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 10.0 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 10.0 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/L | 4.10 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 4.10 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | Phenol | 108-95-2 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/L | 2.00 | | X | U |
| EB-01_210405 | 280-147031-12 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/L | 2.00 | | X | U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210405 | 280-147031-12 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/L | 2.00 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 12.0 | | U | L |
| NYOW-03-PH008-B | 280-147031-2 | SW6010C | Silver | 7440-22-4 | mg/kg | 0.550 | | UJ | M |
| NYOW-03-PH008-B | 280-147031-2 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 6400 | | J | A |
| NYOW-03-PH008-B | 280-147031-2 | SW6010C | Barium | 7440-39-3 | mg/kg | 19.0 | - | J | M |
| NYOW-03-PH008-B | 280-147031-2 | SW6010C | Beryllium | 7440-41-7 | mg/kg | 0.230 | - | J | M/TR |
| NYOW-03-PH008-B | 280-147031-2 | SW6010C | Calcium | 7440-70-2 | mg/kg | 5900 | - | J | M/D/A |
| NYOW-03-PH008-B | 280-147031-2 | SW6010C | Cobalt | 7440-48-4 | mg/kg | 3.40 | - | J | M |
| NYOW-03-PH008-B | 280-147031-2 | SW6010C | Chromium | 7440-47-3 | mg/kg | 6.10 | - | J | M |
| NYOW-03-PH008-B | 280-147031-2 | SW6010C | Copper | 7440-50-8 | mg/kg | 6.40 | - | J | M |
| NYOW-03-PH008-B | 280-147031-2 | SW6010C | Iron | 7439-89-6 | mg/kg | 8700 | | J | A |
| NYOW-03-PH008-B | 280-147031-2 | SW6010C | Potassium | 7440-09-7 | mg/kg | 470 | - | J | M |
| NYOW-03-PH008-B | 280-147031-2 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 3100 | - | J | M/A |
| NYOW-03-PH008-B | 280-147031-2 | SW6010C | Manganese | 7439-96-5 | mg/kg | 160 | - | J | M/M2 |
| NYOW-03-PH008-B | 280-147031-2 | SW6010C | Sodium | 7440-23-5 | mg/kg | 38.0 | - | J | M/TR |
| NYOW-03-PH008-B | 280-147031-2 | SW6010C | Nickel | 7440-02-0 | mg/kg | 6.70 | - | J | M |
| NYOW-03-PH008-B | 280-147031-2 | SW6010C | Lead | 7439-92-1 | mg/kg | 6.50 | - | J | M |
| NYOW-03-PH008-B | 280-147031-2 | SW6010C | Vanadium | 7440-62-2 | mg/kg | 10.0 | - | J | M |
| NYOW-03-PH008-B | 280-147031-2 | SW6010C | Zinc | 7440-66-6 | mg/kg | 25.0 | - | J | M |
| NYOW-03-PH008-B | 280-147031-2 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 34.0 | | UJ | V2 |
| NYOW-03-PH008-B | 280-147031-2 | SW8260C | Acetone | 67-64-1 | ug/kg | 75.0 | | UJ | V2 |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 390 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 390 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 99.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 390 | | X | L/M/U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 200 | | X | M/U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Carbazole | 86-74-8 | ug/kg | 80.0 | | X | U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 99.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 390 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/kg | 390 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 390 | | X | L/U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 99.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Isophorone | 78-59-1 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Cresols, m- & p- | | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 200 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 99.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 99.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 800 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 80.0 | | X | M/U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 800 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | Phenol | 108-95-2 | ug/kg | 80.0 | | X | U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 99.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH008-B | 280-147031-2 | SW8330A | Picric acid | 88-89-1 | ug/kg | 160 | | UJ | M |
| NYOW-03-PH009-B | 280-147031-4 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 1.30 | | UJ | L/I |
| NYOW-03-PH009-B | 280-147031-4 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 12.0 | | UJ | L/I |
| NYOW-03-PH009-B | 280-147031-4 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 5.10 | | UJ | I |
| NYOW-03-PH009-B | 280-147031-4 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 5.10 | | UJ | I |
| NYOW-03-PH009-B | 280-147031-4 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 5.10 | | UJ | I |
| NYOW-03-PH009-B | 280-147031-4 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 7.80 | | UJ | I |
| NYOW-03-PH009-B | 280-147031-4 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 7.80 | | UJ | I |
| NYOW-03-PH009-B | 280-147031-4 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 5.10 | | UJ | I |
| NYOW-03-PH009-B | 280-147031-4 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 5.10 | | UJ | I |
| NYOW-03-PH009-B | 280-147031-4 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.80 | | UJ | I |
| NYOW-03-PH009-B | 280-147031-4 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 3.10 | | UJ | I |
| NYOW-03-PH009-B | 280-147031-4 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 5.10 | | UJ | I |
| NYOW-03-PH009-B | 280-147031-4 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 7.80 | | UJ | I |
| NYOW-03-PH009-B | 280-147031-4 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 2.30 | | UJ | I |
| NYOW-03-PH009-B | 280-147031-4 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/kg | 2.30 | | UJ | I |
| NYOW-03-PH009-B | 280-147031-4 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 2.30 | | UJ | I |
| NYOW-03-PH009-B | 280-147031-4 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 7.80 | | UJ | I |
| NYOW-03-PH009-B | 280-147031-4 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 7.80 | | UJ | I |
| NYOW-03-PH009-B | 280-147031-4 | SW8260C | Acetone | 67-64-1 | ug/kg | 71.0 | | UJ | V2 |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 390 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 390 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 99.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 80.0 | | X | U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 200 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Carbazole | 86-74-8 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 99.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 390 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/kg | 390 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 390 | | X | L/U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1600 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 99.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Isophorone | 78-59-1 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Cresols, m- & p- | | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 200 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 99.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 99.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 800 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 80.0 | | X | U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 800 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | Phenol | 108-95-2 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 99.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH009-B | 280-147031-4 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH013-B | 280-147031-7 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 13.0 | | U | L |
| NYOW-03-PH013-B | 280-147031-7 | SW8260C | Acetone | 67-64-1 | ug/kg | 73.0 | | UJ | V2 |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 390 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 390 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 99.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 390 | | X | L/I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 200 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Carbazole | 86-74-8 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 99.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 390 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/kg | 390 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 80.0 | | X | L/I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 80.0 | | X | I/U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1600 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 99.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Isophorone | 78-59-1 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Cresols, m- & p- | | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 200 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 99.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 99.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 800 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 800 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | Phenol | 108-95-2 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 99.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH013-B | 280-147031-7 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/kg | 80.0 | | X | I/U |
| NYOW-03-PH014-B | 280-147031-9 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 1.30 | | U | L |
| NYOW-03-PH014-B | 280-147031-9 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 12.0 | | U | L |
| NYOW-03-PH014-B | 280-147031-9 | SW8260C | Acetone | 67-64-1 | ug/kg | 74.0 | | UJ | V2 |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 400 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 400 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 100 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 400 | | X | L/U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 210 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 210 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Carbazole | 86-74-8 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 100 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 400 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/kg | 400 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 400 | | X | L/U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1600 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 100 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Isophorone | 78-59-1 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Cresols, m- & p- | | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 210 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 100 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 100 | | X | U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 820 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 820 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | Phenol | 108-95-2 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 100 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH014-B | 280-147031-9 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/kg | 82.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 1.30 | | U | L |
| NYOW-03-PH015-B | 280-147031-11 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 12.0 | | U | L |
| NYOW-03-PH015-B | 280-147031-11 | SW8260C | Acetone | 67-64-1 | ug/kg | 72.0 | | UJ | V2 |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 390 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 390 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 99.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 390 | | X | L/U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 200 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Carbazole | 86-74-8 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 99.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 390 | | X | U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/kg | 390 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 80.0 | | X | L/U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1600 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 99.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Isophorone | 78-59-1 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Cresols, m- & p- | | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 200 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 99.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 99.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 800 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 800 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | Phenol | 108-95-2 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 99.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/kg | 80.0 | | X | U |
| NYOW-03-PH015-B | 280-147031-11 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/kg | 80.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 230 | + | J | I |
| NYOW-03-SL008-A | 280-147031-1 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 300 | + | J | I |
| NYOW-03-SL008-A | 280-147031-1 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/kg | 210 | + | J | I |
| NYOW-03-SL008-A | 280-147031-1 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 110 | + | J | I |
| NYOW-03-SL008-A | 280-147031-1 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 32.0 | | UJ | V2 |
| NYOW-03-SL008-A | 280-147031-1 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 7.60 | + | J | I/TR/P1 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 360 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 360 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 91.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 360 | | X | L/U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 190 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Carbazole | 86-74-8 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 91.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 360 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/kg | 360 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 74.0 | | X | L/U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 91.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 74.0 | | X | U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Isophorone | 78-59-1 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Cresols, m- & p- | | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 190 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 91.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 91.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 740 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 740 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | Phenol | 108-95-2 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 91.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL008-A | 280-147031-1 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/kg | 74.0 | | X | U |
| NYOW-03-SL009-A | 280-147031-3 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 14.0 | | U | L |
| NYOW-03-SL009-A | 280-147031-3 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 90.0 | - | J | M |
| NYOW-03-SL009-A | 280-147031-3 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 47.0 | - | J | M |
| NYOW-03-SL009-A | 280-147031-3 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 140 | - | J | M |
| NYOW-03-SL009-A | 280-147031-3 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 150 | - | J | M |
| NYOW-03-SL009-A | 280-147031-3 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 230 | - | J | M |
| NYOW-03-SL009-A | 280-147031-3 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 98.0 | - | J | M |
| NYOW-03-SL009-A | 280-147031-3 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 94.0 | - | J | M |
| NYOW-03-SL009-A | 280-147031-3 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 160 | - | J | M |
| NYOW-03-SL009-A | 280-147031-3 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 31.0 | - | J | M |
| NYOW-03-SL009-A | 280-147031-3 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 280 | - | J | M |
| NYOW-03-SL009-A | 280-147031-3 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 110 | - | J | M |
| NYOW-03-SL009-A | 280-147031-3 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 200 | - | J | M/D |
| NYOW-03-SL009-A | 280-147031-3 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 230 | - | J | M |
| NYOW-03-SL009-A | 280-147031-3 | SW6010C | Silver | 7440-22-4 | mg/kg | 0.730 | | UJ | M |
| NYOW-03-SL009-A | 280-147031-3 | SW6010C | Barium | 7440-39-3 | mg/kg | 21.0 | - | J | M/D |
| NYOW-03-SL009-A | 280-147031-3 | SW6010C | Beryllium | 7440-41-7 | mg/kg | 0.300 | - | J | M/D/TR |
| NYOW-03-SL009-A | 280-147031-3 | SW6010C | Calcium | 7440-70-2 | mg/kg | 3900 | + | J | M/D |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-SL009-A | 280-147031-3 | SW6010C | Cobalt | 7440-48-4 | mg/kg | 2.60 | - | J | M/D |
| NYOW-03-SL009-A | 280-147031-3 | SW6010C | Chromium | 7440-47-3 | mg/kg | 7.50 | - | J | M/D |
| NYOW-03-SL009-A | 280-147031-3 | SW6010C | Copper | 7440-50-8 | mg/kg | 4.90 | - | J | M/D/TR |
| NYOW-03-SL009-A | 280-147031-3 | SW6010C | Potassium | 7440-09-7 | mg/kg | 330 | | J | D/TR |
| NYOW-03-SL009-A | 280-147031-3 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 1100 | | J | D |
| NYOW-03-SL009-A | 280-147031-3 | SW6010C | Manganese | 7439-96-5 | mg/kg | 120 | + | J | M/D |
| NYOW-03-SL009-A | 280-147031-3 | SW6010C | Sodium | 7440-23-5 | mg/kg | 47.0 | - | J | M/D/TR |
| NYOW-03-SL009-A | 280-147031-3 | SW6010C | Nickel | 7440-02-0 | mg/kg | 5.40 | - | J | M/D |
| NYOW-03-SL009-A | 280-147031-3 | SW6010C | Lead | 7439-92-1 | mg/kg | 7.60 | - | J | M/D |
| NYOW-03-SL009-A | 280-147031-3 | SW6010C | Vanadium | 7440-62-2 | mg/kg | 16.0 | - | J | M/D |
| NYOW-03-SL009-A | 280-147031-3 | SW6010C | Zinc | 7440-66-6 | mg/kg | 22.0 | | J | D |
| NYOW-03-SL009-A | 280-147031-3 | SW6020A | Antimony | 7440-36-0 | mg/kg | 0.170 | | J | D/TR |
| NYOW-03-SL009-A | 280-147031-3 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 39.0 | | UJ | V2 |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 440 | | X | U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 440 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 110 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 440 | | X | L/M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 260 | - | X | Z/D/TR/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 230 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Carbazole | 86-74-8 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 110 | | X | U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 89.0 | | X | M/U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 440 | | X | U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 89.0 | | X | U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/kg | 440 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 440 | | X | L/M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1700 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 110 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Isophorone | 78-59-1 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Cresols, m- & p- | | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 230 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 110 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 110 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 890 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 890 | | X | U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | Phenol | 108-95-2 | ug/kg | 75.0 | - | X | Z/M/D//U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 110 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/kg | 89.0 | | X | M/U |
| NYOW-03-SL009-A | 280-147031-3 | SW8330A | Picric acid | 88-89-1 | ug/kg | 160 | | UJ | M |
| NYOW-03-SL013-A | 280-147031-5 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 1.30 | | U | L |
| NYOW-03-SL013-A | 280-147031-5 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 20.0 | | J | D3 |
| NYOW-03-SL013-A | 280-147031-5 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 13.0 | | J | D3 |
| NYOW-03-SL013-A | 280-147031-5 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 38.0 | | J | D3 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-SL013-A | 280-147031-5 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 45.0 | | J | D3 |
| NYOW-03-SL013-A | 280-147031-5 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 82.0 | | J | D3 |
| NYOW-03-SL013-A | 280-147031-5 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 35.0 | | J | D3 |
| NYOW-03-SL013-A | 280-147031-5 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 27.0 | | J | D3 |
| NYOW-03-SL013-A | 280-147031-5 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 48.0 | | J | D3 |
| NYOW-03-SL013-A | 280-147031-5 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 65.0 | | J | D3 |
| NYOW-03-SL013-A | 280-147031-5 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 14.0 | | J | D3 |
| NYOW-03-SL013-A | 280-147031-5 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 4.00 | | J | TR/P1 |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 400 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 400 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 100 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 400 | | X | L/U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 210 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 210 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Carbazole | 86-74-8 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 100 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 400 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/kg | 400 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 81.0 | | X | L/U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1600 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 100 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Isophorone | 78-59-1 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Cresols, m- & p- | | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 210 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 100 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 100 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 810 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 810 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | Phenol | 108-95-2 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 100 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/kg | 81.0 | | X | U |
| NYOW-03-SL013-A | 280-147031-5 | SW9060A | Total Organic Carbon | | mg/kg | 32000 | | J | D3 |
| NYOW-03-SL014-A | 280-147031-8 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 12.0 | | U | L |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 370 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 94.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 370 | | X | L/I/U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 190 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Carbazole | 86-74-8 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 94.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 370 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/kg | 370 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 76.0 | | X | L/I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 94.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Isophorone | 78-59-1 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Cresols, m- & p- | | ug/kg | 950 | - | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 190 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 94.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 94.0 | | X | I/U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 760 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 760 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | Phenol | 108-95-2 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 94.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL014-A | 280-147031-8 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/kg | 76.0 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 5.40 | | J | TR/P1 |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 560 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 560 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 140 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 850 | - | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 290 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Carbazole | 86-74-8 | ug/kg | 270 | - | X | I/TR/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 140 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 160 | - | X | I/TR/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 560 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 110 | | X | I/U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/kg | 560 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 110 | | X | L/I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 2200 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 140 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Isophorone | 78-59-1 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Cresols, m- & p- | | ug/kg | 86.0 | - | X | I/TR/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 290 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 140 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 140 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 1100 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 1100 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | Phenol | 108-95-2 | ug/kg | 670 | - | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 140 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/kg | 110 | | X | I/U |
| NYOW-03-SL015-A | 280-147031-10 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/kg | 110 | | X | I/U |
| SL-DUP-001_210405 | 280-147031-6 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 120 | | U | L |
| SL-DUP-001_210405 | 280-147031-6 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 28.0 | | J | TR/D3 |
| SL-DUP-001_210405 | 280-147031-6 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 73.0 | | J | TR/D3 |
| SL-DUP-001_210405 | 280-147031-6 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 84.0 | | J | TR/D3 |
| SL-DUP-001_210405 | 280-147031-6 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 150 | | J | D3 |
| SL-DUP-001_210405 | 280-147031-6 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 69.0 | | J | D3/TR |
| SL-DUP-001_210405 | 280-147031-6 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 47.0 | | J | D3/TR |
| SL-DUP-001_210405 | 280-147031-6 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 100 | | J | D3/TR |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| SL-DUP-001_210405 | 280-147031-6 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 120 | | J | D3 |
| SL-DUP-001_210405 | 280-147031-6 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 36.0 | | UJ | V2 |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 390 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 390 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 98.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 200 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Carbazole | 86-74-8 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 98.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 390 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/kg | 390 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 390 | | X | L/U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 98.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 79.0 | | X | U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Isophorone | 78-59-1 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Cresols, m- & p- | | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 200 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 98.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 98.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 790 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 790 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | Phenol | 108-95-2 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 98.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/kg | 79.0 | | X | U |
| SL-DUP-001_210405 | 280-147031-6 | SW9060A | Total Organic Carbon | | mg/kg | 16000 | | J | D3 |

Reason Code Definitions

| | | | |
|---|---|---|---|
| A | Serail Dilution | U | Receipt Temperature |
| D | MS RPD | L | Lab Blank |
| D3 | Field Duplicate RPD | M | MS Recovery |
| TR | Trace Detect | M2 | Post Spike |
| I | Surrogate Recovery | V2 | CCV |
| P1 | Column RPD | Z | LCS RPD |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 8 July 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM Revision 1: 280-147085

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D
- Picric Acid by SW-846 Methods 8330A (soil) and 8330B (aqueous samples)
- Metals by ICP SW-846 Method 6010C
- Metals by ICP-MS SW-846 Method 6020A
- Mercury (Hg) by SW-846 Methods 7471B (soil) and 7470A (aqueous samples)
- Total Organic Carbon (TOC) by SW-846 Method 9060A
- Percent Moisture by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG) collected 6 April 2021, laboratory and client sample identification numbers, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

## TABLE 1: SAMPLE SUMMARY

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | D2216 | SW6010C | SW6020A | SW7470A | SW7471B | SW8270D | SW8330A | SW8330B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-01-PH019-B | 280-147085-7 | Solid | Field Sample/N | X | X | X | | X | X | X | | X |
| NYOW-01-PH019-C | 280-147085-8 | Solid | Field Sample/N | X | X | X | | X | X | X | | X |
| NYOW-01-PH020-B | 280-147085-11 | Solid | Field Sample/N | X | X | X | | X | X | X | | |
| NYOW-01-PH020-C | 280-147085-12 | Solid | Field Sample/N | X | X | X | | X | X | X | | |
| NYOW-01-SL019-A | 280-147085-5 | Solid | Field Sample/N | X | X | X | | X | X | X | | X |
| NYOW-01-SL020-A | 280-147085-10 | Solid | Field Sample/N | X | X | X | | X | X | X | | |
| PH-DUP-002_210406 | 280-147085-9 | Solid | Field Duplicate/FD | X | X | X | | X | X | X | | X |
| SL-DUP-001_210406 | 280-147085-6 | Solid | Field Duplicate/FD | X | X | X | | X | X | X | | X |
| EB-01_210406 | 280-147085-13 | Water | Equipment Blank/EB | | X | X | X | | X | | X | |

Notes: SL-DUP-001_210406 collected from NYOW-01-SL019-A and PH-DUP-002_210406 collected from NYOW-01-PH019-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided.

Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Four coolers were received by the laboratory at temperatures of 1.2°C, 1.9°C, 2.8°C, and 3.3°C.

The following samples were submitted for analysis and subsequently canceled due to uncertainty in the property line location: NYOW-01-SL002-A, NYOW-01-PH002-B, NYOW-01-PH002-C, and PH-DUP-001_210406.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial instrument calibrations and at the start of each sample analysis batch for SVOCs. The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exception noted below.

<u>SVOCs by Method 8270D:</u>

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP

certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

**CONTINUING CALIBRATION VERIFICATION**

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

**BLANK SAMPLE RESULTS**

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, continuing calibration blanks, and equipment blanks with the exceptions noted below.

Metals by Method 6010C:

Preparation blank sample 280-532642/1-A exhibited positive detections greater than the detection limit but less than the LOQ for aluminum (1.85 mg/kg), cobalt (0.07 mg/kg), nickel (0.2 mg/kg), and zinc (1.05 mg/kg). The associated positive detections for aluminum, cobalt, and zinc were greater than the LOQ; qualification is not necessary. The field duplicate sample SL-DUP-001_210406 result for nickel was less than the LOQ and is qualified as “U” at the LOQ.

Equipment blank sample EB-01_210406 exhibited positive detections below the LOQ for barium (1.3 µg/L) and manganese (4.0 µg/L). The associated soil sample results are not qualified on the basis of aqueous equipment blanks.

Metals by Method 6020A:

Initial calibration blanks (ICBs) 280-533158/15, 280-532808/15, and 280-533080/15 exhibited positive detections for antimony. The ICBs did not bracket the analysis of investigative samples; qualification is not necessary.

Continuing calibration blanks (CCBs) 280-533080/92, 280-533080/114, and 280-533080/127 exhibited positive detections for lead. The CCBs did not bracket the analysis of investigative samples; qualification is not necessary.

Preparation blank sample 280-532640/1-A exhibited a positive detection less than the LOQ for thallium at 0.0062 mg/kg. The associated soil sample results less than the LOQ are qualified as “U” at the LOQ.

CCB 280-532980/202 exhibited a positive detection below the LOQ for thallium at 0.096 µg/L. The associated sample results were previously qualified; no further action is necessary.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Sample NYOW-01-PH020-B exhibited a recovery less than the lower warning limit for base/neutral (BN) extractable surrogate, terphenyl-d14 at 53%. The associated BN sample result for DNCB was non-detect and is qualified as "UJ".

Picric Acid by Method 8330B:

Sample EB-01_210406 exhibited a surrogate recovery less than the lower warning limit for 1,2-dinitrobenzene at 47%. The associated non-detect sample result is qualified as "UJ".

**LABORATORY CONTROL SAMPLES**

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

LCS/LCSD 680-664738/17-A/20-A exhibited a RPD greater than the control limit for DNP at 30%. The associated equipment blank sample result was non-detect; qualification is not necessary.

**MATRIX SPIKE/MATRIX SPIKE DUPLICATES**

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

MS/SD sample NYOW-01-PH019-B exhibited an RPD greater than the control limit for DNP at 86%. The associated sample result was non-detect; qualification is not necessary.

Picric Acid by Method 8330A:

MS/SD sample NYOW-01-PH019-B exhibited recoveries less than the lower control limit at 37% and 41%, respectively. The associated sample result is qualified as "UJ".

Metals by Methods 6010C and 6020A:

MS/SD sample NYOW-01-PH019-B exhibited recoveries outside of control limits for aluminum and iron. The associated sample concentrations were greater than 4X the spiked amount; qualification is not necessary.

MS/SD sample NYOW-01-PH019-B exhibited recoveries and RPDs outside of warning limits for the analytes shown below. The associated sample results are qualified as "UJ" or "J-", or "J" as shown below.

| Analyte | MS % Recovery | SD % Recovery | MS/SD RPD | Qualifier |
|---|---|---|---|---|
| Calcium | -55 | -51 | -- | J- |
| Cobalt | 83 | 75 | -- | J- |
| Lead | 79 | 78 | -- | J- |
| Magnesium | 57 | 65 | -- | J- |
| Manganese | 80 | 46 | -- | J- |
| Zinc | 80 | -- | -- | J- |
| Barium | -- | 77 | -- | J- |
| Beryllium | -- | 72 | -- | J- |
| Chromium | -- | 77 | -- | J- |
| Nickel | -- | 77 | -- | J- |
| Silver | -- | 75 | -- | UJ |
| Sodium | -- | 69 | -- | J- |
| Vanadium | -- | 76 | -- | J- |
| Antimony | -- | -- | 24 | UJ |
| Iron | -- | -- | 39 | J |
| Cadmium | -- | -- | 21 | J |

TOC by Method 9060A:

MS/SD sample NYOW-01-PH019-B exhibited recoveries less than the lower warning limits at 35% and 19%, respectively. The associated sample result is qualified as "J-".

## DUAL COLUMN IMPRECISION

All sample results were non-detect; therefore, column comparisons were not performed.

## POST-DIGESTION SPIKE

Metals by Method 6010C:

A post-digestion spike (PDS) was not performed by the laboratory for sample NYOW-01-PH019-B because a PDS was performed on a different MS/SD sample in the same batch.

Metals by Method 6020A:

A PDS was performed for MS/SD sample NYOW-01-PH019-B and all recoveries were acceptable.

Metals by Method 7471B:

A PDS was performed for MS/SD sample NYOW-01-PH019-B and mercury recovered above the upper control limit at 125%. The MS/SD recoveries were acceptable, and the sample result was non-detect; qualification is not necessary.

**ICP SERIAL DILUTION**

Metals by Method 6010C:

An ICP serial dilution was not performed by the laboratory for sample NYOW-01-PH019-B because a serial dilution was performed on a different MS/SD sample in the same batch.

Metals by Method 6020A:

An ICP serial dilution was performed for sample NYOW-01-PH019-B and all %Ds were acceptable.

**LOW-LEVEL CHECK STANDARD**

Low-level check standards for methods 6010C and 6020A were performed using the low-level CCV standard. All recoveries were within the control limits.

**INTERFERENCE CHECK SAMPLES**

Interference check samples A and AB recoveries were evaluated and met the acceptance criteria.

The Interference Check Solution A (ICSA) associated with batch 280-532980 had cobalt present above the LOD at 0.428 µg/L. The ICS vendor has noted that cobalt is a trace impurity in the ICSA with a trace concentration of 3 µg/L; qualification is not necessary.

The ICSA associated with batch 280-532973 had barium present above the LOD at 13.3 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium (2 µg/L); qualification is not necessary.

The ICSA associated with batch 280-533071 had barium present above the LOD at 14.4 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is equal to the LOD for barium (2 µg/L); qualification is not necessary.

The ICSA associated with batch 280-532808 had cobalt present above the LOD at 0.475 µg/L. The ICS vendor has noted that cobalt is a trace impurity in the ICSA with a trace concentration of 3 µg/L; qualification is not necessary.

The initial and closing ICSA associated with batch 280-533080 had cobalt present above the LOD at 0.472 µg/L and 0.455 µg/L, respectively. The ICS vendor has noted that cobalt is a trace impurity in the ICSA with a trace concentration of 3 µg/L; qualification is not necessary.

**COMMENTS**

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

In preparation batch 280-532022, the following samples were air dried and sieved in accordance with the procedure; however, the samples contained rocks, vegetation, and small concrete fragments that would not pass through the sieve: NYOW-01-SL019-A, SL-DUP-001_210406, NYOW-01-PH019-B, NYOW-01-PH019-C, PH-DUP-002_210406, NYOW-01-SL020-A, NYOW-01-PH020-B, and NYOW-01-PH020-C. This material was removed and not extracted.

There was insufficient sample volume to perform a MS/SD associated with aqueous metals batches 280-532781, 280-532770, and 280-532450. An LCS and LCSD were performed.

There was insufficient sample volume to perform a MS/SD associated with aqueous SVOC batch 680-664004. An LCS and LCSD were performed.

There was insufficient sample volume to perform a MS/SD associated with aqueous 8330B batch 280-532158. An LCS and LCSD were performed.

Two field duplicate and parent sample pairs were collected and analyzed for all parameters (SL-DUP-001_210406 and NYOW-01-SL019-A, and PH-DUP-002_210406 and NYOW-01-PH019-C). The RPD must be less than 50% when at least one result is greater than the LOQ. The following analytes did not meet the precision criteria:

- SL-DUP-001_210406 and NYOW-01-SL019-A: aluminum (84%), barium (64%), chromium (77%), cobalt (59%), copper (69%), lead (57%), nickel (82%), potassium (57%), vanadium (62%), and TOC (139%).
- PH-DUP-002_210406 and NYOW-01-PH019-C: copper (58%), zinc (57%), and TOC (152%).

LOQs were slightly greater than Project Quantitation Limit Goals (PQLGs) for mercury, antimony, arsenic, selenium, thallium, DNCB and DNP due to percent moisture adjustments.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210406 | 280-147085-13 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.130 | | UJ | I |
| NYOW-01-PH019-B | 280-147085-7 | SW6010C | Silver | 7440-22-4 | mg/kg | 0.520 | | UJ | M |
| NYOW-01-PH019-B | 280-147085-7 | SW6010C | Barium | 7440-39-3 | mg/kg | 43.0 | - | J | M |
| NYOW-01-PH019-B | 280-147085-7 | SW6010C | Beryllium | 7440-41-7 | mg/kg | 0.250 | - | J | M/TR |
| NYOW-01-PH019-B | 280-147085-7 | SW6010C | Calcium | 7440-70-2 | mg/kg | 8800 | - | J | M |
| NYOW-01-PH019-B | 280-147085-7 | SW6010C | Cobalt | 7440-48-4 | mg/kg | 5.00 | - | J | M |
| NYOW-01-PH019-B | 280-147085-7 | SW6010C | Chromium | 7440-47-3 | mg/kg | 6.80 | - | J | M |
| NYOW-01-PH019-B | 280-147085-7 | SW6010C | Iron | 7439-89-6 | mg/kg | 13000 | | J | D |
| NYOW-01-PH019-B | 280-147085-7 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 4000 | - | J | M |
| NYOW-01-PH019-B | 280-147085-7 | SW6010C | Manganese | 7439-96-5 | mg/kg | 260 | - | J | M |
| NYOW-01-PH019-B | 280-147085-7 | SW6010C | Sodium | 7440-23-5 | mg/kg | 49.0 | - | J | M/TR |
| NYOW-01-PH019-B | 280-147085-7 | SW6010C | Nickel | 7440-02-0 | mg/kg | 9.70 | - | J | M |
| NYOW-01-PH019-B | 280-147085-7 | SW6010C | Lead | 7439-92-1 | mg/kg | 3.20 | - | J | M |
| NYOW-01-PH019-B | 280-147085-7 | SW6010C | Vanadium | 7440-62-2 | mg/kg | 10.0 | - | J | M |
| NYOW-01-PH019-B | 280-147085-7 | SW6010C | Zinc | 7440-66-6 | mg/kg | 18.0 | - | J | M |
| NYOW-01-PH019-B | 280-147085-7 | SW6020A | Cadmium | 7440-43-9 | mg/kg | 0.0400 | | J | D/TR |
| NYOW-01-PH019-B | 280-147085-7 | SW6020A | Antimony | 7440-36-0 | mg/kg | 0.110 | | UJ | D |
| NYOW-01-PH019-B | 280-147085-7 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0780 | | U | L/B2 |
| NYOW-01-PH019-B | 280-147085-7 | SW8330A | Picric acid | 88-89-1 | ug/kg | 150 | | UJ | M |
| NYOW-01-PH019-B | 280-147085-7 | SW9060A | Total Organic Carbon | | mg/kg | 10000 | - | J | M |
| NYOW-01-PH019-C | 280-147085-8 | SW6010C | Copper | 7440-50-8 | mg/kg | 17.0 | | J | D3 |
| NYOW-01-PH019-C | 280-147085-8 | SW6010C | Zinc | 7440-66-6 | mg/kg | 15.0 | | J | D3 |
| NYOW-01-PH019-C | 280-147085-8 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0760 | | U | L/B2 |
| NYOW-01-PH019-C | 280-147085-8 | SW9060A | Total Organic Carbon | | mg/kg | 1900 | | J | D3/TR |
| NYOW-01-PH020-B | 280-147085-11 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.110 | | U | L/B2 |
| NYOW-01-PH020-B | 280-147085-11 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 380 | | UJ | I |
| NYOW-01-SL019-A | 280-147085-5 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 5600 | | J | D3 |
| NYOW-01-SL019-A | 280-147085-5 | SW6010C | Barium | 7440-39-3 | mg/kg | 33.0 | | J | D3 |
| NYOW-01-SL019-A | 280-147085-5 | SW6010C | Cobalt | 7440-48-4 | mg/kg | 4.40 | | J | D3 |
| NYOW-01-SL019-A | 280-147085-5 | SW6010C | Chromium | 7440-47-3 | mg/kg | 8.80 | | J | D3 |
| NYOW-01-SL019-A | 280-147085-5 | SW6010C | Copper | 7440-50-8 | mg/kg | 19.0 | | J | D3 |
| NYOW-01-SL019-A | 280-147085-5 | SW6010C | Potassium | 7440-09-7 | mg/kg | 610 | | J | D3 |
| NYOW-01-SL019-A | 280-147085-5 | SW6010C | Nickel | 7440-02-0 | mg/kg | 8.10 | | J | D3 |
| NYOW-01-SL019-A | 280-147085-5 | SW6010C | Lead | 7439-92-1 | mg/kg | 5.40 | | J | D3 |
| NYOW-01-SL019-A | 280-147085-5 | SW6010C | Vanadium | 7440-62-2 | mg/kg | 11.0 | | J | D3 |
| NYOW-01-SL019-A | 280-147085-5 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0860 | | U | L/B2 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-01-SL019-A | 280-147085-5 | SW9060A | Total Organic Carbon | | mg/kg | 2700 | | J | D3/TR |
| NYOW-01-SL020-A | 280-147085-10 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.110 | | U | L/B2 |
| PH-DUP-002_210406 | 280-147085-9 | SW6010C | Copper | 7440-50-8 | mg/kg | 31.0 | | J | D3 |
| PH-DUP-002_210406 | 280-147085-9 | SW6010C | Zinc | 7440-66-6 | mg/kg | 27.0 | | J | D3 |
| PH-DUP-002_210406 | 280-147085-9 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.110 | | U | L/B2 |
| PH-DUP-002_210406 | 280-147085-9 | SW9060A | Total Organic Carbon | | mg/kg | 14000 | | J | D3 |
| SL-DUP-001_210406 | 280-147085-6 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 2300 | | J | D3 |
| SL-DUP-001_210406 | 280-147085-6 | SW6010C | Barium | 7440-39-3 | mg/kg | 17.0 | | J | D3 |
| SL-DUP-001_210406 | 280-147085-6 | SW6010C | Cobalt | 7440-48-4 | mg/kg | 2.40 | | J | D3 |
| SL-DUP-001_210406 | 280-147085-6 | SW6010C | Chromium | 7440-47-3 | mg/kg | 3.90 | | J | D3 |
| SL-DUP-001_210406 | 280-147085-6 | SW6010C | Copper | 7440-50-8 | mg/kg | 9.30 | | J | D3 |
| SL-DUP-001_210406 | 280-147085-6 | SW6010C | Potassium | 7440-09-7 | mg/kg | 340 | | J | D3 |
| SL-DUP-001_210406 | 280-147085-6 | SW6010C | Nickel | 7440-02-0 | mg/kg | 3.60 | | UJ | L/D3 |
| SL-DUP-001_210406 | 280-147085-6 | SW6010C | Lead | 7439-92-1 | mg/kg | 3.00 | | J | D3 |
| SL-DUP-001_210406 | 280-147085-6 | SW6010C | Vanadium | 7440-62-2 | mg/kg | 5.80 | | J | D3 |
| SL-DUP-001_210406 | 280-147085-6 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0940 | | U | L/B2 |
| SL-DUP-001_210406 | 280-147085-6 | SW9060A | Total Organic Carbon | | mg/kg | 15000 | | J | D3 |

Reason Code Definitions

| | |
|---|---|
| D | MS RPD |
| TR | Trace Detect |
| D3 | Field Duplicate RPD |
| I | Surrogate Recovery |
| L | Lab Blank |
| M | MS Recovery |
| B2 | CCB |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 8 July 2021

**SUBJECT:** New York Ordnance Works Soil and Groundwater S2BVEM Revision 1: 280-147159-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil and groundwater samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Volatile Organic Compounds (VOCs) by SW-846 Method 8260C
- Semi-Volatile Organic Compounds (SVOCs) by SW-846 Method 8270D
- SVOCs with SIM by SW-846 Method 8270D
- SVOCs 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D
- Picric Acid by SW-846 Method 8330A (soils)
- Picric Acid by SW-846 Method 8330B (aqueous)
- Polychlorinated Biphenyls (PCBs) by SW-846 Method 8082A
- Metals by ICP SW-846 Method 6010C
- Metals by ICP-MS SW-846 Method 6020A
- Mercury (Hg) by SW-846 Method 7470A
- Hg by SW-846 Method 7471B
- Total Organic Carbon (TOC) by SW-846 Method 9060A
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG) collected 7 April 2021, laboratory and client sample identification numbers, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

## TABLE 1: SAMPLE SUMMARY

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6010C - Dissolved | SW6020A | SW6020A - Dissolved | SW7470A | SW7470A - Dissolved | SW7471B | SW8082A | SW8260C | SW8270D | SW8330A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-01-PH021-B | 280-147159-2 | Solid | Field Sample/N | | X | X | | X | | | | X | | | X | X |
| NYOW-01-PH021-C | 280-147159-3 | Solid | Field Sample/N | | X | X | | X | | | | X | | | X | X |
| NYOW-01-PH022-B | 280-147159-5 | Solid | Field Sample/N | | X | X | | X | | | | X | | | X | X |
| NYOW-01-PH022-C | 280-147159-6 | Solid | Field Sample/N | | X | X | | X | | | | X | | | X | X |
| NYOW-01-PH024-B | 280-147159-8 | Solid | Field Sample/N | | X | X | | X | | | | X | | | X | X |
| NYOW-01-PH024-C | 280-147159-9 | Solid | Field Sample/N | | X | X | | X | | | | X | | | X | X |
| NYOW-01-SL021-A | 280-147159-1 | Solid | Field Sample/N | | X | X | | X | | | | X | | | X | X |
| NYOW-01-SL022-A | 280-147159-4 | Solid | Field Sample/N | | X | X | | X | | | | X | | | X | X |
| NYOW-01-SL024-A | 280-147159-7 | Solid | Field Sample/N | | X | X | | X | | | | X | | | X | X |
| EB-01_210407 | 280-147159-10 | Water | Equipment Blank/EB | | | X | | X | | X | | | | | X | |
| EB-02_210407 | 280-147159-16 | Water | Equipment Blank/EB | X | | | X | | X | | X | | X | X | X | |
| NYOW-03-WL009-A | 280-147159-11 | Water | Field Sample/N | X | | | X | | X | | X | | X | X | X | |
| NYOW-03-WL013-A | 280-147159-12 | Water | Field Sample/N | X | | | X | | X | | X | | X | X | X | |
| NYOW-03-WL014-A | 280-147159-14 | Water | Field Sample/N | X | | | X | | X | | X | | X | X | X | |
| NYOW-03-WL015-A | 280-147159-15 | Water | Field Sample/N | X | | | X | | X | | X | | X | X | X | |
| TB-01_210407 | 280-147159-17 | Water | Trip Blank/TB | | | | | | | | | | | X | | |
| WL-DUP-001_210407 | 280-147159-13 | Water | Field Duplicate/FD | X | | | X | | X | | X | | X | X | X | |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | SW8330B | SW9060A |
|---|---|---|---|---|---|
| NYOW-01-PH021-B | 280-147159-2 | Solid | Field Sample/N | | X |
| NYOW-01-PH021-C | 280-147159-3 | Solid | Field Sample/N | | X |
| NYOW-01-PH022-B | 280-147159-5 | Solid | Field Sample/N | | |
| NYOW-01-PH022-C | 280-147159-6 | Solid | Field Sample/N | | |
| NYOW-01-PH024-B | 280-147159-8 | Solid | Field Sample/N | | |
| NYOW-01-PH024-C | 280-147159-9 | Solid | Field Sample/N | | |
| NYOW-01-SL021-A | 280-147159-1 | Solid | Field Sample/N | | X |
| NYOW-01-SL022-A | 280-147159-4 | Solid | Field Sample/N | | |
| NYOW-01-SL024-A | 280-147159-7 | Solid | Field Sample/N | | |
| EB-01_210407 | 280-147159-10 | Water | Equipment Blank/EB | X | |
| EB-02_210407 | 280-147159-16 | Water | Equipment Blank/EB | X | |
| NYOW-03-WL009-A | 280-147159-11 | Water | Field Sample/N | X | |
| NYOW-03-WL013-A | 280-147159-12 | Water | Field Sample/N | X | |
| NYOW-03-WL014-A | 280-147159-14 | Water | Field Sample/N | X | |
| NYOW-03-WL015-A | 280-147159-15 | Water | Field Sample/N | X | |
| TB-01_210407 | 280-147159-17 | Water | Trip Blank/TB | | |
| WL-DUP-001_210407 | 280-147159-13 | Water | Field Duplicate/FD | X | |

Notes: WL-DUP-001_210407 collected from NYOW-03-WL013-A

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were initially received in good condition, properly preserved on ice. Ten coolers were received by the laboratory at temperatures of 0.6ºC, 0.7ºC, 0.8ºC, 1.2ºC, 1.3ºC, 1.6ºC, 2.3ºC, 2.4ºC, 2.9ºC and 3.7ºC.

The following samples for SVOCs were received at the Savannah laboratory outside of the required temperature criteria: NYOW-01-SL021-A, NYOW-01-PH021-B, NYOW-01-PH021-C,

NYOW-01-SL022-A, NYOW-01-PH022-B, NYOW-01-PH022-C, NYOW-01-SL024-A, NYOW-01-PH024-B, NYOW-01-PH024-C, EB-01_210407, NYOW-03-WL009-A, NYOW-03-WL013-A, WL-DUP-001_210407, NYOW-03-WL014-A, NYOW-03-WL015-A, and EB-02_210407. The coolers were shipped out priority overnight on 4/9 from Denver to Savannah; however, due to a FedEx transit delay, the coolers arrived on 4/12 at temperatures of 8.7°C, 10.9°C, and 10.5°C. Bluestone was contacted and the laboratory was instructed to proceed with the analysis. The associated sample results are qualified as "J-" for detects and "UJ" for non-detects.

Sample NYOW-03-WL013-A was collected in a properly preserved vial for VOCs; however, the pH of 7 was outside the required criteria of pH<2 when verified by the laboratory. The sample was analyzed outside the 7-day holding time specified for unpreserved samples (11 days). The associated sample results were non-detect and are qualified as "UJ".

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | X | |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | | X |
| Were all samples analyzed within the specified holding time? | | X |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A bromofluorobenzene instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for VOCs (i.e., each 12-hour period). The tunes met the ion abundance criteria. A decafluorotriphenylphosphine instrument performance check was performed prior to the initial instrument calibrations and at the start of each sample analysis batch for SVOCs and  SVOCs with SIM. The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

<u>SVOCs Method 8270D:</u>

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP

certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

Metals by Method 6010C:

Low level initial calibration verification (ICVL) 280-533866/12 exhibited a recovery greater than the upper control limit for zinc. The ICVL did not bracket the analysis of investigative samples; qualification is not necessary.

**CONTINUING CALIBRATION VERIFICATION**

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

VOCs by Method 8260C:

Continuing calibration verification (CCV) 280-532934/2 exhibited %Ds greater than the control limit for bromoform at 20.5% and 1,2-dibromo-3-chloropropane at 23.6%. The associated sample results were non-detect and are qualified as “UJ”.

Closing CCV 280-532934/37 exhibited a %D greater than the control limit with a negative bias for dichlorodifluoromethane at 53.2%. The associated sample results were non-detect and are qualified as “UJ”.

PCBs by Method 8082A:

CCV 280-533927/18 exhibited a %D greater than the control limit with negative bias for a PCB-1260 peak at 20.8% on the primary chromatography column. The CCV did not bracket the analysis of investigative samples; qualification is not necessary.

CCV 280-533927/27 exhibited %Ds greater than the control limit with negative biases for PCB-1016 peaks ranging from 20.8% to 45.5% on the primary column. The CCV also exhibited %Ds greater than the control limit with negative biases for two PCB-1260 peaks at 20.4% and 20.8%. The associated sample results were non-detect and are qualified as “UJ”.

CCV 280-533927/36 exhibited %Ds greater than the control limit with negative biases for PCB-1016 peaks ranging from 20.8% to 23.2% on the primary column. The CCV also exhibited a %D greater than the control limit with a negative bias for one PCB-1260 peak at 20.3%. The associated sample results were non-detect and are qualified as “UJ”.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, trip blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, continuing calibration blanks, trip blanks, and equipment blanks with the exceptions noted below.

Metals by Method 6010C:

Preparation blank sample 280-532238/1-A exhibited a positive detection greater than the detection limit but less than the LOQ for iron at 23.9 µg/L. The associated positive detections less than the LOQ are qualified as "U" at the LOD or the LOQ. For results greater than the LOQ, qualification is not necessary on the basis of professional judgment.

Equipment blank sample EB-02_210407 exhibited a positive detection below the LOQ for calcium at 92 µg/L. The associated sample results were greater than the LOQ; qualification is not necessary on the basis of professional judgment.

Equipment blank sample EB-01_210407 exhibited positive detections below the LOQ for barium (1.6 µg/L) and manganese (2.5 µg/L). The associated soil sample results are not qualified on the basis of aqueous equipment blanks.

Metals by Method 6020A:

Initial calibration blank (ICB) 280-532776/15 exhibited a positive detection for antimony. Antimony was not reported from the analytical batch; qualification is not necessary.

ICB 280-532808/15 exhibited a positive detection for antimony. The associated sample results were non-detect; qualification is not necessary.

Continuing calibration blanks (CCBs) 280-532808/65, 280-532808/68, 280-532808/81, and 280-532808/92 exhibited positive detections for thallium, antimony, and/or lead. The CCBs did not bracket the analysis of investigative samples; qualification is not necessary.

CCB 280-532776/103 exhibited a positive detection below the LOQ for thallium at 0.096 µg/L. The associated equipment blank sample result was non-detect; qualification is not necessary.

CCB 280-532776/112 exhibited positive detections below the LOQ for lead and thallium at 0.029 µg/L and 0.142 µg/L, respectively. The associated equipment blank sample results were non-detect; qualification is not necessary.

Mercury by Method 7470A:

ICB 280-533658/10-A exhibited a positive detection for mercury at 0.0283 µg/L. The associated sample result below the LOQ is qualified as "U". The results greater than the LOQ are not qualified on the basis of professional judgment.

## SURROGATE RECOVERIES

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

VOCs by Method 8260C:

Sample EB-02_210407 exhibited a recovery greater than the upper warning limit for 1,2-dichloroethane-d4 at 138%. The associated sample results were non-detect; qualification is not required.

SVOCs by Method 8270D:

Sample NYOW-01-SL022-A exhibited recoveries less than the lower warning limits for base/neutral (B/N) extractable surrogates nitrobenzene-d5, 2-fluorobiphenyl, and terphenyl-d14 at 31%, 38%, and 39%, respectively. The associated B/N sample result (DNCB) was non-detect and is qualified as “UJ”.

Sample NYOW-01-PH022-C exhibited recoveries less than the lower warning limits for B/N extractable surrogates nitrobenzene-d5 and 2-fluorobiphenyl at 36% and 41%, respectively. The associated B/N sample result (DNCB) was non-detect and is qualified as “UJ”.

Sample NYOW-01-PH024-C exhibited recoveries less than the lower warning limits for B/N extractable surrogates nitrobenzene-d5, 2-fluorobiphenyl, and terphenyl-d14 at 34%, 40%, and 51%, respectively. The associated B/N sample result (DNCB) was non-detect and is qualified as “UJ”.

Sample NYOW-03-WL013-A exhibited a recovery less than the lower warning limit for B/N extractable surrogate terphenyl-d14 at 39%. The associated B/N sample results were non-detect and are qualified as “UJ”.

Sample NYOW-03-WL014-A exhibited a recovery less than the lower warning limit for B/N extractable surrogate terphenyl-d14 at 42%. The associated B/N sample results were non-detect and are qualified as “UJ”.

Sample NYOW-03-WL015 exhibited recoveries less than the lower warning limit for 2,4,6-tribromophenol and terphenyl-d14 at 23% and 32%, respectively. The associated positive detections are qualified as “J-“ and non-detects are qualified as “UJ”.

Picric Acid by Method 8330B:

Samples EB-01_210407, NYOW-03-WL009-A, WL-DUP-001_210407, NYOW-03-WL015-A, and EB-02_210407 exhibited recoveries less than the lower warning limit for 1,2-dinitrobenzene at 81%, 78%, 77%, 30%, and 72%, respectively. The associated sample results were non-detect and are qualified as “UJ”.

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

VOCs by Method 8260C:

LCSD 280-532934/4/5 exhibited RPDs greater than the control limits for 1,1,2,2-tetrachloroethane (23%), 1,1,2-trichloroethane (21%), 2-butanone (21%), bromoform (21%), and 1,2-dibromo-3-chloropropane (24%). The associated sample results were non-detect; qualification is not required.

Metals by Method 6010C:

LCS 280-532862/2-A exhibited a recovery equal to the upper control limit for barium at 113%. Qualification is not required.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

MS/SD sample NYOW-03-WL009-A exhibited recoveries less than the lower warning limit for n-Nitrosodiphenylamine at 27% and 24%, respectively. The associated sample result was non-detect and is qualified as “UJ”.

MS/SD sample NYOW-01-SL021-A exhibited a RPD greater than the control limit for DNP at 22%. The associated sample result was non-detect; qualification is not required.

Picric Acid by Method 8330B:

SD sample NYOW-03-WL009-A exhibited a recovery less than the lower control limit at 50%. In addition, the MS/SD RPD was greater than the control limit at 73%. The associated sample result is qualified as “UJ”.

Metals by Method 6010C:

SD sample NYOW-03-WL009-A exhibited a recovery less than the lower warning limit for calcium at 80%. The associated sample result is qualified as “J-“.

MS/SD sample NYOW-01-SL021-A exhibited recoveries outside of warning limits for aluminum, iron, and manganese. The spiked amount was less than 4X the sample concentrations; qualification is not necessary.

MS sample NYOW-01-SL021-A exhibited a recovery less than the lower warning limit for zinc at 36%. In addition, the SD exhibited recoveries greater than the upper control limit for zinc and calcium at 127% and 392%, respectively. The MS/SD RPDs for calcium, manganese, and zinc were greater than the control limit at 59%, 23%, and 71%, respectively. The associated sample results for zinc and manganese are qualified as "J". The associated sample result for calcium is qualified as "J+".

**DUAL COLUMN IMPRECISION**

All sample results were non-detect; therefore, column comparisons were not performed.

**POST-DIGESTION SPIKE**

Metals by Method 6010C:

A post-digestion spike (PDS) was performed for MS/SD sample NYOW-01-SL021-A. Aluminum, calcium, iron, and manganese recovered below the lower control limit. The aluminum, iron, and manganese concentrations were greater than 4X the spiked amount in the MS; therefore, the post-digestion spike was not used to evaluate MS/SD recovery failures. The result for calcium was previously qualified as "J+" and the final qualifier is "J".

A PDS was not performed for sample NYOW-03-WL009-A.

**ICP SERIAL DILUTION**

Metals by Method 6010C:

An ICP serial dilution was performed for sample NYOW-01-SL021-A. The %Ds were greater than the control limit for magnesium (15%) and manganese (25%). The associated sample results are qualified as "J".

An ICP serial dilution was not performed for sample NYOW-03-WL009-A.

**LOW-LEVEL CHECK STANDARD**

Low-level check standards for methods 6010C and 6020A were performed using the low-level CCV standard. All recoveries were within the control limits.

**INTERFERENCE CHECK SAMPLES**

Interference check samples A and AB recoveries were evaluated and met the acceptance criteria.

Metals by Method 6010C:

The Interference Check Solution A (ICSA) associated with batch 280-533314 had barium present above the LOD at 14.2 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium (2 µg/L); qualification is not necessary.

The ICSA associated with batch 280-533071 had barium present above the LOD at 14.4 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is equal to the LOD for barium (2 µg/L); qualification is not necessary.

The ICSA associated with batch 280-532747 had barium present above the LOD at 13.4 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium (2 µg/L); qualification is not necessary.

Metals by Method 6020A:

The initial and closing ICSA associated with batch 280-532808 had cobalt present above the LOD at 0.455 µg/L and 0.475 µg/L, respectively. The ICS vendor has noted that cobalt is a trace impurity in the ICSA with a trace concentration of 3 µg/L; qualification is not necessary.

The initial and closing ICSA associated with batch 280-532776 had cobalt present above the LOD at 0.455 µg/L and 0.475 µg/L, respectively. The ICS vendor has noted that cobalt is a trace impurity in the ICSA with a trace concentration of 3 µg/L; qualification is not necessary.

**COMMENTS**

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

There was insufficient sample volume to perform a MS/SD associated with aqueous picric acid batch 280-532158. An LCS and LCSD were performed.

There was insufficient sample volume to perform a MS/SD associated with picric acid batch 280-532827. An LCS and LCSD were performed.

One field duplicate and parent sample pair was collected and analyzed for all parameters (WL-DUP-001_210407 collected from NYOW-03-WL013-A). The RPD must be less than 30% when one or more sample result is greater than the LOQ. The following analytes did not meet the precision criteria:

- WL-DUP-001_210407 and NYOW-03-WL013-A: dissolved iron (200%) and dissolved manganese (46%)

The following samples were air dried and sieved in accordance with the procedure; however, the samples contained rocks, vegetation, and small concrete fragments that would not pass through the sieve: NYOW-01-SL021-A, NYOW-01-PH021-B, NYOW-01-PH021-C, NYOW-01-SL022-A, NYOW-01-PH022-B, NYOW-01-PH022-C, NYOW-01-SL024-A, NYOW-01-PH024-B, and NYOW-01-PH024-C. The material was removed and not extracted.

The following samples required a sulfuric acid clean-up, via EPA Method 3665A, to reduce matrix interferences prior to PCB analysis: NYOW-03-WL009-A, NYOW-03-WL009-A, NYOW-03-

WL013-A, WL-DUP-001_210407, NYOW-03-WL014-A, NYOW-03-WL015-A, and EB-02_210407.

LOQs were slightly greater than Project Quantitation Limit Goals (PQLGs) for metal analytes, including mercury, DNP, and DNCB due to percent moisture adjustments.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210407 | 280-147159-10 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 10.0 | | UJ | U |
| EB-01_210407 | 280-147159-10 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/L | 20.0 | | UJ | U |
| EB-01_210407 | 280-147159-10 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.120 | | UJ | I |
| EB-02_210407 | 280-147159-16 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/L | 0.420 | | UJ | V2 |
| EB-02_210407 | 280-147159-16 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/L | 0.420 | | UJ | V2 |
| EB-02_210407 | 280-147159-16 | SW8260C | 1,2-Dibromo-3-chloropropane | 96-12-8 | ug/L | 1.60 | | UJ | V2 |
| EB-02_210407 | 280-147159-16 | SW8260C | Dichlorodifluoromethane | 75-71-8 | ug/L | 0.800 | | UJ | V2 |
| EB-02_210407 | 280-147159-16 | SW8260C | Bromoform | 75-25-2 | ug/L | 1.00 | | UJ | V2 |
| EB-02_210407 | 280-147159-16 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 10.0 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.60 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.20 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 63.0 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 10.0 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/L | 10.0 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/L | 21.0 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.10 | | UJ | U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-02_210407 | 280-147159-16 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.60 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/L | 21.0 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 5.20 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Cresols, m- & p- | | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 10.0 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 10.0 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/L | 4.20 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 4.20 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | Phenol | 108-95-2 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/L | 2.10 | | UJ | U |
| EB-02_210407 | 280-147159-16 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.120 | | UJ | I |
| NYOW-01-PH021-B | 280-147159-2 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 360 | | UJ | U |
| NYOW-01-PH021-B | 280-147159-2 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | U |
| NYOW-01-PH021-C | 280-147159-3 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 350 | | UJ | U |
| NYOW-01-PH021-C | 280-147159-3 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | U |
| NYOW-01-PH022-B | 280-147159-5 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 390 | | UJ | U |
| NYOW-01-PH022-B | 280-147159-5 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | U |
| NYOW-01-PH022-C | 280-147159-6 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | UJ | I/U |
| NYOW-01-PH022-C | 280-147159-6 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | U |
| NYOW-01-PH024-B | 280-147159-8 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | UJ | U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-01-PH024-B | 280-147159-8 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | U |
| NYOW-01-PH024-C | 280-147159-9 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 400 | | UJ | I/U |
| NYOW-01-PH024-C | 280-147159-9 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1600 | | UJ | U |
| NYOW-01-SL021-A | 280-147159-1 | SW6010C | Calcium | 7440-70-2 | mg/kg | 13000 | | J | M/D/M2 |
| NYOW-01-SL021-A | 280-147159-1 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 3800 | | J | A |
| NYOW-01-SL021-A | 280-147159-1 | SW6010C | Manganese | 7439-96-5 | mg/kg | 590 | | J | D/A |
| NYOW-01-SL021-A | 280-147159-1 | SW6010C | Zinc | 7440-66-6 | mg/kg | 28.0 | | J | M/D |
| NYOW-01-SL021-A | 280-147159-1 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 400 | | UJ | U |
| NYOW-01-SL021-A | 280-147159-1 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1600 | | UJ | U |
| NYOW-01-SL022-A | 280-147159-4 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 410 | | UJ | I/U |
| NYOW-01-SL022-A | 280-147159-4 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1600 | | UJ | U |
| NYOW-01-SL024-A | 280-147159-7 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 430 | | UJ | U |
| NYOW-01-SL024-A | 280-147159-7 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1700 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW6010C | Calcium | 7440-70-2 | ug/L | 74000 | - | J | M |
| NYOW-03-WL009-A | 280-147159-11 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/L | 0.400 | | UJ | V2 |
| NYOW-03-WL009-A | 280-147159-11 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/L | 0.400 | | UJ | V2 |
| NYOW-03-WL009-A | 280-147159-11 | SW8260C | 1,2-Dibromo-3-chloropropane | 96-12-8 | ug/L | 1.60 | | UJ | V2 |
| NYOW-03-WL009-A | 280-147159-11 | SW8260C | Dichlorodifluoromethane | 75-71-8 | ug/L | 0.800 | | UJ | V2 |
| NYOW-03-WL009-A | 280-147159-11 | SW8260C | Bromoform | 75-25-2 | ug/L | 1.00 | | UJ | V2 |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 10.0 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.50 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.10 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/L | 2.00 | | UJ | U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 61.0 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 10.0 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/L | 10.0 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/L | 20.0 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.50 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/L | 20.0 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 5.10 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Cresols, m- & p- | | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.00 | | UJ | M/U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 10.0 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 10.0 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/L | 4.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 4.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | Phenol | 108-95-2 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/L | 2.00 | | UJ | U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-WL009-A | 280-147159-11 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/L | 2.00 | | UJ | U |
| NYOW-03-WL009-A | 280-147159-11 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.130 | | UJ | M/I/D |
| NYOW-03-WL013-A | 280-147159-12 | SW6010C | Iron | 7439-89-6 | ug/L | 85.0 | | U | L |
| NYOW-03-WL013-A | 280-147159-12 | SW6010C | Manganese | 7439-96-5 | ug/L | 22.0 | | J | D3 |
| NYOW-03-WL013-A | 280-147159-12 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/L | 0.400 | | UJ | V2 |
| NYOW-03-WL013-A | 280-147159-12 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/L | 0.400 | | UJ | V2 |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Acetone | 67-64-1 | ug/L | 6.40 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Bromodichloromethane | 75-27-4 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Bromochloromethane | 74-97-5 | ug/L | 0.200 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Bromomethane | 74-83-9 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Benzene | 71-43-2 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Toluene | 108-88-3 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Carbon disulfide | 75-15-0 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Methylcyclohexane | 108-87-2 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Chlorobenzene | 108-90-7 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Chloroethane | 75-00-3 | ug/L | 1.60 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Chloromethane | 74-87-3 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Carbon tetrachloride | 56-23-5 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Cyclohexane | 110-82-7 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Dibromochloromethane | 124-48-1 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 1,2-Dibromo-3-chloropropane | 96-12-8 | ug/L | 1.60 | | UJ | P/V2 |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 1,1-Dichloroethane | 75-34-3 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 1,2-Dichloroethane | 107-06-2 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 1,2-Dichlorobenzene | 95-50-1 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 1,3-Dichlorobenzene | 541-73-1 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 1,4-Dichlorobenzene | 106-46-7 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 1,1-Dichloroethene | 75-35-4 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | cis-1,2-Dichloroethene | 156-59-2 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | trans-1,2-Dichloroethene | 156-60-5 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | cis-1,3-Dichloropropene | 10061-01-5 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | trans-1,3-Dichloropropene | 10061-02-6 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 1,2-Dichloropropane | 78-87-5 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 1,3-Dichloropropane | 142-28-9 | ug/L | 0.200 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Ethylbenzene | 100-41-4 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 1,2-Dibromoethane (EDB) | 106-93-4 | ug/L | 0.400 | | UJ | P |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Trichlorofluoromethane | 75-69-4 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Dichlorodifluoromethane | 75-71-8 | ug/L | 0.800 | | UJ | P/V2 |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 2-Hexanone | 591-78-6 | ug/L | 4.00 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Isopropylbenzene (Cumene) | 98-82-8 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Methyl acetate | 79-20-9 | ug/L | 4.00 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 2-Butanone (MEK) | 78-93-3 | ug/L | 4.00 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 4-Methyl-2-pentanone (MIBK) | 108-10-1 | ug/L | 3.20 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Methylene chloride | 75-09-2 | ug/L | 2.00 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 1,1,2,2-Tetrachloroethane | 79-34-5 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Tetrachloroethene (PCE) | 127-18-4 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Styrene | 100-42-5 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Bromoform | 75-25-2 | ug/L | 1.00 | | UJ | P/V2 |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Methyl tert-butyl ether (MTBE) | 1634-04-4 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 1,1,1-Trichloroethane | 71-55-6 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 1,1,2-Trichloroethane | 79-00-5 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 1,2,3-Trichlorobenzene | 87-61-6 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | 1,2,4-Trichlorobenzene | 120-82-1 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Chloroform | 67-66-3 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | Vinyl chloride | 75-01-4 | ug/L | 0.200 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | m,p-Xylene | 179601-23-1 | ug/L | 0.800 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8260C | o-Xylene | 95-47-6 | ug/L | 0.400 | | UJ | P |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 9.70 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Acetophenone | 98-86-2 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Atrazine | 1912-24-9 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.40 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/L | 1.90 | | UJ | U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Caprolactam | 105-60-2 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Carbazole | 86-74-8 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 4.80 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/L | 1.90 | | UJ | U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 58.0 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/L | 1.90 | | UJ | U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 9.70 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/L | 9.70 | | UJ | U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/L | 19.0 | | UJ | U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.40 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/L | 19.0 | | UJ | U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 4.80 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Isophorone | 78-59-1 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Cresols, m- & p- | | ug/L | 1.90 | | UJ | U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/L | 1.90 | | UJ | U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 9.70 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 9.70 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 1.90 | | UJ | I/U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/L | 1.90 | | UJ | U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/L | 3.90 | | UJ | U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 1.90 | | UJ | I/U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 3.90 | | UJ | U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | Phenol | 108-95-2 | ug/L | 1.90 | | UJ | U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/L | 1.90 | | UJ | U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/L | 1.90 | | UJ | U |
| NYOW-03-WL013-A | 280-147159-12 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/L | 1.90 | | UJ | U |
| NYOW-03-WL014-A | 280-147159-14 | SW6010C | Iron | 7439-89-6 | ug/L | 85.0 | | U | L |
| NYOW-03-WL014-A | 280-147159-14 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/L | 0.430 | | UJ | V2 |
| NYOW-03-WL014-A | 280-147159-14 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/L | 0.430 | | UJ | V2 |
| NYOW-03-WL014-A | 280-147159-14 | SW8260C | 1,2-Dibromo-3-chloropropane | 96-12-8 | ug/L | 1.60 | | UJ | V2 |
| NYOW-03-WL014-A | 280-147159-14 | SW8260C | Dichlorodifluoromethane | 75-71-8 | ug/L | 0.800 | | UJ | V2 |
| NYOW-03-WL014-A | 280-147159-14 | SW8260C | Bromoform | 75-25-2 | ug/L | 1.00 | | UJ | V2 |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 11.0 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.60 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/L | 2.10 | | UJ | U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.30 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/L | 2.10 | | UJ | U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 63.0 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/L | 2.10 | | UJ | U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 11.0 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/L | 11.0 | | UJ | U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/L | 21.0 | | UJ | U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.60 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/L | 21.0 | | UJ | U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 5.30 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Cresols, m- & p- | | ug/L | 2.10 | | UJ | U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/L | 2.10 | | UJ | U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 11.0 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 11.0 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/L | 2.10 | | UJ | U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/L | 4.20 | | UJ | U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 4.20 | | UJ | U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | Phenol | 108-95-2 | ug/L | 2.10 | | UJ | U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/L | 2.10 | | UJ | U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/L | 2.10 | | UJ | U |
| NYOW-03-WL014-A | 280-147159-14 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/L | 2.10 | | UJ | U |
| NYOW-03-WL015-A | 280-147159-15 | SW6010C | Iron | 7439-89-6 | ug/L | 85.0 | | U | L |
| NYOW-03-WL015-A | 280-147159-15 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/L | 0.410 | | UJ | V2 |
| NYOW-03-WL015-A | 280-147159-15 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/L | 0.410 | | UJ | V2 |
| NYOW-03-WL015-A | 280-147159-15 | SW8260C | 1,2-Dibromo-3-chloropropane | 96-12-8 | ug/L | 1.60 | | UJ | V2 |
| NYOW-03-WL015-A | 280-147159-15 | SW8260C | Dichlorodifluoromethane | 75-71-8 | ug/L | 0.800 | | UJ | V2 |
| NYOW-03-WL015-A | 280-147159-15 | SW8260C | Bromoform | 75-25-2 | ug/L | 1.00 | | UJ | V2 |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 10.0 | | UJ | I/U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.60 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 62.0 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 10.0 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/L | 10.0 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/L | 21.0 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.60 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/L | 21.0 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 5.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.10 | | UJ | I/U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Cresols, m- & p- | | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 10.0 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 17.0 | - | J | I/TR/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/L | 4.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 4.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | Phenol | 108-95-2 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/L | 2.10 | | UJ | I/U |
| NYOW-03-WL015-A | 280-147159-15 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.130 | | UJ | I |
| TB-01_210407 | 280-147159-17 | SW8260C | 1,2-Dibromo-3-chloropropane | 96-12-8 | ug/L | 1.60 | | UJ | V2 |
| TB-01_210407 | 280-147159-17 | SW8260C | Dichlorodifluoromethane | 75-71-8 | ug/L | 0.800 | | UJ | V2 |
| TB-01_210407 | 280-147159-17 | SW8260C | Bromoform | 75-25-2 | ug/L | 1.00 | | UJ | V2 |
| WL-DUP-001_210407 | 280-147159-13 | SW6010C | Iron | 7439-89-6 | ug/L | 120 | | J | D3 |
| WL-DUP-001_210407 | 280-147159-13 | SW6010C | Manganese | 7439-96-5 | ug/L | 35.0 | | J | D3 |
| WL-DUP-001_210407 | 280-147159-13 | SW7470A | Mercury | 7439-97-6 | ug/L | 0.0800 | | U | L |
| WL-DUP-001_210407 | 280-147159-13 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/L | 0.400 | | UJ | V2 |
| WL-DUP-001_210407 | 280-147159-13 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/L | 0.400 | | UJ | V2 |
| WL-DUP-001_210407 | 280-147159-13 | SW8260C | 1,2-Dibromo-3-chloropropane | 96-12-8 | ug/L | 1.60 | | UJ | V2 |
| WL-DUP-001_210407 | 280-147159-13 | SW8260C | Dichlorodifluoromethane | 75-71-8 | ug/L | 0.800 | | UJ | V2 |
| WL-DUP-001_210407 | 280-147159-13 | SW8260C | Bromoform | 75-25-2 | ug/L | 1.00 | | UJ | V2 |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 9.90 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.00 | | UJ | U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.50 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 4.90 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 59.0 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 9.90 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/L | 9.90 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/L | 20.0 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.50 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/L | 20.0 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 4.90 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Cresols, m- & p- | | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 9.90 | | UJ | U |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 9.90 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/L | 4.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 4.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | Phenol | 108-95-2 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/L | 2.00 | | UJ | U |
| WL-DUP-001_210407 | 280-147159-13 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.120 | | UJ | I |

Reason Code Definitions

| | | | |
|---|---|---|---|
| A | Serial Dilution | U | Receipt Temperature |
| D | MS RPD | L | Lab Blank |
| D3 | Field Duplicate RPD | M | MS Recovery |
| TR | Trace Detect | M2 | Post Spike |
| I | Surrogate Recovery | V2 | CCV |
| P | Sample Preservation | | |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 8 July 2021

**SUBJECT:** New York Ordnance Works Soil and Groundwater S2BVEM Revision 1: 280-147251-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil and groundwater samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D
- Picric Acid by SW-846 Methods 8330A (soils) and 8330B (aqueous)
- Metals by ICP SW-846 Method 6010C
- Metals by ICP-MS SW-846 Method 6020A
- Mercury (Hg) by SW-846 Method 7470A
- Hg by SW-846 Method 7471B
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG) collected 8 April 2021, laboratory and client sample identification numbers, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

## TABLE 1: SAMPLE SUMMARY

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | D2216 | SW6010C | SW6010C - Dissolved | SW6020A | SW6020A - Dissolved | SW7470A | SW7470A - Dissolved | SW7471B | SW8270D | SW8330A | SW8330B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-01-PH005-B | 280-147251-3 | Solid | Field Sample/N | X | X | | X | | | | X | X | X | |
| NYOW-01-PH005-C | 280-147251-5 | Solid | Field Sample/N | X | X | | X | | | | X | X | X | |
| NYOW-01-PH018-B | 280-147251-8 | Solid | Field Sample/N | X | X | | X | | | | X | X | X | |
| NYOW-01-PH018-C | 280-147251-9 | Solid | Field Sample/N | X | X | | X | | | | X | X | X | |
| NYOW-01-SL005-A | 280-147251-1 | Solid | Field Sample/N | X | X | | X | | | | X | X | X | |
| NYOW-01-SL018-A | 280-147251-7 | Solid | Field Sample/N | X | X | | X | | | | X | X | X | |
| PH-DUP-001_210408 | 280-147251-4 | Solid | Field Duplicate/FD | X | X | | X | | | | X | X | X | |
| PH-DUP-002_210408 | 280-147251-6 | Solid | Field Duplicate/FD | X | X | | X | | | | X | X | X | |
| SL-DUP-001_210408 | 280-147251-2 | Solid | Field Duplicate/FD | X | X | | X | | | | X | X | X | |
| EB-01_210408 | 280-147251-13 | Water | Equipment Blank/EB | | X | | X | | X | | | X | | X |
| EB-02_210408 | 280-147251-14 | Water | Equipment Blank/EB | | | X | | X | | X | | X | | X |
| NYOW-01-WL006-A | 280-147251-11 | Water | Field Sample/N | | | | | | | | | | | X |
| NYOW-01-WL006-B | 280-147251-10 | Water | Field Sample/N | | | X | | X | | X | | X | | X |
| NYOW-01-WL019-A | 280-147251-12 | Water | Field Sample/N | | | X | | X | | X | | X | | X |

Notes: SL-DUP-001_210408 collected from NYOW-01-SL005-A, PH-DUP-001_210408 collected from NYOW-01-PH005-B, PH-DUP-002_210408 collected from NYOW-01-PH005-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Three coolers were received by the laboratory at temperatures of 1.1°C, 1.9°C, and 2.5°C.

Sample PH-DUP-002_210408 contained free liquid in the sample container for Method 8330A. There was no indication that the sample container was compromised or infiltrated by melted ice water and the boring location was documented to contain mud. The sample was air dried to remove moisture and sieved prior to analysis, consistent with the methodology.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | X | |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial instrument calibrations and at the start of each sample analysis batch for SVOCs. The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exception noted below.

SVOCs Method 8270D:

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily continuing calibration verifications (CCVs) are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

Metals by Method 6010C:

Low-level initial calibration verification (ICV) standard 280-533866/12 exhibited a recovery greater than the upper control limit for zinc. The ICV did not bracket the analysis of investigative samples; qualification is not necessary.

**CONTINUING CALIBRATION VERIFICATION**

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

SVOCs by Method 8270D:

CCV 680-666053/2 exhibited a %D greater than the control limit for DNP with positive bias at 26.2%. The associated soil sample results are qualified as “UJ”.

Metals by Method 6010C:

CCV 280-533459/92 exhibited a recovery greater than the upper control limit for potassium. The CCV did not bracket the analysis of investigative samples; qualification is not necessary.

CCVs 280-533459/92, 280-533459/104, 280-533459/115, and 280-533459/126 exhibited recoveries greater than the upper control limit for aluminum at 112%, 112%, 113%, and 113%, respectively. The associated total aluminum result for the equipment blank sample was non-detect; qualification is not required.

Metals by Method 6020A:

Low-level CCVs 280-533080/62 and 280-533080/75 exhibited recoveries less than the lower control limit for thallium at 76% and 73%, respectively. The associated dissolved thallium results are qualified as “UJ”.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, initial and continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, calibration blanks, and equipment blanks with the exceptions noted below.

Metals by Method 6010C:

Equipment blank sample EB-01_210408 exhibited positive detections below the LOQ for barium, iron, and calcium. The associated soil sample results are not qualified on the basis of aqueous equipment blanks.

Method blank sample 280-532238/1-A exhibited a positive detection for dissolved iron below the LOQ at 23.9 µg/L. The associated sample results were greater than the LOQ; qualification is not necessary on the basis of professional judgment.

Metals by Method 6020A:

Initial calibration blank (ICB) 280-533080/15 exhibited a positive detection for antimony at 0.832 µg/L. The associated sample results were non-detect; qualification is not necessary.

ICB 280-533145/15 exhibited a positive detection for antimony at 0.832 µg/L. The associated equipment blank sample result was non-detect; qualification is not necessary.

Mercury by Method 7470A:

ICB 280-533658/10-A exhibited a positive detection for mercury. The associated sample results were non-detect; qualification is not necessary.

## SURROGATE RECOVERIES

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Sample NYOW-01-WL006-B exhibited a recovery less than the lower warning limit for base/neutral (B/N) extractable surrogate terphenyl-d14 at 38%. The associated B/N extractable compound result (DNCB) is qualified as “UJ”.

Sample NYOW-01-WL019-A exhibited a recovery less than the lower warning limit for B/N extractable surrogate terphenyl-d14 at 28%. The associated result for DNCB is qualified as “UJ”.

Picric Acid by Method 8330B:

Sample EB-01_210408 exhibited a recovery less than the lower warning limit for 1,2-dinitrobenzene at 80%. The associated result is qualified as “UJ”.

Sample NYOW-01-WL019-A exhibited a recovery less than the lower warning limit for 1,2-dinitrobenzene at 18%. The associated result is qualified as “UJ”.

Sample NYOW-01-WL006-B exhibited a recovery greater than the upper warning limit for 1,2-dinitrobenzene at 138%. The associated sample result was non-detect; qualification is not required.

**LABORATORY CONTROL SAMPLES**

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

Metals by Method 6010C:

LCS 280-532862/2-A exhibited a recovery greater than the upper warning limit for barium at 113.5%. The associated positive detections are qualified as “J+”.

**MATRIX SPIKE/MATRIX SPIKE DUPLICATES**

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

MS/SD sample NYOW-01-PH018-C exhibited an RPD greater than the control limit for DNCB at 49%. The associated sample result was non-detect; qualification is not necessary.

**DUAL COLUMN IMPRECISION**

All sample results were non-detect; therefore, column comparisons were not performed.

**POST-DIGESTION SPIKE**

A post-digestion spike was not performed.

**ICP SERIAL DILUTION**

A ICP serial dilution was not performed.

**LOW-LEVEL CHECK STANDARD**

Low-level check standards for methods 6010C and 6020A were performed using the low-level CCV standard. All recoveries were within the control limits with the exceptions noted for CCVs above.

**INTERFERENCE CHECK SAMPLES**

Interference check samples (ICS) A and AB recoveries were evaluated and met the acceptance criteria.

The ICSA associated with batch 280-533314 had barium present above the LOD at 14.2 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium (2 µg/L); qualification is not necessary.

The ICSA associated with batch 280-532747 had barium present above the LOD at 13.4 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium; qualification is not necessary.

The initial and closing ICSA associated with batch 280-533080 had cobalt present above the LOD at 0.472 µg/L and 0.455 µg/L, respectively. The ICS vendor has noted that cobalt is a trace impurity in the ICSA with a trace concentration of 3 µg/L; qualification is not necessary.

The ICSA associated with batch 280-533459 had barium present above the LOD at 13.6 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium; qualification is not necessary.

The initial and closing ICSA associated with batch 280-533145 had cobalt present above the LOD at 0.455 µg/L and 0.473 µg/L, respectively. The initial and closing ICSA associated with batch 280-533145 also had barium present above the LOD at 1.334 µg/L and 1.345 µg/L, respectively. The ICS vendor has noted that cobalt and barium are trace impurities in the ICSA with trace concentrations of 3 µg/L and 12 µg/L, respectively; qualification is not necessary.

**COMMENTS**

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

Three field duplicate and parent sample pairs were collected and analyzed for all parameters (SL-DUP-001_210408 collected from NYOW-01-SL005-A, PH-DUP-001_210408 collected from NYOW-01-PH005-B, PH-DUP-002_210408 collected from NYOW-01-PH005-C). The RPD must be less than 50% when one or more result is greater than the LOQ. All sample results met the precision criteria for the field duplicate pair with the exception noted below:

- SL-DUP-001_210408 and NYOW-01-SL005-A: zinc (165%)

The following samples were air dried and sieved in accordance with the procedure; however, the samples contained rocks and vegetation that would not pass through the sieve: NYOW-01-SL005-A, SL-DUP-001_210408, NYOW-01-PH005-B, PH-DUP-001_210408, NYOW-01-PH005-C, PH-DUP-002_210408, NYOW-01-SL018-A, NYOW-01-PH018-B, and NYOW-01-PH018-C. The material was removed and not extracted.

A MS/SD was not performed for method 8330A soil batch 280-533256 or method 8330B aqueous batch 280-532435. An LCS/LCSD pair was performed in each instance.

A MS/SD was not performed for the method 8270D aqueous batch 280-664153. An LCS/LCSD pair was performed.

A MS/SD was not performed for methods 6010C, 6020A, and 7470A. An LCS/LCSD pair was performed for each sample batch.

LOQs were greater than Project Quantitation Limit Goals (PQLGs) for SVOCs, antimony and mercury due to percent moisture adjustments.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210408 | 280-147251-13 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.120 | | UJ | I |
| EB-02_210408 | 280-147251-14 | SW6020A | Thallium | 7440-28-0 | ug/L | 0.200 | | UJ | V6 |
| NYOW-01-PH005-B | 280-147251-3 | SW6010C | Barium | 7440-39-3 | mg/kg | 31.0 | + | J | C |
| NYOW-01-PH005-C | 280-147251-5 | SW6010C | Barium | 7440-39-3 | mg/kg | 17.0 | + | J | C |
| NYOW-01-PH018-B | 280-147251-8 | SW6010C | Barium | 7440-39-3 | mg/kg | 40.0 | + | J | C |
| NYOW-01-PH018-B | 280-147251-8 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | V2 |
| NYOW-01-PH018-C | 280-147251-9 | SW6010C | Barium | 7440-39-3 | mg/kg | 29.0 | + | J | C |
| NYOW-01-SL005-A | 280-147251-1 | SW6010C | Barium | 7440-39-3 | mg/kg | 45.0 | + | J | C |
| NYOW-01-SL005-A | 280-147251-1 | SW6010C | Zinc | 7440-66-6 | mg/kg | 330 | | J | D3 |
| NYOW-01-SL018-A | 280-147251-7 | SW6010C | Barium | 7440-39-3 | mg/kg | 40.0 | + | J | C |
| NYOW-01-SL018-A | 280-147251-7 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | V2 |
| NYOW-01-WL006-B | 280-147251-10 | SW6020A | Thallium | 7440-28-0 | ug/L | 0.200 | | UJ | V6 |
| NYOW-01-WL006-B | 280-147251-10 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 11.0 | | UJ | I |
| NYOW-01-WL019-A | 280-147251-12 | SW6020A | Thallium | 7440-28-0 | ug/L | 0.200 | | UJ | V6 |
| NYOW-01-WL019-A | 280-147251-12 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 10.0 | | UJ | I |
| NYOW-01-WL019-A | 280-147251-12 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.120 | | UJ | I |
| PH-DUP-001_210408 | 280-147251-4 | SW6010C | Barium | 7440-39-3 | mg/kg | 31.0 | + | J | C |
| PH-DUP-002_210408 | 280-147251-6 | SW6010C | Barium | 7440-39-3 | mg/kg | 16.0 | + | J | C |
| PH-DUP-002_210408 | 280-147251-6 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V2 |
| SL-DUP-001_210408 | 280-147251-2 | SW6010C | Barium | 7440-39-3 | mg/kg | 47.0 | + | J | C |
| SL-DUP-001_210408 | 280-147251-2 | SW6010C | Zinc | 7440-66-6 | mg/kg | 32.0 | | J | D3 |

Reason Code Definitions

| | |
|---|---|
| I | Surrogate Recovery |
| V6 | Low Level Calibration Verification |
| C | LCS Recovery |
| V2 | CCV |
| D3 | Field Duplicate RPD |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 8 July 2021

**SUBJECT:** New York Ordnance Works Soil and Groundwater S2BVEM Revision 1: 280-147306-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil and groundwater samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D
- Picric Acid by SW-846 Methods 8330A (soil) and 8330B (aqueous samples)
- Metals by ICP SW-846 Method 6010C
- Metals by ICP-MS SW-846 Method 6020A
- Mercury (Hg) by SW-846 Methods 7471B (soil) and 7470A (aqueous samples)
- Total Organic Carbon (TOC) by SW-846 Method 9060A
- Percent Moisture by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG) collected 9 April 2021, laboratory and client sample identification numbers, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

## TABLE 1: SAMPLE SUMMARY

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | D2216 | SW6010C | SW6010C - Dissolved | SW6020A | SW6020A - Dissolved | SW7470A | SW7470A - Dissolved | SW7471B | SW8270D | SW8330A | SW8330B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-01-PH002-B | 280-147306-5 | Solid | Field Sample/N | X | X | | X | | | | X | X | X | | X |
| NYOW-01-PH002-C | 280-147306-6 | Solid | Field Sample/N | X | X | | X | | | | X | X | X | | X |
| NYOW-01-SL002-A | 280-147306-4 | Solid | Field Sample/N | X | X | | X | | | | X | X | X | | X |
| PH-DUP-001_210409 | 280-147306-7 | Solid | Field Duplicate/FD | X | X | | X | | | | X | X | X | | X |
| EB-01_210409 | 280-147306-8 | Water | Equipment Blank/EB | | X | | X | | X | | | X | | X | |
| EB-02_210409 | 280-147306-9 | Water | Equipment Blank/EB | | | X | | X | | X | | X | | X | |
| NYOW-01-WL021-A | 280-147306-1 | Water | Field Sample/N | | | X | | X | | X | | X | | X | |
| NYOW-01-WL022-A | 280-147430-1 | Water | Field Sample/N | | | X | | X | | X | | | | | |
| NYOW-01-WL023-A | 280-147430-2 | Water | Field Sample/N | | | X | | X | | X | | | | | |

Notes: PH-DUP-001_210409 collected from NYOW-01-PH002-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria.

The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in the condition described below. Four coolers were received by the laboratory at temperatures of 0.7°C, 0.8°C, 0.9°C, and 12.2°C.

Due to a FedEx shipping delay, the following samples were received on 04/14/21 while the rest of the samples listed on the COC were delivered on 04/10/21 and logged under 280-147306. In accordance with a Bluestone request, these samples were logged in a separate SDG 280-147430-1: NYOW-01-WL022-A and NYOW-01-WL023-A. These samples were received at 12.2°C and one the glass amber containers for sample NYOW-01-WL022-A was broken. The SVOC and picric acid analyses were cancelled. The affected sample locations will be resampled and are not included in the completeness calculation.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | X | |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | | X |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial instrument calibrations and at the start of each sample analysis batch for SVOCs. The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exception noted below.

SVOCs by Method 8270D:

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

**CONTINUING CALIBRATION VERIFICATION**

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

SVOCs by Method 8270D:

Continuing calibration verification (CCV) 680-666526/2 exhibited a %D greater than the control limit with positive bias for DNP at 22.1%. The associated soil sample results were non-detect and are qualified as “UJ”.

The following closing CCV samples were analyzed marginally outside of the method defined tuning window (by 8 and 36 minutes): 680-666526/27 for DNP and 680-666526/28 for DNCB. All associated samples ran within the tuning window and the CCV samples were within control limits for all target analytes. The associated sample results for DNP were previously qualified; no further action is necessary. The results for DNCB were non-detect and are qualified as “UJ”.

Metals by Method 6010C:

CCVs 280-533459/104 and 280-533459/115 exhibited recoveries greater than the upper control limit for aluminum at 112% and 113%, respectively. The associated equipment blank sample result was non-detect; qualification is not necessary.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

**BLANK SAMPLE RESULTS**

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, continuing calibration blanks, and equipment blanks with the exceptions noted below.

Metals by Method 6010C:

Method blank sample 280-533568/1-A exhibited a positive detection for iron below the LOQ at 28.7 µg/L. The associated sample results were greater than the LOQ; qualification is not necessary on the basis of professional judgment.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Sample NYOW-01-WL021-A exhibited a recovery less than the lower warning limit for terphenyl-d14 at 40%. The associated base/neutral (BN) sample result for DNCB was non-detect and is qualified as "UJ".

Picric Acid by Methods 8330A and 8330B:

Sample EB-01_210409 exhibited a surrogate recovery less than the lower warning limit at 78% for 1,2-dinitrobenzene. The associated sample result is qualified as "UJ".

**LABORATORY CONTROL SAMPLES**

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

LCS/LCSD 680-665265/7-A/8-A exhibited a RPD greater than the control limit for DNCB at 26%. The associated sample results were non-detect; qualification is not required.

**DUAL COLUMN IMPRECISION**

All sample results were non-detect; therefore, column comparisons were not performed.

**MATRIX SPIKE/MATRIX SPIKE DUPLICATES**

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

Picric Acid by Methods 8330A and 8330B:

MS/SD sample NYOW-01-SL002-A exhibited recoveries less than the lower warning limit at 15% and 15%, respectively. The associated sample result is qualified as "UJ".

MS/SD sample NYOW-01-PH002-B exhibited recoveries less than the lower warning limit at 23% and 21%, respectively. The associated sample result is qualified as “UJ”.

Metals by Method 6010C:

MS/SD sample NYOW-01-SL002-A exhibited recoveries outside of control limits for aluminum, calcium, iron, and manganese. The sample concentration was greater than 4X the spiked amount; qualification is not necessary.

MS/SD sample NYOW-01-SL002-A exhibited recoveries outside of warning limits for chromium (84% and 84%), magnesium (67%), and potassium (128% and 132%). The associated positive detections for chromium and magnesium are qualified as “J-“. The positive detection for potassium is qualified as “J+”.

MS/SD sample NYOW-01-PH002-B exhibited recoveries outside of control limits for aluminum, calcium, iron, and manganese. The sample concentration was greater than 4X the spiked amount; qualification is not necessary.

MS/SD sample NYOW-01-PH002-B exhibited recoveries outside of warning limits for magnesium (71% and 125%) and potassium (126% and 122%). The positive detection for magnesium is qualified as “J” and the detection for potassium is qualified as “J+”.

MS/SD sample NYOW-01-PH002-B exhibited RPDs greater than the control limit for beryllium (21%), calcium (58%), cobalt (23%), nickel (21%), and sodium (21%). The associated sample results are qualified as “J”.

MS sample NYOW-01-WL022-A exhibited a recovery greater than the upper warning limit for silver at 116%. The associated sample result was non-detect; qualification is not necessary.

Metals by Method 6020A:

MS sample NYOW-01-SL002-A exhibited a recovery outside of warning limits for antimony (81%). The associated positive detection is qualified as “J-“.

MS/SD sample NYOW-01-PH002-B exhibited a RPD greater than the control limit for cadmium at 21%. The associated sample result is qualified as “J”.

TOC by Method 9060A:

SD sample NYOW-01-PH002-B exhibited a recovery greater than the upper warning limit for TOC at 147%. In addition, the MS/SD RPD was greater than the control limit at 30%. The associated positive detection is qualified as “J+”.

Sample NYOW-01-SL002-A exhibited recoveries greater than the upper warning limit for TOC at 259% and 157%, respectively. In addition, the MS/SD RPD was greater than the control limit at 48%. The associated sample result is qualified as “J+”.

**POST-DIGESTION SPIKE**

Metals by Method 6010C:

A post-digestion spike (PDS) was performed for MS/SD sample NYOW-01-SL002-A. Aluminum, barium, calcium, iron, and manganese recovered outside of control limits. Aluminum, calcium, iron, and manganese concentrations were greater than 4X the spiked amount; qualification is not necessary. Barium recovered within control limits in the MS/SD sample; therefore, the PDS was not used to evaluate MS recovery failures.

A PDS was not performed for sample NYOW-01-PH002-B with MS/SD recovery failures for magnesium, and potassium. The associated sample results were previously qualified; no further action is necessary.

A PDS was performed for sample NYOW-01-WL022-A and manganese recovered below the lower control limits. Manganese recovered within control limits in the MS/SD sample; therefore, the PDS was not used to evaluate MS recovery failures.

Metals by Method 6020A:

A PDS was performed for MS/SD sample NYOW-01-SL002-A. All analytes recovered within the control limits.

Metals by Method 7471B:

A PDS was performed for sample NYOW-01-SL002-A. Mercury recovered above the upper control limit; however, the MS/SD recoveries were acceptable. Qualification is not necessary.

**ICP SERIAL DILUTION**

Metals by Method 6010C:

An ICP serial dilution was performed for sample NYOW-01-SL002-A. The %Ds for magnesium (23%) and manganese (29%) were greater than the control limit and are qualified as “J”.

**LOW-LEVEL CHECK STANDARD**

Low-level check standards (LLCCV) for methods 6010C and 6020A were performed using the low-level CCV standard. All recoveries were within the control limits with the exceptions noted below.

Metals by Method 6010C:

LLCCVs 280-533867/139 and 280-533867/150 recovered above the control limit for copper at 127% and 126%, respectively. The associated sample concentrations were less than the level spiked in the ICV and CCVs; the sample results are qualified as “J+”.

Metals by Method 6020A:

LLCCVs 280-533080/62 and 280-533080/75 recovered below the lower control limit for thallium at 76% and 73%, respectively. The associated sample concentrations were non-detect and are qualified as “UJ”.

**INTERFERENCE CHECK SAMPLES**

Interference check samples (ICS) A and AB recoveries were evaluated and met the acceptance criteria. Cobalt was detected above the LOD in the initial and closing ICSA associated with batch 280-533080 at 0.472 µg/L and 0.455 µg/L, respectively. The ICS vendor has noted that cobalt is a trace impurity in the ICSA with a potential trace concentration of 3 µg/L; qualification is not necessary.

Cobalt was detected above the LOD in the initial ISCA associated with batch 280-533817 at 0.462 µg/L. The ICS vendor has noted that cobalt is a trace impurity in the ICSA with a potential trace concentration of 3 µg/L; qualification is not necessary.

The ICSA associated with batches 280-533317, 280-533867, and 280-533459 had barium present above the LOD. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is below the LOD for barium (2 µg/L) in each batch; qualification is not necessary.

Cobalt was detected above the LOD in the initial and closing ICSA associated with batch 280-533145 at 0.455 µg/L and 0.473 µg/L, respectively. The ICS vendor has noted that cobalt is a trace impurity in the ICSA with a potential trace concentration of 3 µg/L; qualification is not necessary.

**COMMENTS**

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

A MS/SD was not performed for aqueous SVOC batch 680-664530 and picric acid batch 280-532584 due to limited volume. An LCS/LCSD was performed for each batch.

For preparation batch 280-532457, the following samples were air dried and sieved in accordance with the procedure; however, the samples contained rocks and vegetation that would not pass through the sieve: NYOW-01-SL002-A, NYOW-01-PH002-B, NYOW-01-PH002-C, and PH-DUP-001_210409. This material was removed and not extracted.

One field duplicate and parent sample pair was collected and analyzed for all parameters (PH-DUP-001_210409 collected from NYOW-01-PH002-C). The RPD must be less than 50% when one or more sample results is greater than the LOQ. All sample results met the precision criteria for the field duplicate pair with the exception noted below:

- PH-DUP-001_210409 and NYOW-01-PH002-C: TOC (200%)

All soil and aqueous LOQs were slightly greater than Project Quantitation Limit Goals (PQLGs) for DNP. The soil LOQs were slightly greater than PQLGs for DNCB and mercury due to percent moisture adjustments. All other PQLGs were met.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210409 | 280-147306-8 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.120 | | UJ | I |
| EB-02_210409 | 280-147306-9 | SW6020A | Thallium | 7440-28-0 | ug/L | 0.200 | | UJ | V6 |
| NYOW-01-PH002-B | 280-147306-5 | SW6010C | Beryllium | 7440-41-7 | mg/kg | 0.190 | | J | D/TR |
| NYOW-01-PH002-B | 280-147306-5 | SW6010C | Calcium | 7440-70-2 | mg/kg | 21000 | | J | D |
| NYOW-01-PH002-B | 280-147306-5 | SW6010C | Cobalt | 7440-48-4 | mg/kg | 5.90 | | J | D |
| NYOW-01-PH002-B | 280-147306-5 | SW6010C | Potassium | 7440-09-7 | mg/kg | 1000 | + | J | M/M2 |
| NYOW-01-PH002-B | 280-147306-5 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 5700 | | J | M/M2 |
| NYOW-01-PH002-B | 280-147306-5 | SW6010C | Sodium | 7440-23-5 | mg/kg | 62.0 | | J | D/TR |
| NYOW-01-PH002-B | 280-147306-5 | SW6010C | Nickel | 7440-02-0 | mg/kg | 11.0 | | J | D |
| NYOW-01-PH002-B | 280-147306-5 | SW6020A | Cadmium | 7440-43-9 | mg/kg | 0.0920 | | J | D/TR |
| NYOW-01-PH002-B | 280-147306-5 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 380 | | UJ | Z6 |
| NYOW-01-PH002-B | 280-147306-5 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V2/Z6 |
| NYOW-01-PH002-B | 280-147306-5 | SW8330A | Picric acid | 88-89-1 | ug/kg | 160 | | UJ | M |
| NYOW-01-PH002-B | 280-147306-5 | SW9060A | Total Organic Carbon | | mg/kg | 3400 | + | J | M/D/TR |
| NYOW-01-PH002-C | 280-147306-6 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 360 | | UJ | Z6 |
| NYOW-01-PH002-C | 280-147306-6 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | V2/Z6 |
| NYOW-01-SL002-A | 280-147306-4 | SW6010C | Chromium | 7440-47-3 | mg/kg | 11.0 | - | J | M |
| NYOW-01-SL002-A | 280-147306-4 | SW6010C | Potassium | 7440-09-7 | mg/kg | 1400 | + | J | M |
| NYOW-01-SL002-A | 280-147306-4 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 6600 | - | J | M/A |
| NYOW-01-SL002-A | 280-147306-4 | SW6010C | Manganese | 7439-96-5 | mg/kg | 1400 | | J | A |
| NYOW-01-SL002-A | 280-147306-4 | SW6020A | Antimony | 7440-36-0 | mg/kg | 0.160 | - | J | TR/M |
| NYOW-01-SL002-A | 280-147306-4 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 390 | | UJ | Z6 |
| NYOW-01-SL002-A | 280-147306-4 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V2/Z6 |
| NYOW-01-SL002-A | 280-147306-4 | SW8330A | Picric acid | 88-89-1 | ug/kg | 160 | | UJ | M |
| NYOW-01-SL002-A | 280-147306-4 | SW9060A | Total Organic Carbon | | mg/kg | 3500 | + | J | M/D/TR |
| NYOW-01-WL021-A | 280-147306-1 | SW6020A | Thallium | 7440-28-0 | ug/L | 0.200 | | UJ | V6 |
| NYOW-01-WL021-A | 280-147306-1 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 10.0 | | UJ | I |
| NYOW-01-WL023-A | 280-147430-2 | SW6010C | Copper | 7440-50-8 | ug/L | 6.80 | + | J | TR/V6 |
| PH-DUP-001_210409 | 280-147306-7 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 360 | | UJ | Z6 |
| PH-DUP-001_210409 | 280-147306-7 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | V2/Z6 |
| PH-DUP-001_210409 | 280-147306-7 | SW9060A | Total Organic Carbon | | mg/kg | 5400 | | J | D3 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|

Reason Code Definitions

| | |
|---|---|
| A | Serial Dilution |
| D | MS RPD |
| TR | Trace Detect |
| I | Surrogate Recovery |
| M | MS Recovery |
| M2 | Post Spike |
| V2 | CCV |
| V6 | LLCCV |
| Z6 | 12-Hour Tune |
| D3 | FD RPD |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 8 July 2021

**SUBJECT:** New York Ordnance Works Groundwater S2BVEM Revision 2: 280-147363-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of groundwater samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D
- Picric Acid by SW-846 Method 8330B (aqueous samples)
- Metals by ICP SW-846 Method 6010C
- Metals by ICP-MS SW-846 Method 6020A
- Mercury (Hg) by SW-846 Method 7470A

Table 1, below, summarizes the sample delivery group (SDG) collected 12 April 2021, laboratory and client sample identification numbers, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

## TABLE 1: SAMPLE SUMMARY

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | SW6010C - Dissolved | SW6020A - Dissolved | SW7470A - Dissolved | SW8270D | SW8330B |
|---|---|---|---|---|---|---|---|---|
| EB-01_210412 | 280-147363-6 | Water | Equipment Blank/EB | X | X | X | X | X |
| NYOW-01-WL001-A | 280-147363-1 | Water | Field Sample/N | X | X | X | X | X |
| NYOW-01-WL005-A | 280-147363-3 | Water | Field Sample/N | X | X | X | X | X |
| NYOW-01-WL018-A | 280-147363-2 | Water | Field Sample/N | X | X | X | X | X |
| NYOW-01-WL024-A | 280-147363-5 | Water | Field Sample/N | X | X | X | X | X |
| WL-DUP-001_210412 | 280-147363-4 | Water | Field Duplicate/FD | X | X | X | X | X |

Notes: WL-DUP-001_210412 collected from NYOW-01-WL005-A

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Four coolers were received by the laboratory at temperatures of 0.5°C, 1.7°C, 1.9°C, and 2.0°C.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial instrument calibrations and at the start of each sample analysis batch for SVOCs. The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exception noted below.

<u>SVOCs by Method 8270D:</u>

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP

certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

**CONTINUING CALIBRATION VERIFICATION**

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

**BLANK SAMPLE RESULTS**

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, continuing calibration blanks, and equipment blanks with the exceptions noted below.

Metals by Method 6020A:

Initial calibration blank (ICB) 280-533080/15 exhibited a positive detection for antimony. The ICB did not bracket the analysis of investigative samples; qualification is not necessary.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Samples NYOW-01-WL001-A, NYOW-01-WL018-A, NYOW-01-WL005-A, WL-DUP-001_210412, and NYOW-01-WL024-A exhibited recoveries less than the lower warning limits for base/neutral (B/N) extractable surrogate terphenyl-d14 at 48%, 43%, 40%, 45%, and 24%, respectively. The associated B/N sample results (DNCB) were non-detect and are qualified as "UJ".

Picric Acid by Method 8330B:

Samples NYOW-01-WL001-A, NYOW-01-WL018-A, NYOW-01-WL005-A, and WL-DUP-001_210412 exhibited recoveries greater than the upper warning limit for 1,2-dinitrobenzene at 156%, 167%, 201%, and 123%, respectively. The associated sample results were non-detect; qualification is not required.

Samples NYOW-01-WL024-A and EB-01_210412 exhibited surrogate recoveries less than the lower warning limit at 52% and 80%, respectively. The associated sample results are qualified as "UJ".

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

Picric Acid by Method 8330B:

MS/SD sample NYOW-01-WL001-A exhibited a recovery less than the lower warning limit at 57%. The associated sample result is qualified as “UJ”. In addition, the MS/SD RPD was greater than the control limit at 38%. Non-detect data is not qualified on this basis.

Metals by Method 6020A:

MS/SD sample NYOW-01-WL001-A exhibited recoveries less than the lower warning limit for antimony at 80% and 82%, respectively. The associated sample result is qualified as “J-”.

## DUAL COLUMN IMPRECISION

All sample results were non-detect; therefore, column comparisons were not performed.

## POST-DIGESTION SPIKE

Metals by Method 6020A:

A post-digestion spike (PDS) was performed for MS/SD sample NYOW-01-WL001-A. Antimony recovered within the control limits.

## ICP SERIAL DILUTION

Metals by Method 6010C:

An ICP serial dilution was performed for sample NYOW-01-WL001-A. All %Ds were less than the control limit.

## LOW-LEVEL CHECK STANDARD

Low-level check standards (LLCCV) for methods 6010C and 6020A were performed using the low-level CCV standard. All recoveries were within the control limits with the exceptions noted below.

Metals by Method 6010C:

LLCCV 280-533822/129 recovered above the control limit for sodium at 129%. The associated sample concentrations were less than the level spiked in the ICV and CCVs; the sample results are qualified as "J+".

Metals by Method 6020A:

LLCCVs 280-533080/62 and 280-533080/75 recovered below the lower control limit for thallium at 76% and 73%, respectively. The associated sample concentrations were non-detect. The associated sample results are qualified as "UJ".

**INTERFERENCE CHECK SAMPLES**

Interference check samples (ICS) A and AB recoveries were evaluated and met the acceptance criteria.

Cobalt was detected above the LOD in the initial and closing ICSA at 0.472 µg/L and 0.455 µg/L, respectively. The ICS vendor has noted that cobalt is a trace impurity in the ICSA with a trace concentration of 3 µg/L; qualification is not necessary.

The ICSA associated with batch 280-533822 had barium present above the LOD at 13.1 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium (2 µg/L); qualification is not necessary.

**COMMENTS**

One field duplicate and parent sample pair was collected and analyzed for all parameters (WL-DUP-001_210412 collected from NYOW-01-WL005-A). The RPD must be less than 30% when at least one results is greater than the LOQ. Aluminum (RPD = 137%) and iron (RPD = 79%) did not meet the precision criteria.

All aqueous LOQs were slightly greater than Project Quantitation Limit Goals (PQLGs) for DNP. All other PQLGs were met.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210412 | 280-147363-6 | SW6020A | Thallium | 7440-28-0 | ug/L | 0.200 | | UJ | V6 |
| EB-01_210412 | 280-147363-6 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.120 | | UJ | I |
| NYOW-01-WL001-A | 280-147363-1 | SW6010C | Sodium | 7440-23-5 | ug/L | 2100 | + | J | TR/V6 |
| NYOW-01-WL001-A | 280-147363-1 | SW6020A | Antimony | 7440-36-0 | ug/L | 1.50 | - | J | M/TR |
| NYOW-01-WL001-A | 280-147363-1 | SW6020A | Thallium | 7440-28-0 | ug/L | 0.200 | | UJ | V6 |
| NYOW-01-WL001-A | 280-147363-1 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 9.50 | | UJ | I |
| NYOW-01-WL001-A | 280-147363-1 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.130 | | UJ | M |
| NYOW-01-WL005-A | 280-147363-3 | SW6010C | Aluminum | 7429-90-5 | ug/L | 300 | | J | D3 |
| NYOW-01-WL005-A | 280-147363-3 | SW6010C | Iron | 7439-89-6 | ug/L | 2600 | | J | D3 |
| NYOW-01-WL005-A | 280-147363-3 | SW6010C | Sodium | 7440-23-5 | ug/L | 5500 | + | J | V6 |
| NYOW-01-WL005-A | 280-147363-3 | SW6020A | Thallium | 7440-28-0 | ug/L | 0.200 | | UJ | V6 |
| NYOW-01-WL005-A | 280-147363-3 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 11.0 | | UJ | I |
| NYOW-01-WL018-A | 280-147363-2 | SW6010C | Sodium | 7440-23-5 | ug/L | 4700 | + | J | TR/V6 |
| NYOW-01-WL018-A | 280-147363-2 | SW6020A | Thallium | 7440-28-0 | ug/L | 0.200 | | UJ | V6 |
| NYOW-01-WL018-A | 280-147363-2 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 11.0 | | UJ | I |
| NYOW-01-WL024-A | 280-147363-5 | SW6010C | Sodium | 7440-23-5 | ug/L | 140000 | + | J | V6 |
| NYOW-01-WL024-A | 280-147363-5 | SW6020A | Thallium | 7440-28-0 | ug/L | 0.200 | | UJ | V6 |
| NYOW-01-WL024-A | 280-147363-5 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 10.0 | | UJ | I |
| NYOW-01-WL024-A | 280-147363-5 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.120 | | UJ | I |
| WL-DUP-001_210412 | 280-147363-4 | SW6010C | Aluminum | 7429-90-5 | ug/L | 1600 | | J | D3 |
| WL-DUP-001_210412 | 280-147363-4 | SW6010C | Iron | 7439-89-6 | ug/L | 6000 | | J | D3 |
| WL-DUP-001_210412 | 280-147363-4 | SW6010C | Sodium | 7440-23-5 | ug/L | 5900 | + | J | V6 |
| WL-DUP-001_210412 | 280-147363-4 | SW6020A | Thallium | 7440-28-0 | ug/L | 0.200 | | UJ | V6 |
| WL-DUP-001_210412 | 280-147363-4 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 11.0 | | UJ | I |

Reason Code Definitions

| | | | |
|---|---|---|---|
| D3 | Field Duplicate RPD | M | MS Recovery |
| I | Surrogate Recovery | V6 | Low Level Calibration Verification |
| TR | Trace Level Detect | | |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 8 July 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM Revision 1: 280-147423-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D
- Picric Acid by SW-846 Methods 8330A (soils) and 8330B (equipment blank)
- Metals by ICP SW-846 Method 6010C
- Metals by ICP-MS SW-846 Method 6020A
- Mercury (Hg) by SW-846 Method 7470A
- Hg by SW-846 Method 7471B
- Total Organic Carbon (TOC) by Method SW-846 9060A
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG) collected 13 April 2021, laboratory and client sample identification numbers, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

## TABLE 1: SAMPLE SUMMARY

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | D2216 | SW6010C | SW6020A | SW7470A | SW7471B | SW8270D | SW8330A | SW8330B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-01-SL007-A | 280-147423-1 | Solid | Field Sample/N | X | X | X | | X | X | X | | X |
| NYOW-01-SL009-A | 280-147423-5 | Solid | Field Sample/N | X | X | X | | X | X | X | | X |
| NYOW-01-SL011-A | 280-147423-12 | Solid | Field Sample/N | X | X | X | | X | X | X | | |
| NYOW-01-SL025-A | 280-147423-4 | Solid | Field Sample/N | X | X | X | | X | X | X | | X |
| NYOW-01-SL026-A | 280-147423-3 | Solid | Field Sample/N | X | X | X | | X | X | X | | X |
| NYOW-01-SL027-A | 280-147423-2 | Solid | Field Sample/N | X | X | X | | X | X | X | | X |
| NYOW-01-SL028-A | 280-147423-6 | Solid | Field Sample/N | X | X | X | | X | X | X | | X |
| NYOW-01-SL029-A | 280-147423-7 | Solid | Field Sample/N | X | X | X | | X | X | X | | X |
| NYOW-01-SL030-A | 280-147423-8 | Solid | Field Sample/N | X | X | X | | X | X | X | | X |
| NYOW-01-SL031-A | 280-147423-10 | Solid | Field Sample/N | X | X | X | | X | X | X | | |
| NYOW-01-SL032-A | 280-147423-11 | Solid | Field Sample/N | X | X | X | | X | X | X | | |
| NYOW-01-SL033-A | 280-147423-9 | Solid | Field Sample/N | X | X | X | | X | X | X | | |
| NYOW-01-SL037-A | 280-147423-15 | Solid | Field Sample/N | X | X | X | | X | X | X | | X |
| NYOW-01-SL038-A | 280-147423-14 | Solid | Field Sample/N | X | X | X | | X | X | X | | X |
| NYOW-01-SL039-A | 280-147423-13 | Solid | Field Sample/N | X | X | X | | X | X | X | | X |
| EB-01_210413 | 280-147423-16 | Water | Equipment Blank/EB | | X | X | X | | X | | X | |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Four coolers were received by the laboratory at temperatures of 3.5°C, 0.9°C, 1.5°C, and 3.7°C.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial instrument calibrations and at the start of each sample analysis batch for SVOCs. The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exception noted below.

<u>SVOCs Method 8270D:</u>

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different

ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

Metals by Method 6010C:

Low-level initial calibration verification (ICV) standard 280-533604/10 exhibited a recovery less than the lower control limit for selenium at 74%. The ICV did not bracket the analysis of investigative samples; qualification is not necessary.

**CONTINUING CALIBRATION VERIFICATION**

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

SVOCs by Method 8270D:

Continuing calibration verifications (CCV) 680-666526/27 and 680-666526/28 were analyzed 8 and 36 minutes beyond the 12-hour tune window. The associated soil sample results were non-detect and are qualified as “UJ”.

CCV 680-666053/2 exhibited a %D greater than the control limit for DNP with positive bias at 26.2%. The associated equipment blank sample result is qualified as “UJ”.

CCV 680- 666526/2 exhibited a %D greater than the control limit for DNP with positive bias at 22.1%. The associated sample results were previously qualified; no further action is necessary.

CCV 680- 666658/2 exhibited a %D greater than the control limit for DNP with positive bias at 27.9%. The associated soil sample results were non-detect and are qualified as “UJ”.

CCV 667546/3 exhibited a %D greater than the control limit for DNCB with positive bias at 22.7%. The associated sample results are for a reanalysis batch; qualification is not necessary.

Metals by Method 6010C:

Low-level calibration verification standard 280-533604/72 exhibited a recovery greater than the upper control limit for calcium at 125% and a recovery less than the lower control limit for selenium at 76%. The CCV did not bracket the analysis of investigative samples; qualification is not necessary.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, continuing calibration blanks, and equipment blanks with the exceptions noted below.

Metals by Method 6010C:

Equipment blank sample EB-01_210413 exhibited a positive detection below the LOQ for chromium at 0.88 µg/L. The associated soil sample results are not qualified on the basis of aqueous equipment blanks.

Continuing calibration blanks (CCB) 280-533604/71, 280-533604/85, and 280-533604/99 exhibited positive detections below the LOQ for iron (28.9 µg/L), beryllium (0.191 µg/L), magnesium (226 µg/L), and sodium (1,390 µg/L). The associated equipment blank sample results were non-detect; qualification is not required.

CCB 280-534126/22 exhibited a positive detection below the LOQ for chromium at 0.777 µg/L. The associated sample result was greater than the aqueous LOQ; qualification is not necessary on the basis of professional judgment.

## SURROGATE RECOVERIES

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Sample NYOW-01-SL026-A exhibited recoveries less than the lower warning limit for each of the six surrogate compounds ranging from 25% to 29%. The sample was analyzed at a 5X dilution, and the surrogates were diluted out; qualification is not necessary.

Sample NYOW-01-SL028-A exhibited recoveries less than the lower warning limit for each of the six surrogate compounds ranging from 25% to 31%. The sample was analyzed at a 5X dilution, and the surrogates were diluted out; qualification is not necessary.

Sample NYOW-01-SL030-A exhibited recoveries less than the lower warning limit for 2-fluorobiphenyl (41%), 2-fluorophenol (34%), and nitrobenzene-d5 (36%). The sample was reanalyzed outside of the extraction holding time period and the surrogates recovered within control. The initial results should be used for data interpretation. The associated initial sample results were non-detect and are qualified as “UJ”.

Sample NYOW-01-SL033-A exhibited recoveries less than the lower warning limit for base/neutral (B/N) extractable surrogates 2-fluorobiphenyl (35%) and nitrobenzene-d5 (32%). The sample was reanalyzed outside of the extraction holding time period and the surrogates recovered within

control. The initial result should be used for data interpretation. The associated initial sample result for B/N extractable DNCB was non-detect and is qualified as "UJ".

Sample NYOW-01-SL032-A exhibited recoveries less than the lower warning limit for each of the six surrogate compounds ranging from 29% to 38%. The sample was analyzed at a 5X dilution, and the surrogates were diluted out; qualification is not necessary.

**LABORATORY CONTROL SAMPLES**

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

LCS/LCSD 680-665777/17-A/18-A exhibited a RPD greater than the control limit for DNP at 27%. The associated soil sample results were non-detect; qualification is not necessary.

LCS/LCSD 680-667192/11-A/12-A exhibited a RPD greater than the control limit for DNCB at 25%. The associated soil sample results were non-detect; qualification is not necessary.

TOC by Method 9060A:

LCSD 280-534855/4 did not recover (i.e., 0%). In addition, the LCS/LCSD RPD was greater than the control limit at 231%. The laboratory noted a potential instrument malfunction associated only with the LCSD. The associated sample results were positive detections and are qualified as "J-".

Metals by Method 6010C:

LCS 280-533186/2-A exhibited a recovery greater than the upper warning limit for silver at 117%. The associated equipment blank sample result was non-detect; qualification is not necessary.

**MATRIX SPIKE/MATRIX SPIKE DUPLICATES**

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

MS/SD sample NYOW-01-SL007-A exhibited an RPD greater than the control limit for DNP at 59%. The associated sample result was non-detect; qualification is not necessary.

Picric Acid by Method 8330A:

MS/SD sample NYOW-01-SL025-A exhibited recoveries less than the lower warning limit at 26% and 23%, respectively. The associated sample result is qualified as "UJ".

TOC by Method 9060A:

MS sample NYOW-01-SL029-A exhibited a recovery greater than the upper warning limit at 168%. The MS/SD RPD was equal to the control limit at 20%. The associated positive sample result is qualified as “J”.

**DUAL COLUMN IMPRECISION**

Picric Acid by Method 8330A:

Sample NYOW-01-SL026-A exhibited dual column imprecision greater than the control limit at 194%. The primary column peak was manually integrated for an elevated baseline. The secondary column peak was manually integrated because the fronting peak was incompletely integrated. No obvious chromatographic interference was identified. Consistent with the QSM and SW-846 Method 8000D, the lower result from the primary column was reported. The sample result is qualified as “J”.

**POST-DIGESTION SPIKE**

A post-digestion spike was performed for the soil mercury batch and recovered within control.

**ICP SERIAL DILUTION**

A ICP serial dilution was performed for the soil mercury batch and recovered within control.

**LOW-LEVEL CHECK STANDARD**

Low-level check standards for methods 6010C and 6020A were performed using the low-level CCV standard. All recoveries were within the control limits with the exceptions noted for CCVs above.

**INTERFERENCE CHECK SAMPLES**

Interference check samples (ICS) A and AB recoveries were evaluated and met the acceptance criteria.

The ICSA associated with batch 280-533459 had barium present above the LOD at 13.6 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium (2 µg/L); qualification is not necessary.

The ICSA associated with batch 280-533604 had barium present above the LOD at 13.3 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium (2 µg/L); qualification is not necessary.

The initial and closing ICSA associated with batch 280-533313 had cobalt present above the LOD at 0.404 µg/L and 0.451 µg/L, respectively. The ICS vendor has noted that cobalt is a trace impurity in the ICSA with a trace concentration of 3 µg/L; qualification is not necessary.

## COMMENTS

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

A field duplicate was not collected as part of this SDG.

The following samples were air dried and sieved in accordance with the procedure; however, the samples contained rocks, vegetation, slag, and some glass that would not pass through the sieve: NYOW-01-SL007-A, NYOW-01-SL027-A, NYOW-01-SL026-A, NYOW-01-SL025-A, NYOW-01-SL009-A, NYOW-01-SL028-A, NYOW-01-SL029-A, NYOW-01-SL030-A, NYOW-01-SL033-A, NYOW-01-SL031-A, NYOW-01-SL032-A, NYOW-01-SL011-A, NYOW-01-SL039-A, NYOW-01-SL038-A, and NYOW-01-SL037-A. The material was removed and not extracted.

The following samples were diluted prior to SVOC analysis due to sample matrix: NYOW-01-SL026-A, NYOW-01-SL028-A, and NYOW-01-SL032-A. The LOQs were adjusted accordingly.

Sample NYOW-01-SL033-A in preparation batch 280-532668 contained free liquid in the sample jar. The sample was air dried prior to analysis. The laboratory did not note any receipt exceptions that would indicate potential cooler water infiltration of the sample container.

A MS/SD was not performed for method 8330B (equipment blank sample analysis). An LCS/LCSD pair was performed.

A MS/SD was not performed for the method 8270D aqueous batch (equipment blank sample analysis) or soil reanalysis batch 680-667192. An LCS/LCSD pair was performed in each instance.

A MS/SD was not performed for methods 6010C, 6020A, and 7470A. An LCS/LCSD pair was performed for each sample batch.

LOQs were greater than Project Quantitation Limit Goals (PQLGs) for metals and mercury due to percent moisture adjustments. LOQs were greater than PQLGs for SVOCs due to sample dilution and percent moisture adjustments.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210413 | 280-147423-16 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/L | 21.0 | | UJ | V2 |
| NYOW-01-SL007-A | 280-147423-1 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 530 | | UJ | Z6 |
| NYOW-01-SL007-A | 280-147423-1 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 2100 | | UJ | Z6/V2 |
| NYOW-01-SL009-A | 280-147423-5 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1800 | | UJ | V2 |
| NYOW-01-SL011-A | 280-147423-12 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1700 | | UJ | V2 |
| NYOW-01-SL025-A | 280-147423-4 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V2 |
| NYOW-01-SL025-A | 280-147423-4 | SW8330A | Picric acid | 88-89-1 | ug/kg | 160 | | UJ | M |
| NYOW-01-SL026-A | 280-147423-3 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 13000 | | UJ | V2 |
| NYOW-01-SL026-A | 280-147423-3 | SW8330A | Picric acid | 88-89-1 | ug/kg | 58.0 | | J | TR/P1 |
| NYOW-01-SL026-A | 280-147423-3 | SW9060A | Total Organic Carbon | | mg/kg | 180000 | - | J | C |
| NYOW-01-SL027-A | 280-147423-2 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1600 | | UJ | V2 |
| NYOW-01-SL028-A | 280-147423-6 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 11000 | | UJ | V2 |
| NYOW-01-SL029-A | 280-147423-7 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1700 | | UJ | V2 |
| NYOW-01-SL029-A | 280-147423-7 | SW9060A | Total Organic Carbon | | mg/kg | 18000 | | J | C/M/D |
| NYOW-01-SL030-A | 280-147423-8 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 410 | | UJ | I |
| NYOW-01-SL030-A | 280-147423-8 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1600 | | UJ | I/V2 |
| NYOW-01-SL030-A | 280-147423-8 | SW9060A | Total Organic Carbon | | mg/kg | 27000 | - | J | C |
| NYOW-01-SL031-A | 280-147423-10 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1600 | | UJ | V2 |
| NYOW-01-SL032-A | 280-147423-11 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 8400 | | UJ | V2 |
| NYOW-01-SL033-A | 280-147423-9 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 390 | | UJ | I |
| NYOW-01-SL033-A | 280-147423-9 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V2 |
| NYOW-01-SL037-A | 280-147423-15 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 480 | | UJ | Z6 |
| NYOW-01-SL037-A | 280-147423-15 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1900 | | UJ | Z6/V2 |
| NYOW-01-SL038-A | 280-147423-14 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1600 | | UJ | V2 |
| NYOW-01-SL039-A | 280-147423-13 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1600 | | UJ | V2 |

Reason Code Definitions

| | |
|---|---|
| D | MS RPD |
| TR | Trace Detect |
| I | Surrogate Recovery |
| M | MS Recovery |
| V2 | CCV |
| Z6 | 12-hr Tune |
| P1 | Column RPD |
| C | LCS Recovery |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 8 July 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM Revision 1: 280-147471-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in April 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D
- Picric Acid by SW-846 Methods 8330A (soils) and 8330B (equipment blank)
- Metals by ICP SW-846 Method 6010C
- Metals by ICP-MS SW-846 Method 6020A
- Mercury (Hg) by SW-846 Method 7470A
- Hg by SW-846 Method 7471B
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG) collected on 14 April 2021, laboratory and client sample identification numbers, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

## TABLE 1: SAMPLE SUMMARY

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | D2216 | SW6010C | SW6020A | SW7470A | SW7471B | SW8270D | SW8330A | SW8330B |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-01-SL013-A | 280-147471-3 | Solid | Field Sample/N | X | X | X | | X | X | X | |
| NYOW-01-SL034-A | 280-147471-2 | Solid | Field Sample/N | X | X | X | | X | X | X | |
| NYOW-01-SL035-A | 280-147471-4 | Solid | Field Sample/N | X | X | X | | X | X | X | |
| NYOW-01-SL036-A | 280-147471-1 | Solid | Field Sample/N | X | X | X | | X | X | X | |
| EB-01_210414 | 280-147471-5 | Water | Equipment Blank/EB | | X | X | X | | X | | X |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the

basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. One cooler was received by the laboratory at a temperature of 1.1°C.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial instrument calibrations and at the start of each sample analysis batch for SVOCs. The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exception noted below.

<u>SVOCs Method 8270D:</u>

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

SVOCs by Method 8270D:

Continuing calibration verification (CCV) 680-666053/2 exhibited a %D greater than the control limit for DNP with positive bias at 26.2%. The associated equipment blank sample result was non-detect and is qualified as “UJ”.

Closing CCV 680-666966/22 exhibited a %D greater than the control limit for DNP with negative bias at 60.4%. The associated soil sample results were non-detect and are qualified as “UJ”.

CCV 680-667546/3 exhibited a %D greater than the control limit for DNCB with positive bias at 22.7%. The CCV is associated with the reanalysis analytical batch; qualification is not necessary.

Metals by Method 6010C:

Low-level calibration verification standards 280-533604/61 and 280-533604/72 exhibited recoveries greater than the upper control limit for calcium at 130% and 125%, respectively. The associated soil sample results were greater than the ICV/CCV concentrations; qualification is not necessary.

## INTERNAL STANDARDS

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, continuing calibration blanks, and equipment blanks with the exceptions noted below.

Metals by Method 6010C:

Preparation blank sample 280-533707/1-A exhibited a positive detection less than the LOQ for barium (1.73 µg/L). The associated equipment blank sample result was non-detect; qualification is not necessary.

Equipment blank sample EB-01_210414 exhibited positive detections below the LOQ for iron (54 µg/L) and zinc (6.2 µg/L). The associated soil sample results are not qualified on the basis of aqueous equipment blanks.

Continuing calibration blank (CCB) 280-533604/60 exhibited positive detections below the LOQ for aluminum (18 µg/L), beryllium (0.195 µg/L), iron (28.6 µg/L), and magnesium (50.6 µg/L). CCB 280-533604/71 also exhibited a detection below the LOQ for iron (28.9 µg/L). The associated sample results for aluminum, iron, and magnesium were greater than the LOQ; on the basis of professional judgment, qualification is not necessary. The associated sample results for beryllium less than the aqueous LOQ are qualified as “U” at the LOQ.

Metals by Method 6020A:

Initial calibration blank (ICB) 280-533818/15 exhibited a positive detection for antimony (0.520 µg/L) below the LOQ. The instrument was recalibrated with a blank and a single standard during the sequence and prior to the analysis of investigative samples; qualification is not necessary.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Sample NYOW-01-SL036-A exhibited a recovery less than the lower warning limit for terphenyl-d14 at 44%. The associated base/neutral (BN) extractable compound (DNCB) was non-detect and is qualified as “UJ”.

Sample NYOW-01-SL034-A exhibited a recovery less than the lower warning limit for terphenyl-d14 at 38%. The associated BN extractable compound (DNCB) was non-detect and is qualified as “UJ”.

Sample NYOW-01-SL035-A exhibited a recovery less than the lower warning limit for terphenyl-d14 at 42%. The associated BN extractable compound (DNCB) was non-detect and is qualified as “UJ”.

Picric Acid by Method 8330B:

Sample EB-01_210414 exhibited a surrogate recovery less than the lower warning limit at 72%. The associated sample result is qualified as “UJ”.

**LABORATORY CONTROL SAMPLES**

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

LCS/LCSD 680-666171/10-A/11-A exhibited a RPD greater than the control limit for DNCB at 22%. The associated soil sample results were non-detect; qualification is not necessary.

**MATRIX SPIKE/MATRIX SPIKE DUPLICATES**

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

MS/SD sample NYOW-01-SL036-A did not recover (i.e., 0%) for DNP. The associated sample result was non-detect and is qualified as “X”.

Picric Acid by Method 8330A:

MS/SD sample NYOW-01-SL036-A exhibited recoveries less than the lower warning limit at 15% and 16%, respectively. The associated sample result is qualified as “UJ”.

**DUAL COLUMN IMPRECISION**

All sample results were non-detect; therefore, column comparisons were not performed.

**POST-DIGESTION SPIKE**

No post-digestion spike analyses were performed.

**ICP SERIAL DILUTION**

No serial dilution tests were performed.

**LOW-LEVEL CHECK STANDARD**

Low-level check standards for methods 6010C and 6020A were performed using the low-level CCV standard. All recoveries were within the control limits with the exceptions noted for CCVs above.

**INTERFERENCE CHECK SAMPLES**

Interference check samples (ICS) A and AB recoveries were evaluated and met the acceptance criteria.

Metals by Method 6010C:

The ICSA associated with batch 280-534309 had barium present above the LOD at 13.5 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium (2 µg/L); qualification is not necessary.

The ICSA associated with batch 280-533604 had barium present above the LOD at 13.3 µg/L. The laboratory confirmed via ICP-MS that barium is a trace impurity in the ICSA at a concentration of 12.4 µg/L. The ICSA result minus the trace contamination concentration confirmed by ICP-MS is less than the LOD for barium (2 µg/L); qualification is not necessary.

Metals by Method 6020A:

The initial and closing ICSA associated with batch 280-533313 had cobalt present above the LOD at 0.404 µg/L and 0.451 µg/L, respectively. The ICS vendor has noted that cobalt is a trace impurity in the ICSA with a trace concentration of 3 µg/L; qualification is not necessary.

## COMMENTS

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

A field duplicate sample was not analyzed as part of this SDG.

The following samples were air dried and sieved in accordance with the procedure; however, the samples contained rocks, vegetation, and small plastic fragments that would not pass through the sieve: NYOW-01-SL036-A, NYOW-01-SL034-A, NYOW-01-SL013-A, and NYOW-01-SL035-A. The material was removed and not extracted.

The following samples were diluted prior to SVOC reanalysis: NYOW-01-SL036-A, NYOW-01-SL034-A, NYOW-01-SL013-A, and NYOW-01-SL035-A. The initial sample results should be used for data interpretation.

A MS/SD was not performed for method 8330B (equipment blank sample analysis). An LCS/LCSD pair was performed.

A MS/SD was not performed for methods 6010C, 6020A, 7471B, and 7470A. An LCS/LCSD pair was performed for each sample batch.

LOQs were greater than Project Quantitation Limit Goals (PQLGs) for SVOCs, arsenic, antimony, selenium, thallium, cobalt, and mercury due to percent moisture adjustments.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified, with the exception of the “X” qualified result. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 99%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210414 | 280-147471-5 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/L | 21.0 | | UJ | V2 |
| EB-01_210414 | 280-147471-5 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.130 | | UJ | I |
| NYOW-01-SL013-A | 280-147471-3 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V2 |
| NYOW-01-SL034-A | 280-147471-2 | SW6010C | Beryllium | 7440-41-7 | mg/kg | 0.520 | | U | L |
| NYOW-01-SL034-A | 280-147471-2 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 510 | | UJ | I |
| NYOW-01-SL034-A | 280-147471-2 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 2000 | | UJ | V2 |
| NYOW-01-SL035-A | 280-147471-4 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 440 | | UJ | I |
| NYOW-01-SL035-A | 280-147471-4 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1700 | | UJ | V2 |
| NYOW-01-SL036-A | 280-147471-1 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 470 | | UJ | I |
| NYOW-01-SL036-A | 280-147471-1 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1800 | | X | M/V2 |
| NYOW-01-SL036-A | 280-147471-1 | SW8330A | Picric acid | 88-89-1 | ug/kg | 160 | | UJ | M |

Reason Code Definitions

| | |
|---|---|
| V2 | CCV |
| I | Surrogate Recovery |
| L | Lab Blank |
| M | MS Recovery |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 21 July 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM Revision 1: 280-148199-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) by SW-846 Method 8270D
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG) collected on 4 May 2021, laboratory and client sample identification numbers, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | D2216 | SW8270D |
|---|---|---|---|---|---|
| NYOW-03-PH005-B_R | 280-148199-2 | Solid | Field Sample/N | | X |
| NYOW-03-PH006-B_R | 280-148199-15 | Solid | Field Sample/N | | X |
| NYOW-03-PH007-B_R | 280-148199-14 | Solid | Field Sample/N | | X |
| NYOW-03-PH008-B_R | 280-148199-13 | Solid | Field Sample/N | X | X |
| NYOW-03-PH009-B_R | 280-148199-10 | Solid | Field Sample/N | X | X |
| NYOW-03-PH013-B_R | 280-148199-8 | Solid | Field Sample/N | X | X |
| NYOW-03-PH014-B_R | 280-148199-6 | Solid | Field Sample/N | X | X |
| NYOW-03-PH015-B_R | 280-148199-4 | Solid | Field Sample/N | X | X |
| NYOW-03-PH016-B_R | 280-148199-1 | Solid | Field Sample/N | | X |
| NYOW-03-SL008-A_R | 280-148199-11 | Solid | Field Sample/N | X | X |
| NYOW-03-SL009-A_R | 280-148199-9 | Solid | Field Sample/N | X | X |
| NYOW-03-SL013-A_R | 280-148199-7 | Solid | Field Sample/N | X | X |
| NYOW-03-SL014-A_R | 280-148199-5 | Solid | Field Sample/N | X | X |
| NYOW-03-SL015-A_R | 280-148199-3 | Solid | Field Sample/N | X | X |
| SL-DUP-001_210504 | 280-148199-12 | Solid | Field Duplicate/FD | X | X |
| EB-01_210504 | 280-148199-16 | Water | Equipment Blank/EB | | X |

Notes: SL-DUP-001_210504 collected from NYOW-03-SL008-A_R

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. One cooler was received by the laboratory at a temperature of 2.6°C.

Samples NYOW-03-PH006-B_R, NYOW-03-PH007-B_R, NYOW-03-PH008-B_R, NYOW-03-PH015-B_R, and NYOW-03-SL015-A_R were reanalyzed 8 days after the 14-day holding time period. The initial sample results should be used for data interpretation.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial instrument calibrations and at the start of each sample analysis batch for SVOCs. The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exception noted below.

SVOCs Method 8270D:

2,4-Dinitrochlorobenzene (DNCB) is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

**CONTINUING CALIBRATION VERIFICATION**

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

SVOCs by Method 8270D:

Continuing calibration verification (CCV) 680-668479/2 exhibited %Ds greater than the control limit for 2,4-dinitrophenol at 43% and 4,6-dinitro-2-methylphenol at 32%. The associated equipment blank sample results were non-detect and are qualified as “UJ”.

CCV 680-669878/2 exhibited a %D greater than the control limit for pentachlorophenol at -26.6%. The associated sample results were non-detect and are qualified as “UJ”.

Closing CCV 680-669878/26 exhibited a %D greater than the control limit for hexachlorocyclopentadiene at -59.5%. The associated soil sample results were non-detect and are qualified as “UJ”.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the method.

**BLANK SAMPLE RESULTS**

The criteria for evaluation of blanks applies to laboratory method or preparation blanks and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks and equipment blanks with the exceptions noted below.

SVOCs by Method 8270D:

Equipment blank sample EB-01_210504 exhibited a positive detection for bis(2-ethylhexyl)phthalate below the LOQ at 1.9 µg/L. Soil sample results are not qualified on the basis of aqueous equipment blanks.

## SURROGATE RECOVERIES

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Sample NYOW-03-PH005-B_R exhibited a recovery less than the lower warning limit for terphenyl-d14 at 52%. The associated base/neutral (BN) extractable compounds are qualified as "UJ".

Sample NYOW-03-SL015-A_R exhibited a recovery less than the lower warning limit for nitrobenzene-d5 at 37%. The associated positive detections for BN extractable compounds are qualified as "J-" and non-detects are qualified as "UJ".

Sample NYOW-03-PH015-B_R exhibited recoveries less than the lower warning limits for nitrobenzene-d5 at 33%, 2-fluorobiphenyl at 42%, and terphenyl-d14 at 49%. The associated BN extractable compounds are qualified as "UJ".

Sample NYOW-03-PH013-B_R exhibited a recovery less than the lower warning limit for terphenyl-d14 at 53 %. The associated base/neutral (BN) extractable compounds are qualified as "UJ".

Sample NYOW-03-PH008-B_R exhibited recoveries less than the lower warning limits for 2-fluorophenol at 27%, phenol-d5 at 29%, nitrobenzene-d5 at 28%, 2-fluorobiphenyl at 34%, and terphenyl-d14 at 37%. The associated acid and BN extractable compounds are qualified as "UJ".

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

LCS/LCSD 680-669099/5-A/6-A exhibited recoveries less than the lower warning limits for 2,2'-oxybis[1-chloropropane] (31% and 30%), 2,6-dinitrotoluene (43%), bis(2-ethylhexyl)phthalate (50% and 26%), hexachlorocyclopentadiene (26% and 23%), butyl benzyl phthalate (46%), bis(2-chloroethyl)ether (26%), and n-nitrosodi-n-propylamine (32%). The associated soil sample results were non-detect and are qualified as "UJ".

LCSD 680-668918/15-A exhibited RPDs greater than 20% for 3,3'-dichlorobenzidine (28%), atrazine (25%), and caprolactam (24%). The associated soil sample results were non-detect; qualification is not necessary.

LCSD 680-669099/10-A exhibited an RPD greater than 20% for DNCB at 26%. The associated soil sample results were non-detect; qualification is not necessary.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

SD sample NYOW-03-SL009-A_R exhibited recoveries less than the lower warning limits for caprolactam (41%) and hexachlorocyclopentadiene (27%). The associated sample results were non-detect and are qualified as "UJ".

MS/SD sample NYOW-03-SL009-A_R exhibited RPDs greater than 20% for the majority of analytes as shown in the table below. The associated sample results were non-detect; qualification is not necessary.

| Compound | RPD | Compound | RPD |
|---|---|---|---|
| 1,2,4,5-Tetrachlorobenzene | 35 | 4-Nitrophenol | 46 |
| 1,4-Dioxane | 28 | Acetophenone | 37 |
| 2,2'-oxybis[1-chloropropane] | 34 | Biphenyl | 36 |
| 2,3,4,6-Tetrachlorophenol | 43 | Bis(2-chloroethoxy)methane | 38 |
| 2,4,5-Trichlorophenol | 39 | Bis(2-chloroethyl)ether | 33 |
| 2,4,6-Trichlorophenol | 37 | Bis(2-ethylhexyl) phthalate | 43 |
| 2,4-Dichlorophenol | 37 | Butyl benzyl phthalate | 42 |
| 2,4-Dimethylphenol | 41 | Caprolactam | 51 |
| 2,4-Dinitrophenol | 56 | Carbazole | 42 |
| 2,4-Dinitrotoluene | 46 | Dibenzofuran | 40 |
| 2,6-Dinitrotoluene | 40 | Diethyl phthalate | 44 |
| 2-Chloronaphthalene | 36 | Dimethyl phthalate | 42 |
| 2-Chlorophenol | 34 | Di-n-butyl phthalate | 43 |
| 2-Methylphenol | 38 | Di-n-octyl phthalate | 41 |
| 2-Nitroaniline | 39 | Hexachlorobenzene | 41 |
| 2-Nitrophenol | 30 | Hexachlorobutadiene | 35 |
| 3,3'-Dichlorobenzidine | 70 | Hexachlorocyclopentadiene | 46 |

| Compound | RPD | Compound | RPD |
|---|---|---|---|
| 3-Nitroaniline | 49 | Hexachloroethane | 27 |
| 4,6-Dinitro-2-methylphenol | 39 | Isophorone | 37 |
| 4-Bromophenyl phenyl ether | 40 | m & p - Cresol | 41 |
| 4-Chloro-3-methylphenol | 42 | Nitrobenzene | 37 |
| 4-Chloroaniline | 49 | N-Nitrosodi-n-propylamine | 40 |
| 4-Chlorophenyl phenyl ether | 41 | N-Nitrosodiphenylamine | 40 |
| 4-Nitroaniline | 51 | Pentachlorophenol | 49 |
| Benzaldehyde | 37 | Phenol | 37 |

MS sample NYOW-03-PH008-B_R exhibited a recovery less than the lower warning limit for hexachlorocyclopentadiene at 27%. The associated sample result is qualified as “UJ”.

SD sample NYOW-03-PH008-B_R exhibited multiple recoveries less than the lower warning limits as shown below. The associated sample results are qualified as “UJ”.

| Compound | Recovery | Compound | Recovery |
|---|---|---|---|
| 2,2'-oxybis[1-chloropropane] | 27 | Bis(2-chloroethyl)ether | 27 |
| 2,4-Dinitrotoluene | 44 | Bis(2-ethylhexyl) phthalate | 50 |
| 2,6-Dinitrotoluene | 40 | Butyl benzyl phthalate | 47 |
| 2-Chloronaphthalene | 39 | Carbazole | 48 |
| 2-Nitroaniline | 42 | Diethyl phthalate | 48 |
| 4-Bromophenyl phenyl ether | 44 | Dimethyl phthalate | 50 |
| 4-Chlorophenyl phenyl ether | 42 | Di-n-butyl phthalate | 50 |
| Hexachlorocyclopentadiene | 16 | N-Nitrosodi-n-propylamine | 35 |
| Phenol | 32 | | |

MS sample NYOW-03-PH008-B_R exhibited RPDs greater than 20% for the majority of analytes as shown in the table below. The associated sample results were non-detect; qualification is not necessary.

| Compound | RPD | Compound | RPD |
|---|---|---|---|
| 1,2,4,5-Tetrachlorobenzene | 34 | 4-Nitrophenol | 44 |

| Compound | RPD | Compound | RPD |
|---|---|---|---|
| 1,4-Dioxane | 37 | Acetophenone | 24 |
| 2,2'-oxybis[1-chloropropane] | 42 | Biphenyl | 32 |
| 2,3,4,6-Tetrachlorophenol | 34 | Bis(2-chloroethoxy)methane | 40 |
| 2,4,5-Trichlorophenol | 34 | Bis(2-chloroethyl)ether | 30 |
| 2,4,6-Trichlorophenol | 44 | Bis(2-ethylhexyl) phthalate | 24 |
| 2,4-Dimethylphenol | 29 | Butyl benzyl phthalate | 29 |
| 2,4-Dinitrophenol | 65 | Caprolactam | 26 |
| 2,4-Dinitrotoluene | 46 | Carbazole | 31 |
| 2,6-Dinitrotoluene | 49 | Dibenzofuran | 30 |
| 2-Chloronaphthalene | 40 | Diethyl phthalate | 33 |
| 2-Chlorophenol | 41 | Dimethyl phthalate | 30 |
| 2-Methylphenol | 50 | Di-n-butyl phthalate | 26 |
| 2-Nitroaniline | 29 | Di-n-octyl phthalate | 22 |
| 2-Nitrophenol | 38 | Hexachlorobenzene | 33 |
| 3,3'-Dichlorobenzidine | 40 | Hexachlorobutadiene | 38 |
| 3-Nitroaniline | 32 | Hexachlorocyclopentadiene | 52 |
| 4,6-Dinitro-2-methylphenol | 73 | Hexachloroethane | 48 |
| 4-Bromophenyl phenyl ether | 41 | Isophorone | 33 |
| 4-Chloro-3-methylphenol | 29 | m & p - Cresol | 44 |
| 4-Chloroaniline | 41 | Nitrobenzene | 25 |
| 4-Chlorophenyl phenyl ether | 43 | N-Nitrosodi-n-propylamine | 28 |
| 4-Nitroaniline | 44 | N-Nitrosodiphenylamine | 32 |
| Benzaldehyde | 45 | Pentachlorophenol | 22 |
| Atrazine | 24 | Phenol | 48 |

## COMMENTS

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

One field duplicate and parent sample pair was collected and analyzed for SVOCs and percent solids (SL-DUP-001_210504 collected from NYOW-03-SL008-A_R). The RPD must be less than 50% when at least one result is greater than the LOQ. The field duplicate pair met the precision criteria.

A MS/SD and LCS/LCSD was performed for each sample batch with the exception of a MS/SD for aqueous batch 680-667976.

LOQs were greater than Project Quantitation Limit Goals (PQLGs) for multiple SVOCs due to percent moisture adjustments.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| SDG | Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|---|
| 280-148199-1_52_2a_FUDSChem | EB-01_210504 | 280-148199-16 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/L | 19.0 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | EB-01_210504 | 280-148199-16 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/L | 19.0 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 380 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 380 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 200 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Carbazole | 86-74-8 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 380 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 78.0 | | UJ | I/V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Isophorone | 78-59-1 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 200 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 78.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH005-B_R | 280-148199-2 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 780 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH006-B_R | 280-148199-15 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 85.0 | | UJ | C |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH006-B_R | 280-148199-15 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 110 | | UJ | C |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH006-B_R | 280-148199-15 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 85.0 | | UJ | C |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH006-B_R | 280-148199-15 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 85.0 | | UJ | C |

| SDG | Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|---|
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH006-B_R | 280-148199-15 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 85.0 | | UJ | C |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH006-B_R | 280-148199-15 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 85.0 | | UJ | C |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH006-B_R | 280-148199-15 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 85.0 | | UJ | C |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH007-B_R | 280-148199-14 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 78.0 | | UJ | C |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH007-B_R | 280-148199-14 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 96.0 | | UJ | C |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH007-B_R | 280-148199-14 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 78.0 | | UJ | C |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH007-B_R | 280-148199-14 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 78.0 | | UJ | C |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH007-B_R | 280-148199-14 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 78.0 | | UJ | C |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH007-B_R | 280-148199-14 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 78.0 | | UJ | C |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH007-B_R | 280-148199-14 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 78.0 | | UJ | C |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 390 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 80.0 | | UJ | C/M/I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 390 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 99.0 | | UJ | C/M/I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 80.0 | | UJ | C/M/I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 80.0 | | UJ | M/I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 200 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Carbazole | 86-74-8 | ug/kg | 80.0 | | UJ | M/I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 99.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 80.0 | | UJ | M/I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 80.0 | | UJ | M/I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 80.0 | | UJ | M/I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 390 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 80.0 | | UJ | M/I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/kg | 390 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 80.0 | | UJ | M/I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 99.0 | | UJ | M/I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 80.0 | | UJ | C/M/I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 80.0 | | UJ | C/M/I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 80.0 | | UJ | I |

| SDG | Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|---|
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Isophorone | 78-59-1 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Cresols, m- & p- | | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 80.0 | | UJ | C/M/I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 200 | | UJ | M/I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 99.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 99.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 800 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 80.0 | | UJ | C/M/I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 800 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | Phenol | 108-95-2 | ug/kg | 80.0 | | UJ | M/I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 99.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH008-B_R | 280-148199-13 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/kg | 80.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH009-B_R | 280-148199-10 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 80.0 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH009-B_R | 280-148199-10 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 800 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 390 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 390 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 98.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 200 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Carbazole | 86-74-8 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 98.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 390 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 98.0 | | UJ | I |

| SDG | Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|---|
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 79.0 | | UJ | I/V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Isophorone | 78-59-1 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 200 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 98.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 98.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 79.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH013-B_R | 280-148199-8 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 790 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH014-B_R | 280-148199-6 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 82.0 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH014-B_R | 280-148199-6 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 820 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 400 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 400 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 100 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 210 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 210 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Carbazole | 86-74-8 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 100 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 400 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 100 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 81.0 | | UJ | I/V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 81.0 | | UJ | I |

| SDG | Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|---|
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Isophorone | 78-59-1 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 210 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 100 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 100 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 81.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH015-B_R | 280-148199-4 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 810 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH016-B_R | 280-148199-1 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 80.0 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-PH016-B_R | 280-148199-1 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 800 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL008-A_R | 280-148199-11 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 82.0 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL008-A_R | 280-148199-11 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 820 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL009-A_R | 280-148199-9 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 240 | | UJ | M |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL009-A_R | 280-148199-9 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 93.0 | | UJ | M/V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL009-A_R | 280-148199-9 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 930 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL013-A_R | 280-148199-7 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 82.0 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL013-A_R | 280-148199-7 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 820 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL014-A_R | 280-148199-5 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 77.0 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL014-A_R | 280-148199-5 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 770 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 470 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 96.0 | | UJ | I |

| SDG | Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|---|
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 470 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 120 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 3400 | - | J | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 120 | - | J | I/TR |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 240 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Carbazole | 86-74-8 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 120 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 470 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 120 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 96.0 | | UJ | I/V2 |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Isophorone | 78-59-1 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 240 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 120 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 120 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 96.0 | | UJ | I |
| 280-148199-1_52_2a_FUDSChem | NYOW-03-SL015-A_R | 280-148199-3 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 960 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | SL-DUP-001_210504 | 280-148199-12 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 77.0 | | UJ | V2 |
| 280-148199-1_52_2a_FUDSChem | SL-DUP-001_210504 | 280-148199-12 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 770 | | UJ | V2 |

Reason Code Definitions

| | |
|---|---|
| TR | Trace Detect |
| V2 | CCV |
| I | Surrogate Recovery |
| M | MS Recovery |
| C | LCS recovery |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 21 July 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM Revision 1: 280-148205-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) by the methods specified below.

- Volatile Organic Compounds (VOCs) by SW-846 Method 8260C
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG) collected 4 May 2021, laboratory and client sample identification numbers, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | D2216 | SW8260C |
|---|---|---|---|---|---|
| NYOW-03-PH005-B_R | 280-148205-4 | Solid | Field Sample/N | X | X |
| NYOW-03-PH006-B_R | 280-148205-6 | Solid | Field Sample/N | X | X |
| NYOW-03-PH007-B_R | 280-148205-5 | Solid | Field Sample/N | X | X |
| NYOW-03-PH016-B_R | 280-148205-2 | Solid | Field Sample/N | X | X |
| NYOW-03-PH017-B_R | 280-148205-1 | Solid | Field Sample/N | X | X |
| NYOW-03-PH018-B_R | 280-148205-3 | Solid | Field Sample/N | X | X |
| PH-DUP_001_210504 | 280-148205-7 | Solid | Field Duplicate/FD | X | X |
| EB-01_210504 | 280-148205-8 | Water | Equipment Blank/EB | | X |
| TB-01_210504 | 280-148205-9 | Water | Trip Blank/TB | | X |

Notes: PH-DUP_001_210504 collected from NYOW-03-PH006-B_R

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were initially received in good condition, properly preserved on ice. One cooler was received by the laboratory at a temperature of 2.6ºC.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |

| Verification Criteria | Yes | No |
|---|---|---|
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A bromofluorobenzene instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for VOCs (i.e., each 12-hour period). The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

VOCs by Method 8260C:

Continuing calibration verification (CCV) CCV 280-535434/2 exhibited %Ds greater than the control limit for trichlorofluoromethane (28.7%) and 2-butanone (-20.4%). The associated sample results for trichlorofluoromethane were non-detect and are qualified as “UJ”. The associated positive detections for 2-butanone are qualified as “J-“ and non-detects are qualified as “UJ”.

## INTERNAL STANDARDS

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, trip blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, trip blanks, and equipment blanks.

## SURROGATE RECOVERIES

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria.

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exception noted below.

VOCs by Method 8260C:

LCS 280-535446/1-A exhibited a recovery less than the lower warning limit for chloroform at 77%. The associated sample results were non-detect and are qualified as “UJ”.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. No MS/SD were performed for preparation batches associated with this SDG.

## COMMENTS

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

There was insufficient sample volume to perform a MS/SD associated with the solid and aqueous preparation batches (535446 and 535986). An LCS and LCSD were performed.

One field duplicate and parent sample pair was collected and analyzed for all parameters (PH-DUP_001_210504 collected from NYOW-03-PH006-B_R). The RPD must be less than 50% when at least one result is greater than the LOQ. Acetone did not meet the precision criteria with an RPD of 60%.

LOQs were slightly greater than Project Quantitation Limit Goals (PQLGs) for several VOCs due to percent moisture adjustments.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-03-PH005-B_R | 280-148205-4 | SW8260C | Trichlorofluoromethane | 75-69-4 | ug/kg | 9.60 | | UJ | V2 |
| NYOW-03-PH005-B_R | 280-148205-4 | SW8260C | 2-Butanone (MEK) | 78-93-3 | ug/kg | 12.0 | | UJ | V2 |
| NYOW-03-PH005-B_R | 280-148205-4 | SW8260C | Chloroform | 67-66-3 | ug/kg | 0.770 | | UJ | C |
| NYOW-03-PH006-B_R | 280-148205-6 | SW8260C | Acetone | 67-64-1 | ug/kg | 54.0 | | J | D3/TR |
| NYOW-03-PH006-B_R | 280-148205-6 | SW8260C | Trichlorofluoromethane | 75-69-4 | ug/kg | 10.0 | | UJ | V2 |
| NYOW-03-PH006-B_R | 280-148205-6 | SW8260C | 2-Butanone (MEK) | 78-93-3 | ug/kg | 13.0 | | UJ | V2 |
| NYOW-03-PH006-B_R | 280-148205-6 | SW8260C | Chloroform | 67-66-3 | ug/kg | 0.840 | | UJ | C |
| NYOW-03-PH007-B_R | 280-148205-5 | SW8260C | Trichlorofluoromethane | 75-69-4 | ug/kg | 8.90 | | UJ | V2 |
| NYOW-03-PH007-B_R | 280-148205-5 | SW8260C | 2-Butanone (MEK) | 78-93-3 | ug/kg | 11.0 | | UJ | V2 |
| NYOW-03-PH007-B_R | 280-148205-5 | SW8260C | Chloroform | 67-66-3 | ug/kg | 0.720 | | UJ | C |
| NYOW-03-PH016-B_R | 280-148205-2 | SW8260C | Trichlorofluoromethane | 75-69-4 | ug/kg | 9.60 | | UJ | V2 |
| NYOW-03-PH016-B_R | 280-148205-2 | SW8260C | 2-Butanone (MEK) | 78-93-3 | ug/kg | 4.90 | - | J | TR/V2 |
| NYOW-03-PH016-B_R | 280-148205-2 | SW8260C | Chloroform | 67-66-3 | ug/kg | 0.770 | | UJ | C |
| NYOW-03-PH017-B_R | 280-148205-1 | SW8260C | Trichlorofluoromethane | 75-69-4 | ug/kg | 9.10 | | UJ | V2 |
| NYOW-03-PH017-B_R | 280-148205-1 | SW8260C | 2-Butanone (MEK) | 78-93-3 | ug/kg | 5.70 | - | J | TR/V2 |
| NYOW-03-PH017-B_R | 280-148205-1 | SW8260C | Chloroform | 67-66-3 | ug/kg | 0.730 | | UJ | C |
| NYOW-03-PH018-B_R | 280-148205-3 | SW8260C | Trichlorofluoromethane | 75-69-4 | ug/kg | 12.0 | | UJ | V2 |
| NYOW-03-PH018-B_R | 280-148205-3 | SW8260C | 2-Butanone (MEK) | 78-93-3 | ug/kg | 30.0 | - | J | V2 |
| NYOW-03-PH018-B_R | 280-148205-3 | SW8260C | Chloroform | 67-66-3 | ug/kg | 0.920 | | UJ | C |
| PH-DUP_001_210504 | 280-148205-7 | SW8260C | Acetone | 67-64-1 | ug/kg | 100 | | J | D3 |
| PH-DUP_001_210504 | 280-148205-7 | SW8260C | Trichlorofluoromethane | 75-69-4 | ug/kg | 10.0 | | UJ | V2 |
| PH-DUP_001_210504 | 280-148205-7 | SW8260C | 2-Butanone (MEK) | 78-93-3 | ug/kg | 5.00 | - | J | TR/V2 |
| PH-DUP_001_210504 | 280-148205-7 | SW8260C | Chloroform | 67-66-3 | ug/kg | 0.810 | | UJ | C |

Reason Code Definitions

| | |
|---|---|
| TR | Trace Detect |
| V2 | CCV |
| C | LCS Recovery |
| D3 | FD RPD |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 11 June 2021

**SUBJECT:** New York Ordnance Works Groundwater S2BVEM: 280-148678-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of groundwater samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) by the method specified below.

- Picric Acid by SW-846 Method 8330B

Table 1, below, summarizes the sample delivery group (SDG) collected 14 May 2021, laboratory and client sample identification numbers, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | SW8330B |
|---|---|---|---|---|
| EB-03_210514 | 280-148678-3 | Water | Equipment Blank/EB | X |
| NYOW-01-WL022-A_R | 280-148678-1 | Water | Field Sample/N | X |
| NYOW-01-WL023-A_R | 280-148678-2 | Water | Field Sample/N | X |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the

originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Two coolers were received by the laboratory at a temperature of 1.8°C and 1.8°C.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks and equipment blanks. Method blanks were prepared and analyzed with each batch. Picric acid was not detected in the method blanks or the equipment blank sample.

## SURROGATE RECOVERIES

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria.

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. Due to limited sample volume, a MS/SD was not performed for picric acid analysis. An LCSD was performed to evaluate precision.

## DUAL COLUMN IMPRECISION

All sample results were non-detect; therefore, column comparisons were not performed.

## COMMENTS

No field duplicate samples were submitted as part of this SDG.

All Project Quantitation Limit Goals (PQLGs) were met.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No data was qualified on the basis of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 17 June 2021

**SUBJECT:** New York Ordnance Works Groundwater S2BVEM: 680-198955-1 Revision 1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of groundwater samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Savannah, GA (DoD ELAP Certification #L2463) by the method specified below.

- Semi-Volatile Organic Compounds (SVOCs) 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D

Table 1, below, summarizes the sample delivery group (SDG) collected 14 May 2021, laboratory and client sample identification numbers, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

## TABLE 1: SAMPLE SUMMARY

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | SW8270D |
|---|---|---|---|---|
| EB-03_210514 | 680-198955-3 | Water | Equipment Blank/EB | X |
| NYOW-01-WL022-A_R | 680-198955-1 | Water | Field Sample/N | X |
| NYOW-01-WL023-A_R | 680-198955-2 | Water | Field Sample/N | X |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. One cooler was received by the laboratory at a temperature of 4.3°C.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial instrument calibrations and at the start of each sample analysis batch for SVOCs. The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exception noted below.

SVOCs by Method 8270D:

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met.

## INTERNAL STANDARDS

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the method.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks and equipment blanks.

## SURROGATE RECOVERIES

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Sample NYOW-01-WL022-A_R exhibited a recovery less than the lower warning limit for base/neutral (B/N) extractable surrogate terphenyl-d14 at 41%. The associated sample result for B/N analyte DNCB was non-detect and is qualified as “UJ”.

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative

percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria.

**MATRIX SPIKE/MATRIX SPIKE DUPLICATES**

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. A MS/SD pair was not analyzed as part of this SDG. An LCS/LCSD was performed for the aqueous SVOC batch to evaluate precision.

**COMMENTS**

No field duplicates were collected as part of this SDG.

All aqueous LOQs were met.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-01-WL022-A_R | 680-198955-1 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 10.0 | | UJ | I |

Reason Code Definition

I Surrogate recovery

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# AOC 4 ISM Data Packages

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**Data Validation Report for 680-199995-1_52_2a_FUDSChem**

| | |
|---|---|
| Facility: | C02NY0290-01, New York Ordnance Works, Limited RI |
| Event: | 2021 Sampling - AOC4 - ISM |
| SDG: | 680-199995-1_52_2a_FUDSChem |
| Guidance Document: | Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works |
| Prime Contractor: | Bluestone Environmental Group, Inc., Malvern, PA |
| Project Manager: | Mike Badeau |
| Contract Laboratory(ies): | Eurofins Environment Testing TestAmerica, Savannah, GA |
| Data Review Contractor: | Bluestone |
| Data Review Level: | S2BVEM |
| Primary Data Reviewer: | Emily Strake, Technical Director/ Data Validator |
| Date Submitted: | September 07, 2021 |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | SW8270D |
|---|---|---|---|---|
| EB-01_210609 | 680-199995-1 | Water | Equipment Blank/EB | X |

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page at S2BVEM data validation level. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works and the additional guidance documents incorporated by reference to the extent possible. Where definitive guidance is not provided, results have been evaluated in a conservative manner using professional judgment.

Sample collection was managed and directed by Bluestone Environmental Group, Inc., Malvern, PA; analyses were performed by Eurofins Environment Testing TestAmerica, Savannah, GA and were reported under sample delivery group (SDG) 680-199995-1_52_2a_FUDSChem. Data have been evaluated electronically based on electronic data deliverables (EDDs) provided by the laboratory, and hard copy data summary forms have also been reviewed during this effort and compared to the automated review output by the reviewers whose signatures appear on the following page. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative and throughout this report.

All quality control (QC) elements associated with this SDG have been reviewed by a project chemist in accordance with the requirements defined for the project. This review is documented in the attached Data Review Checklists. The QC elements listed below were supported by the electronic deliverable and were evaluated using ADR processes.

- Blank - Negative
- Equipment Blank
- Lab Blank
- LCS Recovery
- LCS RPD
- Prep Hold Time
- Surrogate
- Test Hold Time

Results of the ADR process were subsequently reviewed and updated as applicable by the data review chemists identified on the signature page. Quality control elements that were not included in the electronic deliverable were reviewed manually and findings are documented within this report. Summaries of findings and associated qualified results are documented throughout this report.

A total of 0 results (0.00%) out of the 2 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected or deemed a serious deficiency (X qualifier). Trace values, defined as results that are qualified as estimated because they fall between the detection limit and the reporting limit/limit of quantitation, are not counted as qualified results in the above count. The qualified results are detailed throughout this report and discussed in the narrative below, where appropriate.

Narrative Comments

The equipment blank sample arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 2.4º C.

| Analytical Method | Data Reviewer Comment |
|---|---|
| SW8270D | No additional comments; see Checklist for detail. |

September 07, 2021

Reviewed by Emily Strake, Technical Director/ Data Validator, Bluestone

As the Reviewer, I certify that I have performed a data review process in accordance with the requirements of the project guidance document, and have compared the electronic data to the laboratory's hard copy report and have verified the consistency of the reported sample results and method quality control data between the two deliverables.

No Outliers were associated with this sample delivery group.

Qualified Results

No results associated with this sample delivery group required qualification.

Results with Modified Qualifiers

No qualifiers associated with this sample delivery group were modified manually.

**Reason Code Definitions**

| Code | Definition |
|---|---|

There are no Flag Code definitions to display.

**Bias**

| | |
|---|---|
| - | The result may be biased low |
| + | The result may be biased high |

Note - The bias field is a separate field; however, it is an integral part of the final flag (qualifier) on the sample result

## Data Validation Report for 680-199995-1_52_2a_FUDSChem

**Review Questions**

| Method: SW8270D (Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the GC/MS system properly tuned based on method criteria? | • | | | |
| Was instrument tuning completed every 12 hours during sample analysis? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | Second source for 2,4-dinitrochlorobenzene is a different lot number from the same vendor. |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were Internal Standard retention times and area criteria within method requirements? | • | | | |
| Were internal standards spiked for every sample, standard, and QC sample? | • | | | |
| Were surrogate recoveries within project acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | Sample is an EB sample. |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | MS/SD not performed for aqueous EB batch. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | | | • | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Data Validation Report for 680-199889-1_52_2a_FUDSChem**

| | |
|---|---|
| Facility: | C02NY0290-01, New York Ordnance Works, Limited RI |
| Event: | 2021 Sampling - AOC4 - ISM |
| SDG: | 680-199889-1_52_2a_FUDSChem |
| Guidance Document: | Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works |
| Prime Contractor: | Bluestone Environmental Group, Inc., Malvern, PA |
| Project Manager: | Mike Badeau |
| Contract Laboratory(ies): | Eurofins Environment Testing TestAmerica, Savannah, GA |
| Data Review Contractor: | Bluestone |
| Data Review Level: | S2BVEM |
| Primary Data Reviewer: | Emily Strake, Technical Director/ Data Validator |
| Date Submitted: | September 07, 2021 |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | SW8270D |
|---|---|---|---|---|
| EB-01_210608 | 680-199889-1 | Water | Equipment Blank/EB | X |

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page at S2BVEM data validation level. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works and the additional guidance documents incorporated by reference to the extent possible. Where definitive guidance is not provided, results have been evaluated in a conservative manner using professional judgment.

Sample collection was managed and directed by Bluestone Environmental Group, Inc., Malvern, PA; analyses were performed by Eurofins Environment Testing TestAmerica, Savannah, GA and were reported under sample delivery group (SDG) 680-199889-1_52_2a_FUDSChem. Data have been evaluated electronically based on electronic data deliverables (EDDs) provided by the laboratory, and hard copy data summary forms have also been reviewed during this effort and compared to the automated review output by the reviewers whose signatures appear on the following page. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative and throughout this report.

All quality control (QC) elements associated with this SDG have been reviewed by a project chemist in accordance with the requirements defined for the project. This review is documented in the attached Data Review Checklists. The QC elements listed below were supported by the electronic deliverable and were evaluated using ADR processes.

- Blank - Negative
- Equipment Blank
- Lab Blank
- LCS Recovery
- LCS RPD
- Prep Hold Time
- Surrogate
- Test Hold Time

Results of the ADR process were subsequently reviewed and updated as applicable by the data review chemists identified on the signature page. Quality control elements that were not included in the electronic deliverable were reviewed manually and findings are documented within this report. Summaries of findings and associated qualified results are documented throughout this report.

A total of 0 results (0.00%) out of the 2 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected or deemed a serious deficiency (X qualifier). Trace values, defined as results that are qualified as estimated because they fall between the detection limit and the reporting limit/limit of quantitation, are not counted as qualified results in the above count. The qualified results are detailed throughout this report and discussed in the narrative below, where appropriate.

Narrative Comments

The equipment blank sample arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 4.4º C.

| Analytical Method | Data Reviewer Comment |
|---|---|
| SW8270D | No additional comments; see Checklist for detail. |

September 07, 2021

Reviewed by Emily Strake, Technical Director/ Data Validator, Bluestone

As the Reviewer, I certify that I have performed a data review process in accordance with the requirements of the project guidance document, and have compared the electronic data to the laboratory's hard copy report and have verified the consistency of the reported sample results and method quality control data between the two deliverables.

No Outliers were associated with this sample delivery group.

Qualified Results

No results associated with this sample delivery group required qualification.

Results with Modified Qualifiers

No qualifiers associated with this sample delivery group were modified manually.

**Reason Code Definitions**

| Code | Definition |
|---|---|

There are no Flag Code definitions to display.

**Bias**

| | |
|---|---|
| - | The result may be biased low |
| + | The result may be biased high |

Note - The bias field is a separate field; however, it is an integral part of the final flag (qualifier) on the sample result

**Review Questions**

| Method: SW8270D (Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the GC/MS system properly tuned based on method criteria? | • | | | |
| Was instrument tuning completed every 12 hours during sample analysis? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | Second source for 2,4-dinitrochlorobenzene is a different lot number from the same vendor. |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were Internal Standard retention times and area criteria within method requirements? | • | | | |
| Were internal standards spiked for every sample, standard, and QC sample? | • | | | |
| Were surrogate recoveries within project acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | Sample analyzed is an EB. |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | MS/SD not performed for EB sample batch. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | | | • | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Data Validation Report for 680-199837-1_52_2a_FUDSChem**

| | |
|---|---|
| Facility: | C02NY0290-01, New York Ordnance Works, Limited RI |
| Event: | 2021 Sampling - AOC4 - ISM |
| SDG: | 680-199837-1_52_2a_FUDSChem |
| Guidance Document: | Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works |
| Prime Contractor: | Bluestone Environmental Group, Inc., Malvern, PA |
| Project Manager: | Mike Badeau |
| Contract Laboratory(ies): | Eurofins Environment Testing TestAmerica, Savannah, GA |
| Data Review Contractor: | Bluestone |
| Data Review Level: | S2BVEM |
| Primary Data Reviewer: | Emily Strake, Technical Director/ Data Validator |
| Date Submitted: | September 07, 2021 |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | SW8270D |
|---|---|---|---|---|
| EB-01-210607 | 680-199837-1 | Water | Equipment Blank/EB | X |

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page at S2BVEM data validation level. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works and the additional guidance documents incorporated by reference to the extent possible. Where definitive guidance is not provided, results have been evaluated in a conservative manner using professional judgment.

Sample collection was managed and directed by Bluestone Environmental Group, Inc., Malvern, PA; analyses were performed by Eurofins Environment Testing TestAmerica, Savannah, GA and were reported under sample delivery group (SDG) 680-199837-1_52_2a_FUDSChem. Data have been evaluated electronically based on electronic data deliverables (EDDs) provided by the laboratory, and hard copy data summary forms have also been reviewed during this effort and compared to the automated review output by the reviewers whose signatures appear on the following page. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative and throughout this report.

All quality control (QC) elements associated with this SDG have been reviewed by a project chemist in accordance with the requirements defined for the project. This review is documented in the attached Data Review Checklists. The QC elements listed below were supported by the electronic deliverable and were evaluated using ADR processes.

- Blank - Negative
- Equipment Blank
- Lab Blank
- LCS Recovery
- LCS RPD
- Prep Hold Time
- Surrogate
- Test Hold Time

Results of the ADR process were subsequently reviewed and updated as applicable by the data review chemists identified on the signature page. Quality control elements that were not included in the electronic deliverable were reviewed manually and findings are documented within this report. Summaries of findings and associated qualified results are documented throughout this report.

A total of 0 results (0.00%) out of the 2 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected or deemed a serious deficiency (X qualifier). Trace values, defined as results that are qualified as estimated because they fall between the detection limit and the reporting limit/limit of quantitation, are not counted as qualified results in the above count. The qualified results are detailed throughout this report and discussed in the narrative below, where appropriate.

Narrative Comments

The equipment blank sample arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 5.0º C.

| Analytical Method | Data Reviewer Comment |
|---|---|
| SW8270D | No additional comments; see Checklist for detail. |

September 07, 2021

Reviewed by Emily Strake, Technical Director/ Data Validator, Bluestone

As the Reviewer, I certify that I have performed a data review process in accordance with the requirements of the project guidance document, and have compared the electronic data to the laboratory's hard copy report and have verified the consistency of the reported sample results and method quality control data between the two deliverables.

No Outliers were associated with this sample delivery group.

Qualified Results

No results associated with this sample delivery group required qualification.

Results with Modified Qualifiers

No qualifiers associated with this sample delivery group were modified manually.

**Reason Code Definitions**

| Code | Definition |
|---|---|

There are no Flag Code definitions to display.

**Bias**

| | |
|---|---|
| - | The result may be biased low |
| + | The result may be biased high |

Note - The bias field is a separate field; however, it is an integral part of the final flag (qualifier) on the sample result

**Review Questions**

Method: SW8270D (Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the GC/MS system properly tuned based on method criteria? | • | | | |
| Was instrument tuning completed every 12 hours during sample analysis? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | Second source for 2,4-dinitrochlorobenzene is a different lot number from the same vendor. |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were Internal Standard retention times and area criteria within method requirements? | • | | | |
| Were internal standards spiked for every sample, standard, and QC sample? | • | | | |
| Were surrogate recoveries within project acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | Sample is an equipment blank. |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | MS/SD not performed. EB sample batch. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | | | • | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Data Validation Report for 280-149650-1_52_2a_FUDSChem**

| | |
|---|---|
| Facility: | C02NY0290-01, New York Ordnance Works, Limited RI |
| Event: | 2021 Sampling - AOC4 - ISM |
| SDG: | 280-149650-1_52_2a_FUDSChem |
| Guidance Document: | Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works |
| Prime Contractor: | Bluestone Environmental Group, Inc., Malvern, PA |
| Project Manager: | Mike Badeau |
| Contract Laboratory(ies): | Eurofins Environment Testing TestAmerica, Arvada, CO \| Eurofins Environment Testing TestAmerica, Savannah, GA |
| Data Review Contractor: | Bluestone |
| Data Review Level: | S2BVEM |
| Primary Data Reviewer: | Emily Strake, Technical Director/ Data Validator |
| Date Submitted: | October 19, 2021 |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | SW8270D | SW8330B |
|---|---|---|---|---|---|
| NYOW-04-DU006-SL-A | 280-149650-13 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU006-SL-B | 280-149650-14 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU006-SL-C | 280-149650-15 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU010-SL-A | 280-149650-10 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU010-SL-B | 280-149650-11 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU010-SL-C | 280-149650-12 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU011-SL-A | 280-149650-7 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU011-SL-B | 280-149650-8 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU011-SL-C | 280-149650-9 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU013-SL-A | 280-149650-4 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU013-SL-B | 280-149650-5 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU013-SL-C | 280-149650-6 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU014-SL-A | 280-149650-1 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU014-SL-B | 280-149650-2 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU014-SL-C | 280-149650-3 | Solid | Field Replicate/FR | X | X |
| EB-01_210609 | 280-149650-16 | Water | Equipment Blank/EB | | X |

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page at S2BVEM data validation level. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works and the additional guidance documents incorporated by reference to the extent possible. Where definitive guidance is not provided, results have been evaluated in a conservative manner using professional judgment.

Sample collection was managed and directed by Bluestone Environmental Group, Inc., Malvern, PA; analyses were performed by Eurofins Environment Testing TestAmerica, Arvada, CO | Eurofins Environment Testing TestAmerica, Savannah, GA and were reported under sample delivery group (SDG) 280-149650-1_52_2a_FUDSChem. Data have been evaluated electronically based on electronic data deliverables (EDDs) provided by the laboratory, and hard copy data summary forms have also been reviewed during this effort and compared to the automated review output by the reviewers whose signatures appear on the following page. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative and throughout this report.

All quality control (QC) elements associated with this SDG have been reviewed by a project chemist in accordance with the requirements defined for the project. This review is documented in the attached Data Review Checklists. The QC elements listed below were supported by the electronic deliverable and were evaluated using ADR processes.

- Equipment Blank
- Lab Blank
- LCS Recovery
- LCS RPD
- MS Recovery
- MS RPD
- Prep Hold Time
- Surrogate
- Test Hold Time

Results of the ADR process were subsequently reviewed and updated as applicable by the data review chemists identified on the signature page. Quality control elements that were not included in the electronic deliverable were reviewed manually and findings are documented within this report. Summaries of findings and associated qualified results are documented throughout this report.

A total of 32 results (69.57%) out of the 46 results (sample and field QC samples) reported are qualified based on review and 1 results (2.17%) have been rejected or deemed a serious deficiency (X qualifier). Trace values, defined as results that are qualified as estimated because they fall between the detection limit and the reporting limit/limit of quantitation, are not counted as qualified results in the above count. The qualified results are detailed throughout this report and discussed in the narrative below, where appropriate.

Narrative Comments

The samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 5.0ºC.

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): NYOW-04-DU006-SL-A, NYOW-04-DU006-SL-B, and NYOW-04-DU006-SL-C. The container labels list the sample IDs as NYOW-04-DU007. The COC states NYOW-04-DU006. The sample was logged in accordance with the COC.

In preparation batch 280-539631, the following samples were air dried and sieved per the procedure; however, the samples contained
rocks and vegetation that would not pass through the sieve: NYOW-04-DU014-SL-A, NYOW-04-DU014-SL-B, NYOW-04-DU014-SL-C, NYOW-04-DU013-SL-A, NYOW-04-DU013-SL-B, NYOW-04-DU013-SL-C, NYOW-04-DU011-SL-A, NYOW-04-DU011-SL-B, NYOW-04-DU011-SL-C, NYOW-04-DU010-SL-A, NYOW-04-DU010-SL-B, NYOW-04-DU010-SL-C, NYOW-04-DU006-SL-A, NYOW-04-DU006-SL-B and NYOW-04-DU006-SL-C. This material was removed and not extracted.

The samples reached a fully ground state in less than 5 milling cycles. Milling was stopped when samples reached a fully milled state in order to reduce the chance of analyte loss due to overheating in accordance with the instructions in the SOP.

| Analytical Method | Data Reviewer Comment |
|---|---|
| SW8270D | There is no LCSSRM that contains the analytes in the 8270 method list. As a result, the impact of sample milling on the analyte recovery cannot be quantified. |
| SW8330B | The explosives LCSSRM does not contain picric acid. As a result, the impact of sample milling on the analyte recovery cannot be quantified. |

October 19, 2021

Reviewed by Emily Strake, Technical Director/ Data Validator, Bluestone

As the Reviewer, I certify that I have performed a data review process in accordance with the requirements of the project guidance document, and have compared the electronic data to the laboratory's hard copy report and have verified the consistency of the reported sample results and method quality control data between the two deliverables.

**Quality Control Outliers for test method SW8270D, MS RPD**

The objective of matrix spikes/matrix spike duplicates (MS/MSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. MS/MSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Matrix spikes/matrix spike duplicates results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU013-SL-A (SD)/ 280-149650-4MSD | 2,4-Dinitrochlorobenzene | 27.33 | < 20 | < 20 | rpd | J/None | D | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW8270D, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU006-SL-A (FR)/ 280-149650-13 | 2,4,6-Tribromophenol | 29.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-A (FR)/ 280-149650-13 | 2-Fluorobiphenyl | 29.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-A (FR)/ 280-149650-13 | 2-Fluorophenol | 26.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-A (FR)/ 280-149650-13 | Nitrobenzene-d5 | 20.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-A (FR)/ 280-149650-13 | Phenol-d5 | 25.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-A (FR)/ 280-149650-13 | Terphenyl-d14 | 29.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-B (FR)/ 280-149650-14 | 2,4,6-Tribromophenol | 18.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-B (FR)/ 280-149650-14 | 2-Fluorobiphenyl | 17.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-B (FR)/ 280-149650-14 | 2-Fluorophenol | 17.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-B (FR)/ 280-149650-14 | Nitrobenzene-d5 | 14.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-B (FR)/ 280-149650-14 | Nitrobenzene-d5 | 33.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-B (FR)/ 280-149650-14 | Phenol-d5 | 15.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-B (FR)/ 280-149650-14 | Terphenyl-d14 | 17.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-B (FR)/ 280-149650-14 | Terphenyl-d14 | 44.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-C (FR)/ 280-149650-15 | 2,4,6-Tribromophenol | 20.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-C (FR)/ 280-149650-15 | 2,4,6-Tribromophenol | 32.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-C (FR)/ 280-149650-15 | 2-Fluorobiphenyl | 19.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-C (FR)/ 280-149650-15 | 2-Fluorobiphenyl | 30.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-C (FR)/ 280-149650-15 | 2-Fluorophenol | 18.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-C (FR)/ 280-149650-15 | 2-Fluorophenol | 24.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-C (FR)/ 280-149650-15 | Nitrobenzene-d5 | 16.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-C (FR)/ 280-149650-15 | Nitrobenzene-d5 | 25.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-C (FR)/ 280-149650-15 | Phenol-d5 | 17.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-C (FR)/ 280-149650-15 | Phenol-d5 | 24.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU006-SL-C (FR)/ 280-149650-15 | Terphenyl-d14 | 18.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |

**Quality Control Outliers for test method SW8270D, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU006-SL-C (FR)/ 280-149650-15 | Terphenyl-d14 | 37.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-A (FR)/ 280-149650-10 | 2,4,6-Tribromophenol | 21.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-A (FR)/ 280-149650-10 | 2,4,6-Tribromophenol | 35.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-A (FR)/ 280-149650-10 | 2-Fluorobiphenyl | 22.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-A (FR)/ 280-149650-10 | 2-Fluorobiphenyl | 38.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-A (FR)/ 280-149650-10 | 2-Fluorophenol | 20.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-A (FR)/ 280-149650-10 | 2-Fluorophenol | 34.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-A (FR)/ 280-149650-10 | Nitrobenzene-d5 | 19.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-A (FR)/ 280-149650-10 | Nitrobenzene-d5 | 31.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-A (FR)/ 280-149650-10 | Phenol-d5 | 19.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-A (FR)/ 280-149650-10 | Terphenyl-d14 | 20.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-A (FR)/ 280-149650-10 | Terphenyl-d14 | 43.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-B (FR)/ 280-149650-11 | 2,4,6-Tribromophenol | 37.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-B (FR)/ 280-149650-11 | 2-Fluorobiphenyl | 36.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-B (FR)/ 280-149650-11 | 2-Fluorophenol | 32.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-B (FR)/ 280-149650-11 | Nitrobenzene-d5 | 29.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-B (FR)/ 280-149650-11 | Terphenyl-d14 | 35.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-B (FR)/ 280-149650-11 | Terphenyl-d14 | 53.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-C (FR)/ 280-149650-12 | 2,4,6-Tribromophenol | 15.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-C (FR)/ 280-149650-12 | 2-Fluorobiphenyl | 16.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-C (FR)/ 280-149650-12 | 2-Fluorophenol | 14.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-C (FR)/ 280-149650-12 | Nitrobenzene-d5 | 6.000 | 37 - 122 | 10 - 122 | percent | J/X | I | |
| NYOW-04-DU010-SL-C (FR)/ 280-149650-12 | Phenol-d5 | 14.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU010-SL-C (FR)/ 280-149650-12 | Terphenyl-d14 | 15.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-A (FR)/ 280-149650-7 | 2,4,6-Tribromophenol | 19.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |

**Quality Control Outliers for test method SW8270D, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU011-SL-A (FR)/ 280-149650-7 | 2-Fluorobiphenyl | 19.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-A (FR)/ 280-149650-7 | 2-Fluorophenol | 19.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-A (FR)/ 280-149650-7 | Nitrobenzene-d5 | 16.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-A (FR)/ 280-149650-7 | Phenol-d5 | 18.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-A (FR)/ 280-149650-7 | Terphenyl-d14 | 19.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-A (FR)/ 280-149650-7 | Terphenyl-d14 | 50.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-B (FR)/ 280-149650-8 | 2,4,6-Tribromophenol | 37.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-B (FR)/ 280-149650-8 | 2,4,6-Tribromophenol | 38.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-B (FR)/ 280-149650-8 | 2-Fluorobiphenyl | 35.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-B (FR)/ 280-149650-8 | 2-Fluorobiphenyl | 39.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-B (FR)/ 280-149650-8 | 2-Fluorophenol | 31.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-B (FR)/ 280-149650-8 | 2-Fluorophenol | 33.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-B (FR)/ 280-149650-8 | Nitrobenzene-d5 | 29.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-B (FR)/ 280-149650-8 | Nitrobenzene-d5 | 31.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-B (FR)/ 280-149650-8 | Phenol-d5 | 31.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-B (FR)/ 280-149650-8 | Terphenyl-d14 | 33.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-B (FR)/ 280-149650-8 | Terphenyl-d14 | 45.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-C (FR)/ 280-149650-9 | 2,4,6-Tribromophenol | 18.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-C (FR)/ 280-149650-9 | 2-Fluorobiphenyl | 19.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-C (FR)/ 280-149650-9 | 2-Fluorophenol | 18.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-C (FR)/ 280-149650-9 | Nitrobenzene-d5 | 17.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-C (FR)/ 280-149650-9 | Phenol-d5 | 18.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-C (FR)/ 280-149650-9 | Terphenyl-d14 | 19.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU011-SL-C (FR)/ 280-149650-9 | Terphenyl-d14 | 46.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-A (FR)/ 280-149650-4 | 2,4,6-Tribromophenol | 29.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |

**Quality Control Outliers for test method SW8270D, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU013-SL-A (FR)/ 280-149650-4 | 2-Fluorobiphenyl | 29.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-A (FR)/ 280-149650-4 | 2-Fluorophenol | 27.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-A (FR)/ 280-149650-4 | Nitrobenzene-d5 | 26.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-A (FR)/ 280-149650-4 | Phenol-d5 | 26.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-A (FR)/ 280-149650-4 | Terphenyl-d14 | 43.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-A (FR)/ 280-149650-4 | Terphenyl-d14 | 33.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-A (SD)/ 280-149650-4MSD | 2,4,6-Tribromophenol | 36.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-A (SD)/ 280-149650-4MSD | 2-Fluorobiphenyl | 37.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-A (SD)/ 280-149650-4MSD | 2-Fluorophenol | 30.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-A (SD)/ 280-149650-4MSD | Nitrobenzene-d5 | 31.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-A (SD)/ 280-149650-4MSD | Phenol-d5 | 31.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-A (SD)/ 280-149650-4MSD | Terphenyl-d14 | 44.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-A (SD)/ 280-149650-4MSD | Terphenyl-d14 | 42.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-B (FR)/ 280-149650-5 | 2,4,6-Tribromophenol | 18.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-B (FR)/ 280-149650-5 | 2-Fluorobiphenyl | 18.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-B (FR)/ 280-149650-5 | 2-Fluorobiphenyl | 41.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-B (FR)/ 280-149650-5 | 2-Fluorophenol | 17.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-B (FR)/ 280-149650-5 | 2-Fluorophenol | 34.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-B (FR)/ 280-149650-5 | Nitrobenzene-d5 | 15.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-B (FR)/ 280-149650-5 | Nitrobenzene-d5 | 34.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-B (FR)/ 280-149650-5 | Phenol-d5 | 16.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-B (FR)/ 280-149650-5 | Terphenyl-d14 | 17.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-B (FR)/ 280-149650-5 | Terphenyl-d14 | 44.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-C (FR)/ 280-149650-6 | 2,4,6-Tribromophenol | 29.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-C (FR)/ 280-149650-6 | 2-Fluorobiphenyl | 29.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |

**Quality Control Outliers for test method SW8270D, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU013-SL-C (FR)/ 280-149650-6 | 2-Fluorobiphenyl | 39.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-C (FR)/ 280-149650-6 | 2-Fluorophenol | 23.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-C (FR)/ 280-149650-6 | 2-Fluorophenol | 32.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-C (FR)/ 280-149650-6 | Nitrobenzene-d5 | 22.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-C (FR)/ 280-149650-6 | Nitrobenzene-d5 | 31.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-C (FR)/ 280-149650-6 | Phenol-d5 | 23.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-C (FR)/ 280-149650-6 | Terphenyl-d14 | 27.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU013-SL-C (FR)/ 280-149650-6 | Terphenyl-d14 | 47.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-A (FR)/ 280-149650-1 | 2,4,6-Tribromophenol | 16.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-A (FR)/ 280-149650-1 | 2,4,6-Tribromophenol | 30.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-A (FR)/ 280-149650-1 | 2-Fluorobiphenyl | 19.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-A (FR)/ 280-149650-1 | 2-Fluorobiphenyl | 30.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-A (FR)/ 280-149650-1 | 2-Fluorophenol | 17.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-A (FR)/ 280-149650-1 | 2-Fluorophenol | 24.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-A (FR)/ 280-149650-1 | Nitrobenzene-d5 | 15.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-A (FR)/ 280-149650-1 | Nitrobenzene-d5 | 25.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-A (FR)/ 280-149650-1 | Phenol-d5 | 16.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-A (FR)/ 280-149650-1 | Phenol-d5 | 26.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-A (FR)/ 280-149650-1 | Terphenyl-d14 | 18.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-A (FR)/ 280-149650-1 | Terphenyl-d14 | 41.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-B (FR)/ 280-149650-2 | 2,4,6-Tribromophenol | 13.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-B (FR)/ 280-149650-2 | 2-Fluorobiphenyl | 16.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-B (FR)/ 280-149650-2 | 2-Fluorophenol | 14.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-B (FR)/ 280-149650-2 | Nitrobenzene-d5 | 13.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-B (FR)/ 280-149650-2 | Phenol-d5 | 14.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |

**Quality Control Outliers for test method SW8270D, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU014-SL-B (FR)/ 280-149650-2 | Terphenyl-d14 | 15.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-C (FR)/ 280-149650-3 | 2,4,6-Tribromophenol | 27.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-C (FR)/ 280-149650-3 | 2,4,6-Tribromophenol | 21.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-C (FR)/ 280-149650-3 | 2-Fluorobiphenyl | 28.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-C (FR)/ 280-149650-3 | 2-Fluorobiphenyl | 23.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-C (FR)/ 280-149650-3 | 2-Fluorophenol | 25.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-C (FR)/ 280-149650-3 | 2-Fluorophenol | 20.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-C (FR)/ 280-149650-3 | Nitrobenzene-d5 | 13.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-C (FR)/ 280-149650-3 | Nitrobenzene-d5 | 17.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-C (FR)/ 280-149650-3 | Phenol-d5 | 24.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-C (FR)/ 280-149650-3 | Phenol-d5 | 20.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-C (FR)/ 280-149650-3 | Terphenyl-d14 | 28.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU014-SL-C (FR)/ 280-149650-3 | Terphenyl-d14 | 27.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Surrogate for SW8270D**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU006-SL-A 280-149650-13 | FR | 2,4-Dinitrochlorobenzene | 330 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU006-SL-A 280-149650-13 | FR | 2,4-Dinitrophenol | 850 | 650 U Q | 650 UJ | | ug/kg | I |
| NYOW-04-DU006-SL-B 280-149650-14 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U | 170 UJ | | ug/kg | I |
| NYOW-04-DU006-SL-B 280-149650-14 | FR | 2,4-Dinitrophenol | 860 | 650 U Q | 650 UJ | | ug/kg | I |
| NYOW-04-DU006-SL-C 280-149650-15 | FR | 2,4-Dinitrochlorobenzene | 310 | 150 U | 150 UJ | | ug/kg | I |
| NYOW-04-DU006-SL-C 280-149650-15 | FR | 2,4-Dinitrophenol | 790 | 600 U Q | 600 UJ | | ug/kg | I |
| NYOW-04-DU010-SL-A 280-149650-10 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU010-SL-A 280-149650-10 | FR | 2,4-Dinitrophenol | 840 | 640 U Q | 640 UJ | | ug/kg | I |

**Qualified Results associated with the Surrogate for SW8270D**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU010-SL-B 280-149650-11 | FR | 2,4-Dinitrochlorobenzene | 330 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU010-SL-B 280-149650-11 | FR | 2,4-Dinitrophenol | 850 | 650 U Q | 650 UJ | | ug/kg | I |
| NYOW-04-DU010-SL-C 280-149650-12 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 X | | ug/kg | I |
| NYOW-04-DU010-SL-C 280-149650-12 | FR | 2,4-Dinitrophenol | 820 | 620 U Q | 620 UJ | | ug/kg | I |
| NYOW-04-DU011-SL-A 280-149650-7 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU011-SL-A 280-149650-7 | FR | 2,4-Dinitrophenol | 820 | 630 U Q | 630 UJ | | ug/kg | I |
| NYOW-04-DU011-SL-B 280-149650-8 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U | 170 UJ | | ug/kg | I |
| NYOW-04-DU011-SL-B 280-149650-8 | FR | 2,4-Dinitrophenol | 860 | 660 U Q | 660 UJ | | ug/kg | I |
| NYOW-04-DU011-SL-C 280-149650-9 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU011-SL-C 280-149650-9 | FR | 2,4-Dinitrophenol | 830 | 630 U Q | 630 UJ | | ug/kg | I |
| NYOW-04-DU013-SL-A 280-149650-4 | FR | 2,4-Dinitrochlorobenzene | 310 | 150 U J1 | 150 UJ | | ug/kg | I |
| NYOW-04-DU013-SL-B 280-149650-5 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU013-SL-B 280-149650-5 | FR | 2,4-Dinitrophenol | 840 | 640 U Q | 640 UJ | | ug/kg | I |
| NYOW-04-DU013-SL-C 280-149650-6 | FR | 2,4-Dinitrochlorobenzene | 340 | 170 U | 170 UJ | | ug/kg | I |
| NYOW-04-DU013-SL-C 280-149650-6 | FR | 2,4-Dinitrophenol | 870 | 660 U Q | 660 UJ | | ug/kg | I |
| NYOW-04-DU014-SL-A 280-149650-1 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU014-SL-A 280-149650-1 | FR | 2,4-Dinitrophenol | 820 | 630 U Q | 630 UJ | | ug/kg | I |
| NYOW-04-DU014-SL-B 280-149650-2 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U | 170 UJ | | ug/kg | I |
| NYOW-04-DU014-SL-B 280-149650-2 | FR | 2,4-Dinitrophenol | 850 | 650 U Q | 650 UJ | | ug/kg | I |
| NYOW-04-DU014-SL-C 280-149650-3 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU014-SL-C 280-149650-3 | FR | 2,4-Dinitrophenol | 830 | 640 U Q | 640 UJ | | ug/kg | I |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW8330B, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU013-SL-A (MS)/ 280-149650-4MS | Picric acid | 26.83 | 38 - 154 | 10 - 200 | percent | J/UJ | M | |
| NYOW-04-DU013-SL-A (SD)/ 280-149650-4MSD | Picric acid | 28.15 | 38 - 154 | 10 - 200 | percent | J/UJ | M | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for SW8330B**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU013-SL-A 280-149650-4 | FR | Picric acid | 100 | 100 U M J1 | 100 UJ | | ug/kg | M |
| NYOW-04-DU013-SL-B 280-149650-5 | FR | Picric acid | 98.0 | 98.0 U M | 98.0 UJ | | ug/kg | M |
| NYOW-04-DU013-SL-C 280-149650-6 | FR | Picric acid | 96.0 | 96.0 U M | 96.0 UJ | | ug/kg | M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Table of All Qualified Results**

| Test Method: SW8270D | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-04-DU006-SL-A 280-149650-13 | FR | 2,4-Dinitrochlorobenzene | 330 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU006-SL-A 280-149650-13 | FR | 2,4-Dinitrophenol | 850 | 650 U Q | 650 UJ | | ug/kg | I |
| NYOW-04-DU006-SL-B 280-149650-14 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U | 170 UJ | | ug/kg | I |
| NYOW-04-DU006-SL-B 280-149650-14 | FR | 2,4-Dinitrophenol | 860 | 650 U Q | 650 UJ | | ug/kg | I |
| NYOW-04-DU006-SL-C 280-149650-15 | FR | 2,4-Dinitrochlorobenzene | 310 | 150 U | 150 UJ | | ug/kg | I |
| NYOW-04-DU006-SL-C 280-149650-15 | FR | 2,4-Dinitrophenol | 790 | 600 U Q | 600 UJ | | ug/kg | I |
| NYOW-04-DU010-SL-A 280-149650-10 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU010-SL-A 280-149650-10 | FR | 2,4-Dinitrophenol | 840 | 640 U Q | 640 UJ | | ug/kg | I |
| NYOW-04-DU010-SL-B 280-149650-11 | FR | 2,4-Dinitrochlorobenzene | 330 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU010-SL-B 280-149650-11 | FR | 2,4-Dinitrophenol | 850 | 650 U Q | 650 UJ | | ug/kg | I |
| NYOW-04-DU010-SL-C 280-149650-12 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 X | | ug/kg | I |
| NYOW-04-DU010-SL-C 280-149650-12 | FR | 2,4-Dinitrophenol | 820 | 620 U Q | 620 UJ | | ug/kg | I |
| NYOW-04-DU011-SL-A 280-149650-7 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU011-SL-A 280-149650-7 | FR | 2,4-Dinitrophenol | 820 | 630 U Q | 630 UJ | | ug/kg | I |
| NYOW-04-DU011-SL-B 280-149650-8 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U | 170 UJ | | ug/kg | I |
| NYOW-04-DU011-SL-B 280-149650-8 | FR | 2,4-Dinitrophenol | 860 | 660 U Q | 660 UJ | | ug/kg | I |
| NYOW-04-DU011-SL-C 280-149650-9 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU011-SL-C 280-149650-9 | FR | 2,4-Dinitrophenol | 830 | 630 U Q | 630 UJ | | ug/kg | I |
| NYOW-04-DU013-SL-A 280-149650-4 | FR | 2,4-Dinitrochlorobenzene | 310 | 150 U J1 | 150 UJ | | ug/kg | I |
| NYOW-04-DU013-SL-B 280-149650-5 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU013-SL-B 280-149650-5 | FR | 2,4-Dinitrophenol | 840 | 640 U Q | 640 UJ | | ug/kg | I |
| NYOW-04-DU013-SL-C 280-149650-6 | FR | 2,4-Dinitrochlorobenzene | 340 | 170 U | 170 UJ | | ug/kg | I |
| NYOW-04-DU013-SL-C 280-149650-6 | FR | 2,4-Dinitrophenol | 870 | 660 U Q | 660 UJ | | ug/kg | I |
| NYOW-04-DU014-SL-A 280-149650-1 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU014-SL-A 280-149650-1 | FR | 2,4-Dinitrophenol | 820 | 630 U Q | 630 UJ | | ug/kg | I |
| NYOW-04-DU014-SL-B 280-149650-2 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U | 170 UJ | | ug/kg | I |

**Table of All Qualified Results**

| Test Method: SW8270D | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-04-DU014-SL-B 280-149650-2 | FR | 2,4-Dinitrophenol | 850 | 650 U Q | 650 UJ | | ug/kg | I |
| NYOW-04-DU014-SL-C 280-149650-3 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU014-SL-C 280-149650-3 | FR | 2,4-Dinitrophenol | 830 | 640 U Q | 640 UJ | | ug/kg | I |

| Test Method: SW8330B | | Extraction Method: METHOD | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-04-DU013-SL-A 280-149650-4 | FR | Picric acid | 100 | 100 U M J1 | 100 UJ | | ug/kg | M |
| NYOW-04-DU013-SL-B 280-149650-5 | FR | Picric acid | 98.0 | 98.0 U M | 98.0 UJ | | ug/kg | M |
| NYOW-04-DU013-SL-C 280-149650-6 | FR | Picric acid | 96.0 | 96.0 U M | 96.0 UJ | | ug/kg | M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW8270D**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-04-DU006-SL-A 280-149650-13 | FR | 2,4-Dinitrochlorobenzene | 330 | 160 U | 160 U | 160 UJ | I |
| NYOW-04-DU006-SL-A 280-149650-13 | FR | 2,4-Dinitrophenol | 850 | 650 U Q | 650 U | 650 UJ | I |
| NYOW-04-DU006-SL-B 280-149650-14 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U | 170 U | 170 UJ | I |
| NYOW-04-DU006-SL-B 280-149650-14 | FR | 2,4-Dinitrophenol | 860 | 650 U Q | 650 U | 650 UJ | I |
| NYOW-04-DU006-SL-C 280-149650-15 | FR | 2,4-Dinitrochlorobenzene | 310 | 150 U | 150 U | 150 UJ | I |
| NYOW-04-DU006-SL-C 280-149650-15 | FR | 2,4-Dinitrophenol | 790 | 600 U Q | 600 U | 600 UJ | I |
| NYOW-04-DU010-SL-A 280-149650-10 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 U | 160 UJ | I |
| NYOW-04-DU010-SL-A 280-149650-10 | FR | 2,4-Dinitrophenol | 840 | 640 U Q | 640 U | 640 UJ | I |
| NYOW-04-DU010-SL-B 280-149650-11 | FR | 2,4-Dinitrochlorobenzene | 330 | 160 U | 160 U | 160 UJ | I |
| NYOW-04-DU010-SL-B 280-149650-11 | FR | 2,4-Dinitrophenol | 850 | 650 U Q | 650 U | 650 UJ | I |
| NYOW-04-DU010-SL-C 280-149650-12 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 U | 160 X | I |
| NYOW-04-DU010-SL-C 280-149650-12 | FR | 2,4-Dinitrophenol | 820 | 620 U Q | 620 U | 620 UJ | I |
| NYOW-04-DU011-SL-A 280-149650-7 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 U | 160 UJ | I |
| NYOW-04-DU011-SL-A 280-149650-7 | FR | 2,4-Dinitrophenol | 820 | 630 U Q | 630 U | 630 UJ | I |
| NYOW-04-DU011-SL-B 280-149650-8 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U | 170 U | 170 UJ | I |
| NYOW-04-DU011-SL-B 280-149650-8 | FR | 2,4-Dinitrophenol | 860 | 660 U Q | 660 U | 660 UJ | I |
| NYOW-04-DU011-SL-C 280-149650-9 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 U | 160 UJ | I |
| NYOW-04-DU011-SL-C 280-149650-9 | FR | 2,4-Dinitrophenol | 830 | 630 U Q | 630 U | 630 UJ | I |
| NYOW-04-DU013-SL-A 280-149650-4 | FR | 2,4-Dinitrochlorobenzene | 310 | 150 U J1 | 150 U | 150 UJ | I |
| NYOW-04-DU013-SL-B 280-149650-5 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 U | 160 UJ | I |
| NYOW-04-DU013-SL-B 280-149650-5 | FR | 2,4-Dinitrophenol | 840 | 640 U Q | 640 U | 640 UJ | I |
| NYOW-04-DU013-SL-C 280-149650-6 | FR | 2,4-Dinitrochlorobenzene | 340 | 170 U | 170 U | 170 UJ | I |
| NYOW-04-DU013-SL-C 280-149650-6 | FR | 2,4-Dinitrophenol | 870 | 660 U Q | 660 U | 660 UJ | I |
| NYOW-04-DU014-SL-A 280-149650-1 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 U | 160 UJ | I |
| NYOW-04-DU014-SL-A 280-149650-1 | FR | 2,4-Dinitrophenol | 820 | 630 U Q | 630 U | 630 UJ | I |
| NYOW-04-DU014-SL-B 280-149650-2 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U | 170 U | 170 UJ | I |

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW8270D**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-04-DU014-SL-B 280-149650-2 | FR | 2,4-Dinitrophenol | 850 | 650 U Q | 650 U | 650 UJ | I |
| NYOW-04-DU014-SL-C 280-149650-3 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 U | 160 UJ | I |
| NYOW-04-DU014-SL-C 280-149650-3 | FR | 2,4-Dinitrophenol | 830 | 640 U Q | 640 U | 640 UJ | I |

**Modified Qualifiers for test method SW8330B**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-04-DU013-SL-B 280-149650-5 | FR | Picric acid | 98.0 | 98.0 U M | 98.0 U | 98.0 UJ | M |
| NYOW-04-DU013-SL-C 280-149650-6 | FR | Picric acid | 96.0 | 96.0 U M | 96.0 U | 96.0 UJ | M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Reason Code Definitions**

| Code | Definition |
|---|---|
| D | MS RPD |
| I | Surrogate recovery outside project limits. |
| M | MS Recovery |

**Flag Code and Definitions**

| Flag | Definition |
|---|---|
| UJ | The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria. |
| X | The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended. |

**Bias**

| | |
|---|---|
| - | The result may be biased low |
| + | The result may be biased high |

Note - The bias field is a separate field; however, it is an integral part of the final flag (qualifier) on the sample result

**Review Questions**

| Method: SW8270D (Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | Initial analyses were performed within holding times. Reanalyses were performed outside of the extraction holding time period. |
| Were all requested target analytes reported? | • | | | |
| Was the GC/MS system properly tuned based on method criteria? | • | | | |
| Was instrument tuning completed every 12 hours during sample analysis? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were Internal Standard retention times and area criteria within method requirements? | • | | | |
| Were internal standards spiked for every sample, standard, and QC sample? | • | | | |
| Were surrogate recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was a method blank prepared and analyzed with each batch? | • | | | A grinding blank was prepared and the results are reported in SDG J149607. |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | EB-01-210609 sample results are reported in SDG J199995-1. |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | A LCSSRM was not performed. A LCSSRM for the target analytes is not available. |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | MS/SDs not performed for reanalysis batches. |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | | • | | See QC Outliers. |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | Three ISM replicate samples were collected within each Decision Unit. The RSD of replicate results was not calculated because all results were ND.<br><br>Triplicate sample analysis was performed and the results are reported in SDG J149607. |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | | • | | RE/RA performed significantly outside of extraction holding time. |

**Review Questions**

| Method: SW8270D (Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Were any data recommended for rejection (exclusion) in the data validation process? | • | | | See Surrogate Outliers and Comments. |

**Review Questions**

Method: SW8330B (Nitroaromatics and Nitramines by HPLC)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was a blank prepared and analyzed with each batch? | • | | | A soil batch grinding blank GB 280-539631/1-B was also prepared and analyzed. |
| Were target analytes in the blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS or LCS/LCSD pair analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a project specific MS or MS/MSD pair prepared with each batch? | | • | | A MS/SD was prepared with the soil batch. An MS/SD was not performed for the aqueous equipment blank sample batch. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| Was a project-specific duplicate analyzed, and the RPD within QAPP acceptance limits? | | | • | ISM laboratory triplicate analysis was performed for sample NYOW-04-DU009-SL-C and the results are reported in SDG J149607. |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | Three ISM replicate samples were collected within each Decision Unit. The RSD of replicate results was not calculated because all results were ND. |
| Were QAPP specified laboratory reporting limits achieved? | • | | | |
| Were surrogate recoveries within project acceptance limits? | • | | | |
| Were column comparison differences with project acceptance limits? | | | • | All sample results were non-detect. |
| Was the intial calibration within criteria? | • | | | |
| Was a second source check standard analyzed and within all applicable criteria? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |

**Data Validation Report for 280-149543-1_52_2a_FUDSChem**

| | |
|---|---|
| Facility: | C02NY0290-01, New York Ordnance Works, Limited RI |
| Event: | 2021 Sampling - AOC4 - ISM |
| SDG: | 280-149543-1_52_2a_FUDSChem |
| Guidance Document: | Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works |
| Prime Contractor: | Bluestone Environmental Group, Inc., Malvern, PA |
| Project Manager: | Mike Badeau |
| Contract Laboratory(ies): | Eurofins Environment Testing TestAmerica, Arvada, CO \| Eurofins Environment Testing TestAmerica, Savannah, GA |
| Data Review Contractor: | Bluestone |
| Data Review Level: | S2BVEM |
| Primary Data Reviewer: | Emily Strake, Technical Director/ Data Validator |
| Date Submitted: | October 05, 2021 |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | SW8270D | SW8330B |
|---|---|---|---|---|---|
| NYOW-04-DU001-SL-A | 280-149543-1 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU001-SL-B | 280-149543-2 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU001-SL-C | 280-149543-3 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU002-SL-A | 280-149543-4 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU002-SL-B | 280-149543-5 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU002-SL-C | 280-149543-6 | Solid | Field Replicate/FR | X | X |
| EB-01_210607 | 280-149543-7 | Water | Equipment Blank/EB | | X |

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page at S2BVEM data validation level. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works and the additional guidance documents incorporated by reference to the extent possible. Where definitive guidance is not provided, results have been evaluated in a conservative manner using professional judgment.

Sample collection was managed and directed by Bluestone Environmental Group, Inc., Malvern, PA; analyses were performed by Eurofins Environment Testing TestAmerica, Arvada, CO | Eurofins Environment Testing TestAmerica, Savannah, GA and were reported under sample delivery group (SDG) 280-149543-1_52_2a_FUDSChem. Data have been evaluated electronically based on electronic data deliverables (EDDs) provided by the laboratory, and hard copy data summary forms have also been reviewed during this effort and compared to the automated review output by the reviewers whose signatures appear on the following page. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative and throughout this report.

All quality control (QC) elements associated with this SDG have been reviewed by a project chemist in accordance with the requirements defined for the project. This review is documented in the attached Data Review Checklists. The QC elements listed below were supported by the electronic deliverable and were evaluated using ADR processes.

- Equipment Blank
- Lab Blank
- Lab Replicate RPD
- Laboratory Triplicate RSD
- LCS Recovery
- LCS RPD
- MS Recovery
- MS RPD
- Prep Hold Time
- Reference Material
- Surrogate
- Test Hold Time

Results of the ADR process were subsequently reviewed and updated as applicable by the data review chemists identified on the signature page. Quality control elements that were not included in the electronic deliverable were reviewed manually and findings are documented within this report. Summaries of findings and associated qualified results are documented throughout this report.

A total of 14 results (73.68%) out of the 19 results (sample and field QC samples) reported are qualified based on review and 3 results (15.79%) have been rejected or deemed a serious deficiency (X qualifier). Trace values, defined as results that are qualified as estimated because they fall between the detection limit and the reporting limit/limit of quantitation, are not counted as qualified results in the above count. The qualified results are detailed throughout this report and discussed in the narrative below, where appropriate.

Narrative Comments

The samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 0.9ºC.

The following samples were air dried and sieved; however, the samples contained rocks and vegetation that would not pass through the sieve: NYOW-04-DU001-SL-A, NYOW-04-DU001-SL-B, NYOW-04-DU001-SL-C, NYOW-04-DU002-SL-A, NYOW-04-DU002-SL-B, and NYOW-04-DU002-SL-C. This material was removed and not extracted.

The samples reached a fully ground state in less than 5 milling cycles. Milling was stopped when samples reached a fully milled state in order to reduce the chance of analyte loss due to overheating in accordance with the instructions in the SOP.

| Analytical Method | Data Reviewer Comment |
|---|---|
| SW8270D | There is no LCSSRM that contains the analytes in the 8270 method list. As a result, the impact of sample milling on the analyte recovery cannot be quantified. |
| SW8330B | The explosives LCSSRM does not contain picric acid. As a result, the impact of sample milling on the picric acid recovery cannot be quantified. |

October 05, 2021

Reviewed by Emily Strake, Technical Director/ Data Validator, Bluestone

As the Reviewer, I certify that I have performed a data review process in accordance with the requirements of the project guidance document, and have compared the electronic data to the laboratory's hard copy report and have verified the consistency of the reported sample results and method quality control data between the two deliverables.

**Quality Control Outliers for test method SW8270D, LCS RPD**

The objective of laboratory control sample/laboratory control sample duplicate (LCS/LCSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. LCS/LCSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Laboratory control sample/laboratory control sample duplicate RPD results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 680-673627/22-A (BD)/ LCSD 680-673627/22-A | 2,4-Dinitrochlorobenzene | 20.66 | < 20 | < 20 | rpd | J/None | Z | |
| LCSD 680-676250/10-A (BD)/ LCSD 680-676250/10-A | 2,4-Dinitrochlorobenzene | 20.09 | < 20 | < 20 | rpd | J/None | Z | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW8270D, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU001-SL-A (MS)/ 280-149543-1MS | 2,4-Dinitrophenol | 0.000 | 10 - 130 | 10 - 200 | percent | J/X | M | |
| NYOW-04-DU001-SL-A (SD)/ 280-149543-1MSD | 2,4-Dinitrophenol | 7.799 | 10 - 130 | 10 - 200 | percent | J/X | M | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for SW8270D**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU001-SL-A 280-149543-1MS | FR | 2,4-Dinitrophenol | 810 | 620 U J1 | 620 X | | ug/kg | M |
| NYOW-04-DU001-SL-B 280-149543-1MS | FR | 2,4-Dinitrophenol | 850 | 650 U Q | 650 X | | ug/kg | M/I |
| NYOW-04-DU001-SL-C 280-149543-1MS | FR | 2,4-Dinitrophenol | 850 | 650 U | 650 X | | ug/kg | M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW8270D, MS RPD**

The objective of matrix spikes/matrix spike duplicates (MS/MSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. MS/MSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Matrix spikes/matrix spike duplicates results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU001-SL-A (SD)/ 280-149543-1MSD | 2,4-Dinitrophenol | 200.0 | < 20 | < 20 | rpd | J/None | D | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW8270D, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU001-SL-A (FR)/ 280-149543-1 | 2-Fluorobiphenyl | 40.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (FR)/ 280-149543-1 | Nitrobenzene-d5 | 34.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (FR)/ 280-149543-1 | Terphenyl-d14 | 44.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (FR)/ 280-149543-1DUP | 2-Fluorobiphenyl | 28.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (FR)/ 280-149543-1DUP | 2-Fluorophenol | 24.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (FR)/ 280-149543-1DUP | Nitrobenzene-d5 | 21.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (FR)/ 280-149543-1DUP | Phenol-d5 | 27.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (FR)/ 280-149543-1DUP | Terphenyl-d14 | 36.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (FR)/ 280-149543-1DUP | 2,4,6-Tribromophenol | 34.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (SD)/ 280-149543-1MSD | 2-Fluorobiphenyl | 27.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (SD)/ 280-149543-1MSD | 2-Fluorophenol | 25.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (SD)/ 280-149543-1MSD | Nitrobenzene-d5 | 25.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (SD)/ 280-149543-1MSD | Phenol-d5 | 28.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (SD)/ 280-149543-1MSD | Terphenyl-d14 | 30.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (SD)/ 280-149543-1MSD | 2,4,6-Tribromophenol | 32.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (FR)/ 280-149543-1TRL | 2-Fluorobiphenyl | 29.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (FR)/ 280-149543-1TRL | 2-Fluorophenol | 27.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (FR)/ 280-149543-1TRL | Nitrobenzene-d5 | 25.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (FR)/ 280-149543-1TRL | Phenol-d5 | 27.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (FR)/ 280-149543-1TRL | Terphenyl-d14 | 30.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (FR)/ 280-149543-1TRL | 2,4,6-Tribromophenol | 27.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-A (FR)/ 280-149543-1TRL | Terphenyl-d14 | 52.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-B (FR)/ 280-149543-2 | 2-Fluorobiphenyl | 26.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-B (FR)/ 280-149543-2 | 2-Fluorophenol | 20.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-B (FR)/ 280-149543-2 | Nitrobenzene-d5 | 20.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |

**Quality Control Outliers for test method SW8270D, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU001-SL-B (FR)/ 280-149543-2 | Phenol-d5 | 23.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-B (FR)/ 280-149543-2 | Terphenyl-d14 | 34.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-B (FR)/ 280-149543-2 | 2,4,6-Tribromophenol | 32.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-B (FR)/ 280-149543-2 | 2-Fluorobiphenyl | 43.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-B (FR)/ 280-149543-2 | Nitrobenzene-d5 | 35.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-B (FR)/ 280-149543-2 | Terphenyl-d14 | 48.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-C (FR)/ 280-149543-3 | Nitrobenzene-d5 | 36.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU001-SL-C (FR)/ 280-149543-3 | Terphenyl-d14 | 48.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-A (FR)/ 280-149543-4 | 2-Fluorobiphenyl | 35.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-A (FR)/ 280-149543-4 | 2-Fluorophenol | 33.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-A (FR)/ 280-149543-4 | Nitrobenzene-d5 | 30.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-A (FR)/ 280-149543-4 | Terphenyl-d14 | 42.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-A (FR)/ 280-149543-4 | Terphenyl-d14 | 44.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-A (FR)/ 280-149543-4 | 2,4,6-Tribromophenol | 37.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-B (FR)/ 280-149543-5 | 2-Fluorobiphenyl | 15.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-B (FR)/ 280-149543-5 | 2-Fluorophenol | 11.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-B (FR)/ 280-149543-5 | Nitrobenzene-d5 | 10.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-B (FR)/ 280-149543-5 | Phenol-d5 | 12.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-B (FR)/ 280-149543-5 | Terphenyl-d14 | 22.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-B (FR)/ 280-149543-5 | 2,4,6-Tribromophenol | 20.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-B (FR)/ 280-149543-5 | 2-Fluorobiphenyl | 36.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-B (FR)/ 280-149543-5 | 2-Fluorophenol | 29.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-B (FR)/ 280-149543-5 | Nitrobenzene-d5 | 30.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-B (FR)/ 280-149543-5 | Phenol-d5 | 30.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-B (FR)/ 280-149543-5 | Terphenyl-d14 | 38.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |

**Quality Control Outliers for test method SW8270D, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU002-SL-B (FR)/ 280-149543-5 | 2,4,6-Tribromophenol | 31.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-C (FR)/ 280-149543-6 | 2-Fluorobiphenyl | 24.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-C (FR)/ 280-149543-6 | 2-Fluorophenol | 23.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-C (FR)/ 280-149543-6 | Nitrobenzene-d5 | 21.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-C (FR)/ 280-149543-6 | Phenol-d5 | 22.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-C (FR)/ 280-149543-6 | Terphenyl-d14 | 26.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-C (FR)/ 280-149543-6 | 2,4,6-Tribromophenol | 24.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-C (FR)/ 280-149543-6 | 2-Fluorobiphenyl | 43.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-C (FR)/ 280-149543-6 | Nitrobenzene-d5 | 36.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-C (FR)/ 280-149543-6 | Terphenyl-d14 | 47.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU002-SL-C (FR)/ 280-149543-6 | 2,4,6-Tribromophenol | 38.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Surrogate for SW8270D**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU001-SL-A 280-149543-1 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U Q | 160 UJ | | ug/kg | I |
| NYOW-04-DU001-SL-B 280-149543-2 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U Q | 170 UJ | | ug/kg | I |
| NYOW-04-DU001-SL-B 280-149543-2 | FR | 2,4-Dinitrophenol | 850 | 650 U Q | 650 X | | ug/kg | M/I |
| NYOW-04-DU002-SL-A 280-149543-4 | FR | 2,4-Dinitrochlorobenzene | 340 | 170 U Q | 170 UJ | | ug/kg | I |
| NYOW-04-DU002-SL-A 280-149543-4 | FR | 2,4-Dinitrophenol | 870 | 670 U | 670 UJ | | ug/kg | I |
| NYOW-04-DU002-SL-B 280-149543-5 | FR | 2,4-Dinitrochlorobenzene | 330 | 160 U Q | 160 UJ | | ug/kg | I |
| NYOW-04-DU002-SL-B 280-149543-5 | FR | 2,4-Dinitrophenol | 840 | 640 U Q | 640 UJ | | ug/kg | I |
| NYOW-04-DU002-SL-C 280-149543-6 | FR | 2,4-Dinitrochlorobenzene | 330 | 160 U Q | 160 UJ | | ug/kg | I |

**Qualified Results associated with the Surrogate for SW8270D**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU002-SL-C 280-149543-6 | FR | 2,4-Dinitrophenol | 840 | 640 U Q | 640 UJ | | ug/kg | I |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW8330B, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU001-SL-A (MS)/ 280-149543-1MS | Picric acid | 25.83 | 38 - 154 | 10 - 200 | percent | J/UJ | M | |
| NYOW-04-DU001-SL-A (SD)/ 280-149543-1MSD | Picric acid | 24.63 | 38 - 154 | 10 - 200 | percent | J/UJ | M | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for SW8330B**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU001-SL-A 280-149543-1MS | FR | Picric acid | 97.0 | 97.0 U J1 | 97.0 UJ | | ug/kg | M |
| NYOW-04-DU001-SL-B 280-149543-1MS | FR | Picric acid | 96.0 | 96.0 U M | 96.0 UJ | | ug/kg | M |
| NYOW-04-DU001-SL-C 280-149543-1MS | FR | Picric acid | 95.0 | 95.0 U | 95.0 UJ | | ug/kg | M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Table of All Qualified Results**

| Test Method: SW8270D | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-04-DU001-SL-A 280-149543-1 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U Q | 160 UJ | | ug/kg | I |
| NYOW-04-DU001-SL-A 280-149543-1 | FR | 2,4-Dinitrophenol | 810 | 620 U J1 | 620 X | | ug/kg | M |
| NYOW-04-DU001-SL-B 280-149543-2 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U Q | 170 UJ | | ug/kg | I |
| NYOW-04-DU001-SL-B 280-149543-2 | FR | 2,4-Dinitrophenol | 850 | 650 U Q | 650 X | | ug/kg | M/I |
| NYOW-04-DU001-SL-C 280-149543-3 | FR | 2,4-Dinitrophenol | 850 | 650 U | 650 X | | ug/kg | M |
| NYOW-04-DU002-SL-A 280-149543-4 | FR | 2,4-Dinitrochlorobenzene | 340 | 170 U Q | 170 UJ | | ug/kg | I |
| NYOW-04-DU002-SL-A 280-149543-4 | FR | 2,4-Dinitrophenol | 870 | 670 U | 670 UJ | | ug/kg | I |
| NYOW-04-DU002-SL-B 280-149543-5 | FR | 2,4-Dinitrochlorobenzene | 330 | 160 U Q | 160 UJ | | ug/kg | I |
| NYOW-04-DU002-SL-B 280-149543-5 | FR | 2,4-Dinitrophenol | 840 | 640 U Q | 640 UJ | | ug/kg | I |
| NYOW-04-DU002-SL-C 280-149543-6 | FR | 2,4-Dinitrochlorobenzene | 330 | 160 U Q | 160 UJ | | ug/kg | I |
| NYOW-04-DU002-SL-C 280-149543-6 | FR | 2,4-Dinitrophenol | 840 | 640 U Q | 640 UJ | | ug/kg | I |

| Test Method: SW8330B | | Extraction Method: METHOD | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-04-DU001-SL-A 280-149543-1 | FR | Picric acid | 97.0 | 97.0 U J1 | 97.0 UJ | | ug/kg | M |
| NYOW-04-DU001-SL-B 280-149543-2 | FR | Picric acid | 96.0 | 96.0 U M | 96.0 UJ | | ug/kg | M |
| NYOW-04-DU001-SL-C 280-149543-3 | FR | Picric acid | 95.0 | 95.0 U | 95.0 UJ | | ug/kg | M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW8270D**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-04-DU001-SL-A 280-149543-1 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U Q | 160 U | 160 UJ | I |
| NYOW-04-DU001-SL-B 280-149543-2 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U Q | 170 U | 170 UJ | I |
| NYOW-04-DU001-SL-B 280-149543-2 | FR | 2,4-Dinitrophenol | 850 | 650 U Q | 650 U | 650 X | M/I |
| NYOW-04-DU001-SL-C 280-149543-3 | FR | 2,4-Dinitrophenol | 850 | 650 U | 650 U | 650 X | M |
| NYOW-04-DU002-SL-A 280-149543-4 | FR | 2,4-Dinitrochlorobenzene | 340 | 170 U Q | 170 U | 170 UJ | I |
| NYOW-04-DU002-SL-A 280-149543-4 | FR | 2,4-Dinitrophenol | 870 | 670 U | 670 U | 670 UJ | I |
| NYOW-04-DU002-SL-B 280-149543-5 | FR | 2,4-Dinitrochlorobenzene | 330 | 160 U Q | 160 U | 160 UJ | I |
| NYOW-04-DU002-SL-B 280-149543-5 | FR | 2,4-Dinitrophenol | 840 | 640 U Q | 640 U | 640 UJ | I |
| NYOW-04-DU002-SL-C 280-149543-6 | FR | 2,4-Dinitrochlorobenzene | 330 | 160 U Q | 160 U | 160 UJ | I |
| NYOW-04-DU002-SL-C 280-149543-6 | FR | 2,4-Dinitrophenol | 840 | 640 U Q | 640 U | 640 UJ | I |

**Modified Qualifiers for test method SW8330B**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-04-DU001-SL-B 280-149543-2 | FR | Picric acid | 96.0 | 96.0 U M | 96.0 U | 96.0 UJ | M |
| NYOW-04-DU001-SL-C 280-149543-3 | FR | Picric acid | 95.0 | 95.0 U | 95.0 U | 95.0 UJ | M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Reason Code Definitions**

| Code | Definition |
|---|---|
| D | MS RPD |
| I | Surrogate recovery outside project limits. |
| M | MS Recovery |
| TR | Trace Level Detect |
| Z | LCS RPD |

**Flag Code and Definitions**

| Flag | Definition |
|---|---|
| UJ | The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria. |

| | |
|---|---|
| X | The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended. |

| **Bias** | |
|---|---|
| - | The result may be biased low |
| + | The result may be biased high |
| Note - The bias field is a separate field; however, it is an integral part of the final flag (qualifier) on the sample result | |

**Review Questions**

| Method: SW8270D (Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | Initial analyses were performed within holding times. Reextractions were performed outside of the extraction holding time period. |
| Were all requested target analytes reported? | • | | | |
| Was the GC/MS system properly tuned based on method criteria? | • | | | |
| Was instrument tuning completed every 12 hours during sample analysis? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were Internal Standard retention times and area criteria within method requirements? | • | | | |
| Were internal standards spiked for every sample, standard, and QC sample? | • | | | |
| Were surrogate recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was a method blank prepared and analyzed with each batch? | • | | | A grinding blank was also prepared. |
| Were target analytes in the method blank less than MDL? | • | | | The grinding blank results were also less than the MDL. |
| Were target analytes in the field blank less than MDL? | • | | | EB-01-210607 sample results are reported in SDG J199837-1. |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | A LCSSRM was not performed. A LCSSRM for SVOCs is not available. |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | | • | | See QC Outliers. Sample results were non-detect; qualification is not necessary. |
| Was a MS/MSD pair prepared with each batch? | | • | | MS/SDs not performed for reanalysis batch 675494. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | MS NYOW-04-DU001-SL-A did not recover for 2,4-dinitrophenol. The SD recovery was less than 10% at 8%. The MS was reanalyzed outside of 2X the extraction holding time.<br>The 2,4-dinitrophenol results for NYOW-04-DU001-SL-A, NYOW-04-DU001-SL-B, and NYOW-04-DU001-SL-C are qualified as "X". |
| Was the MS/MSD RPD within project acceptance limits? | | • | | See QC Outliers. |

**Review Questions**

Method: SW8270D (Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | Sample NYOW-04-DU001-SL-A was analyzed in triplicate at the laboratory. The RSD could not be calculated because all results were ND. Three ISM replicate samples were collected within each Decision Unit. The RSD of replicate results was not calculated because all results were ND. |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | | • | | RE/RA performed significantly outside of extraction holding time. |
| Were any data recommended for rejection (exclusion) in the data validation process? | • | | | See MS Outliers and Comments. |

**Review Questions**

Method: SW8330B (Nitroaromatics and Nitramines by HPLC)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was a blank prepared and analyzed with each batch? | • | | | A soil batch grinding blank 280-539620/1-B was also prepared and analyzed. |
| Were target analytes in the blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS or LCS/LCSD pair analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a project specific MS or MS/MSD pair prepared with each batch? | | • | | A MS/SD was prepared with the soil batch. An MS/SD was not performed for the aqueous equipment blank sample batch. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| Was a project-specific duplicate analyzed, and the RPD within QAPP acceptance limits? | • | | | Sample NYOW-04-DU001-SL-A was analyzed in triplicate at the laboratory. The RSD could not be calculated because all results were ND. |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | Three ISM replicate samples were collected within each Decision Unit. The RSD of replicate results was not calculated because all results were ND. |
| Were QAPP specified laboratory reporting limits achieved? | • | | | |
| Were surrogate recoveries within project acceptance limits? | • | | | |
| Were column comparison differences with project acceptance limits? | | | • | All sample results were non-detect. |
| Was the intial calibration within criteria? | • | | | |
| Was a second source check standard analyzed and within all applicable criteria? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |

**Data Validation Report for 280-149607-1_52_2a_FUDSChem**

| | |
|---|---|
| Facility: | C02NY0290-01, New York Ordnance Works, Limited RI |
| Event: | 2021 Sampling - AOC4 - ISM |
| SDG: | 280-149607-1_52_2a_FUDSChem |
| Guidance Document: | Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works |
| Prime Contractor: | Bluestone Environmental Group, Inc., Malvern, PA |
| Project Manager: | Mike Badeau |
| Contract Laboratory(ies): | Eurofins Environment Testing TestAmerica, Arvada, CO \| Eurofins Environment Testing TestAmerica, Savannah, GA |
| Data Review Contractor: | Bluestone |
| Data Review Level: | S2BVEM |
| Primary Data Reviewer: | Emily Strake, Technical Director/ Data Validator |
| Date Submitted: | October 19, 2021 |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | SW8270D | SW8330B |
|---|---|---|---|---|---|
| NYOW-04-DU004-SL-A | 280-149607-1 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU004-SL-B | 280-149607-2 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU004-SL-C | 280-149607-3 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU005-SL-A | 280-149607-10 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU005-SL-B | 280-149607-11 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU005-SL-C | 280-149607-12 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU007-SL-A | 280-149607-7 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU007-SL-B | 280-149607-8 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU007-SL-C | 280-149607-9 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU009-SL-A | 280-149607-13 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU009-SL-B | 280-149607-14 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU009-SL-C | 280-149607-15 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU012-SL-A | 280-149607-4 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU012-SL-B | 280-149607-5 | Solid | Field Replicate/FR | X | X |
| NYOW-04-DU012-SL-C | 280-149607-6 | Solid | Field Replicate/FR | X | X |
| EB-01_210608 | 280-149607-16 | Water | Equipment Blank/EB | | X |

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page at S2BVEM data validation level. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works and the additional guidance documents incorporated by reference to the extent possible. Where definitive guidance is not provided, results have been evaluated in a conservative manner using professional judgment.

Sample collection was managed and directed by Bluestone Environmental Group, Inc., Malvern, PA; analyses were performed by Eurofins Environment Testing TestAmerica, Arvada, CO | Eurofins Environment Testing TestAmerica, Savannah, GA and were reported under sample delivery group (SDG) 280-149607-1_52_2a_FUDSChem. Data have been evaluated electronically based on electronic data deliverables (EDDs) provided by the laboratory, and hard copy data summary forms have also been reviewed during this effort and compared to the automated review output by the reviewers whose signatures appear on the following page. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative and throughout this report.

All quality control (QC) elements associated with this SDG have been reviewed by a project chemist in accordance with the requirements defined for the project. This review is documented in the attached Data Review Checklists. The QC elements listed below were supported by the electronic deliverable and were evaluated using ADR processes.

- Equipment Blank
- Lab Blank
- Lab Replicate RPD
- Laboratory Triplicate RSD
- LCS Recovery
- LCS RPD
- MS Recovery
- MS RPD
- Prep Hold Time
- Reference Material
- Surrogate
- Test Hold Time

Results of the ADR process were subsequently reviewed and updated as applicable by the data review chemists identified on the signature page. Quality control elements that were not included in the electronic deliverable were reviewed manually and findings are documented within this report. Summaries of findings and associated qualified results are documented throughout this report.

A total of 32 results (69.57%) out of the 46 results (sample and field QC samples) reported are qualified based on review and 5 results (10.87%) have been rejected or deemed a serious deficiency (X qualifier). Trace values, defined as results that are qualified as estimated because they fall between the detection limit and the reporting limit/limit of quantitation, are not counted as qualified results in the above count. The qualified results are detailed throughout this report and discussed in the narrative below, where appropriate.

Narrative Comments

The samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 0.7ºC.
The sample containers had "ISM" included in the Sample ID. The samples were logged in accordance with the COC.
The following samples were air dried and sieved per the procedure; however, the samples contained rocks and vegetation that would not pass through the sieve: NYOW-04-DU004-SL-A, NYOW-04-DU004-SL-B, NYOW-04-DU004-SL-C, NYOW-04-DU012-SL-A, NYOW-04-DU012-SL-B, NYOW-04-DU012-SL-C, NYOW-04-DU007-SL-A, NYOW-04-DU007-SL-B, NYOW-04-DU007-SL-C, NYOW-04-DU005-SL-A, and NYOW-04-DU005-SL-B. This material was removed and not extracted.
In preparation batch 280-539631, the following samples were air dried and sieved per the procedure; however, the samples contained rocks and vegetation that would not pass through the sieve: NYOW-04-DU005-SL-C, NYOW-04-DU009-SL-A, NYOW-04-DU009-SL-B, and NYOW-04-DU009-SL-C. This material was removed and not extracted.
The samples reached a fully ground state in less than 5 milling cycles. Milling was stopped when samples reached a fully milled state in order to reduce the chance of analyte loss due to overheating in accordance with the instructions in the SOP.

| Analytical Method | Data Reviewer Comment |
|---|---|
| SW8270D | There is no LCSSRM that contains the analytes in the 8270 method list. As a result, the impact of sample milling on the analyte recovery cannot be quantified. |
| SW8330B | The explosives LCSSRM does not contain picric acid. As a result, the impact of sample milling on the analyte recovery cannot be quantified. |

October 19, 2021

Reviewed by Emily Strake, Technical Director/ Data Validator, Bluestone

As the Reviewer, I certify that I have performed a data review process in accordance with the requirements of the project guidance document, and have compared the electronic data to the laboratory's hard copy report and have verified the consistency of the reported sample results and method quality control data between the two deliverables.

**Quality Control Outliers for test method SW8270D, LCS RPD**

The objective of laboratory control sample/laboratory control sample duplicate (LCS/LCSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. LCS/LCSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Laboratory control sample/laboratory control sample duplicate RPD results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 680-673627/22-A (BD)/ LCSD 680-673627/22-A | 2,4-Dinitrochlorobenzene | 20.66 | < 20 | < 20 | rpd | J/None | Z | |
| LCSD 680-676250/10-A (BD)/ LCSD 680-676250/10-A | 2,4-Dinitrochlorobenzene | 20.09 | < 20 | < 20 | rpd | J/None | Z | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW8270D, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU009-SL-C (SD)/ 280-149607-15MSD | 2,4-Dinitrophenol | 0.000 | 10 - 130 | 10 - 200 | percent | J/X | M | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for SW8270D**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU009-SL-A 280-149607-13 | FR | 2,4-Dinitrophenol | 820 | 630 U Q | 630 X | | ug/kg | M/I |
| NYOW-04-DU009-SL-B 280-149607-14 | FR | 2,4-Dinitrophenol | 810 | 620 U Q | 620 X | | ug/kg | M/I |
| NYOW-04-DU009-SL-C 280-149607-15 | FR | 2,4-Dinitrophenol | 860 | 650 U Q | 650 X | | ug/kg | M/I |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW8270D, MS RPD**

The objective of matrix spikes/matrix spike duplicates (MS/MSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. MS/MSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Matrix spikes/matrix spike duplicates results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU005-SL-B (SD)/ 280-149607-11MSD | 2,4-Dinitrophenol | 21.64 | < 20 | < 20 | rpd | J/None | D | |
| NYOW-04-DU009-SL-C (SD)/ 280-149607-15MSD | 2,4-Dinitrochlorobenzene | 32.65 | < 20 | < 20 | rpd | J/None | D | |
| NYOW-04-DU009-SL-C (SD)/ 280-149607-15MSD | 2,4-Dinitrophenol | 200.0 | < 20 | < 20 | rpd | J/None | D | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW8270D, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU004-SL-A (FR)/ 280-149607-1 | 2,4,6-Tribromophenol | 27.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-A (FR)/ 280-149607-1 | 2-Fluorobiphenyl | 26.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-A (FR)/ 280-149607-1 | 2-Fluorophenol | 25.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-A (FR)/ 280-149607-1 | Nitrobenzene-d5 | 23.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-A (FR)/ 280-149607-1 | Phenol-d5 | 26.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-A (FR)/ 280-149607-1 | Terphenyl-d14 | 29.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-B (FR)/ 280-149607-2 | 2,4,6-Tribromophenol | 29.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-B (FR)/ 280-149607-2 | 2-Fluorobiphenyl | 42.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-B (FR)/ 280-149607-2 | 2-Fluorobiphenyl | 33.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-B (FR)/ 280-149607-2 | 2-Fluorophenol | 28.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-B (FR)/ 280-149607-2 | Nitrobenzene-d5 | 27.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-B (FR)/ 280-149607-2 | Phenol-d5 | 27.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-B (FR)/ 280-149607-2 | Terphenyl-d14 | 47.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-B (FR)/ 280-149607-2 | Terphenyl-d14 | 35.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-C (FR)/ 280-149607-3 | 2,4,6-Tribromophenol | 27.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-C (FR)/ 280-149607-3 | 2,4,6-Tribromophenol | 32.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-C (FR)/ 280-149607-3 | 2-Fluorobiphenyl | 24.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-C (FR)/ 280-149607-3 | 2-Fluorobiphenyl | 33.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-C (FR)/ 280-149607-3 | 2-Fluorophenol | 23.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-C (FR)/ 280-149607-3 | 2-Fluorophenol | 28.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-C (FR)/ 280-149607-3 | Nitrobenzene-d5 | 19.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-C (FR)/ 280-149607-3 | Nitrobenzene-d5 | 27.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-C (FR)/ 280-149607-3 | Phenol-d5 | 24.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-C (FR)/ 280-149607-3 | Phenol-d5 | 27.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU004-SL-C (FR)/ 280-149607-3 | Terphenyl-d14 | 26.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |

**Quality Control Outliers for test method SW8270D, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU004-SL-C (FR)/ 280-149607-3 | Terphenyl-d14 | 38.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-A (FR)/ 280-149607-10 | 2,4,6-Tribromophenol | 24.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-A (FR)/ 280-149607-10 | 2,4,6-Tribromophenol | 35.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-A (FR)/ 280-149607-10 | 2-Fluorobiphenyl | 24.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-A (FR)/ 280-149607-10 | 2-Fluorobiphenyl | 37.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-A (FR)/ 280-149607-10 | 2-Fluorophenol | 22.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-A (FR)/ 280-149607-10 | 2-Fluorophenol | 34.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-A (FR)/ 280-149607-10 | Nitrobenzene-d5 | 20.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-A (FR)/ 280-149607-10 | Nitrobenzene-d5 | 33.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-A (FR)/ 280-149607-10 | Phenol-d5 | 21.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-A (FR)/ 280-149607-10 | Terphenyl-d14 | 24.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-A (FR)/ 280-149607-10 | Terphenyl-d14 | 36.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-B (FR)/ 280-149607-11 | 2,4,6-Tribromophenol | 22.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-B (FR)/ 280-149607-11 | 2-Fluorobiphenyl | 23.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-B (FR)/ 280-149607-11 | 2-Fluorobiphenyl | 37.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-B (FR)/ 280-149607-11 | 2-Fluorophenol | 21.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-B (FR)/ 280-149607-11 | 2-Fluorophenol | 28.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-B (FR)/ 280-149607-11 | Nitrobenzene-d5 | 21.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-B (FR)/ 280-149607-11 | Nitrobenzene-d5 | 26.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-B (FR)/ 280-149607-11 | Phenol-d5 | 21.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-B (FR)/ 280-149607-11 | Phenol-d5 | 30.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-B (FR)/ 280-149607-11 | Terphenyl-d14 | 25.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-B (FR)/ 280-149607-11 | Terphenyl-d14 | 52.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-B (SD)/ 280-149607-11MSD | 2,4,6-Tribromophenol | 4.000 | 39 - 132 | 10 - 132 | percent | J/X | I | |
| NYOW-04-DU005-SL-B (SD)/ 280-149607-11MSD | 2,4,6-Tribromophenol | 31.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |

**Quality Control Outliers for test method SW8270D, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU005-SL-B (SD)/ 280-149607-11MSD | 2-Fluorobiphenyl | 2.000 | 44 - 115 | 10 - 115 | percent | J/X | I | |
| NYOW-04-DU005-SL-B (SD)/ 280-149607-11MSD | 2-Fluorobiphenyl | 36.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-B (SD)/ 280-149607-11MSD | 2-Fluorophenol | 2.000 | 35 - 115 | 10 - 115 | percent | J/X | I | |
| NYOW-04-DU005-SL-B (SD)/ 280-149607-11MSD | 2-Fluorophenol | 33.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-B (SD)/ 280-149607-11MSD | Nitrobenzene-d5 | 2.000 | 37 - 122 | 10 - 122 | percent | J/X | I | |
| NYOW-04-DU005-SL-B (SD)/ 280-149607-11MSD | Nitrobenzene-d5 | 36.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-B (SD)/ 280-149607-11MSD | Phenol-d5 | 2.000 | 33 - 122 | 10 - 122 | percent | J/X | I | |
| NYOW-04-DU005-SL-B (SD)/ 280-149607-11MSD | Phenol-d5 | 32.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-B (SD)/ 280-149607-11MSD | Terphenyl-d14 | 3.000 | 54 - 127 | 10 - 127 | percent | J/X | I | |
| NYOW-04-DU005-SL-B (SD)/ 280-149607-11MSD | Terphenyl-d14 | 37.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-C (FR)/ 280-149607-12 | 2,4,6-Tribromophenol | 35.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-C (FR)/ 280-149607-12 | 2-Fluorobiphenyl | 33.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-C (FR)/ 280-149607-12 | 2-Fluorophenol | 31.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-C (FR)/ 280-149607-12 | Nitrobenzene-d5 | 27.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-C (FR)/ 280-149607-12 | Phenol-d5 | 32.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-C (FR)/ 280-149607-12 | Terphenyl-d14 | 35.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU005-SL-C (FR)/ 280-149607-12 | Terphenyl-d14 | 46.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-A (FR)/ 280-149607-7 | 2,4,6-Tribromophenol | 37.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-A (FR)/ 280-149607-7 | 2-Fluorobiphenyl | 34.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-A (FR)/ 280-149607-7 | 2-Fluorobiphenyl | 43.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-A (FR)/ 280-149607-7 | 2-Fluorophenol | 30.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-A (FR)/ 280-149607-7 | Nitrobenzene-d5 | 27.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-A (FR)/ 280-149607-7 | Nitrobenzene-d5 | 35.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-A (FR)/ 280-149607-7 | Phenol-d5 | 32.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-A (FR)/ 280-149607-7 | Terphenyl-d14 | 44.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |

**Quality Control Outliers for test method SW8270D, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU007-SL-A (FR)/ 280-149607-7 | Terphenyl-d14 | 43.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-B (FR)/ 280-149607-8 | 2,4,6-Tribromophenol | 23.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-B (FR)/ 280-149607-8 | 2,4,6-Tribromophenol | 34.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-B (FR)/ 280-149607-8 | 2-Fluorobiphenyl | 20.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-B (FR)/ 280-149607-8 | 2-Fluorobiphenyl | 42.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-B (FR)/ 280-149607-8 | 2-Fluorophenol | 17.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-B (FR)/ 280-149607-8 | 2-Fluorophenol | 34.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-B (FR)/ 280-149607-8 | Nitrobenzene-d5 | 15.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-B (FR)/ 280-149607-8 | Nitrobenzene-d5 | 33.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-B (FR)/ 280-149607-8 | Phenol-d5 | 19.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-B (FR)/ 280-149607-8 | Phenol-d5 | 32.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-B (FR)/ 280-149607-8 | Terphenyl-d14 | 25.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-B (FR)/ 280-149607-8 | Terphenyl-d14 | 42.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-C (FR)/ 280-149607-9 | 2-Fluorobiphenyl | 39.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-C (FR)/ 280-149607-9 | 2-Fluorobiphenyl | 42.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-C (FR)/ 280-149607-9 | 2-Fluorophenol | 32.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-C (FR)/ 280-149607-9 | Nitrobenzene-d5 | 29.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-C (FR)/ 280-149607-9 | Nitrobenzene-d5 | 35.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-C (FR)/ 280-149607-9 | Terphenyl-d14 | 47.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU007-SL-C (FR)/ 280-149607-9 | Terphenyl-d14 | 39.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-A (FR)/ 280-149607-13 | 2,4,6-Tribromophenol | 17.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-A (FR)/ 280-149607-13 | 2-Fluorobiphenyl | 17.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-A (FR)/ 280-149607-13 | 2-Fluorobiphenyl | 40.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-A (FR)/ 280-149607-13 | 2-Fluorophenol | 16.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-A (FR)/ 280-149607-13 | Nitrobenzene-d5 | 14.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |

**Quality Control Outliers for test method SW8270D, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU009-SL-A (FR)/ 280-149607-13 | Nitrobenzene-d5 | 34.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-A (FR)/ 280-149607-13 | Phenol-d5 | 15.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-A (FR)/ 280-149607-13 | Terphenyl-d14 | 18.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-A (FR)/ 280-149607-13 | Terphenyl-d14 | 43.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-B (FR)/ 280-149607-14 | 2,4,6-Tribromophenol | 30.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-B (FR)/ 280-149607-14 | 2-Fluorobiphenyl | 30.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-B (FR)/ 280-149607-14 | 2-Fluorophenol | 28.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-B (FR)/ 280-149607-14 | Nitrobenzene-d5 | 22.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-B (FR)/ 280-149607-14 | Nitrobenzene-d5 | 36.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-B (FR)/ 280-149607-14 | Phenol-d5 | 28.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-B (FR)/ 280-149607-14 | Terphenyl-d14 | 32.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (FR)/ 280-149607-15 | 2,4,6-Tribromophenol | 37.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (FR)/ 280-149607-15 | 2-Fluorobiphenyl | 33.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (FR)/ 280-149607-15 | 2-Fluorophenol | 32.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (FR)/ 280-149607-15 | Nitrobenzene-d5 | 28.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (FR)/ 280-149607-15 | Terphenyl-d14 | 34.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (FR)/ 280-149607-15DUP | 2,4,6-Tribromophenol | 23.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (FR)/ 280-149607-15DUP | 2-Fluorobiphenyl | 23.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (FR)/ 280-149607-15DUP | 2-Fluorophenol | 22.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (FR)/ 280-149607-15DUP | Nitrobenzene-d5 | 18.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (FR)/ 280-149607-15DUP | Phenol-d5 | 22.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (FR)/ 280-149607-15DUP | Terphenyl-d14 | 25.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (FR)/ 280-149607-15TRL | 2,4,6-Tribromophenol | 15.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (FR)/ 280-149607-15TRL | 2-Fluorobiphenyl | 15.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (FR)/ 280-149607-15TRL | 2-Fluorophenol | 14.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |

**Quality Control Outliers for test method SW8270D, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU009-SL-C (FR)/ 280-149607-15TRL | Nitrobenzene-d5 | 13.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (FR)/ 280-149607-15TRL | Phenol-d5 | 14.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (FR)/ 280-149607-15TRL | Terphenyl-d14 | 15.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (SD)/ 280-149607-15MSD | 2,4,6-Tribromophenol | 24.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (SD)/ 280-149607-15MSD | 2-Fluorobiphenyl | 26.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (SD)/ 280-149607-15MSD | 2-Fluorophenol | 23.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (SD)/ 280-149607-15MSD | Nitrobenzene-d5 | 22.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (SD)/ 280-149607-15MSD | Phenol-d5 | 24.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU009-SL-C (SD)/ 280-149607-15MSD | Terphenyl-d14 | 25.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-A (FR)/ 280-149607-4 | 2,4,6-Tribromophenol | 38.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-A (FR)/ 280-149607-4 | 2,4,6-Tribromophenol | 27.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-A (FR)/ 280-149607-4 | 2-Fluorobiphenyl | 30.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-A (FR)/ 280-149607-4 | 2-Fluorobiphenyl | 28.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-A (FR)/ 280-149607-4 | 2-Fluorophenol | 28.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-A (FR)/ 280-149607-4 | 2-Fluorophenol | 24.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-A (FR)/ 280-149607-4 | Nitrobenzene-d5 | 24.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-A (FR)/ 280-149607-4 | Nitrobenzene-d5 | 23.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-A (FR)/ 280-149607-4 | Phenol-d5 | 31.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-A (FR)/ 280-149607-4 | Phenol-d5 | 24.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-A (FR)/ 280-149607-4 | Terphenyl-d14 | 38.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-A (FR)/ 280-149607-4 | Terphenyl-d14 | 34.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-B (FR)/ 280-149607-5 | 2,4,6-Tribromophenol | 27.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-B (FR)/ 280-149607-5 | 2,4,6-Tribromophenol | 37.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-B (FR)/ 280-149607-5 | 2-Fluorobiphenyl | 24.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-B (FR)/ 280-149607-5 | 2-Fluorobiphenyl | 39.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |

**Quality Control Outliers for test method SW8270D, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU012-SL-B (FR)/ 280-149607-5 | 2-Fluorophenol | 24.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-B (FR)/ 280-149607-5 | 2-Fluorophenol | 34.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-B (FR)/ 280-149607-5 | Nitrobenzene-d5 | 20.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-B (FR)/ 280-149607-5 | Nitrobenzene-d5 | 32.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-B (FR)/ 280-149607-5 | Phenol-d5 | 23.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-B (FR)/ 280-149607-5 | Phenol-d5 | 32.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-B (FR)/ 280-149607-5 | Terphenyl-d14 | 30.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-B (FR)/ 280-149607-5 | Terphenyl-d14 | 41.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-C (FR)/ 280-149607-6 | 2,4,6-Tribromophenol | 22.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-C (FR)/ 280-149607-6 | 2,4,6-Tribromophenol | 26.00 | 39 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-C (FR)/ 280-149607-6 | 2-Fluorobiphenyl | 20.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-C (FR)/ 280-149607-6 | 2-Fluorobiphenyl | 30.00 | 44 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-C (FR)/ 280-149607-6 | 2-Fluorophenol | 21.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-C (FR)/ 280-149607-6 | 2-Fluorophenol | 25.00 | 35 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-C (FR)/ 280-149607-6 | Nitrobenzene-d5 | 17.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-C (FR)/ 280-149607-6 | Nitrobenzene-d5 | 24.00 | 37 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-C (FR)/ 280-149607-6 | Phenol-d5 | 20.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-C (FR)/ 280-149607-6 | Phenol-d5 | 25.00 | 33 - 122 | 10 - 122 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-C (FR)/ 280-149607-6 | Terphenyl-d14 | 23.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |
| NYOW-04-DU012-SL-C (FR)/ 280-149607-6 | Terphenyl-d14 | 32.00 | 54 - 127 | 10 - 127 | percent | J/UJ | I | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Surrogate for SW8270D**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU004-SL-A 280-149607-1 | FR | 2,4-Dinitrochlorobenzene | 340 | 170 U Q | 170 UJ | | ug/kg | I |

**Qualified Results associated with the Surrogate for SW8270D**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU004-SL-A 280-149607-1 | FR | 2,4-Dinitrophenol | 870 | 670 U Q | 670 UJ | | ug/kg | I |
| NYOW-04-DU004-SL-B 280-149607-2 | FR | 2,4-Dinitrochlorobenzene | 340 | 170 U Q | 170 UJ | | ug/kg | I |
| NYOW-04-DU004-SL-C 280-149607-3 | FR | 2,4-Dinitrochlorobenzene | 350 | 180 U Q | 180 UJ | | ug/kg | I |
| NYOW-04-DU004-SL-C 280-149607-3 | FR | 2,4-Dinitrophenol | 910 | 690 U Q | 690 UJ | | ug/kg | I |
| NYOW-04-DU005-SL-A 280-149607-10 | FR | 2,4-Dinitrochlorobenzene | 630 | 320 U H | 320 UJ | | ug/kg | I/H2 |
| NYOW-04-DU005-SL-A 280-149607-10 | FR | 2,4-Dinitrophenol | 1600 | 1200 U Q H | 1200 UJ | | ug/kg | I/H2 |
| NYOW-04-DU005-SL-B 280-149607-11 | FR | 2,4-Dinitrochlorobenzene | 1900 | 970 U H | 970 UJ | | ug/kg | I/H2 |
| NYOW-04-DU005-SL-B 280-149607-11 | FR | 2,4-Dinitrophenol | 5000 | 3800 U H | 3800 UJ | | ug/kg | I/H2 |
| NYOW-04-DU005-SL-C 280-149607-12 | FR | 2,4-Dinitrochlorobenzene | 640 | 320 U H | 320 X | | ug/kg | H2/I |
| NYOW-04-DU007-SL-A 280-149607-7 | FR | 2,4-Dinitrochlorobenzene | 350 | 170 U Q | 170 UJ | | ug/kg | I |
| NYOW-04-DU007-SL-A 280-149607-7 | FR | 2,4-Dinitrophenol | 900 | 690 U | 690 UJ | | ug/kg | I |
| NYOW-04-DU007-SL-B 280-149607-8 | FR | 2,4-Dinitrochlorobenzene | 310 | 160 U Q | 160 UJ | | ug/kg | I |
| NYOW-04-DU007-SL-B 280-149607-8 | FR | 2,4-Dinitrophenol | 810 | 620 U Q | 620 UJ | | ug/kg | I |
| NYOW-04-DU007-SL-C 280-149607-9 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U Q | 170 UJ | | ug/kg | I |
| NYOW-04-DU007-SL-C 280-149607-9 | FR | 2,4-Dinitrophenol | 850 | 650 U | 650 UJ | | ug/kg | I |
| NYOW-04-DU009-SL-A 280-149607-13 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU009-SL-A 280-149607-13 | FR | 2,4-Dinitrophenol | 820 | 630 U Q | 630 X | | ug/kg | M/I |
| NYOW-04-DU009-SL-B 280-149607-14 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU009-SL-B 280-149607-14 | FR | 2,4-Dinitrophenol | 810 | 620 U Q | 620 X | | ug/kg | M/I |
| NYOW-04-DU009-SL-C 280-149607-15 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U | 170 UJ | | ug/kg | I |
| NYOW-04-DU009-SL-C 280-149607-15 | FR | 2,4-Dinitrophenol | 860 | 650 U Q | 650 X | | ug/kg | M/I |
| NYOW-04-DU012-SL-A 280-149607-4 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U Q | 170 UJ | | ug/kg | I |
| NYOW-04-DU012-SL-A 280-149607-4 | FR | 2,4-Dinitrophenol | 860 | 660 U Q | 660 UJ | | ug/kg | I |
| NYOW-04-DU012-SL-B 280-149607-5 | FR | 2,4-Dinitrochlorobenzene | 330 | 160 U Q | 160 UJ | | ug/kg | I |
| NYOW-04-DU012-SL-B 280-149607-5 | FR | 2,4-Dinitrophenol | 840 | 650 U Q | 650 UJ | | ug/kg | I |
| NYOW-04-DU012-SL-C 280-149607-6 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U Q | 160 UJ | | ug/kg | I |

**Qualified Results associated with the Surrogate for SW8270D**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU012-SL-C 280-149607-6 | FR | 2,4-Dinitrophenol | 820 | 630 U Q | 630 UJ | | ug/kg | I |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW8330B, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU005-SL-B (MS)/ 280-149607-11MS | Picric acid | 32.00 | 38 - 154 | 10 - 200 | percent | J/UJ | M | |
| NYOW-04-DU005-SL-B (SD)/ 280-149607-11MSD | Picric acid | 32.00 | 38 - 154 | 10 - 200 | percent | J/UJ | M | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for SW8330B**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-04-DU005-SL-A 280-149607-10 | FR | Picric acid | 93.0 | 93.0 U M | 93.0 UJ | | ug/kg | M |
| NYOW-04-DU005-SL-B 280-149607-11 | FR | Picric acid | 95.0 | 95.0 U M J1 | 95.0 UJ | | ug/kg | M |
| NYOW-04-DU005-SL-C 280-149607-12 | FR | Picric acid | 99.0 | 99.0 U M | 99.0 UJ | | ug/kg | M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Table of All Qualified Results**

| Test Method: SW8270D | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-04-DU004-SL-A 280-149607-1 | FR | 2,4-Dinitrochlorobenzene | 340 | 170 U Q | 170 UJ | | ug/kg | I |
| NYOW-04-DU004-SL-A 280-149607-1 | FR | 2,4-Dinitrophenol | 870 | 670 U Q | 670 UJ | | ug/kg | I |
| NYOW-04-DU004-SL-B 280-149607-2 | FR | 2,4-Dinitrochlorobenzene | 340 | 170 U Q | 170 UJ | | ug/kg | I |
| NYOW-04-DU004-SL-C 280-149607-3 | FR | 2,4-Dinitrochlorobenzene | 350 | 180 U Q | 180 UJ | | ug/kg | I |
| NYOW-04-DU004-SL-C 280-149607-3 | FR | 2,4-Dinitrophenol | 910 | 690 U Q | 690 UJ | | ug/kg | I |
| NYOW-04-DU005-SL-A 280-149607-10 | FR | 2,4-Dinitrochlorobenzene | 630 | 320 U H | 320 UJ | | ug/kg | I/H2 |
| NYOW-04-DU005-SL-A 280-149607-10 | FR | 2,4-Dinitrophenol | 1600 | 1200 U Q H | 1200 UJ | | ug/kg | I/H2 |
| NYOW-04-DU005-SL-B 280-149607-11 | FR | 2,4-Dinitrochlorobenzene | 1900 | 970 U H | 970 UJ | | ug/kg | I/H2 |
| NYOW-04-DU005-SL-B 280-149607-11 | FR | 2,4-Dinitrophenol | 5000 | 3800 U H | 3800 UJ | | ug/kg | I/H2 |
| NYOW-04-DU005-SL-C 280-149607-12 | FR | 2,4-Dinitrochlorobenzene | 640 | 320 U H | 320 X | | ug/kg | H2/I |
| NYOW-04-DU005-SL-C 280-149607-12 | FR | 2,4-Dinitrophenol | 1700 | 1300 U H | 1300 X | | ug/kg | H2 |
| NYOW-04-DU007-SL-A 280-149607-7 | FR | 2,4-Dinitrochlorobenzene | 350 | 170 U Q | 170 UJ | | ug/kg | I |
| NYOW-04-DU007-SL-A 280-149607-7 | FR | 2,4-Dinitrophenol | 900 | 690 U | 690 UJ | | ug/kg | I |
| NYOW-04-DU007-SL-B 280-149607-8 | FR | 2,4-Dinitrochlorobenzene | 310 | 160 U Q | 160 UJ | | ug/kg | I |
| NYOW-04-DU007-SL-B 280-149607-8 | FR | 2,4-Dinitrophenol | 810 | 620 U Q | 620 UJ | | ug/kg | I |
| NYOW-04-DU007-SL-C 280-149607-9 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U Q | 170 UJ | | ug/kg | I |
| NYOW-04-DU007-SL-C 280-149607-9 | FR | 2,4-Dinitrophenol | 850 | 650 U | 650 UJ | | ug/kg | I |
| NYOW-04-DU009-SL-A 280-149607-13 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU009-SL-A 280-149607-13 | FR | 2,4-Dinitrophenol | 820 | 630 U Q | 630 X | | ug/kg | M/I |
| NYOW-04-DU009-SL-B 280-149607-14 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 UJ | | ug/kg | I |
| NYOW-04-DU009-SL-B 280-149607-14 | FR | 2,4-Dinitrophenol | 810 | 620 U Q | 620 X | | ug/kg | M/I |
| NYOW-04-DU009-SL-C 280-149607-15 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U | 170 UJ | | ug/kg | I |
| NYOW-04-DU009-SL-C 280-149607-15 | FR | 2,4-Dinitrophenol | 860 | 650 U Q | 650 X | | ug/kg | M/I |
| NYOW-04-DU012-SL-A 280-149607-4 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U Q | 170 UJ | | ug/kg | I |
| NYOW-04-DU012-SL-A 280-149607-4 | FR | 2,4-Dinitrophenol | 860 | 660 U Q | 660 UJ | | ug/kg | I |
| NYOW-04-DU012-SL-B 280-149607-5 | FR | 2,4-Dinitrochlorobenzene | 330 | 160 U Q | 160 UJ | | ug/kg | I |

**Table of All Qualified Results**

| Test Method: SW8270D | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-04-DU012-SL-B 280-149607-5 | FR | 2,4-Dinitrophenol | 840 | 650 U Q | 650 UJ | | ug/kg | I |
| NYOW-04-DU012-SL-C 280-149607-6 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U Q | 160 UJ | | ug/kg | I |
| NYOW-04-DU012-SL-C 280-149607-6 | FR | 2,4-Dinitrophenol | 820 | 630 U Q | 630 UJ | | ug/kg | I |

| Test Method: SW8330B | | Extraction Method: METHOD | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-04-DU005-SL-A 280-149607-10 | FR | Picric acid | 93.0 | 93.0 U M | 93.0 UJ | | ug/kg | M |
| NYOW-04-DU005-SL-B 280-149607-11 | FR | Picric acid | 95.0 | 95.0 U M J1 | 95.0 UJ | | ug/kg | M |
| NYOW-04-DU005-SL-C 280-149607-12 | FR | Picric acid | 99.0 | 99.0 U M | 99.0 UJ | | ug/kg | M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW8270D**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-04-DU004-SL-A 280-149607-1 | FR | 2,4-Dinitrochlorobenzene | 340 | 170 U Q | 170 U | 170 UJ | I |
| NYOW-04-DU004-SL-A 280-149607-1 | FR | 2,4-Dinitrophenol | 870 | 670 U Q | 670 U | 670 UJ | I |
| NYOW-04-DU004-SL-B 280-149607-2 | FR | 2,4-Dinitrochlorobenzene | 340 | 170 U Q | 170 U | 170 UJ | I |
| NYOW-04-DU004-SL-C 280-149607-3 | FR | 2,4-Dinitrochlorobenzene | 350 | 180 U Q | 180 U | 180 UJ | I |
| NYOW-04-DU004-SL-C 280-149607-3 | FR | 2,4-Dinitrophenol | 910 | 690 U Q | 690 U | 690 UJ | I |
| NYOW-04-DU005-SL-A 280-149607-10 | FR | 2,4-Dinitrochlorobenzene | 630 | 320 U H | 320 U | 320 UJ | I/H2 |
| NYOW-04-DU005-SL-A 280-149607-10 | FR | 2,4-Dinitrophenol | 1600 | 1200 U Q H | 1200 U | 1200 UJ | I/H2 |
| NYOW-04-DU005-SL-B 280-149607-11 | FR | 2,4-Dinitrochlorobenzene | 1900 | 970 U H | 970 U | 970 UJ | I/H2 |
| NYOW-04-DU005-SL-B 280-149607-11 | FR | 2,4-Dinitrophenol | 5000 | 3800 U H | 3800 U | 3800 UJ | I/H2 |
| NYOW-04-DU005-SL-C 280-149607-12 | FR | 2,4-Dinitrochlorobenzene | 640 | 320 U H | 320 U | 320 X | H2/I |
| NYOW-04-DU005-SL-C 280-149607-12 | FR | 2,4-Dinitrophenol | 1700 | 1300 U H | 1300 U | 1300 X | H2 |
| NYOW-04-DU007-SL-A 280-149607-7 | FR | 2,4-Dinitrochlorobenzene | 350 | 170 U Q | 170 U | 170 UJ | I |
| NYOW-04-DU007-SL-A 280-149607-7 | FR | 2,4-Dinitrophenol | 900 | 690 U | 690 U | 690 UJ | I |
| NYOW-04-DU007-SL-B 280-149607-8 | FR | 2,4-Dinitrochlorobenzene | 310 | 160 U Q | 160 U | 160 UJ | I |
| NYOW-04-DU007-SL-B 280-149607-8 | FR | 2,4-Dinitrophenol | 810 | 620 U Q | 620 U | 620 UJ | I |
| NYOW-04-DU007-SL-C 280-149607-9 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U Q | 170 U | 170 UJ | I |
| NYOW-04-DU007-SL-C 280-149607-9 | FR | 2,4-Dinitrophenol | 850 | 650 U | 650 U | 650 UJ | I |
| NYOW-04-DU009-SL-A 280-149607-13 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 U | 160 UJ | I |
| NYOW-04-DU009-SL-A 280-149607-13 | FR | 2,4-Dinitrophenol | 820 | 630 U Q | 630 U | 630 X | M/I |
| NYOW-04-DU009-SL-B 280-149607-14 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U | 160 U | 160 UJ | I |
| NYOW-04-DU009-SL-B 280-149607-14 | FR | 2,4-Dinitrophenol | 810 | 620 U Q | 620 U | 620 X | M/I |
| NYOW-04-DU009-SL-C 280-149607-15 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U | 170 U | 170 UJ | I |
| NYOW-04-DU009-SL-C 280-149607-15 | FR | 2,4-Dinitrophenol | 860 | 650 U Q | 650 X | 650 X | M/I |
| NYOW-04-DU012-SL-A 280-149607-4 | FR | 2,4-Dinitrochlorobenzene | 330 | 170 U Q | 170 U | 170 UJ | I |
| NYOW-04-DU012-SL-A 280-149607-4 | FR | 2,4-Dinitrophenol | 860 | 660 U Q | 660 U | 660 UJ | I |
| NYOW-04-DU012-SL-B 280-149607-5 | FR | 2,4-Dinitrochlorobenzene | 330 | 160 U Q | 160 U | 160 UJ | I |

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW8270D**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-04-DU012-SL-B 280-149607-5 | FR | 2,4-Dinitrophenol | 840 | 650 U Q | 650 U | 650 UJ | I |
| NYOW-04-DU012-SL-C 280-149607-6 | FR | 2,4-Dinitrochlorobenzene | 320 | 160 U Q | 160 U | 160 UJ | I |
| NYOW-04-DU012-SL-C 280-149607-6 | FR | 2,4-Dinitrophenol | 820 | 630 U Q | 630 U | 630 UJ | I |

**Modified Qualifiers for test method SW8330B**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-04-DU005-SL-A 280-149607-10 | FR | Picric acid | 93.0 | 93.0 U M | 93.0 U | 93.0 UJ | M |
| NYOW-04-DU005-SL-C 280-149607-12 | FR | Picric acid | 99.0 | 99.0 U M | 99.0 U | 99.0 UJ | M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Reason Code Definitions**

| Code | Definition |
|---|---|
| D | MS RPD |
| H2 | Prep Hold Time |
| I | Surrogate recovery outside project limits. |
| M | MS Recovery |
| TR | Trace Level Detect |
| Z | LCS RPD |

**Flag Code and Definitions**

| Flag | Definition |
|---|---|
| UJ | The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria. |
| X | The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended. |

**Bias**

| | |
|---|---|
| - | The result may be biased low |
| + | The result may be biased high |

Note - The bias field is a separate field; however, it is an integral part of the final flag (qualifier) on the sample result

**Review Questions**

| Method: SW8270D (Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Were all samples documented correctly on the chain-of-custody (COC)? | • | | | See SDG Details. |
| Did samples listed on COCs match the sample labels? | | • | | See SDG Details. |
| Were samples relinquished properly on the COC? | • | | | |
| Were all samples properly preserved? | • | | | |
| Were sampling dates/times, date and time of laboratory receipt of samples, and sample conditions upon receipt at the laboratory (including preservattion, pH, and temperature) are documented? | • | | | |
| Were sample results reported with percent moisture correction if required? | | | • | |
| Were analytical methods performed and analysis dates present? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | RE/RA PQLs did not achieve PQLGs due to blending the soil aliquots with Ottawa Sand. |
| Were holding times met? | | • | | Initial analyses were performed within holding times. Reextractions were performed outside of the<br>extraction holding time period. |
| Were trip blanks analyzed at the proper frequency and in control? | | | • | |
| Were field blanks analyzed at the proper frequency and in control? | | | • | |
| Were equipment blanks analyzed at the proper frequency and in control? | • | | | EB-01-210608 sample results are reported in SDG J199889-1. |
| Was a method blank prepared and analyzed with each batch? | • | | | A grinding blank was also prepared. |
| Were target analytes in the method blank less than DL? | • | | | The grinding blank results were also less than the MDL. |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | A LCSSRM was not performed. A LCSSRM for the target analytes is not available. |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | | • | | See QC Outliers. Sample results were nondetect; qualification is not necessary. |
| Was a MS/MSD pair prepared with each batch? | • | | | |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers.<br>Sample NYOW-04-DU005-SLB did not recover for 2,4-DNP in the MS or SD. DNCB recovered below the lower control limit in the MS. The sample was RE/RA and the MS/SD recoveries were acceptable.<br><br>The SD for NYOW-04-DU009-SL-C recovered below the lower control limit for DNP. The sample was RE/RA and the MS/SD recoveries were acceptable; however, the RE was performed outside of the 2X holding time period. |
| Was the MS/MSD RPD within project acceptance limits? | | • | | See QC Outliers. |
| If ISM was used for sample collection, were laboratory triplicates analyzed and within project acceptance limits? | • | | | All results ND. |
| Were surrogate recoveries within project acceptance limits? | | • | | See QC Outliers. |

**Review Questions**

| Method: SW8270D (Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Were field replicates (duplicates, triplicates, etc.) analyzed at the proper frequency and in control? | • | | | All results ND. |
| Were reported sample concentrations within calibration range? | | | • | |
| Was the GC/MS system properly tuned based on method criteria? | • | | | |
| Was instrument tuning completed every 12 hours during sample analysis? | • | | | |
| Was the Calibration within project acceptance criteria? | • | | | |
| Was a ICV performed after each ICAL prior to sample analysis and within project acceptance criteria? | • | | | |
| Were CCVs run at the required frequency and within project acceptance criteria? | • | | | |
| Were internal standard retention times and area criteria within project acceptance criteria? | • | | | |
| Were internal standards spiked for every sample, standard, and QC sample? | • | | | |
| Were instrument run logs present and filled out appropriately? | • | | | |
| Were sample preparation sheets present and filled out appropriately? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | | • | | RE/RA performed significantly outside of extraction holding time. |
| Were any data recommended for exclusion in the data validation process? | • | | | See MS and Holding Time Outliers. |

**Review Questions**

Method: SW8330B (Nitroaromatics and Nitramines by HPLC)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Were all samples documented correctly on the chain-of-custody (COC)? | • | | | See SDG Details. |
| Did samples listed on COCs match the sample labels? | | • | | See SDG Details. |
| Were samples relinquished properly on the COC? | • | | | |
| Were all samples properly preserved? | • | | | |
| Were sampling dates/times, date and time of laboratory receipt of samples, and sample conditions upon receipt at the laboratory (including preservattion, pH, and temperature) are documented? | • | | | |
| Were sample results reported with percent moisture correction if required? | | | • | |
| Were analytical methods performed and analysis dates present? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Were holding times met? | • | | | |
| Were trip blanks analyzed at the proper frequency and in control? | | | • | |
| Were field blanks analyzed at the proper frequency and in control? | | | • | |
| Were equipment blanks analyzed at the proper frequency and in control? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | Soil batches also had grinding blanks prepared and analyzed. |
| Were target analytes in the method blank less than DL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | • | | | |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If ISM was used for sample collection, were laboratory triplicates analyzed and within project acceptance limits? | • | | | All results ND. |
| Were surrogate recoveries within project acceptance limits? | • | | | |
| Were field replicates (duplicates, triplicates, etc.) analyzed at the proper frequency and in control? | • | | | All results ND. |
| Were reported sample concentrations within calibration range? | | | • | |
| Were  Instrument Performace Checks (Degradation Checks) performed and within acceptace criteria? | | | • | |
| Was the Calibration within project acceptance criteria? | • | | | |
| Was a ICV performed after each ICAL prior to sample analysis and within project acceptance criteria? | • | | | |
| Were CCVs run at the required frequency and within project acceptance criteria? | • | | | |
| Were internal standard retention times and area criteria within method requirements? | | | • | |

**Review Questions**

Method: SW8330B (Nitroaromatics and Nitramines by HPLC)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Were internal standards spiked for every sample, standard, and QC sample? | | | • | |
| Were instrument run logs present and filled out appropriately? | • | | | |
| Were sample preparation sheets present and filled out appropriately? | • | | | |
| Was a Cleanup Procedure required (Cleanup Recovery Checks) verified and within acceptance limits? | | • | | |
| Was a Second Column/Detector used and the column difference within acceptance limits? | • | | | All sample results were non-detect. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for exclusion in the data validation process? | | • | | |

# AOC 4 Data Packages

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 April 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM: 280-144913

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D
- Picric Acid by SW-846 Methods 8330A (soils) and 8330B (equipment blank)
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144913 | 280-144913-1 | NYOW-04-PH035-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |
| 280-144913 | 280-144913-2 | NYOW-04-PH034-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |
| 280-144913 | 280-144913-3 | NYOW-04-PH033-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |
| 280-144913 | 280-144913-4 | NYOW-04-PH030-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |
| 280-144913 | 280-144913-5 | NYOW-04-PH029-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |
| 280-144913 | 280-144913-6 | NYOW-04-PH028-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |
| 280-144913 | 280-144913-7 | NYOW-04-PH025-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |
| 280-144913 | 280-144913-8 | NYOW-04-PH024-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |
| 280-144913 | 280-144913-9 | NYOW-04-PH023-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144913 | 280-144913-10 | NYOW-04-PH022-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |
| 280-144913 | 280-144913-11 | NYOW-04-PH019-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |
| 280-144913 | 280-144913-12 | NYOW-04-PH018-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |
| 280-144913 | 280-144913-13 | NYOW-04-PH017-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |
| 280-144913 | 280-144913-14 | NYOW-04-PH014-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |
| 280-144913 | 280-144913-15 | NYOW-04-PH013-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |
| 280-144913 | 280-144913-16 | NYOW-04-PH012-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |
| 280-144913 | 280-144913-17 | NYOW-04-PH009-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |
| 280-144913 | 280-144913-18 | NYOW-04-PH008-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |
| 280-144913 | 280-144913-19 | NYOW-04-PH007-B | 1/25/21 | DNCB, DNP, Picric Acid, %M |
| 280-144913 | 280-144913-20 | EB-01_210125 | 1/25/21 | DNCB, DNP, Picric Acid |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided.

Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Three coolers were received by the laboratory at temperatures of 0.6°C, 2.1°C, and 2.9°C. All samples were extracted and analyzed within holding time.

For sample NYOW-04-PH035-B, the total number of containers says nine on the COC; however, only six samples were received.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | | X |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for SVOCs (i.e., each 12-hour period). The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

<u>SVOCs Method 8270D:</u>

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP

certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

**CONTINUING CALIBRATION VERIFICATION**

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

SVOCs by Method 8270D:

The continuing calibration verification (CCV) performed on 2/10/21 at 13:37 (680-655270) exhibited a %D greater than the control limit with a positive bias for DNP at 23.6%. The associated sample results were non-detect and qualified as “UJ”.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards for Method 8270D.

**BLANK SAMPLE RESULTS**

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks and equipment blank.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Equipment blank sample EB-01_210125 exhibited a surrogate recovery less than the lower warning limit for terphenyl-d14 at 47%. The sample results for base/neutral extractable DNCB are qualified as “UJ”.

Sample NYOW-04-PH007-B exhibited surrogate recoveries less than the lower warning limits for nitrobenzene-d5, 2-fluorobiphenyl, and terphenyl-d14 at 31%, 39%, and 50%, respectively. The sample was re-extracted and reanalyzed outside of the holding time period. The initial sample results should be used for data interpretation and the result for base/neutral extractable DNCB is qualified as “UJ”.

Surrogates 2-fluorophenol, phenol-d5 and nitrobenzene-d5 recovered above the upper warning limit for CCV 680-656121/2. All associated sample and QC surrogates recovered within control limits; therefore, the laboratory reported the data.

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs Method 8270D:

MS/SD sample NYOW-04-PH035-B exhibited an RPD greater than the control limit for DNP at 82%. The associated sample result was non-detect; qualification is not necessary.

MS/SD sample NYOW-04-PH035-B exhibited an RPD greater than the control limit for DNCB at 32%. The associated sample result was non-detect; qualification is not necessary.

## DUAL COLUMN IMPRECISION

All sample results were non-detect; therefore, column comparisons were not performed.

## COMMENTS

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

No field duplicate and parent sample pairs were collected as part of this SDG.

The following samples were air dried and sieved in accordance with the procedure; however, the samples contained rocks that would not pass through the sieve: NYOW-04-PH035-B, NYOW-04-PH034-B, NYOW-04-PH033-B, NYOW-04-PH030-B, NYOW-04-PH029-B, NYOW-04-PH028-B, NYOW-04-PH025-B, NYOW-04-PH024-B, NYOW-04-PH023-B, NYOW-04-PH022-B, NYOW-04-PH019-B, NYOW-04-PH018-B, NYOW-04-PH017-B, NYOW-04-PH014-B, NYOW-04-PH013-B, NYOW-04-PH012-B, NYOW-04-PH009-B, NYOW-04-PH008-B, and NYOW-04-PH007-B. The rocks were removed and not extracted.

All soil sample LOQs were slightly above the project quantitation limit goals (PQLGs) for DNP and DNCB. All PQLGs for picric acid were met.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All

data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210125 | 280-144913-20 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 10.0 | | UJ | I |
| NYOW-04-PH007-B | 280-144913-19 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | UJ | I |
| NYOW-04-PH019-B | 280-144913-11 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | V2 |
| NYOW-04-PH022-B | 280-144913-10 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | V2 |
| NYOW-04-PH023-B | 280-144913-9 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | V2 |
| NYOW-04-PH024-B | 280-144913-8 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | V2 |
| NYOW-04-PH025-B | 280-144913-7 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | V2 |
| NYOW-04-PH028-B | 280-144913-6 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | V2 |
| NYOW-04-PH029-B | 280-144913-5 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | V2 |
| NYOW-04-PH030-B | 280-144913-4 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | V2 |
| NYOW-04-PH033-B | 280-144913-3 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | V2 |
| NYOW-04-PH034-B | 280-144913-2 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V2 |
| NYOW-04-PH035-B | 280-144913-1 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1600 | | UJ | V2 |

Reason Code Definitions

| | |
|---|---|
| I | Surrogate Recovery |
| V2 | CCV |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 19 April 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM: 280-144952

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D
- Picric Acid by SW-846 Methods 8330A (soil) and 8330B (equipment blank)
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144952 | 280-144952-1 | NYOW-04-PH039-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-2 | NYOW-04-PH040-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-3 | NYOW-04-PH041-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-4 | NYOW-04-PH044-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-5 | NYOW-04-PH045-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-6 | NYOW-04-PH046-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-7 | NYOW-04-PH047-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-8 | NYOW-04-PH048-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-9 | NYOW-04-PH051-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144952 | 280-144952-10 | NYOW-04-PH052-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-11 | NYOW-04-PH053-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-12 | [1]PH-DUP-001_210126 | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-13 | NYOW-04-PH056-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-14 | NYOW-04-PH057-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-15 | NYOW-04-PH058-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-16 | NYOW-04-PH061-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-17 | NYOW-04-PH062-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-18 | NYOW-04-PH063-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-19 | [2]PH-DUP-002_210126 | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-20 | NYOW-04-PH066-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-21 | NYOW-04-PH067-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-22 | NYOW-04-PH068-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-23 | NYOW-04-PH071-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-24 | NYOW-04-PH072-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-25 | NYOW-04-PH073-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-26 | NYOW-04-PH076-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-27 | NYOW-04-PH077-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-28 | NYOW-04-PH078-B | 1/26/21 | DNCB, DNP, Picric Acid, %M |
| 280-144952 | 280-144952-29 | EB-01_210126 | 1/26/21 | DNCB, DNP, Picric Acid |

[1]PH-DUP-001_210126 collected from NYOW-04-PH053-B
[2]PH-DUP-002_210126 collected from NYOW-04-PH063-B

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Three coolers were received by the laboratory at temperatures of 0.6°C, 0.9°C, and 4.0°C. All samples were extracted and analyzed within holding time.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for SVOCs (i.e., each 12-hour period). The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

SVOCs Method 8270D:

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

**CONTINUING CALIBRATION VERIFICATION**

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

SVOCs by Method 8270D:

The continuing calibration verification (CCV) performed on 2/10/21 at 13:37 (680-655270/2) exhibited a %D greater than the control limit with a positive bias for DNP at 23.6%. There are no associated samples; qualification is not necessary.

The closing continuing calibration verifications (CCVC) 680-655680/31 and 680-655680/32 were performed 2 and 26 minutes outside the method-specified tuning window, respectively. The CCVCs passed for both target analytes; however, the results for associated soil samples are qualified as “UJ” based on Module 1 recommendations.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards for Method 8270D.

**BLANK SAMPLE RESULTS**

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks and equipment blank.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Sample NYOW-04-PH040-B exhibited recoveries less than the lower warning limit for 2-fluorophenol, nitrobenzene-d5, and 2-fluorobiphenyl at 34%, 34%, and 41%, respectively. The

sample was re-extracted and reanalyzed outside of the holding time. The initial sample results for DNP and DNCB should be used for data interpretation and are qualified as “UJ”.

Sample NYOW-04-PH041-B exhibited a recovery less than the lower warning limit for 2-fluorobiphenyl at 41%. The sample was re-extracted and reanalyzed outside of the holding time. The initial sample results for DNCB should be used for data interpretation and are qualified as “UJ”.

Sample NYOW-04-PH071-B exhibited recoveries less than the lower warning limits for nitrobenzene-d5, 2-fluorophenol, 2-fluorobiphenyl, and terphenyl-d14 at 29%, 32%, 34%, and 52%, respectively. The sample was re-extracted and reanalyzed outside of the holding time. The initial sample results for DNP and DNCB should be used for data interpretation and are qualified as “UJ”.

**LABORATORY CONTROL SAMPLES**

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs Method 8270D:

LCS 680-655043/18-A exhibited a recovery greater than the upper warning limit for DNCB at 164%. The associated sample results were non-detect; qualification is not necessary.

**MATRIX SPIKE/MATRIX SPIKE DUPLICATES**

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs Method 8270D:

MS/SD sample NYOW-04-PH052-B exhibited a RPD greater than the control limit for DNP at 28%. The associated sample results were non-detect; qualification is not necessary.

Picric Acid by Methods 8330A and 8330B:

SD sample NYOW-04-PH052-B exhibited a recovery less than the lower warning limit at 46%. The associated sample result was non-detect and is qualified as “UJ”.

**DUAL COLUMN IMPRECISION**

All sample results were non-detect; therefore, column comparisons were not performed.

## COMMENTS

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

Two field duplicate and parent sample pairs were collected and analyzed for all parameters (PH-DUP-001_210126 and NYOW-04-PH053-B, and PH-DUP-002_210126 and NYOW-04-PH063-B). For sample results that are greater than 5X the LOQ, the RPD must be less than 50%. For sample results less than 5X the LOQ, the absolute difference must be less than ±LOQ. Both field duplicate pairs met the precision criteria.

The following samples were air dried and sieved in accordance with the procedure; however, the samples contained rocks or vegetation that would not pass through the sieve: NYOW-04-PH039-B, NYOW-04-PH040-B, NYOW-04-PH041-B, NYOW-04-PH044-B, NYOW-04-PH045-B, NYOW-04-PH046-B, NYOW-04-PH047-B, NYOW-04-PH048-B, NYOW-04-PH051-B, NYOW-04-PH052-B, NYOW-04-PH052-B, NYOW-04-PH052-B, NYOW-04-PH053-B, PH-DUP-001_210126, NYOW-04-PH056-B, NYOW-04-PH057-B, NYOW-04-PH058-B, NYOW-04-PH061-B, NYOW-04-PH062-B, NYOW-04-PH063-B, PH-DUP-002_210126, NYOW-04-PH066-B, NYOW-04-PH067-B, NYOW-04-PH068-B, NYOW-04-PH071-B, NYOW-04-PH072-B, NYOW-04-PH073-B, NYOW-04-PH076-B, NYOW-04-PH077-B, NYOW-04-PH078-B. The rocks and vegetation were removed and not extracted.

All soil sample LOQs were slightly above the project quantitation limit goals (PQLGs) for DNP and DNCB. All PQLGs for picric acid were met.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-04-PH039-B | 280-144952-1 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 350 | | UJ | V5 |
| NYOW-04-PH039-B | 280-144952-1 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | V5 |
| NYOW-04-PH040-B | 280-144952-2 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 350 | | UJ | I/V5 |
| NYOW-04-PH040-B | 280-144952-2 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | I/V5 |
| NYOW-04-PH041-B | 280-144952-3 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 400 | | UJ | I/V5 |
| NYOW-04-PH041-B | 280-144952-3 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1600 | | UJ | V5 |
| NYOW-04-PH044-B | 280-144952-4 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 390 | | UJ | V5 |
| NYOW-04-PH044-B | 280-144952-4 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V5 |
| NYOW-04-PH045-B | 280-144952-5 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 360 | | UJ | V5 |
| NYOW-04-PH045-B | 280-144952-5 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | V5 |
| NYOW-04-PH046-B | 280-144952-6 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | UJ | V5 |
| NYOW-04-PH046-B | 280-144952-6 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V5 |
| NYOW-04-PH047-B | 280-144952-7 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 380 | | UJ | V5 |
| NYOW-04-PH047-B | 280-144952-7 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V5 |
| NYOW-04-PH048-B | 280-144952-8 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | UJ | V5 |
| NYOW-04-PH048-B | 280-144952-8 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V5 |
| NYOW-04-PH051-B | 280-144952-9 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | UJ | V5 |
| NYOW-04-PH051-B | 280-144952-9 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V5 |
| NYOW-04-PH052-B | 280-144952-10 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | UJ | V5 |
| NYOW-04-PH052-B | 280-144952-10 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | V5 |
| NYOW-04-PH052-B | 280-144952-10 | SW8330A | Picric acid | 88-89-1 | ug/kg | 160 | | UJ | M |
| NYOW-04-PH053-B | 280-144952-11 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | UJ | V5 |
| NYOW-04-PH053-B | 280-144952-11 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V5 |
| NYOW-04-PH056-B | 280-144952-13 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | UJ | V5 |
| NYOW-04-PH056-B | 280-144952-13 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V5 |
| NYOW-04-PH057-B | 280-144952-14 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 360 | | UJ | V5 |
| NYOW-04-PH057-B | 280-144952-14 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | V5 |
| NYOW-04-PH058-B | 280-144952-15 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 380 | | UJ | V5 |
| NYOW-04-PH058-B | 280-144952-15 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V5 |
| NYOW-04-PH061-B | 280-144952-16 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 380 | | UJ | V5 |
| NYOW-04-PH061-B | 280-144952-16 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V5 |
| NYOW-04-PH062-B | 280-144952-17 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | UJ | V5 |
| NYOW-04-PH062-B | 280-144952-17 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V5 |
| NYOW-04-PH063-B | 280-144952-18 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | UJ | V5 |
| NYOW-04-PH063-B | 280-144952-18 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V5 |
| NYOW-04-PH066-B | 280-144952-20 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | UJ | V5 |
| NYOW-04-PH066-B | 280-144952-20 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V5 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-04-PH071-B | 280-144952-23 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 360 | | UJ | I |
| NYOW-04-PH071-B | 280-144952-23 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | I |
| PH-DUP-001_210126 | 280-144952-12 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 360 | | UJ | V5 |
| PH-DUP-001_210126 | 280-144952-12 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1400 | | UJ | V5 |
| PH-DUP-002_210126 | 280-144952-19 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 390 | | UJ | V5 |
| PH-DUP-002_210126 | 280-144952-19 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1500 | | UJ | V5 |

Reason Code Definitions

| | |
|---|---|
| M | MS Recovery |
| I | Surrogate Recovery |
| V5 | Closing CCV |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 4 May 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM: 280-144996 Revision 1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D
- Picric Acid by SW-846 Methods 8330A (soils) and 8330B (equipment blank)
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144996 | 280-144996-1 | NYOW-04-PH065-B | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-2 | NYOW-04-PH064-B | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-3 | NYOW-04-PH060-B | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-4 | NYOW-04-PH059-B | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-5 | NYOW-04-PH043-B | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-6 | [1]PH-DUP-001_210127 | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-7 | NYOW-04-PH042-B | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-8 | NYOW-04-PH016-B | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-9 | [2]PH-DUP-002_210127 | 1/27/21 | DNCB, DNP, Picric Acid, %M |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144996 | 280-144996-10 | NYOW-04-PH015-B | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-11 | NYOW-04-PH020-B | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-12 | NYOW-04-PH021-B | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-13 | NYOW-04-PH026-B | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-14 | [3]PH-DUP-003_210127 | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-15 | NYOW-04-PH027-B | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-16 | NYOW-04-PH031-B | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-17 | NYOW-04-PH032-B | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-18 | NYOW-04-SL083-A | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-19 | NYOW-04-PH083-B | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-20 | NYOW-04-PH083-C | 1/27/21 | DNCB, DNP, Picric Acid, %M |
| 280-144996 | 280-144996-21 | EB-01_210127 | 1/27/21 | DNCB, DNP, Picric Acid |

[1]PH-DUP-001_210127 collected from NYOW-04-PH043-B
[2]PH-DUP-002_210127 collected from NYOW-04-PH016-B
[3]PH-DUP-003_210127 collected from NYOW-04-PH026-B

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Two coolers were received by the laboratory at temperatures of 2.1°C and 2.4°C. All samples were extracted and analyzed within holding time with the exception of the equipment blank analysis for ***SVOCs***. Sample EB-01_210127 was re-extracted and reanalyzed outside of the holding time period for DNCB and DNP. The initial results extracted within hold should be used for data interpretation.

Sample nomenclature for NYOW-04-PHO42-B was corrected by the laboratory to NYOW-04-PH042-B.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | | X |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for SVOCs (i.e., each 12-hour period). The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

SVOCs Method 8270D:

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

**CONTINUING CALIBRATION VERIFICATION**

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

SVOCs Method 8270D:

The continuing calibration verification (CCV) analyzed on 2/10/21 at 13:37 exhibited a %D greater than the control limit with a positive bias for 2,4-dinitrophenol at 23.6%. There are no associated samples; qualification is not necessary.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards for Method 8270D.

**BLANK SAMPLE RESULTS**

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks and equipment blank.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs Method 8270D:

Surrogates 2-fluorophenol and phenol-d5 exhibited %Ds greater than the control limit in the continuing calibration verification (CCV 680-655888/4). The surrogates were within control limits in all associated samples and batch QC. On the basis of professional judgment, qualification is not necessary.

Picric Acid by Method 8330A and 8330B:

Equipment blank sample EB-01_210127 exhibited a recovery less than the lower warning limit for 1,2-dinitrobenzene at 71%. 1,2-Dinitrobenzene also failed the surrogate recovery criteria low for

method blank sample MB 280-525291/1-A and for laboratory control sample duplicate 280-525291/3-A. The reported result for the equipment blank is qualified as “UJ”.

**LABORATORY CONTROL SAMPLES**

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. LCSD were not performed for soil sample batches associated with 8270D analysis or for picric acid. Matrix spike duplicates were performed to assess precision in all instances. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs Method 8270D:

LCS/LCSD 680-655801/16-A/680-655801/17-A exhibited recoveries greater than the upper warning limit for DNCB at 177% and 148%, respectively. The associated equipment blank sample result was non-detect; qualification is not necessary.

LCS 680-655043/18-A exhibited a recovery greater than the upper warning limit for DNCB at 164%. The associated soil sample results were non-detect; qualification is not required.

Due to laboratory error, DNP was not spiked into the LCS associated with the equipment blank sample. The laboratory re-extracted and reanalyzed the sample outside of the 2X holding time rejection threshold and reported both sets of non-detect results. The quantitation report did not indicate a response for DNP and no peaks within the retention time window were present on the chromatogram. It is recommended that the initial sample result be used for data interpretation on the basis of professional judgment. The associated sample result is qualified as “UJ”.

Picric Acid by Methods 8330A and 8330B:

LCS/LCSD 280-525291/3-A exhibited a relative percent difference greater than the control limit at 21%. The associated sample results were non-detect; qualification is not required.

**MATRIX SPIKE/MATRIX SPIKE DUPLICATES**

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. A MS/MSD was not performed in conjunction with the equipment blank sample for 8270D analysis; however, an LCSD was performed. All MS/SD recoveries and RPDs were within acceptance criteria.

**DUAL COLUMN IMPRECISION**

All sample results were non-detect; therefore, column comparisons were not performed.

## COMMENTS

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

Three field duplicate and parent sample pairs were collected and analyzed for all parameters (PH-DUP-001_210127 and NYOW-04-PH043-B, PH-DUP-002_210127 and NYOW-04-PH016-B, and PH-DUP-003_210127 and NYOW-04-PH026-B). For sample results that are greater than 5X the LOQ, the RPD must be less than 50%. For sample results less than 5X the LOQ, the absolute difference must be less than ±LOQ. All of the field duplicate sample pairs met the precision criteria.

The following samples were air dried and sieved in accordance with the procedure; however, the samples contained rocks, wood, or leaves that would not pass through the sieve: NYOW-04-PH065-B, NYOW-04-PH064-B, NYOW-04-PH060-B, NYOW-04-PH059-B, NYOW-04-PH043-B, PH-DUP-001_210127, NYOW-04-PH042-B, NYOW-04-PH016-B, PH-DUP-002_210127, NYOW-04-PH015-B, NYOW-04-PH020-B, NYOW-04-PH021-B, NYOW-04-PH026-B, PH-DUP-003_210127, NYOW-04-PH027-B, NYOW-04-PH031-B, NYOW-04-PH032-B, NYOW-04-SL083-A, NYOW-04-PH083-B, and NYOW-04-PH083-C. The rocks, wood, or leaves were removed and not extracted.

All soil sample LOQs were slightly above the project quantitation limit goals (PQLGs) for DNP and DNCB. All PQLGs for picric acid were met.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210127 | 280-144996-21 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/L | 20.0 | | UJ | C |
| EB-01_210127 | 280-144996-21 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.110 | | UJ | I |

Reason Code Definition

| | |
|---|---|
| C | LCS Recovery |
| I | Surrogate Recovery |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 4 May 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM: 280-145030 Revision 3

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D
- Picric Acid by SW-846 Methods 8330A (soils) and 8330B (equipment blank)
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-145030 | 280-145030-1 | NYOW-04-SL081-A | 1/28/21 | DNCB, DNP, Picric Acid, %M |
| 280-145030 | 280-145030-2 | NYOW-04-PH081-B | 1/28/21 | DNCB, DNP, Picric Acid, %M |
| 280-145030 | 280-145030-3 | NYOW-04-PH081-C | 1/28/21 | DNCB, DNP, Picric Acid, %M |
| 280-145030 | 280-145030-4 | [1]SL-DUP-001_210128 | 1/28/21 | DNCB, DNP, Picric Acid, %M |
| 280-145030 | 280-145030-5 | [2]PH-DUP-001_210128 | 1/28/21 | DNCB, DNP, Picric Acid, %M |
| 280-145030 | 280-145030-6 | NYOW-04-SL079-A | 1/28/21 | DNCB, DNP, Picric Acid, %M |
| 280-145030 | 280-145030-7 | NYOW-04-PH079-B | 1/28/21 | DNCB, DNP, Picric Acid, %M |
| 280-145030 | 280-145030-8 | NYOW-04-PH079-C | 1/28/21 | DNCB, DNP, Picric Acid, %M |
| 280-145030 | 280-145030-9 | NYOW-04-SL002-A | 1/28/21 | DNCB, DNP, Picric Acid, %M |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-145030 | 280-145030-10 | [3]SL-DUP-002_210128 | 1/28/21 | DNCB, DNP, Picric Acid, %M |
| 280-145030 | 280-145030-11 | NYOW-04-PH002-B | 1/28/21 | DNCB, DNP, Picric Acid, %M |
| 280-145030 | 280-145030-12 | NYOW-04-PH002-C | 1/28/21 | DNCB, DNP, Picric Acid, %M |
| 280-145030 | 280-145030-13 | EB-01_210128 | 1/28/21 | DNCB, DNP, Picric Acid |

[1]SL-DUP-001_210128 collected from NYOW-04-SL081-A
[2]PH-DUP-001_210128 collected from NYOW-04-PH081-B
[3]SL-DUP-002_210128 collected from NYOW-04-SL002-A

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. One cooler was received by the laboratory at a temperature of 1.3°C. All samples were extracted and analyzed within holding time.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for SVOCs (i.e., each 12-hour period). The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

SVOCs Method 8270D:

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

SVOCs by Method 8270D:

The continuing calibration verification (CCV) performed on 2/22/21 at 17:22 (680-656575/4) exhibited a %D greater than the control limit with a positive bias for DNCB at 20.5%. The

associated sample results are for the reanalysis of sample NYOW-04-PH079-B; qualification is not necessary.

The CCV performed on 2/23/21 at 03:08 (680-656575/30) exhibited a gross exceedance of the %D greater than the control limit with negative bias for DNP at 66.8%. The associated sample results are for the reanalysis of sample NYOW-04-PH079-B; qualification is not necessary.

The CCV performed on 2/10/21 at 13:37 (680-655270/2) exhibited a %D greater than the control limit with positive bias for DNP at 23.6%. The are no associated investigative samples; qualification is not necessary.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits with the exceptions noted. All samples, standards, and QC samples were spiked with internal standards for Method 8270D.

SVOCs by Method 8270D:

CCVs 680-656078/32 exhibited internal standard responses greater than the upper limit for 1,4-dichlorobenzene-d4. The internal standard is not used to quantitate DNP or DNCB; qualification is not necessary.

**BLANK SAMPLE RESULTS**

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks and the equipment blank.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Sample NYOW-04-PH079-B exhibited surrogate recoveries less than the lower warning limit for 2,4,6-tribromophenol and 2-fluorophenol at 29% and 33%, respectively. The laboratory re-extracted and reanalyzed the sample outside of the holding time period and the surrogates recovered within control. The sample result for acid extractable DNP is qualified as “UJ”.

Picric Acid by Methods 8330A and 8330B:

Sample NYOW-04-PH002-C exhibited a recovery less than the lower control limit for 1,2-dinitrobenzene at 80%. The associated sample result was non-detect and is qualified as “UJ”.

**LABORATORY CONTROL SAMPLES**

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative

percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs Method 8270D:

LCS/LCSD 680-655801/16-A/17-A exhibited recoveries greater than the upper warning limits for DNCB at 177% and 148%, respectively. The associated sample results were non-detect; qualification is not necessary.

Due to laboratory error, DNP was not spiked into the LCS associated with the equipment blank sample. The laboratory re-extracted and reanalyzed the sample outside of the 2X holding time rejection threshold and reported both sets of non-detect results. The quantitation report did not indicate a response for DNP and no peaks within the retention time window were present on the chromatogram. It is recommended that the initial sample result be used for data interpretation on the basis of professional judgment. The associated sample result is qualified as “UJ”.

**MATRIX SPIKE/MATRIX SPIKE DUPLICATES**

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

MS/SD sample 680-195051-A-16-E/F did not recover for DNP. The spiked sample did not originate from the Site; qualification is not necessary.

**DUAL COLUMN IMPRECISION**

All sample results were non-detect; therefore, column comparisons were not performed.

**COMMENTS**

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

Three field duplicate and parent sample pairs were collected and analyzed for all parameters (PH-DUP-001_210128 and NYOW-04-PH081-B, SL-DUP-001_210128 and NYOW-04-SL081-A, and SL-DUP-002_210128 and NYOW-04-SL002-A). For sample results that are greater than 5X the LOQ, the RPD must be less than 50%. For sample results less than 5X the LOQ, the absolute difference must be less than ±LOQ. All of the field duplicate sample pairs met the acceptance criteria.

The following samples were air dried and sieved in accordance with the procedure; however, the samples contained rocks, vegetation, and/or glass that would not pass through the sieve: NYOW-04-SL081-A, NYOW-04-PH081-B, NYOW-04-PH081-C, SL-DUP-001_210128, PH-DUP-001_210128, NYOW-04-SL079-A, NYOW-04-PH079-B, NYOW-04-PH079-C, NYOW-04-SL002-

A, SL-DUP-002_210128, NYOW-04-PH002-B, and NYOW-04-PH002-C. The rocks, vegetation, and/or glass were removed and not extracted.

All soil sample LOQs were slightly above the project quantitation limit goals (PQLGs) for DNP and DNCB. All PQLGs for picric acid were met.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210128 | 280-145030-13 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/L | 20.0 | | UJ | C |
| NYOW-04-PH002-C | 280-145030-12 | SW8330A | Picric acid | 88-89-1 | ug/kg | 150 | | UJ | I |
| NYOW-04-PH079-B | 280-145030-7 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/kg | 1600 | | UJ | I |

Reason Code Definitions

| | |
|---|---|
| C | LCS Recovery |
| I | Surrogate Recovery |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 19 April 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM: 280-145058 Revision 2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D
- Picric Acid by SW-846 Methods 8330A (soils) and 8330B (equipment blank)
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-145058 | 280-145058-1 | NYOW-04-SL004-A | 1/29/21 | DNCB, DNP, Picric Acid, %M |
| 280-145058 | 280-145058-2 | NYOW-04-PH004-B | 1/29/21 | DNCB, DNP, Picric Acid, %M |
| 280-145058 | 280-145058-3 | NYOW-04-PH004-C | 1/29/21 | DNCB, DNP, Picric Acid, %M |
| 280-145058 | 280-145058-4 | NYOW-04-SL005-A | 1/29/21 | DNCB, DNP, Picric Acid, %M |
| 280-145058 | 280-145058-5 | NYOW-04-PH005-B | 1/29/21 | DNCB, DNP, Picric Acid, %M |
| 280-145058 | 280-145058-6 | NYOW-04-PH005-C | 1/29/21 | DNCB, DNP, Picric Acid, %M |
| 280-145058 | 280-145058-7 | EB-01_210129 | 1/29/21 | DNCB, DNP, Picric Acid |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data*

*Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. One cooler was received by the laboratory at a temperature of 1.3°C. All samples were extracted and analyzed within holding time.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |

| Verification Criteria | Yes | No |
|---|---|---|
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for SVOCs (i.e., each 12-hour period). The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

SVOCs Method 8270D:

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met.

## INTERNAL STANDARDS

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards for Method 8270D.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks and the equipment blank.

## SURROGATE RECOVERIES

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria.

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exception noted below. An LCSD was not performed for the 8270D soil sample batch or for the picric acid preparation batches. A matrix spike duplicate was analyzed to evaluate precision in each instance.

SVOCs Method 8270D:

LCS/LCSD 680-654810/16-A/680-654810/17-A exhibited recoveries greater than the upper control limit for DNCB at 146% and 176%, respectively. The associated equipment blank sample result was non-detect; qualification is not necessary.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs Method 8270D:

MS/SD sample 280-145209-B-2-C exhibited a RPD greater than the control limit for DNP at 21%. The spiked sample results were reported in a different SDG; qualification is not necessary.

MS/SD sample 280-145209-B-2-E exhibited a RPD greater than the control limit for DNCB at 22%. The spiked sample results were reported in a different SDG; qualification is not necessary.

## DUAL COLUMN IMPRECISION

All sample results were non-detect; therefore, column comparisons were not performed.

## COMMENTS

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

No field duplicates were collected as part of this SDG.

The following samples were air dried and sieved in accordance with the procedure; however, the samples contained rocks and/or vegetation that would not pass through the sieve: NYOW-04-SL004-A, NYOW-04-PH004-B, NYOW-04-PH004-C, NYOW-04-SL005-A, NYOW-04-PH005-B, and NYOW-04-PH005-C. The rocks and/or vegetation were removed and not extracted.

All soil sample LOQs were slightly above the project quantitation limit goals (PQLGs) for DNP and DNCB. All PQLGs for picric acid were met.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. No results were qualified as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 30 April 2021

**SUBJECT:** New York Ordnance Works Groundwater S2BVEM: 280-145110

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of groundwater samples collected in February 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D
- Picric Acid by SW-846 Method 8330B

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-145110 | 280-145110-1 | NYOW-04-WL083-A | 2/02/21 | DNCB, DNP, Picric Acid |
| 280-145110 | 280-145110-2 | NYOW-04-WL081-A | 2/02/21 | DNCB, DNP, Picric Acid |
| 280-145110 | 280-145110-3 | [1]WL-DUP-001_210201 | 2/02/21 | DNCB, DNP, Picric Acid |
| 280-145110 | 280-145110-4 | NYOW-04-WL079-A | 2/02/21 | DNCB, DNP, Picric Acid |
| 280-145110 | 280-145110-5 | NYOW-04-WL002-A | 2/02/21 | DNCB, DNP, Picric Acid |
| 280-145110 | 280-145110-6 | NYOW-04-WL004-A | 2/02/21 | DNCB, DNP, Picric Acid |
| 280-145110 | 280-145110-7 | [2]WL-DUP-002_210201 | 2/02/21 | DNCB, DNP, Picric Acid |
| 280-145110 | 280-145110-8 | NYOW-04-WL005-A | 2/02/21 | DNCB, DNP, Picric Acid |
| 280-145110 | 280-145110-9 | EB-01_210201 | 2/02/21 | DNCB, DNP, Picric Acid |

[1]WL-DUP-001_210201 collected from NYOW-04-WL079-A
[2]WL-DUP-002_210201 collected from NYOW-04-WL004-A

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Three coolers were received by the laboratory at temperatures of 0.8°C, 1.0°C, and 3.6°C. All samples were extracted and analyzed within holding time.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |

| Verification Criteria | Yes | No |
|---|---|---|
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for SVOCs (i.e., each 12-hour period). The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

SVOCs Method 8270D:

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met.

## INTERNAL STANDARDS

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards for Method 8270D.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks and equipment blank.

## SURROGATE RECOVERIES

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Samples NYOW-04-WL083-A, NYOW-04-WL081-A, NYOW-04-WL079-A, NYOW-04-WL005-A, NYOW-04-WL004-A, and NYOW-04-WL002-A exhibited surrogate recoveries less than the lower warning limits for terphenyl-d14 at 48%, 44%, 43%, 29%, 43%, and 45%, respectively. The sample results for base/neutral extractable DNCB are qualified as “UJ”.

Picric Acid by Method 8330B:

Samples WL-DUP-001_210201, NYOW-04-WL079-A, and NYOW-04-WL004-A exhibited surrogate recoveries less than the lower warning limit for 1,2-dinitrobenzene at 61%, 82%, and 68%, respectively. The associated sample results for WL-DUP-001_210201, NYOW-04-WL079-A, and NYOW-04-WL004-A are qualified as “UJ”.

Samples NYOW-04-WL083-A and NYOW-04-WL002-A exhibited surrogate recoveries greater than the upper warning limit for 1,2-dinitrobenzene at 215% and 134%, respectively. The associated sample results were non-detect; qualification is not necessary.

LCSD 280-525291/3-A and method blank sample 280-525291/1-A exhibited recoveries less than the lower warning limit for surrogate 1,2-dinitrobenzene. The laboratory did not perform re-extraction and reanalysis because the associated samples were outside of the holding time rejection threshold. This justification was noted in the laboratory case narrative.

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

LCS 680-654810/16-A exhibited a recovery greater than the upper warning limit for DNCB at 146%. The associated sample results were non-detect; qualification is not necessary.

LCSD 680-654810/17-A exhibited a recovery greater than the upper warning limit for DNCB at 176%. The associated sample results were non-detect; qualification is not necessary.

Picric Acid by Method 8330B:

LCS/LCSD 280-525291/3-A exhibited a RPD greater than the control limit at 21%. The associated sample results were non-detect; qualification is not necessary.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. MS/SDs were not performed; the laboratory analyzed a LCSD to evaluate precision.

## DUAL COLUMN IMPRECISION

All sample results were non-detect; therefore, column comparisons were not performed.

## COMMENTS

Two field duplicate and parent sample pairs were collected and analyzed for all parameters (WL-DUP-001_210201 and NYOW-04-WL079-A, and WL-DUP-002_210201 and NYOW-04-WL004-A). For sample results that are greater than 5X the LOQ, the RPD must be less than 30%. For sample results less than 5X the LOQ, the absolute difference must be less than ±LOQ. All analytes met the precision criteria for these field duplicate pairs.

Consistent with the laboratory SOP and method 3535A, sample NYOW-04-WL005-A required vacuum filtration through glass fiber filter paper prior to analysis due to turbidity. The filtered sample was returned to the original sample container after filtration and the surrogate was added to the container. Method 3535A indicates that use of a filter aid will not result in a loss of method performance if clogging is encountered. During the solid phase extraction (SPE) of picric acid by SW-846 Method 3535, the laboratory noted that several samples clogged the SPE cartridge (i.e., flow rate < 4 mL/minute): WL-DUP-001_210201, NYOW-04-WL083-A, and NYOW-04-WL004-A. The extraction volumes ranged from 31.7 mL to 468 mL, indicating that sufficient volume was extracted through the filter to avoid re-preparation at a sample dilution. The surrogate recoveries of 1,2-DNB for these four samples were 103%, 61%, 215%, and 68% respectively. The lower warning limit for 1,2-DNB is 83%; therefore, the sample results for WL-DUP-001_210201 and NYOW-04-WL004-A were qualified during validation as “UJ”. The surrogates monitor extraction efficiency, and the recoveries for the affected samples were all well above the rejection threshold (i.e., 10%). The sample LOQs were adjusted accordingly, and the Project Quantitation Limit Goal (PQLG, 2 µg/L) was not met. The sample LODs are below the Project Action Level.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-04-WL002-A | 280-145110-5 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 11.0 | | UJ | I |
| NYOW-04-WL004-A | 280-145110-6 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 11.0 | | UJ | I |
| NYOW-04-WL004-A | 280-145110-6 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.240 | | UJ | I |
| NYOW-04-WL005-A | 280-145110-8 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 12.0 | | UJ | I |
| NYOW-04-WL079-A | 280-145110-4 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 10.0 | | UJ | I |
| NYOW-04-WL079-A | 280-145110-4 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.120 | | UJ | I |
| NYOW-04-WL081-A | 280-145110-2 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 11.0 | | UJ | I |
| NYOW-04-WL083-A | 280-145110-1 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 10.0 | | UJ | I |
| WL-DUP-001_210201 | 280-145110-3 | SW8330B | Picric acid | 88-89-1 | ug/L | 1.50 | | UJ | I |

Reason Code Definitions

I Surrogate Recovery

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 16 April 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM: 280-145163

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in February 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D
- Picric Acid by SW-846 Methods 8330A (soils) and 8330B (equipment blank)
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-145163 | 280-145163-1 | NYOW-04-SL036-A | 2/2/21 | DNCB, DNP, Picric Acid, %M |
| 280-145163 | 280-145163-2 | NYOW-04-PH036-B | 2/2/21 | DNCB, DNP, Picric Acid, %M |
| 280-145163 | 280-145163-3 | [1]PH-DUP-001_210202 | 2/2/21 | DNCB, DNP, Picric Acid, %M |
| 280-145163 | 280-145163-4 | NYOW-04-PH036-C | 2/2/21 | DNCB, DNP, Picric Acid, %M |
| 280-145163 | 280-145163-5 | NYOW-04-SL080-A | 2/2/21 | DNCB, DNP, Picric Acid, %M |
| 280-145163 | 280-145163-6 | NYOW-04-PH080-B | 2/2/21 | DNCB, DNP, Picric Acid, %M |
| 280-145163 | 280-145163-7 | NYOW-04-PH080-C | 2/2/21 | DNCB, DNP, Picric Acid, %M |
| 280-145163 | 280-145163-8 | NYOW-04-SL082-A | 2/2/21 | DNCB, DNP, Picric Acid, %M |
| 280-145163 | 280-145163-9 | NYOW-04-PH082-B | 2/2/21 | DNCB, DNP, Picric Acid, %M |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-145163 | 280-145163-10 | NYOW-04-PH082-C | 2/2/21 | DNCB, DNP, Picric Acid, %M |
| 280-145163 | 280-145163-11 | EB-01_210202 | 2/2/21 | DNCB, DNP, Picric Acid |

[1]PH-DUP-001_210202 collected from NYOW-04-PH036-B

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. One cooler was received by the laboratory at a temperature of 1.3°C. All samples were extracted and analyzed within holding time.

There was an extra zero in the field duplicate sample ID. The sample was listed as PH-DUP-001_2102020 on the COC instead of PH-DUP-001_210202.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | | X |
| Did samples listed on the COC match the sample labels? | | X |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for SVOCs (i.e., each 12-hour period). The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

<u>SVOCs Method 8270D:</u>

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP certification for DNCB. On the basis of professional judgment, qualification is not necessary.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met.

## INTERNAL STANDARDS

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits with the exceptions noted below. All samples, standards, and QC samples were spiked with internal standards for Method 8270D.

SVOCs Method 8270D:

The internal standard response of naphthalene-d8 for closing calibration verification CCVC 680-656423/31 was biased high outside of acceptance limits at 208%. The associated target analyte (DNCB) %D was within control limits at 9.1%. All other samples and batch QC contained internal standards within acceptance limits. On the basis of professional judgment, qualification is not necessary.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks and equipment blank.

## SURROGATE RECOVERIES

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria.

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs Method 8270D:

LCSD 680-655153/18-A exhibited a recovery greater than the upper warning limit for DNCB at 135%. The associated sample results were non-detect; qualification is not necessary.

LCSD 680-655153/16-A exhibited a RPD greater than the control limit for DNP at 48%. The associated sample results were non-detect; qualification is not necessary.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs Method 8270D:

SD sample 280-145209-B-2-C exhibited a RPD greater than the control limit for DNP at 21%. The spiked sample is a Site sample with results reported in a different SDG; qualification is not necessary.

SD sample 280-145209-B-2-C exhibited a RPD greater than the control limit for DNCB at 22%. The spiked sample is a Site sample with results reported in a different SDG; qualification is not necessary.

Picric Acid by Methods 8330A and 8330B:

MS/SD sample PH-DUP-001_210202 exhibited recoveries less than the lower control limit at 34% and 33%, respectively. The associated sample result was non-detect and is qualified as “UJ”.

Insufficient sample volume was available to perform a MS/SD associated with preparation batch 280-525569 associated with the equipment blank sample analysis. A LCSD was performed to evaluate laboratory precision.

**DUAL COLUMN IMPRECISION**

All sample results were non-detect; therefore, column comparisons were not performed.

**COMMENTS**

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

One field duplicate and parent sample pair was collected and analyzed for all parameters (PH-DUP-001_210202 and NYOW-04-PH036-B). For sample results that are greater than 5X the LOQ, the RPD must be less than 50%. For sample results less than 5X the LOQ, the absolute difference must be less than ±LOQ. The field duplicate pair met the precision criteria.

The following samples were air dried and sieved in accordance with the procedure; however, the samples contained rocks and some vegetation that would not pass through the sieve: NYOW-04-SL036-A, NYOW-04-PH036-B, PH-DUP-001_210202, NYOW-04-PH036-C, NYOW-04-SL080-A, NYOW-04-PH080-B, NYOW-04-PH080-C, NYOW-04-SL082-A, NYOW-04-PH082-B, NYOW-04-PH082-C. The rocks and/or vegetation were removed and not extracted.

All soil sample LOQs were slightly above the project quantitation limit goals (PQLGs) for DNP and DNCB. All PQLGs for picric acid were met.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All

data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210202 | 280-145163-3 | SW8330A | Picric acid | 88-89-1 | ug/kg | 160 | | UJ | M |

Reason Code Definitions

| | |
|---|---|
| M | MS Recovery |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 30 April 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM: 280-145209

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in February 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D
- Picric Acid by SW-846 Methods 8330A (soil) and 8330B (equipment blank)
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-145209 | 280-145209-1 | NYOW-04-SL084-A | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-2 | NYOW-04-PH084-B | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-3 | NYOW-04-PH084-C | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-4 | NYOW-04-SL085-A | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-5 | NYOW-04-PH085-B | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-6 | [1]PH-DUP-001_210203 | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-7 | NYOW-04-PH085-C | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-8 | NYOW-04-SL037-A | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-9 | NYOW-04-PH037-B | 2/3/21 | DNCB, DNP, Picric Acid, %M |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-145209 | 280-145209-10 | NYOW-04-PH037-C | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-11 | NYOW-04-SL038-A | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-12 | NYOW-04-PH038-B | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-13 | NYOW-04-PH038-C | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-14 | NYOW-04-SL006-A | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-15 | NYOW-04-PH006-B | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-16 | NYOW-04-PH006-C | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-17 | [2]PH-DUP-002_210203 | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-18 | NYOW-04-PH075-B | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-19 | NYOW-04-PH074-B | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-20 | [3]PH-DUP-003_210203 | 2/3/21 | DNCB, DNP, Picric Acid, %M |
| 280-145209 | 280-145209-21 | EB-01_210203 | 2/3/21 | DNCB, DNP, Picric Acid |

[1]PH-DUP-001_210203 collected from NYOW-04-PH085-B
[2]PH-DUP-002_210203 collected from NYOW-04-PH006-C
[3]PH-DUP-003_210203 collected from NYOW-04-PH074-B

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Two coolers were received by the laboratory at temperatures of 1.1°C and 2.0°C. All samples were extracted and analyzed within holding time.

The container labels for the following samples did not match the information listed on the COC: NYOW-04-PH075 and NYOW-04-PH074. Bluestone instructed the laboratory to log in accordance with the container label: NYOW-04-PH075-B and NYOW-04-PH074-B.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | | X |
| Did samples listed on the COC match the sample labels? | | X |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for SVOCs (i.e., each 12-hour period). The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

<u>SVOCs Method 8270D:</u>

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard

has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

**CONTINUING CALIBRATION VERIFICATION**

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits with the exceptions noted below. All samples, standards, and QC samples were spiked with internal standards for Method 8270D.

SVOCs Method 8270D:

The internal standard response of naphthalene-d8 for closing calibration verification CCVC 680-656423/31 was biased high outside of acceptance limits at 208%. The associated target analyte (DNCB) %D was within control limits at 9.1%. All other samples and batch QC contained internal standards within acceptance limits. On the basis of professional judgment, qualification is not necessary.

The internal standard response of dichlorobenzene-d4 for closing calibration verification CCVC 680-656273/30 was biased high outside of acceptance limits at 208%. No target analytes are quantitated by this internal standard; qualification is not necessary.

**BLANK SAMPLE RESULTS**

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks and equipment blank.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs Method 8270D:

Surrogate recoveries of 2-fluorobiphenyl, nitrobenzene-d5, and terphenyl-d14 were less than the lower control limits for matrix spike sample NYOW-04-PH085-C. The parent sample's surrogate recoveries were within control limits; no qualification is required.

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs Method 8270D:

LCS/LCSD 680-655273/7-A/680-655273/8-A exhibited recoveries greater than the upper warning limit for DNCB at 149% and 158%, respectively. The associated sample results were non-detect; qualification is not necessary.

LCS 680-655979/22-A exhibited a recovery greater than the upper warning limit for DNCB at 169%. The associated sample results were non-detect; qualification is not required.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs Method 8270D:

MS/SD sample NYOW-04-PH085-C exhibited recoveries greater than the upper control limit for DNCB at 184% and 154%, respectively. In addition, the MS/SD RPD was greater than the control limit at 21%. The associated sample result was non-detect; qualification is not necessary.

SD sample NYOW-04-PH085-C exhibited a RPD greater than the control limit for DNP at 89%. The associated sample result was non-detect; qualification is not necessary.

MS/SD sample NYOW-04-PH084-B exhibited RPDs greater than the control limit for DNP at 21% and DNCB at 22%. The associated sample result was non-detect; qualification is not necessary.

Picric Acid by Methods 8330A and 8330B:

MS/SD sample NYOW-04-PH084-B exhibited recoveries less than the lower control limit at 28% and 26%, respectively. The associated sample result was non-detect and is qualified as “UJ”.

MS/SD sample NYOW-04-PH085-C exhibited recoveries less than the lower control limit at 38% and 40%, respectively. The associated sample result was non-detect and is qualified as “UJ”.

Insufficient sample volume was available to perform a MS/SD associated with preparation batch 280-525569 associated with the equipment blank sample analysis. A LCSD was performed to evaluate laboratory precision.

## DUAL COLUMN IMPRECISION

All sample results were non-detect; therefore, column comparisons were not performed.

## COMMENTS

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

Three field duplicate and parent sample pairs were collected and analyzed for all parameters (PH-DUP-001_210203 and NYOW-04-PH085-B, PH-DUP-002_210203 and NYOW-04-PH006-C, and PH-DUP-003_210203 and NYOW-04-PH074-B). For sample results that are greater than 5X the LOQ, the RPD must be less than 50%. For sample results less than 5X the LOQ, the absolute difference must be less than ±LOQ. The field duplicate and parent sample pairs met the precision criteria.

The following samples were air dried and sieved in accordance with the procedure; however, the samples contained rocks, occasional vegetation, and plastic fragments that would not pass through the sieve: NYOW-04-SL084-A, NYOW-04-PH084-B, NYOW-04-PH084-C, NYOW-04-SL085-A, NYOW-04-PH085-B, PH-DUP-001_210203, NYOW-04-PH085-C, NYOW-04-SL037-A, NYOW-04-PH037-B, NYOW-04-PH037-C, NYOW-04-SL038-A, NYOW-04-PH038-B, NYOW-04-PH038-C, NYOW-04-SL006-A, NYOW-04-PH006-B, NYOW-04-PH006-C, PH-DUP-002_210203, NYOW-04-PH075-B, NYOW-04-PH074-B, and PH-DUP-003_210203. The rocks, vegetation, and/or plastic were removed and not extracted.

All soil sample LOQs were slightly above the project quantitation limit goals (PQLGs) for DNP and DNCB. All PQLGs for picric acid were met.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-04-PH084-B | 280-145209-2 | SW8330A | Picric acid | 88-89-1 | ug/kg | 150 | | UJ | M |
| NYOW-04-PH085-C | 280-145209-7 | SW8330A | Picric acid | 88-89-1 | ug/kg | 160 | | UJ | M |

Reason Code Definitions

M MS Recovery

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 19 April 2021

**SUBJECT:** New York Ordnance Works Soil and Groundwater S2BVEM: 280-145271 Revision 2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil and groundwater samples collected in February 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D
- Picric Acid by SW-846 Methods 8330A (soils) and 8330B (groundwater and equipment blank)
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-145271 | 280-145271-1 | NYOW-04-WL006-A | 2/04/21 | DNCB, DNP, Picric Acid |
| 280-145271 | 280-145271-2 | NYOW-04-WL085-A | 2/04/21 | DNCB, DNP, Picric Acid |
| 280-145271 | 280-145271-3 | NYOW-04-WL084-A | 2/04/21 | DNCB, DNP, Picric Acid |
| 280-145271 | 280-145271-4 | NYOW-04-WL082-A | 2/04/21 | DNCB, DNP, Picric Acid |
| 280-145271 | 280-145271-5 | NYOW-04-WL037-A | 2/04/21 | DNCB, DNP, Picric Acid |
| 280-145271 | 280-145271-6 | NYOW-04-WL080-A | 2/04/21 | DNCB, DNP, Picric Acid |
| 280-145271 | 280-145271-7 | NYOW-04-PH070-B | 2/04/21 | DNCB, DNP, Picric Acid, %M |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-145271 | 280-145271-8 | NYOW-04-PH069-B | 2/04/21 | DNCB, DNP, Picric Acid, %M |
| 280-145271 | 280-145271-9 | NYOW-04-PH055-B | 2/04/21 | DNCB, DNP, Picric Acid, %M |
| 280-145271 | 280-145271-10 | NYOW-04-PH054-B | 2/04/21 | DNCB, DNP, Picric Acid, %M |
| 280-145271 | 280-145271-11 | NYOW-04-PH050-B | 2/04/21 | DNCB, DNP, Picric Acid, %M |
| 280-145271 | 280-145271-12 | NYOW-04-PH049-B | 2/04/21 | DNCB, DNP, Picric Acid, %M |
| 280-145271 | 280-145271-13 | NYOW-04-WL036-A | 2/04/21 | DNCB, DNP, Picric Acid |
| 280-145271 | 280-145271-14 | NYOW-04-SL003-A | 2/04/21 | DNCB, DNP, Picric Acid, %M |
| 280-145271 | 280-145271-15 | NYOW-04-PH003-B | 2/04/21 | DNCB, DNP, Picric Acid, %M |
| 280-145271 | 280-145271-16 | NYOW-04-PH003-C | 2/04/21 | DNCB, DNP, Picric Acid, %M |
| 280-145271 | 280-145271-17 | NYOW-04-SL001-A | 2/04/21 | DNCB, DNP, Picric Acid, %M |
| 280-145271 | 280-145271-18 | NYOW-04-PH001-B | 2/04/21 | DNCB, DNP, Picric Acid, %M |
| 280-145271 | 280-145271-19 | NYOW-04-PH001-C | 2/04/21 | DNCB, DNP, Picric Acid, %M |
| 280-145271 | 280-145271-20 | [1]PH-DUP-001_210204 | 2/04/21 | DNCB, DNP, Picric Acid, %M |
| 280-145271 | 280-145271-21 | EB-01_210204 | 2/04/21 | DNCB, DNP, Picric Acid |
| 280-145271 | 280-145271-22 | EB-02_210204 | 2/04/21 | DNCB, DNP, Picric Acid |
| 280-145271 | 280-145271-23 | NYOW-04-PH011-B | 2/04/21 | DNCB, DNP, Picric Acid, %M |
| 280-145271 | 280-145271-24 | NYOW-04-PH010-B | 2/04/21 | DNCB, DNP, Picric Acid, %M |

[1]PH-DUP-001_210204 collected from NYOW-04-PH001-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 0.6°C, 0.9°C, 1.1°C, 1.5°C, and 2.1°C. All samples were extracted and analyzed within holding time.

One of six containers was labeled differently than the COC for sample NYOW-04-SL001-A. The container indicated NYOW-04-SL00-A. The sample was logged in accordance with the COC as NYOW-04-SL001-A.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | | X |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for SVOCs (i.e., each 12-hour period). The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

SVOCs Method 8270D:

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

**CONTINUING CALIBRATION VERIFICATION**

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

SVOCs by Method 8270D:

The continuing calibration verification (CCV) performed on 2/22/21 at 16:42 (680-656574/3) exhibited a %D greater than the control limit with a positive bias for DNCB at 22.2%. The associated sample results were non-detect and qualified as “UJ”.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits with the exceptions noted. All samples, standards, and QC samples were spiked with internal standards for Method 8270D.

SVOCs by Method 8270D:

CCVs 680-656078/32, 680-656273/30, 680-656423/31 exhibited internal standard responses greater than the upper limit for 1,4-dichlorobenzene-d4. The internal standard is not used to quantitate DNP or DNCB; qualification is not necessary.

CCV 680-656423/31 exhibited an internal standard response greater than the upper limit for acenaphthene-d10 at 202%. The CCV is associated with DNCB, which is quantitated by naphthalene-d8; qualification is not necessary.

**BLANK SAMPLE RESULTS**

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks and equipment blanks.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Sample NYOW-04-WL080-A exhibited a surrogate recovery less than the lower warning limit for terphenyl-d14 at 49%. The sample results for base/neutral extractable DNCB are qualified as "UJ".

Sample NYOW-04-WL082-A exhibited surrogate recoveries less than the lower warning limits for 2,4,6-tribromophenol, nitrobenzene-d5, 2-fluorobiphenyl, and terphenyl-d14 at 39%, 33%, 35%, and 14%, respectively. There was insufficient sample volume to perform a re-extraction. The results for DNP and DNCB are qualified as "UJ".

Picric Acid by Methods 8330A and 8330B:

Samples NYOW-04-WL036-A, NYOW-04-WL082-A, and NYOW-04-WL084-A exhibited recoveries greater than the upper control limit for 1,2-dinitrobenzene at 139%, 180%, and 200%, respectively. The associated sample results were non-detect; qualification is not necessary.

Samples NYOW-04-WL006-A and NYOW-04-WL037-A exhibited recoveries less than the lower control limit for 1,2-dinitrobenzene at 14% and 75%, respectively. The associated sample results were non-detect and are qualified as "UJ".

Sample NYOW-04-WL080-A did not recover (i.e., 0%) for 1,2-dinitrobenzene. The sample clogged the solid phase extraction cartridge during extraction and evidence of matrix interference was present. The laboratory did not perform a re-extraction and reanalysis. The associated non-detect sample result is recommended for rejection and qualified as "X".

**LABORATORY CONTROL SAMPLES**

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs Method 8270D:

LCSD 680-655153/18-A exhibited a recovery greater than the upper warning limit for DNCB at 135%. The associated sample results were non-detect; qualification is not required.

LCS 680-655979/22-A recovered above the upper warning limit for DNCB at 169%. The associated sample results were non-detect; qualification is not required.

LCS 680-656149/21-A recovered above the upper control limit for DNCB at 231%. The associated sample results were non-detect; qualification is not required.

LCS/LCSD 680-655153/16-A exhibited a RPD greater than the control limit for DNP at 48%. The associated sample results were non-detect; qualification is not necessary.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

MS sample 280-145317-B-2-A exhibited a recovery greater than the upper control limit for DNCB. The spiked sample results were reported in a different SDG; qualification is not necessary.

MS/SD sample 280-145209-B-7-D exhibited recoveries greater than the upper control limit for DNCB. The MS/SD RPDs were also greater than the control limit for DNP and DNCB. The spiked sample results were reported in a different SDG; qualification is not necessary.

MS/SD sample NYOW-04-PH001-B exhibited a RPD greater than the control limit for DNCB at 29%. The associated sample results were non-detect; qualification is not necessary.

Picric Acid by Methods 8330A and 8330B:

MS/SD sample NYOW-04-SL001-A exhibited recoveries less than the lower warning limit for picric acid at 38% and 41%, respectively. The associated sample result was non-detect and is qualified as “UJ”.

MS/SD sample 280-145317-C-2-C exhibited a recovery and RPD greater than the control limits. The spiked sample results were reported in a different SDG; qualification is not necessary.

## DUAL COLUMN IMPRECISION

All sample results were non-detect; therefore, column comparisons were not performed.

## COMMENTS

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

One field duplicate and parent sample pair was collected and analyzed for all parameters (PH-DUP-001_210204 and NYOW-04-PH001-C). For sample results that are greater than 5X the LOQ, the RPD must be less than 50%. For sample results less than 5X the LOQ, the absolute difference must be less than ±LOQ. All analytes met the precision criteria for the field duplicate pair.

During the solid phase extraction (SPE) of picric acid by SW-846 Method 3535, the laboratory noted that several groundwater samples clogged the SPE cartridge (i.e., flow rate < 4 mL/minute): NYOW-04-WL006-A, NYOW-04-WL037-A, NYOW-04-WL080-A, and NYOW-04-WL036-A. The extraction volumes indicate that sufficient volume was extracted through the filter to avoid re-preparation at a sample dilution. The surrogate recoveries of 1,2-DNB for these four samples

recovered above the lower control limit with the exception of sample NYOW-04-WL080-A. The result for NYOW-04-WL080-A was rejected.

The following samples were air dried and sieved in accordance with the procedure; however, the samples contained rocks and/or vegetation that would not pass through the sieve: NYOW-04-PH070-B, NYOW-04-PH069-B, NYOW-04-PH055-B, NYOW-04-PH054-B, NYOW-04-PH050-B, NYOW-04-PH049-B, NYOW-04-SL003-A, NYOW-04-PH003-B, NYOW-04-PH003-C, NYOW-04-SL001-A, NYOW-04-PH001-B, NYOW-04-PH001-C, PH-DUP-001_210204, NYOW-04-PH011-B, and NYOW-04-PH010-B. The rocks and vegetation were removed and not extracted.

All soil sample LOQs were slightly above the project quantitation limit goals (PQLGs) for DNP and DNCB. All PQLGs for picric acid were met. Groundwater sample LOQs were consistent with the PQLGs with the following exceptions for picric acid: NYOW-04-WL080-A and NYOW-04-WL036-A.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified, except for the result recommended for rejection. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 99%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-04-PH001-B | 280-145271-18 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 380 | | UJ | V2 |
| NYOW-04-PH001-C | 280-145271-19 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | UJ | V2 |
| NYOW-04-PH003-B | 280-145271-15 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | UJ | V2 |
| NYOW-04-PH003-C | 280-145271-16 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | UJ | V2 |
| NYOW-04-PH010-B | 280-145271-24 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | UJ | V2 |
| NYOW-04-PH011-B | 280-145271-23 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 360 | | UJ | V2 |
| NYOW-04-PH049-B | 280-145271-12 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 350 | | UJ | V2 |
| NYOW-04-PH050-B | 280-145271-11 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 360 | | UJ | V2 |
| NYOW-04-PH054-B | 280-145271-10 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 380 | | UJ | V2 |
| NYOW-04-PH055-B | 280-145271-9 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 360 | | UJ | V2 |
| NYOW-04-PH069-B | 280-145271-8 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | UJ | V2 |
| NYOW-04-PH070-B | 280-145271-7 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 380 | | UJ | V2 |
| NYOW-04-SL001-A | 280-145271-17 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 390 | | UJ | V2 |
| NYOW-04-SL001-A | 280-145271-17 | SW8330A | Picric acid | 88-89-1 | ug/kg | 150 | | UJ | M |
| NYOW-04-SL003-A | 280-145271-14 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/kg | 370 | | UJ | V2 |
| NYOW-04-WL006-A | 280-145271-1 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.350 | | UJ | I |
| NYOW-04-WL037-A | 280-145271-5 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.250 | | UJ | I |
| NYOW-04-WL080-A | 280-145271-6 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 10.0 | | UJ | I |
| NYOW-04-WL080-A | 280-145271-6 | SW8330B | Picric acid | 88-89-1 | ug/L | 5.20 | | X | I |
| NYOW-04-WL082-A | 280-145271-4 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 10.0 | | UJ | I |
| NYOW-04-WL082-A | 280-145271-4 | SW8270D | 2,4-Dinitrophenol | 51-28-5 | ug/L | 21.0 | | UJ | I |

Reason Code Definitions

| | |
|---|---|
| V2 | CCV |
| M | MS Recovery |
| I | Surrogate Recovery |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 4 May 2021

**SUBJECT:** New York Ordnance Works Groundwater S2BVEM: 280-145317 Revision 1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of groundwater samples collected in February 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) 2,4-dinitrochlorobenzene (DNCB) and 2,4-dinitrophenol (DNP) by SW-846 Method 8270D
- Picric Acid by SW-846 Method 8330B

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-145317 | 280-145317-1 | NYOW-04-WL038-A | 2/5/21 | DNCB, DNP, Picric Acid |
| 280-145317 | 280-145317-2 | NYOW-04-WL001-A | 2/5/21 | DNCB, DNP, Picric Acid |
| 280-145317 | 280-145317-3 | NYOW-04-WL003-A | 2/5/21 | DNCB, DNP, Picric Acid |
| 280-145317 | 280-145317-4 | EB-01_210205 | 2/5/21 | DNCB, DNP, Picric Acid |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January

2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Two coolers were received by the laboratory at temperatures of 3.0°C and 3.8°C. All samples were extracted and analyzed within holding time.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for SVOCs (i.e., each 12-hour period). The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

SVOCs Method 8270D:

DNCB is a non-routine analyte, and a second source is not readily available to purchase. The laboratory standard is a custom standard from one vendor; a second vendor for a DNCB standard has not been identified. Therefore, the laboratory control samples are completed from a different ampule than the calibration (but still the same vendor lot). The daily CCVs are completed with the same standards from the ICAL. The laboratory maintains Department of Defense ELAP certification for DNCB. On the basis of professional judgment, qualification of the data is not necessary.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met.

## INTERNAL STANDARDS

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits with the exceptions noted below. All samples, standards, and QC samples were spiked with internal standards for Method 8270D.

SVOCs Method 8270D:

The internal standard response of naphthalene-d8 for closing calibration verification CCVC 680-656423/31 was biased high outside of acceptance limits at 208%. The associated target analyte (DNCB) %D was within control limits at 9.1%. All other samples and batch QC contained internal standards within acceptance limits. On the basis of professional judgment, qualification is not necessary.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks and the equipment blank.

## SURROGATE RECOVERIES

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs Method 8270D:

The surrogate recovery of terphenyl-d14 was less than the lower warning limit for sample NYOW-04-WL001-A at 30%. The associated non-detect sample result for base/neutral extractable DNCB is qualified as “UJ”.

Picric Acid by Method 8330B:

Samples NYOW-04-WL003-A and NYOW-04-WL038-A exhibited surrogate recoveries greater than the upper control limit for 1,2-dinitrobenzene at 1,607% and 229%, respectively. The associated sample results were non-detect; qualification is not necessary.

Sample NYOW-04-WL001-A exhibited a surrogate recovery less than the lower warning limit for 1,2-dinitrobenzene at 13%. The associated sample result was non-detect and is qualified as “UJ”.

Sample EB-01_210205 exhibited a surrogate recovery less than the lower control limit 1,2-dinitrobenzene at 5%. The associated sample result was non-detect and is recommended for rejection (i.e., “X” qualified). The surrogate recoveries in the associated method blank and laboratory control sample were within the control limits.

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria. For picric acid analysis, LCSD were not performed.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs Method 8270D:

MS sample NYOW-04-WL001-A exhibited a recovery greater than the upper control limit for DNCB at 134%. The associated sample result was non-detect; qualification is not necessary.

Picric Acid by Method 8330B:

SD sample NYOW-04-WL001-A exhibited a recovery greater than the upper warning limit at 139%. In addition, the MS/SD RPD was greater than the control limit at 45%. The associated sample result was non-detect; qualification is not necessary.

## DUAL COLUMN IMPRECISION

All sample results were non-detect; therefore, column comparisons were not performed.

## COMMENTS

No field duplicates were collected as part of this SDG.

During the solid phase extraction process, samples NYOW-04-WL001-A and NYOW-04-WL003-A clogged the SPE cartridge (i.e., flow rate < 4 mL/minute). The extraction volumes were sufficient to avoid re-preparation at a sample dilution. The surrogate recovery of 1,2-DNB for sample NYOW-04-WL001-A was greater than the lower warning limit and the sample result was qualified during validation as “UJ”. The surrogate recovery of 1,2-DNB for sample NYOW-04-WL003-A was greater than the upper control limit; however, the sample result was non-detect and not affected by positive bias. Given that a limited sample volume was extracted before the cartridge clogged for sample NYOW-04-WL003-A (7.1 mL), the non-detect result is qualified as “UJ” on the basis of professional judgment. The LOQs for picric acid were adjusted accordingly.

All groundwater sample LOQs were slightly above the project quantitation limit goals (PQLGs) for DNP. All PQLGs for DNCB were met. The LOQs for picric acid were greater than the PQLG for samples NYOW-04-WL001-A and NYOW-04-WL003-A.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified, except for the result recommended for rejection. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 92%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210205 | 280-145317-4 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.120 | | X | I |
| NYOW-04-WL001-A | 280-145317-2 | SW8270D | 2,4-Dinitrochlorobenzene | 97-00-7 | ug/L | 10.0 | | UJ | I |
| NYOW-04-WL001-A | 280-145317-2 | SW8330B | Picric acid | 88-89-1 | ug/L | 0.340 | | UJ | I |
| NYOW-04-WL003-A | 280-145317-3 | SW8330B | Picric acid | 88-89-1 | ug/L | 8.50 | | UJ | P2 |

Reason Code Definitions

| | |
|---|---|
| I | Surrogate Recovery |
| P2 | Improper Extraction |

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# AOC 5 Data Packages

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 April 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-144465-1 (Revision 1)

---

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the methods specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144465 | 280-144465-1 | NYOW-05-SL006-A | 1/8/2021 | Grain Size |
| 280-144465 | 280-144465-2 | NYOW-05-PH006-B | 1/8/2021 | Grain Size |
| 280-144465 | 280-144465-3 | NYOW-05-PH006-C | 1/8/2021 | Grain Size |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and

include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Three coolers were received by the laboratory at temperatures of 0.8°C, 0.9°C, and 0.9°C. All requested target analytes were reported.

Bluestone notified the laboratory that samples NYOW-05-SL021-A, NYOW-05-PH021-B, and NYOW-05-PH021-C were not collected for grain size and should be removed from the COC.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | | X |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No field quality control (QC) samples were submitted with this SDG. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field duplicate and parent sample pairs were collected as part of this SDG. No field blanks were collected as part of this SDG.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 April 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-144503-1(Revision 1)

---

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the methods specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144503 | 280-144503-1 | NYOW-05-SL025-A | 1/11/2021 | Grain Size |
| 280-144503 | 280-144503-2 | NYOW-05-PH025-B | 1/11/2021 | Grain Size |
| 280-144503 | 280-144503-3 | NYOW-05-PH025-C | 1/11/2021 | Grain Size |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and

include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Three coolers were received by the laboratory at temperatures of 1.0°C, 1.5°C, and 2.5°C. All requested target analytes were reported.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No field quality control

(QC) samples were submitted with this SDG. No project action limits or detection limits are associated with Grain Size Distribution.

**COMMENTS**

No field duplicate and parent sample pairs were collected as part of this SDG. No field blanks were collected as part of this SDG.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 April 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-144558-1(Revision 1)

---

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the methods specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144558 | 280-144558-1 | NYOW-05-SL003-A | 1/12/2021 | Grain Size |
| 280-144558 | 280-144558-2 | NYOW-05-PH003-B | 1/12/2021 | Grain Size |
| 280-144558 | 280-144558-3 | NYOW-05-PH003-C | 1/12/2021 | Grain Size |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and

include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Six coolers were received by the laboratory at temperatures of 1.2°C, 4.1°C, 4.3°C, 4.6°C, 5.6°C, and 5.9°C. All requested target analytes were reported.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No field quality control

(QC) samples were submitted with this SDG. No project action limits or detection limits are associated with Grain Size Distribution.

**COMMENTS**

No field duplicate and parent sample pairs were collected as part of this SDG. No field blanks were collected as part of this SDG.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 April 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-144621-1(Revision 1)

---

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the methods specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144621 | 280-144621-1 | NYOW-05-SL012-A | 1/13/2021 | Grain Size |
| 280-144621 | 280-144621-2 | CANCELLED | 1/13/2021 | Grain Size |
| 280-144621 | 280-144621-3 | NYOW-05-PH012-C | 1/13/2021 | Grain Size |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and

include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 0.3°C, 0.4°C, 0.4°C, 2.4°C, and 3.0°C. All requested target analytes were reported.

The jar for sample NYOW-05-PH012-B broke during subsequent shipment to Seattle for analysis. The sample was completely submerged in water and was compromised. Bluestone instructed the laboratory to cancel the analysis of this sample.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | X | |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No field quality control (QC) samples were submitted with this SDG. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field duplicate and parent sample pairs were collected as part of this SDG. No field blanks were collected as part of this SDG.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 April 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-144654-1(Revision 1)

---

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the methods specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144654 | 280-144654-1 | NYOW-05-SL016-A | 1/14/2021 | Grain Size |
| 280-144654 | 280-144654-2 | NYOW-05-PH016-B | 1/14/2021 | Grain Size |
| 280-144654 | 280-144654-3 | NYOW-05-PH016-C | 1/14/2021 | Grain Size |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and

include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 0.6°C, 0.6°C, 0.8°C, 0.9°C, and 1.7°C. All requested target analytes were reported.

Container IDs are missing "SL" or "PH" for each sample. Samples were logged according to the COC. All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | | X |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No field quality control (QC) samples were submitted with this SDG. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field duplicate and parent sample pairs were collected as part of this SDG. No field blanks were collected as part of this SDG.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 April 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM: 280-144651-3

---

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) by the method specified below.

- Total Organic Carbon (TOC) by SW-846 Method 9060A

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144651 | 280-144651-1 | NYOW-05-SL016-A | 1/14/2021 | TOC |
| 280-144651 | 280-144651-2 | NYOW-05-PH016-B | 1/14/2021 | TOC |
| 280-144651 | 280-144651-3 | NYOW-05-PH016-C | 1/14/2021 | TOC |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the DoD *General Data Validation Guidelines* (EDQW 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the

originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as “X” should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 0.2°C, 0.2°C, 0.8°C, 0.9°C, and 1.7°C. All requested target analytes were reported.

The container IDs on 4 oz soil jars from the following samples were missing "PH" or "SL":

NYOW-05-SL016-A, NYOW-05-PH016-B, and NYOW-05-PH016-C. The samples were logged according to the COC.

All samples were analyzed outside of the holding time period for TOC (i.e., 28 days) but within the holding time rejection threshold (56 days). The positive detections are qualified as “J-“ and non-detects are qualified as “UJ”.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | | X |
| Were samples relinquished properly on the COC? | X | |

| Verification Criteria | Yes | No |
|---|---|---|
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | | X |

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, calibration correlation coefficients and initial calibration verification (ICV) results were subject to review. Minimum calibration levels were also verified. ICVs were performed after each initial calibration. All calibration criteria were met.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration verification (CCV) frequencies and recoveries were subject to review. CCVs were performed after every ten samples and at the end of each sequence. All continuing calibration recoveries met the acceptance criteria.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, initial calibration blanks, and continuing calibration blanks. Method blanks were prepared and analyzed with each preparation batch. Initial and continuing calibration blanks were performed at the beginning of each sequence and after every ten samples, respectively. TOC was not detected in the initial calibration blanks, continuing calibration blanks or the method blanks.

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. A LCS was performed with each sample batch; LCSD were not performed. All LCS recoveries met the acceptance criteria.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria and were performed at the required frequency.

## COMMENTS

No field duplicate and parent sample pairs were collected as part of this SDG.

All soil sample LOQs met the project quantitation limit goal (PQLG) for TOC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH016-B | 280-144651-12 | SW9060A | Total Organic Carbon | | mg/kg | 960 | - | J | TR/H1 |
| NYOW-05-PH016-C | 280-144651-13 | SW9060A | Total Organic Carbon | | mg/kg | 1600 | - | J | TR/H1 |
| NYOW-05-SL016-A | 280-144651-11 | SW9060A | Total Organic Carbon | | mg/kg | 6400 | - | J | H1 |

Reason Code Definitions

| | |
|---|---|
| H1 | Test Hold Time |
| TR | Trace Detect |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 April 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM: 280-144607-3

---

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) by the method specified below.

- Total Organic Carbon (TOC) by SW-846 Method 9060A

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144607 | 280-144607-1 | NYOW-05-SL012-A | 1/13/2021 | TOC |
| 280-144607 | 280-144607-2 | NYOW-05-PH012-B | 1/13/2021 | TOC |
| 280-144607 | 280-144607-3 | NYOW-05-PH012-C | 1/13/2021 | TOC |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the DoD *General Data Validation Guidelines* (EDQW 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the

originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 0.3°C, 0.4°C, 0.4°C, 2.4°C, and 3.0°C. All requested target analytes were reported.

All samples were analyzed outside of the holding time period for TOC (i.e., 28 days) but within the holding time rejection threshold (56 days). The positive detections are qualified as "J-" and non-detects are qualified as "UJ".

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | | X |

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, calibration correlation coefficients and initial calibration verification (ICV) results were subject to review. Minimum calibration levels were also verified. ICVs were performed after each initial calibration. All calibration criteria were met.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration verification (CCV) frequencies and recoveries were subject to review. CCVs were performed after every ten samples and at the end of each sequence. All continuing calibration recoveries met the acceptance criteria.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, initial calibration blanks, and continuing calibration blanks. Method blanks were prepared and analyzed with each preparation batch. Initial and continuing calibration blanks were performed at the beginning of each sequence and after every ten samples, respectively. TOC was not detected in the initial calibration blanks, continuing calibration blanks or the method blanks.

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. A LCS was performed with each sample batch; LCSD were not performed. All LCS recoveries met the acceptance criteria.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria and were performed at the required frequency.

## COMMENTS

No field duplicate and parent sample pairs were collected as part of this SDG.

All soil sample LOQs met the project quantitation limit goal (PQLG) for TOC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH012-B | 280-144607-6 | SW9060A | Total Organic Carbon | | mg/kg | 1900 | - | J | TR/H1 |
| NYOW-05-PH012-C | 280-144607-7 | SW9060A | Total Organic Carbon | | mg/kg | 2700 | - | J | TR/H1 |
| NYOW-05-SL012-A | 280-144607-5 | SW9060A | Total Organic Carbon | | mg/kg | 15000 | - | J | H1 |

Reason Code Definitions

| | |
|---|---|
| H1 | Test Hold Time |
| TR | Trace Detect |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 April 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM: 280-144550-3

---

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) by the method specified below.

- Total Organic Carbon (TOC) by SW-846 Method 9060A

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144550 | 280-144550-1 | NYOW-05-SL003-A | 1/12/2021 | TOC |
| 280-144550 | 280-144550-2 | NYOW-05-PH003-B | 1/12/2021 | TOC |
| 280-144550 | 280-144550-3 | NYOW-05-PH003-C | 1/12/2021 | TOC |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the DoD *General Data Validation Guidelines* (EDQW 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the

originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Six coolers were received by the laboratory at temperatures of 1.2°C, 4.1°C, 4.3°C, 4.6°C, 5.6°C, and 5.9°C. All requested target analytes were reported.

One of 16 containers was received broken for sample NYOW-05-SL003-A. One of five containers for sample NYOW-05-PH003-C was received with a crack in the side of the lid. The sample was not compromised, and the lid was replaced.

All samples were analyzed outside of the holding time period for TOC (i.e., 28 days) but within the holding time rejection threshold (56 days). The positive detections are qualified as "J-" and non-detects are qualified as "UJ".

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | X | |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |

| Verification Criteria | Yes | No |
|---|---|---|
| Were all samples analyzed within the specified holding time? | | X |

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, calibration correlation coefficients and initial calibration verification (ICV) results were subject to review. Minimum calibration levels were also verified. ICVs were performed after each initial calibration. All calibration criteria were met.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration verification (CCV) frequencies and recoveries were subject to review. CCVs were performed after every ten samples and at the end of each sequence. All continuing calibration recoveries met the acceptance criteria.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, initial calibration blanks, and continuing calibration blanks. Method blanks were prepared and analyzed with each preparation batch. Initial and continuing calibration blanks were performed at the beginning of each sequence and after every ten samples, respectively. TOC was not detected in the initial calibration blanks, continuing calibration blanks or the method blanks.

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. A LCS was performed with each sample batch; LCSD were not performed. All LCS recoveries met the acceptance criteria.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria and were performed at the required frequency.

## COMMENTS

No field duplicate and parent sample pairs were collected as part of this SDG.

All soil sample LOQs met the project quantitation limit goal (PQLG) for TOC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH003-B | 280-144550-13 | SW9060A | Total Organic Carbon | | mg/kg | 2900 | - | J | TR/H1 |
| NYOW-05-PH003-C | 280-144550-14 | SW9060A | Total Organic Carbon | | mg/kg | 2300 | - | J | TR/H1 |
| NYOW-05-SL003-A | 280-144550-12 | SW9060A | Total Organic Carbon | | mg/kg | 6600 | - | J | H1 |

Reason Code Definitions

| | |
|---|---|
| H1 | Test Hold Time |
| TR | Trace Detect |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 April 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM: 280-144501-3

---

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) by the method specified below.

- Total Organic Carbon (TOC) by SW-846 Method 9060A

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144501 | 280-144501-1 | NYOW-05-SL025-A | 1/11/21 | TOC |
| 280-144501 | 280-144501-2 | NYOW-05-PH025-B | 1/11/21 | TOC |
| 280-144501 | 280-144501-3 | NYOW-05-PH025-C | 1/11/21 | TOC |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the DoD *General Data Validation Guidelines* (EDQW 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the

originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Three coolers were received by the laboratory at temperatures of 1.0°C, 1.5°C, and 2.5°C. All requested target analytes were reported.

All samples were analyzed outside of the holding time period for TOC (i.e., 28 days) but within the holding time rejection threshold (56 days). The positive detections are qualified as "J-" and non-detects are qualified as "UJ".

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | | X |

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, calibration correlation coefficients and initial calibration verification (ICV) results were subject to review. Minimum calibration levels were also verified. ICVs were performed after each initial calibration. All calibration criteria were met.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration verification (CCV) frequencies and recoveries were subject to review. CCVs were performed after every ten samples and at the end of each sequence. All continuing calibration recoveries met the acceptance criteria.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, initial calibration blanks, and continuing calibration blanks. Method blanks were prepared and analyzed with each preparation batch. Initial and continuing calibration blanks were performed at the beginning of each sequence and after every ten samples, respectively. TOC was not detected in the initial calibration blanks, continuing calibration blanks or the method blanks.

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. A LCS was performed with each sample batch; LCSD were not performed. All LCS recoveries met the acceptance criteria.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria and were performed at the required frequency.

## COMMENTS

No field duplicate and parent sample pairs were collected as part of this SDG.

All soil sample LOQs met the project quantitation limit goal (PQLG) for TOC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH025-B | 280-144501-6 | SW9060A | Total Organic Carbon | | mg/kg | 7800 | - | J | H1 |
| NYOW-05-PH025-C | 280-144501-7 | SW9060A | Total Organic Carbon | | mg/kg | 1100 | - | J | TR/H1 |
| NYOW-05-SL025-A | 280-144501-5 | SW9060A | Total Organic Carbon | | mg/kg | 28000 | - | J | H1 |

Reason Code Definitions

| | |
|---|---|
| TR | Trace Detect |
| H1 | Test Hold Time |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 April 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM: 280-144466-3

---

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) by the method specified below.

- Total Organic Carbon (TOC) by SW-846 Method 9060A

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144466 | 280-144466-1 | NYOW-05-SL006-A | 1/8/21 | TOC |
| 280-144466 | 280-144466-2 | NYOW-05-PH006-B | 1/8/21 | TOC |
| 280-144466 | 280-144466-3 | NYOW-05-PH006-C | 1/8/21 | TOC |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the DoD *General Data Validation Guidelines* (EDQW 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the

originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Three coolers were received by the laboratory at temperatures of 0.8°C, 0.9°C, and 0.9°C. All requested target analytes were reported.

All samples were analyzed outside of the holding time period for TOC (i.e., 28 days) but within the holding time rejection threshold (56 days). The positive detections are qualified as "J-" and non-detects are qualified as "UJ".

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | | X |

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, calibration correlation coefficients and initial calibration verification (ICV) results were subject to review. Minimum calibration levels were also verified. ICVs were performed after each initial calibration. All calibration criteria were met.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration verification (CCV) frequencies and recoveries were subject to review. CCVs were performed after every ten samples and at the end of each sequence. All continuing calibration recoveries met the acceptance criteria.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, initial calibration blanks, and continuing calibration blanks. Method blanks were prepared and analyzed with each preparation batch. Initial and continuing calibration blanks were performed at the beginning of each sequence and after every ten samples, respectively. TOC was not detected in the initial calibration blanks, continuing calibration blanks or the method blanks.

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. A LCS was performed with each sample batch; LCSD were not performed. All LCS recoveries met the acceptance criteria.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria and were performed at the required frequency with the exceptions noted below.

MS sample 280-144374-A-1 MS exhibited a recovery equal to the upper warning limit (i.e., 130%). The sample did not originate from the Site and the result was greater than 4X the spiked amount; qualification is not necessary.

## COMMENTS

No field duplicate and parent sample pairs were collected as part of this SDG.

All soil sample LOQs met the project quantitation limit goal (PQLG) for TOC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

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Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH006-B | 280-144466-2 | SW9060A | Total Organic Carbon | | mg/kg | 9600 | - | J | H1 |
| NYOW-05-PH006-C | 280-144466-3 | SW9060A | Total Organic Carbon | | mg/kg | 2000 | | UJ | H1 |
| NYOW-05-SL006-A | 280-144466-1 | SW9060A | Total Organic Carbon | | mg/kg | 380000 | - | J | H1 |

Reason Code Definitions

H1 Test Hold Time

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 April 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-144466-2

---

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144466 | 280-144466-1 | NYOW-05-SL006-A | 1/8/2021 | CEC |
| 280-144466 | 280-144466-2 | NYOW-05-PH006-B | 1/8/2021 | CEC |
| 280-144466 | 280-144466-3 | NYOW-05-PH006-C | 1/8/2021 | CEC |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Three coolers were received by the laboratory at temperatures of 0.8°C, 0.9°C, and 0.9°C. All requested target analytes were reported.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-144466-1.

## COMMENTS

No field duplicate and parent sample pairs were collected as part of this SDG. No field blanks were collected as part of this SDG.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 April 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-144501-2

---

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144501 | 280-144501-5 | NYOW-05-SL025-A | 1/11/2021 | CEC |
| 280-144501 | 280-144501-6 | NYOW-05-PH025-B | 1/11/2021 | CEC |
| 280-144501 | 280-144501-7 | NYOW-05-PH025-C | 1/11/2021 | CEC |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Three coolers were received by the laboratory at temperatures of 1.0°C, 1.5°C, and 2.5°C. All requested target analytes were reported.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-144501-1.

## COMMENTS

No field duplicate and parent sample pairs were collected as part of this SDG. No field blanks were collected as part of this SDG.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 April 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-144550-2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144550 | 280-144550-1 | NYOW-05-SL003-A | 1/12/2021 | CEC |
| 280-144550 | 280-144550-2 | NYOW-05-PH003-B | 1/12/2021 | CEC |
| 280-144550 | 280-144550-3 | NYOW-05-PH003-C | 1/12/2021 | CEC |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Six coolers were received by the laboratory at temperatures of 1.2°C, 4.1°C, 4.3°C, 4.6°C, 5.6°C, and 5.9°C. All requested target analytes were reported.

One of 16 containers was received broken for sample NYOW-05-SL003-A. One of five containers for sample NYOW-05-PH003-C was received with a crack in the side of the lid. The sample was not compromised, and the lid was replaced.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | X | |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

**SAMPLE RESULTS**

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-144550-1.

**COMMENTS**

No field duplicate and parent sample pairs were collected as part of this SDG. No field blanks were collected as part of this SDG.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 April 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-144607-2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144607 | 280-144607-1 | NYOW-05-SL012-A | 1/13/2021 | CEC |
| 280-144607 | 280-144607-2 | NYOW-05-PH012-B | 1/13/2021 | CEC |
| 280-144607 | 280-144607-3 | NYOW-05-PH012-C | 1/13/2021 | CEC |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 0.3°C, 0.4°C, 0.4°C, 2.4°C, and 3.0°C. All requested target analytes were reported.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-144607-1.

## COMMENTS

No field duplicate and parent sample pairs were collected as part of this SDG. No field blanks were collected as part of this SDG.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 April 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-144651-2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144651 | 280-144651-1 | NYOW-05-SL016-A | 1/14/2021 | CEC |
| 280-144651 | 280-144651-2 | NYOW-05-PH016-B | 1/14/2021 | CEC |
| 280-144651 | 280-144651-3 | NYOW-05-PH016-C | 1/14/2021 | CEC |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 0.2°C, 0.2°C, 0.8°C, 0.9°C, and 1.7°C. All requested target analytes were reported.

The container IDs on 4 oz soil jars from the following samples were missing "PH" or "SL":

NYOW-05-SL016-A, NYOW-05-PH016-B, and NYOW-05-PH016-C. The samples were logged according to the COC.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | | X |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

**SAMPLE RESULTS**

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-144651-1.

**COMMENTS**

No field duplicate and parent sample pairs were collected as part of this SDG. No field blanks were collected as part of this SDG.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 11 May 2021

**SUBJECT:** New York Ordnance Works Groundwater S2BVEM: 280-144706-1 Revision 3

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of groundwater samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) by SW-846 Method 8270D
- SVOCs with SIM by SW-846 Method 8270D
- Metals by ICP SW-846 Method 6010C
- Metals by ICP-MS SW-846 Method 6020A
- Mercury (Hg) by SW-846 Method 7470A

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144706 | 280-144706-1 | NYOW-05-WL016-A | 1/15/21 | SVOCs, SVOCs with SIM, Dissolved ICP and ICP-MS Metals, Dissolved Hg |
| 280-144706 | 280-144706-2 | NYOW-05-WL017-1-A | 1/15/21 | SVOCs, SVOCs with SIM, Dissolved ICP and ICP-MS Metals, Dissolved Hg |
| 280-144706 | 280-144706-3 | NYOW-05-WL019-A | 1/15/21 | SVOCs, SVOCs with SIM, Dissolved ICP and ICP-MS Metals, Dissolved Hg |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144706 | 280-144706-4 | EB-01_210115 | 1/15/21 | SVOCs, SVOCs with SIM, Dissolved ICP and ICP-MS Metals, Dissolved Hg |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. One cooler was received by the laboratory at a temperature of 0.4°C.

Sample NYOW-05-WL016-A was re-extracted outside of the holding time period for ***SVOCs*** on the fourteenth day. The initial analysis exhibited a surrogate recovery below the rejection threshold; therefore, the reanalysis should be used for data interpretation. The results are qualified as "UJ".

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | | X |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for SVOCs and SVOCs with SIM (i.e., each 12-hour period). The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

<u>SVOCs by Method 8270D:</u>

Continuing calibration verification (CCV) 680-654183/2 exhibited %Ds greater than the control limit for with positive biases for 4-chloroaniline (23.4%), hexachlorocyclopentadiene (22.9%), 4-bromophenyl phenyl ether (32.4%), 2-chlorophenol (28.1%), 2,4-dimethylphenol (26.3%), 4-chloro-3-methylphenol, (24.5%), hexachloroethane (24.1%), and 3&4-methylphenol (21.7%), The associated sample results for the reanalysis of sample NYOW-05-WL016-A and the results were previously qualified; no further action is necessary.

CCV 680-654183/3 exhibited a %D greater than the control limit for benzaldehyde at 22.4%. The associated sample result is for the reanalysis of sample NYOW-05-WL016-A and the result was previously qualified; no further action is necessary.

CVCs 680-654183/29 and 680-654183/2 exhibited RRFs less than the method and Module 1 recommendations for hexachlorobenzene and pentachlorophenol. A CCV was performed at the LOQs and was acceptable; therefore, the sensitivity of the analytical system was demonstrated. The associated sample results are not qualified on this basis.

Closing CCV 680-653661/30 exhibited RRFs less than the method and Module 1 recommendations for hexachlorobenzene and pentachlorophenol. The associated sample results are qualified as "UJ".

CCV 680-653661/10 exhibited a %D greater than the control limit for benzaldehyde at 23.8%. The associated sample results are qualified as "UJ".

Metals by Method 6010C:

Low-level CCVs 280-525300/40 and 280-525300/54 exhibited recoveries less than the lower warning limit for selenium at 74% and 73%. The associated sample results were non-detect and are qualified as "UJ".

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

**BLANK SAMPLE RESULTS**

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, continuing calibration blanks, and equipment blanks with the exceptions noted below.

SVOCs by 8270D with SIM:

Equipment blank sample EB-01_210115 exhibited a positive detection for naphthalene above the LOQ at 0.097 µg/L. The associated sample results were greater than the LOQ but less than 5X the blank amount and are qualified as "J+".

Metals by Method 6010C:

Preparation blank 280-524875/1-A exhibited positive detections for barium, calcium, and iron below the LOQ at 0.892 µg/L, 234 µg/L, and 23 µg/L, respectively. The positive equipment blank sample result for barium is qualified as "U" at the LOD and was not used to evaluate contamination originating from field equipment decontamination procedures. The results for calcium and iron were either greater than the LOQ or non-detect; qualification is not necessary.

Metals by Method 6020A:

The initial and continuing calibration blanks associated with analysis batch 280-525115 exhibited positive detections for thallium below the LOQ ranging from 0.163 µg/L to 0.227 µg/L. The associated positive detections were below the LOQ are qualified as "U" at the LOD or LOQ.

Mercury by Method 7470A:

Preparation blank sample 280-524845/1-A exhibited a positive detection for 0.0295 µg/L. The associated sample results were non-detect; qualification is not necessary.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Sample NYOW-05-WL016-A exhibited surrogate recoveries less than the lower warning limit for 2,4,6-tribromophenol (38%), 2-fluorobiphenyl (39%), and terphenyl-d14 (7%) during the initial analysis. The sample was re-extracted outside of the holding time period (7 days) but within 2X the holding time. The reanalysis should be used for data interpretation. The reanalysis also exhibited a surrogate recovery less than the lower warning limit for terphenyld14 at 38%. The associated base/neutral (B/N) extractable compounds were non-detect and are qualified as "UJ".

Samples NYOW-05-WL017-1-A and NYOW-05-WL019-1-A exhibited surrogate recoveries less than the lower warning limit for terphenyl-d14 at 34% and 12%, respectively. The associated B/N positive detections are qualified as "J-" and non-detects are qualified as "UJ".

SVOCs by Method 8270D with SIM:

Sample NYOW-05-WL016-A exhibited surrogate recoveries less than the lower warning limits for fluoranthene-d10 (22%), terphenyl-d14 (26%), and nitrobenzene-d5 (54%). In addition, the surrogate 2-methylnaphthalene-d10 recovered above the upper warning limit at 92%. The associated positive detections are qualified as "J" and non-detects are qualified as "UJ".

Sample NYOW-05-WL017-1-A exhibited surrogate recoveries less than the lower warning limits for terphenyl-d14 at 40% and fluoranthene-d10 at 45%. The associated positive detections are qualified as "J-" and non-detects are qualified as "UJ".

Sample NYOW-05-WL019-1-A exhibited surrogate recoveries less than the lower warning limits for terphenyl-d14 at 39% and fluoranthene-d10 at 40%. The associated positive detections are qualified as "J-" and non-detects are qualified as "UJ".

**LABORATORY CONTROL SAMPLES**

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative

percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

LCS 680-652805/11-A exhibited recoveries less than the lower warning limits as shown in the table below. The associated sample results were non-detect and are qualified as “UJ”.

| Analyte | LCS Recovery |
|---|---|
| 4-Chloroaniline | 31.90 |
| 2,2'-Oxybis(1-chloropropane) | 36.70 |
| Bis(2-chloroethoxy)methane | 38.40 |
| Bis(2-chloroethyl) ether | 40.10 |
| Acetophenone | 40.10 |
| Isophorone | 41.20 |
| Nitrobenzene | 41.30 |
| 4-Chloro-3-methylphenol | 41.40 |
| N-Nitrosodi-n-propylamine | 42.20 |
| 2,4-Dichlorophenol | 42.60 |
| 2-Nitrophenol | 42.60 |
| 2,4,6-Trichlorophenol | 47.80 |
| Dibenzofuran | 49.40 |
| 2,4,5-Trichlorophenol | 49.60 |

SVOCs by Method 8270D with SIM:

LCS 280-523815/2-A exhibited a recovery less than the lower warning limit for dibenz(a,h)anthracene at 43%. The associated positive detections are qualified as “J-“ and non-detects are qualified “UJ”.

LCS/LCSD 280-524781/2-A exhibited recoveries outside of control limits for indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, benzo(g,h,i)perylene, benzo(a)pyrene, benzo(k)fluoranthene, benzo(a)anthracene, and chrysene. In addition, several analytes exhibited LCS/LCSD RPDs greater than the control limit. The preparation batch is associated with sample re-extraction. The initial analyses should be used for data interpretation; qualification is not necessary.

**MATRIX SPIKE/MATRIX SPIKE DUPLICATES**

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Several analytes failed exhibited recoveries less than the lower warning limit for spiked sample 280-144607-A-1-C associated with sample batch 680-653661. In addition, several analytes exceeded the RPD limit. The spiked sample and associated results were reported in a different data package; further qualification is not necessary.

SVOCs by Method 8270D with SIM:

MS/SD sample 280-144607-F-1-B exhibited recoveries less than the lower warning limit for dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene, and benzo(g,h,i)perylene. The spiked sample and associated results were reported in a different data package; further qualification is not necessary.

Metals by Methods 6010C and 6020A:

MS/SD sample NYOW-05-WL016-A exhibited acceptable recoveries and RPDs for all analytes.

**POST-DIGESTION SPIKE**

Metals by Methods 6010C and 6020A:

A post-digestion spike (PDS) was performed for MS/SD sample NYOW-05-WL016-A and all recoveries were acceptable.

**ICP SERIAL DILUTION**

An ICP serial dilution was performed for sample NYOW-05-WL016-A and all %Ds were below 10% for methods 6010C and 6020A.

**LOW-LEVEL CHECK STANDARD**

Low-level check standards for methods 7470A, 6010C and 6020A were performed using the low-level CCV standard. All recoveries were within the control limits.

**INTERFERENCE CHECK SAMPLES**

Interference check samples A and AB recoveries were evaluated and met the acceptance criteria.

**COMMENTS**

No field duplicate samples were collected as part of this SDG.

Due to the presence of sediments in the sample containers, a portion of the samples NYOW-05-WL016-A, NYOW-05-WL017-1-A, and NYOW-05-WL019-A was used for analysis, rather than testing the entire sample amount. Consequently, the required solvent rinse of the original container could not be performed for SVOC SIM analysis.

The project quantitation limit goals (PQLGs) for SVOCs and metals were met.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.70 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.10 | | UJ | H2/I/V2 |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.10 | | UJ | H2/I/v2 |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/L | 2.10 | | UJ | H2/V2 |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.40 | | UJ | H2/I/V2 |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/L | 2.10 | | UJ | H2/V2 |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 64.0 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/L | 2.10 | | UJ | H2 |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 11.0 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/L | 11.0 | | UJ | H2/V2 |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/L | 21.0 | | UJ | H2 |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.70 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 5.40 | | UJ | H2/I/V2 |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.10 | | UJ | H2/I/V2 |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Cresols, m- & p- | | ug/L | 2.10 | | UJ | H2/V2 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/L | 2.10 | | UJ | H2 |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 11.0 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 11.0 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/L | 2.10 | | UJ | H2 |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/L | 4.30 | | UJ | H2 |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.10 | | UJ | H2/I |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 4.30 | | UJ | H2 |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | Phenol | 108-95-2 | ug/L | 2.10 | | UJ | H2 |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/L | 2.10 | | UJ | H2 |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/L | 2.10 | | UJ | H2 |
| NYOW-05-WL016-A | 280-144706-1 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/L | 2.10 | | UJ | H2 |
| EB-01_210115 | 280-144706-4 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.0950 | | UJ | C |
| EB-01_210115 | 280-144706-4 | SW6010C | Barium | 7440-39-3 | ug/L | 2.00 | | U | L |
| EB-01_210115 | 280-144706-4 | SW6010C | Selenium | 7782-49-2 | ug/L | 19.0 | | UJ | V6 |
| EB-01_210115 | 280-144706-4 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.00 | | UJ | C |
| EB-01_210115 | 280-144706-4 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.00 | | UJ | C |
| EB-01_210115 | 280-144706-4 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.00 | | UJ | C |
| EB-01_210115 | 280-144706-4 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.00 | | UJ | V2 |
| EB-01_210115 | 280-144706-4 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/L | 2.00 | | UJ | C |
| EB-01_210115 | 280-144706-4 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 4.90 | | UJ | C |
| EB-01_210115 | 280-144706-4 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.00 | | UJ | C |
| EB-01_210115 | 280-144706-4 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/L | 2.00 | | UJ | C |
| EB-01_210115 | 280-144706-4 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.00 | | UJ | V3 |
| EB-01_210115 | 280-144706-4 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.00 | | UJ | C |
| EB-01_210115 | 280-144706-4 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.00 | | UJ | C |
| EB-01_210115 | 280-144706-4 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.00 | | UJ | C |
| EB-01_210115 | 280-144706-4 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/L | 2.00 | | UJ | C |
| EB-01_210115 | 280-144706-4 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.00 | | UJ | C |
| EB-01_210115 | 280-144706-4 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 3.90 | | UJ | V3 |
| EB-01_210115 | 280-144706-4 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/L | 2.00 | | UJ | C |
| EB-01_210115 | 280-144706-4 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/L | 2.00 | | UJ | C |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL016-A | 280-144706-1 | BNASIMD | Acenaphthene | 83-32-9 | ug/L | 0.0130 | | UJ | I |
| NYOW-05-WL016-A | 280-144706-1 | BNASIMD | Acenaphthylene | 208-96-8 | ug/L | 0.0220 | | UJ | I |
| NYOW-05-WL016-A | 280-144706-1 | BNASIMD | Anthracene | 120-12-7 | ug/L | 0.110 | | UJ | I |
| NYOW-05-WL016-A | 280-144706-1 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/L | 0.0630 | | J | I/TR |
| NYOW-05-WL016-A | 280-144706-1 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/L | 0.0560 | | J | I/TR |
| NYOW-05-WL016-A | 280-144706-1 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/L | 0.0850 | | J | I/TR |
| NYOW-05-WL016-A | 280-144706-1 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/L | 0.0490 | | J | I/TR |
| NYOW-05-WL016-A | 280-144706-1 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/L | 0.0400 | | J | I/TR |
| NYOW-05-WL016-A | 280-144706-1 | BNASIMD | Chrysene | 218-01-9 | ug/L | 0.0920 | | J | I/TR |
| NYOW-05-WL016-A | 280-144706-1 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.110 | | UJ | C/I |
| NYOW-05-WL016-A | 280-144706-1 | BNASIMD | Fluorene | 86-73-7 | ug/L | 0.0430 | | UJ | I |
| NYOW-05-WL016-A | 280-144706-1 | BNASIMD | Fluoranthene | 206-44-0 | ug/L | 0.110 | | J | I |
| NYOW-05-WL016-A | 280-144706-1 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/L | 0.0450 | | J | I/TR |
| NYOW-05-WL016-A | 280-144706-1 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/L | 0.0420 | | J | I/TR |
| NYOW-05-WL016-A | 280-144706-1 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/L | 0.0540 | | UJ | I |
| NYOW-05-WL016-A | 280-144706-1 | BNASIMD | Naphthalene | 91-20-3 | ug/L | 0.130 | | J | V/I |
| NYOW-05-WL016-A | 280-144706-1 | BNASIMD | Phenanthrene | 85-01-8 | ug/L | 0.110 | | J | I |
| NYOW-05-WL016-A | 280-144706-1 | BNASIMD | Pyrene | 129-00-0 | ug/L | 0.110 | | J | I |
| NYOW-05-WL016-A | 280-144706-1 | SW6010C | Selenium | 7782-49-2 | ug/L | 19.0 | | UJ | V6 |
| NYOW-05-WL016-A | 280-144706-1 | SW6020A | Thallium | 7440-28-0 | ug/L | 0.200 | | U | L |
| NYOW-05-WL017-1-A | 280-144706-2 | BNASIMD | Acenaphthene | 83-32-9 | ug/L | 0.0130 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | BNASIMD | Acenaphthylene | 208-96-8 | ug/L | 0.0220 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | BNASIMD | Anthracene | 120-12-7 | ug/L | 0.110 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/L | 0.110 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/L | 0.0550 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/L | 0.110 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/L | 0.110 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/L | 0.0550 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | BNASIMD | Chrysene | 218-01-9 | ug/L | 0.110 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.110 | | UJ | C/I |
| NYOW-05-WL017-1-A | 280-144706-2 | BNASIMD | Fluorene | 86-73-7 | ug/L | 0.0440 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | BNASIMD | Fluoranthene | 206-44-0 | ug/L | 0.110 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/L | 0.110 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/L | 0.0680 | - | J | I/TR |
| NYOW-05-WL017-1-A | 280-144706-2 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/L | 0.110 | - | J | I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL017-1-A | 280-144706-2 | BNASIMD | Naphthalene | 91-20-3 | ug/L | 0.180 | | J | V/I |
| NYOW-05-WL017-1-A | 280-144706-2 | BNASIMD | Phenanthrene | 85-01-8 | ug/L | 0.110 | - | J | I |
| NYOW-05-WL017-1-A | 280-144706-2 | BNASIMD | Pyrene | 129-00-0 | ug/L | 0.110 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW6010C | Selenium | 7782-49-2 | ug/L | 19.0 | | UJ | V6 |
| NYOW-05-WL017-1-A | 280-144706-2 | SW6020A | Thallium | 7440-28-0 | ug/L | 1.00 | | U | L |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.10 | | UJ | C/I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.10 | | UJ | C/I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.10 | | UJ | C/I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.60 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.10 | | UJ | I/V2 |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/L | 2.10 | | UJ | C |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.20 | | UJ | C/I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.10 | | UJ | C/I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 62.0 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/L | 2.10 | | UJ | C |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 10.0 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.60 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 5.20 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.10 | | UJ | I/V3 |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.10 | | UJ | I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.10 | | UJ | C/I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.10 | | UJ | C/I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 10.0 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 10.0 | | UJ | I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.10 | | UJ | C/I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/L | 2.10 | | UJ | C |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.10 | | UJ | C/I |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 4.20 | | UJ | V3 |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/L | 2.10 | | UJ | C |
| NYOW-05-WL017-1-A | 280-144706-2 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/L | 2.10 | | UJ | C |
| NYOW-05-WL019-A | 280-144706-3 | BNASIMD | Acenaphthene | 83-32-9 | ug/L | 0.0510 | - | J | I/TR |
| NYOW-05-WL019-A | 280-144706-3 | BNASIMD | Acenaphthylene | 208-96-8 | ug/L | 0.0210 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | BNASIMD | Anthracene | 120-12-7 | ug/L | 0.0710 | - | J | I/TR |
| NYOW-05-WL019-A | 280-144706-3 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/L | 0.310 | - | J | I |
| NYOW-05-WL019-A | 280-144706-3 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/L | 0.310 | - | J | I |
| NYOW-05-WL019-A | 280-144706-3 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/L | 0.440 | - | J | I |
| NYOW-05-WL019-A | 280-144706-3 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/L | 0.170 | - | J | I |
| NYOW-05-WL019-A | 280-144706-3 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/L | 0.220 | - | J | I |
| NYOW-05-WL019-A | 280-144706-3 | BNASIMD | Chrysene | 218-01-9 | ug/L | 0.350 | - | J | I |
| NYOW-05-WL019-A | 280-144706-3 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.0500 | - | J | C/I/TR |
| NYOW-05-WL019-A | 280-144706-3 | BNASIMD | Fluorene | 86-73-7 | ug/L | 0.0410 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | BNASIMD | Fluoranthene | 206-44-0 | ug/L | 0.600 | - | J | I |
| NYOW-05-WL019-A | 280-144706-3 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/L | 0.210 | - | J | I |
| NYOW-05-WL019-A | 280-144706-3 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/L | 0.190 | - | J | I |
| NYOW-05-WL019-A | 280-144706-3 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/L | 0.200 | - | J | I |
| NYOW-05-WL019-A | 280-144706-3 | BNASIMD | Naphthalene | 91-20-3 | ug/L | 0.230 | | J | V/I |
| NYOW-05-WL019-A | 280-144706-3 | BNASIMD | Phenanthrene | 85-01-8 | ug/L | 0.420 | - | J | I |
| NYOW-05-WL019-A | 280-144706-3 | BNASIMD | Pyrene | 129-00-0 | ug/L | 0.480 | - | J | I |
| NYOW-05-WL019-A | 280-144706-3 | SW6010C | Selenium | 7782-49-2 | ug/L | 19.0 | | UJ | V6 |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.00 | | UJ | C/I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.00 | | UJ | C/I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.00 | | UJ | C/I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.50 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.00 | | UJ | I/V2 |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/L | 2.00 | | UJ | C |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.20 | - | J | I/TR |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.00 | | UJ | C/I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.00 | | UJ | C/I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 60.0 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/L | 2.00 | | UJ | C |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 9.90 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.50 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 5.00 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.00 | | UJ | I/V3 |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.00 | | UJ | C/I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.00 | | UJ | C/I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 9.90 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 9.90 | | UJ | I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.00 | | UJ | C/I |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/L | 2.00 | | UJ | C |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.00 | | UJ | C/I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 4.00 | | UJ | V3 |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/L | 2.00 | | UJ | C |
| NYOW-05-WL019-A | 280-144706-3 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/L | 2.00 | | UJ | C |

Reason Code Defintions

| | | | |
|---|---|---|---|
| C | LCS Recovery | L | Lab Blank |
| I | Surrogate Recovery | V | Equipment Blank |
| TR | Trace Level Detect | V6 | Low Level Calibration Verification |
| H2 | Prep Hold Time | | |
| V2 | CCV | | |
| V3 | CCV RRF | | |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 06 October 2021

**SUBJECT:** New York Ordnance Works Soil and Groundwater S2BVEM: 280-144651-1 Revision 5

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil and groundwater samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Volatile Organic Compounds (VOCs) by SW-846 Method 8260C
- Semi-Volatile Organic Compounds (SVOCs) by SW-846 Method 8270D
- SVOCs with SIM by SW-846 Method 8270D
- Polychlorinated Biphenyls (PCBs) by SW-846 Method 8082A
- Total and Dissolved Metals by ICP SW-846 Method 6010C
- Total and Dissolved Metals by ICP-MS SW-846 Method 6020A
- Total and Dissolved Mercury (Hg) by SW-846 Method 7470A (groundwater and blank water)
- Hg by SW-846 Method 7471B (soil)
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144651 | 280-144651-1 | NYOW-05-WL004-A | 1/14/21 | VOCs, SVOCs, SVOCs with SIM, PCBs, Dissolved ICP and ICP-MS Metals, Dissolved Hg |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144651 | 280-144651-2 | [1]WL-DUP-001_210114 | 1/14/21 | VOCs, SVOCs, SVOCs with SIM, PCBs, Dissolved ICP and ICP-MS Metals, Dissolved Hg |
| 280-144651 | 280-144651-3 | NYOW-05-WL005-A | 1/14/21 | VOCs, SVOCs, SVOCs with SIM, PCBs, Dissolved ICP and ICP-MS Metals, Dissolved Hg |
| 280-144651 | 280-144651-4 | NYOW-05-WL012-A | 1/14/21 | SVOCs, SVOCs with SIM, Dissolved ICP and ICP-MS Metals, Dissolved Hg |
| 280-144651 | 280-144651-5 | [2]WL-DUP-002_210114 | 1/14/21 | SVOCs, SVOCs with SIM, Dissolved ICP and ICP-MS Metals, Dissolved Hg |
| 280-144651 | 280-144651-6 | NYOW-05-SL017-1-A | 1/14/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144651 | 280-144651-7 | [3]SL-DUP-001_210114 | 1/14/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144651 | 280-144651-8 | NYOW-05-PH017-1-B | 1/14/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144651 | 280-144651-9 | [4]PH-DUP-001_210114 | 1/14/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144651 | 280-144651-10 | NYOW-05-PH017-1-C | 1/14/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144651 | 280-144651-11 | NYOW-05-SL016-A | 1/14/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144651 | 280-144651-12 | NYOW-05-PH016-B | 1/14/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144651 | 280-144651-13 | NYOW-05-PH016-C | 1/14/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144651 | 280-144651-14 | TB-01_210114 | 1/14/21 | VOCs |
| 280-144651 | 280-144651-15 | EB-01_210114 | 1/14/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg |
| 280-144651 | 280-144651-16 | EB-02_210114 | 1/14/21 | VOCs, SVOCs, SVOCs with SIM, PCBs, Dissolved ICP and ICP-MS Metals, Dissolved Hg |

[1]WL-DUP-001_210114 collected from NYOW-05-WL004-A
[2]WL-DUP-002_210114 collected from NYOW-05-WL012-A
[3]SL-DUP-001_210114 collected from NYOW-05-SL017-1-A
[4]PH-DUP-001_210114 collected from NYOW-05-PH017-1-B

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for*

*Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 0.2°C, 0.2°C, 0.8°C, 0.9°C, and 1.7°C. All samples were initially extracted and analyzed within holding time.

The container IDs on 4 oz soil jars from the following samples were missing "PH" or "SL": NYOW-05-SL017-1-A, NYOW-05-PH017-1-B, NYOW-05-PH017-1-C, NYOW-05-SL016-A, NYOW-05-PH016-B and NYOW-05-PH016-C. The samples were logged according to the COC.

The pH of volatile sample NYOW-05-WL004-A was greater than 2. The sample was analyzed within the 7-day holding time period for unpreserved VOCs.

Samples EB-01_210114, EB-02_210114, NYOW-05-WL004-A, and WL-DUP-002_210114 were re-extracted outside of the holding time window for ***SVOCs*** at approximately 15 days. The initial

sample results should be used for data interpretation. The initial extraction for samples NYOW-05-WL005-A, NYOW-05-WL012-A, and WL-DUP-001_210114 were performed on the seventh day and are considered within the holding time period.

Sample NYOW-05-PH016-B was re-extracted outside of the preparation holding time at 19 days for ***SVOCs***. The initial analysis exhibited surrogate recoveries below the rejection threshold; therefore, the reanalysis should be used for data interpretation and the associated sample results are qualified as "UJ".

Samples EB-01_210114, EB-02_210114, NYOW-05-WL004-A, NYOW-05-WL005-A, NYOW-05-WL012-A, WL-DUP-001_210114, and WL-DUP-002_210114 were re-extracted outside of the holding time window for ***SVOCs with SIM*** from approximately 14 to 18 days. The initial sample results should be used for data interpretation.

Samples NYOW-05-PH017-1-C and PH-DUP-001_210114 were re-extracted outside of the holding time window for ***SVOCs with SIM*** from approximately 15 to 18 days. The initial sample results should be used for data interpretation.

Bluestone requested that the laboratory change the sample IDs for SVOCs, SVOCs with SIM, and dissolved metals analysis associated with equipment blank sample EB-02_210114 and field duplicate sample WL-DUP-002_210114. The reported results indicated that the sample bottleware was inadvertently switched prior to analysis. The laboratory report was revised to reflect the change.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | | X |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | | X |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A bromofluorobenzene instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for VOCs (i.e., each 12-hour period). The tunes met the ion abundance criteria. A decafluorotriphenylphosphine instrument performance check was performed prior to the initial instrument calibrations and at the start of each sample analysis batch for SVOCs by full scan and SIM. The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and

initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

SVOCs by Method 8270D:

The initial calibration analyzed for instrument CMSG on 1/28/2021 exhibited RRFs less than the minimum recommendations by the method and Module 1 for hexachlorobenzene and pentachlorophenol. The ICV RRFs (680-653661/9) were also below the method recommendations. A standard at or below the PQL was not subsequently analyzed. The associated sample results were non-detect and are qualified as “UJ”.

**CONTINUING CALIBRATION VERIFICATION**

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

VOCs by Method 8260C:

CCV 280-523925/15 exhibited a %D greater than the control limit with a negative bias for bromomethane at 26%. The associated positive detections are qualified as “J-” and non-detects are qualified as “UJ”.

SVOCs by Method 8270D:

CCV 680-654491/3 exhibited a %D greater than the control limit for benzaldehyde at 20.9%. The associated sample result is for the reanalysis of sample NYOW-05-PH016-B and was previously qualified; no further action is necessary.

CCV 680-654491/2 exhibited a RRF less than the method and Module 1 recommendations (0.100) for hexachlorobenzene at 0.059. A CCV was performed at the LOQ and was acceptable; therefore, the sensitivity of the analytical system was demonstrated. The associated sample results are not qualified on this basis.

Closing CCVs 680-654491/34 and 680-654491/35 were performed 24 minutes and 36 minutes after the 12-hour tuning window. The associated sample results are for the reanalysis of sample NYOW-05-PH016-B and were previously qualified; no further action is necessary.

CCV 680-654183/2 exhibited %Ds greater than the control limit for with positive biases for 4-chloroaniline (23.4%), hexachlorocyclopentadiene (22.9%), 4-bromophenyl phenyl ether (32.4%), 2-chlorophenol (28.1%), 2,4-dimethylphenol (26.3%), 4-chloro-3-methylphenol, (24.5%), hexachloroethane (24.1%), and 3&4-methylphenol (21.7%), The associated sample results are qualified as “UJ”.

CCV 680-654183/3 exhibited a %D greater than the control limit for benzaldehyde at 22.4%. The associated sample results are qualified as “UJ”.

CCVs 680-654183/29 and 680-654183/2 exhibited RRFs less than the method and Module 1 recommendations for hexachlorobenzene and pentachlorophenol. A CCV was performed at the

LOQs and was acceptable; therefore, the sensitivity of the analytical system was demonstrated. The associated sample results are not qualified on this basis.

CCV 680-653363/2 exhibited a %D greater than the control limit for 2,2'-oxybis(1-chloropropane) at 27.9%. The associated sample results were non-detect and are qualified as “UJ”.

CCV 680-653363/2 exhibited %Ds greater than the control limit for hexachlorobenzene at 21% and pentachlorophenol at 24.9%. The associated sample results were non-detect and are qualified as “UJ”.

CCV 680-653363/3 exhibited a %D greater than the control limit for caprolactam at 25.3%. The associated sample results were non-detect and are qualified as “UJ”.

CVC 680-653661/30 exhibited RRFs less than the method and Module 1 recommendations for hexachlorobenzene and pentachlorophenol. The results were previously qualified on the basis of ICV RRFs; no further action is necessary.

CCV 680-653661/10 exhibited a %D greater than the control limit for benzaldehyde at 23.8%. The associated sample results are qualified as “UJ”.

CCV 680-653957/2 exhibited %Ds greater than the control limit for 2,3,4,6-tetrachlorophenol (20.5%), 4-bromophenyl phenyl ether (22%), and pentachlorophenol (23.1%). The associated sample results are qualified as “UJ”.

CCV 680-653957/3 exhibited a %D greater than the control limit for benzaldehyde at 24.3%. The associated sample results are qualified as “UJ”.

CCVs 680-653957/31 and 680-653957/2 exhibited RRFs less than the method and Module 1 recommendations for hexachlorobenzene. A CCV was performed at the LOQ and was acceptable; therefore, the sensitivity of the analytical system was demonstrated. The associated sample results are not qualified on this basis.

PCBs by Method 8082A:

The CCV analyzed on 1/27/21 at 03:40 (280-524458/3) exhibited %Ds greater than the control limit on the primary and secondary chromatography columns with positive biases for all PCB 1016 and 1260 peaks. The CCV did not bracket the analysis of investigative samples; qualification is not necessary.

The CCV analyzed on 1/27/21 at 10:29 (280-524458/20) exhibited %Ds greater than the control limit with positive biases for the majority of PCB 1016 and 1260 peaks on the primary and secondary chromatography columns. The CCV did not bracket the analysis of investigative samples; qualification is not necessary.

The CCV analyzed on 1/27/21 at 15:18 (280-524458/32) exhibited %Ds greater than the control limit on the primary and secondary chromatography columns with positive biases for the majority

of PCB 1016 and 1260 peaks. The CCV did not bracket the analysis of investigative samples; qualification is not necessary.

The CCV analyzed on 1/27/21 at 19:43 (280-524458/43) exhibited %Ds greater than the control limit on the secondary chromatography column with positive biases for all PCB 1016 and 1260 peaks. The associated sample results were non-detect and are qualified as “UJ”.

The CCV analyzed on 1/27/21 at 23:45 (280-524458/53) exhibited a %D greater than the control limit on the primary chromatography column with a positive bias for PCB 1016 peak 1. The associated sample results were non-detect and are qualified as “UJ”.

The CCV analyzed on 1/27/21 at 23:45 (280-524458/53) exhibited %Ds greater than the control limit on the secondary chromatography column with positive biases for all PCB 1016 and 1260 peaks. The associated sample results were non-detect and are qualified as “UJ”.

Metals by Method 6010C:

Low-level CCVs (LLCCV) associated with analysis batch 524791 exhibited recoveries greater than the upper control limit for sodium. The associated sample concentrations were greater than the level spiked in the ICV and CCVs; qualification is not necessary.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

**BLANK SAMPLE RESULTS**

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, initial and continuing calibration blanks (ICB/CCB), and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, continuing calibration blanks, trip blanks, and equipment blanks with the exceptions noted below.

VOCs by Method 8260C:

Equipment blank sample EB-02_210114 exhibited a positive detection below the LOQ for bromomethane at 0.25 µg/L. The associated positive sample results were less than the LOQ and are qualified as “U” at either the LOQ or the LOD.

SVOCs by Method 8270D with SIM:

Equipment blank samples EB-01_210114 and EB-02_210114 exhibited positive detections greater than the LOQ for naphthalene at 0.11 µg/L and 0.12 µg/L, respectively. The associated sample results were greater than the LOQ but less than 5X the blank amounts. Consistent with Module 1, the results are qualified as “J+”.

Method blank sample MB 280-525097/1-A exhibited positive detections for benzo(k)fluoranthene, phenanthrene, benzo(b)fluoranthene, benzo(a)anthracene, chrysene, pyrene, and fluoranthene. The method blank is associated with the reanalysis of sample NYOW-05-WL004-A; qualification is not necessary.

Metals by Method 6010C:

Equipment blank sample EB-01_210114 exhibited positive detections below the LOQ for total calcium at 280 µg/L and sodium at 430 µg/L. Soil sample results are not qualified on the basis of aqueous equipment blank samples.

Method blank sample 280-524473/1-A exhibited a positive detection for dissolved iron below the LOQ at 37 µg/L. The associated sample results were greater than the LOQ; qualification is not necessary.

Metals by Method 6020A:

Preparation blank sample 280-524501/1-A exhibited a positive detection less than the LOQ for thallium at 0.0081 mg/kg. The associated soil sample results less than the LOQ were qualified as "U" at either the LOQ or the LOD.

Preparation blank sample 280-524476/1-A exhibited a positive detection less than the LOQ for dissolved thallium at 0.107 µg/L. The associated positive detection is qualified as "U" at the LOD.

Equipment blank sample EB-01_210114 exhibited positive detections below the LOQ for total thallium and antimony at 0.2 µg/L and 0.8 µg/L, respectively. Soil sample results are not qualified on the basis of aqueous equipment blank samples.

Preparation blank sample MB 280-524576/1-A exhibited positive detections for thallium and lead below the LOQ. The associated equipment blank sample result for total lead was non-detect; qualification is not necessary. The equipment blank detection for total thallium is qualified as "U" at the LOD. The thallium sample result for EB-01_210114 was not used to assess field decontamination procedures.

The ICB and CCBs for analysis batch 524751 exhibited positive detections for antimony and thallium. The results for aqueous investigative samples were non-detect; qualification is not required.

Mercury by Method 7470A:

Equipment blank sample EB-02_210114 displayed a positive detection below the LOQ for dissolved mercury at 0.033 µg/L. The associated sample results were less than the LOQ and are qualified as "U" at either the LOQ or the LOD.

Preparation blank sample 280-524517/1-A exhibited a positive detection for total mercury at 0.0413 µg/L. The associated equipment blank sample was non-detect; qualification is not required.

CCB 280-524120/13A displayed a positive detection for total mercury. The associated equipment blank sample result was non-detect; qualification is not necessary.

CCB 280-524716/13A displayed a positive detection for mercury. The associated sample results were non-detect; qualification is not necessary.

Mercury by Method 7471B:

Preparation blank sample 280-524708/1-A exhibited a positive detection below the LOQ at 0.00792 mg/kg. The associated positive sample results less than the LOQ are qualified as "U" at either the LOQ or the LOD.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Sample NYOW-05-WL004-A exhibited a recovery less than the lower warning limit for terphenyl-d14 at 38%. The associated base/neutral (B/N) extractable compounds were non-detect and are qualified as "UJ".

Sample NYOW-05-WL005-A exhibited a recovery less than the lower warning limit for terphenyl-d14 at 20%. The associated B/N extractable compounds were non-detect and are qualified as "UJ".

Sample NYOW-05-WL012-A exhibited a recovery less than the lower warning limit for terphenyl-d14 at 37%. The associated B/N extractable compounds were non-detect and are qualified as "UJ".

Sample WL-DUP-001_210114 exhibited a recovery less than the lower warning limit for terphenyl-d14 at 34%. The associated B/N extractable compounds were non-detect and are qualified as "UJ".

Sample NYOW-05-PH016-B exhibited surrogate recoveries less than the rejection threshold for 2-fluorophenol, nitrobenzene-d5, phenol-d5, and 2-fluorobiphenyl. The results from the reanalysis should be used for data interpretation.

SVOCs by Method 8270D with SIM:

Sample NYOW-05-PH017-1-C exhibited a recovery less than the lower warning limit for 2-fluorobiphenyl at 45%. The associated sample results are qualified as "UJ".

Sample PH-DUP-001_210114 exhibited recoveries less than the lower warning limit for terphenyl-d14 and fluoranthene-d10 at 50% and 52%, respectively. The associated sample results are qualified as "UJ".

Sample WL-DUP-002_210114 exhibited a recovery less than the lower warning limit for terphenyl-d14 at 47%. The associated positive detections are qualified as "J" and non-detects are qualified as "UJ".

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

LCS 680-654296/13-A exhibited multiple recoveries less than the lower warning limits as shown in the table below. The associated sample results for NYOW-05-PH016-B RE were previously qualified; no further action is necessary. In addition, the recoveries for 1,4-dioxane (0%), benzaldehyde (1%) and hexachloroethane (6%) were less than the lower control limit and the sample results are qualified as "X".

| Analyte | LCS Recovery |
|---|---|
| 2-Chlorophenol | 19 |
| 2,2'-Oxybis(1-chloropropane) | 13 |
| Bis(2-chloroethyl) ether | 12 |
| Hexachlorocyclopentadiene | 22 |
| Nitrobenzene | 21 |
| N-Nitrosodi-n-propylamine | 28 |
| 2,4-Dichlorophenol | 37 |
| 2-Nitrophenol | 24 |
| Cresols, m- & p- | 33 |
| Phenol | 23 |
| 2-Methylphenol | 27 |
| Acetophenone | 24 |
| Bis(2-chloroethoxy)methane | 28 |
| Hexachlorobutadiene | 15 |

LCS 680-652805/11-A exhibited recoveries less than the lower warning limit as presented in the table below. The associated aqueous sample results are qualified as "UJ".

| Analyte | LCS Recovery |
|---|---|
| 4-Chloroaniline | 32 |
| 2,2'-Oxybis(1-chloropropane) | 37 |
| Bis(2-chloroethoxy)methane | 38 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 40 |
| Acetophenone | 40 |

| Analyte | LCS Recovery |
|---|---|
| Isophorone | 41 |
| Nitrobenzene | 41 |
| 4-Chloro-3-methylphenol | 41 |
| N-Nitrosodi-n-propylamine | 42 |
| 2,4-Dichlorophenol | 42.60 |
| 2-Nitrophenol | 42.60 |
| 2,4,6-Trichlorophenol | 47.80 |
| Dibenzofuran | 49.40 |
| 2,4,5-Trichlorophenol | 49.60 |

SVOCs by Method 8270D with SIM:

LCS 280-523815/2-A exhibited a recovery below the lower warning limit for dibenz(a,h)anthracene at 43%. The associated aqueous sample results were non-detect and are qualified as “UJ”.

LCS/LCSD 280-525097/2-A and LCSD 280-525097/12-A exhibited recoveries less than the lower control limit for dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, benzo(a)pyrene, and benzo(k)fluoranthene. The associated sample results are for the reanalysis of sample NYOW-05-WL004-A. The initial analysis should be used for data interpretation; qualification is not necessary.

LCSD 280-524781/3-A exhibited recoveries greater than the upper warning limit for benzo(b)fluoranthene, benzo(a)anthracene, benzo(g,h,i)perylene, indeno(1,2,3-cd)pyrene, chrysene, benzo(k)fluoranthene, and dibenz(a,h)anthracene. The associated sample results are for the reanalysis of aqueous samples. The initial analyses should be used for data interpretation; qualification is not necessary.

LCS 280-525048/2-A exhibited recoveries less than the lower control limit for benzo(a)pyrene and indeno(1,2,3-cd)pyrene at 46% and 48%, respectively. The associated sample results are for the reanalysis of soil sample NYOW-05-PH017-1-C. The initial analyses should be used for data interpretation; qualification is not necessary.

The LCS/LCSD associated with sample preparation batch 280-524781/3-A exhibited RPDs greater than the control limit for benzo(a)pyrene, benzo(b)fluoranthene, benzo(a)anthracene, benzo(g,h,i)perylene, indeno(1,2,3-cd)pyrene, chrysene, benzo(k)fluoranthene, and dibenz(a,h)anthracene. The associated sample results are for the reanalysis of aqueous samples. The initial analyses should be used for data interpretation; qualification is not necessary.

**MATRIX SPIKE/MATRIX SPIKE DUPLICATES**

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine

compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

VOCs by Method 8260C:

MS sample 280-144607-H-1 exhibited multiple recoveries and RPDs outside of acceptance criteria. The spiked sample results were reported as part of a different SDG: qualification is not necessary.

PCBs by Method 8082A:

The MS/SD RPD for sample 280-144607-D-1-C was greater than the control limit for PCB-1260 at 74%. The MS sample was reported in a separate SDG; qualification is not necessary.

SVOCs by Method 8270D:

SD sample NYOW-05-SL017-1-A exhibited recoveries less than the lower warning limits for multiple analytes as shown in the table below. The associated sample results were non-detect and are qualified as “UJ”.

| Analyte | Recovery | Analyte | Recovery |
|---|---|---|---|
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 26.46 | 1,2,4,5-Tetrachlorobenzene | 36.91 |
| 2,2'-Oxybis(1-chloropropane) | 29.31 | 2,4-Dichlorophenol | 37.99 |
| N-Nitrosodi-n-propylamine | 33.38 | Dibenzofuran | 42.74 |
| Nitrobenzene | 33.65 | di-n-Octyl phthalate | 43.69 |
| 2-Nitrophenol | 34.60 | Benzyl butyl phthalate | 44.37 |
| Biphenyl (Diphenyl) | 35.01 | Bis(2-ethylhexyl)phthalate | 44.78 |
| 2-Chloronaphthalene | 35.82 | | |

Multiple MS/SD RPDs for sample NYOW-05-SL017-1-A were greater than 20% as shown in the table below. The analyte concentrations were non-detect; qualification is not necessary.

| Analyte | RPD | Analyte | RPD |
|---|---|---|---|
| 1,4-Dioxane | 1,120 | Cresols, m- & p- | 46 |
| Di-n-butylphthalate | 28 | Phenol | 47 |
| Atrazine | 31 | 2-Chlorophenol | 47 |
| 2,4-Dinitrotoluene | 31 | 4-Chloro-3-methylphenol | 48 |
| N-Nitrosodiphenylamine | 32 | Dibenzofuran | 49 |
| 4-Bromophenylphenyl ether | 33 | Benzaldehyde | 51 |
| Carbazole | 33 | 2,4-Dimethylphenol | 51 |
| Hexachlorobenzene | 33 | 2,2'-Oxybis(1-chloropropane) | 52 |
| Diethyl phthalate | 33 | Bis(2-chloroethoxy)methane | 52 |

| Analyte | RPD | Analyte | RPD |
|---|---|---|---|
| Benzyl butylphthalate | 34 | 2,4,6-Trichlorophenol | 53 |
| 2,3,4,6-Tetrachlorophenol | 37 | Nitrobenzene | 54 |
| Dimethyl phthalate | 37 | Acetophenone | 55 |
| di-n-Octylphthalate | 38 | 2,4-Dichlorophenol | 55 |
| Bis(2-ethylhexyl)phthalate | 38 | Isophorone | 55 |
| 2,6-Dinitrotoluene | 40 | Bis(2-chloroethyl)ether | 55 |
| 2,4,5-Trichlorophenol | 43 | 2-Nitrophenol | 55 |
| Caprolactam | 43 | 1,2,4,5-Tetrachlorobenzene | 56 |
| 2-Methylphenol (o-Cresol) | 44 | 2-Chloronaphthalene | 58 |
| 4-Chlorophenylphenyl ether | 45 | Hexachlorobutadiene | 62 |
| 3,3'-Dichlorobenzidine | 49 | Hexachlorocyclopentadiene | 64 |
| N-Nitrosodi-n-propylamine | 49 | Hexachloroethane | 65 |

SVOCs by Method 8270D with SIM:

SD sample NYOW-05-SL017-1-A exhibited recoveries less than the lower control limit for benzo(b)fluoranthene at 47% and fluoranthene at 53%. The associated sample results are qualified as “J-”.

MS sample PH-DUP-001_210114 exhibited recoveries less than the lower warning limit for 1-methylnaphthalene (31%), 2-methylnaphthalene (31%), acenaphthene (42%), acenaphthylene (37%), and naphthalene (32%). The associated sample results were previously qualified on the basis of surrogate recoveries; no further action is necessary.

Metals by Method 6010C:

MS/SD sample NYOW-05-SL017-1-A exhibited recoveries outside of control limits for manganese, iron, and aluminum. The sample concentrations were greater than 4X the spiked amount; qualification is not necessary.

MS/SD sample NYOW-05-SL017-1-A did not recover for calcium. In the MS, the sample concentration was greater than 4X the spiked amount. In the SD, the sample concentration was 3.9X the spiked amount. The positive detection for calcium is qualified as “J-“ on the basis of professional judgment. In addition, the recoveries of multiple analytes were below the lower warning limit as summarized below. The associated positive detections are qualified as “J-“ and non-detect are qualified as “UJ”.

| Analyte | MS Recovery | SD Recovery |
|---|---|---|
| Calcium | -100 | -126.1 |
| Magnesium | 50.74 | 39.13 |
| Barium | 72.22 | 74.05 |
| Zinc | 72.28 | 68.76 |
| Nickel | 75.53 | 76.63 |
| Lead | 76.51 | 74.57 |
| Cobalt | 76.51 | 77.79 |
| Silver | 76.98 | 78.52 |

| Analyte | MS Recovery | SD Recovery |
|---|---|---|
| Beryllium | 78.26 | 79.10 |
| Vanadium | 79.23 | 80.11 |
| Copper | 79.51 | 76.96 |
| Chromium | 80.47 | 80.82 |
| Sodium | 80.94 | 81.78 |

SD sample 280-144584-C-1-D exhibited recoveries greater than the upper control limit for aluminum and copper. The spiked sample volume did not originate from the site; qualification is not required.

**DUAL COLUMN IMPRECISION**

All sample results were non-detect; therefore, column comparisons were not performed.

**POST-DIGESTION SPIKE**

Metals by Methods 6010C, 6020A, and 7471B:

A post digestion spike (PDS) was performed for MS/SD sample NYOW-05-SL017-1-A. Aluminum, iron, and manganese did not recover. Barium, calcium, and silver recovered below the lower warning limit at 75%, 70%, and 78% respectively. The sample results for aluminum, calcium, iron, and manganese were greater than 4X the spiked amount in the MS; therefore, the PDS was not used to evaluate MS/SD recovery failures. The results for barium, calcium, and silver were previously qualified; no further action is required.

**ICP SERIAL DILUTION**

An ICP serial dilution was performed for sample NYOW-05-SL017-1-A. Aluminum, calcium, iron, and magnesium %Ds were greater than 10% at 11%, 13%, 12%, and 15%, respectively. The associated sample results are qualified as “J”.

**LOW-LEVEL CHECK STANDARD**

Low-level check standards for methods 6010C and 6020A were performed using the low-level CCV standard. All recoveries were within the control limits.

**INTERFERENCE CHECK SAMPLES**

Interference check samples A and AB recoveries were evaluated and met the acceptance criteria.

**COMMENTS**

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

A portion of sample WL-DUP-001_210114 was used for analysis, rather than testing the entire sample amount in the original container, due to the presence of sediments in the sample container. Consequently, the required solvent rinse of the original container could not be performed.

Batch precision information Is not available for preparation batch 654296 associated with the reanalysis of sample NYOW-05_PH016-B. Accuracy was demonstrated through the analysis of an acceptable LCS.

Samples NYOW-05-WL004-A, WL-DUP-001_210114, NYOW-05-WL005-A, and EB-02_210114 required a sulfuric acid clean-up via EPA Method 3665A to reduce matrix interferences prior to analysis for PCBs.

Four field duplicate and parent sample pairs were collected and analyzed for all parameters (WL-DUP-001_210114 and NYOW-05-WL004-A, WL-DUP-002_210114 and NYOW-05-WL012-A, SL-DUP-001_210114 and NYOW-05-SL017-1-A, and PH-DUP-001_210114 and NYOW-05-PH017-1-B). For sample results that are greater than 5X the LOQ, the RPD must be less than 50% for soil samples or less than 30% for aqueous samples. For sample results less than 5X the LOQ, the absolute difference must be less than ±LOQ. All analytes met the precision criteria for these field duplicate pairs with the exception noted below:

- WL-DUP-002_210114 collected from NYOW-05-WL012-A: dissolved iron

LOQs were slightly greater than PQLGs for mercury and SVOCs due to percent moisture adjustments.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified, with the exception of results qualified as “X”. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 99%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210114 | 280-144651-15 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.0930 | | UJ | C |
| EB-01_210114 | 280-144651-15 | SW6020A | Thallium | 7440-28-0 | ug/L | 0.200 | | U | L |
| EB-01_210114 | 280-144651-15 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.10 | | UJ | C |
| EB-01_210114 | 280-144651-15 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.10 | | UJ | C |
| EB-01_210114 | 280-144651-15 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.10 | | UJ | C |
| EB-01_210114 | 280-144651-15 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.10 | | UJ | V2 |
| EB-01_210114 | 280-144651-15 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/L | 2.10 | | UJ | C |
| EB-01_210114 | 280-144651-15 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.20 | | UJ | C |
| EB-01_210114 | 280-144651-15 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.10 | | UJ | C |
| EB-01_210114 | 280-144651-15 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/L | 2.10 | | UJ | C |
| EB-01_210114 | 280-144651-15 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.10 | | UJ | G1 |
| EB-01_210114 | 280-144651-15 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.10 | | UJ | C |
| EB-01_210114 | 280-144651-15 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.10 | | UJ | C |
| EB-01_210114 | 280-144651-15 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.10 | | UJ | C |
| EB-01_210114 | 280-144651-15 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/L | 2.10 | | UJ | C |
| EB-01_210114 | 280-144651-15 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.10 | | UJ | C |
| EB-01_210114 | 280-144651-15 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 4.10 | | UJ | G1 |
| EB-01_210114 | 280-144651-15 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/L | 2.10 | | UJ | C |
| EB-01_210114 | 280-144651-15 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/L | 2.10 | | UJ | C |
| EB-02_210114 | 280-144651-16 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.110 | | UJ | C |
| EB-02_210114 | 280-144651-16 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/L | 0.430 | | UJ | V2 |
| EB-02_210114 | 280-144651-16 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/L | 0.430 | | UJ | V2 |
| EB-02_210114 | 280-144651-16 | SW8260C | Bromomethane | 74-83-9 | ug/L | 0.250 | | J | TR/V2 |
| EB-02_210114 | 280-144651-16 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.10 | | UJ | C |
| EB-02_210114 | 280-144651-16 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.10 | | UJ | C |
| EB-02_210114 | 280-144651-16 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.10 | | UJ | C |
| EB-02_210114 | 280-144651-16 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.10 | | UJ | V2 |
| EB-02_210114 | 280-144651-16 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/L | 2.10 | | UJ | C |
| EB-02_210114 | 280-144651-16 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.20 | | UJ | C |
| EB-02_210114 | 280-144651-16 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.10 | | UJ | C |
| EB-02_210114 | 280-144651-16 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/L | 2.10 | | UJ | C |
| EB-02_210114 | 280-144651-16 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.10 | | UJ | G1 |
| EB-02_210114 | 280-144651-16 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.10 | | UJ | C |
| EB-02_210114 | 280-144651-16 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.10 | | UJ | C |
| EB-02_210114 | 280-144651-16 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.10 | | UJ | C |
| EB-02_210114 | 280-144651-16 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/L | 2.10 | | UJ | C |
| EB-02_210114 | 280-144651-16 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.10 | | UJ | C |
| EB-02_210114 | 280-144651-16 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 4.20 | | UJ | G1 |

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|---|---|---|---|---|---|---|---|---|
| EB-02_210114 | 280-144651-16 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/L | 2.10 | UJ | C |
| EB-02_210114 | 280-144651-16 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/L | 2.10 | UJ | C |
| NYOW-05-PH016-B | 280-144651-12 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0780 | U | L |
| NYOW-05-PH016-B | 280-144651-12 | SW7471B | Mercury | 7439-97-6 | mg/kg | 0.0150 | U | L |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 73.0 | UJ | H2/C/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 73.0 | UJ | H2/C/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 360 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 91.0 | UJ | H2/C/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | X | H2/C/Z6/V2 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 190 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Carbazole | 86-74-8 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 91.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 73.0 | UJ | H2/C/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/kg | 73.0 | UJ | H2/C/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 360 | X | H2/C/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/kg | 360 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 91.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 73.0 | UJ | H2/C/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 73.0 | UJ | H2/C/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 73.0 | X | H2/C/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Isophorone | 78-59-1 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Cresols, m- & p- | | ug/kg | 73.0 | UJ | H2/C/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/kg | 73.0 | UJ | H2/C/Z6 |

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|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 73.0 | UJ | H2/C/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 190 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 91.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 91.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 73.0 | UJ | H2/C/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/kg | 73.0 | UJ | H2/C/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 730 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 73.0 | UJ | H2/C/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 730 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | Phenol | 108-95-2 | ug/kg | 73.0 | UJ | H2/C/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 91.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-B | 280-144651-12 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/kg | 73.0 | UJ | H2/Z6 |
| NYOW-05-PH016-C | 280-144651-13 | SW7471B | Mercury | 7439-97-6 | mg/kg | 0.0170 | U | L |
| NYOW-05-PH016-C | 280-144651-13 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 78.0 | UJ | V2 |
| NYOW-05-PH016-C | 280-144651-13 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | UJ | V2 |
| NYOW-05-PH016-C | 280-144651-13 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 78.0 | UJ | V2 |
| NYOW-05-PH016-C | 280-144651-13 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 97.0 | UJ | V2 |
| NYOW-05-PH016-C | 280-144651-13 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 78.0 | UJ | V2 |
| NYOW-05-PH016-C | 280-144651-13 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 78.0 | UJ | V2 |
| NYOW-05-PH016-C | 280-144651-13 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 78.0 | UJ | V2 |
| NYOW-05-PH016-C | 280-144651-13 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 78.0 | UJ | V2 |
| NYOW-05-PH016-C | 280-144651-13 | SW8270D | Cresols, m- & p- | | ug/kg | 78.0 | UJ | V2 |
| NYOW-05-PH017-1-B | 280-144651-8 | SW7471B | Mercury | 7439-97-6 | mg/kg | 0.0160 | U | L |
| NYOW-05-PH017-1-B | 280-144651-8 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 75.0 | UJ | V2 |
| NYOW-05-PH017-1-B | 280-144651-8 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | UJ | V2 |
| NYOW-05-PH017-1-B | 280-144651-8 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 750 | UJ | V2 |
| NYOW-05-PH017-1-B | 280-144651-8 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 93.0 | UJ | V2 |
| NYOW-05-PH017-1-C | 280-144651-10 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 1.20 | UJ | I |
| NYOW-05-PH017-1-C | 280-144651-10 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 1.20 | UJ | I |
| NYOW-05-PH017-1-C | 280-144651-10 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 4.80 | UJ | I |
| NYOW-05-PH017-1-C | 280-144651-10 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 4.80 | UJ | I |
| NYOW-05-PH017-1-C | 280-144651-10 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 4.80 | UJ | I |
| NYOW-05-PH017-1-C | 280-144651-10 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 7.40 | UJ | I |
| NYOW-05-PH017-1-C | 280-144651-10 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 7.40 | UJ | I |
| NYOW-05-PH017-1-C | 280-144651-10 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 4.80 | UJ | I |
| NYOW-05-PH017-1-C | 280-144651-10 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 4.80 | UJ | I |
| NYOW-05-PH017-1-C | 280-144651-10 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.40 | UJ | I |
| NYOW-05-PH017-1-C | 280-144651-10 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 3.00 | UJ | I |

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| NYOW-05-PH017-1-C | 280-144651-10 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 4.80 | | UJ | I |
| NYOW-05-PH017-1-C | 280-144651-10 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 7.40 | | UJ | I |
| NYOW-05-PH017-1-C | 280-144651-10 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 2.20 | | UJ | I |
| NYOW-05-PH017-1-C | 280-144651-10 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/kg | 2.20 | | UJ | I |
| NYOW-05-PH017-1-C | 280-144651-10 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 2.20 | | UJ | I |
| NYOW-05-PH017-1-C | 280-144651-10 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 7.40 | | UJ | I |
| NYOW-05-PH017-1-C | 280-144651-10 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 7.40 | | UJ | I |
| NYOW-05-PH017-1-C | 280-144651-10 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0830 | | U | L |
| NYOW-05-PH017-1-C | 280-144651-10 | SW7471B | Mercury | 7439-97-6 | mg/kg | 0.0170 | | U | L |
| NYOW-05-PH017-1-C | 280-144651-10 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 78.0 | | UJ | V2 |
| NYOW-05-PH017-1-C | 280-144651-10 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | V2 |
| NYOW-05-PH017-1-C | 280-144651-10 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 78.0 | | UJ | V2 |
| NYOW-05-PH017-1-C | 280-144651-10 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 97.0 | | UJ | V2 |
| NYOW-05-PH017-1-C | 280-144651-10 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 78.0 | | UJ | V2 |
| NYOW-05-PH017-1-C | 280-144651-10 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 78.0 | | UJ | V2 |
| NYOW-05-PH017-1-C | 280-144651-10 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 78.0 | | UJ | V2 |
| NYOW-05-PH017-1-C | 280-144651-10 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 78.0 | | UJ | V2 |
| NYOW-05-PH017-1-C | 280-144651-10 | SW8270D | Cresols, m- & p- | | ug/kg | 78.0 | | UJ | V2 |
| NYOW-05-SL016-A | 280-144651-11 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0860 | | U | L |
| NYOW-05-SL016-A | 280-144651-11 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 80.0 | | UJ | V2 |
| NYOW-05-SL016-A | 280-144651-11 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | V2 |
| NYOW-05-SL016-A | 280-144651-11 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 80.0 | | UJ | V2 |
| NYOW-05-SL016-A | 280-144651-11 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 99.0 | | UJ | V2 |
| NYOW-05-SL016-A | 280-144651-11 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 80.0 | | UJ | V2 |
| NYOW-05-SL016-A | 280-144651-11 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 80.0 | | UJ | V2 |
| NYOW-05-SL016-A | 280-144651-11 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 80.0 | | UJ | V2 |
| NYOW-05-SL016-A | 280-144651-11 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 80.0 | | UJ | V2 |
| NYOW-05-SL016-A | 280-144651-11 | SW8270D | Cresols, m- & p- | | ug/kg | 80.0 | | UJ | V2 |
| NYOW-05-SL017-1-A | 280-144651-6 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 36.0 | - | J | M |
| NYOW-05-SL017-1-A | 280-144651-6 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 45.0 | - | J | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW6010C | Silver | 7440-22-4 | mg/kg | 0.600 | | UJ | M/M2 |
| NYOW-05-SL017-1-A | 280-144651-6 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 5300 | | J | A |
| NYOW-05-SL017-1-A | 280-144651-6 | SW6010C | Barium | 7440-39-3 | mg/kg | 66.0 | - | J | M/M2 |
| NYOW-05-SL017-1-A | 280-144651-6 | SW6010C | Beryllium | 7440-41-7 | mg/kg | 0.260 | - | J | M/TR |
| NYOW-05-SL017-1-A | 280-144651-6 | SW6010C | Calcium | 7440-70-2 | mg/kg | 18000 | - | J | M/M2/A |
| NYOW-05-SL017-1-A | 280-144651-6 | SW6010C | Cobalt | 7440-48-4 | mg/kg | 5.50 | - | J | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW6010C | Chromium | 7440-47-3 | mg/kg | 7.50 | - | J | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW6010C | Copper | 7440-50-8 | mg/kg | 23.0 | - | J | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW6010C | Iron | 7439-89-6 | mg/kg | 19000 | | J | A |
| NYOW-05-SL017-1-A | 280-144651-6 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 5800 | - | J | M/A |

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|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-SL017-1-A | 280-144651-6 | SW6010C | Sodium | 7440-23-5 | mg/kg | 60.0 | - | J | M/TR |
| NYOW-05-SL017-1-A | 280-144651-6 | SW6010C | Nickel | 7440-02-0 | mg/kg | 10.0 | - | J | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW6010C | Lead | 7439-92-1 | mg/kg | 8.60 | - | J | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW6010C | Vanadium | 7440-62-2 | mg/kg | 14.0 | - | J | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW6010C | Zinc | 7440-66-6 | mg/kg | 29.0 | - | J | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0900 | | U | L |
| NYOW-05-SL017-1-A | 280-144651-6 | SW7471B | Mercury | 7439-97-6 | mg/kg | 0.0220 | | U | L |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 73.0 | | UJ | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 360 | | UJ | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 91.0 | | UJ | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 73.0 | | UJ | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 73.0 | | UJ | V2 |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | V2 |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 73.0 | | UJ | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 73.0 | | UJ | V2 |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 91.0 | | UJ | V2 |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 73.0 | | UJ | V2 |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 73.0 | | UJ | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 73.0 | | UJ | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/kg | 73.0 | | UJ | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 73.0 | | UJ | V2 |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 73.0 | | UJ | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 73.0 | | UJ | V2 |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 73.0 | | UJ | V2 |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | Cresols, m- & p- | | ug/kg | 73.0 | | UJ | V2 |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 73.0 | | UJ | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 73.0 | | UJ | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/kg | 73.0 | | UJ | M |
| NYOW-05-SL017-1-A | 280-144651-6 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 73.0 | | UJ | M |
| NYOW-05-WL004-A | 280-144651-1 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.0980 | | UJ | C |
| NYOW-05-WL004-A | 280-144651-1 | BNASIMD | Naphthalene | 91-20-3 | ug/L | 0.110 | + | J | V |
| NYOW-05-WL004-A | 280-144651-1 | SW6020A | Thallium | 7440-28-0 | ug/L | 0.200 | | U | L |
| NYOW-05-WL004-A | 280-144651-1 | SW7470A | Mercury | 7439-97-6 | ug/L | 0.0800 | | U | V |
| NYOW-05-WL004-A | 280-144651-1 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/L | 0.430 | | UJ | V2 |
| NYOW-05-WL004-A | 280-144651-1 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/L | 0.430 | | UJ | V2 |
| NYOW-05-WL004-A | 280-144651-1 | SW8260C | Bromomethane | 74-83-9 | ug/L | 0.800 | | UJ | V/V2 |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.10 | | UJ | C/I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.10 | | UJ | C/I |

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|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.10 | | UJ | C/I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.60 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.10 | | UJ | I/V2 |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/L | 2.10 | | UJ | C |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.20 | | UJ | C/I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.10 | | UJ | C/I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 63.0 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/L | 2.10 | | UJ | C |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 10.0 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.60 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 5.20 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.10 | | UJ | I/G1 |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.10 | | UJ | C/I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.10 | | UJ | C/I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 10.0 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 10.0 | | UJ | I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.10 | | UJ | C/I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/L | 2.10 | | UJ | C |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.10 | | UJ | C/I |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 4.20 | | UJ | G1 |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/L | 2.10 | | UJ | C |
| NYOW-05-WL004-A | 280-144651-1 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/L | 2.10 | | UJ | C |
| NYOW-05-WL005-A | 280-144651-3 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.100 | | UJ | C |
| NYOW-05-WL005-A | 280-144651-3 | BNASIMD | Naphthalene | 91-20-3 | ug/L | 0.140 | + | J | V |

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|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL005-A | 280-144651-3 | SW7470A | Mercury | 7439-97-6 | ug/L | 0.0800 | U | V |
| NYOW-05-WL005-A | 280-144651-3 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/L | 0.410 | UJ | V2 |
| NYOW-05-WL005-A | 280-144651-3 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/L | 0.410 | UJ | V2 |
| NYOW-05-WL005-A | 280-144651-3 | SW8260C | Bromomethane | 74-83-9 | ug/L | 0.800 | UJ | V2 |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.60 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.10 | UJ | I/V2 |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 62.0 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 10.0 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.60 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 5.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.10 | UJ | I/V2 |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 10.0 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 10.0 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.10 | UJ | I |
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.10 | UJ | I/V2 |

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|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL005-A | 280-144651-3 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 4.10 | | UJ | V2 |
| NYOW-05-WL012-A | 280-144651-4 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.0990 | | UJ | C |
| NYOW-05-WL012-A | 280-144651-4 | BNASIMD | Naphthalene | 91-20-3 | ug/L | 0.110 | + | J | V |
| NYOW-05-WL012-A | 280-144651-4 | SW6010C | Iron | 7439-89-6 | ug/L | 470 | | J | D3 |
| NYOW-05-WL012-A | 280-144651-4 | SW7470A | Mercury | 7439-97-6 | ug/L | 0.0800 | | U | V |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.60 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.10 | | UJ | I/V2 |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.20 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 62.0 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 10.0 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.60 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 5.20 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.10 | | UJ | I/V2 |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 10.0 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 10.0 | | UJ | I |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.10 | | UJ | I |

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|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.10 | | UJ | I/V2 |
| NYOW-05-WL012-A | 280-144651-4 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 4.10 | | UJ | V2 |
| PH-DUP-001_210114 | 280-144651-9 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 1.20 | | UJ | I/M |
| PH-DUP-001_210114 | 280-144651-9 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 1.20 | | UJ | I/M |
| PH-DUP-001_210114 | 280-144651-9 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 4.80 | | UJ | I |
| PH-DUP-001_210114 | 280-144651-9 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 4.80 | | UJ | I |
| PH-DUP-001_210114 | 280-144651-9 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 4.80 | | UJ | I |
| PH-DUP-001_210114 | 280-144651-9 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 7.40 | | UJ | I |
| PH-DUP-001_210114 | 280-144651-9 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 7.40 | | UJ | I |
| PH-DUP-001_210114 | 280-144651-9 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 4.80 | | UJ | I |
| PH-DUP-001_210114 | 280-144651-9 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 4.80 | | UJ | I |
| PH-DUP-001_210114 | 280-144651-9 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.40 | | UJ | I |
| PH-DUP-001_210114 | 280-144651-9 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 3.00 | | UJ | I |
| PH-DUP-001_210114 | 280-144651-9 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 4.80 | | UJ | I |
| PH-DUP-001_210114 | 280-144651-9 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 7.40 | | UJ | I |
| PH-DUP-001_210114 | 280-144651-9 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 2.20 | | UJ | I/M |
| PH-DUP-001_210114 | 280-144651-9 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/kg | 2.20 | | UJ | I/M |
| PH-DUP-001_210114 | 280-144651-9 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 2.20 | | UJ | I/M |
| PH-DUP-001_210114 | 280-144651-9 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 7.40 | | UJ | I |
| PH-DUP-001_210114 | 280-144651-9 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 7.40 | | UJ | I |
| PH-DUP-001_210114 | 280-144651-9 | SW7471B | Mercury | 7439-97-6 | mg/kg | 0.0160 | | U | L |
| SL-DUP-001_210114 | 280-144651-7 | SW7471B | Mercury | 7439-97-6 | mg/kg | 0.0210 | | U | L |
| SL-DUP-001_210114 | 280-144651-7 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 76.0 | | UJ | V2 |
| SL-DUP-001_210114 | 280-144651-7 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | V2 |
| SL-DUP-001_210114 | 280-144651-7 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 760 | | UJ | V2 |
| SL-DUP-001_210114 | 280-144651-7 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 94.0 | | UJ | V2 |
| TB-01_210114 | 280-144651-14 | SW8260C | Bromomethane | 74-83-9 | ug/L | 0.800 | | UJ | V2 |
| WL-DUP-001_210114 | 280-144651-2 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.110 | | UJ | C |
| WL-DUP-001_210114 | 280-144651-2 | BNASIMD | Naphthalene | 91-20-3 | ug/L | 0.190 | + | J | V |
| WL-DUP-001_210114 | 280-144651-2 | SW7470A | Mercury | 7439-97-6 | ug/L | 0.0800 | | U | V |
| WL-DUP-001_210114 | 280-144651-2 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/L | 0.420 | | UJ | V2 |
| WL-DUP-001_210114 | 280-144651-2 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/L | 0.420 | | UJ | V2 |
| WL-DUP-001_210114 | 280-144651-2 | SW8260C | Bromomethane | 74-83-9 | ug/L | 0.800 | | UJ | V/V2 |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.10 | | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.10 | | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.10 | | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.10 | | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.10 | | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.10 | | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.60 | | UJ | I |

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|---|---|---|---|---|---|---|---|---|
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.10 | UJ | I/V2 |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.20 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 62.0 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 10.0 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.60 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 5.20 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.10 | UJ | I/V2 |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 10.0 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 10.0 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.10 | UJ | I |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.10 | UJ | I/V2 |
| WL-DUP-001_210114 | 280-144651-2 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 4.10 | UJ | V2 |
| WL-DUP-002_210114 | 280-144651-5 | BNASIMD | Acenaphthene | 83-32-9 | ug/L | 0.0130 | UJ | I |
| WL-DUP-002_210114 | 280-144651-5 | BNASIMD | Acenaphthylene | 208-96-8 | ug/L | 0.0210 | UJ | I |
| WL-DUP-002_210114 | 280-144651-5 | BNASIMD | Anthracene | 120-12-7 | ug/L | 0.100 | UJ | I |
| WL-DUP-002_210114 | 280-144651-5 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/L | 0.100 | UJ | I |
| WL-DUP-002_210114 | 280-144651-5 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/L | 0.0520 | UJ | I |
| WL-DUP-002_210114 | 280-144651-5 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/L | 0.100 | UJ | I |
| WL-DUP-002_210114 | 280-144651-5 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/L | 0.100 | UJ | I |
| WL-DUP-002_210114 | 280-144651-5 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/L | 0.0520 | UJ | I |
| WL-DUP-002_210114 | 280-144651-5 | BNASIMD | Chrysene | 218-01-9 | ug/L | 0.100 | UJ | I |
| WL-DUP-002_210114 | 280-144651-5 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.100 | UJ | C/I |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| WL-DUP-002_210114 | 280-144651-5 | BNASIMD | Fluorene | 86-73-7 | ug/L | 0.0420 | UJ | I |
| WL-DUP-002_210114 | 280-144651-5 | BNASIMD | Fluoranthene | 206-44-0 | ug/L | 0.100 | UJ | I |
| WL-DUP-002_210114 | 280-144651-5 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/L | 0.100 | UJ | I |
| WL-DUP-002_210114 | 280-144651-5 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/L | 0.0420 | UJ | I |
| WL-DUP-002_210114 | 280-144651-5 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/L | 0.0520 | UJ | I |
| WL-DUP-002_210114 | 280-144651-5 | BNASIMD | Naphthalene | 91-20-3 | ug/L | 0.160 | J | V/I |
| WL-DUP-002_210114 | 280-144651-5 | BNASIMD | Phenanthrene | 85-01-8 | ug/L | 0.100 | UJ | I |
| WL-DUP-002_210114 | 280-144651-5 | BNASIMD | Pyrene | 129-00-0 | ug/L | 0.100 | UJ | I |
| WL-DUP-002_210114 | 280-144651-5 | SW6010C | Iron | 7439-89-6 | ug/L | 890 | J | D3 |
| WL-DUP-002_210114 | 280-144651-5 | SW7470A | Mercury | 7439-97-6 | ug/L | 0.0800 | U | V |
| WL-DUP-002_210114 | 280-144651-5 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.00 | UJ | C |
| WL-DUP-002_210114 | 280-144651-5 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.00 | UJ | C |
| WL-DUP-002_210114 | 280-144651-5 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.00 | UJ | C |
| WL-DUP-002_210114 | 280-144651-5 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.00 | UJ | V2 |
| WL-DUP-002_210114 | 280-144651-5 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/L | 2.00 | UJ | C |
| WL-DUP-002_210114 | 280-144651-5 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.10 | UJ | C |
| WL-DUP-002_210114 | 280-144651-5 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.00 | UJ | C |
| WL-DUP-002_210114 | 280-144651-5 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/L | 2.00 | UJ | C |
| WL-DUP-002_210114 | 280-144651-5 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.00 | UJ | G1 |
| WL-DUP-002_210114 | 280-144651-5 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.00 | UJ | C |
| WL-DUP-002_210114 | 280-144651-5 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.00 | UJ | C |
| WL-DUP-002_210114 | 280-144651-5 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.00 | UJ | C |
| WL-DUP-002_210114 | 280-144651-5 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/L | 2.00 | UJ | C |
| WL-DUP-002_210114 | 280-144651-5 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.00 | UJ | C |
| WL-DUP-002_210114 | 280-144651-5 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 4.10 | UJ | G1 |
| WL-DUP-002_210114 | 280-144651-5 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/L | 2.00 | UJ | C |
| WL-DUP-002_210114 | 280-144651-5 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/L | 2.00 | UJ | C |

Reason Code Definitions

| | |
|---|---|
| A | Serial Dilution |
| C | LCS Recovery |
| I | Surrogate Recovery |
| D3 | Field Duplicate RPD |
| G1 | Initial Calibration RRF |
| H2 | Prep Hold Time |
| V2 | CCV |
| Z6 | 12 hour time period from the Tune |
| M | MS Recovery |
| L | Lab Blank |
| M2 | Post Spike |

| | |
|---|---|
| TR | Trace Level Detect |
| V | Equipment Blank |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 28 April 2021

**SUBJECT:** New York Ordnance Works Soil and Groundwater S2BVEM: 280-144607-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil and groundwater samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Volatile Organic Compounds (VOCs) by SW-846 Method 8260C
- Semi-Volatile Organic Compounds (SVOCs) by SW-846 Method 8270D
- SVOCs with SIM by SW-846 Method 8270D
- Polychlorinated Biphenyls (PCBs) by SW-846 Method 8082A
- Total and Dissolved Metals by ICP SW-846 Method 6010C
- Total and Dissolved Metals by ICP-MS SW-846 Method 6020A
- Total and Dissolved Mercury (Hg) by SW-846 Method 7470A (groundwater and blank water)
- Hg by SW-846 Method 7471B (soil)
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144607 | 280-144607-1 | NYOW-05-WL001-A | 1/13/21 | VOCs, SVOCs, SVOCs with SIM, PCBs, Dissolved ICP and ICP-MS Metals, Hg |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144607 | 280-144607-2 | NYOW-05-SL011-A | 1/13/21 | SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144607 | 280-144607-3 | NYOW-05-PH011-B | 1/13/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144607 | 280-144607-4 | NYOW-05-PH011-C | 1/13/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144607 | 280-144607-5 | NYOW-05-SL012-A | 1/13/21 | SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144607 | 280-144607-6 | NYOW-05-PH012-B | 1/13/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144607 | 280-144607-7 | NYOW-05-PH012-C | 1/13/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144607 | 280-144607-8 | NYOW-05-SL013-A | 1/13/21 | SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144607 | 280-144607-9 | NYOW-05-PH013-B | 1/13/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144607 | 280-144607-10 | NYOW-05-PH013-C | 1/13/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144607 | 280-144607-11 | [1]PH-DUP-001_210113 | 1/13/21 | SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144607 | 280-144607-12 | NYOW-05-SL014-A | 1/13/21 | SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144607 | 280-144607-13 | NYOW-05-PH014-B | 1/13/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144607 | 280-144607-14 | NYOW-05-PH014-C | 1/13/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144607 | 280-144607-15 | NYOW-05-SL015-A | 1/13/21 | SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144607 | 280-144607-16 | NYOW-05-PH015-B | 1/13/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144607 | 280-144607-17 | NYOW-05-PH015-C | 1/13/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144607 | 280-144607-18 | EB-01_210113 | 1/13/21 | SVOCs, SVOCs with SIM, PCBs, Total ICP and ICP-MS Metals, Total Hg |
| 280-144607 | 280-144607-19 | EB-02_210113 | 1/13/21 | VOCs, SVOCs, SVOCs with SIM, PCBs, Dissolved ICP and ICP-MS Metals, Hg |
| 280-144607 | 280-144607-20 | TB-01_210113 | 1/13/21 | VOCs |

[1] PH-DUP-001_210113 collected from NYOW-05-PH013-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's

(EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 0.3°C, 0.4°C, 0.4°C, 2.4°C, and 3.0°C. All samples were initially extracted and analyzed within holding time.

Consistent with Bluestone's instruction, sample EB-01_210113 should have been logged for total metals instead of dissolved metals by the laboratory; the laboratory corrected the error.

Due to limited volume in the field, 1 of 4 amber glass 1L containers was received 3/4 full for sample NYOW-05-WL001-A. The container was marked and not used.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | X | |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A bromofluorobenzene instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for VOCs (i.e., each 12-hour period). The tunes met the ion abundance criteria. A decafluorotriphenylphosphine instrument performance check was performed prior to the initial instrument calibrations and at the start of each sample analysis batch for SVOCs by full scan and SIM. The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

SVOCs by Method 8270D:

The initial calibration analyzed for instrument CMSG on 1/28/2021 exhibited RRFs less than the minimum recommendations by the method and Module 1 for hexachlorobenzene and pentachlorophenol. The ICV RRFs (680-653661/9) were also below the method recommendations. A standard at or below the PQL was not subsequently analyzed. The associated sample results were non-detect and are qualified as “UJ”.

Metals by Method 6020A:

Low-level ICV (LLICV) 280-524751/11 exhibited a recovery greater than the upper control limit for antimony at 124%. The associated positive detections for dissolved antimony were less than the LLICV concentration and are qualified as “J+”.

LLICV 280-525253/15 exhibited a recovery greater than the upper control limit for antimony at 123%. The associated sample results are greater than the level spiked in the ICV and CCVs; qualification is not necessary.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

VOCs by Method 8260C:

CCV 280-523925/15 exhibited a %D greater than the control limit with a negative bias for bromomethane at 26%. The associated aqueous sample results were non-detect and are qualified as “UJ”.

PCBs by Method 8082A:

The CCV analyzed on 1/27/21 at 03:40 (280-524458/3) exhibited %Ds greater than the control limit on the primary and secondary chromatography columns with positive biases for all PCB 1016 and 1260 peaks. The CCV did not bracket the analysis of investigative samples; qualification is not necessary.

The CCV analyzed on 1/27/21 at 10:29 (280-524458/20) exhibited %Ds greater than the control limit with positive biases for the majority of PCB 1016 and 1260 peaks on the primary and secondary chromatography columns. The CCV did not bracket the analysis of investigative samples; qualification is not necessary.

The CCV analyzed on 1/27/21 at 15:18 (280-524458/32) exhibited %Ds greater than the control limit on the primary and secondary chromatography columns with positive biases for the majority of PCB 1016 and 1260 peaks. The CCV did not bracket the analysis of investigative samples; qualification is not necessary.

The CCV analyzed on 1/27/21 at 19:43 (280-524458/43) exhibited %Ds greater than the control limit on the secondary chromatography column with positive biases for all PCB 1016 and 1260 peaks. The associated sample results were non-detect and are qualified as “UJ”.

The CCV analyzed on 1/27/21 at 23:45 (280-524458/53) exhibited a %D greater than the control limit on the primary chromatography column with a positive bias for PCB 1016 peak 1. The associated sample results were non-detect and are qualified as “UJ”.

The CCV analyzed on 1/27/21 at 23:45 (280-524458/53) exhibited %Ds greater than the control limit on the secondary chromatography column with positive biases for all PCB 1016 and 1260 peaks. The associated sample results were non-detect and are qualified as “UJ”.

SVOCs by Method 8270D:

CCV 680-653661/30 exhibited RRFs less than the method recommendation for hexachlorobenzene and pentachlorophenol. The associated sample results are for matrix spike sample NYOW-05-WL001-A; qualification of the matrix spike sample results is not necessary.

CCV 680-653957/2 exhibited %Ds greater than the control limit for 2,3,4,6-tetrachlorophenol (20.5%), 4-bromophenyl phenyl ether (22%), and pentachlorophenol (23.1%). The associated sample results are qualified as “UJ”. In addition, the RRF for hexachlorobenzene was less than the method and Module 1 recommendations; the associated sample results were previously qualified; no further action is necessary.

CCV 680-653661/10 exhibited a %D greater than the control limit for benzaldehyde at 23.8%. The associated sample results are for matrix spike sample NYOW-05-WL001-A; qualification is not necessary.

CCV 680-653957/3 exhibited a %D greater than the control limit for benzaldehyde at 24.3%. The associated sample results are qualified as “UJ”.

CCV 680-653957/31 exhibited a RRF less than the method and Module 1 recommendations for hexachlorobenzene; the associated sample results were previously qualified; no further action is necessary.

CCV 680-653493/3 exhibited %Ds greater than the control limit for with positive biases for phenol (21.8%), bis(2-chloroethyl)ether (48.9%), 2,2’-oxybis(1-chloropropane) (78.6%), isophorone (22%), butyl benzyl phthalate (21.7%), bis(2-ethylhexyl)phthalate (34.2%), and di-n-octyl phthalate (26.5%). The %D for 2,2’-oxybis(1-chloropropane) constitutes a gross exceedance for an opening CCV and the associated results are qualified as “X”. The associated sample results for the remaining compounds are qualified as “UJ”.

CCV 680-653493/29 exhibited a %D greater than the control limit for 2,2’-oxybis(1-chloropropane) at 61.2%. The associated sample results were previously qualified; no further action is necessary.

Metals by Method 6010C:

Low-level CCVs (LLCCV) associated with analysis batch 524791 exhibited recoveries greater than the upper control limit for sodium. The associated sample concentrations were greater than the level spiked in the ICV and CCVs; qualification is not necessary.

LLCCV 280-525300/65 exhibited a recovery greater than the control limit for lead. Lead was not reported from the associated analysis batch for the bracketed investigative samples; qualification is not necessary.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

**BLANK SAMPLE RESULTS**

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, initial and continuing calibration blanks (ICB/CCB), and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, continuing calibration blanks, trip blanks, and equipment blanks with the exceptions noted below.

SVOCs by Method 8270D with SIM:

Equipment blank sample EB-02_210113 exhibited positive detections for pyrene (0.15 µg/L), fluoranthene (0.16 µg/L), benzo(k)fluoranthene (0.22 µg/L), benzo(a)anthracene (0.22 µg/L),

benzo(g,h,i)perylene (0.22 µg/L), indeno(1,2,3-cd)pyrene (0.27 µg/L), benzo(a)pyrene (0.29 µg/L), chrysene (0.45 µg/L), and benzo(b)fluoranthene (0.64 µg/L). The associated investigative sample results for NYOW-05-WL001-A were non-detect; qualification is not necessary.

Method blank sample 280-525097/1-A exhibited positive detections for benzo(k)fluoranthene (0.059 µg/L), phenanthrene (0.0717 µg/L), benzo(b)fluoranthene (0.0948 µg/L), benzo(a)anthracene (0.116 µg/L), chrysene (0.152 µg/L), pyrene (0.272 µg/L), and fluoranthene (0.283 µg/L). The associated investigative sample results for NYOW-05-WL001-A were non-detect; qualification is not necessary.

Metals by Method 6010C:

Preparation blank sample 280-524571/1-A exhibited positive detections less than the LOQ for zinc, aluminum, and sodium at 0.5860 mg/kg, 1.88 mg/kg, and 44.5 mg/kg, respectively. The associated sample results for zinc and aluminum were greater than the LOQ; qualification is not necessary. The results for sodium were below the LOQ and are qualified as “U” at the LOQ.

Preparation blank sample 280-524473/1-A exhibited a positive detection for iron at 37 µg/L. The associated sample results were non-detect; qualification is not required.

Metals by Method 6020A:

Preparation blank sample 280-524573/1-A exhibited a positive detection less than the LOQ for thallium at 0.0187 mg/kg. The associated soil sample results less than the LOQ were qualified as “U” at the LOQ.

Preparation blank sample 280-523818/1-A exhibited a positive detection for total chromium at 1.44 µg/L. The associated equipment blank sample result was non-detect; qualification is not necessary.

Preparation blank sample 280-524476/1-A exhibited a positive detection for thallium at 0.107 µg/L. The associated positive equipment blank sample result is not qualified on this basis.

Equipment blank sample EB-02_210113 exhibited positive detections for thallium and antimony below the LOQ at 0.3 µg/L and 0.69 µg/L, respectively. The associated positive detections for sample NYOW-05-WL001-A were less than the LOQ and are qualified as “U” at the LOQ.

The ICB and CCBs for analysis batch 524443 exhibited positive detections for antimony and thallium. The associated results for total antimony and thallium associated with the equipment blank sample were non-detect; qualification is not required.

The ICB and CCBs for analysis batch 524751 exhibited positive detections for antimony and thallium. The associated results for dissolved antimony and thallium associated with the equipment blank sample are not qualified on this basis. The results for sample NYOW-05-WL001-A were non-detect; qualification is not required.

The ICB and CCBs for analysis batch 525252 exhibited positive detections less than the LOQ for thallium. The associated soil sample results were either non-detect or were greater than the aqueous LOQ; qualification is not necessary.

The ICB for analysis batch 525253/14 exhibited a positive detection for antimony at 0.639 µg/L. Two CCBs were performed prior to sample analysis and were non-detect for antimony. Qualification is not necessary.

Mercury by Method 7470A:

Equipment blank sample EB-02_210113 displayed a positive detection below the LOQ for dissolved mercury at 0.039 µg/L. The associated result for sample NYOW-05-WL001-A was less than the LOQ and is qualified as "U" at the LOQ.

Preparation blank sample 280-524517/1-A exhibited a positive detection for total mercury at 0.0413 µg/L. The associated equipment blank sample was non-detect; qualification is not required.

CCB 280-524120/13A displayed a positive detection for mercury. The CCB did not bracket the analysis of investigative samples; qualification is not required.

CCB 280-524716/13A displayed a positive detection for mercury. The associated equipment blank sample result is not qualified on this basis.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Sample NYOW-05-WL001-A exhibited a recovery less than the lower warning limit for terphenyl-d14 at 16%. The associated base/neutral (B/N) extractable compounds were non-detect and are qualified as "UJ".

SVOCs by Method 8270D with SIM:

Sample NYOW-05-WL001-A exhibited recoveries less than the lower warning limit for nitrobenzene-d5 and 2-fluorobiphenyl at 49% and 50%, respectively. The results are associated with sample reanalysis and the initial analysis results should be used for data interpretation; qualification is not necessary.

**LABORATORY CONTROL SAMPLES**

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

LCS 680-652805/11-A exhibited multiple recoveries less than the lower warning limits. The LCS is associated with the MS preparation batch for NYOW-05-WL001-A and not the investigative sample results; qualification is not required.

SVOCs by Method 8270D with SIM:

LCS 280-523815/2-A exhibited a recovery below the lower warning limit for dibenz(a,h)anthracene at 43%. The associated aqueous sample results were non-detect and are qualified as “UJ”.

LCS/LCSD 280-525097/2-A and LCSD 280-525097/12-A exhibited recoveries less than the lower control limit for dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, benzo(a)pyrene, and benzo(k)fluoranthene. The associated sample results are for the reanalysis of sample NYOW-05-WL001-A. The initial analysis should be used for data interpretation; qualification is not necessary.

LCS 280-523957/2-A exhibited recoveries less than the lower warning limits for benzo(g,h,i)perylene (45%), indeno(1,2,3-cd)pyrene (46%), dibenz(a,h)anthracene (49%), and benzo(a)pyrene (50%). The associated positive detections for soil sample results are qualified as “J-“ and non-detects are qualified as “UJ”.

**MATRIX SPIKE/MATRIX SPIKE DUPLICATES**

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

VOCs by Method 8260C:

MS sample NYOW-05-WL001-A exhibited recoveries less than the lower warning limit for the analytes shown below. The associated sample results were non-detect and are qualified as “UJ”.

| Analyte | MS Recovery |
|---|---|
| Bromoform | 60.40 |
| 1,2-Dibromo-3-chloropropane | 61.60 |
| Carbon tetrachloride | 69.20 |
| trans-1,3-Dichloropropene | 69.20 |
| Dibromochloromethane | 69.60 |
| cis-1,3-Dichloropropene | 74.40 |
| 1,2-Dichloropropane | 76.40 |
| Ethylbenzene | 76.40 |
| m,p-Xylene | 76.40 |
| 1,4-Dichlorobenzene | 77.20 |
| Bromodichloromethane | 77.20 |
| Chlorobenzene | 78.80 |
| 1,2-Dichlorobenzene | 79.20 |
| 1,3-Dichlorobenzene | 79.60 |

SD sample NYOW-05-WL001-A exhibited recoveries less than the lower warning limit for the analytes shown below. The associated sample results were non-detect and are qualified as “UJ”.

| Analyte | SD Recovery |
|---|---|
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 58.40 |
| Carbon tetrachloride | 62.80 |
| Cyclohexane | 64.40 |
| 1,1-Dichloroethene | 67.60 |
| Methylcyclohexane | 68.00 |
| 1,1,1-Trichloroethane | 73.20 |
| Tetrachloroethene | 73.60 |

MS/SD sample NYOW-05-WL001-A exhibited RPDs greater than the control limit for the analytes shown below. The associated sample results were non-detect; qualification is not necessary.

| Analyte | MS/SD RPD |
|---|---|
| Dibromochloromethane | 21 |
| 1,2-Dibromoethane | 21 |
| 1,3-Dichloropropane | 22 |
| Vinyl chloride | 22 |
| 1,2,4-Trichlorobenzene | 23 |
| 4-Methyl-2-pentanone | 23 |
| cis-1,3-Dichloropropene | 23 |
| trans-1,3-Dichloropropene | 23 |

| Analyte | MS/SD RPD |
|---|---|
| 2-Butanone | 23 |
| Methyl acetate | 24 |
| Acetone | 24 |
| 1,1,2,2-Tetrachloroethane | 24 |
| 2-Hexanone | 24 |
| 1,2,3-Trichlorobenzene | 26 |
| Trichlorofluoromethane | 26 |
| Bromoform | 26 |
| Dichlorodifluoromethane | 31 |
| 1,2-Dibromo-3-chloropropane | 33 |

PCBs by Method 8082A:

The MS/SD RPD for sample NYOW-05-WL001-A was greater than the control limit for PCB-1260 at 74%. The associated sample results were non-detect; qualification is not necessary.

MS sample NYOW-05-SL011-A exhibited a recovery greater than the upper warning limit for PCB-1260 at 143%. The associated sample result was non-detect; qualification is not required.

SVOCs by Method 8270D:

MS sample NYOW-05-WL001-A exhibited a recovery less than the lower warning limit for hexachlorobenzene at 49%. The associated sample result was non-detect and is qualified as "UJ".

Multiple MS/SD RPDs for sample NYOW-05-WL001-A were greater than 20% as shown in the table below. The analyte concentrations were non-detect; qualification is not necessary.

| Analyte | RPD | Analyte | RPD |
|---|---|---|---|
| Benzaldehyde | 25 | Caprolactam | 33 |
| Hexachlorobenzene | 24 | di-n-Octylphthalate | 36 |
| Atrazine | 22 | 2,2'-Oxybis(1-chloropropane) | 52 |
| Benzyl butylphthalate | 23 | Bis(2ethylhexyl)phthalate | 39 |

MS sample NYOW-05-PH011-B exhibited a RPD greater than the control limit for 4,6-dinitro-2-methylphenol at 32%. The associated sample result was non-detect; qualification is not required.

SVOCs by Method 8270D with SIM:

MS sample NYOW-05-WL001-A exhibited recoveries less than the lower control limit for dibenz(a,h)anthracene (42%) and indeno(1,2,3-cd)pyrene (45%). The SD also exhibited recoveries less than the lower control limit for dibenz(a,h)anthracene (33%), benzo(g,h,i)perylene

(41%), indeno(1,2,3-cd)pyrene (41%), and benzo(a)pyrene (50%). The associated sample results were non-detect and are qualified as “UJ”.

Metals by Method 6010C:

MS/SD sample NYOW-05-PH011-B exhibited recoveries outside of control limits for iron, manganese, aluminum, and calcium. The sample concentration was greater than 4X the spiked amount; qualification is not required.

MS/SD sample NYOW-05-PH011-B exhibited recoveries greater than the upper warning limit for potassium at 119% and 117%, and magnesium at 133% and 144%. The associated positive detections are qualified as “J+”.

Metals by Method 6020A:

MS/SD sample NYOW-05-PH011-B exhibited a RPD greater than the control limit for antimony (29%). The associated sample result is qualified as “J”.

**DUAL COLUMN IMPRECISION**

PCBs by Method 8082A:

Confirmation column percent differences were less than 40%.

**POST-DIGESTION SPIKE**

Metals by Methods 6010C, 6020A, and 7471B:

A post-digestion spike (PDS) was performed for MS/SD sample NYOW-05-WL001-A. All analytes recovered within the acceptance criteria.

A PDS was performed for MS/SD sample NYOW-05-PH011-B. Aluminum, iron, and manganese did not recover. Calcium, nickel, and mercury recovered below the lower warning limit at 64%, 78%, and 59% respectively. The sample results for aluminum, calcium, iron, and manganese were greater than 4X the spiked amount in the MS; therefore, the PDS was not used to evaluate MS/SD recovery failures. The MS/SD recoveries of nickel and mercury were acceptable; qualification is not necessary.

**ICP SERIAL DILUTION**

An ICP serial dilution was performed for sample NYOW-05-WL001-A. All %Ds met the acceptance criteria.

An ICP serial dilution was performed for sample NYOW-05-PH011-B. Aluminum, calcium, iron, and magnesium %Ds were greater than 10% at 34%, 36%, 37%, and 11%, respectively. The associated sample results are qualified as “J”.

**LOW-LEVEL CHECK STANDARD**

Low-level check standards for methods 6010C and 6020A were performed using the low-level CCV standard. All recoveries were within the control limits.

## INTERFERENCE CHECK SAMPLES

Interference check samples A and AB recoveries were evaluated and met the acceptance criteria.

## COMMENTS

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

Sample NYOW-05-WL001-A had sediment and a cloudy liquid present. The tip of the glassware broke during concentration of MS sample NYOW-05-WL001-A in SVOCs batch 652519; MS sample NYOW-05-WL001-A was re-extracted within holding time in preparation batch 652805. Accuracy for batch 652519 was demonstrated through performance of a SD and LCS.

The following samples could not be thoroughly homogenized in accordance with Method 3546 before subsampling was performed for SVOC SIM analysis due to the clay sample matrix: NYOW-05-SL011-A, NYOW-05-PH011-B, NYOW-05-PH011-C, NYOW-05-SL012-A, NYOW-05-PH012-B, NYOW-05-PH012-C, NYOW-05-SL013-A, NYOW-05-PH013-B, NYOW-05-PH013-C, PH-DUP-001_210113, NYOW-05-SL014-A, NYOW-05-PH014-B, NYOW-05-PH014-C, NYOW-05-SL015-A, NYOW-05-PH015-B, NYOW-05-PH015-C, NYOW-05-PH011-B, and NYOW-05-PH012-C. The reported results are representative of the subsample obtained.

Samples NYOW-05-WL001-A, EB-01_210113, EB-02_210113, NYOW-05-SL011-A, NYOW-05-SL012-A, NYOW-05-SL013-A, and NYOW-05-SL014-A, NYOW-05-SL015-A required a sulfuric acid clean-up via EPA Method 3665A to reduce matrix interferences prior to analysis for PCBs.

One field duplicate and parent sample pair was collected and analyzed for all parameters (PH-DUP-001_210113 and NYOW-05-PH013-C). For sample results that are greater than 5X the LOQ, the RPD must be less than 50%. For sample results less than 5X the LOQ, the absolute difference must be less than ±LOQ. All analytes met the precision criteria for this field duplicate pair.

Sample NYOW-05-WL001-A had LOQs slightly above project quantitation limit goals (PQLGs) for several method SVOC SIM analytes and PCBs. LOQs were slightly greater than PQLGs for SVOCs, PCBs, and metals due to percent moisture adjustments.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified, with the exception of the results qualified as “X”. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 99%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210113 | 280-144607-18 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.110 | | UJ | C |
| EB-01_210113 | 280-144607-18 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/L | 0.410 | | UJ | V2 |
| EB-01_210113 | 280-144607-18 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/L | 0.410 | | UJ | V2 |
| EB-01_210113 | 280-144607-18 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.00 | | UJ | V2 |
| EB-01_210113 | 280-144607-18 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.00 | | UJ | V2 |
| EB-01_210113 | 280-144607-18 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.50 | | UJ | V2 |
| EB-01_210113 | 280-144607-18 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.50 | | UJ | V2 |
| EB-01_210113 | 280-144607-18 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.00 | | UJ | V2 |
| EB-01_210113 | 280-144607-18 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.00 | | X | V2 |
| EB-01_210113 | 280-144607-18 | SW8270D | Phenol | 108-95-2 | ug/L | 2.00 | | UJ | V2 |
| EB-02_210113 | 280-144607-19 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.0940 | | UJ | C |
| EB-02_210113 | 280-144607-19 | SW6020A | Antimony | 7440-36-0 | ug/L | 0.690 | + | J | TR/V6 |
| EB-02_210113 | 280-144607-19 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/L | 0.400 | | UJ | V2 |
| EB-02_210113 | 280-144607-19 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/L | 0.400 | | UJ | V2 |
| EB-02_210113 | 280-144607-19 | SW8260C | Bromomethane | 74-83-9 | ug/L | 0.800 | | UJ | V2 |
| EB-02_210113 | 280-144607-19 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.10 | | UJ | V2 |
| EB-02_210113 | 280-144607-19 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.10 | | UJ | V2 |
| EB-02_210113 | 280-144607-19 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.60 | | UJ | V2 |
| EB-02_210113 | 280-144607-19 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.60 | | UJ | V2 |
| EB-02_210113 | 280-144607-19 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.10 | | UJ | V2 |
| EB-02_210113 | 280-144607-19 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.10 | | X | V2 |
| EB-02_210113 | 280-144607-19 | SW8270D | Phenol | 108-95-2 | ug/L | 2.10 | | UJ | V2 |
| NYOW-05-PH011-B | 280-144607-3 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 4.90 | | UJ | C |
| NYOW-05-PH011-B | 280-144607-3 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 7.60 | | UJ | C |
| NYOW-05-PH011-B | 280-144607-3 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.60 | | UJ | C |
| NYOW-05-PH011-B | 280-144607-3 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 7.60 | | UJ | C |
| NYOW-05-PH011-B | 280-144607-3 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 8900 | | J | A |
| NYOW-05-PH011-B | 280-144607-3 | SW6010C | Calcium | 7440-70-2 | mg/kg | 23000 | | J | A |
| NYOW-05-PH011-B | 280-144607-3 | SW6010C | Iron | 7439-89-6 | mg/kg | 19000 | | J | A |
| NYOW-05-PH011-B | 280-144607-3 | SW6010C | Potassium | 7440-09-7 | mg/kg | 1100 | + | J | M |
| NYOW-05-PH011-B | 280-144607-3 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 8600 | + | J | M/A |
| NYOW-05-PH011-B | 280-144607-3 | SW6010C | Sodium | 7440-23-5 | mg/kg | 510 | | U | L |
| NYOW-05-PH011-B | 280-144607-3 | SW6020A | Antimony | 7440-36-0 | mg/kg | 0.110 | | J | D/TR |
| NYOW-05-PH011-B | 280-144607-3 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0990 | | U | L |
| NYOW-05-PH011-B | 280-144607-3 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 78.0 | | UJ | V2 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH011-B | 280-144607-3 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | V2 |
| NYOW-05-PH011-B | 280-144607-3 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 78.0 | | UJ | G1/V3 |
| NYOW-05-PH011-B | 280-144607-3 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 780 | | UJ | G1/V2 |
| NYOW-05-PH011-B | 280-144607-3 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 97.0 | | UJ | V2 |
| NYOW-05-PH011-C | 280-144607-4 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 32.0 | - | J | C |
| NYOW-05-PH011-C | 280-144607-4 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 23.0 | - | J | C |
| NYOW-05-PH011-C | 280-144607-4 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 6.50 | - | J | C/TR |
| NYOW-05-PH011-C | 280-144607-4 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 29.0 | - | J | C |
| NYOW-05-PH011-C | 280-144607-4 | SW6010C | Sodium | 7440-23-5 | mg/kg | 590 | | U | L |
| NYOW-05-PH011-C | 280-144607-4 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 75.0 | | UJ | V2 |
| NYOW-05-PH011-C | 280-144607-4 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | V2 |
| NYOW-05-PH011-C | 280-144607-4 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 75.0 | | UJ | G1/V3 |
| NYOW-05-PH011-C | 280-144607-4 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 750 | | UJ | G1/V2 |
| NYOW-05-PH011-C | 280-144607-4 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 93.0 | | UJ | V2 |
| NYOW-05-PH012-B | 280-144607-6 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 5.00 | | UJ | C |
| NYOW-05-PH012-B | 280-144607-6 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 7.70 | | UJ | C |
| NYOW-05-PH012-B | 280-144607-6 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.70 | | UJ | C |
| NYOW-05-PH012-B | 280-144607-6 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 7.70 | | UJ | C |
| NYOW-05-PH012-B | 280-144607-6 | SW6010C | Sodium | 7440-23-5 | mg/kg | 510 | | U | L |
| NYOW-05-PH012-B | 280-144607-6 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 79.0 | | UJ | V2 |
| NYOW-05-PH012-B | 280-144607-6 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | V2 |
| NYOW-05-PH012-B | 280-144607-6 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 79.0 | | UJ | G1/V3 |
| NYOW-05-PH012-B | 280-144607-6 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 790 | | UJ | G1/V2 |
| NYOW-05-PH012-B | 280-144607-6 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 97.0 | | UJ | V2 |
| NYOW-05-PH012-C | 280-144607-7 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 4.80 | | UJ | C |
| NYOW-05-PH012-C | 280-144607-7 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 7.40 | | UJ | C |
| NYOW-05-PH012-C | 280-144607-7 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.40 | | UJ | C |
| NYOW-05-PH012-C | 280-144607-7 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 7.40 | | UJ | C |
| NYOW-05-PH012-C | 280-144607-7 | SW6010C | Sodium | 7440-23-5 | mg/kg | 560 | | U | L |
| NYOW-05-PH012-C | 280-144607-7 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-PH012-C | 280-144607-7 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | V2 |
| NYOW-05-PH012-C | 280-144607-7 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 76.0 | | UJ | G1/V3 |
| NYOW-05-PH012-C | 280-144607-7 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 760 | | UJ | G1/V2 |
| NYOW-05-PH012-C | 280-144607-7 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 95.0 | | UJ | V2 |
| NYOW-05-PH013-B | 280-144607-9 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 6.70 | - | J | C/TR |
| NYOW-05-PH013-B | 280-144607-9 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 5.80 | - | J | C/TR |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH013-B | 280-144607-9 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 6.90 | | UJ | C |
| NYOW-05-PH013-B | 280-144607-9 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 6.00 | - | J | C/TR |
| NYOW-05-PH013-B | 280-144607-9 | SW6010C | Sodium | 7440-23-5 | mg/kg | 88.0 | | U | L |
| NYOW-05-PH013-B | 280-144607-9 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0940 | | U | L |
| NYOW-05-PH013-B | 280-144607-9 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 71.0 | | UJ | V2 |
| NYOW-05-PH013-B | 280-144607-9 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 180 | | UJ | V2 |
| NYOW-05-PH013-B | 280-144607-9 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 71.0 | | UJ | G1/V3 |
| NYOW-05-PH013-B | 280-144607-9 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 710 | | UJ | G1/V2 |
| NYOW-05-PH013-B | 280-144607-9 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 88.0 | | UJ | V2 |
| NYOW-05-PH013-C | 280-144607-10 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 5.20 | | UJ | C |
| NYOW-05-PH013-C | 280-144607-10 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 8.00 | | UJ | C |
| NYOW-05-PH013-C | 280-144607-10 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 8.00 | | UJ | C |
| NYOW-05-PH013-C | 280-144607-10 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 8.00 | | UJ | C |
| NYOW-05-PH013-C | 280-144607-10 | SW6010C | Sodium | 7440-23-5 | mg/kg | 440 | | U | L |
| NYOW-05-PH013-C | 280-144607-10 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0850 | | U | L |
| NYOW-05-PH013-C | 280-144607-10 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 82.0 | | UJ | V2 |
| NYOW-05-PH013-C | 280-144607-10 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 210 | | UJ | V2 |
| NYOW-05-PH013-C | 280-144607-10 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 82.0 | | UJ | G1/V3 |
| NYOW-05-PH013-C | 280-144607-10 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 820 | | UJ | G1/V2 |
| NYOW-05-PH013-C | 280-144607-10 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 100 | | UJ | V2 |
| NYOW-05-PH014-B | 280-144607-13 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 4.70 | | UJ | C |
| NYOW-05-PH014-B | 280-144607-13 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 7.20 | | UJ | C |
| NYOW-05-PH014-B | 280-144607-13 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.20 | | UJ | C |
| NYOW-05-PH014-B | 280-144607-13 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 7.20 | | UJ | C |
| NYOW-05-PH014-B | 280-144607-13 | SW6010C | Sodium | 7440-23-5 | mg/kg | 480 | | U | L |
| NYOW-05-PH014-B | 280-144607-13 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-PH014-B | 280-144607-13 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | V2 |
| NYOW-05-PH014-B | 280-144607-13 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 76.0 | | UJ | G1/V3 |
| NYOW-05-PH014-B | 280-144607-13 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 760 | | UJ | G1/V2 |
| NYOW-05-PH014-B | 280-144607-13 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 94.0 | | UJ | V2 |
| NYOW-05-PH014-C | 280-144607-14 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 4.90 | | UJ | C |
| NYOW-05-PH014-C | 280-144607-14 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 7.50 | | UJ | C |
| NYOW-05-PH014-C | 280-144607-14 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.50 | | UJ | C |
| NYOW-05-PH014-C | 280-144607-14 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 7.50 | | UJ | C |
| NYOW-05-PH014-C | 280-144607-14 | SW6010C | Sodium | 7440-23-5 | mg/kg | 520 | | U | L |
| NYOW-05-PH014-C | 280-144607-14 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0920 | | U | L |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH014-C | 280-144607-14 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 73.0 | | UJ | V2 |
| NYOW-05-PH014-C | 280-144607-14 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | V2 |
| NYOW-05-PH014-C | 280-144607-14 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 73.0 | | UJ | G1/V3 |
| NYOW-05-PH014-C | 280-144607-14 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 730 | | UJ | G1/V2 |
| NYOW-05-PH014-C | 280-144607-14 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 91.0 | | UJ | V2 |
| NYOW-05-PH015-B | 280-144607-16 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 3.90 | - | J | C/TR |
| NYOW-05-PH015-B | 280-144607-16 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 3.50 | - | J | C/TR |
| NYOW-05-PH015-B | 280-144607-16 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 6.90 | | UJ | C |
| NYOW-05-PH015-B | 280-144607-16 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 3.60 | - | J | C/TR |
| NYOW-05-PH015-B | 280-144607-16 | SW6010C | Sodium | 7440-23-5 | mg/kg | 480 | | U | L |
| NYOW-05-PH015-B | 280-144607-16 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0960 | | U | L |
| NYOW-05-PH015-B | 280-144607-16 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 71.0 | | UJ | V2 |
| NYOW-05-PH015-B | 280-144607-16 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 180 | | UJ | V2 |
| NYOW-05-PH015-B | 280-144607-16 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 71.0 | | UJ | G1/V3 |
| NYOW-05-PH015-B | 280-144607-16 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 710 | | UJ | G1/V2 |
| NYOW-05-PH015-B | 280-144607-16 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 88.0 | | UJ | V2 |
| NYOW-05-PH015-C | 280-144607-17 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 1.90 | - | J | C/TR |
| NYOW-05-PH015-C | 280-144607-17 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 7.30 | | UJ | C |
| NYOW-05-PH015-C | 280-144607-17 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.30 | | UJ | C |
| NYOW-05-PH015-C | 280-144607-17 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 7.30 | | UJ | C |
| NYOW-05-PH015-C | 280-144607-17 | SW6010C | Sodium | 7440-23-5 | mg/kg | 110 | | U | L |
| NYOW-05-PH015-C | 280-144607-17 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0890 | | U | L |
| NYOW-05-PH015-C | 280-144607-17 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-PH015-C | 280-144607-17 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | V2 |
| NYOW-05-PH015-C | 280-144607-17 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 76.0 | | UJ | G1/V3 |
| NYOW-05-PH015-C | 280-144607-17 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 760 | | UJ | G1/V2 |
| NYOW-05-PH015-C | 280-144607-17 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 94.0 | | UJ | V2 |
| NYOW-05-SL011-A | 280-144607-2 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 11.0 | - | J | C |
| NYOW-05-SL011-A | 280-144607-2 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 8.30 | - | J | C/TR |
| NYOW-05-SL011-A | 280-144607-2 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.30 | | UJ | C |
| NYOW-05-SL011-A | 280-144607-2 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 9.60 | - | J | C/TR |
| NYOW-05-SL011-A | 280-144607-2 | SW6010C | Sodium | 7440-23-5 | mg/kg | 110 | | U | L |
| NYOW-05-SL011-A | 280-144607-2 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 75.0 | | UJ | V2 |
| NYOW-05-SL011-A | 280-144607-2 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | V2 |
| NYOW-05-SL011-A | 280-144607-2 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 75.0 | | UJ | G1/V3 |
| NYOW-05-SL011-A | 280-144607-2 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 750 | | UJ | G1/V2 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-SL011-A | 280-144607-2 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 93.0 | | UJ | V2 |
| NYOW-05-SL012-A | 280-144607-5 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 13.0 | - | J | C |
| NYOW-05-SL012-A | 280-144607-5 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 13.0 | - | J | C |
| NYOW-05-SL012-A | 280-144607-5 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.70 | | UJ | C |
| NYOW-05-SL012-A | 280-144607-5 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 13.0 | - | J | C |
| NYOW-05-SL012-A | 280-144607-5 | SW6010C | Sodium | 7440-23-5 | mg/kg | 97.0 | | U | L |
| NYOW-05-SL012-A | 280-144607-5 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 78.0 | | UJ | V2 |
| NYOW-05-SL012-A | 280-144607-5 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | V2 |
| NYOW-05-SL012-A | 280-144607-5 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 78.0 | | UJ | G1/V3 |
| NYOW-05-SL012-A | 280-144607-5 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 780 | | UJ | G1/V2 |
| NYOW-05-SL012-A | 280-144607-5 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 96.0 | | UJ | V2 |
| NYOW-05-SL013-A | 280-144607-8 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 12.0 | - | J | C |
| NYOW-05-SL013-A | 280-144607-8 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 9.80 | - | J | C/TR |
| NYOW-05-SL013-A | 280-144607-8 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.80 | | UJ | C |
| NYOW-05-SL013-A | 280-144607-8 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 11.0 | - | J | C/TR |
| NYOW-05-SL013-A | 280-144607-8 | SW6010C | Sodium | 7440-23-5 | mg/kg | 93.0 | | U | L |
| NYOW-05-SL013-A | 280-144607-8 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.120 | | U | L |
| NYOW-05-SL013-A | 280-144607-8 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 79.0 | | UJ | V2 |
| NYOW-05-SL013-A | 280-144607-8 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | V2 |
| NYOW-05-SL013-A | 280-144607-8 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 79.0 | | UJ | G1/V3 |
| NYOW-05-SL013-A | 280-144607-8 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 790 | | UJ | G1/V2 |
| NYOW-05-SL013-A | 280-144607-8 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 98.0 | | UJ | V2 |
| NYOW-05-SL014-A | 280-144607-12 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 17.0 | - | J | C |
| NYOW-05-SL014-A | 280-144607-12 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 12.0 | - | J | C |
| NYOW-05-SL014-A | 280-144607-12 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 3.20 | - | J | C/TR |
| NYOW-05-SL014-A | 280-144607-12 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 13.0 | - | J | C |
| NYOW-05-SL014-A | 280-144607-12 | SW6010C | Sodium | 7440-23-5 | mg/kg | 570 | | U | L |
| NYOW-05-SL014-A | 280-144607-12 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.110 | | U | L |
| NYOW-05-SL014-A | 280-144607-12 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 78.0 | | UJ | V2 |
| NYOW-05-SL014-A | 280-144607-12 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | V2 |
| NYOW-05-SL014-A | 280-144607-12 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 78.0 | | UJ | G1/V3 |
| NYOW-05-SL014-A | 280-144607-12 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 780 | | UJ | G1/V2 |
| NYOW-05-SL014-A | 280-144607-12 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 96.0 | | UJ | V2 |
| NYOW-05-SL015-A | 280-144607-15 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 65.0 | - | J | C |
| NYOW-05-SL015-A | 280-144607-15 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 49.0 | - | J | C |
| NYOW-05-SL015-A | 280-144607-15 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 13.0 | - | J | C |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-SL015-A | 280-144607-15 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 55.0 | - | J | C |
| NYOW-05-SL015-A | 280-144607-15 | SW6010C | Sodium | 7440-23-5 | mg/kg | 110 | | U | L |
| NYOW-05-SL015-A | 280-144607-15 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0850 | | U | L |
| NYOW-05-SL015-A | 280-144607-15 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 77.0 | | UJ | V2 |
| NYOW-05-SL015-A | 280-144607-15 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | V2 |
| NYOW-05-SL015-A | 280-144607-15 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 77.0 | | UJ | G1/V3 |
| NYOW-05-SL015-A | 280-144607-15 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 770 | | UJ | G1/V2 |
| NYOW-05-SL015-A | 280-144607-15 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 95.0 | | UJ | V2 |
| NYOW-05-WL001-A | 280-144607-1 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/L | 0.0550 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/L | 0.110 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.110 | | UJ | C/M |
| NYOW-05-WL001-A | 280-144607-1 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/L | 0.110 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW6020A | Antimony | 7440-36-0 | ug/L | 6.00 | | U | V/V6 |
| NYOW-05-WL001-A | 280-144607-1 | SW6020A | Thallium | 7440-28-0 | ug/L | 1.00 | | U | V |
| NYOW-05-WL001-A | 280-144607-1 | SW7470A | Mercury | 7439-97-6 | ug/L | 0.0800 | | U | V |
| NYOW-05-WL001-A | 280-144607-1 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/L | 0.540 | | UJ | V2 |
| NYOW-05-WL001-A | 280-144607-1 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/L | 0.540 | | UJ | V2 |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | Bromodichloromethane | 75-27-4 | ug/L | 0.400 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | Bromomethane | 74-83-9 | ug/L | 0.800 | | UJ | V2 |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | Methylcyclohexane | 108-87-2 | ug/L | 0.400 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | Chlorobenzene | 108-90-7 | ug/L | 0.400 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | Carbon tetrachloride | 56-23-5 | ug/L | 0.400 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | Cyclohexane | 110-82-7 | ug/L | 0.800 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | Dibromochloromethane | 124-48-1 | ug/L | 0.400 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | 1,2-Dibromo-3-chloropropane | 96-12-8 | ug/L | 1.60 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | 1,2-Dichlorobenzene | 95-50-1 | ug/L | 0.400 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | 1,3-Dichlorobenzene | 541-73-1 | ug/L | 0.400 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | 1,4-Dichlorobenzene | 106-46-7 | ug/L | 0.400 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | 1,1-Dichloroethene | 75-35-4 | ug/L | 0.800 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | cis-1,3-Dichloropropene | 10061-01-5 | ug/L | 0.400 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | trans-1,3-Dichloropropene | 10061-02-6 | ug/L | 0.400 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | 1,2-Dichloropropane | 78-87-5 | ug/L | 0.400 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | Ethylbenzene | 100-41-4 | ug/L | 0.400 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | ug/L | 0.400 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | Tetrachloroethene (PCE) | 127-18-4 | ug/L | 0.400 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | Bromoform | 75-25-2 | ug/L | 1.00 | | UJ | M |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | 1,1,1-Trichloroethane | 71-55-6 | ug/L | 0.400 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8260C | m,p-Xylene | 179601-23-1 | ug/L | 0.800 | | UJ | M |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.00 | | UJ | I/V2 |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.00 | | UJ | I/V2 |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.50 | | UJ | I/V2 |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 61.0 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 10.0 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.50 | | UJ | I/V2 |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 5.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.00 | | UJ | M/I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.00 | | UJ | I/V2 |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 10.0 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 10.0 | | UJ | I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.00 | | X | I/V2 |
| NYOW-05-WL001-A | 280-144607-1 | SW8270D | Phenol | 108-95-2 | ug/L | 2.00 | | UJ | V2 |
| PH-DUP-001_210113 | 280-144607-11 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 4.60 | | UJ | C |
| PH-DUP-001_210113 | 280-144607-11 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 7.10 | | UJ | C |
| PH-DUP-001_210113 | 280-144607-11 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.10 | | UJ | C |
| PH-DUP-001_210113 | 280-144607-11 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 7.10 | | UJ | C |
| PH-DUP-001_210113 | 280-144607-11 | SW6010C | Sodium | 7440-23-5 | mg/kg | 560 | | U | L |
| PH-DUP-001_210113 | 280-144607-11 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.120 | | U | L |
| PH-DUP-001_210113 | 280-144607-11 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 76.0 | | UJ | V2 |
| PH-DUP-001_210113 | 280-144607-11 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | V2 |
| PH-DUP-001_210113 | 280-144607-11 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 76.0 | | UJ | G1/V3 |
| PH-DUP-001_210113 | 280-144607-11 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 760 | | UJ | G1/V2 |
| PH-DUP-001_210113 | 280-144607-11 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 94.0 | | UJ | V2 |
| TB-01_210113 | 280-144607-20 | SW8260C | Bromomethane | 74-83-9 | ug/L | 0.800 | | UJ | V2 |

Reason Code Definitions

| | |
|---|---|
| C | LCS Recoveries |
| I | Surrogate Recoveries |
| TR | Trace Level Detect |
| D | MS RPD |
| A | Serial Dilution |
| L | Laboratory Blank |
| M | MS Recovery |
| G1 | Initial Calibration RRF |
| V | Equipment Blank |
| V2 | CCV |
| V3 | CCV RRF |
| V6 | Low Level Calibration Verification |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 30 April 2021

**SUBJECT:** New York Ordnance Works Soil and Groundwater S2BVEM: 280-144550-1 Revision 1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil and groundwater samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Volatile Organic Compounds (VOCs) by SW-846 Method 8260C
- Semi-Volatile Organic Compounds (SVOCs) by SW-846 Method 8270D
- SVOCs with SIM by SW-846 Method 8270D
- Polychlorinated Biphenyls (PCBs) by SW-846 Method 8082A
- Total and Dissolved Metals by ICP SW-846 Method 6010C
- Total and Dissolved Metals by ICP-MS SW-846 Method 6020A
- Total and Dissolved Mercury (Hg) by SW-846 Method 7470A
- Hg by SW-846 Method 7471B
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144550 | 280-144550-1 | NYOW-05-SL005-A | 1/12/21 | SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144550 | 280-144550-2 | NYOW-05-PH005-B | 1/12/21 | VOCs, SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144550 | 280-144550-3 | NYOW-05-PH005-C | 1/12/21 | VOCs, SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144550 | 280-144550-4 | NYOW-05-WL010-A | 1/12/21 | SVOCs, SVOCs with SIM, Dissolved ICP and ICP-MS Metals, Dissolved Hg |
| 280-144550 | 280-144550-5 | NYOW-05-WL025-A | 1/12/21 | SVOCs, SVOCs with SIM, Dissolved ICP and ICP-MS Metals, Dissolved Hg |
| 280-144550 | 280-144550-6 | NYOW-05-SL001-A | 1/12/21 | SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144550 | 280-144550-7 | NYOW-05-PH001-B | 1/12/21 | VOCs, SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144550 | 280-144550-8 | NYOW-05-PH001-C | 1/12/21 | VOCs, SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144550 | 280-144550-9 | NYOW-05-SL002-A | 1/12/21 | SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144550 | 280-144550-10 | NYOW-05-PH002-B | 1/12/21 | VOCs, SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144550 | 280-144550-11 | NYOW-05-PH002-C | 1/12/21 | VOCs, SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144550 | 280-144550-12 | NYOW-05-SL003-A | 1/12/21 | SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144550 | 280-144550-13 | NYOW-05-PH003-B | 1/12/21 | VOCs, SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144550 | 280-144550-14 | NYOW-05-PH003-C | 1/12/21 | VOCs, SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144550 | 280-144550-15 | NYOW-05-SL004-A | 1/12/21 | SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144550 | 280-144550-16 | NYOW-05-PH004-B | 1/12/21 | VOCs, SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144550 | 280-144550-17 | NYOW-05-PH004-C | 1/12/21 | VOCs, SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144550 | 280-144550-18 | [1]PH-DUP-001_210112 | 1/12/21 | VOCs, SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |
| 280-144550 | 280-144550-19 | [2]SL-DUP-001_210112 | 1/12/21 | SVOCs, SVOCs with SIM, PCBs, ICP and ICP-MS Metals, Hg, %M |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144550 | 280-144550-20 | EB-01_210112 | 1/12/21 | VOCs, SVOCs, SVOCs with SIM, PCBs, Total ICP and ICP-MS Metals, Total Hg |
| 280-144550 | 280-144550-21 | EB-02_210112 | 1/12/21 | SVOCs, SVOCs with SIM, Dissolved ICP and ICP-MS Metals, Dissolved Hg |
| 280-144550 | 280-144550-22 | TB-01_210112 | 1/12/21 | VOCs |

[1]PH-DUP-001_210112 collected from NYOW-05-PH001-C
[2]SL-DUP-001_210112 collected from NYOW-05-SL002-A

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the

project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Six coolers were received by the laboratory at temperatures of 1.2°C, 4.1°C, 4.3°C, 4.6°C, 5.6°C, and 5.9°C. All samples were initially extracted and analyzed within holding time.

Samples EB-01_210112, EB-02_210112, NYOW-05-WL010-A, and NYOW-05-WL025-A were re-extracted and reanalyzed outside of the preparation holding time window for ***SVOC SIM***. The initial sample result should be used for data interpretation.

One of 16 soil 4oz jars was received broken for sample NYOW-05-SL003-A.

One of 5 soil 4oz jars was received with a crack in the side of the lid for sample NYOW-05-SL003-A. The sample was not compromised, and the lid was replaced.

The containers for samples NYOW-05-SL005-A and SL-DUP-001_210112 did not match the information listed on the Chain-of-Custody (COC). The COC indicated that there were 8 containers for each of these samples; however, only 4 containers were received for each sample. No Terra Core® kits were received for these samples, even though the COC had Terra Core® analysis marked. VOCs were not planned for this location.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | X | |
| Were all samples documented correctly on the COC? | | X |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A bromofluorobenzene instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for VOCs (i.e., each 12-hour period). The tunes met the ion abundance criteria. A decafluorotriphenylphosphine instrument performance check was performed prior to the initial instrument calibrations and at the start of each sample analysis batch for SVOCs by full scan and SIM. The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

PCBs by Method 8082A:

ICV 280-525936/24 exhibited a percent difference (%D) greater than the control limit on the primary chromatography column with a negative bias for 1268 Peak 4 at 26%. The remaining four PCB-1268 peaks were within control. On the basis of professional judgment, qualification is not necessary.

ICV 280-525936/24 exhibited a %D greater than the control limit on the secondary chromatography column with a negative bias for 1268 Peak 4 at 28%. The remaining four PCB-1268 peaks were within control. On the basis of professional judgment, qualification is not necessary.

Metals by Method 6020A:

Low-level ICV 280-524751/11 exhibited a recovery greater than the upper control limit for antimony at 124%. The associated positive detection for dissolved antimony is qualified as “J+”.

**CONTINUING CALIBRATION VERIFICATION**

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

VOCs by Method 8260C:

Continuing calibration verification (CCV) 280-523925/15 exhibited a %D greater than the control limit with a negative bias for bromomethane at 26%. The associated equipment blank and trip blank sample results are qualified as “UJ”.

PCBs by Method 8082A:

The CCV analyzed on 1/27/21 at 03:40 (280-524458/3) exhibited %Ds greater than the control limit on the primary and secondary chromatography columns with positive biases for all PCB 1016 and 1260 peaks. The associated sample results were non-detect and are qualified as “UJ”.

The CCV analyzed on 1/27/21 at 10:29 (280-524458/20) exhibited %Ds greater than the control limit with positive biases for the majority of PCB 1016 and 1260 peaks on the primary and secondary chromatography columns. The associated sample results were non-detect and are qualified as “UJ”.

The CCV analyzed on 1/27/21 at 15:18 (280-524458/32) exhibited %Ds greater than the control limit on the primary and secondary chromatography columns with positive biases for the majority of PCB 1016 and 1260 peaks. The associated sample results were non-detect and are qualified as “UJ”.

The CCV analyzed on 1/27/21 at 19:43 (280-524458/43) exhibited %Ds greater than the control limit on the secondary chromatography column with positive biases for all PCB 1016 and 1260 peaks. The associated sample results were non-detect and are qualified as “UJ”.

The CCV analyzed on 1/27/21 at 23:45 (280-524458/53) exhibited a %D greater than the control limit on the primary chromatography column with a positive bias for PCB 1016 peak 1. The associated sample results were non-detect and are qualified as “UJ”.

The CCV analyzed on 1/27/21 at 23:45 (280-524458/53) exhibited %Ds greater than the control limit on the secondary chromatography column with positive biases for all PCB 1016 and 1260 peaks. The associated sample results were non-detect and are qualified as “UJ”.

The CCV analyzed on 2/8/21 at 13:20 (280-525936/3) exhibited %Ds greater than the control limit on the secondary chromatography column with positive biases for the majority of PCB 1016 and 1260 peaks. The associated sample results were for the reanalysis of sample NYOW-05-SL005-A; qualification is not necessary.

SVOCs by Method 8270D:

CCV 680-654041/2 exhibited %Ds greater than the control limit for 4-bromophenyl phenyl ether (21.6%) and pentachlorophenol (25.9%). The associated sample results are qualified as “UJ”.

CCV 680-654041/3 exhibited a %D greater than the control limit for benzaldehyde at 24.3%. The associated sample results are qualified as “UJ”.

CCVs 680-654041/26 and 680-654041/2 exhibited RRFs less than the minimum relative response factor recommended by method 8270D (0.100) for hexachlorobenzene at 0.0564 and 0.0579, respectively. A CCV was performed at the LOQ and found to be acceptable; therefore, the sensitivity of the analytical system was demonstrated. The associated sample results are not qualified on this basis.

CCV 680-653493/3 exhibited %Ds greater than the control limit for with positive biases for phenol (22.2%), bis(2-chloroethyl) ether (48.9%), isophorone (22%), butyl benzyl phthalate (21.7%), bis(2-ethylhexyl)phthalate (34.2%), 2,2’-oxybis(1-chloropropane) (78.6%) and di-n-octyl phthalate (26.5%). The associated 2,2’-oxybis(1-chloropropane) sample results are qualified as “X” and recommended for rejection. The associated positive sample results for the remaining compounds are qualified as “J” and non-detect sample results are qualified as “UJ”.

Closing CCV 680-653493/29 exhibited a %D greater than the control limit with positive bias for 2,2’-oxybis(1-chloropropane) at 61.2%. The associated results were previously qualified; no further action is necessary.

Metals by Method 6010C:

Low-level CCVs (LLCCVs) associated with analysis batch 524712 exhibited recoveries greater than the upper control limit for iron. The associated soil sample results are greater than the levels spiked in the ICV and CCVs; qualification is not necessary.

LLCCVs associated with analysis batch 524794 exhibited recoveries greater than the upper control limit for iron and sodium. The associated sample results are greater than the levels spiked in the ICV and CCVs; qualification is not necessary.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

**BLANK SAMPLE RESULTS**

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, continuing calibration blanks, trip blanks, and equipment blanks with the exceptions noted below.

VOCs by Method 8260C:

Method blank samples 280-523674/3-A and 280-523895/3-A exhibited positive detections for methylene chloride at 1.65 µg/kg and 2.81 µg/kg, respectively. The associated sample results were non-detect; qualification is not required.

Method blank sample 280-523895/3-A exhibited a positive detection for 2-butanone at 8.37 µg/kg. The associated sample results were non-detect; qualification is not necessary.

Metals by Method 6010C:

Equipment blank sample EB-02_210112 displayed positive detections below the LOQ for dissolved calcium and magnesium at 110 µg/L and 30 µg/L, respectively. The associated sample results were greater than the LOQ; on the basis of professional judgment, qualification is not necessary.

Equipment blank sample EB-01_210112 displayed a positive detection below the LOQ for total calcium at 91 µg/L, respectively. Soil sample results are not qualified on the basis of aqueous equipment blanks.

Preparation blank sample 280-524467/1-A exhibited a positive detection below the LOQ for manganese at 0.111 mg/kg. The associated sample results were greater than the LOQ; on the basis of professional judgment, qualification is not necessary.

Preparation blank sample 280-524563/1-A exhibited positive detections below the LOQ for aluminum and calcium at 1.79 mg/kg and 28.4 mg/kg, respectively. The associated sample results were greater than the LOQ; on the basis of professional judgment, qualification is not necessary.

Preparation blank sample 280-524473/1-A exhibited a positive detection below the LOQ for iron at 37 µg/L. The associated sample results for dissolved iron less than the LOQ are qualified as “U” at the LOQ.

Metals by Method 6020A:

Preparation blank sample 280-524466/1-A exhibited a positive detection below the LOQ for thallium at 0.0137 mg/kg. The associated soil sample results less than the LOQ are qualified as "U" at the LOQ.

Preparation blank sample 280-523818/1-A exhibited a positive detection for total chromium at 1.44 µg/L. The associated equipment blank sample result was non-detect; qualification is not necessary.

Preparation blank sample 280-524476/1-A exhibited a positive detection for thallium below the LOQ at 0.0107 µg/L. The associated sample results were non-detect; qualification is not necessary.

Mercury by Method 7470A:

Continuing calibration blank (CCB) 280-524120/13-A exhibited a positive detection for mercury at 0.117 µg/L. The associated equipment blank sample result was non-detect; qualification is not necessary.

CCB 280-524716/13-A exhibited a positive detection for dissolved mercury at 0.029 µg/L. The associated investigative sample results were non-detect. The equipment blank exhibited a trace detection for dissolved mercury. The CCB was not used to qualify the equipment blank sample result; no further action is necessary.

Equipment blank sample EB-02_210112 displayed a positive detection for dissolved mercury at 0.027 µg/L. The associated results for samples NYOW-05-WL010-A and NYOW-05-WL025-A were below the LOQ and are qualified as "U" at the LOQ.

Preparation blank sample 280-524517/1-A exhibited a positive detection for total mercury at 0.0413 µg/L. The associated equipment blank sample was non-detect; qualification is not required.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Sample NYOW-05-WL025-A exhibited a recovery less than the lower warning limit for terphenyl-d14 at 19%. The associated base/neutral (B/N) extractable compounds were non-detect and are qualified as "UJ".

Sample NYOW-05-WL010-A exhibited a recovery less than the lower control limit for B/N extractable surrogate terphenyl-d14 at 8%. In addition, B/N extractable surrogate nitrobenzene-d5 recovered below the lower warning limit at 11%. The sample extract was black and sticking to the sides of the vial; therefore, the laboratory did not perform re-extraction and reanalysis. Matrix

effects are evident on the sample chromatogram. The associated B/N sample results were non-detect and are recommended for rejection (i.e., “X” qualified).

Sample NYOW-05-PH003-B exhibited a surrogate recovery less than the lower warning limit for terphenyl-d14 at 49%. The associated B/N extractable compounds were non-detect and are qualified as “UJ”.

Sample NYOW-05-SL001-A exhibited a surrogate recovery less than the lower warning limit for 2,4,6-tribromophenol at 34%. The associated acid extractable compounds were non-detect and are qualified as “UJ”.

Sample NYOW-05-SL002-A exhibited a surrogate recovery less than the lower warning limit for nitrobenzene-d5 at 25%. The associated B/N extractable compounds were non-detect and are qualified as “UJ”.

SVOCs by Method 8270D with SIM:

Sample NYOW-05-WL010-A exhibited surrogate recoveries less than the lower control limit for terphenyl-d14 and fluoranthene-d10 at 30% and 32%, respectively. The sample was re-extracted and reanalyzed outside of the holding time window. The associated positive detections are qualified as “J-“ and non-detects are qualified “UJ”.

Sample NYOW-05-WL025-A exhibited a recovery less than the lower warning limit for terphenyl-d14 at 55%. The sample was re-extracted and reanalyzed outside of the holding time window. The associated positive detections are qualified as “J-“ and non-detects are qualified “UJ”.

Sample NYOW-05-SL005-A did not recover for nitrobenzene-d5. The sample was analyzed at a 10X dilution and the surrogate was diluted out; qualification is not required.

PCBs by Method 8082A:

Sample NYOW-05-SL005-A exhibited a recovery greater than the upper control limit for decachlorobiphenyl at 136%. The associated sample results were non-detect; qualification is not necessary.

**LABORATORY CONTROL SAMPLES**

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D with SIM:

LCS 280-523815/2-A exhibited a recovery less than the lower warning limit for dibenz(a,h)anthracene at 43%. The associated sample results were non-detect and are qualified as “UJ”.

LCSD 280-524781/3-A exhibited recoveries greater than the upper warning limits for benzo(b)fluoranthene (138%), benzo(a)anthracene (141%), benzo(g,h,i)perylene (147%), indeno(1,2,3-cd)pyrene (162%), chrysene (171%), benzo(k)fluoranthene (178%), and dibenz(a,h)anthracene (188%). The associated sample results were non-detect and associated with the re-extraction batch for aqueous samples. Sufficient volume was not available to re-extract a third time; qualification is not necessary.

LCSD 280-524781/3-A exhibited RPDs greater than the control limit for benzo(b)fluoranthene (68%), benzo(a)pyrene (55%) benzo(a)anthracene (63%), benzo(g,h,i)perylene (80%), indeno(1,2,3-cd)pyrene (92%), chrysene (77%), benzo(k)fluoranthene (83%), and dibenz(a,h)anthracene (106%). The associated sample results were non-detect and associated with the re-extraction batch for aqueous samples. Sufficient volume was not available to re-extract a third time; qualification is not necessary.

**MATRIX SPIKE/MATRIX SPIKE DUPLICATES**

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

VOCs by Method 8260C:

MS/SD sample 280-144607-H-1 exhibited recoveries and RPDs outside of control limits. The spiked sample results were reported in a separate SDG; qualification is not necessary.

PCBs by Method 8082A:

The MS/SD RPD for sample 280-144607-D-1-C was greater than the control limit for PCB-1260 at 74%. The spiked sample results were reported in a separate SDG; qualification is not necessary.

SVOCs by Method 8270D:

MS sample NYOW-05-SL003-A exhibited a recovery less than the lower warning limit for atrazine at 46%. In addition, the SD exhibited recoveries less than the lower warning limit for hexachlorobenzene, dimethyl phthalate, diethyl phthalate, carbazole, and di-n-butylphthalate at 43%, 47%, 47%, 19%, and 50%, respectively. The associated sample results were non-detect and are qualified as “UJ”.

Multiple MS/SD RPDs for sample NYOW-05-SL003-A were greater than 20% as shown in the table below. The positive detection for dibenzofuran is qualified as “J”. The other analytes were not detected; qualification is not necessary.

| Analyte | RPD | Analyte | RPD |
|---|---|---|---|
| Acetophenone | 20.05 | 2,4-Dinitrotoluene | 21.68 |

| Analyte | RPD | Analyte | RPD |
|---|---|---|---|
| 4-Chlorophenyl phenyl ether | 20.07 | 4-Chloro-3-methylphenol | 22.67 |
| Hexachlorobenzene | 20.19 | Isophorone | 23.09 |
| Diethyl phthalate | 20.46 | Hexachlorobutadiene | 23.15 |
| Dibenzofuran | 20.79 | 2-Chloronaphthalene | 23.33 |
| Bis(2-ethylhexyl)phthalate | 20.83 | Bis(2-chloroethoxy)methane | 23.47 |
| Carbazole | 21.03 | 2,4,5-Trichlorophenol | 24.75 |
| 2,4-Dimethylphenol | 21.14 | 2,4-Dichlorophenol | 25.47 |
| Dimethyl phthalate | 21.37 | 2-Nitrophenol | 26.63 |
| di-n-Octyl phthalate | 21.61 | | |

Multiple MS/SD RPDs for sample NYOW-05-PH003-B were greater than 20% as shown in the table below. None of the analytes were detected; qualification is not necessary.

| Analyte | RPD | Analyte | RPD |
|---|---|---|---|
| Cresols, m- & p- | 20.78 | 2-Nitrophenol | 26.76 |
| N-Nitrosodi-n-propylamine | 21.53 | Nitrobenzene | 27.31 |
| 2-Chloronaphthalene | 22.59 | Phenol | 27.71 |
| Isophorone | 23.46 | Benzaldehyde | 28.32 |
| Bis(2-chloroethoxy)methane | 23.75 | 2-Chlorophenol | 28.57 |
| 2,4-Dimethylphenol | 24.62 | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 29.98 |
| Hexachlorocyclopentadiene | 24.86 | 2,2'-Oxybis(1-chloropropane) | 30.56 |
| 1,2,4,5-Tetrachlorobenzene | 25.23 | Hexachlorobutadiene | 34.48 |
| 2-Methylphenol (o-Cresol) | 25.52 | Hexachloroethane | 39.19 |
| Acetophenone | 26.53 | | |

SVOCs by Method 8270D with SIM:

MS/SD sample NYOW-05-SL003-A exhibited recoveries greater than the upper control limit for fluoranthene at 122% and 125%, pyrene at 126% and 134%, phenanthrene at 282% and 295%, naphthalene at 481% and 444%, 1-methylnaphthalene at 492% and 484%, and 2-methylnaphthalene at 622% and 606%. The SD recovery for chrysene was also greater than the upper control limit at 124%. The associated positive detections are qualified as “J+”.

Metals by Method 6010C:

MS sample NYOW-05-PH003-B did not recover for calcium and iron. The SD exhibited recoveries greater than the warning limits at 166% and 625%, respectively. The MS/SD RPDs were also greater than the control limits at 39% and 36%, respectively. The sample concentration was greater than 4X the spiked amount; qualification is not necessary.

MS/SD sample NYOW-05-PH003-B exhibited recoveries outside of warning limits for manganese at 25% and 136%, respectively. The MS/SD RPD was also greater than the control limit at 123%. The associated sample result is qualified as “J”.

MS/SD sample NYOW-05-PH003-B exhibited recoveries greater than control limits for aluminum at 333% and 1,050%, respectively. The MS/SD RPD was also greater than the control limit at 32%. The sample concentration was greater than 4X the spiked amount; qualification is not necessary.

MS sample NYOW-05-PH003-B exhibited recoveries less than the lower warning limit for magnesium at 66% and zinc at 73%. The associated sample results are qualified as “J-”.

MS sample NYOW-05-PH003-B exhibited a recovery greater than the upper warning limit for potassium at 155%. The associated sample results are qualified as “J+”.

MS sample NYOW-05-SL003-A exhibited recoveries outside of warning limits for iron, aluminum, and calcium. The MS/SD RPD for calcium was also greater than the control limit at 58%. The sample concentrations were greater than 4X the spiked amount; qualification is not necessary.

SD sample NYOW-05-SL003-A exhibited recoveries outside of warning limits for iron, manganese, and aluminum. The sample concentrations were greater than 4X the spiked amount; qualification is not necessary.

MS sample NYOW-05-SL003-A exhibited recoveries less than the lower warning limit for zinc (62%), manganese (69%), lead (79%), nickel (81%), cobalt (81%), and chromium (84%). The associated sample results are qualified as “J-”.

MS sample NYOW-05-SL003-A exhibited a recovery greater than the upper warning limit for magnesium at 157%. The MS/SD RPD was also greater than the control limit at 43%. The associated sample result is qualified as “J”.

Metals by Method 6020A:

MS sample NYOW-05-PH003-B exhibited a recovery less than the lower warning limit for antimony at 63%. The MS/SD RPD was also greater than the control limit at 35%. The associated sample result is qualified as “J.”

MS/SD sample NYOW-05-PH003-B exhibited RPDs greater than the control limit for arsenic (28%), cadmium (35%), selenium (36%), and thallium (38%). The associated sample results are qualified as “J”.

MS/SD sample NYOW-05-SL003-A exhibited recoveries greater than the upper warning limit for arsenic at 134% and 120%, respectively. The associated positive detection is qualified as “J+”.

**POST-DIGESTION SPIKE**

Metals by Methods 6010C and 6020A:

A post-digestion spike (PDS) was performed for MS/SD sample NYOW-05-SL003-A. Aluminum, iron, and manganese, exhibited recoveries less than the lower control limit; however, the sample concentrations were greater than 4X the spiked amount in the MS; therefore, the post-digestion spike was not used to evaluate MS/SD recovery failures. Arsenic recovered within the control limits at 88%.

A PDS was performed for MS/SD sample NYOW-05-PH003-B. Aluminum, iron, and manganese did not recover. Barium, calcium, chromium, cobalt, lead, magnesium, nickel, vanadium, and zinc recovered below the lower control limit. The results for aluminum and iron were greater than 4X the spiked amount in the MS; therefore, the PDS was not used to evaluate MS/SD recovery failures. The results for manganese, magnesium, and zinc were previously qualified. The MS/SD recoveries of barium, chromium, cobalt, lead, nickel, and vanadium were within warning limits; qualification is not necessary.

**ICP SERIAL DILUTION**

An ICP serial dilution was performed for sample NYOW-05-SL003-A. Aluminum, calcium, and iron %Ds were greater than 10% at 11%, 15%, and 12%, respectively. The associated sample results are qualified as “J”.

An ICP serial dilution was performed for sample NYOW-05-PH003-B. Aluminum, barium, calcium, iron, and manganese %Ds were greater than 10% at 12%, 12%, 16%, 17%, and 15%, respectively. The associated sample results are qualified as “J”.

**LOW-LEVEL CHECK STANDARD**

Low-level check standards for methods 6010C and 6020A were performed using the low-level CCV standard. All recoveries were within the control limits.

**INTERFERENCE CHECK SAMPLES**

Interference check samples A and AB recoveries were evaluated and met the acceptance criteria.

**COMMENTS**

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

The following samples could not be thoroughly homogenized before sub-sampling was performed for SVOC SIM analysis due to the sample matrix being clay: NYOW-05-PH005-B, NYOW-05-PH005-C, NYOW-05-PH001-C, NYOW-05-PH002-B, NYOW-05-PH002-C, NYOW-05-PH003-B, NYOW-05-PH004-C, and PH-DUP-001_210112. The reported concentrations are representative of the subsample obtained.

Samples NYOW-05-WL010-A and NYOW-05-WL025-A contained suspended sediment and presented as muddy.

Due to glassware breakage impacting the matrix spike, batch precision is not available for preparation batch SVOC 652519. Accuracy was demonstrated through performance of a MS and LCS.

A portion of samples NYOW-05-WL010-A and NYOW-05-WL025-A was used for analysis, rather than testing the entire sample amount in due to the presence of sediments in the sample container. As such, the required solvent rinse of the original container could not be performed for SVOC SIM.

Samples NYOW-05-SL005-A, NYOW-05-PH005-B, NYOW-05-PH005-C, NYOW-05-SL001-A, NYOW-05-PH001-B, NYOW-05-PH001-C, NYOW-05-SL002-A, NYOW-05-PH002-B, NYOW-05-PH002-C, NYOW-05-PH003-B, EB-01_210112, NYOW-05-PH003-C, NYOW-05-SL004-A, NYOW-05-PH004-B, NYOW-05-PH004-C, PH-DUP-001_210112, SL-DUP-001_210112, and NYOW-05-SL003-A required a sulfuric acid clean-up via EPA Method 3665A to reduce matrix interferences prior to analysis for PCBs.

Two field duplicate and parent sample pairs were collected and analyzed for all parameters (PH-DUP-001_210112 and NYOW-05-PH001-C, and SL-DUP-001_210112 and NYOW-05-SL002-A). For sample results that are greater than 5X the LOQ, the RPD must be less than 50%. For sample results less than 5X the LOQ, the absolute difference must be less than ±LOQ. The following analytes did not meet the precision criteria and the results are qualified as “J”:

- PH-DUP-001_210112 and NYOW-05-PH001-C: Cobalt, iron, magnesium, chromium, vanadium, aluminum, potassium, barium, and arsenic.
- SL-DUP-001_210112 and NYOW-05-SL002-A: Chrysene, anthracene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene, benzo(a)anthracene, pyrene, fluoranthene, phenanthrene, benzo(g,h,i)perylene, magnesium, and calcium.

Sample NYOW-05-SL005-A did not meet project quantitation limit goals (PQLGs) for several method SVOC SIM analytes due to sample dilution. Sample NYOW-05-PH005-C did not meet project quantitation limit goals (PQLGs) for several metal analytes due to sample dilution. LOQs were slightly greater than PQLGs for SVOCs and metals due to percent moisture adjustments.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified, with the exception of “X” qualified results. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 99%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210112 | 280-144550-20 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.0920 | | UJ | C |
| EB-01_210112 | 280-144550-20 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/L | 0.420 | | UJ | V2 |
| EB-01_210112 | 280-144550-20 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/L | 0.420 | | UJ | V2 |
| EB-01_210112 | 280-144550-20 | SW8260C | Bromomethane | 74-83-9 | ug/L | 0.800 | | UJ | V2 |
| EB-01_210112 | 280-144550-20 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.00 | | UJ | V2 |
| EB-01_210112 | 280-144550-20 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.00 | | UJ | V2 |
| EB-01_210112 | 280-144550-20 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.40 | | UJ | V2 |
| EB-01_210112 | 280-144550-20 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.40 | | UJ | V2 |
| EB-01_210112 | 280-144550-20 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.00 | | UJ | V2 |
| EB-01_210112 | 280-144550-20 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.00 | | X | V2 |
| EB-01_210112 | 280-144550-20 | SW8270D | Phenol | 108-95-2 | ug/L | 2.00 | | UJ | V2 |
| EB-02_210112 | 280-144550-21 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.0940 | | UJ | C |
| EB-02_210112 | 280-144550-21 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 1.90 | | UJ | V2 |
| EB-02_210112 | 280-144550-21 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 1.90 | | UJ | V2 |
| EB-02_210112 | 280-144550-21 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.40 | | UJ | V2 |
| EB-02_210112 | 280-144550-21 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.40 | | UJ | V2 |
| EB-02_210112 | 280-144550-21 | SW8270D | Isophorone | 78-59-1 | ug/L | 1.90 | | UJ | V2 |
| EB-02_210112 | 280-144550-21 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 1.90 | | X | V2 |
| EB-02_210112 | 280-144550-21 | SW8270D | Phenol | 108-95-2 | ug/L | 1.90 | | UJ | V2 |
| NYOW-05-PH001-B | 280-144550-7 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0970 | | U | L |
| NYOW-05-PH001-B | 280-144550-7 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 33.0 | | UJ | V2 |
| NYOW-05-PH001-B | 280-144550-7 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 7.10 | | UJ | V2 |
| NYOW-05-PH001-B | 280-144550-7 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-PH001-B | 280-144550-7 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | V2 |
| NYOW-05-PH001-B | 280-144550-7 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 760 | | UJ | V2 |
| NYOW-05-PH001-C | 280-144550-8 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 18000 | | J | D3 |
| NYOW-05-PH001-C | 280-144550-8 | SW6010C | Barium | 7440-39-3 | mg/kg | 110 | | J | D3 |
| NYOW-05-PH001-C | 280-144550-8 | SW6010C | Cobalt | 7440-48-4 | mg/kg | 13.0 | | J | D3 |
| NYOW-05-PH001-C | 280-144550-8 | SW6010C | Chromium | 7440-47-3 | mg/kg | 24.0 | | J | D3 |
| NYOW-05-PH001-C | 280-144550-8 | SW6010C | Iron | 7439-89-6 | mg/kg | 29000 | | J | D3 |
| NYOW-05-PH001-C | 280-144550-8 | SW6010C | Potassium | 7440-09-7 | mg/kg | 4300 | | J | D3 |
| NYOW-05-PH001-C | 280-144550-8 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 12000 | | J | D3 |
| NYOW-05-PH001-C | 280-144550-8 | SW6010C | Vanadium | 7440-62-2 | mg/kg | 33.0 | | J | D3 |
| NYOW-05-PH001-C | 280-144550-8 | SW6020A | Arsenic | 7440-38-2 | mg/kg | 4.70 | | J | D3 |
| NYOW-05-PH001-C | 280-144550-8 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 32.0 | | UJ | V2 |
| NYOW-05-PH001-C | 280-144550-8 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 7.00 | | UJ | V2 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH001-C | 280-144550-8 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 75.0 | | UJ | V2 |
| NYOW-05-PH001-C | 280-144550-8 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | V2 |
| NYOW-05-PH001-C | 280-144550-8 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 750 | | UJ | V2 |
| NYOW-05-PH002-B | 280-144550-10 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0970 | | U | L |
| NYOW-05-PH002-B | 280-144550-10 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 34.0 | | UJ | V2 |
| NYOW-05-PH002-B | 280-144550-10 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 7.30 | | UJ | V2 |
| NYOW-05-PH002-B | 280-144550-10 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 75.0 | | UJ | V2 |
| NYOW-05-PH002-B | 280-144550-10 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | V2 |
| NYOW-05-PH002-B | 280-144550-10 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 750 | | UJ | V2 |
| NYOW-05-PH002-C | 280-144550-11 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 35.0 | | UJ | V2 |
| NYOW-05-PH002-C | 280-144550-11 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 7.50 | | UJ | V2 |
| NYOW-05-PH002-C | 280-144550-11 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 75.0 | | UJ | V2 |
| NYOW-05-PH002-C | 280-144550-11 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | V2 |
| NYOW-05-PH002-C | 280-144550-11 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 750 | | UJ | V2 |
| NYOW-05-PH003-B | 280-144550-13 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 19000 | | J | A |
| NYOW-05-PH003-B | 280-144550-13 | SW6010C | Barium | 7440-39-3 | mg/kg | 110 | | J | A |
| NYOW-05-PH003-B | 280-144550-13 | SW6010C | Calcium | 7440-70-2 | mg/kg | 43000 | | J | A |
| NYOW-05-PH003-B | 280-144550-13 | SW6010C | Iron | 7439-89-6 | mg/kg | 24000 | | J | A |
| NYOW-05-PH003-B | 280-144550-13 | SW6010C | Potassium | 7440-09-7 | mg/kg | 3700 | + | J | M |
| NYOW-05-PH003-B | 280-144550-13 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 10000 | - | J | M |
| NYOW-05-PH003-B | 280-144550-13 | SW6010C | Manganese | 7439-96-5 | mg/kg | 450 | | J | M/D/A |
| NYOW-05-PH003-B | 280-144550-13 | SW6010C | Zinc | 7440-66-6 | mg/kg | 52.0 | - | J | M |
| NYOW-05-PH003-B | 280-144550-13 | SW6020A | Arsenic | 7440-38-2 | mg/kg | 4.50 | | J | D |
| NYOW-05-PH003-B | 280-144550-13 | SW6020A | Cadmium | 7440-43-9 | mg/kg | 0.0730 | | J | D/TR |
| NYOW-05-PH003-B | 280-144550-13 | SW6020A | Antimony | 7440-36-0 | mg/kg | 0.170 | | J | M/D/TR |
| NYOW-05-PH003-B | 280-144550-13 | SW6020A | Selenium | 7782-49-2 | mg/kg | 0.150 | | J | D/TR |
| NYOW-05-PH003-B | 280-144550-13 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.200 | | J | D |
| NYOW-05-PH003-B | 280-144550-13 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 40.0 | | UJ | V2 |
| NYOW-05-PH003-B | 280-144550-13 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 8.60 | | UJ | V2 |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 85.0 | | UJ | I/V2 |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 420 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 100 | | UJ | I/V2 |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 85.0 | | UJ | I/V2 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 210 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 210 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Carbazole | 86-74-8 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 100 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 420 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 85.0 | | UJ | I/V2 |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 100 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Isophorone | 78-59-1 | ug/kg | 85.0 | | UJ | I/V2 |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 210 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 100 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 100 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 85.0 | | UJ | I |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 85.0 | | X | I/V2 |
| NYOW-05-PH003-B | 280-144550-13 | SW8270D | Phenol | 108-95-2 | ug/kg | 85.0 | | UJ | V2 |
| NYOW-05-PH003-C | 280-144550-14 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 36.0 | | UJ | V2 |
| NYOW-05-PH003-C | 280-144550-14 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 7.90 | | UJ | V2 |
| NYOW-05-PH003-C | 280-144550-14 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 84.0 | | UJ | V2 |
| NYOW-05-PH003-C | 280-144550-14 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 210 | | UJ | V2 |
| NYOW-05-PH003-C | 280-144550-14 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 840 | | UJ | V2 |
| NYOW-05-PH004-B | 280-144550-16 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.100 | | U | L |
| NYOW-05-PH004-B | 280-144550-16 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 34.0 | | UJ | V2 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH004-B | 280-144550-16 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 7.30 | | UJ | V2 |
| NYOW-05-PH004-B | 280-144550-16 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-PH004-B | 280-144550-16 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | V2 |
| NYOW-05-PH004-B | 280-144550-16 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 760 | | UJ | V2 |
| NYOW-05-PH004-C | 280-144550-17 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 37.0 | | UJ | V2 |
| NYOW-05-PH004-C | 280-144550-17 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 8.00 | | UJ | V2 |
| NYOW-05-PH004-C | 280-144550-17 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 79.0 | | UJ | V2 |
| NYOW-05-PH004-C | 280-144550-17 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | V2 |
| NYOW-05-PH004-C | 280-144550-17 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 790 | | UJ | V2 |
| NYOW-05-PH005-B | 280-144550-2 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.120 | | U | L |
| NYOW-05-PH005-B | 280-144550-2 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 36.0 | | UJ | V2 |
| NYOW-05-PH005-B | 280-144550-2 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 7.70 | | UJ | V2 |
| NYOW-05-PH005-B | 280-144550-2 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 80.0 | | UJ | V2 |
| NYOW-05-PH005-B | 280-144550-2 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | V2 |
| NYOW-05-PH005-B | 280-144550-2 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 800 | | UJ | V2 |
| NYOW-05-PH005-C | 280-144550-3 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.100 | | U | L |
| NYOW-05-PH005-C | 280-144550-3 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 35.0 | | UJ | V2 |
| NYOW-05-PH005-C | 280-144550-3 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 7.50 | | UJ | V2 |
| NYOW-05-PH005-C | 280-144550-3 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 77.0 | | UJ | V2 |
| NYOW-05-PH005-C | 280-144550-3 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | V2 |
| NYOW-05-PH005-C | 280-144550-3 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 770 | | UJ | V2 |
| NYOW-05-SL001-A | 280-144550-6 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0910 | | U | L |
| NYOW-05-SL001-A | 280-144550-6 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 32.0 | | UJ | V2 |
| NYOW-05-SL001-A | 280-144550-6 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 6.90 | | UJ | V2 |
| NYOW-05-SL001-A | 280-144550-6 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 71.0 | | UJ | V2 |
| NYOW-05-SL001-A | 280-144550-6 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 63.0 | | J | TR/V2 |
| NYOW-05-SL001-A | 280-144550-6 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 71.0 | | UJ | I |
| NYOW-05-SL001-A | 280-144550-6 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 71.0 | | UJ | I |
| NYOW-05-SL001-A | 280-144550-6 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/kg | 71.0 | | UJ | I |
| NYOW-05-SL001-A | 280-144550-6 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 71.0 | | UJ | I |
| NYOW-05-SL001-A | 280-144550-6 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/kg | 350 | | UJ | I |
| NYOW-05-SL001-A | 280-144550-6 | SW8270D | Cresols, m- & p- | | ug/kg | 71.0 | | UJ | I |
| NYOW-05-SL001-A | 280-144550-6 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/kg | 71.0 | | UJ | I |
| NYOW-05-SL001-A | 280-144550-6 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/kg | 71.0 | | UJ | I |
| NYOW-05-SL001-A | 280-144550-6 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 710 | | UJ | I |
| NYOW-05-SL001-A | 280-144550-6 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 710 | | UJ | I/V2 |
| NYOW-05-SL001-A | 280-144550-6 | SW8270D | Phenol | 108-95-2 | ug/kg | 71.0 | | UJ | I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-SL001-A | 280-144550-6 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 88.0 | | UJ | I |
| NYOW-05-SL001-A | 280-144550-6 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/kg | 71.0 | | UJ | I |
| NYOW-05-SL001-A | 280-144550-6 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/kg | 71.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 18.0 | | J | D3 |
| NYOW-05-SL002-A | 280-144550-9 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 34.0 | | J | D3 |
| NYOW-05-SL002-A | 280-144550-9 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 27.0 | | J | D3 |
| NYOW-05-SL002-A | 280-144550-9 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 35.0 | | J | D3 |
| NYOW-05-SL002-A | 280-144550-9 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 16.0 | | J | D3 |
| NYOW-05-SL002-A | 280-144550-9 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 33.0 | | J | D3 |
| NYOW-05-SL002-A | 280-144550-9 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 86.0 | | J | D3 |
| NYOW-05-SL002-A | 280-144550-9 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 18.0 | | J | D3 |
| NYOW-05-SL002-A | 280-144550-9 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 82.0 | | J | D3 |
| NYOW-05-SL002-A | 280-144550-9 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 75.0 | | J | D3 |
| NYOW-05-SL002-A | 280-144550-9 | SW6010C | Calcium | 7440-70-2 | mg/kg | 9200 | | J | D3 |
| NYOW-05-SL002-A | 280-144550-9 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 3100 | | J | D3 |
| NYOW-05-SL002-A | 280-144550-9 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.110 | | U | L |
| NYOW-05-SL002-A | 280-144550-9 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 33.0 | | UJ | V2 |
| NYOW-05-SL002-A | 280-144550-9 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 7.20 | | UJ | V2 |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 380 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 96.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 78.0 | | UJ | I/V2 |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | I/V2 |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 200 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Carbazole | 86-74-8 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 96.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 78.0 | | UJ | I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 380 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 96.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Isophorone | 78-59-1 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 200 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 96.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 96.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 78.0 | | UJ | I |
| NYOW-05-SL002-A | 280-144550-9 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 780 | | UJ | V2 |
| NYOW-05-SL003-A | 280-144550-12 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 9.20 | + | J | M/TR |
| NYOW-05-SL003-A | 280-144550-12 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 9.10 | + | J | M/TR |
| NYOW-05-SL003-A | 280-144550-12 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 65.0 | + | J | M |
| NYOW-05-SL003-A | 280-144550-12 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/kg | 87.0 | + | J | M |
| NYOW-05-SL003-A | 280-144550-12 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 65.0 | + | J | M |
| NYOW-05-SL003-A | 280-144550-12 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 34.0 | + | J | M |
| NYOW-05-SL003-A | 280-144550-12 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 11.0 | + | J | M/TR |
| NYOW-05-SL003-A | 280-144550-12 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 4400 | | J | A |
| NYOW-05-SL003-A | 280-144550-12 | SW6010C | Calcium | 7440-70-2 | mg/kg | 25000 | | J | A |
| NYOW-05-SL003-A | 280-144550-12 | SW6010C | Cobalt | 7440-48-4 | mg/kg | 3.60 | - | J | M |
| NYOW-05-SL003-A | 280-144550-12 | SW6010C | Chromium | 7440-47-3 | mg/kg | 5.50 | - | J | M |
| NYOW-05-SL003-A | 280-144550-12 | SW6010C | Iron | 7439-89-6 | mg/kg | 11000 | | J | A |
| NYOW-05-SL003-A | 280-144550-12 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 4900 | | J | M/D |
| NYOW-05-SL003-A | 280-144550-12 | SW6010C | Manganese | 7439-96-5 | mg/kg | 400 | - | J | M |
| NYOW-05-SL003-A | 280-144550-12 | SW6010C | Nickel | 7440-02-0 | mg/kg | 8.30 | - | J | M |
| NYOW-05-SL003-A | 280-144550-12 | SW6010C | Lead | 7439-92-1 | mg/kg | 11.0 | - | J | M |
| NYOW-05-SL003-A | 280-144550-12 | SW6010C | Zinc | 7440-66-6 | mg/kg | 35.0 | - | J | M |
| NYOW-05-SL003-A | 280-144550-12 | SW6020A | Arsenic | 7440-38-2 | mg/kg | 6.80 | + | J | M |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-SL003-A | 280-144550-12 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 35.0 | | UJ | V2 |
| NYOW-05-SL003-A | 280-144550-12 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 7.60 | | UJ | V2 |
| NYOW-05-SL003-A | 280-144550-12 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 76.0 | | UJ | M |
| NYOW-05-SL003-A | 280-144550-12 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-SL003-A | 280-144550-12 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/kg | 94.0 | | UJ | V2 |
| NYOW-05-SL003-A | 280-144550-12 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-SL003-A | 280-144550-12 | SW8270D | Carbazole | 86-74-8 | ug/kg | 76.0 | | UJ | M |
| NYOW-05-SL003-A | 280-144550-12 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 110 | | J | D/TR |
| NYOW-05-SL003-A | 280-144550-12 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 76.0 | | UJ | M |
| NYOW-05-SL003-A | 280-144550-12 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 76.0 | | UJ | M |
| NYOW-05-SL003-A | 280-144550-12 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 76.0 | | UJ | M |
| NYOW-05-SL003-A | 280-144550-12 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-SL003-A | 280-144550-12 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 76.0 | | UJ | M |
| NYOW-05-SL003-A | 280-144550-12 | SW8270D | Isophorone | 78-59-1 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-SL003-A | 280-144550-12 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 76.0 | | X | V2 |
| NYOW-05-SL003-A | 280-144550-12 | SW8270D | Phenol | 108-95-2 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-SL004-A | 280-144550-15 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0750 | | U | L |
| NYOW-05-SL004-A | 280-144550-15 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 33.0 | | UJ | V2 |
| NYOW-05-SL004-A | 280-144550-15 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 7.30 | | UJ | V2 |
| NYOW-05-SL004-A | 280-144550-15 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 72.0 | | UJ | V2 |
| NYOW-05-SL004-A | 280-144550-15 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 180 | | UJ | V2 |
| NYOW-05-SL004-A | 280-144550-15 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 720 | | UJ | V2 |
| NYOW-05-SL005-A | 280-144550-1 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 34.0 | | UJ | V2 |
| NYOW-05-SL005-A | 280-144550-1 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 7.30 | | UJ | V2 |
| NYOW-05-SL005-A | 280-144550-1 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 79.0 | | UJ | V2 |
| NYOW-05-SL005-A | 280-144550-1 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | V2 |
| NYOW-05-SL005-A | 280-144550-1 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 790 | | UJ | V2 |
| NYOW-05-WL010-A | 280-144550-4 | BNASIMD | Acenaphthene | 83-32-9 | ug/L | 0.0120 | | UJ | I |
| NYOW-05-WL010-A | 280-144550-4 | BNASIMD | Acenaphthylene | 208-96-8 | ug/L | 0.0210 | | UJ | I |
| NYOW-05-WL010-A | 280-144550-4 | BNASIMD | Anthracene | 120-12-7 | ug/L | 0.100 | | UJ | I |
| NYOW-05-WL010-A | 280-144550-4 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/L | 0.100 | | UJ | I |
| NYOW-05-WL010-A | 280-144550-4 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/L | 0.0510 | | UJ | I |
| NYOW-05-WL010-A | 280-144550-4 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/L | 0.100 | | UJ | I |
| NYOW-05-WL010-A | 280-144550-4 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/L | 0.100 | | UJ | I |
| NYOW-05-WL010-A | 280-144550-4 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/L | 0.0510 | | UJ | I |
| NYOW-05-WL010-A | 280-144550-4 | BNASIMD | Chrysene | 218-01-9 | ug/L | 0.100 | | UJ | I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL010-A | 280-144550-4 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.100 | | UJ | C/I |
| NYOW-05-WL010-A | 280-144550-4 | BNASIMD | Fluorene | 86-73-7 | ug/L | 0.0410 | | UJ | I |
| NYOW-05-WL010-A | 280-144550-4 | BNASIMD | Fluoranthene | 206-44-0 | ug/L | 0.100 | | UJ | I |
| NYOW-05-WL010-A | 280-144550-4 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/L | 0.100 | | UJ | I |
| NYOW-05-WL010-A | 280-144550-4 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/L | 0.210 | - | J | I |
| NYOW-05-WL010-A | 280-144550-4 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/L | 0.220 | - | J | I |
| NYOW-05-WL010-A | 280-144550-4 | BNASIMD | Naphthalene | 91-20-3 | ug/L | 0.170 | - | J | I |
| NYOW-05-WL010-A | 280-144550-4 | BNASIMD | Phenanthrene | 85-01-8 | ug/L | 0.280 | - | J | I |
| NYOW-05-WL010-A | 280-144550-4 | BNASIMD | Pyrene | 129-00-0 | ug/L | 0.100 | | UJ | I |
| NYOW-05-WL010-A | 280-144550-4 | SW6020A | Antimony | 7440-36-0 | ug/L | 0.940 | + | J | TR/V6 |
| NYOW-05-WL010-A | 280-144550-4 | SW7470A | Mercury | 7439-97-6 | ug/L | 0.0800 | | U | V |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.10 | | X | I/V2 |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.10 | | X | I/V2 |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.60 | | X | I/V2 |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.20 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 63.0 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 10.0 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.60 | | X | I/V2 |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.10 | | X | I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 5.20 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.10 | | X | I/V2 |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 10.0 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 10.0 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.10 | | X | I |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.10 | | X | I/V2 |
| NYOW-05-WL010-A | 280-144550-4 | SW8270D | Phenol | 108-95-2 | ug/L | 2.10 | | UJ | V2 |
| NYOW-05-WL025-A | 280-144550-5 | BNASIMD | Acenaphthene | 83-32-9 | ug/L | 0.0120 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | BNASIMD | Acenaphthylene | 208-96-8 | ug/L | 0.0200 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | BNASIMD | Anthracene | 120-12-7 | ug/L | 0.100 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/L | 0.100 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/L | 0.0510 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/L | 0.100 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/L | 0.100 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/L | 0.0510 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | BNASIMD | Chrysene | 218-01-9 | ug/L | 0.0510 | - | J | I/TR |
| NYOW-05-WL025-A | 280-144550-5 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.100 | | UJ | C/I |
| NYOW-05-WL025-A | 280-144550-5 | BNASIMD | Fluorene | 86-73-7 | ug/L | 0.0410 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | BNASIMD | Fluoranthene | 206-44-0 | ug/L | 0.100 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/L | 0.100 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/L | 0.0410 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/L | 0.0510 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | BNASIMD | Naphthalene | 91-20-3 | ug/L | 0.0510 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | BNASIMD | Phenanthrene | 85-01-8 | ug/L | 0.100 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | BNASIMD | Pyrene | 129-00-0 | ug/L | 0.100 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW6010C | Iron | 7439-89-6 | ug/L | 100 | | U | L |
| NYOW-05-WL025-A | 280-144550-5 | SW7470A | Mercury | 7439-97-6 | ug/L | 0.0800 | | U | V |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.10 | | UJ | I/V2 |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.10 | | UJ | I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | ug/L | 2.10 | | UJ | I/V2 |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.60 | | UJ | I/V2 |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.30 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 63.0 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 11.0 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.60 | | UJ | I/V2 |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 5.30 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.10 | | UJ | I/V2 |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 11.0 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 11.0 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.10 | | UJ | I |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.10 | | X | I/V2 |
| NYOW-05-WL025-A | 280-144550-5 | SW8270D | Phenol | 108-95-2 | ug/L | 2.50 | | J | TR/V2 |
| PH-DUP-001_210112 | 280-144550-18 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 8300 | | J | D3 |
| PH-DUP-001_210112 | 280-144550-18 | SW6010C | Barium | 7440-39-3 | mg/kg | 40.0 | | J | D3 |
| PH-DUP-001_210112 | 280-144550-18 | SW6010C | Cobalt | 7440-48-4 | mg/kg | 7.60 | | J | D3 |
| PH-DUP-001_210112 | 280-144550-18 | SW6010C | Chromium | 7440-47-3 | mg/kg | 12.0 | | J | D3 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210112 | 280-144550-18 | SW6010C | Iron | 7439-89-6 | mg/kg | 16000 | | J | D3 |
| PH-DUP-001_210112 | 280-144550-18 | SW6010C | Potassium | 7440-09-7 | mg/kg | 1900 | | J | D3 |
| PH-DUP-001_210112 | 280-144550-18 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 23000 | | J | D3 |
| PH-DUP-001_210112 | 280-144550-18 | SW6010C | Vanadium | 7440-62-2 | mg/kg | 16.0 | | J | D3 |
| PH-DUP-001_210112 | 280-144550-18 | SW6020A | Arsenic | 7440-38-2 | mg/kg | 1.50 | | J | D3 |
| PH-DUP-001_210112 | 280-144550-18 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.100 | | U | L |
| PH-DUP-001_210112 | 280-144550-18 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 35.0 | | UJ | V2 |
| PH-DUP-001_210112 | 280-144550-18 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 7.50 | | UJ | V2 |
| PH-DUP-001_210112 | 280-144550-18 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 78.0 | | UJ | V2 |
| PH-DUP-001_210112 | 280-144550-18 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | V2 |
| PH-DUP-001_210112 | 280-144550-18 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 780 | | UJ | V2 |
| SL-DUP-001_210112 | 280-144550-19 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 6.40 | | J | D3/TR |
| SL-DUP-001_210112 | 280-144550-19 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 5.40 | | J | D3/TR |
| SL-DUP-001_210112 | 280-144550-19 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 9.30 | | J | D3/TR |
| SL-DUP-001_210112 | 280-144550-19 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 8.90 | | J | D3/TR |
| SL-DUP-001_210112 | 280-144550-19 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 15.0 | | J | D3 |
| SL-DUP-001_210112 | 280-144550-19 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 4.30 | | J | D3/TR |
| SL-DUP-001_210112 | 280-144550-19 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 10.0 | | J | D3/TR |
| SL-DUP-001_210112 | 280-144550-19 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 14.0 | | J | D3 |
| SL-DUP-001_210112 | 280-144550-19 | SW6010C | Calcium | 7440-70-2 | mg/kg | 21000 | | J | D3 |
| SL-DUP-001_210112 | 280-144550-19 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 5600 | | J | D3 |
| SL-DUP-001_210112 | 280-144550-19 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0940 | | U | L |
| SL-DUP-001_210112 | 280-144550-19 | SW8082A | PCB-1016 (Aroclor 1016) | 12674-11-2 | ug/kg | 35.0 | | UJ | V2 |
| SL-DUP-001_210112 | 280-144550-19 | SW8082A | PCB-1260 (Aroclor 1260) | 11096-82-5 | ug/kg | 7.60 | | UJ | V2 |
| SL-DUP-001_210112 | 280-144550-19 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 83.0 | | UJ | V2 |
| SL-DUP-001_210112 | 280-144550-19 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 210 | | UJ | V2 |
| SL-DUP-001_210112 | 280-144550-19 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 830 | | UJ | V2 |
| TB-01_210112 | 280-144550-22 | SW8260C | Bromomethane | 74-83-9 | ug/L | 0.800 | | UJ | V2 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|

Reason Code Definitions

| | |
|---|---|
| A | Serial Dilution |
| C | LCS Recovery |
| I | urrogate Recovery |
| D | MS RPD |
| TR | Trace Detect |
| D3 | ield Duplicate RPD |
| M | MS Recovery |
| V | Equipment Blank |
| V2 | CCV |
| V6 | Low Level CCV |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 27 April 2021

**SUBJECT:** New York Ordnance Works Soil and Groundwater S2BVEM: 280-144501-1 Revision 1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil and groundwater samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) by SW-846 Method 8270D
- SVOCs with SIM by SW-846 Method 8270D
- Metals by ICP SW-846 Method 6010C
- Metals by ICP-MS SW-846 Method 6020A
- Mercury (Hg) by SW-846 Method 7470A
- Hg by SW-846 Method 7471B
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144501 | 280-144501-1 | NYOW-05-WL008-A | 1/11/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals |
| 280-144501 | 280-144501-2 | NYOW-05-WL006-A | 1/11/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals |
| 280-144501 | 280-144501-3 | NYOW-05-WL024-A | 1/11/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144501 | 280-144501-4 | EB-01_210111 | 1/11/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals |
| 280-144501 | 280-144501-5 | NYOW-05-SL025-A | 1/11/21 | SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144501 | 280-144501-6 | NYOW-05-PH025-B | 1/11/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144501 | 280-144501-7 | NYOW-05-PH025-C | 1/11/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144501 | 280-144501-8 | NYOW-05-SL018-A | 1/11/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144501 | 280-144501-9 | NYOW-05-PH018-B | 1/11/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144501 | 280-144501-10 | NYOW-05-PH018-C | 1/11/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144501 | 280-144501-11 | NYOW-05-SL019-A | 1/11/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144501 | 280-144501-12 | NYOW-05-PH019-B | 1/11/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144501 | 280-144501-13 | NYOW-05-PH019-C | 1/11/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144501 | 280-144501-14 | EB-02_210111 | 1/11/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Three coolers were received by the laboratory at temperatures of 1.0°C, 1.5°C, and 2.5°C.

Sample **NYOW-05-PH019-B** was reextracted 3 days past the preparation holding time window for ***SVOCs***. The reanalysis results should be used for data interpretation and the data are qualified as "UJ".

Samples EB-01_210111, EB-02_210111, NYOW-05-WL006-A, NYOW-05-WL008-A, and NYOW-05-WL024-A were extracted on the seventh day of the 7-day preparation holding time for ***SVOCs***. Qualification of the data is not necessary.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | | X |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for SVOCs and SVOCs with SIM (i.e., each 12-hour period). The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and

initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met.

**CONTINUING CALIBRATION VERIFICATION**

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

SVOCs by Method 8270D:

CCV 680-653363/2 exhibited %Ds greater than the control limit for 2,2'-oxybis(1-chloropropane) at 27.9%, hexachlorobenzene at 21% and pentachlorophenol at 24.9%. The associated sample results were non-detect and are qualified as “UJ”.

CCV 680-653363/3 exhibited a %D greater than the control limit for caprolactam at 25.3%. The associated sample results were non-detect and are qualified as “UJ”.

CCV 680-653957/2 exhibited %Ds greater than the control limit for 2,3,4,6-tetrachlorophenol (20.5%), 4-bromophenyl phenyl ether (22%), and pentachlorophenol (23.1%). The associated sample results are qualified as “UJ”. In addition, the RRF for hexachlorobenzene was less than the method and Module 1 recommendations. A CCV was performed at the LOQ and was acceptable; therefore, the sensitivity of the analytical system was demonstrated. The associated sample results are not qualified on this basis.

CCVs 680-653957/3 and 680-653957/32 exhibited %Ds greater than the control limit for benzaldehyde at 24.3% and 23.1%, respectively. The associated sample results are qualified as “UJ”.

CCV 680-653957/31 exhibited a RRF less than the method and Module 1 recommendations for hexachlorobenzene. A CCV was performed at the LOQ and was acceptable; therefore, the sensitivity of the analytical system was demonstrated. The associated sample results are not qualified on this basis.

CCV 680-653493/3 exhibited %Ds greater than the control limit for bis(2-chloroethyl)ether (48.9%), phenol (22.2%), isophorone (22%), bis(2-ethylhexyl)phthalate (34.2%), butyl benzyl phthalate (21.7%), 2,2'-oxybis(1-chloropropane) (78.6%) and di-n-octyl phthalate (26.5%). The results for 2,2'-oxybis(1-chloropropane) are qualified as “X” and recommended for rejection. The associated sample results for the remaining compounds are qualified as “UJ”.

Closing CVC 680-653493/29 exhibited a %D greater than the control limit for 2,2'-oxybis[1-chloropropane]. The associated sample results were previously qualified; no further action is necessary.

## INTERNAL STANDARDS

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

## BLANK SAMPLE RESULTS

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, continuing calibration blanks, and equipment blanks with the exceptions noted below.

SVOCs by Method 8270D with SIM:

Method blank sample 280-523737/1-A exhibited positive detections for benzo(a)pyrene (0.0256 µg/L), dibenz(a,h)anthracene (0.0666 µg/L), benzo(a)anthracene (0.0692 µg/L), benzo(g,h,i)perylene (0.0735 µg/L), indeno(1,2,3-cd)pyrene (0.0760 µg/L), benzo(k)fluoranthene (0.11 µg/L), chrysene (0.118 µg/L), and benzo(b)fluoranthene (0.123 µg/L). The associated aqueous sample results were non-detect; qualification is not required.

Metals by Method 6010C:

Preparation blank sample 280-524368/1-A exhibited positive detections greater than the detection limit but less than the LOQ for calcium (30.3 mg/kg) and sodium (35 mg/kg). The associated positive detections for calcium were greater than the LOQ; qualification is not required. The associated soil sample results for sodium were less than the LOQ and are qualified as “U” at the LOQ.

Metals by Method 6020A:

Preparation blank sample 280-524370/1-A exhibited a positive detection for thallium less than the LOQ at 0.0084 mg/kg. The associated soil sample results that are less than the LOQ are qualified as “U” at the LOQ.

Preparation blank sample 280-523818/1-A exhibited a positive detection for chromium greater than the detection limit at 1.44 µg/L. The associated equipment blank sample result was non-detect; qualification is not required.

Continuing calibration blanks (CCBs) associated with analysis batch 280-524443 exhibited positive detections for thallium. The associated sample results were non-detect; qualification is not necessary.

Mercury by Method 7470A:

CCB 280-524120/13-A exhibited a positive detection for mercury at 0.117 µg/L. The associated sample results were non-detect; qualification is not necessary.

## SURROGATE RECOVERIES

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Sample NYOW-05-WL006-A exhibited a recovery less than the lower warning limit for terphenyl-d14 at 31%. The associated base/neutral (B/N) extractable sample results were non-detect and are qualified as “UJ”.

Sample NYOW-05-WL008-A exhibited a recovery less than the lower warning limit for terphenyl-d14 at 30%. The associated B/N extractable sample results were non-detect and are qualified as “UJ”.

Sample NYOW-05-WL024-A exhibited a recovery less than the lower control limit for terphenyl-d14 at 9%. The sample was not re-extracted and reanalyzed by the laboratory. The associated B/N extractable sample results were non-detect and are recommended for rejection (i.e., “X”-qualified).

Sample NYOW-05-PH019-B exhibited recoveries less than the lower control limit for surrogates 2-fluorophenol, nitrobenzene-d5, phenol-d5, and 2-fluorobiphenyl. The sample was reextracted 3 days past the preparation holding time window and the surrogates recovered within control. The reanalysis results should be used for data interpretation and are qualified as “UJ”.

SVOCs by Method 8270D with SIM:

Samples NYOW-05-WL006-A and NYOW-05-WL024-A exhibited recoveries less than the lower warning limit for terphenyl-d14 at 54% and 34%, respectively. The associated positive detections are qualified as “J-“ and non-detects are qualified as “UJ”.

Sample EB-02_210111 exhibited a recovery less than the lower warning limit for nitrobenzene-d5 at 50%. The associated sample results were non-detect and are qualified as “UJ”.

Sample NYOW-05-WL024-A exhibited a recovery less than the lower warning limit for fluoranthene-d10 at 40% The associated positive detections are qualified as “J-“ and non-detects are qualified as “UJ”.

Sample NYOW-05-PH019-B exhibited recoveries less than the lower warning limit for terphenyl-d14, fluoranthene-d10, and 2-fluorobiphenyl, at 51%, 47%, and 41%, respectively. The associated positive detections are qualified as “J-“ and non-detects are qualified as “UJ”.

Sample NYOW-05-SL018-A exhibited recoveries less than the lower warning limit for nitrobenzene-d5, 2-methylnaphthalnene-d10, and 2-fluorobiphenyl at 12%, 24%, and 34%, respectively. The associated positive detections are qualified as “J” and non-detects are qualified as “UJ”.

Sample NYOW-05-SL019-A exhibited a recovery less than the lower warning limit for terphenyl-d14 at 57%. The associated positive detections are qualified as "J-" and non-detects are qualified as "UJ".

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D with SIM:

LCS 280-523737/2-A exhibited recoveries less than the lower warning limits for indeno(1,2,3-cd)pyrene (22%), dibenz(a,h)anthracene (23%), benzo(g,h,i)perylene (24%), benzo(a)pyrene (36%), benzo(k)fluoranthene (45%), and benzo(b)fluoranthene (47%). The associated positive aqueous sample results were non-detect and are qualified as "UJ".

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

Several analytes failed the recovery criteria low for the SD of sample 280-144651-A-6-I. In addition, multiple MS/SD RPDs were greater than the control limit. The spiked sample results were reported in a separate SDG; qualification is not necessary.

SVOCs by Method 8270D with SIM:

SD sample NYOW-05-SL025-A exhibited recoveries greater than the upper warning limits for fluoranthene, pyrene, chrysene, and benzo(a)anthracene at 121%, 125%, 129%, and 139%, respectively. The associated sample results were positive detections and are qualified as "J+".

MS/SD sample NYOW-05-SL025-A exhibited RPDs greater than the control limit for chrysene, pyrene, and benzo(a)anthracene at 40%, 40%, and 52%, respectively. The associated sample results were previously qualified on the basis of SD recoveries; no further action is necessary.

Several analytes recovered outside of control limits for MS/SD sample 280-144497-AM-2-B. In addition, the MS/SD RPDs for multiple analytes were greater than the control limit. The spiked sample did not originate from the site; qualification is not necessary.

Metals by Method 6010C:

MS/SD sample NYOW-05-SL025-A exhibited recoveries outside of warning limits for iron, calcium, and aluminum. The associated sample concentrations were greater than 4X the spiked amount; qualification is not necessary.

MS/SD sample NYOW-05-SL025-A exhibited recoveries outside of warning limits for the analytes shown below. The associated positive sample results were qualified as "J" or "J-", based on the direction of potential bias. The associated non-detect results are qualified as "UJ".

| Analyte | MS Recovery | SD Recovery | Qualifier |
|---|---|---|---|
| Zinc | 75 | 71 | J- |
| Manganese | 76 | 132 | J |
| Cobalt | 80 | 76 | J- |
| Lead | 80 | 75 | J- |
| Nickel | 81 | 77 | J- |
| Beryllium | 81 | 78 | J- |
| Silver | 82 | 78 | UJ |
| Chromium | 85 | 80 | J- |
| Magnesium | -- | 77 | J- |

**POST-DIGESTION SPIKE**

Metals by Method 6010C:

A post-digestion spike (PDS) was performed for MS/SD sample NYOW-05-SL025-A. Aluminum, barium, calcium, iron, magnesium, and manganese recovered below the lower control limit. Aluminum, iron, and calcium concentrations were greater than 4X the spiked amount in the MS. Barium recovered within control in the MS/SD sample; therefore, the post-digestion spike was not used to evaluate MS/SD recovery failures. The results for magnesium and manganese were previously qualified; no further action is necessary.

Metals by Method 6020C:

A PDS was performed for MS/SD sample NYOW-05-SL025-A and all recoveries were acceptable.

**ICP SERIAL DILUTION**

An ICP serial dilution was performed for sample NYOW-05-SL025-A. All %Ds met the acceptance criteria.

**LOW-LEVEL CHECK STANDARD**

Low-level check standards for methods 6010C and 6020A were performed using the low-level CCV standard. All recoveries were within the control limits.

**INTERFERENCE CHECK SAMPLES**

Interference check samples A and AB recoveries were evaluated and met the acceptance criteria.

## COMMENTS

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

No field duplicate sample pairs were collected as part of this SDG.

Samples NYOW-05-WL008-A, NYOW-05-WL006-A, and NYOW-05-WL024-A had sediment present for SVOC analysis. Samples NYOW-05-WL008-A and NYOW-05-WL006-A presented as cloudy. Sample NYOW-05-WL024-A appeared muddy.

Samples NYOW-05-PH025-B, NYOW-05-PH025-C, NYOW-05-SL018-A, NYOW-05-PH018-B, NYOW-05-PH018-C, NYOW-05-SL019-A and NYOW-05-PH019-C could not be thoroughly homogenized before sub-sampling was performed because of their clay matrix prior to extraction for SVOCs and SVOCs with SIM. The reported concentrations are representative of the subsample obtained.

MS/SD were prepared and analyzed at required batch frequency for preparation batch 280-525296 and analytical batch 280-526053 using samples from other sites that were placed on hold; therefore, no batch precision is available. The affected samples are NYOW-05-SL018-A and NYOW-05-PH019-B. Analytical accuracy was demonstrated through the performance of an LCS. A MS/SD was prepared for SVOCs preparation batch 652519; however, during concentration the tip of the tube broke off and extract was lost for the MS. Therefore, no batch precision is available. Analytical accuracy was demonstrated through the performance of an LCS.

Due to laboratory oversight, field filtered samples NYOW-05-WL008-A, NYOW-05-WL006-A, NYOW-05-WL024-A, and EB-01_210111 were logged and digested as total metals, instead of dissolved metals. The total digestion uses slightly more acid than the total recoverable digestion; however, the digestion procedure cannot solubilize more metals than are present in the filtered sample and the impact on the results is negligible.

LOQs were slightly greater than Project Quantitation Limit Goals (PQLGs) for SVOCs and metals due to percent moisture adjustments.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified, with the exception of results qualified as “X”. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 98%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210111 | 280-144501-4 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/L | 0.0490 | | UJ | C |
| EB-01_210111 | 280-144501-4 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/L | 0.0990 | | UJ | C |
| EB-01_210111 | 280-144501-4 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/L | 0.0990 | | UJ | C |
| EB-01_210111 | 280-144501-4 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/L | 0.0490 | | UJ | C |
| EB-01_210111 | 280-144501-4 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.0990 | | UJ | C |
| EB-01_210111 | 280-144501-4 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/L | 0.0990 | | UJ | C |
| EB-01_210111 | 280-144501-4 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.00 | | UJ | V2 |
| EB-01_210111 | 280-144501-4 | SW8270D | Bis(2-chloroethyl) ether | 111-44-4 | ug/L | 2.00 | | UJ | V2 |
| EB-01_210111 | 280-144501-4 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.50 | | UJ | V2 |
| EB-01_210111 | 280-144501-4 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.50 | | UJ | V2 |
| EB-01_210111 | 280-144501-4 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.00 | | UJ | V2 |
| EB-01_210111 | 280-144501-4 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.00 | | X | V2 |
| EB-01_210111 | 280-144501-4 | SW8270D | Phenol | 108-95-2 | ug/L | 2.00 | | UJ | V2 |
| EB-02_210111 | 280-144501-14 | BNASIMD | Acenaphthene | 83-32-9 | ug/L | 0.0120 | | UJ | I |
| EB-02_210111 | 280-144501-14 | BNASIMD | Acenaphthylene | 208-96-8 | ug/L | 0.0190 | | UJ | I |
| EB-02_210111 | 280-144501-14 | BNASIMD | Anthracene | 120-12-7 | ug/L | 0.0970 | | UJ | I |
| EB-02_210111 | 280-144501-14 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/L | 0.0970 | | UJ | I |
| EB-02_210111 | 280-144501-14 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/L | 0.0480 | | UJ | C/I |
| EB-02_210111 | 280-144501-14 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/L | 0.0970 | | UJ | C/I |
| EB-02_210111 | 280-144501-14 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/L | 0.0970 | | UJ | C/I |
| EB-02_210111 | 280-144501-14 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/L | 0.0480 | | UJ | C/I |
| EB-02_210111 | 280-144501-14 | BNASIMD | Chrysene | 218-01-9 | ug/L | 0.0970 | | UJ | I |
| EB-02_210111 | 280-144501-14 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.0970 | | UJ | C/I |
| EB-02_210111 | 280-144501-14 | BNASIMD | Fluorene | 86-73-7 | ug/L | 0.0390 | | UJ | I |
| EB-02_210111 | 280-144501-14 | BNASIMD | Fluoranthene | 206-44-0 | ug/L | 0.0970 | | UJ | I |
| EB-02_210111 | 280-144501-14 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/L | 0.0970 | | UJ | C/I |
| EB-02_210111 | 280-144501-14 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/L | 0.0390 | | UJ | I |
| EB-02_210111 | 280-144501-14 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/L | 0.0480 | | UJ | I |
| EB-02_210111 | 280-144501-14 | BNASIMD | Naphthalene | 91-20-3 | ug/L | 0.0480 | | UJ | I |
| EB-02_210111 | 280-144501-14 | BNASIMD | Phenanthrene | 85-01-8 | ug/L | 0.0970 | | UJ | I |
| EB-02_210111 | 280-144501-14 | BNASIMD | Pyrene | 129-00-0 | ug/L | 0.0970 | | UJ | I |
| EB-02_210111 | 280-144501-14 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 1.90 | | UJ | V2 |
| EB-02_210111 | 280-144501-14 | SW8270D | Bis(2-chloroethyl) ether | 111-44-4 | ug/L | 1.90 | | UJ | V2 |
| EB-02_210111 | 280-144501-14 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.40 | | UJ | V2 |
| EB-02_210111 | 280-144501-14 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.40 | | UJ | V2 |
| EB-02_210111 | 280-144501-14 | SW8270D | Isophorone | 78-59-1 | ug/L | 1.90 | | UJ | V2 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-02_210111 | 280-144501-14 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 1.90 | | X | V2 |
| EB-02_210111 | 280-144501-14 | SW8270D | Phenol | 108-95-2 | ug/L | 1.90 | | UJ | V2 |
| NYOW-05-PH018-B | 280-144501-9 | SW6010C | Sodium | 7440-23-5 | mg/kg | 95.0 | | U | L |
| NYOW-05-PH018-B | 280-144501-9 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 190 | | UJ | V2 |
| NYOW-05-PH018-B | 280-144501-9 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 73.0 | | UJ | V2 |
| NYOW-05-PH018-B | 280-144501-9 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 73.0 | | UJ | V2 |
| NYOW-05-PH018-B | 280-144501-9 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 730 | | UJ | V2 |
| NYOW-05-PH018-C | 280-144501-10 | SW6010C | Sodium | 7440-23-5 | mg/kg | 450 | | U | L |
| NYOW-05-PH018-C | 280-144501-10 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 190 | | UJ | V2 |
| NYOW-05-PH018-C | 280-144501-10 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 77.0 | | UJ | V2 |
| NYOW-05-PH018-C | 280-144501-10 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 77.0 | | UJ | V2 |
| NYOW-05-PH018-C | 280-144501-10 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 770 | | UJ | V2 |
| NYOW-05-PH019-B | 280-144501-12 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 1.20 | | UJ | I |
| NYOW-05-PH019-B | 280-144501-12 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 1.20 | | UJ | I |
| NYOW-05-PH019-B | 280-144501-12 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 4.70 | | UJ | I |
| NYOW-05-PH019-B | 280-144501-12 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 4.70 | | UJ | I |
| NYOW-05-PH019-B | 280-144501-12 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 4.70 | | UJ | I |
| NYOW-05-PH019-B | 280-144501-12 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 2.70 | - | J | I/TR |
| NYOW-05-PH019-B | 280-144501-12 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 7.30 | | UJ | I |
| NYOW-05-PH019-B | 280-144501-12 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 4.70 | | UJ | I |
| NYOW-05-PH019-B | 280-144501-12 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 2.30 | - | J | I/TR |
| NYOW-05-PH019-B | 280-144501-12 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.30 | | UJ | I |
| NYOW-05-PH019-B | 280-144501-12 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 2.90 | | UJ | I |
| NYOW-05-PH019-B | 280-144501-12 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 3.30 | - | J | I/TR |
| NYOW-05-PH019-B | 280-144501-12 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 7.30 | | UJ | I |
| NYOW-05-PH019-B | 280-144501-12 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 2.20 | | UJ | I |
| NYOW-05-PH019-B | 280-144501-12 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/kg | 2.20 | | UJ | I |
| NYOW-05-PH019-B | 280-144501-12 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 0.760 | - | J | I/TR |
| NYOW-05-PH019-B | 280-144501-12 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 7.30 | | UJ | I |
| NYOW-05-PH019-B | 280-144501-12 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 3.10 | - | J | I/TR |
| NYOW-05-PH019-B | 280-144501-12 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0990 | | U | L |
| NYOW-05-PH019-C | 280-144501-13 | SW6010C | Sodium | 7440-23-5 | mg/kg | 410 | | U | L |
| NYOW-05-PH019-C | 280-144501-13 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 190 | | UJ | V2 |
| NYOW-05-PH019-C | 280-144501-13 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-PH019-C | 280-144501-13 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-PH019-C | 280-144501-13 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 760 | | UJ | V2 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH025-B | 280-144501-6 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 190 | | UJ | V2 |
| NYOW-05-PH025-B | 280-144501-6 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-PH025-B | 280-144501-6 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-PH025-B | 280-144501-6 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 760 | | UJ | V2 |
| NYOW-05-PH025-C | 280-144501-7 | SW6010C | Sodium | 7440-23-5 | mg/kg | 410 | | U | L |
| NYOW-05-PH025-C | 280-144501-7 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 200 | | UJ | V2 |
| NYOW-05-PH025-C | 280-144501-7 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 79.0 | | UJ | V2 |
| NYOW-05-PH025-C | 280-144501-7 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 79.0 | | UJ | V2 |
| NYOW-05-PH025-C | 280-144501-7 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 790 | | UJ | V2 |
| NYOW-05-SL018-A | 280-144501-8 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 1.20 | | UJ | I |
| NYOW-05-SL018-A | 280-144501-8 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 1.20 | | UJ | I |
| NYOW-05-SL018-A | 280-144501-8 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 5.00 | | UJ | I |
| NYOW-05-SL018-A | 280-144501-8 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 6.70 | - | J | I/TR |
| NYOW-05-SL018-A | 280-144501-8 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 6.10 | - | J | I/TR |
| NYOW-05-SL018-A | 280-144501-8 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 10.0 | - | J | I/TR |
| NYOW-05-SL018-A | 280-144501-8 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 7.60 | | UJ | I |
| NYOW-05-SL018-A | 280-144501-8 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 3.40 | - | J | I/TR |
| NYOW-05-SL018-A | 280-144501-8 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 8.50 | - | J | I/TR |
| NYOW-05-SL018-A | 280-144501-8 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.60 | | UJ | I |
| NYOW-05-SL018-A | 280-144501-8 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 3.10 | | UJ | I |
| NYOW-05-SL018-A | 280-144501-8 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 13.0 | - | J | I |
| NYOW-05-SL018-A | 280-144501-8 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 5.00 | - | J | I/TR |
| NYOW-05-SL018-A | 280-144501-8 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 2.30 | | UJ | I |
| NYOW-05-SL018-A | 280-144501-8 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/kg | 2.30 | | UJ | I |
| NYOW-05-SL018-A | 280-144501-8 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 2.30 | | UJ | I |
| NYOW-05-SL018-A | 280-144501-8 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 5.80 | - | J | I/TR |
| NYOW-05-SL018-A | 280-144501-8 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 13.0 | - | J | I |
| NYOW-05-SL018-A | 280-144501-8 | SW6010C | Sodium | 7440-23-5 | mg/kg | 400 | | U | L |
| NYOW-05-SL018-A | 280-144501-8 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0990 | | U | L |
| NYOW-05-SL018-A | 280-144501-8 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 190 | | UJ | V2 |
| NYOW-05-SL018-A | 280-144501-8 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 74.0 | | UJ | V2 |
| NYOW-05-SL018-A | 280-144501-8 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 74.0 | | UJ | V2 |
| NYOW-05-SL018-A | 280-144501-8 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 740 | | UJ | V2 |
| NYOW-05-SL019-A | 280-144501-11 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 1.10 | | UJ | I |
| NYOW-05-SL019-A | 280-144501-11 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 1.10 | | UJ | I |
| NYOW-05-SL019-A | 280-144501-11 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 4.40 | | UJ | I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-SL019-A | 280-144501-11 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 10.0 | - | J | I |
| NYOW-05-SL019-A | 280-144501-11 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 10.0 | - | J | I |
| NYOW-05-SL019-A | 280-144501-11 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 16.0 | - | J | I |
| NYOW-05-SL019-A | 280-144501-11 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 7.50 | - | J | I/TR |
| NYOW-05-SL019-A | 280-144501-11 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 5.50 | - | J | I/TR |
| NYOW-05-SL019-A | 280-144501-11 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 12.0 | - | J | I |
| NYOW-05-SL019-A | 280-144501-11 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 6.80 | | UJ | I |
| NYOW-05-SL019-A | 280-144501-11 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 2.70 | | UJ | I |
| NYOW-05-SL019-A | 280-144501-11 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 17.0 | - | J | I |
| NYOW-05-SL019-A | 280-144501-11 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 8.50 | - | J | I/TR |
| NYOW-05-SL019-A | 280-144501-11 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 2.10 | - | J | I/TR |
| NYOW-05-SL019-A | 280-144501-11 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/kg | 2.50 | - | J | I/TR |
| NYOW-05-SL019-A | 280-144501-11 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 2.20 | - | J | I/TR |
| NYOW-05-SL019-A | 280-144501-11 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 6.10 | - | J | I/TR |
| NYOW-05-SL019-A | 280-144501-11 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 16.0 | - | J | I |
| NYOW-05-SL019-A | 280-144501-11 | SW6010C | Sodium | 7440-23-5 | mg/kg | 85.0 | | U | L |
| NYOW-05-SL019-A | 280-144501-11 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0730 | | U | L |
| NYOW-05-SL019-A | 280-144501-11 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 180 | | UJ | V2 |
| NYOW-05-SL019-A | 280-144501-11 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 70.0 | | UJ | V2 |
| NYOW-05-SL019-A | 280-144501-11 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 70.0 | | UJ | V2 |
| NYOW-05-SL019-A | 280-144501-11 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 700 | | UJ | V2 |
| NYOW-05-SL025-A | 280-144501-5 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 19.0 | + | J | M/D |
| NYOW-05-SL025-A | 280-144501-5 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 40.0 | + | J | M/D |
| NYOW-05-SL025-A | 280-144501-5 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 29.0 | + | J | M |
| NYOW-05-SL025-A | 280-144501-5 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 29.0 | + | J | M/D |
| NYOW-05-SL025-A | 280-144501-5 | SW6010C | Silver | 7440-22-4 | mg/kg | 0.680 | | UJ | M |
| NYOW-05-SL025-A | 280-144501-5 | SW6010C | Beryllium | 7440-41-7 | mg/kg | 0.280 | - | J | M/TR |
| NYOW-05-SL025-A | 280-144501-5 | SW6010C | Cobalt | 7440-48-4 | mg/kg | 5.20 | - | J | M |
| NYOW-05-SL025-A | 280-144501-5 | SW6010C | Chromium | 7440-47-3 | mg/kg | 8.60 | - | J | M |
| NYOW-05-SL025-A | 280-144501-5 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 11000 | - | J | M/M2 |
| NYOW-05-SL025-A | 280-144501-5 | SW6010C | Manganese | 7439-96-5 | mg/kg | 410 | | J | M/M2 |
| NYOW-05-SL025-A | 280-144501-5 | SW6010C | Sodium | 7440-23-5 | mg/kg | 110 | | U | L |
| NYOW-05-SL025-A | 280-144501-5 | SW6010C | Nickel | 7440-02-0 | mg/kg | 11.0 | - | J | M |
| NYOW-05-SL025-A | 280-144501-5 | SW6010C | Lead | 7439-92-1 | mg/kg | 8.90 | - | J | M |
| NYOW-05-SL025-A | 280-144501-5 | SW6010C | Zinc | 7440-66-6 | mg/kg | 34.0 | - | J | M |
| NYOW-05-WL006-A | 280-144501-2 | BNASIMD | Acenaphthene | 83-32-9 | ug/L | 0.0140 | | UJ | I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL006-A | 280-144501-2 | BNASIMD | Acenaphthylene | 208-96-8 | ug/L | 0.0230 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | BNASIMD | Anthracene | 120-12-7 | ug/L | 0.120 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/L | 0.120 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/L | 0.0580 | | UJ | C/I |
| NYOW-05-WL006-A | 280-144501-2 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/L | 0.120 | | UJ | C/I |
| NYOW-05-WL006-A | 280-144501-2 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/L | 0.120 | | UJ | C/I |
| NYOW-05-WL006-A | 280-144501-2 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/L | 0.0580 | | UJ | C/I |
| NYOW-05-WL006-A | 280-144501-2 | BNASIMD | Chrysene | 218-01-9 | ug/L | 0.120 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.120 | | UJ | C/I |
| NYOW-05-WL006-A | 280-144501-2 | BNASIMD | Fluorene | 86-73-7 | ug/L | 0.0470 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | BNASIMD | Fluoranthene | 206-44-0 | ug/L | 0.120 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/L | 0.120 | | UJ | C/I |
| NYOW-05-WL006-A | 280-144501-2 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/L | 0.0470 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/L | 0.0580 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | BNASIMD | Naphthalene | 91-20-3 | ug/L | 0.0390 | - | J | I/TR |
| NYOW-05-WL006-A | 280-144501-2 | BNASIMD | Phenanthrene | 85-01-8 | ug/L | 0.120 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | BNASIMD | Pyrene | 129-00-0 | ug/L | 0.120 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.00 | | UJ | I/V2 |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Bis(2-chloroethyl) ether | 111-44-4 | ug/L | 2.00 | | UJ | I/V2 |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 2.50 | | UJ | I/V2 |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.10 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 61.0 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 10.0 | | UJ | I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 2.50 | | UJ | I/V2 |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 5.10 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.00 | | UJ | I/V2 |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 10.0 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 10.0 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.00 | | UJ | I |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.00 | | X | I/V2 |
| NYOW-05-WL006-A | 280-144501-2 | SW8270D | Phenol | 108-95-2 | ug/L | 2.00 | | UJ | V2 |
| NYOW-05-WL008-A | 280-144501-1 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/L | 0.0600 | | UJ | C |
| NYOW-05-WL008-A | 280-144501-1 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/L | 0.120 | | UJ | C |
| NYOW-05-WL008-A | 280-144501-1 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/L | 0.120 | | UJ | C |
| NYOW-05-WL008-A | 280-144501-1 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/L | 0.0600 | | UJ | C |
| NYOW-05-WL008-A | 280-144501-1 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.120 | | UJ | C |
| NYOW-05-WL008-A | 280-144501-1 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/L | 0.120 | | UJ | C |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.40 | | UJ | I/V2 |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Bis(2-chloroethyl) ether | 111-44-4 | ug/L | 2.40 | | UJ | I/V2 |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 3.00 | | UJ | I/V2 |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.40 | | UJ | I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 5.90 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 71.0 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 12.0 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 3.00 | | UJ | I/V2 |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 5.90 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.40 | | UJ | I/V2 |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 12.0 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 12.0 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.40 | | UJ | I |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.40 | | X | I/V2 |
| NYOW-05-WL008-A | 280-144501-1 | SW8270D | Phenol | 108-95-2 | ug/L | 2.40 | | UJ | V2 |
| NYOW-05-WL024-A | 280-144501-3 | BNASIMD | Acenaphthene | 83-32-9 | ug/L | 0.0160 | | UJ | I |
| NYOW-05-WL024-A | 280-144501-3 | BNASIMD | Acenaphthylene | 208-96-8 | ug/L | 0.0260 | | UJ | I |
| NYOW-05-WL024-A | 280-144501-3 | BNASIMD | Anthracene | 120-12-7 | ug/L | 0.130 | | UJ | I |
| NYOW-05-WL024-A | 280-144501-3 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/L | 0.130 | | UJ | I |
| NYOW-05-WL024-A | 280-144501-3 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/L | 0.0660 | | UJ | C/I |
| NYOW-05-WL024-A | 280-144501-3 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/L | 0.130 | | UJ | C/I |
| NYOW-05-WL024-A | 280-144501-3 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/L | 0.130 | | UJ | C/I |
| NYOW-05-WL024-A | 280-144501-3 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/L | 0.0660 | | UJ | C/I |
| NYOW-05-WL024-A | 280-144501-3 | BNASIMD | Chrysene | 218-01-9 | ug/L | 0.130 | | UJ | I |
| NYOW-05-WL024-A | 280-144501-3 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/L | 0.130 | | UJ | C/I |
| NYOW-05-WL024-A | 280-144501-3 | BNASIMD | Fluorene | 86-73-7 | ug/L | 0.0530 | | UJ | I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL024-A | 280-144501-3 | BNASIMD | Fluoranthene | 206-44-0 | ug/L | 0.130 | | UJ | I |
| NYOW-05-WL024-A | 280-144501-3 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/L | 0.130 | | UJ | C/I |
| NYOW-05-WL024-A | 280-144501-3 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/L | 0.630 | - | J | I |
| NYOW-05-WL024-A | 280-144501-3 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/L | 0.890 | - | J | I |
| NYOW-05-WL024-A | 280-144501-3 | BNASIMD | Naphthalene | 91-20-3 | ug/L | 0.970 | - | J | I |
| NYOW-05-WL024-A | 280-144501-3 | BNASIMD | Phenanthrene | 85-01-8 | ug/L | 0.240 | - | J | I |
| NYOW-05-WL024-A | 280-144501-3 | BNASIMD | Pyrene | 129-00-0 | ug/L | 0.130 | | UJ | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.60 | | X | I/V2 |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Bis(2-chloroethyl) ether | 111-44-4 | ug/L | 2.60 | | X | I/V2 |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 3.30 | | X | I/V2 |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Benzaldehyde | 100-52-7 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Caprolactam | 105-60-2 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Carbazole | 86-74-8 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 6.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Dibenzofuran | 132-64-9 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 79.0 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Diethyl phthalate | 84-66-2 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/L | 13.0 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 3.30 | | X | I/V2 |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/L | 6.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Hexachloroethane | 67-72-1 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.60 | | X | I/V2 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/L | 13.0 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/L | 13.0 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.60 | | X | I |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/L | 2.60 | | X | I/V2 |
| NYOW-05-WL024-A | 280-144501-3 | SW8270D | Phenol | 108-95-2 | ug/L | 2.60 | | UJ | V2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Acetophenone | 98-86-2 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Biphenyl (Diphenyl) | 92-52-4 | ug/kg | 360 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Bis(2-chloroethyl) ether | 111-44-4 | ug/kg | 90.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 73.0 | | UJ | H2/V2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 180 | | UJ | H2/V2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 1,2,4,5-Tetrachlorobenzene | 95-94-3 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 180 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Carbazole | 86-74-8 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/kg | 90.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 2-Chlorophenol | 95-57-8 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 2-Chloronaphthalene | 91-58-7 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 4-Chlorophenyl phenyl ether | 7005-72-3 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Dibenzofuran | 132-64-9 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 2,4-Dichlorophenol | 120-83-2 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Diethyl phthalate | 84-66-2 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 1,4-Dioxane (p-Dioxane) | 123-91-1 | ug/kg | 360 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Dimethyl phthalate | 131-11-3 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 4,6-Dinitro-2-methylphenol | 534-52-1 | ug/kg | 360 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 90.0 | | UJ | H2 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 2,6-Dinitrotoluene | 606-20-2 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Hexachlorobutadiene | 87-68-3 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Hexachlorocyclopentadiene | 77-47-4 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Hexachloroethane | 67-72-1 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Isophorone | 78-59-1 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Cresols, m- & p- | | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 2-Methylphenol (o-Cresol) | 95-48-7 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | N-Nitrosodiphenylamine | 86-30-6 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | N-Nitrosodi-n-propylamine | 621-64-7 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/kg | 180 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 3-Nitroaniline | 99-09-2 | ug/kg | 90.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 90.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Nitrobenzene | 98-95-3 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 2-Nitrophenol | 88-75-5 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 4-Nitrophenol | 100-02-7 | ug/kg | 730 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 2,2'-Oxybis(1-chloropropane) | 108-60-1 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Pentachlorophenol | 87-86-5 | ug/kg | 730 | | UJ | H2/V2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | Phenol | 108-95-2 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 90.0 | | UJ | H2/V2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 2,4,5-Trichlorophenol | 95-95-4 | ug/kg | 73.0 | | UJ | H2 |
| NYOW-05-PH019-B | 280-144501-12 | SW8270D | 2,4,6-Trichlorophenol | 88-06-2 | ug/kg | 73.0 | | UJ | H2 |

Reason Code Definitions

| | |
|---|---|
| C | LCS Recoveries |
| I | Surrogate Recoveries |
| TR | Trace Level Detect |
| D | MS RPD |
| A | Serial Dilution |
| D3 | Field Duplicate RPD |
| L | Laboratory Blank |
| M | MS Recovery |
| M2 | Post Spike Recovery |
| A | Serial Dilution |
| V1 | ICV |
| V2 | CCV |
| Z6 | 12-Hour Tune |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 20 April 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM: 280-144466-1Rev 2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) by SW-846 Method 8270D
- SVOCs with SIM by SW-846 Method 8270D
- Metals by ICP SW-846 Method 6010C
- Metals by ICP-MS SW-846 Method 6020A
- Mercury (Hg) by SW-846 Method 7470A
- Hg by SW-846 Method 7471B
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144466 | 280-144466-1 | NYOW-05-SL006-A | 1/08/21 | SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-2 | NYOW-05-PH006-B | 1/08/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-3 | NYOW-05-PH006-C | 1/08/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-4 | NYOW-05-SL024-A | 1/08/21 | SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144466 | 280-144466-5 | NYOW-05-PH024-B | 1/08/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-6 | NYOW-05-PH024-C | 1/08/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-7 | NYOW-05-SL023-A | 1/08/21 | SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-8 | NYOW-05-PH023-B | 1/08/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-9 | NYOW-05-PH023-C | 1/08/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-10 | [1]SL-DUP-001_210108 | 1/08/21 | SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-11 | NYOW-05-SL022-A | 1/08/21 | SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-12 | NYOW-05-PH022-B | 1/08/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-13 | NYOW-05-PH022-C | 1/08/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-14 | [2]PH-DUP-001_210108 | 1/08/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-15 | NYOW-05-SL021-A | 1/08/21 | SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-16 | NYOW-05-PH021-B | 1/08/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-17 | NYOW-05-PH021-C | 1/08/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-18 | NYOW-05-SL020-A | 1/08/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-19 | NYOW-05-PH020-B | 1/08/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-20 | NYOW-05-PH020-C | 1/08/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144466 | 280-144466-21 | EB-01_210108 | 1/08/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg |

[1] SL-DUP-001_210108 collected from NYOW-05-SL023-A
[2] PH-DUP-001_210108 collected from NYOW-05-PH022-B

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Three coolers were received by the laboratory at temperatures of 0.8°C, 0.9°C, and 0.9°C. Sample NYOW-05-PH021-C was re-extracted and analyzed beyond the extraction holding time for ***SVOC SIM***. The initial sample results should be used for data interpretation. Samples NYOW-05-PH006-B, NYOW-05-PH006-C, NYOW-05-PH023-B, NYOW-05-PH023-C, NYOW-05-PH024-B, NYOW-05-PH024-C, NYOW-05-SL006-A, NYOW-05-SL023-A, and NYOW-05-SL024-A were extracted between approximately 15 minutes and 3.6 hours beyond the preparation holding time for ***SVOC SIM***. The SVOC SIM preparation holding time is assessed in days, not hours; therefore, the holding times were met.

For method ***SVOC SIM***, sample EB-01_210108, a 1L amber unpreserved was received; however, the SOP requires a 250mL unpreserved amber. The laboratory was instructed to mix and pour off 250 mL from the 1L and extract. The laboratory was unable to perform a method-required solvent rinse of the glass container.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | X | |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for SVOCs and SVOCs with SIM (i.e., each 12-hour period). The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

SVOCs Method 8270D:

The initial calibration verification performed on 1/15/2021 at 18:07 (680-652287/9) exhibited a %D greater than the control limit for 2,4-dimethylphenol at 20.8%. The associated sample result for the equipment blank is qualified as “UJ”.

## CONTINUING CALIBRATION VERIFICATION

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

SVOCs by Method 8270D:

Continuing calibration verification (CCV) CCV 680-653140/2 exhibited %Ds greater than the control limit for 4-nitroaniline (20.8%), butyl benzyl phthalate (20.5%), and 2,3,4,6-tetrachlorophenol (25%). The associated sample results are qualified as “UJ”.

CCV 680-653140/33 was performed one minute outside of the 12-hour tune window. On the basis of professional judgment, qualification is not necessary. CCV 680-653140/34 was performed 25 minutes outside of the 12-hour tune window. The CCV %Ds met acceptance criteria. The associated non-detect sample results for target compounds of the CCV (atrazine, benzaldehyde, and caprolactam) are qualified as “UJ” on the basis of professional judgment.

CCV 680-653109/19 exhibited a RRF less than the minimum relative response factor recommended by method 8270D (0.7000) for bis(2-chloroethyl)ether at 0.6808. A CCV was performed at the LOQ and found to be acceptable; therefore, the sensitivity of the analytical

system was demonstrated. Given that the response was only marginally below the method RRF, the associated soil sample results are not qualified on this basis.

Metals by Method 6010C:

CCV 280-524555/33 and 280-524555/46 exhibited recoveries greater than the upper control limit for aluminum at 111% and 112%, respectively. The bracketed soil sample results are positive detections and are qualified as “J+”.

Low-level CCV (LLCCV) 280-524555/35 exhibited a recovery greater than the upper control limit for sodium at 129%. The associated sodium results for samples bracketed by the LLCCV were greater than the level spiked in the ICV and CCVs; qualification is not necessary.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

**BLANK SAMPLE RESULTS**

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, continuing calibration blanks, and equipment blanks with the exceptions noted below.

Metals by Method 6010C:

Preparation blank sample 280-524144/1-A exhibited positive detections greater than the detection limit but less than the LOQ for calcium (24.3 mg/kg), manganese (1.32 mg/kg), aluminum (11.5 mg/kg), and iron (31.7 mg/kg). The associated positive detections were greater than the LOQ; qualification is not required.

Preparation blank sample 280-524144/1-A exhibited a positive detection greater than the detection limit but less than the LOQ for sodium at 80.7 mg/kg. The associated sample results were less than the LOQ and are qualified as “U” at the LOQ.

Equipment blank sample EB-01_210108 exhibited a positive detection for calcium above the detection limit but below the LOQ at 84 µg/L. Soil samples are not qualified on the basis of aqueous equipment blanks.

Metals by Method 6020A:

Preparation blank sample 280-523897/1-A exhibited a positive detection for thallium greater than the detection limit at 0.0048 mg/kg. The associated soil sample results that are less than the LOQ are qualified as “U” at the LOQ.

Preparation blank sample 280-523818/1-A exhibited a positive detection for chromium greater than the detection limit at 1.44 µg/L. The associated equipment blank sample result was non-detect; qualification is not necessary.

Initial calibration blank (ICB) 280-524443/13 exhibited positive detections for antimony and thallium. The associated equipment blank sample results were non-detect; qualification is not required.

Continuing calibration blanks (CCBs) 280-524443/46 and 280-524443/59 exhibited positive detections for thallium. The associated equipment blank sample result was non-detect; qualification is not necessary.

CCBs 280-524556/62, 280-524556/74, and 280-524556/101 exhibited positive detections for thallium below the LOQ. The associated positive detections were greater than the aqueous LOQ; qualification is not required.

Mercury by Method 7470A:

CCB 280-524120/13-A exhibited a positive detection for mercury at 0.117 µg/L. The associated equipment blank sample result was non-detect; qualification is not necessary.

**SURROGATE RECOVERIES**

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D with SIM:

Samples NYOW-05-SL006-A, NYOW-05-SL024-A, and SL-DUP-001_210108 DL did not recover (i.e., 0%) for any of the five surrogate compounds. The samples were analyzed at 20X, 40X, and 20X dilutions, respectively, and the surrogates were diluted out. Qualification is not necessary.

Sample NYOW-05-PH024-B exhibited recoveries less than the lower warning limits for fluoranthene-d10 and terphenyl-d14 at 52% and 51%, respectively. The associated positive detections are qualified as “J-“ and non-detects are qualified as “UJ”.

Sample NYOW-05-PH024-C exhibited a recovery less than the lower warning limit for terphenyl-d14 at 55%. The associated positive detections are qualified as “J-“ and non-detects are qualified as “UJ”.

Sample NYOW-05-SL023-A did not recover for nitrobenzene-d5, 2-methylnaphthalene-d10, and fluoranthene-d10. In addition, the recovery of 2-fluorobiphenyl was less than the lower warning limit at 57%. The sample was analyzed at a 20X dilution factor; qualification is not necessary.

Sample SL-DUP-001_210108 exhibited recoveries less than the lower warning limits for 2-fluorobiphenyl and terphenyl-d14 at 41% and 42%, respectively. The associated sample results are positive detections and are qualified as “J-“.

Sample PH-DUP-001_210108 exhibited recoveries less than the lower warning limits for fluoranthene-d10 and terphenyl-d14 at 52% and 49%. The associated positive detections are qualified as “J-“ and non-detects are qualified as “UJ”.

Sample NYOW-05-SL021-A did not recover for nitrobenzene-d5, terphenyl-d14, and fluoranthene-d10. The sample was analyzed at a 10X dilution; qualification is not necessary.

Sample NYOW-05-PH021-C exhibited recoveries less than the lower control limit for fluoranthene-d10 and terphenyl-d14 at 51% and 48%, respectively. The associated positive detections are qualified as “J-“ and non-detects are qualified as “UJ”.

Sample NYOW-05-SL020-A exhibited a recovery less than the lower warning limit for terphenyl-d14 at 55%. The associated positive detections are qualified as “J-“ and non-detects are qualified as “UJ”.

**LABORATORY CONTROL SAMPLES**

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

LCS 680-652136/3-A did not recover (i.e., 0%) for 3,3’-dichlorobenzidine. The associated equipment blank sample result is qualified as “X” and recommended for rejection.

SVOCs by Method 8270D with SIM:

LCSD 280-523256/3-A exhibited a recovery less than the lower warning limit for indeno(1,2,3-cd)pyrene at 47.7%. The associated equipment blank sample result (EB-01_210108) is qualified as “UJ”.

LCS 280-523208/2-A exhibited recoveries less than the lower warning limits for naphthalene (11%), 2-methylnaphthalene (11%), 1-methylnaphthalene (11%), acenaphthylene (13%), acenaphthene (14%), fluorene (25%), phenanthrene (47%), anthracene (48%), and indeno(1,2,3-cd)pyrene (48%). The associated positive detections for sample NYOW-05-PH021-C are qualified as “J-“ and non-detects are qualified as “UJ”.

**MATRIX SPIKE/MATRIX SPIKE DUPLICATES**

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SD RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs by Method 8270D:

MS sample NYOW-05-PH021-C exhibited recoveries less than the lower warning limits for hexachlorobenzene (45%), 4-bromophenyl phenyl ether (45%), di-n-butyl phthalate (47%), and 2,4-dinitrotoluene (47%). The associated sample results were non-detect and are qualified as "UJ".

The MS/SD RPDs for sample NYOW-05-PH021-C were greater than the control limit (i.e., 20%) for every analyte *except* 2,3,4,6-tetrachlorophenol, 4,6-dinitro-2-methylphenol, 4-chloro-3-methylphenol, 4-chloroaniline, caprolactam, carbazole, diethyl phthalate, and hexachloroethane. The associated sample results were non-detect; qualification is not necessary.

Metals by Method 6010C:

MS/SD sample NYOW-05-SL022-A exhibited recoveries outside of warning limits for iron, manganese, and aluminum. The associated sample concentrations were greater than 4X the spiked amount; qualification is not necessary.

MS/SD sample NYOW-05-SL022-A exhibited RPDs greater than the control limit for iron at 30% and manganese at 109%. The associated sample results are qualified as "J".

MS sample NYOW-05-SL022-A exhibited a recovery greater than the upper warning limit for potassium (132%). The MS/SD RPD for potassium was also greater than the control limit at 26%. The associated positive detection is qualified as "J+". The MS exhibited a recovery less than the lower warning limit for zinc at 82%. The associated sample result is qualified as "J-".

MS sample NYOW-05-SL022-A exhibited a recovery greater than the upper control limit for calcium at 384%. The SD sample did not recover for calcium. The MS/SD RPD was greater than the control limit at 92%. The associated positive detection is qualified as "J".

MS sample NYOW-05-SL022-A exhibited a recovery greater than the upper control limit for magnesium at 146%. The SD recovery was less than the lower warning limit at 36%. The MS/SD RPD was greater than the control limit at 37%. The associated positive detection is qualified as "J".

SD sample NYOW-05-SL022-A exhibited a recovery greater than the upper warning limit for barium at 122%. The MS/SD RPD was greater than the control limit at 23%. The associated sample result is qualified as "J+".

SD sample NYOW-05-SL022-A exhibited recoveries less than the lower warning limit for magnesium at 36%, lead at 76%, sodium at 80%, beryllium at 81%, cobalt at 81%, and chromium at 82%. The associated sample results are qualified as "J-" with the exception of sodium which was previously "U" qualified at the LOQ based on blank contamination and magnesium which also had a MS recovery greater than the warning limit. The result for sodium is qualified as "UJ" and the result for magnesium is qualified as "J".

MS/SD sample NYOW-05-PH021-C exhibited recoveries outside of warning limits for magnesium, calcium, iron, manganese, and aluminum. The associated sample concentrations were greater than 4X the spiked amount; qualification is not necessary.

SD sample NYOW-05-PH021-C exhibited a recovery greater than the upper control limit for zinc at 203%. The MS/SD RPD was also greater than the control limit at 50%. The associated positive detection is qualified as “J+”.

MS/SD sample NYOW-05-PH021-C exhibited a RPD greater than the control limit for manganese at 36%. The associated positive detection is qualified as “J”.

Metals by Method 6020A:

MS/SD sample NYOW-05-PH021-C exhibited RPDs greater than the control limit for thallium, selenium, and cadmium at 23%, 22%, and 23%, respectively. The associated sample result for selenium was non-detect and is qualified as “UJ”. The positive detections for cadmium and thallium were qualified as “J”.

**POST-DIGESTION SPIKE**

Metals by Method 6010C:

A post-digestion spike (PDS) was performed for MS/SD sample NYOW-05-SL022-A. Aluminum, barium, calcium, copper, iron, magnesium, manganese, and zinc recovered below the lower control limit. Aluminum, iron, and manganese concentrations were greater than 4X the spiked amount in the MS. Copper recovered within control in the MS/SD sample; therefore, the post-digestion spike was not used to evaluate MS/SD recovery failures. The results for barium, calcium, magnesium, and zinc were previously qualified; no further action is necessary.

Metals by Method 6020C:

A PDS was performed for MS/SD sample NYOW-05-PH021-C and all recoveries were acceptable. The associated sample results were previously qualified as “UJ”; no further action is necessary.

**ICP SERIAL DILUTION**

An ICP serial dilution was performed for sample NYOW-05-SL022-A. The %Ds for aluminum (44%), calcium (46%), iron (46%), magnesium (13%), and manganese (18%) exceeded the control limit. The associated sample results were previously qualified; no further action is necessary.

**LOW-LEVEL CHECK STANDARD**

Low-level check standards for methods 6010C and 6020A were performed using the low-level CCV standard. All recoveries were within the control limits with the exceptions noted below.

Metals by Method 6020A:

Arsenic recovered above the upper control limit for CRI 280-524443/15 at 122%. The associated equipment blank sample result was non-detect; qualification is not necessary.

**INTERFERENCE CHECK SAMPLES**

Interference check samples A and AB recoveries were evaluated and met the acceptance criteria.

**COMMENTS**

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

Samples NYOW-05-PH021-C, NYOW-05-PH006-C, NYOW-05-PH024-C, NYOW-05-PH023-C, NYOW-05-PH021-B, NYOW-05-PH022-C, and NYOW-05-PH020-C could not be thoroughly homogenized before sub-sampling was performed because of their clay matrix prior to extraction for SVOCs and SVOCs with SIM.

Due to laboratory error, batch precision associated with SVOC SIM soil batch 523271 is not available. The MS/SD were extracted but the parent sample was not. A LCSD was not performed. Accuracy was demonstrated through acceptable performance of an LCS.

Two field duplicate and parent sample pairs were collected and analyzed for all parameters (PH-DUP-001_210108 and NYOW-05-PH022-B, and SL-DUP-001_210108 and NYOW-05-SL023-A). For sample results that are greater than 5X the LOQ, the RPD must be less than 50%. For sample results less than 5X the LOQ, the absolute difference must be less than ±LOQ. The following analytes did not meet the precision criteria:

- PH-DUP-001_210108 and NYOW-05-PH022-B: benzo(g,h,i)perylene, indeno(1,2,3-cd)pyrene, lead, and calcium (qualified as “J”).
- SL-DUP-001_210108 and NYOW-05-SL023-A: calcium (qualified as “J”).

Samples NYOW-05-SL006-A, NYOW-05-SL021-A, NYOW-05-SL023-A, NYOW-05-SL024-A, and SL-DUP-001_210108 did not meet project quantitation limit goals (PQLGs) for several method SVOC SIM analytes due to sample dilution. LOQs were slightly greater than PQLGs for SVOCs and metals due to percent moisture adjustments.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified, with the exception of the result recommended for rejection. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 99%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210108 | 280-144466-21 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/L | 0.100 | | UJ | C |
| EB-01_210108 | 280-144466-21 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 71.0 | | X | C |
| EB-01_210108 | 280-144466-21 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/L | 12.0 | | UJ | V1 |
| NYOW-05-PH006-B | 280-144466-2 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 5400 | + | J | V2 |
| NYOW-05-PH006-B | 280-144466-2 | SW6010C | Sodium | 7440-23-5 | mg/kg | 86.0 | | U | L |
| NYOW-05-PH006-B | 280-144466-2 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0920 | | U | L |
| NYOW-05-PH006-B | 280-144466-2 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 80.0 | | UJ | Z6 |
| NYOW-05-PH006-B | 280-144466-2 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 80.0 | | UJ | V2 |
| NYOW-05-PH006-B | 280-144466-2 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | Z6 |
| NYOW-05-PH006-B | 280-144466-2 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 200 | | UJ | Z6 |
| NYOW-05-PH006-B | 280-144466-2 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 99.0 | | UJ | V2 |
| NYOW-05-PH006-B | 280-144466-2 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 99.0 | | UJ | V2 |
| NYOW-05-PH006-C | 280-144466-3 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 5900 | + | J | V2 |
| NYOW-05-PH006-C | 280-144466-3 | SW6010C | Sodium | 7440-23-5 | mg/kg | 490 | | U | L |
| NYOW-05-PH006-C | 280-144466-3 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0800 | | U | L |
| NYOW-05-PH006-C | 280-144466-3 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 75.0 | | UJ | Z6 |
| NYOW-05-PH006-C | 280-144466-3 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 75.0 | | UJ | V2 |
| NYOW-05-PH006-C | 280-144466-3 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | Z6 |
| NYOW-05-PH006-C | 280-144466-3 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 190 | | UJ | Z6 |
| NYOW-05-PH006-C | 280-144466-3 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 93.0 | | UJ | V2 |
| NYOW-05-PH006-C | 280-144466-3 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 93.0 | | UJ | V2 |
| NYOW-05-PH020-B | 280-144466-19 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 6300 | + | J | V2 |
| NYOW-05-PH020-B | 280-144466-19 | SW6010C | Sodium | 7440-23-5 | mg/kg | 420 | | U | L |
| NYOW-05-PH020-C | 280-144466-20 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 10000 | + | J | V2 |
| NYOW-05-PH020-C | 280-144466-20 | SW6010C | Sodium | 7440-23-5 | mg/kg | 460 | | U | L |
| NYOW-05-PH021-B | 280-144466-16 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 8800 | + | J | V2 |
| NYOW-05-PH021-B | 280-144466-16 | SW6010C | Sodium | 7440-23-5 | mg/kg | 440 | | U | L |
| NYOW-05-PH021-C | 280-144466-17 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 1.20 | | UJ | C/I |
| NYOW-05-PH021-C | 280-144466-17 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 1.20 | | UJ | C/I |
| NYOW-05-PH021-C | 280-144466-17 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 4.80 | | UJ | C/I |
| NYOW-05-PH021-C | 280-144466-17 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 4.80 | | UJ | I |
| NYOW-05-PH021-C | 280-144466-17 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 4.80 | | UJ | I |
| NYOW-05-PH021-C | 280-144466-17 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 7.40 | | UJ | I |
| NYOW-05-PH021-C | 280-144466-17 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 7.40 | | UJ | I |
| NYOW-05-PH021-C | 280-144466-17 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 4.80 | | UJ | I |
| NYOW-05-PH021-C | 280-144466-17 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 4.80 | | UJ | I |
| NYOW-05-PH021-C | 280-144466-17 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.40 | | UJ | I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH021-C | 280-144466-17 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 3.00 | | UJ | C/I |
| NYOW-05-PH021-C | 280-144466-17 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 4.80 | | UJ | I |
| NYOW-05-PH021-C | 280-144466-17 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 7.40 | | UJ | I |
| NYOW-05-PH021-C | 280-144466-17 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 2.20 | | UJ | C/I |
| NYOW-05-PH021-C | 280-144466-17 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/kg | 2.20 | | UJ | C/I |
| NYOW-05-PH021-C | 280-144466-17 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 1.40 | - | J | C/I/TR |
| NYOW-05-PH021-C | 280-144466-17 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 7.40 | | UJ | C/I |
| NYOW-05-PH021-C | 280-144466-17 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 7.40 | | UJ | I |
| NYOW-05-PH021-C | 280-144466-17 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 5900 | + | J | V2 |
| NYOW-05-PH021-C | 280-144466-17 | SW6010C | Manganese | 7439-96-5 | mg/kg | 1100 | | J | D |
| NYOW-05-PH021-C | 280-144466-17 | SW6010C | Sodium | 7440-23-5 | mg/kg | 610 | | U | L |
| NYOW-05-PH021-C | 280-144466-17 | SW6010C | Zinc | 7440-66-6 | mg/kg | 44.0 | + | J | M/D |
| NYOW-05-PH021-C | 280-144466-17 | SW6020A | Cadmium | 7440-43-9 | mg/kg | 0.0360 | | J | D/TR |
| NYOW-05-PH021-C | 280-144466-17 | SW6020A | Selenium | 7782-49-2 | mg/kg | 0.340 | | UJ | D |
| NYOW-05-PH021-C | 280-144466-17 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0820 | | J | D/TR |
| NYOW-05-PH021-C | 280-144466-17 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 79.0 | | UJ | Z6 |
| NYOW-05-PH021-C | 280-144466-17 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 79.0 | | UJ | V2 |
| NYOW-05-PH021-C | 280-144466-17 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/kg | 79.0 | | UJ | M |
| NYOW-05-PH021-C | 280-144466-17 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | Z6 |
| NYOW-05-PH021-C | 280-144466-17 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 200 | | UJ | Z6 |
| NYOW-05-PH021-C | 280-144466-17 | SW8270D | Di-n-butyl phthalate | 84-74-2 | ug/kg | 79.0 | | UJ | M |
| NYOW-05-PH021-C | 280-144466-17 | SW8270D | 2,4-Dinitrotoluene | 121-14-2 | ug/kg | 98.0 | | UJ | M |
| NYOW-05-PH021-C | 280-144466-17 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 79.0 | | UJ | M |
| NYOW-05-PH021-C | 280-144466-17 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 98.0 | | UJ | V2 |
| NYOW-05-PH021-C | 280-144466-17 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 98.0 | | UJ | V2 |
| NYOW-05-PH022-B | 280-144466-12 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 31.0 | | J | D3 |
| NYOW-05-PH022-B | 280-144466-12 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 13.0 | | J | D3 |
| NYOW-05-PH022-B | 280-144466-12 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 4600 | + | J | V2 |
| NYOW-05-PH022-B | 280-144466-12 | SW6010C | Calcium | 7440-70-2 | mg/kg | 58000 | | J | D3 |
| NYOW-05-PH022-B | 280-144466-12 | SW6010C | Sodium | 7440-23-5 | mg/kg | 390 | | U | L |
| NYOW-05-PH022-B | 280-144466-12 | SW6010C | Lead | 7439-92-1 | mg/kg | 7.90 | | J | D3 |
| NYOW-05-PH022-B | 280-144466-12 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0920 | | U | L |
| NYOW-05-PH022-C | 280-144466-13 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 7100 | + | J | V2 |
| NYOW-05-PH022-C | 280-144466-13 | SW6010C | Sodium | 7440-23-5 | mg/kg | 460 | | U | L |
| NYOW-05-PH022-C | 280-144466-13 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0920 | | U | L |
| NYOW-05-PH023-B | 280-144466-8 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 6900 | + | J | V2 |
| NYOW-05-PH023-B | 280-144466-8 | SW6010C | Sodium | 7440-23-5 | mg/kg | 94.0 | | U | L |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH023-B | 280-144466-8 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.110 | | U | L |
| NYOW-05-PH023-B | 280-144466-8 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 76.0 | | UJ | Z6 |
| NYOW-05-PH023-B | 280-144466-8 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-PH023-B | 280-144466-8 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | Z6 |
| NYOW-05-PH023-B | 280-144466-8 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 190 | | UJ | Z6 |
| NYOW-05-PH023-B | 280-144466-8 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 94.0 | | UJ | V2 |
| NYOW-05-PH023-B | 280-144466-8 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 94.0 | | UJ | V2 |
| NYOW-05-PH023-C | 280-144466-9 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 6900 | + | J | V2 |
| NYOW-05-PH023-C | 280-144466-9 | SW6010C | Sodium | 7440-23-5 | mg/kg | 500 | | U | L |
| NYOW-05-PH023-C | 280-144466-9 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.110 | | U | L |
| NYOW-05-PH023-C | 280-144466-9 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 74.0 | | UJ | Z6 |
| NYOW-05-PH023-C | 280-144466-9 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 74.0 | | UJ | V2 |
| NYOW-05-PH023-C | 280-144466-9 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 190 | | UJ | Z6 |
| NYOW-05-PH023-C | 280-144466-9 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 190 | | UJ | Z6 |
| NYOW-05-PH023-C | 280-144466-9 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 92.0 | | UJ | V2 |
| NYOW-05-PH023-C | 280-144466-9 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 92.0 | | UJ | V2 |
| NYOW-05-PH024-B | 280-144466-5 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 1.30 | | UJ | I |
| NYOW-05-PH024-B | 280-144466-5 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 1.30 | | UJ | I |
| NYOW-05-PH024-B | 280-144466-5 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 5.10 | | UJ | I |
| NYOW-05-PH024-B | 280-144466-5 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 8.10 | - | J | I/TR |
| NYOW-05-PH024-B | 280-144466-5 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 6.00 | - | J | I/TR |
| NYOW-05-PH024-B | 280-144466-5 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 11.0 | - | J | I/TR |
| NYOW-05-PH024-B | 280-144466-5 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 5.30 | - | J | I/TR |
| NYOW-05-PH024-B | 280-144466-5 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 3.00 | - | J | I/TR |
| NYOW-05-PH024-B | 280-144466-5 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 11.0 | - | J | I/TR |
| NYOW-05-PH024-B | 280-144466-5 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.80 | | UJ | I |
| NYOW-05-PH024-B | 280-144466-5 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 2.40 | - | J | I/TR |
| NYOW-05-PH024-B | 280-144466-5 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 12.0 | - | J | I |
| NYOW-05-PH024-B | 280-144466-5 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 5.20 | - | J | I/TR |
| NYOW-05-PH024-B | 280-144466-5 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 83.0 | - | J | I |
| NYOW-05-PH024-B | 280-144466-5 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/kg | 130 | - | J | I |
| NYOW-05-PH024-B | 280-144466-5 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 110 | - | J | I |
| NYOW-05-PH024-B | 280-144466-5 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 34.0 | - | J | I |
| NYOW-05-PH024-B | 280-144466-5 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 12.0 | - | J | I |
| NYOW-05-PH024-B | 280-144466-5 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 6500 | + | J | V2 |
| NYOW-05-PH024-B | 280-144466-5 | SW6010C | Sodium | 7440-23-5 | mg/kg | 540 | | U | L |
| NYOW-05-PH024-B | 280-144466-5 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0870 | | U | L |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH024-B | 280-144466-5 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 78.0 | | UJ | Z6 |
| NYOW-05-PH024-B | 280-144466-5 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 78.0 | | UJ | V2 |
| NYOW-05-PH024-B | 280-144466-5 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 200 | | UJ | Z6 |
| NYOW-05-PH024-B | 280-144466-5 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 200 | | UJ | Z6 |
| NYOW-05-PH024-B | 280-144466-5 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 96.0 | | UJ | V2 |
| NYOW-05-PH024-B | 280-144466-5 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 96.0 | | UJ | V2 |
| NYOW-05-PH024-C | 280-144466-6 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 1.20 | | UJ | I |
| NYOW-05-PH024-C | 280-144466-6 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 1.20 | | UJ | I |
| NYOW-05-PH024-C | 280-144466-6 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 4.80 | | UJ | I |
| NYOW-05-PH024-C | 280-144466-6 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 4.80 | | UJ | I |
| NYOW-05-PH024-C | 280-144466-6 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 4.80 | | UJ | I |
| NYOW-05-PH024-C | 280-144466-6 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 7.40 | | UJ | I |
| NYOW-05-PH024-C | 280-144466-6 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 7.40 | | UJ | I |
| NYOW-05-PH024-C | 280-144466-6 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 4.80 | | UJ | I |
| NYOW-05-PH024-C | 280-144466-6 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 4.80 | | UJ | I |
| NYOW-05-PH024-C | 280-144466-6 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.40 | | UJ | I |
| NYOW-05-PH024-C | 280-144466-6 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 3.00 | | UJ | I |
| NYOW-05-PH024-C | 280-144466-6 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 4.80 | | UJ | I |
| NYOW-05-PH024-C | 280-144466-6 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 7.40 | | UJ | I |
| NYOW-05-PH024-C | 280-144466-6 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 2.10 | - | J | I/TR |
| NYOW-05-PH024-C | 280-144466-6 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/kg | 3.20 | - | J | I/TR |
| NYOW-05-PH024-C | 280-144466-6 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 3.80 | - | J | I/TR |
| NYOW-05-PH024-C | 280-144466-6 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 7.40 | | UJ | I |
| NYOW-05-PH024-C | 280-144466-6 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 7.40 | | UJ | I |
| NYOW-05-PH024-C | 280-144466-6 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 6100 | + | J | V2 |
| NYOW-05-PH024-C | 280-144466-6 | SW6010C | Sodium | 7440-23-5 | mg/kg | 400 | | U | L |
| NYOW-05-PH024-C | 280-144466-6 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0880 | | U | L |
| NYOW-05-PH024-C | 280-144466-6 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 73.0 | | UJ | Z6 |
| NYOW-05-PH024-C | 280-144466-6 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 73.0 | | UJ | V2 |
| NYOW-05-PH024-C | 280-144466-6 | SW8270D | Benzaldehyde | 100-52-7 | ug/kg | 180 | | UJ | Z6 |
| NYOW-05-PH024-C | 280-144466-6 | SW8270D | Caprolactam | 105-60-2 | ug/kg | 180 | | UJ | Z6 |
| NYOW-05-PH024-C | 280-144466-6 | SW8270D | 4-Nitroaniline | 100-01-6 | ug/kg | 90.0 | | UJ | V2 |
| NYOW-05-PH024-C | 280-144466-6 | SW8270D | 2,3,4,6-Tetrachlorophenol | 58-90-2 | ug/kg | 90.0 | | UJ | V2 |
| NYOW-05-SL006-A | 280-144466-1 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 2500 | + | J | V2 |
| NYOW-05-SL006-A | 280-144466-1 | SW6010C | Sodium | 7440-23-5 | mg/kg | 140 | | U | L |
| NYOW-05-SL020-A | 280-144466-18 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 1.20 | | UJ | I |
| NYOW-05-SL020-A | 280-144466-18 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 1.20 | | UJ | I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-SL020-A | 280-144466-18 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 4.80 | | UJ | I |
| NYOW-05-SL020-A | 280-144466-18 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 7.60 | - | J | I/TR |
| NYOW-05-SL020-A | 280-144466-18 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 7.90 | - | J | I/TR |
| NYOW-05-SL020-A | 280-144466-18 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 12.0 | - | J | I |
| NYOW-05-SL020-A | 280-144466-18 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 6.10 | - | J | I/TR |
| NYOW-05-SL020-A | 280-144466-18 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 4.40 | - | J | I/TR |
| NYOW-05-SL020-A | 280-144466-18 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 9.10 | - | J | I/TR |
| NYOW-05-SL020-A | 280-144466-18 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.40 | | UJ | I |
| NYOW-05-SL020-A | 280-144466-18 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 3.00 | | UJ | I |
| NYOW-05-SL020-A | 280-144466-18 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 13.0 | - | J | I |
| NYOW-05-SL020-A | 280-144466-18 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 6.40 | - | J | I/TR |
| NYOW-05-SL020-A | 280-144466-18 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 2.20 | | UJ | I |
| NYOW-05-SL020-A | 280-144466-18 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/kg | 1.70 | - | J | I/TR |
| NYOW-05-SL020-A | 280-144466-18 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 2.60 | - | J | I/TR |
| NYOW-05-SL020-A | 280-144466-18 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 5.10 | - | J | I/TR |
| NYOW-05-SL020-A | 280-144466-18 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 12.0 | - | J | I |
| NYOW-05-SL020-A | 280-144466-18 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 5100 | + | J | V2 |
| NYOW-05-SL020-A | 280-144466-18 | SW6010C | Sodium | 7440-23-5 | mg/kg | 82.0 | | U | L |
| NYOW-05-SL021-A | 280-144466-15 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 5700 | + | J | V2 |
| NYOW-05-SL021-A | 280-144466-15 | SW6010C | Sodium | 7440-23-5 | mg/kg | 130 | | U | L |
| NYOW-05-SL022-A | 280-144466-11 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 8000 | + | J | V2/A |
| NYOW-05-SL022-A | 280-144466-11 | SW6010C | Barium | 7440-39-3 | mg/kg | 54.0 | + | J | M/D/M2 |
| NYOW-05-SL022-A | 280-144466-11 | SW6010C | Beryllium | 7440-41-7 | mg/kg | 0.390 | - | J | M/TR |
| NYOW-05-SL022-A | 280-144466-11 | SW6010C | Calcium | 7440-70-2 | mg/kg | 17000 | | J | M/D/M2/A |
| NYOW-05-SL022-A | 280-144466-11 | SW6010C | Cobalt | 7440-48-4 | mg/kg | 7.50 | - | J | M |
| NYOW-05-SL022-A | 280-144466-11 | SW6010C | Chromium | 7440-47-3 | mg/kg | 13.0 | - | J | M |
| NYOW-05-SL022-A | 280-144466-11 | SW6010C | Iron | 7439-89-6 | mg/kg | 21000 | | J | D/A |
| NYOW-05-SL022-A | 280-144466-11 | SW6010C | Potassium | 7440-09-7 | mg/kg | 970 | + | J | M/D |
| NYOW-05-SL022-A | 280-144466-11 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 9000 | | J | M/D/M2/A |
| NYOW-05-SL022-A | 280-144466-11 | SW6010C | Manganese | 7439-96-5 | mg/kg | 660 | | J | D/A |
| NYOW-05-SL022-A | 280-144466-11 | SW6010C | Sodium | 7440-23-5 | mg/kg | 510 | | UJ | L/M |
| NYOW-05-SL022-A | 280-144466-11 | SW6010C | Lead | 7439-92-1 | mg/kg | 8.60 | - | J | M |
| NYOW-05-SL022-A | 280-144466-11 | SW6010C | Zinc | 7440-66-6 | mg/kg | 36.0 | - | J | M/M2 |
| NYOW-05-SL022-A | 280-144466-11 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.110 | | U | L |
| NYOW-05-SL023-A | 280-144466-7 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 4400 | + | J | V2 |
| NYOW-05-SL023-A | 280-144466-7 | SW6010C | Calcium | 7440-70-2 | mg/kg | 23000 | | J | D3 |
| NYOW-05-SL023-A | 280-144466-7 | SW6010C | Sodium | 7440-23-5 | mg/kg | 130 | | U | L |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-SL024-A | 280-144466-4 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 1400 | + | J | V2 |
| NYOW-05-SL024-A | 280-144466-4 | SW6010C | Sodium | 7440-23-5 | mg/kg | 600 | | U | L |
| PH-DUP-001_210108 | 280-144466-14 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 1.10 | | UJ | I |
| PH-DUP-001_210108 | 280-144466-14 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 1.10 | | UJ | I |
| PH-DUP-001_210108 | 280-144466-14 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 4.50 | | UJ | I |
| PH-DUP-001_210108 | 280-144466-14 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 2.40 | - | J | I/TR |
| PH-DUP-001_210108 | 280-144466-14 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 2.50 | - | J | I/TR |
| PH-DUP-001_210108 | 280-144466-14 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 4.70 | - | J | I/TR |
| PH-DUP-001_210108 | 280-144466-14 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 2.30 | - | J | D3/I/TR |
| PH-DUP-001_210108 | 280-144466-14 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 4.50 | | UJ | I |
| PH-DUP-001_210108 | 280-144466-14 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 3.40 | - | J | I/TR |
| PH-DUP-001_210108 | 280-144466-14 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 6.90 | | UJ | I |
| PH-DUP-001_210108 | 280-144466-14 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 2.80 | | UJ | I |
| PH-DUP-001_210108 | 280-144466-14 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 3.90 | - | J | I/TR |
| PH-DUP-001_210108 | 280-144466-14 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 6.90 | | UJ | I |
| PH-DUP-001_210108 | 280-144466-14 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 2.10 | | UJ | I |
| PH-DUP-001_210108 | 280-144466-14 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/kg | 2.10 | | UJ | I |
| PH-DUP-001_210108 | 280-144466-14 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 1.10 | - | J | I/TR |
| PH-DUP-001_210108 | 280-144466-14 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 6.90 | | UJ | I |
| PH-DUP-001_210108 | 280-144466-14 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 3.60 | - | J | I/TR |
| PH-DUP-001_210108 | 280-144466-14 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 6200 | + | J | V2 |
| PH-DUP-001_210108 | 280-144466-14 | SW6010C | Calcium | 7440-70-2 | mg/kg | 29000 | | J | D3 |
| PH-DUP-001_210108 | 280-144466-14 | SW6010C | Sodium | 7440-23-5 | mg/kg | 100 | | U | L |
| PH-DUP-001_210108 | 280-144466-14 | SW6010C | Lead | 7439-92-1 | mg/kg | 15.0 | | J | D3 |
| PH-DUP-001_210108 | 280-144466-14 | SW6020A | Thallium | 7440-28-0 | mg/kg | 0.0970 | | U | L |
| SL-DUP-001_210108 | 280-144466-10 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 65.0 | - | J | I |
| SL-DUP-001_210108 | 280-144466-10 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 360 | - | J | I |
| SL-DUP-001_210108 | 280-144466-10 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 230 | - | J | I |
| SL-DUP-001_210108 | 280-144466-10 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 320 | - | J | I |
| SL-DUP-001_210108 | 280-144466-10 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 380 | - | J | I |
| SL-DUP-001_210108 | 280-144466-10 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 41.0 | - | J | I |
| SL-DUP-001_210108 | 280-144466-10 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 250 | - | J | I |
| SL-DUP-001_210108 | 280-144466-10 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 320 | - | J | I |
| SL-DUP-001_210108 | 280-144466-10 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 3600 | + | J | V2 |
| SL-DUP-001_210108 | 280-144466-10 | SW6010C | Calcium | 7440-70-2 | mg/kg | 120000 | | J | D3 |
| SL-DUP-001_210108 | 280-144466-10 | SW6010C | Sodium | 7440-23-5 | mg/kg | 520 | | U | L |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|

Reason Code Definitions

| | |
|---|---|
| C | LCS Recoveries |
| I | Surrogate Recoveries |
| TR | Trace Level Detect |
| D | MS RPD |
| A | Serial Dilution |
| D3 | ield Duplicate RPD |
| L | Laboratory Blank |
| M | MS Recovery |
| M2 | ost Spike Recovery |
| A | Serial Dilution |
| V1 | ICV |
| V2 | CCV |
| V3 | CCV RRF |
| Z6 | 12-Hour Tune |

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 April 2021

**SUBJECT:** New York Ordnance Works Soil S2BVEM: 280-144370-1 (Revision 1)

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in January 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins/TestAmerica (Eurofins), of Denver, CO (DoD ELAP Certificate # 2907.01) and Eurofins of Savannah, GA (DoD ELAP Certification #L2463) by the methods specified below.

- Semi-Volatile Organic Compounds (SVOCs) by SW-846 Method 8270D
- SVOCs with SIM by SW-846 Method 8270D
- Metals by ICP SW-846 Method 6010C
- Metals by ICP-MS SW-846 Method 6020A
- Mercury (Hg) by SW-846 Method 7470A
- Hg by SW-846 Method 7471B
- Percent Moisture (%M) by ASTM Method D2216

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported. A summary table presenting the results that were qualified as a result of this validation, the qualifiers applied, and the reason codes associated with the qualifications is presented as an attachment to this report.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144370 | 280-144370-1 | NYOW-05-SL010-A | 1/7/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144370 | 280-144370-2 | NYOW-05-PH010-B | 1/7/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144370 | 280-144370-3 | NYOW-05-PH010-C | 1/7/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144370 | 280-144370-4 | NYOW-05-SL009-A | 1/7/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-144370 | 280-144370-5 | NYOW-05-PH009-B | 1/7/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144370 | 280-144370-6 | NYOW-05-PH009-C | 1/7/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144370 | 280-144370-7 | NYOW-05-SL008-A | 1/7/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144370 | 280-144370-8 | NYOW-05-PH008-B | 1/7/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144370 | 280-144370-9 | NYOW-05-PH008-C | 1/7/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144370 | 280-144370-10 | NYOW-05-SL007-A | 1/7/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144370 | 280-144370-11 | NYOW-05-PH007-B | 1/7/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144370 | 280-144370-12 | NYOW-05-PH007-C | 1/7/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144370 | 280-144370-13 | [1]PH-DUP-001_210107 | 1/7/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg, %M |
| 280-144370 | 280-144370-14 | EB-01_210107 | 1/7/21 | SVOCs, SVOCs with SIM, ICP and ICP-MS Metals, Hg |

[1]PH-DUP-001_210107 collected from NYOW-05-PH007-B

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Department of Defense *Data Validation Guidelines Module 1* (May 11, 2020), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (January 2017), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 2B electronic and manual validation (S2BVEM) and include review of quality control results and instrument calibration.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT AND HOLDING TIMES

The investigative samples were received in good condition, properly preserved on ice. Two coolers were received by the laboratory at temperatures of 0.9°C and 1.4°C. All samples were extracted and analyzed within holding time.

Three of the four amber 1L glass bottles were received three-fourths full for equipment blank sample EB-01_210107 (280-144370-14). The container with the least volume was marked "Do Not Use". For method 8270D SIM, sample EB-01_210107 was received in 1L amber unpreserved but requires a 250mL unpreserved amber. The laboratory was instructed to mix and pour off 250 mL from the 1L and extract. The laboratory was unable to perform a method-required solvent rinse of the glass container.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | X | |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## GC/MS INSTRUMENT PERFORMANCE CHECK

A decafluorotriphenylphosphine instrument performance check was performed prior to the initial calibration and at the start of the sample analysis batch for SVOCs and SVOCs with SIM (i.e., each 12-hour period). The tunes met the ion abundance criteria.

## INITIAL CALIBRATION AND INITIAL CALIBRATION VERIFICATION

Instrument calibration summaries, including average relative response factors (RRFs), calibration factors (CFs), percent relative standard deviations (%RSDs), coefficients of determination, and

initial calibration verification results and frequencies were subject to review. Minimum calibration levels were also verified. All calibration criteria were met with the exceptions noted below.

SVOCs Method 8270D:

The initial calibration verification performed on 12/14/2020 at 17:31 (680-648435/9) exhibited %Ds greater than the control limit for benzyl butyl phthalate at 30.4%, 3,3'-dichlorobenzidine at 21.3%, bis(2-ethylhexyl) phthalate at 26.8%, and di-n-octyl phthalate at 26.7%. The associated sample results are qualified as "UJ".

**CONTINUING CALIBRATION VERIFICATION**

The continuing calibration RRFs, CFs, percent differences (%Ds), and frequencies were subject to review. All calibration criteria were met with the exceptions noted below.

SVOCs by Method 8270D:

Continuing calibration verification (CCV) 680-651917/2 exhibited %Ds greater than the control limit for hexachlorobenzene (27.4%), butyl benzyl phthalate (32.4%), bis(2-ethylhexyl) phthalate (34%), and di-n-octyl phthalate (31%). The associated sample results are qualified as "UJ".

CCV 680-651917/2 and CCV 680-651917/31 exhibited RRFs less than the minimum relative response factor recommended by method 8270D for hexachlorobenzene (0.100) at 0.0971 and 0.0938, respectively. However, the RRFs were greater than minimum RRF recommended by the NFG (0.05). Given that the responses were only marginally below the method RRFs and were acceptable based on the validation guidelines, the associated soil sample results are not qualified or recommended for rejection on this basis. The results were previously qualified as estimated based on the CCV %D.

CCV 680-651917/3 exhibited a %D greater than the control limit for atrazine at 20.7%. The associated sample results were non-detect and are qualified as "UJ".

CCV 680-652004/2 exhibited %Ds greater than the control limit for acetophenone (27.4%), nitrobenzene (26.2%), isophorone (23.7%), 2,4-dimethylphenol (25.2%), 4-chloroaniline (27.6%), 4-chloro-3-methylphenol (20.9%), bis(2-chloroethoxy)methane (25.2%), 2-nitroaniline (20.7%), 4-bromophenyl phenyl ether (29.8%), hexachlorobenzene (36.1%), pentachlorophenol (32.9%), butyl benzyl phthalate (25.3%), and bis(2-ethylhexyl)phthalate (26.2%). The associated sample equipment blank sample results are qualified as "UJ".

CCV 680-652004/3 exhibited a %D greater than the control limit for atrazine at 23.1%. The associated equipment blank sample result was non-detect and is qualified as "UJ".

Metals by Method 6010C:

Low-level CCV (LLCCV) 280-524477/21 exhibited a recovery greater than the upper control limit for lead at 126%. The associated lead results for samples bracketed by the LLCCV are greater than the level spiked in the ICV and CCVs; qualification is not necessary.

LLCCV 280-524477/21 exhibited recoveries greater than the upper control limit for calcium and sodium at 125% and 127%, respectively. The associated calcium and sodium concentrations were greater than the level spiked in the ICV and CCVs; qualification is not necessary.

LLCCV 280-524555/102 exhibited a recovery greater than the upper control limit for calcium at 126%. The associated calcium results for samples bracketed by the LLCCV are greater than the level spiked in the ICV and CCVs; qualification is not necessary.

Metals by Method 6020A:

LLCCV 280-524422/109 exhibited a recovery greater than the upper control limit for cadmium at 123%. The associated cadmium results for samples bracketed by the LLCCV are greater than the level spiked in the ICVs and CCVs; qualification is not necessary.

**INTERNAL STANDARDS**

Internal standard areas and retention times were reviewed and were determined to be within the associated control limits. All samples, standards, and QC samples were spiked with internal standards as required by the methods.

**BLANK SAMPLE RESULTS**

The criteria for evaluation of blanks applies to laboratory method or preparation blanks, continuing calibration blanks, and equipment blanks. Method blanks were prepared and analyzed with each batch. All target analytes were not detected in the method blanks, continuing calibration blanks, and equipment blanks with the exceptions noted below.

Metals Method 6010C:

Preparation blank sample 280-523813/1-A exhibited positive detections greater than the LOD but less than the LOQ for manganese (0.219 mg/kg), zinc (1.13 mg/kg), calcium (17.4 mg/kg), and aluminum (2.04 mg/kg). The associated positive detections were greater than the LOQ; qualification is not required.

Metals Method 6020A:

Preparation blank sample 280-523818/1-A exhibited a positive detection for chromium at 1.44 µg/L. The associated equipment blank sample result was non-detect; qualification is not necessary.

Mercury Method 7470A:

Continuing calibration blank (CCB) 280-524120/13-A exhibited a positive detection for mercury at 0.117 µg/L. The associated equipment blank sample result was non-detect; qualification is not necessary.

## SURROGATE RECOVERIES

Surrogates were added to all field and QC samples. All surrogate percent recoveries were within the acceptance criteria with the exceptions noted below.

SVOCs Method 8270D with SIM:

Samples NYOW-05-SL007-A and NYOW-05-SL008-A did not recover for any of the five surrogate compounds. The samples were each analyzed at 20X dilutions due to sample matrix effect on the internal standard and the surrogates were diluted out. Qualification is not necessary.

Sample NYOW-05-PH007-C exhibited a recovery less than the lower control limit for base/neutral extractable surrogate terphenyl-d14 at 55%. The associated positive detections are qualified as "J-" and non-detects are qualified as "UJ".

Sample PH-DUP-001_210107 exhibited a recovery less than the lower control limit for base/neutral extractable surrogate 2-fluorobiphenyl at 40%. The associated positive detections are qualified as "J-" and non-detects are qualified as "UJ".

## LABORATORY CONTROL SAMPLES

Laboratory Control Sample/Control Sample duplicates (LCS/LCSD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The LCS/LCSD relative percent differences (RPDs) were also reviewed to determine compliance. All LCS/LCSD met the acceptance criteria with the exceptions noted below.

A LCSD was not performed for SVOC prep batch 651802 and SVOC SIM preparation batch 523067. MSD were analyzed to assess precision.

SVOCs Method 8270D:

LCS/LCSD 680-651906/10-A/11-A did not recover (i.e., 0%) for 3,3'-dichlorobenzidine. The associated equipment blank sample result is qualified as "X" and recommended for rejection.

LCS/LCSD 680-651906/10-A/11-A exhibited RPDs greater than the control limit for hexachlorocyclopentadiene (27%), 2,4-dimethylphenol (20%), caprolactam (21%), diethyl phthalate (22%), butyl benzyl phthalate (22%), 4-bromophenyl phenyl ether (22%), nitrobenzene (23%), bis(2-chloroethoxy)methane (24%), 2,2'-oxybis(1-chloropropane) (25%), di-n-octyl phthalate (30%), hexachlorobenzene (30%), 4-nitroaniline (22%), pentachlorophenol (27%), and bis(2-ethylhexyl)phthalate (32%). The associated equipment blank sample results were non-detect; qualification is not required.

SVOCs Method 8270D with SIM:

LCSD 280-523256/3-A exhibited a recovery less than the lower warning limit for indeno(1,2,3-c,d)pyrene at 47.7%. The associated equipment blank sample result (EB-01_210107) is qualified as "UJ".

## MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Matrix spike/spike duplicate (MS/SD) were evaluated to determine compliance with method frequency and analytical recovery criteria. The MS/SDs RPDs were also reviewed to determine compliance. All MS/SD recoveries and RPDs were within acceptance criteria with the exceptions noted below.

SVOCs Method 8270D:

MS/SD sample 680-193548-A-3-S exhibited recoveries and RPDs outside of control limits. The sample volume did not originate from the Site; qualification is not necessary.

SVOCs Method 8270D with SIM:

MS sample NYOW-05-SL010-A exhibited a recovery less than the lower control limit for chrysene at 53%. The associated sample result is qualified as "J-".

SD sample NYOW-05-SL010-A exhibited recoveries less than the lower control limit for naphthalene, 1-methylnaphthalene, benzo(b)fluoranthene, and pyrene at 23%, 27%, 35%, and 45%, respectively. In addition, the SD did not recover (i.e., 0%) for phenanthrene and chrysene. The associated sample results were positive detections and are qualified as "J-".

Metals Method 6010C:

MS/SD sample NYOW-05-SL010-A exhibited recoveries outside of control limits for iron, manganese, and aluminum. The associated sample concentrations were greater than 4X the spiked amount; qualification is not necessary.

SD sample NYOW-05-SL010-A did not recover manganese. The associated sample result is a positive detection and is qualified as "J-".

SD sample NYOW-05-SL010-A exhibited a recovery greater than the upper warning limit for calcium at 128%. The associated positive detection is qualified as "J+".

MS/SD sample NYOW-05-SL010-A exhibited RPDs greater than the control limit for magnesium (24%), aluminum (25%), calcium (33%), and manganese (57%). The associated sample results for aluminum and magnesium are qualified as "J". The results for calcium and manganese were previously qualified; no further action is necessary.

Metals Method 6020A:

MS/SD sample NYOW-05-SL010-A exhibited a RPD greater than the control limit for antimony at 25%. The associated sample result is non-detect and is qualified as "UJ".

## POST-DIGESTION SPIKE

Metals by 6020C:

A post-digestion spike (PDS) was performed for MS/SD sample NYOW-05-SL010-A. Aluminum, iron, manganese, and silver exhibited recoveries less than the lower control limit; however,

aluminum, iron, and manganese concentrations were greater than 4X the spiked amount in the MS. Silver recovered within control in the MS/SD sample; therefore, the post-digestion spike was not used to evaluate MS/SD recovery failures.

A PDS was performed in conjunction with the equipment blank's aqueous sample batch on a non-Site sample. The results were not used to assess equipment blank sample results.

**ICP SERIAL DILUTION**

An ICP serial dilution was performed for sample NYOW-05-SL010-A and all %Ds were below 10% for methods 6010C and 6020A.

**LOW-LEVEL CHECK STANDARD**

Low-level check standards for methods 6010C and 6020A were performed using the low-level CCV standard. All recoveries were within the control limits.

**INTERFERENCE CHECK SAMPLES**

Interference check samples A and AB recoveries were evaluated and met the acceptance criteria.

**COMMENTS**

Percent moisture is outside of Eurofins field of accreditation for solid matrices at the Denver laboratory. All percent solids results were greater than 30%.

One field duplicate and parent sample pair was collected and analyzed for all parameters (PH-DUP-001_210107 and NYOW-05-PH007-B). For sample results that are greater than 5X the LOQ, the RPD must be less than 50%. For sample results less than 5X the LOQ, the absolute difference must be less than ±LOQ. All analytes met the precision criteria for this field duplicate pair.

Samples NYOW-05-SL007-A and NYOW-05-SL008-A did not meet project quantitation limit goals (PQLGs) for several method SVOC SIM analytes due to sample dilution. LOQs were slightly greater than PQLGs for SVOCs and metals due to percent moisture adjustments.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given analytical parameter is not mentioned above, that means that all specified criteria were met for that analytical parameter. All data are considered usable, as qualified, with the exception of the result recommended for rejection. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 99%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| EB-01_210107 | 280-144370-14 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/L | 0.100 | | UJ | C |
| EB-01_210107 | 280-144370-14 | SW8270D | Acetophenone | 98-86-2 | ug/L | 2.40 | | UJ | V2 |
| EB-01_210107 | 280-144370-14 | SW8270D | Atrazine | 1912-24-9 | ug/L | 2.40 | | UJ | V2 |
| EB-01_210107 | 280-144370-14 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/L | 2.40 | | UJ | V1/V2 |
| EB-01_210107 | 280-144370-14 | SW8270D | Bis(2-chloroethoxy)methane | 111-91-1 | ug/L | 2.40 | | UJ | V2 |
| EB-01_210107 | 280-144370-14 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/L | 3.00 | | UJ | V1/V2 |
| EB-01_210107 | 280-144370-14 | SW8270D | 4-Bromophenyl phenyl ether | 101-55-3 | ug/L | 2.40 | | UJ | V2 |
| EB-01_210107 | 280-144370-14 | SW8270D | 4-Chloro-3-methylphenol | 59-50-7 | ug/L | 2.40 | | UJ | V2 |
| EB-01_210107 | 280-144370-14 | SW8270D | 4-Chloroaniline | 106-47-8 | ug/L | 6.00 | | UJ | V2 |
| EB-01_210107 | 280-144370-14 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/L | 72.0 | | X | C/V1 |
| EB-01_210107 | 280-144370-14 | SW8270D | 2,4-Dimethylphenol | 105-67-9 | ug/L | 12.0 | | UJ | V2 |
| EB-01_210107 | 280-144370-14 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/L | 3.00 | | UJ | V1 |
| EB-01_210107 | 280-144370-14 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/L | 2.40 | | UJ | V2 |
| EB-01_210107 | 280-144370-14 | SW8270D | Isophorone | 78-59-1 | ug/L | 2.40 | | UJ | V2 |
| EB-01_210107 | 280-144370-14 | SW8270D | 2-Nitroaniline | 88-74-4 | ug/L | 2.40 | | UJ | V2 |
| EB-01_210107 | 280-144370-14 | SW8270D | Nitrobenzene | 98-95-3 | ug/L | 2.40 | | UJ | V2 |
| EB-01_210107 | 280-144370-14 | SW8270D | Pentachlorophenol | 87-86-5 | ug/L | 4.80 | | UJ | V2 |
| NYOW-05-PH007-B | 280-144370-11 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 73.0 | | UJ | V2 |
| NYOW-05-PH007-B | 280-144370-11 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 73.0 | | UJ | V1/V2 |
| NYOW-05-PH007-B | 280-144370-11 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 73.0 | | UJ | V1/V2 |
| NYOW-05-PH007-B | 280-144370-11 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 73.0 | | UJ | V1 |
| NYOW-05-PH007-B | 280-144370-11 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 73.0 | | UJ | V1/V2 |
| NYOW-05-PH007-B | 280-144370-11 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 73.0 | | UJ | V2 |
| NYOW-05-PH007-C | 280-144370-12 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 1.20 | | UJ | I |
| NYOW-05-PH007-C | 280-144370-12 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 1.20 | | UJ | I |
| NYOW-05-PH007-C | 280-144370-12 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 4.90 | | UJ | I |
| NYOW-05-PH007-C | 280-144370-12 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 2.60 | - | J | I/TR |
| NYOW-05-PH007-C | 280-144370-12 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 1.90 | - | J | I/TR |
| NYOW-05-PH007-C | 280-144370-12 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 6.50 | - | J | I/TR |
| NYOW-05-PH007-C | 280-144370-12 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 7.50 | | UJ | I |
| NYOW-05-PH007-C | 280-144370-12 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 4.90 | | UJ | I |
| NYOW-05-PH007-C | 280-144370-12 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 5.70 | - | J | I/TR |
| NYOW-05-PH007-C | 280-144370-12 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 7.50 | | UJ | I |
| NYOW-05-PH007-C | 280-144370-12 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 3.00 | | UJ | I |
| NYOW-05-PH007-C | 280-144370-12 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 4.90 | | UJ | I |
| NYOW-05-PH007-C | 280-144370-12 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 7.50 | | UJ | I |
| NYOW-05-PH007-C | 280-144370-12 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 2.30 | | UJ | I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH007-C | 280-144370-12 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/kg | 2.30 | | UJ | I |
| NYOW-05-PH007-C | 280-144370-12 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 2.70 | - | J | I/TR |
| NYOW-05-PH007-C | 280-144370-12 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 7.50 | | UJ | I |
| NYOW-05-PH007-C | 280-144370-12 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 7.50 | | UJ | I |
| NYOW-05-PH007-C | 280-144370-12 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 75.0 | | UJ | V2 |
| NYOW-05-PH007-C | 280-144370-12 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 75.0 | | UJ | V1/V2 |
| NYOW-05-PH007-C | 280-144370-12 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 75.0 | | UJ | V1/V2 |
| NYOW-05-PH007-C | 280-144370-12 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 75.0 | | UJ | V1 |
| NYOW-05-PH007-C | 280-144370-12 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 75.0 | | UJ | V1/V2 |
| NYOW-05-PH007-C | 280-144370-12 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 75.0 | | UJ | V2 |
| NYOW-05-PH008-B | 280-144370-8 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 75.0 | | UJ | V2 |
| NYOW-05-PH008-B | 280-144370-8 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 75.0 | | UJ | V1/V2 |
| NYOW-05-PH008-B | 280-144370-8 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 75.0 | | UJ | V1/V2 |
| NYOW-05-PH008-B | 280-144370-8 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 75.0 | | UJ | V1 |
| NYOW-05-PH008-B | 280-144370-8 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 75.0 | | UJ | V1/V2 |
| NYOW-05-PH008-B | 280-144370-8 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 75.0 | | UJ | V2 |
| NYOW-05-PH008-C | 280-144370-9 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 74.0 | | UJ | V2 |
| NYOW-05-PH008-C | 280-144370-9 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 74.0 | | UJ | V1/V2 |
| NYOW-05-PH008-C | 280-144370-9 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 74.0 | | UJ | V1/V2 |
| NYOW-05-PH008-C | 280-144370-9 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 74.0 | | UJ | V1 |
| NYOW-05-PH008-C | 280-144370-9 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 74.0 | | UJ | V1/V2 |
| NYOW-05-PH008-C | 280-144370-9 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 74.0 | | UJ | V2 |
| NYOW-05-PH009-B | 280-144370-5 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 74.0 | | UJ | V2 |
| NYOW-05-PH009-B | 280-144370-5 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 74.0 | | UJ | V1/V2 |
| NYOW-05-PH009-B | 280-144370-5 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 74.0 | | UJ | V1/V2 |
| NYOW-05-PH009-B | 280-144370-5 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 74.0 | | UJ | V1 |
| NYOW-05-PH009-B | 280-144370-5 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 74.0 | | UJ | V1/V2 |
| NYOW-05-PH009-B | 280-144370-5 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 74.0 | | UJ | V2 |
| NYOW-05-PH009-C | 280-144370-6 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-PH009-C | 280-144370-6 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 76.0 | | UJ | V1/V2 |
| NYOW-05-PH009-C | 280-144370-6 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 76.0 | | UJ | V1/V2 |
| NYOW-05-PH009-C | 280-144370-6 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 76.0 | | UJ | V1 |
| NYOW-05-PH009-C | 280-144370-6 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 76.0 | | UJ | V1/V2 |
| NYOW-05-PH009-C | 280-144370-6 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-PH010-B | 280-144370-2 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-PH010-B | 280-144370-2 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 76.0 | | UJ | V1/V2 |
| NYOW-05-PH010-B | 280-144370-2 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 76.0 | | UJ | V1/V2 |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-05-PH010-B | 280-144370-2 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 76.0 | | UJ | V1 |
| NYOW-05-PH010-B | 280-144370-2 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 76.0 | | UJ | V1/V2 |
| NYOW-05-PH010-B | 280-144370-2 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 76.0 | | UJ | V2 |
| NYOW-05-PH010-C | 280-144370-3 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 71.0 | | UJ | V2 |
| NYOW-05-PH010-C | 280-144370-3 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 71.0 | | UJ | V1/V2 |
| NYOW-05-PH010-C | 280-144370-3 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 71.0 | | UJ | V1/V2 |
| NYOW-05-PH010-C | 280-144370-3 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 71.0 | | UJ | V1 |
| NYOW-05-PH010-C | 280-144370-3 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 71.0 | | UJ | V1/V2 |
| NYOW-05-PH010-C | 280-144370-3 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 71.0 | | UJ | V2 |
| NYOW-05-SL010-A | 280-144370-1 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 60.0 | - | J | M |
| NYOW-05-SL010-A | 280-144370-1 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 180 | - | J | M |
| NYOW-05-SL010-A | 280-144370-1 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 39.0 | - | J | M |
| NYOW-05-SL010-A | 280-144370-1 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 17.0 | - | J | M |
| NYOW-05-SL010-A | 280-144370-1 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 160 | - | J | M |
| NYOW-05-SL010-A | 280-144370-1 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 68.0 | - | J | M |
| NYOW-05-SL010-A | 280-144370-1 | SW6010C | Aluminum | 7429-90-5 | mg/kg | 4800 | | J | D |
| NYOW-05-SL010-A | 280-144370-1 | SW6010C | Calcium | 7440-70-2 | mg/kg | 2000 | + | J | M/D |
| NYOW-05-SL010-A | 280-144370-1 | SW6010C | Magnesium | 7439-95-4 | mg/kg | 1100 | | J | D |
| NYOW-05-SL010-A | 280-144370-1 | SW6010C | Manganese | 7439-96-5 | mg/kg | 400 | - | J | M/D |
| NYOW-05-SL010-A | 280-144370-1 | SW6020A | Antimony | 7440-36-0 | mg/kg | 0.110 | | UJ | D |
| PH-DUP-001_210107 | 280-144370-13 | BNASIMD | Acenaphthene | 83-32-9 | ug/kg | 1.10 | | UJ | I |
| PH-DUP-001_210107 | 280-144370-13 | BNASIMD | Acenaphthylene | 208-96-8 | ug/kg | 1.10 | | UJ | I |
| PH-DUP-001_210107 | 280-144370-13 | BNASIMD | Anthracene | 120-12-7 | ug/kg | 4.30 | | UJ | I |
| PH-DUP-001_210107 | 280-144370-13 | BNASIMD | Benzo(a)anthracene | 56-55-3 | ug/kg | 4.30 | | UJ | I |
| PH-DUP-001_210107 | 280-144370-13 | BNASIMD | Benzo(a)pyrene | 50-32-8 | ug/kg | 4.30 | | UJ | I |
| PH-DUP-001_210107 | 280-144370-13 | BNASIMD | Benzo(b)fluoranthene | 205-99-2 | ug/kg | 6.70 | | UJ | I |
| PH-DUP-001_210107 | 280-144370-13 | BNASIMD | Benzo(g,h,i)perylene | 191-24-2 | ug/kg | 6.70 | | UJ | I |
| PH-DUP-001_210107 | 280-144370-13 | BNASIMD | Benzo(k)fluoranthene | 207-08-9 | ug/kg | 4.30 | | UJ | I |
| PH-DUP-001_210107 | 280-144370-13 | BNASIMD | Chrysene | 218-01-9 | ug/kg | 4.30 | | UJ | I |
| PH-DUP-001_210107 | 280-144370-13 | BNASIMD | Dibenz(a,h)anthracene | 53-70-3 | ug/kg | 6.70 | | UJ | I |
| PH-DUP-001_210107 | 280-144370-13 | BNASIMD | Fluorene | 86-73-7 | ug/kg | 2.70 | | UJ | I |
| PH-DUP-001_210107 | 280-144370-13 | BNASIMD | Fluoranthene | 206-44-0 | ug/kg | 4.30 | | UJ | I |
| PH-DUP-001_210107 | 280-144370-13 | BNASIMD | Indeno(1,2,3-c,d)pyrene | 193-39-5 | ug/kg | 6.70 | | UJ | I |
| PH-DUP-001_210107 | 280-144370-13 | BNASIMD | 1-Methylnaphthalene | 90-12-0 | ug/kg | 2.00 | | UJ | I |
| PH-DUP-001_210107 | 280-144370-13 | BNASIMD | 2-Methylnaphthalene | 91-57-6 | ug/kg | 2.00 | | UJ | I |
| PH-DUP-001_210107 | 280-144370-13 | BNASIMD | Naphthalene | 91-20-3 | ug/kg | 0.900 | - | J | I/TR |
| PH-DUP-001_210107 | 280-144370-13 | BNASIMD | Phenanthrene | 85-01-8 | ug/kg | 6.70 | | UJ | I |

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210107 | 280-144370-13 | BNASIMD | Pyrene | 129-00-0 | ug/kg | 6.70 | | UJ | I |
| PH-DUP-001_210107 | 280-144370-13 | SW8270D | Atrazine | 1912-24-9 | ug/kg | 73.0 | | UJ | V2 |
| PH-DUP-001_210107 | 280-144370-13 | SW8270D | Benzyl butyl phthalate | 85-68-7 | ug/kg | 73.0 | | UJ | V1/V2 |
| PH-DUP-001_210107 | 280-144370-13 | SW8270D | Bis(2-ethylhexyl)phthalate | 117-81-7 | ug/kg | 73.0 | | UJ | V1/V2 |
| PH-DUP-001_210107 | 280-144370-13 | SW8270D | 3,3'-Dichlorobenzidine | 91-94-1 | ug/kg | 73.0 | | UJ | V1 |
| PH-DUP-001_210107 | 280-144370-13 | SW8270D | di-n-Octyl phthalate | 117-84-0 | ug/kg | 73.0 | | UJ | V1/V2 |
| PH-DUP-001_210107 | 280-144370-13 | SW8270D | Hexachlorobenzene | 118-74-1 | ug/kg | 73.0 | | UJ | V2 |

Reason Code Definitions

| | |
|---|---|
| C | LCS Recovery |
| V1 | ICV |
| V2 | CCV |
| I | Surrogate Recovery |
| TR | Trace Level Detect |
| M | MS Recovery |
| D | MS RPD |

# Background Data Packages

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148313-2 Revision 1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148313-2 | 280-148313-1 | NYOW-B-SL050-A | 5/05/2021 | CEC |
| 280-148313-2 | 280-148313-2 | NYOW-B-PH050-B | 5/05/2021 | CEC |
| 280-148313-2 | 280-148313-3 | NYOW-B-PH050-C | 5/05/2021 | CEC |
| 280-148313-2 | 280-148313-4 | NYOW-B-SL049-A | 5/05/2021 | CEC |
| 280-148313-2 | 280-148313-5 | NYOW-B-PH049-B | 5/05/2021 | CEC |
| 280-148313-2 | 280-148313-6 | NYOW-B-PH049-C | 5/05/2021 | CEC |
| 280-148313-2 | 280-148313-7 | NYOW-B-SL048-A | 5/05/2021 | CEC |
| 280-148313-2 | 280-148313-8 | NYOW-B-PH048-B | 5/05/2021 | CEC |
| 280-148313-2 | 280-148313-9 | NYOW-B-PH048-C | 5/05/2021 | CEC |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January

2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Three coolers were received by the laboratory at temperatures of 1.7°C, 2.7°C, and 3.1°C. All requested target analytes were reported.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |

| Verification Criteria | Yes | No |
|---|---|---|
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-148313-1.

## COMMENTS

No field blanks were collected as part of this SDG.

No field duplicates were collected as part of this SDG.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148345-2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148345-2 | 280-148345-1 | NYOW-B-SL047-A | 5/06/2021 | CEC |
| 280-148345-2 | 280-148345-2 | [1]SL-DUP-001_210506 | 5/06/2021 | CEC |
| 280-148345-2 | 280-148345-3 | NYOW-B-PH047-B | 5/06/2021 | CEC |
| 280-148345-2 | 280-148345-4 | NYOW-B-PH047-C | 5/06/2021 | CEC |
| 280-148345-2 | 280-148345-5 | NYOW-B-SL046-A | 5/06/2021 | CEC |
| 280-148345-2 | 280-148345-6 | NYOW-B-PH046-B | 5/06/2021 | CEC |
| 280-148345-2 | 280-148345-7 | NYOW-B-PH046-C | 5/06/2021 | CEC |
| 280-148345-2 | 280-148345-8 | [2]PH-DUP-001_210506 | 5/06/2021 | CEC |
| 280-148345-2 | 280-148345-9 | NYOW-B-SL045-A | 5/06/2021 | CEC |
| 280-148345-2 | 280-148345-10 | NYOW-B-PH045-B | 5/06/2021 | CEC |
| 280-148345-2 | 280-148345-11 | NYOW-B-PH045-C | 5/06/2021 | CEC |
| 280-148345-2 | 280-148345-12 | NYOW-B-SL044-A | 5/06/2021 | CEC |
| 280-148345-2 | 280-148345-13 | NYOW-B-PH044-B | 5/06/2021 | CEC |
| 280-148345-2 | 280-148345-14 | NYOW-B-PH044-C | 5/06/2021 | CEC |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148345-2 | 280-148345-15 | NYOW-B-SL043-A | 5/06/2021 | CEC |
| 280-148345-2 | 280-148345-16 | NYOW-B-PH043-B | 5/06/2021 | CEC |
| 280-148345-2 | 280-148345-17 | NYOW-B-PH043-C | 5/06/2021 | CEC |
| 280-148345-2 | 280-148345-18 | NYOW-B-SL042-A | 5/06/2021 | CEC |
| 280-148345-2 | 280-148345-19 | NYOW-B-PH042-B | 5/06/2021 | CEC |
| 280-148345-2 | 280-148345-20 | NYOW-B-PH042-C | 5/06/2021 | CEC |

[1]SL-DUP-001_210506 collected from NYOW-B-SL047-A
[2]PH-DUP-001_210506 collected from NYOW-B-PH046-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the

project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Seven coolers were received by the laboratory at temperatures of 1.7°C, 3.4°C, 3.6°C, 3.7°C, 4.3°C, 4.3°C, and 5.5°C. All requested target analytes were reported.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-148345-1.

## COMMENTS

No field blanks were collected as part of this SDG.

Two field duplicate and parent sample pairs were collected and analyzed for CEC (SL-DUP-001_210506 collected from NYOW-B-SL047-A and PH-DUP-001_210506 collected from NYOW-B-PH046-C). The RPD must be less than 50% when at least one result is greater than the LOQ. Both field duplicate pairs met the precision criteria for CEC.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148419-2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148419-2 | 280-148419-1 | NYOW-B-SL041-A | 5/07/2021 | CEC |
| 280-148419-2 | 280-148419-2 | NYOW-B-PH041-B | 5/07/2021 | CEC |
| 280-148419-2 | 280-148419-3 | NYOW-B-PH041-C | 5/07/2021 | CEC |
| 280-148419-2 | 280-148419-4 | [1]PH-DUP-001_210507 | 5/07/2021 | CEC |
| 280-148419-2 | 280-148419-5 | NYOW-B-SL033-A | 5/07/2021 | CEC |
| 280-148419-2 | 280-148419-6 | NYOW-B-PH033-B | 5/07/2021 | CEC |
| 280-148419-2 | 280-148419-7 | NYOW-B-PH033-C | 5/07/2021 | CEC |
| 280-148419-2 | 280-148419-8 | NYOW-B-SL034-A | 5/07/2021 | CEC |
| 280-148419-2 | 280-148419-9 | NYOW-B-PH034-B | 5/07/2021 | CEC |
| 280-148419-2 | 280-148419-10 | NYOW-B-PH034-C | 5/07/2021 | CEC |
| 280-148419-2 | 280-148419-11 | NYOW-B-SL035-A | 5/07/2021 | CEC |
| 280-148419-2 | 280-148419-12 | NYOW-B-PH035-B | 5/07/2021 | CEC |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148419-2 | 280-148419-13 | NYOW-B-PH035-C | 5/07/2021 | CEC |

[1]PH-DUP-001_210507 collected from NYOW-B-PH041-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Four coolers were received by the laboratory at temperatures of 3.7°C, 4.9°C, 5.7°C, and 5.9°C. All requested target analytes were reported.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-148419-1.

## COMMENTS

No field blanks were collected as part of this SDG.

One field duplicate and parent sample pair was collected and analyzed for CEC (PH-DUP-001_210507 collected from NYOW-B-PH041-C). The RPD must be less than 50% when at least one result is greater than the LOQ. The field duplicate pair did not meet the precision criteria for CEC with an RPD of 87%. The associated sample results are qualified as “J” as shown in the table below.

| Sample | Analyte | Result | Qualifier |
|---|---|---|---|
| NYOW-B-PH041-C | CEC | 4.3 | J |
| PH-DUP-001_210507 | CEC | 1.7 | J |

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH041-C | 280-148419-3 | SW9081 | Cation-Exchange Capacity | | MEQ/100 G | 4.3 | | J | D3 |
| PH-DUP-001_210507 | 280-148419-4 | SW9081 | Cation-Exchange Capacity | | MEQ/100 G | 1.7 | | J | D3 |

Reason Code Definition

D3 Field Duplicate RPD

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148471-2

---

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148471-2 | 280-148471-1 | NYOW-B-SL037-A | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-2 | [1]SL-DUP-001_210510 | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-3 | NYOW-B-PH037-B | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-4 | NYOW-B-PH037-C | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-5 | NYOW-B-SL038-A | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-6 | NYOW-B-PH038-B | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-7 | NYOW-B-PH038-C | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-8 | NYOW-B-SL039-A | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-9 | NYOW-B-PH039-B | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-10 | NYOW-B-PH039-C | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-11 | NYOW-B-SL036-A | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-12 | NYOW-B-PH036-B | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-13 | NYOW-B-PH036-C | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-14 | [2]PH-DUP-001_210510 | 5/10/2021 | CEC |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148471-2 | 280-148471-15 | NYOW-B-SL021-A | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-16 | NYOW-B-PH021-B | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-17 | NYOW-B-PH021-C | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-18 | [3]PH-DUP-002_210510 | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-19 | NYOW-B-SL026-A | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-20 | NYOW-B-PH026-B | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-21 | NYOW-B-PH026-C | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-22 | [4]PH-DUP-003_210510 | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-23 | NYOW-B-SL022-A | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-24 | NYOW-B-PH022-B | 5/10/2021 | CEC |
| 280-148471-2 | 280-148471-25 | NYOW-B-PH022-C | 5/10/2021 | CEC |

[1]SL-DUP-001_210510 collected from NYOW-B-SL037-A
[2]PH-DUP-001_210510 collected from NYOW-B-PH036-C
[3]PH-DUP-002_210510 collected from NYOW-B-PH021-C
[4]PH-DUP-003_210510 collected from NYOW-B-PH026-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Seven coolers were received by the laboratory at temperatures of 0.6°C, 0.8°C, 2.1°C, 2.9°C, 3.1°C, 4.0°C, and 4.7°C. All requested target analytes were reported.

The container for sample NYOW-B-PH026-C did not list the sample time. The time was logged in accordance with the COC.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | | X |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All sample identification labels are unique and match the COC with the sample time exception noted above. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-148471-1.

## COMMENTS

No field blanks were collected as part of this SDG.

Four field duplicate and parent sample pairs were collected and analyzed for CEC (SL-DUP-001_210510 collected from NYOW-B-SL037-A, PH-DUP-001_210510 collected from NYOW-B-PH036-C, PH-DUP-002_210510 collected from NYOW-B-PH021-C, and PH-DUP-003_210510 collected from NYOW-B-PH026-C). The RPD must be less than 50% when at least one result is greater than the LOQ. All field duplicate pairs met the precision criteria for CEC.

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148501-2

---

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148501-2 | 280-148501-1 | NYOW-B-SL023-A | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-2 | NYOW-B-PH023-B | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-3 | NYOW-B-PH023-C | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-4 | NYOW-B-SL040-A | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-5 | NYOW-B-PH040-B | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-6 | NYOW-B-PH040-C | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-7 | NYOW-B-SL028-A | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-8 | NYOW-B-PH028-B | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-9 | NYOW-B-PH028-C | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-10 | NYOW-B-SL024-A | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-11 | NYOW-B-PH024-B | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-12 | NYOW-B-PH024-C | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-13 | NYOW-B-SL025-A | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-14 | NYOW-B-PH025-B | 5/11/2021 | CEC |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148501-2 | 280-148501-15 | NYOW-B-PH025-C | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-16 | NYOW-B-SL027-A | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-17 | [1]SL-DUP-001_210511 | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-18 | NYOW-B-PH027-B | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-19 | NYOW-B-PH027-C | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-20 | NYOW-B-SL031-A | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-21 | NYOW-B-PH031-B | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-22 | NYOW-B-PH031-C | 5/11/2021 | CEC |
| 280-148501-2 | 280-148501-23 | [2] PH-DUP-001_210511 | 5/11/2021 | CEC |

[1]SL-DUP-001_210511 collected from NYOW-B-SL027-A
[2]PH-DUP-001_210511 collected from NYOW-B-PH031-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

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**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Seven coolers were received by the laboratory at temperatures of 0.4°C, 1.2°C, 1.4°C, 2.2°C, 2.8°C, 3.0°C, and 3.8°C. All requested target analytes were reported.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-148501-1.

## COMMENTS

No field blanks were collected as part of this SDG.

Two field duplicate and parent sample pairs were collected and analyzed for CEC (SL-DUP-001_210511 collected from NYOW-B-SL027-A and PH-DUP-001_210511 collected from NYOW-B-PH031-C). The RPD must be less than 50% when at least one result is greater than the LOQ. Both field duplicate pairs met the precision criteria for CEC.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148576-2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148576-2 | 280-148576-1 | NYOW-B-SL029-A | 5/12/2021 | CEC |
| 280-148576-2 | 280-148576-2 | NYOW-B-PH029-B | 5/12/2021 | CEC |
| 280-148576-2 | 280-148576-3 | NYOW-B-PH029-C | 5/12/2021 | CEC |
| 280-148576-2 | 280-148576-4 | NYOW-B-SL030-A | 5/12/2021 | CEC |
| 280-148576-2 | 280-148576-5 | NYOW-B-PH030-B | 5/12/2021 | CEC |
| 280-148576-2 | 280-148576-6 | NYOW-B-PH030-C | 5/12/2021 | CEC |
| 280-148576-2 | 280-148576-7 | NYOW-B-SL032-A | 5/12/2021 | CEC |
| 280-148576-2 | 280-148576-8 | NYOW-B-PH032-B | 5/12/2021 | CEC |
| 280-148576-2 | 280-148576-9 | NYOW-B-PH032-C | 5/12/2021 | CEC |
| 280-148576-2 | 280-148576-10 | NYOW-B-SL012-A | 5/12/2021 | CEC |
| 280-148576-2 | 280-148576-11 | NYOW-B-PH012-B | 5/12/2021 | CEC |
| 280-148576-2 | 280-148576-12 | NYOW-B-PH012-C | 5/12/2021 | CEC |
| 280-148576-2 | 280-148576-13 | NYOW-B-SL013-A | 5/12/2021 | CEC |
| 280-148576-2 | 280-148576-14 | NYOW-B-PH013-B | 5/12/2021 | CEC |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148576-2 | 280-148576-15 | NYOW-B-PH013-C | 5/12/2021 | CEC |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 2.0°C, 3.0°C, 3.7°C, 4.3°C, and 4.7°C. All requested target analytes were reported.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-148576-1.

## COMMENTS

No field blanks were collected as part of this SDG.

No field duplicates were collected as part of this SDG.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148628-2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148628-2 | 280-148628-2 | NYOW-B-SL016-A | 5/13/2021 | CEC |
| 280-148628-2 | 280-148628-3 | NYOW-B-PH016-B | 5/13/2021 | CEC |
| 280-148628-2 | 280-148628-4 | NYOW-B-PH016-C | 5/13/2021 | CEC |
| 280-148628-2 | 280-148628-6 | NYOW-B-SL019-A | 5/13/2021 | CEC |
| 280-148628-2 | 280-148628-7 | NYOW-B-PH019-B | 5/13/2021 | CEC |
| 280-148628-2 | 280-148628-8 | NYOW-B-PH019-C | 5/13/2021 | CEC |
| 280-148628-2 | 280-148628-9 | NYOW-B-SL015-A | 5/13/2021 | CEC |
| 280-148628-2 | 280-148628-10 | NYOW-B-PH015-B | 5/13/2021 | CEC |
| 280-148628-2 | 280-148628-11 | NYOW-B-PH015-C | 5/13/2021 | CEC |
| 280-148628-2 | 280-148628-12 | NY0W-B-SL017-A | 5/13/2021 | CEC |
| 280-148628-2 | 280-148628-13 | [1]SL-DUP-001_210513 | 5/13/2021 | CEC |
| 280-148628-2 | 280-148628-14 | NYOW-B-PH017-B | 5/13/2021 | CEC |
| 280-148628-2 | 280-148628-15 | NYOW-B-PH017-C | 5/13/2021 | CEC |
| 280-148628-2 | 280-148628-17 | NYOW-B-SL018-A | 5/13/2021 | CEC |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148628-2 | 280-148628-18 | NYOW-B-PH018-B | 5/13/2021 | CEC |
| 280-148628-2 | 280-148628-19 | [2]PH-DUP-001_210513 | 5/13/2021 | CEC |
| 280-148628-2 | 280-148628-20 | NYOW-B-PH018-C | 5/13/2021 | CEC |
| 280-148628-2 | 280-148628-21 | [3]PH-DUP-002_210513 | 5/13/2021 | CEC |

[1]SL-DUP-001_210513collected from NYOW-B-SL017-A
[2]PH-DUP-001_210513 collected from NYOW-B-PH018-B
[3]PH-DUP-002_210513 collected from NYOW-B-PH018-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Seven coolers were received by the laboratory at temperatures of 0.7°C, 2.0°C, 3.5°C, 3.6°C, 3.7°C, 4.8°C, and 5.3°C. All requested target analytes were reported.

The container for sample SL-DUP-001_210513 had the date at the end of the sample ID in a different order than the ID listed on the COC. The date was logged in accordance with the COC.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | | X |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All sample identification labels are unique and match the COC with the sample ID exception noted above. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-148628-1.

## COMMENTS

No field blanks were collected as part of this SDG.

Three field duplicate and parent sample pairs were collected and analyzed for CEC (SL-DUP-001_210513 collected from NYOW-B-SL017-A, PH-DUP-001_210513 collected from NYOW-B-PH018-B, and PH-DUP-002_210513 collected from NYOW-B-PH018-C). The RPD must be less than 50% when at least one result is greater than the LOQ. Field duplicate PH-DUP-001_210513 did not meet the precision criteria for CEC with an RPD of 136%. The associated sample results are qualified as “J” as shown in the table below.

| Sample | Analyte | Result | Qualifier |
|---|---|---|---|
| NYOW-B-PH018-B | CEC | 1.7 | J |
| PH-DUP-001_210513 | CEC | 9.0 | J |

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH018-B | 280-148628-18 | SW9081 | Cation-Exchange Capacity | | MEQ/100 G | 1.7 | | J | D3 |
| PH-DUP-001_210513 | 280-148628-19 | SW9081 | Cation-Exchange Capacity | | MEQ/100 G | 9 | | J | D3 |

Reason Code Definition

D3 Field Duplicate RPD

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148677-2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148677-2 | 280-148677-4 | NYOW-B-SL050-A | 5/14/2021 | CEC |
| 280-148677-2 | 280-148677-5 | NYOW-B-PH050-B | 5/14/2021 | CEC |
| 280-148677-2 | 280-148677-6 | NYOW-B-PH050-C | 5/14/2021 | CEC |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Two coolers were received by the laboratory at temperatures of 1.8°C and 1.8°C. All requested target analytes were reported.

All samples were analyzed within the holding time period.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All sample identification labels are unique and match the COC. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-148677-1.

## COMMENTS

No field blanks were collected as part of this SDG.

No field duplicates were collected as part of this SDG.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148718-2

---

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148718-2 | 280-148718-5 | NYOW-B-SL014-A | 5/17/2021 | CEC |
| 280-148718-2 | 280-148718-6 | NYOW-B-PH014-B | 5/17/2021 | CEC |
| 280-148718-2 | 280-148718-7 | NYOW-B-PH014-C | 5/17/2021 | CEC |
| 280-148718-2 | 280-148718-8 | NYOW-B-SL010-A | 5/17/2021 | CEC |
| 280-148718-2 | 280-148718-9 | NYOW-B-PH010-B | 5/17/2021 | CEC |
| 280-148718-2 | 280-148718-10 | NYOW-B-PH010-C | 5/17/2021 | CEC |
| 280-148718-2 | 280-148718-11 | NYOW-B-SL009-A | 5/17/2021 | CEC |
| 280-148718-2 | 280-148718-12 | NYOW-B-PH009-B | 5/17/2021 | CEC |
| 280-148718-2 | 280-148718-13 | NYOW-B-PH009-C | 5/17/2021 | CEC |
| 280-148718-2 | 280-148718-14 | NYOW-B-SL008-A | 5/17/2021 | CEC |
| 280-148718-2 | 280-148718-15 | NYOW-B-PH008-B | 5/17/2021 | CEC |
| 280-148718-2 | 280-148718-16 | NYOW-B-PH008-C | 5/17/2021 | CEC |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 1.9°C, 3.1°C, 3.6°C, 3.7°C, and 4.7°C. All requested target analytes were reported.

All samples were analyzed within the holding time period.

The sample ID on one 8-ounce sample container was written as NYOW-B-PH00-B. The sample was logged as NYOW-B-PH008-B, in accordance with the COC.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | | X |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All sample identification labels are unique and match the COC with the sample ID exception noted above. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-148718-1.

## COMMENTS

No field blanks were collected as part of this SDG.

No field duplicates were collected as part of this SDG.

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. No qualifications were applied as a result of this validation. All data are considered usable, as qualified by the laboratory. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148774-2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins Xenco (Eurofins), of Corpus Christi, TX (Texas NELAP Certificate # T104704210-19-23) by the method specified below.

- Cation Exchange Capacity (CEC) by SW-846 Method 9081

Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148774-2 | 280-148774-2 | NYOW-B-SL011-A | 5/18/2021 | CEC |
| 280-148774-2 | 280-148774-3 | NYOW-B-PH011-B | 5/18/2021 | CEC |
| 280-148774-2 | 280-148774-4 | NYOW-B-PH011-C | 5/18/2021 | CEC |
| 280-148774-2 | 280-148774-5 | [1]PH-DUP-001_210518 | 5/18/2021 | CEC |
| 280-148774-2 | 280-148774-6 | NYOW-B-SL007-A | 5/18/2021 | CEC |
| 280-148774-2 | 280-148774-7 | [2]SL-DUP-001_210518 | 5/18/2021 | CEC |
| 280-148774-2 | 280-148774-8 | NYOW-B-PH007-B | 5/18/2021 | CEC |
| 280-148774-2 | 280-148774-9 | NYOW-B-PH007-C | 5/18/2021 | CEC |
| 280-148774-2 | 280-148774-10 | NYOW-B-SL006-A | 5/18/2021 | CEC |
| 280-148774-2 | 280-148774-11 | NYOW-B-PH006-B | 5/18/2021 | CEC |
| 280-148774-2 | 280-148774-12 | NYOW-B-PH006-C | 5/18/2021 | CEC |

[1]PH-DUP-001_210518 collected from NYOW-B-PH011-C
[2]SL-DUP-001_210518 collected from NYOW-B-SL007-A

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's

(EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as “X” should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 1.3°C, 2.3°C, 2.6°C, 3.1°C, and 4.3°C. All requested target analytes were reported.

All samples were analyzed within the holding time period.

The sample ID on one 8-ounce sample container was written as NYOW-B-PH006. The sample was logged as NYOW-B-PH006-B, in accordance with the COC.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | | X |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All sample identification labels are unique and match the COC with the sample ID exception noted above. All results were reported in units of mEq/100g. The samples were reported on a dry weight basis and percent solids data are reported in SDG 280-148774-1.

## COMMENTS

No field blanks were collected as part of this SDG.

Two field duplicate and parent sample pairs were collected and analyzed for CEC (PH-DUP-001_210518 collected from NYOW-B-PH011-C and SL-DUP-001_210518 collected from NYOW-B-SL007-A). The RPD must be less than 50% when at least one result is greater than the LOQ. Neither field duplicate pair met the precision criteria with RPDs equivalent to 78% and 68% for PH-DUP-001_210518 and SL-DUP-001_210518, respectively. The associated sample results are qualified as “J” as shown in the table below.

| Sample | Analyte | Result | Qualifier |
|---|---|---|---|
| PH-DUP-001_210518 | CEC | 1.1 | J |
| NYOW-B-PH011-C | CEC | 2.5 | J |
| SL-DUP-001_210518 | CEC | 19 | J |
| NYOW-B-SL007-A | CEC | 9.4 | J |

All soil sample LOQs met the project quantitation limit goal (PQLG) for CEC.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

| Client Sample ID | Lab Sample ID | Test Method | Analyte Name | CAS | Units | Display Result | Bias | Qualifier | Reason Code |
|---|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH011-C | 280-148774-4 | SW9081 | Cation-Exchange Capacity | | MEQ/100 G | 2.5 | | J | D3 |
| PH-DUP-001_210518 | 280-148774-5 | SW9081 | Cation-Exchange Capacity | | MEQ/100 G | 1.1 | | J | D3 |
| NYOW-B-SL007-A | 280-148774-6 | SW9081 | Cation-Exchange Capacity | | MEQ/100 G | 9.4 | | J | D3 |
| SL-DUP-001_210518 | 280-148774-7 | SW9081 | Cation-Exchange Capacity | | MEQ/100 G | 19 | | J | D3 |

Reason Code Definition

D3 Field Duplicate RPD

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 June 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148318-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the method specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148318-1 | 280-148318-1 | NYOW-B-SL050-A | 5/5/2021 | Grain Size |
| 280-148318-1 | 280-148318-2 | NYOW-B-PH050-B | 5/5/2021 | Grain Size |
| 280-148318-1 | 280-148318-3 | NYOW-B-PH050-C | 5/5/2021 | Grain Size |
| 280-148318-1 | 280-148318-4 | NYOW-B-SL049-A | 5/5/2021 | Grain Size |
| 280-148318-1 | 280-148318-5 | NYOW-B-PH049-B | 5/5/2021 | Grain Size |
| 280-148318-1 | 280-148318-6 | NYOW-B-PH049-C | 5/5/2021 | Grain Size |
| 280-148318-1 | 280-148318-7 | NYOW-B-SL048-A | 5/5/2021 | Grain Size |
| 280-148318-1 | 280-148318-8 | NYOW-B-PH048-B | 5/5/2021 | Grain Size |
| 280-148318-1 | 280-148318-9 | NYOW-B-PH048-C | 5/5/2021 | Grain Size |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January

2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Three coolers were received by the laboratory at temperatures of 1.7°C, 2.7°C, and 3.1°C. All requested target analytes were reported.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field blanks were collected as part of this SDG.

No field duplicates were collected as part of this SDG.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. All data are considered usable, as qualified by the laboratory. No qualifiers were applied as a result of this validation. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148349-1 Revision 1

---

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the method specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148349-1 | 280-148349-1 | NYOW-B-SL047-A | 5/6/2021 | Grain Size |
| 280-148349-1 | 280-148349-2 | [1]SL-DUP-001_210506 | 5/6/2021 | Grain Size |
| 280-148349-1 | 280-148349-3 | NYOW-B-PH047-B | 5/6/2021 | Grain Size |
| 280-148349-1 | 280-148349-4 | NYOW-B-PH047-C | 5/6/2021 | Grain Size |
| 280-148349-1 | 280-148349-5 | NYOW-B-SL046-A | 5/6/2021 | Grain Size |
| 280-148349-1 | 280-148349-6 | NYOW-B-PH046-B | 5/6/2021 | Grain Size |
| 280-148349-1 | 280-148349-7 | NYOW-B-PH046-C | 5/6/2021 | Grain Size |
| 280-148349-1 | 280-148349-8 | [2]PH-DUP-001_210506 | 5/6/2021 | Grain Size |
| 280-148349-1 | 280-148349-9 | NYOW-B-SL045-A | 5/6/2021 | Grain Size |
| 280-148349-1 | 280-148349-10 | NYOW-B-PH045-B | 5/6/2021 | Grain Size |
| 280-148349-1 | 280-148349-11 | NYOW-B-PH045-C | 5/6/2021 | Grain Size |
| 280-148349-1 | 280-148349-12 | NYOW-B-SL044-A | 5/6/2021 | Grain Size |
| 280-148349-1 | 280-148349-13 | NYOW-B-PH044-B | 5/6/2021 | Grain Size |
| 280-148349-1 | 280-148349-14 | NYOW-B-PH044-C | 5/6/2021 | Grain Size |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148349-1 | 280-148349-15 | NYOW-B-SL043-A | 5/6/2021 | Grain Size |
| 280-148349-1 | 280-148349-16 | NYOW-B-PH043-B | 5/6/2021 | Grain Size |
| 280-148349-1 | 280-148349-17 | NYOW-B-PH043-C | 5/6/2021 | Grain Size |
| 280-148349-1 | 280-148349-18 | NYOW-B-SL042-A | 5/6/2021 | Grain Size |
| 280-148349-1 | 280-148349-19 | NYOW-B-PH042-B | 5/6/2021 | Grain Size |
| 280-148349-1 | 280-148349-20 | NYOW-B-PH042-C | 5/6/2021 | Grain Size |

[1]SL-DUP-001_210506 collected from NYOW-B-SL047-A
[2]PH-DUP-001_210506 collected from NYOW-B-PH046-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the

project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Seven coolers were received by the laboratory at temperatures of 1.7°C, 3.4°C, 3.6°C, 3.7°C, 4.3°C, 4.3°C, and 5.5°C. All requested target analytes were reported.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field blanks were collected as part of this SDG.

Two field duplicate and parent sample pairs were collected and analyzed for grain size (SL-DUP-001_210506 collected from NYOW-B-SL047-A and PH-DUP-001_210506 collected from NYOW-B-PH046-C). The RPD must be less than 50% for each soil type. Gravel did not meet the precision criteria for SL-DUP-001_210506 (RPD = 77%). Gravel and coarse sand did not meet the precision criteria for PH-DUP-001_210506 with RPDs of 185% and 112%, respectively. Results greater than 0% are qualified as “J” as shown in the table below:

| Sample | Soil Type | Result | Qualifier |
|---|---|---|---|
| SL-DUP-001_210506 | Gravel | 5.4 | J |
| NYOW-B-SL047-A | Gravel | 2.4 | J |
| PH-DUP-001_210506 | Gravel | 1.0 | J |
| NYOW-B-PH046-C | Gravel | 25 | J |
| PH-DUP-001_210506 | Coarse Sand | 1.3 | J |
| NYOW-B-PH046-C | Coarse Sand | 4.6 | J |

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## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 June 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148421-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the method specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148421-1 | 280-148421-1 | NYOW-B-SL041-A | 5/7/2021 | Grain Size |
| 280-148421-1 | 280-148421-2 | NYOW-B-PH041-B | 5/7/2021 | Grain Size |
| 280-148421-1 | 280-148421-3 | NYOW-B-PH041-C | 5/7/2021 | Grain Size |
| 280-148421-1 | 280-148421-4 | [1]PH-DUP-001_210507 | 5/7/2021 | Grain Size |
| 280-148421-1 | 280-148421-5 | NYOW-B-SL033-A | 5/7/2021 | Grain Size |
| 280-148421-1 | 280-148421-6 | NYOW-B-PH033-B | 5/7/2021 | Grain Size |
| 280-148421-1 | 280-148421-7 | NYOW-B-PH033-C | 5/7/2021 | Grain Size |
| 280-148421-1 | 280-148421-8 | NYOW-B-SL034-A | 5/7/2021 | Grain Size |
| 280-148421-1 | 280-148421-9 | NYOW-B-PH034-B | 5/7/2021 | Grain Size |
| 280-148421-1 | 280-148421-10 | NYOW-B-PH034-C | 5/7/2021 | Grain Size |
| 280-148421-1 | 280-148421-11 | NYOW-B-SL035-A | 5/7/2021 | Grain Size |
| 280-148421-1 | 280-148421-12 | NYOW-B-PH035-B | 5/7/2021 | Grain Size |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148421-1 | 280-148421-13 | NYOW-B-PH035-C | 5/7/2021 | Grain Size |

[1]PH-DUP-001_210507 collected from NYOW-B-PH041-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Four coolers were received by the laboratory at temperatures of 3.7°C, 4.8°C, 5.7°C, and 5.9°C. All requested target analytes were reported.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field blanks were collected as part of this SDG.

One field duplicate and parent sample pair was collected and analyzed for grain size (PH-DUP-001_210507 collected from NYOW-B-PH041-C). The RPD must be less than 50% for each soil type. Gravel did not meet the precision criteria with an RPD of 89%. Results greater than 0% are qualified as “J” as shown in the table below:

| Sample | Soil Type | Result | Qualifier |
|---|---|---|---|
| PH-DUP-001_210507 | Gravel | 0.5 | J |
| NYOW-B-PH041-C | Gravel | 1.3 | J |

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148469-1 Revision 1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the method specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148469-1 | 280-148469-1 | NYOW-B-SL037-A | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-2 | [1]SL-DUP-001_210510 | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-3 | NYOW-B-PH037-B | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-4 | NYOW-B-PH037-C | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-5 | NYOW-B-SL038-A | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-6 | NYOW-B-PH038-B | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-7 | NYOW-B-PH038-C | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-8 | NYOW-B-SL039-A | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-9 | NYOW-B-PH039-B | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-10 | NYOW-B-PH039-C | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-11 | NYOW-B-SL036-A | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-12 | NYOW-B-PH036-B | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-13 | NYOW-B-PH036-C | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-14 | [2]PH-DUP-001_210510 | 5/10/2021 | Grain Size |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148469-1 | 280-148469-15 | NYOW-B-SL021-A | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-16 | NYOW-B-PH021-B | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-17 | NYOW-B-PH021-C | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-18 | [3]PH-DUP-002_210510 | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-19 | NYOW-B-SL026-A | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-20 | NYOW-B-PH026-B | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-21 | NYOW-B-PH026-C | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-22 | [4]PH-DUP-003_210510 | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-23 | NYOW-B-SL022-A | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-24 | NYOW-B-PH022-B | 5/10/2021 | Grain Size |
| 280-148469-1 | 280-148469-25 | NYOW-B-PH022-C | 5/10/2021 | Grain Size |

[1]SL-DUP-001_210510 collected from NYOW-B-SL037-A
[2]PH-DUP-001_210510 collected from NYOW-B-PH036-C
[3]PH-DUP-002_210510 collected from NYOW-B-PH021-C
[4]PH-DUP-003_210510 collected from NYOW-B-PH026-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Seven coolers were received by the laboratory at temperatures of 0.6°C, 0.8°C, 2.1°C, 2.9°C, 3.1°C, 4.0°C, and 4.7°C. All requested target analytes were reported.

The container for sample NYOW-B-PH026-C did not list the sample time. The time was logged in accordance with the COC.

Sample PH-DUP-002_210510 had a cracked lid and appeared as though water had entered the sample container. The laboratory proceeded with analysis. The results for grain size are qualified as "X" and recommended for rejection.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | X | |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | | X |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field blanks were collected as part of this SDG.

Four field duplicate and parent sample pairs were collected and analyzed for grain size (SL-DUP-001_210510 collected from NYOW-B-SL037-A, PH-DUP-001_210510 collected from NYOW-B-PH036-C, PH-DUP-002_210510 collected from NYOW-B-PH021-C, and PH-DUP-003_210510 collected from NYOW-B-PH026-C). The RPD must be less than 50% for each soil type. Gravel

did not meet the precision criteria for PH-DUP-001_210510 (RPD = 77%). Results greater than 0% are qualified as “J” as shown in the table below:

| Sample | Soil Type | Result | Qualifier |
|---|---|---|---|
| PH-DUP-001_210510 | Gravel | 18.7 | J |
| NYOW-B-PH036-C | Gravel | 8.3 | J |
| PH-DUP-002_210510 | All | -- | X |

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. All data are considered usable, as qualified, with the exception of the rejected results. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 96%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148502-1 Revision 2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the method specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148502-1 | 280-148502-1 | NYOW-B-SL023-A | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-2 | NYOW-B-PH023-B | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-3 | NYOW-B-PH023-C | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-4 | NYOW-B-SL040-A | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-5 | NYOW-B-PH040-B | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-6 | NYOW-B-PH040-C | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-7 | NYOW-B-SL028-A | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-8 | NYOW-B-PH028-B | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-9 | NYOW-B-PH028-C | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-10 | NYOW-B-SL024-A | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-11 | NYOW-B-PH024-B | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-12 | NYOW-B-PH024-C | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-13 | NYOW-B-SL025-A | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-14 | NYOW-B-PH025-B | 5/11/2021 | Grain Size |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148502-1 | 280-148502-15 | NYOW-B-PH025-C | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-16 | NYOW-B-SL027-A | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-17 | [1]SL-DUP-001_210511 | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-18 | NYOW-B-PH027-B | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-19 | NYOW-B-PH027-C | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-20 | NYOW-B-SL031-A | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-21 | NYOW-B-PH031-B | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-22 | NYOW-B-PH031-C | 5/11/2021 | Grain Size |
| 280-148502-1 | 280-148502-23 | [2] PH-DUP-001_210511 | 5/11/2021 | Grain Size |

[1]SL-DUP-001_210511 collected from NYOW-B-SL027-A
[2]PH-DUP-001_210511 collected from NYOW-B-PH031-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Seven coolers were received by the laboratory at temperatures of 0.4°C, 1.2°C, 1.4°C, 2.2°C, 2.8°C, 3.0°C, and 3.8°C. All requested target analytes were reported.

Samples NYOW-B-PH024-C and NYOW-B-PH025-B appeared as though cooler water had entered the sample container. The laboratory proceeded with analysis. The results for grain size are qualified as "X" and recommended for rejection.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | X | |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field blanks were collected as part of this SDG.

Two field duplicate and parent sample pairs were collected and analyzed for grain size (SL-DUP-001_210511 collected from NYOW-B-SL027-A and PH-DUP-001_210511 collected from NYOW-B-PH031-C). The RPD must be less than 50% for each soil type. Gravel and silt did not meet the precision criteria for PH-DUP-001_210511 with RPDs of 57% and 70%, respectively. Results greater than 0% are qualified as "J". All qualified results are presented in the table below:

| Sample | Soil Type | Result | Qualifier |
|---|---|---|---|
| PH-DUP-001_210511 | Gravel | 40.6 | J |
| NYOW-B-PH031-C | Gravel | 22.7 | J |
| PH-DUP-001_210511 | Silt | 7.2 | J |
| NYOW-B-PH031-C | Silt | 14.9 | J |
| NYOW-B-PH024-C | All | -- | X |

| Sample | Soil Type | Result | Qualifier |
|---|---|---|---|
| NYOW-B-PH025-B | All | -- | X |

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. All data are considered usable, as qualified, with the exception of the rejected results. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 91%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148579-1 Revision 2

---

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the method specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148579-1 | 280-148579-1 | NYOW-B-SL029-A | 5/12/2021 | Grain Size |
| 280-148579-1 | 280-148579-2 | NYOW-B-PH029-B | 5/12/2021 | Grain Size |
| 280-148579-1 | 280-148579-3 | NYOW-B-PH029-C | 5/12/2021 | Grain Size |
| 280-148579-1 | 280-148579-4 | NYOW-B-SL030-A | 5/12/2021 | Grain Size |
| 280-148579-1 | 280-148579-5 | NYOW-B-PH030-B | 5/12/2021 | Grain Size |
| 280-148579-1 | 280-148579-6 | NYOW-B-PH030-C | 5/12/2021 | Grain Size |
| 280-148579-1 | 280-148579-7 | NYOW-B-SL032-A | 5/12/2021 | Grain Size |
| 280-148579-1 | 280-148579-8 | NYOW-B-PH032-B | 5/12/2021 | Grain Size |
| 280-148579-1 | 280-148579-9 | NYOW-B-PH032-C | 5/12/2021 | Grain Size |
| 280-148579-1 | 280-148579-10 | NYOW-B-SL012-A | 5/12/2021 | Grain Size |
| 280-148579-1 | 280-148579-11 | NYOW-B-PH012-B | 5/12/2021 | Grain Size |
| 280-148579-1 | 280-148579-12 | NYOW-B-PH012-C | 5/12/2021 | Grain Size |
| 280-148579-1 | 280-148579-13 | NYOW-B-SL013-A | 5/12/2021 | Grain Size |
| 280-148579-1 | 280-148579-14 | NYOW-B-PH013-B | 5/12/2021 | Grain Size |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148579-1 | 280-148579-15 | NYOW-B-PH013-C | 5/12/2021 | Grain Size |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 2.0°C, 3.0°C, 3.7°C, 4.3°C, and 4.7°C. All requested target analytes were reported.

Sample NYOW-B-PH030-C was received with a broken lid which was replaced at receipt. The contents did not appear to be compromised and the laboratory proceeded with the analysis.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | X | |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field blanks were collected as part of this SDG.

No field duplicates were collected as part of this SDG.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. All data are considered usable, as qualified by the laboratory. No qualifiers were applied as a result of this validation. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 June 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148629-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the method specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148629-1 | 280-148629-1 | NYOW-B-SL016-A | 5/13/2021 | Grain Size |
| 280-148629-1 | 280-148629-2 | NYOW-B-PH016-B | 5/13/2021 | Grain Size |
| 280-148629-1 | 280-148629-3 | NYOW-B-PH016-C | 5/13/2021 | Grain Size |
| 280-148629-1 | 280-148629-4 | NYOW-B-SL019-A | 5/13/2021 | Grain Size |
| 280-148629-1 | 280-148629-5 | NYOW-B-PH019-B | 5/13/2021 | Grain Size |
| 280-148629-1 | 280-148629-6 | NYOW-B-PH019-C | 5/13/2021 | Grain Size |
| 280-148629-1 | 280-148629-7 | NYOW-B-SL015-A | 5/13/2021 | Grain Size |
| 280-148629-1 | 280-148629-8 | NYOW-B-PH015-B | 5/13/2021 | Grain Size |
| 280-148629-1 | 280-148629-9 | NYOW-B-PH015-C | 5/13/2021 | Grain Size |
| 280-148629-1 | 280-148629-10 | NYOW-B-SL017-A | 5/13/2021 | Grain Size |
| 280-148629-1 | 280-148629-11 | [1]SL-DUP-001_210513 | 5/13/2021 | Grain Size |
| 280-148629-1 | 280-148629-12 | NYOW-B-PH017-B | 5/13/2021 | Grain Size |
| 280-148629-1 | 280-148629-13 | NYOW-B-PH017-C | 5/13/2021 | Grain Size |
| 280-148629-1 | 280-148629-14 | NYOW-B-SL018-A | 5/13/2021 | Grain Size |

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148629-1 | 280-148629-15 | NYOW-B-PH018-B | 5/13/2021 | Grain Size |
| 280-148629-1 | 280-148629-16 | [2]PH-DUP-001_210513 | 5/13/2021 | Grain Size |
| 280-148629-1 | 280-148629-17 | NYOW-B-PH018-C | 5/13/2021 | Grain Size |
| 280-148629-1 | 280-148629-18 | [3]PH-DUP-002_210513 | 5/13/2021 | Grain Size |

[1]SL-DUP-001_210513 collected from NYOW-B-SL017-A
[2]PH-DUP-001_210513 collected from NYOW-B-PH018-B
[3]PH-DUP-002_210513 collected from NYOW-B-PH018-C

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Seven coolers were received by the laboratory at temperatures of 0.7°C, 2.0°C, 3.5°C, 3.6°C, 3.7°C, 4.8°C, and 5.3°C. All requested target analytes were reported.

Sample SL-DUP-001_210513 had the date at the end of the sample ID written in a different order than the COC. The sample was logged in accordance with the COC.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | | X |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field blanks were collected as part of this SDG.

Three field duplicate and parent sample pairs were collected and analyzed for grain size (SL-DUP-001_210513 collected from NYOW-B-SL017-A, PH-DUP-001_210513 collected from NYOW-B-PH018-B, and PH-DUP-002_210513 collected from NYOW-B-PH018-C). The RPD must be less than 50% for each soil type.

Coarse sand did not meet the precision criteria for SL-DUP-001_210513 and PH-DUP-001_210513 with RPDs of 120% and 100%, respectively. Coase sand and medium sand did not meet the precision criteria for PH-DUP-002_210513 at 200% and 74%, respectively  Results greater than 0% are qualified as “J”  and results reported as equal to 0% are qualified as “UJ” as shown in the table below:

| Sample | Soil Type | Result | Qualifier |
|---|---|---|---|
| SL-DUP-001_210513 | Coarse Sand | 0.1 | J |
| NYOW-B-SL017-A | Coarse Sand | 0.4 | J |
| PH-DUP-001_210513 | Coarse Sand | 0.3 | J |
| NYOW-B-PH018-B | Coarse Sand | 0.1 | J |
| PH-DUP-002_210513 | Coarse Sand | 0.4 | J |
| NYOW-B-PH018-C | Coarse Sand | 0 | UJ |
| PH-DUP-002_210513 | Medium Sand | 1.3 | J |
| NYOW-B-PH018-C | Medium Sand | 0.6 | J |

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## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. All data are considered usable, as qualified. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 June 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148679-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the method specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148679-1 | 280-148679-1 | NYOW-B-SL020-A | 5/14/2021 | Grain Size |
| 280-148679-1 | 280-148679-2 | NYOW-B-PH020-B | 5/14/2021 | Grain Size |
| 280-148679-1 | 280-148679-3 | NYOW-B-PH020-C | 5/14/2021 | Grain Size |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and

include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Two coolers were received by the laboratory at temperatures of 1.8°C and 1.8°C. All requested target analytes were reported.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field blanks were collected as part of this SDG.

No field duplicates were collected as part of this SDG.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. All data are considered usable, as qualified by the laboratory. No qualifiers were applied as a result of this validation. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 July 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148719-1 Revision 2

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the method specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148719-1 | 280-148719-1 | NYOW-B-SL014-A | 5/17/2021 | Grain Size |
| 280-148719-1 | 280-148719-2 | NYOW-B-PH014-B | 5/17/2021 | Grain Size |
| 280-148719-1 | 280-148719-3 | NYOW-B-PH014-C | 5/17/2021 | Grain Size |
| 280-148719-1 | 280-148719-4 | NYOW-B-SL010-A | 5/17/2021 | Grain Size |
| 280-148719-1 | 280-148719-5 | NYOW-B-PH010-B | 5/17/2021 | Grain Size |
| 280-148719-1 | 280-148719-6 | NYOW-B-PH010-C | 5/17/2021 | Grain Size |
| 280-148719-1 | 280-148719-7 | NYOW-B-SL009-A | 5/17/2021 | Grain Size |
| 280-148719-1 | 280-148719-8 | NYOW-B-PH009-B | 5/17/2021 | Grain Size |
| 280-148719-1 | 280-148719-9 | NYOW-B-PH009-C | 5/17/2021 | Grain Size |
| 280-148719-1 | 280-148719-10 | NYOW-B-SL008-A | 5/17/2021 | Grain Size |
| 280-148719-1 | 280-148719-11 | NYOW-B-PH008-B | 5/17/2021 | Grain Size |
| 280-148719-1 | 280-148719-12 | NYOW-B-PH008-C | 5/17/2021 | Grain Size |

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's (EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

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**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 1.9°C, 3.1°C, 3.6°C, 3.7°C, and 4.7°C. All requested target analytes were reported.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |

| Verification Criteria | Yes | No |
|---|---|---|
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | X | |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

**SAMPLE RESULTS**

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No project action limits or detection limits are associated with Grain Size Distribution.

**COMMENTS**

No field blanks were collected as part of this SDG.

No field duplicates were collected as part of this SDG.

**OVERALL ASSESSMENT OF THE DATA**

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. All data are considered usable, as qualified by the laboratory. No qualifiers were applied as a result of this validation. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

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# DATA VALIDATION REPORT

**TO:** Michael Badeau, Bluestone Environmental Group

**FROM:** Emily Strake, Bluestone Environmental Group

**DATE:** 14 June 2021

**SUBJECT:** New York Ordnance Works Soil S1VM: 280-148770-1

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This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in May 2021 by Bluestone Environmental Group, Inc. (Bluestone) at the New York Ordnance Works site located in Baldwinsville, NY (the Site). The samples were analyzed by Eurofins TestAmerica (Eurofins), of Seattle, WA (Certification #L2236) by the method specified below.

- ASTM D422, Grain Size Distribution

Grain Size Distribution is a non-accredited analytical parameter at Eurofins Seattle location. Table 1, below, summarizes the sample delivery group (SDG), laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review. All requested target analytes were reported.

**TABLE 1: SAMPLE SUMMARY**

| SDG | Laboratory Sample ID | Client Sample ID | Sample Date | Analytical Parameters |
|---|---|---|---|---|
| 280-148770-1 | 280-148770-1 | NYOW-B-SL011-A | 5/18/2021 | Grain Size |
| 280-148770-1 | 280-148770-2 | NYOW-B-PH011-B | 5/18/2021 | Grain Size |
| 280-148770-1 | 280-148770-3 | NYOW-B-PH011-C | 5/18/2021 | Grain Size |
| 280-148770-1 | 280-148770-4 | [1]PH-DUP-001_210518 | 5/18/2021 | Grain Size |
| 280-148770-1 | 280-148770-5 | NYOW-B-PH007-B | 5/18/2021 | Grain Size |
| 280-148770-1 | 280-148770-6 | NYOW-B-PH007-C | 5/18/2021 | Grain Size |
| 280-148770-1 | 280-148770-7 | NYOW-B-SL007-A | 5/18/2021 | Grain Size |
| 280-148770-1 | 280-148770-8 | [2]SL-DUP-001_210518 | 5/18/2021 | Grain Size |
| 280-148770-1 | 280-148770-9 | NYOW-B-SL006-A | 5/18/2021 | Grain Size |
| 280-148770-1 | 280-148770-10 | NYOW-B-PH006-B | 5/18/2021 | Grain Size |
| 280-148770-1 | 280-148770-11 | NYOW-B-PH006-C | 5/18/2021 | Grain Size |

[1]PH-DUP-001_210518 collected from NYOW-B-PH011-C
[2]SL-DUP-001_210518 collected from NYOW-B-SL007-A

## VALIDATION OVERVIEW

This data validation was performed in accordance with the U.S. Department of Defense *General Data Validation Guidelines* (September 16, 2019), the U.S. Environmental Protection Agency's

(EPA) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2017), the *Uniform Federal Policy Quality Assurance Project Plan* (December 2020), and the specifics of the method employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. The items subject to review are consistent with Stage 1 manual validation (S1VM) and include review of sample results forms, holding times, preservation, sample documentation (including the chain of custody form) and field quality control.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the General Data Validation Guidelines and best professional judgment:

**U –** The analyte was not detected and was reported as less than the limit of detection (LOD).

**J –** The reported result was an estimated value with an unknown bias.

**J+ –** The result was an estimated quantity, and the result may be biased high.

**J- –** The result was an estimated quantity, and the result may be biased low.

**UJ –** The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**X –** The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

If any validation qualifiers are assigned, these qualifiers supersede laboratory-applied qualifiers. Data that are not qualified as a result of this data validation are considered acceptable on the basis of the items subject to review. Data that are qualified as "X" should be reviewed by the project team to determine if the data should be accepted or rejected. Data that are otherwise qualified due to minor data quality anomalies are usable, as qualified.

## SAMPLE RECEIPT, HOLDING TIMES, AND PRESERVATION

The investigative samples were received in good condition, properly preserved on ice. Five coolers were received by the laboratory at temperatures of 1.3°C, 2.3°C, 2.6°C, 3.1°C, and 4.3°C. All requested target analytes were reported.

Sample SL-DUP-001_210518 had the sample date listed as 5/17/21 on the container; however, the COC listed 5/18/21. The correct sample date is 5/18/21 and the sample was logged in accordance with the COC.

Sample NYOW-B-PH011-C did not have a date or time listed on the container. The sample was logged in accordance with the COC.

Sample NYOW-B-PH006-B was labeled on the container as sample “PH006-B”. The sample was logged in accordance with the COC.

## CASE NARRATIVE AND SAMPLE DOCUMENTATION CHECKLIST

| Verification Criteria | Yes | No |
|---|---|---|
| Were issues noted with sample receipt? | | X |
| Were all samples documented correctly on the COC? | X | |
| Did samples listed on the COC match the sample labels? | | X |
| Were samples relinquished properly on the COC? | X | |
| Were all samples properly preserved? | X | |
| Were all samples analyzed within the specified holding time? | X | |

## SAMPLE RESULTS

All project parameters identified in the QAPP and listed on the COC were analyzed and reported. The reported units (%) are accurate and reflect the project requirements. No project action limits or detection limits are associated with Grain Size Distribution.

## COMMENTS

No field blanks were collected as part of this SDG.

Two field duplicate and parent sample pairs were collected and analyzed for grain size (PH-DUP-001_210518 collected from NYOW-B-PH011-C and SL-DUP-001_210518 collected from NYOW-B-SL007-A). The RPD must be less than 50% for each soil type. All soil types met the precision criteria for each field duplicate and parent sample pair.

## OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory appears to have followed the specified analytical method. All data are considered usable, as qualified by the laboratory. No qualifiers were applied as a result of this validation. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Technical Director/Chemist

**Data Validation Report for 280-148313-1_52_2a_FUDSChem**

| | |
|---|---|
| Facility: | C02NY0290-01, New York Ordnance Works, Limited RI |
| Event: | 2021 Sampling - Background |
| SDG: | 280-148313-1_52_2a_FUDSChem |
| Guidance Document: | Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works |
| Prime Contractor: | Bluestone Environmental Group, Inc., Malvern, PA |
| Project Manager: | Mike Badeau |
| Contract Laboratory(ies): | Eurofins Environment Testing TestAmerica, Arvada, CO |
| Data Review Contractor: | Bluestone |
| Data Review Level: | S2BVEM |
| Primary Data Reviewer: | Emily Strake, Technical Director/ Data Validator |
| Date Submitted: | August 12, 2021 |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6020A | SW7470A | SW7471B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH048-B | 280-148313-8 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH048-C | 280-148313-9 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH049-B | 280-148313-5 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH049-C | 280-148313-6 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH050-B | 280-148313-2 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH050-C | 280-148313-3 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL048-A | 280-148313-7 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL049-A | 280-148313-4 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL050-A | 280-148313-1 | Solid | Field Sample/N | X | X | X | X | | X | X |
| EB-01_210505 | 280-148313-10 | Water | Equipment Blank/EB | X | | X | X | X | | |

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page at S2BVEM data validation level. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works and the additional guidance documents incorporated by reference to the extent possible. Where definitive guidance is not provided, results have been evaluated in a conservative manner using professional judgment.

Sample collection was managed and directed by Bluestone Environmental Group, Inc., Malvern, PA; analyses were performed by Eurofins Environment Testing TestAmerica, Arvada, CO and were reported under sample delivery group (SDG) 280-148313-1_52_2a_FUDSChem. Data have been evaluated electronically based on electronic data deliverables (EDDs) provided by the laboratory, and hard copy data summary forms have also been reviewed during this effort and compared to the automated review output by the reviewers whose signatures appear on the following page. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative and throughout this report.

All quality control (QC) elements associated with this SDG have been reviewed by a project chemist in accordance with the requirements defined for the project. This review is documented in the attached Data Review Checklists. The QC elements listed below were supported by the electronic deliverable and were evaluated using ADR processes.

- Blank - Negative
- Equipment Blank
- Lab Blank
- Lab Replicate RPD
- LCS Recovery
- LCS RPD
- MS Recovery
- MS RPD
- Prep Hold Time
- Surrogate
- Test Hold Time

Results of the ADR process were subsequently reviewed and updated as applicable by the data review chemists identified on the signature page. Quality control elements that were not included in the electronic deliverable were reviewed manually and findings are documented within this report. Summaries of findings and associated qualified results are documented throughout this report.

A total of 183 results (42.76%) out of the 428 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected or deemed a serious deficiency (X qualifier). Trace values, defined as results that are qualified as estimated because they fall between the detection limit and the reporting limit/limit of quantitation, are not counted as qualified results in the above count. The qualified results are detailed throughout this report and discussed in the narrative below, where appropriate.

Narrative Comments

The samples were received on 5/6/2021 9:45 AM.
The temperatures of the 3 coolers at receipt time were 1.7ºC, 2.7ºC and 3.1ºC. Samples sent to Eurofins Seattle for TOC analysis arrived at temperatures of 4.2ºC and 3.3ºC.

| Analytical Method | Data Reviewer Comment |
|---|---|
| BNASIMD | Samples NYOW-B-SL050-A[4X], NYOW-B-PH049-B[10X] and NYOW-B-SL048-A[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly. The following samples in preparation batch 280-536786 and analytical batch 280-537438 were diluted to bring the concentration of target analytes within the calibration range: NYOW-B-SL050-A and NYOW-B-PH049-B. |
| SW6010C | No additional comments; see Checklist for detail. |
| SW6020A | No additional comments; see Checklist for detail. |
| SW7470A | No additional comments; see Checklist for detail. |
| SW7471B | No additional comments; see Checklist for detail. |
| SW9060A | No additional comments; see Checklist for detail. |

August 12, 2021

Reviewed by Emily Strake, Technical Director/ Data Validator, Bluestone

As the Reviewer, I certify that I have performed a data review process in accordance with the requirements of the project guidance document, and have compared the electronic data to the laboratory's hard copy report and have verified the consistency of the reported sample results and method quality control data between the two deliverables.

**Quality Control Outliers for test method BNASIMD, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-536786/1-A (LB)/ MB 280-536786/1-A | Benzo (a)anthracene | 4.330 | < 1.8 | < 10 | ug/kg | U/None* | L | |
| MB 280-536786/1-A (LB)/ MB 280-536786/1-A | Benzo(a)pyrene | 2.330 | < 1.5 | < 10 | ug/kg | U/None* | L | |
| MB 280-536786/1-A (LB)/ MB 280-536786/1-A | Benzo (b)fluoranthene | 2.580 | < 2.4 | < 10 | ug/kg | U/None* | L | |
| MB 280-536786/1-A (LB)/ MB 280-536786/1-A | Chrysene | 12.50 | < 2 | < 10 | ug/kg | U/None* | L | |
| MB 280-536786/1-A (LB)/ MB 280-536786/1-A | Fluoranthene | 3.080 | < 2 | < 10 | ug/kg | U/None* | L | |
| MB 280-536786/1-A (LB)/ MB 280-536786/1-A | Pyrene | 4.570 | < 2.2 | < 10 | ug/kg | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method BNASIMD, LCS Recovery**

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 280-535528/3-A (BD)/ LCSD 280-535528/3-A | Naphthalene | 139.8 | 38 - 111 | 10 - 200 | percent | J/None | C | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the LCS Recovery for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH048-B | N | Naphthalene | 10.0 | 1.20 J Q | 1.20 J | | ug/kg | C/Z/I/TR |
| NYOW-B-PH048-C | N | Naphthalene | 9.80 | 24.0 Q | 24.0 J | | ug/kg | C/Z/I |
| NYOW-B-PH049-B | N | Naphthalene | 10.0 | 0.870 J Q M | 0.870 J | + | ug/kg | C/Z/TR |
| NYOW-B-PH050-B | N | Naphthalene | 10.0 | 5.80 J Q | 5.80 J | + | ug/kg | C/Z/TR |
| NYOW-B-SL048-A | N | Naphthalene | 11.0 | 12.0 Q | 12.0 J | | ug/kg | C/Z/I |
| NYOW-B-SL050-A | N | Naphthalene | 11.0 | 32.0 Q | 32.0 J | + | ug/kg | C/Z |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, LCS RPD**

The objective of laboratory control sample/laboratory control sample duplicate (LCS/LCSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. LCS/LCSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Laboratory control sample/laboratory control sample duplicate RPD results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 280-536125/3-A (BD)/ LCSD 280-536125/3-A | 1-Methylnaphthalene | 0.1480 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536125/3-A (BD)/ LCSD 280-536125/3-A | Acenaphthene | 0.1710 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536125/3-A (BD)/ LCSD 280-536125/3-A | Fluorene | 0.1590 | < 0.1 | < 0.1 | ug/l | J/None | Z | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method BNASIMD, LCS RPD**

The objective of laboratory control sample/laboratory control sample duplicate (LCS/LCSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. LCS/LCSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Laboratory control sample/laboratory control sample duplicate RPD results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 280-535528/3-A (BD)/ LCSD 280-535528/3-A | Naphthalene | 47.30 | < 10 | < 10 | ug/kg | J/None | Z | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the LCS RPD for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH048-B | N | Naphthalene | 10.0 | 1.20 J Q | 1.20 J | | ug/kg | C/Z/I/TR |
| NYOW-B-PH048-C | N | Naphthalene | 9.80 | 24.0 Q | 24.0 J | | ug/kg | C/Z/I |
| NYOW-B-PH049-B | N | Naphthalene | 10.0 | 0.870 J Q M | 0.870 J | + | ug/kg | C/Z/TR |
| NYOW-B-PH050-B | N | Naphthalene | 10.0 | 5.80 J Q | 5.80 J | + | ug/kg | C/Z/TR |
| NYOW-B-SL048-A | N | Naphthalene | 11.0 | 12.0 Q | 12.0 J | | ug/kg | C/Z/I |
| NYOW-B-SL050-A | N | Naphthalene | 11.0 | 32.0 Q | 32.0 J | + | ug/kg | C/Z |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH048-B (MS)/ 280-148313-8MS | Fluoranthene | 119.7 | 55 - 119 | 10 - 200 | percent | J/None | M | |
| NYOW-B-PH048-B (MS)/ 280-148313-8MS | Pyrene | 119.1 | 55 - 117 | 10 - 200 | percent | J/None | M | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH048-B | N | Fluoranthene | 10.0 | 15.0 J1 | 15.0 J | | ug/kg | M/I |
| NYOW-B-PH048-B | N | Pyrene | 10.0 | 16.0 J1 | 16.0 J | | ug/kg | M/I |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, Prep Hold Time**

Hold times are ascertained based on project requirements. Holding times were determined by comparing the chain of custody records with the dates of extraction found in the electronic data deliverable and laboratory summary forms. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-01_210505 (EB)/ 280-148313-10 | | 8.230 | < 7 | < 14 | days | J/UJ | H2 | Prep Exceeds UWL |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Prep Hold Time for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| EB-01_210505 | EB | 1-Methylnaphthalene | 0.100 | 0.0400 U H Q | 0.0400 UJ | | ug/l | H2 |
| EB-01_210505 | EB | 2-Methylnaphthalene | 0.100 | 0.0510 U H Q | 0.0510 UJ | | ug/l | H2 |
| EB-01_210505 | EB | Acenaphthene | 0.100 | 0.0120 U H Q | 0.0120 UJ | | ug/l | H2 |
| EB-01_210505 | EB | Acenaphthylene | 0.100 | 0.0200 U H Q | 0.0200 UJ | | ug/l | H2 |
| EB-01_210505 | EB | Anthracene | 0.100 | 0.100 U H Q | 0.100 UJ | | ug/l | H2 |
| EB-01_210505 | EB | Benzo(a)anthracene | 0.100 | 0.100 U H | 0.100 UJ | | ug/l | H2 |
| EB-01_210505 | EB | Benzo(a)pyrene | 0.100 | 0.0510 U M H | 0.0510 UJ | | ug/l | H2 |
| EB-01_210505 | EB | Benzo(b)fluoranthene | 0.100 | 0.100 U M H | 0.100 UJ | | ug/l | H2 |
| EB-01_210505 | EB | Benzo(g,h,i)perylene | 0.100 | 0.100 U H | 0.100 UJ | | ug/l | H2 |
| EB-01_210505 | EB | Benzo(k)fluoranthene | 0.100 | 0.0510 U H | 0.0510 UJ | | ug/l | H2 |
| EB-01_210505 | EB | Chrysene | 0.100 | 0.100 U H | 0.100 UJ | | ug/l | H2 |
| EB-01_210505 | EB | Dibenz(a,h)anthracene | 0.100 | 0.100 U H Q | 0.100 UJ | | ug/l | H2/V2 |
| EB-01_210505 | EB | Fluoranthene | 0.100 | 0.100 U H | 0.100 UJ | | ug/l | H2 |
| EB-01_210505 | EB | Fluorene | 0.100 | 0.0400 U H Q | 0.0400 UJ | | ug/l | H2 |
| EB-01_210505 | EB | Indeno(1,2,3-c,d)pyrene | 0.100 | 0.100 U M H | 0.100 UJ | | ug/l | H2 |
| EB-01_210505 | EB | Naphthalene | 0.100 | 0.0510 U H Q | 0.0510 UJ | | ug/l | H2 |
| EB-01_210505 | EB | Phenanthrene | 0.100 | 0.100 U H Q | 0.100 UJ | | ug/l | H2 |
| EB-01_210505 | EB | Pyrene | 0.100 | 0.100 U H | 0.100 UJ | | ug/l | H2 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, Prep Hold Time**

Hold times are ascertained based on project requirements. Holding times were determined by comparing the chain of custody records with the dates of extraction found in the electronic data deliverable and laboratory summary forms. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH048-B (N)/ 280-148313-8 | | 14.84 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-PH048-B (N)/ 280-148313-8MS | | 14.84 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-PH048-B (N)/ 280-148313-8MSD | | 14.84 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-PH048-C (N)/ 280-148313-9 | | 14.83 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-PH049-B (N)/ 280-148313-5 | | 14.87 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-PH049-B (N)/ 280-148313-5 | | 14.87 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-PH050-B (N)/ 280-148313-2 | | 14.95 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-SL048-A (N)/ 280-148313-7 | | 14.84 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-SL048-A (N)/ 280-148313-7 | | 14.84 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-SL050-A (N)/ 280-148313-1 | | 14.95 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-SL050-A (N)/ 280-148313-1 | | 14.95 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method BNASIMD, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH048-B (N)/ 280-148313-8 | Nitrobenzene-d5 | 41.00 | 44 - 125 | 10 - 125 | percent | J/UJ | I | |
| NYOW-B-PH048-C (N)/ 280-148313-9 | 2-Fluorobiphenyl | 40.00 | 46 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-B-PH048-C (N)/ 280-148313-9 | Nitrobenzene-d5 | 38.00 | 44 - 125 | 10 - 125 | percent | J/UJ | I | |
| NYOW-B-PH049-C (N)/ 280-148313-6 | Fluoranthene-d10 | 105.0 | 55 - 101 | 10 - 101 | percent | J/None | I | |
| NYOW-B-PH050-C (N)/ 280-148313-3 | 2-Fluorobiphenyl | 40.00 | 46 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-B-PH050-C (N)/ 280-148313-3 | Nitrobenzene-d5 | 37.00 | 44 - 125 | 10 - 125 | percent | J/UJ | I | |
| NYOW-B-SL048-A (N)/ 280-148313-7 | Nitrobenzene-d5 | 37.00 | 44 - 125 | 10 - 125 | percent | J/UJ | I | |
| NYOW-B-SL048-A (N)/ 280-148313-7 | Fluoranthene-d10 | 103.0 | 55 - 101 | 10 - 101 | percent | J/None | I | Diluted Out |
| NYOW-B-SL049-A (N)/ 280-148313-4 | 2-Fluorobiphenyl | 43.00 | 46 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-B-SL050-A (N)/ 280-148313-1 | Nitrobenzene-d5 | 32.00 | 44 - 125 | 10 - 125 | percent | J/UJ | I | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH048-B | N | 1-Methylnaphthalene | 10.0 | 0.770 J Q | 0.770 J | - | ug/kg | I/TR |
| NYOW-B-PH048-B | N | 2-Methylnaphthalene | 10.0 | 0.860 J Q | 0.860 J | - | ug/kg | I/TR |
| NYOW-B-PH048-B | N | Acenaphthene | 10.0 | 1.10 U Q | 1.10 UJ | | ug/kg | I |
| NYOW-B-PH048-B | N | Acenaphthylene | 10.0 | 4.20 J | 4.20 J | - | ug/kg | I/TR |
| NYOW-B-PH048-B | N | Anthracene | 10.0 | 2.50 J | 2.50 J | - | ug/kg | I/TR |
| NYOW-B-PH048-B | N | Benzo(a)anthracene | 10.0 | 9.90 J | 9.90 J | - | ug/kg | I/TR |
| NYOW-B-PH048-B | N | Benzo(a)pyrene | 10.0 | 13.0 | 13.0 J | - | ug/kg | I |
| NYOW-B-PH048-B | N | Benzo(b)fluoranthene | 10.0 | 18.0 | 18.0 J | - | ug/kg | I |
| NYOW-B-PH048-B | N | Benzo(g,h,i)perylene | 10.0 | 11.0 | 11.0 J | - | ug/kg | I |
| NYOW-B-PH048-B | N | Benzo(k)fluoranthene | 10.0 | 5.50 J | 5.50 J | - | ug/kg | I/TR |
| NYOW-B-PH048-B | N | Chrysene | 10.0 | 13.0 | 13.0 J | - | ug/kg | I |
| NYOW-B-PH048-B | N | Dibenz(a,h)anthracene | 10.0 | 3.50 J | 3.50 J | - | ug/kg | I/TR |
| NYOW-B-PH048-B | N | Fluoranthene | 10.0 | 15.0 J1 | 15.0 J | | ug/kg | M/I |
| NYOW-B-PH048-B | N | Fluorene | 10.0 | 1.10 J | 1.10 J | - | ug/kg | I/TR |
| NYOW-B-PH048-B | N | Indeno(1,2,3-c,d)pyrene | 10.0 | 13.0 | 13.0 J | - | ug/kg | I |
| NYOW-B-PH048-B | N | Naphthalene | 10.0 | 1.20 J Q | 1.20 J | | ug/kg | C/Z/I/TR |
| NYOW-B-PH048-B | N | Phenanthrene | 10.0 | 6.70 J Q | 6.70 J | - | ug/kg | I/TR |

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH048-B | N | Pyrene | 10.0 | 16.0 J1 | 16.0 J | | ug/kg | M/I |
| NYOW-B-PH048-C | N | 1-Methylnaphthalene | 9.80 | 1.80 J Q | 1.80 J | - | ug/kg | I/TR |
| NYOW-B-PH048-C | N | 2-Methylnaphthalene | 9.80 | 4.10 J Q | 4.10 J | - | ug/kg | I/TR |
| NYOW-B-PH048-C | N | Acenaphthene | 9.80 | 0.600 J Q | 0.600 J | - | ug/kg | I/TR |
| NYOW-B-PH048-C | N | Acenaphthylene | 9.80 | 0.390 J Q M | 0.390 J | - | ug/kg | I/TR |
| NYOW-B-PH048-C | N | Anthracene | 9.80 | 4.20 U Q M | 4.20 UJ | | ug/kg | I |
| NYOW-B-PH048-C | N | Benzo(a)anthracene | 9.80 | 4.20 U M | 4.20 UJ | | ug/kg | I |
| NYOW-B-PH048-C | N | Benzo(a)pyrene | 9.80 | 4.20 U M | 4.20 UJ | | ug/kg | I |
| NYOW-B-PH048-C | N | Benzo(b)fluoranthene | 9.80 | 2.30 J | 2.30 J | - | ug/kg | I/TR |
| NYOW-B-PH048-C | N | Benzo(g,h,i)perylene | 9.80 | 6.50 U M | 6.50 UJ | | ug/kg | I |
| NYOW-B-PH048-C | N | Benzo(k)fluoranthene | 9.80 | 4.20 U M | 4.20 UJ | | ug/kg | I |
| NYOW-B-PH048-C | N | Chrysene | 9.80 | 2.00 J | 2.00 J | - | ug/kg | I/TR |
| NYOW-B-PH048-C | N | Dibenz(a,h)anthracene | 9.80 | 6.50 U M | 6.50 UJ | | ug/kg | I |
| NYOW-B-PH048-C | N | Fluoranthene | 9.80 | 4.20 U Q | 4.20 UJ | | ug/kg | I |
| NYOW-B-PH048-C | N | Fluorene | 9.80 | 2.60 U Q | 2.60 UJ | | ug/kg | I |
| NYOW-B-PH048-C | N | Indeno(1,2,3-c,d)pyrene | 9.80 | 6.50 U M | 6.50 UJ | | ug/kg | I |
| NYOW-B-PH048-C | N | Naphthalene | 9.80 | 24.0 Q | 24.0 J | | ug/kg | C/Z/I |
| NYOW-B-PH048-C | N | Phenanthrene | 9.80 | 6.50 U Q M | 6.50 UJ | | ug/kg | I |
| NYOW-B-PH048-C | N | Pyrene | 9.80 | 6.50 U Q | 6.50 UJ | | ug/kg | I |
| NYOW-B-PH050-C | N | 1-Methylnaphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH050-C | N | 2-Methylnaphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH050-C | N | Acenaphthene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH050-C | N | Acenaphthylene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH050-C | N | Anthracene | 11.0 | 4.70 U Q M | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH050-C | N | Benzo(a)anthracene | 11.0 | 4.70 U M | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH050-C | N | Benzo(a)pyrene | 11.0 | 4.70 U M | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH050-C | N | Benzo(b)fluoranthene | 11.0 | 7.30 U | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH050-C | N | Benzo(g,h,i)perylene | 11.0 | 7.30 U M | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH050-C | N | Benzo(k)fluoranthene | 11.0 | 4.70 U M | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH050-C | N | Chrysene | 11.0 | 3.10 J M | 3.10 J | - | ug/kg | I/TR |
| NYOW-B-PH050-C | N | Dibenz(a,h)anthracene | 11.0 | 7.30 U M | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH050-C | N | Fluoranthene | 11.0 | 4.70 U Q | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH050-C | N | Fluorene | 11.0 | 2.90 U Q M | 2.90 UJ | | ug/kg | I |
| NYOW-B-PH050-C | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.30 U M | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH050-C | N | Naphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH050-C | N | Phenanthrene | 11.0 | 3.30 J Q | 3.30 J | - | ug/kg | I/TR |
| NYOW-B-PH050-C | N | Pyrene | 11.0 | 7.30 U Q | 7.30 UJ | | ug/kg | I |
| NYOW-B-SL048-A | N | 1-Methylnaphthalene | 11.0 | 9.90 J Q | 9.90 J | - | ug/kg | I/TR |
| NYOW-B-SL048-A | N | 2-Methylnaphthalene | 11.0 | 12.0 Q | 12.0 J | - | ug/kg | I |
| NYOW-B-SL048-A | N | Acenaphthene | 11.0 | 4.80 J Q | 4.80 J | - | ug/kg | I/TR |
| NYOW-B-SL048-A | N | Acenaphthylene | 11.0 | 51.0 | 51.0 J | - | ug/kg | I |
| NYOW-B-SL048-A | N | Anthracene | 11.0 | 34.0 | 34.0 J | - | ug/kg | I |

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL048-A | N | Benzo(a)anthracene | 11.0 | 120 | 120 J | - | ug/kg | I |
| NYOW-B-SL048-A | N | Benzo(a)pyrene | 11.0 | 140 | 140 J | - | ug/kg | I |
| NYOW-B-SL048-A | N | Benzo(b)fluoranthene | 11.0 | 170 | 170 J | - | ug/kg | I |
| NYOW-B-SL048-A | N | Benzo(g,h,i)perylene | 11.0 | 83.0 | 83.0 J | - | ug/kg | I |
| NYOW-B-SL048-A | N | Benzo(k)fluoranthene | 11.0 | 59.0 | 59.0 J | - | ug/kg | I |
| NYOW-B-SL048-A | N | Chrysene | 11.0 | 120 | 120 J | - | ug/kg | I |
| NYOW-B-SL048-A | N | Dibenz(a,h)anthracene | 11.0 | 22.0 | 22.0 J | - | ug/kg | I |
| NYOW-B-SL048-A | N | Fluoranthene | 11.0 | 200 | 200 J | - | ug/kg | I |
| NYOW-B-SL048-A | N | Fluorene | 11.0 | 10.0 J | 10.0 J | - | ug/kg | I/TR |
| NYOW-B-SL048-A | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 92.0 | 92.0 J | - | ug/kg | I |
| NYOW-B-SL048-A | N | Naphthalene | 11.0 | 12.0 Q | 12.0 J | | ug/kg | C/Z/I |
| NYOW-B-SL048-A | N | Phenanthrene | 11.0 | 110 Q | 110 J | - | ug/kg | I |
| NYOW-B-SL048-A | N | Pyrene | 11.0 | 200 | 200 J | - | ug/kg | I |
| NYOW-B-SL049-A | N | 1-Methylnaphthalene | 10.0 | 1.10 J Q | 1.10 J | - | ug/kg | I/TR |
| NYOW-B-SL049-A | N | 2-Methylnaphthalene | 10.0 | 1.10 J Q | 1.10 J | - | ug/kg | I/TR |
| NYOW-B-SL049-A | N | Acenaphthene | 10.0 | 1.10 U Q M | 1.10 UJ | | ug/kg | I |
| NYOW-B-SL049-A | N | Acenaphthylene | 10.0 | 1.30 J Q | 1.30 J | - | ug/kg | I/TR |
| NYOW-B-SL049-A | N | Anthracene | 10.0 | 4.40 U Q | 4.40 UJ | | ug/kg | I |
| NYOW-B-SL049-A | N | Benzo(a)anthracene | 10.0 | 4.70 J M | 4.70 J | - | ug/kg | I/TR |
| NYOW-B-SL049-A | N | Benzo(a)pyrene | 10.0 | 7.10 J M | 7.10 J | - | ug/kg | I/TR |
| NYOW-B-SL049-A | N | Benzo(b)fluoranthene | 10.0 | 9.50 J | 9.50 J | - | ug/kg | I/TR |
| NYOW-B-SL049-A | N | Benzo(g,h,i)perylene | 10.0 | 5.30 J | 5.30 J | - | ug/kg | I/TR |
| NYOW-B-SL049-A | N | Benzo(k)fluoranthene | 10.0 | 3.20 J M | 3.20 J | - | ug/kg | I/TR |
| NYOW-B-SL049-A | N | Chrysene | 10.0 | 47.0 M | 47.0 J | - | ug/kg | I |
| NYOW-B-SL049-A | N | Dibenz(a,h)anthracene | 10.0 | 6.80 U M | 6.80 UJ | | ug/kg | I |
| NYOW-B-SL049-A | N | Fluoranthene | 10.0 | 10.0 Q | 10.0 J | - | ug/kg | I |
| NYOW-B-SL049-A | N | Fluorene | 10.0 | 2.70 U Q M | 2.70 UJ | | ug/kg | I |
| NYOW-B-SL049-A | N | Indeno(1,2,3-c,d)pyrene | 10.0 | 5.30 J | 5.30 J | - | ug/kg | I/TR |
| NYOW-B-SL049-A | N | Naphthalene | 10.0 | 2.00 U Q | 2.00 UJ | | ug/kg | I |
| NYOW-B-SL049-A | N | Phenanthrene | 10.0 | 4.70 J Q | 4.70 J | - | ug/kg | I/TR |
| NYOW-B-SL049-A | N | Pyrene | 10.0 | 9.10 J Q | 9.10 J | - | ug/kg | I/TR |
| NYOW-B-SL050-A | N | Fluoranthene | 43.0 | 370 D | 370 J | - | ug/kg | I |
| NYOW-B-SL050-A | N | Pyrene | 43.0 | 330 D | 330 J | - | ug/kg | I |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL050-A (MS)/ 280-148313-1MS | Chromium | 82.91 | 85 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL050-A (MS)/ 280-148313-1MS | Cobalt | 81.18 | 85 - 112 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL050-A (MS)/ 280-148313-1MS | Lead | 119.7 | 81 - 112 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL050-A (MS)/ 280-148313-1MS | Magnesium | -1.695 | 78 - 115 | 10 - 200 | percent | J/X | M | |
| NYOW-B-SL050-A (MS)/ 280-148313-1MS | Nickel | 78.63 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL050-A (MS)/ 280-148313-1MS | Sodium | 79.34 | 83 - 118 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL050-A (MS)/ 280-148313-1MS | Zinc | 122.0 | 82 - 113 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL050-A (MS)/ 280-148313-1MS | Aluminum | 153.8 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL050-A (MS)/ 280-148313-1MS | Calcium | -178.0 | 81 - 116 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |
| NYOW-B-SL050-A (MS)/ 280-148313-1MS | Iron | -341.7 | 81 - 118 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |
| NYOW-B-SL050-A (MS)/ 280-148313-1MS | Manganese | -10.83 | 84 - 114 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Beryllium | 79.93 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Chromium | 78.88 | 85 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Cobalt | 76.40 | 85 - 112 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Lead | 126.5 | 81 - 112 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Magnesium | 14.29 | 78 - 115 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Nickel | 73.57 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Sodium | 77.24 | 83 - 118 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Vanadium | 80.92 | 82 - 114 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Zinc | 134.7 | 82 - 113 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Aluminum | 204.1 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Calcium | 142.9 | 81 - 116 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Iron | -180.0 | 81 - 118 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |

**Quality Control Outliers for test method SW6010C, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Manganese | 130.0 | 84 - 114 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL050-A | N | Chromium | 3.80 | 11.0 J1 | 11.0 J | - | mg/kg | M/D |
| NYOW-B-SL050-A | N | Cobalt | 1.10 | 7.10 J1 | 7.10 J | - | mg/kg | M/D |
| NYOW-B-SL050-A | N | Lead | 0.980 | 87.0 J1 | 87.0 J | | mg/kg | M/M2/A |
| NYOW-B-SL050-A | N | Magnesium | 33.0 | 11000 J1 | 11000 J | - | mg/kg | M/A |
| NYOW-B-SL050-A | N | Nickel | 4.30 | 13.0 J1 | 13.0 J | - | mg/kg | M/D |
| NYOW-B-SL050-A | N | Sodium | 540 | 52.0 J J1 | 52.0 J | - | mg/kg | M/D/TR |
| NYOW-B-SL050-A | N | Zinc | 8.70 | 98.0 J1 | 98.0 J | + | mg/kg | M |
| NYOW-B-SL050-A | N | Beryllium | 0.540 | 0.360 J J1 | 0.360 J | - | mg/kg | M/D/TR |
| NYOW-B-SL050-A | N | Vanadium | 2.20 | 18.0 | 18.0 J | - | mg/kg | M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, MS RPD**

The objective of matrix spikes/matrix spike duplicates (MS/MSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. MS/MSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Matrix spikes/matrix spike duplicates results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Beryllium | 22.32 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Calcium | 61.95 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Chromium | 20.07 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Cobalt | 21.86 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Nickel | 20.94 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Sodium | 20.66 | < 20 | < 20 | rpd | J/UJ | D | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS RPD for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL050-A | N | Beryllium | 0.540 | 0.360 J J1 | 0.360 J | - | mg/kg | M/D/TR |
| NYOW-B-SL050-A | N | Calcium | 110 | 30000 J1 | 30000 J | | mg/kg | D/A |
| NYOW-B-SL050-A | N | Chromium | 3.80 | 11.0 J1 | 11.0 J | - | mg/kg | M/D |
| NYOW-B-SL050-A | N | Cobalt | 1.10 | 7.10 J1 | 7.10 J | - | mg/kg | M/D |
| NYOW-B-SL050-A | N | Nickel | 4.30 | 13.0 J1 | 13.0 J | - | mg/kg | M/D |
| NYOW-B-SL050-A | N | Sodium | 540 | 52.0 J J1 | 52.0 J | - | mg/kg | M/D/TR |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Total, Equipment Blank**

The purpose of equipment blanks is to determine the existence and magnitude of cross-contamination problems resulting from the process during sampling. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in equipment blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-01_210505 (EB)/ 280-148313-10 | Barium | 1.000 | < 0.82 | < 10 | ug/l | U/None* | V | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6010C, Total, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-536276/1-A (LB)/ MB 280-536276/1-A | Iron | 85.50 | < 22 | < 100 | ug/l | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6020A, MS RPD**

The objective of matrix spikes/matrix spike duplicates (MS/MSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. MS/MSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Matrix spikes/matrix spike duplicates results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL050-A (SD)/ 280-148313-1MSD | Selenium | 20.36 | < 20 | < 20 | rpd | J/UJ | D | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW7470A, Total, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-536171/1-A (LB)/ MB 280-536171/1-A | Mercury | 0.03500 | < 0.027 | < 0.2 | ug/l | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3510C | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| EB-01_210505 280-148313-10 | EB | 1-Methylnaphthalene | 0.100 | 0.0400 U H Q | 0.0400 UJ | | ug/l | H2 |
| EB-01_210505 280-148313-10 | EB | 2-Methylnaphthalene | 0.100 | 0.0510 U H Q | 0.0510 UJ | | ug/l | H2 |
| EB-01_210505 280-148313-10 | EB | Acenaphthene | 0.100 | 0.0120 U H Q | 0.0120 UJ | | ug/l | H2 |
| EB-01_210505 280-148313-10 | EB | Acenaphthylene | 0.100 | 0.0200 U H Q | 0.0200 UJ | | ug/l | H2 |
| EB-01_210505 280-148313-10 | EB | Anthracene | 0.100 | 0.100 U H Q | 0.100 UJ | | ug/l | H2 |
| EB-01_210505 280-148313-10 | EB | Benzo(a)anthracene | 0.100 | 0.100 U H | 0.100 UJ | | ug/l | H2 |
| EB-01_210505 280-148313-10 | EB | Benzo(a)pyrene | 0.100 | 0.0510 U M H | 0.0510 UJ | | ug/l | H2 |
| EB-01_210505 280-148313-10 | EB | Benzo(b)fluoranthene | 0.100 | 0.100 U M H | 0.100 UJ | | ug/l | H2 |
| EB-01_210505 280-148313-10 | EB | Benzo(g,h,i)perylene | 0.100 | 0.100 U H | 0.100 UJ | | ug/l | H2 |
| EB-01_210505 280-148313-10 | EB | Benzo(k)fluoranthene | 0.100 | 0.0510 U H | 0.0510 UJ | | ug/l | H2 |
| EB-01_210505 280-148313-10 | EB | Chrysene | 0.100 | 0.100 U H | 0.100 UJ | | ug/l | H2 |
| EB-01_210505 280-148313-10 | EB | Dibenz(a,h)anthracene | 0.100 | 0.100 U H Q | 0.100 UJ | | ug/l | H2/V2 |
| EB-01_210505 280-148313-10 | EB | Fluoranthene | 0.100 | 0.100 U H | 0.100 UJ | | ug/l | H2 |
| EB-01_210505 280-148313-10 | EB | Fluorene | 0.100 | 0.0400 U H Q | 0.0400 UJ | | ug/l | H2 |
| EB-01_210505 280-148313-10 | EB | Indeno(1,2,3-c,d)pyrene | 0.100 | 0.100 U M H | 0.100 UJ | | ug/l | H2 |
| EB-01_210505 280-148313-10 | EB | Naphthalene | 0.100 | 0.0510 U H Q | 0.0510 UJ | | ug/l | H2 |
| EB-01_210505 280-148313-10 | EB | Phenanthrene | 0.100 | 0.100 U H Q | 0.100 UJ | | ug/l | H2 |
| EB-01_210505 280-148313-10 | EB | Pyrene | 0.100 | 0.100 U H | 0.100 UJ | | ug/l | H2 |

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH048-B 280-148313-8 | N | Acenaphthene | 10.0 | 1.10 U Q | 1.10 UJ | | ug/kg | I |
| NYOW-B-PH048-B 280-148313-8 | N | Benzo(a)pyrene | 10.0 | 13.0 | 13.0 J | - | ug/kg | I |
| NYOW-B-PH048-B 280-148313-8 | N | Benzo(b)fluoranthene | 10.0 | 18.0 | 18.0 J | - | ug/kg | I |
| NYOW-B-PH048-B 280-148313-8 | N | Benzo(g,h,i)perylene | 10.0 | 11.0 | 11.0 J | - | ug/kg | I |
| NYOW-B-PH048-B 280-148313-8 | N | Chrysene | 10.0 | 13.0 | 13.0 J | - | ug/kg | I |
| NYOW-B-PH048-B 280-148313-8 | N | Fluoranthene | 10.0 | 15.0 J1 | 15.0 J | | ug/kg | M/I |

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH048-B 280-148313-8 | N | Indeno(1,2,3-c,d)pyrene | 10.0 | 13.0 | 13.0 J | - | ug/kg | I |
| NYOW-B-PH048-B 280-148313-8 | N | Pyrene | 10.0 | 16.0 J1 | 16.0 J | | ug/kg | M/I |
| NYOW-B-PH048-C 280-148313-9 | N | Anthracene | 9.80 | 4.20 U Q M | 4.20 UJ | | ug/kg | I |
| NYOW-B-PH048-C 280-148313-9 | N | Benzo(a)anthracene | 9.80 | 4.20 U M | 4.20 UJ | | ug/kg | I |
| NYOW-B-PH048-C 280-148313-9 | N | Benzo(a)pyrene | 9.80 | 4.20 U M | 4.20 UJ | | ug/kg | I |
| NYOW-B-PH048-C 280-148313-9 | N | Benzo(g,h,i)perylene | 9.80 | 6.50 U M | 6.50 UJ | | ug/kg | I |
| NYOW-B-PH048-C 280-148313-9 | N | Benzo(k)fluoranthene | 9.80 | 4.20 U M | 4.20 UJ | | ug/kg | I |
| NYOW-B-PH048-C 280-148313-9 | N | Dibenz(a,h)anthracene | 9.80 | 6.50 U M | 6.50 UJ | | ug/kg | I |
| NYOW-B-PH048-C 280-148313-9 | N | Fluoranthene | 9.80 | 4.20 U Q | 4.20 UJ | | ug/kg | I |
| NYOW-B-PH048-C 280-148313-9 | N | Fluorene | 9.80 | 2.60 U Q | 2.60 UJ | | ug/kg | I |
| NYOW-B-PH048-C 280-148313-9 | N | Indeno(1,2,3-c,d)pyrene | 9.80 | 6.50 U M | 6.50 UJ | | ug/kg | I |
| NYOW-B-PH048-C 280-148313-9 | N | Naphthalene | 9.80 | 24.0 Q | 24.0 J | | ug/kg | C/Z/I |
| NYOW-B-PH048-C 280-148313-9 | N | Phenanthrene | 9.80 | 6.50 U Q M | 6.50 UJ | | ug/kg | I |
| NYOW-B-PH048-C 280-148313-9 | N | Pyrene | 9.80 | 6.50 U Q | 6.50 UJ | | ug/kg | I |
| NYOW-B-PH050-C 280-148313-3 | N | 1-Methylnaphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH050-C 280-148313-3 | N | 2-Methylnaphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH050-C 280-148313-3 | N | Acenaphthene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH050-C 280-148313-3 | N | Acenaphthylene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH050-C 280-148313-3 | N | Anthracene | 11.0 | 4.70 U Q M | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH050-C 280-148313-3 | N | Benzo(a)anthracene | 11.0 | 4.70 U M | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH050-C 280-148313-3 | N | Benzo(a)pyrene | 11.0 | 4.70 U M | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH050-C 280-148313-3 | N | Benzo(b)fluoranthene | 11.0 | 7.30 U | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH050-C 280-148313-3 | N | Benzo(g,h,i)perylene | 11.0 | 7.30 U M | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH050-C 280-148313-3 | N | Benzo(k)fluoranthene | 11.0 | 4.70 U M | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH050-C 280-148313-3 | N | Dibenz(a,h)anthracene | 11.0 | 7.30 U M | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH050-C 280-148313-3 | N | Fluoranthene | 11.0 | 4.70 U Q | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH050-C 280-148313-3 | N | Fluorene | 11.0 | 2.90 U Q M | 2.90 UJ | | ug/kg | I |

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH050-C 280-148313-3 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.30 U M | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH050-C 280-148313-3 | N | Naphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH050-C 280-148313-3 | N | Pyrene | 11.0 | 7.30 U Q | 7.30 UJ | | ug/kg | I |
| NYOW-B-SL048-A 280-148313-7 | N | 2-Methylnaphthalene | 11.0 | 12.0 Q | 12.0 J | - | ug/kg | I |
| NYOW-B-SL048-A 280-148313-7 | N | Acenaphthylene | 11.0 | 51.0 | 51.0 J | - | ug/kg | I |
| NYOW-B-SL048-A 280-148313-7 | N | Anthracene | 11.0 | 34.0 | 34.0 J | - | ug/kg | I |
| NYOW-B-SL048-A 280-148313-7 | N | Benzo(a)anthracene | 11.0 | 120 | 120 J | - | ug/kg | I |
| NYOW-B-SL048-A 280-148313-7 | N | Benzo(a)pyrene | 11.0 | 140 | 140 J | - | ug/kg | I |
| NYOW-B-SL048-A 280-148313-7 | N | Benzo(b)fluoranthene | 11.0 | 170 | 170 J | - | ug/kg | I |
| NYOW-B-SL048-A 280-148313-7 | N | Benzo(g,h,i)perylene | 11.0 | 83.0 | 83.0 J | - | ug/kg | I |
| NYOW-B-SL048-A 280-148313-7 | N | Benzo(k)fluoranthene | 11.0 | 59.0 | 59.0 J | - | ug/kg | I |
| NYOW-B-SL048-A 280-148313-7 | N | Chrysene | 11.0 | 120 | 120 J | - | ug/kg | I |
| NYOW-B-SL048-A 280-148313-7 | N | Dibenz(a,h)anthracene | 11.0 | 22.0 | 22.0 J | - | ug/kg | I |
| NYOW-B-SL048-A 280-148313-7 | N | Fluoranthene | 11.0 | 200 | 200 J | - | ug/kg | I |
| NYOW-B-SL048-A 280-148313-7 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 92.0 | 92.0 J | - | ug/kg | I |
| NYOW-B-SL048-A 280-148313-7 | N | Naphthalene | 11.0 | 12.0 Q | 12.0 J | | ug/kg | C/Z/I |
| NYOW-B-SL048-A 280-148313-7 | N | Phenanthrene | 11.0 | 110 Q | 110 J | - | ug/kg | I |
| NYOW-B-SL048-A 280-148313-7 | N | Pyrene | 11.0 | 200 | 200 J | - | ug/kg | I |
| NYOW-B-SL049-A 280-148313-4 | N | Acenaphthene | 10.0 | 1.10 U Q M | 1.10 UJ | | ug/kg | I |
| NYOW-B-SL049-A 280-148313-4 | N | Anthracene | 10.0 | 4.40 U Q | 4.40 UJ | | ug/kg | I |
| NYOW-B-SL049-A 280-148313-4 | N | Chrysene | 10.0 | 47.0 M | 47.0 J | - | ug/kg | I |
| NYOW-B-SL049-A 280-148313-4 | N | Dibenz(a,h)anthracene | 10.0 | 6.80 U M | 6.80 UJ | | ug/kg | I |
| NYOW-B-SL049-A 280-148313-4 | N | Fluoranthene | 10.0 | 10.0 Q | 10.0 J | - | ug/kg | I |
| NYOW-B-SL049-A 280-148313-4 | N | Fluorene | 10.0 | 2.70 U Q M | 2.70 UJ | | ug/kg | I |
| NYOW-B-SL049-A 280-148313-4 | N | Naphthalene | 10.0 | 2.00 U Q | 2.00 UJ | | ug/kg | I |
| NYOW-B-SL050-A 280-148313-1 | N | Fluoranthene | 43.0 | 370 D | 370 J | - | ug/kg | I |
| NYOW-B-SL050-A 280-148313-1 | N | Naphthalene | 11.0 | 32.0 Q | 32.0 J | + | ug/kg | C/Z |

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-SL050-A 280-148313-1 | N | Pyrene | 43.0 | 330 D | 330 J | - | ug/kg | I |

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH048-B 280-148313-8 | N | Aluminum | 46.0 | 7600 | 7600 J | | mg/kg | A |
| NYOW-B-PH048-B 280-148313-8 | N | Calcium | 92.0 | 8800 | 8800 J | | mg/kg | A |
| NYOW-B-PH048-B 280-148313-8 | N | Iron | 74.0 | 22000 | 22000 J | | mg/kg | A |
| NYOW-B-PH048-B 280-148313-8 | N | Lead | 0.830 | 13.0 Q | 13.0 J | + | mg/kg | V6/A |
| NYOW-B-PH048-B 280-148313-8 | N | Magnesium | 28.0 | 2800 | 2800 J | | mg/kg | A |
| NYOW-B-PH048-B 280-148313-8 | N | Manganese | 4.10 | 1200 | 1200 J | | mg/kg | A |
| NYOW-B-PH048-C 280-148313-9 | N | Aluminum | 48.0 | 3100 | 3100 J | | mg/kg | A |
| NYOW-B-PH048-C 280-148313-9 | N | Calcium | 96.0 | 94000 | 94000 J | | mg/kg | A |
| NYOW-B-PH048-C 280-148313-9 | N | Iron | 77.0 | 11000 | 11000 J | | mg/kg | A |
| NYOW-B-PH048-C 280-148313-9 | N | Lead | 0.860 | 5.50 | 5.50 J | + | mg/kg | V6/A |
| NYOW-B-PH048-C 280-148313-9 | N | Magnesium | 29.0 | 28000 | 28000 J | | mg/kg | A |
| NYOW-B-PH048-C 280-148313-9 | N | Manganese | 4.30 | 630 | 630 J | | mg/kg | A |
| NYOW-B-PH049-B 280-148313-5 | N | Aluminum | 46.0 | 5000 | 5000 J | | mg/kg | A |
| NYOW-B-PH049-B 280-148313-5 | N | Calcium | 92.0 | 61000 | 61000 J | | mg/kg | A |
| NYOW-B-PH049-B 280-148313-5 | N | Iron | 73.0 | 18000 | 18000 J | | mg/kg | A |
| NYOW-B-PH049-B 280-148313-5 | N | Lead | 0.820 | 6.20 | 6.20 J | + | mg/kg | V6/A |
| NYOW-B-PH049-B 280-148313-5 | N | Magnesium | 27.0 | 14000 | 14000 J | | mg/kg | A |
| NYOW-B-PH049-B 280-148313-5 | N | Manganese | 4.10 | 1100 | 1100 J | | mg/kg | A |
| NYOW-B-PH049-C 280-148313-6 | N | Aluminum | 54.0 | 2200 | 2200 J | | mg/kg | A |
| NYOW-B-PH049-C 280-148313-6 | N | Calcium | 110 | 44000 | 44000 J | | mg/kg | A |
| NYOW-B-PH049-C 280-148313-6 | N | Iron | 87.0 | 6000 | 6000 J | | mg/kg | A |
| NYOW-B-PH049-C 280-148313-6 | N | Lead | 0.980 | 2.30 | 2.30 J | + | mg/kg | V6/A |
| NYOW-B-PH049-C 280-148313-6 | N | Magnesium | 33.0 | 9700 | 9700 J | | mg/kg | A |
| NYOW-B-PH049-C 280-148313-6 | N | Manganese | 4.90 | 250 | 250 J | | mg/kg | A |

**Table of All Qualified Results**

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH050-B 280-148313-2 | N | Aluminum | 40.0 | 4800 | 4800 J | | mg/kg | A |
| NYOW-B-PH050-B 280-148313-2 | N | Calcium | 79.0 | 120000 | 120000 J | | mg/kg | A |
| NYOW-B-PH050-B 280-148313-2 | N | Iron | 63.0 | 12000 | 12000 J | | mg/kg | A |
| NYOW-B-PH050-B 280-148313-2 | N | Lead | 0.710 | 92.0 Q | 92.0 J | | mg/kg | A |
| NYOW-B-PH050-B 280-148313-2 | N | Magnesium | 24.0 | 18000 | 18000 J | | mg/kg | A |
| NYOW-B-PH050-B 280-148313-2 | N | Manganese | 3.60 | 650 | 650 J | | mg/kg | A |
| NYOW-B-PH050-C 280-148313-3 | N | Aluminum | 48.0 | 13000 | 13000 J | | mg/kg | A |
| NYOW-B-PH050-C 280-148313-3 | N | Calcium | 95.0 | 60000 | 60000 J | | mg/kg | A |
| NYOW-B-PH050-C 280-148313-3 | N | Iron | 76.0 | 21000 | 21000 J | | mg/kg | A |
| NYOW-B-PH050-C 280-148313-3 | N | Lead | 0.860 | 8.90 Q | 8.90 J | + | mg/kg | V6/A |
| NYOW-B-PH050-C 280-148313-3 | N | Magnesium | 29.0 | 14000 | 14000 J | | mg/kg | A |
| NYOW-B-PH050-C 280-148313-3 | N | Manganese | 4.30 | 530 | 530 J | | mg/kg | A |
| NYOW-B-SL048-A 280-148313-7 | N | Aluminum | 53.0 | 5300 | 5300 J | | mg/kg | A |
| NYOW-B-SL048-A 280-148313-7 | N | Calcium | 110 | 56000 | 56000 J | | mg/kg | A |
| NYOW-B-SL048-A 280-148313-7 | N | Iron | 84.0 | 15000 | 15000 J | | mg/kg | A |
| NYOW-B-SL048-A 280-148313-7 | N | Lead | 0.950 | 16.0 Q | 16.0 J | + | mg/kg | V6/A |
| NYOW-B-SL048-A 280-148313-7 | N | Magnesium | 32.0 | 12000 | 12000 J | | mg/kg | A |
| NYOW-B-SL048-A 280-148313-7 | N | Manganese | 4.70 | 770 | 770 J | | mg/kg | A |
| NYOW-B-SL049-A 280-148313-4 | N | Aluminum | 51.0 | 4900 | 4900 J | | mg/kg | A |
| NYOW-B-SL049-A 280-148313-4 | N | Calcium | 100 | 100000 | 100000 J | | mg/kg | A |
| NYOW-B-SL049-A 280-148313-4 | N | Iron | 82.0 | 15000 | 15000 J | | mg/kg | A |
| NYOW-B-SL049-A 280-148313-4 | N | Lead | 0.930 | 9.90 Q | 9.90 J | + | mg/kg | V6/A |
| NYOW-B-SL049-A 280-148313-4 | N | Magnesium | 31.0 | 17000 | 17000 J | | mg/kg | A |
| NYOW-B-SL049-A 280-148313-4 | N | Manganese | 4.60 | 790 | 790 J | | mg/kg | A |
| NYOW-B-SL050-A 280-148313-1 | N | Aluminum | 54.0 | 8400 J1 | 8400 J | | mg/kg | A |
| NYOW-B-SL050-A 280-148313-1 | N | Calcium | 110 | 30000 J1 | 30000 J | | mg/kg | D/A |
| NYOW-B-SL050-A 280-148313-1 | N | Chromium | 3.80 | 11.0 J1 | 11.0 J | - | mg/kg | M/D |

**Table of All Qualified Results**

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-SL050-A 280-148313-1 | N | Cobalt | 1.10 | 7.10 J1 | 7.10 J | - | mg/kg | M/D |
| NYOW-B-SL050-A 280-148313-1 | N | Iron | 87.0 | 22000 J1 | 22000 J | | mg/kg | A |
| NYOW-B-SL050-A 280-148313-1 | N | Lead | 0.980 | 87.0 J1 | 87.0 J | | mg/kg | M/M2/A |
| NYOW-B-SL050-A 280-148313-1 | N | Magnesium | 33.0 | 11000 J1 | 11000 J | - | mg/kg | M/A |
| NYOW-B-SL050-A 280-148313-1 | N | Manganese | 4.90 | 980 J1 | 980 J | | mg/kg | A |
| NYOW-B-SL050-A 280-148313-1 | N | Nickel | 4.30 | 13.0 J1 | 13.0 J | - | mg/kg | M/D |
| NYOW-B-SL050-A 280-148313-1 | N | Vanadium | 2.20 | 18.0 | 18.0 J | - | mg/kg | M |
| NYOW-B-SL050-A 280-148313-1 | N | Zinc | 8.70 | 98.0 J1 | 98.0 J | + | mg/kg | M |

| Test Method: SW6020A | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-SL050-A 280-148313-1 | N | Antimony | 0.240 | 0.270 | 0.270 J | + | mg/kg | V6 |

| Test Method: SW6020A | | Extraction Method: TOTAL | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| EB-01_210505 280-148313-10 | EB | Antimony | 6.00 | 1.00 U | 1.00 UJ | | ug/l | V6 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method BNASIMD**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| EB-01_210505 280-148313-10 | EB | Dibenz(a,h)anthracene | 0.100 | 0.100 U H Q | 0.100 UJ | 0.100 UJ | H2/V2 |

**Modified Qualifiers for test method SW6010C**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH048-B 280-148313-8 | N | Aluminum | 46.0 | 7600 | 7600 | 7600 J | A |
| NYOW-B-PH048-B 280-148313-8 | N | Calcium | 92.0 | 8800 | 8800 | 8800 J | A |
| NYOW-B-PH048-B 280-148313-8 | N | Iron | 74.0 | 22000 | 22000 | 22000 J | A |
| NYOW-B-PH048-B 280-148313-8 | N | Lead | 0.830 | 13.0 Q | 13.0 | 13.0 J | V6/A |
| NYOW-B-PH048-B 280-148313-8 | N | Magnesium | 28.0 | 2800 | 2800 | 2800 J | A |
| NYOW-B-PH048-B 280-148313-8 | N | Manganese | 4.10 | 1200 | 1200 | 1200 J | A |
| NYOW-B-PH048-C 280-148313-9 | N | Aluminum | 48.0 | 3100 | 3100 | 3100 J | A |
| NYOW-B-PH048-C 280-148313-9 | N | Calcium | 96.0 | 94000 | 94000 | 94000 J | A |
| NYOW-B-PH048-C 280-148313-9 | N | Iron | 77.0 | 11000 | 11000 | 11000 J | A |
| NYOW-B-PH048-C 280-148313-9 | N | Lead | 0.860 | 5.50 | 5.50 | 5.50 J | V6/A |
| NYOW-B-PH048-C 280-148313-9 | N | Magnesium | 29.0 | 28000 | 28000 | 28000 J | A |
| NYOW-B-PH048-C 280-148313-9 | N | Manganese | 4.30 | 630 | 630 | 630 J | A |
| NYOW-B-PH049-B 280-148313-5 | N | Aluminum | 46.0 | 5000 | 5000 | 5000 J | A |
| NYOW-B-PH049-B 280-148313-5 | N | Calcium | 92.0 | 61000 | 61000 | 61000 J | A |
| NYOW-B-PH049-B 280-148313-5 | N | Iron | 73.0 | 18000 | 18000 | 18000 J | A |
| NYOW-B-PH049-B 280-148313-5 | N | Lead | 0.820 | 6.20 | 6.20 | 6.20 J | V6/A |
| NYOW-B-PH049-B 280-148313-5 | N | Magnesium | 27.0 | 14000 | 14000 | 14000 J | A |
| NYOW-B-PH049-B 280-148313-5 | N | Manganese | 4.10 | 1100 | 1100 | 1100 J | A |
| NYOW-B-PH049-C 280-148313-6 | N | Aluminum | 54.0 | 2200 | 2200 | 2200 J | A |
| NYOW-B-PH049-C 280-148313-6 | N | Calcium | 110 | 44000 | 44000 | 44000 J | A |
| NYOW-B-PH049-C 280-148313-6 | N | Iron | 87.0 | 6000 | 6000 | 6000 J | A |
| NYOW-B-PH049-C 280-148313-6 | N | Lead | 0.980 | 2.30 | 2.30 | 2.30 J | V6/A |
| NYOW-B-PH049-C 280-148313-6 | N | Magnesium | 33.0 | 9700 | 9700 | 9700 J | A |

**Table of Results with Modified Qualifiers**

| Modified Qualifiers for test method SW6010C | | | | | | | |
|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
| NYOW-B-PH049-C 280-148313-6 | N | Manganese | 4.90 | 250 | 250 | 250 J | A |
| NYOW-B-PH050-B 280-148313-2 | N | Aluminum | 40.0 | 4800 | 4800 | 4800 J | A |
| NYOW-B-PH050-B 280-148313-2 | N | Calcium | 79.0 | 120000 | 120000 | 120000 J | A |
| NYOW-B-PH050-B 280-148313-2 | N | Iron | 63.0 | 12000 | 12000 | 12000 J | A |
| NYOW-B-PH050-B 280-148313-2 | N | Lead | 0.710 | 92.0 Q | 92.0 | 92.0 J | A |
| NYOW-B-PH050-B 280-148313-2 | N | Magnesium | 24.0 | 18000 | 18000 | 18000 J | A |
| NYOW-B-PH050-B 280-148313-2 | N | Manganese | 3.60 | 650 | 650 | 650 J | A |
| NYOW-B-PH050-C 280-148313-3 | N | Aluminum | 48.0 | 13000 | 13000 | 13000 J | A |
| NYOW-B-PH050-C 280-148313-3 | N | Calcium | 95.0 | 60000 | 60000 | 60000 J | A |
| NYOW-B-PH050-C 280-148313-3 | N | Iron | 76.0 | 21000 | 21000 | 21000 J | A |
| NYOW-B-PH050-C 280-148313-3 | N | Lead | 0.860 | 8.90 Q | 8.90 | 8.90 J | V6/A |
| NYOW-B-PH050-C 280-148313-3 | N | Magnesium | 29.0 | 14000 | 14000 | 14000 J | A |
| NYOW-B-PH050-C 280-148313-3 | N | Manganese | 4.30 | 530 | 530 | 530 J | A |
| NYOW-B-SL048-A 280-148313-7 | N | Aluminum | 53.0 | 5300 | 5300 | 5300 J | A |
| NYOW-B-SL048-A 280-148313-7 | N | Calcium | 110 | 56000 | 56000 | 56000 J | A |
| NYOW-B-SL048-A 280-148313-7 | N | Iron | 84.0 | 15000 | 15000 | 15000 J | A |
| NYOW-B-SL048-A 280-148313-7 | N | Lead | 0.950 | 16.0 Q | 16.0 | 16.0 J | V6/A |
| NYOW-B-SL048-A 280-148313-7 | N | Magnesium | 32.0 | 12000 | 12000 | 12000 J | A |
| NYOW-B-SL048-A 280-148313-7 | N | Manganese | 4.70 | 770 | 770 | 770 J | A |
| NYOW-B-SL049-A 280-148313-4 | N | Aluminum | 51.0 | 4900 | 4900 | 4900 J | A |
| NYOW-B-SL049-A 280-148313-4 | N | Calcium | 100 | 100000 | 100000 | 100000 J | A |
| NYOW-B-SL049-A 280-148313-4 | N | Iron | 82.0 | 15000 | 15000 | 15000 J | A |
| NYOW-B-SL049-A 280-148313-4 | N | Lead | 0.930 | 9.90 Q | 9.90 | 9.90 J | V6/A |
| NYOW-B-SL049-A 280-148313-4 | N | Magnesium | 31.0 | 17000 | 17000 | 17000 J | A |
| NYOW-B-SL049-A 280-148313-4 | N | Manganese | 4.60 | 790 | 790 | 790 J | A |
| NYOW-B-SL050-A 280-148313-1 | N | Aluminum | 54.0 | 8400 J1 | 8400 | 8400 J | A |
| NYOW-B-SL050-A 280-148313-1 | N | Calcium | 110 | 30000 J1 | 30000 J | 30000 J | D/A |

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW6010C**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-SL050-A 280-148313-1 | N | Iron | 87.0 | 22000 J1 | 22000 | 22000 J | A |
| NYOW-B-SL050-A 280-148313-1 | N | Lead | 0.980 | 87.0 J1 | 87.0 J | 87.0 J | M/M2/A |
| NYOW-B-SL050-A 280-148313-1 | N | Magnesium | 33.0 | 11000 J1 | 11000 J | 11000 J | M/A |
| NYOW-B-SL050-A 280-148313-1 | N | Manganese | 4.90 | 980 J1 | 980 | 980 J | A |

**Modified Qualifiers for test method SW6020A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH048-B 280-148313-8 | N | Antimony | 0.170 | 0.150 J | 0.150 J | 0.150 J | TR/V6 |
| NYOW-B-PH048-C 280-148313-9 | N | Antimony | 0.160 | 0.0760 J | 0.0760 J | 0.0760 J | TR/V6 |
| NYOW-B-PH049-B 280-148313-5 | N | Antimony | 0.180 | 0.100 J | 0.100 J | 0.100 J | TR/V6 |
| NYOW-B-PH049-C 280-148313-6 | N | Antimony | 0.170 | 0.0800 J | 0.0800 J | 0.0800 J | TR/V6 |
| NYOW-B-PH050-C 280-148313-3 | N | Antimony | 0.200 | 0.160 J | 0.160 J | 0.160 J | TR/V6 |
| NYOW-B-SL048-A 280-148313-7 | N | Antimony | 0.230 | 0.190 J | 0.190 J | 0.190 J | TR/V6 |
| NYOW-B-SL049-A 280-148313-4 | N | Antimony | 0.170 | 0.120 J | 0.120 J | 0.120 J | TR/V6 |
| NYOW-B-SL050-A 280-148313-1 | N | Antimony | 0.240 | 0.270 | 0.270 | 0.270 J | V6 |
| NYOW-B-SL050-A 280-148313-1 | N | Selenium | 0.520 | 0.430 J | 0.430 J | 0.430 J | TR |

**Modified Qualifiers for test method SW6020A, Total**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| EB-01_210505 280-148313-10 | EB | Antimony | 6.00 | 1.00 U | 1.00 U | 1.00 UJ | V6 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Reason Code Definitions**

| Code | Definition |
|---|---|
| A | Serial dilution |
| C | LCS Recovery |
| D | MS RPD |
| H2 | Prep Hold Time |
| I | Surrogate recovery outside project limits. |
| L | Lab Blank |
| M | MS Recovery |

**Reason Code Definitions**

| Code | Definition |
|---|---|
| M2 | Post Spike |
| TR | Trace Level Detect |
| V | Equipment Blank |
| V2 | CCV |
| V6 | Low Level Calibration Verification |
| Z | LCS RPD |

**Flag Code and Definitions**

| Flag | Definition |
|---|---|
| J | Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria. |
| UJ | The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria. |

**Bias**

| | |
|---|---|
| - | The result may be biased low |
| + | The result may be biased high |

Note - The bias field is a separate field; however, it is an integral part of the final flag (qualifier) on the sample result

**Review Questions**

| Method: BNASIMD (GC/MS-SIM Analysis by SW8270D) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | | • | | EB-01_210505 was extracted one day past the holding time period. |
| Were all requested target analytes reported? | • | | | |
| Was the GC/MS system properly tuned based on method criteria? | • | | | |
| Was instrument tuning completed every 12 hours during sample analysis? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | CCV 280-537291/3 exhibited a %D > 20% for dibenz(a,h)anthracene at 22.0%. The associated EB sample result is qualified as "UJ". The reanalysis results for sample NYOW-B-SL048-A are not used for data interpretation. |
| Were Internal Standard retention times and area criteria within method requirements? | • | | | |
| Were internal standards spiked for every sample, standard, and QC sample? | • | | | |
| Were surrogate recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | See QC Outliers. MB associated with sample RE/RA. |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the LCS/LCSD RPD within project acceptance limits? | | • | | See QC Outliers. |
| Was a MS/MSD pair prepared with each batch? | | • | | MS/SD not performed for aqueous batch 536125. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | | • | | CCV CAs not performed. |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | CCVL associated with batch 280-537531 recovered (135%) above the upper control limit for Pb. Detections less than the level of the CCV are qualified as "J+". |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Did the ICSA have any non-target interferents above the MDL? | • | | | ICSA associated with batch 280-537531 exhibited a detection for barium greater than the LOD at 13.1 ppb. The laboratory confirmed via ICP/MS that barium is a trace contaminant in the ICSA standard at 12.4 ppb.<br>ICSA associated with batch 280-536668 exhibited a detection for barium greater than the LOD at 13 ppb. The laboratory confirmed via ICP/MS that barium is a trace contaminant in the ICSA standard at 12.4 ppb. |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | MB 280-536276/1-A exhibited a positive detection for iron at 85.5 ug/L. Associated EB sample results non-detect. |
| Were target analytes in the field blank less than MDL? | | • | | EB-01_210505, Barium = 1.0 ug/L. Soil sample results are not qualified based on aqueous EB contamination. |
| Was the laboratory duplicate RPD within project acceptance limits? | | | • | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | MS/SD not performed for aqueous batch 536276. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the MS/MSD RPD within project acceptance limits? | | • | | See QC Outliers. |
| Were the post spike recoveries within project acceptance limits? | | • | | Al (-70%), Ba (70%), Ca (61%), Fe (-283%), Pb (74%), Mn (-204%). Lead results are qualified as "J". |
| Were the serial dilution RPD values within project acceptance limits? | | • | | Al (14%), Ca (17%), Fe (18%), Pb (21%), Mg (17%), Mn (20%). |

**Review Questions**

| Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the system properly tuned based on method criteria? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | | • | | ICVL 280-537730/19 exhibited a recovery > 120% at 128% for Sb. Soil sample concentrations were less than the CCV concentration. |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | CCVL 280-536644/48 exhibited a recovery < 80% at 75% for Sb. EB sample result was non-detect. |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | | • | | ICB 280-537730/18, Sb < LOQ at 0.699 ug/L. Associated samples > LOQ; qualification is not necessary based on professional judgment.<br>CCBs 280-536644/48 and /60 exhibited positive detections for Tl at 0.119 ug/L and 0.09 ug/L. Equipment blank sample result is non-detect.<br>ICB 280-536928/15 exhibited a detection for antimony at 0.403 ug/L. Associated EB sample result is non-detect.<br>ICB 280-537459/12 exhibited a detection for thallium below the LOQ at 0.101 ug/L. The associated soil sample results were greater than the aqueous LOQ; on the basis of professional judgment, qualification is not necessary.<br>CCBs 280-537459/143 and /154 exhibited detections for thallium less than the LOQ at 0.138 ug/L and 0.101 ug/L. The associated soil sample results were greater than the aqueous LOQ; qualification is not necessary based on professional judgment. |
| Did the ICSA have any non-target interferents above the MDL? | • | | | ICSA associated with batch 280-536644 has Cr > LOD (1.8 ppb) at 1.925 ppb.<br>ICSA associated with batch 280-536928 had Cr > LOD (1.9 ppb) at 1.9 ppb.<br>For each ICSA Parent Standard, the vendor acknowledges Cr as a trace impurity. |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |

**Review Questions**

| Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | MS/SD not performed for aqueous batch 536276. |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were the post spike recoveries within project acceptance limits? | • | | | |
| Were the serial dilution RPD values within project acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | Soil LOQs were slightly > PQLGs for As, Se, Tl, Sb due to percent moisture corrections. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW7470A (Mercury in Water (Manual Cold-Vapor Technique)) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Was the laboratory duplicate RPD within project acceptance limits? | | | • | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Equipment blank sample batch. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | | | • | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW7471B (Mercury in Soil (Manual Cold-Vapor Technique))

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | • | | | |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | | • | | Sample LOQs are slightly greater than PQLGs due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | | | • | |
| Were DoD QSM corrective actions followed if deviations were noted? | | | • | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW9060A (Total Organic Carbon)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | | | • | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | • | | | MS/SD for sample batch 537528 were reported in SDG J148345.<br>MS/SD for sample batch 358195 were reported in SDG J148471. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | | | • | |
| Were DoD QSM corrective actions followed if deviations were noted? | | | • | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Data Validation Report for 280-148345-1_52_2a_FUDSChem**

| | |
|---|---|
| Facility: | C02NY0290-01, New York Ordnance Works, Limited RI |
| Event: | 2021 Sampling - Background |
| SDG: | 280-148345-1_52_2a_FUDSChem |
| Guidance Document: | Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works |
| Prime Contractor: | Bluestone Environmental Group, Inc., Malvern, PA |
| Project Manager: | Mike Badeau |
| Contract Laboratory(ies): | Eurofins Environment Testing TestAmerica, Arvada, CO |
| Data Review Contractor: | Bluestone |
| Data Review Level: | S2BVEM |
| Primary Data Reviewer: | Emily Strake, Technical Director/ Data Validator |
| Date Submitted: | August 13, 2021 |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6020A | SW7470A | SW7471B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH042-B | 280-148345-19 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH042-C | 280-148345-20 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH043-B | 280-148345-16 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH043-C | 280-148345-17 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH044-B | 280-148345-13 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH044-C | 280-148345-14 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH045-B | 280-148345-10 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH045-C | 280-148345-11 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH046-B | 280-148345-6 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH046-C | 280-148345-7 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH047-B | 280-148345-3 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH047-C | 280-148345-4 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL042-A | 280-148345-18 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL043-A | 280-148345-15 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL044-A | 280-148345-12 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL045-A | 280-148345-9 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL046-A | 280-148345-5 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL047-A | 280-148345-1 | Solid | Field Sample/N | X | X | X | X | | X | X |
| PH-DUP-001_210506 | 280-148345-8 | Solid | Field Duplicate/FD | X | X | X | X | | X | X |
| SL-DUP-001_210506 | 280-148345-2 | Solid | Field Duplicate/FD | X | X | X | X | | X | X |
| EB-01_210506 | 280-148345-21 | Water | Equipment Blank/EB | X | | X | X | X | | |

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page at S2BVEM data validation level. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works and the additional guidance documents incorporated by reference to the extent possible. Where definitive guidance is not provided, results have been evaluated in a conservative manner using professional judgment.

Sample collection was managed and directed by Bluestone Environmental Group, Inc., Malvern, PA; analyses were performed by Eurofins Environment Testing TestAmerica, Arvada, CO and were reported under sample delivery group (SDG) 280-148345-1_52_2a_FUDSChem. Data have been evaluated electronically based on electronic data deliverables (EDDs) provided by the laboratory, and hard copy data summary forms have also been reviewed during this effort and compared to the automated review output by the reviewers whose signatures appear on the following page. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative and throughout this report.

All quality control (QC) elements associated with this SDG have been reviewed by a project chemist in accordance with the requirements defined for the project. This review is documented in the attached Data Review Checklists. The QC elements listed below were supported by the electronic deliverable and were evaluated using ADR processes.

- Blank - Negative
- Equipment Blank
- Field Duplicate RPD
- Lab Blank
- Lab Replicate RPD
- LCS Recovery
- LCS RPD
- MS Recovery
- MS RPD
- Prep Hold Time
- Surrogate
- Test Hold Time

Results of the ADR process were subsequently reviewed and updated as applicable by the data review chemists identified on the signature page. Quality control elements that were not included in the electronic deliverable were reviewed manually and findings are documented within this report. Summaries of findings and associated qualified results are documented throughout this report.

A total of 252 results (27.97%) out of the 901 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected or deemed a serious deficiency (X qualifier). Trace values, defined as results that are qualified as estimated because they fall between the detection limit and the reporting limit/limit of quantitation, are not counted as qualified results in the above count. The qualified results are detailed throughout this report and discussed in the narrative below, where appropriate.

Narrative Comments

The samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 7 coolers at receipt time were 1.7ºC, 3.4ºC, 3.6ºC, 3.7ºC, 4.3ºC, 4.3ºC and 5.5ºC.

| Analytical Method | Data Reviewer Comment |
|---|---|
| BNASIMD | Samples NYOW-B-SL047-A[4X], SL-DUP-001_210506[4X], NYOW-B-SL046-A[4X], NYOW-B-SL045-A[4X] and NYOW-B-SL044-A[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.<br>The following sample in preparation batch 280-535673 and analytical batch 280-536905 was diluted due dark viscous extract and an abundance of non-target analytes: NYOW-B-SL044-A. Elevated reporting limits are provided.<br>The following sample in preparation batch 280-535673 and analytical batch 280-537056 were diluted to bring the concentration of target analytes within the calibration range: NYOW-B-SL046-A. Elevated reporting limits are provided.<br>The following samples in re-extraction batch 280-537185 and analytical batch 280-537439 were diluted to bring the concentration of target analytes within the calibration range: NYOW-B-SL047-A, SL-DUP-001_210506, and<br>NYOW-B-SL045-A. Elevated reporting limits are provided.<br>The following sample in re-extraction batch 280-537185 and analytical batch 280-537439 was diluted due to dark viscous extract: NYOW-B-SL044. Elevated reporting limits are provided.<br>The following sample in re-extraction batch 280-537185 and analytical batch 280-537560 was diluted to bring the concentration of target analytes within the calibration range: NYOW-B-SL046-A. Elevated reporting limits are provided. |
| SW6010C | No additional comments; see Checklist for detail. |
| SW6020A | No additional comments; see Checklist for detail. |
| SW7470A | No additional comments; see Checklist for detail. |
| SW7471B | No additional comments; see Checklist for detail. |
| SW9060A | No additional comments; see Checklist for detail. |

August 13, 2021

Reviewed by Emily Strake, Technical Director/ Data Validator, Bluestone

As the Reviewer, I certify that I have performed a data review process in accordance with the requirements of the project guidance document, and have compared the electronic data to the laboratory's hard copy report and have verified the consistency of the reported sample results and method quality control data between the two deliverables.

**Quality Control Outliers for test method BNASIMD, Equipment Blank**

The purpose of equipment blanks is to determine the existence and magnitude of cross-contamination problems resulting from the process during sampling. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in equipment blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-01_210506 (EB)/ 280-148345-21 | Benzo (k)fluoranthene | 0.03200 | < 0.022 | < 0.096 | ug/l | U/None* | V | |
| EB-01_210506 (EB)/ 280-148345-21 | Dibenz (a,h)anthracene | 0.03200 | < 0.027 | < 0.096 | ug/l | U/None* | V | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method BNASIMD, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-535673/1-A (LB)/ MB 280-535673/1-A | Benzo(a)pyrene | 1.940 | < 1.5 | < 10 | ug/kg | U/None* | L | |
| MB 280-537185/1-A (LB)/ MB 280-537185/1-A | Benzo (a)anthracene | 2.840 | < 1.8 | < 10 | ug/kg | U/None* | L | |
| MB 280-537185/1-A (LB)/ MB 280-537185/1-A | Benzo(a)pyrene | 2.160 | < 1.5 | < 10 | ug/kg | U/None* | L | |
| MB 280-537185/1-A (LB)/ MB 280-537185/1-A | Benzo (b)fluoranthene | 3.310 | < 2.4 | < 10 | ug/kg | U/None* | L | |
| MB 280-537185/1-A (LB)/ MB 280-537185/1-A | Chrysene | 3.170 | < 2 | < 10 | ug/kg | U/None* | L | |
| MB 280-537185/1-A (LB)/ MB 280-537185/1-A | Fluoranthene | 6.110 | < 2 | < 10 | ug/kg | U/None* | L | |
| MB 280-537185/1-A (LB)/ MB 280-537185/1-A | Pyrene | 4.950 | < 2.2 | < 10 | ug/kg | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

**Qualified Results associated with the Lab Blank for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH044-B | N | Benzo(a)pyrene | 11.0 | 4.10 J M Q | 4.90 U | | ug/kg | L |
| NYOW-B-PH044-C | N | Benzo(a)pyrene | 11.0 | 2.00 J Q | 4.70 U | | ug/kg | L |
| NYOW-B-PH047-C | N | Benzo(a)pyrene | 10.0 | 1.80 J M Q | 4.40 U | | ug/kg | L |
| NYOW-B-SL042-A | N | Benzo(a)pyrene | 12.0 | 7.40 J Q M | 12.0 U | | ug/kg | L |
| NYOW-B-SL044-A | N | Benzo(a)pyrene | 110 | 86.0 J D Q | 110 U | | ug/kg | L |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, LCS Recovery**

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCS 280-535673/2-A (BS)/ LCS 280-535673/2-A | Benzo (g,h,i)perylene | 27.83 | 49 - 127 | 10 - 200 | percent | J/UJ | C | |
| LCS 280-535673/2-A (BS)/ LCS 280-535673/2-A | Benzo (k)fluoranthene | 52.33 | 56 - 123 | 10 - 200 | percent | J/UJ | C | |
| LCS 280-535673/2-A (BS)/ LCS 280-535673/2-A | Dibenz (a,h)anthracene | 34.33 | 50 - 129 | 10 - 200 | percent | J/UJ | C | |
| LCS 280-535673/2-A (BS)/ LCS 280-535673/2-A | Indeno(1,2,3-c,d)pyrene | 29.83 | 49 - 130 | 10 - 200 | percent | J/UJ | C | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the LCS Recovery for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH042-B | N | Benzo(g,h,i)perylene | 10.0 | 6.80 U Q M | 6.80 UJ | | ug/kg | C |
| NYOW-B-PH042-B | N | Benzo(k)fluoranthene | 10.0 | 4.40 U Q | 4.40 UJ | | ug/kg | C |
| NYOW-B-PH042-B | N | Dibenz(a,h)anthracene | 10.0 | 6.80 U Q M | 6.80 UJ | | ug/kg | C |
| NYOW-B-PH042-B | N | Indeno(1,2,3-c,d)pyrene | 10.0 | 6.80 U Q M | 6.80 UJ | | ug/kg | C |
| NYOW-B-PH042-C | N | Benzo(g,h,i)perylene | 10.0 | 6.90 U Q M | 6.90 UJ | | ug/kg | C |
| NYOW-B-PH042-C | N | Benzo(k)fluoranthene | 10.0 | 4.50 U Q | 4.50 UJ | | ug/kg | C |
| NYOW-B-PH042-C | N | Dibenz(a,h)anthracene | 10.0 | 6.90 U Q M | 6.90 UJ | | ug/kg | C |
| NYOW-B-PH042-C | N | Indeno(1,2,3-c,d)pyrene | 10.0 | 6.90 U Q M | 6.90 UJ | | ug/kg | C |
| NYOW-B-PH043-B | N | Benzo(g,h,i)perylene | 11.0 | 7.30 U Q M | 7.30 UJ | | ug/kg | C |
| NYOW-B-PH043-B | N | Benzo(k)fluoranthene | 11.0 | 4.70 U Q | 4.70 UJ | | ug/kg | C |
| NYOW-B-PH043-B | N | Dibenz(a,h)anthracene | 11.0 | 7.30 U Q M | 7.30 UJ | | ug/kg | C |
| NYOW-B-PH043-B | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.30 U Q M | 7.30 UJ | | ug/kg | C |
| NYOW-B-PH043-C | N | Benzo(g,h,i)perylene | 9.60 | 6.40 U Q M | 6.40 UJ | | ug/kg | C |
| NYOW-B-PH043-C | N | Benzo(k)fluoranthene | 9.60 | 4.20 U Q | 4.20 UJ | | ug/kg | C |
| NYOW-B-PH043-C | N | Dibenz(a,h)anthracene | 9.60 | 6.40 U Q M | 6.40 UJ | | ug/kg | C |
| NYOW-B-PH043-C | N | Indeno(1,2,3-c,d)pyrene | 9.60 | 6.40 U Q M | 6.40 UJ | | ug/kg | C |
| NYOW-B-PH044-B | N | Benzo(g,h,i)perylene | 11.0 | 3.20 J Q | 3.20 J | - | ug/kg | C/Z/TR |
| NYOW-B-PH044-B | N | Benzo(k)fluoranthene | 11.0 | 2.50 J Q | 2.50 J | - | ug/kg | C/TR |
| NYOW-B-PH044-B | N | Dibenz(a,h)anthracene | 11.0 | 7.50 U Q | 7.50 UJ | | ug/kg | C |
| NYOW-B-PH044-B | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 3.20 J Q M | 3.20 J | - | ug/kg | C/Z/TR |
| NYOW-B-PH044-C | N | Benzo(g,h,i)perylene | 11.0 | 7.30 U Q | 7.30 UJ | | ug/kg | C |
| NYOW-B-PH044-C | N | Benzo(k)fluoranthene | 11.0 | 4.70 U Q M | 4.70 UJ | | ug/kg | C |
| NYOW-B-PH044-C | N | Dibenz(a,h)anthracene | 11.0 | 7.30 U Q | 7.30 UJ | | ug/kg | C |
| NYOW-B-PH044-C | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.30 U Q | 7.30 UJ | | ug/kg | C |
| NYOW-B-PH045-B | N | Benzo(g,h,i)perylene | 10.0 | 6.90 U Q | 6.90 UJ | | ug/kg | C |
| NYOW-B-PH045-B | N | Benzo(k)fluoranthene | 10.0 | 4.50 U Q M | 4.50 UJ | | ug/kg | C |

**Qualified Results associated with the LCS Recovery for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH045-B | N | Dibenz(a,h)anthracene | 10.0 | 6.90 U Q | 6.90 UJ | | ug/kg | C |
| NYOW-B-PH045-B | N | Indeno(1,2,3-c,d)pyrene | 10.0 | 6.90 U Q | 6.90 UJ | | ug/kg | C |
| NYOW-B-PH045-C | N | Benzo(g,h,i)perylene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | C |
| NYOW-B-PH045-C | N | Benzo(k)fluoranthene | 11.0 | 4.70 U Q | 4.70 UJ | | ug/kg | C |
| NYOW-B-PH045-C | N | Dibenz(a,h)anthracene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | C |
| NYOW-B-PH045-C | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | C |
| NYOW-B-PH046-B | N | Benzo(g,h,i)perylene | 12.0 | 5.90 J Q | 5.90 J | - | ug/kg | C/Z/TR |
| NYOW-B-PH046-B | N | Benzo(k)fluoranthene | 12.0 | 4.40 J Q M | 4.40 J | - | ug/kg | C/TR |
| NYOW-B-PH046-B | N | Dibenz(a,h)anthracene | 12.0 | 8.10 U Q | 8.10 UJ | | ug/kg | C |
| NYOW-B-PH046-B | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 8.10 U Q | 8.10 UJ | | ug/kg | C |
| NYOW-B-PH046-C | N | Benzo(g,h,i)perylene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | C/I |
| NYOW-B-PH046-C | N | Benzo(k)fluoranthene | 11.0 | 4.80 U Q | 4.80 UJ | | ug/kg | C/I |
| NYOW-B-PH046-C | N | Dibenz(a,h)anthracene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | C/I |
| NYOW-B-PH046-C | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | C/I |
| NYOW-B-PH047-B | N | Benzo(g,h,i)perylene | 11.0 | 13.0 Q | 13.0 J | - | ug/kg | C/Z |
| NYOW-B-PH047-B | N | Benzo(k)fluoranthene | 11.0 | 8.50 J Q M | 8.50 J | - | ug/kg | C/TR |
| NYOW-B-PH047-B | N | Dibenz(a,h)anthracene | 11.0 | 7.10 U Q | 7.10 UJ | | ug/kg | C |
| NYOW-B-PH047-B | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 14.0 Q | 14.0 J | - | ug/kg | C/Z |
| NYOW-B-PH047-C | N | Benzo(g,h,i)perylene | 10.0 | 6.80 U Q | 6.80 UJ | | ug/kg | C |
| NYOW-B-PH047-C | N | Benzo(k)fluoranthene | 10.0 | 4.40 U Q M | 4.40 UJ | | ug/kg | C |
| NYOW-B-PH047-C | N | Dibenz(a,h)anthracene | 10.0 | 6.80 U Q | 6.80 UJ | | ug/kg | C |
| NYOW-B-PH047-C | N | Indeno(1,2,3-c,d)pyrene | 10.0 | 6.80 U Q | 6.80 UJ | | ug/kg | C |
| NYOW-B-SL042-A | N | Benzo(g,h,i)perylene | 12.0 | 6.10 J Q | 6.10 J | - | ug/kg | C/Z/TR |
| NYOW-B-SL042-A | N | Benzo(k)fluoranthene | 12.0 | 3.80 J Q M | 3.80 J | - | ug/kg | C/TR |
| NYOW-B-SL042-A | N | Dibenz(a,h)anthracene | 12.0 | 7.80 U Q | 7.80 UJ | | ug/kg | C |
| NYOW-B-SL042-A | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 6.20 J Q | 6.20 J | - | ug/kg | C/Z/TR |
| NYOW-B-SL043-A | N | Benzo(g,h,i)perylene | 11.0 | 36.0 Q | 36.0 J | - | ug/kg | C/Z |
| NYOW-B-SL043-A | N | Benzo(k)fluoranthene | 11.0 | 19.0 Q M | 19.0 J | - | ug/kg | C |
| NYOW-B-SL043-A | N | Dibenz(a,h)anthracene | 11.0 | 7.00 J Q | 7.00 J | - | ug/kg | C/Z/TR |
| NYOW-B-SL043-A | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 30.0 Q | 30.0 J | - | ug/kg | C/Z |
| NYOW-B-SL044-A | N | Benzo(g,h,i)perylene | 110 | 61.0 J Q D | 61.0 J | - | ug/kg | C/Z/TR |
| NYOW-B-SL044-A | N | Benzo(k)fluoranthene | 110 | 29.0 J Q D | 29.0 J | - | ug/kg | C/TR |
| NYOW-B-SL044-A | N | Dibenz(a,h)anthracene | 110 | 73.0 U Q | 73.0 UJ | | ug/kg | C |
| NYOW-B-SL044-A | N | Indeno(1,2,3-c,d)pyrene | 110 | 52.0 J Q D | 52.0 J | - | ug/kg | C/Z/TR |
| NYOW-B-SL045-A | N | Benzo(g,h,i)perylene | 11.0 | 97.0 Q | 97.0 J | - | ug/kg | C/Z |
| NYOW-B-SL045-A | N | Benzo(k)fluoranthene | 11.0 | 78.0 Q | 78.0 J | - | ug/kg | C |
| NYOW-B-SL045-A | N | Dibenz(a,h)anthracene | 11.0 | 27.0 Q | 27.0 J | - | ug/kg | C/Z |
| NYOW-B-SL045-A | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 120 Q | 120 J | - | ug/kg | C/Z |
| NYOW-B-SL046-A | N | Benzo(g,h,i)perylene | 11.0 | 130 J1 Q | 130 J | - | ug/kg | C/Z/M/D |
| NYOW-B-SL046-A | N | Benzo(k)fluoranthene | 11.0 | 110 J1 Q | 110 J | | ug/kg | C/M/D |
| NYOW-B-SL046-A | N | Dibenz(a,h)anthracene | 11.0 | 41.0 J1 Q | 41.0 J | - | ug/kg | C/Z |
| NYOW-B-SL046-A | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 160 J1 Q | 160 J | | ug/kg | C/Z/M/D |

**Qualified Results associated with the LCS Recovery for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL047-A | N | Benzo(g,h,i)perylene | 11.0 | 230 Q | 230 J | - | ug/kg | C/Z |
| NYOW-B-SL047-A | N | Benzo(k)fluoranthene | 11.0 | 180 Q | 180 J | - | ug/kg | C |
| NYOW-B-SL047-A | N | Dibenz(a,h)anthracene | 11.0 | 70.0 Q | 70.0 J | - | ug/kg | C/Z |
| NYOW-B-SL047-A | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 280 Q | 280 J | - | ug/kg | C/Z |
| PH-DUP-001_210506 | FD | Benzo(g,h,i)perylene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | C |
| PH-DUP-001_210506 | FD | Benzo(k)fluoranthene | 11.0 | 4.70 U Q | 4.70 UJ | | ug/kg | C |
| PH-DUP-001_210506 | FD | Dibenz(a,h)anthracene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | C |
| PH-DUP-001_210506 | FD | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | C |
| SL-DUP-001_210506 | FD | Benzo(g,h,i)perylene | 11.0 | 250 Q | 250 J | - | ug/kg | C/Z |
| SL-DUP-001_210506 | FD | Benzo(k)fluoranthene | 11.0 | 200 Q | 200 J | - | ug/kg | C |
| SL-DUP-001_210506 | FD | Dibenz(a,h)anthracene | 11.0 | 74.0 Q | 74.0 J | - | ug/kg | C/Z |
| SL-DUP-001_210506 | FD | Indeno(1,2,3-c,d)pyrene | 11.0 | 320 Q | 320 J | - | ug/kg | C/Z |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, LCS RPD**

The objective of laboratory control sample/laboratory control sample duplicate (LCS/LCSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. LCS/LCSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Laboratory control sample/laboratory control sample duplicate RPD results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 280-536125/3-A (BD)/ LCSD 280-536125/3-A | 1-Methylnaphthalene | 0.1480 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536125/3-A (BD)/ LCSD 280-536125/3-A | Acenaphthene | 0.1710 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536125/3-A (BD)/ LCSD 280-536125/3-A | Fluorene | 0.1590 | < 0.1 | < 0.1 | ug/l | J/None | Z | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method BNASIMD, LCS RPD**

The objective of laboratory control sample/laboratory control sample duplicate (LCS/LCSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. LCS/LCSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Laboratory control sample/laboratory control sample duplicate RPD results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 280-535673/3-A (BD)/ LCSD 280-535673/3-A | Benzo (g,h,i)perylene | 28.10 | < 10 | < 10 | ug/kg | J/None | Z | |
| LCSD 280-535673/3-A (BD)/ LCSD 280-535673/3-A | Dibenz (a,h)anthracene | 26.70 | < 10 | < 10 | ug/kg | J/None | Z | |
| LCSD 280-535673/3-A (BD)/ LCSD 280-535673/3-A | Indeno(1,2,3-c,d)pyrene | 29.80 | < 10 | < 10 | ug/kg | J/None | Z | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the LCS RPD for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH044-B | N | Benzo(g,h,i)perylene | 11.0 | 3.20 J Q | 3.20 J | - | ug/kg | C/Z/TR |
| NYOW-B-PH044-B | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 3.20 J Q M | 3.20 J | - | ug/kg | C/Z/TR |
| NYOW-B-PH046-B | N | Benzo(g,h,i)perylene | 12.0 | 5.90 J Q | 5.90 J | - | ug/kg | C/Z/TR |
| NYOW-B-PH047-B | N | Benzo(g,h,i)perylene | 11.0 | 13.0 Q | 13.0 J | - | ug/kg | C/Z |
| NYOW-B-PH047-B | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 14.0 Q | 14.0 J | - | ug/kg | C/Z |
| NYOW-B-SL042-A | N | Benzo(g,h,i)perylene | 12.0 | 6.10 J Q | 6.10 J | - | ug/kg | C/Z/TR |
| NYOW-B-SL042-A | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 6.20 J Q | 6.20 J | - | ug/kg | C/Z/TR |
| NYOW-B-SL043-A | N | Benzo(g,h,i)perylene | 11.0 | 36.0 Q | 36.0 J | - | ug/kg | C/Z |
| NYOW-B-SL043-A | N | Dibenz(a,h)anthracene | 11.0 | 7.00 J Q | 7.00 J | - | ug/kg | C/Z/TR |
| NYOW-B-SL043-A | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 30.0 Q | 30.0 J | - | ug/kg | C/Z |
| NYOW-B-SL044-A | N | Benzo(g,h,i)perylene | 110 | 61.0 J Q D | 61.0 J | - | ug/kg | C/Z/TR |
| NYOW-B-SL044-A | N | Indeno(1,2,3-c,d)pyrene | 110 | 52.0 J Q D | 52.0 J | - | ug/kg | C/Z/TR |
| NYOW-B-SL045-A | N | Benzo(g,h,i)perylene | 11.0 | 97.0 Q | 97.0 J | - | ug/kg | C/Z |
| NYOW-B-SL045-A | N | Dibenz(a,h)anthracene | 11.0 | 27.0 Q | 27.0 J | - | ug/kg | C/Z |
| NYOW-B-SL045-A | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 120 Q | 120 J | - | ug/kg | C/Z |
| NYOW-B-SL046-A | N | Benzo(g,h,i)perylene | 11.0 | 130 J1 Q | 130 J | - | ug/kg | C/Z/M/D |
| NYOW-B-SL046-A | N | Dibenz(a,h)anthracene | 11.0 | 41.0 J1 Q | 41.0 J | - | ug/kg | C/Z |
| NYOW-B-SL046-A | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 160 J1 Q | 160 J | | ug/kg | C/Z/M/D |
| NYOW-B-SL047-A | N | Benzo(g,h,i)perylene | 11.0 | 230 Q | 230 J | - | ug/kg | C/Z |
| NYOW-B-SL047-A | N | Dibenz(a,h)anthracene | 11.0 | 70.0 Q | 70.0 J | - | ug/kg | C/Z |
| NYOW-B-SL047-A | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 280 Q | 280 J | - | ug/kg | C/Z |
| SL-DUP-001_210506 | FD | Benzo(g,h,i)perylene | 11.0 | 250 Q | 250 J | - | ug/kg | C/Z |
| SL-DUP-001_210506 | FD | Dibenz(a,h)anthracene | 11.0 | 74.0 Q | 74.0 J | - | ug/kg | C/Z |

**Qualified Results associated with the LCS RPD for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| SL-DUP-001_210506 | FD | Indeno(1,2,3-c,d)pyrene | 11.0 | 320 Q | 320 J | - | ug/kg | C/Z |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL046-A (MS)/ 280-148345-5MS | Anthracene | 171.2 | 50 - 114 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL046-A (MS)/ 280-148345-5MS | Benzo (a)anthracene | 235.6 | 54 - 122 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL046-A (MS)/ 280-148345-5MS | Benzo(a)pyrene | 189.0 | 50 - 125 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL046-A (MS)/ 280-148345-5MS | Benzo (b)fluoranthene | 193.2 | 53 - 128 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL046-A (MS)/ 280-148345-5MS | Benzo (k)fluoranthene | 126.0 | 56 - 123 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL046-A (MS)/ 280-148345-5MS | Chrysene | 180.8 | 57 - 118 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL046-A (MS)/ 280-148345-5MS | Indeno(1,2,3-c,d)pyrene | 171.2 | 49 - 130 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL046-A (MS)/ 280-148345-5MS | Phenanthrene | 408.2 | 49 - 113 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL046-A (MS)/ 280-148345-5MS | Fluoranthene | 334.2 | 55 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL046-A (MS)/ 280-148345-5MS | Pyrene | 253.4 | 55 - 117 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Anthracene | 45.61 | 50 - 114 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Benzo (a)anthracene | -81.82 | 54 - 122 | 10 - 200 | percent | J/X | M | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Benzo(a)pyrene | -31.82 | 50 - 125 | 10 - 200 | percent | J/X | M | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Benzo (g,h,i)perylene | 12.12 | 49 - 127 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Benzo (k)fluoranthene | 19.70 | 56 - 123 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Chrysene | -48.48 | 57 - 118 | 10 - 200 | percent | J/X | M | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Indeno(1,2,3-c,d)pyrene | 21.21 | 49 - 130 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Phenanthrene | -81.82 | 49 - 113 | 10 - 200 | percent | J/X | M | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Benzo (b)fluoranthene | -46.97 | 53 - 128 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Fluoranthene | -192.4 | 55 - 119 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Pyrene | -150.0 | 55 - 117 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL046-A | N | Anthracene | 11.0 | 40.0 J1 | 40.0 J | | ug/kg | M/D |
| NYOW-B-SL046-A | N | Benzo(a)anthracene | 11.0 | 250 J1 | 250 J | | ug/kg | M/D |
| NYOW-B-SL046-A | N | Benzo(a)pyrene | 11.0 | 230 J1 Q | 230 J | | ug/kg | M/D/Z |
| NYOW-B-SL046-A | N | Benzo(b)fluoranthene | 11.0 | 270 J1 Q | 270 J | + | ug/kg | M/D |
| NYOW-B-SL046-A | N | Benzo(k)fluoranthene | 11.0 | 110 J1 Q | 110 J | | ug/kg | C/M/D |
| NYOW-B-SL046-A | N | Chrysene | 11.0 | 220 J1 | 220 J | | ug/kg | M/D |
| NYOW-B-SL046-A | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 160 J1 Q | 160 J | | ug/kg | C/Z/M/D |
| NYOW-B-SL046-A | N | Phenanthrene | 11.0 | 190 J1 | 190 J | | ug/kg | M/D |
| NYOW-B-SL046-A | N | Benzo(g,h,i)perylene | 11.0 | 130 J1 Q | 130 J | - | ug/kg | C/Z/M/D |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, MS RPD**

The objective of matrix spikes/matrix spike duplicates (MS/MSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. MS/MSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Matrix spikes/matrix spike duplicates results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Anthracene | 80.73 | < 40 | < 40 | rpd | J/None | D | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Benzo (a)anthracene | 73.14 | < 40 | < 40 | rpd | J/None | D | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Benzo(a)pyrene | 55.11 | < 40 | < 40 | rpd | J/None | D | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Benzo (b)fluoranthene | 52.92 | < 40 | < 40 | rpd | J/None | D | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Benzo (g,h,i)perylene | 42.74 | < 40 | < 40 | rpd | J/None | D | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Benzo (k)fluoranthene | 48.62 | < 40 | < 40 | rpd | J/None | D | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Chrysene | 60.74 | < 40 | < 40 | rpd | J/None | D | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Fluorene | 46.62 | < 40 | < 40 | rpd | J/None | D | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Indeno(1,2,3-c,d)pyrene | 48.37 | < 40 | < 40 | rpd | J/None | D | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Phenanthrene | 112.8 | < 40 | < 40 | rpd | J/None | D | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Fluoranthene | 80.92 | < 40 | < 40 | rpd | J/None | D | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Pyrene | 72.26 | < 40 | < 40 | rpd | J/None | D | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS RPD for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL046-A | N | Anthracene | 11.0 | 40.0 J1 | 40.0 J | | ug/kg | M/D |
| NYOW-B-SL046-A | N | Benzo(a)anthracene | 11.0 | 250 J1 | 250 J | | ug/kg | M/D |
| NYOW-B-SL046-A | N | Benzo(a)pyrene | 11.0 | 230 J1 Q | 230 J | | ug/kg | M/D/Z |
| NYOW-B-SL046-A | N | Benzo(b)fluoranthene | 11.0 | 270 J1 Q | 270 J | + | ug/kg | M/D |
| NYOW-B-SL046-A | N | Benzo(g,h,i)perylene | 11.0 | 130 J1 Q | 130 J | - | ug/kg | C/Z/M/D |
| NYOW-B-SL046-A | N | Benzo(k)fluoranthene | 11.0 | 110 J1 Q | 110 J | | ug/kg | C/M/D |
| NYOW-B-SL046-A | N | Chrysene | 11.0 | 220 J1 | 220 J | | ug/kg | M/D |
| NYOW-B-SL046-A | N | Fluoranthene | 45.0 | 400 D J1 | 400 J | - | ug/kg | D/I |
| NYOW-B-SL046-A | N | Fluorene | 11.0 | 15.0 J1 | 15.0 J | | ug/kg | D |
| NYOW-B-SL046-A | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 160 J1 Q | 160 J | | ug/kg | C/Z/M/D |
| NYOW-B-SL046-A | N | Phenanthrene | 11.0 | 190 J1 | 190 J | | ug/kg | M/D |

**Qualified Results associated with the MS RPD for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL046-A | N | Pyrene | 45.0 | 350 D J1 | 350 J | - | ug/kg | D/I |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, Prep Hold Time**

Hold times are ascertained based on project requirements. Holding times were determined by comparing the chain of custody records with the dates of extraction found in the electronic data deliverable and laboratory summary forms. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-01_210506 (EB)/ 280-148345-21 | | 7.250 | < 7 | < 14 | days | J/UJ | H2 | Prep Exceeds UWL |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method BNASIMD, Prep Hold Time**

Hold times are ascertained based on project requirements. Holding times were determined by comparing the chain of custody records with the dates of extraction found in the electronic data deliverable and laboratory summary forms. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH042-B (N)/ 280-148345-19 | | 17.81 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-PH042-C (N)/ 280-148345-20 | | 17.81 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-PH043-B (N)/ 280-148345-16 | | 17.85 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-PH043-C (N)/ 280-148345-17 | | 17.84 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-PH044-B (N)/ 280-148345-13 | | 17.87 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-PH044-C (N)/ 280-148345-14 | | 17.87 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-PH045-B (N)/ 280-148345-10 | | 17.91 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-PH045-C (N)/ 280-148345-11 | | 17.90 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-PH046-B (N)/ 280-148345-6 | | 17.96 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-PH046-C (N)/ 280-148345-7 | | 17.95 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-PH047-B (N)/ 280-148345-3 | | 18.01 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-PH047-C (N)/ 280-148345-4 | | 18.01 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-SL042-A (N)/ 280-148345-18 | | 17.82 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-SL043-A (N)/ 280-148345-15 | | 17.85 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-SL044-A (N)/ 280-148345-12 | | 17.88 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-SL045-A (N)/ 280-148345-9 | | 17.91 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-SL046-A (N)/ 280-148345-5 | | 17.96 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-SL047-A (N)/ 280-148345-1 | | 18.02 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| PH-DUP-001_210506 (FD)/ 280-148345-8 | | 18.39 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| SL-DUP-001_210506 (FD)/ 280-148345-2 | | 18.39 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method BNASIMD, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-01_210506 (EB)/ 280-148345-21 | 2-Fluorobiphenyl | 48.00 | 53 - 106 | 10 - 106 | percent | J/UJ | I | |
| EB-01_210506 (EB)/ 280-148345-21 | Nitrobenzene-d5 | 54.00 | 55 - 111 | 10 - 111 | percent | J/UJ | I | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| EB-01_210506 | EB | 1-Methylnaphthalene | 0.0960 | 0.0380 U Q | 0.0380 UJ | | ug/l | I |
| EB-01_210506 | EB | 2-Methylnaphthalene | 0.0960 | 0.0480 U Q | 0.0480 UJ | | ug/l | I |
| EB-01_210506 | EB | Acenaphthene | 0.0960 | 0.0120 U Q | 0.0120 UJ | | ug/l | I |
| EB-01_210506 | EB | Acenaphthylene | 0.0960 | 0.0190 U Q | 0.0190 UJ | | ug/l | I |
| EB-01_210506 | EB | Anthracene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | I |
| EB-01_210506 | EB | Benzo(a)anthracene | 0.0960 | 0.0960 U | 0.0960 UJ | | ug/l | I |
| EB-01_210506 | EB | Benzo(a)pyrene | 0.0960 | 0.0480 U | 0.0480 UJ | | ug/l | I |
| EB-01_210506 | EB | Benzo(b)fluoranthene | 0.0960 | 0.0960 U | 0.0960 UJ | | ug/l | I |
| EB-01_210506 | EB | Benzo(g,h,i)perylene | 0.0960 | 0.0960 U | 0.0960 UJ | | ug/l | I |
| EB-01_210506 | EB | Benzo(k)fluoranthene | 0.0960 | 0.0320 J | 0.0320 J | - | ug/l | I/TR |
| EB-01_210506 | EB | Chrysene | 0.0960 | 0.0960 U | 0.0960 UJ | | ug/l | I |
| EB-01_210506 | EB | Dibenz(a,h)anthracene | 0.0960 | 0.0320 J | 0.0320 J | - | ug/l | I/TR |
| EB-01_210506 | EB | Fluoranthene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | I |
| EB-01_210506 | EB | Fluorene | 0.0960 | 0.0380 U Q | 0.0380 UJ | | ug/l | I |
| EB-01_210506 | EB | Indeno(1,2,3-c,d)pyrene | 0.0960 | 0.0960 U | 0.0960 UJ | | ug/l | I |
| EB-01_210506 | EB | Naphthalene | 0.0960 | 0.0480 U Q | 0.0480 UJ | | ug/l | I |
| EB-01_210506 | EB | Phenanthrene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | I |
| EB-01_210506 | EB | Pyrene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | I |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH046-C (N)/ 280-148345-7 | 2-Fluorobiphenyl | 43.00 | 46 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-B-SL045-A (N)/ 280-148345-9 | Terphenyl-d14 | 55.00 | 58 - 133 | 10 - 133 | percent | J/UJ | I | |
| NYOW-B-SL046-A (N)/ 280-148345-5 | Terphenyl-d14 | 57.00 | 58 - 133 | 10 - 133 | percent | J/UJ | I | |
| SL-DUP-001_210506 (FD)/ 280-148345-2 | Nitrobenzene-d5 | 43.00 | 44 - 125 | 10 - 125 | percent | J/UJ | I | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH046-C | N | 1-Methylnaphthalene | 11.0 | 2.20 U | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH046-C | N | 2-Methylnaphthalene | 11.0 | 2.20 U | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH046-C | N | Acenaphthene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH046-C | N | Acenaphthylene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH046-C | N | Anthracene | 11.0 | 4.80 U Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH046-C | N | Benzo(a)anthracene | 11.0 | 4.80 U | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH046-C | N | Benzo(a)pyrene | 11.0 | 4.80 U M Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH046-C | N | Benzo(b)fluoranthene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | I |
| NYOW-B-PH046-C | N | Benzo(g,h,i)perylene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | C/I |
| NYOW-B-PH046-C | N | Benzo(k)fluoranthene | 11.0 | 4.80 U Q | 4.80 UJ | | ug/kg | C/I |
| NYOW-B-PH046-C | N | Chrysene | 11.0 | 4.80 U | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH046-C | N | Dibenz(a,h)anthracene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | C/I |
| NYOW-B-PH046-C | N | Fluoranthene | 11.0 | 4.80 U Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH046-C | N | Fluorene | 11.0 | 3.00 U Q | 3.00 UJ | | ug/kg | I |
| NYOW-B-PH046-C | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | C/I |
| NYOW-B-PH046-C | N | Naphthalene | 11.0 | 2.20 U | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH046-C | N | Phenanthrene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | I |
| NYOW-B-PH046-C | N | Pyrene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | I |
| NYOW-B-SL046-A | N | Fluoranthene | 45.0 | 400 D J1 | 400 J | - | ug/kg | D/I |
| NYOW-B-SL046-A | N | Pyrene | 45.0 | 350 D J1 | 350 J | - | ug/kg | D/I |
| SL-DUP-001_210506 | FD | Benzo(a)anthracene | 45.0 | 370 D | 370 J | - | ug/kg | I |
| SL-DUP-001_210506 | FD | Benzo(a)pyrene | 45.0 | 370 Q D | 370 J | - | ug/kg | I/Z |
| SL-DUP-001_210506 | FD | Benzo(b)fluoranthene | 45.0 | 480 Q D | 480 J | - | ug/kg | I |
| SL-DUP-001_210506 | FD | Chrysene | 45.0 | 410 D | 410 J | - | ug/kg | I |
| SL-DUP-001_210506 | FD | Fluoranthene | 45.0 | 640 D | 640 J | - | ug/kg | I |

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| SL-DUP-001_210506 | FD | Pyrene | 45.0 | 610 D | 610 J | - | ug/kg | I |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-536688/1-A (LB)/ MB 280-536688/1-A | Zinc | 1.300 | < 0.4 | < 8 | mg/kg | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6010C, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH046-B (MS)/ 280-148345-6MS | Calcium | 30.51 | 81 - 116 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH046-B (MS)/ 280-148345-6MS | Sodium | 82.52 | 83 - 118 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH046-B (MS)/ 280-148345-6MS | Aluminum | 449.2 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH046-B (MS)/ 280-148345-6MS | Iron | 150.0 | 81 - 118 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH046-B (MS)/ 280-148345-6MS | Manganese | 141.7 | 84 - 114 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Barium | 80.11 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Beryllium | 80.89 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Calcium | 565.9 | 81 - 116 | 10 - 200 | percent | J/None | M | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Chromium | 84.64 | 85 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Cobalt | 78.27 | 85 - 112 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Copper | 78.86 | 81 - 117 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Lead | 75.45 | 81 - 112 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Magnesium | 55.45 | 78 - 115 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Nickel | 78.16 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Sodium | 80.01 | 83 - 118 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Zinc | 70.00 | 82 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Aluminum | 375.0 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Iron | -111.1 | 81 - 118 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Manganese | -66.67 | 84 - 114 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |
| NYOW-B-SL046-A (MS)/ 280-148345-5MS | Magnesium | 161.8 | 78 - 115 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL046-A (MS)/ 280-148345-5MS | Aluminum | 387.4 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL046-A (MS)/ 280-148345-5MS | Calcium | -72.73 | 81 - 116 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |
| NYOW-B-SL046-A (MS)/ 280-148345-5MS | Iron | 154.5 | 81 - 118 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL046-A (MS)/ 280-148345-5MS | Manganese | 145.9 | 84 - 114 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |

**Quality Control Outliers for test method SW6010C, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Aluminum | 422.7 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Calcium | -108.2 | 81 - 116 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Iron | 140.0 | 81 - 118 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH046-B | N | Calcium | 110 | 8700 J1 | 8700 J | | mg/kg | M/D/M2/A |
| NYOW-B-PH046-B | N | Sodium | 530 | 37.0 J J1 | 37.0 J | - | mg/kg | M/D/TR/M2 |
| NYOW-B-PH046-B | N | Barium | 2.10 | 62.0 J1 Q | 62.0 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B | N | Beryllium | 0.530 | 0.400 J J1 | 0.400 J | - | mg/kg | M/D/TR/M2 |
| NYOW-B-PH046-B | N | Chromium | 3.70 | 8.80 J1 | 8.80 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B | N | Cobalt | 1.10 | 6.30 J1 | 6.30 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B | N | Copper | 5.30 | 22.0 J1 | 22.0 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B | N | Lead | 0.950 | 15.0 J1 | 15.0 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B | N | Magnesium | 32.0 | 4300 J1 | 4300 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B | N | Nickel | 4.20 | 9.60 J1 | 9.60 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B | N | Zinc | 8.40 | 38.0 J1 | 38.0 J | - | mg/kg | M/D |
| NYOW-B-SL046-A | N | Magnesium | 34.0 | 5300 J1 | 5300 J | + | mg/kg | M/D/M2 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, MS RPD**

The objective of matrix spikes/matrix spike duplicates (MS/MSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. MS/MSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Matrix spikes/matrix spike duplicates results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Barium | 30.83 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Beryllium | 32.06 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Calcium | 104.8 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Chromium | 32.09 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Cobalt | 35.04 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Copper | 30.27 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Lead | 33.37 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Magnesium | 28.28 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Nickel | 33.67 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Potassium | 27.95 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Sodium | 31.68 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Vanadium | 29.65 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH046-B (SD)/ 280-148345-6MSD | Zinc | 29.28 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL046-A (SD)/ 280-148345-5MSD | Magnesium | 35.59 | < 20 | < 20 | rpd | J/UJ | D | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS RPD for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH046-B | N | Barium | 2.10 | 62.0 J1 Q | 62.0 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B | N | Beryllium | 0.530 | 0.400 J J1 | 0.400 J | - | mg/kg | M/D/TR/M2 |
| NYOW-B-PH046-B | N | Calcium | 110 | 8700 J1 | 8700 J | | mg/kg | M/D/M2/A |
| NYOW-B-PH046-B | N | Chromium | 3.70 | 8.80 J1 | 8.80 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B | N | Cobalt | 1.10 | 6.30 J1 | 6.30 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B | N | Copper | 5.30 | 22.0 J1 | 22.0 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B | N | Lead | 0.950 | 15.0 J1 | 15.0 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B | N | Magnesium | 32.0 | 4300 J1 | 4300 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B | N | Nickel | 4.20 | 9.60 J1 | 9.60 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B | N | Potassium | 320 | 530 J1 | 530 J | | mg/kg | D |

**Qualified Results associated with the MS RPD for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH046-B | N | Sodium | 530 | 37.0 J J1 | 37.0 J | - | mg/kg | M/D/TR/M2 |
| NYOW-B-PH046-B | N | Vanadium | 2.10 | 16.0 J1 | 16.0 J | | mg/kg | D |
| NYOW-B-PH046-B | N | Zinc | 8.40 | 38.0 J1 | 38.0 J | - | mg/kg | M/D |
| NYOW-B-SL046-A | N | Magnesium | 34.0 | 5300 J1 | 5300 J | + | mg/kg | M/D/M2 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Total, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-536276/1-A (LB)/ MB 280-536276/1-A | Iron | 85.50 | < 22 | < 100 | ug/l | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW7470A, Total, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-536171/1-A (LB)/ MB 280-536171/1-A | Mercury | 0.03500 | < 0.027 | < 0.2 | ug/l | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW9060A, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210506 (N)/ 280-148345-8 | Total Organic Carbon | 170.4 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Field Duplicate RPD for SW9060A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH046-C | N | Total Organic Carbon | 4000 | 30000 | 30000 J | | mg/kg | D3 |
| PH-DUP-001_210506 | FD | Total Organic Carbon | 4000 | 2400 J | 2400 J | | mg/kg | D3/TR/D |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW9060A, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210506 (MS)/ 280-148345-8MS | Total Organic Carbon | 0.000 | 46 - 130 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210506 (SD)/ 280-148345-8MSD | Total Organic Carbon | 0.000 | 46 - 130 | 10 - 200 | percent | J/X | M | Parent not found |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3510C | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| EB-01_210506 280-148345-21 | EB | 1-Methylnaphthalene | 0.0960 | 0.0380 U Q | 0.0380 UJ | | ug/l | I |
| EB-01_210506 280-148345-21 | EB | 2-Methylnaphthalene | 0.0960 | 0.0480 U Q | 0.0480 UJ | | ug/l | I |
| EB-01_210506 280-148345-21 | EB | Acenaphthene | 0.0960 | 0.0120 U Q | 0.0120 UJ | | ug/l | I |
| EB-01_210506 280-148345-21 | EB | Acenaphthylene | 0.0960 | 0.0190 U Q | 0.0190 UJ | | ug/l | I |
| EB-01_210506 280-148345-21 | EB | Anthracene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | I |
| EB-01_210506 280-148345-21 | EB | Benzo(a)anthracene | 0.0960 | 0.0960 U | 0.0960 UJ | | ug/l | I |
| EB-01_210506 280-148345-21 | EB | Benzo(a)pyrene | 0.0960 | 0.0480 U | 0.0480 UJ | | ug/l | I |
| EB-01_210506 280-148345-21 | EB | Benzo(b)fluoranthene | 0.0960 | 0.0960 U | 0.0960 UJ | | ug/l | I |
| EB-01_210506 280-148345-21 | EB | Benzo(g,h,i)perylene | 0.0960 | 0.0960 U | 0.0960 UJ | | ug/l | I |
| EB-01_210506 280-148345-21 | EB | Chrysene | 0.0960 | 0.0960 U | 0.0960 UJ | | ug/l | I |
| EB-01_210506 280-148345-21 | EB | Fluoranthene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | I |
| EB-01_210506 280-148345-21 | EB | Fluorene | 0.0960 | 0.0380 U Q | 0.0380 UJ | | ug/l | I |
| EB-01_210506 280-148345-21 | EB | Indeno(1,2,3-c,d)pyrene | 0.0960 | 0.0960 U | 0.0960 UJ | | ug/l | I |
| EB-01_210506 280-148345-21 | EB | Naphthalene | 0.0960 | 0.0480 U Q | 0.0480 UJ | | ug/l | I |
| EB-01_210506 280-148345-21 | EB | Phenanthrene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | I |
| EB-01_210506 280-148345-21 | EB | Pyrene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | I |

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH042-B 280-148345-19 | N | Benzo(g,h,i)perylene | 10.0 | 6.80 U Q M | 6.80 UJ | | ug/kg | C |
| NYOW-B-PH042-B 280-148345-19 | N | Benzo(k)fluoranthene | 10.0 | 4.40 U Q | 4.40 UJ | | ug/kg | C |
| NYOW-B-PH042-B 280-148345-19 | N | Dibenz(a,h)anthracene | 10.0 | 6.80 U Q M | 6.80 UJ | | ug/kg | C |
| NYOW-B-PH042-B 280-148345-19 | N | Indeno(1,2,3-c,d)pyrene | 10.0 | 6.80 U Q M | 6.80 UJ | | ug/kg | C |
| NYOW-B-PH042-C 280-148345-20 | N | Benzo(g,h,i)perylene | 10.0 | 6.90 U Q M | 6.90 UJ | | ug/kg | C |
| NYOW-B-PH042-C 280-148345-20 | N | Benzo(k)fluoranthene | 10.0 | 4.50 U Q | 4.50 UJ | | ug/kg | C |
| NYOW-B-PH042-C 280-148345-20 | N | Dibenz(a,h)anthracene | 10.0 | 6.90 U Q M | 6.90 UJ | | ug/kg | C |
| NYOW-B-PH042-C 280-148345-20 | N | Indeno(1,2,3-c,d)pyrene | 10.0 | 6.90 U Q M | 6.90 UJ | | ug/kg | C |

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH043-B 280-148345-16 | N | Benzo(g,h,i)perylene | 11.0 | 7.30 U Q M | 7.30 UJ | | ug/kg | C |
| NYOW-B-PH043-B 280-148345-16 | N | Benzo(k)fluoranthene | 11.0 | 4.70 U Q | 4.70 UJ | | ug/kg | C |
| NYOW-B-PH043-B 280-148345-16 | N | Dibenz(a,h)anthracene | 11.0 | 7.30 U Q M | 7.30 UJ | | ug/kg | C |
| NYOW-B-PH043-B 280-148345-16 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.30 U Q M | 7.30 UJ | | ug/kg | C |
| NYOW-B-PH043-C 280-148345-17 | N | Benzo(g,h,i)perylene | 9.60 | 6.40 U Q M | 6.40 UJ | | ug/kg | C |
| NYOW-B-PH043-C 280-148345-17 | N | Benzo(k)fluoranthene | 9.60 | 4.20 U Q | 4.20 UJ | | ug/kg | C |
| NYOW-B-PH043-C 280-148345-17 | N | Dibenz(a,h)anthracene | 9.60 | 6.40 U Q M | 6.40 UJ | | ug/kg | C |
| NYOW-B-PH043-C 280-148345-17 | N | Indeno(1,2,3-c,d)pyrene | 9.60 | 6.40 U Q M | 6.40 UJ | | ug/kg | C |
| NYOW-B-PH044-B 280-148345-13 | N | Benzo(a)pyrene | 11.0 | 4.10 J M Q | 4.90 U | | ug/kg | L |
| NYOW-B-PH044-B 280-148345-13 | N | Dibenz(a,h)anthracene | 11.0 | 7.50 U Q | 7.50 UJ | | ug/kg | C |
| NYOW-B-PH044-C 280-148345-14 | N | Benzo(a)pyrene | 11.0 | 2.00 J Q | 4.70 U | | ug/kg | L |
| NYOW-B-PH044-C 280-148345-14 | N | Benzo(g,h,i)perylene | 11.0 | 7.30 U Q | 7.30 UJ | | ug/kg | C |
| NYOW-B-PH044-C 280-148345-14 | N | Benzo(k)fluoranthene | 11.0 | 4.70 U Q M | 4.70 UJ | | ug/kg | C |
| NYOW-B-PH044-C 280-148345-14 | N | Dibenz(a,h)anthracene | 11.0 | 7.30 U Q | 7.30 UJ | | ug/kg | C |
| NYOW-B-PH044-C 280-148345-14 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.30 U Q | 7.30 UJ | | ug/kg | C |
| NYOW-B-PH045-B 280-148345-10 | N | Benzo(g,h,i)perylene | 10.0 | 6.90 U Q | 6.90 UJ | | ug/kg | C |
| NYOW-B-PH045-B 280-148345-10 | N | Benzo(k)fluoranthene | 10.0 | 4.50 U Q M | 4.50 UJ | | ug/kg | C |
| NYOW-B-PH045-B 280-148345-10 | N | Dibenz(a,h)anthracene | 10.0 | 6.90 U Q | 6.90 UJ | | ug/kg | C |
| NYOW-B-PH045-B 280-148345-10 | N | Indeno(1,2,3-c,d)pyrene | 10.0 | 6.90 U Q | 6.90 UJ | | ug/kg | C |
| NYOW-B-PH045-C 280-148345-11 | N | Benzo(g,h,i)perylene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | C |
| NYOW-B-PH045-C 280-148345-11 | N | Benzo(k)fluoranthene | 11.0 | 4.70 U Q | 4.70 UJ | | ug/kg | C |
| NYOW-B-PH045-C 280-148345-11 | N | Dibenz(a,h)anthracene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | C |
| NYOW-B-PH045-C 280-148345-11 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | C |
| NYOW-B-PH046-B 280-148345-6 | N | Dibenz(a,h)anthracene | 12.0 | 8.10 U Q | 8.10 UJ | | ug/kg | C |
| NYOW-B-PH046-B 280-148345-6 | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 8.10 U Q | 8.10 UJ | | ug/kg | C |
| NYOW-B-PH046-C 280-148345-7 | N | 1-Methylnaphthalene | 11.0 | 2.20 U | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH046-C 280-148345-7 | N | 2-Methylnaphthalene | 11.0 | 2.20 U | 2.20 UJ | | ug/kg | I |

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH046-C 280-148345-7 | N | Acenaphthene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH046-C 280-148345-7 | N | Acenaphthylene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH046-C 280-148345-7 | N | Anthracene | 11.0 | 4.80 U Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH046-C 280-148345-7 | N | Benzo(a)anthracene | 11.0 | 4.80 U | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH046-C 280-148345-7 | N | Benzo(a)pyrene | 11.0 | 4.80 U M Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH046-C 280-148345-7 | N | Benzo(b)fluoranthene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | I |
| NYOW-B-PH046-C 280-148345-7 | N | Benzo(g,h,i)perylene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | C/I |
| NYOW-B-PH046-C 280-148345-7 | N | Benzo(k)fluoranthene | 11.0 | 4.80 U Q | 4.80 UJ | | ug/kg | C/I |
| NYOW-B-PH046-C 280-148345-7 | N | Chrysene | 11.0 | 4.80 U | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH046-C 280-148345-7 | N | Dibenz(a,h)anthracene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | C/I |
| NYOW-B-PH046-C 280-148345-7 | N | Fluoranthene | 11.0 | 4.80 U Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH046-C 280-148345-7 | N | Fluorene | 11.0 | 3.00 U Q | 3.00 UJ | | ug/kg | I |
| NYOW-B-PH046-C 280-148345-7 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | C/I |
| NYOW-B-PH046-C 280-148345-7 | N | Naphthalene | 11.0 | 2.20 U | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH046-C 280-148345-7 | N | Phenanthrene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | I |
| NYOW-B-PH046-C 280-148345-7 | N | Pyrene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | I |
| NYOW-B-PH047-B 280-148345-3 | N | Benzo(a)pyrene | 11.0 | 18.0 Q | 18.0 J | | ug/kg | Z |
| NYOW-B-PH047-B 280-148345-3 | N | Benzo(g,h,i)perylene | 11.0 | 13.0 Q | 13.0 J | - | ug/kg | C/Z |
| NYOW-B-PH047-B 280-148345-3 | N | Dibenz(a,h)anthracene | 11.0 | 7.10 U Q | 7.10 UJ | | ug/kg | C |
| NYOW-B-PH047-B 280-148345-3 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 14.0 Q | 14.0 J | - | ug/kg | C/Z |
| NYOW-B-PH047-C 280-148345-4 | N | Benzo(a)pyrene | 10.0 | 1.80 J M Q | 4.40 U | | ug/kg | L |
| NYOW-B-PH047-C 280-148345-4 | N | Benzo(g,h,i)perylene | 10.0 | 6.80 U Q | 6.80 UJ | | ug/kg | C |
| NYOW-B-PH047-C 280-148345-4 | N | Benzo(k)fluoranthene | 10.0 | 4.40 U Q M | 4.40 UJ | | ug/kg | C |
| NYOW-B-PH047-C 280-148345-4 | N | Dibenz(a,h)anthracene | 10.0 | 6.80 U Q | 6.80 UJ | | ug/kg | C |
| NYOW-B-PH047-C 280-148345-4 | N | Indeno(1,2,3-c,d)pyrene | 10.0 | 6.80 U Q | 6.80 UJ | | ug/kg | C |
| NYOW-B-SL042-A 280-148345-18 | N | Benzo(a)pyrene | 12.0 | 7.40 J Q M | 12.0 U | | ug/kg | L |
| NYOW-B-SL042-A 280-148345-18 | N | Dibenz(a,h)anthracene | 12.0 | 7.80 U Q | 7.80 UJ | | ug/kg | C |

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-SL043-A 280-148345-15 | N | Benzo(a)pyrene | 11.0 | 58.0 Q | 58.0 J | | ug/kg | Z |
| NYOW-B-SL043-A 280-148345-15 | N | Benzo(g,h,i)perylene | 11.0 | 36.0 Q | 36.0 J | - | ug/kg | C/Z |
| NYOW-B-SL043-A 280-148345-15 | N | Benzo(k)fluoranthene | 11.0 | 19.0 Q M | 19.0 J | - | ug/kg | C |
| NYOW-B-SL043-A 280-148345-15 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 30.0 Q | 30.0 J | - | ug/kg | C/Z |
| NYOW-B-SL044-A 280-148345-12 | N | Benzo(a)pyrene | 110 | 86.0 J D Q | 110 U | | ug/kg | L |
| NYOW-B-SL044-A 280-148345-12 | N | Dibenz(a,h)anthracene | 110 | 73.0 U Q | 73.0 UJ | | ug/kg | C |
| NYOW-B-SL045-A 280-148345-9 | N | Benzo(a)pyrene | 11.0 | 170 Q | 170 J | | ug/kg | Z |
| NYOW-B-SL045-A 280-148345-9 | N | Benzo(g,h,i)perylene | 11.0 | 97.0 Q | 97.0 J | - | ug/kg | C/Z |
| NYOW-B-SL045-A 280-148345-9 | N | Benzo(k)fluoranthene | 11.0 | 78.0 Q | 78.0 J | - | ug/kg | C |
| NYOW-B-SL045-A 280-148345-9 | N | Dibenz(a,h)anthracene | 11.0 | 27.0 Q | 27.0 J | - | ug/kg | C/Z |
| NYOW-B-SL045-A 280-148345-9 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 120 Q | 120 J | - | ug/kg | C/Z |
| NYOW-B-SL046-A 280-148345-5 | N | Anthracene | 11.0 | 40.0 J1 | 40.0 J | | ug/kg | M/D |
| NYOW-B-SL046-A 280-148345-5 | N | Benzo(a)anthracene | 11.0 | 250 J1 | 250 J | | ug/kg | M/D |
| NYOW-B-SL046-A 280-148345-5 | N | Benzo(a)pyrene | 11.0 | 230 J1 Q | 230 J | | ug/kg | M/D/Z |
| NYOW-B-SL046-A 280-148345-5 | N | Benzo(b)fluoranthene | 11.0 | 270 J1 Q | 270 J | + | ug/kg | M/D |
| NYOW-B-SL046-A 280-148345-5 | N | Benzo(g,h,i)perylene | 11.0 | 130 J1 Q | 130 J | - | ug/kg | C/Z/M/D |
| NYOW-B-SL046-A 280-148345-5 | N | Benzo(k)fluoranthene | 11.0 | 110 J1 Q | 110 J | | ug/kg | C/M/D |
| NYOW-B-SL046-A 280-148345-5 | N | Chrysene | 11.0 | 220 J1 | 220 J | | ug/kg | M/D |
| NYOW-B-SL046-A 280-148345-5 | N | Dibenz(a,h)anthracene | 11.0 | 41.0 J1 Q | 41.0 J | - | ug/kg | C/Z |
| NYOW-B-SL046-A 280-148345-5 | N | Fluoranthene | 45.0 | 400 D J1 | 400 J | - | ug/kg | D/I |
| NYOW-B-SL046-A 280-148345-5 | N | Fluorene | 11.0 | 15.0 J1 | 15.0 J | | ug/kg | D |
| NYOW-B-SL046-A 280-148345-5 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 160 J1 Q | 160 J | | ug/kg | C/Z/M/D |
| NYOW-B-SL046-A 280-148345-5 | N | Phenanthrene | 11.0 | 190 J1 | 190 J | | ug/kg | M/D |
| NYOW-B-SL046-A 280-148345-5 | N | Pyrene | 45.0 | 350 D J1 | 350 J | - | ug/kg | D/I |
| NYOW-B-SL047-A 280-148345-1 | N | Benzo(a)pyrene | 44.0 | 310 Q D | 310 J | | ug/kg | Z |
| NYOW-B-SL047-A 280-148345-1 | N | Benzo(g,h,i)perylene | 11.0 | 230 Q | 230 J | - | ug/kg | C/Z |
| NYOW-B-SL047-A 280-148345-1 | N | Benzo(k)fluoranthene | 11.0 | 180 Q | 180 J | - | ug/kg | C |

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-SL047-A 280-148345-1 | N | Dibenz(a,h)anthracene | 11.0 | 70.0 Q | 70.0 J | - | ug/kg | C/Z |
| NYOW-B-SL047-A 280-148345-1 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 280 Q | 280 J | - | ug/kg | C/Z |
| PH-DUP-001_210506 280-148345-8 | FD | Benzo(g,h,i)perylene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | C |
| PH-DUP-001_210506 280-148345-8 | FD | Benzo(k)fluoranthene | 11.0 | 4.70 U Q | 4.70 UJ | | ug/kg | C |
| PH-DUP-001_210506 280-148345-8 | FD | Dibenz(a,h)anthracene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | C |
| PH-DUP-001_210506 280-148345-8 | FD | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | C |
| SL-DUP-001_210506 280-148345-2 | FD | Benzo(a)anthracene | 45.0 | 370 D | 370 J | - | ug/kg | I |
| SL-DUP-001_210506 280-148345-2 | FD | Benzo(a)pyrene | 45.0 | 370 Q D | 370 J | - | ug/kg | I/Z |
| SL-DUP-001_210506 280-148345-2 | FD | Benzo(b)fluoranthene | 45.0 | 480 Q D | 480 J | - | ug/kg | I |
| SL-DUP-001_210506 280-148345-2 | FD | Benzo(g,h,i)perylene | 11.0 | 250 Q | 250 J | - | ug/kg | C/Z |
| SL-DUP-001_210506 280-148345-2 | FD | Benzo(k)fluoranthene | 11.0 | 200 Q | 200 J | - | ug/kg | C |
| SL-DUP-001_210506 280-148345-2 | FD | Chrysene | 45.0 | 410 D | 410 J | - | ug/kg | I |
| SL-DUP-001_210506 280-148345-2 | FD | Dibenz(a,h)anthracene | 11.0 | 74.0 Q | 74.0 J | - | ug/kg | C/Z |
| SL-DUP-001_210506 280-148345-2 | FD | Fluoranthene | 45.0 | 640 D | 640 J | - | ug/kg | I |
| SL-DUP-001_210506 280-148345-2 | FD | Indeno(1,2,3-c,d)pyrene | 11.0 | 320 Q | 320 J | - | ug/kg | C/Z |
| SL-DUP-001_210506 280-148345-2 | FD | Pyrene | 45.0 | 610 D | 610 J | - | ug/kg | I |

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH042-B 280-148345-19 | N | Aluminum | 48.0 | 3400 | 3400 J | | mg/kg | A |
| NYOW-B-PH042-B 280-148345-19 | N | Calcium | 95.0 | 660 | 660 J | | mg/kg | A |
| NYOW-B-PH042-B 280-148345-19 | N | Iron | 76.0 | 8000 | 8000 J | | mg/kg | A |
| NYOW-B-PH042-B 280-148345-19 | N | Manganese | 4.30 | 400 | 400 J | | mg/kg | A |
| NYOW-B-PH042-B 280-148345-19 | N | Silver | 1.40 | 0.570 U | 0.570 UJ | | mg/kg | V6 |
| NYOW-B-PH042-C 280-148345-20 | N | Aluminum | 47.0 | 4200 | 4200 J | | mg/kg | A |
| NYOW-B-PH042-C 280-148345-20 | N | Calcium | 95.0 | 31000 | 31000 J | | mg/kg | A |
| NYOW-B-PH042-C 280-148345-20 | N | Iron | 76.0 | 11000 | 11000 J | | mg/kg | A |
| NYOW-B-PH042-C 280-148345-20 | N | Manganese | 4.30 | 400 | 400 J | | mg/kg | A |

**Table of All Qualified Results**

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH042-C 280-148345-20 | N | Silver | 1.40 | 0.570 U | 0.570 UJ | | mg/kg | V6 |
| NYOW-B-PH043-B 280-148345-16 | N | Aluminum | 48.0 | 5100 | 5100 J | | mg/kg | A |
| NYOW-B-PH043-B 280-148345-16 | N | Calcium | 96.0 | 12000 | 12000 J | | mg/kg | A |
| NYOW-B-PH043-B 280-148345-16 | N | Iron | 77.0 | 17000 | 17000 J | | mg/kg | A |
| NYOW-B-PH043-B 280-148345-16 | N | Manganese | 4.30 | 700 | 700 J | | mg/kg | A |
| NYOW-B-PH043-B 280-148345-16 | N | Silver | 1.40 | 0.580 U | 0.580 UJ | | mg/kg | V6 |
| NYOW-B-PH043-C 280-148345-17 | N | Aluminum | 40.0 | 3000 | 3000 J | | mg/kg | A |
| NYOW-B-PH043-C 280-148345-17 | N | Calcium | 80.0 | 46000 | 46000 J | | mg/kg | A |
| NYOW-B-PH043-C 280-148345-17 | N | Iron | 64.0 | 8400 | 8400 J | | mg/kg | A |
| NYOW-B-PH043-C 280-148345-17 | N | Manganese | 3.60 | 350 | 350 J | | mg/kg | A |
| NYOW-B-PH043-C 280-148345-17 | N | Silver | 1.20 | 0.480 U | 0.480 UJ | | mg/kg | V6 |
| NYOW-B-PH044-B 280-148345-13 | N | Aluminum | 41.0 | 6000 | 6000 J | | mg/kg | A |
| NYOW-B-PH044-B 280-148345-13 | N | Calcium | 82.0 | 1500 | 1500 J | | mg/kg | A |
| NYOW-B-PH044-B 280-148345-13 | N | Iron | 66.0 | 14000 | 14000 J | | mg/kg | A |
| NYOW-B-PH044-B 280-148345-13 | N | Manganese | 3.70 | 700 | 700 J | | mg/kg | A |
| NYOW-B-PH044-B 280-148345-13 | N | Silver | 1.20 | 0.490 U | 0.490 UJ | | mg/kg | V6 |
| NYOW-B-PH044-C 280-148345-14 | N | Aluminum | 47.0 | 5200 | 5200 J | | mg/kg | A |
| NYOW-B-PH044-C 280-148345-14 | N | Calcium | 94.0 | 23000 | 23000 J | | mg/kg | A |
| NYOW-B-PH044-C 280-148345-14 | N | Iron | 75.0 | 14000 | 14000 J | | mg/kg | A |
| NYOW-B-PH044-C 280-148345-14 | N | Manganese | 4.20 | 630 | 630 J | | mg/kg | A |
| NYOW-B-PH044-C 280-148345-14 | N | Silver | 1.40 | 0.560 U | 0.560 UJ | | mg/kg | V6 |
| NYOW-B-PH045-B 280-148345-10 | N | Aluminum | 45.0 | 6200 | 6200 J | | mg/kg | A |
| NYOW-B-PH045-B 280-148345-10 | N | Calcium | 91.0 | 980 | 980 J | | mg/kg | A |
| NYOW-B-PH045-B 280-148345-10 | N | Iron | 73.0 | 13000 | 13000 J | | mg/kg | A |
| NYOW-B-PH045-B 280-148345-10 | N | Manganese | 4.10 | 780 | 780 J | | mg/kg | A |
| NYOW-B-PH045-B 280-148345-10 | N | Silver | 1.40 | 0.540 U | 0.540 UJ | | mg/kg | V6 |
| NYOW-B-PH045-C 280-148345-11 | N | Aluminum | 38.0 | 3700 | 3700 J | | mg/kg | A |

**Table of All Qualified Results**

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH045-C 280-148345-11 | N | Calcium | 77.0 | 48000 | 48000 J | | mg/kg | A |
| NYOW-B-PH045-C 280-148345-11 | N | Iron | 61.0 | 13000 | 13000 J | | mg/kg | A |
| NYOW-B-PH045-C 280-148345-11 | N | Manganese | 3.50 | 550 | 550 J | | mg/kg | A |
| NYOW-B-PH045-C 280-148345-11 | N | Silver | 1.20 | 0.460 U | 0.460 UJ | | mg/kg | V6 |
| NYOW-B-PH046-B 280-148345-6 | N | Aluminum | 53.0 | 8500 J1 | 8500 J | | mg/kg | A |
| NYOW-B-PH046-B 280-148345-6 | N | Barium | 2.10 | 62.0 J1 Q | 62.0 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B 280-148345-6 | N | Calcium | 110 | 8700 J1 | 8700 J | | mg/kg | M/D/M2/A |
| NYOW-B-PH046-B 280-148345-6 | N | Chromium | 3.70 | 8.80 J1 | 8.80 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B 280-148345-6 | N | Cobalt | 1.10 | 6.30 J1 | 6.30 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B 280-148345-6 | N | Copper | 5.30 | 22.0 J1 | 22.0 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B 280-148345-6 | N | Iron | 84.0 | 19000 J1 | 19000 J | | mg/kg | A |
| NYOW-B-PH046-B 280-148345-6 | N | Lead | 0.950 | 15.0 J1 | 15.0 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B 280-148345-6 | N | Magnesium | 32.0 | 4300 J1 | 4300 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B 280-148345-6 | N | Manganese | 4.70 | 1100 J1 | 1100 J | | mg/kg | A |
| NYOW-B-PH046-B 280-148345-6 | N | Nickel | 4.20 | 9.60 J1 | 9.60 J | - | mg/kg | M/D/M2 |
| NYOW-B-PH046-B 280-148345-6 | N | Potassium | 320 | 530 J1 | 530 J | | mg/kg | D |
| NYOW-B-PH046-B 280-148345-6 | N | Silver | 1.60 | 0.630 U J1 | 0.630 UJ | | mg/kg | V6 |
| NYOW-B-PH046-B 280-148345-6 | N | Vanadium | 2.10 | 16.0 J1 | 16.0 J | | mg/kg | D |
| NYOW-B-PH046-B 280-148345-6 | N | Zinc | 8.40 | 38.0 J1 | 38.0 J | - | mg/kg | M/D |
| NYOW-B-PH046-C 280-148345-7 | N | Aluminum | 49.0 | 3800 | 3800 J | | mg/kg | A |
| NYOW-B-PH046-C 280-148345-7 | N | Calcium | 99.0 | 38000 | 38000 J | | mg/kg | A |
| NYOW-B-PH046-C 280-148345-7 | N | Iron | 79.0 | 9600 | 9600 J | | mg/kg | A |
| NYOW-B-PH046-C 280-148345-7 | N | Manganese | 4.40 | 350 | 350 J | | mg/kg | A |
| NYOW-B-PH046-C 280-148345-7 | N | Silver | 1.50 | 0.590 U | 0.590 UJ | | mg/kg | V6 |
| NYOW-B-PH047-B 280-148345-3 | N | Aluminum | 45.0 | 6500 | 6500 J | | mg/kg | A |
| NYOW-B-PH047-B 280-148345-3 | N | Calcium | 91.0 | 57000 | 57000 J | | mg/kg | A |
| NYOW-B-PH047-B 280-148345-3 | N | Iron | 73.0 | 18000 | 18000 J | | mg/kg | A |

**Table of All Qualified Results**

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH047-B 280-148345-3 | N | Manganese | 4.10 | 820 | 820 J | | mg/kg | A |
| NYOW-B-PH047-B 280-148345-3 | N | Silver | 1.40 | 0.540 U | 0.540 UJ | | mg/kg | V6 |
| NYOW-B-PH047-C 280-148345-4 | N | Aluminum | 40.0 | 3200 | 3200 J | | mg/kg | A |
| NYOW-B-PH047-C 280-148345-4 | N | Calcium | 79.0 | 140000 | 140000 J | | mg/kg | A |
| NYOW-B-PH047-C 280-148345-4 | N | Iron | 63.0 | 11000 | 11000 J | | mg/kg | A |
| NYOW-B-PH047-C 280-148345-4 | N | Manganese | 3.60 | 590 | 590 J | | mg/kg | A |
| NYOW-B-PH047-C 280-148345-4 | N | Silver | 1.20 | 0.480 U | 0.480 UJ | | mg/kg | V6 |
| NYOW-B-SL042-A 280-148345-18 | N | Aluminum | 49.0 | 5400 | 5400 J | | mg/kg | A |
| NYOW-B-SL042-A 280-148345-18 | N | Calcium | 99.0 | 1200 | 1200 J | | mg/kg | A |
| NYOW-B-SL042-A 280-148345-18 | N | Iron | 79.0 | 12000 | 12000 J | | mg/kg | A |
| NYOW-B-SL042-A 280-148345-18 | N | Manganese | 4.40 | 540 | 540 J | | mg/kg | A |
| NYOW-B-SL042-A 280-148345-18 | N | Silver | 1.50 | 0.590 U | 0.590 UJ | | mg/kg | V6 |
| NYOW-B-SL043-A 280-148345-15 | N | Aluminum | 60.0 | 7800 | 7800 J | | mg/kg | A |
| NYOW-B-SL043-A 280-148345-15 | N | Calcium | 120 | 28000 | 28000 J | | mg/kg | A |
| NYOW-B-SL043-A 280-148345-15 | N | Iron | 96.0 | 19000 | 19000 J | | mg/kg | A |
| NYOW-B-SL043-A 280-148345-15 | N | Manganese | 5.40 | 1300 | 1300 J | | mg/kg | A |
| NYOW-B-SL044-A 280-148345-12 | N | Aluminum | 42.0 | 4500 | 4500 J | | mg/kg | A |
| NYOW-B-SL044-A 280-148345-12 | N | Calcium | 84.0 | 36000 | 36000 J | | mg/kg | A |
| NYOW-B-SL044-A 280-148345-12 | N | Iron | 67.0 | 11000 | 11000 J | | mg/kg | A |
| NYOW-B-SL044-A 280-148345-12 | N | Manganese | 3.80 | 540 | 540 J | | mg/kg | A |
| NYOW-B-SL044-A 280-148345-12 | N | Silver | 1.30 | 0.510 U | 0.510 UJ | | mg/kg | V6 |
| NYOW-B-SL045-A 280-148345-9 | N | Aluminum | 56.0 | 7000 | 7000 J | | mg/kg | A |
| NYOW-B-SL045-A 280-148345-9 | N | Calcium | 110 | 3500 | 3500 J | | mg/kg | A |
| NYOW-B-SL045-A 280-148345-9 | N | Iron | 89.0 | 22000 | 22000 J | | mg/kg | A |
| NYOW-B-SL045-A 280-148345-9 | N | Manganese | 5.00 | 670 | 670 J | | mg/kg | A |
| NYOW-B-SL045-A 280-148345-9 | N | Silver | 1.70 | 0.670 U | 0.670 UJ | | mg/kg | V6 |
| NYOW-B-SL046-A 280-148345-5 | N | Aluminum | 56.0 | 6100 J1 | 6100 J | | mg/kg | A |

**Table of All Qualified Results**

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-SL046-A 280-148345-5 | N | Calcium | 110 | 29000 J1 | 29000 J | | mg/kg | A |
| NYOW-B-SL046-A 280-148345-5 | N | Iron | 90.0 | 14000 J1 | 14000 J | | mg/kg | A |
| NYOW-B-SL046-A 280-148345-5 | N | Magnesium | 34.0 | 5300 J1 | 5300 J | + | mg/kg | M/D/M2 |
| NYOW-B-SL046-A 280-148345-5 | N | Manganese | 5.10 | 730 J1 | 730 J | | mg/kg | A |
| NYOW-B-SL046-A 280-148345-5 | N | Silver | 1.70 | 0.680 U | 0.680 UJ | | mg/kg | V6 |
| NYOW-B-SL047-A 280-148345-1 | N | Aluminum | 56.0 | 8000 | 8000 J | | mg/kg | A |
| NYOW-B-SL047-A 280-148345-1 | N | Calcium | 110 | 21000 | 21000 J | | mg/kg | A |
| NYOW-B-SL047-A 280-148345-1 | N | Iron | 90.0 | 20000 | 20000 J | | mg/kg | A |
| NYOW-B-SL047-A 280-148345-1 | N | Manganese | 5.10 | 980 | 980 J | | mg/kg | A |
| NYOW-B-SL047-A 280-148345-1 | N | Silver | 1.70 | 0.680 U | 0.680 UJ | | mg/kg | V6 |
| PH-DUP-001_210506 280-148345-8 | FD | Aluminum | 41.0 | 5100 | 5100 J | | mg/kg | A |
| PH-DUP-001_210506 280-148345-8 | FD | Calcium | 82.0 | 40000 | 40000 J | | mg/kg | A |
| PH-DUP-001_210506 280-148345-8 | FD | Iron | 66.0 | 12000 | 12000 J | | mg/kg | A |
| PH-DUP-001_210506 280-148345-8 | FD | Manganese | 3.70 | 420 | 420 J | | mg/kg | A |
| PH-DUP-001_210506 280-148345-8 | FD | Silver | 1.20 | 0.490 U | 0.490 UJ | | mg/kg | V6 |
| SL-DUP-001_210506 280-148345-2 | FD | Aluminum | 53.0 | 8100 | 8100 J | | mg/kg | A |
| SL-DUP-001_210506 280-148345-2 | FD | Calcium | 110 | 24000 | 24000 J | | mg/kg | A |
| SL-DUP-001_210506 280-148345-2 | FD | Iron | 85.0 | 20000 | 20000 J | | mg/kg | A |
| SL-DUP-001_210506 280-148345-2 | FD | Manganese | 4.80 | 960 | 960 J | | mg/kg | A |
| SL-DUP-001_210506 280-148345-2 | FD | Silver | 1.60 | 0.640 U | 0.640 UJ | | mg/kg | V6 |

| Test Method: SW6020A | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH047-C 280-148345-4 | N | Antimony | 0.150 | 0.0800 J | 0.150 U | | mg/kg | B2 |

**Table of All Qualified Results**

| Test Method: SW9060A | | Extraction Method: NONE | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH046-C 280-148345-7 | N | Total Organic Carbon | 4000 | 30000 | 30000 J | | mg/kg | D3 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method BNASIMD**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| EB-01_210506 280-148345-21 | EB | 1-Methylnaphthalene | 0.0960 | 0.0380 U Q | 0.0380 UJ | 0.0380 UJ | I |
| EB-01_210506 280-148345-21 | EB | 2-Methylnaphthalene | 0.0960 | 0.0480 U Q | 0.0480 UJ | 0.0480 UJ | I |
| EB-01_210506 280-148345-21 | EB | Acenaphthene | 0.0960 | 0.0120 U Q | 0.0120 UJ | 0.0120 UJ | I |
| EB-01_210506 280-148345-21 | EB | Acenaphthylene | 0.0960 | 0.0190 U Q | 0.0190 UJ | 0.0190 UJ | I |
| EB-01_210506 280-148345-21 | EB | Anthracene | 0.0960 | 0.0960 U Q | 0.0960 UJ | 0.0960 UJ | I |
| EB-01_210506 280-148345-21 | EB | Benzo(a)anthracene | 0.0960 | 0.0960 U | 0.0960 UJ | 0.0960 UJ | I |
| EB-01_210506 280-148345-21 | EB | Benzo(a)pyrene | 0.0960 | 0.0480 U | 0.0480 UJ | 0.0480 UJ | I |
| EB-01_210506 280-148345-21 | EB | Benzo(b)fluoranthene | 0.0960 | 0.0960 U | 0.0960 UJ | 0.0960 UJ | I |
| EB-01_210506 280-148345-21 | EB | Benzo(g,h,i)perylene | 0.0960 | 0.0960 U | 0.0960 UJ | 0.0960 UJ | I |
| EB-01_210506 280-148345-21 | EB | Benzo(k)fluoranthene | 0.0960 | 0.0320 J | 0.0320 J | 0.0320 J | I/TR |
| EB-01_210506 280-148345-21 | EB | Chrysene | 0.0960 | 0.0960 U | 0.0960 UJ | 0.0960 UJ | I |
| EB-01_210506 280-148345-21 | EB | Dibenz(a,h)anthracene | 0.0960 | 0.0320 J | 0.0320 J | 0.0320 J | I/TR |
| EB-01_210506 280-148345-21 | EB | Fluoranthene | 0.0960 | 0.0960 U Q | 0.0960 UJ | 0.0960 UJ | I |
| EB-01_210506 280-148345-21 | EB | Fluorene | 0.0960 | 0.0380 U Q | 0.0380 UJ | 0.0380 UJ | I |
| EB-01_210506 280-148345-21 | EB | Indeno(1,2,3-c,d)pyrene | 0.0960 | 0.0960 U | 0.0960 UJ | 0.0960 UJ | I |
| EB-01_210506 280-148345-21 | EB | Naphthalene | 0.0960 | 0.0480 U Q | 0.0480 UJ | 0.0480 UJ | I |
| EB-01_210506 280-148345-21 | EB | Phenanthrene | 0.0960 | 0.0960 U Q | 0.0960 UJ | 0.0960 UJ | I |
| EB-01_210506 280-148345-21 | EB | Pyrene | 0.0960 | 0.0960 U Q | 0.0960 UJ | 0.0960 UJ | I |

**Modified Qualifiers for test method BNASIMD**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH047-B 280-148345-3 | N | Benzo(a)pyrene | 11.0 | 18.0 Q | 18.0 | 18.0 J | Z |
| NYOW-B-SL043-A 280-148345-15 | N | Benzo(a)pyrene | 11.0 | 58.0 Q | 58.0 | 58.0 J | Z |
| NYOW-B-SL045-A 280-148345-9 | N | Benzo(a)pyrene | 11.0 | 170 Q | 170 | 170 J | Z |
| NYOW-B-SL046-A 280-148345-5 | N | Benzo(a)pyrene | 11.0 | 230 J1 Q | 230 J | 230 J | M/D/Z |
| NYOW-B-SL047-A 280-148345-1 | N | Benzo(a)pyrene | 44.0 | 310 Q D | 310 | 310 J | Z |
| SL-DUP-001_210506 280-148345-2 | FD | Benzo(a)pyrene | 45.0 | 370 Q D | 370 J | 370 J | I/Z |

**Table of Results with Modified Qualifiers**

| Modified Qualifiers for test method SW6010C | | | | | | | |
|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
| NYOW-B-PH042-B 280-148345-19 | N | Aluminum | 48.0 | 3400 | 3400 | 3400 J | A |
| NYOW-B-PH042-B 280-148345-19 | N | Calcium | 95.0 | 660 | 660 | 660 J | A |
| NYOW-B-PH042-B 280-148345-19 | N | Iron | 76.0 | 8000 | 8000 | 8000 J | A |
| NYOW-B-PH042-B 280-148345-19 | N | Manganese | 4.30 | 400 | 400 | 400 J | A |
| NYOW-B-PH042-B 280-148345-19 | N | Silver | 1.40 | 0.570 U | 0.570 U | 0.570 UJ | V6 |
| NYOW-B-PH042-C 280-148345-20 | N | Aluminum | 47.0 | 4200 | 4200 | 4200 J | A |
| NYOW-B-PH042-C 280-148345-20 | N | Calcium | 95.0 | 31000 | 31000 | 31000 J | A |
| NYOW-B-PH042-C 280-148345-20 | N | Iron | 76.0 | 11000 | 11000 | 11000 J | A |
| NYOW-B-PH042-C 280-148345-20 | N | Manganese | 4.30 | 400 | 400 | 400 J | A |
| NYOW-B-PH042-C 280-148345-20 | N | Silver | 1.40 | 0.570 U | 0.570 U | 0.570 UJ | V6 |
| NYOW-B-PH043-B 280-148345-16 | N | Aluminum | 48.0 | 5100 | 5100 | 5100 J | A |
| NYOW-B-PH043-B 280-148345-16 | N | Calcium | 96.0 | 12000 | 12000 | 12000 J | A |
| NYOW-B-PH043-B 280-148345-16 | N | Iron | 77.0 | 17000 | 17000 | 17000 J | A |
| NYOW-B-PH043-B 280-148345-16 | N | Manganese | 4.30 | 700 | 700 | 700 J | A |
| NYOW-B-PH043-B 280-148345-16 | N | Silver | 1.40 | 0.580 U | 0.580 U | 0.580 UJ | V6 |
| NYOW-B-PH043-C 280-148345-17 | N | Aluminum | 40.0 | 3000 | 3000 | 3000 J | A |
| NYOW-B-PH043-C 280-148345-17 | N | Calcium | 80.0 | 46000 | 46000 | 46000 J | A |
| NYOW-B-PH043-C 280-148345-17 | N | Iron | 64.0 | 8400 | 8400 | 8400 J | A |
| NYOW-B-PH043-C 280-148345-17 | N | Manganese | 3.60 | 350 | 350 | 350 J | A |
| NYOW-B-PH043-C 280-148345-17 | N | Silver | 1.20 | 0.480 U | 0.480 U | 0.480 UJ | V6 |
| NYOW-B-PH044-B 280-148345-13 | N | Aluminum | 41.0 | 6000 | 6000 | 6000 J | A |
| NYOW-B-PH044-B 280-148345-13 | N | Calcium | 82.0 | 1500 | 1500 | 1500 J | A |
| NYOW-B-PH044-B 280-148345-13 | N | Iron | 66.0 | 14000 | 14000 | 14000 J | A |
| NYOW-B-PH044-B 280-148345-13 | N | Manganese | 3.70 | 700 | 700 | 700 J | A |
| NYOW-B-PH044-B 280-148345-13 | N | Silver | 1.20 | 0.490 U | 0.490 U | 0.490 UJ | V6 |
| NYOW-B-PH044-C 280-148345-14 | N | Aluminum | 47.0 | 5200 | 5200 | 5200 J | A |
| NYOW-B-PH044-C 280-148345-14 | N | Calcium | 94.0 | 23000 | 23000 | 23000 J | A |

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW6010C**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH044-C 280-148345-14 | N | Iron | 75.0 | 14000 | 14000 | 14000 J | A |
| NYOW-B-PH044-C 280-148345-14 | N | Manganese | 4.20 | 630 | 630 | 630 J | A |
| NYOW-B-PH044-C 280-148345-14 | N | Silver | 1.40 | 0.560 U | 0.560 U | 0.560 UJ | V6 |
| NYOW-B-PH045-B 280-148345-10 | N | Aluminum | 45.0 | 6200 | 6200 | 6200 J | A |
| NYOW-B-PH045-B 280-148345-10 | N | Calcium | 91.0 | 980 | 980 | 980 J | A |
| NYOW-B-PH045-B 280-148345-10 | N | Iron | 73.0 | 13000 | 13000 | 13000 J | A |
| NYOW-B-PH045-B 280-148345-10 | N | Manganese | 4.10 | 780 | 780 | 780 J | A |
| NYOW-B-PH045-B 280-148345-10 | N | Silver | 1.40 | 0.540 U | 0.540 U | 0.540 UJ | V6 |
| NYOW-B-PH045-C 280-148345-11 | N | Aluminum | 38.0 | 3700 | 3700 | 3700 J | A |
| NYOW-B-PH045-C 280-148345-11 | N | Calcium | 77.0 | 48000 | 48000 | 48000 J | A |
| NYOW-B-PH045-C 280-148345-11 | N | Iron | 61.0 | 13000 | 13000 | 13000 J | A |
| NYOW-B-PH045-C 280-148345-11 | N | Manganese | 3.50 | 550 | 550 | 550 J | A |
| NYOW-B-PH045-C 280-148345-11 | N | Silver | 1.20 | 0.460 U | 0.460 U | 0.460 UJ | V6 |
| NYOW-B-PH046-B 280-148345-6 | N | Aluminum | 53.0 | 8500 J1 | 8500 | 8500 J | A |
| NYOW-B-PH046-B 280-148345-6 | N | Barium | 2.10 | 62.0 J1 Q | 62.0 J | 62.0 J | M/D/M2 |
| NYOW-B-PH046-B 280-148345-6 | N | Beryllium | 0.530 | 0.400 J J1 | 0.400 J | 0.400 J | M/D/TR/M2 |
| NYOW-B-PH046-B 280-148345-6 | N | Calcium | 110 | 8700 J1 | 8700 J | 8700 J | M/D/M2/A |
| NYOW-B-PH046-B 280-148345-6 | N | Chromium | 3.70 | 8.80 J1 | 8.80 J | 8.80 J | M/D/M2 |
| NYOW-B-PH046-B 280-148345-6 | N | Cobalt | 1.10 | 6.30 J1 | 6.30 J | 6.30 J | M/D/M2 |
| NYOW-B-PH046-B 280-148345-6 | N | Copper | 5.30 | 22.0 J1 | 22.0 J | 22.0 J | M/D/M2 |
| NYOW-B-PH046-B 280-148345-6 | N | Iron | 84.0 | 19000 J1 | 19000 | 19000 J | A |
| NYOW-B-PH046-B 280-148345-6 | N | Lead | 0.950 | 15.0 J1 | 15.0 J | 15.0 J | M/D/M2 |
| NYOW-B-PH046-B 280-148345-6 | N | Magnesium | 32.0 | 4300 J1 | 4300 J | 4300 J | M/D/M2 |
| NYOW-B-PH046-B 280-148345-6 | N | Manganese | 4.70 | 1100 J1 | 1100 | 1100 J | A |
| NYOW-B-PH046-B 280-148345-6 | N | Nickel | 4.20 | 9.60 J1 | 9.60 J | 9.60 J | M/D/M2 |
| NYOW-B-PH046-B 280-148345-6 | N | Silver | 1.60 | 0.630 U J1 | 0.630 U | 0.630 UJ | V6 |
| NYOW-B-PH046-B 280-148345-6 | N | Sodium | 530 | 37.0 J J1 | 37.0 J | 37.0 J | M/D/TR/M2 |

**Table of Results with Modified Qualifiers**

| Modified Qualifiers for test method SW6010C | | | | | | | |
|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
| NYOW-B-PH046-C 280-148345-7 | N | Aluminum | 49.0 | 3800 | 3800 | 3800 J | A |
| NYOW-B-PH046-C 280-148345-7 | N | Calcium | 99.0 | 38000 | 38000 | 38000 J | A |
| NYOW-B-PH046-C 280-148345-7 | N | Iron | 79.0 | 9600 | 9600 | 9600 J | A |
| NYOW-B-PH046-C 280-148345-7 | N | Manganese | 4.40 | 350 | 350 | 350 J | A |
| NYOW-B-PH046-C 280-148345-7 | N | Silver | 1.50 | 0.590 U | 0.590 U | 0.590 UJ | V6 |
| NYOW-B-PH047-B 280-148345-3 | N | Aluminum | 45.0 | 6500 | 6500 | 6500 J | A |
| NYOW-B-PH047-B 280-148345-3 | N | Calcium | 91.0 | 57000 | 57000 | 57000 J | A |
| NYOW-B-PH047-B 280-148345-3 | N | Iron | 73.0 | 18000 | 18000 | 18000 J | A |
| NYOW-B-PH047-B 280-148345-3 | N | Manganese | 4.10 | 820 | 820 | 820 J | A |
| NYOW-B-PH047-B 280-148345-3 | N | Silver | 1.40 | 0.540 U | 0.540 U | 0.540 UJ | V6 |
| NYOW-B-PH047-C 280-148345-4 | N | Aluminum | 40.0 | 3200 | 3200 | 3200 J | A |
| NYOW-B-PH047-C 280-148345-4 | N | Calcium | 79.0 | 140000 | 140000 | 140000 J | A |
| NYOW-B-PH047-C 280-148345-4 | N | Iron | 63.0 | 11000 | 11000 | 11000 J | A |
| NYOW-B-PH047-C 280-148345-4 | N | Manganese | 3.60 | 590 | 590 | 590 J | A |
| NYOW-B-PH047-C 280-148345-4 | N | Silver | 1.20 | 0.480 U | 0.480 U | 0.480 UJ | V6 |
| NYOW-B-SL042-A 280-148345-18 | N | Aluminum | 49.0 | 5400 | 5400 | 5400 J | A |
| NYOW-B-SL042-A 280-148345-18 | N | Calcium | 99.0 | 1200 | 1200 | 1200 J | A |
| NYOW-B-SL042-A 280-148345-18 | N | Iron | 79.0 | 12000 | 12000 | 12000 J | A |
| NYOW-B-SL042-A 280-148345-18 | N | Manganese | 4.40 | 540 | 540 | 540 J | A |
| NYOW-B-SL042-A 280-148345-18 | N | Silver | 1.50 | 0.590 U | 0.590 U | 0.590 UJ | V6 |
| NYOW-B-SL043-A 280-148345-15 | N | Aluminum | 60.0 | 7800 | 7800 | 7800 J | A |
| NYOW-B-SL043-A 280-148345-15 | N | Calcium | 120 | 28000 | 28000 | 28000 J | A |
| NYOW-B-SL043-A 280-148345-15 | N | Iron | 96.0 | 19000 | 19000 | 19000 J | A |
| NYOW-B-SL043-A 280-148345-15 | N | Manganese | 5.40 | 1300 | 1300 | 1300 J | A |
| NYOW-B-SL043-A 280-148345-15 | N | Silver | 1.80 | 0.360 J | 0.360 J | 0.360 J | TR/V6 |
| NYOW-B-SL044-A 280-148345-12 | N | Aluminum | 42.0 | 4500 | 4500 | 4500 J | A |
| NYOW-B-SL044-A 280-148345-12 | N | Calcium | 84.0 | 36000 | 36000 | 36000 J | A |

**Table of Results with Modified Qualifiers**

| Modified Qualifiers for test method SW6010C | | | | | | | |
|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
| NYOW-B-SL044-A 280-148345-12 | N | Iron | 67.0 | 11000 | 11000 | 11000 J | A |
| NYOW-B-SL044-A 280-148345-12 | N | Manganese | 3.80 | 540 | 540 | 540 J | A |
| NYOW-B-SL044-A 280-148345-12 | N | Silver | 1.30 | 0.510 U | 0.510 U | 0.510 UJ | V6 |
| NYOW-B-SL045-A 280-148345-9 | N | Aluminum | 56.0 | 7000 | 7000 | 7000 J | A |
| NYOW-B-SL045-A 280-148345-9 | N | Calcium | 110 | 3500 | 3500 | 3500 J | A |
| NYOW-B-SL045-A 280-148345-9 | N | Iron | 89.0 | 22000 | 22000 | 22000 J | A |
| NYOW-B-SL045-A 280-148345-9 | N | Manganese | 5.00 | 670 | 670 | 670 J | A |
| NYOW-B-SL045-A 280-148345-9 | N | Silver | 1.70 | 0.670 U | 0.670 U | 0.670 UJ | V6 |
| NYOW-B-SL046-A 280-148345-5 | N | Aluminum | 56.0 | 6100 J1 | 6100 | 6100 J | A |
| NYOW-B-SL046-A 280-148345-5 | N | Calcium | 110 | 29000 J1 | 29000 | 29000 J | A |
| NYOW-B-SL046-A 280-148345-5 | N | Iron | 90.0 | 14000 J1 | 14000 | 14000 J | A |
| NYOW-B-SL046-A 280-148345-5 | N | Magnesium | 34.0 | 5300 J1 | 5300 J | 5300 J | M/D/M2 |
| NYOW-B-SL046-A 280-148345-5 | N | Manganese | 5.10 | 730 J1 | 730 | 730 J | A |
| NYOW-B-SL046-A 280-148345-5 | N | Silver | 1.70 | 0.680 U | 0.680 U | 0.680 UJ | V6 |
| NYOW-B-SL047-A 280-148345-1 | N | Aluminum | 56.0 | 8000 | 8000 | 8000 J | A |
| NYOW-B-SL047-A 280-148345-1 | N | Calcium | 110 | 21000 | 21000 | 21000 J | A |
| NYOW-B-SL047-A 280-148345-1 | N | Iron | 90.0 | 20000 | 20000 | 20000 J | A |
| NYOW-B-SL047-A 280-148345-1 | N | Manganese | 5.10 | 980 | 980 | 980 J | A |
| NYOW-B-SL047-A 280-148345-1 | N | Silver | 1.70 | 0.680 U | 0.680 U | 0.680 UJ | V6 |
| PH-DUP-001_210506 280-148345-8 | FD | Aluminum | 41.0 | 5100 | 5100 | 5100 J | A |
| PH-DUP-001_210506 280-148345-8 | FD | Calcium | 82.0 | 40000 | 40000 | 40000 J | A |
| PH-DUP-001_210506 280-148345-8 | FD | Iron | 66.0 | 12000 | 12000 | 12000 J | A |
| PH-DUP-001_210506 280-148345-8 | FD | Manganese | 3.70 | 420 | 420 | 420 J | A |
| PH-DUP-001_210506 280-148345-8 | FD | Silver | 1.20 | 0.490 U | 0.490 U | 0.490 UJ | V6 |
| SL-DUP-001_210506 280-148345-2 | FD | Aluminum | 53.0 | 8100 | 8100 | 8100 J | A |
| SL-DUP-001_210506 280-148345-2 | FD | Calcium | 110 | 24000 | 24000 | 24000 J | A |
| SL-DUP-001_210506 280-148345-2 | FD | Iron | 85.0 | 20000 | 20000 | 20000 J | A |

**Table of Results with Modified Qualifiers**

| Modified Qualifiers for test method SW6010C | | | | | | | |
|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
| SL-DUP-001_210506 280-148345-2 | FD | Manganese | 4.80 | 960 | 960 | 960 J | A |
| SL-DUP-001_210506 280-148345-2 | FD | Silver | 1.60 | 0.640 U | 0.640 U | 0.640 UJ | V6 |

| Modified Qualifiers for test method SW6020A | | | | | | | |
|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
| NYOW-B-PH047-C 280-148345-4 | N | Antimony | 0.150 | 0.0800 J | 0.0800 J | 0.150 U | B2 |

| Modified Qualifiers for test method SW9060A | | | | | | | |
|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
| PH-DUP-001_210506 280-148345-8 | FD | Total Organic Carbon | 4000 | 2400 J | 2400 J | 2400 J | D3/TR/D |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Reason Code Definitions**

| Code | Definition |
|---|---|
| A | Serial dilution |
| B2 | CCB |
| C | LCS Recovery |
| D | MS RPD |
| D3 | Field Duplicate RPD |
| H2 | Prep Hold Time |
| I | Surrogate recovery outside project limits. |
| L | Lab Blank |
| M | MS Recovery |
| M2 | Post Spike |
| TR | Trace Level Detect |
| V | Equipment Blank |
| V6 | Low Level Calibration Verification |
| Z | LCS RPD |

**Flag Code and Definitions**

| Flag | Definition |
|---|---|
| J | Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria. |
| U | Undetected: The analyte was analyzed for, but not detected. |
| UJ | The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria. |

| Bias | |
|---|---|
| - | The result may be biased low |
| + | The result may be biased high |
| Note - The bias field is a separate field; however, it is an integral part of the final flag (qualifier) on the sample result | |

**Review Questions**

| Method: BNASIMD (GC/MS-SIM Analysis by SW8270D) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | | • | | See QC Outliers for RE/RA preparation holding time exceedances. The initial sample results should be used for data interpretation. The equipment blank sample was extracted on the seventh day and is not qualified. |
| Were all requested target analytes reported? | • | | | |
| Was the GC/MS system properly tuned based on method criteria? | • | | | |
| Was instrument tuning completed every 12 hours during sample analysis? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | CCV 280-537291/3 exhibited a %D greater than 20% for dibenz(a,h)anthracene at 22%. There are no associated investigative samples. |
| Were Internal Standard retention times and area criteria within method requirements? | • | | | |
| Were internal standards spiked for every sample, standard, and QC sample? | • | | | |
| Were surrogate recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | See QC Outliers. |
| Were target analytes in the field blank less than MDL? | | • | | See QC Outliers. Soil sample results are not qualified on the basis of aqueous equipment blank sample results. |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | | • | | See QC Outliers.<br>LCSD 280-535673/3-A exhibited RPDs > 40% for benzo(a)pyrene (42%), benzo(g,h,i)perylene (91%), dibenz(a,h)anthracene (79%), and indeno (1,2,3-cd)pyrene (91%). |
| Was the LCS/LCSD RPD within project acceptance limits? | | • | | See QC Outliers. |
| Was a MS/MSD pair prepared with each batch? | | • | | MS/SD not performed for aqueous sample batch. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the MS/MSD RPD within project acceptance limits? | | • | | See QC Outliers. |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | Several PAHs had LOQs > PQLGs for sample NYOW-B-SL044-A due to sample dilution. |

**Review Questions**

| Method: BNASIMD (GC/MS-SIM Analysis by SW8270D) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | | • | | CCV CAs not performed. |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | CCVL 280-537270/122 and CCVL 280-537270/150 exhibited recoveries less than 80% for silver at 77% and 78%, respectively. Non-detect results are qualified as "UJ" and detections less than the level of the CCV are qualified as "J-". |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Did the ICSA have any non-target interferents above the MDL? | • | | | The ICSA associated with batch 280-537270 had results for Ba greater than the LOD. The initial ICSA result (12.4 ppb) was > LOD (2 ppb). The laboratory verified using ICP-MS that Ba is a trace impurity in the ICSA standard at 12.4 ppb. |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | MB 280-536276/1-A exhibited a detection for iron at 85.5 ug/L.<br>MB 280-536688/1-A exhibited a detection for zinc at 1.3 mg/kg. |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. ADR recoveries do not match laboratory recoveries; however, the qualifiers do not change. |
| Was the MS/MSD RPD within project acceptance limits? | | • | | See QC Outliers. |
| Were the post spike recoveries within project acceptance limits? | | | • | PDS not performed for either soil MS/SD sample. For NYOW-B-SL046-A, Mg was previously qualified as "J+"; no further qualification is necessary.<br>For NYOW-B-PH046-B, no MS/SD recoveries were <30%. M2 reason codes were appended to the data. |

**Review Questions**

| Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Were the serial dilution RPD values within project acceptance limits? | | • | | NYOW-B-SL046-A exhibited RPDs > 10% for Al (13%), Ca (15%), Fe (15%), Mn (14%). The associated sample results are qualified as "J". |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | The cobalt LOQ for sample NYOW-B-SL043-A was slightly greater than the PQLG. The result was a positive detection. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | | • | | PDS not performed for MS/SD recovery anomalies. |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the system properly tuned based on method criteria? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | | • | | CCB 280-536644/29, /35, /47, and /60 exhibited detections for thallium ranging from 0.09 ug/L to 0.122 ug/L. The associated equipment blank sample result was non-detect.<br>ICB 280-536928/15 exhibited a detection for Sb less than the LOQ at 0.403 ug/L. The associated equipment blank sample result was non-detect.<br>CCB 280-537461/48 exhibited a positive detection below the LOQ for Sb at 0.421 ug/L. The associated sample results less than the LOQ are qualified as "U". |
| Did the ICSA have any non-target interferents above the MDL? | • | | | The ICSA associated with batch 280-536644 had results for Cr greater than the LOD. The initial ICSA result (1.925 ppb) was > LOD (1.8 ppb). The vendor acknowledges that Cr is a trace impurity in the ICSA standard.<br>The ICSA associated with batch 280-536928 had results for Cr > LOD. The initial ICSA result (1.9 ppb) was > LOD (1.8 ppb) and the closing ICSA result (2.00<br>ppb) was > LOD. The vendor acknowledges that Cr is a trace impurity in the ICSA standard. |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |

**Review Questions**

| Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were the post spike recoveries within project acceptance limits? | • | | | |
| Were the serial dilution RPD values within project acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | LOQs for As, Se, Tl, and Sb were slightly > PQLGs due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW7470A (Mercury in Water (Manual Cold-Vapor Technique)) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | MB 280-536171/1-A exhibited a detection for mercury at 0.035 ug/L. The associated equipment blank sample result was non-detect. |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW7471B (Mercury in Soil (Manual Cold-Vapor Technique)) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | • | | | |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | Mercury LOQs were slightly greater than the PQLG due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | | | • | |
| Were DoD QSM corrective actions followed if deviations were noted? | | | • | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW9060A (Total Organic Carbon)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | | | • | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | • | | | |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | | • | | MS/SD sample PH-DUP-001_210506 exhibited a RPD greater than 20% at 23%. |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | • | | See QC Outliers. |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Data Validation Report for 280-148419-1_52_2a_FUDSChem**

| | |
|---|---|
| Facility: | C02NY0290-01, New York Ordnance Works, Limited RI |
| Event: | 2021 Sampling - Background |
| SDG: | 280-148419-1_52_2a_FUDSChem |
| Guidance Document: | Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works |
| Prime Contractor: | Bluestone Environmental Group, Inc., Malvern, PA |
| Project Manager: | Mike Badeau |
| Contract Laboratory(ies): | Eurofins Environment Testing TestAmerica, Arvada, CO |
| Data Review Contractor: | Bluestone |
| Data Review Level: | S2BVEM |
| Primary Data Reviewer: | Emily Strake, Technical Director/ Data Validator |
| Date Submitted: | August 18, 2021 |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6020A | SW7470A | SW7471B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH033-B | 280-148419-6 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH033-C | 280-148419-7 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH034-B | 280-148419-9 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH034-C | 280-148419-10 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH035-B | 280-148419-12 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH035-C | 280-148419-13 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH041-B | 280-148419-2 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH041-C | 280-148419-3 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL033-A | 280-148419-5 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL034-A | 280-148419-8 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL035-A | 280-148419-11 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL041-A | 280-148419-1 | Solid | Field Sample/N | X | X | X | X | | X | X |
| PH-DUP-001_210507 | 280-148419-4 | Solid | Field Duplicate/FD | X | X | X | X | | X | X |
| EB-01_210507 | 280-148419-14 | Water | Equipment Blank/EB | X | | X | X | X | | |

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page at S2BVEM data validation level. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works and the additional guidance documents incorporated by reference to the extent possible. Where definitive guidance is not provided, results have been evaluated in a conservative manner using professional judgment.

Sample collection was managed and directed by Bluestone Environmental Group, Inc., Malvern, PA; analyses were performed by Eurofins Environment Testing TestAmerica, Arvada, CO and were reported under sample delivery group (SDG) 280-148419-1_52_2a_FUDSChem. Data have been evaluated electronically based on electronic data deliverables (EDDs) provided by the laboratory, and hard copy data summary forms have also been reviewed during this effort and compared to the automated review output by the reviewers whose signatures appear on the following page. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative and throughout this report.

All quality control (QC) elements associated with this SDG have been reviewed by a project chemist in accordance with the requirements defined for the project. This review is documented in the attached Data Review Checklists. The QC elements listed below were supported by the electronic deliverable and were evaluated using ADR processes.

- Blank - Negative
- Equipment Blank
- Field Duplicate RPD
- Lab Blank
- Lab Replicate RPD
- LCS Recovery
- LCS RPD
- MS Recovery
- MS RPD
- Prep Hold Time
- Surrogate
- Test Hold Time

Results of the ADR process were subsequently reviewed and updated as applicable by the data review chemists identified on the signature page. Quality control elements that were not included in the electronic deliverable were reviewed manually and findings are documented within this report. Summaries of findings and associated qualified results are documented throughout this report.

A total of 101 results (16.83%) out of the 600 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected or deemed a serious deficiency (X qualifier). Trace values, defined as results that are qualified as estimated because they fall between the detection limit and the reporting limit/limit of quantitation, are not counted as qualified results in the above count. The qualified results are detailed throughout this report and discussed in the narrative below, where appropriate.

Narrative Comments

The samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 3.7ºC, 4.9ºC, 5.7ºC and 5.9ºC.
The following samples were analyzed at Eurofins Seattle laboratory due to instrumentation issues in Denver: PH-DUP-001_210507, NYOW-B-SL033-A, NYOW-B-PH033-B, NYOW-B-SL034-A, NYOW-B-PH035-B, and NYOW-B-PH035-C. The samples arrived at 4.2ºC and 3.3ºC. The following samples were analyzed at Eurofins Lancaster laboratory due to instrumentation issues in Denver: NYOW-B-PH033-C, NYOW-B-PH034-B, NYOW-B-PH034-C, and NYOW-B-SL035-A. The samples arrived at 3.3ºC.

| Analytical Method | Data Reviewer Comment |
|---|---|
| BNASIMD | No additional comments; see Checklist for detail. |
| SW6010C | No additional comments; see Checklist for detail. |
| SW6020A | No additional comments; see Checklist for detail. |
| SW7470A | No additional comments; see Checklist for detail. |
| SW7471B | No additional comments; see Checklist for detail. |
| SW9060A | Samples NYOW-B-PH033-C [4.67X], NYOW-B-PH034-B [4.12X], NYOW-B-PH034-C [4.51X] and NYOW-B-SL035-A [4.71X] required dilution prior to analysis. The reporting limits have been adjusted accordingly. |

August 18, 2021

Reviewed by Emily Strake, Technical Director/ Data Validator, Bluestone

As the Reviewer, I certify that I have performed a data review process in accordance with the requirements of the project guidance document, and have compared the electronic data to the laboratory's hard copy report and have verified the consistency of the reported sample results and method quality control data between the two deliverables.

**Quality Control Outliers for test method BNASIMD, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-535801/1-A (LB)/ MB 280-535801/1-A | Acenaphthylene | 1.430 | < 0.34 | < 10 | ug/kg | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

**Qualified Results associated with the Lab Blank for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH034-B | N | Acenaphthylene | 11.0 | 0.470 J | 1.20 U | | ug/kg | L |
| NYOW-B-SL033-A | N | Acenaphthylene | 11.0 | 2.10 J | 11.0 U | | ug/kg | L |
| NYOW-B-SL034-A | N | Acenaphthylene | 11.0 | 1.40 J | 11.0 U | | ug/kg | L |
| NYOW-B-SL041-A | N | Acenaphthylene | 12.0 | 2.30 J Q | 12.0 UJ | | ug/kg | L/I |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, LCS RPD**

The objective of laboratory control sample/laboratory control sample duplicate (LCS/LCSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. LCS/LCSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Laboratory control sample/laboratory control sample duplicate RPD results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 280-536125/3-A (BD)/ LCSD 280-536125/3-A | 1-Methylnaphthalene | 0.1480 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536125/3-A (BD)/ LCSD 280-536125/3-A | Acenaphthene | 0.1710 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536125/3-A (BD)/ LCSD 280-536125/3-A | Fluorene | 0.1590 | < 0.1 | < 0.1 | ug/l | J/None | Z | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method BNASIMD, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-01_210507 (EB)/ 280-148419-14 | 2-Fluorobiphenyl | 52.00 | 53 - 106 | 10 - 106 | percent | J/UJ | I | |
| EB-01_210507 (EB)/ 280-148419-14 | Nitrobenzene-d5 | 53.00 | 55 - 111 | 10 - 111 | percent | J/UJ | I | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| EB-01_210507 | EB | 1-Methylnaphthalene | 0.110 | 0.0430 U Q | 0.0430 UJ | | ug/l | I |
| EB-01_210507 | EB | 2-Methylnaphthalene | 0.110 | 0.0540 U Q | 0.0540 UJ | | ug/l | I |
| EB-01_210507 | EB | Acenaphthene | 0.110 | 0.0130 U Q | 0.0130 UJ | | ug/l | I |
| EB-01_210507 | EB | Acenaphthylene | 0.110 | 0.0220 U Q | 0.0220 UJ | | ug/l | I |
| EB-01_210507 | EB | Anthracene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| EB-01_210507 | EB | Benzo(a)anthracene | 0.110 | 0.110 U | 0.110 UJ | | ug/l | I |
| EB-01_210507 | EB | Benzo(a)pyrene | 0.110 | 0.0540 U M | 0.0540 UJ | | ug/l | I |
| EB-01_210507 | EB | Benzo(b)fluoranthene | 0.110 | 0.110 U M | 0.110 UJ | | ug/l | I |
| EB-01_210507 | EB | Benzo(g,h,i)perylene | 0.110 | 0.110 U | 0.110 UJ | | ug/l | I |
| EB-01_210507 | EB | Benzo(k)fluoranthene | 0.110 | 0.0540 U M | 0.0540 UJ | | ug/l | I |
| EB-01_210507 | EB | Chrysene | 0.110 | 0.110 U | 0.110 UJ | | ug/l | I |
| EB-01_210507 | EB | Dibenz(a,h)anthracene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I/V2 |
| EB-01_210507 | EB | Fluoranthene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| EB-01_210507 | EB | Fluorene | 0.110 | 0.0430 U Q | 0.0430 UJ | | ug/l | I |
| EB-01_210507 | EB | Indeno(1,2,3-c,d)pyrene | 0.110 | 0.110 U M | 0.110 UJ | | ug/l | I |
| EB-01_210507 | EB | Naphthalene | 0.110 | 0.0540 U Q | 0.0540 UJ | | ug/l | I |
| EB-01_210507 | EB | Phenanthrene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| EB-01_210507 | EB | Pyrene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL041-A (N)/ 280-148419-1 | Nitrobenzene-d5 | 41.00 | 44 - 125 | 10 - 125 | percent | J/UJ | I | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL041-A | N | 1-Methylnaphthalene | 12.0 | 2.30 U Q | 2.30 UJ | | ug/kg | I |
| NYOW-B-SL041-A | N | 2-Methylnaphthalene | 12.0 | 2.30 U Q | 2.30 UJ | | ug/kg | I |
| NYOW-B-SL041-A | N | Acenaphthene | 12.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-SL041-A | N | Acenaphthylene | 12.0 | 2.30 J Q | 12.0 UJ | | ug/kg | L/I |
| NYOW-B-SL041-A | N | Anthracene | 12.0 | 5.00 U Q | 5.00 UJ | | ug/kg | I |
| NYOW-B-SL041-A | N | Benzo(a)anthracene | 12.0 | 4.10 J M Q | 4.10 J | - | ug/kg | I/TR |
| NYOW-B-SL041-A | N | Benzo(a)pyrene | 12.0 | 6.00 J M Q | 6.00 J | - | ug/kg | I/TR |
| NYOW-B-SL041-A | N | Benzo(b)fluoranthene | 12.0 | 9.30 J Q | 9.30 J | - | ug/kg | I/TR |
| NYOW-B-SL041-A | N | Benzo(g,h,i)perylene | 12.0 | 4.10 J Q | 4.10 J | - | ug/kg | I/TR |
| NYOW-B-SL041-A | N | Benzo(k)fluoranthene | 12.0 | 3.70 J M Q | 3.70 J | - | ug/kg | I/TR |
| NYOW-B-SL041-A | N | Chrysene | 12.0 | 7.50 J M Q | 7.50 J | - | ug/kg | I/TR |
| NYOW-B-SL041-A | N | Dibenz(a,h)anthracene | 12.0 | 7.80 U M Q | 7.80 UJ | | ug/kg | I |
| NYOW-B-SL041-A | N | Fluoranthene | 12.0 | 11.0 J Q | 11.0 J | - | ug/kg | I/TR |
| NYOW-B-SL041-A | N | Fluorene | 12.0 | 3.10 U M Q | 3.10 UJ | | ug/kg | I |
| NYOW-B-SL041-A | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 5.20 J Q | 5.20 J | - | ug/kg | I/TR |
| NYOW-B-SL041-A | N | Naphthalene | 12.0 | 2.30 U Q | 2.30 UJ | | ug/kg | I |
| NYOW-B-SL041-A | N | Phenanthrene | 12.0 | 4.90 J Q | 4.90 J | - | ug/kg | I/TR |
| NYOW-B-SL041-A | N | Pyrene | 12.0 | 8.50 J Q | 8.50 J | - | ug/kg | I/TR |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-536835/1-A (LB)/ MB 280-536835/1-A | Manganese | 0.2650 | < 0.1 | < 4.5 | mg/kg | U/None* | L | |
| MB 280-536835/1-A (LB)/ MB 280-536835/1-A | Aluminum | 2.020 | < 1.6 | < 50 | mg/kg | U/None* | L | |
| MB 280-536835/1-A (LB)/ MB 280-536835/1-A | Zinc | 0.9050 | < 0.4 | < 8 | mg/kg | U/None* | L | |
| MB 280-536835/1-A (LB)/ MB 280-536835/1-A | Iron | 13.40 | < 8.3 | < 80 | mg/kg | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6010C, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL041-A (MS)/ 280-148419-1MS | Aluminum | 349.1 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL041-A (MS)/ 280-148419-1MS | Iron | -100.0 | 81 - 118 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |
| NYOW-B-SL041-A (MS)/ 280-148419-1MS | Manganese | -272.7 | 84 - 114 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |
| NYOW-B-SL041-A (SD)/ 280-148419-1MSD | Aluminum | 415.1 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL041-A (SD)/ 280-148419-1MSD | Iron | 9.091 | 81 - 118 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |
| NYOW-B-SL041-A (SD)/ 280-148419-1MSD | Manganese | -200.0 | 84 - 114 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6010C, Total, Equipment Blank**

The purpose of equipment blanks is to determine the existence and magnitude of cross-contamination problems resulting from the process during sampling. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in equipment blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-01_210507 (EB)/ 280-148419-14 | Beryllium | 0.3500 | < 0.17 | < 1.5 | ug/l | U/None* | V | |
| EB-01_210507 (EB)/ 280-148419-14 | Barium | 4.800 | < 0.82 | < 10 | ug/l | U/None* | V | |
| EB-01_210507 (EB)/ 280-148419-14 | Manganese | 2.500 | < 1.9 | < 10 | ug/l | U/None* | V | |
| EB-01_210507 (EB)/ 280-148419-14 | Iron | 240.0 | < 22 | < 100 | ug/l | U/None* | V | |
| EB-01_210507 (EB)/ 280-148419-14 | Calcium | 95.00 | < 78 | < 1000 | ug/l | U/None* | V | |
| EB-01_210507 (EB)/ 280-148419-14 | Zinc | 25.00 | < 4.5 | < 150 | ug/l | U/None* | V | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6010C, Total, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-536276/1-A (LB)/ MB 280-536276/1-A | Iron | 85.50 | < 22 | < 100 | ug/l | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

**Qualified Results associated with the Lab Blank for SW6010C, Total**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| EB-01_210507 | EB | Iron | 100 | 240 B | 240 J | + | ug/l | L |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW7470A, Total, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-536171/1-A (LB)/ MB 280-536171/1-A | Mercury | 0.03500 | < 0.027 | < 0.2 | ug/l | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW9060A, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210507 (N)/ 280-148419-4 | Total Organic Carbon | 73.42 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Field Duplicate RPD for SW9060A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH041-C | N | Total Organic Carbon | 4000 | 2500 J | 2500 J | | mg/kg | D3/TR |
| PH-DUP-001_210507 | FD | Total Organic Carbon | 2000 | 5400 H | 5400 J | - | mg/kg | D3/H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW9060A, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH033-C (SD)/ 280-148419-7MSD | Total Organic Carbon | 11.51 | 46 - 130 | 10 - 200 | percent | J/UJ | M | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for SW9060A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH033-C | N | Total Organic Carbon | 1400 | 14000 H J1 | 14000 J | - | mg/kg | M/D/H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW9060A, MS RPD**

The objective of matrix spikes/matrix spike duplicates (MS/MSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. MS/MSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Matrix spikes/matrix spike duplicates results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH033-C (SD)/ 280-148419-7MSD | Total Organic Carbon | 55.89 | < 20 | < 20 | rpd | J/UJ | D | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS RPD for SW9060A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH033-C | N | Total Organic Carbon | 1400 | 14000 H J1 | 14000 J | - | mg/kg | M/D/H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3510C | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| EB-01_210507 280-148419-14 | EB | 1-Methylnaphthalene | 0.110 | 0.0430 U Q | 0.0430 UJ | | ug/l | I |
| EB-01_210507 280-148419-14 | EB | 2-Methylnaphthalene | 0.110 | 0.0540 U Q | 0.0540 UJ | | ug/l | I |
| EB-01_210507 280-148419-14 | EB | Acenaphthene | 0.110 | 0.0130 U Q | 0.0130 UJ | | ug/l | I |
| EB-01_210507 280-148419-14 | EB | Acenaphthylene | 0.110 | 0.0220 U Q | 0.0220 UJ | | ug/l | I |
| EB-01_210507 280-148419-14 | EB | Anthracene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| EB-01_210507 280-148419-14 | EB | Benzo(a)anthracene | 0.110 | 0.110 U | 0.110 UJ | | ug/l | I |
| EB-01_210507 280-148419-14 | EB | Benzo(a)pyrene | 0.110 | 0.0540 U M | 0.0540 UJ | | ug/l | I |
| EB-01_210507 280-148419-14 | EB | Benzo(b)fluoranthene | 0.110 | 0.110 U M | 0.110 UJ | | ug/l | I |
| EB-01_210507 280-148419-14 | EB | Benzo(g,h,i)perylene | 0.110 | 0.110 U | 0.110 UJ | | ug/l | I |
| EB-01_210507 280-148419-14 | EB | Benzo(k)fluoranthene | 0.110 | 0.0540 U M | 0.0540 UJ | | ug/l | I |
| EB-01_210507 280-148419-14 | EB | Chrysene | 0.110 | 0.110 U | 0.110 UJ | | ug/l | I |
| EB-01_210507 280-148419-14 | EB | Dibenz(a,h)anthracene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I/V2 |
| EB-01_210507 280-148419-14 | EB | Fluoranthene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| EB-01_210507 280-148419-14 | EB | Fluorene | 0.110 | 0.0430 U Q | 0.0430 UJ | | ug/l | I |
| EB-01_210507 280-148419-14 | EB | Indeno(1,2,3-c,d)pyrene | 0.110 | 0.110 U M | 0.110 UJ | | ug/l | I |
| EB-01_210507 280-148419-14 | EB | Naphthalene | 0.110 | 0.0540 U Q | 0.0540 UJ | | ug/l | I |
| EB-01_210507 280-148419-14 | EB | Phenanthrene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| EB-01_210507 280-148419-14 | EB | Pyrene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH034-B 280-148419-9 | N | Acenaphthylene | 11.0 | 0.470 J | 1.20 U | | ug/kg | L |
| NYOW-B-SL033-A 280-148419-5 | N | Acenaphthylene | 11.0 | 2.10 J | 11.0 U | | ug/kg | L |
| NYOW-B-SL034-A 280-148419-8 | N | Acenaphthylene | 11.0 | 1.40 J | 11.0 U | | ug/kg | L |
| NYOW-B-SL041-A 280-148419-1 | N | 1-Methylnaphthalene | 12.0 | 2.30 U Q | 2.30 UJ | | ug/kg | I |
| NYOW-B-SL041-A 280-148419-1 | N | 2-Methylnaphthalene | 12.0 | 2.30 U Q | 2.30 UJ | | ug/kg | I |
| NYOW-B-SL041-A 280-148419-1 | N | Acenaphthene | 12.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-SL041-A 280-148419-1 | N | Acenaphthylene | 12.0 | 2.30 J Q | 12.0 UJ | | ug/kg | L/I |
| NYOW-B-SL041-A 280-148419-1 | N | Anthracene | 12.0 | 5.00 U Q | 5.00 UJ | | ug/kg | I |
| NYOW-B-SL041-A 280-148419-1 | N | Dibenz(a,h)anthracene | 12.0 | 7.80 U M Q | 7.80 UJ | | ug/kg | I |
| NYOW-B-SL041-A 280-148419-1 | N | Fluorene | 12.0 | 3.10 U M Q | 3.10 UJ | | ug/kg | I |
| NYOW-B-SL041-A 280-148419-1 | N | Naphthalene | 12.0 | 2.30 U Q | 2.30 UJ | | ug/kg | I |

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH033-B 280-148419-6 | N | Aluminum | 57.0 | 4400 | 4400 J | | mg/kg | A |
| NYOW-B-PH033-B 280-148419-6 | N | Iron | 91.0 | 11000 | 11000 J | | mg/kg | A |
| NYOW-B-PH033-B 280-148419-6 | N | Silver | 1.70 | 0.680 U | 0.680 UJ | | mg/kg | V6 |
| NYOW-B-PH033-C 280-148419-7 | N | Aluminum | 54.0 | 3100 | 3100 J | | mg/kg | A |
| NYOW-B-PH033-C 280-148419-7 | N | Iron | 86.0 | 9200 | 9200 J | | mg/kg | A |
| NYOW-B-PH033-C 280-148419-7 | N | Silver | 1.60 | 0.650 U | 0.650 UJ | | mg/kg | V6 |
| NYOW-B-PH034-B 280-148419-9 | N | Aluminum | 51.0 | 4500 | 4500 J | | mg/kg | A |
| NYOW-B-PH034-B 280-148419-9 | N | Iron | 82.0 | 8300 | 8300 J | | mg/kg | A |
| NYOW-B-PH034-B 280-148419-9 | N | Silver | 1.50 | 0.620 U | 0.620 UJ | | mg/kg | V6 |
| NYOW-B-PH034-C 280-148419-10 | N | Aluminum | 43.0 | 5200 | 5200 J | | mg/kg | A |
| NYOW-B-PH034-C 280-148419-10 | N | Iron | 69.0 | 15000 | 15000 J | | mg/kg | A |
| NYOW-B-PH034-C 280-148419-10 | N | Silver | 1.30 | 0.520 U | 0.520 UJ | | mg/kg | V6 |
| NYOW-B-PH035-B 280-148419-12 | N | Aluminum | 48.0 | 4000 | 4000 J | | mg/kg | A |
| NYOW-B-PH035-B 280-148419-12 | N | Iron | 76.0 | 12000 | 12000 J | | mg/kg | A |
| NYOW-B-PH035-B 280-148419-12 | N | Silver | 1.40 | 0.570 U | 0.570 UJ | | mg/kg | V6 |
| NYOW-B-PH035-C 280-148419-13 | N | Aluminum | 48.0 | 3100 | 3100 J | | mg/kg | A |
| NYOW-B-PH035-C 280-148419-13 | N | Iron | 77.0 | 32000 | 32000 J | | mg/kg | A |
| NYOW-B-PH041-B 280-148419-2 | N | Aluminum | 54.0 | 3700 | 3700 J | | mg/kg | A |
| NYOW-B-PH041-B 280-148419-2 | N | Iron | 86.0 | 11000 | 11000 J | | mg/kg | A |
| NYOW-B-PH041-C 280-148419-3 | N | Aluminum | 52.0 | 2900 | 2900 J | | mg/kg | A |

**Table of All Qualified Results**

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH041-C 280-148419-3 | N | Iron | 83.0 | 9000 | 9000 J | | mg/kg | A |
| NYOW-B-PH041-C 280-148419-3 | N | Silver | 1.60 | 0.620 U | 0.620 UJ | | mg/kg | V6 |
| NYOW-B-SL033-A 280-148419-5 | N | Aluminum | 50.0 | 5900 | 5900 J | | mg/kg | A |
| NYOW-B-SL033-A 280-148419-5 | N | Iron | 80.0 | 13000 | 13000 J | | mg/kg | A |
| NYOW-B-SL033-A 280-148419-5 | N | Silver | 1.50 | 0.600 U | 0.600 UJ | | mg/kg | V6 |
| NYOW-B-SL034-A 280-148419-8 | N | Aluminum | 49.0 | 5400 | 5400 J | | mg/kg | A |
| NYOW-B-SL034-A 280-148419-8 | N | Iron | 78.0 | 12000 | 12000 J | | mg/kg | A |
| NYOW-B-SL034-A 280-148419-8 | N | Silver | 1.50 | 0.590 U | 0.590 UJ | | mg/kg | V6 |
| NYOW-B-SL035-A 280-148419-11 | N | Aluminum | 51.0 | 6000 | 6000 J | | mg/kg | A |
| NYOW-B-SL035-A 280-148419-11 | N | Iron | 82.0 | 16000 | 16000 J | | mg/kg | A |
| NYOW-B-SL035-A 280-148419-11 | N | Silver | 1.50 | 0.620 U | 0.620 UJ | | mg/kg | V6 |
| NYOW-B-SL041-A 280-148419-1 | N | Aluminum | 53.0 | 7300 J1 | 7300 J | | mg/kg | A |
| NYOW-B-SL041-A 280-148419-1 | N | Iron | 85.0 | 17000 J1 | 17000 J | | mg/kg | A |
| PH-DUP-001_210507 280-148419-4 | FD | Aluminum | 56.0 | 2900 | 2900 J | | mg/kg | A |
| PH-DUP-001_210507 280-148419-4 | FD | Iron | 89.0 | 9100 | 9100 J | | mg/kg | A |
| PH-DUP-001_210507 280-148419-4 | FD | Silver | 1.70 | 0.670 U | 0.670 UJ | | mg/kg | V6 |

| Test Method: SW6010C | | Extraction Method: TOTAL | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| EB-01_210507 280-148419-14 | EB | Iron | 100 | 240 B | 240 J | + | ug/l | L |

| Test Method: SW6020A | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH033-B 280-148419-6 | N | Thallium | 0.0840 | 0.0540 J | 0.0840 U | | mg/kg | B2 |
| NYOW-B-PH033-C 280-148419-7 | N | Thallium | 0.100 | 0.0520 J | 0.100 U | | mg/kg | B2 |
| NYOW-B-PH034-B 280-148419-9 | N | Antimony | 0.190 | 0.100 J | 0.190 U | | mg/kg | B2/V6 |
| NYOW-B-PH035-B 280-148419-12 | N | Antimony | 0.190 | 0.0870 J | 0.0960 U | | mg/kg | V6/B2 |
| NYOW-B-PH035-C 280-148419-13 | N | Antimony | 0.190 | 0.0920 J | 0.0930 U | | mg/kg | V6/B2 |
| NYOW-B-PH041-B 280-148419-2 | N | Antimony | 0.180 | 0.170 J | 0.180 U | | mg/kg | B2/V6 |

**Table of All Qualified Results**

| Test Method: SW6020A | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH041-B 280-148419-2 | N | Thallium | 0.0900 | 0.0450 J | 0.0900 U | | mg/kg | B2 |
| NYOW-B-PH041-C 280-148419-3 | N | Thallium | 0.100 | 0.0330 J | 0.100 U | | mg/kg | B2 |
| NYOW-B-SL033-A 280-148419-5 | N | Antimony | 0.220 | 0.150 J | 0.220 U | | mg/kg | B2/V6 |
| NYOW-B-SL033-A 280-148419-5 | N | Thallium | 0.110 | 0.0700 J | 0.110 U | | mg/kg | B2 |
| NYOW-B-SL034-A 280-148419-8 | N | Antimony | 0.220 | 0.150 J | 0.220 U | | mg/kg | B2/V6 |
| NYOW-B-SL035-A 280-148419-11 | N | Antimony | 0.200 | 0.0980 J | 0.0980 U | | mg/kg | V6/B2 |
| NYOW-B-SL041-A 280-148419-1 | N | Antimony | 0.220 | 0.260 | 0.260 J | + | mg/kg | V6 |
| NYOW-B-SL041-A 280-148419-1 | N | Thallium | 0.110 | 0.0970 J | 0.110 U | | mg/kg | B2 |
| PH-DUP-001_210507 280-148419-4 | FD | Thallium | 0.0950 | 0.0430 J | 0.0950 U | | mg/kg | B2 |

| Test Method: SW9060A | | Extraction Method: NONE | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH033-B 280-148419-6 | N | Total Organic Carbon | 2000 | 7800 H | 7800 J | - | mg/kg | H1 |
| NYOW-B-PH033-C 280-148419-7 | N | Total Organic Carbon | 1400 | 14000 H J1 | 14000 J | - | mg/kg | M/D/H1 |
| NYOW-B-PH034-B 280-148419-9 | N | Total Organic Carbon | 1200 | 2100 H | 2100 J | - | mg/kg | H1 |
| NYOW-B-PH034-C 280-148419-10 | N | Total Organic Carbon | 1400 | 14000 H | 14000 J | - | mg/kg | H1 |
| NYOW-B-SL033-A 280-148419-5 | N | Total Organic Carbon | 2000 | 7800 H | 7800 J | - | mg/kg | H1 |
| NYOW-B-SL034-A 280-148419-8 | N | Total Organic Carbon | 2000 | 8200 H | 8200 J | - | mg/kg | H1 |
| NYOW-B-SL035-A 280-148419-11 | N | Total Organic Carbon | 1400 | 17000 H | 17000 J | - | mg/kg | H1 |
| PH-DUP-001_210507 280-148419-4 | FD | Total Organic Carbon | 2000 | 5400 H | 5400 J | - | mg/kg | D3/H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Table of Results with Modified Qualifiers**

| Modified Qualifiers for test method BNASIMD | | | | | | | |
|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
| EB-01_210507 280-148419-14 | EB | Dibenz(a,h)anthracene | 0.110 | 0.110 U Q | 0.110 UJ | 0.110 UJ | I/V2 |

| Modified Qualifiers for test method SW6010C | | | | | | | |
|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
| NYOW-B-PH033-B 280-148419-6 | N | Aluminum | 57.0 | 4400 | 4400 | 4400 J | A |
| NYOW-B-PH033-B 280-148419-6 | N | Iron | 91.0 | 11000 | 11000 | 11000 J | A |
| NYOW-B-PH033-B 280-148419-6 | N | Silver | 1.70 | 0.680 U | 0.680 U | 0.680 UJ | V6 |
| NYOW-B-PH033-C 280-148419-7 | N | Aluminum | 54.0 | 3100 | 3100 | 3100 J | A |
| NYOW-B-PH033-C 280-148419-7 | N | Iron | 86.0 | 9200 | 9200 | 9200 J | A |
| NYOW-B-PH033-C 280-148419-7 | N | Silver | 1.60 | 0.650 U | 0.650 U | 0.650 UJ | V6 |
| NYOW-B-PH034-B 280-148419-9 | N | Aluminum | 51.0 | 4500 | 4500 | 4500 J | A |
| NYOW-B-PH034-B 280-148419-9 | N | Iron | 82.0 | 8300 | 8300 | 8300 J | A |
| NYOW-B-PH034-B 280-148419-9 | N | Silver | 1.50 | 0.620 U | 0.620 U | 0.620 UJ | V6 |
| NYOW-B-PH034-C 280-148419-10 | N | Aluminum | 43.0 | 5200 | 5200 | 5200 J | A |
| NYOW-B-PH034-C 280-148419-10 | N | Iron | 69.0 | 15000 | 15000 | 15000 J | A |
| NYOW-B-PH034-C 280-148419-10 | N | Silver | 1.30 | 0.520 U | 0.520 U | 0.520 UJ | V6 |
| NYOW-B-PH035-B 280-148419-12 | N | Aluminum | 48.0 | 4000 | 4000 | 4000 J | A |
| NYOW-B-PH035-B 280-148419-12 | N | Iron | 76.0 | 12000 | 12000 | 12000 J | A |
| NYOW-B-PH035-B 280-148419-12 | N | Silver | 1.40 | 0.570 U | 0.570 U | 0.570 UJ | V6 |
| NYOW-B-PH035-C 280-148419-13 | N | Aluminum | 48.0 | 3100 | 3100 | 3100 J | A |
| NYOW-B-PH035-C 280-148419-13 | N | Iron | 77.0 | 32000 | 32000 | 32000 J | A |
| NYOW-B-PH035-C 280-148419-13 | N | Silver | 1.40 | 0.150 J | 0.150 J | 0.150 J | TR/V6 |
| NYOW-B-PH041-B 280-148419-2 | N | Aluminum | 54.0 | 3700 | 3700 | 3700 J | A |
| NYOW-B-PH041-B 280-148419-2 | N | Iron | 86.0 | 11000 | 11000 | 11000 J | A |
| NYOW-B-PH041-C 280-148419-3 | N | Aluminum | 52.0 | 2900 | 2900 | 2900 J | A |
| NYOW-B-PH041-C 280-148419-3 | N | Iron | 83.0 | 9000 | 9000 | 9000 J | A |
| NYOW-B-PH041-C 280-148419-3 | N | Silver | 1.60 | 0.620 U | 0.620 U | 0.620 UJ | V6 |

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW6010C**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-SL033-A 280-148419-5 | N | Aluminum | 50.0 | 5900 | 5900 | 5900 J | A |
| NYOW-B-SL033-A 280-148419-5 | N | Iron | 80.0 | 13000 | 13000 | 13000 J | A |
| NYOW-B-SL033-A 280-148419-5 | N | Silver | 1.50 | 0.600 U | 0.600 U | 0.600 UJ | V6 |
| NYOW-B-SL034-A 280-148419-8 | N | Aluminum | 49.0 | 5400 | 5400 | 5400 J | A |
| NYOW-B-SL034-A 280-148419-8 | N | Iron | 78.0 | 12000 | 12000 | 12000 J | A |
| NYOW-B-SL034-A 280-148419-8 | N | Silver | 1.50 | 0.590 U | 0.590 U | 0.590 UJ | V6 |
| NYOW-B-SL035-A 280-148419-11 | N | Aluminum | 51.0 | 6000 | 6000 | 6000 J | A |
| NYOW-B-SL035-A 280-148419-11 | N | Iron | 82.0 | 16000 | 16000 | 16000 J | A |
| NYOW-B-SL035-A 280-148419-11 | N | Silver | 1.50 | 0.620 U | 0.620 U | 0.620 UJ | V6 |
| NYOW-B-SL041-A 280-148419-1 | N | Aluminum | 53.0 | 7300 J1 | 7300 | 7300 J | A |
| NYOW-B-SL041-A 280-148419-1 | N | Iron | 85.0 | 17000 J1 | 17000 | 17000 J | A |
| PH-DUP-001_210507 280-148419-4 | FD | Aluminum | 56.0 | 2900 | 2900 | 2900 J | A |
| PH-DUP-001_210507 280-148419-4 | FD | Iron | 89.0 | 9100 | 9100 | 9100 J | A |
| PH-DUP-001_210507 280-148419-4 | FD | Silver | 1.70 | 0.670 U | 0.670 U | 0.670 UJ | V6 |

**Modified Qualifiers for test method SW6020A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH033-B 280-148419-6 | N | Thallium | 0.0840 | 0.0540 J | 0.0540 J | 0.0840 U | B2 |
| NYOW-B-PH033-C 280-148419-7 | N | Thallium | 0.100 | 0.0520 J | 0.0520 J | 0.100 U | B2 |
| NYOW-B-PH034-B 280-148419-9 | N | Antimony | 0.190 | 0.100 J | 0.100 J | 0.190 U | B2/V6 |
| NYOW-B-PH035-B 280-148419-12 | N | Antimony | 0.190 | 0.0870 J | 0.0870 J | 0.0960 U | V6/B2 |
| NYOW-B-PH035-C 280-148419-13 | N | Antimony | 0.190 | 0.0920 J | 0.0920 J | 0.0930 U | V6/B2 |
| NYOW-B-PH041-B 280-148419-2 | N | Antimony | 0.180 | 0.170 J | 0.170 J | 0.180 U | B2/V6 |
| NYOW-B-PH041-B 280-148419-2 | N | Thallium | 0.0900 | 0.0450 J | 0.0450 J | 0.0900 U | B2 |
| NYOW-B-PH041-C 280-148419-3 | N | Thallium | 0.100 | 0.0330 J | 0.0330 J | 0.100 U | B2 |
| NYOW-B-SL033-A 280-148419-5 | N | Antimony | 0.220 | 0.150 J | 0.150 J | 0.220 U | B2/V6 |
| NYOW-B-SL033-A 280-148419-5 | N | Thallium | 0.110 | 0.0700 J | 0.0700 J | 0.110 U | B2 |
| NYOW-B-SL034-A 280-148419-8 | N | Antimony | 0.220 | 0.150 J | 0.150 J | 0.220 U | B2/V6 |

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW6020A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-SL035-A 280-148419-11 | N | Antimony | 0.200 | 0.0980 J | 0.0980 J | 0.0980 U | V6/B2 |
| NYOW-B-SL041-A 280-148419-1 | N | Antimony | 0.220 | 0.260 | 0.260 | 0.260 J | V6 |
| NYOW-B-SL041-A 280-148419-1 | N | Thallium | 0.110 | 0.0970 J | 0.0970 J | 0.110 U | B2 |
| PH-DUP-001_210507 280-148419-4 | FD | Thallium | 0.0950 | 0.0430 J | 0.0430 J | 0.0950 U | B2 |

**Modified Qualifiers for test method SW9060A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH033-B 280-148419-6 | N | Total Organic Carbon | 2000 | 7800 H | 7800 | 7800 J | H1 |
| NYOW-B-PH033-C 280-148419-7 | N | Total Organic Carbon | 1400 | 14000 H J1 | 14000 J | 14000 J | M/D/H1 |
| NYOW-B-PH034-B 280-148419-9 | N | Total Organic Carbon | 1200 | 2100 H | 2100 | 2100 J | H1 |
| NYOW-B-PH034-C 280-148419-10 | N | Total Organic Carbon | 1400 | 14000 H | 14000 | 14000 J | H1 |
| NYOW-B-SL033-A 280-148419-5 | N | Total Organic Carbon | 2000 | 7800 H | 7800 | 7800 J | H1 |
| NYOW-B-SL034-A 280-148419-8 | N | Total Organic Carbon | 2000 | 8200 H | 8200 | 8200 J | H1 |
| NYOW-B-SL035-A 280-148419-11 | N | Total Organic Carbon | 1400 | 17000 H | 17000 | 17000 J | H1 |
| PH-DUP-001_210507 280-148419-4 | FD | Total Organic Carbon | 2000 | 5400 H | 5400 J | 5400 J | D3/H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Reason Code Definitions**

| Code | Definition |
|---|---|
| A | Serial dilution |
| B2 | CCB |
| D | MS RPD |
| D3 | Field Duplicate RPD |
| H1 | Test Hold Time |
| I | Surrogate recovery outside project limits. |
| L | Lab Blank |
| M | MS Recovery |
| TR | Trace Level Detect |
| V | Equipment Blank |
| V2 | CCV |
| V6 | Low Level Calibration Verification |

**Reason Code Definitions**

| Code | Definition |
|---|---|
| Z | LCS RPD |

**Flag Code and Definitions**

| Flag | Definition |
|---|---|
| J | Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria. |
| U | Undetected: The analyte was analyzed for, but not detected. |
| UJ | The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria. |

**Bias**

| | |
|---|---|
| - | The result may be biased low |
| + | The result may be biased high |

Note - The bias field is a separate field; however, it is an integral part of the final flag (qualifier) on the sample result

**Review Questions**

Method: BNASIMD (GC/MS-SIM Analysis by SW8270D)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the GC/MS system properly tuned based on method criteria? | • | | | |
| Was instrument tuning completed every 12 hours during sample analysis? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | CCV 280-537291/3 exhibited a %D greater than 20% for dibenz(a,h)anthracene at 22%. The associated equipment blank sample result is qualified as "UJ". |
| Were Internal Standard retention times and area criteria within method requirements? | • | | | |
| Were internal standards spiked for every sample, standard, and QC sample? | • | | | |
| Were surrogate recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | MB 280-535801/1-A exhibited a detection less than the LOQ for acenaphthylene at 1.43 ug/kg. The associated sample results less than the LOQ are qualified as "U" at the LOD or LOQ. |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | Equipment blank sample had LOQs slightly greater than PQLGs for 4 PAHs |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | | • | | CCV CA not performed. |

**Review Questions**

| Method: BNASIMD (GC/MS-SIM Analysis by SW8270D) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | CCVL 280-537270/101 exhibited a recovery less than 80% for silver at 78%. The associated positive detection below the level of the CCV is qualified as "J-" and non-detects are qualified as "UJ". |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Did the ICSA have any non-target interferents above the MDL? | • | | | The ICSA associated with batch 280-537270 had results for Ba greater than the LOD. The initial ICSA result (12.4 ppb) was > LOD (2 ppb). The laboratory verified using ICP-MS that Ba is a trace impurity in the ICSA standard at 12.4 ppb. The ICSA associated with batch 280-536668 had results for Ba greater than the LOD. The initial ICSA result (13 ppb) was > LOD (2 ppb).The laboratory verified using ICP-MS that Ba is a trace impurity in the ICSA standard at 12.4 ppb. |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | See QC Outliers. |
| Were target analytes in the field blank less than MDL? | | • | | See QC Outliers. Soil sample results are not qualified based on aqueous EB contamination. |
| Was the laboratory duplicate RPD within project acceptance limits? | | | • | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | Sample concentration > 4X spiked amount for Al, Fe, and Mn. |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| Were the post spike recoveries within project acceptance limits? | | • | | NYOW-B-SL041-A, PDS recoveries are greater than 120% for multiple analytes (Ba, Be, Ca, Cr, Co, Cu, Pb, Mg, Ni, K, Ag, Na, V, and Zn). The MS/SD recoveries were acceptable; therefore, a PDS was not necessary. The PDS recoveries of Al, Fe, and Mn were less than 80%. The sample concentrations were >4X the spiked amount in the MS/SD; qualification is not necessary. |

**Review Questions**

| Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Were the serial dilution RPD values within project acceptance limits? | | • | | Al RPD = 14%, Fe RPD = 13%. |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the system properly tuned based on method criteria? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | | • | | ICVL 280-537762/26 exhibited a recovery greater than 120% for Sb at 125%. The associated sample results less than the level of the CCV are qualified as "J+". |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | | • | | CCB 280-536644/29, /35, /47, and /60 exhibited detections for thallium ranging from 0.09 ug/L to 0.122 ug/L. The associated equipment blank sample result was non-detect.<br>ICB 280-536928/15 exhibited a detection for Sb less than the LOQ at 0.403 ug/L. The associated equipment blank sample result was non-detect.<br>CCB 280-537319/48 exhibited a detection below the LOQ for Tl at 0.107 ug/L. The associated sample results bracketed by the CCB and less than the aqueous LOQ are qualified as "U".<br>ICB 280-537762/25 and CCBs /79, /90, /96, and /109 exhibited detections for Sb ranging from 0.433 ug/L to 0.724 ug/L. The associated detections less than the aqueous LOQ are qualified as "U" at the LOD or LOQ. |
| Did the ICSA have any non-target interferents above the MDL? | • | | | The ICSA associated with batch 280-536644 had results for Cr greater than the LOD. The initial ICSA result (1.925 ppb) was > LOD (1.8 ppb). The vendor acknowledges that Cr is a trace impurity in the ICSA standard.<br>The ICSA associated with batch 280-536928 had results for Cr greater than the LOD. The initial ICSA result (1.9 ppb) was > LOD (1.8 ppb). The vendor acknowledges that Cr is a trace impurity in the ICSA standard. |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |

**Review Questions**

| Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were the post spike recoveries within project acceptance limits? | • | | | |
| Were the serial dilution RPD values within project acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | Sb, As, Se, and Tl LOQs were slightly greater than the PQLGs due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW7470A (Mercury in Water (Manual Cold-Vapor Technique)) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Was the laboratory duplicate RPD within project acceptance limits? | | | • | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW7471B (Mercury in Soil (Manual Cold-Vapor Technique)) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | • | | | |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | LOQs were slightly greater than PQLGs due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | | | • | |
| Were DoD QSM corrective actions followed if deviations were noted? | | | • | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW9060A (Total Organic Carbon) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | | • | | Samples NYOW-B-PH033-C, NYOW-B-PH034-B, NYOW-B-PH034-C, and NYOW-B-SL035-A were analyzed 11 days past the 28-day holding time period due to instrumentation problems. Samples PH-DUP-001_210507, NYOW-B-SL033-A, NYOW-B-PH033-B and NYOW-B-SL034-A were analyzed one day past the 28-day holding time period due to acidification and purging steps required to remove inorganic carbon. |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | | | • | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | | • | | LCSD not prepared for batch 138452. |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | • | | | MS/SD for batch 537583 reported in SDG J148345. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the MS/MSD RPD within project acceptance limits? | | • | | See QC Outliers. |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | • | | See QC Outliers. |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Data Validation Report for 280-148471-1_52_2a_FUDSChem**

| | |
|---|---|
| Facility: | C02NY0290-01, New York Ordnance Works, Limited RI |
| Event: | 2021 Sampling - Background |
| SDG: | 280-148471-1_52_2a_FUDSChem |
| Guidance Document: | Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works |
| Prime Contractor: | Bluestone Environmental Group, Inc., Malvern, PA |
| Project Manager: | Mike Badeau |
| Contract Laboratory(ies): | Eurofins Lancaster Laboratories Environmental, LLC, Lancaster, PA |
| Data Review Contractor: | Bluestone |
| Data Review Level: | S2BVEM |
| Primary Data Reviewer: | Emily Strake, Technical Director/ Data Validator |
| Date Submitted: | August 31, 2021 |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6020A | SW7470A | SW7471B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH021-B | 280-148471-16 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH021-C | 280-148471-17 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH022-B | 280-148471-24 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH022-C | 280-148471-25 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH026-B | 280-148471-20 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH026-C | 280-148471-21 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH036-B | 280-148471-12 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH036-C | 280-148471-13 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH037-B | 280-148471-3 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH037-C | 280-148471-4 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH038-B | 280-148471-6 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH038-C | 280-148471-7 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH039-B | 280-148471-9 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH039-C | 280-148471-10 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL021-A | 280-148471-15 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL022-A | 280-148471-23 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL026-A | 280-148471-19 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL036-A | 280-148471-11 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL037-A | 280-148471-1 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL038-A | 280-148471-5 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL039-A | 280-148471-8 | Solid | Field Sample/N | X | X | X | X | | X | X |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6020A | SW7470A | SW7471B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210510 | 280-148471-14 | Solid | Field Duplicate/FD | X | X | X | X | | X | X |
| PH-DUP-002_210510 | 280-148471-18 | Solid | Field Duplicate/FD | X | X | X | X | | X | X |
| PH-DUP-003_210510 | 280-148471-22 | Solid | Field Duplicate/FD | X | X | X | X | | X | X |
| SL-DUP-001_210510 | 280-148471-2 | Solid | Field Duplicate/FD | X | X | X | X | | X | X |
| EB-01_210510 | 280-148471-26 | Water | Equipment Blank/EB | X | | X | X | X | | |

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page at S2BVEM data validation level. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works and the additional guidance documents incorporated by reference to the extent possible. Where definitive guidance is not provided, results have been evaluated in a conservative manner using professional judgment.

Sample collection was managed and directed by Bluestone Environmental Group, Inc., Malvern, PA; analyses were performed by Eurofins Lancaster Laboratories Environmental, LLC, Lancaster, PA and were reported under sample delivery group (SDG) 280-148471-1_52_2a_FUDSChem. Data have been evaluated electronically based on electronic data deliverables (EDDs) provided by the laboratory, and hard copy data summary forms have also been reviewed during this effort and compared to the automated review output by the reviewers whose signatures appear on the following page. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative and throughout this report.

All quality control (QC) elements associated with this SDG have been reviewed by a project chemist in accordance with the requirements defined for the project. This review is documented in the attached Data Review Checklists. The QC elements listed below were supported by the electronic deliverable and were evaluated using ADR processes.

- Blank - Negative
- Equipment Blank
- Field Duplicate RPD
- Lab Blank
- Lab Replicate RPD
- LCS Recovery
- LCS RPD
- MS Recovery
- MS RPD
- Prep Hold Time
- Surrogate
- Test Hold Time

Results of the ADR process were subsequently reviewed and updated as applicable by the data review chemists identified on the signature page. Quality control elements that were not included in the electronic deliverable were reviewed manually and findings are documented within this report. Summaries of findings and associated qualified results are documented throughout this report.

A total of 184 results (16.49%) out of the 1116 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected or deemed a serious deficiency (X qualifier). Trace values, defined as results that are qualified as estimated because they fall between the detection limit and the reporting limit/limit of quantitation, are not counted as qualified results in the above count. The qualified results are detailed throughout this report and discussed in the narrative below, where appropriate.

Narrative Comments

The samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 7 coolers at receipt time were 0.6ºC, 0.8ºC, 2.1ºC, 2.9ºC, 3.1ºC, 4.0ºC and 4.7ºC. Samples were sent to Eurofins Lancaster Laboratory Environmental and Eurofins Seattle for TOC analysis and were received at temperatures of 3.3ºC, 4.2ºC, and 3.3ºC.
No sample time was listed on containers for the following sample: NYOW-B-PH026-C. This sample was logged according to
the COC.

| Analytical Method | Data Reviewer Comment |
|---|---|
| BNASIMD | The following sample could not be thoroughly homogenized before sub-sampling was performed due to sample matrix:<br>NYOW-B-PH026-C, PH-DUP-003_210510, NYOW-B-SL022-A, NYOW-B-PH022-B and NYOW-B-PH022-C. the samples were wet clay. |
| SW6010C | No additional comments; see Checklist for detail. |
| SW6020A | No additional comments; see Checklist for detail. |
| SW7470A | No additional comments; see Checklist for detail. |
| SW7471B | No additional comments; see Checklist for detail. |
| SW9060A | Samples SL-DUP-001_210510[5.16X], NYOW-B-PH037-C[4.12X], NYOW-B-SL038-A [6.57X], NYOW-B-PH038-C[2.76X], NYOW-B-SL039-A[4.78X] and NYOW-B-PH039-C [2.86X] required dilution prior to analysis. |

August 31, 2021

Reviewed by Emily Strake, Technical Director/ Data Validator, Bluestone

As the Reviewer, I certify that I have performed a data review process in accordance with the requirements of the project guidance document, and have compared the electronic data to the laboratory's hard copy report and have verified the consistency of the reported sample results and method quality control data between the two deliverables.

**Quality Control Outliers for test method BNASIMD, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210510 (N)/ 280-148471-14 | 1-Methylnaphthalene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-001_210510 (N)/ 280-148471-14 | Naphthalene | 126.2 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-003_210510 (N)/ 280-148471-22 | Naphthalene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210510 (N)/ 280-148471-2 | 1-Methylnaphthalene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210510 (N)/ 280-148471-2 | Naphthalene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method BNASIMD, LCS Recovery**

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 280-535982/3-A (BD)/ LCSD 280-535982/3-A | Indeno(1,2,3-c,d)pyrene | 48.83 | 49 - 130 | 10 - 200 | percent | J/UJ | C | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the LCS Recovery for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH021-B | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.20 U M | 7.20 UJ | | ug/kg | C |
| NYOW-B-PH021-C | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 8.10 U M | 8.10 UJ | | ug/kg | C |
| NYOW-B-PH026-B | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 8.20 U M | 8.20 UJ | | ug/kg | C |
| NYOW-B-PH036-B | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.10 U M | 7.10 UJ | | ug/kg | C |
| NYOW-B-PH036-C | N | Indeno(1,2,3-c,d)pyrene | 10.0 | 6.80 U | 6.80 UJ | | ug/kg | C |
| NYOW-B-PH037-B | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 8.20 U M | 8.20 UJ | | ug/kg | C |
| NYOW-B-PH037-C | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.30 U M | 7.30 UJ | | ug/kg | C |
| NYOW-B-PH038-B | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 7.70 U M | 7.70 UJ | | ug/kg | C |
| NYOW-B-PH038-C | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.10 U M | 7.10 UJ | | ug/kg | C |
| NYOW-B-PH039-B | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.10 U | 7.10 UJ | | ug/kg | C |
| NYOW-B-PH039-C | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | C/I |
| NYOW-B-SL021-A | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 12.0 | 12.0 J | - | ug/kg | C |
| NYOW-B-SL026-A | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.20 U M | 7.20 UJ | | ug/kg | C |
| NYOW-B-SL036-A | N | Indeno(1,2,3-c,d)pyrene | 14.0 | 5.10 J | 5.10 J | - | ug/kg | C/TR |
| NYOW-B-SL037-A | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 6.20 J | 6.20 J | - | ug/kg | C/TR |
| NYOW-B-SL038-A | N | Indeno(1,2,3-c,d)pyrene | 13.0 | 7.70 J | 7.70 J | - | ug/kg | C/I/TR |
| NYOW-B-SL039-A | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 5.60 J | 5.60 J | - | ug/kg | C/TR |
| PH-DUP-001_210510 | FD | Indeno(1,2,3-c,d)pyrene | 10.0 | 6.80 U M | 6.80 UJ | | ug/kg | C |
| PH-DUP-002_210510 | FD | Indeno(1,2,3-c,d)pyrene | 12.0 | 7.90 U M | 7.90 UJ | | ug/kg | C |
| SL-DUP-001_210510 | FD | Indeno(1,2,3-c,d)pyrene | 12.0 | 7.40 J | 7.40 J | - | ug/kg | C/TR |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, LCS RPD**

The objective of laboratory control sample/laboratory control sample duplicate (LCS/LCSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. LCS/LCSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Laboratory control sample/laboratory control sample duplicate RPD results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 280-536125/3-A (BD)/ LCSD 280-536125/3-A | 1-Methylnaphthalene | 0.1480 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536125/3-A (BD)/ LCSD 280-536125/3-A | Acenaphthene | 0.1710 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536125/3-A (BD)/ LCSD 280-536125/3-A | Fluorene | 0.1590 | < 0.1 | < 0.1 | ug/l | J/None | Z | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method BNASIMD, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH036-B (SD)/ 280-148471-12MSD | 1-Methylnaphthalene | 33.86 | 43 - 111 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH036-B (SD)/ 280-148471-12MSD | 2-Methylnaphthalene | 36.06 | 39 - 114 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH036-B (SD)/ 280-148471-12MSD | Acenaphthene | 41.73 | 44 - 111 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH036-B (SD)/ 280-148471-12MSD | Acenaphthylene | 38.74 | 39 - 116 | 10 - 200 | percent | J/UJ | M | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH036-B | N | 1-Methylnaphthalene | 11.0 | 2.10 U J1 | 2.10 UJ | | ug/kg | M/D |
| NYOW-B-PH036-B | N | 2-Methylnaphthalene | 11.0 | 2.10 U J1 | 2.10 UJ | | ug/kg | M/D |
| NYOW-B-PH036-B | N | Acenaphthene | 11.0 | 1.10 U J1 | 1.10 UJ | | ug/kg | M/D |
| NYOW-B-PH036-B | N | Acenaphthylene | 11.0 | 1.10 U J1 | 1.10 UJ | | ug/kg | M/D |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH039-C (N)/ 280-148471-10 | Terphenyl-d14 | 56.00 | 58 - 133 | 10 - 133 | percent | J/UJ | I | |
| NYOW-B-SL038-A (N)/ 280-148471-5 | 2-Fluorobiphenyl | 43.00 | 46 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-B-SL038-A (N)/ 280-148471-5 | Nitrobenzene-d5 | 34.00 | 44 - 125 | 10 - 125 | percent | J/UJ | I | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH039-C | N | 1-Methylnaphthalene | 11.0 | 2.20 U M | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH039-C | N | 2-Methylnaphthalene | 11.0 | 2.20 U M | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH039-C | N | Acenaphthene | 11.0 | 1.20 U | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH039-C | N | Acenaphthylene | 11.0 | 1.20 U | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH039-C | N | Anthracene | 11.0 | 4.70 U | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH039-C | N | Benzo(a)anthracene | 11.0 | 4.70 U Q | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH039-C | N | Benzo(a)pyrene | 11.0 | 4.70 U M Q | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH039-C | N | Benzo(b)fluoranthene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | I |
| NYOW-B-PH039-C | N | Benzo(g,h,i)perylene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | I |
| NYOW-B-PH039-C | N | Benzo(k)fluoranthene | 11.0 | 4.70 U Q | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH039-C | N | Chrysene | 11.0 | 4.70 U Q | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH039-C | N | Dibenz(a,h)anthracene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | I |
| NYOW-B-PH039-C | N | Fluoranthene | 11.0 | 4.70 U | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH039-C | N | Fluorene | 11.0 | 2.90 U M | 2.90 UJ | | ug/kg | I |
| NYOW-B-PH039-C | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | C/I |
| NYOW-B-PH039-C | N | Naphthalene | 11.0 | 2.20 U | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH039-C | N | Phenanthrene | 11.0 | 7.20 U | 7.20 UJ | | ug/kg | I |
| NYOW-B-PH039-C | N | Pyrene | 11.0 | 7.20 U M | 7.20 UJ | | ug/kg | I |
| NYOW-B-SL038-A | N | 1-Methylnaphthalene | 13.0 | 2.60 U Q | 2.60 UJ | | ug/kg | I |
| NYOW-B-SL038-A | N | 2-Methylnaphthalene | 13.0 | 2.60 U Q | 2.60 UJ | | ug/kg | I |
| NYOW-B-SL038-A | N | Acenaphthene | 13.0 | 1.40 U M Q | 1.40 UJ | | ug/kg | I |
| NYOW-B-SL038-A | N | Acenaphthylene | 13.0 | 2.20 J Q | 2.20 J | - | ug/kg | I/TR |
| NYOW-B-SL038-A | N | Anthracene | 13.0 | 5.60 U Q | 5.60 UJ | | ug/kg | I |
| NYOW-B-SL038-A | N | Benzo(a)anthracene | 13.0 | 8.00 J | 8.00 J | - | ug/kg | I/TR |
| NYOW-B-SL038-A | N | Benzo(a)pyrene | 13.0 | 10.0 J | 10.0 J | - | ug/kg | I/TR |
| NYOW-B-SL038-A | N | Benzo(b)fluoranthene | 13.0 | 14.0 | 14.0 J | - | ug/kg | I |
| NYOW-B-SL038-A | N | Benzo(g,h,i)perylene | 13.0 | 7.10 J | 7.10 J | - | ug/kg | I/TR |

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL038-A | N | Benzo(k)fluoranthene | 13.0 | 4.80 J | 4.80 J | - | ug/kg | I/TR |
| NYOW-B-SL038-A | N | Chrysene | 13.0 | 10.0 J | 10.0 J | - | ug/kg | I/TR |
| NYOW-B-SL038-A | N | Dibenz(a,h)anthracene | 13.0 | 8.70 U | 8.70 UJ | | ug/kg | I |
| NYOW-B-SL038-A | N | Fluoranthene | 13.0 | 18.0 Q | 18.0 J | - | ug/kg | I |
| NYOW-B-SL038-A | N | Fluorene | 13.0 | 3.50 U M Q | 3.50 UJ | | ug/kg | I |
| NYOW-B-SL038-A | N | Indeno(1,2,3-c,d)pyrene | 13.0 | 7.70 J | 7.70 J | - | ug/kg | C/I/TR |
| NYOW-B-SL038-A | N | Naphthalene | 13.0 | 2.60 U Q | 2.60 UJ | | ug/kg | I |
| NYOW-B-SL038-A | N | Phenanthrene | 13.0 | 5.70 J Q | 5.70 J | - | ug/kg | I/TR |
| NYOW-B-SL038-A | N | Pyrene | 13.0 | 18.0 Q | 18.0 J | - | ug/kg | I |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-002_210510 (N)/ 280-148471-18 | Calcium | 127.9 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-002_210510 (N)/ 280-148471-18 | Magnesium | 68.85 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-003_210510 (N)/ 280-148471-22 | Calcium | 111.1 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210510 (N)/ 280-148471-2 | Calcium | 65.31 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Field Duplicate RPD for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH021-C | N | Calcium | 110 | 3300 | 3300 J | | mg/kg | D3 |
| NYOW-B-PH021-C | N | Magnesium | 34.0 | 2000 | 2000 J | | mg/kg | D3 |
| NYOW-B-PH026-C | N | Calcium | 95.0 | 56000 J1 | 56000 J | | mg/kg | D3/A |
| NYOW-B-SL037-A | N | Calcium | 100 | 1300 | 1300 J | | mg/kg | D3 |
| PH-DUP-002_210510 | FD | Calcium | 110 | 15000 | 15000 J | | mg/kg | D3 |
| PH-DUP-002_210510 | FD | Magnesium | 33.0 | 4100 | 4100 J | | mg/kg | D3 |
| PH-DUP-003_210510 | FD | Calcium | 100 | 16000 | 16000 J | | mg/kg | D3/A |
| SL-DUP-001_210510 | FD | Calcium | 110 | 660 | 660 J | | mg/kg | D3 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-537079/1-A (LB)/ MB 280-537079/1-A | Aluminum | 1.740 | < 1.6 | < 50 | mg/kg | U/None* | L | |
| MB 280-537082/1-A (LB)/ MB 280-537082/1-A | Copper | 0.4240 | < 0.22 | < 5 | mg/kg | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6010C, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH026-B (MS)/ 280-148471-20MS | Sodium | 77.91 | 83 - 118 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH026-B (MS)/ 280-148471-20MS | Aluminum | 508.3 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH026-B (MS)/ 280-148471-20MS | Iron | 225.0 | 81 - 118 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH026-B (MS)/ 280-148471-20MS | Manganese | 341.7 | 84 - 114 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH026-B (SD)/ 280-148471-20MSD | Beryllium | 82.66 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH026-B (SD)/ 280-148471-20MSD | Cobalt | 82.20 | 85 - 112 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH026-B (SD)/ 280-148471-20MSD | Sodium | 76.69 | 83 - 118 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH026-B (SD)/ 280-148471-20MSD | Aluminum | 550.8 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH026-B (SD)/ 280-148471-20MSD | Iron | 208.3 | 81 - 118 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH026-B (SD)/ 280-148471-20MSD | Manganese | 250.0 | 84 - 114 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH026-C (MS)/ 280-148471-21MS | Magnesium | 27.80 | 78 - 115 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH026-C (MS)/ 280-148471-21MS | Aluminum | 666.7 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH026-C (MS)/ 280-148471-21MS | Calcium | -989.2 | 81 - 116 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |
| NYOW-B-PH026-C (MS)/ 280-148471-21MS | Iron | 650.0 | 81 - 118 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH026-C (MS)/ 280-148471-21MS | Manganese | 164.6 | 84 - 114 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH026-C (SD)/ 280-148471-21MSD | Magnesium | 23.88 | 78 - 115 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH026-C (SD)/ 280-148471-21MSD | Aluminum | 483.7 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH026-C (SD)/ 280-148471-21MSD | Calcium | -1026 | 81 - 116 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |
| NYOW-B-PH026-C (SD)/ 280-148471-21MSD | Iron | 330.0 | 81 - 118 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH026-C (SD)/ 280-148471-21MSD | Manganese | 969.4 | 84 - 114 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH036-B (MS)/ 280-148471-12MS | Beryllium | 81.81 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH036-B (MS)/ 280-148471-12MS | Chromium | 82.93 | 85 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH036-B (MS)/ 280-148471-12MS | Cobalt | 73.93 | 85 - 112 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH036-B (MS)/ 280-148471-12MS | Copper | 71.96 | 81 - 117 | 10 - 200 | percent | J/UJ | M | |

**Quality Control Outliers for test method SW6010C, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH036-B (MS)/ 280-148471-12MS | Lead | 77.10 | 81 - 112 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH036-B (MS)/ 280-148471-12MS | Magnesium | 56.60 | 78 - 115 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH036-B (MS)/ 280-148471-12MS | Nickel | 74.67 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH036-B (MS)/ 280-148471-12MS | Potassium | 129.3 | 81 - 116 | 10 - 200 | percent | J/None | M | |
| NYOW-B-PH036-B (MS)/ 280-148471-12MS | Sodium | 80.86 | 83 - 118 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH036-B (MS)/ 280-148471-12MS | Zinc | 76.55 | 82 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH036-B (MS)/ 280-148471-12MS | Aluminum | 626.2 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH036-B (MS)/ 280-148471-12MS | Calcium | 288.7 | 81 - 116 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH036-B (SD)/ 280-148471-12MSD | Cobalt | 79.69 | 85 - 112 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH036-B (SD)/ 280-148471-12MSD | Copper | 76.92 | 81 - 117 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH036-B (SD)/ 280-148471-12MSD | Magnesium | 115.4 | 78 - 115 | 10 - 200 | percent | J/None | M | |
| NYOW-B-PH036-B (SD)/ 280-148471-12MSD | Nickel | 80.19 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH036-B (SD)/ 280-148471-12MSD | Potassium | 133.7 | 81 - 116 | 10 - 200 | percent | J/None | M | |
| NYOW-B-PH036-B (SD)/ 280-148471-12MSD | Sodium | 82.37 | 83 - 118 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH036-B (SD)/ 280-148471-12MSD | Zinc | 81.42 | 82 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH036-B (SD)/ 280-148471-12MSD | Aluminum | 711.5 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH036-B (SD)/ 280-148471-12MSD | Calcium | 269.2 | 81 - 116 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH036-B (SD)/ 280-148471-12MSD | Iron | 200.0 | 81 - 118 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH036-B (SD)/ 280-148471-12MSD | Manganese | 157.7 | 84 - 114 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL026-A (MS)/ 280-148471-19MS | Barium | 80.54 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL026-A (MS)/ 280-148471-19MS | Beryllium | 79.84 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL026-A (MS)/ 280-148471-19MS | Chromium | 81.98 | 85 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL026-A (MS)/ 280-148471-19MS | Cobalt | 79.33 | 85 - 112 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL026-A (MS)/ 280-148471-19MS | Lead | 77.93 | 81 - 112 | 10 - 200 | percent | J/UJ | M | |

**Quality Control Outliers for test method SW6010C, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL026-A (MS)/ 280-148471-19MS | Nickel | 79.25 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL026-A (MS)/ 280-148471-19MS | Sodium | 73.60 | 83 - 118 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL026-A (MS)/ 280-148471-19MS | Vanadium | 81.98 | 82 - 114 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL026-A (MS)/ 280-148471-19MS | Aluminum | 441.4 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL026-A (MS)/ 280-148471-19MS | Iron | -54.55 | 81 - 118 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |
| NYOW-B-SL026-A (MS)/ 280-148471-19MS | Manganese | -16.36 | 84 - 114 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |
| NYOW-B-SL026-A (SD)/ 280-148471-19MSD | Barium | 80.48 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL026-A (SD)/ 280-148471-19MSD | Beryllium | 77.73 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL026-A (SD)/ 280-148471-19MSD | Chromium | 80.38 | 85 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL026-A (SD)/ 280-148471-19MSD | Cobalt | 78.05 | 85 - 112 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL026-A (SD)/ 280-148471-19MSD | Copper | 80.95 | 81 - 117 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL026-A (SD)/ 280-148471-19MSD | Lead | 76.95 | 81 - 112 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL026-A (SD)/ 280-148471-19MSD | Nickel | 77.21 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL026-A (SD)/ 280-148471-19MSD | Sodium | 73.52 | 83 - 118 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL026-A (SD)/ 280-148471-19MSD | Vanadium | 80.95 | 82 - 114 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL026-A (SD)/ 280-148471-19MSD | Aluminum | 476.2 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL026-A (SD)/ 280-148471-19MSD | Iron | 36.36 | 81 - 118 | 10 - 200 | percent | J/UJ | M | Spike amount Insignificant |
| NYOW-B-SL026-A (SD)/ 280-148471-19MSD | Manganese | 22.73 | 84 - 114 | 10 - 200 | percent | J/UJ | M | Spike amount Insignificant |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH026-B | N | Sodium | 570 | 110 U J1 | 110 UJ | | mg/kg | M |
| NYOW-B-PH026-B | N | Beryllium | 0.570 | 0.320 J J1 | 0.320 J | - | mg/kg | M/TR |
| NYOW-B-PH026-B | N | Cobalt | 1.10 | 7.00 J1 | 7.00 J | - | mg/kg | M |

**Qualified Results associated with the MS Recovery for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH026-C | N | Magnesium | 28.0 | 5200 J1 | 5200 J | - | mg/kg | M |
| NYOW-B-PH036-B | N | Chromium | 3.80 | 6.80 J1 | 6.80 J | - | mg/kg | M |
| NYOW-B-PH036-B | N | Copper | 5.40 | 29.0 J1 | 29.0 J | - | mg/kg | M |
| NYOW-B-PH036-B | N | Lead | 0.980 | 11.0 J1 | 11.0 J | - | mg/kg | M |
| NYOW-B-PH036-B | N | Nickel | 4.30 | 12.0 J1 | 12.0 J | - | mg/kg | M |
| NYOW-B-PH036-B | N | Potassium | 330 | 1400 J1 | 1400 J | + | mg/kg | M |
| NYOW-B-PH036-B | N | Zinc | 8.70 | 24.0 J1 | 24.0 J | - | mg/kg | M |
| NYOW-B-PH036-B | N | Sodium | 540 | 72.0 J J1 | 72.0 J | - | mg/kg | M/TR |
| NYOW-B-PH036-B | N | Beryllium | 0.540 | 0.330 J J1 | 0.330 J | - | mg/kg | M/TR |
| NYOW-B-PH036-B | N | Cobalt | 1.10 | 7.60 J1 | 7.60 J | - | mg/kg | M |
| NYOW-B-PH036-B | N | Magnesium | 33.0 | 18000 J1 | 18000 J | | mg/kg | M |
| NYOW-B-SL026-A | N | Chromium | 3.70 | 9.00 J1 | 9.00 J | - | mg/kg | M |
| NYOW-B-SL026-A | N | Lead | 0.950 | 8.00 J1 | 8.00 J | - | mg/kg | M |
| NYOW-B-SL026-A | N | Nickel | 4.20 | 9.70 J1 | 9.70 J | - | mg/kg | M |
| NYOW-B-SL026-A | N | Barium | 2.10 | 75.0 J1 Q | 75.0 J | - | mg/kg | M |
| NYOW-B-SL026-A | N | Vanadium | 2.10 | 16.0 | 16.0 J | - | mg/kg | M |
| NYOW-B-SL026-A | N | Sodium | 530 | 110 U J1 | 110 UJ | | mg/kg | M |
| NYOW-B-SL026-A | N | Beryllium | 0.530 | 0.360 J J1 | 0.360 J | - | mg/kg | M/TR |
| NYOW-B-SL026-A | N | Cobalt | 1.10 | 7.20 J1 | 7.20 J | - | mg/kg | M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, MS RPD**

The objective of matrix spikes/matrix spike duplicates (MS/MSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. MS/MSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Matrix spikes/matrix spike duplicates results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH026-C (SD)/ 280-148471-21MSD | Manganese | 81.43 | < 20 | < 20 | rpd | J/UJ | D | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS RPD for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH026-C | N | Manganese | 4.30 | 410 J1 | 410 J | | mg/kg | D |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Total, Equipment Blank**

The purpose of equipment blanks is to determine the existence and magnitude of cross-contamination problems resulting from the process during sampling. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in equipment blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-01_210510 (EB)/ 280-148471-26 | Barium | 1.400 | < 0.82 | < 10 | ug/l | U/None* | V | |
| EB-01_210510 (EB)/ 280-148471-26 | Manganese | 4.900 | < 1.9 | < 10 | ug/l | U/None* | V | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6020A, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210510 (N)/ 280-148471-14 | Antimony | 74.29 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Field Duplicate RPD for SW6020A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH036-C | N | Antimony | 0.190 | 0.240 | 0.240 J | | mg/kg | D3 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6020A, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH036-B (SD)/ 280-148471-12MSD | Thallium | 81.46 | 83 - 118 | 10 - 200 | percent | J/UJ | M | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for SW6020A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH036-B | N | Thallium | 0.0870 | 0.100 J1 | 0.100 J | - | mg/kg | M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6020A, MS RPD**

The objective of matrix spikes/matrix spike duplicates (MS/MSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. MS/MSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Matrix spikes/matrix spike duplicates results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL026-A (SD)/ 280-148471-19MSD | Cadmium | 20.16 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL026-A (SD)/ 280-148471-19MSD | Selenium | 21.61 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL026-A (SD)/ 280-148471-19MSD | Thallium | 21.35 | < 20 | < 20 | rpd | J/UJ | D | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS RPD for SW6020A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL026-A | N | Selenium | 0.390 | 0.300 J J1 | 0.300 J | | mg/kg | D/TR |
| NYOW-B-SL026-A | N | Thallium | 0.0780 | 0.100 J1 | 0.100 J | | mg/kg | D |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6020A, Total, Equipment Blank**

The purpose of equipment blanks is to determine the existence and magnitude of cross-contamination problems resulting from the process during sampling. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in equipment blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-01_210510 (EB)/ 280-148471-26 | Antimony | 1.000 | < 0.4 | < 6 | ug/l | U/None* | V | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW7470A, Total, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-536171/1-A (LB)/ MB 280-536171/1-A | Mercury | 0.03500 | < 0.027 | < 0.2 | ug/l | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW7471B, Total, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-003_210510 (N)/ 280-148471-22 | Mercury | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW7471B, Total, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-536319/1-A (LB)/ MB 280-536319/1-A | Mercury | 0.005500 | < 0.0055 | < 0.017 | mg/kg | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

**Qualified Results associated with the Lab Blank for SW7471B, Total**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH021-C | N | Mercury | 0.0250 | 0.0160 J | 0.0200 U | | mg/kg | L |
| NYOW-B-PH036-B | N | Mercury | 0.0220 | 0.0260 | 0.0260 J | + | mg/kg | L |
| NYOW-B-PH036-C | N | Mercury | 0.0200 | 0.0150 J | 0.0160 U | | mg/kg | L |
| NYOW-B-PH037-B | N | Mercury | 0.0220 | 0.0300 | 0.0300 J | + | mg/kg | L |
| NYOW-B-PH037-C | N | Mercury | 0.0220 | 0.0130 J | 0.0170 U | | mg/kg | L |
| NYOW-B-PH038-B | N | Mercury | 0.0220 | 0.0120 J | 0.0170 U | | mg/kg | L |
| NYOW-B-PH038-C | N | Mercury | 0.0210 | 0.0160 J | 0.0170 U | | mg/kg | L |
| NYOW-B-PH039-B | N | Mercury | 0.0220 | 0.0220 | 0.0220 U | | mg/kg | L |
| NYOW-B-PH039-C | N | Mercury | 0.0210 | 0.0180 J | 0.0210 U | | mg/kg | L |
| PH-DUP-001_210510 | FD | Mercury | 0.0200 | 0.0110 J | 0.0160 U | | mg/kg | L |
| PH-DUP-002_210510 | FD | Mercury | 0.0230 | 0.0160 J | 0.0180 U | | mg/kg | L |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW7471B, Total, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL026-A (MS)/ 280-148471-19MS | Mercury | 78.47 | 80 - 124 | 10 - 200 | percent | J/UJ | M | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for SW7471B, Total**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL026-A | N | Mercury | 0.0220 | 0.0680 J1 | 0.0680 J | - | mg/kg | M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW9060A, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-003_210510 (N)/ 280-148471-22 | Total Organic Carbon | 76.60 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Field Duplicate RPD for SW9060A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH026-C | N | Total Organic Carbon | 2000 | 13000 | 13000 J | | mg/kg | D3 |
| PH-DUP-003_210510 | FD | Total Organic Carbon | 2000 | 5800 | 5800 J | | mg/kg | D3 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH021-B 280-148471-16 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.20 U M | 7.20 UJ | | ug/kg | C |
| NYOW-B-PH021-C 280-148471-17 | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 8.10 U M | 8.10 UJ | | ug/kg | C |
| NYOW-B-PH026-B 280-148471-20 | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 8.20 U M | 8.20 UJ | | ug/kg | C |
| NYOW-B-PH036-B 280-148471-12 | N | 1-Methylnaphthalene | 11.0 | 2.10 U J1 | 2.10 UJ | | ug/kg | M/D |
| NYOW-B-PH036-B 280-148471-12 | N | 2-Methylnaphthalene | 11.0 | 2.10 U J1 | 2.10 UJ | | ug/kg | M/D |
| NYOW-B-PH036-B 280-148471-12 | N | Acenaphthene | 11.0 | 1.10 U J1 | 1.10 UJ | | ug/kg | M/D |
| NYOW-B-PH036-B 280-148471-12 | N | Acenaphthylene | 11.0 | 1.10 U J1 | 1.10 UJ | | ug/kg | M/D |
| NYOW-B-PH036-B 280-148471-12 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.10 U M | 7.10 UJ | | ug/kg | C |
| NYOW-B-PH036-B 280-148471-12 | N | Naphthalene | 11.0 | 2.10 U J1 | 2.10 U | | ug/kg | D |
| NYOW-B-PH036-C 280-148471-13 | N | Indeno(1,2,3-c,d)pyrene | 10.0 | 6.80 U | 6.80 UJ | | ug/kg | C |
| NYOW-B-PH037-B 280-148471-3 | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 8.20 U M | 8.20 UJ | | ug/kg | C |
| NYOW-B-PH037-C 280-148471-4 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.30 U M | 7.30 UJ | | ug/kg | C |
| NYOW-B-PH038-B 280-148471-6 | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 7.70 U M | 7.70 UJ | | ug/kg | C |
| NYOW-B-PH038-C 280-148471-7 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.10 U M | 7.10 UJ | | ug/kg | C |
| NYOW-B-PH039-B 280-148471-9 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.10 U | 7.10 UJ | | ug/kg | C |
| NYOW-B-PH039-C 280-148471-10 | N | 1-Methylnaphthalene | 11.0 | 2.20 U M | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH039-C 280-148471-10 | N | 2-Methylnaphthalene | 11.0 | 2.20 U M | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH039-C 280-148471-10 | N | Acenaphthene | 11.0 | 1.20 U | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH039-C 280-148471-10 | N | Acenaphthylene | 11.0 | 1.20 U | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH039-C 280-148471-10 | N | Anthracene | 11.0 | 4.70 U | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH039-C 280-148471-10 | N | Benzo(a)anthracene | 11.0 | 4.70 U Q | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH039-C 280-148471-10 | N | Benzo(a)pyrene | 11.0 | 4.70 U M Q | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH039-C 280-148471-10 | N | Benzo(b)fluoranthene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | I |
| NYOW-B-PH039-C 280-148471-10 | N | Benzo(g,h,i)perylene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | I |
| NYOW-B-PH039-C 280-148471-10 | N | Benzo(k)fluoranthene | 11.0 | 4.70 U Q | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH039-C 280-148471-10 | N | Chrysene | 11.0 | 4.70 U Q | 4.70 UJ | | ug/kg | I |

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH039-C 280-148471-10 | N | Dibenz(a,h)anthracene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | I |
| NYOW-B-PH039-C 280-148471-10 | N | Fluoranthene | 11.0 | 4.70 U | 4.70 UJ | | ug/kg | I |
| NYOW-B-PH039-C 280-148471-10 | N | Fluorene | 11.0 | 2.90 U M | 2.90 UJ | | ug/kg | I |
| NYOW-B-PH039-C 280-148471-10 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.20 U Q | 7.20 UJ | | ug/kg | C/I |
| NYOW-B-PH039-C 280-148471-10 | N | Naphthalene | 11.0 | 2.20 U | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH039-C 280-148471-10 | N | Phenanthrene | 11.0 | 7.20 U | 7.20 UJ | | ug/kg | I |
| NYOW-B-PH039-C 280-148471-10 | N | Pyrene | 11.0 | 7.20 U M | 7.20 UJ | | ug/kg | I |
| NYOW-B-SL021-A 280-148471-15 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 12.0 | 12.0 J | - | ug/kg | C |
| NYOW-B-SL026-A 280-148471-19 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.20 U M | 7.20 UJ | | ug/kg | C |
| NYOW-B-SL038-A 280-148471-5 | N | 1-Methylnaphthalene | 13.0 | 2.60 U Q | 2.60 UJ | | ug/kg | I |
| NYOW-B-SL038-A 280-148471-5 | N | 2-Methylnaphthalene | 13.0 | 2.60 U Q | 2.60 UJ | | ug/kg | I |
| NYOW-B-SL038-A 280-148471-5 | N | Acenaphthene | 13.0 | 1.40 U M Q | 1.40 UJ | | ug/kg | I |
| NYOW-B-SL038-A 280-148471-5 | N | Anthracene | 13.0 | 5.60 U Q | 5.60 UJ | | ug/kg | I |
| NYOW-B-SL038-A 280-148471-5 | N | Benzo(b)fluoranthene | 13.0 | 14.0 | 14.0 J | - | ug/kg | I |
| NYOW-B-SL038-A 280-148471-5 | N | Dibenz(a,h)anthracene | 13.0 | 8.70 U | 8.70 UJ | | ug/kg | I |
| NYOW-B-SL038-A 280-148471-5 | N | Fluoranthene | 13.0 | 18.0 Q | 18.0 J | - | ug/kg | I |
| NYOW-B-SL038-A 280-148471-5 | N | Fluorene | 13.0 | 3.50 U M Q | 3.50 UJ | | ug/kg | I |
| NYOW-B-SL038-A 280-148471-5 | N | Naphthalene | 13.0 | 2.60 U Q | 2.60 UJ | | ug/kg | I |
| NYOW-B-SL038-A 280-148471-5 | N | Pyrene | 13.0 | 18.0 Q | 18.0 J | - | ug/kg | I |
| PH-DUP-001_210510 280-148471-14 | FD | Indeno(1,2,3-c,d)pyrene | 10.0 | 6.80 U M | 6.80 UJ | | ug/kg | C |
| PH-DUP-002_210510 280-148471-18 | FD | Indeno(1,2,3-c,d)pyrene | 12.0 | 7.90 U M | 7.90 UJ | | ug/kg | C |

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH021-C 280-148471-17 | N | Calcium | 110 | 3300 | 3300 J | | mg/kg | D3 |
| NYOW-B-PH021-C 280-148471-17 | N | Magnesium | 34.0 | 2000 | 2000 J | | mg/kg | D3 |
| NYOW-B-PH022-B 280-148471-24 | N | Aluminum | 41.0 | 6100 | 6100 J | | mg/kg | A |
| NYOW-B-PH022-B 280-148471-24 | N | Calcium | 83.0 | 8500 | 8500 J | | mg/kg | A |

**Table of All Qualified Results**

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH022-B 280-148471-24 | N | Iron | 66.0 | 14000 | 14000 J | | mg/kg | A |
| NYOW-B-PH022-C 280-148471-25 | N | Aluminum | 53.0 | 5100 | 5100 J | | mg/kg | A |
| NYOW-B-PH022-C 280-148471-25 | N | Calcium | 110 | 25000 | 25000 J | | mg/kg | A |
| NYOW-B-PH022-C 280-148471-25 | N | Iron | 85.0 | 15000 | 15000 J | | mg/kg | A |
| NYOW-B-PH026-B 280-148471-20 | N | Cobalt | 1.10 | 7.00 J1 | 7.00 J | - | mg/kg | M |
| NYOW-B-PH026-B 280-148471-20 | N | Sodium | 570 | 110 U J1 | 110 UJ | | mg/kg | M |
| NYOW-B-PH026-C 280-148471-21 | N | Aluminum | 47.0 | 4900 J1 | 4900 J | | mg/kg | A |
| NYOW-B-PH026-C 280-148471-21 | N | Calcium | 95.0 | 56000 J1 | 56000 J | | mg/kg | D3/A |
| NYOW-B-PH026-C 280-148471-21 | N | Iron | 76.0 | 13000 J1 | 13000 J | | mg/kg | A |
| NYOW-B-PH026-C 280-148471-21 | N | Magnesium | 28.0 | 5200 J1 | 5200 J | - | mg/kg | M |
| NYOW-B-PH026-C 280-148471-21 | N | Manganese | 4.30 | 410 J1 | 410 J | | mg/kg | D |
| NYOW-B-PH036-B 280-148471-12 | N | Chromium | 3.80 | 6.80 J1 | 6.80 J | - | mg/kg | M |
| NYOW-B-PH036-B 280-148471-12 | N | Cobalt | 1.10 | 7.60 J1 | 7.60 J | - | mg/kg | M |
| NYOW-B-PH036-B 280-148471-12 | N | Copper | 5.40 | 29.0 J1 | 29.0 J | - | mg/kg | M |
| NYOW-B-PH036-B 280-148471-12 | N | Lead | 0.980 | 11.0 J1 | 11.0 J | - | mg/kg | M |
| NYOW-B-PH036-B 280-148471-12 | N | Magnesium | 33.0 | 18000 J1 | 18000 J | | mg/kg | M |
| NYOW-B-PH036-B 280-148471-12 | N | Nickel | 4.30 | 12.0 J1 | 12.0 J | - | mg/kg | M |
| NYOW-B-PH036-B 280-148471-12 | N | Potassium | 330 | 1400 J1 | 1400 J | + | mg/kg | M |
| NYOW-B-PH036-B 280-148471-12 | N | Zinc | 8.70 | 24.0 J1 | 24.0 J | - | mg/kg | M |
| NYOW-B-SL022-A 280-148471-23 | N | Aluminum | 42.0 | 8600 | 8600 J | | mg/kg | A |
| NYOW-B-SL022-A 280-148471-23 | N | Calcium | 85.0 | 1200 | 1200 J | | mg/kg | A |
| NYOW-B-SL022-A 280-148471-23 | N | Iron | 68.0 | 18000 | 18000 J | | mg/kg | A |
| NYOW-B-SL026-A 280-148471-19 | N | Barium | 2.10 | 75.0 J1 Q | 75.0 J | - | mg/kg | M |
| NYOW-B-SL026-A 280-148471-19 | N | Chromium | 3.70 | 9.00 J1 | 9.00 J | - | mg/kg | M |
| NYOW-B-SL026-A 280-148471-19 | N | Cobalt | 1.10 | 7.20 J1 | 7.20 J | - | mg/kg | M |
| NYOW-B-SL026-A 280-148471-19 | N | Lead | 0.950 | 8.00 J1 | 8.00 J | - | mg/kg | M |
| NYOW-B-SL026-A 280-148471-19 | N | Nickel | 4.20 | 9.70 J1 | 9.70 J | - | mg/kg | M |

**Table of All Qualified Results**

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-SL026-A 280-148471-19 | N | Sodium | 530 | 110 U J1 | 110 UJ | | mg/kg | M |
| NYOW-B-SL026-A 280-148471-19 | N | Vanadium | 2.10 | 16.0 | 16.0 J | - | mg/kg | M |
| NYOW-B-SL037-A 280-148471-1 | N | Calcium | 100 | 1300 | 1300 J | | mg/kg | D3 |
| PH-DUP-002_210510 280-148471-18 | FD | Calcium | 110 | 15000 | 15000 J | | mg/kg | D3 |
| PH-DUP-002_210510 280-148471-18 | FD | Magnesium | 33.0 | 4100 | 4100 J | | mg/kg | D3 |
| PH-DUP-003_210510 280-148471-22 | FD | Aluminum | 52.0 | 6100 | 6100 J | | mg/kg | A |
| PH-DUP-003_210510 280-148471-22 | FD | Calcium | 100 | 16000 | 16000 J | | mg/kg | D3/A |
| PH-DUP-003_210510 280-148471-22 | FD | Iron | 84.0 | 17000 | 17000 J | | mg/kg | A |
| SL-DUP-001_210510 280-148471-2 | FD | Calcium | 110 | 660 | 660 J | | mg/kg | D3 |

| Test Method: SW6020A | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH021-B 280-148471-16 | N | Antimony | 0.190 | 0.0790 J | 0.0960 U | | mg/kg | B2 |
| NYOW-B-PH021-B 280-148471-16 | N | Thallium | 0.110 | 0.0680 J | 0.110 U | | mg/kg | B2 |
| NYOW-B-PH021-C 280-148471-17 | N | Antimony | 0.180 | 0.0890 J | 0.180 U | | mg/kg | B2 |
| NYOW-B-PH021-C 280-148471-17 | N | Thallium | 0.110 | 0.0640 J | 0.110 U | | mg/kg | B2 |
| NYOW-B-PH022-C 280-148471-25 | N | Antimony | 0.210 | 0.0900 J | 0.100 U | | mg/kg | B2 |
| NYOW-B-PH026-B 280-148471-20 | N | Antimony | 0.190 | 0.120 J | 0.190 U | | mg/kg | B2 |
| NYOW-B-PH026-B 280-148471-20 | N | Thallium | 0.120 | 0.0900 J | 0.120 U | | mg/kg | B2 |
| NYOW-B-PH026-C 280-148471-21 | N | Antimony | 0.190 | 0.170 J | 0.190 U | | mg/kg | B2 |
| NYOW-B-PH036-B 280-148471-12 | N | Thallium | 0.0870 | 0.100 J1 | 0.100 J | - | mg/kg | M |
| NYOW-B-PH036-C 280-148471-13 | N | Antimony | 0.190 | 0.240 | 0.240 J | | mg/kg | D3 |
| NYOW-B-PH037-B 280-148471-3 | N | Antimony | 0.180 | 0.100 J | 0.180 U | | mg/kg | B2 |
| NYOW-B-PH037-B 280-148471-3 | N | Cadmium | 0.100 | 0.110 | 0.110 J | + | mg/kg | V6 |
| NYOW-B-PH037-B 280-148471-3 | N | Thallium | 0.100 | 0.0970 J | 0.100 U | | mg/kg | B2 |
| NYOW-B-PH037-C 280-148471-4 | N | Thallium | 0.0920 | 0.0630 J | 0.0920 U | | mg/kg | B2 |
| NYOW-B-PH038-B 280-148471-6 | N | Thallium | 0.100 | 0.0430 J | 0.100 U | | mg/kg | B2 |
| NYOW-B-PH038-C 280-148471-7 | N | Thallium | 0.100 | 0.0430 J | 0.100 U | | mg/kg | B2 |

**Table of All Qualified Results**

| Test Method: SW6020A | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH039-B 280-148471-9 | N | Antimony | 0.170 | 0.0680 J | 0.0830 U | | mg/kg | B2 |
| NYOW-B-PH039-B 280-148471-9 | N | Thallium | 0.0900 | 0.0550 J | 0.0900 U | | mg/kg | B2 |
| NYOW-B-PH039-C 280-148471-10 | N | Antimony | 0.160 | 0.0710 J | 0.0790 U | | mg/kg | B2 |
| NYOW-B-PH039-C 280-148471-10 | N | Thallium | 0.0900 | 0.0460 J | 0.0900 U | | mg/kg | B2 |
| NYOW-B-SL021-A 280-148471-15 | N | Antimony | 0.170 | 0.130 J | 0.170 U | | mg/kg | B2 |
| NYOW-B-SL021-A 280-148471-15 | N | Cadmium | 0.0990 | 0.190 | 0.190 J | - | mg/kg | V6 |
| NYOW-B-SL022-A 280-148471-23 | N | Antimony | 0.200 | 0.110 J | 0.200 U | | mg/kg | B2 |
| NYOW-B-SL026-A 280-148471-19 | N | Antimony | 0.170 | 0.100 J | 0.170 U | | mg/kg | B2 |
| NYOW-B-SL026-A 280-148471-19 | N | Cadmium | 0.0780 | 0.210 | 0.210 J | - | mg/kg | V6 |
| NYOW-B-SL026-A 280-148471-19 | N | Thallium | 0.0780 | 0.100 J1 | 0.100 J | | mg/kg | D |
| NYOW-B-SL036-A 280-148471-11 | N | Antimony | 0.210 | 0.130 J | 0.210 U | | mg/kg | B2 |
| NYOW-B-SL036-A 280-148471-11 | N | Cadmium | 0.110 | 0.220 | 0.220 J | + | mg/kg | V6 |
| NYOW-B-SL036-A 280-148471-11 | N | Thallium | 0.110 | 0.0890 J | 0.110 U | | mg/kg | B2 |
| NYOW-B-SL037-A 280-148471-1 | N | Cadmium | 0.0850 | 0.130 | 0.130 J | + | mg/kg | V6 |
| NYOW-B-SL038-A 280-148471-5 | N | Antimony | 0.260 | 0.130 J | 0.130 U | | mg/kg | B2 |
| NYOW-B-SL038-A 280-148471-5 | N | Cadmium | 0.0930 | 0.240 | 0.240 J | + | mg/kg | V6 |
| NYOW-B-SL039-A 280-148471-8 | N | Antimony | 0.180 | 0.130 J | 0.180 U | | mg/kg | B2 |
| NYOW-B-SL039-A 280-148471-8 | N | Thallium | 0.110 | 0.0730 J | 0.110 U | | mg/kg | B2 |
| PH-DUP-001_210510 280-148471-14 | FD | Antimony | 0.180 | 0.110 J | 0.180 U | | mg/kg | B2 |
| PH-DUP-002_210510 280-148471-18 | FD | Antimony | 0.190 | 0.0790 J | 0.0950 U | | mg/kg | B2 |
| PH-DUP-002_210510 280-148471-18 | FD | Thallium | 0.110 | 0.0620 J | 0.110 U | | mg/kg | B2 |
| PH-DUP-003_210510 280-148471-22 | FD | Antimony | 0.220 | 0.240 | 0.110 U | | mg/kg | B2 |
| SL-DUP-001_210510 280-148471-2 | FD | Antimony | 0.190 | 0.150 J | 0.190 U | | mg/kg | B2 |
| SL-DUP-001_210510 280-148471-2 | FD | Thallium | 0.0980 | 0.0780 J | 0.0980 U | | mg/kg | B2 |

| Test Method: SW7471B | | Extraction Method: TOTAL | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH021-C 280-148471-17 | N | Mercury | 0.0250 | 0.0160 J | 0.0200 U | | mg/kg | L |

**Table of All Qualified Results**

| Test Method: SW7471B | | Extraction Method: TOTAL | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH036-B 280-148471-12 | N | Mercury | 0.0220 | 0.0260 | 0.0260 J | + | mg/kg | L |
| NYOW-B-PH036-C 280-148471-13 | N | Mercury | 0.0200 | 0.0150 J | 0.0160 U | | mg/kg | L |
| NYOW-B-PH037-B 280-148471-3 | N | Mercury | 0.0220 | 0.0300 | 0.0300 J | + | mg/kg | L |
| NYOW-B-PH037-C 280-148471-4 | N | Mercury | 0.0220 | 0.0130 J | 0.0170 U | | mg/kg | L |
| NYOW-B-PH038-B 280-148471-6 | N | Mercury | 0.0220 | 0.0120 J | 0.0170 U | | mg/kg | L |
| NYOW-B-PH038-C 280-148471-7 | N | Mercury | 0.0210 | 0.0160 J | 0.0170 U | | mg/kg | L |
| NYOW-B-PH039-B 280-148471-9 | N | Mercury | 0.0220 | 0.0220 | 0.0220 U | | mg/kg | L |
| NYOW-B-PH039-C 280-148471-10 | N | Mercury | 0.0210 | 0.0180 J | 0.0210 U | | mg/kg | L |
| NYOW-B-SL026-A 280-148471-19 | N | Mercury | 0.0220 | 0.0680 J1 | 0.0680 J | - | mg/kg | M |
| PH-DUP-001_210510 280-148471-14 | FD | Mercury | 0.0200 | 0.0110 J | 0.0160 U | | mg/kg | L |
| PH-DUP-002_210510 280-148471-18 | FD | Mercury | 0.0230 | 0.0160 J | 0.0180 U | | mg/kg | L |

| Test Method: SW9060A | | Extraction Method: NONE | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH026-C 280-148471-21 | N | Total Organic Carbon | 2000 | 13000 | 13000 J | | mg/kg | D3 |
| NYOW-B-PH037-C 280-148471-4 | N | Total Organic Carbon | 1200 | 3800 H | 3800 J | - | mg/kg | H1 |
| NYOW-B-PH038-C 280-148471-7 | N | Total Organic Carbon | 830 | 2900 H | 2900 J | - | mg/kg | H1 |
| NYOW-B-PH039-C 280-148471-10 | N | Total Organic Carbon | 860 | 3300 H | 3300 J | - | mg/kg | H1 |
| NYOW-B-SL038-A 280-148471-5 | N | Total Organic Carbon | 2000 | 13000 H | 13000 J | - | mg/kg | H1 |
| NYOW-B-SL039-A 280-148471-8 | N | Total Organic Carbon | 1400 | 9400 H | 9400 J | - | mg/kg | H1 |
| PH-DUP-003_210510 280-148471-22 | FD | Total Organic Carbon | 2000 | 5800 | 5800 J | | mg/kg | D3 |
| SL-DUP-001_210510 280-148471-2 | FD | Total Organic Carbon | 1500 | 10000 H | 10000 J | - | mg/kg | H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method BNASIMD**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH026-C 280-148471-21 | N | Naphthalene | 11.0 | 1.50 J | 1.50 J | 1.50 J | TR |
| NYOW-B-PH036-B 280-148471-12 | N | 1-Methylnaphthalene | 11.0 | 2.10 U J1 | 2.10 UJ | 2.10 UJ | M/D |
| NYOW-B-PH036-B 280-148471-12 | N | 2-Methylnaphthalene | 11.0 | 2.10 U J1 | 2.10 UJ | 2.10 UJ | M/D |
| NYOW-B-PH036-B 280-148471-12 | N | Acenaphthene | 11.0 | 1.10 U J1 | 1.10 UJ | 1.10 UJ | M/D |
| NYOW-B-PH036-B 280-148471-12 | N | Acenaphthylene | 11.0 | 1.10 U J1 | 1.10 UJ | 1.10 UJ | M/D |
| NYOW-B-PH036-B 280-148471-12 | N | Naphthalene | 11.0 | 2.10 U J1 | 2.10 U | 2.10 U | D |
| NYOW-B-PH036-C 280-148471-13 | N | Naphthalene | 10.0 | 0.860 J | 0.860 J | 0.860 J | TR |
| PH-DUP-001_210510 280-148471-14 | FD | 1-Methylnaphthalene | 10.0 | 0.790 J | 0.790 J | 0.790 J | TR |
| PH-DUP-001_210510 280-148471-14 | FD | Naphthalene | 10.0 | 3.80 J | 3.80 J | 3.80 J | TR |
| SL-DUP-001_210510 280-148471-2 | FD | 1-Methylnaphthalene | 12.0 | 0.720 J | 0.720 J | 0.720 J | TR |
| SL-DUP-001_210510 280-148471-2 | FD | Naphthalene | 12.0 | 1.70 J | 1.70 J | 1.70 J | TR |

**Modified Qualifiers for test method SW6010C**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH022-B 280-148471-24 | N | Aluminum | 41.0 | 6100 | 6100 | 6100 J | A |
| NYOW-B-PH022-B 280-148471-24 | N | Calcium | 83.0 | 8500 | 8500 | 8500 J | A |
| NYOW-B-PH022-B 280-148471-24 | N | Iron | 66.0 | 14000 | 14000 | 14000 J | A |
| NYOW-B-PH022-C 280-148471-25 | N | Aluminum | 53.0 | 5100 | 5100 | 5100 J | A |
| NYOW-B-PH022-C 280-148471-25 | N | Calcium | 110 | 25000 | 25000 | 25000 J | A |
| NYOW-B-PH022-C 280-148471-25 | N | Iron | 85.0 | 15000 | 15000 | 15000 J | A |
| NYOW-B-PH026-C 280-148471-21 | N | Aluminum | 47.0 | 4900 J1 | 4900 | 4900 J | A |
| NYOW-B-PH026-C 280-148471-21 | N | Calcium | 95.0 | 56000 J1 | 56000 J | 56000 J | D3/A |
| NYOW-B-PH026-C 280-148471-21 | N | Iron | 76.0 | 13000 J1 | 13000 | 13000 J | A |
| NYOW-B-SL022-A 280-148471-23 | N | Aluminum | 42.0 | 8600 | 8600 | 8600 J | A |
| NYOW-B-SL022-A 280-148471-23 | N | Calcium | 85.0 | 1200 | 1200 | 1200 J | A |
| NYOW-B-SL022-A 280-148471-23 | N | Iron | 68.0 | 18000 | 18000 | 18000 J | A |
| NYOW-B-SL026-A 280-148471-19 | N | Copper | 5.30 | 26.0 | 26.0 J | 26.0 | |

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW6010C**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| PH-DUP-003_210510 280-148471-22 | FD | Aluminum | 52.0 | 6100 | 6100 | 6100 J | A |
| PH-DUP-003_210510 280-148471-22 | FD | Calcium | 100 | 16000 | 16000 J | 16000 J | D3/A |
| PH-DUP-003_210510 280-148471-22 | FD | Iron | 84.0 | 17000 | 17000 | 17000 J | A |

**Modified Qualifiers for test method SW6020A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH021-B 280-148471-16 | N | Antimony | 0.190 | 0.0790 J | 0.0790 J | 0.0960 U | B2 |
| NYOW-B-PH021-B 280-148471-16 | N | Cadmium | 0.110 | 0.0370 J | 0.0370 J | 0.0370 J | TR/V6 |
| NYOW-B-PH021-B 280-148471-16 | N | Thallium | 0.110 | 0.0680 J | 0.0680 J | 0.110 U | B2 |
| NYOW-B-PH021-C 280-148471-17 | N | Antimony | 0.180 | 0.0890 J | 0.0890 J | 0.180 U | B2 |
| NYOW-B-PH021-C 280-148471-17 | N | Cadmium | 0.110 | 0.0460 J | 0.0460 J | 0.0460 J | TR/V6 |
| NYOW-B-PH021-C 280-148471-17 | N | Thallium | 0.110 | 0.0640 J | 0.0640 J | 0.110 U | B2 |
| NYOW-B-PH022-B 280-148471-24 | N | Thallium | 0.110 | 0.0400 J | 0.0400 J | 0.0400 J | TR/V6 |
| NYOW-B-PH022-C 280-148471-25 | N | Antimony | 0.210 | 0.0900 J | 0.0900 J | 0.100 U | B2 |
| NYOW-B-PH022-C 280-148471-25 | N | Thallium | 0.0990 | 0.0500 J | 0.0500 J | 0.0500 J | TR/V6 |
| NYOW-B-PH026-B 280-148471-20 | N | Antimony | 0.190 | 0.120 J | 0.120 J | 0.190 U | B2 |
| NYOW-B-PH026-B 280-148471-20 | N | Cadmium | 0.120 | 0.0630 J | 0.0630 J | 0.0630 J | TR/V6 |
| NYOW-B-PH026-B 280-148471-20 | N | Thallium | 0.120 | 0.0900 J | 0.0900 J | 0.120 U | B2 |
| NYOW-B-PH026-C 280-148471-21 | N | Antimony | 0.190 | 0.170 J | 0.170 J | 0.190 U | B2 |
| NYOW-B-PH026-C 280-148471-21 | N | Thallium | 0.0840 | 0.0520 J J1 | 0.0520 J | 0.0520 J | TR/V6 |
| NYOW-B-PH036-B 280-148471-12 | N | Cadmium | 0.0870 | 0.0160 J | 0.0160 J | 0.0160 J | TR/V6 |
| NYOW-B-PH036-C 280-148471-13 | N | Cadmium | 0.0840 | 0.0130 J | 0.0130 J | 0.0130 J | TR/V6 |
| NYOW-B-PH037-B 280-148471-3 | N | Antimony | 0.180 | 0.100 J | 0.100 J | 0.180 U | B2 |
| NYOW-B-PH037-B 280-148471-3 | N | Cadmium | 0.100 | 0.110 | 0.110 | 0.110 J | V6 |
| NYOW-B-PH037-B 280-148471-3 | N | Thallium | 0.100 | 0.0970 J | 0.0970 J | 0.100 U | B2 |
| NYOW-B-PH037-C 280-148471-4 | N | Cadmium | 0.0920 | 0.0160 J | 0.0160 J | 0.0160 J | TR/V6 |
| NYOW-B-PH037-C 280-148471-4 | N | Thallium | 0.0920 | 0.0630 J | 0.0630 J | 0.0920 U | B2 |
| NYOW-B-PH038-B 280-148471-6 | N | Cadmium | 0.100 | 0.0550 J | 0.0550 J | 0.0550 J | TR/V6 |

**Table of Results with Modified Qualifiers**

| Modified Qualifiers for test method SW6020A | | | | | | | |
|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
| NYOW-B-PH038-B 280-148471-6 | N | Thallium | 0.100 | 0.0430 J | 0.0430 J | 0.100 U | B2 |
| NYOW-B-PH038-C 280-148471-7 | N | Cadmium | 0.100 | 0.0140 J | 0.0140 J | 0.0140 J | TR/V6 |
| NYOW-B-PH038-C 280-148471-7 | N | Thallium | 0.100 | 0.0430 J | 0.0430 J | 0.100 U | B2 |
| NYOW-B-PH039-B 280-148471-9 | N | Antimony | 0.170 | 0.0680 J | 0.0680 J | 0.0830 U | B2 |
| NYOW-B-PH039-B 280-148471-9 | N | Cadmium | 0.0900 | 0.0340 J | 0.0340 J | 0.0340 J | TR/V6 |
| NYOW-B-PH039-B 280-148471-9 | N | Thallium | 0.0900 | 0.0550 J | 0.0550 J | 0.0900 U | B2 |
| NYOW-B-PH039-C 280-148471-10 | N | Antimony | 0.160 | 0.0710 J | 0.0710 J | 0.0790 U | B2 |
| NYOW-B-PH039-C 280-148471-10 | N | Cadmium | 0.0900 | 0.0200 J | 0.0200 J | 0.0200 J | TR/V6 |
| NYOW-B-PH039-C 280-148471-10 | N | Thallium | 0.0900 | 0.0460 J | 0.0460 J | 0.0900 U | B2 |
| NYOW-B-SL021-A 280-148471-15 | N | Antimony | 0.170 | 0.130 J | 0.130 J | 0.170 U | B2 |
| NYOW-B-SL021-A 280-148471-15 | N | Cadmium | 0.0990 | 0.190 | 0.190 | 0.190 J | V6 |
| NYOW-B-SL022-A 280-148471-23 | N | Antimony | 0.200 | 0.110 J | 0.110 J | 0.200 U | B2 |
| NYOW-B-SL022-A 280-148471-23 | N | Thallium | 0.0830 | 0.0640 J | 0.0640 J | 0.0640 J | TR/V6 |
| NYOW-B-SL026-A 280-148471-19 | N | Antimony | 0.170 | 0.100 J | 0.100 J | 0.170 U | B2 |
| NYOW-B-SL026-A 280-148471-19 | N | Cadmium | 0.0780 | 0.210 | 0.210 J | 0.210 J | V6 |
| NYOW-B-SL036-A 280-148471-11 | N | Antimony | 0.210 | 0.130 J | 0.130 J | 0.210 U | B2 |
| NYOW-B-SL036-A 280-148471-11 | N | Cadmium | 0.110 | 0.220 | 0.220 | 0.220 J | V6 |
| NYOW-B-SL036-A 280-148471-11 | N | Thallium | 0.110 | 0.0890 J | 0.0890 J | 0.110 U | B2 |
| NYOW-B-SL037-A 280-148471-1 | N | Cadmium | 0.0850 | 0.130 | 0.130 | 0.130 J | V6 |
| NYOW-B-SL038-A 280-148471-5 | N | Antimony | 0.260 | 0.130 J | 0.130 J | 0.130 U | B2 |
| NYOW-B-SL038-A 280-148471-5 | N | Cadmium | 0.0930 | 0.240 | 0.240 | 0.240 J | V6 |
| NYOW-B-SL039-A 280-148471-8 | N | Antimony | 0.180 | 0.130 J | 0.130 J | 0.180 U | B2 |
| NYOW-B-SL039-A 280-148471-8 | N | Cadmium | 0.110 | 0.0810 J | 0.0810 J | 0.0810 J | TR/V6 |
| NYOW-B-SL039-A 280-148471-8 | N | Thallium | 0.110 | 0.0730 J | 0.0730 J | 0.110 U | B2 |
| PH-DUP-001_210510 280-148471-14 | FD | Antimony | 0.180 | 0.110 J | 0.110 J | 0.180 U | B2 |
| PH-DUP-001_210510 280-148471-14 | FD | Cadmium | 0.0980 | 0.0160 J | 0.0160 J | 0.0160 J | TR/V6 |
| PH-DUP-002_210510 280-148471-18 | FD | Antimony | 0.190 | 0.0790 J | 0.0790 J | 0.0950 U | B2 |

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW6020A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| PH-DUP-002_210510 280-148471-18 | FD | Cadmium | 0.110 | 0.0390 J | 0.0390 J | 0.0390 J | TR/V6 |
| PH-DUP-002_210510 280-148471-18 | FD | Thallium | 0.110 | 0.0620 J | 0.0620 J | 0.110 U | B2 |
| PH-DUP-003_210510 280-148471-22 | FD | Antimony | 0.220 | 0.240 | 0.240 | 0.110 U | B2 |
| PH-DUP-003_210510 280-148471-22 | FD | Thallium | 0.120 | 0.0500 J | 0.0500 J | 0.0500 J | TR/V6 |
| SL-DUP-001_210510 280-148471-2 | FD | Antimony | 0.190 | 0.150 J | 0.150 J | 0.190 U | B2 |
| SL-DUP-001_210510 280-148471-2 | FD | Cadmium | 0.0980 | 0.0950 J | 0.0950 J | 0.0950 J | TR/V6 |
| SL-DUP-001_210510 280-148471-2 | FD | Thallium | 0.0980 | 0.0780 J | 0.0780 J | 0.0980 U | B2 |

**Modified Qualifiers for test method SW6020A, Total**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| EB-01_210510 280-148471-26 | EB | Antimony | 6.00 | 1.00 J | 1.00 J | 1.00 J | TR/V6 |

**Modified Qualifiers for test method SW7471B, Total**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH026-C 280-148471-21 | N | Mercury | 0.0200 | 0.00800 J | 0.00800 J | 0.00800 J | TR |

**Modified Qualifiers for test method SW9060A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH037-C 280-148471-4 | N | Total Organic Carbon | 1200 | 3800 H | 3800 | 3800 J | H1 |
| NYOW-B-PH038-C 280-148471-7 | N | Total Organic Carbon | 830 | 2900 H | 2900 | 2900 J | H1 |
| NYOW-B-PH039-C 280-148471-10 | N | Total Organic Carbon | 860 | 3300 H | 3300 | 3300 J | H1 |
| NYOW-B-SL038-A 280-148471-5 | N | Total Organic Carbon | 2000 | 13000 H | 13000 | 13000 J | H1 |
| NYOW-B-SL039-A 280-148471-8 | N | Total Organic Carbon | 1400 | 9400 H | 9400 | 9400 J | H1 |
| SL-DUP-001_210510 280-148471-2 | FD | Total Organic Carbon | 1500 | 10000 H | 10000 | 10000 J | H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Reason Code Definitions**

| Code | Definition |
|---|---|
| A | Serial dilution |
| B2 | CCB |

**Reason Code Definitions**

| Code | Definition |
|---|---|
| C | LCS Recovery |
| D | MS RPD |
| D3 | Field Duplicate RPD |
| H1 | Test Hold Time |
| I | Surrogate recovery outside project limits. |
| L | Lab Blank |
| M | MS Recovery |
| TR | Trace Level Detect |
| V | Equipment Blank |
| V6 | Low Level Calibration Verification |
| Z | LCS RPD |

**Flag Code and Definitions**

| Flag | Definition |
|---|---|
| J | Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria. |
| U | Undetected: The analyte was analyzed for, but not detected. |
| UJ | The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria. |

**Bias**

| | |
|---|---|
| - | The result may be biased low |
| + | The result may be biased high |

Note - The bias field is a separate field; however, it is an integral part of the final flag (qualifier) on the sample result

**Review Questions**

| Method: BNASIMD (GC/MS-SIM Analysis by SW8270D) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the GC/MS system properly tuned based on method criteria? | • | | | |
| Was instrument tuning completed every 12 hours during sample analysis? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | CCV 280-537291/3 exhibited a %D > 20% for dibenz(a,h)anthracene at 22%. There are no associated investigative samples. |
| Were Internal Standard retention times and area criteria within method requirements? | • | | | |
| Were internal standards spiked for every sample, standard, and QC sample? | • | | | |
| Were surrogate recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | MS/SD not performed for soil batch 536016 and aqueous batch 536125. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the MS/MSD RPD within project acceptance limits? | | • | | Sample NYOW-B-PH036-B exhibited RPDs > 40% for 1-methylnaphthalene (61%), 2-methylnaphthalene (59%), acenaphthene (43%), acenaphthylene (47%), and naphthalene (57%). |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | | • | | CCV CAs not performed. |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | CCVL 280-537422/80 does not bracket investigative samples. |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Did the ICSA have any non-target interferents above the MDL? | • | | | The ICSA associated with batch 280-537533 had results for Ba greater than the LOD. The initial ICSA result (13.1 ppb) was > LOD (2 ppb). The laboratory has confirmed using ICP-MS that Ba is a trace impurity in the ICSA standard at 12.4 ppb.The ICSA associated with batch 280-537729 had results for Ba at a level greater than the limit of detection. The initial ICSA result (13.4 ppb) was > LOD (2 ppb). The laboratory has confirmed using ICP-MS that Ba is a trace impurity in the ICSA standard. The ICSA associated with batch 280-537422 had results for Ba greater than the LOD. The initial ICSA result (13.3 ppb) was > LOD (2 ppb). The laboratory has confirmed using ICP-MS Ba is trace impurity in the ICSA standard. |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | See QC Outliers. |
| Were target analytes in the field blank less than MDL? | | • | | See QC Outliers. Aqueous field blank detections are not used to evaluate soil sample results. |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. ADR recoveries do not match laboratory report.<br>Copper recovery for SD sample NYOW-B-SL026-A is acceptable. |
| Was the MS/MSD RPD within project acceptance limits? | | • | | See QC Outliers. |

**Review Questions**

| Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Were the post spike recoveries within project acceptance limits? | | • | | The PDS for sample NYOW-B-PH036-B exhibited recoveries less than 80% for Al (12%), Ca (31%), Fe (-172%), and Mn (-117%). For the MS/SD, the sample concentration was >4X the spiked amount; the PDS is not necessary. The PDS for sample NYOW-B-PH026-C exhibited recoveries less than 80% for Al (19%), Ca (18%), Fe (-172%), Mn (-59%), and Ag (79%). For the MS/SD, the sample concentration was >4X the spiked amount; the PDS is not necessary. A PDS is not required for silver. |
| Were the serial dilution RPD values within project acceptance limits? | | • | | Serial dilution sample NYOW-B-PH026-C exhibited RPDs > 10% for Al (11%), Ca (14%), and Fe (13%). NYOW-B-PH026-C and results for the following samples with similar matrix are qualified as "J": NYOW-B-PH022-B, NYOW-B-PH022-C, NYOW-B-SL022-A, and PH-DUP-003_210510. |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | • | | See QC Outliers. |
| Were QAPP specified laboratory PQLs achieved? | | • | | LOQs for cobalt were slightly greater than PQLGs due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the system properly tuned based on method criteria? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | CCVL 280-536644/48 exhibited a recovery less than 80% for Sb at 75%. The associated equipment blank sample result is qualified as "J-".<br>CCVL 280-537509/56 exhibited a recovery > 120% for Cd at 121%. The associated positive detections less than the level of the CCV are qualified as "J+".<br>CCVL 280-537509/80 and /87 exhibited recoveries less than 80% for Cd at 79% and 70%. The associated positive detections less than the level of the CCV are qualified as "J-".<br>ICVL 280-537762/26 exhibited a recovery > 120% for Sb at 125%. The associated detections below the level of the CCV are qualified as "J+" unless "U" qualified on the basis of blank contamination.<br>CCVL 280-537730/65, /77, and /90 exhibited recoveries < 80% for Tl at 76%, 79%, and 77%. The associated sample results were detections below the level of the CCV and are qualified as "J-". |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | | • | | CCB 280-536644/35 and CCB 280-536644/47 exhibited detections less than the LOQ for Tl at 0.103 ug/L and 0.119 ug/L. The associated equipment blank sample result was non-detect.<br>ICB 280-537509/12 and CCBs 280-537509/55 and /68 exhibited detections below the LOQ for Tl ranging from 0.101 ug/L to 0.148 ug/L. The associated sample results less than the aqueous LOQ are qualified as "U".<br>ICB 280-537762/25 and CCBs 280-537762/96, /109, and /122 exhibited detections below the LOQ for Sb ranging from 0.429 ug/L to 0.724 ug/L. The associated detection below the aqueous LOQ is qualified as "U".<br>CCBs 280-537948/44, /57, /66, and /74 exhibited detections for Sb below the LOQ ranging from 0.458 ug/L to 0.866 ug/L. The associated positive detections below the aqueous LOQ are qualified as "U". |
| Did the ICSA have any non-target interferents above the MDL? | • | | | The ICSA associated with batch 280-536644 had results for Cr at a level greater than the LOD. The initial ICSA result (1.925 ppb) was > LOD (1.8 ppb). The vendor acknowledges that Cr is a trace impurity in the ICSA standard. |

**Review Questions**

Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | | • | | See QC Outliers. Soil sample results are not qualified on the basis of aqueous field blanks. |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the MS/MSD RPD within project acceptance limits? | | • | | See QC Outliers.<br>Cd RPD for MS/SD sample NYOW-B-SL026-A is acceptable at 20%. |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | • | | See QC Outliers. |
| Were the post spike recoveries within project acceptance limits? | | • | | PDS sample NYOW-B-PH026-C exhibited recoveries < 80% for arsenic (66%), cadmium (65%), selenium (69%), and thallium (64%). The MS/SD recoveries were acceptable; qualification is not necessary. |
| Were the serial dilution RPD values within project acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | As, Se, Tl, Sb LOQs slightly greater than PQLGs due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW7470A (Mercury in Water (Manual Cold-Vapor Technique)) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | See QC Outliers. |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW7471B (Mercury in Soil (Manual Cold-Vapor Technique)) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | See QC Outliers. |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | • | | | |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | LOQs were slightly > than PQLGs due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW9060A (Total Organic Carbon)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | | • | | The following samples were analyzed outside of analytical holding time due to an instrument issue that required the samples to be analyzed at another lab within the Eurofins network: SL-DUP-001_210510, NYOW-B-PH037-C ,NYOW-B-SL038-A, NYOW-B-PH038-C, NYOW-B-SL039-A, and NYOW-B-PH039-C. |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | | | • | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | | • | | LCSD was not performed for batch 410-138452. |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | • | | | The MS/SD results associated with batch 138452 are reported and validated in SDG J148419. The native sample used for the MS/SD was not from this SDG. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | • | | See QC Outliers. |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Data Validation Report for 280-148501-1_52_2a_FUDSChem**

| | |
|---|---|
| Facility: | C02NY0290-01, New York Ordnance Works, Limited RI |
| Event: | 2021 Sampling - Background |
| SDG: | 280-148501-1_52_2a_FUDSChem |
| Guidance Document: | Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works |
| Prime Contractor: | Bluestone Environmental Group, Inc., Malvern, PA |
| Project Manager: | Mike Badeau |
| Contract Laboratory(ies): | Eurofins Environment Testing TestAmerica, Arvada, CO |
| Data Review Contractor: | Bluestone |
| Data Review Level: | S2BVEM |
| Primary Data Reviewer: | Emily Strake, Technical Director/ Data Validator |
| Date Submitted: | August 12, 2021 |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6020A | SW7470A | SW7471B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH023-B | 280-148501-2 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH023-C | 280-148501-3 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH024-B | 280-148501-11 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH024-C | 280-148501-12 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH025-B | 280-148501-14 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH025-C | 280-148501-15 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH027-B | 280-148501-18 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH027-C | 280-148501-19 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH028-B | 280-148501-8 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH028-C | 280-148501-9 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH031-B | 280-148501-21 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH031-C | 280-148501-22 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH040-B | 280-148501-5 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH040-C | 280-148501-6 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL023-A | 280-148501-1 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL024-A | 280-148501-10 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL025-A | 280-148501-13 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL027-A | 280-148501-16 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL028-A | 280-148501-7 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL031-A | 280-148501-20 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL040-A | 280-148501-4 | Solid | Field Sample/N | X | X | X | X | | X | X |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6020A | SW7470A | SW7471B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210511 | 280-148501-23 | Solid | Field Duplicate/FD | X | X | X | X | | X | X |
| SL-DUP-001_210511 | 280-148501-17 | Solid | Field Duplicate/FD | X | X | X | X | | X | X |
| EB-01_210511 | 280-148501-24 | Water | Equipment Blank/EB | X | | X | X | X | | |

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page at S2BVEM data validation level. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works and the additional guidance documents incorporated by reference to the extent possible. Where definitive guidance is not provided, results have been evaluated in a conservative manner using professional judgment.

Sample collection was managed and directed by Bluestone Environmental Group, Inc., Malvern, PA; analyses were performed by Eurofins Environment Testing TestAmerica, Arvada, CO and were reported under sample delivery group (SDG) 280-148501-1_52_2a_FUDSChem. Data have been evaluated electronically based on electronic data deliverables (EDDs) provided by the laboratory, and hard copy data summary forms have also been reviewed during this effort and compared to the automated review output by the reviewers whose signatures appear on the following page. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative and throughout this report.

All quality control (QC) elements associated with this SDG have been reviewed by a project chemist in accordance with the requirements defined for the project. This review is documented in the attached Data Review Checklists. The QC elements listed below were supported by the electronic deliverable and were evaluated using ADR processes.

- Blank - Negative
- Equipment Blank
- Field Duplicate RPD
- Lab Blank
- Lab Replicate RPD
- LCS Recovery
- LCS RPD
- MS Recovery
- MS RPD
- Prep Hold Time
- Surrogate
- Test Hold Time

Results of the ADR process were subsequently reviewed and updated as applicable by the data review chemists identified on the signature page. Quality control elements that were not included in the electronic deliverable were reviewed manually and findings are documented within this report. Summaries of findings and associated qualified results are documented throughout this report.

A total of 247 results (23.98%) out of the 1030 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected or deemed a serious deficiency (X qualifier). Trace values, defined as results that are qualified as estimated because they fall between the detection limit and the reporting limit/limit of quantitation, are not counted as qualified results in the above count. The qualified results are detailed throughout this report and discussed in the narrative below, where appropriate.

Narrative Comments

The samples arrived in good condition, properly preserved and on ice. The temperatures of the 7 coolers at receipt time were 0.4ºC, 1.2ºC, 1.4ºC, 2.2ºC, 2.8ºC, 3.0ºC and 3.8ºC. Samples analyzed for TOC were sent to Eurofins Seattle and were received at temperatures of 4.2ºC and 3.3ºC. Sampled analyzed for TOC were sent to Eurofins Lancaster Laboratories and were received at temperatures of 3.2ºC and 5.0ºC. For sample EB-01_21051, the 500mL Nitric container had no label, sample ID, date or time on container. 2/2 250mL containers had no time written on them. The samples were logged in accordance with the COC.

| Analytical Method | Data Reviewer Comment |
|---|---|
| BNASIMD | No additional comments; see Checklist for detail. |
| SW6010C | Samples NYOW-B-PH024-B[5X] and NYOW-B-SL031-A[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly. |
| SW6020A | No additional comments; see Checklist for detail. |
| SW7470A | No additional comments; see Checklist for detail. |
| SW7471B | No additional comments; see Checklist for detail. |
| SW9060A | Samples NYOW-B-PH040-C[4.02X], NYOW-B-PH028-C[4.71X], NYOW-B-PH024-C[5.3X], NYOW-B-PH025-C[9.98X], NYOW-B-PH027-B[4.92X], NYOW-B-PH027-C[12.53X], NYOW-B-PH031-C[4.86X] and PH-DUP-001_210511[4.54X] required dilution prior to analysis. The reporting limits have been adjusted accordingly. |

August 12, 2021

Reviewed by Emily Strake, Technical Director/ Data Validator, Bluestone

As the Reviewer, I certify that I have performed a data review process in accordance with the requirements of the project guidance document, and have compared the electronic data to the laboratory's hard copy report and have verified the consistency of the reported sample results and method quality control data between the two deliverables.

**Quality Control Outliers for test method BNASIMD, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210511 (N)/ 280-148501-23 | Benzo (b)fluoranthene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210511 (N)/ 280-148501-17 | 1-Methylnaphthalene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210511 (N)/ 280-148501-17 | 2-Methylnaphthalene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210511 (N)/ 280-148501-17 | Acenaphthylene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210511 (N)/ 280-148501-17 | Naphthalene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method BNASIMD, LCS RPD**

The objective of laboratory control sample/laboratory control sample duplicate (LCS/LCSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. LCS/LCSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Laboratory control sample/laboratory control sample duplicate RPD results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 280-536125/3-A (BD)/ LCSD 280-536125/3-A | 1-Methylnaphthalene | 0.1480 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536125/3-A (BD)/ LCSD 280-536125/3-A | Acenaphthene | 0.1710 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536125/3-A (BD)/ LCSD 280-536125/3-A | Fluorene | 0.1590 | < 0.1 | < 0.1 | ug/l | J/None | Z | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method BNASIMD, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL023-A (MS)/ 280-148501-1MS | Chrysene | 52.37 | 57 - 118 | 10 - 200 | percent | J/UJ | M | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL023-A | N | Chrysene | 12.0 | 6.00 J J1 | 6.00 J | - | ug/kg | M/TR |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, Prep Hold Time**

Hold times are ascertained based on project requirements. Holding times were determined by comparing the chain of custody records with the dates of extraction found in the electronic data deliverable and laboratory summary forms. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH023-B (N)/ 280-148501-2 | | 14.02 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-PH023-C (N)/ 280-148501-3 | | 14.01 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-SL023-A (N)/ 280-148501-1 | | 14.02 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-SL023-A (N)/ 280-148501-1MS | | 14.02 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| NYOW-B-SL023-A (N)/ 280-148501-1MSD | | 14.02 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |
| SL-DUP-001_210511 (FD)/ 280-148501-17 | | 14.40 | < 14 | < 28 | days | J/UJ | H2 | Prep Exceeds UWL |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method BNASIMD, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH025-B (N)/ 280-148501-14 | 2-Fluorobiphenyl | 42.00 | 46 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-B-PH025-B (N)/ 280-148501-14 | Nitrobenzene-d5 | 42.00 | 44 - 125 | 10 - 125 | percent | J/UJ | I | |
| NYOW-B-PH028-C (N)/ 280-148501-9 | 2-Methylnaphthalene-d10 | 34.00 | 41 - 100 | 10 - 100 | percent | J/UJ | I | |
| NYOW-B-PH028-C (N)/ 280-148501-9 | 2-Fluorobiphenyl | 38.00 | 46 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-B-PH028-C (N)/ 280-148501-9 | Nitrobenzene-d5 | 35.00 | 44 - 125 | 10 - 125 | percent | J/UJ | I | |
| NYOW-B-SL024-A (N)/ 280-148501-10 | Nitrobenzene-d5 | 40.00 | 44 - 125 | 10 - 125 | percent | J/UJ | I | |
| NYOW-B-SL025-A (N)/ 280-148501-13 | Nitrobenzene-d5 | 43.00 | 44 - 125 | 10 - 125 | percent | J/UJ | I | |
| NYOW-B-SL027-A (N)/ 280-148501-16 | 2-Methylnaphthalene-d10 | 38.00 | 41 - 100 | 10 - 100 | percent | J/UJ | I | |
| NYOW-B-SL027-A (N)/ 280-148501-16 | 2-Fluorobiphenyl | 39.00 | 46 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-B-SL027-A (N)/ 280-148501-16 | Nitrobenzene-d5 | 38.00 | 44 - 125 | 10 - 125 | percent | J/UJ | I | |
| NYOW-B-SL027-A (N)/ 280-148501-16 | Terphenyl-d14 | 56.00 | 58 - 133 | 10 - 133 | percent | J/UJ | I | |
| NYOW-B-SL031-A (N)/ 280-148501-20 | 2-Fluorobiphenyl | 41.00 | 46 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-B-SL031-A (N)/ 280-148501-20 | Nitrobenzene-d5 | 40.00 | 44 - 125 | 10 - 125 | percent | J/UJ | I | |
| NYOW-B-SL031-A (N)/ 280-148501-20 | Terphenyl-d14 | 55.00 | 58 - 133 | 10 - 133 | percent | J/UJ | I | |
| NYOW-B-SL040-A (N)/ 280-148501-4 | Nitrobenzene-d5 | 41.00 | 44 - 125 | 10 - 125 | percent | J/UJ | I | |
| SL-DUP-001_210511 (FD)/ 280-148501-17 | 2-Methylnaphthalene-d10 | 35.00 | 41 - 100 | 10 - 100 | percent | J/UJ | I | |
| SL-DUP-001_210511 (FD)/ 280-148501-17 | 2-Fluorobiphenyl | 38.00 | 46 - 115 | 10 - 115 | percent | J/UJ | I | |
| SL-DUP-001_210511 (FD)/ 280-148501-17 | Nitrobenzene-d5 | 37.00 | 44 - 125 | 10 - 125 | percent | J/UJ | I | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH025-B | N | 1-Methylnaphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH025-B | N | 2-Methylnaphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH025-B | N | Acenaphthene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH025-B | N | Acenaphthylene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH025-B | N | Anthracene | 11.0 | 4.80 U Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH025-B | N | Benzo(a)anthracene | 11.0 | 4.80 U | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH025-B | N | Benzo(a)pyrene | 11.0 | 4.80 U M Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH025-B | N | Benzo(b)fluoranthene | 11.0 | 7.30 U Q | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH025-B | N | Benzo(g,h,i)perylene | 11.0 | 7.30 U Q | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH025-B | N | Benzo(k)fluoranthene | 11.0 | 4.80 U M | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH025-B | N | Chrysene | 11.0 | 4.80 U | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH025-B | N | Dibenz(a,h)anthracene | 11.0 | 7.30 U Q | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH025-B | N | Fluoranthene | 11.0 | 4.80 U Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH025-B | N | Fluorene | 11.0 | 2.90 U Q | 2.90 UJ | | ug/kg | I |
| NYOW-B-PH025-B | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.30 U M Q | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH025-B | N | Naphthalene | 11.0 | 2.20 U M Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH025-B | N | Phenanthrene | 11.0 | 7.30 U Q | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH025-B | N | Pyrene | 11.0 | 7.30 U M Q | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH028-C | N | 1-Methylnaphthalene | 11.0 | 2.30 U Q | 2.30 UJ | | ug/kg | I |
| NYOW-B-PH028-C | N | 2-Methylnaphthalene | 11.0 | 2.30 U M Q | 2.30 UJ | | ug/kg | I |
| NYOW-B-PH028-C | N | Acenaphthene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH028-C | N | Acenaphthylene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH028-C | N | Anthracene | 11.0 | 4.90 U Q | 4.90 UJ | | ug/kg | I |
| NYOW-B-PH028-C | N | Benzo(a)anthracene | 11.0 | 4.90 U | 4.90 UJ | | ug/kg | I |
| NYOW-B-PH028-C | N | Benzo(a)pyrene | 11.0 | 4.90 U M Q | 4.90 UJ | | ug/kg | I |
| NYOW-B-PH028-C | N | Benzo(b)fluoranthene | 11.0 | 7.60 U M Q | 7.60 UJ | | ug/kg | I |
| NYOW-B-PH028-C | N | Benzo(g,h,i)perylene | 11.0 | 7.60 U Q | 7.60 UJ | | ug/kg | I |
| NYOW-B-PH028-C | N | Benzo(k)fluoranthene | 11.0 | 4.90 U M | 4.90 UJ | | ug/kg | I |
| NYOW-B-PH028-C | N | Chrysene | 11.0 | 4.90 U | 4.90 UJ | | ug/kg | I |
| NYOW-B-PH028-C | N | Dibenz(a,h)anthracene | 11.0 | 7.60 U Q | 7.60 UJ | | ug/kg | I |
| NYOW-B-PH028-C | N | Fluoranthene | 11.0 | 4.90 U Q | 4.90 UJ | | ug/kg | I |
| NYOW-B-PH028-C | N | Fluorene | 11.0 | 3.00 U Q | 3.00 UJ | | ug/kg | I |
| NYOW-B-PH028-C | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.60 U M Q | 7.60 UJ | | ug/kg | I |
| NYOW-B-PH028-C | N | Naphthalene | 11.0 | 2.30 U Q | 2.30 UJ | | ug/kg | I |
| NYOW-B-PH028-C | N | Phenanthrene | 11.0 | 7.60 U Q | 7.60 UJ | | ug/kg | I |
| NYOW-B-PH028-C | N | Pyrene | 11.0 | 7.60 U Q | 7.60 UJ | | ug/kg | I |
| NYOW-B-SL024-A | N | 1-Methylnaphthalene | 12.0 | 2.40 U Q | 2.40 UJ | | ug/kg | I |
| NYOW-B-SL024-A | N | 2-Methylnaphthalene | 12.0 | 2.40 U Q | 2.40 UJ | | ug/kg | I |
| NYOW-B-SL024-A | N | Acenaphthene | 12.0 | 1.30 U | 1.30 UJ | | ug/kg | I |
| NYOW-B-SL024-A | N | Acenaphthylene | 12.0 | 1.30 U | 1.30 UJ | | ug/kg | I |
| NYOW-B-SL024-A | N | Anthracene | 12.0 | 5.30 U | 5.30 UJ | | ug/kg | I |
| NYOW-B-SL024-A | N | Benzo(a)anthracene | 12.0 | 3.20 J | 3.20 J | - | ug/kg | I/TR |
| NYOW-B-SL024-A | N | Benzo(a)pyrene | 12.0 | 5.20 J Q | 5.20 J | - | ug/kg | I/TR |
| NYOW-B-SL024-A | N | Benzo(b)fluoranthene | 12.0 | 6.70 J Q | 6.70 J | - | ug/kg | I/TR |
| NYOW-B-SL024-A | N | Benzo(g,h,i)perylene | 12.0 | 2.80 J M Q | 2.80 J | - | ug/kg | I/TR |

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL024-A | N | Benzo(k)fluoranthene | 12.0 | 2.70 J | 2.70 J | - | ug/kg | I/TR |
| NYOW-B-SL024-A | N | Chrysene | 12.0 | 4.20 J | 4.20 J | - | ug/kg | I/TR |
| NYOW-B-SL024-A | N | Dibenz(a,h)anthracene | 12.0 | 8.10 U M Q | 8.10 UJ | | ug/kg | I |
| NYOW-B-SL024-A | N | Fluoranthene | 12.0 | 5.90 J M | 5.90 J | - | ug/kg | I/TR |
| NYOW-B-SL024-A | N | Fluorene | 12.0 | 3.30 U | 3.30 UJ | | ug/kg | I |
| NYOW-B-SL024-A | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 3.50 J M Q | 3.50 J | - | ug/kg | I/TR |
| NYOW-B-SL024-A | N | Naphthalene | 12.0 | 2.40 U Q | 2.40 UJ | | ug/kg | I |
| NYOW-B-SL024-A | N | Phenanthrene | 12.0 | 2.70 J | 2.70 J | - | ug/kg | I/TR |
| NYOW-B-SL024-A | N | Pyrene | 12.0 | 5.90 J M | 5.90 J | - | ug/kg | I/TR |
| NYOW-B-SL025-A | N | 1-Methylnaphthalene | 12.0 | 1.70 J Q | 1.70 J | - | ug/kg | I/TR |
| NYOW-B-SL025-A | N | 2-Methylnaphthalene | 12.0 | 1.90 J Q | 1.90 J | - | ug/kg | I/TR |
| NYOW-B-SL025-A | N | Acenaphthene | 12.0 | 1.70 J | 1.70 J | - | ug/kg | I/TR |
| NYOW-B-SL025-A | N | Acenaphthylene | 12.0 | 6.20 J | 6.20 J | - | ug/kg | I/TR |
| NYOW-B-SL025-A | N | Anthracene | 12.0 | 4.60 J | 4.60 J | - | ug/kg | I/TR |
| NYOW-B-SL025-A | N | Benzo(a)anthracene | 12.0 | 32.0 | 32.0 J | - | ug/kg | I |
| NYOW-B-SL025-A | N | Benzo(a)pyrene | 12.0 | 59.0 Q | 59.0 J | - | ug/kg | I |
| NYOW-B-SL025-A | N | Benzo(b)fluoranthene | 12.0 | 64.0 Q | 64.0 J | - | ug/kg | I |
| NYOW-B-SL025-A | N | Benzo(g,h,i)perylene | 12.0 | 32.0 Q | 32.0 J | - | ug/kg | I |
| NYOW-B-SL025-A | N | Benzo(k)fluoranthene | 12.0 | 25.0 | 25.0 J | - | ug/kg | I |
| NYOW-B-SL025-A | N | Chrysene | 12.0 | 37.0 | 37.0 J | - | ug/kg | I |
| NYOW-B-SL025-A | N | Dibenz(a,h)anthracene | 12.0 | 4.90 J M Q | 4.90 J | - | ug/kg | I/TR |
| NYOW-B-SL025-A | N | Fluoranthene | 12.0 | 41.0 | 41.0 J | - | ug/kg | I |
| NYOW-B-SL025-A | N | Fluorene | 12.0 | 2.00 J | 2.00 J | - | ug/kg | I/TR |
| NYOW-B-SL025-A | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 44.0 Q | 44.0 J | - | ug/kg | I |
| NYOW-B-SL025-A | N | Naphthalene | 12.0 | 2.20 J Q | 2.20 J | - | ug/kg | I/TR |
| NYOW-B-SL025-A | N | Phenanthrene | 12.0 | 10.0 J | 10.0 J | - | ug/kg | I/TR |
| NYOW-B-SL025-A | N | Pyrene | 12.0 | 39.0 M | 39.0 J | - | ug/kg | I |
| NYOW-B-SL027-A | N | 1-Methylnaphthalene | 12.0 | 2.40 U Q | 2.40 UJ | | ug/kg | I |
| NYOW-B-SL027-A | N | 2-Methylnaphthalene | 12.0 | 2.40 U Q | 2.40 UJ | | ug/kg | I |
| NYOW-B-SL027-A | N | Acenaphthene | 12.0 | 1.30 U Q | 1.30 UJ | | ug/kg | I |
| NYOW-B-SL027-A | N | Acenaphthylene | 12.0 | 1.30 U Q | 1.30 UJ | | ug/kg | I |
| NYOW-B-SL027-A | N | Anthracene | 12.0 | 5.20 U Q | 5.20 UJ | | ug/kg | I |
| NYOW-B-SL027-A | N | Benzo(a)anthracene | 12.0 | 4.50 J Q | 4.50 J | - | ug/kg | I/TR |
| NYOW-B-SL027-A | N | Benzo(a)pyrene | 12.0 | 8.30 J Q M | 8.30 J | - | ug/kg | I/TR |
| NYOW-B-SL027-A | N | Benzo(b)fluoranthene | 12.0 | 11.0 J Q | 11.0 J | - | ug/kg | I/TR |
| NYOW-B-SL027-A | N | Benzo(g,h,i)perylene | 12.0 | 5.20 J Q | 5.20 J | - | ug/kg | I/TR |
| NYOW-B-SL027-A | N | Benzo(k)fluoranthene | 12.0 | 3.90 J Q M | 3.90 J | - | ug/kg | I/TR |
| NYOW-B-SL027-A | N | Chrysene | 12.0 | 6.20 J Q | 6.20 J | - | ug/kg | I/TR |
| NYOW-B-SL027-A | N | Dibenz(a,h)anthracene | 12.0 | 8.00 U Q M | 8.00 UJ | | ug/kg | I |
| NYOW-B-SL027-A | N | Fluoranthene | 12.0 | 11.0 J Q | 11.0 J | - | ug/kg | I/TR |
| NYOW-B-SL027-A | N | Fluorene | 12.0 | 3.20 U Q | 3.20 UJ | | ug/kg | I |
| NYOW-B-SL027-A | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 8.30 J Q | 8.30 J | - | ug/kg | I/TR |

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL027-A | N | Naphthalene | 12.0 | 2.40 U Q M | 2.40 UJ | | ug/kg | I |
| NYOW-B-SL027-A | N | Phenanthrene | 12.0 | 4.10 J Q | 4.10 J | - | ug/kg | I/TR |
| NYOW-B-SL027-A | N | Pyrene | 12.0 | 9.40 J Q | 9.40 J | - | ug/kg | I/TR |
| NYOW-B-SL031-A | N | 1-Methylnaphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-SL031-A | N | 2-Methylnaphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-SL031-A | N | Acenaphthene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-SL031-A | N | Acenaphthylene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-SL031-A | N | Anthracene | 11.0 | 4.70 U Q | 4.70 UJ | | ug/kg | I |
| NYOW-B-SL031-A | N | Benzo(a)anthracene | 11.0 | 6.10 J Q | 6.10 J | - | ug/kg | I/TR |
| NYOW-B-SL031-A | N | Benzo(a)pyrene | 11.0 | 14.0 Q M | 14.0 J | - | ug/kg | I |
| NYOW-B-SL031-A | N | Benzo(b)fluoranthene | 11.0 | 22.0 Q | 22.0 J | - | ug/kg | I |
| NYOW-B-SL031-A | N | Benzo(g,h,i)perylene | 11.0 | 12.0 Q | 12.0 J | - | ug/kg | I |
| NYOW-B-SL031-A | N | Benzo(k)fluoranthene | 11.0 | 7.70 J Q M | 7.70 J | - | ug/kg | I/TR |
| NYOW-B-SL031-A | N | Chrysene | 11.0 | 11.0 Q | 11.0 J | - | ug/kg | I |
| NYOW-B-SL031-A | N | Dibenz(a,h)anthracene | 11.0 | 7.30 U Q M | 7.30 UJ | | ug/kg | I |
| NYOW-B-SL031-A | N | Fluoranthene | 11.0 | 16.0 Q | 16.0 J | - | ug/kg | I |
| NYOW-B-SL031-A | N | Fluorene | 11.0 | 2.90 U Q M | 2.90 UJ | | ug/kg | I |
| NYOW-B-SL031-A | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 16.0 Q | 16.0 J | - | ug/kg | I |
| NYOW-B-SL031-A | N | Naphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-SL031-A | N | Phenanthrene | 11.0 | 5.40 J Q | 5.40 J | - | ug/kg | I/TR |
| NYOW-B-SL031-A | N | Pyrene | 11.0 | 13.0 Q | 13.0 J | - | ug/kg | I |
| NYOW-B-SL040-A | N | 1-Methylnaphthalene | 12.0 | 0.720 J Q | 0.720 J | - | ug/kg | I/TR |
| NYOW-B-SL040-A | N | 2-Methylnaphthalene | 12.0 | 1.00 J Q | 1.00 J | - | ug/kg | I/TR |
| NYOW-B-SL040-A | N | Acenaphthene | 12.0 | 1.30 U | 1.30 UJ | | ug/kg | I |
| NYOW-B-SL040-A | N | Acenaphthylene | 12.0 | 2.20 J | 2.20 J | - | ug/kg | I/TR |
| NYOW-B-SL040-A | N | Anthracene | 12.0 | 2.10 J | 2.10 J | - | ug/kg | I/TR |
| NYOW-B-SL040-A | N | Benzo(a)anthracene | 12.0 | 8.60 J | 8.60 J | - | ug/kg | I/TR |
| NYOW-B-SL040-A | N | Benzo(a)pyrene | 12.0 | 14.0 M Q | 14.0 J | - | ug/kg | I |
| NYOW-B-SL040-A | N | Benzo(b)fluoranthene | 12.0 | 17.0 Q | 17.0 J | - | ug/kg | I |
| NYOW-B-SL040-A | N | Benzo(g,h,i)perylene | 12.0 | 8.50 J Q | 8.50 J | - | ug/kg | I/TR |
| NYOW-B-SL040-A | N | Benzo(k)fluoranthene | 12.0 | 6.10 J M | 6.10 J | - | ug/kg | I/TR |
| NYOW-B-SL040-A | N | Chrysene | 12.0 | 11.0 J | 11.0 J | - | ug/kg | I/TR |
| NYOW-B-SL040-A | N | Dibenz(a,h)anthracene | 12.0 | 8.00 U M Q | 8.00 UJ | | ug/kg | I |
| NYOW-B-SL040-A | N | Fluoranthene | 12.0 | 16.0 | 16.0 J | - | ug/kg | I |
| NYOW-B-SL040-A | N | Fluorene | 12.0 | 3.20 U M | 3.20 UJ | | ug/kg | I |
| NYOW-B-SL040-A | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 12.0 Q | 12.0 J | - | ug/kg | I |
| NYOW-B-SL040-A | N | Naphthalene | 12.0 | 0.930 J M Q | 0.930 J | - | ug/kg | I/TR |
| NYOW-B-SL040-A | N | Phenanthrene | 12.0 | 7.10 J | 7.10 J | - | ug/kg | I/TR |
| NYOW-B-SL040-A | N | Pyrene | 12.0 | 18.0 | 18.0 J | - | ug/kg | I |
| SL-DUP-001_210511 | FD | 1-Methylnaphthalene | 12.0 | 0.730 J H Q | 0.730 J | - | ug/kg | I/TR |
| SL-DUP-001_210511 | FD | 2-Methylnaphthalene | 12.0 | 0.890 J H Q | 0.890 J | - | ug/kg | I/TR |
| SL-DUP-001_210511 | FD | Acenaphthene | 12.0 | 1.20 U H Q | 1.20 UJ | | ug/kg | I |

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| SL-DUP-001_210511 | FD | Acenaphthylene | 12.0 | 1.50 J H Q | 1.50 J | - | ug/kg | I/TR |
| SL-DUP-001_210511 | FD | Anthracene | 12.0 | 5.10 U H Q | 5.10 UJ | | ug/kg | I |
| SL-DUP-001_210511 | FD | Benzo(a)anthracene | 12.0 | 6.60 J H | 6.60 J | - | ug/kg | I/TR |
| SL-DUP-001_210511 | FD | Benzo(a)pyrene | 12.0 | 9.40 J H Q | 9.40 J | - | ug/kg | I/TR |
| SL-DUP-001_210511 | FD | Benzo(b)fluoranthene | 12.0 | 15.0 H Q | 15.0 J | - | ug/kg | I |
| SL-DUP-001_210511 | FD | Benzo(g,h,i)perylene | 12.0 | 7.50 J H Q | 7.50 J | - | ug/kg | I/TR |
| SL-DUP-001_210511 | FD | Benzo(k)fluoranthene | 12.0 | 6.00 J H M | 6.00 J | - | ug/kg | I/TR |
| SL-DUP-001_210511 | FD | Chrysene | 12.0 | 9.10 J H | 9.10 J | - | ug/kg | I/TR |
| SL-DUP-001_210511 | FD | Dibenz(a,h)anthracene | 12.0 | 7.80 U H Q | 7.80 UJ | | ug/kg | I |
| SL-DUP-001_210511 | FD | Fluoranthene | 12.0 | 16.0 H Q | 16.0 J | - | ug/kg | I |
| SL-DUP-001_210511 | FD | Fluorene | 12.0 | 3.10 U H Q | 3.10 UJ | | ug/kg | I |
| SL-DUP-001_210511 | FD | Indeno(1,2,3-c,d)pyrene | 12.0 | 10.0 J H Q | 10.0 J | - | ug/kg | I/TR |
| SL-DUP-001_210511 | FD | Naphthalene | 12.0 | 0.820 J H M | 0.820 J | - | ug/kg | I/TR |
| SL-DUP-001_210511 | FD | Phenanthrene | 12.0 | 5.50 J H Q | 5.50 J | - | ug/kg | I/TR |
| SL-DUP-001_210511 | FD | Pyrene | 12.0 | 14.0 H Q | 14.0 J | - | ug/kg | I |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210511 (N)/ 280-148501-23 | Silver | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210511 (N)/ 280-148501-17 | Calcium | 60.74 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Field Duplicate RPD for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL027-A | N | Calcium | 86.0 | 8800 | 8800 J | | mg/kg | D3 |
| SL-DUP-001_210511 | FD | Calcium | 98.0 | 4700 | 4700 J | | mg/kg | D3 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-537082/1-A (LB)/ MB 280-537082/1-A | Copper | 0.4240 | < 0.22 | < 5 | mg/kg | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6010C, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH028-B (MS)/ 280-148501-8MS | Aluminum | 434.5 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH028-B (MS)/ 280-148501-8MS | Iron | 181.8 | 81 - 118 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH028-B (SD)/ 280-148501-8MSD | Calcium | 77.86 | 81 - 116 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH028-B (SD)/ 280-148501-8MSD | Nickel | 82.40 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH028-B (SD)/ 280-148501-8MSD | Aluminum | 396.4 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH028-B (SD)/ 280-148501-8MSD | Iron | 75.00 | 81 - 118 | 10 - 200 | percent | J/UJ | M | Spike amount Insignificant |
| NYOW-B-PH028-B (SD)/ 280-148501-8MSD | Manganese | 61.90 | 84 - 114 | 10 - 200 | percent | J/UJ | M | Spike amount Insignificant |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH028-B | N | Calcium | 84.0 | 3300 J1 | 3300 J | - | mg/kg | M/D |
| NYOW-B-PH028-B | N | Nickel | 3.40 | 8.50 J1 | 8.50 J | - | mg/kg | M/D |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, MS RPD**

The objective of matrix spikes/matrix spike duplicates (MS/MSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. MS/MSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Matrix spikes/matrix spike duplicates results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH028-B (SD)/ 280-148501-8MSD | Barium | 30.52 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH028-B (SD)/ 280-148501-8MSD | Beryllium | 33.14 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH028-B (SD)/ 280-148501-8MSD | Calcium | 20.86 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH028-B (SD)/ 280-148501-8MSD | Chromium | 32.95 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH028-B (SD)/ 280-148501-8MSD | Cobalt | 32.99 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH028-B (SD)/ 280-148501-8MSD | Copper | 30.58 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH028-B (SD)/ 280-148501-8MSD | Lead | 33.22 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH028-B (SD)/ 280-148501-8MSD | Magnesium | 24.15 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH028-B (SD)/ 280-148501-8MSD | Nickel | 32.51 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH028-B (SD)/ 280-148501-8MSD | Potassium | 32.32 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH028-B (SD)/ 280-148501-8MSD | Sodium | 34.01 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH028-B (SD)/ 280-148501-8MSD | Vanadium | 31.19 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH028-B (SD)/ 280-148501-8MSD | Zinc | 26.98 | < 20 | < 20 | rpd | J/UJ | D | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS RPD for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH028-B | N | Barium | 1.70 | 38.0 J1 Q | 38.0 J | | mg/kg | D |
| NYOW-B-PH028-B | N | Beryllium | 0.420 | 0.260 J J1 | 0.260 J | | mg/kg | D/TR |
| NYOW-B-PH028-B | N | Calcium | 84.0 | 3300 J1 | 3300 J | - | mg/kg | M/D |
| NYOW-B-PH028-B | N | Chromium | 2.90 | 6.00 J1 | 6.00 J | | mg/kg | D |
| NYOW-B-PH028-B | N | Cobalt | 0.840 | 4.70 J1 | 4.70 J | | mg/kg | D |
| NYOW-B-PH028-B | N | Copper | 4.20 | 14.0 J1 | 14.0 J | | mg/kg | D |
| NYOW-B-PH028-B | N | Lead | 0.760 | 4.80 J1 | 4.80 J | | mg/kg | D |
| NYOW-B-PH028-B | N | Magnesium | 25.0 | 2500 J1 | 2500 J | | mg/kg | D |
| NYOW-B-PH028-B | N | Nickel | 3.40 | 8.50 J1 | 8.50 J | - | mg/kg | M/D |
| NYOW-B-PH028-B | N | Potassium | 250 | 600 J1 | 600 J | | mg/kg | D |
| NYOW-B-PH028-B | N | Sodium | 420 | 41.0 J J1 | 41.0 J | | mg/kg | D/TR |
| NYOW-B-PH028-B | N | Vanadium | 1.70 | 9.30 J1 | 9.30 J | | mg/kg | D |

**Qualified Results associated with the MS RPD for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH028-B | N | Zinc | 6.70 | 16.0 J1 | 16.0 J | | mg/kg | D |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Total, Equipment Blank**

The purpose of equipment blanks is to determine the existence and magnitude of cross-contamination problems resulting from the process during sampling. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in equipment blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-01_210511 (EB)/ 280-148501-24 | Barium | 0.8500 | < 0.82 | < 10 | ug/l | U/None* | V | |
| EB-01_210511 (EB)/ 280-148501-24 | Iron | 31.00 | < 22 | < 100 | ug/l | U/None* | V | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6020A, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210511 (N)/ 280-148501-23 | Cadmium | 81.48 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6020A, Low Level Calibration Verification**

Compliance requirements for satisfactory low level calibration verification is established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data. Continuing calibration is performed to verify and evaluate instrument performance during sample analysis. Summary forms were evaluated against project acceptance criteria, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| CCVL 280-537730/65 (LV) | Thallium | 76.00 | 80 - 120 | 80 - 120 | % | J/UJ | V6 | |
| CCVL 280-537730/77 (LV) | Thallium | 79.00 | 80 - 120 | 80 - 120 | % | J/UJ | V6 | |
| ICVL 280-537762/26 (LV) | Antimony | 125.0 | 80 - 120 | 80 - 120 | % | J/None | V6 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Low Level Calibration Verification for SW6020A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH023-B | N | Thallium | 0.0880 | 0.0700 J | 0.0700 J | - | mg/kg | V6/TR |
| NYOW-B-PH023-C | N | Thallium | 0.0980 | 0.0580 J | 0.0580 J | - | mg/kg | V6/TR |
| NYOW-B-PH040-B | N | Thallium | 0.0930 | 0.0610 J | 0.0610 J | - | mg/kg | V6/TR |
| NYOW-B-PH040-C | N | Thallium | 0.0870 | 0.0440 J | 0.0440 J | - | mg/kg | V6/TR |
| NYOW-B-SL023-A | N | Thallium | 0.110 | 0.0710 J | 0.0710 J | - | mg/kg | V6/TR |
| NYOW-B-SL028-A | N | Thallium | 0.0850 | 0.0590 J | 0.0590 J | - | mg/kg | V6/TR |
| NYOW-B-SL040-A | N | Thallium | 0.100 | 0.0550 J | 0.0550 J | - | mg/kg | V6/TR |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW9060A, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210511 (N)/ 280-148501-23 | Total Organic Carbon | 55.32 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Field Duplicate RPD for SW9060A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH031-C | N | Total Organic Carbon | 1500 | 15000 H | 15000 J | - | mg/kg | D3/H1 |
| PH-DUP-001_210511 | FD | Total Organic Carbon | 1400 | 8500 H | 8500 J | - | mg/kg | D3/H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH025-B 280-148501-14 | N | 1-Methylnaphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH025-B 280-148501-14 | N | 2-Methylnaphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH025-B 280-148501-14 | N | Acenaphthene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH025-B 280-148501-14 | N | Acenaphthylene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH025-B 280-148501-14 | N | Anthracene | 11.0 | 4.80 U Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH025-B 280-148501-14 | N | Benzo(a)anthracene | 11.0 | 4.80 U | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH025-B 280-148501-14 | N | Benzo(a)pyrene | 11.0 | 4.80 U M Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH025-B 280-148501-14 | N | Benzo(b)fluoranthene | 11.0 | 7.30 U Q | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH025-B 280-148501-14 | N | Benzo(g,h,i)perylene | 11.0 | 7.30 U Q | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH025-B 280-148501-14 | N | Benzo(k)fluoranthene | 11.0 | 4.80 U M | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH025-B 280-148501-14 | N | Chrysene | 11.0 | 4.80 U | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH025-B 280-148501-14 | N | Dibenz(a,h)anthracene | 11.0 | 7.30 U Q | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH025-B 280-148501-14 | N | Fluoranthene | 11.0 | 4.80 U Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH025-B 280-148501-14 | N | Fluorene | 11.0 | 2.90 U Q | 2.90 UJ | | ug/kg | I |
| NYOW-B-PH025-B 280-148501-14 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.30 U M Q | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH025-B 280-148501-14 | N | Naphthalene | 11.0 | 2.20 U M Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH025-B 280-148501-14 | N | Phenanthrene | 11.0 | 7.30 U Q | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH025-B 280-148501-14 | N | Pyrene | 11.0 | 7.30 U M Q | 7.30 UJ | | ug/kg | I |
| NYOW-B-PH028-C 280-148501-9 | N | 1-Methylnaphthalene | 11.0 | 2.30 U Q | 2.30 UJ | | ug/kg | I |
| NYOW-B-PH028-C 280-148501-9 | N | 2-Methylnaphthalene | 11.0 | 2.30 U M Q | 2.30 UJ | | ug/kg | I |
| NYOW-B-PH028-C 280-148501-9 | N | Acenaphthene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH028-C 280-148501-9 | N | Acenaphthylene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH028-C 280-148501-9 | N | Anthracene | 11.0 | 4.90 U Q | 4.90 UJ | | ug/kg | I |
| NYOW-B-PH028-C 280-148501-9 | N | Benzo(a)anthracene | 11.0 | 4.90 U | 4.90 UJ | | ug/kg | I |
| NYOW-B-PH028-C 280-148501-9 | N | Benzo(a)pyrene | 11.0 | 4.90 U M Q | 4.90 UJ | | ug/kg | I |
| NYOW-B-PH028-C 280-148501-9 | N | Benzo(b)fluoranthene | 11.0 | 7.60 U M Q | 7.60 UJ | | ug/kg | I |

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH028-C 280-148501-9 | N | Benzo(g,h,i)perylene | 11.0 | 7.60 U Q | 7.60 UJ | | ug/kg | I |
| NYOW-B-PH028-C 280-148501-9 | N | Benzo(k)fluoranthene | 11.0 | 4.90 U M | 4.90 UJ | | ug/kg | I |
| NYOW-B-PH028-C 280-148501-9 | N | Chrysene | 11.0 | 4.90 U | 4.90 UJ | | ug/kg | I |
| NYOW-B-PH028-C 280-148501-9 | N | Dibenz(a,h)anthracene | 11.0 | 7.60 U Q | 7.60 UJ | | ug/kg | I |
| NYOW-B-PH028-C 280-148501-9 | N | Fluoranthene | 11.0 | 4.90 U Q | 4.90 UJ | | ug/kg | I |
| NYOW-B-PH028-C 280-148501-9 | N | Fluorene | 11.0 | 3.00 U Q | 3.00 UJ | | ug/kg | I |
| NYOW-B-PH028-C 280-148501-9 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.60 U M Q | 7.60 UJ | | ug/kg | I |
| NYOW-B-PH028-C 280-148501-9 | N | Naphthalene | 11.0 | 2.30 U Q | 2.30 UJ | | ug/kg | I |
| NYOW-B-PH028-C 280-148501-9 | N | Phenanthrene | 11.0 | 7.60 U Q | 7.60 UJ | | ug/kg | I |
| NYOW-B-PH028-C 280-148501-9 | N | Pyrene | 11.0 | 7.60 U Q | 7.60 UJ | | ug/kg | I |
| NYOW-B-SL024-A 280-148501-10 | N | 1-Methylnaphthalene | 12.0 | 2.40 U Q | 2.40 UJ | | ug/kg | I |
| NYOW-B-SL024-A 280-148501-10 | N | 2-Methylnaphthalene | 12.0 | 2.40 U Q | 2.40 UJ | | ug/kg | I |
| NYOW-B-SL024-A 280-148501-10 | N | Acenaphthene | 12.0 | 1.30 U | 1.30 UJ | | ug/kg | I |
| NYOW-B-SL024-A 280-148501-10 | N | Acenaphthylene | 12.0 | 1.30 U | 1.30 UJ | | ug/kg | I |
| NYOW-B-SL024-A 280-148501-10 | N | Anthracene | 12.0 | 5.30 U | 5.30 UJ | | ug/kg | I |
| NYOW-B-SL024-A 280-148501-10 | N | Dibenz(a,h)anthracene | 12.0 | 8.10 U M Q | 8.10 UJ | | ug/kg | I |
| NYOW-B-SL024-A 280-148501-10 | N | Fluorene | 12.0 | 3.30 U | 3.30 UJ | | ug/kg | I |
| NYOW-B-SL024-A 280-148501-10 | N | Naphthalene | 12.0 | 2.40 U Q | 2.40 UJ | | ug/kg | I |
| NYOW-B-SL025-A 280-148501-13 | N | Benzo(a)anthracene | 12.0 | 32.0 | 32.0 J | - | ug/kg | I |
| NYOW-B-SL025-A 280-148501-13 | N | Benzo(a)pyrene | 12.0 | 59.0 Q | 59.0 J | - | ug/kg | I |
| NYOW-B-SL025-A 280-148501-13 | N | Benzo(b)fluoranthene | 12.0 | 64.0 Q | 64.0 J | - | ug/kg | I |
| NYOW-B-SL025-A 280-148501-13 | N | Benzo(g,h,i)perylene | 12.0 | 32.0 Q | 32.0 J | - | ug/kg | I |
| NYOW-B-SL025-A 280-148501-13 | N | Benzo(k)fluoranthene | 12.0 | 25.0 | 25.0 J | - | ug/kg | I |
| NYOW-B-SL025-A 280-148501-13 | N | Chrysene | 12.0 | 37.0 | 37.0 J | - | ug/kg | I |
| NYOW-B-SL025-A 280-148501-13 | N | Fluoranthene | 12.0 | 41.0 | 41.0 J | - | ug/kg | I |
| NYOW-B-SL025-A 280-148501-13 | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 44.0 Q | 44.0 J | - | ug/kg | I |
| NYOW-B-SL025-A 280-148501-13 | N | Pyrene | 12.0 | 39.0 M | 39.0 J | - | ug/kg | I |

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-SL027-A 280-148501-16 | N | 1-Methylnaphthalene | 12.0 | 2.40 U Q | 2.40 UJ | | ug/kg | I |
| NYOW-B-SL027-A 280-148501-16 | N | 2-Methylnaphthalene | 12.0 | 2.40 U Q | 2.40 UJ | | ug/kg | I |
| NYOW-B-SL027-A 280-148501-16 | N | Acenaphthene | 12.0 | 1.30 U Q | 1.30 UJ | | ug/kg | I |
| NYOW-B-SL027-A 280-148501-16 | N | Acenaphthylene | 12.0 | 1.30 U Q | 1.30 UJ | | ug/kg | I |
| NYOW-B-SL027-A 280-148501-16 | N | Anthracene | 12.0 | 5.20 U Q | 5.20 UJ | | ug/kg | I |
| NYOW-B-SL027-A 280-148501-16 | N | Dibenz(a,h)anthracene | 12.0 | 8.00 U Q M | 8.00 UJ | | ug/kg | I |
| NYOW-B-SL027-A 280-148501-16 | N | Fluorene | 12.0 | 3.20 U Q | 3.20 UJ | | ug/kg | I |
| NYOW-B-SL027-A 280-148501-16 | N | Naphthalene | 12.0 | 2.40 U Q M | 2.40 UJ | | ug/kg | I |
| NYOW-B-SL031-A 280-148501-20 | N | 1-Methylnaphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-SL031-A 280-148501-20 | N | 2-Methylnaphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-SL031-A 280-148501-20 | N | Acenaphthene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-SL031-A 280-148501-20 | N | Acenaphthylene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-SL031-A 280-148501-20 | N | Anthracene | 11.0 | 4.70 U Q | 4.70 UJ | | ug/kg | I |
| NYOW-B-SL031-A 280-148501-20 | N | Benzo(a)pyrene | 11.0 | 14.0 Q M | 14.0 J | - | ug/kg | I |
| NYOW-B-SL031-A 280-148501-20 | N | Benzo(b)fluoranthene | 11.0 | 22.0 Q | 22.0 J | - | ug/kg | I |
| NYOW-B-SL031-A 280-148501-20 | N | Benzo(g,h,i)perylene | 11.0 | 12.0 Q | 12.0 J | - | ug/kg | I |
| NYOW-B-SL031-A 280-148501-20 | N | Chrysene | 11.0 | 11.0 Q | 11.0 J | - | ug/kg | I |
| NYOW-B-SL031-A 280-148501-20 | N | Dibenz(a,h)anthracene | 11.0 | 7.30 U Q M | 7.30 UJ | | ug/kg | I |
| NYOW-B-SL031-A 280-148501-20 | N | Fluoranthene | 11.0 | 16.0 Q | 16.0 J | - | ug/kg | I |
| NYOW-B-SL031-A 280-148501-20 | N | Fluorene | 11.0 | 2.90 U Q M | 2.90 UJ | | ug/kg | I |
| NYOW-B-SL031-A 280-148501-20 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 16.0 Q | 16.0 J | - | ug/kg | I |
| NYOW-B-SL031-A 280-148501-20 | N | Naphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-SL031-A 280-148501-20 | N | Pyrene | 11.0 | 13.0 Q | 13.0 J | - | ug/kg | I |
| NYOW-B-SL040-A 280-148501-4 | N | Acenaphthene | 12.0 | 1.30 U | 1.30 UJ | | ug/kg | I |
| NYOW-B-SL040-A 280-148501-4 | N | Benzo(a)pyrene | 12.0 | 14.0 M Q | 14.0 J | - | ug/kg | I |
| NYOW-B-SL040-A 280-148501-4 | N | Benzo(b)fluoranthene | 12.0 | 17.0 Q | 17.0 J | - | ug/kg | I |
| NYOW-B-SL040-A 280-148501-4 | N | Dibenz(a,h)anthracene | 12.0 | 8.00 U M Q | 8.00 UJ | | ug/kg | I |

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-SL040-A 280-148501-4 | N | Fluoranthene | 12.0 | 16.0 | 16.0 J | - | ug/kg | I |
| NYOW-B-SL040-A 280-148501-4 | N | Fluorene | 12.0 | 3.20 U M | 3.20 UJ | | ug/kg | I |
| NYOW-B-SL040-A 280-148501-4 | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 12.0 Q | 12.0 J | - | ug/kg | I |
| NYOW-B-SL040-A 280-148501-4 | N | Pyrene | 12.0 | 18.0 | 18.0 J | - | ug/kg | I |
| SL-DUP-001_210511 280-148501-17 | FD | Acenaphthene | 12.0 | 1.20 U H Q | 1.20 UJ | | ug/kg | I |
| SL-DUP-001_210511 280-148501-17 | FD | Anthracene | 12.0 | 5.10 U H Q | 5.10 UJ | | ug/kg | I |
| SL-DUP-001_210511 280-148501-17 | FD | Benzo(b)fluoranthene | 12.0 | 15.0 H Q | 15.0 J | - | ug/kg | I |
| SL-DUP-001_210511 280-148501-17 | FD | Dibenz(a,h)anthracene | 12.0 | 7.80 U H Q | 7.80 UJ | | ug/kg | I |
| SL-DUP-001_210511 280-148501-17 | FD | Fluoranthene | 12.0 | 16.0 H Q | 16.0 J | - | ug/kg | I |
| SL-DUP-001_210511 280-148501-17 | FD | Fluorene | 12.0 | 3.10 U H Q | 3.10 UJ | | ug/kg | I |
| SL-DUP-001_210511 280-148501-17 | FD | Pyrene | 12.0 | 14.0 H Q | 14.0 J | - | ug/kg | I |

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH024-B 280-148501-11 | N | Aluminum | 270 | 7000 D | 7000 J | | mg/kg | A |
| NYOW-B-PH024-B 280-148501-11 | N | Iron | 430 | 22000 D | 22000 J | | mg/kg | A |
| NYOW-B-PH024-B 280-148501-11 | N | Manganese | 4.80 | 660 | 660 J | | mg/kg | A |
| NYOW-B-PH024-C 280-148501-12 | N | Aluminum | 52.0 | 3900 | 3900 J | | mg/kg | A |
| NYOW-B-PH024-C 280-148501-12 | N | Iron | 83.0 | 16000 | 16000 J | | mg/kg | A |
| NYOW-B-PH024-C 280-148501-12 | N | Manganese | 4.70 | 750 | 750 J | | mg/kg | A |
| NYOW-B-PH025-B 280-148501-14 | N | Aluminum | 54.0 | 3100 | 3100 J | | mg/kg | A |
| NYOW-B-PH025-B 280-148501-14 | N | Iron | 87.0 | 10000 | 10000 J | | mg/kg | A |
| NYOW-B-PH025-B 280-148501-14 | N | Manganese | 4.90 | 410 | 410 J | | mg/kg | A |
| NYOW-B-PH025-C 280-148501-15 | N | Aluminum | 54.0 | 4300 | 4300 J | | mg/kg | A |
| NYOW-B-PH025-C 280-148501-15 | N | Iron | 87.0 | 29000 | 29000 J | | mg/kg | A |
| NYOW-B-PH025-C 280-148501-15 | N | Manganese | 4.90 | 1900 | 1900 J | | mg/kg | A |
| NYOW-B-PH027-B 280-148501-18 | N | Aluminum | 52.0 | 7100 | 7100 J | | mg/kg | A |
| NYOW-B-PH027-B 280-148501-18 | N | Iron | 84.0 | 23000 | 23000 J | | mg/kg | A |

**Table of All Qualified Results**

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH027-B 280-148501-18 | N | Manganese | 4.70 | 1200 | 1200 J | | mg/kg | A |
| NYOW-B-PH027-C 280-148501-19 | N | Aluminum | 38.0 | 3600 | 3600 J | | mg/kg | A |
| NYOW-B-PH027-C 280-148501-19 | N | Iron | 61.0 | 14000 | 14000 J | | mg/kg | A |
| NYOW-B-PH027-C 280-148501-19 | N | Manganese | 3.40 | 730 | 730 J | | mg/kg | A |
| NYOW-B-PH028-B 280-148501-8 | N | Aluminum | 42.0 | 5000 J1 | 5000 J | | mg/kg | A |
| NYOW-B-PH028-B 280-148501-8 | N | Barium | 1.70 | 38.0 J1 Q | 38.0 J | | mg/kg | D |
| NYOW-B-PH028-B 280-148501-8 | N | Calcium | 84.0 | 3300 J1 | 3300 J | - | mg/kg | M/D |
| NYOW-B-PH028-B 280-148501-8 | N | Chromium | 2.90 | 6.00 J1 | 6.00 J | | mg/kg | D |
| NYOW-B-PH028-B 280-148501-8 | N | Cobalt | 0.840 | 4.70 J1 | 4.70 J | | mg/kg | D |
| NYOW-B-PH028-B 280-148501-8 | N | Copper | 4.20 | 14.0 J1 | 14.0 J | | mg/kg | D |
| NYOW-B-PH028-B 280-148501-8 | N | Iron | 67.0 | 12000 J1 | 12000 J | | mg/kg | A |
| NYOW-B-PH028-B 280-148501-8 | N | Lead | 0.760 | 4.80 J1 | 4.80 J | | mg/kg | D |
| NYOW-B-PH028-B 280-148501-8 | N | Magnesium | 25.0 | 2500 J1 | 2500 J | | mg/kg | D |
| NYOW-B-PH028-B 280-148501-8 | N | Manganese | 3.80 | 400 J1 | 400 J | | mg/kg | A |
| NYOW-B-PH028-B 280-148501-8 | N | Nickel | 3.40 | 8.50 J1 | 8.50 J | - | mg/kg | M/D |
| NYOW-B-PH028-B 280-148501-8 | N | Potassium | 250 | 600 J1 | 600 J | | mg/kg | D |
| NYOW-B-PH028-B 280-148501-8 | N | Vanadium | 1.70 | 9.30 J1 | 9.30 J | | mg/kg | D |
| NYOW-B-PH028-B 280-148501-8 | N | Zinc | 6.70 | 16.0 J1 | 16.0 J | | mg/kg | D |
| NYOW-B-PH028-C 280-148501-9 | N | Aluminum | 48.0 | 5300 | 5300 J | | mg/kg | A |
| NYOW-B-PH028-C 280-148501-9 | N | Iron | 77.0 | 17000 | 17000 J | | mg/kg | A |
| NYOW-B-PH028-C 280-148501-9 | N | Manganese | 4.30 | 710 | 710 J | | mg/kg | A |
| NYOW-B-PH031-B 280-148501-21 | N | Aluminum | 51.0 | 8100 | 8100 J | | mg/kg | A |
| NYOW-B-PH031-B 280-148501-21 | N | Iron | 81.0 | 21000 | 21000 J | | mg/kg | A |
| NYOW-B-PH031-B 280-148501-21 | N | Manganese | 4.60 | 1300 | 1300 J | | mg/kg | A |
| NYOW-B-PH031-C 280-148501-22 | N | Aluminum | 46.0 | 4100 | 4100 J | | mg/kg | A |
| NYOW-B-PH031-C 280-148501-22 | N | Iron | 74.0 | 16000 | 16000 J | | mg/kg | A |
| NYOW-B-PH031-C 280-148501-22 | N | Manganese | 4.20 | 1200 | 1200 J | | mg/kg | A |

**Table of All Qualified Results**

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-SL024-A 280-148501-10 | N | Aluminum | 61.0 | 7800 | 7800 J | | mg/kg | A |
| NYOW-B-SL024-A 280-148501-10 | N | Iron | 97.0 | 20000 | 20000 J | | mg/kg | A |
| NYOW-B-SL024-A 280-148501-10 | N | Manganese | 5.50 | 1000 | 1000 J | | mg/kg | A |
| NYOW-B-SL025-A 280-148501-13 | N | Aluminum | 60.0 | 6400 | 6400 J | | mg/kg | A |
| NYOW-B-SL025-A 280-148501-13 | N | Iron | 96.0 | 21000 | 21000 J | | mg/kg | A |
| NYOW-B-SL025-A 280-148501-13 | N | Manganese | 5.40 | 1500 | 1500 J | | mg/kg | A |
| NYOW-B-SL027-A 280-148501-16 | N | Aluminum | 43.0 | 5600 | 5600 J | | mg/kg | A |
| NYOW-B-SL027-A 280-148501-16 | N | Calcium | 86.0 | 8800 | 8800 J | | mg/kg | D3 |
| NYOW-B-SL027-A 280-148501-16 | N | Iron | 69.0 | 15000 | 15000 J | | mg/kg | A |
| NYOW-B-SL027-A 280-148501-16 | N | Manganese | 3.90 | 1300 | 1300 J | | mg/kg | A |
| NYOW-B-SL031-A 280-148501-20 | N | Aluminum | 42.0 | 7200 | 7200 J | | mg/kg | A |
| NYOW-B-SL031-A 280-148501-20 | N | Iron | 66.0 | 21000 | 21000 J | | mg/kg | A |
| NYOW-B-SL031-A 280-148501-20 | N | Manganese | 37.0 | 2400 D | 2400 J | | mg/kg | A |
| PH-DUP-001_210511 280-148501-23 | FD | Aluminum | 57.0 | 4100 | 4100 J | | mg/kg | A |
| PH-DUP-001_210511 280-148501-23 | FD | Iron | 91.0 | 15000 | 15000 J | | mg/kg | A |
| PH-DUP-001_210511 280-148501-23 | FD | Manganese | 5.10 | 840 | 840 J | | mg/kg | A |
| SL-DUP-001_210511 280-148501-17 | FD | Aluminum | 49.0 | 7000 | 7000 J | | mg/kg | A |
| SL-DUP-001_210511 280-148501-17 | FD | Calcium | 98.0 | 4700 | 4700 J | | mg/kg | D3 |
| SL-DUP-001_210511 280-148501-17 | FD | Iron | 78.0 | 18000 | 18000 J | | mg/kg | A |
| SL-DUP-001_210511 280-148501-17 | FD | Manganese | 4.40 | 1600 | 1600 J | | mg/kg | A |

| Test Method: SW6020A | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH023-B 280-148501-2 | N | Antimony | 0.190 | 0.130 J | 0.190 U | | mg/kg | B2 |
| NYOW-B-PH023-C 280-148501-3 | N | Antimony | 0.170 | 0.0890 J | 0.170 U | | mg/kg | B2 |
| NYOW-B-PH024-C 280-148501-12 | N | Antimony | 0.170 | 0.120 J | 0.170 U | | mg/kg | B2 |
| NYOW-B-PH025-B 280-148501-14 | N | Thallium | 0.0880 | 0.0410 J | 0.0880 U | | mg/kg | B2 |
| NYOW-B-PH025-C 280-148501-15 | N | Thallium | 0.100 | 0.0770 J | 0.100 U | | mg/kg | B2 |

**Table of All Qualified Results**

| Test Method: SW6020A | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH027-B 280-148501-18 | N | Antimony | 0.200 | 0.100 J | 0.200 U | | mg/kg | B2 |
| NYOW-B-PH028-B 280-148501-8 | N | Antimony | 0.170 | 0.150 J | 0.170 U | | mg/kg | B2 |
| NYOW-B-PH028-B 280-148501-8 | N | Thallium | 0.0870 | 0.0620 J | 0.0870 U | | mg/kg | B2 |
| NYOW-B-PH028-C 280-148501-9 | N | Antimony | 0.230 | 0.310 | 0.120 U | | mg/kg | B2 |
| NYOW-B-PH031-B 280-148501-21 | N | Antimony | 0.230 | 0.0990 J | 0.110 U | | mg/kg | B2 |
| NYOW-B-PH031-C 280-148501-22 | N | Antimony | 0.200 | 0.0910 J | 0.100 U | | mg/kg | B2 |
| NYOW-B-PH040-B 280-148501-5 | N | Antimony | 0.160 | 0.0980 J | 0.160 U | | mg/kg | B2 |
| NYOW-B-SL023-A 280-148501-1 | N | Antimony | 0.230 | 0.140 J | 0.230 U | | mg/kg | B2 |
| NYOW-B-SL024-A 280-148501-10 | N | Antimony | 0.170 | 0.130 J | 0.170 U | | mg/kg | B2 |
| NYOW-B-SL024-A 280-148501-10 | N | Thallium | 0.110 | 0.0830 J | 0.110 U | | mg/kg | B2 |
| NYOW-B-SL025-A 280-148501-13 | N | Antimony | 0.250 | 0.150 J | 0.250 U | | mg/kg | B2 |
| NYOW-B-SL025-A 280-148501-13 | N | Thallium | 0.110 | 0.100 J | 0.110 U | | mg/kg | B2 |
| NYOW-B-SL027-A 280-148501-16 | N | Antimony | 0.200 | 0.180 J | 0.200 U | | mg/kg | B2 |
| NYOW-B-SL027-A 280-148501-16 | N | Thallium | 0.100 | 0.0940 J | 0.100 U | | mg/kg | B2 |
| NYOW-B-SL028-A 280-148501-7 | N | Antimony | 0.220 | 0.100 J | 0.110 U | | mg/kg | B2 |
| NYOW-B-SL031-A 280-148501-20 | N | Antimony | 0.180 | 0.150 J | 0.180 U | | mg/kg | B2 |
| NYOW-B-SL040-A 280-148501-4 | N | Antimony | 0.210 | 0.140 J | 0.210 U | | mg/kg | B2 |
| PH-DUP-001_210511 280-148501-23 | FD | Antimony | 0.220 | 0.0960 J | 0.110 U | | mg/kg | B2 |
| SL-DUP-001_210511 280-148501-17 | FD | Antimony | 0.170 | 0.210 | 0.0860 U | | mg/kg | B2 |

| Test Method: SW9060A | | Extraction Method: NONE | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH024-C 280-148501-12 | N | Total Organic Carbon | 1600 | 12000 H | 12000 J | - | mg/kg | H1 |
| NYOW-B-PH025-C 280-148501-15 | N | Total Organic Carbon | 3000 | 13000 H | 13000 J | - | mg/kg | H1 |
| NYOW-B-PH027-B 280-148501-18 | N | Total Organic Carbon | 1500 | 22000 H | 22000 J | - | mg/kg | H1 |
| NYOW-B-PH027-C 280-148501-19 | N | Total Organic Carbon | 3800 | 31000 H | 31000 J | - | mg/kg | H1 |
| NYOW-B-PH028-C 280-148501-9 | N | Total Organic Carbon | 1400 | 13000 H | 13000 J | - | mg/kg | H1 |
| NYOW-B-PH031-C 280-148501-22 | N | Total Organic Carbon | 1500 | 15000 H | 15000 J | - | mg/kg | D3/H1 |

**Table of All Qualified Results**

| Test Method: SW9060A | | Extraction Method: NONE | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH040-C 280-148501-6 | N | Total Organic Carbon | 1200 | 3300 H | 3300 J | - | mg/kg | H1 |
| PH-DUP-001_210511 280-148501-23 | FD | Total Organic Carbon | 1400 | 8500 H | 8500 J | - | mg/kg | D3/H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method BNASIMD**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH023-B 280-148501-2 | N | 1-Methylnaphthalene | 11.0 | 2.20 U | 2.20 UJ | 2.20 U | |
| NYOW-B-PH023-B 280-148501-2 | N | 2-Methylnaphthalene | 11.0 | 2.20 U | 2.20 UJ | 2.20 U | |
| NYOW-B-PH023-B 280-148501-2 | N | Acenaphthene | 11.0 | 1.10 U | 1.10 UJ | 1.10 U | |
| NYOW-B-PH023-B 280-148501-2 | N | Acenaphthylene | 11.0 | 1.10 U | 1.10 UJ | 1.10 U | |
| NYOW-B-PH023-B 280-148501-2 | N | Anthracene | 11.0 | 4.70 U | 4.70 UJ | 4.70 U | |
| NYOW-B-PH023-B 280-148501-2 | N | Benzo(a)anthracene | 11.0 | 4.70 U | 4.70 UJ | 4.70 U | |
| NYOW-B-PH023-B 280-148501-2 | N | Benzo(a)pyrene | 11.0 | 4.70 U M Q | 4.70 UJ | 4.70 U | |
| NYOW-B-PH023-B 280-148501-2 | N | Benzo(b)fluoranthene | 11.0 | 7.20 U Q | 7.20 UJ | 7.20 U | |
| NYOW-B-PH023-B 280-148501-2 | N | Benzo(g,h,i)perylene | 11.0 | 7.20 U Q | 7.20 UJ | 7.20 U | |
| NYOW-B-PH023-B 280-148501-2 | N | Benzo(k)fluoranthene | 11.0 | 4.70 U | 4.70 UJ | 4.70 U | |
| NYOW-B-PH023-B 280-148501-2 | N | Chrysene | 11.0 | 4.70 U | 4.70 UJ | 4.70 U | |
| NYOW-B-PH023-B 280-148501-2 | N | Dibenz(a,h)anthracene | 11.0 | 7.20 U M Q | 7.20 UJ | 7.20 U | |
| NYOW-B-PH023-B 280-148501-2 | N | Fluoranthene | 11.0 | 4.70 U | 4.70 UJ | 4.70 U | |
| NYOW-B-PH023-B 280-148501-2 | N | Fluorene | 11.0 | 2.90 U | 2.90 UJ | 2.90 U | |
| NYOW-B-PH023-B 280-148501-2 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.20 U M Q | 7.20 UJ | 7.20 U | |
| NYOW-B-PH023-B 280-148501-2 | N | Naphthalene | 11.0 | 2.20 U | 2.20 UJ | 2.20 U | |
| NYOW-B-PH023-B 280-148501-2 | N | Phenanthrene | 11.0 | 7.20 U | 7.20 UJ | 7.20 U | |
| NYOW-B-PH023-B 280-148501-2 | N | Pyrene | 11.0 | 7.20 U | 7.20 UJ | 7.20 U | |
| NYOW-B-PH023-C 280-148501-3 | N | 1-Methylnaphthalene | 9.80 | 2.00 U | 2.00 UJ | 2.00 U | |
| NYOW-B-PH023-C 280-148501-3 | N | 2-Methylnaphthalene | 9.80 | 0.640 J | 0.640 J | 0.640 J | TR |
| NYOW-B-PH023-C 280-148501-3 | N | Acenaphthene | 9.80 | 0.320 J | 0.320 J | 0.320 J | TR |
| NYOW-B-PH023-C 280-148501-3 | N | Acenaphthylene | 9.80 | 1.00 U | 1.00 UJ | 1.00 U | |
| NYOW-B-PH023-C 280-148501-3 | N | Anthracene | 9.80 | 4.20 U | 4.20 UJ | 4.20 U | |
| NYOW-B-PH023-C 280-148501-3 | N | Benzo(a)anthracene | 9.80 | 4.20 U | 4.20 UJ | 4.20 U | |
| NYOW-B-PH023-C 280-148501-3 | N | Benzo(a)pyrene | 9.80 | 1.60 J M Q | 1.60 J | 1.60 J | TR |
| NYOW-B-PH023-C 280-148501-3 | N | Benzo(b)fluoranthene | 9.80 | 4.30 J Q | 4.30 J | 4.30 J | TR |

**Table of Results with Modified Qualifiers**

| Modified Qualifiers for test method BNASIMD | | | | | | | |
|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
| NYOW-B-PH023-C 280-148501-3 | N | Benzo(g,h,i)perylene | 9.80 | 6.50 U Q | 6.50 UJ | 6.50 U | |
| NYOW-B-PH023-C 280-148501-3 | N | Benzo(k)fluoranthene | 9.80 | 4.20 U M | 4.20 UJ | 4.20 U | |
| NYOW-B-PH023-C 280-148501-3 | N | Chrysene | 9.80 | 3.20 J | 3.20 J | 3.20 J | TR |
| NYOW-B-PH023-C 280-148501-3 | N | Dibenz(a,h)anthracene | 9.80 | 6.50 U Q | 6.50 UJ | 6.50 U | |
| NYOW-B-PH023-C 280-148501-3 | N | Fluoranthene | 9.80 | 3.00 J | 3.00 J | 3.00 J | TR |
| NYOW-B-PH023-C 280-148501-3 | N | Fluorene | 9.80 | 2.60 U | 2.60 UJ | 2.60 U | |
| NYOW-B-PH023-C 280-148501-3 | N | Indeno(1,2,3-c,d)pyrene | 9.80 | 2.20 J Q | 2.20 J | 2.20 J | TR |
| NYOW-B-PH023-C 280-148501-3 | N | Naphthalene | 9.80 | 0.740 J M | 0.740 J | 0.740 J | TR |
| NYOW-B-PH023-C 280-148501-3 | N | Phenanthrene | 9.80 | 2.80 J | 2.80 J | 2.80 J | TR |
| NYOW-B-PH023-C 280-148501-3 | N | Pyrene | 9.80 | 2.60 J | 2.60 J | 2.60 J | TR |
| NYOW-B-SL023-A 280-148501-1 | N | 1-Methylnaphthalene | 12.0 | 0.640 J | 0.640 J | 0.640 J | TR |
| NYOW-B-SL023-A 280-148501-1 | N | 2-Methylnaphthalene | 12.0 | 2.30 U | 2.30 UJ | 2.30 U | |
| NYOW-B-SL023-A 280-148501-1 | N | Acenaphthene | 12.0 | 1.30 U | 1.30 UJ | 1.30 U | |
| NYOW-B-SL023-A 280-148501-1 | N | Acenaphthylene | 12.0 | 1.30 U | 1.30 UJ | 1.30 U | |
| NYOW-B-SL023-A 280-148501-1 | N | Anthracene | 12.0 | 5.10 U | 5.10 UJ | 5.10 U | |
| NYOW-B-SL023-A 280-148501-1 | N | Benzo(a)anthracene | 12.0 | 4.50 J | 4.50 J | 4.50 J | TR |
| NYOW-B-SL023-A 280-148501-1 | N | Benzo(a)pyrene | 12.0 | 6.40 J Q | 6.40 J | 6.40 J | TR |
| NYOW-B-SL023-A 280-148501-1 | N | Benzo(b)fluoranthene | 12.0 | 8.50 J J1 Q | 8.50 J | 8.50 J | TR |
| NYOW-B-SL023-A 280-148501-1 | N | Benzo(g,h,i)perylene | 12.0 | 3.70 J Q | 3.70 J | 3.70 J | TR |
| NYOW-B-SL023-A 280-148501-1 | N | Benzo(k)fluoranthene | 12.0 | 3.10 J | 3.10 J | 3.10 J | TR |
| NYOW-B-SL023-A 280-148501-1 | N | Chrysene | 12.0 | 6.00 J J1 | 6.00 J | 6.00 J | M/TR |
| NYOW-B-SL023-A 280-148501-1 | N | Dibenz(a,h)anthracene | 12.0 | 7.80 U Q | 7.80 UJ | 7.80 U | |
| NYOW-B-SL023-A 280-148501-1 | N | Fluoranthene | 12.0 | 8.50 J M | 8.50 J | 8.50 J | TR |
| NYOW-B-SL023-A 280-148501-1 | N | Fluorene | 12.0 | 3.10 U | 3.10 UJ | 3.10 U | |
| NYOW-B-SL023-A 280-148501-1 | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 6.40 J Q | 6.40 J | 6.40 J | TR |
| NYOW-B-SL023-A 280-148501-1 | N | Naphthalene | 12.0 | 2.30 U | 2.30 UJ | 2.30 U | |
| NYOW-B-SL023-A 280-148501-1 | N | Phenanthrene | 12.0 | 3.90 J | 3.90 J | 3.90 J | TR |

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method BNASIMD**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-SL023-A 280-148501-1 | N | Pyrene | 12.0 | 8.50 J M | 8.50 J | 8.50 J | TR |
| PH-DUP-001_210511 280-148501-23 | FD | Benzo(b)fluoranthene | 11.0 | 2.90 J | 2.90 J | 2.90 J | TR |
| SL-DUP-001_210511 280-148501-17 | FD | 1-Methylnaphthalene | 12.0 | 0.730 J H Q | 0.730 J | 0.730 J | I/TR |
| SL-DUP-001_210511 280-148501-17 | FD | 2-Methylnaphthalene | 12.0 | 0.890 J H Q | 0.890 J | 0.890 J | I/TR |
| SL-DUP-001_210511 280-148501-17 | FD | Acenaphthene | 12.0 | 1.20 U H Q | 1.20 UJ | 1.20 UJ | I |
| SL-DUP-001_210511 280-148501-17 | FD | Acenaphthylene | 12.0 | 1.50 J H Q | 1.50 J | 1.50 J | I/TR |
| SL-DUP-001_210511 280-148501-17 | FD | Anthracene | 12.0 | 5.10 U H Q | 5.10 UJ | 5.10 UJ | I |
| SL-DUP-001_210511 280-148501-17 | FD | Benzo(a)anthracene | 12.0 | 6.60 J H | 6.60 J | 6.60 J | I/TR |
| SL-DUP-001_210511 280-148501-17 | FD | Benzo(a)pyrene | 12.0 | 9.40 J H Q | 9.40 J | 9.40 J | I/TR |
| SL-DUP-001_210511 280-148501-17 | FD | Benzo(b)fluoranthene | 12.0 | 15.0 H Q | 15.0 J | 15.0 J | I |
| SL-DUP-001_210511 280-148501-17 | FD | Benzo(g,h,i)perylene | 12.0 | 7.50 J H Q | 7.50 J | 7.50 J | I/TR |
| SL-DUP-001_210511 280-148501-17 | FD | Benzo(k)fluoranthene | 12.0 | 6.00 J H M | 6.00 J | 6.00 J | I/TR |
| SL-DUP-001_210511 280-148501-17 | FD | Chrysene | 12.0 | 9.10 J H | 9.10 J | 9.10 J | I/TR |
| SL-DUP-001_210511 280-148501-17 | FD | Dibenz(a,h)anthracene | 12.0 | 7.80 U H Q | 7.80 UJ | 7.80 UJ | I |
| SL-DUP-001_210511 280-148501-17 | FD | Fluoranthene | 12.0 | 16.0 H Q | 16.0 J | 16.0 J | I |
| SL-DUP-001_210511 280-148501-17 | FD | Fluorene | 12.0 | 3.10 U H Q | 3.10 UJ | 3.10 UJ | I |
| SL-DUP-001_210511 280-148501-17 | FD | Indeno(1,2,3-c,d)pyrene | 12.0 | 10.0 J H Q | 10.0 J | 10.0 J | I/TR |
| SL-DUP-001_210511 280-148501-17 | FD | Naphthalene | 12.0 | 0.820 J H M | 0.820 J | 0.820 J | I/TR |
| SL-DUP-001_210511 280-148501-17 | FD | Phenanthrene | 12.0 | 5.50 J H Q | 5.50 J | 5.50 J | I/TR |
| SL-DUP-001_210511 280-148501-17 | FD | Pyrene | 12.0 | 14.0 H Q | 14.0 J | 14.0 J | I |

**Modified Qualifiers for test method SW6010C**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH024-B 280-148501-11 | N | Aluminum | 270 | 7000 D | 7000 | 7000 J | A |
| NYOW-B-PH024-B 280-148501-11 | N | Iron | 430 | 22000 D | 22000 | 22000 J | A |
| NYOW-B-PH024-B 280-148501-11 | N | Manganese | 4.80 | 660 | 660 | 660 J | A |
| NYOW-B-PH024-C 280-148501-12 | N | Aluminum | 52.0 | 3900 | 3900 | 3900 J | A |
| NYOW-B-PH024-C 280-148501-12 | N | Iron | 83.0 | 16000 | 16000 | 16000 J | A |

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW6010C**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH024-C 280-148501-12 | N | Manganese | 4.70 | 750 | 750 | 750 J | A |
| NYOW-B-PH025-B 280-148501-14 | N | Aluminum | 54.0 | 3100 | 3100 | 3100 J | A |
| NYOW-B-PH025-B 280-148501-14 | N | Iron | 87.0 | 10000 | 10000 | 10000 J | A |
| NYOW-B-PH025-B 280-148501-14 | N | Manganese | 4.90 | 410 | 410 | 410 J | A |
| NYOW-B-PH025-C 280-148501-15 | N | Aluminum | 54.0 | 4300 | 4300 | 4300 J | A |
| NYOW-B-PH025-C 280-148501-15 | N | Iron | 87.0 | 29000 | 29000 | 29000 J | A |
| NYOW-B-PH025-C 280-148501-15 | N | Manganese | 4.90 | 1900 | 1900 | 1900 J | A |
| NYOW-B-PH027-B 280-148501-18 | N | Aluminum | 52.0 | 7100 | 7100 | 7100 J | A |
| NYOW-B-PH027-B 280-148501-18 | N | Iron | 84.0 | 23000 | 23000 | 23000 J | A |
| NYOW-B-PH027-B 280-148501-18 | N | Manganese | 4.70 | 1200 | 1200 | 1200 J | A |
| NYOW-B-PH027-C 280-148501-19 | N | Aluminum | 38.0 | 3600 | 3600 | 3600 J | A |
| NYOW-B-PH027-C 280-148501-19 | N | Iron | 61.0 | 14000 | 14000 | 14000 J | A |
| NYOW-B-PH027-C 280-148501-19 | N | Manganese | 3.40 | 730 | 730 | 730 J | A |
| NYOW-B-PH028-B 280-148501-8 | N | Aluminum | 42.0 | 5000 J1 | 5000 | 5000 J | A |
| NYOW-B-PH028-B 280-148501-8 | N | Iron | 67.0 | 12000 J1 | 12000 | 12000 J | A |
| NYOW-B-PH028-B 280-148501-8 | N | Manganese | 3.80 | 400 J1 | 400 | 400 J | A |
| NYOW-B-PH028-C 280-148501-9 | N | Aluminum | 48.0 | 5300 | 5300 | 5300 J | A |
| NYOW-B-PH028-C 280-148501-9 | N | Iron | 77.0 | 17000 | 17000 | 17000 J | A |
| NYOW-B-PH028-C 280-148501-9 | N | Manganese | 4.30 | 710 | 710 | 710 J | A |
| NYOW-B-PH031-B 280-148501-21 | N | Aluminum | 51.0 | 8100 | 8100 | 8100 J | A |
| NYOW-B-PH031-B 280-148501-21 | N | Iron | 81.0 | 21000 | 21000 | 21000 J | A |
| NYOW-B-PH031-B 280-148501-21 | N | Manganese | 4.60 | 1300 | 1300 | 1300 J | A |
| NYOW-B-PH031-C 280-148501-22 | N | Aluminum | 46.0 | 4100 | 4100 | 4100 J | A |
| NYOW-B-PH031-C 280-148501-22 | N | Iron | 74.0 | 16000 | 16000 | 16000 J | A |
| NYOW-B-PH031-C 280-148501-22 | N | Manganese | 4.20 | 1200 | 1200 | 1200 J | A |
| NYOW-B-PH031-C 280-148501-22 | N | Silver | 1.40 | 0.150 J | 0.150 J | 0.150 J | TR |
| NYOW-B-SL024-A 280-148501-10 | N | Aluminum | 61.0 | 7800 | 7800 | 7800 J | A |

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW6010C**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-SL024-A 280-148501-10 | N | Iron | 97.0 | 20000 | 20000 | 20000 J | A |
| NYOW-B-SL024-A 280-148501-10 | N | Manganese | 5.50 | 1000 | 1000 | 1000 J | A |
| NYOW-B-SL025-A 280-148501-13 | N | Aluminum | 60.0 | 6400 | 6400 | 6400 J | A |
| NYOW-B-SL025-A 280-148501-13 | N | Iron | 96.0 | 21000 | 21000 | 21000 J | A |
| NYOW-B-SL025-A 280-148501-13 | N | Manganese | 5.40 | 1500 | 1500 | 1500 J | A |
| NYOW-B-SL027-A 280-148501-16 | N | Aluminum | 43.0 | 5600 | 5600 | 5600 J | A |
| NYOW-B-SL027-A 280-148501-16 | N | Iron | 69.0 | 15000 | 15000 | 15000 J | A |
| NYOW-B-SL027-A 280-148501-16 | N | Manganese | 3.90 | 1300 | 1300 | 1300 J | A |
| NYOW-B-SL031-A 280-148501-20 | N | Aluminum | 42.0 | 7200 | 7200 | 7200 J | A |
| NYOW-B-SL031-A 280-148501-20 | N | Iron | 66.0 | 21000 | 21000 | 21000 J | A |
| NYOW-B-SL031-A 280-148501-20 | N | Manganese | 37.0 | 2400 D | 2400 | 2400 J | A |
| PH-DUP-001_210511 280-148501-23 | FD | Aluminum | 57.0 | 4100 | 4100 | 4100 J | A |
| PH-DUP-001_210511 280-148501-23 | FD | Iron | 91.0 | 15000 | 15000 | 15000 J | A |
| PH-DUP-001_210511 280-148501-23 | FD | Manganese | 5.10 | 840 | 840 | 840 J | A |
| SL-DUP-001_210511 280-148501-17 | FD | Aluminum | 49.0 | 7000 | 7000 | 7000 J | A |
| SL-DUP-001_210511 280-148501-17 | FD | Iron | 78.0 | 18000 | 18000 | 18000 J | A |
| SL-DUP-001_210511 280-148501-17 | FD | Manganese | 4.40 | 1600 | 1600 | 1600 J | A |

**Modified Qualifiers for test method SW6020A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH023-B 280-148501-2 | N | Antimony | 0.190 | 0.130 J | 0.130 J | 0.190 U | B2 |
| NYOW-B-PH023-B 280-148501-2 | N | Thallium | 0.0880 | 0.0700 J | 0.0700 J | 0.0700 J | V6/TR |
| NYOW-B-PH023-C 280-148501-3 | N | Antimony | 0.170 | 0.0890 J | 0.0890 J | 0.170 U | B2 |
| NYOW-B-PH023-C 280-148501-3 | N | Thallium | 0.0980 | 0.0580 J | 0.0580 J | 0.0580 J | V6/TR |
| NYOW-B-PH024-C 280-148501-12 | N | Antimony | 0.170 | 0.120 J | 0.120 J | 0.170 U | B2 |
| NYOW-B-PH025-B 280-148501-14 | N | Thallium | 0.0880 | 0.0410 J | 0.0410 J | 0.0880 U | B2 |
| NYOW-B-PH025-C 280-148501-15 | N | Thallium | 0.100 | 0.0770 J | 0.0770 J | 0.100 U | B2 |
| NYOW-B-PH027-B 280-148501-18 | N | Antimony | 0.200 | 0.100 J | 0.100 J | 0.200 U | B2 |

**Table of Results with Modified Qualifiers**

| Modified Qualifiers for test method SW6020A | | | | | | | |
|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
| NYOW-B-PH028-B 280-148501-8 | N | Antimony | 0.170 | 0.150 J | 0.150 J | 0.170 U | B2 |
| NYOW-B-PH028-B 280-148501-8 | N | Thallium | 0.0870 | 0.0620 J | 0.0620 J | 0.0870 U | B2 |
| NYOW-B-PH028-C 280-148501-9 | N | Antimony | 0.230 | 0.310 | 0.310 | 0.120 U | B2 |
| NYOW-B-PH031-B 280-148501-21 | N | Antimony | 0.230 | 0.0990 J | 0.0990 J | 0.110 U | B2 |
| NYOW-B-PH031-C 280-148501-22 | N | Antimony | 0.200 | 0.0910 J | 0.0910 J | 0.100 U | B2 |
| NYOW-B-PH031-C 280-148501-22 | N | Cadmium | 0.0900 | 0.0760 J | 0.0760 J | 0.0760 J | TR |
| NYOW-B-PH040-B 280-148501-5 | N | Antimony | 0.160 | 0.0980 J | 0.0980 J | 0.160 U | B2 |
| NYOW-B-PH040-B 280-148501-5 | N | Thallium | 0.0930 | 0.0610 J | 0.0610 J | 0.0610 J | V6/TR |
| NYOW-B-PH040-C 280-148501-6 | N | Thallium | 0.0870 | 0.0440 J | 0.0440 J | 0.0440 J | V6/TR |
| NYOW-B-SL023-A 280-148501-1 | N | Antimony | 0.230 | 0.140 J | 0.140 J | 0.230 U | B2 |
| NYOW-B-SL023-A 280-148501-1 | N | Thallium | 0.110 | 0.0710 J | 0.0710 J | 0.0710 J | V6/TR |
| NYOW-B-SL024-A 280-148501-10 | N | Antimony | 0.170 | 0.130 J | 0.130 J | 0.170 U | B2 |
| NYOW-B-SL024-A 280-148501-10 | N | Thallium | 0.110 | 0.0830 J | 0.0830 J | 0.110 U | B2 |
| NYOW-B-SL025-A 280-148501-13 | N | Antimony | 0.250 | 0.150 J | 0.150 J | 0.250 U | B2 |
| NYOW-B-SL025-A 280-148501-13 | N | Thallium | 0.110 | 0.100 J | 0.100 J | 0.110 U | B2 |
| NYOW-B-SL027-A 280-148501-16 | N | Antimony | 0.200 | 0.180 J | 0.180 J | 0.200 U | B2 |
| NYOW-B-SL027-A 280-148501-16 | N | Thallium | 0.100 | 0.0940 J | 0.0940 J | 0.100 U | B2 |
| NYOW-B-SL028-A 280-148501-7 | N | Antimony | 0.220 | 0.100 J | 0.100 J | 0.110 U | B2 |
| NYOW-B-SL028-A 280-148501-7 | N | Thallium | 0.0850 | 0.0590 J | 0.0590 J | 0.0590 J | V6/TR |
| NYOW-B-SL031-A 280-148501-20 | N | Antimony | 0.180 | 0.150 J | 0.150 J | 0.180 U | B2 |
| NYOW-B-SL040-A 280-148501-4 | N | Antimony | 0.210 | 0.140 J | 0.140 J | 0.210 U | B2 |
| NYOW-B-SL040-A 280-148501-4 | N | Thallium | 0.100 | 0.0550 J | 0.0550 J | 0.0550 J | V6/TR |
| PH-DUP-001_210511 280-148501-23 | FD | Antimony | 0.220 | 0.0960 J | 0.0960 J | 0.110 U | B2 |
| PH-DUP-001_210511 280-148501-23 | FD | Cadmium | 0.100 | 0.0320 J | 0.0320 J | 0.0320 J | TR |
| SL-DUP-001_210511 280-148501-17 | FD | Antimony | 0.170 | 0.210 | 0.210 | 0.0860 U | B2 |

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW9060A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH024-C 280-148501-12 | N | Total Organic Carbon | 1600 | 12000 H | 12000 | 12000 J | H1 |
| NYOW-B-PH025-C 280-148501-15 | N | Total Organic Carbon | 3000 | 13000 H | 13000 | 13000 J | H1 |
| NYOW-B-PH027-B 280-148501-18 | N | Total Organic Carbon | 1500 | 22000 H | 22000 | 22000 J | H1 |
| NYOW-B-PH027-C 280-148501-19 | N | Total Organic Carbon | 3800 | 31000 H | 31000 | 31000 J | H1 |
| NYOW-B-PH028-C 280-148501-9 | N | Total Organic Carbon | 1400 | 13000 H | 13000 | 13000 J | H1 |
| NYOW-B-PH031-C 280-148501-22 | N | Total Organic Carbon | 1500 | 15000 H | 15000 J | 15000 J | D3/H1 |
| NYOW-B-PH040-C 280-148501-6 | N | Total Organic Carbon | 1200 | 3300 H | 3300 | 3300 J | H1 |
| PH-DUP-001_210511 280-148501-23 | FD | Total Organic Carbon | 1400 | 8500 H | 8500 J | 8500 J | D3/H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Reason Code Definitions**

| Code | Definition |
|---|---|
| A | Serial dilution |
| B2 | CCB |
| D | MS RPD |
| D3 | Field Duplicate RPD |
| H1 | Test Hold Time |
| H2 | Prep Hold Time |
| I | Surrogate recovery outside project limits. |
| L | Lab Blank |
| M | MS Recovery |
| TR | Trace Level Detect |
| V | Equipment Blank |
| V6 | Low Level Calibration Verification |
| Z | LCS RPD |

**Flag Code and Definitions**

| Flag | Definition |
|---|---|
| J | Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria. |
| U | Undetected: The analyte was analyzed for, but not detected. |
| UJ | The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria. |

**Bias**

| | |
|---|---|
| - | The result may be biased low |
| + | The result may be biased high |

Note - The bias field is a separate field; however, it is an integral part of the final flag (qualifier) on the sample result

**Review Questions**

| Method: BNASIMD (GC/MS-SIM Analysis by SW8270D) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the GC/MS system properly tuned based on method criteria? | • | | | |
| Was instrument tuning completed every 12 hours during sample analysis? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | CCV 280-537291/3 exhibited a %D > 20% for dibenz(a,h)anthracene at 22%. There are no associated investigative samples. |
| Were Internal Standard retention times and area criteria within method requirements? | • | | | |
| Were internal standards spiked for every sample, standard, and QC sample? | • | | | |
| Were surrogate recoveries within project acceptance limits? | | • | | See QC Outliers. The affected samples were out of hold and not sent for RE/RA. |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | The EB sample had LOQs slightly greater than PQLGs for four PAHs. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | | • | | CCV CAs not performed. |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | CCVL 280-537422/80 exhibited a recovery less than 80% for Se at 77%. The CCVL does not bracket the analysis of investigative samples. |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Did the ICSA have any non-target interferents above the MDL? | • | | | The ICSA associated with batch 280-537729 had results for Ba at a level greater than the LOD. The initial ICSA result (13.4 ppb) was > LOD (2 ppb).<br>The ICSA associated with batch 280-537768 had results for Ba at a level greater than the LOD. The initial ICSA result (13.4 ppb) was > LOD (2 ppb).<br>The ICSA associated with batch 280-537422 had results for Ba at a level greater than the LOD. The initial ICSA result (13.3 ppb) was > LOD (2 ppb). The laboratory has confirmed using ICP-MS that Ba is a trace impurity in the ICSA standard. |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | See QC Outliers. |
| Were target analytes in the field blank less than MDL? | | • | | See QC Outliers. Soil sample results are not qualified based on aqueous EB contamination. |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | A MS/SD was not performed for aqueous sample batch 536987 and soil sample batch 537082. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the MS/MSD RPD within project acceptance limits? | | • | | See QC Outliers. |
| Were the post spike recoveries within project acceptance limits? | | • | | PDS sample NYOW-B-PH028-B exhibited recoveries less than 80% for Al (-15%), Fe (-207%), Mn (-134%), and Ag (71%). A PDS is not required for silver. For Al, Fe, and Mn, the sample concentration was >4X the spiked amount in the MS. |

**Review Questions**

| Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Were the serial dilution RPD values within project acceptance limits? | | • | | Sample NYOW-B-PH028-B exhibited RPDs > 10% for Al (19%), Fe (18%), and Mn (11%). |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | • | | SL-DUP-001_210511 exhibited a RPD > 50% for Ca at 61%. |
| Were QAPP specified laboratory PQLs achieved? | | • | | The LOQ for Ca was greater than the PQLG in sample NYOW-B-PH024-B due to dilution. Co LOQs were greater than the PQLGs due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the system properly tuned based on method criteria? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | | • | | See QC Outliers. |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | See QC Outliers. |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | | • | | ICB 280-537459/12, CCB 280-537459/23, CCB 280-537459/35, CCB 280-537459/45, CCB 280-537459/54 exhibited detections for thallium ranging from 0.096 ug/L to 0.247 ug/L. The associated EB sample result was non-detect.CCB 280-537764/62 exhibited a detection for thallium below the LOQ at 0.107 ug/L. The associated sample results less than the aqueous LOQ are qualified as "U".CCB 280-537876/33 exhibited a detection for Sb below the LOQ at 0.540 ug/L. The associated sample result was less than the aqueous LOQ and is qualified as "U". ICB 280-537762/25, CCB 280-537762/109, CCB 280-537762/134, CCB 280-537762/144, and CCB 280-537762/154 exhibited detections below the LOQ for Sb ranging from 0.472 ug/L to 0.724 ug/L. The associated detections below the aqueous LOQ are qualified as "U". |
| Did the ICSA have any non-target interferents above the MDL? | • | | | The ICSA associated with batch 280-537459 had results for Cr at a level greater than the LOD. The initial ICSA result (2.17 ppb) was > LOD (1.8 ppb).The vendor acknowledges that Cr is a trace impurity in the ICSA standard. |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | MS/SD were not performed for batches 537000, 537083, and 537084. |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |

**Review Questions**

| Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were the post spike recoveries within project acceptance limits? | • | | | |
| Were the serial dilution RPD values within project acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | Soil LOQs for As, Sb, Tl, and Se were > PQLGs due to dilution and percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW7470A (Mercury in Water (Manual Cold-Vapor Technique)) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | | | • | |
| Were DoD QSM corrective actions followed if deviations were noted? | | | • | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW7471B (Mercury in Soil (Manual Cold-Vapor Technique))

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Was the laboratory duplicate RPD within project acceptance limits? | | | • | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | A MS/SD was not performed for batch 536323. |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | Soil LOQs were slightly greater than PALs due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | | | • | |
| Were DoD QSM corrective actions followed if deviations were noted? | | | • | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW9060A (Total Organic Carbon)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | | • | | The following samples were analyzed outside of analytical holding time due to an instrument issue that required the samples to be analyzed at another lab in the Eurofins network: NYOW-B-PH040-C, NYOW-B-PH028-C, NYOW-B-PH027-B, NYOW-B-PH027-C, NYOW-B-PH031-C, NYOW-B-PH024-C, NYOW-B-PH025-C, and PH-DUP-001_210511. |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | | | • | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | | • | | LCSD not performed for sample batch 138452. |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | • | | | MS/SD for sample batch 138452 reported in SDG J148419.<br>MS/SD for sample batch 139499 reported in SDG J148774. |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | • | | See QC Outliers. |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Data Validation Report for 280-148576-1_52_2a_FUDSChem**

| | |
|---|---|
| Facility: | C02NY0290-01, New York Ordnance Works, Limited RI |
| Event: | 2021 Sampling - Background |
| SDG: | 280-148576-1_52_2a_FUDSChem |
| Guidance Document: | Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works |
| Prime Contractor: | Bluestone Environmental Group, Inc., Malvern, PA |
| Project Manager: | Mike Badeau |
| Contract Laboratory(ies): | Eurofins Environment Testing TestAmerica, Arvada, CO |
| Data Review Contractor: | Bluestone |
| Data Review Level: | S2BVEM |
| Primary Data Reviewer: | Emily Strake, Technical Director/ Data Validator |
| Date Submitted: | August 18, 2021 |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6020A | SW7470A | SW7471B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH012-B | 280-148576-11 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH012-C | 280-148576-12 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH013-B | 280-148576-14 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH013-C | 280-148576-15 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH029-B | 280-148576-2 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH029-C | 280-148576-3 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH030-B | 280-148576-5 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH030-C | 280-148576-6 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH032-B | 280-148576-8 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-PH032-C | 280-148576-9 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL012-A | 280-148576-10 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL013-A | 280-148576-13 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL029-A | 280-148576-1 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL030-A | 280-148576-4 | Solid | Field Sample/N | X | X | X | X | | X | X |
| NYOW-B-SL032-A | 280-148576-7 | Solid | Field Sample/N | X | X | X | X | | X | X |
| EB-01_210512 | 280-148576-16 | Water | Equipment Blank/EB | X | | X | X | X | | |

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page at S2BVEM data validation level. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works and the additional guidance documents incorporated by reference to the extent possible. Where definitive guidance is not provided, results have been evaluated in a conservative manner using professional judgment.

Sample collection was managed and directed by Bluestone Environmental Group, Inc., Malvern, PA; analyses were performed by Eurofins Environment Testing TestAmerica, Arvada, CO and were reported under sample delivery group (SDG) 280-148576-1_52_2a_FUDSChem. Data have been evaluated electronically based on electronic data deliverables (EDDs) provided by the laboratory, and hard copy data summary forms have also been reviewed during this effort and compared to the automated review output by the reviewers whose signatures appear on the following page. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative and throughout this report.

All quality control (QC) elements associated with this SDG have been reviewed by a project chemist in accordance with the requirements defined for the project. This review is documented in the attached Data Review Checklists. The QC elements listed below were supported by the electronic deliverable and were evaluated using ADR processes.

- Blank - Negative
- Equipment Blank
- Lab Blank
- LCS Recovery
- LCS RPD
- MS Recovery
- MS RPD
- Prep Hold Time
- Surrogate
- Test Hold Time

Results of the ADR process were subsequently reviewed and updated as applicable by the data review chemists identified on the signature page. Quality control elements that were not included in the electronic deliverable were reviewed manually and findings are documented within this report. Summaries of findings and associated qualified results are documented throughout this report.

A total of 71 results (10.35%) out of the 686 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected or deemed a serious deficiency (X qualifier). Trace values, defined as results that are qualified as estimated because they fall between the detection limit and the reporting limit/limit of quantitation, are not counted as qualified results in the above count. The qualified results are detailed throughout this report and discussed in the narrative below, where appropriate.

Narrative Comments

The samples were received on 5/13/2021 9:35 AM. The samples arrived in good condition, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 2.0ºC, 3.0ºC, 3.7º C, 4.3ºC and 4.7ºC.
Samples were subcontracted to Eurofins Lancaster Laboratory for TOC analysis and arrived on 6/12/21 and 6/16/21 at temperatures of 5.0ºC and 3.2ºC.

| Analytical Method | Data Reviewer Comment |
|---|---|
| BNASIMD | No additional comments; see Checklist for detail. |
| SW6010C | No additional comments; see Checklist for detail. |
| SW6020A | No additional comments; see Checklist for detail. |
| SW7470A | No additional comments; see Checklist for detail. |
| SW7471B | No additional comments; see Checklist for detail. |
| SW9060A | Samples NYOW-B-SL029-A (280-148576-1)[6.52X], NYOW-B-PH029-B (280-148576-2) [4.4X], NYOW-B-PH029-C (280-148576-3) [3.78X], NYOW-B-SL030-A (280-148576-4) [9.59X], NYOW-B-PH030-B (280-148576-5)[1.6X], NYOW-B-PH030-C (280-148576-6) [4.6X], NYOW-B-SL032-A (280-148576-7)[6.57X], NYOW-B-PH032-B (280-148576-8) [4.6X], NYOW-B-PH032-C (280-148576-9 [3.87X], NYOW-B-SL012-A (280-148576-10) [5.04X], NYOW-B-PH012-B (280-148576-11)[1.64X], NYOW-B-PH012-C (280-148576-12) [4.08X], NYOW-B-SL013-A (280-148576-13)[5.27X], NYOW-B-PH013-B (280-148576-14) [5.63X] and NYOW-B-PH013-C (280-148576-15)[2.52X] required dilution prior to analysis. The reporting limits have been adjusted accordingly. |

August 18, 2021

Reviewed by Emily Strake, Technical Director/ Data Validator, Bluestone

As the Reviewer, I certify that I have performed a data review process in accordance with the requirements of the project guidance document, and have compared the electronic data to the laboratory's hard copy report and have verified the consistency of the reported sample results and method quality control data between the two deliverables.

**Quality Control Outliers for test method BNASIMD, LCS Recovery**

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Benzo (a)anthracene | 122.2 | 59 - 120 | 10 - 200 | percent | J/None | C | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Chrysene | 124.4 | 57 - 120 | 10 - 200 | percent | J/None | C | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method BNASIMD, LCS RPD**

The objective of laboratory control sample/laboratory control sample duplicate (LCS/LCSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. LCS/LCSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Laboratory control sample/laboratory control sample duplicate RPD results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | 1-Methylnaphthalene | 0.4610 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | 2-Methylnaphthalene | 0.4670 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Acenaphthylene | 0.4560 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Dibenz (a,h)anthracene | 0.1530 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Indeno(1,2,3-c,d)pyrene | 0.1920 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Naphthalene | 0.4640 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Acenaphthene | 63.47 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Anthracene | 50.57 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Benzo (a)anthracene | 42.96 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Benzo(a)pyrene | 41.24 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Benzo (b)fluoranthene | 40.26 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Benzo (k)fluoranthene | 45.76 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Chrysene | 44.81 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Fluoranthene | 43.56 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Fluorene | 57.91 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Phenanthrene | 50.56 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Pyrene | 41.44 | < 40 | < 40 | rpd | J/None | Z | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method BNASIMD, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH029-B (N)/ 280-148576-2 | Fluoranthene-d10 | 50.00 | 55 - 101 | 10 - 101 | percent | J/UJ | I | |
| NYOW-B-PH029-B (N)/ 280-148576-2 | 2-Fluorobiphenyl | 44.00 | 46 - 115 | 10 - 115 | percent | J/UJ | I | |
| NYOW-B-PH029-B (N)/ 280-148576-2 | Terphenyl-d14 | 46.00 | 58 - 133 | 10 - 133 | percent | J/UJ | I | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH029-B | N | 1-Methylnaphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH029-B | N | 2-Methylnaphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH029-B | N | Acenaphthene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH029-B | N | Acenaphthylene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH029-B | N | Anthracene | 11.0 | 4.80 U M Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH029-B | N | Benzo(a)anthracene | 11.0 | 4.80 U M Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH029-B | N | Benzo(a)pyrene | 11.0 | 4.80 U M Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH029-B | N | Benzo(b)fluoranthene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | I |
| NYOW-B-PH029-B | N | Benzo(g,h,i)perylene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | I |
| NYOW-B-PH029-B | N | Benzo(k)fluoranthene | 11.0 | 4.80 U M Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH029-B | N | Chrysene | 11.0 | 4.80 U Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH029-B | N | Dibenz(a,h)anthracene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | I |
| NYOW-B-PH029-B | N | Fluoranthene | 11.0 | 4.80 U Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH029-B | N | Fluorene | 11.0 | 3.00 U M Q | 3.00 UJ | | ug/kg | I |
| NYOW-B-PH029-B | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | I |
| NYOW-B-PH029-B | N | Naphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH029-B | N | Phenanthrene | 11.0 | 7.40 U M Q | 7.40 UJ | | ug/kg | I |
| NYOW-B-PH029-B | N | Pyrene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | I |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-537091/1-A (LB)/ MB 280-537091/1-A | Manganese | 0.1160 | < 0.1 | < 4.5 | mg/kg | U/None* | L | |
| MB 280-537091/1-A (LB)/ MB 280-537091/1-A | Zinc | 0.5430 | < 0.4 | < 8 | mg/kg | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6010C, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL029-A (MS)/ 280-148576-1MS | Aluminum | 278.0 | 74 - 119 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL029-A (MS)/ 280-148576-1MS | Iron | 247.7 | 81 - 118 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL029-A (MS)/ 280-148576-1MS | Manganese | 195.4 | 84 - 114 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL029-A (SD)/ 280-148576-1MSD | Aluminum | 284.3 | 74 - 119 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL029-A (SD)/ 280-148576-1MSD | Iron | 276.5 | 81 - 118 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL029-A (SD)/ 280-148576-1MSD | Manganese | 195.7 | 84 - 114 | 10 - 200 | percent | J/None | M | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL029-A | N | Aluminum | 48.0 | 3000 J1 | 3000 J | | mg/kg | M/M2 |
| NYOW-B-SL029-A | N | Iron | 77.0 | 3000 J1 | 3000 J | | mg/kg | M/M2 |
| NYOW-B-SL029-A | N | Manganese | 4.30 | 53.0 J1 | 53.0 J | + | mg/kg | M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Total, Equipment Blank**

The purpose of equipment blanks is to determine the existence and magnitude of cross-contamination problems resulting from the process during sampling. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in equipment blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-01_210512 (EB)/ 280-148576-16 | Barium | 0.8400 | < 0.82 | < 10 | ug/l | U/None* | V | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6020A, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-537092/1-A (LB)/ MB 280-537092/1-A | Thallium | 0.01160 | < 0.0035 | < 0.1 | mg/kg | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

**Qualified Results associated with the Lab Blank for SW6020A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH012-B | N | Thallium | 0.110 | 0.0250 J | 0.110 U | | mg/kg | L/B2 |
| NYOW-B-PH012-C | N | Thallium | 0.0990 | 0.0260 J | 0.0990 U | | mg/kg | L/B2 |
| NYOW-B-PH013-B | N | Thallium | 0.100 | 0.0350 J | 0.100 U | | mg/kg | L/B2 |
| NYOW-B-PH013-C | N | Thallium | 0.110 | 0.0500 J | 0.110 U | | mg/kg | L/B2 |
| NYOW-B-PH029-B | N | Thallium | 0.0850 | 0.0540 J | 0.0850 U | | mg/kg | L |
| NYOW-B-PH029-C | N | Thallium | 0.0860 | 0.0510 J | 0.0860 U | | mg/kg | L |
| NYOW-B-PH030-B | N | Thallium | 0.0880 | 0.0440 J | 0.0880 U | | mg/kg | L |
| NYOW-B-PH030-C | N | Thallium | 0.0900 | 0.0520 J | 0.0900 U | | mg/kg | L |
| NYOW-B-PH032-B | N | Thallium | 0.0810 | 0.0360 J | 0.0810 U | | mg/kg | L |
| NYOW-B-PH032-C | N | Thallium | 0.0680 | 0.0530 J | 0.0680 U | | mg/kg | L |
| NYOW-B-SL012-A | N | Thallium | 0.100 | 0.0880 J | 0.100 U | | mg/kg | L/B2 |
| NYOW-B-SL029-A | N | Thallium | 0.120 | 0.0380 J | 0.120 U | | mg/kg | L |
| NYOW-B-SL030-A | N | Thallium | 0.120 | 0.0540 J | 0.120 U | | mg/kg | L |
| NYOW-B-SL032-A | N | Thallium | 0.130 | 0.110 J | 0.130 U | | mg/kg | L |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH029-B 280-148576-2 | N | 1-Methylnaphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH029-B 280-148576-2 | N | 2-Methylnaphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH029-B 280-148576-2 | N | Acenaphthene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH029-B 280-148576-2 | N | Acenaphthylene | 11.0 | 1.20 U Q | 1.20 UJ | | ug/kg | I |
| NYOW-B-PH029-B 280-148576-2 | N | Anthracene | 11.0 | 4.80 U M Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH029-B 280-148576-2 | N | Benzo(a)anthracene | 11.0 | 4.80 U M Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH029-B 280-148576-2 | N | Benzo(a)pyrene | 11.0 | 4.80 U M Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH029-B 280-148576-2 | N | Benzo(b)fluoranthene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | I |
| NYOW-B-PH029-B 280-148576-2 | N | Benzo(g,h,i)perylene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | I |
| NYOW-B-PH029-B 280-148576-2 | N | Benzo(k)fluoranthene | 11.0 | 4.80 U M Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH029-B 280-148576-2 | N | Chrysene | 11.0 | 4.80 U Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH029-B 280-148576-2 | N | Dibenz(a,h)anthracene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | I |
| NYOW-B-PH029-B 280-148576-2 | N | Fluoranthene | 11.0 | 4.80 U Q | 4.80 UJ | | ug/kg | I |
| NYOW-B-PH029-B 280-148576-2 | N | Fluorene | 11.0 | 3.00 U M Q | 3.00 UJ | | ug/kg | I |
| NYOW-B-PH029-B 280-148576-2 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | I |
| NYOW-B-PH029-B 280-148576-2 | N | Naphthalene | 11.0 | 2.20 U Q | 2.20 UJ | | ug/kg | I |
| NYOW-B-PH029-B 280-148576-2 | N | Phenanthrene | 11.0 | 7.40 U M Q | 7.40 UJ | | ug/kg | I |
| NYOW-B-PH029-B 280-148576-2 | N | Pyrene | 11.0 | 7.40 U Q | 7.40 UJ | | ug/kg | I |
| **Test Method: SW6010C** | | **Extraction Method: SW3050B** | | | | | | |
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH012-B 280-148576-11 | N | Lead | 0.840 | 2.00 | 2.00 J | + | mg/kg | V6 |
| NYOW-B-PH012-C 280-148576-12 | N | Lead | 0.890 | 2.20 | 2.20 J | + | mg/kg | V6 |
| NYOW-B-PH013-B 280-148576-14 | N | Lead | 0.760 | 5.90 | 5.90 J | + | mg/kg | V6 |
| NYOW-B-PH013-C 280-148576-15 | N | Lead | 0.940 | 2.50 | 2.50 J | + | mg/kg | V6 |
| NYOW-B-PH029-B 280-148576-2 | N | Lead | 0.920 | 5.50 | 5.50 J | + | mg/kg | V6 |
| NYOW-B-PH029-C 280-148576-3 | N | Lead | 0.930 | 4.20 | 4.20 J | + | mg/kg | V6 |

**Table of All Qualified Results**

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH030-B 280-148576-5 | N | Lead | 0.730 | 4.00 | 4.00 J | + | mg/kg | V6 |
| NYOW-B-PH030-C 280-148576-6 | N | Lead | 0.760 | 7.00 | 7.00 J | + | mg/kg | V6 |
| NYOW-B-PH032-B 280-148576-8 | N | Lead | 0.740 | 6.90 | 6.90 J | + | mg/kg | V6 |
| NYOW-B-PH032-C 280-148576-9 | N | Lead | 0.860 | 6.70 | 6.70 J | + | mg/kg | V6 |
| NYOW-B-SL012-A 280-148576-10 | N | Lead | 1.20 | 13.0 | 13.0 J | + | mg/kg | V6 |
| NYOW-B-SL013-A 280-148576-13 | N | Lead | 1.10 | 19.0 | 19.0 J | + | mg/kg | V6 |
| NYOW-B-SL029-A 280-148576-1 | N | Aluminum | 48.0 | 3000 J1 | 3000 J | | mg/kg | M/M2 |
| NYOW-B-SL029-A 280-148576-1 | N | Iron | 77.0 | 3000 J1 | 3000 J | | mg/kg | M/M2 |
| NYOW-B-SL029-A 280-148576-1 | N | Lead | 0.860 | 4.70 | 4.70 J | + | mg/kg | V6 |
| NYOW-B-SL029-A 280-148576-1 | N | Manganese | 4.30 | 53.0 J1 | 53.0 J | + | mg/kg | M |
| NYOW-B-SL030-A 280-148576-4 | N | Lead | 0.990 | 9.00 | 9.00 J | + | mg/kg | V6 |
| NYOW-B-SL032-A 280-148576-7 | N | Lead | 1.20 | 18.0 | 18.0 J | + | mg/kg | V6 |

| Test Method: SW6020A | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH012-B 280-148576-11 | N | Thallium | 0.110 | 0.0250 J | 0.110 U | | mg/kg | L/B2 |
| NYOW-B-PH012-C 280-148576-12 | N | Thallium | 0.0990 | 0.0260 J | 0.0990 U | | mg/kg | L/B2 |
| NYOW-B-PH013-B 280-148576-14 | N | Thallium | 0.100 | 0.0350 J | 0.100 U | | mg/kg | L/B2 |
| NYOW-B-PH013-C 280-148576-15 | N | Thallium | 0.110 | 0.0500 J | 0.110 U | | mg/kg | L/B2 |
| NYOW-B-PH029-B 280-148576-2 | N | Thallium | 0.0850 | 0.0540 J | 0.0850 U | | mg/kg | L |
| NYOW-B-PH029-C 280-148576-3 | N | Antimony | 0.210 | 0.0860 J | 0.100 U | | mg/kg | B2 |
| NYOW-B-PH029-C 280-148576-3 | N | Thallium | 0.0860 | 0.0510 J | 0.0860 U | | mg/kg | L |
| NYOW-B-PH030-B 280-148576-5 | N | Thallium | 0.0880 | 0.0440 J | 0.0880 U | | mg/kg | L |
| NYOW-B-PH030-C 280-148576-6 | N | Antimony | 0.160 | 0.0720 J | 0.0810 U | | mg/kg | B2 |
| NYOW-B-PH030-C 280-148576-6 | N | Thallium | 0.0900 | 0.0520 J | 0.0900 U | | mg/kg | L |
| NYOW-B-PH032-B 280-148576-8 | N | Thallium | 0.0810 | 0.0360 J | 0.0810 U | | mg/kg | L |
| NYOW-B-PH032-C 280-148576-9 | N | Antimony | 0.190 | 0.0760 J | 0.0930 U | | mg/kg | B2 |
| NYOW-B-PH032-C 280-148576-9 | N | Thallium | 0.0680 | 0.0530 J | 0.0680 U | | mg/kg | L |

**Table of All Qualified Results**

| Test Method: SW6020A | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-SL012-A 280-148576-10 | N | Thallium | 0.100 | 0.0880 J | 0.100 U | | mg/kg | L/B2 |
| NYOW-B-SL029-A 280-148576-1 | N | Antimony | 0.200 | 0.190 J | 0.200 U | | mg/kg | B2 |
| NYOW-B-SL029-A 280-148576-1 | N | Thallium | 0.120 | 0.0380 J | 0.120 U | | mg/kg | L |
| NYOW-B-SL030-A 280-148576-4 | N | Antimony | 0.220 | 0.0900 J | 0.110 U | | mg/kg | B2 |
| NYOW-B-SL030-A 280-148576-4 | N | Thallium | 0.120 | 0.0540 J | 0.120 U | | mg/kg | L |
| NYOW-B-SL032-A 280-148576-7 | N | Antimony | 0.330 | 0.210 J | 0.330 U | | mg/kg | B2 |
| NYOW-B-SL032-A 280-148576-7 | N | Thallium | 0.130 | 0.110 J | 0.130 U | | mg/kg | L |

| Test Method: SW9060A | | Extraction Method: NONE | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH012-B 280-148576-11 | N | Total Organic Carbon | 490 | 2600 H | 2600 J | - | mg/kg | H1 |
| NYOW-B-PH012-C 280-148576-12 | N | Total Organic Carbon | 1200 | 10000 H | 10000 J | - | mg/kg | H1 |
| NYOW-B-PH013-B 280-148576-14 | N | Total Organic Carbon | 1700 | 17000 H | 17000 J | - | mg/kg | H1 |
| NYOW-B-PH013-C 280-148576-15 | N | Total Organic Carbon | 760 | 11000 H | 11000 J | - | mg/kg | H1 |
| NYOW-B-PH029-B 280-148576-2 | N | Total Organic Carbon | 1300 | 15000 H | 15000 J | - | mg/kg | H1 |
| NYOW-B-PH029-C 280-148576-3 | N | Total Organic Carbon | 1100 | 8200 H | 8200 J | - | mg/kg | H1 |
| NYOW-B-PH030-B 280-148576-5 | N | Total Organic Carbon | 480 | 6900 H | 6900 J | - | mg/kg | H1 |
| NYOW-B-PH030-C 280-148576-6 | N | Total Organic Carbon | 1400 | 21000 H | 21000 J | - | mg/kg | H1 |
| NYOW-B-PH032-B 280-148576-8 | N | Total Organic Carbon | 1400 | 21000 H | 21000 J | - | mg/kg | H1 |
| NYOW-B-PH032-C 280-148576-9 | N | Total Organic Carbon | 1200 | 17000 H | 17000 J | - | mg/kg | H1 |
| NYOW-B-SL012-A 280-148576-10 | N | Total Organic Carbon | 1500 | 22000 H | 22000 J | - | mg/kg | H1 |
| NYOW-B-SL013-A 280-148576-13 | N | Total Organic Carbon | 1600 | 12000 H | 12000 J | - | mg/kg | H1 |
| NYOW-B-SL029-A 280-148576-1 | N | Total Organic Carbon | 2000 | 16000 H | 16000 J | - | mg/kg | H1 |
| NYOW-B-SL030-A 280-148576-4 | N | Total Organic Carbon | 2900 | 12000 H | 12000 J | - | mg/kg | H1 |
| NYOW-B-SL032-A 280-148576-7 | N | Total Organic Carbon | 2000 | 26000 H | 26000 J | - | mg/kg | H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW6010C**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH012-B 280-148576-11 | N | Lead | 0.840 | 2.00 | 2.00 | 2.00 J | V6 |
| NYOW-B-PH012-C 280-148576-12 | N | Lead | 0.890 | 2.20 | 2.20 | 2.20 J | V6 |
| NYOW-B-PH013-B 280-148576-14 | N | Lead | 0.760 | 5.90 | 5.90 | 5.90 J | V6 |
| NYOW-B-PH013-C 280-148576-15 | N | Lead | 0.940 | 2.50 | 2.50 | 2.50 J | V6 |
| NYOW-B-PH029-B 280-148576-2 | N | Lead | 0.920 | 5.50 | 5.50 | 5.50 J | V6 |
| NYOW-B-PH029-C 280-148576-3 | N | Lead | 0.930 | 4.20 | 4.20 | 4.20 J | V6 |
| NYOW-B-PH030-B 280-148576-5 | N | Lead | 0.730 | 4.00 | 4.00 | 4.00 J | V6 |
| NYOW-B-PH030-C 280-148576-6 | N | Lead | 0.760 | 7.00 | 7.00 | 7.00 J | V6 |
| NYOW-B-PH032-B 280-148576-8 | N | Lead | 0.740 | 6.90 | 6.90 | 6.90 J | V6 |
| NYOW-B-PH032-C 280-148576-9 | N | Lead | 0.860 | 6.70 | 6.70 | 6.70 J | V6 |
| NYOW-B-SL012-A 280-148576-10 | N | Lead | 1.20 | 13.0 | 13.0 | 13.0 J | V6 |
| NYOW-B-SL013-A 280-148576-13 | N | Lead | 1.10 | 19.0 | 19.0 | 19.0 J | V6 |
| NYOW-B-SL029-A 280-148576-1 | N | Aluminum | 48.0 | 3000 J1 | 3000 J | 3000 J | M/M2 |
| NYOW-B-SL029-A 280-148576-1 | N | Iron | 77.0 | 3000 J1 | 3000 J | 3000 J | M/M2 |
| NYOW-B-SL029-A 280-148576-1 | N | Lead | 0.860 | 4.70 | 4.70 | 4.70 J | V6 |
| NYOW-B-SL030-A 280-148576-4 | N | Lead | 0.990 | 9.00 | 9.00 | 9.00 J | V6 |
| NYOW-B-SL032-A 280-148576-7 | N | Lead | 1.20 | 18.0 | 18.0 | 18.0 J | V6 |

**Modified Qualifiers for test method SW6020A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH012-B 280-148576-11 | N | Thallium | 0.110 | 0.0250 J | 0.110 U | 0.110 U | L/B2 |
| NYOW-B-PH012-C 280-148576-12 | N | Thallium | 0.0990 | 0.0260 J | 0.0990 U | 0.0990 U | L/B2 |
| NYOW-B-PH013-B 280-148576-14 | N | Thallium | 0.100 | 0.0350 J | 0.100 U | 0.100 U | L/B2 |
| NYOW-B-PH013-C 280-148576-15 | N | Thallium | 0.110 | 0.0500 J | 0.110 U | 0.110 U | L/B2 |
| NYOW-B-PH029-C 280-148576-3 | N | Antimony | 0.210 | 0.0860 J | 0.0860 J | 0.100 U | B2 |
| NYOW-B-PH030-C 280-148576-6 | N | Antimony | 0.160 | 0.0720 J | 0.0720 J | 0.0810 U | B2 |
| NYOW-B-PH032-C 280-148576-9 | N | Antimony | 0.190 | 0.0760 J | 0.0760 J | 0.0930 U | B2 |

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW6020A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-SL012-A 280-148576-10 | N | Thallium | 0.100 | 0.0880 J | 0.100 U | 0.100 U | L/B2 |
| NYOW-B-SL013-A 280-148576-13 | N | Thallium | 0.110 | 0.110 | 0.110 U | 0.110 | |
| NYOW-B-SL029-A 280-148576-1 | N | Antimony | 0.200 | 0.190 J | 0.190 J | 0.200 U | B2 |
| NYOW-B-SL030-A 280-148576-4 | N | Antimony | 0.220 | 0.0900 J | 0.0900 J | 0.110 U | B2 |
| NYOW-B-SL032-A 280-148576-7 | N | Antimony | 0.330 | 0.210 J | 0.210 J | 0.330 U | B2 |

**Modified Qualifiers for test method SW9060A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH012-B 280-148576-11 | N | Total Organic Carbon | 490 | 2600 H | 2600 | 2600 J | H1 |
| NYOW-B-PH012-C 280-148576-12 | N | Total Organic Carbon | 1200 | 10000 H | 10000 | 10000 J | H1 |
| NYOW-B-PH013-B 280-148576-14 | N | Total Organic Carbon | 1700 | 17000 H | 17000 | 17000 J | H1 |
| NYOW-B-PH013-C 280-148576-15 | N | Total Organic Carbon | 760 | 11000 H | 11000 | 11000 J | H1 |
| NYOW-B-PH029-B 280-148576-2 | N | Total Organic Carbon | 1300 | 15000 H | 15000 | 15000 J | H1 |
| NYOW-B-PH029-C 280-148576-3 | N | Total Organic Carbon | 1100 | 8200 H | 8200 | 8200 J | H1 |
| NYOW-B-PH030-B 280-148576-5 | N | Total Organic Carbon | 480 | 6900 H | 6900 | 6900 J | H1 |
| NYOW-B-PH030-C 280-148576-6 | N | Total Organic Carbon | 1400 | 21000 H | 21000 | 21000 J | H1 |
| NYOW-B-PH032-B 280-148576-8 | N | Total Organic Carbon | 1400 | 21000 H | 21000 | 21000 J | H1 |
| NYOW-B-PH032-C 280-148576-9 | N | Total Organic Carbon | 1200 | 17000 H | 17000 | 17000 J | H1 |
| NYOW-B-SL012-A 280-148576-10 | N | Total Organic Carbon | 1500 | 22000 H | 22000 | 22000 J | H1 |
| NYOW-B-SL013-A 280-148576-13 | N | Total Organic Carbon | 1600 | 12000 H | 12000 | 12000 J | H1 |
| NYOW-B-SL029-A 280-148576-1 | N | Total Organic Carbon | 2000 | 16000 H | 16000 | 16000 J | H1 |
| NYOW-B-SL030-A 280-148576-4 | N | Total Organic Carbon | 2900 | 12000 H | 12000 | 12000 J | H1 |
| NYOW-B-SL032-A 280-148576-7 | N | Total Organic Carbon | 2000 | 26000 H | 26000 | 26000 J | H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Reason Code Definitions**

| Code | Definition |
|---|---|
| B2 | CCB |
| C | LCS Recovery |
| H1 | Test Hold Time |
| I | Surrogate recovery outside project limits. |
| L | Lab Blank |
| M | MS Recovery |
| M2 | Post Spike |
| TR | Trace Level Detect |
| V | Equipment Blank |
| V6 | Low Level Calibration Verification |
| Z | LCS RPD |

**Flag Code and Definitions**

| Flag | Definition |
|---|---|
| J | Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria. |
| U | Undetected: The analyte was analyzed for, but not detected. |
| UJ | The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria. |

**Bias**

| | |
|---|---|
| - | The result may be biased low |
| + | The result may be biased high |

Note - The bias field is a separate field; however, it is an integral part of the final flag (qualifier) on the sample result

**Review Questions**

Method: BNASIMD (GC/MS-SIM Analysis by SW8270D)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the GC/MS system properly tuned based on method criteria? | • | | | |
| Was instrument tuning completed every 12 hours during sample analysis? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were Internal Standard retention times and area criteria within method requirements? | • | | | |
| Were internal standards spiked for every sample, standard, and QC sample? | • | | | |
| Were surrogate recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the LCS/LCSD RPD within project acceptance limits? | | • | | See QC Outliers. |
| Was a MS/MSD pair prepared with each batch? | | • | | MS/SD not performed for aqueous batch 536584. |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | CCVL 280-537914/72 and CCVL 280-537914/86 exhibited recoveries greater than 120% for lead at 121% and 125%, respectively. Lead concentrations below the level of the CCV are qualified as "J+". |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Did the ICSA have any non-target interferents above the MDL? | • | | | The ICSA associated with batch 280-537914 had results Ba greater than the LOD. The initial ICSA result (13.5 ppb) was > LOD (2 ppb) for Ba. The laboratory confirmed using MS that Ba is a trace impurity in the ICSA standard.<br><br>The ICSA associated with batch 280-537422 had results for Ba > LOD. The initial ICSA result (13.3 ppb) was > LOD (2 ppb) for Ba. The laboratory confirmed using MS that Ba is a trace impurity in the ICSA standard at 12.4 ppb. |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | MB 280-537091/1-A exhibited detections below the LOQ, Mn = 0.116 mg/kg, Zn = 0.543 mg/kg. The associated sample results were > LOQ; qualification is not necessary on the basis of professional judgment. |
| Were target analytes in the field blank less than MDL? | | • | | EB-01_210512 exhibited a detection for barium at 0.84 ug/L. Soil sample results are not qualified on this basis. |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| Were the post spike recoveries within project acceptance limits? | | • | | Al = 54%, Fe = 55%. |

**Review Questions**

| Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Were the serial dilution RPD values within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | | • | | Cobalt LOQs were slightly greater than PQLGs due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the system properly tuned based on method criteria? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | | • | | ICB 280-537459/12 exhibited a detection for thallium below the LOQ at 0.101 ug/L. CCBs 280-537459/99 and /109 exhibited detections for thallium less than the LOQ at 0.102 ug/L and 0.109 ug/L. The associated equipment blank sample result was ND; qualification is not required.<br>CCBs 280-537916/105 and 280-537916/114 exhibited detections for thallium below the LOQ at 0.101 ug/L and 0.0920 ug/L. The associated sample results were previously qualified; no further action is necessary.<br>CCB 280-537917/47 exhibited a detection below the LOQ for Sb at 0.543 ug/L. The bracketing samples with results less than the LOQ are qualified as "U" at the LOD or LOQ. |
| Did the ICSA have any non-target interferents above the MDL? | • | | | The ICSA associated with batch 280-537459 had results Cr greater than the LOD. The initial ICSA result (2.17 ppb) was > LOD (1.8 ppb) for Cr, and the closing ICSA result (2.12 ppb) was > LOD (1.8 ppb) for Cr. The vendor acknowledges Cr as a trace impurity. |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | MB 280-537092/1-A, Tl detected below the LOQ at 0.0116 mg/kg. The associated sample results less than the LOQ are qualified as "U" at the LOQ. |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | An aqueous MS/SD was not performed. |

**Review Questions**

| Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were the post spike recoveries within project acceptance limits? | • | | | |
| Were the serial dilution RPD values within project acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | Sb, As, Se, Tl LOQs were slightly greater than the PQLGs due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW7470A (Mercury in Water (Manual Cold-Vapor Technique)) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | | | • | |
| Were DoD QSM corrective actions followed if deviations were noted? | | | • | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW7471B (Mercury in Soil (Manual Cold-Vapor Technique))

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | • | | | |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | | • | | Soil sample LOQs were slightly greater than PQLGs due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | | | • | |
| Were DoD QSM corrective actions followed if deviations were noted? | | | • | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW9060A (Total Organic Carbon)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | | • | | The following samples were analyzed outside of analytical holding time due to an instrument issue that required the samples to be analyzed at another lab in the Eurofins network: NYOW-B-SL029-A (280-148576-1), NYOW-B-PH029-B (280-148576-2), NYOW-B-SL030-A (280-148576-4), NYOW-B-PH030-B (280-148576-5), NYOW-B-PH030-C (280-148576-6), NYOW-B-SL032-A (280-148576-7), NYOW-B-PH032-B (280-148576-8), NYOW-B-PH032-C (280-148576-9), NYOW-B-PH012-B (280-148576-11), NYOW-B-PH012-C (280-148576-12), NYOW-B-SL013-A (280-148576-13) and NYOW-B-PH013-C (280-148576-15), NYOW-B-PH029-C (280-148576-3), NYOW-B-SL012-A (280-148576-10), NYOW-B-PH012-B (280-148576-11) and NYOW-B-PH013-B (280-148576-14). The samples were analyzed between 7 and 8 days past the 28-day holding time period. |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | | | • | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | | • | | LCSD not performed. |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | | | • | |
| Was a MS/MSD pair prepared with each batch? | • | | | |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |

**Review Questions**

| Method: SW9060A (Total Organic Carbon) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Data Validation Report for 280-148628-1_52_2a_FUDSChem**

| | |
|---|---|
| Facility: | C02NY0290-01, New York Ordnance Works, Limited RI |
| Event: | 2021 Sampling - Background |
| SDG: | 280-148628-1_52_2a_FUDSChem |
| Guidance Document: | Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works |
| Prime Contractor: | Bluestone Environmental Group, Inc., Malvern, PA |
| Project Manager: | Mike Badeau |
| Contract Laboratory(ies): | Eurofins Environment Testing TestAmerica, Arvada, CO |
| Data Review Contractor: | Bluestone |
| Data Review Level: | S2BVEM |
| Primary Data Reviewer: | Emily Strake, Technical Director/ Data Validator |
| Date Submitted: | August 17, 2021 |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6010C - Dissolved | SW6020A | SW6020A - Dissolved | SW7470A | SW7470A - Dissolved | SW7471B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH015-B | 280-148628-10 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH015-C | 280-148628-11 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH016-B | 280-148628-3 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH016-C | 280-148628-4 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH017-B | 280-148628-14 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH017-C | 280-148628-15 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH018-B | 280-148628-18 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH018-C | 280-148628-20 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH019-B | 280-148628-7 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH019-C | 280-148628-8 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-SL015-A | 280-148628-9 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-SL016-A | 280-148628-2 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-SL017-A | 280-148628-12 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-SL018-A | 280-148628-17 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-SL019-A | 280-148628-6 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| PH-DUP-001_210513 | 280-148628-19 | Solid | Field Duplicate/FD | X | X | X | | X | | | | X | X |
| PH-DUP-002_210513 | 280-148628-21 | Solid | Field Duplicate/FD | X | X | X | | X | | | | X | X |
| SL-DUP-001_210513 | 280-148628-13 | Solid | Field Duplicate/FD | X | X | X | | X | | | | X | X |
| EB-01_210513 | 280-148628-22 | Water | Equipment Blank/EB | X | | X | | X | | X | | | |
| EB-02_210513 | 280-148628-23 | Water | Equipment Blank/EB | X | | | X | | X | | X | | |
| NYOW-B-WL001-A | 280-148628-16 | Water | Field Sample/N | X | | | X | | X | | X | | |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6010C - Dissolved | SW6020A | SW6020A - Dissolved | SW7470A | SW7470A - Dissolved | SW7471B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-B-WL004-A | 280-148628-5 | Water | Field Sample/N | X | | | X | | X | | X | | |
| NYOW-B-WL031-A | 280-148628-1 | Water | Field Sample/N | X | | | X | | X | | X | | |

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page at S2BVEM data validation level. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works and the additional guidance documents incorporated by reference to the extent possible. Where definitive guidance is not provided, results have been evaluated in a conservative manner using professional judgment.

Sample collection was managed and directed by Bluestone Environmental Group, Inc., Malvern, PA; analyses were performed by Eurofins Environment Testing TestAmerica, Arvada, CO and were reported under sample delivery group (SDG) 280-148628-1_52_2a_FUDSChem. Data have been evaluated electronically based on electronic data deliverables (EDDs) provided by the laboratory, and hard copy data summary forms have also been reviewed during this effort and compared to the automated review output by the reviewers whose signatures appear on the following page. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative and throughout this report.

All quality control (QC) elements associated with this SDG have been reviewed by a project chemist in accordance with the requirements defined for the project. This review is documented in the attached Data Review Checklists. The QC elements listed below were supported by the electronic deliverable and were evaluated using ADR processes.

- Blank - Negative
- Equipment Blank
- Field Duplicate RPD
- Lab Blank
- Lab Replicate RPD
- LCS Recovery
- LCS RPD
- MS Recovery
- MS RPD
- Prep Hold Time
- Surrogate
- Test Hold Time

Results of the ADR process were subsequently reviewed and updated as applicable by the data review chemists identified on the signature page. Quality control elements that were not included in the electronic deliverable were reviewed manually and findings are documented within this report. Summaries of findings and associated qualified results are documented throughout this report.

A total of 146 results (14.91%) out of the 979 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected or deemed a serious deficiency (X qualifier). Trace values, defined as results that are qualified as estimated because they fall between the detection limit and the reporting limit/limit of quantitation, are not counted as qualified results in the above count. The qualified results are detailed throughout this report and discussed in the narrative below, where appropriate.

Narrative Comments

The samples arrived in good condition, properly preserved and on ice. The temperatures of the 7 coolers at receipt time were 0.7ºC, 2.0ºC, 3.5ºC, 3.6º C, 3.7ºC, 4.8ºC and 5.3ºC. Samples sent to Eurofins Lancaster Laboratory arrived at temperatures of 3.3ºC and 3.2ºC.
The container label for the following sample did not match the information listed on the COC: SL-DUP-001_210513. The date at end of sample ID was written in different order on containers. The sample was logged in accordance with the COC.

| Analytical Method | Data Reviewer Comment |
|---|---|
| BNASIMD | No additional comments; see Checklist for detail. |
| SW6010C | No additional comments; see Checklist for detail. |
| SW6020A | No additional comments; see Checklist for detail. |
| SW7470A | No additional comments; see Checklist for detail. |
| SW7471B | No additional comments; see Checklist for detail. |
| SW9060A | Samples NYOW-B-PH019-B[3.96X], NYOW-B-PH019-C[3.14X], NYOW-B-PH015-B [2.27X], SL-DUP-001_210513[6.83X], NYOW-B-PH017-B[1.14X], NYOW-B-PH017-C [2.64X], NYOW-B-SL018-A[6.07X], NYOW-B-PH018-B[1.24X], PH-DUP-001_210513 [1.08X], NYOW-B-PH018-C[3.5X] and PH-DUP-002_210513[1.41X] required dilution prior to analysis. The reporting limits have been adjusted accordingly. |

August 17, 2021

Reviewed by Emily Strake, Technical Director/ Data Validator, Bluestone

As the Reviewer, I certify that I have performed a data review process in accordance with the requirements of the project guidance document, and have compared the electronic data to the laboratory's hard copy report and have verified the consistency of the reported sample results and method quality control data between the two deliverables.

**Quality Control Outliers for test method BNASIMD, Continuing Calibration Verification**

Compliance requirements for satisfactory continuing calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data. Continuing calibration is performed to verify and evaluate instrument performance during sample analysis. Summary forms were evaluated against project acceptance criteria, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| CCV 280-538035/3 (CV) | Indeno(1,2,3-c,d)pyrene | 123.3 | 80 - 120 | 50 - 150 | % | J/UJ | V2 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Continuing Calibration Verification for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH015-B | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.50 U M Q | 7.50 UJ | | ug/kg | V2 |
| NYOW-B-PH015-C | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 8.10 U Q | 8.10 UJ | | ug/kg | V2 |
| NYOW-B-PH017-B | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.00 U M Q | 7.00 UJ | | ug/kg | V2 |
| NYOW-B-PH017-C | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 7.70 U M Q | 7.70 UJ | | ug/kg | V2 |
| NYOW-B-PH018-B | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 7.80 U Q | 7.80 UJ | | ug/kg | V2 |
| PH-DUP-001_210513 | FD | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.40 U Q J1 | 7.40 UJ | | ug/kg | V2 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-002_210513 (N)/ 280-148628-21 | Benzo (a)anthracene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-002_210513 (N)/ 280-148628-21 | Benzo(a)pyrene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-002_210513 (N)/ 280-148628-21 | Chrysene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210513 (N)/ 280-148628-13 | Acenaphthylene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210513 (N)/ 280-148628-13 | Anthracene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210513 (N)/ 280-148628-13 | Naphthalene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method BNASIMD, LCS Recovery**

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Benzo (a)anthracene | 122.2 | 59 - 120 | 10 - 200 | percent | J/None | C | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Chrysene | 124.4 | 57 - 120 | 10 - 200 | percent | J/None | C | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the LCS Recovery for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-WL031-A | N | Benzo(a)anthracene | 0.120 | 0.0700 J M Q | 0.0700 J | + | ug/l | C/Z/TR |
| NYOW-B-WL031-A | N | Chrysene | 0.120 | 0.0940 J Q | 0.0940 J | + | ug/l | C/Z/TR |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, LCS RPD**

The objective of laboratory control sample/laboratory control sample duplicate (LCS/LCSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. LCS/LCSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Laboratory control sample/laboratory control sample duplicate RPD results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | 1-Methylnaphthalene | 0.4610 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | 2-Methylnaphthalene | 0.4670 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Acenaphthylene | 0.4560 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Dibenz (a,h)anthracene | 0.1530 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Indeno(1,2,3-c,d)pyrene | 0.1920 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Naphthalene | 0.4640 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Acenaphthene | 63.47 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Anthracene | 50.57 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Benzo (a)anthracene | 42.96 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Benzo(a)pyrene | 41.24 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Benzo (b)fluoranthene | 40.26 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Benzo (k)fluoranthene | 45.76 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Chrysene | 44.81 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Fluoranthene | 43.56 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Fluorene | 57.91 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Phenanthrene | 50.56 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Pyrene | 41.44 | < 40 | < 40 | rpd | J/None | Z | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the LCS RPD for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-WL004-A | N | Acenaphthylene | 0.110 | 0.0740 J Q | 0.0740 J | - | ug/l | Z/I/TR |
| NYOW-B-WL031-A | N | Acenaphthylene | 0.120 | 0.0300 J Q | 0.0300 J | | ug/l | Z/TR |
| NYOW-B-WL031-A | N | Benzo(a)anthracene | 0.120 | 0.0700 J M Q | 0.0700 J | + | ug/l | C/Z/TR |
| NYOW-B-WL031-A | N | Benzo(b)fluoranthene | 0.120 | 0.0910 J Q | 0.0910 J | | ug/l | Z/TR |

**Qualified Results associated with the LCS RPD for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-WL031-A | N | Benzo(k)fluoranthene | 0.120 | 0.0860 J M Q | 0.0860 J | | ug/l | Z/TR |
| NYOW-B-WL031-A | N | Chrysene | 0.120 | 0.0940 J Q | 0.0940 J | + | ug/l | C/Z/TR |
| NYOW-B-WL031-A | N | Phenanthrene | 0.120 | 0.0610 J Q | 0.0610 J | | ug/l | Z/TR |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-WL001-A (MS)/ 280-148628-16MS | Benzo(a)pyrene | 44.43 | 53 - 120 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-WL001-A (MS)/ 280-148628-16MS | Benzo (b)fluoranthene | 47.29 | 53 - 126 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-WL001-A (MS)/ 280-148628-16MS | Benzo (g,h,i)perylene | 28.29 | 44 - 128 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-WL001-A (MS)/ 280-148628-16MS | Benzo (k)fluoranthene | 46.27 | 54 - 125 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-WL001-A (MS)/ 280-148628-16MS | Dibenz (a,h)anthracene | 29.11 | 44 - 131 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-WL001-A (MS)/ 280-148628-16MS | Indeno(1,2,3-c,d)pyrene | 26.25 | 48 - 130 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-WL001-A (SD)/ 280-148628-16MSD | Benzo(a)pyrene | 48.91 | 53 - 120 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-WL001-A (SD)/ 280-148628-16MSD | Benzo (b)fluoranthene | 51.29 | 53 - 126 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-WL001-A (SD)/ 280-148628-16MSD | Benzo (g,h,i)perylene | 33.47 | 44 - 128 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-WL001-A (SD)/ 280-148628-16MSD | Benzo (k)fluoranthene | 50.40 | 54 - 125 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-WL001-A (SD)/ 280-148628-16MSD | Dibenz (a,h)anthracene | 34.95 | 44 - 131 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-WL001-A (SD)/ 280-148628-16MSD | Indeno(1,2,3-c,d)pyrene | 31.98 | 48 - 130 | 10 - 200 | percent | J/UJ | M | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-WL001-A | N | Benzo(a)pyrene | 0.110 | 0.0540 U Q J1 | 0.0540 UJ | | ug/l | M/I |
| NYOW-B-WL001-A | N | Benzo(b)fluoranthene | 0.110 | 0.110 U Q J1 | 0.110 UJ | | ug/l | M/I |
| NYOW-B-WL001-A | N | Benzo(g,h,i)perylene | 0.110 | 0.110 U M Q | 0.110 UJ | | ug/l | M/I |
| NYOW-B-WL001-A | N | Benzo(k)fluoranthene | 0.110 | 0.0540 U Q J1 | 0.0540 UJ | | ug/l | M/I |
| NYOW-B-WL001-A | N | Dibenz(a,h)anthracene | 0.110 | 0.110 U M Q | 0.110 UJ | | ug/l | M/I |
| NYOW-B-WL001-A | N | Indeno(1,2,3-c,d)pyrene | 0.110 | 0.110 U Q J1 | 0.110 UJ | | ug/l | M/I |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210513 (MS)/ 280-148628-19MS | 1-Methylnaphthalene | 0.000 | 43 - 111 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (MS)/ 280-148628-19MS | 2-Methylnaphthalene | 0.000 | 39 - 114 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (MS)/ 280-148628-19MS | Acenaphthene | 0.000 | 44 - 111 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (MS)/ 280-148628-19MS | Acenaphthylene | 0.000 | 39 - 116 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (MS)/ 280-148628-19MS | Anthracene | 0.000 | 50 - 114 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (MS)/ 280-148628-19MS | Benzo (a)anthracene | 0.000 | 54 - 122 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (MS)/ 280-148628-19MS | Benzo(a)pyrene | 0.000 | 50 - 125 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (MS)/ 280-148628-19MS | Benzo (b)fluoranthene | 0.000 | 53 - 128 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (MS)/ 280-148628-19MS | Benzo (g,h,i)perylene | 0.000 | 49 - 127 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (MS)/ 280-148628-19MS | Benzo (k)fluoranthene | 0.000 | 56 - 123 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (MS)/ 280-148628-19MS | Chrysene | 0.000 | 57 - 118 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (MS)/ 280-148628-19MS | Dibenz (a,h)anthracene | 0.000 | 50 - 129 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (MS)/ 280-148628-19MS | Fluoranthene | 0.000 | 55 - 119 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (MS)/ 280-148628-19MS | Fluorene | 0.000 | 47 - 114 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (MS)/ 280-148628-19MS | Indeno(1,2,3-c,d)pyrene | 0.000 | 49 - 130 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (MS)/ 280-148628-19MS | Naphthalene | 0.000 | 38 - 111 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (MS)/ 280-148628-19MS | Phenanthrene | 0.000 | 49 - 113 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (MS)/ 280-148628-19MS | Pyrene | 0.000 | 55 - 117 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (SD)/ 280-148628-19MSD | 1-Methylnaphthalene | 0.000 | 43 - 111 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (SD)/ 280-148628-19MSD | 2-Methylnaphthalene | 0.000 | 39 - 114 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (SD)/ 280-148628-19MSD | Acenaphthene | 0.000 | 44 - 111 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (SD)/ 280-148628-19MSD | Acenaphthylene | 0.000 | 39 - 116 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (SD)/ 280-148628-19MSD | Anthracene | 0.000 | 50 - 114 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (SD)/ 280-148628-19MSD | Benzo (a)anthracene | 0.000 | 54 - 122 | 10 - 200 | percent | J/X | M | Parent not found |

**Quality Control Outliers for test method BNASIMD, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210513 (SD)/ 280-148628-19MSD | Benzo(a)pyrene | 0.000 | 50 - 125 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (SD)/ 280-148628-19MSD | Benzo (b)fluoranthene | 0.000 | 53 - 128 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (SD)/ 280-148628-19MSD | Benzo (g,h,i)perylene | 0.000 | 49 - 127 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (SD)/ 280-148628-19MSD | Benzo (k)fluoranthene | 0.000 | 56 - 123 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (SD)/ 280-148628-19MSD | Chrysene | 0.000 | 57 - 118 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (SD)/ 280-148628-19MSD | Dibenz (a,h)anthracene | 0.000 | 50 - 129 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (SD)/ 280-148628-19MSD | Fluoranthene | 0.000 | 55 - 119 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (SD)/ 280-148628-19MSD | Fluorene | 0.000 | 47 - 114 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (SD)/ 280-148628-19MSD | Indeno(1,2,3-c,d)pyrene | 0.000 | 49 - 130 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (SD)/ 280-148628-19MSD | Naphthalene | 0.000 | 38 - 111 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (SD)/ 280-148628-19MSD | Phenanthrene | 0.000 | 49 - 113 | 10 - 200 | percent | J/X | M | Parent not found |
| PH-DUP-001_210513 (SD)/ 280-148628-19MSD | Pyrene | 0.000 | 55 - 117 | 10 - 200 | percent | J/X | M | Parent not found |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH018-B | N | Chrysene | 12.0 | 3.60 J | 3.60 J | - | ug/kg | TR/M |
| PH-DUP-001_210513 | FD | Chrysene | 11.0 | 3.90 J J1 | 3.90 J | - | ug/kg | TR/M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-WL001-A (N)/ 280-148628-16 | Terphenyl-d14 | 57.00 | 58 - 132 | 10 - 132 | percent | J/UJ | I | |
| NYOW-B-WL004-A (N)/ 280-148628-5 | Terphenyl-d14 | 54.00 | 58 - 132 | 10 - 132 | percent | J/UJ | I | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-WL001-A | N | 1-Methylnaphthalene | 0.110 | 0.0430 U M Q | 0.0430 UJ | | ug/l | I |
| NYOW-B-WL001-A | N | 2-Methylnaphthalene | 0.110 | 0.0540 U Q J1 | 0.0540 UJ | | ug/l | I |
| NYOW-B-WL001-A | N | Acenaphthene | 0.110 | 0.0130 U Q J1 | 0.0130 UJ | | ug/l | I |
| NYOW-B-WL001-A | N | Acenaphthylene | 0.110 | 0.0210 U Q J1 | 0.0210 UJ | | ug/l | I |
| NYOW-B-WL001-A | N | Anthracene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL001-A | N | Benzo(a)anthracene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL001-A | N | Benzo(a)pyrene | 0.110 | 0.0540 U Q J1 | 0.0540 UJ | | ug/l | M/I |
| NYOW-B-WL001-A | N | Benzo(b)fluoranthene | 0.110 | 0.110 U Q J1 | 0.110 UJ | | ug/l | M/I |
| NYOW-B-WL001-A | N | Benzo(g,h,i)perylene | 0.110 | 0.110 U M Q | 0.110 UJ | | ug/l | M/I |
| NYOW-B-WL001-A | N | Benzo(k)fluoranthene | 0.110 | 0.0540 U Q J1 | 0.0540 UJ | | ug/l | M/I |
| NYOW-B-WL001-A | N | Chrysene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL001-A | N | Dibenz(a,h)anthracene | 0.110 | 0.110 U M Q | 0.110 UJ | | ug/l | M/I |
| NYOW-B-WL001-A | N | Fluoranthene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL001-A | N | Fluorene | 0.110 | 0.0430 U M Q | 0.0430 UJ | | ug/l | I |
| NYOW-B-WL001-A | N | Indeno(1,2,3-c,d)pyrene | 0.110 | 0.110 U Q J1 | 0.110 UJ | | ug/l | M/I |
| NYOW-B-WL001-A | N | Naphthalene | 0.110 | 0.0540 U Q J1 | 0.0540 UJ | | ug/l | I |
| NYOW-B-WL001-A | N | Phenanthrene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL001-A | N | Pyrene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL004-A | N | 1-Methylnaphthalene | 0.110 | 0.0430 U Q | 0.0430 UJ | | ug/l | I |
| NYOW-B-WL004-A | N | 2-Methylnaphthalene | 0.110 | 0.0540 U M Q | 0.0540 UJ | | ug/l | I |
| NYOW-B-WL004-A | N | Acenaphthene | 0.110 | 0.0130 U M Q | 0.0130 UJ | | ug/l | I |
| NYOW-B-WL004-A | N | Acenaphthylene | 0.110 | 0.0740 J Q | 0.0740 J | - | ug/l | Z/I/TR |
| NYOW-B-WL004-A | N | Anthracene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-WL004-A | N | Benzo(a)anthracene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL004-A | N | Benzo(a)pyrene | 0.110 | 0.0540 U Q | 0.0540 UJ | | ug/l | I |
| NYOW-B-WL004-A | N | Benzo(b)fluoranthene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL004-A | N | Benzo(g,h,i)perylene | 0.110 | 0.0430 J Q | 0.0430 J | - | ug/l | I/TR |
| NYOW-B-WL004-A | N | Benzo(k)fluoranthene | 0.110 | 0.0540 U Q | 0.0540 UJ | | ug/l | I |
| NYOW-B-WL004-A | N | Chrysene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL004-A | N | Dibenz(a,h)anthracene | 0.110 | 0.110 U M Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL004-A | N | Fluoranthene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL004-A | N | Fluorene | 0.110 | 0.0430 U M Q | 0.0430 UJ | | ug/l | I |
| NYOW-B-WL004-A | N | Indeno(1,2,3-c,d)pyrene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL004-A | N | Naphthalene | 0.110 | 0.0540 U Q | 0.0540 UJ | | ug/l | I |
| NYOW-B-WL004-A | N | Phenanthrene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL004-A | N | Pyrene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210513 (N)/ 280-148628-19 | Cobalt | 75.56 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-002_210513 (N)/ 280-148628-21 | Chromium | 58.82 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-002_210513 (N)/ 280-148628-21 | Lead | 62.50 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-002_210513 (N)/ 280-148628-21 | Magnesium | 67.74 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-002_210513 (N)/ 280-148628-21 | Sodium | 51.57 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-002_210513 (N)/ 280-148628-21 | Vanadium | 51.97 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Field Duplicate RPD for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH018-B | N | Cobalt | 1.00 | 6.20 | 6.20 J | - | mg/kg | D3/C |
| NYOW-B-PH018-C | N | Chromium | 3.40 | 3.00 J | 3.00 J | | mg/kg | D3/TR |
| NYOW-B-PH018-C | N | Lead | 0.880 | 1.10 | 1.10 J | | mg/kg | D3 |
| NYOW-B-PH018-C | N | Magnesium | 29.0 | 4100 | 4100 J | | mg/kg | D3 |
| NYOW-B-PH018-C | N | Vanadium | 1.90 | 4.70 | 4.70 J | | mg/kg | D3 |
| PH-DUP-001_210513 | FD | Cobalt | 0.790 | 2.80 | 2.80 J | - | mg/kg | D3/C |
| PH-DUP-002_210513 | FD | Chromium | 3.00 | 5.50 | 5.50 J | | mg/kg | D3 |
| PH-DUP-002_210513 | FD | Lead | 0.770 | 2.10 | 2.10 J | | mg/kg | D3 |
| PH-DUP-002_210513 | FD | Magnesium | 26.0 | 8300 | 8300 J | | mg/kg | D3 |
| PH-DUP-002_210513 | FD | Vanadium | 1.70 | 8.00 | 8.00 J | | mg/kg | D3 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-537681/1-A (LB)/ MB 280-537681/1-A | Aluminum | 1.630 | < 1.6 | < 50 | mg/kg | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6010C, LCS Recovery**

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCS 280-537681/2-A (BS)/ LCS 280-537681/2-A | Cobalt | 84.70 | 85 - 112 | 10 - 200 | percent | J/UJ | C | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the LCS Recovery for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH015-B | N | Cobalt | 0.980 | 1.70 | 1.70 J | - | mg/kg | C |
| NYOW-B-PH015-C | N | Cobalt | 1.20 | 3.90 | 3.90 J | - | mg/kg | C |
| NYOW-B-PH016-B | N | Cobalt | 0.990 | 3.10 | 3.10 J | - | mg/kg | C |
| NYOW-B-PH016-C | N | Cobalt | 0.890 | 3.80 | 3.80 J | - | mg/kg | C |
| NYOW-B-PH017-B | N | Cobalt | 0.860 | 2.40 | 2.40 J | - | mg/kg | C |
| NYOW-B-PH017-C | N | Cobalt | 0.810 | 3.20 | 3.20 J | - | mg/kg | C |
| NYOW-B-PH018-B | N | Cobalt | 1.00 | 6.20 | 6.20 J | - | mg/kg | D3/C |
| NYOW-B-PH018-C | N | Cobalt | 0.970 | 1.60 | 1.60 J | - | mg/kg | C |
| NYOW-B-PH019-B | N | Cobalt | 1.10 | 3.70 | 3.70 J | - | mg/kg | C |
| NYOW-B-PH019-C | N | Cobalt | 1.10 | 2.50 | 2.50 J | - | mg/kg | C |
| NYOW-B-SL015-A | N | Cobalt | 1.20 | 0.610 J | 0.610 J | - | mg/kg | C/TR |
| NYOW-B-SL016-A | N | Cobalt | 1.10 | 3.10 J1 | 3.10 J | - | mg/kg | C/D |
| NYOW-B-SL017-A | N | Cobalt | 1.10 | 1.60 | 1.60 J | - | mg/kg | C |
| NYOW-B-SL018-A | N | Cobalt | 1.00 | 2.60 | 2.60 J | - | mg/kg | C |
| NYOW-B-SL019-A | N | Cobalt | 0.910 | 2.60 | 2.60 J | - | mg/kg | C |
| PH-DUP-001_210513 | FD | Cobalt | 0.790 | 2.80 | 2.80 J | - | mg/kg | D3/C |
| PH-DUP-002_210513 | FD | Cobalt | 0.850 | 2.40 | 2.40 J | - | mg/kg | C |
| SL-DUP-001_210513 | FD | Cobalt | 1.10 | 2.00 | 2.00 J | - | mg/kg | C |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Low Level Calibration Verification**

Compliance requirements for satisfactory low level calibration verification is established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data. Continuing calibration is performed to verify and evaluate instrument performance during sample analysis. Summary forms were evaluated against project acceptance criteria, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| CCVL 280-5 (LV)/ 280-148628-2 | Lead | 125.0 | 80 - 120 | 80 - 120 | % | J/None | V6 | |
| CCVL 280-5 (LV)/ 280-148628-2MS | Lead | 125.0 | 80 - 120 | 80 - 120 | % | J/None | V6 | |
| CCVL 280-5 (LV)/ 280-148628-2MSD | Lead | 125.0 | 80 - 120 | 80 - 120 | % | J/None | V6 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Low Level Calibration Verification for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL016-A | N | Lead | 1.00 | 2.70 J1 | 2.70 J | + | mg/kg | D/V6 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL016-A (MS)/ 280-148628-2MS | Manganese | 121.8 | 84 - 114 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL016-A (MS)/ 280-148628-2MS | Potassium | 122.4 | 81 - 116 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL016-A (MS)/ 280-148628-2MS | Sodium | 82.68 | 83 - 118 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL016-A (MS)/ 280-148628-2MS | Aluminum | 474.7 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL016-A (MS)/ 280-148628-2MS | Iron | 188.9 | 81 - 118 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Aluminum | 410.4 | 74 - 119 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Potassium | 118.2 | 81 - 116 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Iron | 191.7 | 81 - 118 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL016-A | N | Manganese | 5.10 | 290 J1 | 290 J | | mg/kg | M/M2 |
| NYOW-B-SL016-A | N | Potassium | 340 | 810 J1 | 810 J | + | mg/kg | M/D |
| NYOW-B-SL016-A | N | Aluminum | 57.0 | 3800 J1 | 3800 J | + | mg/kg | M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, MS RPD**

The objective of matrix spikes/matrix spike duplicates (MS/MSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. MS/MSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Matrix spikes/matrix spike duplicates results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Barium | 22.51 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Beryllium | 31.12 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Calcium | 24.53 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Chromium | 29.10 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Cobalt | 30.64 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Copper | 28.98 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Lead | 30.94 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Magnesium | 23.53 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Nickel | 29.49 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Potassium | 22.00 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Sodium | 29.21 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Vanadium | 27.64 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Zinc | 23.94 | < 20 | < 20 | rpd | J/UJ | D | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS RPD for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL016-A | N | Barium | 2.30 | 47.0 J1 Q | 47.0 J | | mg/kg | D |
| NYOW-B-SL016-A | N | Beryllium | 0.570 | 0.180 J J1 | 0.180 J | | mg/kg | D/TR |
| NYOW-B-SL016-A | N | Calcium | 110 | 1400 J1 | 1400 J | | mg/kg | D |
| NYOW-B-SL016-A | N | Chromium | 4.00 | 5.80 J1 | 5.80 J | | mg/kg | D |
| NYOW-B-SL016-A | N | Cobalt | 1.10 | 3.10 J1 | 3.10 J | - | mg/kg | C/D |
| NYOW-B-SL016-A | N | Copper | 5.70 | 8.00 J1 | 8.00 J | | mg/kg | D |
| NYOW-B-SL016-A | N | Lead | 1.00 | 2.70 J1 | 2.70 J | + | mg/kg | D/V6 |
| NYOW-B-SL016-A | N | Magnesium | 34.0 | 1200 J1 | 1200 J | | mg/kg | D |
| NYOW-B-SL016-A | N | Nickel | 4.50 | 6.30 J1 | 6.30 J | | mg/kg | D |
| NYOW-B-SL016-A | N | Potassium | 340 | 810 J1 | 810 J | + | mg/kg | M/D |
| NYOW-B-SL016-A | N | Sodium | 570 | 250 J J1 | 250 J | | mg/kg | D/TR |
| NYOW-B-SL016-A | N | Vanadium | 2.30 | 11.0 J1 | 11.0 J | | mg/kg | D |

**Qualified Results associated with the MS RPD for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL016-A | N | Zinc | 9.10 | 13.0 J1 | 13.0 J | | mg/kg | D |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Total, Equipment Blank**

The purpose of equipment blanks is to determine the existence and magnitude of cross-contamination problems resulting from the process during sampling. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in equipment blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-01_210513 (EB)/ 280-148628-22 | Manganese | 2.400 | < 1.9 | < 10 | ug/l | U/None* | V | |
| EB-01_210513 (EB)/ 280-148628-22 | Iron | 77.00 | < 22 | < 100 | ug/l | U/None* | V | |
| EB-01_210513 (EB)/ 280-148628-22 | Calcium | 280.0 | < 78 | < 1000 | ug/l | U/None* | V | |
| EB-01_210513 (EB)/ 280-148628-22 | Aluminum | 38.00 | < 18 | < 300 | ug/l | U/None* | V | |
| EB-01_210513 (EB)/ 280-148628-22 | Magnesium | 72.00 | < 26 | < 500 | ug/l | U/None* | V | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6010C, Total, Low Level Calibration Verification**

Compliance requirements for satisfactory low level calibration verification is established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data. Continuing calibration is performed to verify and evaluate instrument performance during sample analysis. Summary forms were evaluated against project acceptance criteria, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| CCVL 280-537914/33 (LV)/ 280-148628-22 | Selenium | 75.00 | 80 - 120 | 80 - 120 | % | J/UJ | V6 | |
| CCVL 280-537914/46 (LV)/ 280-148628-22 | Selenium | 75.00 | 80 - 120 | 80 - 120 | % | J/UJ | V6 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Low Level Calibration Verification for SW6010C, Total**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| EB-01_210513 | EB | Selenium | 22.0 | 19.0 U | 19.0 UJ | | ug/l | V6 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6020A, Dissolved, Low Level Calibration Verification**

Compliance requirements for satisfactory low level calibration verification is established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data. Continuing calibration is performed to verify and evaluate instrument performance during sample analysis. Summary forms were evaluated against project acceptance criteria, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| CCVL 280-537916/48 (LV) | Antimony | 124.0 | 80 - 120 | 80 - 120 | % | J/None | V6 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Low Level Calibration Verification for SW6020A, Dissolved**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-WL031-A | N | Antimony | 6.00 | 0.810 J | 1.00 U | | ug/l | B2/V6 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6020A, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210513 (N)/ 280-148628-19 | Arsenic | 63.83 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-001_210513 (N)/ 280-148628-19 | Cadmium | 72.46 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-001_210513 (N)/ 280-148628-19 | Selenium | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-002_210513 (N)/ 280-148628-21 | Antimony | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Field Duplicate RPD for SW6020A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH018-B | N | Arsenic | 0.650 | 3.10 | 3.10 J | | mg/kg | D3 |
| PH-DUP-001_210513 | FD | Arsenic | 0.590 | 1.60 | 1.60 J | | mg/kg | D3 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6020A, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-537658/1-A (LB)/ MB 280-537658/1-A | Thallium | 0.003800 | < 0.0035 | < 0.1 | mg/kg | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

**Qualified Results associated with the Lab Blank for SW6020A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH015-B | N | Thallium | 0.100 | 0.0200 J | 0.100 U | | mg/kg | L/B2 |
| NYOW-B-PH015-C | N | Thallium | 0.0840 | 0.0490 J | 0.0840 U | | mg/kg | L/B2 |
| NYOW-B-PH016-B | N | Thallium | 0.0970 | 0.0550 J | 0.0970 U | | mg/kg | L/B2 |
| NYOW-B-PH016-C | N | Thallium | 0.0990 | 0.0350 J | 0.0990 U | | mg/kg | L/B2 |
| NYOW-B-PH017-B | N | Thallium | 0.0860 | 0.0240 J | 0.0860 U | | mg/kg | L |
| NYOW-B-PH017-C | N | Thallium | 0.110 | 0.0290 J | 0.110 U | | mg/kg | L |
| NYOW-B-PH018-B | N | Thallium | 0.110 | 0.0470 J | 0.110 U | | mg/kg | L |
| NYOW-B-PH018-C | N | Thallium | 0.0840 | 0.0370 J | 0.0840 U | | mg/kg | L |
| NYOW-B-PH019-B | N | Thallium | 0.100 | 0.0610 J | 0.100 U | | mg/kg | L/B2 |
| NYOW-B-PH019-C | N | Thallium | 0.0880 | 0.0360 J | 0.0880 U | | mg/kg | L/B2 |
| NYOW-B-SL015-A | N | Thallium | 0.0990 | 0.0670 J | 0.0990 U | | mg/kg | L/B2 |
| NYOW-B-SL016-A | N | Thallium | 0.0860 | 0.0530 J J1 | 0.0860 UJ | | mg/kg | L/D/B2 |
| NYOW-B-SL017-A | N | Thallium | 0.110 | 0.0360 J | 0.110 U | | mg/kg | L |
| NYOW-B-SL018-A | N | Thallium | 0.0920 | 0.0360 J | 0.0920 U | | mg/kg | L |
| NYOW-B-SL019-A | N | Thallium | 0.0900 | 0.0420 J | 0.0900 U | | mg/kg | L/B2 |
| PH-DUP-001_210513 | FD | Thallium | 0.0980 | 0.0380 J | 0.0980 U | | mg/kg | L |
| PH-DUP-002_210513 | FD | Thallium | 0.110 | 0.0410 J | 0.110 U | | mg/kg | L |
| SL-DUP-001_210513 | FD | Thallium | 0.0840 | 0.0370 J | 0.0840 U | | mg/kg | L |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6020A, Low Level Calibration Verification**

Compliance requirements for satisfactory low level calibration verification is established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data. Continuing calibration is performed to verify and evaluate instrument performance during sample analysis. Summary forms were evaluated against project acceptance criteria, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| CCVL 280-537930/47 (LV) | Cadmium | 124.0 | 80 - 120 | 80 - 120 | % | J/None | V6 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Low Level Calibration Verification for SW6020A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH016-B | N | Cadmium | 0.0970 | 0.0300 J | 0.0300 J | + | mg/kg | V6 |
| NYOW-B-SL016-A | N | Cadmium | 0.0860 | 0.0970 J1 | 0.0970 J | + | mg/kg | V6/D |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6020A, MS RPD**

The objective of matrix spikes/matrix spike duplicates (MS/MSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. MS/MSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Matrix spikes/matrix spike duplicates results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Arsenic | 34.42 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Cadmium | 39.79 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Selenium | 36.60 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL016-A (SD)/ 280-148628-2MSD | Thallium | 39.40 | < 20 | < 20 | rpd | J/UJ | D | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS RPD for SW6020A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL016-A | N | Arsenic | 0.520 | 2.40 J1 | 2.40 J | | mg/kg | D |
| NYOW-B-SL016-A | N | Cadmium | 0.0860 | 0.0970 J1 | 0.0970 J | + | mg/kg | V6/D |
| NYOW-B-SL016-A | N | Selenium | 0.430 | 0.150 J J1 | 0.150 J | | mg/kg | D/TR |
| NYOW-B-SL016-A | N | Thallium | 0.0860 | 0.0530 J J1 | 0.0860 UJ | | mg/kg | L/D/B2 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW7470A, Total, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-537553/1-A (LB)/ MB 280-537553/1-A | Mercury | 0.04070 | < 0.027 | < 0.2 | ug/l | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW7471B, Total, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210513 (N)/ 280-148628-19 | Mercury | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW9060A, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210513 (N)/ 280-148628-19 | Total Organic Carbon | 54.05 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-002_210513 (N)/ 280-148628-21 | Total Organic Carbon | 106.3 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210513 (N)/ 280-148628-13 | Total Organic Carbon | 54.55 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Field Duplicate RPD for SW9060A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH018-B | N | Total Organic Carbon | 370 | 2700 H | 2700 J | - | mg/kg | D3/H1 |
| NYOW-B-PH018-C | N | Total Organic Carbon | 1100 | 1500 H | 1500 J | - | mg/kg | D3/H1 |
| NYOW-B-SL017-A | N | Total Organic Carbon | 4000 | 12000 H | 12000 J | - | mg/kg | D3/H1 |
| PH-DUP-001_210513 | FD | Total Organic Carbon | 320 | 4700 H | 4700 J | - | mg/kg | D3/H1 |
| PH-DUP-002_210513 | FD | Total Organic Carbon | 420 | 4900 H | 4900 J | - | mg/kg | D3/H1 |
| SL-DUP-001_210513 | FD | Total Organic Carbon | 2000 | 21000 H | 21000 J | - | mg/kg | D3/H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3510C | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-WL001-A 280-148628-16 | N | 1-Methylnaphthalene | 0.110 | 0.0430 U M Q | 0.0430 UJ | | ug/l | I |
| NYOW-B-WL001-A 280-148628-16 | N | 2-Methylnaphthalene | 0.110 | 0.0540 U Q J1 | 0.0540 UJ | | ug/l | I |
| NYOW-B-WL001-A 280-148628-16 | N | Acenaphthene | 0.110 | 0.0130 U Q J1 | 0.0130 UJ | | ug/l | I |
| NYOW-B-WL001-A 280-148628-16 | N | Acenaphthylene | 0.110 | 0.0210 U Q J1 | 0.0210 UJ | | ug/l | I |
| NYOW-B-WL001-A 280-148628-16 | N | Anthracene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL001-A 280-148628-16 | N | Benzo(a)anthracene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL001-A 280-148628-16 | N | Benzo(a)pyrene | 0.110 | 0.0540 U Q J1 | 0.0540 UJ | | ug/l | M/I |
| NYOW-B-WL001-A 280-148628-16 | N | Benzo(b)fluoranthene | 0.110 | 0.110 U Q J1 | 0.110 UJ | | ug/l | M/I |
| NYOW-B-WL001-A 280-148628-16 | N | Benzo(g,h,i)perylene | 0.110 | 0.110 U M Q | 0.110 UJ | | ug/l | M/I |
| NYOW-B-WL001-A 280-148628-16 | N | Benzo(k)fluoranthene | 0.110 | 0.0540 U Q J1 | 0.0540 UJ | | ug/l | M/I |
| NYOW-B-WL001-A 280-148628-16 | N | Chrysene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL001-A 280-148628-16 | N | Dibenz(a,h)anthracene | 0.110 | 0.110 U M Q | 0.110 UJ | | ug/l | M/I |
| NYOW-B-WL001-A 280-148628-16 | N | Fluoranthene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL001-A 280-148628-16 | N | Fluorene | 0.110 | 0.0430 U M Q | 0.0430 UJ | | ug/l | I |
| NYOW-B-WL001-A 280-148628-16 | N | Indeno(1,2,3-c,d)pyrene | 0.110 | 0.110 U Q J1 | 0.110 UJ | | ug/l | M/I |
| NYOW-B-WL001-A 280-148628-16 | N | Naphthalene | 0.110 | 0.0540 U Q J1 | 0.0540 UJ | | ug/l | I |
| NYOW-B-WL001-A 280-148628-16 | N | Phenanthrene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL001-A 280-148628-16 | N | Pyrene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL004-A 280-148628-5 | N | 1-Methylnaphthalene | 0.110 | 0.0430 U Q | 0.0430 UJ | | ug/l | I |
| NYOW-B-WL004-A 280-148628-5 | N | 2-Methylnaphthalene | 0.110 | 0.0540 U M Q | 0.0540 UJ | | ug/l | I |
| NYOW-B-WL004-A 280-148628-5 | N | Acenaphthene | 0.110 | 0.0130 U M Q | 0.0130 UJ | | ug/l | I |
| NYOW-B-WL004-A 280-148628-5 | N | Anthracene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL004-A 280-148628-5 | N | Benzo(a)anthracene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL004-A 280-148628-5 | N | Benzo(a)pyrene | 0.110 | 0.0540 U Q | 0.0540 UJ | | ug/l | I |
| NYOW-B-WL004-A 280-148628-5 | N | Benzo(b)fluoranthene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL004-A 280-148628-5 | N | Benzo(k)fluoranthene | 0.110 | 0.0540 U Q | 0.0540 UJ | | ug/l | I |

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3510C | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-WL004-A 280-148628-5 | N | Chrysene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL004-A 280-148628-5 | N | Dibenz(a,h)anthracene | 0.110 | 0.110 U M Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL004-A 280-148628-5 | N | Fluoranthene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL004-A 280-148628-5 | N | Fluorene | 0.110 | 0.0430 U M Q | 0.0430 UJ | | ug/l | I |
| NYOW-B-WL004-A 280-148628-5 | N | Indeno(1,2,3-c,d)pyrene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL004-A 280-148628-5 | N | Naphthalene | 0.110 | 0.0540 U Q | 0.0540 UJ | | ug/l | I |
| NYOW-B-WL004-A 280-148628-5 | N | Phenanthrene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| NYOW-B-WL004-A 280-148628-5 | N | Pyrene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH015-B 280-148628-10 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.50 U M Q | 7.50 UJ | | ug/kg | V2 |
| NYOW-B-PH015-C 280-148628-11 | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 8.10 U Q | 8.10 UJ | | ug/kg | V2 |
| NYOW-B-PH017-B 280-148628-14 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.00 U M Q | 7.00 UJ | | ug/kg | V2 |
| NYOW-B-PH017-C 280-148628-15 | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 7.70 U M Q | 7.70 UJ | | ug/kg | V2 |
| NYOW-B-PH018-B 280-148628-18 | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 7.80 U Q | 7.80 UJ | | ug/kg | V2 |
| PH-DUP-001_210513 280-148628-19 | FD | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.40 U Q J1 | 7.40 UJ | | ug/kg | V2 |

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH015-B 280-148628-10 | N | Cobalt | 0.980 | 1.70 | 1.70 J | - | mg/kg | C |
| NYOW-B-PH015-C 280-148628-11 | N | Cobalt | 1.20 | 3.90 | 3.90 J | - | mg/kg | C |
| NYOW-B-PH016-B 280-148628-3 | N | Cobalt | 0.990 | 3.10 | 3.10 J | - | mg/kg | C |
| NYOW-B-PH016-C 280-148628-4 | N | Cobalt | 0.890 | 3.80 | 3.80 J | - | mg/kg | C |
| NYOW-B-PH017-B 280-148628-14 | N | Cobalt | 0.860 | 2.40 | 2.40 J | - | mg/kg | C |
| NYOW-B-PH017-C 280-148628-15 | N | Cobalt | 0.810 | 3.20 | 3.20 J | - | mg/kg | C |
| NYOW-B-PH018-B 280-148628-18 | N | Cobalt | 1.00 | 6.20 | 6.20 J | - | mg/kg | D3/C |
| NYOW-B-PH018-C 280-148628-20 | N | Cobalt | 0.970 | 1.60 | 1.60 J | - | mg/kg | C |
| NYOW-B-PH018-C 280-148628-20 | N | Lead | 0.880 | 1.10 | 1.10 J | | mg/kg | D3 |

**Table of All Qualified Results**

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH018-C 280-148628-20 | N | Magnesium | 29.0 | 4100 | 4100 J | | mg/kg | D3 |
| NYOW-B-PH018-C 280-148628-20 | N | Vanadium | 1.90 | 4.70 | 4.70 J | | mg/kg | D3 |
| NYOW-B-PH019-B 280-148628-7 | N | Cobalt | 1.10 | 3.70 | 3.70 J | - | mg/kg | C |
| NYOW-B-PH019-C 280-148628-8 | N | Cobalt | 1.10 | 2.50 | 2.50 J | - | mg/kg | C |
| NYOW-B-SL016-A 280-148628-2 | N | Aluminum | 57.0 | 3800 J1 | 3800 J | + | mg/kg | M |
| NYOW-B-SL016-A 280-148628-2 | N | Barium | 2.30 | 47.0 J1 Q | 47.0 J | | mg/kg | D |
| NYOW-B-SL016-A 280-148628-2 | N | Calcium | 110 | 1400 J1 | 1400 J | | mg/kg | D |
| NYOW-B-SL016-A 280-148628-2 | N | Chromium | 4.00 | 5.80 J1 | 5.80 J | | mg/kg | D |
| NYOW-B-SL016-A 280-148628-2 | N | Cobalt | 1.10 | 3.10 J1 | 3.10 J | - | mg/kg | C/D |
| NYOW-B-SL016-A 280-148628-2 | N | Copper | 5.70 | 8.00 J1 | 8.00 J | | mg/kg | D |
| NYOW-B-SL016-A 280-148628-2 | N | Lead | 1.00 | 2.70 J1 | 2.70 J | + | mg/kg | D/V6 |
| NYOW-B-SL016-A 280-148628-2 | N | Magnesium | 34.0 | 1200 J1 | 1200 J | | mg/kg | D |
| NYOW-B-SL016-A 280-148628-2 | N | Manganese | 5.10 | 290 J1 | 290 J | | mg/kg | M/M2 |
| NYOW-B-SL016-A 280-148628-2 | N | Nickel | 4.50 | 6.30 J1 | 6.30 J | | mg/kg | D |
| NYOW-B-SL016-A 280-148628-2 | N | Potassium | 340 | 810 J1 | 810 J | + | mg/kg | M/D |
| NYOW-B-SL016-A 280-148628-2 | N | Vanadium | 2.30 | 11.0 J1 | 11.0 J | | mg/kg | D |
| NYOW-B-SL016-A 280-148628-2 | N | Zinc | 9.10 | 13.0 J1 | 13.0 J | | mg/kg | D |
| NYOW-B-SL017-A 280-148628-12 | N | Cobalt | 1.10 | 1.60 | 1.60 J | - | mg/kg | C |
| NYOW-B-SL018-A 280-148628-17 | N | Cobalt | 1.00 | 2.60 | 2.60 J | - | mg/kg | C |
| NYOW-B-SL019-A 280-148628-6 | N | Cobalt | 0.910 | 2.60 | 2.60 J | - | mg/kg | C |
| PH-DUP-001_210513 280-148628-19 | FD | Cobalt | 0.790 | 2.80 | 2.80 J | - | mg/kg | D3/C |
| PH-DUP-002_210513 280-148628-21 | FD | Chromium | 3.00 | 5.50 | 5.50 J | | mg/kg | D3 |
| PH-DUP-002_210513 280-148628-21 | FD | Cobalt | 0.850 | 2.40 | 2.40 J | - | mg/kg | C |
| PH-DUP-002_210513 280-148628-21 | FD | Lead | 0.770 | 2.10 | 2.10 J | | mg/kg | D3 |
| PH-DUP-002_210513 280-148628-21 | FD | Magnesium | 26.0 | 8300 | 8300 J | | mg/kg | D3 |
| PH-DUP-002_210513 280-148628-21 | FD | Vanadium | 1.70 | 8.00 | 8.00 J | | mg/kg | D3 |
| SL-DUP-001_210513 280-148628-13 | FD | Cobalt | 1.10 | 2.00 | 2.00 J | - | mg/kg | C |

**Table of All Qualified Results**

| Test Method: SW6010C | | Extraction Method: TOTAL | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| EB-01_210513 280-148628-22 | EB | Selenium | 22.0 | 19.0 U | 19.0 UJ | | ug/l | V6 |

| Test Method: SW6020A | | Extraction Method: FLDFLT | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-WL004-A 280-148628-5 | N | Lead | 3.00 | 0.760 J | 3.00 U | | ug/l | B2 |
| NYOW-B-WL031-A 280-148628-1 | N | Antimony | 6.00 | 0.810 J | 1.00 U | | ug/l | B2/V6 |

| Test Method: SW6020A | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH015-B 280-148628-10 | N | Thallium | 0.100 | 0.0200 J | 0.100 U | | mg/kg | L/B2 |
| NYOW-B-PH015-C 280-148628-11 | N | Antimony | 0.210 | 0.120 J | 0.210 U | | mg/kg | B2 |
| NYOW-B-PH015-C 280-148628-11 | N | Thallium | 0.0840 | 0.0490 J | 0.0840 U | | mg/kg | L/B2 |
| NYOW-B-PH016-B 280-148628-3 | N | Antimony | 0.220 | 0.120 J | 0.220 U | | mg/kg | B2 |
| NYOW-B-PH016-B 280-148628-3 | N | Thallium | 0.0970 | 0.0550 J | 0.0970 U | | mg/kg | L/B2 |
| NYOW-B-PH016-C 280-148628-4 | N | Thallium | 0.0990 | 0.0350 J | 0.0990 U | | mg/kg | L/B2 |
| NYOW-B-PH017-B 280-148628-14 | N | Thallium | 0.0860 | 0.0240 J | 0.0860 U | | mg/kg | L |
| NYOW-B-PH017-C 280-148628-15 | N | Antimony | 0.230 | 0.120 J | 0.120 U | | mg/kg | B2 |
| NYOW-B-PH017-C 280-148628-15 | N | Thallium | 0.110 | 0.0290 J | 0.110 U | | mg/kg | L |
| NYOW-B-PH018-B 280-148628-18 | N | Arsenic | 0.650 | 3.10 | 3.10 J | | mg/kg | D3 |
| NYOW-B-PH018-B 280-148628-18 | N | Thallium | 0.110 | 0.0470 J | 0.110 U | | mg/kg | L |
| NYOW-B-PH018-C 280-148628-20 | N | Thallium | 0.0840 | 0.0370 J | 0.0840 U | | mg/kg | L |
| NYOW-B-PH019-B 280-148628-7 | N | Antimony | 0.180 | 0.110 J | 0.180 U | | mg/kg | B2 |
| NYOW-B-PH019-B 280-148628-7 | N | Thallium | 0.100 | 0.0610 J | 0.100 U | | mg/kg | L/B2 |
| NYOW-B-PH019-C 280-148628-8 | N | Thallium | 0.0880 | 0.0360 J | 0.0880 U | | mg/kg | L/B2 |
| NYOW-B-SL015-A 280-148628-9 | N | Antimony | 0.220 | 0.140 J | 0.220 U | | mg/kg | B2 |
| NYOW-B-SL015-A 280-148628-9 | N | Thallium | 0.0990 | 0.0670 J | 0.0990 U | | mg/kg | L/B2 |
| NYOW-B-SL016-A 280-148628-2 | N | Antimony | 0.220 | 0.140 J | 0.220 U | | mg/kg | B2 |
| NYOW-B-SL016-A 280-148628-2 | N | Arsenic | 0.520 | 2.40 J1 | 2.40 J | | mg/kg | D |

**Table of All Qualified Results**

| Test Method: SW6020A | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-SL016-A 280-148628-2 | N | Cadmium | 0.0860 | 0.0970 J1 | 0.0970 J | + | mg/kg | V6/D |
| NYOW-B-SL016-A 280-148628-2 | N | Thallium | 0.0860 | 0.0530 J J1 | 0.0860 UJ | | mg/kg | L/D/B2 |
| NYOW-B-SL017-A 280-148628-12 | N | Antimony | 0.210 | 0.100 J | 0.110 U | | mg/kg | B2 |
| NYOW-B-SL017-A 280-148628-12 | N | Thallium | 0.110 | 0.0360 J | 0.110 U | | mg/kg | L |
| NYOW-B-SL018-A 280-148628-17 | N | Antimony | 0.200 | 0.0870 J | 0.100 U | | mg/kg | B2 |
| NYOW-B-SL018-A 280-148628-17 | N | Thallium | 0.0920 | 0.0360 J | 0.0920 U | | mg/kg | L |
| NYOW-B-SL019-A 280-148628-6 | N | Antimony | 0.190 | 0.0790 J | 0.0940 U | | mg/kg | B2 |
| NYOW-B-SL019-A 280-148628-6 | N | Thallium | 0.0900 | 0.0420 J | 0.0900 U | | mg/kg | L/B2 |
| PH-DUP-001_210513 280-148628-19 | FD | Arsenic | 0.590 | 1.60 | 1.60 J | | mg/kg | D3 |
| PH-DUP-001_210513 280-148628-19 | FD | Thallium | 0.0980 | 0.0380 J | 0.0980 U | | mg/kg | L |
| PH-DUP-002_210513 280-148628-21 | FD | Antimony | 0.160 | 0.100 J | 0.160 U | | mg/kg | B2 |
| PH-DUP-002_210513 280-148628-21 | FD | Thallium | 0.110 | 0.0410 J | 0.110 U | | mg/kg | L |
| SL-DUP-001_210513 280-148628-13 | FD | Antimony | 0.160 | 0.0710 J | 0.0800 U | | mg/kg | B2 |
| SL-DUP-001_210513 280-148628-13 | FD | Thallium | 0.0840 | 0.0370 J | 0.0840 U | | mg/kg | L |

| Test Method: SW9060A | | Extraction Method: NONE | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH015-C 280-148628-11 | N | Total Organic Carbon | 4000 | 2000 U H | 2000 UJ | | mg/kg | H1 |
| NYOW-B-PH016-B 280-148628-3 | N | Total Organic Carbon | 4000 | 2000 U H | 2000 UJ | | mg/kg | H1 |
| NYOW-B-PH016-C 280-148628-4 | N | Total Organic Carbon | 4000 | 2000 U H | 2000 UJ | | mg/kg | H1 |
| NYOW-B-PH017-B 280-148628-14 | N | Total Organic Carbon | 340 | 860 H | 860 J | - | mg/kg | H1 |
| NYOW-B-PH017-C 280-148628-15 | N | Total Organic Carbon | 790 | 2500 H | 2500 J | - | mg/kg | H1 |
| NYOW-B-PH018-B 280-148628-18 | N | Total Organic Carbon | 370 | 2700 H | 2700 J | - | mg/kg | D3/H1 |
| NYOW-B-PH018-C 280-148628-20 | N | Total Organic Carbon | 1100 | 1500 H | 1500 J | - | mg/kg | D3/H1 |
| NYOW-B-PH019-B 280-148628-7 | N | Total Organic Carbon | 1200 | 4100 H | 4100 J | - | mg/kg | H1 |
| NYOW-B-PH019-C 280-148628-8 | N | Total Organic Carbon | 940 | 3100 H | 3100 J | - | mg/kg | H1 |
| NYOW-B-SL015-A 280-148628-9 | N | Total Organic Carbon | 4000 | 5300 H | 5300 J | - | mg/kg | H1 |
| NYOW-B-SL016-A 280-148628-2 | N | Total Organic Carbon | 4000 | 5800 H | 5800 J | - | mg/kg | H1 |

**Table of All Qualified Results**

| Test Method: SW9060A | | Extraction Method: NONE | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-SL017-A 280-148628-12 | N | Total Organic Carbon | 4000 | 12000 H | 12000 J | - | mg/kg | D3/H1 |
| NYOW-B-SL018-A 280-148628-17 | N | Total Organic Carbon | 1800 | 3300 H | 3300 J | - | mg/kg | H1 |
| NYOW-B-SL019-A 280-148628-6 | N | Total Organic Carbon | 4000 | 20000 H | 20000 J | - | mg/kg | H1 |
| PH-DUP-001_210513 280-148628-19 | FD | Total Organic Carbon | 320 | 4700 H | 4700 J | - | mg/kg | D3/H1 |
| PH-DUP-002_210513 280-148628-21 | FD | Total Organic Carbon | 420 | 4900 H | 4900 J | - | mg/kg | D3/H1 |
| SL-DUP-001_210513 280-148628-13 | FD | Total Organic Carbon | 2000 | 21000 H | 21000 J | - | mg/kg | D3/H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method BNASIMD**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH015-B 280-148628-10 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.50 U M Q | 7.50 U | 7.50 UJ | V2 |
| NYOW-B-PH015-C 280-148628-11 | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 8.10 U Q | 8.10 U | 8.10 UJ | V2 |
| NYOW-B-PH017-B 280-148628-14 | N | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.00 U M Q | 7.00 U | 7.00 UJ | V2 |
| NYOW-B-PH017-C 280-148628-15 | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 7.70 U M Q | 7.70 U | 7.70 UJ | V2 |
| NYOW-B-PH018-B 280-148628-18 | N | Chrysene | 12.0 | 3.60 J | 3.60 J | 3.60 J | TR/M |
| NYOW-B-PH018-B 280-148628-18 | N | Indeno(1,2,3-c,d)pyrene | 12.0 | 7.80 U Q | 7.80 U | 7.80 UJ | V2 |
| NYOW-B-PH018-C 280-148628-20 | N | Benzo(a)anthracene | 10.0 | 2.20 J | 2.20 J | 2.20 J | TR |
| NYOW-B-PH018-C 280-148628-20 | N | Benzo(a)pyrene | 10.0 | 1.50 J | 1.50 J | 1.50 J | TR |
| NYOW-B-PH018-C 280-148628-20 | N | Chrysene | 10.0 | 5.10 J | 5.10 J | 5.10 J | TR |
| PH-DUP-001_210513 280-148628-19 | FD | Chrysene | 11.0 | 3.90 J J1 | 3.90 J | 3.90 J | TR/M |
| PH-DUP-001_210513 280-148628-19 | FD | Indeno(1,2,3-c,d)pyrene | 11.0 | 7.40 U Q J1 | 7.40 U | 7.40 UJ | V2 |
| SL-DUP-001_210513 280-148628-13 | FD | Acenaphthylene | 12.0 | 2.10 J | 2.10 J | 2.10 J | TR |
| SL-DUP-001_210513 280-148628-13 | FD | Anthracene | 12.0 | 2.50 J | 2.50 J | 2.50 J | TR |
| SL-DUP-001_210513 280-148628-13 | FD | Naphthalene | 12.0 | 1.30 J M | 1.30 J | 1.30 J | TR |

**Modified Qualifiers for test method SW6010C**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH018-C 280-148628-20 | N | Sodium | 490 | 59.0 J | 59.0 J | 59.0 J | TR |
| NYOW-B-SL016-A 280-148628-2 | N | Lead | 1.00 | 2.70 J1 | 2.70 J | 2.70 J | D/V6 |
| NYOW-B-SL016-A 280-148628-2 | N | Manganese | 5.10 | 290 J1 | 290 J | 290 J | M/M2 |
| NYOW-B-SL016-A 280-148628-2 | N | Sodium | 570 | 250 J J1 | 250 J | 250 J | D/TR |
| PH-DUP-002_210513 280-148628-21 | FD | Sodium | 430 | 100 J | 100 J | 100 J | TR |

**Modified Qualifiers for test method SW6010C, Total**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| EB-01_210513 280-148628-22 | EB | Selenium | 22.0 | 19.0 U | 19.0 U | 19.0 UJ | V6 |

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW6020A, Dissolved**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-WL004-A 280-148628-5 | N | Lead | 3.00 | 0.760 J | 0.760 J | 3.00 U | B2 |
| NYOW-B-WL031-A 280-148628-1 | N | Antimony | 6.00 | 0.810 J | 0.810 J | 1.00 U | B2/V6 |

**Modified Qualifiers for test method SW6020A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH015-B 280-148628-10 | N | Thallium | 0.100 | 0.0200 J | 0.100 U | 0.100 U | L/B2 |
| NYOW-B-PH015-C 280-148628-11 | N | Antimony | 0.210 | 0.120 J | 0.120 J | 0.210 U | B2 |
| NYOW-B-PH015-C 280-148628-11 | N | Thallium | 0.0840 | 0.0490 J | 0.0840 U | 0.0840 U | L/B2 |
| NYOW-B-PH016-B 280-148628-3 | N | Antimony | 0.220 | 0.120 J | 0.120 J | 0.220 U | B2 |
| NYOW-B-PH016-B 280-148628-3 | N | Cadmium | 0.0970 | 0.0300 J | 0.0300 J | 0.0300 J | V6 |
| NYOW-B-PH016-B 280-148628-3 | N | Thallium | 0.0970 | 0.0550 J | 0.0970 U | 0.0970 U | L/B2 |
| NYOW-B-PH016-C 280-148628-4 | N | Thallium | 0.0990 | 0.0350 J | 0.0990 U | 0.0990 U | L/B2 |
| NYOW-B-PH017-C 280-148628-15 | N | Antimony | 0.230 | 0.120 J | 0.120 J | 0.120 U | B2 |
| NYOW-B-PH018-B 280-148628-18 | N | Cadmium | 0.110 | 0.0470 J | 0.0470 J | 0.0470 J | TR |
| NYOW-B-PH019-B 280-148628-7 | N | Antimony | 0.180 | 0.110 J | 0.110 J | 0.180 U | B2 |
| NYOW-B-PH019-B 280-148628-7 | N | Thallium | 0.100 | 0.0610 J | 0.100 U | 0.100 U | L/B2 |
| NYOW-B-PH019-C 280-148628-8 | N | Thallium | 0.0880 | 0.0360 J | 0.0880 U | 0.0880 U | L/B2 |
| NYOW-B-SL015-A 280-148628-9 | N | Antimony | 0.220 | 0.140 J | 0.140 J | 0.220 U | B2 |
| NYOW-B-SL015-A 280-148628-9 | N | Thallium | 0.0990 | 0.0670 J | 0.0990 U | 0.0990 U | L/B2 |
| NYOW-B-SL016-A 280-148628-2 | N | Antimony | 0.220 | 0.140 J | 0.140 J | 0.220 U | B2 |
| NYOW-B-SL016-A 280-148628-2 | N | Cadmium | 0.0860 | 0.0970 J1 | 0.0970 J | 0.0970 J | V6/D |
| NYOW-B-SL016-A 280-148628-2 | N | Thallium | 0.0860 | 0.0530 J J1 | 0.0860 UJ | 0.0860 UJ | L/D/B2 |
| NYOW-B-SL017-A 280-148628-12 | N | Antimony | 0.210 | 0.100 J | 0.100 J | 0.110 U | B2 |
| NYOW-B-SL018-A 280-148628-17 | N | Antimony | 0.200 | 0.0870 J | 0.0870 J | 0.100 U | B2 |
| NYOW-B-SL019-A 280-148628-6 | N | Antimony | 0.190 | 0.0790 J | 0.0790 J | 0.0940 U | B2 |
| NYOW-B-SL019-A 280-148628-6 | N | Thallium | 0.0900 | 0.0420 J | 0.0900 U | 0.0900 U | L/B2 |
| PH-DUP-001_210513 280-148628-19 | FD | Cadmium | 0.0980 | 0.0220 J | 0.0220 J | 0.0220 J | TR |
| PH-DUP-001_210513 280-148628-19 | FD | Selenium | 0.490 | 0.140 J | 0.140 J | 0.140 J | TR |

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW6020A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| PH-DUP-002_210513 280-148628-21 | FD | Antimony | 0.160 | 0.100 J | 0.100 J | 0.160 U | B2 |
| SL-DUP-001_210513 280-148628-13 | FD | Antimony | 0.160 | 0.0710 J | 0.0710 J | 0.0800 U | B2 |

**Modified Qualifiers for test method SW7471B, Total**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH018-B 280-148628-18 | N | Mercury | 0.0230 | 0.0140 J | 0.0140 J | 0.0140 J | TR |

**Modified Qualifiers for test method SW9060A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH015-B 280-148628-10 | N | Total Organic Carbon | 680 | 260 J H | 260 J | 260 J | TR/H1 |
| NYOW-B-PH015-C 280-148628-11 | N | Total Organic Carbon | 4000 | 2000 U H | 2000 U | 2000 UJ | H1 |
| NYOW-B-PH016-B 280-148628-3 | N | Total Organic Carbon | 4000 | 2000 U H | 2000 U | 2000 UJ | H1 |
| NYOW-B-PH016-C 280-148628-4 | N | Total Organic Carbon | 4000 | 2000 U H | 2000 U | 2000 UJ | H1 |
| NYOW-B-PH017-B 280-148628-14 | N | Total Organic Carbon | 340 | 860 H | 860 | 860 J | H1 |
| NYOW-B-PH017-C 280-148628-15 | N | Total Organic Carbon | 790 | 2500 H | 2500 | 2500 J | H1 |
| NYOW-B-PH018-B 280-148628-18 | N | Total Organic Carbon | 370 | 2700 H | 2700 J | 2700 J | D3/H1 |
| NYOW-B-PH018-C 280-148628-20 | N | Total Organic Carbon | 1100 | 1500 H | 1500 J | 1500 J | D3/H1 |
| NYOW-B-PH019-B 280-148628-7 | N | Total Organic Carbon | 1200 | 4100 H | 4100 | 4100 J | H1 |
| NYOW-B-PH019-C 280-148628-8 | N | Total Organic Carbon | 940 | 3100 H | 3100 | 3100 J | H1 |
| NYOW-B-SL015-A 280-148628-9 | N | Total Organic Carbon | 4000 | 5300 H | 5300 | 5300 J | H1 |
| NYOW-B-SL016-A 280-148628-2 | N | Total Organic Carbon | 4000 | 5800 H | 5800 | 5800 J | H1 |
| NYOW-B-SL017-A 280-148628-12 | N | Total Organic Carbon | 4000 | 12000 H | 12000 J | 12000 J | D3/H1 |
| NYOW-B-SL018-A 280-148628-17 | N | Total Organic Carbon | 1800 | 3300 H | 3300 | 3300 J | H1 |
| NYOW-B-SL019-A 280-148628-6 | N | Total Organic Carbon | 4000 | 20000 H | 20000 | 20000 J | H1 |
| PH-DUP-001_210513 280-148628-19 | FD | Total Organic Carbon | 320 | 4700 H | 4700 J | 4700 J | D3/H1 |
| PH-DUP-002_210513 280-148628-21 | FD | Total Organic Carbon | 420 | 4900 H | 4900 J | 4900 J | D3/H1 |

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW9060A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| SL-DUP-001_210513 280-148628-13 | FD | Total Organic Carbon | 2000 | 21000 H | 21000 J | 21000 J | D3/H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Reason Code Definitions**

| Code | Definition |
|---|---|
| B2 | CCB |
| C | LCS Recovery |
| D | MS RPD |
| D3 | Field Duplicate RPD |
| H1 | Test Hold Time |
| I | Surrogate recovery outside project limits. |
| L | Lab Blank |
| M | MS Recovery |
| M2 | Post Spike |
| TR | Trace Level Detect |
| V | Equipment Blank |
| V2 | CCV |
| V6 | Low Level Calibration Verification |
| Z | LCS RPD |

**Flag Code and Definitions**

| Flag | Definition |
|---|---|
| J | Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria. |
| U | Undetected: The analyte was analyzed for, but not detected. |
| UJ | The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria. |

**Bias**

| | |
|---|---|
| - | The result may be biased low |
| + | The result may be biased high |

Note - The bias field is a separate field; however, it is an integral part of the final flag (qualifier) on the sample result

**Review Questions**

| Method: BNASIMD (GC/MS-SIM Analysis by SW8270D) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the GC/MS system properly tuned based on method criteria? | • | | | |
| Was instrument tuning completed every 12 hours during sample analysis? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | CCV 280-538035/3 exhibited a %D > 20% for indeno(1,2,3-cd)pyrene at 23.3%. |
| Were Internal Standard retention times and area criteria within method requirements? | • | | | |
| Were internal standards spiked for every sample, standard, and QC sample? | • | | | |
| Were surrogate recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the LCS/LCSD RPD within project acceptance limits? | | • | | See QC Outliers. |
| Was a MS/MSD pair prepared with each batch? | • | | | |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers for aqueous MS/SD recoveries. MS sample PH-DUP-001_210513 exhibited a recovery less than 57% for chrysene at 56%. |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | Multiple LOQs for PAHs did not meet PQLGs for aqueous samples. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | | • | | CCV CAs not performed. |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | See QC Outliers. |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Did the ICSA have any non-target interferents above the MDL? | • | | | The ICSA associated with batch 280-537919 had results for Ba at a level greater than the LOD. The initial ICSA result (13.5 ppb) was > LOD (2 ppb).<br>The ICSA associated with batch 280-536996 had results for Ba at a level greater than the LOD. The initial ICSA result (13.118 ppb) was > LOD (2 ppb).<br>The ICSA associated with batch 280-537914 had results for Ba at a level greater than the LOD. The initial ICSA result (13.5 ppb) was > LOD (2 ppb).<br>The laboratory has confirmed via ICP-MS that Ba is a trace impurity in the ICSA standard at 12.4 ppb. |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | See QC Outliers. Associated sample results for Al were greater than the LOQ. On the basis of professional judgment, qualification is not necessary. |
| Were target analytes in the field blank less than MDL? | | • | | See QC Outliers. The results of an aqueous field blank are not used to assess soil cross-contamination. |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | MS/SD not performed to aqueous batch 537668. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers.<br>MS recovery of sodium for sample NYOW-B-SL016-A is within acceptance criteria (83%). |
| Was the MS/MSD RPD within project acceptance limits? | | • | | See QC Outliers. |

**Review Questions**

Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Were the post spike recoveries within project acceptance limits? | | • | | PDS recoveries for sample NYOW-B-SL016-A were < 80% for al (30%), Fe (-85%), and Mn (-20%). The results for Mn are qualified as "J". For al and Fe, the sample concentration was greater than 4X the spiked amount in the MS. |
| Were the serial dilution RPD values within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | • | | See QC Outliers. Sodium results for PH-DUP-002_210513 sample pair do not exceed RPD requirements; both results were below the LOQ. |
| Were QAPP specified laboratory PQLs achieved? | | • | | Soil LOQs for cobalt were slightly greater than PQLGs due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the system properly tuned based on method criteria? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | See QC Outliers. |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | | • | | ICB 280-537459/12, CCB 280-537459/99, and CCB 280-537459/109 exhibited detections for Tl below the LOQ at 0.101 ug/L, 0.102 ug/L, and 0.089 ug/L. CCB 280-537459/99also exhibited a detection for Sb at 0.599 ug/L. the associated EB sample results were non-detect.<br>CCB 280-537916/34 exhibited a detection for Pb below the LOQ at 0.23 ug/L. The associated detection below the LOQ is qualified as "U".<br>CCB 280-537916/47 exhibited a detection below the LOQ for Sb at 0.837 ug/L. The associated sample result was non-detect.<br>ICB 280-537916/17 exhibited a detection below the LOQ for Sb at 0.999 ug/L. The associated sample results below the aqueous LOQ are qualified as "U".<br>CCB 280-537930/46 and CCB 280-537930/58 exhibited detections for Tl below the LOQ at 0.131 ug/L and 0.128 ug/L. the associated sample results were previously qualified on the basis of method blank contamination. |
| Did the ICSA have any non-target interferents above the MDL? | • | | | The ICSA associated with batch 280-537916 had results for Cr at a level greater than the LOD. The initial ICSA result (1.95 ppb) was > LOD (1.8 ppb) and the closing ICSA result(1.87 ppb) was > LOD.<br>The ICSA associated with batch 280-537459 had results for Cr at a level greater than the LOD. The initial ICSA result (2.17 ppb) was > LOD (1.8 ppb) and the closing ICSA result (2.12 ppb) was > LOD. The vendor acknowledges that Cr is a trace impurity in the ICSA standard. |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | See QC Outliers. |
| Was the laboratory duplicate RPD within project acceptance limits? | | | • | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |

**Review Questions**

| Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | MS/SD not performed for aqueous batch 537117 |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | | • | | See QC Outliers. |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | • | | PH-DUP-001_210513 arsenic RPD = 64%. |
| Were the post spike recoveries within project acceptance limits? | • | | | |
| Were the serial dilution RPD values within project acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | Soil LOQs for As, Tl, Se, and Sb slightly greater than PQLGs due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW7470A (Mercury in Water (Manual Cold-Vapor Technique)) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | See QC Outliers. Samples results were non-detect. |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | MS/SD not performed for batch 537208. |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW7471B (Mercury in Soil (Manual Cold-Vapor Technique)) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | • | | | |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | LOQs were slightly greater than the PQLG due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | | | • | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW9060A (Total Organic Carbon)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | | • | | The following samples were dried within holding time, and prepared and run outside of holding time due to instrument malfunction: NYOW-B-SL016-A, NYOW-B-PH016-B, NYOW-B-PH016-C, NYOW-B-SL019-A, NYOW-B-SL015-A, NYOW-B-PH015-C, and NY0W-B-SL017-A. The following samples were analyzed outside of analytical holding time due to an instrument issue that required the samples to be analyzed at another lab in the Eurofins network: NYOW-B-PH019-B, NYOW-B-PH019-C, NYOW-B-PH015-B, SL-DUP-001_210513, NYOW-B-PH017-B, NYOW-B-PH017-C, NYOW-B-SL018-A, NYOW-B-PH018-B, PH-DUP-001_210513, NYOW-B-PH018-C, and PH-DUP-002_210513. The samples were analyzed between 1 and 8 days beyond the 28-day holding time. |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | | | • | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | | • | | LCSD not performed for batches 138452, 139499, and 140113. |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | • | | | MS/SD for batch 138452 reported in SDG J148419.<br>MS/SD for batch 139499 reported in SDG J148774.<br>MS/SD for batch 140113 reported in SDG J148774. |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | • | | See QC Outliers. |
| Were QAPP specified laboratory PQLs achieved? | • | | | |

**Review Questions**

Method: SW9060A (Total Organic Carbon)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Data Validation Report for 280-148677-1_52_2a_FUDSChem**

| | |
|---|---|
| Facility: | C02NY0290-01, New York Ordnance Works, Limited RI |
| Event: | 2021 Sampling - Background |
| SDG: | 280-148677-1_52_2a_FUDSChem |
| Guidance Document: | Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works |
| Prime Contractor: | Bluestone Environmental Group, Inc., Malvern, PA |
| Project Manager: | Mike Badeau |
| Contract Laboratory(ies): | Eurofins Lancaster Laboratories Environmental, LLC, Lancaster, PA |
| Data Review Contractor: | Bluestone |
| Data Review Level: | S2BVEM |
| Primary Data Reviewer: | Emily Strake, Technical Director/ Data Validator |
| Date Submitted: | August 31, 2021 |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6010C - Dissolved | SW6020A | SW6020A - Dissolved | SW7470A | SW7470A - Dissolved | SW7471B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH020-B | 280-148677-5 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH020-C | 280-148677-6 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-SL020-A | 280-148677-4 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| EB-01_210514 | 280-148677-7 | Water | Equipment Blank/EB | X | | X | | X | | X | | | |
| EB-02_210514 | 280-148677-8 | Water | Equipment Blank/EB | X | | | X | | X | | X | | |
| NYOW-B-WL002-A | 280-148677-3 | Water | Field Sample/N | X | | | X | | X | | X | | |
| NYOW-B-WL003-A | 280-148677-1 | Water | Field Sample/N | X | | | X | | X | | X | | |
| WL-DUP-001_210514 | 280-148677-2 | Water | Field Duplicate/FD | X | | | X | | X | | X | | |

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page at S2BVEM data validation level. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works and the additional guidance documents incorporated by reference to the extent possible. Where definitive guidance is not provided, results have been evaluated in a conservative manner using professional judgment.

Sample collection was managed and directed by Bluestone Environmental Group, Inc., Malvern, PA; analyses were performed by Eurofins Lancaster Laboratories Environmental, LLC, Lancaster, PA and were reported under sample delivery group (SDG) 280-148677-1_52_2a_FUDSChem. Data have been evaluated electronically based on electronic data deliverables (EDDs) provided by the laboratory, and hard copy data summary forms have also been reviewed during this effort and compared to the automated review output by the reviewers whose signatures appear on the following page. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative and throughout this report.

All quality control (QC) elements associated with this SDG have been reviewed by a project chemist in accordance with the requirements defined for the project. This review is documented in the attached Data Review Checklists. The QC elements listed below were supported by the electronic deliverable and were evaluated using ADR processes.

- Blank - Negative
- Equipment Blank
- Field Duplicate RPD
- Lab Blank
- LCS Recovery
- LCS RPD
- MS Recovery
- MS RPD
- Prep Hold Time
- Surrogate
- Test Hold Time

Results of the ADR process were subsequently reviewed and updated as applicable by the data review chemists identified on the signature page. Quality control elements that were not included in the electronic deliverable were reviewed manually and findings are documented within this report. Summaries of findings and associated qualified results are documented throughout this report.

A total of 55 results (16.47%) out of the 334 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected or deemed a serious deficiency (X qualifier). Trace values, defined as results that are qualified as estimated because they fall between the detection limit and the reporting limit/limit of quantitation, are not counted as qualified results in the above count. The qualified results are detailed throughout this report and discussed in the narrative below, where appropriate.

Narrative Comments

The samples arrived in good condition, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.8º C and 1.8º C. Samples were subcontracted to Eurofins Lancaster Laboratory Environmental for TOC analysis and received at a temperature of 3.2ºC and 4.6ºC.
The TOC container for sample NYOW-B-PH020-C was received at Lancaster broken; however the sample was not compromised and was placed in another container.

| Analytical Method | Data Reviewer Comment |
|---|---|
| BNASIMD | No additional comments; see Checklist for detail. |
| SW6010C | No additional comments; see Checklist for detail. |
| SW6020A | No additional comments; see Checklist for detail. |
| SW7470A | No additional comments; see Checklist for detail. |
| SW7471B | No additional comments; see Checklist for detail. |
| SW9060A | Samples NYOW-B-SL020-A[4X], NYOW-B-PH020-B[3.68X] and NYOW-B-PH020-C[3.91X] required dilution prior to analysis. The reporting limits have been adjusted accordingly. |

August 31, 2021

Reviewed by Emily Strake, Technical Director/ Data Validator, Bluestone

As the Reviewer, I certify that I have performed a data review process in accordance with the requirements of the project guidance document, and have compared the electronic data to the laboratory's hard copy report and have verified the consistency of the reported sample results and method quality control data between the two deliverables.

**Quality Control Outliers for test method BNASIMD, LCS Recovery**

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCS 280-536729/2-A (BS)/ LCS 280-536729/2-A | Fluorene | 49.33 | 50 - 118 | 10 - 200 | percent | J/UJ | C | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Benzo (a)anthracene | 122.2 | 59 - 120 | 10 - 200 | percent | J/None | C | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Chrysene | 124.4 | 57 - 120 | 10 - 200 | percent | J/None | C | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the LCS Recovery for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-WL003-A | N | Fluorene | 0.100 | 0.0420 U Q | 0.0420 UJ | | ug/l | C |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, LCS RPD**

The objective of laboratory control sample/laboratory control sample duplicate (LCS/LCSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. LCS/LCSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Laboratory control sample/laboratory control sample duplicate RPD results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | 1-Methylnaphthalene | 0.4610 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | 2-Methylnaphthalene | 0.4670 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Acenaphthylene | 0.4560 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Dibenz (a,h)anthracene | 0.1530 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Indeno(1,2,3-c,d)pyrene | 0.1920 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Naphthalene | 0.4640 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Acenaphthene | 63.47 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Anthracene | 50.57 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Benzo (a)anthracene | 42.96 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Benzo(a)pyrene | 41.24 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Benzo (b)fluoranthene | 40.26 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Benzo (k)fluoranthene | 45.76 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Chrysene | 44.81 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Fluoranthene | 43.56 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Fluorene | 57.91 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Phenanthrene | 50.56 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536584/3-A (BD)/ LCSD 280-536584/3-A | Pyrene | 41.44 | < 40 | < 40 | rpd | J/None | Z | |
| LCSD 280-536729/3-A (BD)/ LCSD 280-536729/3-A | 1-Methylnaphthalene | 0.2240 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536729/3-A (BD)/ LCSD 280-536729/3-A | Acenaphthene | 0.2240 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536729/3-A (BD)/ LCSD 280-536729/3-A | Acenaphthylene | 0.2150 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536729/3-A (BD)/ LCSD 280-536729/3-A | Fluorene | 0.2130 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536729/3-A (BD)/ LCSD 280-536729/3-A | Naphthalene | 0.2910 | < 0.1 | < 0.1 | ug/l | J/None | Z | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the LCS RPD for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-WL002-A | N | Acenaphthylene | 0.100 | 0.0300 J Q | 0.0300 J | | ug/l | Z/TR |
| NYOW-B-WL002-A | N | Acenaphthene | 0.100 | 0.0130 J Q | 0.0130 J | | ug/l | Z/TR |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| WL-DUP-001_210514 (FD)/ 280-148677-2 | Terphenyl-d14 | 56.00 | 58 - 132 | 10 - 132 | percent | J/UJ | I | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| WL-DUP-001_210514 | FD | 1-Methylnaphthalene | 0.110 | 0.0440 U M Q | 0.0440 UJ | | ug/l | I |
| WL-DUP-001_210514 | FD | 2-Methylnaphthalene | 0.110 | 0.0550 U Q | 0.0550 UJ | | ug/l | I |
| WL-DUP-001_210514 | FD | Acenaphthene | 0.110 | 0.0130 U Q | 0.0130 UJ | | ug/l | I |
| WL-DUP-001_210514 | FD | Acenaphthylene | 0.110 | 0.0220 U M Q | 0.0220 UJ | | ug/l | I |
| WL-DUP-001_210514 | FD | Anthracene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| WL-DUP-001_210514 | FD | Benzo(a)anthracene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| WL-DUP-001_210514 | FD | Benzo(a)pyrene | 0.110 | 0.0550 U Q | 0.0550 UJ | | ug/l | I |
| WL-DUP-001_210514 | FD | Benzo(b)fluoranthene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| WL-DUP-001_210514 | FD | Benzo(g,h,i)perylene | 0.110 | 0.110 U M Q | 0.110 UJ | | ug/l | I |
| WL-DUP-001_210514 | FD | Benzo(k)fluoranthene | 0.110 | 0.0550 U Q | 0.0550 UJ | | ug/l | I |
| WL-DUP-001_210514 | FD | Chrysene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| WL-DUP-001_210514 | FD | Dibenz(a,h)anthracene | 0.110 | 0.110 U M Q | 0.110 UJ | | ug/l | I |
| WL-DUP-001_210514 | FD | Fluoranthene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| WL-DUP-001_210514 | FD | Fluorene | 0.110 | 0.0440 U Q | 0.0440 UJ | | ug/l | I |
| WL-DUP-001_210514 | FD | Indeno(1,2,3-c,d)pyrene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| WL-DUP-001_210514 | FD | Naphthalene | 0.110 | 0.0550 U M Q | 0.0550 UJ | | ug/l | I |
| WL-DUP-001_210514 | FD | Phenanthrene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| WL-DUP-001_210514 | FD | Pyrene | 0.110 | 0.110 U M Q | 0.110 UJ | | ug/l | I |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Dissolved, Equipment Blank**

The purpose of equipment blanks is to determine the existence and magnitude of cross-contamination problems resulting from the process during sampling. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in equipment blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-02_210514 (EB)/ 280-148677-8 | Beryllium | 6.500 | < 0.17 | < 1.5 | ug/l | U/None* | V | |
| EB-02_210514 (EB)/ 280-148677-8 | Barium | 15.00 | < 0.82 | < 10 | ug/l | U/None* | V | |
| EB-02_210514 (EB)/ 280-148677-8 | Manganese | 7.500 | < 1.9 | < 10 | ug/l | U/None* | V | |
| EB-02_210514 (EB)/ 280-148677-8 | Iron | 77.00 | < 22 | < 100 | ug/l | U/None* | V | |
| EB-02_210514 (EB)/ 280-148677-8 | Calcium | 1000 | < 78 | < 1000 | ug/l | U/None* | V | |
| EB-02_210514 (EB)/ 280-148677-8 | Copper | 7.300 | < 4.2 | < 15 | ug/l | U/None* | V | |
| EB-02_210514 (EB)/ 280-148677-8 | Vanadium | 7.200 | < 1.1 | < 15 | ug/l | U/None* | V | |
| EB-02_210514 (EB)/ 280-148677-8 | Selenium | 9.400 | < 6.3 | < 22 | ug/l | U/None* | V | |
| EB-02_210514 (EB)/ 280-148677-8 | Aluminum | 76.00 | < 18 | < 300 | ug/l | U/None* | V | |
| EB-02_210514 (EB)/ 280-148677-8 | Potassium | 470.0 | < 240 | < 3000 | ug/l | U/None* | V | |
| EB-02_210514 (EB)/ 280-148677-8 | Nickel | 5.800 | < 2.6 | < 40 | ug/l | U/None* | V | |
| EB-02_210514 (EB)/ 280-148677-8 | Cadmium | 6.600 | < 0.45 | < 5 | ug/l | U/None* | V | |
| EB-02_210514 (EB)/ 280-148677-8 | Magnesium | 520.0 | < 26 | < 500 | ug/l | U/None* | V | |
| EB-02_210514 (EB)/ 280-148677-8 | Sodium | 1500 | < 370 | < 5000 | ug/l | U/None* | V | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

**Qualified Results associated with the Equipment Blank for SW6010C, Dissolved**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-WL002-A | N | Copper | 15.0 | 6.00 J | 10.0 U | | ug/l | V |
| NYOW-B-WL002-A | N | Nickel | 40.0 | 2.90 J | 8.00 U | | ug/l | V |
| NYOW-B-WL002-A | N | Potassium | 3000 | 960 J | 3000 U | | ug/l | V |
| NYOW-B-WL003-A | N | Aluminum | 300 | 19.0 J | 70.0 U | | ug/l | V |
| NYOW-B-WL003-A | N | Barium | 10.0 | 28.0 Q | 28.0 J | + | ug/l | V |
| NYOW-B-WL003-A | N | Iron | 100 | 33.0 J | 85.0 U | | ug/l | V |
| NYOW-B-WL003-A | N | Potassium | 3000 | 440 J | 940 U | | ug/l | V |
| NYOW-B-WL003-A | N | Sodium | 5000 | 4500 J | 5000 U | | ug/l | V |
| WL-DUP-001_210514 | FD | Aluminum | 300 | 100 J | 300 U | | ug/l | V |
| WL-DUP-001_210514 | FD | Barium | 10.0 | 27.0 Q | 27.0 J | + | ug/l | V |

**Qualified Results associated with the Equipment Blank for SW6010C, Dissolved**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| WL-DUP-001_210514 | FD | Iron | 100 | 130 | 130 J | + | ug/l | V/D3 |
| WL-DUP-001_210514 | FD | Potassium | 3000 | 440 J | 940 U | | ug/l | V |
| WL-DUP-001_210514 | FD | Sodium | 5000 | 4600 J | 5000 U | | ug/l | V |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Dissolved, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| WL-DUP-001_210514 (N)/ 280-148677-2 | Aluminum | 136.1 | < 30 | < 30 | rpd | J/None | D3 | |
| WL-DUP-001_210514 (N)/ 280-148677-2 | Iron | 119.0 | < 30 | < 30 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Field Duplicate RPD for SW6010C, Dissolved**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| WL-DUP-001_210514 | FD | Iron | 100 | 130 | 130 J | + | ug/l | V/D3 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-537813/1-A (LB)/ MB 280-537813/1-A | Zinc | 0.4450 | < 0.4 | < 8 | mg/kg | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6010C, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL020-A (MS)/ 280-148677-4MS | Aluminum | 229.3 | 74 - 119 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL020-A (MS)/ 280-148677-4MS | Manganese | 49.59 | 84 - 114 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL020-A (SD)/ 280-148677-4MSD | Aluminum | 331.4 | 74 - 119 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL020-A (SD)/ 280-148677-4MSD | Manganese | 60.78 | 84 - 114 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL020-A (SD)/ 280-148677-4MSD | Iron | 350.0 | 81 - 118 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL020-A | N | Aluminum | 55.0 | 2900 J1 | 2900 J | | mg/kg | M/M2/A |
| NYOW-B-SL020-A | N | Manganese | 4.90 | 330 J1 | 330 J | - | mg/kg | M/M2 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Total, Equipment Blank**

The purpose of equipment blanks is to determine the existence and magnitude of cross-contamination problems resulting from the process during sampling. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in equipment blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-01_210514 (EB)/ 280-148677-7 | Barium | 0.8300 | < 0.82 | < 10 | ug/l | U/None* | V | |
| EB-01_210514 (EB)/ 280-148677-7 | Iron | 82.00 | < 22 | < 100 | ug/l | U/None* | V | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

**Qualified Results associated with the Equipment Blank for SW6010C, Total**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-WL003-A | N | Barium | 10.0 | 28.0 Q | 28.0 J | + | ug/l | V |
| NYOW-B-WL003-A | N | Iron | 100 | 33.0 J | 85.0 U | | ug/l | V |
| WL-DUP-001_210514 | FD | Barium | 10.0 | 27.0 Q | 27.0 J | + | ug/l | V |
| WL-DUP-001_210514 | FD | Iron | 100 | 130 | 130 J | + | ug/l | V/D3 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6020A, Dissolved, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| WL-DUP-001_210514 (N)/ 280-148677-2 | Lead | 200.0 | < 30 | < 30 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6020A, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-537814/1-A (LB)/ MB 280-537814/1-A | Thallium | 0.003800 | < 0.0035 | < 0.1 | mg/kg | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

**Qualified Results associated with the Lab Blank for SW6020A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH020-B | N | Thallium | 0.120 | 0.0590 J | 0.120 U | | mg/kg | L |
| NYOW-B-PH020-C | N | Thallium | 0.110 | 0.0340 J | 0.110 U | | mg/kg | L |
| NYOW-B-SL020-A | N | Thallium | 0.130 | 0.0580 J | 0.130 U | | mg/kg | L |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6020A, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL020-A (SD)/ 280-148677-4MSD | Arsenic | 80.79 | 82 - 118 | 10 - 200 | percent | J/UJ | M | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for SW6020A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL020-A | N | Arsenic | 0.770 | 2.90 J1 | 2.90 J | - | mg/kg | M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance. In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW7470A, Total, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-537553/1-A (LB)/ MB 280-537553/1-A | Mercury | 0.04070 | < 0.027 | < 0.2 | ug/l | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3510C | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-WL003-A 280-148677-1 | N | Fluorene | 0.100 | 0.0420 U Q | 0.0420 UJ | | ug/l | C |
| WL-DUP-001_210514 280-148677-2 | FD | 1-Methylnaphthalene | 0.110 | 0.0440 U M Q | 0.0440 UJ | | ug/l | I |
| WL-DUP-001_210514 280-148677-2 | FD | 2-Methylnaphthalene | 0.110 | 0.0550 U Q | 0.0550 UJ | | ug/l | I |
| WL-DUP-001_210514 280-148677-2 | FD | Acenaphthene | 0.110 | 0.0130 U Q | 0.0130 UJ | | ug/l | I |
| WL-DUP-001_210514 280-148677-2 | FD | Acenaphthylene | 0.110 | 0.0220 U M Q | 0.0220 UJ | | ug/l | I |
| WL-DUP-001_210514 280-148677-2 | FD | Anthracene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| WL-DUP-001_210514 280-148677-2 | FD | Benzo(a)anthracene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| WL-DUP-001_210514 280-148677-2 | FD | Benzo(a)pyrene | 0.110 | 0.0550 U Q | 0.0550 UJ | | ug/l | I |
| WL-DUP-001_210514 280-148677-2 | FD | Benzo(b)fluoranthene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| WL-DUP-001_210514 280-148677-2 | FD | Benzo(g,h,i)perylene | 0.110 | 0.110 U M Q | 0.110 UJ | | ug/l | I |
| WL-DUP-001_210514 280-148677-2 | FD | Benzo(k)fluoranthene | 0.110 | 0.0550 U Q | 0.0550 UJ | | ug/l | I |
| WL-DUP-001_210514 280-148677-2 | FD | Chrysene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| WL-DUP-001_210514 280-148677-2 | FD | Dibenz(a,h)anthracene | 0.110 | 0.110 U M Q | 0.110 UJ | | ug/l | I |
| WL-DUP-001_210514 280-148677-2 | FD | Fluoranthene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| WL-DUP-001_210514 280-148677-2 | FD | Fluorene | 0.110 | 0.0440 U Q | 0.0440 UJ | | ug/l | I |
| WL-DUP-001_210514 280-148677-2 | FD | Indeno(1,2,3-c,d)pyrene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| WL-DUP-001_210514 280-148677-2 | FD | Naphthalene | 0.110 | 0.0550 U M Q | 0.0550 UJ | | ug/l | I |
| WL-DUP-001_210514 280-148677-2 | FD | Phenanthrene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | I |
| WL-DUP-001_210514 280-148677-2 | FD | Pyrene | 0.110 | 0.110 U M Q | 0.110 UJ | | ug/l | I |

| Test Method: SW6010C | | Extraction Method: FLDFLT | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-WL002-A 280-148677-3 | N | Copper | 15.0 | 6.00 J | 10.0 U | | ug/l | V |
| NYOW-B-WL002-A 280-148677-3 | N | Nickel | 40.0 | 2.90 J | 8.00 U | | ug/l | V |
| NYOW-B-WL002-A 280-148677-3 | N | Potassium | 3000 | 960 J | 3000 U | | ug/l | V |
| NYOW-B-WL003-A 280-148677-1 | N | Aluminum | 300 | 19.0 J | 70.0 U | | ug/l | V |
| NYOW-B-WL003-A 280-148677-1 | N | Barium | 10.0 | 28.0 Q | 28.0 J | + | ug/l | V |

**Table of All Qualified Results**

| Test Method: SW6010C | | Extraction Method: FLDFLT | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-WL003-A 280-148677-1 | N | Iron | 100 | 33.0 J | 85.0 U | | ug/l | V |
| NYOW-B-WL003-A 280-148677-1 | N | Potassium | 3000 | 440 J | 940 U | | ug/l | V |
| NYOW-B-WL003-A 280-148677-1 | N | Sodium | 5000 | 4500 J | 5000 U | | ug/l | V |
| WL-DUP-001_210514 280-148677-2 | FD | Aluminum | 300 | 100 J | 300 U | | ug/l | V |
| WL-DUP-001_210514 280-148677-2 | FD | Barium | 10.0 | 27.0 Q | 27.0 J | + | ug/l | V |
| WL-DUP-001_210514 280-148677-2 | FD | Iron | 100 | 130 | 130 J | + | ug/l | V/D3 |
| WL-DUP-001_210514 280-148677-2 | FD | Potassium | 3000 | 440 J | 940 U | | ug/l | V |
| WL-DUP-001_210514 280-148677-2 | FD | Sodium | 5000 | 4600 J | 5000 U | | ug/l | V |

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH020-B 280-148677-5 | N | Aluminum | 49.0 | 3000 | 3000 J | | mg/kg | A |
| NYOW-B-PH020-B 280-148677-5 | N | Iron | 78.0 | 14000 | 14000 J | | mg/kg | A |
| NYOW-B-PH020-B 280-148677-5 | N | Lead | 0.880 | 5.00 | 5.00 J | + | mg/kg | V6 |
| NYOW-B-PH020-C 280-148677-6 | N | Aluminum | 41.0 | 2500 | 2500 J | | mg/kg | A |
| NYOW-B-PH020-C 280-148677-6 | N | Iron | 66.0 | 7500 | 7500 J | | mg/kg | A |
| NYOW-B-PH020-C 280-148677-6 | N | Lead | 0.740 | 2.30 | 2.30 J | + | mg/kg | V6 |
| NYOW-B-SL020-A 280-148677-4 | N | Aluminum | 55.0 | 2900 J1 | 2900 J | | mg/kg | M/M2/A |
| NYOW-B-SL020-A 280-148677-4 | N | Beryllium | 0.550 | 0.130 J | 0.130 U | | mg/kg | B2 |
| NYOW-B-SL020-A 280-148677-4 | N | Iron | 87.0 | 9500 J1 | 9500 J | | mg/kg | A |
| NYOW-B-SL020-A 280-148677-4 | N | Lead | 0.980 | 3.50 | 3.50 J | + | mg/kg | V6 |
| NYOW-B-SL020-A 280-148677-4 | N | Manganese | 4.90 | 330 J1 | 330 J | - | mg/kg | M/M2 |

| Test Method: SW6010C | | Extraction Method: TOTAL | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| EB-01_210514 280-148677-7 | EB | Selenium | 22.0 | 19.0 U | 19.0 UJ | | ug/l | V6 |

| Test Method: SW6020A | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH020-B 280-148677-5 | N | Antimony | 0.200 | 0.0860 J | 0.0980 U | | mg/kg | B2 |

**Table of All Qualified Results**

| Test Method: SW6020A | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH020-B 280-148677-5 | N | Thallium | 0.120 | 0.0590 J | 0.120 U | | mg/kg | L |
| NYOW-B-PH020-C 280-148677-6 | N | Thallium | 0.110 | 0.0340 J | 0.110 U | | mg/kg | L |
| NYOW-B-SL020-A 280-148677-4 | N | Antimony | 0.230 | 0.130 J | 0.230 U | | mg/kg | B2 |
| NYOW-B-SL020-A 280-148677-4 | N | Arsenic | 0.770 | 2.90 J1 | 2.90 J | - | mg/kg | M |
| NYOW-B-SL020-A 280-148677-4 | N | Thallium | 0.130 | 0.0580 J | 0.130 U | | mg/kg | L |

| Test Method: SW9060A | | Extraction Method: NONE | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH020-B 280-148677-5 | N | Total Organic Carbon | 1100 | 4000 H | 4000 J | - | mg/kg | H1 |
| NYOW-B-PH020-C 280-148677-6 | N | Total Organic Carbon | 1200 | 2400 H | 2400 J | - | mg/kg | H1 |
| NYOW-B-SL020-A 280-148677-4 | N | Total Organic Carbon | 1200 | 5200 H | 5200 J | - | mg/kg | H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW6010C**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH020-B 280-148677-5 | N | Aluminum | 49.0 | 3000 | 3000 | 3000 J | A |
| NYOW-B-PH020-B 280-148677-5 | N | Iron | 78.0 | 14000 | 14000 | 14000 J | A |
| NYOW-B-PH020-B 280-148677-5 | N | Lead | 0.880 | 5.00 | 5.00 | 5.00 J | V6 |
| NYOW-B-PH020-C 280-148677-6 | N | Aluminum | 41.0 | 2500 | 2500 | 2500 J | A |
| NYOW-B-PH020-C 280-148677-6 | N | Iron | 66.0 | 7500 | 7500 | 7500 J | A |
| NYOW-B-PH020-C 280-148677-6 | N | Lead | 0.740 | 2.30 | 2.30 | 2.30 J | V6 |
| NYOW-B-SL020-A 280-148677-4 | N | Aluminum | 55.0 | 2900 J1 | 2900 J | 2900 J | M/M2/A |
| NYOW-B-SL020-A 280-148677-4 | N | Beryllium | 0.550 | 0.130 J | 0.130 J | 0.130 U | B2 |
| NYOW-B-SL020-A 280-148677-4 | N | Iron | 87.0 | 9500 J1 | 9500 | 9500 J | A |
| NYOW-B-SL020-A 280-148677-4 | N | Lead | 0.980 | 3.50 | 3.50 | 3.50 J | V6 |
| NYOW-B-SL020-A 280-148677-4 | N | Manganese | 4.90 | 330 J1 | 330 J | 330 J | M/M2 |

**Modified Qualifiers for test method SW6010C, Total**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| EB-01_210514 280-148677-7 | EB | Selenium | 22.0 | 19.0 U | 19.0 U | 19.0 UJ | V6 |

**Modified Qualifiers for test method SW6020A, Dissolved**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| WL-DUP-001_210514 280-148677-2 | FD | Lead | 3.00 | 0.340 J | 0.340 J | 0.340 J | TR |

**Modified Qualifiers for test method SW6020A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH020-B 280-148677-5 | N | Antimony | 0.200 | 0.0860 J | 0.0860 J | 0.0980 U | B2 |
| NYOW-B-SL020-A 280-148677-4 | N | Antimony | 0.230 | 0.130 J | 0.130 J | 0.230 U | B2 |

**Modified Qualifiers for test method SW9060A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH020-B 280-148677-5 | N | Total Organic Carbon | 1100 | 4000 H | 4000 | 4000 J | H1 |
| NYOW-B-PH020-C 280-148677-6 | N | Total Organic Carbon | 1200 | 2400 H | 2400 | 2400 J | H1 |

**Table of Results with Modified Qualifiers**

| Modified Qualifiers for test method SW9060A | | | | | | | |
|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
| NYOW-B-SL020-A 280-148677-4 | N | Total Organic Carbon | 1200 | 5200 H | 5200 | 5200 J | H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOD) or (LOQ) based on the inital sample concentration or validation guideance.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Reason Code Definitions**

| Code | Definition |
|---|---|
| A | Serial dilution |
| B2 | CCB |
| C | LCS Recovery |
| D3 | Field Duplicate RPD |
| H1 | Test Hold Time |
| I | Surrogate recovery outside project limits. |
| L | Lab Blank |
| M | MS Recovery |
| M2 | Post Spike |
| TR | Trace Level Detect |
| V | Equipment Blank |
| V6 | Low Level Calibration Verification |
| Z | LCS RPD |

**Flag Code and Definitions**

| Flag | Definition |
|---|---|
| J | Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria. |
| U | Undetected: The analyte was analyzed for, but not detected. |
| UJ | The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria. |

**Bias**

| | |
|---|---|
| - | The result may be biased low |
| + | The result may be biased high |

Note - The bias field is a separate field; however, it is an integral part of the final flag (qualifier) on the sample result

**Review Questions**

| Method: BNASIMD (GC/MS-SIM Analysis by SW8270D) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the GC/MS system properly tuned based on method criteria? | • | | | |
| Was instrument tuning completed every 12 hours during sample analysis? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were Internal Standard retention times and area criteria within method requirements? | • | | | |
| Were internal standards spiked for every sample, standard, and QC sample? | • | | | |
| Were surrogate recoveries within project acceptance limits? | | • | | See QC Outliers. Sample outside of 2X hold time; therefore, RE/RA was not performed. |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the LCS/LCSD RPD within project acceptance limits? | | • | | See QC Outliers. |
| Was a MS/MSD pair prepared with each batch? | | • | | No MS/SDs were performed. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | LOQs were slightly greater than PQLGs for several PAHs associated with aqueous sample WL-DUP-001_210514. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | | • | | ICVL 280-538281/12 exhibited recoveries > 120% for Fe and Pb at 126% and 121%. The sample results for iron were greater than the level of the CCV. The sample results for Pb are qualified as "J+". |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | CCVL 280-537914/21, CCVL 280-537914/33, and CCVL 280-537914/46 exhibited recoveries less than 80% for Se at 78%, 75%, and 75%. The associated EB sample result was non-detect and is qualified as "UJ".<br>CCVL 280-538281/199, CCVL 280-538281/211, and<br>CCVL 280-538281/222 exhibited recover greater than 120% for iron at 125%, 124%, and 124%. The sample results for iron were greater than the level of the CCV.<br>CCVL 280-538281/199 exhibited a recovery greater than 20% for lead at 134%. The results less than the level of the CCV are qualified as "J +". |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | | • | | CCB 280-538281/210 exhibited a detection for Be below the LOQ at 0.196 ug/L. The associated sample results below the aqueous LOQ are qualified as "U". |
| Did the ICSA have any non-target interferents above the MDL? | • | | | The ICSA associated with batch 280-538281 had results for Ba at a level greater than the LOD. The initial ICSA result (13 ppb) was > LOD (2 ppb).<br>The ICSA associated with batch 280-537936 had results for Ba at a level<br>greater than the LOD. The initial ICSA result (13.5ppb) was > LOD (2 ppb).<br>The ICSA associated with batch 280-537914 had results for Ba at a level greater than the LOD. The initial ICSA result(13.5 ppb) was > LOD (2 ppb). |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | MB 280-537813/1-A exhibited a detection for zinc below the LOQ at 0.445 mg/kg. The associated soil sample results were greater than the LOQ. On the basis of professional judgment, qualification is not necessary. |
| Were target analytes in the field blank less than MDL? | | • | | See QC Outliers. |
| Was the laboratory duplicate RPD within project acceptance limits? | | | • | |

**Review Questions**

| Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| Were the post spike recoveries within project acceptance limits? | | • | | NYOW-B-SL020-A exhibited PDS recoveries less than lower control limits for Al (44%), Fe (-51%), Mn (-27%), and Silver (73%). A PDS is not required for silver. The iron sample concentration was >4X the spiked amount for the MS/SD. The result for Mn is qualified as "J-" and the result for Al is qualified as "J". |
| Were the serial dilution RPD values within project acceptance limits? | | • | | NYOW-B-SL020-A exhibited RPDs > 10% for Al (34%) and Fe (35%). NYOW-B-SL020-A and results for samples of similar matrix are qualified as "J": NYOW-B-PH020-B and NYOW-B-PH020-C. |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | • | | WL-DUP-001_210514 exhibited a RPD greater than 30% for dissolved iron at 200%. |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the system properly tuned based on method criteria? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | CCVL 280-537916/48 exhibited a recovery > 120% for Sb at 124%. The associated filtered aqueous sample results were non-detect. |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | | • | | ICB 280-537916/17 and CCB 280-537916/47 exhibited detections below the LOQ for Sb at 0.999 ug/L and 0.837 ug/L. The associated equipment blank sample result was non-detect for total Sb.<br>CCB 280-538288/174 exhibited a detection for Sb below the LOQ at 0.546 ug/L. The associated sample results below the aqueous LOQ are qualified as "U". |
| Did the ICSA have any non-target interferents above the MDL? | • | | | The ICSA associated with batch 280-537916 had results for Cr at a level greater than the LOD. The initial ICSA result (1.95 ppb) was > LOD (1.8 ppb) and the closing ICSA result (1.87ppb).<br>The ICSA associated with batch 280-537459 had results for Cr at a level greater than the LOD. The initial ICSA result (2.17ppb) was > LOD (1.8 ppb) and the closing ICSA result (2.12ppb) was > LOD.<br>The vendor acknowledges that Cr is a trace impurity in the ICSA standard. |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | See QC Outliers. |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |

**Review Questions**

| Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were the post spike recoveries within project acceptance limits? | • | | | |
| Were the serial dilution RPD values within project acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | | • | | Soil LOQs for As, Se, Tl, and Sb were greater than the PQLG due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW7470A (Mercury in Water (Manual Cold-Vapor Technique)) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Was the laboratory duplicate RPD within project acceptance limits? | | | • | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD performed on equipment blank sample.<br>MS/SD not performed for second aqueous sample batch 537553. |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW7471B (Mercury in Soil (Manual Cold-Vapor Technique))

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | No MS/SD was performed. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | | • | | Soil LOQs were slightly greater than PQLGs due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | | | • | |
| Were DoD QSM corrective actions followed if deviations were noted? | | | • | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW9060A (Total Organic Carbon)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | See SDG Comments. |
| Were holding times met? | | • | | Samples were analyzed 6 days past the 28-day holding time period. |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | | | • | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | | • | | LCSD not performed. |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | | | • | |
| Was a MS/MSD pair prepared with each batch? | • | | | The MS/SD results associated with batch 139499 are reported and validated in SDG J148774. The native sample used for the MS/SD was not from this SDG. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Data Validation Report for 280-148718-1_52_2a_FUDSChem**

| | |
|---|---|
| Facility: | C02NY0290-01, New York Ordnance Works, Limited RI |
| Event: | 2021 Sampling - Background |
| SDG: | 280-148718-1_52_2a_FUDSChem |
| Guidance Document: | Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works |
| Prime Contractor: | Bluestone Environmental Group, Inc., Malvern, PA |
| Project Manager: | Mike Badeau |
| Contract Laboratory(ies): | Eurofins Environment Testing TestAmerica, Arvada, CO \| Eurofins Lancaster Laboratories Environmental, LLC, Lancaster, PA |
| Data Review Contractor: | Bluestone |
| Data Review Level: | S2BVEM |
| Primary Data Reviewer: | Emily Strake, Technical Director/ Data Validator |
| Date Submitted: | September 07, 2021 |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6010C - Dissolved | SW6020A | SW6020A - Dissolved | SW7470A | SW7470A - Dissolved | SW7471B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH008-B | 280-148718-15 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH008-C | 280-148718-16 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH009-B | 280-148718-12 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH009-C | 280-148718-13 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH010-B | 280-148718-9 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH010-C | 280-148718-10 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH014-B | 280-148718-6 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH014-C | 280-148718-7 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-SL008-A | 280-148718-14 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-SL009-A | 280-148718-11 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-SL010-A | 280-148718-8 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-SL014-A | 280-148718-5 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| EB-01_210517 | 280-148718-4 | Water | Equipment Blank/EB | X | | | X | | X | | X | | |
| EB-02_210517 | 280-148718-17 | Water | Equipment Blank/EB | X | | X | | X | | X | | | |
| NYOW-B-WL005-A | 280-148718-3 | Water | Field Sample/N | X | | | X | | X | | X | | |
| NYOW-B-WL047-A | 280-148718-1 | Water | Field Sample/N | X | | | X | | X | | X | | |
| NYOW-B-WL050-A | 280-148718-2 | Water | Field Sample/N | X | | | X | | X | | X | | |

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page at S2BVEM data validation level. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works and the additional guidance documents incorporated by reference to the extent possible. Where definitive guidance is not provided, results have been evaluated in a conservative manner using professional judgment.

Sample collection was managed and directed by Bluestone Environmental Group, Inc., Malvern, PA; analyses were performed by Eurofins Environment Testing TestAmerica, Arvada, CO | Eurofins Lancaster Laboratories Environmental, LLC, Lancaster, PA and were reported under sample delivery group (SDG) 280-148718-1_52_2a_FUDSChem. Data have been evaluated electronically based on electronic data deliverables (EDDs) provided by the laboratory, and hard copy data summary forms have also been reviewed during this effort and compared to the automated review output by the reviewers whose signatures appear on the following page. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative and throughout this report.

All quality control (QC) elements associated with this SDG have been reviewed by a project chemist in accordance with the requirements defined for the project. This review is documented in the attached Data Review Checklists. The QC elements listed below were supported by the electronic deliverable and were evaluated using ADR processes.

- Blank - Negative
- Equipment Blank
- Lab Blank
- Lab Replicate RPD
- LCS Recovery
- LCS RPD
- MS Recovery
- MS RPD
- Prep Hold Time
- Surrogate
- Test Hold Time

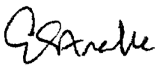
Results of the ADR process were subsequently reviewed and updated as applicable by the data review chemists identified on the signature page. Quality control elements that were not included in the electronic deliverable were reviewed manually and findings are documented within this report. Summaries of findings and associated qualified results are documented throughout this report.

A total of 51 results (7.07%) out of the 721 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected or deemed a serious deficiency (X qualifier). Trace values, defined as results that are qualified as estimated because they fall between the detection limit and the reporting limit/limit of quantitation, are not counted as qualified results in the above count. The qualified results are detailed throughout this report and discussed in the narrative below, where appropriate.

Narrative Comments

The samples arrived in good condition, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 1.9º C, 3.1º C, 3.6º C, 3.7º C and 4.7ºC. Samples were sent to Eurofins Lancaster Laboratory Environmental for TOC analysis and were received at temperatures of 3.3ºC, 3.2ºC, and 4.6ºC. The sample ID on 1/2 8oz containers for the following sample was written as "NYOW-B-PH00-B": NYOW-B-PH008-B. The sample was logged according to the COC.

| Analytical Method | Data Reviewer Comment |
|---|---|
| BNASIMD | No additional comments; see Checklist for detail. |
| SW6010C | No additional comments; see Checklist for detail. |
| SW6020A | No additional comments; see Checklist for detail. |
| SW7470A | No additional comments; see Checklist for detail. |
| SW7471B | No additional comments; see Checklist for detail. |
| SW9060A | Sample NYOW-B-PH014-C result exceeded calibration range. Sample was repeated out of hold on analytical batch 138452.The following samples were analyzed outside of analytical holding time due to an instrument issue that required the samples to be analyzed at another lab within the Eurofins network: NYOW-B-PH009-B, NYOW-B-PH009-C, NYOW-B-SL008-A, NYOW-B-PH008-B and NYOW-B-PH008-C.<br>Samples NYOW-B-SL014-A (280-148718-5)[1.12X], NYOW-B-PH014-B (280-148718-6) [1.59X], NYOW-B-PH014-C [1.53X], NYOW-B-PH014-C[4.64X], NYOW-B-SL010-A[1.85X], NYOW-B-SL010-A[2.46X], NYOW-B-SL010-A[2.91X], NYOW-B-PH010-B[1.83X], NYOW-B-PH010-C[1.52X], NYOW-B-SL009-A[3.1X], NYOW-B-PH009-B[3.67X], NYOW-B-PH009-C[4.07X], NYOW-B-SL008-A[9.82X], NYOW-B-PH008-B[2.32X] and NYOW-B-PH008-C [4.79X] required dilution prior to analysis. |



September 07, 2021

Reviewed by Emily Strake, Technical Director/ Data Validator, Bluestone

As the Reviewer, I certify that I have performed a data review process in accordance with the requirements of the project guidance document, and have compared the electronic data to the laboratory's hard copy report and have verified the consistency of the reported sample results and method quality control data between the two deliverables.

**Quality Control Outliers for test method BNASIMD, LCS Recovery**

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCS 280-536729/2-A (BS)/ LCS 280-536729/2-A | Fluorene | 49.33 | 50 - 118 | 10 - 200 | percent | J/UJ | C | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the LCS Recovery for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| EB-01_210517 | EB | Fluorene | 0.0990 | 0.0400 U Q | 0.0400 UJ | | ug/l | C |
| EB-02_210517 | EB | Fluorene | 0.0950 | 0.0380 U Q | 0.0380 UJ | | ug/l | C |
| NYOW-B-WL005-A | N | Fluorene | 0.110 | 0.0420 U Q | 0.0420 UJ | | ug/l | C |
| NYOW-B-WL047-A | N | Fluorene | 0.100 | 0.0410 U Q | 0.0410 UJ | | ug/l | C |
| NYOW-B-WL050-A | N | Fluorene | 0.100 | 0.0410 U Q | 0.0410 UJ | | ug/l | C |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, LCS RPD**

The objective of laboratory control sample/laboratory control sample duplicate (LCS/LCSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. LCS/LCSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Laboratory control sample/laboratory control sample duplicate RPD results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 280-536729/3-A (BD)/ LCSD 280-536729/3-A | 1-Methylnaphthalene | 0.2240 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536729/3-A (BD)/ LCSD 280-536729/3-A | Acenaphthene | 0.2240 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536729/3-A (BD)/ LCSD 280-536729/3-A | Acenaphthylene | 0.2150 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536729/3-A (BD)/ LCSD 280-536729/3-A | Fluorene | 0.2130 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536729/3-A (BD)/ LCSD 280-536729/3-A | Naphthalene | 0.2910 | < 0.1 | < 0.1 | ug/l | J/None | Z | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method BNASIMD, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-02_210517 (EB)/ 280-148718-17 | Fluoranthene-d10 | 129.0 | 57 - 105 | 10 - 105 | percent | J/None | I | |
| EB-02_210517 (EB)/ 280-148718-17 | 2-Fluorobiphenyl | 116.0 | 53 - 106 | 10 - 106 | percent | J/None | I | |
| EB-02_210517 (EB)/ 280-148718-17 | Nitrobenzene-d5 | 134.0 | 55 - 111 | 10 - 111 | percent | J/None | I | |
| EB-02_210517 (EB)/ 280-148718-17 | Terphenyl-d14 | 143.0 | 58 - 132 | 10 - 132 | percent | J/None | I | |
| EB-02_210517 (EB)/ 280-148718-17 | 2-Methylnaphthalene-d10 | 115.0 | 35 - 89 | 10 - 89 | percent | J/None | I | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6010C, Dissolved, Equipment Blank**

The purpose of equipment blanks is to determine the existence and magnitude of cross-contamination problems resulting from the process during sampling. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in equipment blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-01_210517 (EB)/ 280-148718-4 | Manganese | 17.00 | < 1.9 | < 10 | ug/l | U/None* | V | |
| EB-01_210517 (EB)/ 280-148718-4 | Iron | 32.00 | < 22 | < 100 | ug/l | U/None* | V | |
| EB-01_210517 (EB)/ 280-148718-4 | Calcium | 350.0 | < 78 | < 1000 | ug/l | U/None* | V | |
| EB-01_210517 (EB)/ 280-148718-4 | Zinc | 5.300 | < 4.5 | < 150 | ug/l | U/None* | V | |
| EB-01_210517 (EB)/ 280-148718-4 | Potassium | 330.0 | < 240 | < 3000 | ug/l | U/None* | V | |
| EB-01_210517 (EB)/ 280-148718-4 | Magnesium | 62.00 | < 26 | < 500 | ug/l | U/None* | V | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

**Qualified Results associated with the Equipment Blank for SW6010C, Dissolved**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-WL047-A | N | Zinc | 150 | 8.90 J | 15.0 U | | ug/l | V |
| NYOW-B-WL050-A | N | Potassium | 3000 | 2700 J | 3000 U | | ug/l | V |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-537813/1-A (LB)/ MB 280-537813/1-A | Zinc | 0.4450 | < 0.4 | < 8 | mg/kg | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

**Qualified Results associated with the Lab Blank for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL009-A | N | Zinc | 6.90 | 6.00 J | 6.90 U | | mg/kg | L |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Total, Equipment Blank**

The purpose of equipment blanks is to determine the existence and magnitude of cross-contamination problems resulting from the process during sampling. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in equipment blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-02_210517 (EB)/ 280-148718-17 | Iron | 36.00 | < 22 | < 100 | ug/l | U/None* | V | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6020A, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-537814/1-A (LB)/ MB 280-537814/1-A | Thallium | 0.003800 | < 0.0035 | < 0.1 | mg/kg | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

**Qualified Results associated with the Lab Blank for SW6020A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH008-B | N | Thallium | 0.110 | 0.0210 J | 0.110 U | | mg/kg | L |
| NYOW-B-PH008-C | N | Thallium | 0.0810 | 0.0340 J | 0.0810 U | | mg/kg | L |
| NYOW-B-PH009-B | N | Thallium | 0.0940 | 0.0240 J | 0.0940 U | | mg/kg | L |
| NYOW-B-PH009-C | N | Thallium | 0.0940 | 0.0360 J | 0.0940 U | | mg/kg | L |
| NYOW-B-PH010-B | N | Thallium | 0.100 | 0.0310 J | 0.100 U | | mg/kg | L |
| NYOW-B-PH010-C | N | Thallium | 0.0830 | 0.0450 J | 0.0830 U | | mg/kg | L |
| NYOW-B-PH014-B | N | Thallium | 0.0900 | 0.0310 J | 0.0900 U | | mg/kg | L |
| NYOW-B-PH014-C | N | Thallium | 0.0980 | 0.0560 J | 0.0980 U | | mg/kg | L |
| NYOW-B-SL008-A | N | Thallium | 0.110 | 0.0380 J | 0.110 U | | mg/kg | L |
| NYOW-B-SL009-A | N | Thallium | 0.110 | 0.0250 J | 0.110 U | | mg/kg | L |
| NYOW-B-SL010-A | N | Thallium | 0.100 | 0.0470 J | 0.100 U | | mg/kg | L |
| NYOW-B-SL014-A | N | Thallium | 0.0930 | 0.0290 J | 0.0930 U | | mg/kg | L |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW7470A, Total, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-537553/1-A (LB)/ MB 280-537553/1-A | Mercury | 0.04070 | < 0.027 | < 0.2 | ug/l | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3510C | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| EB-01_210517 280-148718-4 | EB | Fluorene | 0.0990 | 0.0400 U Q | 0.0400 UJ | | ug/l | C |
| EB-02_210517 280-148718-17 | EB | Fluorene | 0.0950 | 0.0380 U Q | 0.0380 UJ | | ug/l | C |
| NYOW-B-WL005-A 280-148718-3 | N | Fluorene | 0.110 | 0.0420 U Q | 0.0420 UJ | | ug/l | C |
| NYOW-B-WL047-A 280-148718-1 | N | Fluorene | 0.100 | 0.0410 U Q | 0.0410 UJ | | ug/l | C |
| NYOW-B-WL050-A 280-148718-2 | N | Fluorene | 0.100 | 0.0410 U Q | 0.0410 UJ | | ug/l | C |

| Test Method: SW6010C | | Extraction Method: FLDFLT | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| EB-01_210517 280-148718-4 | EB | Selenium | 22.0 | 19.0 U | 19.0 UJ | | ug/l | V6 |
| NYOW-B-WL005-A 280-148718-3 | N | Selenium | 22.0 | 19.0 U | 19.0 UJ | | ug/l | V6 |
| NYOW-B-WL047-A 280-148718-1 | N | Selenium | 22.0 | 19.0 U | 19.0 UJ | | ug/l | V6 |
| NYOW-B-WL047-A 280-148718-1 | N | Zinc | 150 | 8.90 J | 15.0 U | | ug/l | V |
| NYOW-B-WL050-A 280-148718-2 | N | Potassium | 3000 | 2700 J | 3000 U | | ug/l | V |
| NYOW-B-WL050-A 280-148718-2 | N | Selenium | 22.0 | 19.0 U | 19.0 UJ | | ug/l | V6 |

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH008-B 280-148718-15 | N | Lead | 0.890 | 2.20 | 2.20 J | + | mg/kg | V6 |
| NYOW-B-PH008-C 280-148718-16 | N | Lead | 0.840 | 3.10 | 3.10 J | + | mg/kg | V6 |
| NYOW-B-PH009-B 280-148718-12 | N | Lead | 0.950 | 2.50 | 2.50 J | + | mg/kg | V6 |
| NYOW-B-PH009-C 280-148718-13 | N | Lead | 0.890 | 2.40 | 2.40 J | + | mg/kg | V6 |
| NYOW-B-PH010-B 280-148718-9 | N | Lead | 0.930 | 3.10 | 3.10 J | + | mg/kg | V6 |
| NYOW-B-PH010-C 280-148718-10 | N | Lead | 0.980 | 4.00 | 4.00 J | + | mg/kg | V6 |
| NYOW-B-PH014-B 280-148718-6 | N | Lead | 0.770 | 2.90 | 2.90 J | + | mg/kg | V6 |
| NYOW-B-PH014-C 280-148718-7 | N | Lead | 0.890 | 4.20 | 4.20 J | + | mg/kg | V6 |
| NYOW-B-SL008-A 280-148718-14 | N | Lead | 0.860 | 6.90 | 6.90 J | + | mg/kg | V6 |
| NYOW-B-SL009-A 280-148718-11 | N | Beryllium | 0.430 | 0.0540 J | 0.100 U | | mg/kg | B2 |
| NYOW-B-SL009-A 280-148718-11 | N | Lead | 0.780 | 3.20 | 3.20 J | + | mg/kg | V6 |

**Table of All Qualified Results**

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-SL009-A 280-148718-11 | N | Zinc | 6.90 | 6.00 J | 6.90 U | | mg/kg | L |
| NYOW-B-SL010-A 280-148718-8 | N | Lead | 0.930 | 6.90 | 6.90 J | + | mg/kg | V6 |
| NYOW-B-SL014-A 280-148718-5 | N | Lead | 0.920 | 3.60 | 3.60 J | + | mg/kg | V6 |

| Test Method: SW6010C | | Extraction Method: TOTAL | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| EB-02_210517 280-148718-17 | EB | Selenium | 22.0 | 19.0 U | 19.0 UJ | | ug/l | V6 |

| Test Method: SW6020A | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH008-B 280-148718-15 | N | Thallium | 0.110 | 0.0210 J | 0.110 U | | mg/kg | L |
| NYOW-B-PH008-C 280-148718-16 | N | Thallium | 0.0810 | 0.0340 J | 0.0810 U | | mg/kg | L |
| NYOW-B-PH009-B 280-148718-12 | N | Thallium | 0.0940 | 0.0240 J | 0.0940 U | | mg/kg | L |
| NYOW-B-PH009-C 280-148718-13 | N | Thallium | 0.0940 | 0.0360 J | 0.0940 U | | mg/kg | L |
| NYOW-B-PH010-B 280-148718-9 | N | Thallium | 0.100 | 0.0310 J | 0.100 U | | mg/kg | L |
| NYOW-B-PH010-C 280-148718-10 | N | Thallium | 0.0830 | 0.0450 J | 0.0830 U | | mg/kg | L |
| NYOW-B-PH014-B 280-148718-6 | N | Thallium | 0.0900 | 0.0310 J | 0.0900 U | | mg/kg | L |
| NYOW-B-PH014-C 280-148718-7 | N | Thallium | 0.0980 | 0.0560 J | 0.0980 U | | mg/kg | L |
| NYOW-B-SL008-A 280-148718-14 | N | Thallium | 0.110 | 0.0380 J | 0.110 U | | mg/kg | L |
| NYOW-B-SL009-A 280-148718-11 | N | Thallium | 0.110 | 0.0250 J | 0.110 U | | mg/kg | L |
| NYOW-B-SL010-A 280-148718-8 | N | Antimony | 0.180 | 0.0900 J | 0.0910 U | | mg/kg | B2 |
| NYOW-B-SL010-A 280-148718-8 | N | Thallium | 0.100 | 0.0470 J | 0.100 U | | mg/kg | L |
| NYOW-B-SL014-A 280-148718-5 | N | Thallium | 0.0930 | 0.0290 J | 0.0930 U | | mg/kg | L |

| Test Method: SW9060A | | Extraction Method: NONE | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH008-C 280-148718-16 | N | Total Organic Carbon | 1400 | 960 U H | 960 UJ | | mg/kg | H1 |
| NYOW-B-PH009-B 280-148718-12 | N | Total Organic Carbon | 1100 | 2500 H | 2500 J | - | mg/kg | H1 |
| NYOW-B-PH010-B 280-148718-9 | N | Total Organic Carbon | 550 | 710 | 710 J | | mg/kg | D2 |
| NYOW-B-PH010-C 280-148718-10 | N | Total Organic Carbon | 460 | 6200 | 6200 J | | mg/kg | D2 |

**Table of All Qualified Results**

| Test Method: SW9060A | | Extraction Method: NONE | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH014-B 280-148718-6 | N | Total Organic Carbon | 480 | 6900 | 6900 J | | mg/kg | D2 |
| NYOW-B-PH014-C 280-148718-7 | N | Total Organic Carbon | 460 | 11000 | 11000 J | | mg/kg | D2 |
| NYOW-B-SL008-A 280-148718-14 | N | Total Organic Carbon | 2900 | 7500 H | 7500 J | - | mg/kg | H1 |
| NYOW-B-SL009-A 280-148718-11 | N | Total Organic Carbon | 930 | 14000 | 14000 J | | mg/kg | D2 |
| NYOW-B-SL010-A 280-148718-8 | N | Total Organic Carbon | 870 | 14000 | 14000 J | | mg/kg | D2 |
| NYOW-B-SL014-A 280-148718-5 | N | Total Organic Carbon | 340 | 6300 | 6300 J | | mg/kg | D2 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW6010C, Dissolved**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| EB-01_210517 280-148718-4 | EB | Selenium | 22.0 | 19.0 U | 19.0 U | 19.0 UJ | V6 |
| NYOW-B-WL005-A 280-148718-3 | N | Selenium | 22.0 | 19.0 U | 19.0 U | 19.0 UJ | V6 |
| NYOW-B-WL047-A 280-148718-1 | N | Selenium | 22.0 | 19.0 U | 19.0 U | 19.0 UJ | V6 |
| NYOW-B-WL050-A 280-148718-2 | N | Selenium | 22.0 | 19.0 U | 19.0 U | 19.0 UJ | V6 |

**Modified Qualifiers for test method SW6010C**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH008-B 280-148718-15 | N | Lead | 0.890 | 2.20 | 2.20 | 2.20 J | V6 |
| NYOW-B-PH008-C 280-148718-16 | N | Lead | 0.840 | 3.10 | 3.10 | 3.10 J | V6 |
| NYOW-B-PH009-B 280-148718-12 | N | Lead | 0.950 | 2.50 | 2.50 | 2.50 J | V6 |
| NYOW-B-PH009-C 280-148718-13 | N | Lead | 0.890 | 2.40 | 2.40 | 2.40 J | V6 |
| NYOW-B-PH010-B 280-148718-9 | N | Lead | 0.930 | 3.10 | 3.10 | 3.10 J | V6 |
| NYOW-B-PH010-C 280-148718-10 | N | Lead | 0.980 | 4.00 | 4.00 | 4.00 J | V6 |
| NYOW-B-PH014-B 280-148718-6 | N | Lead | 0.770 | 2.90 | 2.90 | 2.90 J | V6 |
| NYOW-B-PH014-C 280-148718-7 | N | Lead | 0.890 | 4.20 | 4.20 | 4.20 J | V6 |
| NYOW-B-SL008-A 280-148718-14 | N | Lead | 0.860 | 6.90 | 6.90 | 6.90 J | V6 |
| NYOW-B-SL009-A 280-148718-11 | N | Beryllium | 0.430 | 0.0540 J | 0.0540 J | 0.100 U | B2 |
| NYOW-B-SL009-A 280-148718-11 | N | Lead | 0.780 | 3.20 | 3.20 | 3.20 J | V6 |
| NYOW-B-SL010-A 280-148718-8 | N | Lead | 0.930 | 6.90 | 6.90 | 6.90 J | V6 |
| NYOW-B-SL014-A 280-148718-5 | N | Lead | 0.920 | 3.60 | 3.60 | 3.60 J | V6 |

**Modified Qualifiers for test method SW6010C, Total**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| EB-02_210517 280-148718-17 | EB | Selenium | 22.0 | 19.0 U | 19.0 U | 19.0 UJ | V6 |

**Modified Qualifiers for test method SW6020A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-SL010-A 280-148718-8 | N | Antimony | 0.180 | 0.0900 J | 0.0900 J | 0.0910 U | B2 |

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW9060A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH008-B 280-148718-15 | N | Total Organic Carbon | 700 | 270 J H | 270 J | 270 J | TR/H1 |
| NYOW-B-PH008-C 280-148718-16 | N | Total Organic Carbon | 1400 | 960 U H | 960 U | 960 UJ | H1 |
| NYOW-B-PH009-B 280-148718-12 | N | Total Organic Carbon | 1100 | 2500 H | 2500 | 2500 J | H1 |
| NYOW-B-PH009-C 280-148718-13 | N | Total Organic Carbon | 1200 | 950 J H | 950 J | 950 J | TR/H1 |
| NYOW-B-PH010-B 280-148718-9 | N | Total Organic Carbon | 550 | 710 | 710 | 710 J | D2 |
| NYOW-B-PH010-C 280-148718-10 | N | Total Organic Carbon | 460 | 6200 | 6200 | 6200 J | D2 |
| NYOW-B-PH014-B 280-148718-6 | N | Total Organic Carbon | 480 | 6900 | 6900 | 6900 J | D2 |
| NYOW-B-PH014-C 280-148718-7 | N | Total Organic Carbon | 460 | 11000 | 11000 | 11000 J | D2 |
| NYOW-B-SL008-A 280-148718-14 | N | Total Organic Carbon | 2900 | 7500 H | 7500 | 7500 J | H1 |
| NYOW-B-SL009-A 280-148718-11 | N | Total Organic Carbon | 930 | 14000 | 14000 | 14000 J | D2 |
| NYOW-B-SL010-A 280-148718-8 | N | Total Organic Carbon | 870 | 14000 | 14000 | 14000 J | D2 |
| NYOW-B-SL014-A 280-148718-5 | N | Total Organic Carbon | 340 | 6300 | 6300 | 6300 J | D2 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Reason Code Definitions**

| Code | Definition |
|---|---|
| B2 | CCB |
| C | LCS Recovery |
| D2 | No precision available |
| H1 | Test Hold Time |
| I | Surrogate recovery outside project limits. |
| L | Lab Blank |
| TR | Trace Level Detect |
| V | Equipment Blank |
| V6 | Low Level Calibration Verification |
| Z | LCS RPD |

**Flag Code and Definitions**

| Flag | Definition |
|---|---|
| J | Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria. |

| | |
|---|---|
| U | Undetected: The analyte was analyzed for, but not detected. |
| UJ | The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria. |

| **Bias** | |
|---|---|
| - | The result may be biased low |
| + | The result may be biased high |
| Note - The bias field is a separate field; however, it is an integral part of the final flag (qualifier) on the sample result | |

**Review Questions**

| Method: BNASIMD (GC/MS-SIM Analysis by SW8270D) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the GC/MS system properly tuned based on method criteria? | • | | | |
| Was instrument tuning completed every 12 hours during sample analysis? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were Internal Standard retention times and area criteria within method requirements? | • | | | |
| Were internal standards spiked for every sample, standard, and QC sample? | • | | | |
| Were surrogate recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the LCS/LCSD RPD within project acceptance limits? | | • | | LCSD 280-536729/3-A RPD for naphthalene > 40% at 46%. The sample results were non-detect. |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | | • | | Sample NYOW-B-WL005-A had LOQs slightly > PQLGs for several PAHs. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | | • | | ICVL 280-538281/12 exhibited recoveries > 120% for Fe (126%) and Pb (21%). The results for iron were greater than the level of the CCV. The results for lead are qualified as "J+". |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | CCVL 280-537914/33 exhibited a recovery less than 80% for Se at 75%. CCVL 280-537914/46 exhibited a recovery < 80% for se at 75%. The associated EB sample result is qualified as "UJ". CCVL 280-537936/38 exhibited a recovery less than 80% for Se at 78%. The associated filtered aqueous sample results are qualified as "UJ". CCVL 280-538281/211 exhibited a recovery > 120% for fe at 124%. CCVL 280-538281/222 exhibited a recovery > Fe at 124%. CCVL 280-538281/233 exhibited recoveries > 120% for Ca and Fe at 124% and 128%. The associated sample results were greater than the level of the CCV. |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | | • | | CCB 280-538281/210 exhibited a detection below the LOQ for Be at 0.196 ug/L. CCB 280-538281/232 exhibited a detection below the LOQ for Be at 0.234 ug/L. The associated sample results less than the aqueous LOQ are qualified as "U". |
| Did the ICSA have any non-target interferents above the MDL? | • | | | The ICSA associated with batch 280-538281 had results for Ba at a level greater than the LOD. The initial ICSA result (13 ppb) was > LOD (2 ppb).The ICSA associated with batch 280-537936 had results for Ba at a level greater than the LOD. The initial ICSA result (13.5ppb) was > LOD (2 ppb).The ICSA associated with batch 280 -537914 had results for Ba at a level greater than the LOD. The laboratory has confirmed via ICP-MS that Ba is a trace impurity in the ICSA standard. |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | See QC Outliers. |
| Were target analytes in the field blank less than MDL? | | • | | See QC Outliers |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |

**Review Questions**

| Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Was a MS/MSD pair prepared with each batch? | | • | | No MS/SD samples were performed. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| Were the post spike recoveries within project acceptance limits? | | | • | |
| Were the serial dilution RPD values within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the system properly tuned based on method criteria? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | | • | | ICB 280-537916/17 exhibited a detection for Sb below the LOQ at 0.999 ug/L. The associated filtered aqueous sample results were non-detect. CCB 280-538288/174 exhibited a detection for Sb below the LOQ at 0.546 ug/L. The associated positive detection is qualified as "U". |
| Did the ICSA have any non-target interferents above the MDL? | • | | | The ICSA associated with batch 280-538370 had results for Cr at a level greater than the LOD. The initial ICSA result (1.986 ppb) was > LOD (1.8 ppb).<br>The ICSA associated with batch 280-537916 had results for Cr at a level greater than the LOD. The initial ICSA result(1.95 ppb) was > LOD (1.8 ppb) and the closing ICSA result (1.87 ppb) was > LOD. The vendor acknowledges that Cr is a trace impurity in the ICSA standard. |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | See QC Outliers. |
| Was the laboratory duplicate RPD within project acceptance limits? | | | • | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | No MS/SD were performed. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were the post spike recoveries within project acceptance limits? | | | • | |

**Review Questions**

Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Were the serial dilution RPD values within project acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | | • | | LOQs for As, Sb, Se, and Tl were > PQLGs for multiple soil samples. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW7470A (Mercury in Water (Manual Cold-Vapor Technique)) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | See QC Outliers. |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | MS/SDs not performed. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW7471B (Mercury in Soil (Manual Cold-Vapor Technique))

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Details. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Was the laboratory duplicate RPD within project acceptance limits? | | | • | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | • | | | |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | | • | | LOQs were slightly greater than PQLGs due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | | | • | |
| Were DoD QSM corrective actions followed if deviations were noted? | | | • | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW9060A (Total Organic Carbon)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | • | | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | | • | | See Comments |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | | | • | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | | • | | Batch 137947, LCSD not performed.<br>Batch 138452, LCSD not performed. |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | | | • | |
| Was a MS/MSD pair prepared with each batch? | | • | | An MS/SD was performed for sample batch 138452 and reported in SDG J148419.<br>An MS/SD was performed for sample batch 139499 and reported in SDG J148774.<br>No MS/SD was performed for sample batch 137947. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | | • | | No precision information available for sample batch 137947. An LCSD, SD, or laboratory duplicate sample was not performed. The affected samples are qualified as "J" with a D2 reason code: NYOW-B-SL010-A, NYOW-B-SL014-A, NYOW-B-PH014-B, NYOW-B-PH010-C, NYOW-B-PH014-C, NYOW-B-PH010-B, and NYOW-B-SL009-A. |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Data Validation Report for 280-148774-1_52_2a_FUDSChem**

| | |
|---|---|
| Facility: | C02NY0290-01, New York Ordnance Works, Limited RI |
| Event: | 2021 Sampling - Background |
| SDG: | 280-148774-1_52_2a_FUDSChem |
| Guidance Document: | Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works |
| Prime Contractor: | Bluestone Environmental Group, Inc., Malvern, PA |
| Project Manager: | Mike Badeau |
| Contract Laboratory(ies): | Eurofins Environment Testing TestAmerica, Arvada, CO |
| Data Review Contractor: | Bluestone |
| Data Review Level: | S2BVEM |
| Primary Data Reviewer: | Emily Strake, Technical Director/ Data Validator |
| Date Submitted: | August 17, 2021 |

| Field Sample ID | Lab Sample ID | Matrix | Type/Type Code | BNASIMD | D2216 | SW6010C | SW6010C - Dissolved | SW6020A | SW6020A - Dissolved | SW7470A | SW7470A - Dissolved | SW7471B | SW9060A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH006-B | 280-148774-11 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH006-C | 280-148774-12 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH007-B | 280-148774-8 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH007-C | 280-148774-9 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH011-B | 280-148774-3 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-PH011-C | 280-148774-4 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-SL006-A | 280-148774-10 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-SL007-A | 280-148774-6 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| NYOW-B-SL011-A | 280-148774-2 | Solid | Field Sample/N | X | X | X | | X | | | | X | X |
| PH-DUP-001_210518 | 280-148774-5 | Solid | Field Duplicate/FD | X | X | X | | X | | | | X | X |
| SL-DUP-001_210518 | 280-148774-7 | Solid | Field Duplicate/FD | X | X | X | | X | | | | X | X |
| EB-01_210518 | 280-148774-13 | Water | Equipment Blank/EB | X | | | X | | X | | X | | |
| EB-02_210518 | 280-148774-14 | Water | Equipment Blank/EB | X | | X | | X | | X | | | |
| NYOW-B-WL010-A | 280-148774-1 | Water | Field Sample/N | X | | | X | | X | | X | | |

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page at S2BVEM data validation level. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Final UFP QAPP, Remedial Investigation/Feasibility Study, New York Ordnance Works and the additional guidance documents incorporated by reference to the extent possible. Where definitive guidance is not provided, results have been evaluated in a conservative manner using professional judgment.

Sample collection was managed and directed by Bluestone Environmental Group, Inc., Malvern, PA; analyses were performed by Eurofins Environment Testing TestAmerica, Arvada, CO and were reported under sample delivery group (SDG) 280-148774-1_52_2a_FUDSChem. Data have been evaluated electronically based on electronic data deliverables (EDDs) provided by the laboratory, and hard copy data summary forms have also been reviewed during this effort and compared to the automated review output by the reviewers whose signatures appear on the following page. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative and throughout this report.

All quality control (QC) elements associated with this SDG have been reviewed by a project chemist in accordance with the requirements defined for the project. This review is documented in the attached Data Review Checklists. The QC elements listed below were supported by the electronic deliverable and were evaluated using ADR processes.

- Blank - Negative
- Equipment Blank
- Field Duplicate RPD
- Lab Blank
- Lab Replicate RPD
- LCS Recovery
- LCS RPD
- MS Recovery
- MS RPD
- Prep Hold Time
- Surrogate
- Test Hold Time

Results of the ADR process were subsequently reviewed and updated as applicable by the data review chemists identified on the signature page. Quality control elements that were not included in the electronic deliverable were reviewed manually and findings are documented within this report. Summaries of findings and associated qualified results are documented throughout this report.

A total of 91 results (15.27%) out of the 596 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected or deemed a serious deficiency (X qualifier). Trace values, defined as results that are qualified as estimated because they fall between the detection limit and the reporting limit/limit of quantitation, are not counted as qualified results in the above count. The qualified results are detailed throughout this report and discussed in the narrative below, where appropriate.

Narrative Comments

The samples arrived in good condition, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 1.3ºC, 2.3ºC, 2.6ºC, 3.1ºC and 4.3ºC. Samples sent to Eurofins Lancaster Laboratory for TOC analysis were received at a temperature of 3.2ºC.
The container label for the following sample did not match the information listed on the COC: NYOW-B-PH006-B: 1/2 8 oz soil jars does not have a (-B) at the end of the sample ID on the label.

| Analytical Method | Data Reviewer Comment |
|---|---|
| BNASIMD | The following samples could not be thoroughly homogenized before sub-sampling was performed due to sample matrix:<br>NYOW-B-PH011-B, NYOW-B-PH007-B, NYOW-B-PH007-C, and NYOW-B-PH006-C. The samples were wet clay in preparation batch 280-536925.<br>The following sample formed emulsions during the extraction procedure: NYOW-B-WL010-A. The emulsions were broken up using the pour-back method for all three extractions preparation batch 280-536821.<br>Sample NYOW-B-WL010-A was brown in color and contained sediment.<br>A portion of the following sample was used for analysis, rather than testing the entire sample amount in the original container, due to the sample containing a good portion of sediment at the bottom of the container: NYOW-B-WL010-A. As such, the required solvent rinse of the original container could not be performed preparation batch 280-536821. |
| SW6010C | No additional comments; see Checklist for detail. |
| SW6020A | No additional comments; see Checklist for detail. |
| SW7470A | No additional comments; see Checklist for detail. |
| SW7471B | No additional comments; see Checklist for detail. |
| SW9060A | Samples NYOW-B-SL011-A[5.76X], NYOW-B-PH011-B [2.45X], NYOW-B-PH011-C [3.65X], PH-DUP-001_210518[2.04X], NYOW-B-SL007-A[4.45X], SL-DUP-001_210518 [5.89X], NYOW-B-PH007-B[2.06X], NYOW-B-PH007-C[2.5X], NYOW-B-SL006-A[6.84X], NYOW-B-PH006-B[1.05X] and NYOW-B-PH006-C[2.77X] required dilution prior to analysis. The reporting limits were adjusted accordingly. |

August 17, 2021

Reviewed by Emily Strake, Technical Director/ Data Validator, Bluestone

As the Reviewer, I certify that I have performed a data review process in accordance with the requirements of the project guidance document, and have compared the electronic data to the laboratory's hard copy report and have verified the consistency of the reported sample results and method quality control data between the two deliverables.

**Quality Control Outliers for test method BNASIMD, Equipment Blank**

The purpose of equipment blanks is to determine the existence and magnitude of cross-contamination problems resulting from the process during sampling. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in equipment blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-01_210518 (EB)/ 280-148774-13 | Chrysene | 0.03200 | < 0.032 | < 0.096 | ug/l | U/None* | V | |
| EB-01_210518 (EB)/ 280-148774-13 | Dibenz (a,h)anthracene | 0.02700 | < 0.027 | < 0.096 | ug/l | U/None* | V | |
| EB-02_210518 (EB)/ 280-148774-14 | Acenaphthene | 0.004800 | < 0.0044 | < 0.11 | ug/l | U/None* | V | |
| EB-02_210518 (EB)/ 280-148774-14 | Benzo (a)anthracene | 0.04600 | < 0.03 | < 0.11 | ug/l | U/None* | V | |
| EB-02_210518 (EB)/ 280-148774-14 | Chrysene | 0.04000 | < 0.035 | < 0.11 | ug/l | U/None* | V | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

**Qualified Results associated with the Equipment Blank for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-WL010-A | N | Chrysene | 0.130 | 0.0590 J Q | 0.130 U | | ug/l | V/L |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210518 (N)/ 280-148774-5 | Benzo (a)anthracene | 90.91 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-001_210518 (N)/ 280-148774-5 | Benzo(a)pyrene | 76.54 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-001_210518 (N)/ 280-148774-5 | Benzo (b)fluoranthene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-001_210518 (N)/ 280-148774-5 | Benzo (g,h,i)perylene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-001_210518 (N)/ 280-148774-5 | Benzo (k)fluoranthene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-001_210518 (N)/ 280-148774-5 | Chrysene | 125.6 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-001_210518 (N)/ 280-148774-5 | Fluoranthene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-001_210518 (N)/ 280-148774-5 | Phenanthrene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| PH-DUP-001_210518 (N)/ 280-148774-5 | Pyrene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210518 (N)/ 280-148774-7 | Acenaphthene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210518 (N)/ 280-148774-7 | Benzo (a)anthracene | 105.3 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210518 (N)/ 280-148774-7 | Benzo(a)pyrene | 111.1 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210518 (N)/ 280-148774-7 | Benzo (b)fluoranthene | 109.2 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210518 (N)/ 280-148774-7 | Benzo (g,h,i)perylene | 98.18 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210518 (N)/ 280-148774-7 | Benzo (k)fluoranthene | 97.35 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210518 (N)/ 280-148774-7 | Chrysene | 101.4 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210518 (N)/ 280-148774-7 | Fluoranthene | 126.5 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210518 (N)/ 280-148774-7 | Indeno(1,2,3-c,d)pyrene | 89.66 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210518 (N)/ 280-148774-7 | Phenanthrene | 200.0 | < 50 | < 50 | rpd | J/None | D3 | |
| SL-DUP-001_210518 (N)/ 280-148774-7 | Pyrene | 123.8 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Field Duplicate RPD for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH011-C | N | Chrysene | 12.0 | 3.20 J | 3.20 J | | ug/kg | D3/TR |

**Qualified Results associated with the Field Duplicate RPD for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL007-A | N | Benzo(a)pyrene | 13.0 | 14.0 | 14.0 J | | ug/kg | D3 |
| NYOW-B-SL007-A | N | Benzo(b)fluoranthene | 13.0 | 16.0 | 16.0 J | | ug/kg | D3 |
| NYOW-B-SL007-A | N | Fluoranthene | 13.0 | 20.0 | 20.0 J | | ug/kg | D3 |
| NYOW-B-SL007-A | N | Pyrene | 13.0 | 17.0 | 17.0 J | | ug/kg | D3 |
| PH-DUP-001_210518 | FD | Chrysene | 12.0 | 14.0 | 14.0 J | | ug/kg | D3 |
| PH-DUP-001_210518 | FD | Phenanthrene | 12.0 | 3.30 J | 3.30 J | | ug/kg | D3/TR |
| PH-DUP-001_210518 | FD | Pyrene | 12.0 | 11.0 J | 11.0 J | | ug/kg | D3/TR |
| SL-DUP-001_210518 | FD | Benzo(a)pyrene | 12.0 | 4.00 J M | 4.00 J | | ug/kg | D3/TR |
| SL-DUP-001_210518 | FD | Benzo(b)fluoranthene | 12.0 | 4.70 J | 4.70 J | | ug/kg | D3/TR |
| SL-DUP-001_210518 | FD | Fluoranthene | 12.0 | 4.50 J | 4.50 J | | ug/kg | D3/TR |
| SL-DUP-001_210518 | FD | Pyrene | 12.0 | 4.00 J | 4.00 J | | ug/kg | D3/TR |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-536821/1-A (LB)/ MB 280-536821/1-A | Benzo (a)anthracene | 0.04230 | < 0.028 | < 0.1 | ug/l | U/None* | L | |
| MB 280-536821/1-A (LB)/ MB 280-536821/1-A | Chrysene | 0.03350 | < 0.033 | < 0.1 | ug/l | U/None* | L | |
| MB 280-536821/1-A (LB)/ MB 280-536821/1-A | Dibenz (a,h)anthracene | 0.03070 | < 0.028 | < 0.1 | ug/l | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

**Qualified Results associated with the Lab Blank for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| EB-01_210518 | EB | Chrysene | 0.0960 | 0.0320 J Q | 0.0960 UJ | | ug/l | L/I |
| EB-01_210518 | EB | Dibenz(a,h)anthracene | 0.0960 | 0.0270 J Q | 0.0960 UJ | | ug/l | L/C/I |
| EB-02_210518 | EB | Benzo(a)anthracene | 0.110 | 0.0460 J M Q | 0.110 U | | ug/l | L |
| EB-02_210518 | EB | Chrysene | 0.110 | 0.0400 J Q | 0.110 U | | ug/l | L |
| NYOW-B-WL010-A | N | Benzo(a)anthracene | 0.130 | 0.0620 J M Q | 0.130 U | | ug/l | L |
| NYOW-B-WL010-A | N | Chrysene | 0.130 | 0.0590 J Q | 0.130 U | | ug/l | V/L |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, LCS Recovery**

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 280-536821/3-A (BD)/ LCSD 280-536821/3-A | Anthracene | 50.89 | 53 - 119 | 10 - 200 | percent | J/UJ | C | |
| LCSD 280-536821/3-A (BD)/ LCSD 280-536821/3-A | Benzo(a)pyrene | 44.89 | 53 - 120 | 10 - 200 | percent | J/UJ | C | |
| LCSD 280-536821/3-A (BD)/ LCSD 280-536821/3-A | Benzo (g,h,i)perylene | 38.33 | 44 - 128 | 10 - 200 | percent | J/UJ | C | |
| LCSD 280-536821/3-A (BD)/ LCSD 280-536821/3-A | Benzo (k)fluoranthene | 48.78 | 54 - 125 | 10 - 200 | percent | J/UJ | C | |
| LCSD 280-536821/3-A (BD)/ LCSD 280-536821/3-A | Dibenz (a,h)anthracene | 42.89 | 44 - 131 | 10 - 200 | percent | J/UJ | C | |
| LCSD 280-536821/3-A (BD)/ LCSD 280-536821/3-A | Indeno(1,2,3-c,d)pyrene | 41.00 | 48 - 130 | 10 - 200 | percent | J/UJ | C | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the LCS Recovery for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| EB-01_210518 | EB | Anthracene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | C/I |
| EB-01_210518 | EB | Benzo(a)pyrene | 0.0960 | 0.0480 U Q | 0.0480 UJ | | ug/l | C/I |
| EB-01_210518 | EB | Benzo(g,h,i)perylene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | C/I |
| EB-01_210518 | EB | Benzo(k)fluoranthene | 0.0960 | 0.0480 U Q | 0.0480 UJ | | ug/l | C/I |
| EB-01_210518 | EB | Dibenz(a,h)anthracene | 0.0960 | 0.0270 J Q | 0.0960 UJ | | ug/l | L/C/I |
| EB-01_210518 | EB | Indeno(1,2,3-c,d)pyrene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | C/I |
| EB-02_210518 | EB | Anthracene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | C |
| EB-02_210518 | EB | Benzo(a)pyrene | 0.110 | 0.0530 U Q | 0.0530 UJ | | ug/l | C |
| EB-02_210518 | EB | Benzo(g,h,i)perylene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | C |
| EB-02_210518 | EB | Benzo(k)fluoranthene | 0.110 | 0.0530 U Q | 0.0530 UJ | | ug/l | C |
| EB-02_210518 | EB | Dibenz(a,h)anthracene | 0.110 | 0.110 U M Q | 0.110 UJ | | ug/l | C |
| EB-02_210518 | EB | Indeno(1,2,3-c,d)pyrene | 0.110 | 0.110 U M Q | 0.110 UJ | | ug/l | C |
| NYOW-B-WL010-A | N | Anthracene | 0.130 | 0.130 U Q | 0.130 UJ | | ug/l | C |
| NYOW-B-WL010-A | N | Benzo(a)pyrene | 0.130 | 0.0650 U Q | 0.0650 UJ | | ug/l | C |
| NYOW-B-WL010-A | N | Benzo(g,h,i)perylene | 0.130 | 0.130 U Q | 0.130 UJ | | ug/l | C |
| NYOW-B-WL010-A | N | Benzo(k)fluoranthene | 0.130 | 0.0400 J Q | 0.0400 J | - | ug/l | C/TR |
| NYOW-B-WL010-A | N | Dibenz(a,h)anthracene | 0.130 | 0.130 U Q | 0.130 UJ | | ug/l | C |
| NYOW-B-WL010-A | N | Indeno(1,2,3-c,d)pyrene | 0.130 | 0.130 U Q | 0.130 UJ | | ug/l | C |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, LCS RPD**

The objective of laboratory control sample/laboratory control sample duplicate (LCS/LCSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. LCS/LCSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Laboratory control sample/laboratory control sample duplicate RPD results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| LCSD 280-536821/3-A (BD)/ LCSD 280-536821/3-A | Benzo(a)pyrene | 0.1570 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536821/3-A (BD)/ LCSD 280-536821/3-A | Benzo (b)fluoranthene | 0.1440 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536821/3-A (BD)/ LCSD 280-536821/3-A | Benzo (g,h,i)perylene | 0.1050 | < 0.1 | < 0.1 | ug/l | J/None | Z | |
| LCSD 280-536821/3-A (BD)/ LCSD 280-536821/3-A | Benzo (k)fluoranthene | 0.1920 | < 0.1 | < 0.1 | ug/l | J/None | Z | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method BNASIMD, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL006-A (MS)/ 280-148774-10MS | Chrysene | 52.63 | 57 - 118 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL006-A (MS)/ 280-148774-10MS | Fluoranthene | 53.88 | 55 - 119 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL006-A (SD)/ 280-148774-10MSD | Benzo (k)fluoranthene | 54.21 | 56 - 123 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL006-A (SD)/ 280-148774-10MSD | Chrysene | 45.93 | 57 - 118 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL006-A (SD)/ 280-148774-10MSD | Fluoranthene | 44.57 | 55 - 119 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL006-A (SD)/ 280-148774-10MSD | Pyrene | 52.10 | 55 - 117 | 10 - 200 | percent | J/UJ | M | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL006-A | N | Chrysene | 13.0 | 22.0 J1 | 22.0 J | - | ug/kg | M |
| NYOW-B-SL006-A | N | Fluoranthene | 13.0 | 34.0 J1 | 34.0 J | - | ug/kg | M |
| NYOW-B-SL006-A | N | Benzo(k)fluoranthene | 13.0 | 15.0 M J1 | 15.0 J | - | ug/kg | M |
| NYOW-B-SL006-A | N | Pyrene | 13.0 | 29.0 J1 | 29.0 J | - | ug/kg | M |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method BNASIMD, Surrogate**

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. Surrogate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-01_210518 (EB)/ 280-148774-13 | 2-Fluorobiphenyl | 47.00 | 53 - 106 | 10 - 106 | percent | J/UJ | I | |
| EB-01_210518 (EB)/ 280-148774-13 | Nitrobenzene-d5 | 50.00 | 55 - 111 | 10 - 111 | percent | J/UJ | I | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Surrogate for BNASIMD**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| EB-01_210518 | EB | 1-Methylnaphthalene | 0.0960 | 0.0380 U Q | 0.0380 UJ | | ug/l | I |
| EB-01_210518 | EB | 2-Methylnaphthalene | 0.0960 | 0.0480 U Q | 0.0480 UJ | | ug/l | I |
| EB-01_210518 | EB | Acenaphthene | 0.0960 | 0.0110 U Q | 0.0110 UJ | | ug/l | I |
| EB-01_210518 | EB | Acenaphthylene | 0.0960 | 0.0190 U Q | 0.0190 UJ | | ug/l | I |
| EB-01_210518 | EB | Anthracene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | C/I |
| EB-01_210518 | EB | Benzo(a)anthracene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | I |
| EB-01_210518 | EB | Benzo(a)pyrene | 0.0960 | 0.0480 U Q | 0.0480 UJ | | ug/l | C/I |
| EB-01_210518 | EB | Benzo(b)fluoranthene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | I |
| EB-01_210518 | EB | Benzo(g,h,i)perylene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | C/I |
| EB-01_210518 | EB | Benzo(k)fluoranthene | 0.0960 | 0.0480 U Q | 0.0480 UJ | | ug/l | C/I |
| EB-01_210518 | EB | Chrysene | 0.0960 | 0.0320 J Q | 0.0960 UJ | | ug/l | L/I |
| EB-01_210518 | EB | Dibenz(a,h)anthracene | 0.0960 | 0.0270 J Q | 0.0960 UJ | | ug/l | L/C/I |
| EB-01_210518 | EB | Fluoranthene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | I |
| EB-01_210518 | EB | Fluorene | 0.0960 | 0.0380 U Q M | 0.0380 UJ | | ug/l | I |
| EB-01_210518 | EB | Indeno(1,2,3-c,d)pyrene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | C/I |
| EB-01_210518 | EB | Naphthalene | 0.0960 | 0.0480 U Q | 0.0480 UJ | | ug/l | I |
| EB-01_210518 | EB | Phenanthrene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | I |
| EB-01_210518 | EB | Pyrene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | I |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Dissolved, Equipment Blank**

The purpose of equipment blanks is to determine the existence and magnitude of cross-contamination problems resulting from the process during sampling. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in equipment blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-01_210518 (EB)/ 280-148774-13 | Zinc | 4.500 | < 4.5 | < 150 | ug/l | U/None* | V | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6010C, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-538390/1-A (LB)/ MB 280-538390/1-A | Zinc | 0.5500 | < 0.4 | < 8 | mg/kg | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6010C, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH006-B (MS)/ 280-148774-11MS | Cobalt | 84.86 | 85 - 112 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH006-B (MS)/ 280-148774-11MS | Manganese | 119.8 | 84 - 114 | 10 - 200 | percent | J/None | M | |
| NYOW-B-PH006-B (MS)/ 280-148774-11MS | Aluminum | 322.2 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH006-B (MS)/ 280-148774-11MS | Iron | 208.6 | 81 - 118 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH006-B (SD)/ 280-148774-11MSD | Cobalt | 84.40 | 85 - 112 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH006-B (SD)/ 280-148774-11MSD | Manganese | 159.6 | 84 - 114 | 10 - 200 | percent | J/None | M | |
| NYOW-B-PH006-B (SD)/ 280-148774-11MSD | Aluminum | 297.8 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH006-B (SD)/ 280-148774-11MSD | Iron | 149.4 | 81 - 118 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-PH007-C (MS)/ 280-148774-9MS | Aluminum | 224.7 | 74 - 119 | 10 - 200 | percent | J/None | M | |
| NYOW-B-PH007-C (MS)/ 280-148774-9MS | Barium | 81.07 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH007-C (MS)/ 280-148774-9MS | Beryllium | 81.94 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH007-C (MS)/ 280-148774-9MS | Chromium | 81.70 | 85 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH007-C (MS)/ 280-148774-9MS | Cobalt | 78.39 | 85 - 112 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH007-C (MS)/ 280-148774-9MS | Lead | 78.39 | 81 - 112 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH007-C (MS)/ 280-148774-9MS | Nickel | 78.16 | 83 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH007-C (MS)/ 280-148774-9MS | Sodium | 82.75 | 83 - 118 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH007-C (MS)/ 280-148774-9MS | Vanadium | 81.23 | 82 - 114 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH007-C (MS)/ 280-148774-9MS | Zinc | 78.25 | 82 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH007-C (MS)/ 280-148774-9MS | Iron | -8.235 | 81 - 118 | 10 - 200 | percent | J/X | M | Spike amount Insignificant |
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Aluminum | 275.0 | 74 - 119 | 10 - 200 | percent | J/None | M | |
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Calcium | 206.0 | 81 - 116 | 10 - 200 | percent | J/None | M | |
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Cobalt | 83.47 | 85 - 112 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Magnesium | 126.0 | 78 - 115 | 10 - 200 | percent | J/None | M | |
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Manganese | 158.0 | 84 - 114 | 10 - 200 | percent | J/None | M | |

**Quality Control Outliers for test method SW6010C, MS Recovery**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Iron | 140.0 | 81 - 118 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL006-A (MS)/ 280-148774-10MS | Calcium | 154.5 | 81 - 116 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL006-A (MS)/ 280-148774-10MS | Aluminum | 223.9 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL006-A (MS)/ 280-148774-10MS | Iron | 128.3 | 81 - 118 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL006-A (SD)/ 280-148774-10MSD | Cobalt | 84.64 | 85 - 112 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL006-A (SD)/ 280-148774-10MSD | Manganese | 167.9 | 84 - 114 | 10 - 200 | percent | J/None | M | |
| NYOW-B-SL006-A (SD)/ 280-148774-10MSD | Zinc | 81.43 | 82 - 113 | 10 - 200 | percent | J/UJ | M | |
| NYOW-B-SL006-A (SD)/ 280-148774-10MSD | Aluminum | 311.0 | 74 - 119 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |
| NYOW-B-SL006-A (SD)/ 280-148774-10MSD | Iron | 237.6 | 81 - 118 | 10 - 200 | percent | J/None | M | Spike amount Insignificant |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS Recovery for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH006-B | N | Cobalt | 0.900 | 2.30 J1 | 2.30 J | - | mg/kg | M |
| NYOW-B-PH006-B | N | Manganese | 4.10 | 140 J1 | 140 J | + | mg/kg | M |
| NYOW-B-PH007-C | N | Cobalt | 1.10 | 1.60 J1 | 1.60 J | - | mg/kg | M/D |
| NYOW-B-PH007-C | N | Manganese | 5.00 | 150 J1 | 150 J | + | mg/kg | M/D |
| NYOW-B-PH007-C | N | Aluminum | 56.0 | 2200 J1 | 2200 J | + | mg/kg | M |
| NYOW-B-PH007-C | N | Barium | 2.20 | 16.0 J1 Q | 16.0 J | - | mg/kg | M/D |
| NYOW-B-PH007-C | N | Beryllium | 0.560 | 0.160 J J1 | 0.160 J | - | mg/kg | M/D/TR |
| NYOW-B-PH007-C | N | Chromium | 3.90 | 4.30 J1 | 4.30 J | - | mg/kg | M/D |
| NYOW-B-PH007-C | N | Lead | 1.00 | 1.20 J1 | 1.20 J | - | mg/kg | M/D |
| NYOW-B-PH007-C | N | Nickel | 4.40 | 3.20 J J1 | 3.20 J | - | mg/kg | M/D/TR |
| NYOW-B-PH007-C | N | Sodium | 560 | 37.0 J J1 | 37.0 J | - | mg/kg | M/D/TR |
| NYOW-B-PH007-C | N | Vanadium | 2.20 | 8.70 J1 | 8.70 J | - | mg/kg | M/D |
| NYOW-B-PH007-C | N | Zinc | 8.90 | 9.30 J1 | 9.30 J | - | mg/kg | M/D |
| NYOW-B-PH007-C | N | Calcium | 110 | 8500 J1 | 8500 J | + | mg/kg | M/D |
| NYOW-B-PH007-C | N | Magnesium | 33.0 | 4100 J1 | 4100 J | + | mg/kg | M/D |
| NYOW-B-SL006-A | N | Manganese | 5.00 | 160 J1 | 160 J | + | mg/kg | M/D |

**Qualified Results associated with the MS Recovery for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL006-A | N | Zinc | 8.90 | 17.0 | 17.0 J | - | mg/kg | M |
| NYOW-B-SL006-A | N | Calcium | 110 | 3400 J1 | 3400 J | + | mg/kg | M/D |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, MS RPD**

The objective of matrix spikes/matrix spike duplicates (MS/MSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. MS/MSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Matrix spikes/matrix spike duplicates results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Barium | 28.57 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Beryllium | 22.68 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Calcium | 37.97 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Chromium | 22.36 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Cobalt | 22.69 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Copper | 23.03 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Lead | 22.80 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Magnesium | 23.06 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Manganese | 23.59 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Nickel | 22.39 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Potassium | 21.81 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Sodium | 23.00 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Vanadium | 22.55 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-PH007-C (SD)/ 280-148774-9MSD | Zinc | 20.72 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL006-A (SD)/ 280-148774-10MSD | Calcium | 23.87 | < 20 | < 20 | rpd | J/UJ | D | |
| NYOW-B-SL006-A (SD)/ 280-148774-10MSD | Manganese | 25.66 | < 20 | < 20 | rpd | J/UJ | D | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS RPD for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH007-C | N | Barium | 2.20 | 16.0 J1 Q | 16.0 J | - | mg/kg | M/D |
| NYOW-B-PH007-C | N | Beryllium | 0.560 | 0.160 J J1 | 0.160 J | - | mg/kg | M/D/TR |
| NYOW-B-PH007-C | N | Calcium | 110 | 8500 J1 | 8500 J | + | mg/kg | M/D |
| NYOW-B-PH007-C | N | Chromium | 3.90 | 4.30 J1 | 4.30 J | - | mg/kg | M/D |
| NYOW-B-PH007-C | N | Cobalt | 1.10 | 1.60 J1 | 1.60 J | - | mg/kg | M/D |
| NYOW-B-PH007-C | N | Copper | 5.60 | 4.70 J J1 | 4.70 J | | mg/kg | D/TR |
| NYOW-B-PH007-C | N | Lead | 1.00 | 1.20 J1 | 1.20 J | - | mg/kg | M/D |

**Qualified Results associated with the MS RPD for SW6010C**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH007-C | N | Magnesium | 33.0 | 4100 J1 | 4100 J | + | mg/kg | M/D |
| NYOW-B-PH007-C | N | Manganese | 5.00 | 150 J1 | 150 J | + | mg/kg | M/D |
| NYOW-B-PH007-C | N | Nickel | 4.40 | 3.20 J J1 | 3.20 J | - | mg/kg | M/D/TR |
| NYOW-B-PH007-C | N | Potassium | 330 | 430 J1 | 430 J | | mg/kg | D |
| NYOW-B-PH007-C | N | Sodium | 560 | 37.0 J J1 | 37.0 J | - | mg/kg | M/D/TR |
| NYOW-B-PH007-C | N | Vanadium | 2.20 | 8.70 J1 | 8.70 J | - | mg/kg | M/D |
| NYOW-B-PH007-C | N | Zinc | 8.90 | 9.30 J1 | 9.30 J | - | mg/kg | M/D |
| NYOW-B-SL006-A | N | Calcium | 110 | 3400 J1 | 3400 J | + | mg/kg | M/D |
| NYOW-B-SL006-A | N | Manganese | 5.00 | 160 J1 | 160 J | + | mg/kg | M/D |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW6010C, Total, Equipment Blank**

The purpose of equipment blanks is to determine the existence and magnitude of cross-contamination problems resulting from the process during sampling. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in equipment blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-02_210518 (EB)/ 280-148774-14 | Barium | 1.800 | < 0.82 | < 10 | ug/l | U/None* | V | |
| EB-02_210518 (EB)/ 280-148774-14 | Iron | 57.00 | < 22 | < 100 | ug/l | U/None* | V | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6020A, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210518 (N)/ 280-148774-5 | Cadmium | 57.14 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW6020A, Total, Equipment Blank**

The purpose of equipment blanks is to determine the existence and magnitude of cross-contamination problems resulting from the process during sampling. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in equipment blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| EB-02_210518 (EB)/ 280-148774-14 | Chromium | 0.6100 | < 0.5 | < 10 | ug/l | U/None* | V | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW7470A, Total, Lab Blank**

The purpose of laboratory blanks is to determine the existence and magnitude of cross-contamination problems resulting from laboratory activities. Reported results were evaluated to determine compliance with the required acceptance criteria. Summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and contaminants found in laboratory blanks are listed below along with any associated qualified results.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| MB 280-537553/1-A (LB)/ MB 280-537553/1-A | Mercury | 0.04070 | < 0.027 | < 0.2 | ug/l | U/None* | L | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

*Blank flags displayed in the above table identify qualification of the sample result when it is less than or equal to the LOQ/RL. Sample results above the LOQ will be qualified based on the validation type such as J+ at the sample result.

No results associated with this QC element required qualification.

**Quality Control Outliers for test method SW7471B, Total, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| SL-DUP-001_210518 (N)/ 280-148774-7 | Mercury | 104.3 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Field Duplicate RPD for SW7471B, Total**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL007-A | N | Mercury | 0.0250 | 0.0700 | 0.0700 J | | mg/kg | D3 |
| SL-DUP-001_210518 | FD | Mercury | 0.0250 | 0.0220 J | 0.0220 J | | mg/kg | D3/TR |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW9060A, Field Duplicate RPD**

Field duplicate analyses are performed in order to assess sample collection/laboratory precision for each sample matrix. Summary forms were evaluated and compared to electronic data deliverables. Field duplicate results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| PH-DUP-001_210518 (N)/ 280-148774-5 | Total Organic Carbon | 76.67 | < 50 | < 50 | rpd | J/None | D3 | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the Field Duplicate RPD for SW9060A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-PH011-C | N | Total Organic Carbon | 1100 | 8300 H | 8300 J | - | mg/kg | D3/H1 |
| PH-DUP-001_210518 | FD | Total Organic Carbon | 610 | 3700 H | 3700 J | - | mg/kg | D3/H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Quality Control Outliers for test method SW9060A, MS RPD**

The objective of matrix spikes/matrix spike duplicates (MS/MSD) RPD analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. MS/MSD analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Matrix spikes/matrix spike duplicates results that were outside of the acceptance criteria are listed below.

| Sample ID/ Lab Sample ID | Analyte | Result | Warning Limits | Control Limits | Units | Qualifier | Reason Code | Comment |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL006-A (SD)/ 280-148774-10MSD | Total Organic Carbon | 21.98 | < 20 | < 20 | rpd | J/UJ | D | |

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

**Qualified Results associated with the MS RPD for SW9060A**

| FieldSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
|---|---|---|---|---|---|---|---|---|
| NYOW-B-SL006-A | N | Total Organic Carbon | 2100 | 8800 H J1 | 8800 J | - | mg/kg | D/H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3510C | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| EB-01_210518 280-148774-13 | EB | 1-Methylnaphthalene | 0.0960 | 0.0380 U Q | 0.0380 UJ | | ug/l | I |
| EB-01_210518 280-148774-13 | EB | 2-Methylnaphthalene | 0.0960 | 0.0480 U Q | 0.0480 UJ | | ug/l | I |
| EB-01_210518 280-148774-13 | EB | Acenaphthene | 0.0960 | 0.0110 U Q | 0.0110 UJ | | ug/l | I |
| EB-01_210518 280-148774-13 | EB | Acenaphthylene | 0.0960 | 0.0190 U Q | 0.0190 UJ | | ug/l | I |
| EB-01_210518 280-148774-13 | EB | Anthracene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | C/I |
| EB-01_210518 280-148774-13 | EB | Benzo(a)anthracene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | I |
| EB-01_210518 280-148774-13 | EB | Benzo(a)pyrene | 0.0960 | 0.0480 U Q | 0.0480 UJ | | ug/l | C/I |
| EB-01_210518 280-148774-13 | EB | Benzo(b)fluoranthene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | I |
| EB-01_210518 280-148774-13 | EB | Benzo(g,h,i)perylene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | C/I |
| EB-01_210518 280-148774-13 | EB | Benzo(k)fluoranthene | 0.0960 | 0.0480 U Q | 0.0480 UJ | | ug/l | C/I |
| EB-01_210518 280-148774-13 | EB | Chrysene | 0.0960 | 0.0320 J Q | 0.0960 UJ | | ug/l | L/I |
| EB-01_210518 280-148774-13 | EB | Dibenz(a,h)anthracene | 0.0960 | 0.0270 J Q | 0.0960 UJ | | ug/l | L/C/I |
| EB-01_210518 280-148774-13 | EB | Fluoranthene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | I |
| EB-01_210518 280-148774-13 | EB | Fluorene | 0.0960 | 0.0380 U Q M | 0.0380 UJ | | ug/l | I |
| EB-01_210518 280-148774-13 | EB | Indeno(1,2,3-c,d)pyrene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | C/I |
| EB-01_210518 280-148774-13 | EB | Naphthalene | 0.0960 | 0.0480 U Q | 0.0480 UJ | | ug/l | I |
| EB-01_210518 280-148774-13 | EB | Phenanthrene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | I |
| EB-01_210518 280-148774-13 | EB | Pyrene | 0.0960 | 0.0960 U Q | 0.0960 UJ | | ug/l | I |
| EB-02_210518 280-148774-14 | EB | Anthracene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | C |
| EB-02_210518 280-148774-14 | EB | Benzo(a)anthracene | 0.110 | 0.0460 J M Q | 0.110 U | | ug/l | L |
| EB-02_210518 280-148774-14 | EB | Benzo(a)pyrene | 0.110 | 0.0530 U Q | 0.0530 UJ | | ug/l | C |
| EB-02_210518 280-148774-14 | EB | Benzo(g,h,i)perylene | 0.110 | 0.110 U Q | 0.110 UJ | | ug/l | C |
| EB-02_210518 280-148774-14 | EB | Benzo(k)fluoranthene | 0.110 | 0.0530 U Q | 0.0530 UJ | | ug/l | C |
| EB-02_210518 280-148774-14 | EB | Chrysene | 0.110 | 0.0400 J Q | 0.110 U | | ug/l | L |
| EB-02_210518 280-148774-14 | EB | Dibenz(a,h)anthracene | 0.110 | 0.110 U M Q | 0.110 UJ | | ug/l | C |
| EB-02_210518 280-148774-14 | EB | Indeno(1,2,3-c,d)pyrene | 0.110 | 0.110 U M Q | 0.110 UJ | | ug/l | C |

**Table of All Qualified Results**

| Test Method: BNASIMD | | Extraction Method: SW3510C | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-WL010-A 280-148774-1 | N | Anthracene | 0.130 | 0.130 U Q | 0.130 UJ | | ug/l | C |
| NYOW-B-WL010-A 280-148774-1 | N | Benzo(a)anthracene | 0.130 | 0.0620 J M Q | 0.130 U | | ug/l | L |
| NYOW-B-WL010-A 280-148774-1 | N | Benzo(a)pyrene | 0.130 | 0.0650 U Q | 0.0650 UJ | | ug/l | C |
| NYOW-B-WL010-A 280-148774-1 | N | Benzo(g,h,i)perylene | 0.130 | 0.130 U Q | 0.130 UJ | | ug/l | C |
| NYOW-B-WL010-A 280-148774-1 | N | Chrysene | 0.130 | 0.0590 J Q | 0.130 U | | ug/l | V/L |
| NYOW-B-WL010-A 280-148774-1 | N | Dibenz(a,h)anthracene | 0.130 | 0.130 U Q | 0.130 UJ | | ug/l | C |
| NYOW-B-WL010-A 280-148774-1 | N | Indeno(1,2,3-c,d)pyrene | 0.130 | 0.130 U Q | 0.130 UJ | | ug/l | C |

| Test Method: BNASIMD | | Extraction Method: SW3546 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-SL006-A 280-148774-10 | N | Benzo(k)fluoranthene | 13.0 | 15.0 M J1 | 15.0 J | - | ug/kg | M |
| NYOW-B-SL006-A 280-148774-10 | N | Chrysene | 13.0 | 22.0 J1 | 22.0 J | - | ug/kg | M |
| NYOW-B-SL006-A 280-148774-10 | N | Fluoranthene | 13.0 | 34.0 J1 | 34.0 J | - | ug/kg | M |
| NYOW-B-SL006-A 280-148774-10 | N | Pyrene | 13.0 | 29.0 J1 | 29.0 J | - | ug/kg | M |
| NYOW-B-SL007-A 280-148774-6 | N | Benzo(a)pyrene | 13.0 | 14.0 | 14.0 J | | ug/kg | D3 |
| NYOW-B-SL007-A 280-148774-6 | N | Benzo(b)fluoranthene | 13.0 | 16.0 | 16.0 J | | ug/kg | D3 |
| NYOW-B-SL007-A 280-148774-6 | N | Fluoranthene | 13.0 | 20.0 | 20.0 J | | ug/kg | D3 |
| NYOW-B-SL007-A 280-148774-6 | N | Pyrene | 13.0 | 17.0 | 17.0 J | | ug/kg | D3 |
| PH-DUP-001_210518 280-148774-5 | FD | Chrysene | 12.0 | 14.0 | 14.0 J | | ug/kg | D3 |

| Test Method: SW6010C | | Extraction Method: FLDFLT | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| EB-01_210518 280-148774-13 | EB | Selenium | 22.0 | 19.0 U | 19.0 UJ | | ug/l | V6 |
| NYOW-B-WL010-A 280-148774-1 | N | Iron | 100 | 46.0 J | 85.0 U | | ug/l | L |
| NYOW-B-WL010-A 280-148774-1 | N | Selenium | 22.0 | 19.0 U | 19.0 UJ | | ug/l | V6 |

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH006-B 280-148774-11 | N | Cobalt | 0.900 | 2.30 J1 | 2.30 J | - | mg/kg | M |
| NYOW-B-PH006-B 280-148774-11 | N | Manganese | 4.10 | 140 J1 | 140 J | + | mg/kg | M |

**Table of All Qualified Results**

| Test Method: SW6010C | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH007-C 280-148774-9 | N | Aluminum | 56.0 | 2200 J1 | 2200 J | + | mg/kg | M |
| NYOW-B-PH007-C 280-148774-9 | N | Barium | 2.20 | 16.0 J1 Q | 16.0 J | - | mg/kg | M/D |
| NYOW-B-PH007-C 280-148774-9 | N | Calcium | 110 | 8500 J1 | 8500 J | + | mg/kg | M/D |
| NYOW-B-PH007-C 280-148774-9 | N | Chromium | 3.90 | 4.30 J1 | 4.30 J | - | mg/kg | M/D |
| NYOW-B-PH007-C 280-148774-9 | N | Cobalt | 1.10 | 1.60 J1 | 1.60 J | - | mg/kg | M/D |
| NYOW-B-PH007-C 280-148774-9 | N | Lead | 1.00 | 1.20 J1 | 1.20 J | - | mg/kg | M/D |
| NYOW-B-PH007-C 280-148774-9 | N | Magnesium | 33.0 | 4100 J1 | 4100 J | + | mg/kg | M/D |
| NYOW-B-PH007-C 280-148774-9 | N | Manganese | 5.00 | 150 J1 | 150 J | + | mg/kg | M/D |
| NYOW-B-PH007-C 280-148774-9 | N | Potassium | 330 | 430 J1 | 430 J | | mg/kg | D |
| NYOW-B-PH007-C 280-148774-9 | N | Vanadium | 2.20 | 8.70 J1 | 8.70 J | - | mg/kg | M/D |
| NYOW-B-PH007-C 280-148774-9 | N | Zinc | 8.90 | 9.30 J1 | 9.30 J | - | mg/kg | M/D |
| NYOW-B-SL006-A 280-148774-10 | N | Calcium | 110 | 3400 J1 | 3400 J | + | mg/kg | M/D |
| NYOW-B-SL006-A 280-148774-10 | N | Manganese | 5.00 | 160 J1 | 160 J | + | mg/kg | M/D |
| NYOW-B-SL006-A 280-148774-10 | N | Zinc | 8.90 | 17.0 | 17.0 J | - | mg/kg | M |

| Test Method: SW6010C | | Extraction Method: TOTAL | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| EB-02_210518 280-148774-14 | EB | Selenium | 22.0 | 19.0 U | 19.0 UJ | | ug/l | V6 |

| Test Method: SW6020A | | Extraction Method: SW3050B | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH006-B 280-148774-11 | N | Antimony | 0.200 | 0.110 J | 0.200 U | | mg/kg | B2 |
| NYOW-B-PH006-C 280-148774-12 | N | Antimony | 0.170 | 0.110 J | 0.170 U | | mg/kg | B2 |
| NYOW-B-PH011-B 280-148774-3 | N | Antimony | 0.180 | 0.0740 J | 0.0890 U | | mg/kg | B2 |
| NYOW-B-SL011-A 280-148774-2 | N | Antimony | 0.200 | 0.120 J | 0.200 U | | mg/kg | B2 |

| Test Method: SW7471B | | Extraction Method: TOTAL | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-SL007-A 280-148774-6 | N | Mercury | 0.0250 | 0.0700 | 0.0700 J | | mg/kg | D3 |

**Table of All Qualified Results**

| Test Method: SW9060A | | Extraction Method: NONE | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | Qualified Result | Bias | Units | Reason |
| NYOW-B-PH006-B 280-148774-11 | N | Total Organic Carbon | 320 | 550 H | 550 J | - | mg/kg | H1 |
| NYOW-B-PH006-C 280-148774-12 | N | Total Organic Carbon | 830 | 2400 H | 2400 J | - | mg/kg | H1 |
| NYOW-B-PH007-B 280-148774-8 | N | Total Organic Carbon | 620 | 410 U H | 410 UJ | | mg/kg | H1 |
| NYOW-B-PH007-C 280-148774-9 | N | Total Organic Carbon | 750 | 1600 H | 1600 J | - | mg/kg | H1 |
| NYOW-B-PH011-B 280-148774-3 | N | Total Organic Carbon | 740 | 1900 H | 1900 J | - | mg/kg | H1 |
| NYOW-B-PH011-C 280-148774-4 | N | Total Organic Carbon | 1100 | 8300 H | 8300 J | - | mg/kg | D3/H1 |
| NYOW-B-SL006-A 280-148774-10 | N | Total Organic Carbon | 2100 | 8800 H J1 | 8800 J | - | mg/kg | D/H1 |
| NYOW-B-SL007-A 280-148774-6 | N | Total Organic Carbon | 1300 | 14000 H | 14000 J | - | mg/kg | H1 |
| NYOW-B-SL011-A 280-148774-2 | N | Total Organic Carbon | 1700 | 4800 H | 4800 J | - | mg/kg | H1 |
| PH-DUP-001_210518 280-148774-5 | FD | Total Organic Carbon | 610 | 3700 H | 3700 J | - | mg/kg | D3/H1 |
| SL-DUP-001_210518 280-148774-7 | FD | Total Organic Carbon | 1800 | 9300 H | 9300 J | - | mg/kg | H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method BNASIMD**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-WL010-A 280-148774-1 | N | Benzo(k)fluoranthene | 0.130 | 0.0400 J Q | 0.0400 J | 0.0400 J | C/TR |

**Modified Qualifiers for test method BNASIMD**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH011-C 280-148774-4 | N | Benzo(a)anthracene | 12.0 | 2.70 J | 2.70 J | 2.70 J | TR |
| NYOW-B-PH011-C 280-148774-4 | N | Benzo(a)pyrene | 12.0 | 2.50 J | 2.50 J | 2.50 J | TR |
| NYOW-B-SL007-A 280-148774-6 | N | Acenaphthene | 13.0 | 0.570 J | 0.570 J | 0.570 J | TR |
| NYOW-B-SL007-A 280-148774-6 | N | Benzo(a)anthracene | 13.0 | 8.70 J | 8.70 J | 8.70 J | TR |
| NYOW-B-SL007-A 280-148774-6 | N | Benzo(g,h,i)perylene | 13.0 | 8.20 J | 8.20 J | 8.20 J | TR |
| NYOW-B-SL007-A 280-148774-6 | N | Benzo(k)fluoranthene | 13.0 | 8.40 J | 8.40 J | 8.40 J | TR |
| NYOW-B-SL007-A 280-148774-6 | N | Chrysene | 13.0 | 11.0 J | 11.0 J | 11.0 J | TR |
| NYOW-B-SL007-A 280-148774-6 | N | Indeno(1,2,3-c,d)pyrene | 13.0 | 8.40 J M | 8.40 J | 8.40 J | TR |
| NYOW-B-SL007-A 280-148774-6 | N | Phenanthrene | 13.0 | 8.40 J | 8.40 J | 8.40 J | TR |
| PH-DUP-001_210518 280-148774-5 | FD | Benzo(a)anthracene | 12.0 | 7.20 J | 7.20 J | 7.20 J | TR |
| PH-DUP-001_210518 280-148774-5 | FD | Benzo(a)pyrene | 12.0 | 5.60 J | 5.60 J | 5.60 J | TR |
| PH-DUP-001_210518 280-148774-5 | FD | Benzo(b)fluoranthene | 12.0 | 4.90 J | 4.90 J | 4.90 J | TR |
| PH-DUP-001_210518 280-148774-5 | FD | Benzo(g,h,i)perylene | 12.0 | 2.70 J | 2.70 J | 2.70 J | TR |
| PH-DUP-001_210518 280-148774-5 | FD | Benzo(k)fluoranthene | 12.0 | 3.30 J | 3.30 J | 3.30 J | TR |
| PH-DUP-001_210518 280-148774-5 | FD | Fluoranthene | 12.0 | 6.60 J | 6.60 J | 6.60 J | TR |
| SL-DUP-001_210518 280-148774-7 | FD | Benzo(a)anthracene | 12.0 | 2.70 J | 2.70 J | 2.70 J | TR |
| SL-DUP-001_210518 280-148774-7 | FD | Benzo(g,h,i)perylene | 12.0 | 2.80 J | 2.80 J | 2.80 J | TR |
| SL-DUP-001_210518 280-148774-7 | FD | Benzo(k)fluoranthene | 12.0 | 2.90 J M | 2.90 J | 2.90 J | TR |
| SL-DUP-001_210518 280-148774-7 | FD | Chrysene | 12.0 | 3.60 J | 3.60 J | 3.60 J | TR |
| SL-DUP-001_210518 280-148774-7 | FD | Indeno(1,2,3-c,d)pyrene | 12.0 | 3.20 J M | 3.20 J | 3.20 J | TR |

**Modified Qualifiers for test method SW6010C, Dissolved**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| EB-01_210518 280-148774-13 | EB | Selenium | 22.0 | 19.0 U | 19.0 U | 19.0 UJ | V6 |

**Table of Results with Modified Qualifiers**

**Modified Qualifiers for test method SW6010C, Dissolved**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-WL010-A 280-148774-1 | N | Iron | 100 | 46.0 J | 46.0 J | 85.0 U | L |
| NYOW-B-WL010-A 280-148774-1 | N | Selenium | 22.0 | 19.0 U | 19.0 U | 19.0 UJ | V6 |

**Modified Qualifiers for test method SW6010C**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-SL006-A 280-148774-10 | N | Cobalt | 1.10 | 2.30 | 2.30 J | 2.30 | |

**Modified Qualifiers for test method SW6010C, Total**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| EB-02_210518 280-148774-14 | EB | Selenium | 22.0 | 19.0 U | 19.0 U | 19.0 UJ | V6 |

**Modified Qualifiers for test method SW6020A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH006-B 280-148774-11 | N | Antimony | 0.200 | 0.110 J | 0.110 J | 0.200 U | B2 |
| NYOW-B-PH006-C 280-148774-12 | N | Antimony | 0.170 | 0.110 J | 0.110 J | 0.170 U | B2 |
| NYOW-B-PH011-B 280-148774-3 | N | Antimony | 0.180 | 0.0740 J | 0.0740 J | 0.0890 U | B2 |
| NYOW-B-PH011-C 280-148774-4 | N | Cadmium | 0.120 | 0.0270 J | 0.0270 J | 0.0270 J | TR |
| NYOW-B-SL011-A 280-148774-2 | N | Antimony | 0.200 | 0.120 J | 0.120 J | 0.200 U | B2 |
| PH-DUP-001_210518 280-148774-5 | FD | Cadmium | 0.0890 | 0.0150 J | 0.0150 J | 0.0150 J | TR |

**Modified Qualifiers for test method SW9060A**

| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
|---|---|---|---|---|---|---|---|
| NYOW-B-PH006-B 280-148774-11 | N | Total Organic Carbon | 320 | 550 H | 550 | 550 J | H1 |
| NYOW-B-PH006-C 280-148774-12 | N | Total Organic Carbon | 830 | 2400 H | 2400 | 2400 J | H1 |
| NYOW-B-PH007-B 280-148774-8 | N | Total Organic Carbon | 620 | 410 U H | 410 U | 410 UJ | H1 |
| NYOW-B-PH007-C 280-148774-9 | N | Total Organic Carbon | 750 | 1600 H | 1600 | 1600 J | H1 |
| NYOW-B-PH011-B 280-148774-3 | N | Total Organic Carbon | 740 | 1900 H | 1900 | 1900 J | H1 |
| NYOW-B-PH011-C 280-148774-4 | N | Total Organic Carbon | 1100 | 8300 H | 8300 J | 8300 J | D3/H1 |
| NYOW-B-SL006-A 280-148774-10 | N | Total Organic Carbon | 2100 | 8800 H J1 | 8800 J | 8800 J | D/H1 |
| NYOW-B-SL007-A 280-148774-6 | N | Total Organic Carbon | 1300 | 14000 H | 14000 | 14000 J | H1 |
| NYOW-B-SL011-A 280-148774-2 | N | Total Organic Carbon | 1700 | 4800 H | 4800 | 4800 J | H1 |

**Table of Results with Modified Qualifiers**

| Modified Qualifiers for test method SW9060A | | | | | | | |
|---|---|---|---|---|---|---|---|
| FieldSample ID / LabSample ID | Type | Analyte | LOQ | Lab Result | ADR Result | Modified Result | Reason |
| PH-DUP-001_210518 280-148774-5 | FD | Total Organic Carbon | 610 | 3700 H | 3700 J | 3700 J | D3/H1 |
| SL-DUP-001_210518 280-148774-7 | FD | Total Organic Carbon | 1800 | 9300 H | 9300 | 9300 J | H1 |

Analytes not found in project samples are reported as not detected at the limit of detection (LOD) unless blank contamination occurs and then the sample may be reported as not detected at the (LOQ) based on the sample concentration.
In instances where no LOD is provided, results are reported down to the LOQ.
Trace values are not included in the qualified results table unless additional reason codes are associated.

**Reason Code Definitions**

| Code | Definition |
|---|---|
| B2 | CCB |
| C | LCS Recovery |
| D | MS RPD |
| D3 | Field Duplicate RPD |
| H1 | Test Hold Time |
| I | Surrogate recovery outside project limits. |
| L | Lab Blank |
| M | MS Recovery |
| TR | Trace Level Detect |
| V | Equipment Blank |
| V6 | Low Level Calibration Verification |
| Z | LCS RPD |

**Flag Code and Definitions**

| Flag | Definition |
|---|---|
| J | Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria. |
| U | Undetected: The analyte was analyzed for, but not detected. |
| UJ | The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria. |

**Bias**

| | |
|---|---|
| - | The result may be biased low |
| + | The result may be biased high |

Note - The bias field is a separate field; however, it is an integral part of the final flag (qualifier) on the sample result

**Review Questions**

Method: BNASIMD (GC/MS-SIM Analysis by SW8270D)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | | • | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the GC/MS system properly tuned based on method criteria? | • | | | |
| Was instrument tuning completed every 12 hours during sample analysis? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were Internal Standard retention times and area criteria within method requirements? | • | | | |
| Were internal standards spiked for every sample, standard, and QC sample? | • | | | |
| Were surrogate recoveries within project acceptance limits? | | • | | See QC Outliers.<br>These samples are outside of hold and were not sent for re-extraction. |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | See QC Outliers. |
| Were target analytes in the field blank less than MDL? | | • | | See QC Outliers. |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the LCS/LCSD RPD within project acceptance limits? | | • | | See QC Outliers. |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | • | | PH-DUP-001_210518, Chrysene RPD = 126%. NYOW-B-SL007-A, B(a)P RPD = 111%, B(b)F RPD = 109%, fluoranthene RPD = 127%, pyrene RPD = 124%. |
| Were QAPP specified laboratory PQLs achieved? | | • | | The EB and sample NYOW-B-WL010-A had LOQs slightly greater than PQLGs for several PAHs. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | | • | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | | • | | CCVL 280-537914/33 and /46 exhibited recoveries < 80% for selenium at 75% and 75%. The associated sample result was non-detect and is qualified as "UJ".<br>CCVL 280-537936/38 exhibited a recovery less than 80% for selenium at 78%. The associated sample results were non-detect and are qualified as "UJ". |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Did the ICSA have any non-target interferents above the MDL? | • | | | The ICSA associated with batch 280-538634 had results for Ba at a level greater than the LOD. The initial ICSA result (13.4 ppb) was > LOD (2 ppb). The ICSA associated with batch 280-537914 had results for Ba at a level greater than the LOD. The initial ICSA result (13.5 ppb) was > LOD (2 ppb).<br>The ICSA associated with batch 280-537936 had results for Ba at a level greater than the LOD. The initial ICSA result (13.5ppb) was > LOD (2 ppb). The laboratory has confirmed using ICP-MS that Ba is a trace impurity in the ICSA standard. |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | See QC Outliers.<br>MB 280-537650/1-A exhibited a detection for iron below the LOQ at 31.7 ug/L. The associated sample results less than the LOQ are qualified as "U". |
| Were target analytes in the field blank less than MDL? | | • | | See QC Outliers. |
| Was the laboratory duplicate RPD within project acceptance limits? | | | • | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | | • | | See QC Outliers. NYOW-B-SL006-A recovery of cobalt acceptable (86%).<br>ADR recoveries do not match PDF data package. |

**Review Questions**

| Method: SW6010C (Trace Metals by Inductively Coupled Plasma/Atomic Emission Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Was the MS/MSD RPD within project acceptance limits? | | • | | See QC Outliers. |
| Were the post spike recoveries within project acceptance limits? | | | • | PDS not performed. |
| Were the serial dilution RPD values within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | | • | | PDS not performed.<br>ICP serial dilution not performed for all MS samples. |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | | • | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the system properly tuned based on method criteria? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | | • | | ICB 280-538547/15 exhibited a detection for Sb at 0.643 ug/L. The associated filtered aqueous sample results were non-detect.<br>ICB 280-538767/39 exhibited a detection below the LOQ for Sb at 0.687 ug/L. CCB 280-538767/124 exhibited a detection for Sb at 0.400 ug/L. The associated positive detections were below the aqueous LOQ and were qualified as "U". |
| Did the ICSA have any non-target interferents above the MDL? | • | | | |
| Were the ICSA/ICSAB recoveries within QAPP acceptance limits? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | MB 280-538044/1-A exhibited a detection for Sb below the LOQ at 0.935 ug/L. The associated sample results were non-detect. |
| Was the laboratory duplicate RPD within project acceptance limits? | | | • | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | Aqueous MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | • | | | |
| Were the post spike recoveries within project acceptance limits? | • | | | |
| Were the serial dilution RPD values within project acceptance limits? | • | | | |

**Review Questions**

| Method: SW6020A (Trace Metals by Inductively Coupled Plasma/Mass Spectrometry) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Were QAPP specified laboratory PQLs achieved? | | • | | Soil LOQs for As, Sb, Se, and Tl were slightly greater than PQLGs due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

| Method: SW7470A (Mercury in Water (Manual Cold-Vapor Technique)) | | | | |
|---|---|---|---|---|
| Review Questions | Yes | No | NA | Comment |
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | | • | | See SDG details. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | | • | | See QC Outliers. Associated filtered sample results were non-detect. |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | | • | | MS/SD not performed. |
| Were MS/MSD recoveries within project acceptance limits? | | | • | |
| Was the MS/MSD RPD within project acceptance limits? | | | • | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | | • | |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW7471B (Mercury in Soil (Manual Cold-Vapor Technique))

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | | • | | See SDG details. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | • | | | |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | • | | | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | • | | | |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | • | | | |
| Was a MS/MSD pair prepared with each batch? | • | | | |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | • | | | |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | • | | See QC Outliers. |
| Were QAPP specified laboratory PQLs achieved? | | • | | Soil LOQs slightly greater than PQLGs due to percent moisture adjustments. |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

**Review Questions**

Method: SW9060A (Total Organic Carbon)

| Review Questions | Yes | No | NA | Comment |
|---|---|---|---|---|
| Did Chain-of-Custody information agree with laboratory report and EDD for requested field samples and tests? | | • | | See SDG Comments. |
| Were samples preserved properly and received in good condition? | • | | | |
| Were holding times met? | | • | | The following samples were analyzed between 2 and 3 days outside of analytical holding time due to an instrument issue that required the samples to be analyzed at another lab within the Eurofins network: NYOW-B-SL011-A, NYOW-B-PH011-B,NYOW-B-PH011-C, PH-DUP-001_210518, NYOW-B-SL007-A, SL-DUP-001_210518, NYOW-B-PH007-B, NYOW-B-PH007-C, NYOW-B-PH007-C, NYOW-B-SL006-A, NYOW-B-SL006-A, NYOW-B-PH006-B, and NYOW-B-PH006-C. |
| Were all requested target analytes reported? | • | | | |
| Was the Calibration within acceptance criteria? | • | | | |
| Were the required minimum levels of calibration standards used in the initial calibration? | • | | | |
| Was either analysis of an ICV performed after each ICAL or a second source standard prior to sample analysis? | • | | | |
| Were all reported analytes for the ICV within the required criteria? | • | | | |
| Were CCVs run at the required frequency and within acceptance criteria? | • | | | |
| Were ICB/CCBs run at the required frequency and within acceptance criteria? | • | | | |
| Was a method blank prepared and analyzed with each batch? | • | | | |
| Were target analytes in the method blank less than MDL? | • | | | |
| Were target analytes in the field blank less than MDL? | | | • | |
| Was an LCS/LCSD pair prepared and analyzed with each batch? | | • | | LCSD not performed. |
| Were LCS/LCSD recoveries within project acceptance limits? | • | | | |
| Was the LCS/LCSD RPD within project acceptance limits? | | | • | |
| Was a MS/MSD pair prepared with each batch? | • | | | |
| Were MS/MSD recoveries within project acceptance limits? | • | | | |
| Was the MS/MSD RPD within project acceptance limits? | | • | | See QC Outliers. |
| If a field duplicate was analyzed, were the RPDs within QAPP acceptance limits? | | • | | See QC Outliers. |
| Were QAPP specified laboratory PQLs achieved? | • | | | |
| Have all Laboratory Case Narrative comments/findings been addressed in the data review process? | • | | | |
| Were DoD QSM corrective actions followed if deviations were noted? | • | | | |
| Were any data recommended for rejection (exclusion) in the data validation process? | | • | | |

# APPENDIX B
# SDG List

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**Appendix B: List of Laboratory Sample Delivery Groups (SDGs)**

| SDG | AOC | Comment |
|---|---|---|
| 280-144370-1 | AOC 5 | |
| 280-144466-1 | AOC 5 | |
| 280-144466-2 | AOC 5 | CEC |
| 280-144501-1 | AOC 5 | |
| 280-144501-2 | AOC 5 | CEC |
| 280-144550-1 | AOC 5 | |
| 280-144550-2 | AOC 5 | CEC |
| 280-144607-1 | AOC 5 | |
| 280-144607-2 | AOC 5 | CEC |
| 280-144651-1 | AOC 5 | |
| 280-144651-2 | AOC 5 | CEC |
| 280-144706-1 | AOC 5 | |
| 280-144466-3 | AOC 5 | TOC |
| 280-144501-3 | AOC 5 | TOC |
| 280-144550-3 | AOC 5 | TOC |
| 280-144607-3 | AOC 5 | TOC |
| 280-144651-3 | AOC 5 | TOC |
| 280-144465-1 | AOC 5 | Grain Size Distribution |
| 280-144503-1 | AOC 5 | Grain Size Distribution |
| 280-144558-1 | AOC 5 | Grain Size Distribution |
| 280-144621-1 | AOC 5 | Grain Size Distribution |
| 280-144654-1 | AOC 5 | Grain Size Distribution |
| 14258 | AOC 5 | Coal Ash Analysis |
| 280-144913-1 | AOC 4 | |
| 280-144952-1 | AOC 4 | |
| 280-144996-1 | AOC 4 | |
| 280-145030-1 | AOC 4 | |
| 280-145058-1 | AOC 4 | |
| 280-145110-1 | AOC 4 | |
| 280-145163-1 | AOC 4 | |
| 280-145209-1 | AOC 4 | |
| 280-145271-1 | AOC 4 | |
| 280-145317-1 | AOC 4 | |
| 280-146929-1 | AOC 1 & AOC 3 | |
| 280-146929-2 | AOC 1 & AOC 3 | CEC |
| 280-146964-1 | AOC 1 & AOC 3 | |
| 280-146964-2 | AOC 1 & AOC 3 | CEC |
| 280-146997-1 | AOC 1 & AOC 3 | |
| 280-146997-2 | AOC 1 & AOC 3 | CEC |
| 280-147031-1 | AOC 1 & AOC 3 | |
| 280-147031-2 | AOC 1 & AOC 3 | CEC |
| 280-147085-1 | AOC 1 & AOC 3 | |
| 280-147085-2 | AOC 1 & AOC 3 | CEC |
| 280-147159-1 | AOC 1 & AOC 3 | |

| | | |
|---|---|---|
| 280-147159-2 | AOC 1 & AOC 3 | CEC |
| 280-147251-1 | AOC 1 & AOC 3 | |
| 280-147306-1 | AOC 1 & AOC 3 | |
| 280-147306-2 | AOC 1 & AOC 3 | CEC |
| 280-147363-1 | AOC 1 & AOC 3 | |
| 280-147423-1 | AOC 1 & AOC 3 | |
| 280-147423-2 | AOC 1 & AOC 3 | CEC |
| 280-147471-1 | AOC 1 & AOC 3 | |
| 280-148199-1 | AOC 1 & AOC 3 | |
| 280-148205-1 | AOC 1 & AOC 3 | |
| 280-148678-1 | AOC 1 & AOC 3 | |
| 680-198955-1 | AOC 1 | GW Resampling |
| 280-146931-1 | AOC 1 & AOC 3 | Grain Size Distribution |
| 280-146990-1 | AOC 1 & AOC 3 | Grain Size Distribution |
| 280-147005-1 | AOC 1 & AOC 3 | Grain Size Distribution |
| 280-147033-1 | AOC 1 & AOC 3 | Grain Size Distribution |
| 280-147088-1 | AOC 1 & AOC 3 | Grain Size Distribution |
| 280-147168-1 | AOC 1 & AOC 3 | Grain Size Distribution |
| 280-147309-1 | AOC 1 & AOC 3 | Grain Size Distribution |
| 280-147421-1 | AOC 1 & AOC 3 | Grain Size Distribution |
| 280-149543-1 | AOC 4 ISM | |
| 280-149607-1 | AOC 4 ISM | |
| 280-149650-1 | AOC 4 ISM | |
| 680-199837-1 | AOC 4 ISM | EB sample only |
| 680-199889-1 | AOC 4 ISM | EB sample only |
| 680-199995-1 | AOC 4 ISM | EB sample only |
| 280-148313-1 | Background | |
| 280-148313-2 | Background | CEC |
| 280-148345-1 | Background | |
| 280-148345-2 | Background | CEC |
| 280-148419-1 | Background | |
| 280-148419-2 | Background | CEC |
| 280-148471-1 | Background | |
| 280-148471-2 | Background | CEC |
| 280-148501-1 | Background | |
| 280-148501-2 | Background | CEC |
| 280-148576-1 | Background | |
| 280-148576-2 | Background | CEC |
| 280-148628-1 | Background | |
| 280-148628-2 | Background | CEC |
| 280-148677-1 | Background | |
| 280-148677-2 | Background | CEC |
| 280-148718-1 | Background | |
| 280-148718-2 | Background | CEC |
| 280-148774-1 | Background | |
| 280-148774-2 | Background | CEC |
| 280-148318-1 | Background | Grain Size Distribution |

| | | |
|---|---|---|
| 280-148349-1 | Background | Grain Size Distribution |
| 280-148421-1 | Background | Grain Size Distribution |
| 280-148469-1 | Background | Grain Size Distribution |
| 280-148502-1 | Background | Grain Size Distribution |
| 280-148579-1 | Background | Grain Size Distribution |
| 280-148629-1 | Background | Grain Size Distribution |
| 280-148679-1 | Background | Grain Size Distribution |
| 280-148719-1 | Background | Grain Size Distribution |
| 280-148770-1 | Background | Grain Size Distribution |

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# APPENDIX C
# Summary Statistics

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Table 1
Summary Statistics and Human Health Project Action Limits (Background)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 21/45 | 0/45 | 18 | (a) | 0.00061 - 0.028 | 0.011 - 0.014 | 0.0022 - 0.0028 | 0.012 | 0.0023 | 0/24 | 0/24 |
| 2-Methylnaphthalene | mg/kg | 17/45 | 0/45 | 24 | (a) | 0.0008 - 0.036 | 0.011 - 0.014 | 0.0022 - 0.0028 | 0.012 | 0.0023 | 0/28 | 0/28 |
| Acenaphthene | mg/kg | 13/45 | 0/45 | 360 | (a) | 0.00041 - 0.011 | 0.01 - 0.11 | 0.0011 - 0.012 | 0.012 | 0.0013 | 0/32 | 0/32 |
| Acenaphthylene | mg/kg | 25/45 | 0/45 | N/A | N/A | 0.00084 - 0.12 | 0.011 - 0.013 | 0.0012 - 0.012 | 0.012 | 0.0013 | N/A | N/A |
| Anthracene | mg/kg | 14/45 | 0/45 | 1800 | (a) | 0.0019 - 0.067 | 0.01 - 0.11 | 0.0044 - 0.048 | 0.012 | 0.0051 | 0/31 | 0/31 |
| Benzo(a)anthracene | mg/kg | 40/45 | 0/45 | 1.1 | (a) | 0.0022 - 0.35 | 0.011 - 0.013 | 0.0047 - 0.0057 | 0.011 | 0.0048 | 0/5 | 0/5 |
| Benzo(a)pyrene | mg/kg | 39/45 | 0/45 | 0.11 | (a) | 0.0019 - 0.34 | 0.011 - 0.11 | 0.0048 - 0.11 | 0.012 | 0.0055 | 0/6 | 0/6 |
| Benzo(b)fluoranthene | mg/kg | 42/45 | 0/45 | 1.1 | (a) | 0.0031 - 0.44 | 0.011 - 0.012 | 0.0074 - 0.008 | 0.011 | 0.0074 | 0/3 | 0/3 |
| Benzo(g,h,i)perylene | mg/kg | 39/45 | 0/45 | N/A | N/A | 0.0027 - 0.24 | 0.011 - 0.013 | 0.0072 - 0.0088 | 0.012 | 0.0076 | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 37/45 | 0/45 | 11 | (a) | 0.0027 - 0.19 | 0.011 - 0.013 | 0.0047 - 0.0057 | 0.012 | 0.0051 | 0/8 | 0/8 |
| Chrysene | mg/kg | 42/45 | 0/45 | 110 | (a) | 0.0023 - 0.39 | 0.011 - 0.012 | 0.0048 - 0.0052 | 0.011 | 0.0048 | 0/3 | 0/3 |
| Dibenz(a,h)anthracene | mg/kg | 9/45 | 0/45 | 0.11 | (a) | 0.0036 - 0.072 | 0.01 - 0.11 | 0.0068 - 0.073 | 0.012 | 0.0078 | 0/36 | 0/36 |
| Fluoranthene | mg/kg | 42/45 | 0/45 | 240 | (a) | 0.0024 - 0.61 | 0.011 - 0.012 | 0.0048 - 0.0052 | 0.011 | 0.0048 | 0/3 | 0/3 |
| Fluorene | mg/kg | 10/45 | 0/45 | 240 | (a) | 0.0011 - 0.026 | 0.01 - 0.11 | 0.0027 - 0.029 | 0.012 | 0.0031 | 0/35 | 0/35 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 39/45 | 0/45 | 1.1 | (a) | 0.003 - 0.3 | 0.011 - 0.013 | 0.0072 - 0.0088 | 0.012 | 0.0076 | 0/6 | 0/6 |
| Naphthalene | mg/kg | 25/45 | 0/45 | 2 | (a) | 0.00073 - 0.034 | 0.01 - 0.014 | 0.002 - 0.0027 | 0.012 | 0.0024 | 0/20 | 0/20 |
| Phenanthrene | mg/kg | 39/45 | 0/45 | N/A | N/A | 0.0027 - 0.31 | 0.011 - 0.013 | 0.0072 - 0.0088 | 0.012 | 0.0076 | N/A | N/A |
| Pyrene | mg/kg | 42/45 | 0/45 | 180 | (a) | 0.0025 - 0.59 | 0.011 - 0.012 | 0.0074 - 0.008 | 0.011 | 0.0074 | 0/3 | 0/3 |
| Metals - Total | | | | | | | | | | | | |
| Aluminum | mg/kg | 45/45 | 0/45 | 7700 | (a) | 2300 - 8800 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 13/45 | 0/45 | 3.1 | (a) | 0.12 - 1 | 0.16 - 0.33 | 0.08 - 0.17 | 0.2 | 0.099 | 0/32 | 0/32 |
| Arsenic | mg/kg | 45/45 | 0/45 | 0.68 | (a) | 0.6 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 45/45 | 0/45 | 1500 | (a) | 14 - 110 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 43/45 | 0/45 | 16 | (a) | 0.077 - 0.42 | 0.43 - 0.55 | 0.1 - 0.13 | 0.49 | 0.12 | 0/2 | 0/2 |
| Cadmium | mg/kg | 45/45 | 0/45 | 0.71 | (a) | 0.024 - 0.43 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 45/45 | 0/45 | N/A | N/A | 240 - 100000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 45/45 | 0/45 | 12000 | (a) | 2.6 - 14 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 45/45 | 0/45 | 2.3 | (a) | 0.61 - 7.2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 45/45 | 0/45 | 310 | (a) | 0.75 - 30 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 45/45 | 0/45 | 5500 | (a) | 2500 - 22000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 45/45 | 0/45 | 400 | (a) | 2.7 - 320 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 45/45 | 0/45 | N/A | N/A | 270 - 17000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 45/45 | 0/45 | 180 | (a) | 27 - 2400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 45/45 | 0/45 | 1.1 | (a) | 0.0099 - 0.26 | N/A | N/A | N/A | N/A | N/A | N/A |
| Nickel | mg/kg | 45/45 | 0/45 | 150 | (a) | 1.2 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 45/45 | 0/45 | N/A | N/A | 200 - 990 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 42/45 | 0/45 | 39 | (a) | 0.15 - 0.87 | 0.46 - 0.57 | 0.37 - 0.46 | 0.56 | 0.45 | 0/3 | 0/3 |
| Silver | mg/kg | 6/45 | 0/45 | 39 | (a) | 0.13 - 0.36 | 1.3 - 2 | 0.51 - 0.81 | 1.6 | 0.63 | 0/39 | 0/39 |
| Sodium | mg/kg | 30/45 | 0/45 | N/A | N/A | 27 - 320 | 430 - 630 | 87 - 130 | 530 | 110 | N/A | N/A |
| Thallium | mg/kg | 25/45 | 0/45 | 0.078 | (a) | 0.036 - 0.14 | 0.084 - 0.13 | 0.011 - 0.13 | 0.11 | 0.093 | 20/20 | 14/20 |
| Vanadium | mg/kg | 45/45 | 0/45 | 39 | (a) | 4.7 - 20 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 44/45 | 0/45 | 2300 | (a) | 7 - 2500 | 6.9 - 6.9 | 6.9 - 6.9 | 6.9 | 6.9 | 0/1 | 0/1 |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 4/45 | 0/45 | 18 | (a) | 0.00077 - 0.0015 | 0.01 - 0.012 | 0.002 - 0.0025 | 0.011 | 0.0022 | 0/41 | 0/41 |
| 2-Methylnaphthalene | mg/kg | 7/45 | 0/45 | 24 | (a) | 0.00086 - 0.002 | 0.01 - 0.012 | 0.002 - 0.0025 | 0.011 | 0.0022 | 0/38 | 0/38 |
| Acenaphthene | mg/kg | 3/45 | 0/45 | 360 | (a) | 0.00051 - 0.00073 | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | 0/42 | 0/42 |
| Acenaphthylene | mg/kg | 3/45 | 0/45 | N/A | N/A | 0.0042 - 0.016 | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | N/A | N/A |

Table 1
Summary Statistics and Human Health Project Action Limits (Background)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Anthracene | mg/kg | 4/45 | 0/45 | 1800 | (a) | 0.0018 - 0.012 | 0.01 - 0.012 | 0.0043 - 0.0053 | 0.011 | 0.0048 | 0/41 | 0/41 |
| Benzo(a)anthracene | mg/kg | 12/45 | 0/45 | 1.1 | (a) | 0.0019 - 0.089 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | 0/33 | 0/33 |
| Benzo(a)pyrene | mg/kg | 9/45 | 0/45 | 0.11 | (a) | 0.0016 - 0.09 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | 0/36 | 0/36 |
| Benzo(b)fluoranthene | mg/kg | 14/45 | 0/45 | 1.1 | (a) | 0.0026 - 0.099 | 0.01 - 0.012 | 0.0068 - 0.0082 | 0.011 | 0.0074 | 0/31 | 0/31 |
| Benzo(g,h,i)perylene | mg/kg | 8/45 | 0/45 | N/A | N/A | 0.0025 - 0.05 | 0.01 - 0.012 | 0.0067 - 0.0082 | 0.011 | 0.0074 | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 7/45 | 0/45 | 11 | (a) | 0.0023 - 0.046 | 0.01 - 0.012 | 0.0043 - 0.0053 | 0.011 | 0.0048 | 0/38 | 0/38 |
| Chrysene | mg/kg | 15/45 | 0/45 | 110 | (a) | 0.0022 - 0.081 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | 0/30 | 0/30 |
| Dibenz(a,h)anthracene | mg/kg | 2/45 | 0/45 | 0.11 | (a) | 0.0035 - 0.013 | 0.01 - 0.012 | 0.0067 - 0.0082 | 0.011 | 0.0074 | 0/43 | 0/43 |
| Fluoranthene | mg/kg | 12/45 | 0/45 | 240 | (a) | 0.0022 - 0.15 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | 0/33 | 0/33 |
| Fluorene | mg/kg | 3/45 | 0/45 | 240 | (a) | 0.0011 - 0.0021 | 0.01 - 0.012 | 0.0027 - 0.0033 | 0.011 | 0.003 | 0/42 | 0/42 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 8/45 | 0/45 | 1.1 | (a) | 0.0026 - 0.058 | 0.01 - 0.012 | 0.0067 - 0.0082 | 0.011 | 0.0074 | 0/37 | 0/37 |
| Naphthalene | mg/kg | 12/45 | 0/45 | 2 | (a) | 0.0008 - 0.0073 | 0.01 - 0.012 | 0.002 - 0.0025 | 0.011 | 0.0022 | 0/33 | 0/33 |
| Phenanthrene | mg/kg | 9/45 | 0/45 | N/A | N/A | 0.0031 - 0.035 | 0.01 - 0.012 | 0.0068 - 0.0082 | 0.011 | 0.0074 | N/A | N/A |
| Pyrene | mg/kg | 11/45 | 0/45 | 180 | (a) | 0.0026 - 0.14 | 0.01 - 0.012 | 0.0068 - 0.0082 | 0.011 | 0.0074 | 0/34 | 0/34 |
| Metals - Total | | | | | | | | | | | | |
| Aluminum | mg/kg | 45/45 | 0/45 | 7700 | (a) | 2300 - 8500 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 10/45 | 0/45 | 3.1 | (a) | 0.074 - 0.25 | 0.15 - 0.23 | 0.077 - 0.11 | 0.19 | 0.096 | 0/35 | 0/35 |
| Arsenic | mg/kg | 45/45 | 0/45 | 0.68 | (a) | 0.36 - 21 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 45/45 | 0/45 | 1500 | (a) | 11 - 68 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 45/45 | 0/45 | 16 | (a) | 0.11 - 0.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 45/45 | 0/45 | 0.71 | (a) | 0.015 - 0.22 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 45/45 | 0/45 | N/A | N/A | 500 - 120000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 45/45 | 0/45 | 12000 | (a) | 3.6 - 9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 45/45 | 0/45 | 2.3 | (a) | 1.7 - 9.7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 45/45 | 0/45 | 310 | (a) | 1.6 - 29 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 45/45 | 0/45 | 5500 | (a) | 4700 - 23000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 45/45 | 0/45 | 400 | (a) | 1.3 - 92 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 45/45 | 0/45 | N/A | N/A | 810 - 21000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 45/45 | 0/45 | 180 | (a) | 52 - 1300 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 31/45 | 0/45 | 1.1 | (a) | 0.0086 - 0.1 | 0.02 - 0.022 | 0.016 - 0.022 | 0.022 | 0.017 | 0/14 | 0/14 |
| Nickel | mg/kg | 45/45 | 0/45 | 150 | (a) | 3.5 - 12 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 45/45 | 0/45 | N/A | N/A | 310 - 1700 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 21/45 | 0/45 | 39 | (a) | 0.12 - 0.45 | 0.4 - 0.59 | 0.32 - 0.47 | 0.49 | 0.4 | 0/24 | 0/24 |
| Silver | mg/kg | 6/45 | 0/45 | 39 | (a) | 0.15 - 0.29 | 1.2 - 1.7 | 0.47 - 0.7 | 1.5 | 0.59 | 0/39 | 0/39 |
| Sodium | mg/kg | 33/45 | 0/45 | N/A | N/A | 30 - 220 | 410 - 580 | 82 - 120 | 530 | 110 | N/A | N/A |
| Thallium | mg/kg | 21/45 | 0/45 | 0.078 | (a) | 0.031 - 0.13 | 0.081 - 0.12 | 0.0084 - 0.12 | 0.098 | 0.087 | 24/24 | 15/24 |
| Vanadium | mg/kg | 45/45 | 0/45 | 39 | (a) | 6 - 16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 45/45 | 0/45 | 2300 | (a) | 7.5 - 88 | N/A | N/A | N/A | N/A | N/A | N/A |
| Soil: 5 - 10 feet below ground surface | | | | | | | | | | | | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 3/45 | 0/45 | 18 | (a) | 0.00079 - 0.0033 | 0.0096 - 0.012 | 0.0019 - 0.0025 | 0.011 | 0.0022 | 0/42 | 0/42 |
| 2-Methylnaphthalene | mg/kg | 5/45 | 0/45 | 24 | (a) | 0.00064 - 0.0041 | 0.0096 - 0.012 | 0.0019 - 0.0025 | 0.011 | 0.0022 | 0/40 | 0/40 |
| Acenaphthene | mg/kg | 5/45 | 0/45 | 360 | (a) | 0.00032 - 0.0046 | 0.0096 - 0.012 | 0.001 - 0.0013 | 0.011 | 0.0011 | 0/40 | 0/40 |
| Acenaphthylene | mg/kg | 2/45 | 0/45 | N/A | N/A | 0.00039 - 0.005 | 0.0096 - 0.012 | 0.001 - 0.0013 | 0.011 | 0.0011 | N/A | N/A |
| Anthracene | mg/kg | 1/45 | 0/45 | 1800 | (a) | 0.0052 - 0.0052 | 0.0096 - 0.012 | 0.0042 - 0.0054 | 0.011 | 0.0047 | 0/44 | 0/44 |
| Benzo(a)anthracene | mg/kg | 7/45 | 0/45 | 1.1 | (a) | 0.0019 - 0.0075 | 0.0096 - 0.012 | 0.0042 - 0.0053 | 0.011 | 0.0047 | 0/38 | 0/38 |
| Benzo(a)pyrene | mg/kg | 7/45 | 0/45 | 0.11 | (a) | 0.0015 - 0.0079 | 0.0096 - 0.012 | 0.0042 - 0.0053 | 0.011 | 0.0047 | 0/38 | 0/38 |
| Benzo(b)fluoranthene | mg/kg | 13/45 | 0/45 | 1.1 | (a) | 0.0023 - 0.016 | 0.0096 - 0.012 | 0.0064 - 0.0081 | 0.011 | 0.0072 | 0/32 | 0/32 |
| Benzo(g,h,i)perylene | mg/kg | 4/45 | 0/45 | N/A | N/A | 0.0027 - 0.0071 | 0.0096 - 0.012 | 0.0064 - 0.0081 | 0.011 | 0.0072 | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 3/45 | 0/45 | 11 | (a) | 0.0033 - 0.0066 | 0.0096 - 0.012 | 0.0042 - 0.0053 | 0.011 | 0.0047 | 0/42 | 0/42 |

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Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Chrysene | mg/kg | 15/45 | 0/45 | 110 | (a) | 0.002 - 0.011 | 0.0096 - 0.012 | 0.0042 - 0.0053 | 0.011 | 0.0047 | 0/30 | 0/30 |
| Dibenz(a,h)anthracene | mg/kg | 1/45 | 0/45 | 0.11 | (a) | 0.0051 - 0.0051 | 0.0096 - 0.012 | 0.0064 - 0.0083 | 0.011 | 0.0072 | 0/44 | 0/44 |
| Fluoranthene | mg/kg | 8/45 | 0/45 | 240 | (a) | 0.0021 - 0.0078 | 0.0096 - 0.012 | 0.0042 - 0.0053 | 0.011 | 0.0047 | 0/37 | 0/37 |
| Fluorene | mg/kg | 3/45 | 0/45 | 240 | (a) | 0.002 - 0.0054 | 0.0096 - 0.012 | 0.0026 - 0.0033 | 0.011 | 0.0029 | 0/42 | 0/42 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 3/45 | 0/45 | 1.1 | (a) | 0.0022 - 0.0085 | 0.0096 - 0.012 | 0.0064 - 0.0083 | 0.011 | 0.0072 | 0/42 | 0/42 |
| Naphthalene | mg/kg | 8/45 | 0/45 | 2 | (a) | 0.00071 - 0.024 | 0.0096 - 0.012 | 0.0019 - 0.0025 | 0.011 | 0.0022 | 0/37 | 0/37 |
| Phenanthrene | mg/kg | 10/45 | 0/45 | N/A | N/A | 0.0024 - 0.0061 | 0.0096 - 0.012 | 0.0064 - 0.0081 | 0.011 | 0.0072 | N/A | N/A |
| Pyrene | mg/kg | 7/45 | 0/45 | 180 | (a) | 0.0026 - 0.011 | 0.0096 - 0.012 | 0.0064 - 0.0081 | 0.011 | 0.0072 | 0/38 | 0/38 |
| Metals - Total | | | | | | | | | | | | |
| Aluminum | mg/kg | 45/45 | 0/45 | 7700 | (a) | 2200 - 13000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 8/45 | 0/45 | 3.1 | (a) | 0.076 - 0.24 | 0.15 - 0.23 | 0.074 - 0.12 | 0.19 | 0.093 | 0/37 | 0/37 |
| Arsenic | mg/kg | 45/45 | 0/45 | 0.68 | (a) | 0.96 - 38 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 45/45 | 0/45 | 1500 | (a) | 9.6 - 320 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 45/45 | 0/45 | 16 | (a) | 0.068 - 0.56 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 44/45 | 0/45 | 0.71 | (a) | 0.0083 - 0.31 | 0.11 - 0.11 | 0.04 - 0.04 | 0.11 | 0.04 | 0/1 | 0/1 |
| Calcium | mg/kg | 45/45 | 0/45 | N/A | N/A | 3400 - 140000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 45/45 | 0/45 | 12000 | (a) | 3.5 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 45/45 | 0/45 | 2.3 | (a) | 1.6 - 12 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 45/45 | 0/45 | 310 | (a) | 4.7 - 36 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 45/45 | 0/45 | 5500 | (a) | 5400 - 32000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 45/45 | 0/45 | 400 | (a) | 1.2 - 10 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 45/45 | 0/45 | N/A | N/A | 1900 - 32000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 45/45 | 0/45 | 180 | (a) | 150 - 1900 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 13/45 | 0/45 | 1.1 | (a) | 0.007 - 0.021 | 0.018 - 0.023 | 0.014 - 0.021 | 0.021 | 0.016 | 0/32 | 0/32 |
| Nickel | mg/kg | 45/45 | 0/45 | 150 | (a) | 3.2 - 23 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 45/45 | 0/45 | N/A | N/A | 430 - 2700 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 5/45 | 0/45 | 39 | (a) | 0.11 - 0.24 | 0.34 - 0.58 | 0.27 - 0.47 | 0.49 | 0.39 | 0/40 | 0/40 |
| Silver | mg/kg | 15/45 | 0/45 | 39 | (a) | 0.13 - 0.26 | 1.1 - 1.8 | 0.46 - 0.72 | 1.4 | 0.58 | 0/30 | 0/30 |
| Sodium | mg/kg | 44/45 | 0/45 | N/A | N/A | 37 - 200 | 550 - 550 | 110 - 110 | 550 | 110 | N/A | N/A |
| Thallium | mg/kg | 23/45 | 0/45 | 0.078 | (a) | 0.01 - 0.13 | 0.068 - 0.11 | 0.009 - 0.11 | 0.095 | 0.084 | 21/22 | 14/22 |
| Vanadium | mg/kg | 45/45 | 0/45 | 39 | (a) | 6.4 - 24 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 45/45 | 0/45 | 2300 | (a) | 8.9 - 45 | N/A | N/A | N/A | N/A | N/A | N/A |
| Groundwater | | | | | | | | | | | | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | µg/L | 0/9 | 0/9 | 1.1 | (b) | N/A | 0.1 - 0.13 | 0.04 - 0.052 | 0.11 | 0.042 | 0/9 | 0/9 |
| 2-Methylnaphthalene | µg/L | 0/9 | 0/9 | 3.6 | (b) | N/A | 0.1 - 0.13 | 0.05 - 0.065 | 0.11 | 0.053 | 0/9 | 0/9 |
| Acenaphthene | µg/L | 1/9 | 0/9 | 53 | (b) | 0.013 - 0.013 | 0.1 - 0.13 | 0.012 - 0.016 | 0.11 | 0.013 | 0/8 | 0/8 |
| Acenaphthylene | µg/L | 3/9 | 0/9 | N/A | N/A | 0.03 - 0.074 | 0.1 - 0.13 | 0.021 - 0.026 | 0.11 | 0.021 | N/A | N/A |
| Anthracene | µg/L | 0/9 | 0/9 | 180 | (b) | N/A | 0.1 - 0.13 | 0.1 - 0.13 | 0.11 | 0.11 | 0/9 | 0/9 |
| Benzo(a)anthracene | µg/L | 1/9 | 0/9 | 0.03 | (b) | 0.07 - 0.07 | 0.1 - 0.13 | 0.1 - 0.13 | 0.11 | 0.11 | 8/8 | 8/8 |
| Benzo(a)pyrene | µg/L | 1/9 | 0/9 | 0.025 | (b) | 0.026 - 0.026 | 0.1 - 0.13 | 0.05 - 0.065 | 0.11 | 0.053 | 8/8 | 8/8 |
| Benzo(b)fluoranthene | µg/L | 1/9 | 0/9 | 0.25 | (b) | 0.091 - 0.091 | 0.1 - 0.13 | 0.1 - 0.13 | 0.11 | 0.11 | 0/8 | 0/8 |
| Benzo(g,h,i)perylene | µg/L | 3/9 | 0/9 | N/A | N/A | 0.043 - 0.07 | 0.1 - 0.13 | 0.1 - 0.13 | 0.1 | 0.1 | N/A | N/A |
| Benzo(k)fluoranthene | µg/L | 2/9 | 0/9 | 2.5 | (b) | 0.04 - 0.086 | 0.1 - 0.11 | 0.05 - 0.054 | 0.1 | 0.052 | 0/7 | 0/7 |
| Chrysene | µg/L | 1/9 | 0/9 | 25 | (b) | 0.094 - 0.094 | 0.1 - 0.13 | 0.1 - 0.13 | 0.11 | 0.11 | 0/8 | 0/8 |
| Dibenz(a,h)anthracene | µg/L | 1/9 | 0/9 | 0.025 | (b) | 0.039 - 0.039 | 0.1 - 0.13 | 0.1 - 0.13 | 0.11 | 0.11 | 8/8 | 8/8 |
| Fluoranthene | µg/L | 0/9 | 0/9 | 80 | (b) | N/A | 0.1 - 0.13 | 0.1 - 0.13 | 0.11 | 0.11 | 0/9 | 0/9 |
| Fluorene | µg/L | 0/9 | 0/9 | 29 | (b) | N/A | 0.1 - 0.13 | 0.04 - 0.052 | 0.11 | 0.042 | 0/9 | 0/9 |
| Indeno(1,2,3-c,d)pyrene | µg/L | 1/9 | 0/9 | 0.25 | (b) | 0.048 - 0.048 | 0.1 - 0.13 | 0.1 - 0.13 | 0.11 | 0.11 | 0/8 | 0/8 |
| Naphthalene | µg/L | 0/9 | 0/9 | 0.12 | (b) | N/A | 0.1 - 0.13 | 0.05 - 0.065 | 0.11 | 0.053 | 1/9 | 0/9 |

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| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Phenanthrene | µg/L | 1/9 | 0/9 | N/A | N/A | 0.061 - 0.061 | 0.1 - 0.13 | 0.1 - 0.13 | 0.11 | 0.11 | N/A | N/A |
| Pyrene | µg/L | 0/9 | 0/9 | 12 | (b) | N/A | 0.1 - 0.13 | 0.1 - 0.13 | 0.11 | 0.11 | 0/9 | 0/9 |
| Metals - Dissolved | | | | | | | | | | | | |
| Aluminum | µg/L | 3/9 | 0/9 | 2000 | (b) | 350 - 1700 | 300 - 300 | 70 - 70 | 300 | 70 | 0/6 | 0/6 |
| Antimony | µg/L | 0/9 | 0/9 | 0.78 | (b) | N/A | 6 - 6 | 1 - 1 | 6 | 1 | 9/9 | 9/9 |
| Arsenic | µg/L | 7/9 | 0/9 | 0.052 | (b) | 0.54 - 2.8 | 5 - 5 | 1 - 1 | 5 | 1 | 2/2 | 2/2 |
| Barium | µg/L | 9/9 | 0/9 | 380 | (b) | 28 - 310 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | µg/L | 0/9 | 0/9 | 2.5 | (b) | N/A | 1.5 - 1.5 | 0.5 - 0.5 | 1.5 | 0.5 | 0/9 | 0/9 |
| Cadmium | µg/L | 0/9 | 0/9 | 0.18 | (b) | N/A | 5 - 5 | 1.8 - 1.8 | 5 | 1.8 | 9/9 | 9/9 |
| Calcium | µg/L | 9/9 | 0/9 | N/A | N/A | 73000 - 170000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | µg/L | 3/9 | 0/9 | 2200 | (b) | 0.85 - 5.2 | 10 - 10 | 1.8 - 1.8 | 10 | 1.8 | 0/6 | 0/6 |
| Cobalt | µg/L | 8/9 | 0/9 | 0.6 | (b) | 0.098 - 4.2 | 1 - 1 | 0.35 - 0.35 | 1 | 0.35 | 1/1 | 0/1 |
| Copper | µg/L | 1/9 | 0/9 | 80 | (b) | 9 - 9 | 15 - 15 | 10 - 10 | 15 | 10 | 0/8 | 0/8 |
| Iron | µg/L | 8/9 | 0/9 | 1400 | (b) | 27 - 4000 | 100 - 100 | 85 - 85 | 100 | 85 | 0/1 | 0/1 |
| Lead | µg/L | 3/9 | 0/9 | 15 | (b) | 0.34 - 1.5 | 3 - 3 | 0.7 - 0.7 | 3 | 0.7 | 0/6 | 0/6 |
| Magnesium | µg/L | 9/9 | 0/9 | N/A | N/A | 8100 - 80000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | µg/L | 9/9 | 0/9 | 43 | (b) | 9.5 - 2800 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | µg/L | 0/9 | 0/9 | 0.063 | (b) | N/A | 0.2 - 0.2 | 0.08 - 0.08 | 0.2 | 0.08 | 9/9 | 9/9 |
| Nickel | µg/L | 1/9 | 0/9 | 39 | (b) | 4.9 - 4.9 | 40 - 40 | 8 - 8 | 40 | 8 | 8/8 | 0/8 |
| Potassium | µg/L | 6/9 | 0/9 | N/A | N/A | 700 - 6000 | 3000 - 3000 | 940 - 3000 | 3000 | 3000 | N/A | N/A |
| Selenium | µg/L | 0/9 | 0/9 | 10 | (b) | N/A | 22 - 22 | 19 - 19 | 22 | 19 | 9/9 | 9/9 |
| Silver | µg/L | 0/9 | 0/9 | 9.4 | (b) | N/A | 15 - 15 | 5 - 5 | 15 | 5 | 9/9 | 0/9 |
| Sodium | µg/L | 8/9 | 0/9 | 20000 | (c) | 1500 - 160000 | 5000 - 5000 | 5000 - 5000 | 5000 | 5000 | 0/1 | 0/1 |
| Thallium | µg/L | 0/9 | 0/9 | 0.02 | (b) | N/A | 1 - 1 | 0.2 - 0.2 | 1 | 0.2 | 9/9 | 9/9 |
| Vanadium | µg/L | 1/9 | 0/9 | 8.6 | (b) | 3.6 - 3.6 | 15 - 15 | 4 - 4 | 15 | 4 | 8/8 | 0/8 |
| Zinc | µg/L | 0/9 | 0/9 | 600 | (b) | N/A | 150 - 150 | 15 - 15 | 150 | 15 | 0/9 | 0/9 |

Notes

FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit
µg/L = microgram per liter

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

(a) EPA Residential Soil Regional Screening Level, May 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(b) EPA Tapwater Regional Screening Level, May 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(c) New York State Groundwater Standards, 6 NYCRR Part 703.5. Last updated March 2021. (https://www.dec.ny.gov/chemical/23853.html)

Table 2
Summary Statistics and Ecological Project Action Limits (Background - Plant)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 21/45 | 0/45 | N/A | 0.00061 - 0.028 | 0.011 - 0.014 | 0.0022 - 0.0028 | 0.012 | 0.0023 | N/A | N/A |
| 2-Methylnaphthalene | mg/kg | 17/45 | 0/45 | N/A | 0.0008 - 0.036 | 0.011 - 0.014 | 0.0022 - 0.0028 | 0.012 | 0.0023 | N/A | N/A |
| Acenaphthene | mg/kg | 13/45 | 0/45 | 0.25 | 0.00041 - 0.011 | 0.01 - 0.11 | 0.0011 - 0.012 | 0.012 | 0.0013 | 0/32 | 0/32 |
| Acenaphthylene | mg/kg | 25/45 | 0/45 | N/A | 0.00084 - 0.12 | 0.011 - 0.013 | 0.0012 - 0.012 | 0.012 | 0.0013 | N/A | N/A |
| Anthracene | mg/kg | 14/45 | 0/45 | 6.8 | 0.0019 - 0.067 | 0.01 - 0.11 | 0.0044 - 0.048 | 0.012 | 0.0051 | 0/31 | 0/31 |
| Benzo(a)anthracene | mg/kg | 40/45 | 0/45 | 18 | 0.0022 - 0.35 | 0.011 - 0.013 | 0.0047 - 0.0057 | 0.011 | 0.0048 | 0/5 | 0/5 |
| Benzo(a)pyrene | mg/kg | 39/45 | 0/45 | N/A | 0.0019 - 0.34 | 0.011 - 0.11 | 0.0048 - 0.11 | 0.012 | 0.0055 | N/A | N/A |
| Benzo(b)fluoranthene | mg/kg | 42/45 | 0/45 | 18 | 0.0031 - 0.44 | 0.011 - 0.012 | 0.0074 - 0.008 | 0.011 | 0.0074 | 0/3 | 0/3 |
| Benzo(g,h,i)perylene | mg/kg | 39/45 | 0/45 | N/A | 0.0027 - 0.24 | 0.011 - 0.013 | 0.0072 - 0.0088 | 0.012 | 0.0076 | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 37/45 | 0/45 | N/A | 0.0027 - 0.19 | 0.011 - 0.013 | 0.0047 - 0.0057 | 0.012 | 0.0051 | N/A | N/A |
| Chrysene | mg/kg | 42/45 | 0/45 | N/A | 0.0023 - 0.39 | 0.011 - 0.012 | 0.0048 - 0.0052 | 0.011 | 0.0048 | N/A | N/A |
| Dibenz(a,h)anthracene | mg/kg | 9/45 | 0/45 | N/A | 0.0036 - 0.072 | 0.01 - 0.11 | 0.0068 - 0.073 | 0.012 | 0.0078 | N/A | N/A |
| Fluoranthene | mg/kg | 42/45 | 0/45 | N/A | 0.0024 - 0.61 | 0.011 - 0.012 | 0.0048 - 0.0052 | 0.011 | 0.0048 | N/A | N/A |
| Fluorene | mg/kg | 10/45 | 0/45 | N/A | 0.0011 - 0.026 | 0.01 - 0.11 | 0.0027 - 0.029 | 0.012 | 0.0031 | N/A | N/A |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 39/45 | 0/45 | N/A | 0.003 - 0.3 | 0.011 - 0.013 | 0.0072 - 0.0088 | 0.012 | 0.0076 | N/A | N/A |
| Naphthalene | mg/kg | 25/45 | 0/45 | 1 | 0.00073 - 0.034 | 0.01 - 0.014 | 0.002 - 0.0027 | 0.012 | 0.0024 | 0/20 | 0/20 |
| Phenanthrene | mg/kg | 39/45 | 0/45 | N/A | 0.0027 - 0.31 | 0.011 - 0.013 | 0.0072 - 0.0088 | 0.012 | 0.0076 | N/A | N/A |
| Pyrene | mg/kg | 42/45 | 0/45 | N/A | 0.0025 - 0.59 | 0.011 - 0.012 | 0.0074 - 0.008 | 0.011 | 0.0074 | N/A | N/A |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 45/45 | 0/45 | N/A | 2300 - 8800 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 13/45 | 0/45 | 5 | 0.12 - 1 | 0.16 - 0.33 | 0.08 - 0.17 | 0.2 | 0.099 | 0/32 | 0/32 |
| Arsenic | mg/kg | 45/45 | 0/45 | 18 | 0.6 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 45/45 | 0/45 | 110 | 14 - 110 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 43/45 | 0/45 | 2.5 | 0.077 - 0.42 | 0.43 - 0.55 | 0.1 - 0.13 | 0.49 | 0.12 | 0/2 | 0/2 |
| Cadmium | mg/kg | 45/45 | 0/45 | 32 | 0.024 - 0.43 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 45/45 | 0/45 | N/A | 240 - 100000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 45/45 | 0/45 | 0.35 | 2.6 - 14 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 45/45 | 0/45 | 13 | 0.61 - 7.2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 45/45 | 0/45 | 70 | 0.75 - 30 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 45/45 | 0/45 | N/A | 2500 - 22000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 45/45 | 0/45 | 120 | 2.7 - 320 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 45/45 | 0/45 | N/A | 270 - 17000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 45/45 | 0/45 | 220 | 27 - 2400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 45/45 | 0/45 | 0.3 | 0.0099 - 0.26 | N/A | N/A | N/A | N/A | N/A | N/A |
| Nickel | mg/kg | 45/45 | 0/45 | 38 | 1.2 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 45/45 | 0/45 | N/A | 200 - 990 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 42/45 | 0/45 | 0.52 | 0.15 - 0.87 | 0.46 - 0.57 | 0.37 - 0.46 | 0.56 | 0.45 | 2/3 | 0/3 |
| Silver | mg/kg | 6/45 | 0/45 | 560 | 0.13 - 0.36 | 1.3 - 2 | 0.51 - 0.81 | 1.6 | 0.63 | 0/39 | 0/39 |
| Sodium | mg/kg | 30/45 | 0/45 | N/A | 27 - 320 | 430 - 630 | 87 - 130 | 530 | 110 | N/A | N/A |
| Thallium | mg/kg | 25/45 | 0/45 | 0.05 | 0.036 - 0.14 | 0.084 - 0.13 | 0.011 - 0.13 | 0.11 | 0.093 | 20/20 | 14/20 |
| Vanadium | mg/kg | 45/45 | 0/45 | 60 | 4.7 - 20 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 44/45 | 0/45 | 160 | 7 - 2500 | 6.9 - 6.9 | 6.9 - 6.9 | 6.9 | 6.9 | 0/1 | 0/1 |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 4/45 | 0/45 | N/A | 0.00077 - 0.0015 | 0.01 - 0.012 | 0.002 - 0.0025 | 0.011 | 0.0022 | N/A | N/A |
| 2-Methylnaphthalene | mg/kg | 7/45 | 0/45 | N/A | 0.00086 - 0.002 | 0.01 - 0.012 | 0.002 - 0.0025 | 0.011 | 0.0022 | N/A | N/A |
| Acenaphthene | mg/kg | 3/45 | 0/45 | 0.25 | 0.00051 - 0.00073 | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | 0/42 | 0/42 |
| Acenaphthylene | mg/kg | 3/45 | 0/45 | N/A | 0.0042 - 0.016 | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | N/A | N/A |
| Anthracene | mg/kg | 4/45 | 0/45 | 6.8 | 0.0018 - 0.012 | 0.01 - 0.012 | 0.0043 - 0.0053 | 0.011 | 0.0048 | 0/41 | 0/41 |

Table 2
Summary Statistics and Ecological Project Action Limits (Background - Plant)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Benzo(a)anthracene | mg/kg | 12/45 | 0/45 | 18 | 0.0019 - 0.089 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | 0/33 | 0/33 |
| Benzo(a)pyrene | mg/kg | 9/45 | 0/45 | N/A | 0.0016 - 0.09 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | N/A | N/A |
| Benzo(b)fluoranthene | mg/kg | 14/45 | 0/45 | 18 | 0.0026 - 0.099 | 0.01 - 0.012 | 0.0068 - 0.0082 | 0.011 | 0.0074 | 0/31 | 0/31 |
| Benzo(g,h,i)perylene | mg/kg | 8/45 | 0/45 | N/A | 0.0025 - 0.05 | 0.01 - 0.012 | 0.0067 - 0.0082 | 0.011 | 0.0074 | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 7/45 | 0/45 | N/A | 0.0023 - 0.046 | 0.01 - 0.012 | 0.0043 - 0.0053 | 0.011 | 0.0048 | N/A | N/A |
| Chrysene | mg/kg | 15/45 | 0/45 | N/A | 0.0022 - 0.081 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | N/A | N/A |
| Dibenz(a,h)anthracene | mg/kg | 2/45 | 0/45 | N/A | 0.0035 - 0.013 | 0.01 - 0.012 | 0.0067 - 0.0082 | 0.011 | 0.0074 | N/A | N/A |
| Fluoranthene | mg/kg | 12/45 | 0/45 | N/A | 0.0022 - 0.15 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | N/A | N/A |
| Fluorene | mg/kg | 3/45 | 0/45 | N/A | 0.0011 - 0.0021 | 0.01 - 0.012 | 0.0027 - 0.0033 | 0.011 | 0.003 | N/A | N/A |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 8/45 | 0/45 | N/A | 0.0026 - 0.058 | 0.01 - 0.012 | 0.0067 - 0.0082 | 0.011 | 0.0074 | N/A | N/A |
| Naphthalene | mg/kg | 12/45 | 0/45 | 1 | 0.0008 - 0.0073 | 0.01 - 0.012 | 0.002 - 0.0025 | 0.011 | 0.0022 | 0/33 | 0/33 |
| Phenanthrene | mg/kg | 9/45 | 0/45 | N/A | 0.0031 - 0.035 | 0.01 - 0.012 | 0.0068 - 0.0082 | 0.011 | 0.0074 | N/A | N/A |
| Pyrene | mg/kg | 11/45 | 0/45 | N/A | 0.0026 - 0.14 | 0.01 - 0.012 | 0.0068 - 0.0082 | 0.011 | 0.0074 | N/A | N/A |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 45/45 | 0/45 | N/A | 2300 - 8500 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 10/45 | 0/45 | 5 | 0.074 - 0.25 | 0.15 - 0.23 | 0.077 - 0.11 | 0.19 | 0.096 | 0/35 | 0/35 |
| Arsenic | mg/kg | 45/45 | 0/45 | 18 | 0.36 - 21 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 45/45 | 0/45 | 110 | 11 - 68 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 45/45 | 0/45 | 2.5 | 0.11 - 0.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 45/45 | 0/45 | 32 | 0.015 - 0.22 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 45/45 | 0/45 | N/A | 500 - 120000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 45/45 | 0/45 | 0.35 | 3.6 - 9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 45/45 | 0/45 | 13 | 1.7 - 9.7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 45/45 | 0/45 | 70 | 1.6 - 29 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 45/45 | 0/45 | N/A | 4700 - 23000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 45/45 | 0/45 | 120 | 1.3 - 92 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 45/45 | 0/45 | N/A | 810 - 21000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 45/45 | 0/45 | 220 | 52 - 1300 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 31/45 | 0/45 | 0.3 | 0.0086 - 0.1 | 0.02 - 0.022 | 0.016 - 0.022 | 0.022 | 0.017 | 0/14 | 0/14 |
| Nickel | mg/kg | 45/45 | 0/45 | 38 | 3.5 - 12 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 45/45 | 0/45 | N/A | 310 - 1700 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 21/45 | 0/45 | 0.52 | 0.12 - 0.45 | 0.4 - 0.59 | 0.32 - 0.47 | 0.49 | 0.4 | 6/24 | 0/24 |
| Silver | mg/kg | 6/45 | 0/45 | 560 | 0.15 - 0.29 | 1.2 - 1.7 | 0.47 - 0.7 | 1.5 | 0.59 | 0/39 | 0/39 |
| Sodium | mg/kg | 33/45 | 0/45 | N/A | 30 - 220 | 410 - 580 | 82 - 120 | 530 | 110 | N/A | N/A |
| Thallium | mg/kg | 21/45 | 0/45 | 0.05 | 0.031 - 0.13 | 0.081 - 0.12 | 0.0084 - 0.12 | 0.098 | 0.087 | 24/24 | 15/24 |
| Vanadium | mg/kg | 45/45 | 0/45 | 60 | 6 - 16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 45/45 | 0/45 | 160 | 7.5 - 88 | N/A | N/A | N/A | N/A | N/A | N/A |

Notes

FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation

mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 3
Summary Statistics and Ecological Project Action Limits (Background - Invertebrate)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 21/45 | 0/45 | 29 | 0.00061 - 0.028 | 0.011 - 0.014 | 0.0022 - 0.0028 | 0.012 | 0.0023 | 0/24 | 0/24 |
| 2-Methylnaphthalene | mg/kg | 17/45 | 0/45 | 29 | 0.0008 - 0.036 | 0.011 - 0.014 | 0.0022 - 0.0028 | 0.012 | 0.0023 | 0/28 | 0/28 |
| Acenaphthene | mg/kg | 13/45 | 0/45 | 29 | 0.00041 - 0.011 | 0.01 - 0.11 | 0.0011 - 0.012 | 0.012 | 0.0013 | 0/32 | 0/32 |
| Acenaphthylene | mg/kg | 25/45 | 0/45 | 29 | 0.00084 - 0.12 | 0.011 - 0.013 | 0.0012 - 0.012 | 0.012 | 0.0013 | 0/20 | 0/20 |
| Anthracene | mg/kg | 14/45 | 0/45 | 29 | 0.0019 - 0.067 | 0.01 - 0.11 | 0.0044 - 0.048 | 0.012 | 0.0051 | 0/31 | 0/31 |
| Benzo(a)anthracene | mg/kg | 40/45 | 0/45 | 18 | 0.0022 - 0.35 | 0.011 - 0.013 | 0.0047 - 0.0057 | 0.011 | 0.0048 | 0/5 | 0/5 |
| Benzo(a)pyrene | mg/kg | 39/45 | 0/45 | 18 | 0.0019 - 0.34 | 0.011 - 0.11 | 0.0048 - 0.11 | 0.012 | 0.0055 | 0/6 | 0/6 |
| Benzo(b)fluoranthene | mg/kg | 42/45 | 0/45 | 18 | 0.0031 - 0.44 | 0.011 - 0.012 | 0.0074 - 0.008 | 0.011 | 0.0074 | 0/3 | 0/3 |
| Benzo(g,h,i)perylene | mg/kg | 39/45 | 0/45 | 18 | 0.0027 - 0.24 | 0.011 - 0.013 | 0.0072 - 0.0088 | 0.012 | 0.0076 | 0/6 | 0/6 |
| Benzo(k)fluoranthene | mg/kg | 37/45 | 0/45 | 18 | 0.0027 - 0.19 | 0.011 - 0.013 | 0.0047 - 0.0057 | 0.012 | 0.0051 | 0/8 | 0/8 |
| Chrysene | mg/kg | 42/45 | 0/45 | 18 | 0.0023 - 0.39 | 0.011 - 0.012 | 0.0048 - 0.0052 | 0.011 | 0.0048 | 0/3 | 0/3 |
| Dibenz(a,h)anthracene | mg/kg | 9/45 | 0/45 | 18 | 0.0036 - 0.072 | 0.01 - 0.11 | 0.0068 - 0.073 | 0.012 | 0.0078 | 0/36 | 0/36 |
| Fluoranthene | mg/kg | 42/45 | 0/45 | 29 | 0.0024 - 0.61 | 0.011 - 0.012 | 0.0048 - 0.0052 | 0.011 | 0.0048 | 0/3 | 0/3 |
| Fluorene | mg/kg | 10/45 | 0/45 | 29 | 0.0011 - 0.026 | 0.01 - 0.11 | 0.0027 - 0.029 | 0.012 | 0.0031 | 0/35 | 0/35 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 39/45 | 0/45 | 18 | 0.003 - 0.3 | 0.011 - 0.013 | 0.0072 - 0.0088 | 0.012 | 0.0076 | 0/6 | 0/6 |
| Naphthalene | mg/kg | 25/45 | 0/45 | 29 | 0.00073 - 0.034 | 0.01 - 0.014 | 0.002 - 0.0027 | 0.012 | 0.0024 | 0/20 | 0/20 |
| Phenanthrene | mg/kg | 39/45 | 0/45 | 29 | 0.0027 - 0.31 | 0.011 - 0.013 | 0.0072 - 0.0088 | 0.012 | 0.0076 | 0/6 | 0/6 |
| Pyrene | mg/kg | 42/45 | 0/45 | 18 | 0.0025 - 0.59 | 0.011 - 0.012 | 0.0074 - 0.008 | 0.011 | 0.0074 | 0/3 | 0/3 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 45/45 | 0/45 | N/A | 2300 - 8800 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 13/45 | 0/45 | 78 | 0.12 - 1 | 0.16 - 0.33 | 0.08 - 0.17 | 0.2 | 0.099 | 0/32 | 0/32 |
| Arsenic | mg/kg | 45/45 | 0/45 | 6.8 | 0.6 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 45/45 | 0/45 | 330 | 14 - 110 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 43/45 | 0/45 | 40 | 0.077 - 0.42 | 0.43 - 0.55 | 0.1 - 0.13 | 0.49 | 0.12 | 0/2 | 0/2 |
| Cadmium | mg/kg | 45/45 | 0/45 | 140 | 0.024 - 0.43 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 45/45 | 0/45 | N/A | 240 - 100000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 45/45 | 0/45 | 0.34 | 2.6 - 14 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 45/45 | 0/45 | N/A | 0.61 - 7.2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 45/45 | 0/45 | 80 | 0.75 - 30 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 45/45 | 0/45 | N/A | 2500 - 22000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 45/45 | 0/45 | 1700 | 2.7 - 320 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 45/45 | 0/45 | N/A | 270 - 17000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 45/45 | 0/45 | 450 | 27 - 2400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 45/45 | 0/45 | 0.05 | 0.0099 - 0.26 | N/A | N/A | N/A | N/A | N/A | N/A |
| Nickel | mg/kg | 45/45 | 0/45 | 280 | 1.2 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 45/45 | 0/45 | N/A | 200 - 990 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 42/45 | 0/45 | 4.1 | 0.15 - 0.87 | 0.46 - 0.57 | 0.37 - 0.46 | 0.56 | 0.45 | 0/3 | 0/3 |
| Silver | mg/kg | 6/45 | 0/45 | N/A | 0.13 - 0.36 | 1.3 - 2 | 0.51 - 0.81 | 1.6 | 0.63 | N/A | N/A |
| Sodium | mg/kg | 30/45 | 0/45 | N/A | 27 - 320 | 430 - 630 | 87 - 130 | 530 | 110 | N/A | N/A |
| Thallium | mg/kg | 25/45 | 0/45 | N/A | 0.036 - 0.14 | 0.084 - 0.13 | 0.011 - 0.13 | 0.11 | 0.093 | N/A | N/A |
| Vanadium | mg/kg | 45/45 | 0/45 | N/A | 4.7 - 20 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 44/45 | 0/45 | 120 | 7 - 2500 | 6.9 - 6.9 | 6.9 - 6.9 | 6.9 | 6.9 | 0/1 | 0/1 |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 4/45 | 0/45 | 29 | 0.00077 - 0.0015 | 0.01 - 0.012 | 0.002 - 0.0025 | 0.011 | 0.0022 | 0/41 | 0/41 |
| 2-Methylnaphthalene | mg/kg | 7/45 | 0/45 | 29 | 0.00086 - 0.002 | 0.01 - 0.012 | 0.002 - 0.0025 | 0.011 | 0.0022 | 0/38 | 0/38 |
| Acenaphthene | mg/kg | 3/45 | 0/45 | 29 | 0.00051 - 0.00073 | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | 0/42 | 0/42 |
| Acenaphthylene | mg/kg | 3/45 | 0/45 | 29 | 0.0042 - 0.016 | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | 0/42 | 0/42 |
| Anthracene | mg/kg | 4/45 | 0/45 | 29 | 0.0018 - 0.012 | 0.01 - 0.012 | 0.0043 - 0.0053 | 0.011 | 0.0048 | 0/41 | 0/41 |

Table 3
Summary Statistics and Ecological Project Action Limits (Background - Invertebrate)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Benzo(a)anthracene | mg/kg | 12/45 | 0/45 | 18 | 0.0019 - 0.089 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | 0/33 | 0/33 |
| Benzo(a)pyrene | mg/kg | 9/45 | 0/45 | 18 | 0.0016 - 0.09 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | 0/36 | 0/36 |
| Benzo(b)fluoranthene | mg/kg | 14/45 | 0/45 | 18 | 0.0026 - 0.099 | 0.01 - 0.012 | 0.0068 - 0.0082 | 0.011 | 0.0074 | 0/31 | 0/31 |
| Benzo(g,h,i)perylene | mg/kg | 8/45 | 0/45 | 18 | 0.0025 - 0.05 | 0.01 - 0.012 | 0.0067 - 0.0082 | 0.011 | 0.0074 | 0/37 | 0/37 |
| Benzo(k)fluoranthene | mg/kg | 7/45 | 0/45 | 18 | 0.0023 - 0.046 | 0.01 - 0.012 | 0.0043 - 0.0053 | 0.011 | 0.0048 | 0/38 | 0/38 |
| Chrysene | mg/kg | 15/45 | 0/45 | 18 | 0.0022 - 0.081 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | 0/30 | 0/30 |
| Dibenz(a,h)anthracene | mg/kg | 2/45 | 0/45 | 18 | 0.0035 - 0.013 | 0.01 - 0.012 | 0.0067 - 0.0082 | 0.011 | 0.0074 | 0/43 | 0/43 |
| Fluoranthene | mg/kg | 12/45 | 0/45 | 29 | 0.0022 - 0.15 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | 0/33 | 0/33 |
| Fluorene | mg/kg | 3/45 | 0/45 | 29 | 0.0011 - 0.0021 | 0.01 - 0.012 | 0.0027 - 0.0033 | 0.011 | 0.003 | 0/42 | 0/42 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 8/45 | 0/45 | 18 | 0.0026 - 0.058 | 0.01 - 0.012 | 0.0067 - 0.0082 | 0.011 | 0.0074 | 0/37 | 0/37 |
| Naphthalene | mg/kg | 12/45 | 0/45 | 29 | 0.0008 - 0.0073 | 0.01 - 0.012 | 0.002 - 0.0025 | 0.011 | 0.0022 | 0/33 | 0/33 |
| Phenanthrene | mg/kg | 9/45 | 0/45 | 29 | 0.0031 - 0.035 | 0.01 - 0.012 | 0.0068 - 0.0082 | 0.011 | 0.0074 | 0/36 | 0/36 |
| Pyrene | mg/kg | 11/45 | 0/45 | 18 | 0.0026 - 0.14 | 0.01 - 0.012 | 0.0068 - 0.0082 | 0.011 | 0.0074 | 0/34 | 0/34 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 45/45 | 0/45 | N/A | 2300 - 8500 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 10/45 | 0/45 | 78 | 0.074 - 0.25 | 0.15 - 0.23 | 0.077 - 0.11 | 0.19 | 0.096 | 0/35 | 0/35 |
| Arsenic | mg/kg | 45/45 | 0/45 | 6.8 | 0.36 - 21 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 45/45 | 0/45 | 330 | 11 - 68 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 45/45 | 0/45 | 40 | 0.11 - 0.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 45/45 | 0/45 | 140 | 0.015 - 0.22 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 45/45 | 0/45 | N/A | 500 - 120000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 45/45 | 0/45 | 0.34 | 3.6 - 9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 45/45 | 0/45 | N/A | 1.7 - 9.7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 45/45 | 0/45 | 80 | 1.6 - 29 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 45/45 | 0/45 | N/A | 4700 - 23000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 45/45 | 0/45 | 1700 | 1.3 - 92 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 45/45 | 0/45 | N/A | 810 - 21000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 45/45 | 0/45 | 450 | 52 - 1300 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 31/45 | 0/45 | 0.05 | 0.0086 - 0.1 | 0.02 - 0.022 | 0.016 - 0.022 | 0.022 | 0.017 | 0/14 | 0/14 |
| Nickel | mg/kg | 45/45 | 0/45 | 280 | 3.5 - 12 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 45/45 | 0/45 | N/A | 310 - 1700 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 21/45 | 0/45 | 4.1 | 0.12 - 0.45 | 0.4 - 0.59 | 0.32 - 0.47 | 0.49 | 0.4 | 0/24 | 0/24 |
| Silver | mg/kg | 6/45 | 0/45 | N/A | 0.15 - 0.29 | 1.2 - 1.7 | 0.47 - 0.7 | 1.5 | 0.59 | N/A | N/A |
| Sodium | mg/kg | 33/45 | 0/45 | N/A | 30 - 220 | 410 - 580 | 82 - 120 | 530 | 110 | N/A | N/A |
| Thallium | mg/kg | 21/45 | 0/45 | N/A | 0.031 - 0.13 | 0.081 - 0.12 | 0.0084 - 0.12 | 0.098 | 0.087 | N/A | N/A |
| Vanadium | mg/kg | 45/45 | 0/45 | N/A | 6 - 16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 45/45 | 0/45 | 120 | 7.5 - 88 | N/A | N/A | N/A | N/A | N/A | N/A |

Notes

FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 4
Summary Statistics and Ecological Project Action Limits (Background - Bird)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 21/45 | 0/45 | N/A | 0.00061 - 0.028 | 0.011 - 0.014 | 0.0022 - 0.0028 | 0.012 | 0.0023 | N/A | N/A |
| 2-Methylnaphthalene | mg/kg | 17/45 | 0/45 | N/A | 0.0008 - 0.036 | 0.011 - 0.014 | 0.0022 - 0.0028 | 0.012 | 0.0023 | N/A | N/A |
| Acenaphthene | mg/kg | 13/45 | 0/45 | N/A | 0.00041 - 0.011 | 0.01 - 0.11 | 0.0011 - 0.012 | 0.012 | 0.0013 | N/A | N/A |
| Acenaphthylene | mg/kg | 25/45 | 0/45 | N/A | 0.00084 - 0.12 | 0.011 - 0.013 | 0.0012 - 0.012 | 0.012 | 0.0013 | N/A | N/A |
| Anthracene | mg/kg | 14/45 | 0/45 | N/A | 0.0019 - 0.067 | 0.01 - 0.11 | 0.0044 - 0.048 | 0.012 | 0.0051 | N/A | N/A |
| Benzo(a)anthracene | mg/kg | 40/45 | 0/45 | 0.73 | 0.0022 - 0.35 | 0.011 - 0.013 | 0.0047 - 0.0057 | 0.011 | 0.0048 | 0/5 | 0/5 |
| Benzo(a)pyrene | mg/kg | 39/45 | 0/45 | N/A | 0.0019 - 0.34 | 0.011 - 0.11 | 0.0048 - 0.11 | 0.012 | 0.0055 | N/A | N/A |
| Benzo(b)fluoranthene | mg/kg | 42/45 | 0/45 | N/A | 0.0031 - 0.44 | 0.011 - 0.012 | 0.0074 - 0.008 | 0.011 | 0.0074 | N/A | N/A |
| Benzo(g,h,i)perylene | mg/kg | 39/45 | 0/45 | N/A | 0.0027 - 0.24 | 0.011 - 0.013 | 0.0072 - 0.0088 | 0.012 | 0.0076 | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 37/45 | 0/45 | N/A | 0.0027 - 0.19 | 0.011 - 0.013 | 0.0047 - 0.0057 | 0.012 | 0.0051 | N/A | N/A |
| Chrysene | mg/kg | 42/45 | 0/45 | N/A | 0.0023 - 0.39 | 0.011 - 0.012 | 0.0048 - 0.0052 | 0.011 | 0.0048 | N/A | N/A |
| Dibenz(a,h)anthracene | mg/kg | 9/45 | 0/45 | N/A | 0.0036 - 0.072 | 0.01 - 0.11 | 0.0068 - 0.073 | 0.012 | 0.0078 | N/A | N/A |
| Fluoranthene | mg/kg | 42/45 | 0/45 | N/A | 0.0024 - 0.61 | 0.011 - 0.012 | 0.0048 - 0.0052 | 0.011 | 0.0048 | N/A | N/A |
| Fluorene | mg/kg | 10/45 | 0/45 | N/A | 0.0011 - 0.026 | 0.01 - 0.11 | 0.0027 - 0.029 | 0.012 | 0.0031 | N/A | N/A |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 39/45 | 0/45 | N/A | 0.003 - 0.3 | 0.011 - 0.013 | 0.0072 - 0.0088 | 0.012 | 0.0076 | N/A | N/A |
| Naphthalene | mg/kg | 25/45 | 0/45 | 3.4 | 0.00073 - 0.034 | 0.01 - 0.014 | 0.002 - 0.0027 | 0.012 | 0.0024 | 0/20 | 0/20 |
| Phenanthrene | mg/kg | 39/45 | 0/45 | N/A | 0.0027 - 0.31 | 0.011 - 0.013 | 0.0072 - 0.0088 | 0.012 | 0.0076 | N/A | N/A |
| Pyrene | mg/kg | 42/45 | 0/45 | 33 | 0.0025 - 0.59 | 0.011 - 0.012 | 0.0074 - 0.008 | 0.011 | 0.0074 | 0/3 | 0/3 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 45/45 | 0/45 | N/A | 2300 - 8800 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 13/45 | 0/45 | N/A | 0.12 - 1 | 0.16 - 0.33 | 0.08 - 0.17 | 0.2 | 0.099 | N/A | N/A |
| Arsenic | mg/kg | 45/45 | 0/45 | 43 | 0.6 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 45/45 | 0/45 | 820 | 14 - 110 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 43/45 | 0/45 | N/A | 0.077 - 0.42 | 0.43 - 0.55 | 0.1 - 0.13 | 0.49 | 0.12 | N/A | N/A |
| Cadmium | mg/kg | 45/45 | 0/45 | 0.77 | 0.024 - 0.43 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 45/45 | 0/45 | N/A | 240 - 100000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 45/45 | 0/45 | 26 | 2.6 - 14 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 45/45 | 0/45 | 120 | 0.61 - 7.2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 45/45 | 0/45 | 28 | 0.75 - 30 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 45/45 | 0/45 | N/A | 2500 - 22000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 45/45 | 0/45 | 11 | 2.7 - 320 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 45/45 | 0/45 | N/A | 270 - 17000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 45/45 | 0/45 | 4300 | 27 - 2400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 45/45 | 0/45 | 0.013 | 0.0099 - 0.26 | N/A | N/A | N/A | N/A | N/A | N/A |
| Nickel | mg/kg | 45/45 | 0/45 | 210 | 1.2 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 45/45 | 0/45 | N/A | 200 - 990 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 42/45 | 0/45 | 1.2 | 0.15 - 0.87 | 0.46 - 0.57 | 0.37 - 0.46 | 0.56 | 0.45 | 0/3 | 0/3 |
| Silver | mg/kg | 6/45 | 0/45 | 4.2 | 0.13 - 0.36 | 1.3 - 2 | 0.51 - 0.81 | 1.6 | 0.63 | 0/39 | 0/39 |
| Sodium | mg/kg | 30/45 | 0/45 | N/A | 27 - 320 | 430 - 630 | 87 - 130 | 530 | 110 | N/A | N/A |
| Thallium | mg/kg | 25/45 | 0/45 | 4.5 | 0.036 - 0.14 | 0.084 - 0.13 | 0.011 - 0.13 | 0.11 | 0.093 | 0/20 | 0/20 |
| Vanadium | mg/kg | 45/45 | 0/45 | 7.8 | 4.7 - 20 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 44/45 | 0/45 | 46 | 7 - 2500 | 6.9 - 6.9 | 6.9 - 6.9 | 6.9 | 6.9 | 0/1 | 0/1 |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 4/45 | 0/45 | N/A | 0.00077 - 0.0015 | 0.01 - 0.012 | 0.002 - 0.0025 | 0.011 | 0.0022 | N/A | N/A |
| 2-Methylnaphthalene | mg/kg | 7/45 | 0/45 | N/A | 0.00086 - 0.002 | 0.01 - 0.012 | 0.002 - 0.0025 | 0.011 | 0.0022 | N/A | N/A |
| Acenaphthene | mg/kg | 3/45 | 0/45 | N/A | 0.00051 - 0.00073 | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | N/A | N/A |
| Acenaphthylene | mg/kg | 3/45 | 0/45 | N/A | 0.0042 - 0.016 | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | N/A | N/A |
| Anthracene | mg/kg | 4/45 | 0/45 | N/A | 0.0018 - 0.012 | 0.01 - 0.012 | 0.0043 - 0.0053 | 0.011 | 0.0048 | N/A | N/A |

Table 4
Summary Statistics and Ecological Project Action Limits (Background - Bird)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Benzo(a)anthracene | mg/kg | 12/45 | 0/45 | 0.73 | 0.0019 - 0.089 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | 0/33 | 0/33 |
| Benzo(a)pyrene | mg/kg | 9/45 | 0/45 | N/A | 0.0016 - 0.09 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | N/A | N/A |
| Benzo(b)fluoranthene | mg/kg | 14/45 | 0/45 | N/A | 0.0026 - 0.099 | 0.01 - 0.012 | 0.0068 - 0.0082 | 0.011 | 0.0074 | N/A | N/A |
| Benzo(g,h,i)perylene | mg/kg | 8/45 | 0/45 | N/A | 0.0025 - 0.05 | 0.01 - 0.012 | 0.0067 - 0.0082 | 0.011 | 0.0074 | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 7/45 | 0/45 | N/A | 0.0023 - 0.046 | 0.01 - 0.012 | 0.0043 - 0.0053 | 0.011 | 0.0048 | N/A | N/A |
| Chrysene | mg/kg | 15/45 | 0/45 | N/A | 0.0022 - 0.081 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | N/A | N/A |
| Dibenz(a,h)anthracene | mg/kg | 2/45 | 0/45 | N/A | 0.0035 - 0.013 | 0.01 - 0.012 | 0.0067 - 0.0082 | 0.011 | 0.0074 | N/A | N/A |
| Fluoranthene | mg/kg | 12/45 | 0/45 | N/A | 0.0022 - 0.15 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | N/A | N/A |
| Fluorene | mg/kg | 3/45 | 0/45 | N/A | 0.0011 - 0.0021 | 0.01 - 0.012 | 0.0027 - 0.0033 | 0.011 | 0.003 | N/A | N/A |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 8/45 | 0/45 | N/A | 0.0026 - 0.058 | 0.01 - 0.012 | 0.0067 - 0.0082 | 0.011 | 0.0074 | N/A | N/A |
| Naphthalene | mg/kg | 12/45 | 0/45 | 3.4 | 0.0008 - 0.0073 | 0.01 - 0.012 | 0.002 - 0.0025 | 0.011 | 0.0022 | 0/33 | 0/33 |
| Phenanthrene | mg/kg | 9/45 | 0/45 | N/A | 0.0031 - 0.035 | 0.01 - 0.012 | 0.0068 - 0.0082 | 0.011 | 0.0074 | N/A | N/A |
| Pyrene | mg/kg | 11/45 | 0/45 | 33 | 0.0026 - 0.14 | 0.01 - 0.012 | 0.0068 - 0.0082 | 0.011 | 0.0074 | 0/34 | 0/34 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 45/45 | 0/45 | N/A | 2300 - 8500 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 10/45 | 0/45 | N/A | 0.074 - 0.25 | 0.15 - 0.23 | 0.077 - 0.11 | 0.19 | 0.096 | N/A | N/A |
| Arsenic | mg/kg | 45/45 | 0/45 | 43 | 0.36 - 21 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 45/45 | 0/45 | 820 | 11 - 68 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 45/45 | 0/45 | N/A | 0.11 - 0.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 45/45 | 0/45 | 0.77 | 0.015 - 0.22 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 45/45 | 0/45 | N/A | 500 - 120000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 45/45 | 0/45 | 26 | 3.6 - 9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 45/45 | 0/45 | 120 | 1.7 - 9.7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 45/45 | 0/45 | 28 | 1.6 - 29 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 45/45 | 0/45 | N/A | 4700 - 23000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 45/45 | 0/45 | 11 | 1.3 - 92 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 45/45 | 0/45 | N/A | 810 - 21000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 45/45 | 0/45 | 4300 | 52 - 1300 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 31/45 | 0/45 | 0.013 | 0.0086 - 0.1 | 0.02 - 0.022 | 0.016 - 0.022 | 0.022 | 0.017 | 14/14 | 14/14 |
| Nickel | mg/kg | 45/45 | 0/45 | 210 | 3.5 - 12 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 45/45 | 0/45 | N/A | 310 - 1700 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 21/45 | 0/45 | 1.2 | 0.12 - 0.45 | 0.4 - 0.59 | 0.32 - 0.47 | 0.49 | 0.4 | 0/24 | 0/24 |
| Silver | mg/kg | 6/45 | 0/45 | 4.2 | 0.15 - 0.29 | 1.2 - 1.7 | 0.47 - 0.7 | 1.5 | 0.59 | 0/39 | 0/39 |
| Sodium | mg/kg | 33/45 | 0/45 | N/A | 30 - 220 | 410 - 580 | 82 - 120 | 530 | 110 | N/A | N/A |
| Thallium | mg/kg | 21/45 | 0/45 | 4.5 | 0.031 - 0.13 | 0.081 - 0.12 | 0.0084 - 0.12 | 0.098 | 0.087 | 0/24 | 0/24 |
| Vanadium | mg/kg | 45/45 | 0/45 | 7.8 | 6 - 16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 45/45 | 0/45 | 46 | 7.5 - 88 | N/A | N/A | N/A | N/A | N/A | N/A |

Notes

FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 5
Summary Statistics and Ecological Project Action Limits (Background - Mammal)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 21/45 | 0/45 | 100 | 0.00061 - 0.028 | 0.011 - 0.014 | 0.0022 - 0.0028 | 0.012 | 0.0023 | 0/24 | 0/24 |
| 2-Methylnaphthalene | mg/kg | 17/45 | 0/45 | 100 | 0.0008 - 0.036 | 0.011 - 0.014 | 0.0022 - 0.0028 | 0.012 | 0.0023 | 0/28 | 0/28 |
| Acenaphthene | mg/kg | 13/45 | 0/45 | 100 | 0.00041 - 0.011 | 0.01 - 0.11 | 0.0011 - 0.012 | 0.012 | 0.0013 | 0/32 | 0/32 |
| Acenaphthylene | mg/kg | 25/45 | 0/45 | 100 | 0.00084 - 0.12 | 0.011 - 0.013 | 0.0012 - 0.012 | 0.012 | 0.0013 | 0/20 | 0/20 |
| Anthracene | mg/kg | 14/45 | 0/45 | 100 | 0.0019 - 0.067 | 0.01 - 0.11 | 0.0044 - 0.048 | 0.012 | 0.0051 | 0/31 | 0/31 |
| Benzo(a)anthracene | mg/kg | 40/45 | 0/45 | 1.1 | 0.0022 - 0.35 | 0.011 - 0.013 | 0.0047 - 0.0057 | 0.011 | 0.0048 | 0/5 | 0/5 |
| Benzo(a)pyrene | mg/kg | 39/45 | 0/45 | 1.1 | 0.0019 - 0.34 | 0.011 - 0.11 | 0.0048 - 0.11 | 0.012 | 0.0055 | 0/6 | 0/6 |
| Benzo(b)fluoranthene | mg/kg | 42/45 | 0/45 | 1.1 | 0.0031 - 0.44 | 0.011 - 0.012 | 0.0074 - 0.008 | 0.011 | 0.0074 | 0/3 | 0/3 |
| Benzo(g,h,i)perylene | mg/kg | 39/45 | 0/45 | 1.1 | 0.0027 - 0.24 | 0.011 - 0.013 | 0.0072 - 0.0088 | 0.012 | 0.0076 | 0/6 | 0/6 |
| Benzo(k)fluoranthene | mg/kg | 37/45 | 0/45 | 1.1 | 0.0027 - 0.19 | 0.011 - 0.013 | 0.0047 - 0.0057 | 0.012 | 0.0051 | 0/8 | 0/8 |
| Chrysene | mg/kg | 42/45 | 0/45 | 1.1 | 0.0023 - 0.39 | 0.011 - 0.012 | 0.0048 - 0.0052 | 0.011 | 0.0048 | 0/3 | 0/3 |
| Dibenz(a,h)anthracene | mg/kg | 9/45 | 0/45 | 1.1 | 0.0036 - 0.072 | 0.01 - 0.11 | 0.0068 - 0.073 | 0.012 | 0.0078 | 0/36 | 0/36 |
| Fluoranthene | mg/kg | 42/45 | 0/45 | 100 | 0.0024 - 0.61 | 0.011 - 0.012 | 0.0048 - 0.0052 | 0.011 | 0.0048 | 0/3 | 0/3 |
| Fluorene | mg/kg | 10/45 | 0/45 | 100 | 0.0011 - 0.026 | 0.01 - 0.11 | 0.0027 - 0.029 | 0.012 | 0.0031 | 0/35 | 0/35 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 39/45 | 0/45 | 1.1 | 0.003 - 0.3 | 0.011 - 0.013 | 0.0072 - 0.0088 | 0.012 | 0.0076 | 0/6 | 0/6 |
| Naphthalene | mg/kg | 25/45 | 0/45 | 100 | 0.00073 - 0.034 | 0.01 - 0.014 | 0.002 - 0.0027 | 0.012 | 0.0024 | 0/20 | 0/20 |
| Phenanthrene | mg/kg | 39/45 | 0/45 | 100 | 0.0027 - 0.31 | 0.011 - 0.013 | 0.0072 - 0.0088 | 0.012 | 0.0076 | 0/6 | 0/6 |
| Pyrene | mg/kg | 42/45 | 0/45 | 1.1 | 0.0025 - 0.59 | 0.011 - 0.012 | 0.0074 - 0.008 | 0.011 | 0.0074 | 0/3 | 0/3 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 45/45 | 0/45 | N/A | 2300 - 8800 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 13/45 | 0/45 | 0.27 | 0.12 - 1 | 0.16 - 0.33 | 0.08 - 0.17 | 0.2 | 0.099 | 1/32 | 0/32 |
| Arsenic | mg/kg | 45/45 | 0/45 | 46 | 0.6 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 45/45 | 0/45 | 2000 | 14 - 110 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 43/45 | 0/45 | 21 | 0.077 - 0.42 | 0.43 - 0.55 | 0.1 - 0.13 | 0.49 | 0.12 | 0/2 | 0/2 |
| Cadmium | mg/kg | 45/45 | 0/45 | 0.36 | 0.024 - 0.43 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 45/45 | 0/45 | N/A | 240 - 100000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 45/45 | 0/45 | 34 | 2.6 - 14 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 45/45 | 0/45 | 230 | 0.61 - 7.2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 45/45 | 0/45 | 49 | 0.75 - 30 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 45/45 | 0/45 | N/A | 2500 - 22000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 45/45 | 0/45 | 56 | 2.7 - 320 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 45/45 | 0/45 | N/A | 270 - 17000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 45/45 | 0/45 | 4000 | 27 - 2400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 45/45 | 0/45 | 1.7 | 0.0099 - 0.26 | N/A | N/A | N/A | N/A | N/A | N/A |
| Nickel | mg/kg | 45/45 | 0/45 | 130 | 1.2 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 45/45 | 0/45 | N/A | 200 - 990 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 42/45 | 0/45 | 0.63 | 0.15 - 0.87 | 0.46 - 0.57 | 0.37 - 0.46 | 0.56 | 0.45 | 0/3 | 0/3 |
| Silver | mg/kg | 6/45 | 0/45 | 14 | 0.13 - 0.36 | 1.3 - 2 | 0.51 - 0.81 | 1.6 | 0.63 | 0/39 | 0/39 |
| Sodium | mg/kg | 30/45 | 0/45 | N/A | 27 - 320 | 430 - 630 | 87 - 130 | 530 | 110 | N/A | N/A |
| Thallium | mg/kg | 25/45 | 0/45 | 0.42 | 0.036 - 0.14 | 0.084 - 0.13 | 0.011 - 0.13 | 0.11 | 0.093 | 0/20 | 0/20 |
| Vanadium | mg/kg | 45/45 | 0/45 | 280 | 4.7 - 20 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 44/45 | 0/45 | 79 | 7 - 2500 | 6.9 - 6.9 | 6.9 - 6.9 | 6.9 | 6.9 | 0/1 | 0/1 |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 4/45 | 0/45 | 100 | 0.00077 - 0.0015 | 0.01 - 0.012 | 0.002 - 0.0025 | 0.011 | 0.0022 | 0/41 | 0/41 |
| 2-Methylnaphthalene | mg/kg | 7/45 | 0/45 | 100 | 0.00086 - 0.002 | 0.01 - 0.012 | 0.002 - 0.0025 | 0.011 | 0.0022 | 0/38 | 0/38 |
| Acenaphthene | mg/kg | 3/45 | 0/45 | 100 | 0.00051 - 0.00073 | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | 0/42 | 0/42 |
| Acenaphthylene | mg/kg | 3/45 | 0/45 | 100 | 0.0042 - 0.016 | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | 0/42 | 0/42 |
| Anthracene | mg/kg | 4/45 | 0/45 | 100 | 0.0018 - 0.012 | 0.01 - 0.012 | 0.0043 - 0.0053 | 0.011 | 0.0048 | 0/41 | 0/41 |

Table 5
Summary Statistics and Ecological Project Action Limits (Background - Mammal)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Benzo(a)anthracene | mg/kg | 12/45 | 0/45 | 1.1 | 0.0019 - 0.089 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | 0/33 | 0/33 |
| Benzo(a)pyrene | mg/kg | 9/45 | 0/45 | 1.1 | 0.0016 - 0.09 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | 0/36 | 0/36 |
| Benzo(b)fluoranthene | mg/kg | 14/45 | 0/45 | 1.1 | 0.0026 - 0.099 | 0.01 - 0.012 | 0.0068 - 0.0082 | 0.011 | 0.0074 | 0/31 | 0/31 |
| Benzo(g,h,i)perylene | mg/kg | 8/45 | 0/45 | 1.1 | 0.0025 - 0.05 | 0.01 - 0.012 | 0.0067 - 0.0082 | 0.011 | 0.0074 | 0/37 | 0/37 |
| Benzo(k)fluoranthene | mg/kg | 7/45 | 0/45 | 1.1 | 0.0023 - 0.046 | 0.01 - 0.012 | 0.0043 - 0.0053 | 0.011 | 0.0048 | 0/38 | 0/38 |
| Chrysene | mg/kg | 15/45 | 0/45 | 1.1 | 0.0022 - 0.081 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | 0/30 | 0/30 |
| Dibenz(a,h)anthracene | mg/kg | 2/45 | 0/45 | 1.1 | 0.0035 - 0.013 | 0.01 - 0.012 | 0.0067 - 0.0082 | 0.011 | 0.0074 | 0/43 | 0/43 |
| Fluoranthene | mg/kg | 12/45 | 0/45 | 100 | 0.0022 - 0.15 | 0.01 - 0.012 | 0.0044 - 0.0053 | 0.011 | 0.0048 | 0/33 | 0/33 |
| Fluorene | mg/kg | 3/45 | 0/45 | 100 | 0.0011 - 0.0021 | 0.01 - 0.012 | 0.0027 - 0.0033 | 0.011 | 0.003 | 0/42 | 0/42 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 8/45 | 0/45 | 1.1 | 0.0026 - 0.058 | 0.01 - 0.012 | 0.0067 - 0.0082 | 0.011 | 0.0074 | 0/37 | 0/37 |
| Naphthalene | mg/kg | 12/45 | 0/45 | 100 | 0.0008 - 0.0073 | 0.01 - 0.012 | 0.002 - 0.0025 | 0.011 | 0.0022 | 0/33 | 0/33 |
| Phenanthrene | mg/kg | 9/45 | 0/45 | 100 | 0.0031 - 0.035 | 0.01 - 0.012 | 0.0068 - 0.0082 | 0.011 | 0.0074 | 0/36 | 0/36 |
| Pyrene | mg/kg | 11/45 | 0/45 | 1.1 | 0.0026 - 0.14 | 0.01 - 0.012 | 0.0068 - 0.0082 | 0.011 | 0.0074 | 0/34 | 0/34 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 45/45 | 0/45 | N/A | 2300 - 8500 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 10/45 | 0/45 | 0.27 | 0.074 - 0.25 | 0.15 - 0.23 | 0.077 - 0.11 | 0.19 | 0.096 | 0/35 | 0/35 |
| Arsenic | mg/kg | 45/45 | 0/45 | 46 | 0.36 - 21 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 45/45 | 0/45 | 2000 | 11 - 68 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 45/45 | 0/45 | 21 | 0.11 - 0.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 45/45 | 0/45 | 0.36 | 0.015 - 0.22 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 45/45 | 0/45 | N/A | 500 - 120000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 45/45 | 0/45 | 34 | 3.6 - 9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 45/45 | 0/45 | 230 | 1.7 - 9.7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 45/45 | 0/45 | 49 | 1.6 - 29 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 45/45 | 0/45 | N/A | 4700 - 23000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 45/45 | 0/45 | 56 | 1.3 - 92 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 45/45 | 0/45 | N/A | 810 - 21000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 45/45 | 0/45 | 4000 | 52 - 1300 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 31/45 | 0/45 | 1.7 | 0.0086 - 0.1 | 0.02 - 0.022 | 0.016 - 0.022 | 0.022 | 0.017 | 0/14 | 0/14 |
| Nickel | mg/kg | 45/45 | 0/45 | 130 | 3.5 - 12 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 45/45 | 0/45 | N/A | 310 - 1700 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 21/45 | 0/45 | 0.63 | 0.12 - 0.45 | 0.4 - 0.59 | 0.32 - 0.47 | 0.49 | 0.4 | 0/24 | 0/24 |
| Silver | mg/kg | 6/45 | 0/45 | 14 | 0.15 - 0.29 | 1.2 - 1.7 | 0.47 - 0.7 | 1.5 | 0.59 | 0/39 | 0/39 |
| Sodium | mg/kg | 33/45 | 0/45 | N/A | 30 - 220 | 410 - 580 | 82 - 120 | 530 | 110 | N/A | N/A |
| Thallium | mg/kg | 21/45 | 0/45 | 0.42 | 0.031 - 0.13 | 0.081 - 0.12 | 0.0084 - 0.12 | 0.098 | 0.087 | 0/24 | 0/24 |
| Vanadium | mg/kg | 45/45 | 0/45 | 280 | 6 - 16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 45/45 | 0/45 | 79 | 7.5 - 88 | N/A | N/A | N/A | N/A | N/A | N/A |

Notes

FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 6
Summary Statistics and Human Health Project Action Limits (AOC 1)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/30 | 0/30 | N/A | N/A | N/A | 0.71 - 6.4 | 0.36 - 3.2 | 0.82 | 0.41 | N/A | N/A |
| 2,4-Dinitrophenol | mg/kg | 0/29 | 1/30 | 13 | (a) | N/A | 1.8 - 16 | 1.4 - 13 | 2.1 | 1.6 | 2/29 | 0/29 |
| Explosives | | | | | | | | | | | | |
| Picric acid | mg/kg | 1/30 | 0/30 | 13 | (a) | 0.058 - 0.058 | 0.22 - 0.25 | 0.14 - 0.16 | 0.24 | 0.16 | 0/29 | 0/29 |
| Metals - Total | | | | | | | | | | | | |
| Aluminum | mg/kg | 30/30 | 0/30 | 7700 | (a) | 2000 - 11000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 30/30 | 0/30 | 3.1 | (a) | 0.082 - 0.56 | N/A | N/A | N/A | N/A | N/A | N/A |
| Arsenic | mg/kg | 30/30 | 0/30 | 0.68 | (a) | 2.4 - 11 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 30/30 | 0/30 | 1500 | (a) | 25 - 120 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 28/30 | 0/30 | 16 | (a) | 0.09 - 0.34 | 0.52 - 2.8 | 0.52 - 0.67 | 1.7 | 0.6 | 0/2 | 0/2 |
| Cadmium | mg/kg | 30/30 | 0/30 | 0.71 | (a) | 0.053 - 0.79 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 30/30 | 0/30 | N/A | N/A | 5400 - 63000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 30/30 | 0/30 | 12000 | (a) | 5 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 30/30 | 0/30 | 2.3 | (a) | 3.4 - 9.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 30/30 | 0/30 | 310 | (a) | 11 - 80 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 30/30 | 0/30 | 5500 | (a) | 6000 - 26000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 30/30 | 0/30 | 400 | (a) | 4.2 - 200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 30/30 | 0/30 | N/A | N/A | 1700 - 15000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 30/30 | 0/30 | 180 | (a) | 270 - 1400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 29/30 | 0/30 | 1.1 | (a) | 0.013 - 0.76 | 0.023 - 0.023 | 0.018 - 0.018 | 0.023 | 0.018 | 0/1 | 0/1 |
| Nickel | mg/kg | 30/30 | 0/30 | 150 | (a) | 6.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 30/30 | 0/30 | N/A | N/A | 480 - 1400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 29/30 | 0/30 | 39 | (a) | 0.12 - 0.71 | 0.5 - 0.5 | 0.4 - 0.4 | 0.5 | 0.4 | 0/1 | 0/1 |
| Silver | mg/kg | 11/30 | 0/30 | 39 | (a) | 0.15 - 0.69 | 1.2 - 2 | 0.47 - 0.8 | 1.6 | 0.63 | 0/19 | 0/19 |
| Sodium | mg/kg | 24/30 | 0/30 | N/A | N/A | 34 - 150 | 470 - 870 | 93 - 170 | 600 | 120 | N/A | N/A |
| Thallium | mg/kg | 28/30 | 0/30 | 0.078 | (a) | 0.031 - 0.11 | 0.086 - 0.11 | 0.086 - 0.11 | 0.098 | 0.098 | 2/2 | 2/2 |
| Vanadium | mg/kg | 30/30 | 0/30 | 39 | (a) | 7.2 - 20 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 30/30 | 0/30 | 2300 | (a) | 11 - 180 | N/A | N/A | N/A | N/A | N/A | N/A |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/11 | 0/11 | N/A | N/A | N/A | 0.69 - 0.78 | 0.34 - 0.39 | 0.73 | 0.36 | N/A | N/A |
| 2,4-Dinitrophenol | mg/kg | 0/11 | 0/11 | 13 | (a) | N/A | 1.8 - 2 | 1.4 - 1.5 | 1.9 | 1.4 | 0/11 | 0/11 |
| Explosives | | | | | | | | | | | | |
| Picric acid | mg/kg | 0/11 | 0/11 | 13 | (a) | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.23 | 0.15 | 0/11 | 0/11 |
| Metals - Total | | | | | | | | | | | | |
| Aluminum | mg/kg | 11/11 | 0/11 | 7700 | (a) | 3400 - 7000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 8/11 | 0/11 | 3.1 | (a) | 0.076 - 0.16 | 0.16 - 0.21 | 0.081 - 0.11 | 0.19 | 0.093 | 0/3 | 0/3 |
| Arsenic | mg/kg | 11/11 | 0/11 | 0.68 | (a) | 2.1 - 7.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 11/11 | 0/11 | 1500 | (a) | 31 - 260 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 10/11 | 0/11 | 16 | (a) | 0.15 - 0.31 | 0.49 - 0.49 | 0.12 - 0.12 | 0.49 | 0.12 | 0/1 | 0/1 |
| Cadmium | mg/kg | 11/11 | 0/11 | 0.71 | (a) | 0.013 - 0.34 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 11/11 | 0/11 | N/A | N/A | 8800 - 80000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 11/11 | 0/11 | 12000 | (a) | 4.6 - 10 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 11/11 | 0/11 | 2.3 | (a) | 2.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 11/11 | 0/11 | 310 | (a) | 7.2 - 39 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 11/11 | 0/11 | 5500 | (a) | 8300 - 22000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 11/11 | 0/11 | 400 | (a) | 3.2 - 40 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 11/11 | 0/11 | N/A | N/A | 2400 - 24000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 11/11 | 0/11 | 180 | (a) | 230 - 7000 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 6
Summary Statistics and Human Health Project Action Limits (AOC 1)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Mercury | mg/kg | 8/11 | 0/11 | 1.1 | (a) | 0.012 - 0.048 | 0.021 - 0.024 | 0.017 - 0.019 | 0.023 | 0.018 | 0/3 | 0/3 |
| Nickel | mg/kg | 11/11 | 0/11 | 150 | (a) | 4.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 11/11 | 0/11 | N/A | N/A | 500 - 2000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 6/11 | 0/11 | 39 | (a) | 0.13 - 0.33 | 0.41 - 0.55 | 0.33 - 0.44 | 0.49 | 0.39 | 0/5 | 0/5 |
| Silver | mg/kg | 4/11 | 0/11 | 39 | (a) | 0.13 - 0.66 | 1.2 - 1.5 | 0.48 - 0.61 | 1.3 | 0.52 | 0/7 | 0/7 |
| Sodium | mg/kg | 11/11 | 0/11 | N/A | N/A | 42 - 130 | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | mg/kg | 9/11 | 0/11 | 0.078 | (a) | 0.037 - 0.11 | 0.078 - 0.11 | 0.078 - 0.11 | 0.094 | 0.094 | 1/2 | 1/2 |
| Vanadium | mg/kg | 11/11 | 0/11 | 39 | (a) | 8.3 - 19 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 11/11 | 0/11 | 2300 | (a) | 12 - 130 | N/A | N/A | N/A | N/A | N/A | N/A |
| Soil: 5 - 10 feet below ground surface | | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/11 | 0/11 | N/A | N/A | N/A | 0.67 - 0.79 | 0.34 - 0.4 | 0.72 | 0.36 | N/A | N/A |
| 2,4-Dinitrophenol | mg/kg | 0/11 | 0/11 | 13 | (a) | N/A | 1.7 - 2 | 1.3 - 1.6 | 1.9 | 1.4 | 0/11 | 0/11 |
| Explosives | | | | | | | | | | | | |
| Picric acid | mg/kg | 0/11 | 0/11 | 13 | (a) | N/A | 0.23 - 0.24 | 0.15 - 0.16 | 0.23 | 0.15 | 0/11 | 0/11 |
| Metals - Total | | | | | | | | | | | | |
| Aluminum | mg/kg | 11/11 | 0/11 | 7700 | (a) | 2100 - 7400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 8/11 | 0/11 | 3.1 | (a) | 0.07 - 0.092 | 0.17 - 0.22 | 0.084 - 0.11 | 0.19 | 0.097 | 0/3 | 0/3 |
| Arsenic | mg/kg | 11/11 | 0/11 | 0.68 | (a) | 2.1 - 7.7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 11/11 | 0/11 | 1500 | (a) | 17 - 73 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 11/11 | 0/11 | 16 | (a) | 0.085 - 0.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 11/11 | 0/11 | 0.71 | (a) | 0.014 - 0.082 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 11/11 | 0/11 | N/A | N/A | 3800 - 92000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 11/11 | 0/11 | 12000 | (a) | 3.4 - 9.6 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 11/11 | 0/11 | 2.3 | (a) | 2.2 - 11 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 11/11 | 0/11 | 310 | (a) | 6.8 - 100 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 11/11 | 0/11 | 5500 | (a) | 6800 - 16000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 11/11 | 0/11 | 400 | (a) | 2.7 - 9.1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 11/11 | 0/11 | N/A | N/A | 2800 - 31000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 11/11 | 0/11 | 180 | (a) | 280 - 580 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 4/11 | 0/11 | 1.1 | (a) | 0.0073 - 0.012 | 0.019 - 0.022 | 0.015 - 0.018 | 0.02 | 0.016 | 0/7 | 0/7 |
| Nickel | mg/kg | 11/11 | 0/11 | 150 | (a) | 3.8 - 15 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 11/11 | 0/11 | N/A | N/A | 400 - 2500 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 5/11 | 0/11 | 39 | (a) | 0.11 - 0.18 | 0.4 - 0.5 | 0.32 - 0.4 | 0.45 | 0.35 | 0/6 | 0/6 |
| Silver | mg/kg | 3/11 | 0/11 | 39 | (a) | 0.14 - 0.19 | 1.1 - 1.5 | 0.46 - 0.6 | 1.4 | 0.53 | 0/8 | 0/8 |
| Sodium | mg/kg | 11/11 | 0/11 | N/A | N/A | 61 - 150 | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | mg/kg | 10/11 | 0/11 | 0.078 | (a) | 0.022 - 0.098 | 0.076 - 0.076 | 0.076 - 0.076 | 0.076 | 0.076 | 0/1 | 0/1 |
| Vanadium | mg/kg | 11/11 | 0/11 | 39 | (a) | 6.8 - 12 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 11/11 | 0/11 | 2300 | (a) | 17 - 33 | N/A | N/A | N/A | N/A | N/A | N/A |
| Groundwater | | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | µg/L | 0/9 | 0/9 | N/A | N/A | N/A | 19 - 22 | 9.5 - 11 | 21 | 10 | N/A | N/A |
| 2,4-Dinitrophenol | µg/L | 0/9 | 0/9 | 3.9 | (b) | N/A | 48 - 54 | 19 - 22 | 52 | 21 | 9/9 | 9/9 |
| Explosives | | | | | | | | | | | | |
| Picric acid | µg/L | 0/10 | 0/10 | 4 | (b) | N/A | 0.39 - 0.43 | 0.12 - 0.13 | 0.42 | 0.13 | 0/10 | 0/10 |
| Metals - Dissolved | | | | | | | | | | | | |
| Aluminum | µg/L | 7/9 | 0/9 | 2000 | (b) | 23 - 950 | 300 - 300 | 70 - 70 | 300 | 70 | 0/2 | 0/2 |
| Antimony | µg/L | 4/9 | 0/9 | 0.78 | (b) | 0.42 - 1.5 | 6 - 6 | 1 - 1 | 6 | 1 | 5/5 | 5/5 |
| Arsenic | µg/L | 7/9 | 0/9 | 0.052 | (b) | 0.42 - 4.4 | 5 - 5 | 1 - 1 | 5 | 1 | 2/2 | 2/2 |
| Barium | µg/L | 9/9 | 0/9 | 380 | (b) | 38 - 690 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | µg/L | 0/9 | 0/9 | 2.5 | (b) | N/A | 1.5 - 1.5 | 0.5 - 0.5 | 1.5 | 0.5 | 0/9 | 0/9 |

Table 6
Summary Statistics and Human Health Project Action Limits (AOC 1)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Cadmium | µg/L | 1/9 | 0/9 | 0.18 | (b) | 0.45 - 0.45 | 5 - 5 | 1.8 - 1.8 | 5 | 1.8 | 8/8 | 8/8 |
| Calcium | µg/L | 9/9 | 0/9 | N/A | N/A | 76000 - 140000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | µg/L | 4/9 | 0/9 | 2200 | (b) | 0.54 - 1.8 | 10 - 10 | 1.8 - 1.8 | 10 | 1.8 | 0/5 | 0/5 |
| Cobalt | µg/L | 9/9 | 0/9 | 0.6 | (b) | 0.38 - 3.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | µg/L | 2/9 | 0/9 | 80 | (b) | 5.7 - 6.8 | 15 - 15 | 10 - 10 | 15 | 10 | 0/7 | 0/7 |
| Iron | µg/L | 9/9 | 0/9 | 1400 | (b) | 36 - 15000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | µg/L | 4/9 | 0/9 | 15 | (b) | 0.28 - 1.9 | 3 - 3 | 0.7 - 0.7 | 3 | 0.7 | 0/5 | 0/5 |
| Magnesium | µg/L | 9/9 | 0/9 | N/A | N/A | 17000 - 72000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | µg/L | 9/9 | 0/9 | 43 | (b) | 320 - 2900 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | µg/L | 0/9 | 0/9 | 0.063 | (b) | N/A | 0.2 - 0.2 | 0.08 - 0.08 | 0.2 | 0.08 | 9/9 | 9/9 |
| Nickel | µg/L | 4/9 | 0/9 | 39 | (b) | 2.8 - 8.2 | 40 - 40 | 8 - 8 | 40 | 8 | 5/5 | 0/5 |
| Potassium | µg/L | 9/9 | 0/9 | N/A | N/A | 980 - 11000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | µg/L | 0/9 | 0/9 | 10 | (b) | N/A | 22 - 22 | 19 - 19 | 22 | 19 | 9/9 | 9/9 |
| Silver | µg/L | 0/9 | 0/9 | 9.4 | (b) | N/A | 15 - 15 | 5 - 5 | 15 | 5 | 9/9 | 0/9 |
| Sodium | µg/L | 9/9 | 0/9 | 20000 | (c) | 2100 - 140000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | µg/L | 0/9 | 0/9 | 0.02 | (b) | N/A | 1 - 1 | 0.2 - 0.2 | 1 | 0.2 | 9/9 | 9/9 |
| Vanadium | µg/L | 5/9 | 0/9 | 8.6 | (b) | 1.1 - 4.1 | 15 - 15 | 4 - 4 | 15 | 4 | 4/4 | 0/4 |
| Zinc | µg/L | 3/9 | 0/9 | 600 | (b) | 6.1 - 9 | 150 - 150 | 15 - 15 | 150 | 15 | 0/6 | 0/6 |

Notes

| | |
|---|---|
| FOD = Frequency of Detection | mg/kg = milligram per kilogram |
| FOE = Frequency of Exceedance | N/A = Not Available |
| FOR = Frequency of Rejection | ND = Non-Detect |
| LOD = Limit of Detection | PAL = Project Action Limit |
| LOQ = Limit of Quantitation | µg/L = microgram per liter |

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

(a) EPA Residential Soil Regional Screening Level, May 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(b) EPA Tapwater Regional Screening Level, May 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(c) New York State Groundwater Standards, 6 NYCRR Part 703.5. Last updated March 2021. (https://www.dec.ny.gov/chemical/23853.html)

Table 7
Summary Statistics and Ecological Project Action Limits (AOC 1 - Plant)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/30 | 0/30 | 0.6 | N/A | 0.71 - 6.4 | 0.36 - 3.2 | 0.82 | 0.41 | 30/30 | 3/30 |
| 2,4-Dinitrophenol | mg/kg | 0/29 | 1/30 | 20 | N/A | 1.8 - 16 | 1.4 - 13 | 2.1 | 1.6 | 0/29 | 0/29 |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 1/30 | 0/30 | 2 | 0.058 - 0.058 | 0.22 - 0.25 | 0.14 - 0.16 | 0.24 | 0.16 | 0/29 | 0/29 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 30/30 | 0/30 | N/A | 2000 - 11000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 30/30 | 0/30 | 5 | 0.082 - 0.56 | N/A | N/A | N/A | N/A | N/A | N/A |
| Arsenic | mg/kg | 30/30 | 0/30 | 18 | 2.4 - 11 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 30/30 | 0/30 | 110 | 25 - 120 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 28/30 | 0/30 | 2.5 | 0.09 - 0.34 | 0.52 - 2.8 | 0.52 - 0.67 | 1.7 | 0.6 | 1/2 | 0/2 |
| Cadmium | mg/kg | 30/30 | 0/30 | 32 | 0.053 - 0.79 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 30/30 | 0/30 | N/A | 5400 - 63000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 30/30 | 0/30 | 0.35 | 5 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 30/30 | 0/30 | 13 | 3.4 - 9.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 30/30 | 0/30 | 70 | 11 - 80 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 30/30 | 0/30 | N/A | 6000 - 26000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 30/30 | 0/30 | 120 | 4.2 - 200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 30/30 | 0/30 | N/A | 1700 - 15000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 30/30 | 0/30 | 220 | 270 - 1400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 29/30 | 0/30 | 0.3 | 0.013 - 0.76 | 0.023 - 0.023 | 0.018 - 0.018 | 0.023 | 0.018 | 0/1 | 0/1 |
| Nickel | mg/kg | 30/30 | 0/30 | 38 | 6.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 30/30 | 0/30 | N/A | 480 - 1400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 29/30 | 0/30 | 0.52 | 0.12 - 0.71 | 0.5 - 0.5 | 0.4 - 0.4 | 0.5 | 0.4 | 0/1 | 0/1 |
| Silver | mg/kg | 11/30 | 0/30 | 560 | 0.15 - 0.69 | 1.2 - 2 | 0.47 - 0.8 | 1.6 | 0.63 | 0/19 | 0/19 |
| Sodium | mg/kg | 24/30 | 0/30 | N/A | 34 - 150 | 470 - 870 | 93 - 170 | 600 | 120 | N/A | N/A |
| Thallium | mg/kg | 28/30 | 0/30 | 0.05 | 0.031 - 0.11 | 0.086 - 0.11 | 0.086 - 0.11 | 0.098 | 0.098 | 2/2 | 2/2 |
| Vanadium | mg/kg | 30/30 | 0/30 | 60 | 7.2 - 20 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 30/30 | 0/30 | 160 | 11 - 180 | N/A | N/A | N/A | N/A | N/A | N/A |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/11 | 0/11 | 0.6 | N/A | 0.69 - 0.78 | 0.34 - 0.39 | 0.73 | 0.36 | 11/11 | 0/11 |
| 2,4-Dinitrophenol | mg/kg | 0/11 | 0/11 | 20 | N/A | 1.8 - 2 | 1.4 - 1.5 | 1.9 | 1.4 | 0/11 | 0/11 |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/11 | 0/11 | 2 | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.23 | 0.15 | 0/11 | 0/11 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 11/11 | 0/11 | N/A | 3400 - 7000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 8/11 | 0/11 | 5 | 0.076 - 0.16 | 0.16 - 0.21 | 0.081 - 0.11 | 0.19 | 0.093 | 0/3 | 0/3 |
| Arsenic | mg/kg | 11/11 | 0/11 | 18 | 2.1 - 7.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 11/11 | 0/11 | 110 | 31 - 260 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 10/11 | 0/11 | 2.5 | 0.15 - 0.31 | 0.49 - 0.49 | 0.12 - 0.12 | 0.49 | 0.12 | 0/1 | 0/1 |
| Cadmium | mg/kg | 11/11 | 0/11 | 32 | 0.013 - 0.34 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 11/11 | 0/11 | N/A | 8800 - 80000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 11/11 | 0/11 | 0.35 | 4.6 - 10 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 11/11 | 0/11 | 13 | 2.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 11/11 | 0/11 | 70 | 7.2 - 39 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 11/11 | 0/11 | N/A | 8300 - 22000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 11/11 | 0/11 | 120 | 3.2 - 40 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 11/11 | 0/11 | N/A | 2400 - 24000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 11/11 | 0/11 | 220 | 230 - 7000 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 7
Summary Statistics and Ecological Project Action Limits (AOC 1 - Plant)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Mercury | mg/kg | 8/11 | 0/11 | 0.3 | 0.012 - 0.048 | 0.021 - 0.024 | 0.017 - 0.019 | 0.023 | 0.018 | 0/3 | 0/3 |
| Nickel | mg/kg | 11/11 | 0/11 | 38 | 4.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 11/11 | 0/11 | N/A | 500 - 2000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 6/11 | 0/11 | 0.52 | 0.13 - 0.33 | 0.41 - 0.55 | 0.33 - 0.44 | 0.49 | 0.39 | 1/5 | 0/5 |
| Silver | mg/kg | 4/11 | 0/11 | 560 | 0.13 - 0.66 | 1.2 - 1.5 | 0.48 - 0.61 | 1.3 | 0.52 | 0/7 | 0/7 |
| Sodium | mg/kg | 11/11 | 0/11 | N/A | 42 - 130 | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | mg/kg | 9/11 | 0/11 | 0.05 | 0.037 - 0.11 | 0.078 - 0.11 | 0.078 - 0.11 | 0.094 | 0.094 | 2/2 | 2/2 |
| Vanadium | mg/kg | 11/11 | 0/11 | 60 | 8.3 - 19 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 11/11 | 0/11 | 160 | 12 - 130 | N/A | N/A | N/A | N/A | N/A | N/A |

Notes

FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation

mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 8
Summary Statistics and Ecological Project Action Limits (AOC 1 - Invertebrate)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/30 | 0/30 | 1.8 | N/A | 0.71 - 6.4 | 0.36 - 3.2 | 0.82 | 0.41 | 3/30 | 3/30 |
| 2,4-Dinitrophenol | mg/kg | 0/29 | 1/30 | 0.15 | N/A | 1.8 - 16 | 1.4 - 13 | 2.1 | 1.6 | 29/29 | 29/29 |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 1/30 | 0/30 | 0.015 | 0.058 - 0.058 | 0.22 - 0.25 | 0.14 - 0.16 | 0.24 | 0.16 | 29/29 | 29/29 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 30/30 | 0/30 | N/A | 2000 - 11000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 30/30 | 0/30 | 78 | 0.082 - 0.56 | N/A | N/A | N/A | N/A | N/A | N/A |
| Arsenic | mg/kg | 30/30 | 0/30 | 6.8 | 2.4 - 11 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 30/30 | 0/30 | 330 | 25 - 120 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 28/30 | 0/30 | 40 | 0.09 - 0.34 | 0.52 - 2.8 | 0.52 - 0.67 | 1.7 | 0.6 | 0/2 | 0/2 |
| Cadmium | mg/kg | 30/30 | 0/30 | 140 | 0.053 - 0.79 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 30/30 | 0/30 | N/A | 5400 - 63000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 30/30 | 0/30 | 0.34 | 5 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 30/30 | 0/30 | N/A | 3.4 - 9.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 30/30 | 0/30 | 80 | 11 - 80 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 30/30 | 0/30 | N/A | 6000 - 26000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 30/30 | 0/30 | 1700 | 4.2 - 200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 30/30 | 0/30 | N/A | 1700 - 15000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 30/30 | 0/30 | 450 | 270 - 1400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 29/30 | 0/30 | 0.05 | 0.013 - 0.76 | 0.023 - 0.023 | 0.018 - 0.018 | 0.023 | 0.018 | 0/1 | 0/1 |
| Nickel | mg/kg | 30/30 | 0/30 | 280 | 6.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 30/30 | 0/30 | N/A | 480 - 1400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 29/30 | 0/30 | 4.1 | 0.12 - 0.71 | 0.5 - 0.5 | 0.4 - 0.4 | 0.5 | 0.4 | 0/1 | 0/1 |
| Silver | mg/kg | 11/30 | 0/30 | N/A | 0.15 - 0.69 | 1.2 - 2 | 0.47 - 0.8 | 1.6 | 0.63 | N/A | N/A |
| Sodium | mg/kg | 24/30 | 0/30 | N/A | 34 - 150 | 470 - 870 | 93 - 170 | 600 | 120 | N/A | N/A |
| Thallium | mg/kg | 28/30 | 0/30 | N/A | 0.031 - 0.11 | 0.086 - 0.11 | 0.086 - 0.11 | 0.098 | 0.098 | N/A | N/A |
| Vanadium | mg/kg | 30/30 | 0/30 | N/A | 7.2 - 20 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 30/30 | 0/30 | 120 | 11 - 180 | N/A | N/A | N/A | N/A | N/A | N/A |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/11 | 0/11 | 1.8 | N/A | 0.69 - 0.78 | 0.34 - 0.39 | 0.73 | 0.36 | 0/11 | 0/11 |
| 2,4-Dinitrophenol | mg/kg | 0/11 | 0/11 | 0.15 | N/A | 1.8 - 2 | 1.4 - 1.5 | 1.9 | 1.4 | 11/11 | 11/11 |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/11 | 0/11 | 0.015 | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.23 | 0.15 | 11/11 | 11/11 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 11/11 | 0/11 | N/A | 3400 - 7000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 8/11 | 0/11 | 78 | 0.076 - 0.16 | 0.16 - 0.21 | 0.081 - 0.11 | 0.19 | 0.093 | 0/3 | 0/3 |
| Arsenic | mg/kg | 11/11 | 0/11 | 6.8 | 2.1 - 7.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 11/11 | 0/11 | 330 | 31 - 260 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 10/11 | 0/11 | 40 | 0.15 - 0.31 | 0.49 - 0.49 | 0.12 - 0.12 | 0.49 | 0.12 | 0/1 | 0/1 |
| Cadmium | mg/kg | 11/11 | 0/11 | 140 | 0.013 - 0.34 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 11/11 | 0/11 | N/A | 8800 - 80000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 11/11 | 0/11 | 0.34 | 4.6 - 10 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 11/11 | 0/11 | N/A | 2.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 11/11 | 0/11 | 80 | 7.2 - 39 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 11/11 | 0/11 | N/A | 8300 - 22000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 11/11 | 0/11 | 1700 | 3.2 - 40 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 11/11 | 0/11 | N/A | 2400 - 24000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 11/11 | 0/11 | 450 | 230 - 7000 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 8
Summary Statistics and Ecological Project Action Limits (AOC 1 - Invertebrate)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Mercury | mg/kg | 8/11 | 0/11 | 0.05 | 0.012 - 0.048 | 0.021 - 0.024 | 0.017 - 0.019 | 0.023 | 0.018 | 0/3 | 0/3 |
| Nickel | mg/kg | 11/11 | 0/11 | 280 | 4.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 11/11 | 0/11 | N/A | 500 - 2000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 6/11 | 0/11 | 4.1 | 0.13 - 0.33 | 0.41 - 0.55 | 0.33 - 0.44 | 0.49 | 0.39 | 0/5 | 0/5 |
| Silver | mg/kg | 4/11 | 0/11 | N/A | 0.13 - 0.66 | 1.2 - 1.5 | 0.48 - 0.61 | 1.3 | 0.52 | N/A | N/A |
| Sodium | mg/kg | 11/11 | 0/11 | N/A | 42 - 130 | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | mg/kg | 9/11 | 0/11 | N/A | 0.037 - 0.11 | 0.078 - 0.11 | 0.078 - 0.11 | 0.094 | 0.094 | N/A | N/A |
| Vanadium | mg/kg | 11/11 | 0/11 | N/A | 8.3 - 19 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 11/11 | 0/11 | 120 | 12 - 130 | N/A | N/A | N/A | N/A | N/A | N/A |

Notes

FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 9
Summary Statistics and Ecological Project Action Limits (AOC 1 - Bird)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/30 | 0/30 | N/A | N/A | 0.71 - 6.4 | 0.36 - 3.2 | 0.82 | 0.41 | N/A | N/A |
| 2,4-Dinitrophenol | mg/kg | 0/29 | 1/30 | N/A | N/A | 1.8 - 16 | 1.4 - 13 | 2.1 | 1.6 | N/A | N/A |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 1/30 | 0/30 | N/A | 0.058 - 0.058 | 0.22 - 0.25 | 0.14 - 0.16 | 0.24 | 0.16 | N/A | N/A |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 30/30 | 0/30 | N/A | 2000 - 11000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 30/30 | 0/30 | N/A | 0.082 - 0.56 | N/A | N/A | N/A | N/A | N/A | N/A |
| Arsenic | mg/kg | 30/30 | 0/30 | 43 | 2.4 - 11 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 30/30 | 0/30 | 820 | 25 - 120 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 28/30 | 0/30 | N/A | 0.09 - 0.34 | 0.52 - 2.8 | 0.52 - 0.67 | 1.7 | 0.6 | N/A | N/A |
| Cadmium | mg/kg | 30/30 | 0/30 | 0.77 | 0.053 - 0.79 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 30/30 | 0/30 | N/A | 5400 - 63000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 30/30 | 0/30 | 26 | 5 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 30/30 | 0/30 | 120 | 3.4 - 9.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 30/30 | 0/30 | 28 | 11 - 80 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 30/30 | 0/30 | N/A | 6000 - 26000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 30/30 | 0/30 | 11 | 4.2 - 200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 30/30 | 0/30 | N/A | 1700 - 15000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 30/30 | 0/30 | 4300 | 270 - 1400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 29/30 | 0/30 | 0.013 | 0.013 - 0.76 | 0.023 - 0.023 | 0.018 - 0.018 | 0.023 | 0.018 | 1/1 | 1/1 |
| Nickel | mg/kg | 30/30 | 0/30 | 210 | 6.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 30/30 | 0/30 | N/A | 480 - 1400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 29/30 | 0/30 | 1.2 | 0.12 - 0.71 | 0.5 - 0.5 | 0.4 - 0.4 | 0.5 | 0.4 | 0/1 | 0/1 |
| Silver | mg/kg | 11/30 | 0/30 | 4.2 | 0.15 - 0.69 | 1.2 - 2 | 0.47 - 0.8 | 1.6 | 0.63 | 0/19 | 0/19 |
| Sodium | mg/kg | 24/30 | 0/30 | N/A | 34 - 150 | 470 - 870 | 93 - 170 | 600 | 120 | N/A | N/A |
| Thallium | mg/kg | 28/30 | 0/30 | 4.5 | 0.031 - 0.11 | 0.086 - 0.11 | 0.086 - 0.11 | 0.098 | 0.098 | 0/2 | 0/2 |
| Vanadium | mg/kg | 30/30 | 0/30 | 7.8 | 7.2 - 20 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 30/30 | 0/30 | 46 | 11 - 180 | N/A | N/A | N/A | N/A | N/A | N/A |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/11 | 0/11 | N/A | N/A | 0.69 - 0.78 | 0.34 - 0.39 | 0.73 | 0.36 | N/A | N/A |
| 2,4-Dinitrophenol | mg/kg | 0/11 | 0/11 | N/A | N/A | 1.8 - 2 | 1.4 - 1.5 | 1.9 | 1.4 | N/A | N/A |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/11 | 0/11 | N/A | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.23 | 0.15 | N/A | N/A |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 11/11 | 0/11 | N/A | 3400 - 7000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 8/11 | 0/11 | N/A | 0.076 - 0.16 | 0.16 - 0.21 | 0.081 - 0.11 | 0.19 | 0.093 | N/A | N/A |
| Arsenic | mg/kg | 11/11 | 0/11 | 43 | 2.1 - 7.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 11/11 | 0/11 | 820 | 31 - 260 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 10/11 | 0/11 | N/A | 0.15 - 0.31 | 0.49 - 0.49 | 0.12 - 0.12 | 0.49 | 0.12 | N/A | N/A |
| Cadmium | mg/kg | 11/11 | 0/11 | 0.77 | 0.013 - 0.34 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 11/11 | 0/11 | N/A | 8800 - 80000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 11/11 | 0/11 | 26 | 4.6 - 10 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 11/11 | 0/11 | 120 | 2.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 11/11 | 0/11 | 28 | 7.2 - 39 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 11/11 | 0/11 | N/A | 8300 - 22000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 11/11 | 0/11 | 11 | 3.2 - 40 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 11/11 | 0/11 | N/A | 2400 - 24000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 11/11 | 0/11 | 4300 | 230 - 7000 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 9
Summary Statistics and Ecological Project Action Limits (AOC 1 - Bird)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Mercury | mg/kg | 8/11 | 0/11 | 0.013 | 0.012 - 0.048 | 0.021 - 0.024 | 0.017 - 0.019 | 0.023 | 0.018 | 3/3 | 3/3 |
| Nickel | mg/kg | 11/11 | 0/11 | 210 | 4.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 11/11 | 0/11 | N/A | 500 - 2000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 6/11 | 0/11 | 1.2 | 0.13 - 0.33 | 0.41 - 0.55 | 0.33 - 0.44 | 0.49 | 0.39 | 0/5 | 0/5 |
| Silver | mg/kg | 4/11 | 0/11 | 4.2 | 0.13 - 0.66 | 1.2 - 1.5 | 0.48 - 0.61 | 1.3 | 0.52 | 0/7 | 0/7 |
| Sodium | mg/kg | 11/11 | 0/11 | N/A | 42 - 130 | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | mg/kg | 9/11 | 0/11 | 4.5 | 0.037 - 0.11 | 0.078 - 0.11 | 0.078 - 0.11 | 0.094 | 0.094 | 0/2 | 0/2 |
| Vanadium | mg/kg | 11/11 | 0/11 | 7.8 | 8.3 - 19 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 11/11 | 0/11 | 46 | 12 - 130 | N/A | N/A | N/A | N/A | N/A | N/A |

Notes

FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 10
Summary Statistics and Ecological Project Action Limits (AOC 1 - Mammal)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/30 | 0/30 | 1.4 | N/A | 0.71 - 6.4 | 0.36 - 3.2 | 0.82 | 0.41 | 3/30 | 3/30 |
| 2,4-Dinitrophenol | mg/kg | 0/29 | 1/30 | 0.061 | N/A | 1.8 - 16 | 1.4 - 13 | 2.1 | 1.6 | 29/29 | 29/29 |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 1/30 | 0/30 | 0.0061 | 0.058 - 0.058 | 0.22 - 0.25 | 0.14 - 0.16 | 0.24 | 0.16 | 29/29 | 29/29 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 30/30 | 0/30 | N/A | 2000 - 11000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 30/30 | 0/30 | 0.27 | 0.082 - 0.56 | N/A | N/A | N/A | N/A | N/A | N/A |
| Arsenic | mg/kg | 30/30 | 0/30 | 46 | 2.4 - 11 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 30/30 | 0/30 | 2000 | 25 - 120 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 28/30 | 0/30 | 21 | 0.09 - 0.34 | 0.52 - 2.8 | 0.52 - 0.67 | 1.7 | 0.6 | 0/2 | 0/2 |
| Cadmium | mg/kg | 30/30 | 0/30 | 0.36 | 0.053 - 0.79 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 30/30 | 0/30 | N/A | 5400 - 63000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 30/30 | 0/30 | 34 | 5 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 30/30 | 0/30 | 230 | 3.4 - 9.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 30/30 | 0/30 | 49 | 11 - 80 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 30/30 | 0/30 | N/A | 6000 - 26000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 30/30 | 0/30 | 56 | 4.2 - 200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 30/30 | 0/30 | N/A | 1700 - 15000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 30/30 | 0/30 | 4000 | 270 - 1400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 29/30 | 0/30 | 1.7 | 0.013 - 0.76 | 0.023 - 0.023 | 0.018 - 0.018 | 0.023 | 0.018 | 0/1 | 0/1 |
| Nickel | mg/kg | 30/30 | 0/30 | 130 | 6.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 30/30 | 0/30 | N/A | 480 - 1400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 29/30 | 0/30 | 0.63 | 0.12 - 0.71 | 0.5 - 0.5 | 0.4 - 0.4 | 0.5 | 0.4 | 0/1 | 0/1 |
| Silver | mg/kg | 11/30 | 0/30 | 14 | 0.15 - 0.69 | 1.2 - 2 | 0.47 - 0.8 | 1.6 | 0.63 | 0/19 | 0/19 |
| Sodium | mg/kg | 24/30 | 0/30 | N/A | 34 - 150 | 470 - 870 | 93 - 170 | 600 | 120 | N/A | N/A |
| Thallium | mg/kg | 28/30 | 0/30 | 0.42 | 0.031 - 0.11 | 0.086 - 0.11 | 0.086 - 0.11 | 0.098 | 0.098 | 0/2 | 0/2 |
| Vanadium | mg/kg | 30/30 | 0/30 | 280 | 7.2 - 20 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 30/30 | 0/30 | 79 | 11 - 180 | N/A | N/A | N/A | N/A | N/A | N/A |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/11 | 0/11 | 1.4 | N/A | 0.69 - 0.78 | 0.34 - 0.39 | 0.73 | 0.36 | 0/11 | 0/11 |
| 2,4-Dinitrophenol | mg/kg | 0/11 | 0/11 | 0.061 | N/A | 1.8 - 2 | 1.4 - 1.5 | 1.9 | 1.4 | 11/11 | 11/11 |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/11 | 0/11 | 0.0061 | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.23 | 0.15 | 11/11 | 11/11 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 11/11 | 0/11 | N/A | 3400 - 7000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 8/11 | 0/11 | 0.27 | 0.076 - 0.16 | 0.16 - 0.21 | 0.081 - 0.11 | 0.19 | 0.093 | 0/3 | 0/3 |
| Arsenic | mg/kg | 11/11 | 0/11 | 46 | 2.1 - 7.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 11/11 | 0/11 | 2000 | 31 - 260 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 10/11 | 0/11 | 21 | 0.15 - 0.31 | 0.49 - 0.49 | 0.12 - 0.12 | 0.49 | 0.12 | 0/1 | 0/1 |
| Cadmium | mg/kg | 11/11 | 0/11 | 0.36 | 0.013 - 0.34 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 11/11 | 0/11 | N/A | 8800 - 80000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 11/11 | 0/11 | 34 | 4.6 - 10 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 11/11 | 0/11 | 230 | 2.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 11/11 | 0/11 | 49 | 7.2 - 39 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 11/11 | 0/11 | N/A | 8300 - 22000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 11/11 | 0/11 | 56 | 3.2 - 40 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 11/11 | 0/11 | N/A | 2400 - 24000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 11/11 | 0/11 | 4000 | 230 - 7000 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 10
Summary Statistics and Ecological Project Action Limits (AOC 1 - Mammal)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Mercury | mg/kg | 8/11 | 0/11 | 1.7 | 0.012 - 0.048 | 0.021 - 0.024 | 0.017 - 0.019 | 0.023 | 0.018 | 0/3 | 0/3 |
| Nickel | mg/kg | 11/11 | 0/11 | 130 | 4.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 11/11 | 0/11 | N/A | 500 - 2000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 6/11 | 0/11 | 0.63 | 0.13 - 0.33 | 0.41 - 0.55 | 0.33 - 0.44 | 0.49 | 0.39 | 0/5 | 0/5 |
| Silver | mg/kg | 4/11 | 0/11 | 14 | 0.13 - 0.66 | 1.2 - 1.5 | 0.48 - 0.61 | 1.3 | 0.52 | 0/7 | 0/7 |
| Sodium | mg/kg | 11/11 | 0/11 | N/A | 42 - 130 | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | mg/kg | 9/11 | 0/11 | 0.42 | 0.037 - 0.11 | 0.078 - 0.11 | 0.078 - 0.11 | 0.094 | 0.094 | 0/2 | 0/2 |
| Vanadium | mg/kg | 11/11 | 0/11 | 280 | 8.3 - 19 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 11/11 | 0/11 | 79 | 12 - 130 | N/A | N/A | N/A | N/A | N/A | N/A |

Notes

FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 11
Summary Statistics and Human Health Project Action Limits (AOC 3)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/16 | 5/21 | 0.23 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 0/16 |
| 1,4-Dioxane | mg/kg | 0/16 | 5/21 | 5.3 | (a) | N/A | 0.37 - 0.49 | 0.37 - 0.49 | 0.41 | 0.41 | 0/16 | 0/16 |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/16 | 5/21 | 310 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/16 | 5/21 | 190 | (a) | N/A | 0.37 - 0.49 | 0.094 - 0.12 | 0.41 | 0.1 | 0/16 | 0/16 |
| 2,4,5-Trichlorophenol | mg/kg | 0/16 | 5/21 | 630 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2,4,6-Trichlorophenol | mg/kg | 0/16 | 5/21 | 6.3 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2,4-Dichlorophenol | mg/kg | 0/16 | 5/21 | 19 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2,4-Dimethylphenol | mg/kg | 0/16 | 5/21 | 130 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/16 | 5/21 | N/A | N/A | N/A | 0.75 - 0.98 | 0.37 - 0.49 | 0.82 | 0.41 | N/A | N/A |
| 2,4-Dinitrophenol | mg/kg | 0/16 | 5/21 | 13 | (a) | N/A | 1.9 - 2.5 | 1.5 - 1.9 | 2.1 | 1.6 | 0/16 | 0/16 |
| 2,4-Dinitrotoluene | mg/kg | 0/16 | 5/21 | 1.7 | (a) | N/A | 0.37 - 0.49 | 0.094 - 0.12 | 0.41 | 0.1 | 0/16 | 0/16 |
| 2,6-Dinitrotoluene | mg/kg | 0/16 | 5/21 | 0.36 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 0/16 |
| 2-Chloronaphthalene | mg/kg | 0/16 | 5/21 | 480 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2-Chlorophenol | mg/kg | 0/16 | 5/21 | 39 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/16 | 5/21 | 320 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2-Nitroaniline | mg/kg | 0/16 | 5/21 | 63 | (a) | N/A | 1.9 - 2.5 | 0.19 - 0.25 | 2.1 | 0.21 | 0/16 | 0/16 |
| 2-Nitrophenol | mg/kg | 0/16 | 5/21 | N/A | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 3,3'-Dichlorobenzidine | mg/kg | 0/15 | 6/21 | 1.2 | (a) | N/A | 0.75 - 0.94 | 0.076 - 0.096 | 0.81 | 0.083 | 0/15 | 0/15 |
| 3-Nitroaniline | mg/kg | 0/16 | 5/21 | N/A | N/A | N/A | 1.9 - 2.5 | 0.094 - 0.12 | 2.1 | 0.1 | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/16 | 5/21 | 0.51 | (a) | N/A | 1.9 - 2.5 | 0.37 - 0.49 | 2.1 | 0.41 | 16/16 | 0/16 |
| 4-Bromophenyl phenyl ether | mg/kg | 0/16 | 5/21 | N/A | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/16 | 5/21 | 630 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 4-Chloroaniline | mg/kg | 0/16 | 5/21 | 2.7 | (a) | N/A | 0.75 - 0.98 | 0.094 - 0.12 | 0.82 | 0.1 | 0/16 | 0/16 |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/16 | 5/21 | N/A | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/16 | 5/21 | 25 | (a) | N/A | 1.9 - 2.5 | 0.094 - 0.12 | 2.1 | 0.1 | 0/16 | 0/16 |
| 4-Nitrophenol | mg/kg | 0/16 | 5/21 | N/A | N/A | N/A | 1.9 - 2.5 | 0.76 - 0.99 | 2.1 | 0.83 | N/A | N/A |
| Acetophenone | mg/kg | 0/16 | 5/21 | 780 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Atrazine | mg/kg | 0/16 | 5/21 | 2.4 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Benzaldehyde | mg/kg | 5/16 | 5/21 | 170 | (a) | 0.12 - 0.23 | 0.37 - 0.46 | 0.19 - 0.24 | 0.41 | 0.21 | 0/11 | 0/11 |
| Benzyl butyl phthalate | mg/kg | 0/16 | 5/21 | 290 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Biphenyl (Diphenyl) | mg/kg | 0/16 | 5/21 | 4.7 | (a) | N/A | 1.9 - 2.5 | 0.37 - 0.49 | 2.1 | 0.41 | 0/16 | 0/16 |
| Bis(2-chloroethoxy)methane | mg/kg | 0/16 | 5/21 | 19 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/16 | 5/21 | 0.23 | (a) | N/A | 0.37 - 0.49 | 0.094 - 0.12 | 0.41 | 0.1 | 16/16 | 0/16 |
| Bis(2-ethylhexyl)phthalate | mg/kg | 2/16 | 5/21 | 39 | (a) | 0.14 - 3.4 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/14 | 0/14 |
| Caprolactam | mg/kg | 0/16 | 5/21 | 3100 | (a) | N/A | 0.37 - 0.49 | 0.19 - 0.25 | 0.41 | 0.21 | 0/16 | 0/16 |
| Carbazole | mg/kg | 3/16 | 5/21 | N/A | N/A | 0.045 - 0.55 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Cresols, m- & p- | mg/kg | 1/16 | 5/21 | 130 | (a) | 0.13 - 0.13 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/15 | 0/15 |
| Dibenzofuran | mg/kg | 2/16 | 5/21 | 7.8 | (a) | 0.12 - 0.12 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/14 | 0/14 |
| Diethyl phthalate | mg/kg | 0/16 | 5/21 | 5100 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Dimethyl phthalate | mg/kg | 0/16 | 5/21 | N/A | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Di-n-butyl phthalate | mg/kg | 0/16 | 5/21 | 630 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.49 | 0.41 | 0.098 | 0/16 | 0/16 |
| di-n-Octyl phthalate | mg/kg | 0/16 | 5/21 | 63 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Hexachlorobenzene | mg/kg | 0/16 | 5/21 | 0.078 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 13/16 |
| Hexachlorobutadiene | mg/kg | 0/16 | 5/21 | 1.2 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Hexachlorocyclopentadiene | mg/kg | 0/16 | 5/21 | 0.18 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 0/16 |

Table 11
Summary Statistics and Human Health Project Action Limits (AOC 3)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Hexachloroethane | mg/kg | 0/16 | 5/21 | 1.8 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Isophorone | mg/kg | 0/16 | 5/21 | 570 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Nitrobenzene | mg/kg | 0/16 | 5/21 | 5.1 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| N-Nitrosodi-n-propylamine | mg/kg | 0/16 | 5/21 | 0.078 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 13/16 |
| N-Nitrosodiphenylamine | mg/kg | 0/16 | 5/21 | 110 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Pentachlorophenol | mg/kg | 0/16 | 5/21 | 1 | (a) | N/A | 1.9 - 2.5 | 0.76 - 0.99 | 2.1 | 0.83 | 16/16 | 0/16 |
| Phenol | mg/kg | 0/16 | 5/21 | 1900 | (a) | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 12/16 | 0/16 | 18 | (a) | 0.0009 - 0.65 | 0.013 - 0.25 | 0.0026 - 0.049 | 0.014 | 0.0027 | 0/4 | 0/4 |
| 2-Methylnaphthalene | mg/kg | 14/16 | 0/16 | 24 | (a) | 0.0011 - 1 | 0.013 - 0.25 | 0.0026 - 0.049 | 0.13 | 0.026 | 0/2 | 0/2 |
| Acenaphthene | mg/kg | 7/16 | 0/16 | 360 | (a) | 0.0012 - 4.3 | 0.012 - 0.25 | 0.0012 - 0.026 | 0.014 | 0.0016 | 0/9 | 0/9 |
| Acenaphthylene | mg/kg | 13/16 | 0/16 | N/A | N/A | 0.0055 - 1.6 | 0.013 - 0.015 | 0.0014 - 0.0016 | 0.014 | 0.0015 | N/A | N/A |
| Anthracene | mg/kg | 15/16 | 0/16 | 1800 | (a) | 0.0042 - 8.2 | 0.013 - 0.013 | 0.0055 - 0.0055 | 0.013 | 0.0055 | 0/1 | 0/1 |
| Benzo(a)anthracene | mg/kg | 16/16 | 0/16 | 1.1 | (a) | 0.0032 - 5.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(a)pyrene | mg/kg | 16/16 | 0/16 | 0.11 | (a) | 0.0047 - 4.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(b)fluoranthene | mg/kg | 16/16 | 0/16 | 1.1 | (a) | 0.0062 - 4.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(g,h,i)perylene | mg/kg | 16/16 | 0/16 | N/A | N/A | 0.003 - 2.1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 15/16 | 0/16 | 11 | (a) | 0.01 - 1.9 | 0.013 - 0.013 | 0.0055 - 0.0055 | 0.013 | 0.0055 | 0/1 | 0/1 |
| Chrysene | mg/kg | 16/16 | 0/16 | 110 | (a) | 0.0044 - 4.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dibenz(a,h)anthracene | mg/kg | 10/16 | 0/16 | 0.11 | (a) | 0.0093 - 0.69 | 0.012 - 0.015 | 0.0077 - 0.0098 | 0.013 | 0.0085 | 0/6 | 0/6 |
| Fluoranthene | mg/kg | 16/16 | 0/16 | 240 | (a) | 0.007 - 20 | N/A | N/A | N/A | N/A | N/A | N/A |
| Fluorene | mg/kg | 13/16 | 0/16 | 240 | (a) | 0.0022 - 4.3 | 0.012 - 0.014 | 0.0031 - 0.0036 | 0.013 | 0.0034 | 0/3 | 0/3 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 15/16 | 0/16 | 1.1 | (a) | 0.016 - 3.1 | 0.013 - 0.013 | 0.0085 - 0.0085 | 0.013 | 0.0085 | 0/1 | 0/1 |
| Naphthalene | mg/kg | 13/16 | 0/16 | 2 | (a) | 0.0016 - 0.78 | 0.013 - 0.25 | 0.0026 - 0.049 | 0.014 | 0.0027 | 0/3 | 0/3 |
| Phenanthrene | mg/kg | 16/16 | 0/16 | N/A | N/A | 0.0036 - 27 | N/A | N/A | N/A | N/A | N/A | N/A |
| Pyrene | mg/kg | 16/16 | 0/16 | 180 | (a) | 0.006 - 16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Explosives | | | | | | | | | | | | |
| Picric acid | mg/kg | 0/16 | 0/16 | 13 | (a) | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | 0/16 | 0/16 |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/12 | 0/12 | 0.41 | (a) | N/A | 0.069 - 0.1 | 0.032 - 0.048 | 0.078 | 0.036 | 0/12 | 0/12 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/12 | 0/12 | 0.2 | (a) | N/A | 0.098 - 0.15 | 0.084 - 0.12 | 0.11 | 0.095 | 0/12 | 0/12 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/12 | 0/12 | 0.17 | (a) | N/A | 0.069 - 0.1 | 0.032 - 0.048 | 0.078 | 0.036 | 0/12 | 0/12 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/12 | 0/12 | 0.23 | (a) | N/A | 0.069 - 0.1 | 0.05 - 0.075 | 0.078 | 0.057 | 0/12 | 0/12 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/12 | 0/12 | 0.23 | (a) | N/A | 0.069 - 0.1 | 0.016 - 0.023 | 0.078 | 0.018 | 0/12 | 0/12 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/12 | 0/12 | 0.12 | (a) | N/A | 0.069 - 0.1 | 0.035 - 0.052 | 0.078 | 0.04 | 0/12 | 0/12 |
| PCB-1260 (Aroclor 1260) | mg/kg | 4/12 | 0/12 | 0.24 | (a) | 0.0048 - 0.0076 | 0.07 - 0.088 | 0.007 - 0.0089 | 0.078 | 0.0078 | 0/8 | 0/8 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/12 | 0/12 | N/A | N/A | N/A | 0.069 - 0.1 | 0.017 - 0.025 | 0.078 | 0.019 | N/A | N/A |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/12 | 0/12 | N/A | N/A | N/A | 0.069 - 0.1 | 0.007 - 0.01 | 0.078 | 0.0079 | N/A | N/A |
| Metals - Total | | | | | | | | | | | | |
| Aluminum | mg/kg | 16/16 | 0/16 | 7700 | (a) | 3200 - 11000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 15/16 | 0/16 | 3.1 | (a) | 0.095 - 0.36 | 0.22 - 0.22 | 0.11 - 0.11 | 0.22 | 0.11 | 0/1 | 0/1 |
| Arsenic | mg/kg | 16/16 | 0/16 | 0.68 | (a) | 2 - 4.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 16/16 | 0/16 | 1500 | (a) | 10 - 56 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 16/16 | 0/16 | 16 | (a) | 0.076 - 0.44 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 16/16 | 0/16 | 0.71 | (a) | 0.053 - 0.55 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 16/16 | 0/16 | N/A | N/A | 500 - 110000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 16/16 | 0/16 | 12000 | (a) | 2.5 - 11 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 16/16 | 0/16 | 2.3 | (a) | 0.54 - 8 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 11
Summary Statistics and Human Health Project Action Limits (AOC 3)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Copper | mg/kg | 16/16 | 0/16 | 310 | (a) | 3.8 - 28 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 16/16 | 0/16 | 5500 | (a) | 4400 - 21000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 16/16 | 0/16 | 400 | (a) | 3.4 - 54 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 16/16 | 0/16 | N/A | N/A | 310 - 9800 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 16/16 | 0/16 | 180 | (a) | 48 - 650 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 16/16 | 0/16 | 1.1 | (a) | 0.016 - 0.16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Nickel | mg/kg | 16/16 | 0/16 | 150 | (a) | 1.4 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 16/16 | 0/16 | N/A | N/A | 170 - 1300 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 16/16 | 0/16 | 39 | (a) | 0.15 - 0.61 | N/A | N/A | N/A | N/A | N/A | N/A |
| Silver | mg/kg | 2/16 | 0/16 | 39 | (a) | 0.15 - 0.15 | 1.3 - 2.2 | 0.51 - 0.88 | 1.6 | 0.65 | 0/14 | 0/14 |
| Sodium | mg/kg | 12/16 | 0/16 | N/A | N/A | 47 - 98 | 490 - 640 | 98 - 130 | 600 | 120 | N/A | N/A |
| Thallium | mg/kg | 10/16 | 0/16 | 0.078 | (a) | 0.054 - 0.17 | 0.094 - 0.12 | 0.094 - 0.12 | 0.1 | 0.1 | 6/6 | 6/6 |
| Vanadium | mg/kg | 16/16 | 0/16 | 39 | (a) | 5.9 - 17 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 16/16 | 0/16 | 2300 | (a) | 12 - 85 | N/A | N/A | N/A | N/A | N/A | N/A |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | | |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | mg/kg | 0/18 | 0/18 | 810 | (a) | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| 1,1,2,2-Tetrachloroethane | mg/kg | 0/18 | 0/18 | 0.6 | (a) | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0/18 | 0/18 | 670 | (a) | N/A | 0.018 - 0.023 | 0.0057 - 0.0074 | 0.02 | 0.0064 | 0/18 | 0/18 |
| 1,1,2-Trichloroethane | mg/kg | 0/18 | 0/18 | 0.15 | (a) | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | 0/18 | 0/18 |
| 1,1-Dichloroethane | mg/kg | 0/18 | 0/18 | 3.6 | (a) | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| 1,1-Dichloroethene | mg/kg | 0/18 | 0/18 | 23 | (a) | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | 0/18 | 0/18 |
| 1,2,3-Trichlorobenzene | mg/kg | 0/18 | 0/18 | 6.3 | (a) | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | 0/18 | 0/18 |
| 1,2,4-Trichlorobenzene | mg/kg | 0/18 | 0/18 | 5.8 | (a) | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | 0/18 | 0/18 |
| 1,2-Dibromo-3-chloropropane | mg/kg | 0/18 | 0/18 | 0.0053 | (a) | N/A | 0.0089 - 0.012 | 0.0089 - 0.012 | 0.01 | 0.01 | 18/18 | 18/18 |
| 1,2-Dibromoethane (EDB) | mg/kg | 0/18 | 0/18 | 0.036 | (a) | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | 0/18 | 0/18 |
| 1,2-Dichlorobenzene | mg/kg | 0/18 | 0/18 | 180 | (a) | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| 1,2-Dichloroethane | mg/kg | 0/18 | 0/18 | 0.46 | (a) | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | 0/18 | 0/18 |
| 1,2-Dichloropropane | mg/kg | 0/18 | 0/18 | 1.6 | (a) | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | 0/18 | 0/18 |
| 1,3-Dichlorobenzene | mg/kg | 0/18 | 0/18 | N/A | N/A | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | N/A | N/A |
| 1,3-Dichloropropane | mg/kg | 0/18 | 0/18 | 160 | (a) | N/A | 0.0045 - 0.0058 | 0.00036 - 0.00046 | 0.005 | 0.0004 | 0/18 | 0/18 |
| 1,4-Dichlorobenzene | mg/kg | 0/18 | 0/18 | 2.6 | (a) | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| 2-Butanone (MEK) | mg/kg | 5/18 | 0/18 | 2700 | (a) | 0.0049 - 0.03 | 0.018 - 0.023 | 0.011 - 0.015 | 0.02 | 0.013 | 0/13 | 0/13 |
| 2-Hexanone | mg/kg | 0/18 | 0/18 | 20 | (a) | N/A | 0.018 - 0.023 | 0.011 - 0.015 | 0.02 | 0.013 | 0/18 | 0/18 |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 0/18 | 0/18 | 3300 | (a) | N/A | 0.018 - 0.023 | 0.011 - 0.015 | 0.02 | 0.013 | 0/18 | 0/18 |
| Acetone | mg/kg | 6/18 | 0/18 | 7000 | (a) | 0.036 - 0.32 | 0.064 - 0.083 | 0.064 - 0.083 | 0.073 | 0.073 | 0/12 | 0/12 |
| Benzene | mg/kg | 0/18 | 0/18 | 1.2 | (a) | N/A | 0.0045 - 0.0058 | 0.00036 - 0.00046 | 0.005 | 0.0004 | 0/18 | 0/18 |
| Bromochloromethane | mg/kg | 0/18 | 0/18 | 15 | (a) | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| Bromodichloromethane | mg/kg | 0/18 | 0/18 | 0.29 | (a) | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| Bromoform | mg/kg | 0/18 | 0/18 | 19 | (a) | N/A | 0.0046 - 0.0059 | 0.0046 - 0.0059 | 0.0051 | 0.0051 | 0/18 | 0/18 |
| Bromomethane | mg/kg | 0/18 | 0/18 | 0.68 | (a) | N/A | 0.0089 - 0.012 | 0.0029 - 0.0037 | 0.01 | 0.0032 | 0/18 | 0/18 |
| Carbon disulfide | mg/kg | 0/18 | 0/18 | 77 | (a) | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| Carbon tetrachloride | mg/kg | 0/18 | 0/18 | 0.65 | (a) | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| Chlorobenzene | mg/kg | 0/18 | 0/18 | 28 | (a) | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| Chloroethane | mg/kg | 0/18 | 0/18 | 540 | (a) | N/A | 0.0089 - 0.012 | 0.0057 - 0.0074 | 0.01 | 0.0064 | 0/18 | 0/18 |
| Chloroform | mg/kg | 0/18 | 0/18 | 0.32 | (a) | N/A | 0.0089 - 0.012 | 0.00072 - 0.00093 | 0.01 | 0.0008 | 0/18 | 0/18 |
| Chloromethane | mg/kg | 0/18 | 0/18 | 11 | (a) | N/A | 0.0089 - 0.012 | 0.0014 - 0.0019 | 0.01 | 0.0016 | 0/18 | 0/18 |
| cis-1,2-Dichloroethene | mg/kg | 0/18 | 0/18 | 16 | (a) | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |

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Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| cis-1,3-Dichloropropene | mg/kg | 0/18 | 0/18 | 1.8 | (a) | N/A | 0.0045 - 0.0058 | 0.00036 - 0.00046 | 0.005 | 0.0004 | 0/18 | 0/18 |
| Cumene | mg/kg | 1/18 | 0/18 | 190 | (a) | 0.0059 - 0.0059 | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/17 | 0/17 |
| Cyclohexane | mg/kg | 0/18 | 0/18 | 650 | (a) | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| Dibromochloromethane | mg/kg | 0/18 | 0/18 | 8.3 | (a) | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| Dichlorodifluoromethane | mg/kg | 0/18 | 0/18 | 8.7 | (a) | N/A | 0.0089 - 0.012 | 0.0057 - 0.0074 | 0.01 | 0.0064 | 0/18 | 0/18 |
| Ethylbenzene | mg/kg | 0/18 | 0/18 | 5.8 | (a) | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| m,p-Xylene | mg/kg | 0/18 | 0/18 | 55 | (a) | N/A | 0.0029 - 0.0037 | 0.0029 - 0.0037 | 0.0032 | 0.0032 | 0/18 | 0/18 |
| Methyl acetate | mg/kg | 0/18 | 0/18 | 7800 | (a) | N/A | 0.0076 - 0.0098 | 0.0072 - 0.0093 | 0.0085 | 0.008 | 0/18 | 0/18 |
| Methyl tert-butyl ether (MTBE) | mg/kg | 0/18 | 0/18 | 47 | (a) | N/A | 0.018 - 0.023 | 0.0057 - 0.0074 | 0.02 | 0.0064 | 0/18 | 0/18 |
| Methylcyclohexane | mg/kg | 0/18 | 0/18 | N/A | N/A | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | N/A | N/A |
| Methylene chloride | mg/kg | 0/18 | 0/18 | 35 | (a) | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | 0/18 | 0/18 |
| o-Xylene | mg/kg | 0/18 | 0/18 | 64 | (a) | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| Styrene | mg/kg | 0/18 | 0/18 | 600 | (a) | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| Tetrachloroethene (PCE) | mg/kg | 0/18 | 0/18 | 8.1 | (a) | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| Toluene | mg/kg | 4/18 | 0/18 | 490 | (a) | 0.00024 - 0.00046 | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.0051 | 0.00081 | 0/14 | 0/14 |
| trans-1,2-Dichloroethene | mg/kg | 0/18 | 0/18 | 7 | (a) | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| trans-1,3-Dichloropropene | mg/kg | 0/18 | 0/18 | 1.8 | (a) | N/A | 0.0045 - 0.0058 | 0.00018 - 0.00023 | 0.005 | 0.0002 | 0/18 | 0/18 |
| Trichlorofluoromethane | mg/kg | 0/18 | 0/18 | 2300 | (a) | N/A | 0.0089 - 0.012 | 0.0089 - 0.012 | 0.01 | 0.01 | 0/18 | 0/18 |
| Vinyl chloride | mg/kg | 0/18 | 0/18 | 0.059 | (a) | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | 0/18 | 0/18 |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/20 | 5/25 | 0.23 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 0/20 |
| 1,4-Dioxane | mg/kg | 0/20 | 5/25 | 5.3 | (a) | N/A | 0.35 - 0.42 | 0.35 - 0.42 | 0.4 | 0.4 | 0/20 | 0/20 |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/20 | 5/25 | 310 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/20 | 5/25 | 190 | (a) | N/A | 0.35 - 0.42 | 0.088 - 0.11 | 0.4 | 0.1 | 0/20 | 0/20 |
| 2,4,5-Trichlorophenol | mg/kg | 0/20 | 5/25 | 630 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2,4,6-Trichlorophenol | mg/kg | 0/20 | 5/25 | 6.3 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2,4-Dichlorophenol | mg/kg | 0/20 | 5/25 | 19 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2,4-Dimethylphenol | mg/kg | 0/20 | 5/25 | 130 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/20 | 5/25 | N/A | N/A | N/A | 0.7 - 0.85 | 0.35 - 0.42 | 0.8 | 0.4 | N/A | N/A |
| 2,4-Dinitrophenol | mg/kg | 0/20 | 5/25 | 13 | (a) | N/A | 1.8 - 2.2 | 1.4 - 1.7 | 2.1 | 1.6 | 0/20 | 0/20 |
| 2,4-Dinitrotoluene | mg/kg | 0/20 | 5/25 | 1.7 | (a) | N/A | 0.35 - 0.42 | 0.088 - 0.11 | 0.4 | 0.1 | 0/20 | 0/20 |
| 2,6-Dinitrotoluene | mg/kg | 0/20 | 5/25 | 0.36 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 19/20 | 0/20 |
| 2-Chloronaphthalene | mg/kg | 0/20 | 5/25 | 480 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2-Chlorophenol | mg/kg | 0/20 | 5/25 | 39 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/20 | 5/25 | 320 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2-Nitroaniline | mg/kg | 0/20 | 5/25 | 63 | (a) | N/A | 1.8 - 2.2 | 0.18 - 0.22 | 2.1 | 0.21 | 0/20 | 0/20 |
| 2-Nitrophenol | mg/kg | 0/20 | 5/25 | N/A | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 3,3'-Dichlorobenzidine | mg/kg | 0/20 | 5/25 | 1.2 | (a) | N/A | 0.7 - 0.85 | 0.071 - 0.086 | 0.8 | 0.081 | 0/20 | 0/20 |
| 3-Nitroaniline | mg/kg | 0/20 | 5/25 | N/A | N/A | N/A | 1.8 - 2.2 | 0.088 - 0.11 | 2.1 | 0.1 | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/20 | 5/25 | 0.51 | (a) | N/A | 1.8 - 2.2 | 0.35 - 0.42 | 2.1 | 0.4 | 20/20 | 0/20 |
| 4-Bromophenyl phenyl ether | mg/kg | 0/20 | 5/25 | N/A | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/20 | 5/25 | 630 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 4-Chloroaniline | mg/kg | 0/20 | 5/25 | 2.7 | (a) | N/A | 0.7 - 0.85 | 0.088 - 0.11 | 0.8 | 0.1 | 0/20 | 0/20 |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/20 | 5/25 | N/A | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/20 | 5/25 | 25 | (a) | N/A | 1.8 - 2.2 | 0.088 - 0.11 | 2.1 | 0.1 | 0/20 | 0/20 |
| 4-Nitrophenol | mg/kg | 0/20 | 5/25 | N/A | N/A | N/A | 1.8 - 2.2 | 0.71 - 0.86 | 2.1 | 0.81 | N/A | N/A |
| Acetophenone | mg/kg | 0/20 | 5/25 | 780 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Atrazine | mg/kg | 0/20 | 5/25 | 2.4 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |

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| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Benzaldehyde | mg/kg | 1/20 | 5/25 | 170 | (a) | 0.19 - 0.19 | 0.35 - 0.42 | 0.18 - 0.22 | 0.39 | 0.2 | 0/19 | 0/19 |
| Benzyl butyl phthalate | mg/kg | 0/20 | 5/25 | 290 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Biphenyl (Diphenyl) | mg/kg | 0/20 | 5/25 | 4.7 | (a) | N/A | 1.8 - 2.2 | 0.35 - 0.42 | 2.1 | 0.4 | 0/20 | 0/20 |
| Bis(2-chloroethoxy)methane | mg/kg | 0/20 | 5/25 | 19 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/20 | 5/25 | 0.23 | (a) | N/A | 0.35 - 0.42 | 0.088 - 0.11 | 0.4 | 0.1 | 20/20 | 0/20 |
| Bis(2-ethylhexyl)phthalate | mg/kg | 0/20 | 5/25 | 39 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Caprolactam | mg/kg | 0/20 | 5/25 | 3100 | (a) | N/A | 0.35 - 0.42 | 0.18 - 0.22 | 0.4 | 0.21 | 0/20 | 0/20 |
| Carbazole | mg/kg | 0/20 | 5/25 | N/A | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Cresols, m- & p- | mg/kg | 0/20 | 5/25 | 130 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Dibenzofuran | mg/kg | 0/20 | 5/25 | 7.8 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Diethyl phthalate | mg/kg | 0/20 | 5/25 | 5100 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Dimethyl phthalate | mg/kg | 0/20 | 5/25 | N/A | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Di-n-butyl phthalate | mg/kg | 0/20 | 5/25 | 630 | (a) | N/A | 0.35 - 0.42 | 0.078 - 0.42 | 0.4 | 0.085 | 0/20 | 0/20 |
| di-n-Octyl phthalate | mg/kg | 0/20 | 5/25 | 63 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Hexachlorobenzene | mg/kg | 0/20 | 5/25 | 0.078 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 16/20 |
| Hexachlorobutadiene | mg/kg | 0/20 | 5/25 | 1.2 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Hexachlorocyclopentadiene | mg/kg | 0/20 | 5/25 | 0.18 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 0/20 |
| Hexachloroethane | mg/kg | 0/20 | 5/25 | 1.8 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Isophorone | mg/kg | 0/20 | 5/25 | 570 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Nitrobenzene | mg/kg | 0/20 | 5/25 | 5.1 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| N-Nitrosodi-n-propylamine | mg/kg | 0/20 | 5/25 | 0.078 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 16/20 |
| N-Nitrosodiphenylamine | mg/kg | 0/20 | 5/25 | 110 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Pentachlorophenol | mg/kg | 0/20 | 5/25 | 1 | (a) | N/A | 1.8 - 2.2 | 0.71 - 0.86 | 2.1 | 0.81 | 20/20 | 0/20 |
| Phenol | mg/kg | 0/20 | 5/25 | 1900 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 5/16 | 0/16 | 18 | (a) | 0.00065 - 0.018 | 0.011 - 0.23 | 0.0022 - 0.046 | 0.012 | 0.0024 | 0/11 | 0/11 |
| 2-Methylnaphthalene | mg/kg | 4/16 | 0/16 | 24 | (a) | 0.00074 - 0.016 | 0.011 - 0.23 | 0.0022 - 0.046 | 0.012 | 0.0024 | 0/12 | 0/12 |
| Acenaphthene | mg/kg | 3/16 | 0/16 | 360 | (a) | 0.00058 - 0.0029 | 0.011 - 0.23 | 0.0012 - 0.024 | 0.012 | 0.0013 | 0/13 | 0/13 |
| Acenaphthylene | mg/kg | 5/16 | 0/16 | N/A | N/A | 0.0029 - 0.04 | 0.011 - 0.23 | 0.0012 - 0.024 | 0.012 | 0.0014 | N/A | N/A |
| Anthracene | mg/kg | 7/16 | 0/16 | 1800 | (a) | 0.0021 - 0.065 | 0.011 - 0.23 | 0.0048 - 0.099 | 0.012 | 0.0053 | 0/9 | 0/9 |
| Benzo(a)anthracene | mg/kg | 8/16 | 0/16 | 1.1 | (a) | 0.0025 - 0.43 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | 0/8 | 0/8 |
| Benzo(a)pyrene | mg/kg | 8/16 | 0/16 | 0.11 | (a) | 0.0027 - 1.3 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | 1/8 | 0/8 |
| Benzo(b)fluoranthene | mg/kg | 8/16 | 0/16 | 1.1 | (a) | 0.004 - 1.9 | 0.012 - 0.23 | 0.0078 - 0.15 | 0.012 | 0.0082 | 0/8 | 0/8 |
| Benzo(g,h,i)perylene | mg/kg | 6/16 | 0/16 | N/A | N/A | 0.0094 - 0.82 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 7/16 | 0/16 | 11 | (a) | 0.0027 - 0.84 | 0.011 - 0.23 | 0.0048 - 0.099 | 0.012 | 0.0053 | 0/9 | 0/9 |
| Chrysene | mg/kg | 8/16 | 0/16 | 110 | (a) | 0.0028 - 1.2 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | 0/8 | 0/8 |
| Dibenz(a,h)anthracene | mg/kg | 4/16 | 0/16 | 0.11 | (a) | 0.0056 - 0.29 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | 1/12 | 1/12 |
| Fluoranthene | mg/kg | 8/16 | 0/16 | 240 | (a) | 0.0047 - 0.19 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | 0/8 | 0/8 |
| Fluorene | mg/kg | 7/16 | 0/16 | 240 | (a) | 0.0013 - 0.016 | 0.011 - 0.23 | 0.003 - 0.061 | 0.012 | 0.0033 | 0/9 | 0/9 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 7/16 | 0/16 | 1.1 | (a) | 0.0028 - 1 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | 0/9 | 0/9 |
| Naphthalene | mg/kg | 6/16 | 0/16 | 2 | (a) | 0.00079 - 0.0073 | 0.011 - 0.23 | 0.0022 - 0.046 | 0.012 | 0.0024 | 0/10 | 0/10 |
| Phenanthrene | mg/kg | 7/16 | 0/16 | N/A | N/A | 0.0052 - 0.11 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | N/A | N/A |
| Pyrene | mg/kg | 8/16 | 0/16 | 180 | (a) | 0.0039 - 0.26 | 0.012 - 0.23 | 0.0078 - 0.15 | 0.012 | 0.0082 | 0/8 | 0/8 |
| Explosives | | | | | | | | | | | | |
| Picric acid | mg/kg | 0/16 | 0/16 | 13 | (a) | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | 0/16 | 0/16 |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/12 | 0/12 | 0.41 | (a) | N/A | 0.071 - 0.085 | 0.033 - 0.04 | 0.078 | 0.036 | 0/12 | 0/12 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/12 | 0/12 | 0.2 | (a) | N/A | 0.1 - 0.12 | 0.086 - 0.1 | 0.11 | 0.094 | 0/12 | 0/12 |

Table 11
Summary Statistics and Human Health Project Action Limits (AOC 3)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/12 | 0/12 | 0.17 | (a) | N/A | 0.071 - 0.085 | 0.033 - 0.04 | 0.078 | 0.036 | 0/12 | 0/12 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/12 | 0/12 | 0.23 | (a) | N/A | 0.071 - 0.085 | 0.052 - 0.062 | 0.078 | 0.057 | 0/12 | 0/12 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/12 | 0/12 | 0.23 | (a) | N/A | 0.071 - 0.085 | 0.016 - 0.019 | 0.078 | 0.018 | 0/12 | 0/12 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/12 | 0/12 | 0.12 | (a) | N/A | 0.071 - 0.085 | 0.036 - 0.043 | 0.078 | 0.039 | 0/12 | 0/12 |
| PCB-1260 (Aroclor 1260) | mg/kg | 2/12 | 0/12 | 0.24 | (a) | 0.0064 - 0.011 | 0.071 - 0.085 | 0.0072 - 0.0086 | 0.078 | 0.0079 | 0/10 | 0/10 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/12 | 0/12 | N/A | N/A | N/A | 0.071 - 0.085 | 0.017 - 0.021 | 0.078 | 0.019 | N/A | N/A |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/12 | 0/12 | N/A | N/A | N/A | 0.071 - 0.085 | 0.0072 - 0.0086 | 0.078 | 0.0079 | N/A | N/A |
| Metals - Total | | | | | | | | | | | | |
| Aluminum | mg/kg | 16/16 | 0/16 | 7700 | (a) | 4500 - 11000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 14/16 | 0/16 | 3.1 | (a) | 0.072 - 0.17 | 0.18 - 0.19 | 0.09 - 0.097 | 0.19 | 0.094 | 0/2 | 0/2 |
| Arsenic | mg/kg | 16/16 | 0/16 | 0.68 | (a) | 1.5 - 5.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 16/16 | 0/16 | 1500 | (a) | 14 - 52 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 16/16 | 0/16 | 16 | (a) | 0.12 - 0.48 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 16/16 | 0/16 | 0.71 | (a) | 0.035 - 0.13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 16/16 | 0/16 | N/A | N/A | 700 - 66000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 16/16 | 0/16 | 12000 | (a) | 5.5 - 11 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 16/16 | 0/16 | 2.3 | (a) | 2.8 - 10 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 16/16 | 0/16 | 310 | (a) | 5.8 - 29 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 16/16 | 0/16 | 5500 | (a) | 8000 - 23000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 16/16 | 0/16 | 400 | (a) | 2.7 - 56 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 16/16 | 0/16 | N/A | N/A | 1100 - 18000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 16/16 | 0/16 | 180 | (a) | 69 - 560 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 15/16 | 0/16 | 1.1 | (a) | 0.009 - 0.047 | 0.023 - 0.023 | 0.018 - 0.018 | 0.023 | 0.018 | 0/1 | 0/1 |
| Nickel | mg/kg | 16/16 | 0/16 | 150 | (a) | 6.4 - 24 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 16/16 | 0/16 | N/A | N/A | 290 - 1600 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 14/16 | 0/16 | 39 | (a) | 0.14 - 0.31 | 0.53 - 0.55 | 0.43 - 0.44 | 0.54 | 0.44 | 0/2 | 0/2 |
| Silver | mg/kg | 2/16 | 0/16 | 39 | (a) | 0.16 - 0.19 | 1.3 - 1.6 | 0.5 - 0.63 | 1.4 | 0.57 | 0/14 | 0/14 |
| Sodium | mg/kg | 16/16 | 0/16 | N/A | N/A | 31 - 120 | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | mg/kg | 11/16 | 0/16 | 0.078 | (a) | 0.042 - 0.49 | 0.087 - 0.11 | 0.087 - 0.11 | 0.1 | 0.1 | 5/5 | 5/5 |
| Vanadium | mg/kg | 16/16 | 0/16 | 39 | (a) | 7.4 - 16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 16/16 | 0/16 | 2300 | (a) | 17 - 41 | N/A | N/A | N/A | N/A | N/A | N/A |
| Groundwater | | | | | | | | | | | | |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | µg/L | 0/7 | 0/7 | 800 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/7 | 0/7 |
| 1,1,2,2-Tetrachloroethane | µg/L | 0/7 | 0/7 | 0.076 | (b) | N/A | 1 - 1 | 0.8 - 0.8 | 1 | 0.8 | 7/7 | 7/7 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | µg/L | 0/7 | 0/7 | 1000 | (b) | N/A | 3 - 3 | 0.4 - 0.4 | 3 | 0.4 | 0/7 | 0/7 |
| 1,1,2-Trichloroethane | µg/L | 0/7 | 0/7 | 0.041 | (b) | N/A | 1 - 1 | 0.8 - 0.8 | 1 | 0.8 | 7/7 | 7/7 |
| 1,1-Dichloroethane | µg/L | 0/7 | 0/7 | 2.8 | (b) | N/A | 1 - 1 | 0.8 - 0.8 | 1 | 0.8 | 0/7 | 0/7 |
| 1,1-Dichloroethene | µg/L | 0/7 | 0/7 | 28 | (b) | N/A | 1 - 1 | 0.8 - 0.8 | 1 | 0.8 | 0/7 | 0/7 |
| 1,2,3-Trichlorobenzene | µg/L | 0/7 | 0/7 | 0.7 | (b) | N/A | 1 - 1 | 0.8 - 0.8 | 1 | 0.8 | 7/7 | 7/7 |
| 1,2,4-Trichlorobenzene | µg/L | 0/7 | 0/7 | 0.4 | (b) | N/A | 1 - 1 | 0.8 - 0.8 | 1 | 0.8 | 7/7 | 7/7 |
| 1,2-Dibromo-3-chloropropane | µg/L | 0/7 | 0/7 | 0.00033 | (b) | N/A | 5 - 5 | 1.6 - 1.6 | 5 | 1.6 | 7/7 | 7/7 |
| 1,2-Dibromoethane (EDB) | µg/L | 0/7 | 0/7 | 0.0075 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 7/7 | 7/7 |
| 1,2-Dichlorobenzene | µg/L | 0/7 | 0/7 | 30 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/7 | 0/7 |
| 1,2-Dichloroethane | µg/L | 0/7 | 0/7 | 0.17 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 7/7 | 7/7 |
| 1,2-Dichloropropane | µg/L | 0/7 | 0/7 | 0.82 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 7/7 | 0/7 |
| 1,3-Dichlorobenzene | µg/L | 0/7 | 0/7 | 3 | (c) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/7 | 0/7 |
| 1,3-Dichloropropane | µg/L | 0/7 | 0/7 | 37 | (b) | N/A | 1 - 1 | 0.2 - 0.2 | 1 | 0.2 | 0/7 | 0/7 |

Table 11
Summary Statistics and Human Health Project Action Limits (AOC 3)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| 1,4-Dichlorobenzene | µg/L | 0/7 | 0/7 | 0.48 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 7/7 | 0/7 |
| 2-Butanone (MEK) | µg/L | 0/7 | 0/7 | 560 | (b) | N/A | 6 - 6 | 4 - 4 | 6 | 4 | 0/7 | 0/7 |
| 2-Hexanone | µg/L | 0/7 | 0/7 | 3.8 | (b) | N/A | 5 - 5 | 4 - 4 | 5 | 4 | 7/7 | 7/7 |
| 4-Methyl-2-pentanone (MIBK) | µg/L | 0/7 | 0/7 | 630 | (b) | N/A | 5 - 5 | 3.2 - 3.2 | 5 | 3.2 | 0/7 | 0/7 |
| Acetone | µg/L | 3/7 | 0/7 | 1800 | (b) | 4.3 - 10 | 10 - 10 | 6.4 - 6.4 | 10 | 6.4 | 0/4 | 0/4 |
| Benzene | µg/L | 2/7 | 0/7 | 0.46 | (b) | 0.31 - 0.35 | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 5/5 | 0/5 |
| Bromochloromethane | µg/L | 0/7 | 0/7 | 8.3 | (b) | N/A | 1 - 1 | 0.2 - 0.2 | 1 | 0.2 | 0/7 | 0/7 |
| Bromodichloromethane | µg/L | 0/7 | 0/7 | 0.13 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 7/7 | 7/7 |
| Bromoform | µg/L | 0/7 | 0/7 | 3.3 | (b) | N/A | 1 - 1 | 1 - 1 | 1 | 1 | 0/7 | 0/7 |
| Bromomethane | µg/L | 0/7 | 0/7 | 0.75 | (b) | N/A | 2 - 2 | 0.8 - 0.8 | 2 | 0.8 | 7/7 | 7/7 |
| Carbon disulfide | µg/L | 0/7 | 0/7 | 81 | (b) | N/A | 2 - 2 | 0.8 - 0.8 | 2 | 0.8 | 0/7 | 0/7 |
| Carbon tetrachloride | µg/L | 0/7 | 0/7 | 0.46 | (b) | N/A | 2 - 2 | 0.4 - 0.4 | 2 | 0.4 | 7/7 | 0/7 |
| Chlorobenzene | µg/L | 0/7 | 0/7 | 7.8 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/7 | 0/7 |
| Chloroethane | µg/L | 0/7 | 0/7 | 830 | (b) | N/A | 2 - 2 | 1.6 - 1.6 | 2 | 1.6 | 0/7 | 0/7 |
| Chloroform | µg/L | 0/7 | 0/7 | 0.22 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 7/7 | 7/7 |
| Chloromethane | µg/L | 0/7 | 0/7 | 19 | (b) | N/A | 2 - 2 | 0.8 - 0.8 | 2 | 0.8 | 0/7 | 0/7 |
| cis-1,2-Dichloroethene | µg/L | 0/7 | 0/7 | 3.6 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/7 | 0/7 |
| cis-1,3-Dichloropropene | µg/L | 0/7 | 0/7 | 0.47 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 7/7 | 0/7 |
| Cumene | µg/L | 0/7 | 0/7 | 45 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/7 | 0/7 |
| Cyclohexane | µg/L | 0/7 | 0/7 | 1300 | (b) | N/A | 2 - 2 | 0.8 - 0.8 | 2 | 0.8 | 0/7 | 0/7 |
| Dibromochloromethane | µg/L | 0/7 | 0/7 | 0.87 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 7/7 | 0/7 |
| Dichlorodifluoromethane | µg/L | 0/7 | 0/7 | 20 | (b) | N/A | 2 - 2 | 0.8 - 0.8 | 2 | 0.8 | 0/7 | 0/7 |
| Ethylbenzene | µg/L | 0/7 | 0/7 | 1.5 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/7 | 0/7 |
| m,p-Xylene | µg/L | 1/7 | 0/7 | 19 | (b) | 0.57 - 0.57 | 2 - 2 | 0.8 - 0.8 | 2 | 0.8 | 0/6 | 0/6 |
| Methyl acetate | µg/L | 0/7 | 0/7 | 2000 | (b) | N/A | 5 - 5 | 4 - 4 | 5 | 4 | 0/7 | 0/7 |
| Methyl tert-butyl ether (MTBE) | µg/L | 0/7 | 0/7 | 14 | (b) | N/A | 5 - 5 | 0.8 - 0.8 | 5 | 0.8 | 0/7 | 0/7 |
| Methylcyclohexane | µg/L | 0/7 | 0/7 | N/A | N/A | N/A | 2 - 2 | 0.4 - 0.4 | 2 | 0.4 | N/A | N/A |
| Methylene chloride | µg/L | 0/7 | 0/7 | 11 | (b) | N/A | 5 - 5 | 2 - 2 | 5 | 2 | 0/7 | 0/7 |
| o-Xylene | µg/L | 0/7 | 0/7 | 19 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/7 | 0/7 |
| Styrene | µg/L | 0/7 | 0/7 | 120 | (b) | N/A | 1 - 1 | 0.8 - 0.8 | 1 | 0.8 | 0/7 | 0/7 |
| Tetrachloroethene (PCE) | µg/L | 0/7 | 0/7 | 4.1 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/7 | 0/7 |
| Toluene | µg/L | 2/7 | 0/7 | 110 | (b) | 0.56 - 3 | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/5 | 0/5 |
| trans-1,2-Dichloroethene | µg/L | 0/7 | 0/7 | 6.8 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/7 | 0/7 |
| trans-1,3-Dichloropropene | µg/L | 0/7 | 0/7 | 0.47 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 7/7 | 0/7 |
| Trichlorofluoromethane | µg/L | 0/7 | 0/7 | 520 | (b) | N/A | 2 - 2 | 0.8 - 0.8 | 2 | 0.8 | 0/7 | 0/7 |
| Vinyl chloride | µg/L | 0/7 | 0/7 | 0.019 | (b) | N/A | 1.5 - 1.5 | 0.2 - 0.2 | 1.5 | 0.2 | 7/7 | 7/7 |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | µg/L | 0/7 | 0/7 | 0.017 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 7/7 | 7/7 |
| 1,4-Dioxane | µg/L | 0/7 | 0/7 | 0.46 | (b) | N/A | 9.7 - 19 | 9.7 - 19 | 10 | 10 | 7/7 | 7/7 |
| 2,2'-Oxybis(1-chloropropane) | µg/L | 0/7 | 0/7 | 71 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 0/7 | 0/7 |
| 2,3,4,6-Tetrachlorophenol | µg/L | 0/7 | 0/7 | 24 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 0/7 | 0/7 |
| 2,4,5-Trichlorophenol | µg/L | 0/7 | 0/7 | 120 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 0/7 | 0/7 |
| 2,4,6-Trichlorophenol | µg/L | 0/7 | 0/7 | 1.2 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 7/7 | 7/7 |
| 2,4-Dichlorophenol | µg/L | 0/7 | 0/7 | 4.6 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 7/7 | 0/7 |
| 2,4-Dimethylphenol | µg/L | 0/7 | 0/7 | 36 | (b) | N/A | 9.7 - 19 | 9.7 - 19 | 10 | 10 | 0/7 | 0/7 |
| 2,4-Dinitrochlorobenzene | µg/L | 0/7 | 0/7 | N/A | N/A | N/A | 19 - 38 | 9.7 - 19 | 21 | 10 | N/A | N/A |
| 2,4-Dinitrophenol | µg/L | 0/7 | 0/7 | 3.9 | (b) | N/A | 48 - 95 | 19 - 38 | 52 | 21 | 7/7 | 7/7 |
| 2,4-Dinitrotoluene | µg/L | 0/7 | 0/7 | 0.24 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 7/7 | 7/7 |

Table 11
Summary Statistics and Human Health Project Action Limits (AOC 3)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| 2,6-Dinitrotoluene | µg/L | 0/7 | 0/7 | 0.049 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 7/7 | 7/7 |
| 2-Chloronaphthalene | µg/L | 0/7 | 0/7 | 75 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 0/7 | 0/7 |
| 2-Chlorophenol | µg/L | 0/7 | 0/7 | 9.1 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 7/7 | 0/7 |
| 2-Methylphenol (o-Cresol) | µg/L | 0/7 | 0/7 | 93 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 0/7 | 0/7 |
| 2-Nitroaniline | µg/L | 0/7 | 0/7 | 19 | (b) | N/A | 48 - 95 | 1.9 - 3.8 | 52 | 2.1 | 7/7 | 0/7 |
| 2-Nitrophenol | µg/L | 0/7 | 0/7 | N/A | N/A | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | N/A | N/A |
| 3,3'-Dichlorobenzidine | µg/L | 0/7 | 0/7 | 0.13 | (b) | N/A | 58 - 110 | 58 - 110 | 62 | 62 | 7/7 | 7/7 |
| 3-Nitroaniline | µg/L | 0/7 | 0/7 | 5 | (c) | N/A | 48 - 95 | 9.7 - 19 | 52 | 10 | 7/7 | 7/7 |
| 4,6-Dinitro-2-methylphenol | µg/L | 0/7 | 0/7 | 0.15 | (b) | N/A | 48 - 95 | 19 - 38 | 52 | 21 | 7/7 | 7/7 |
| 4-Bromophenyl phenyl ether | µg/L | 0/7 | 0/7 | N/A | N/A | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | N/A | N/A |
| 4-Chloro-3-methylphenol | µg/L | 0/7 | 0/7 | 140 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 0/7 | 0/7 |
| 4-Chloroaniline | µg/L | 0/7 | 0/7 | 0.37 | (b) | N/A | 19 - 38 | 4.8 - 9.5 | 21 | 5.2 | 7/7 | 7/7 |
| 4-Chlorophenyl phenyl ether | µg/L | 0/7 | 0/7 | N/A | N/A | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | N/A | N/A |
| 4-Nitroaniline | µg/L | 1/7 | 0/7 | 3.8 | (b) | 17 - 17 | 48 - 95 | 9.7 - 19 | 53 | 11 | 6/6 | 6/6 |
| 4-Nitrophenol | µg/L | 0/7 | 0/7 | N/A | N/A | N/A | 48 - 95 | 3.9 - 7.6 | 52 | 4.1 | N/A | N/A |
| Acetophenone | µg/L | 0/7 | 0/7 | 190 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 0/7 | 0/7 |
| Atrazine | µg/L | 0/7 | 0/7 | 0.3 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 7/7 | 7/7 |
| Benzaldehyde | µg/L | 1/7 | 0/7 | 19 | (b) | 2 - 2 | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 0/6 | 0/6 |
| Benzyl butyl phthalate | µg/L | 0/7 | 0/7 | 16 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 1/7 | 0/7 |
| Biphenyl (Diphenyl) | µg/L | 0/7 | 0/7 | 0.083 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 7/7 | 7/7 |
| Bis(2-chloroethoxy)methane | µg/L | 0/7 | 0/7 | 5.9 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 7/7 | 0/7 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 0/7 | 0/7 | 0.014 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 7/7 | 7/7 |
| Bis(2-ethylhexyl)phthalate | µg/L | 0/7 | 0/7 | 5.6 | (b) | N/A | 9.7 - 19 | 2.4 - 4.7 | 10 | 2.6 | 7/7 | 0/7 |
| Caprolactam | µg/L | 1/7 | 0/7 | 990 | (b) | 0.89 - 0.89 | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 0/6 | 0/6 |
| Carbazole | µg/L | 0/7 | 0/7 | N/A | N/A | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | N/A | N/A |
| Cresols, m- & p- | µg/L | 0/7 | 0/7 | 37 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 0/7 | 0/7 |
| Dibenzofuran | µg/L | 0/7 | 0/7 | 0.79 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 7/7 | 7/7 |
| Diethyl phthalate | µg/L | 0/7 | 0/7 | 1500 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 0/7 | 0/7 |
| Dimethyl phthalate | µg/L | 0/7 | 0/7 | N/A | N/A | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | N/A | N/A |
| Di-n-butyl phthalate | µg/L | 0/7 | 0/7 | 90 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 0/7 | 0/7 |
| di-n-Octyl phthalate | µg/L | 0/7 | 0/7 | 20 | (b) | N/A | 9.7 - 19 | 2.4 - 4.7 | 10 | 2.6 | 0/7 | 0/7 |
| Hexachlorobenzene | µg/L | 0/7 | 0/7 | 0.0098 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 7/7 | 7/7 |
| Hexachlorobutadiene | µg/L | 0/7 | 0/7 | 0.14 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 7/7 | 7/7 |
| Hexachlorocyclopentadiene | µg/L | 0/7 | 0/7 | 0.041 | (b) | N/A | 9.7 - 19 | 4.8 - 9.5 | 10 | 5.2 | 7/7 | 7/7 |
| Hexachloroethane | µg/L | 0/7 | 0/7 | 0.33 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 7/7 | 7/7 |
| Isophorone | µg/L | 0/7 | 0/7 | 78 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 0/7 | 0/7 |
| Nitrobenzene | µg/L | 0/7 | 0/7 | 0.14 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 7/7 | 7/7 |
| N-Nitrosodi-n-propylamine | µg/L | 0/7 | 0/7 | 0.011 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 7/7 | 7/7 |
| N-Nitrosodiphenylamine | µg/L | 0/7 | 0/7 | 12 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 1/7 | 0/7 |
| Pentachlorophenol | µg/L | 0/7 | 0/7 | 0.041 | (b) | N/A | 48 - 95 | 3.9 - 7.6 | 52 | 4.1 | 7/7 | 7/7 |
| Phenol | µg/L | 0/7 | 0/7 | 580 | (b) | N/A | 9.7 - 19 | 1.9 - 3.8 | 10 | 2.1 | 0/7 | 0/7 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | µg/L | 0/7 | 0/7 | 1.1 | (b) | N/A | 0.099 - 0.11 | 0.04 - 0.044 | 0.1 | 0.041 | 0/7 | 0/7 |
| 2-Methylnaphthalene | µg/L | 0/7 | 0/7 | 3.6 | (b) | N/A | 0.099 - 0.11 | 0.05 - 0.055 | 0.1 | 0.051 | 0/7 | 0/7 |
| Acenaphthene | µg/L | 0/7 | 0/7 | 53 | (b) | N/A | 0.099 - 0.11 | 0.012 - 0.013 | 0.1 | 0.012 | 0/7 | 0/7 |
| Acenaphthylene | µg/L | 0/7 | 0/7 | N/A | N/A | N/A | 0.099 - 0.11 | 0.02 - 0.022 | 0.1 | 0.02 | N/A | N/A |
| Anthracene | µg/L | 0/7 | 0/7 | 180 | (b) | N/A | 0.099 - 0.11 | 0.099 - 0.11 | 0.1 | 0.1 | 0/7 | 0/7 |
| Benzo(a)anthracene | µg/L | 0/7 | 0/7 | 0.03 | (b) | N/A | 0.099 - 0.11 | 0.099 - 0.11 | 0.1 | 0.1 | 7/7 | 7/7 |

Table 11
Summary Statistics and Human Health Project Action Limits (AOC 3)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Benzo(a)pyrene | µg/L | 0/7 | 0/7 | 0.025 | (b) | N/A | 0.099 - 0.11 | 0.05 - 0.055 | 0.1 | 0.051 | 7/7 | 7/7 |
| Benzo(b)fluoranthene | µg/L | 0/7 | 0/7 | 0.25 | (b) | N/A | 0.099 - 0.11 | 0.099 - 0.11 | 0.1 | 0.1 | 0/7 | 0/7 |
| Benzo(g,h,i)perylene | µg/L | 0/7 | 0/7 | N/A | N/A | N/A | 0.099 - 0.11 | 0.099 - 0.11 | 0.1 | 0.1 | N/A | N/A |
| Benzo(k)fluoranthene | µg/L | 0/7 | 0/7 | 2.5 | (b) | N/A | 0.099 - 0.11 | 0.05 - 0.055 | 0.1 | 0.051 | 0/7 | 0/7 |
| Chrysene | µg/L | 0/7 | 0/7 | 25 | (b) | N/A | 0.099 - 0.11 | 0.099 - 0.11 | 0.1 | 0.1 | 0/7 | 0/7 |
| Dibenz(a,h)anthracene | µg/L | 0/7 | 0/7 | 0.025 | (b) | N/A | 0.099 - 0.11 | 0.099 - 0.11 | 0.1 | 0.1 | 7/7 | 7/7 |
| Fluoranthene | µg/L | 0/7 | 0/7 | 80 | (b) | N/A | 0.099 - 0.11 | 0.099 - 0.11 | 0.1 | 0.1 | 0/7 | 0/7 |
| Fluorene | µg/L | 0/7 | 0/7 | 29 | (b) | N/A | 0.099 - 0.11 | 0.04 - 0.044 | 0.1 | 0.041 | 0/7 | 0/7 |
| Indeno(1,2,3-c,d)pyrene | µg/L | 0/7 | 0/7 | 0.25 | (b) | N/A | 0.099 - 0.11 | 0.099 - 0.11 | 0.1 | 0.1 | 0/7 | 0/7 |
| Naphthalene | µg/L | 0/7 | 0/7 | 0.12 | (b) | N/A | 0.099 - 0.11 | 0.05 - 0.055 | 0.1 | 0.051 | 0/7 | 0/7 |
| Phenanthrene | µg/L | 0/7 | 0/7 | N/A | N/A | N/A | 0.099 - 0.11 | 0.099 - 0.11 | 0.1 | 0.1 | N/A | N/A |
| Pyrene | µg/L | 0/7 | 0/7 | 12 | (b) | N/A | 0.099 - 0.11 | 0.099 - 0.11 | 0.1 | 0.1 | 0/7 | 0/7 |
| Explosives | | | | | | | | | | | | |
| Picric acid | µg/L | 0/7 | 0/7 | 4 | (b) | N/A | 0.39 - 0.45 | 0.12 - 0.13 | 0.43 | 0.13 | 0/7 | 0/7 |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | µg/L | 0/6 | 0/6 | 0.14 | (b) | N/A | 1 - 1.1 | 0.4 - 0.44 | 1.1 | 0.42 | 6/6 | 6/6 |
| PCB-1221 (Aroclor 1221) | µg/L | 0/6 | 0/6 | 0.0047 | (b) | N/A | 1 - 1.1 | 0.25 - 0.28 | 1.1 | 0.27 | 6/6 | 6/6 |
| PCB-1232 (Aroclor 1232) | µg/L | 0/6 | 0/6 | 0.0047 | (b) | N/A | 1 - 1.1 | 0.6 - 0.66 | 1.1 | 0.63 | 6/6 | 6/6 |
| PCB-1242 (Aroclor 1242) | µg/L | 0/6 | 0/6 | 0.0078 | (b) | N/A | 1 - 1.1 | 1 - 1.1 | 1.1 | 1.1 | 6/6 | 6/6 |
| PCB-1248 (Aroclor 1248) | µg/L | 0/6 | 0/6 | 0.0078 | (b) | N/A | 1 - 1.1 | 0.3 - 0.33 | 1.1 | 0.32 | 6/6 | 6/6 |
| PCB-1254 (Aroclor 1254) | µg/L | 0/6 | 0/6 | 0.0078 | (b) | N/A | 1 - 1.1 | 0.25 - 0.28 | 1.1 | 0.27 | 6/6 | 6/6 |
| PCB-1260 (Aroclor 1260) | µg/L | 0/6 | 0/6 | 0.0078 | (b) | N/A | 1 - 1.1 | 0.4 - 0.44 | 1.1 | 0.42 | 6/6 | 6/6 |
| PCB-1262 (Aroclor 1262) | µg/L | 0/6 | 0/6 | N/A | N/A | N/A | 1 - 1.1 | 0.5 - 0.55 | 1.1 | 0.53 | N/A | N/A |
| PCB-1268 (Aroclor 1268) | µg/L | 0/6 | 0/6 | N/A | N/A | N/A | 1 - 1.1 | 1 - 1.1 | 1.1 | 1.1 | N/A | N/A |
| Metals - Dissolved | | | | | | | | | | | | |
| Aluminum | µg/L | 7/7 | 0/7 | 2000 | (b) | 23 - 240 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | µg/L | 0/7 | 0/7 | 0.78 | (b) | N/A | 6 - 6 | 1 - 1 | 6 | 1 | 7/7 | 7/7 |
| Arsenic | µg/L | 2/7 | 0/7 | 0.052 | (b) | 0.33 - 0.79 | 5 - 5 | 1 - 1 | 5 | 1 | 5/5 | 5/5 |
| Barium | µg/L | 7/7 | 0/7 | 380 | (b) | 12 - 100 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | µg/L | 0/7 | 0/7 | 2.5 | (b) | N/A | 1.5 - 1.5 | 0.5 - 0.5 | 1.5 | 0.5 | 0/7 | 0/7 |
| Cadmium | µg/L | 0/7 | 0/7 | 0.18 | (b) | N/A | 5 - 5 | 1.8 - 1.8 | 5 | 1.8 | 7/7 | 7/7 |
| Calcium | µg/L | 7/7 | 0/7 | N/A | N/A | 74000 - 170000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | µg/L | 0/7 | 0/7 | 2200 | (b) | N/A | 10 - 10 | 1.8 - 1.8 | 10 | 1.8 | 0/7 | 0/7 |
| Cobalt | µg/L | 6/7 | 0/7 | 0.6 | (b) | 0.4 - 5.1 | 1 - 1 | 0.35 - 0.35 | 1 | 0.35 | 1/1 | 0/1 |
| Copper | µg/L | 0/7 | 0/7 | 80 | (b) | N/A | 15 - 15 | 10 - 10 | 15 | 10 | 0/7 | 0/7 |
| Iron | µg/L | 4/7 | 0/7 | 1400 | (b) | 120 - 1100 | 100 - 100 | 85 - 85 | 100 | 85 | 0/3 | 0/3 |
| Lead | µg/L | 4/7 | 0/7 | 15 | (b) | 0.21 - 0.63 | 3 - 3 | 0.7 - 0.7 | 3 | 0.7 | 0/3 | 0/3 |
| Magnesium | µg/L | 7/7 | 0/7 | N/A | N/A | 11000 - 34000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | µg/L | 7/7 | 0/7 | 43 | (b) | 7.7 - 11000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | µg/L | 0/7 | 0/7 | 0.063 | (b) | N/A | 0.2 - 0.2 | 0.08 - 0.08 | 0.2 | 0.08 | 7/7 | 7/7 |
| Nickel | µg/L | 4/7 | 0/7 | 39 | (b) | 3.1 - 9.6 | 40 - 40 | 8 - 8 | 40 | 8 | 3/3 | 0/3 |
| Potassium | µg/L | 7/7 | 0/7 | N/A | N/A | 1400 - 3800 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | µg/L | 1/7 | 0/7 | 10 | (b) | 11 - 11 | 22 - 22 | 19 - 19 | 22 | 19 | 6/6 | 6/6 |
| Silver | µg/L | 0/7 | 0/7 | 9.4 | (b) | N/A | 15 - 15 | 5 - 5 | 15 | 5 | 7/7 | 0/7 |
| Sodium | µg/L | 7/7 | 0/7 | 20000 | (c) | 760 - 73000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | µg/L | 0/7 | 0/7 | 0.02 | (b) | N/A | 1 - 1 | 0.2 - 0.2 | 1 | 0.2 | 7/7 | 7/7 |
| Vanadium | µg/L | 6/7 | 0/7 | 8.6 | (b) | 1.2 - 2 | 15 - 15 | 4 - 4 | 15 | 4 | 1/1 | 0/1 |

Table 11
Summary Statistics and Human Health Project Action Limits (AOC 3)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Zinc | µg/L | 1/7 | 0/7 | 600 | (b) | 4.5 - 4.5 | 150 - 150 | 15 - 15 | 150 | 15 | 0/6 | 0/6 |

Notes

| | |
|---|---|
| FOD = Frequency of Detection | mg/kg = milligram per kilogram |
| FOE = Frequency of Exceedance | N/A = Not Available |
| FOR = Frequency of Rejection | ND = Non-Detect |
| LOD = Limit of Detection | PAL = Project Action Limit |
| LOQ = Limit of Quantitation | µg/L = microgram per liter |

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

(a) EPA Residential Soil Regional Screening Level, May 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(b) EPA Tapwater Regional Screening Level, May 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(c) New York State Groundwater Standards, 6 NYCRR Part 703.5. Last updated March 2021. (https://www.dec.ny.gov/chemical/23853.html)

Table 12
Summary Statistics and Ecological Project Action Limits (AOC 3 - Plant)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 1,4-Dioxane | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.37 - 0.49 | 0.41 | 0.41 | N/A | N/A |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.094 - 0.12 | 0.41 | 0.1 | N/A | N/A |
| 2,4,5-Trichlorophenol | mg/kg | 0/16 | 5/21 | 4 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2,4,6-Trichlorophenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 2,4-Dichlorophenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 2,4-Dimethylphenol | mg/kg | 0/16 | 5/21 | 0.01 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 16/16 |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/16 | 5/21 | 0.6 | N/A | 0.75 - 0.98 | 0.37 - 0.49 | 0.82 | 0.41 | 16/16 | 0/16 |
| 2,4-Dinitrophenol | mg/kg | 0/16 | 5/21 | 20 | N/A | 1.9 - 2.5 | 1.5 - 1.9 | 2.1 | 1.6 | 0/16 | 0/16 |
| 2,4-Dinitrotoluene | mg/kg | 0/16 | 5/21 | 6 | N/A | 0.37 - 0.49 | 0.094 - 0.12 | 0.41 | 0.1 | 0/16 | 0/16 |
| 2,6-Dinitrotoluene | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 2-Chloronaphthalene | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 2-Chlorophenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/16 | 5/21 | 0.67 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2-Nitroaniline | mg/kg | 0/16 | 5/21 | N/A | N/A | 1.9 - 2.5 | 0.19 - 0.25 | 2.1 | 0.21 | N/A | N/A |
| 2-Nitrophenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 3,3'-Dichlorobenzidine | mg/kg | 0/15 | 6/21 | N/A | N/A | 0.75 - 0.94 | 0.076 - 0.096 | 0.81 | 0.083 | N/A | N/A |
| 3-Nitroaniline | mg/kg | 0/16 | 5/21 | N/A | N/A | 1.9 - 2.5 | 0.094 - 0.12 | 2.1 | 0.1 | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 1.9 - 2.5 | 0.37 - 0.49 | 2.1 | 0.41 | N/A | N/A |
| 4-Bromophenyl phenyl ether | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 4-Chloroaniline | mg/kg | 0/16 | 5/21 | 1 | N/A | 0.75 - 0.98 | 0.094 - 0.12 | 0.82 | 0.1 | 0/16 | 0/16 |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/16 | 5/21 | N/A | N/A | 1.9 - 2.5 | 0.094 - 0.12 | 2.1 | 0.1 | N/A | N/A |
| 4-Nitrophenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 1.9 - 2.5 | 0.76 - 0.99 | 2.1 | 0.83 | N/A | N/A |
| Acetophenone | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Atrazine | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Benzaldehyde | mg/kg | 5/16 | 5/21 | N/A | 0.12 - 0.23 | 0.37 - 0.46 | 0.19 - 0.24 | 0.41 | 0.21 | N/A | N/A |
| Benzyl butyl phthalate | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Biphenyl (Diphenyl) | mg/kg | 0/16 | 5/21 | 60 | N/A | 1.9 - 2.5 | 0.37 - 0.49 | 2.1 | 0.41 | 0/16 | 0/16 |
| Bis(2-chloroethoxy)methane | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.094 - 0.12 | 0.41 | 0.1 | N/A | N/A |
| Bis(2-ethylhexyl)phthalate | mg/kg | 2/16 | 5/21 | N/A | 0.14 - 3.4 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Caprolactam | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.19 - 0.25 | 0.41 | 0.21 | N/A | N/A |
| Carbazole | mg/kg | 3/16 | 5/21 | N/A | 0.045 - 0.55 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Cresols, m- & p- | mg/kg | 1/16 | 5/21 | 0.69 | 0.13 - 0.13 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/15 | 0/15 |
| Dibenzofuran | mg/kg | 2/16 | 5/21 | 6.1 | 0.12 - 0.12 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/14 | 0/14 |
| Diethyl phthalate | mg/kg | 0/16 | 5/21 | 100 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Dimethyl phthalate | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Di-n-butyl phthalate | mg/kg | 0/16 | 5/21 | 160 | N/A | 0.37 - 0.49 | 0.076 - 0.49 | 0.41 | 0.098 | 0/16 | 0/16 |
| di-n-Octyl phthalate | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Hexachlorobenzene | mg/kg | 0/16 | 5/21 | 10 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Hexachlorobutadiene | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Hexachlorocyclopentadiene | mg/kg | 0/16 | 5/21 | 10 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Hexachloroethane | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Isophorone | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Nitrobenzene | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| N-Nitrosodi-n-propylamine | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |

Table 12
Summary Statistics and Ecological Project Action Limits (AOC 3 - Plant)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| N-Nitrosodiphenylamine | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Pentachlorophenol | mg/kg | 0/16 | 5/21 | 5 | N/A | 1.9 - 2.5 | 0.76 - 0.99 | 2.1 | 0.83 | 0/16 | 0/16 |
| Phenol | mg/kg | 0/16 | 5/21 | 0.79 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 12/16 | 0/16 | N/A | 0.0009 - 0.65 | 0.013 - 0.25 | 0.0026 - 0.049 | 0.014 | 0.0027 | N/A | N/A |
| 2-Methylnaphthalene | mg/kg | 14/16 | 0/16 | N/A | 0.0011 - 1 | 0.013 - 0.25 | 0.0026 - 0.049 | 0.13 | 0.026 | N/A | N/A |
| Acenaphthene | mg/kg | 7/16 | 0/16 | 0.25 | 0.0012 - 4.3 | 0.012 - 0.25 | 0.0012 - 0.026 | 0.014 | 0.0016 | 0/9 | 0/9 |
| Acenaphthylene | mg/kg | 13/16 | 0/16 | N/A | 0.0055 - 1.6 | 0.013 - 0.015 | 0.0014 - 0.0016 | 0.014 | 0.0015 | N/A | N/A |
| Anthracene | mg/kg | 15/16 | 0/16 | 6.8 | 0.0042 - 8.2 | 0.013 - 0.013 | 0.0055 - 0.0055 | 0.013 | 0.0055 | 0/1 | 0/1 |
| Benzo(a)anthracene | mg/kg | 16/16 | 0/16 | 18 | 0.0032 - 5.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(a)pyrene | mg/kg | 16/16 | 0/16 | N/A | 0.0047 - 4.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(b)fluoranthene | mg/kg | 16/16 | 0/16 | 18 | 0.0062 - 4.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(g,h,i)perylene | mg/kg | 16/16 | 0/16 | N/A | 0.003 - 2.1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 15/16 | 0/16 | N/A | 0.01 - 1.9 | 0.013 - 0.013 | 0.0055 - 0.0055 | 0.013 | 0.0055 | N/A | N/A |
| Chrysene | mg/kg | 16/16 | 0/16 | N/A | 0.0044 - 4.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dibenz(a,h)anthracene | mg/kg | 10/16 | 0/16 | N/A | 0.0093 - 0.69 | 0.012 - 0.015 | 0.0077 - 0.0098 | 0.013 | 0.0085 | N/A | N/A |
| Fluoranthene | mg/kg | 16/16 | 0/16 | N/A | 0.007 - 20 | N/A | N/A | N/A | N/A | N/A | N/A |
| Fluorene | mg/kg | 13/16 | 0/16 | N/A | 0.0022 - 4.3 | 0.012 - 0.014 | 0.0031 - 0.0036 | 0.013 | 0.0034 | N/A | N/A |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 15/16 | 0/16 | N/A | 0.016 - 3.1 | 0.013 - 0.013 | 0.0085 - 0.0085 | 0.013 | 0.0085 | N/A | N/A |
| Naphthalene | mg/kg | 13/16 | 0/16 | 1 | 0.0016 - 0.78 | 0.013 - 0.25 | 0.0026 - 0.049 | 0.014 | 0.0027 | 0/3 | 0/3 |
| Phenanthrene | mg/kg | 16/16 | 0/16 | N/A | 0.0036 - 27 | N/A | N/A | N/A | N/A | N/A | N/A |
| Pyrene | mg/kg | 16/16 | 0/16 | N/A | 0.006 - 16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/16 | 0/16 | 2 | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | 0/16 | 0/16 |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/12 | 0/12 | 40 | N/A | 0.069 - 0.1 | 0.032 - 0.048 | 0.078 | 0.036 | 0/12 | 0/12 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/12 | 0/12 | 40 | N/A | 0.098 - 0.15 | 0.084 - 0.12 | 0.11 | 0.095 | 0/12 | 0/12 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/12 | 0/12 | 40 | N/A | 0.069 - 0.1 | 0.032 - 0.048 | 0.078 | 0.036 | 0/12 | 0/12 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/12 | 0/12 | 40 | N/A | 0.069 - 0.1 | 0.05 - 0.075 | 0.078 | 0.057 | 0/12 | 0/12 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/12 | 0/12 | 40 | N/A | 0.069 - 0.1 | 0.016 - 0.023 | 0.078 | 0.018 | 0/12 | 0/12 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/12 | 0/12 | 40 | N/A | 0.069 - 0.1 | 0.035 - 0.052 | 0.078 | 0.04 | 0/12 | 0/12 |
| PCB-1260 (Aroclor 1260) | mg/kg | 4/12 | 0/12 | 40 | 0.0048 - 0.0076 | 0.07 - 0.088 | 0.007 - 0.0089 | 0.078 | 0.0078 | 0/8 | 0/8 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/12 | 0/12 | 40 | N/A | 0.069 - 0.1 | 0.017 - 0.025 | 0.078 | 0.019 | 0/12 | 0/12 |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/12 | 0/12 | 40 | N/A | 0.069 - 0.1 | 0.007 - 0.01 | 0.078 | 0.0079 | 0/12 | 0/12 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 16/16 | 0/16 | N/A | 3200 - 11000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 15/16 | 0/16 | 5 | 0.095 - 0.36 | 0.22 - 0.22 | 0.11 - 0.11 | 0.22 | 0.11 | 0/1 | 0/1 |
| Arsenic | mg/kg | 16/16 | 0/16 | 18 | 2 - 4.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 16/16 | 0/16 | 110 | 10 - 56 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 16/16 | 0/16 | 2.5 | 0.076 - 0.44 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 16/16 | 0/16 | 32 | 0.053 - 0.55 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 16/16 | 0/16 | N/A | 500 - 110000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 16/16 | 0/16 | 0.35 | 2.5 - 11 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 16/16 | 0/16 | 13 | 0.54 - 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 16/16 | 0/16 | 70 | 3.8 - 28 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 16/16 | 0/16 | N/A | 4400 - 21000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 16/16 | 0/16 | 120 | 3.4 - 54 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 16/16 | 0/16 | N/A | 310 - 9800 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 16/16 | 0/16 | 220 | 48 - 650 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 16/16 | 0/16 | 0.3 | 0.016 - 0.16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Nickel | mg/kg | 16/16 | 0/16 | 38 | 1.4 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 12
Summary Statistics and Ecological Project Action Limits (AOC 3 - Plant)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Potassium | mg/kg | 16/16 | 0/16 | N/A | 170 - 1300 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 16/16 | 0/16 | 0.52 | 0.15 - 0.61 | N/A | N/A | N/A | N/A | N/A | N/A |
| Silver | mg/kg | 2/16 | 0/16 | 560 | 0.15 - 0.15 | 1.3 - 2.2 | 0.51 - 0.88 | 1.6 | 0.65 | 0/14 | 0/14 |
| Sodium | mg/kg | 12/16 | 0/16 | N/A | 47 - 98 | 490 - 640 | 98 - 130 | 600 | 120 | N/A | N/A |
| Thallium | mg/kg | 10/16 | 0/16 | 0.05 | 0.054 - 0.17 | 0.094 - 0.12 | 0.094 - 0.12 | 0.1 | 0.1 | 6/6 | 6/6 |
| Vanadium | mg/kg | 16/16 | 0/16 | 60 | 5.9 - 17 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 16/16 | 0/16 | 160 | 12 - 85 | N/A | N/A | N/A | N/A | N/A | N/A |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | |
| 1,1,1-Trichloroethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| 1,1,2,2-Tetrachloroethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | N/A | N/A |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.018 - 0.023 | 0.0057 - 0.0074 | 0.02 | 0.0064 | N/A | N/A |
| 1,1,2-Trichloroethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | N/A | N/A |
| 1,1-Dichloroethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | N/A | N/A |
| 1,1-Dichloroethene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | N/A | N/A |
| 1,2,3-Trichlorobenzene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | N/A | N/A |
| 1,2,4-Trichlorobenzene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | N/A | N/A |
| 1,2-Dibromo-3-chloropropane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.0089 - 0.012 | 0.01 | 0.01 | N/A | N/A |
| 1,2-Dibromoethane (EDB) | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | N/A | N/A |
| 1,2-Dichlorobenzene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| 1,2-Dichloroethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | N/A | N/A |
| 1,2-Dichloropropane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | N/A | N/A |
| 1,3-Dichlorobenzene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | N/A | N/A |
| 1,3-Dichloropropane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00036 - 0.00046 | 0.005 | 0.0004 | N/A | N/A |
| 1,4-Dichlorobenzene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | N/A | N/A |
| 2-Butanone (MEK) | mg/kg | 5/18 | 0/18 | N/A | 0.0049 - 0.03 | 0.018 - 0.023 | 0.011 - 0.015 | 0.02 | 0.013 | N/A | N/A |
| 2-Hexanone | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.018 - 0.023 | 0.011 - 0.015 | 0.02 | 0.013 | N/A | N/A |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.018 - 0.023 | 0.011 - 0.015 | 0.02 | 0.013 | N/A | N/A |
| Acetone | mg/kg | 6/18 | 0/18 | N/A | 0.036 - 0.32 | 0.064 - 0.083 | 0.064 - 0.083 | 0.073 | 0.073 | N/A | N/A |
| Benzene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00036 - 0.00046 | 0.005 | 0.0004 | N/A | N/A |
| Bromochloromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Bromodichloromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Bromoform | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0046 - 0.0059 | 0.0046 - 0.0059 | 0.0051 | 0.0051 | N/A | N/A |
| Bromomethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.0029 - 0.0037 | 0.01 | 0.0032 | N/A | N/A |
| Carbon disulfide | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Carbon tetrachloride | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Chlorobenzene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Chloroethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.0057 - 0.0074 | 0.01 | 0.0064 | N/A | N/A |
| Chloroform | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.00072 - 0.00093 | 0.01 | 0.0008 | N/A | N/A |
| Chloromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.0014 - 0.0019 | 0.01 | 0.0016 | N/A | N/A |
| cis-1,2-Dichloroethene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | N/A | N/A |
| cis-1,3-Dichloropropene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00036 - 0.00046 | 0.005 | 0.0004 | N/A | N/A |
| Cumene | mg/kg | 1/18 | 0/18 | N/A | 0.0059 - 0.0059 | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Cyclohexane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Dibromochloromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Dichlorodifluoromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.0057 - 0.0074 | 0.01 | 0.0064 | N/A | N/A |
| Ethylbenzene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | N/A | N/A |
| m,p-Xylene | mg/kg | 0/18 | 0/18 | 100 | N/A | 0.0029 - 0.0037 | 0.0029 - 0.0037 | 0.0032 | 0.0032 | 0/18 | 0/18 |
| Methyl acetate | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0076 - 0.0098 | 0.0072 - 0.0093 | 0.0085 | 0.008 | N/A | N/A |
| Methyl tert-butyl ether (MTBE) | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.018 - 0.023 | 0.0057 - 0.0074 | 0.02 | 0.0064 | N/A | N/A |
| Methylcyclohexane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | N/A | N/A |

Table 12
Summary Statistics and Ecological Project Action Limits (AOC 3 - Plant)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Methylene chloride | mg/kg | 0/18 | 0/18 | 1600 | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | 0/18 | 0/18 |
| o-Xylene | mg/kg | 0/18 | 0/18 | 100 | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| Styrene | mg/kg | 0/18 | 0/18 | 3.2 | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| Tetrachloroethene (PCE) | mg/kg | 0/18 | 0/18 | 10 | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| N/A | mg/kg | 4/18 | 0/18 | 200 | 0.00024 - 0.00046 | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.0051 | 0.00081 | 0/14 | 0/14 |
| trans-1,2-Dichloroethene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | N/A | N/A |
| trans-1,3-Dichloropropene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00018 - 0.00023 | 0.005 | 0.0002 | N/A | N/A |
| Trichlorofluoromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.0089 - 0.012 | 0.01 | 0.01 | N/A | N/A |
| Vinyl chloride | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | N/A | N/A |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 1,4-Dioxane | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.35 - 0.42 | 0.4 | 0.4 | N/A | N/A |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.088 - 0.11 | 0.4 | 0.1 | N/A | N/A |
| 2,4,5-Trichlorophenol | mg/kg | 0/20 | 5/25 | 4 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2,4,6-Trichlorophenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 2,4-Dichlorophenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 2,4-Dimethylphenol | mg/kg | 0/20 | 5/25 | 0.01 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 20/20 |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/20 | 5/25 | 0.6 | N/A | 0.7 - 0.85 | 0.35 - 0.42 | 0.8 | 0.4 | 20/20 | 0/20 |
| 2,4-Dinitrophenol | mg/kg | 0/20 | 5/25 | 20 | N/A | 1.8 - 2.2 | 1.4 - 1.7 | 2.1 | 1.6 | 0/20 | 0/20 |
| 2,4-Dinitrotoluene | mg/kg | 0/20 | 5/25 | 6 | N/A | 0.35 - 0.42 | 0.088 - 0.11 | 0.4 | 0.1 | 0/20 | 0/20 |
| 2,6-Dinitrotoluene | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 2-Chloronaphthalene | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 2-Chlorophenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/20 | 5/25 | 0.67 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2-Nitroaniline | mg/kg | 0/20 | 5/25 | N/A | N/A | 1.8 - 2.2 | 0.18 - 0.22 | 2.1 | 0.21 | N/A | N/A |
| 2-Nitrophenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 3,3'-Dichlorobenzidine | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.7 - 0.85 | 0.071 - 0.086 | 0.8 | 0.081 | N/A | N/A |
| 3-Nitroaniline | mg/kg | 0/20 | 5/25 | N/A | N/A | 1.8 - 2.2 | 0.088 - 0.11 | 2.1 | 0.1 | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 1.8 - 2.2 | 0.35 - 0.42 | 2.1 | 0.4 | N/A | N/A |
| 4-Bromophenyl phenyl ether | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 4-Chloroaniline | mg/kg | 0/20 | 5/25 | 1 | N/A | 0.7 - 0.85 | 0.088 - 0.11 | 0.8 | 0.1 | 0/20 | 0/20 |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/20 | 5/25 | N/A | N/A | 1.8 - 2.2 | 0.088 - 0.11 | 2.1 | 0.1 | N/A | N/A |
| 4-Nitrophenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 1.8 - 2.2 | 0.71 - 0.86 | 2.1 | 0.81 | N/A | N/A |
| Acetophenone | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Atrazine | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Benzaldehyde | mg/kg | 1/20 | 5/25 | N/A | 0.19 - 0.19 | 0.35 - 0.42 | 0.18 - 0.22 | 0.39 | 0.2 | N/A | N/A |
| Benzyl butyl phthalate | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Biphenyl (Diphenyl) | mg/kg | 0/20 | 5/25 | 60 | N/A | 1.8 - 2.2 | 0.35 - 0.42 | 2.1 | 0.4 | 0/20 | 0/20 |
| Bis(2-chloroethoxy)methane | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.088 - 0.11 | 0.4 | 0.1 | N/A | N/A |
| Bis(2-ethylhexyl)phthalate | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Caprolactam | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.18 - 0.22 | 0.4 | 0.21 | N/A | N/A |
| Carbazole | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Cresols, m- & p- | mg/kg | 0/20 | 5/25 | 0.69 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Dibenzofuran | mg/kg | 0/20 | 5/25 | 6.1 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Diethyl phthalate | mg/kg | 0/20 | 5/25 | 100 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Dimethyl phthalate | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Di-n-butyl phthalate | mg/kg | 0/20 | 5/25 | 160 | N/A | 0.35 - 0.42 | 0.078 - 0.42 | 0.4 | 0.085 | 0/20 | 0/20 |

Table 12
Summary Statistics and Ecological Project Action Limits (AOC 3 - Plant)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| di-n-Octyl phthalate | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Hexachlorobenzene | mg/kg | 0/20 | 5/25 | 10 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Hexachlorobutadiene | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Hexachlorocyclopentadiene | mg/kg | 0/20 | 5/25 | 10 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Hexachloroethane | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Isophorone | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Nitrobenzene | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| N-Nitrosodi-n-propylamine | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| N-Nitrosodiphenylamine | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Pentachlorophenol | mg/kg | 0/20 | 5/25 | 5 | N/A | 1.8 - 2.2 | 0.71 - 0.86 | 2.1 | 0.81 | 0/20 | 0/20 |
| Phenol | mg/kg | 0/20 | 5/25 | 0.79 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 5/16 | 0/16 | N/A | 0.00065 - 0.018 | 0.011 - 0.23 | 0.0022 - 0.046 | 0.012 | 0.0024 | N/A | N/A |
| 2-Methylnaphthalene | mg/kg | 4/16 | 0/16 | N/A | 0.00074 - 0.016 | 0.011 - 0.23 | 0.0022 - 0.046 | 0.012 | 0.0024 | N/A | N/A |
| Acenaphthene | mg/kg | 3/16 | 0/16 | 0.25 | 0.00058 - 0.0029 | 0.011 - 0.23 | 0.0012 - 0.024 | 0.012 | 0.0013 | 0/13 | 0/13 |
| Acenaphthylene | mg/kg | 5/16 | 0/16 | N/A | 0.0029 - 0.04 | 0.011 - 0.23 | 0.0012 - 0.024 | 0.012 | 0.0014 | N/A | N/A |
| Anthracene | mg/kg | 7/16 | 0/16 | 6.8 | 0.0021 - 0.065 | 0.011 - 0.23 | 0.0048 - 0.099 | 0.012 | 0.0053 | 0/9 | 0/9 |
| Benzo(a)anthracene | mg/kg | 8/16 | 0/16 | 18 | 0.0025 - 0.43 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | 0/8 | 0/8 |
| Benzo(a)pyrene | mg/kg | 8/16 | 0/16 | N/A | 0.0027 - 1.3 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | N/A | N/A |
| Benzo(b)fluoranthene | mg/kg | 8/16 | 0/16 | 18 | 0.004 - 1.9 | 0.012 - 0.23 | 0.0078 - 0.15 | 0.012 | 0.0082 | 0/8 | 0/8 |
| Benzo(g,h,i)perylene | mg/kg | 6/16 | 0/16 | N/A | 0.0094 - 0.82 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 7/16 | 0/16 | N/A | 0.0027 - 0.84 | 0.011 - 0.23 | 0.0048 - 0.099 | 0.012 | 0.0053 | N/A | N/A |
| Chrysene | mg/kg | 8/16 | 0/16 | N/A | 0.0028 - 1.2 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | N/A | N/A |
| Dibenz(a,h)anthracene | mg/kg | 4/16 | 0/16 | N/A | 0.0056 - 0.29 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | N/A | N/A |
| Fluoranthene | mg/kg | 8/16 | 0/16 | N/A | 0.0047 - 0.19 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | N/A | N/A |
| Fluorene | mg/kg | 7/16 | 0/16 | N/A | 0.0013 - 0.016 | 0.011 - 0.23 | 0.003 - 0.061 | 0.012 | 0.0033 | N/A | N/A |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 7/16 | 0/16 | N/A | 0.0028 - 1 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | N/A | N/A |
| Naphthalene | mg/kg | 6/16 | 0/16 | 1 | 0.00079 - 0.0073 | 0.011 - 0.23 | 0.0022 - 0.046 | 0.012 | 0.0024 | 0/10 | 0/10 |
| Phenanthrene | mg/kg | 7/16 | 0/16 | N/A | 0.0052 - 0.11 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | N/A | N/A |
| Pyrene | mg/kg | 8/16 | 0/16 | N/A | 0.0039 - 0.26 | 0.012 - 0.23 | 0.0078 - 0.15 | 0.012 | 0.0082 | N/A | N/A |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/16 | 0/16 | 2 | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | 0/16 | 0/16 |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/12 | 0/12 | 40 | N/A | 0.071 - 0.085 | 0.033 - 0.04 | 0.078 | 0.036 | 0/12 | 0/12 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/12 | 0/12 | 40 | N/A | 0.1 - 0.12 | 0.086 - 0.1 | 0.11 | 0.094 | 0/12 | 0/12 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/12 | 0/12 | 40 | N/A | 0.071 - 0.085 | 0.033 - 0.04 | 0.078 | 0.036 | 0/12 | 0/12 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/12 | 0/12 | 40 | N/A | 0.071 - 0.085 | 0.052 - 0.062 | 0.078 | 0.057 | 0/12 | 0/12 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/12 | 0/12 | 40 | N/A | 0.071 - 0.085 | 0.016 - 0.019 | 0.078 | 0.018 | 0/12 | 0/12 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/12 | 0/12 | 40 | N/A | 0.071 - 0.085 | 0.036 - 0.043 | 0.078 | 0.039 | 0/12 | 0/12 |
| PCB-1260 (Aroclor 1260) | mg/kg | 2/12 | 0/12 | 40 | 0.0064 - 0.011 | 0.071 - 0.085 | 0.0072 - 0.0086 | 0.078 | 0.0079 | 0/10 | 0/10 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/12 | 0/12 | 40 | N/A | 0.071 - 0.085 | 0.017 - 0.021 | 0.078 | 0.019 | 0/12 | 0/12 |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/12 | 0/12 | 40 | N/A | 0.071 - 0.085 | 0.0072 - 0.0086 | 0.078 | 0.0079 | 0/12 | 0/12 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 16/16 | 0/16 | N/A | 4500 - 11000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 14/16 | 0/16 | 5 | 0.072 - 0.17 | 0.18 - 0.19 | 0.09 - 0.097 | 0.19 | 0.094 | 0/2 | 0/2 |
| Arsenic | mg/kg | 16/16 | 0/16 | 18 | 1.5 - 5.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 16/16 | 0/16 | 110 | 14 - 52 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 16/16 | 0/16 | 2.5 | 0.12 - 0.48 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 16/16 | 0/16 | 32 | 0.035 - 0.13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 16/16 | 0/16 | N/A | 700 - 66000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 16/16 | 0/16 | 0.35 | 5.5 - 11 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 12
Summary Statistics and Ecological Project Action Limits (AOC 3 - Plant)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Cobalt | mg/kg | 16/16 | 0/16 | 13 | 2.8 - 10 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 16/16 | 0/16 | 70 | 5.8 - 29 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 16/16 | 0/16 | N/A | 8000 - 23000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 16/16 | 0/16 | 120 | 2.7 - 56 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 16/16 | 0/16 | N/A | 1100 - 18000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 16/16 | 0/16 | 220 | 69 - 560 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 15/16 | 0/16 | 0.3 | 0.009 - 0.047 | 0.023 - 0.023 | 0.018 - 0.018 | 0.023 | 0.018 | 0/1 | 0/1 |
| Nickel | mg/kg | 16/16 | 0/16 | 38 | 6.4 - 24 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 16/16 | 0/16 | N/A | 290 - 1600 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 14/16 | 0/16 | 0.52 | 0.14 - 0.31 | 0.53 - 0.55 | 0.43 - 0.44 | 0.54 | 0.44 | 2/2 | 0/2 |
| Silver | mg/kg | 2/16 | 0/16 | 560 | 0.16 - 0.19 | 1.3 - 1.6 | 0.5 - 0.63 | 1.4 | 0.57 | 0/14 | 0/14 |
| Sodium | mg/kg | 16/16 | 0/16 | N/A | 31 - 120 | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | mg/kg | 11/16 | 0/16 | 0.05 | 0.042 - 0.49 | 0.087 - 0.11 | 0.087 - 0.11 | 0.1 | 0.1 | 5/5 | 5/5 |
| Vanadium | mg/kg | 16/16 | 0/16 | 60 | 7.4 - 16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 16/16 | 0/16 | 160 | 17 - 41 | N/A | N/A | N/A | N/A | N/A | N/A |

Notes

FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 13
Summary Statistics and Ecological Project Action Limits (AOC 3 - Invertebrate)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/16 | 5/21 | 0.18 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 0/16 |
| 1,4-Dioxane | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.37 - 0.49 | 0.41 | 0.41 | N/A | N/A |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/16 | 5/21 | 0.04 | N/A | 0.37 - 0.49 | 0.094 - 0.12 | 0.41 | 0.1 | 16/16 | 16/16 |
| 2,4,5-Trichlorophenol | mg/kg | 0/16 | 5/21 | 9 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2,4,6-Trichlorophenol | mg/kg | 0/16 | 5/21 | 10 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2,4-Dichlorophenol | mg/kg | 0/16 | 5/21 | 0.05 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 16/16 |
| 2,4-Dimethylphenol | mg/kg | 0/16 | 5/21 | 0.04 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 16/16 |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/16 | 5/21 | 1.8 | N/A | 0.75 - 0.98 | 0.37 - 0.49 | 0.82 | 0.41 | 0/16 | 0/16 |
| 2,4-Dinitrophenol | mg/kg | 0/16 | 5/21 | 0.15 | N/A | 1.9 - 2.5 | 1.5 - 1.9 | 2.1 | 1.6 | 16/16 | 16/16 |
| 2,4-Dinitrotoluene | mg/kg | 0/16 | 5/21 | 18 | N/A | 0.37 - 0.49 | 0.094 - 0.12 | 0.41 | 0.1 | 0/16 | 0/16 |
| 2,6-Dinitrotoluene | mg/kg | 0/16 | 5/21 | 30 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2-Chloronaphthalene | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 2-Chlorophenol | mg/kg | 0/16 | 5/21 | 0.06 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 16/16 |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/16 | 5/21 | 0.1 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 0/16 |
| 2-Nitroaniline | mg/kg | 0/16 | 5/21 | 0.02 | N/A | 1.9 - 2.5 | 0.19 - 0.25 | 2.1 | 0.21 | 16/16 | 16/16 |
| 2-Nitrophenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 3,3'-Dichlorobenzidine | mg/kg | 0/15 | 6/21 | 0.03 | N/A | 0.75 - 0.94 | 0.076 - 0.096 | 0.81 | 0.083 | 15/15 | 15/15 |
| 3-Nitroaniline | mg/kg | 0/16 | 5/21 | N/A | N/A | 1.9 - 2.5 | 0.094 - 0.12 | 2.1 | 0.1 | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 1.9 - 2.5 | 0.37 - 0.49 | 2.1 | 0.41 | N/A | N/A |
| 4-Bromophenyl phenyl ether | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 4-Chloroaniline | mg/kg | 0/16 | 5/21 | 1.8 | N/A | 0.75 - 0.98 | 0.094 - 0.12 | 0.82 | 0.1 | 0/16 | 0/16 |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/16 | 5/21 | N/A | N/A | 1.9 - 2.5 | 0.094 - 0.12 | 2.1 | 0.1 | N/A | N/A |
| 4-Nitrophenol | mg/kg | 0/16 | 5/21 | 7 | N/A | 1.9 - 2.5 | 0.76 - 0.99 | 2.1 | 0.83 | 0/16 | 0/16 |
| Acetophenone | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Atrazine | mg/kg | 0/16 | 5/21 | 0.00005 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 16/16 |
| Benzaldehyde | mg/kg | 5/16 | 5/21 | N/A | 0.12 - 0.23 | 0.37 - 0.46 | 0.19 - 0.24 | 0.41 | 0.21 | N/A | N/A |
| Benzyl butyl phthalate | mg/kg | 0/16 | 5/21 | 0.59 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Biphenyl (Diphenyl) | mg/kg | 0/16 | 5/21 | 0.2 | N/A | 1.9 - 2.5 | 0.37 - 0.49 | 2.1 | 0.41 | 16/16 | 16/16 |
| Bis(2-chloroethoxy)methane | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.094 - 0.12 | 0.41 | 0.1 | N/A | N/A |
| Bis(2-ethylhexyl)phthalate | mg/kg | 2/16 | 5/21 | 8.4 | 0.14 - 3.4 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/14 | 0/14 |
| Caprolactam | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.19 - 0.25 | 0.41 | 0.21 | N/A | N/A |
| Carbazole | mg/kg | 3/16 | 5/21 | 0.07 | 0.045 - 0.55 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 13/13 | 13/13 |
| Cresols, m- & p- | mg/kg | 1/16 | 5/21 | 0.08 | 0.13 - 0.13 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 15/15 | 11/15 |
| Dibenzofuran | mg/kg | 2/16 | 5/21 | 0.15 | 0.12 - 0.12 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 14/14 | 0/14 |
| Diethyl phthalate | mg/kg | 0/16 | 5/21 | 0.25 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 0/16 |
| Dimethyl phthalate | mg/kg | 0/16 | 5/21 | 10 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Di-n-butyl phthalate | mg/kg | 0/16 | 5/21 | 0.22 | N/A | 0.37 - 0.49 | 0.076 - 0.49 | 0.41 | 0.098 | 16/16 | 7/16 |
| di-n-Octyl phthalate | mg/kg | 0/16 | 5/21 | 303 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Hexachlorobenzene | mg/kg | 0/16 | 5/21 | 10 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Hexachlorobutadiene | mg/kg | 0/16 | 5/21 | 0.009 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 16/16 |
| Hexachlorocyclopentadiene | mg/kg | 0/16 | 5/21 | 0.001 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 16/16 |
| Hexachloroethane | mg/kg | 0/16 | 5/21 | 0.024 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 16/16 |
| Isophorone | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Nitrobenzene | mg/kg | 0/16 | 5/21 | 2.2 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| N-Nitrosodi-n-propylamine | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |

Table 13
Summary Statistics and Ecological Project Action Limits (AOC 3 - Invertebrate)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| N-Nitrosodiphenylamine | mg/kg | 0/16 | 5/21 | 20 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Pentachlorophenol | mg/kg | 0/16 | 5/21 | 31 | N/A | 1.9 - 2.5 | 0.76 - 0.99 | 2.1 | 0.83 | 0/16 | 0/16 |
| Phenol | mg/kg | 0/16 | 5/21 | 1.8 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 12/16 | 0/16 | 29 | 0.0009 - 0.65 | 0.013 - 0.25 | 0.0026 - 0.049 | 0.014 | 0.0027 | 0/4 | 0/4 |
| 2-Methylnaphthalene | mg/kg | 14/16 | 0/16 | 29 | 0.0011 - 1 | 0.013 - 0.25 | 0.0026 - 0.049 | 0.13 | 0.026 | 0/2 | 0/2 |
| Acenaphthene | mg/kg | 7/16 | 0/16 | 29 | 0.0012 - 4.3 | 0.012 - 0.25 | 0.0012 - 0.026 | 0.014 | 0.0016 | 0/9 | 0/9 |
| Acenaphthylene | mg/kg | 13/16 | 0/16 | 29 | 0.0055 - 1.6 | 0.013 - 0.015 | 0.0014 - 0.0016 | 0.014 | 0.0015 | 0/3 | 0/3 |
| Anthracene | mg/kg | 15/16 | 0/16 | 29 | 0.0042 - 8.2 | 0.013 - 0.013 | 0.0055 - 0.0055 | 0.013 | 0.0055 | 0/1 | 0/1 |
| Benzo(a)anthracene | mg/kg | 16/16 | 0/16 | 18 | 0.0032 - 5.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(a)pyrene | mg/kg | 16/16 | 0/16 | 18 | 0.0047 - 4.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(b)fluoranthene | mg/kg | 16/16 | 0/16 | 18 | 0.0062 - 4.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(g,h,i)perylene | mg/kg | 16/16 | 0/16 | 18 | 0.003 - 2.1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 15/16 | 0/16 | 18 | 0.01 - 1.9 | 0.013 - 0.013 | 0.0055 - 0.0055 | 0.013 | 0.0055 | 0/1 | 0/1 |
| Chrysene | mg/kg | 16/16 | 0/16 | 18 | 0.0044 - 4.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dibenz(a,h)anthracene | mg/kg | 10/16 | 0/16 | 18 | 0.0093 - 0.69 | 0.012 - 0.015 | 0.0077 - 0.0098 | 0.013 | 0.0085 | 0/6 | 0/6 |
| Fluoranthene | mg/kg | 16/16 | 0/16 | 29 | 0.007 - 20 | N/A | N/A | N/A | N/A | N/A | N/A |
| Fluorene | mg/kg | 13/16 | 0/16 | 29 | 0.0022 - 4.3 | 0.012 - 0.014 | 0.0031 - 0.0036 | 0.013 | 0.0034 | 0/3 | 0/3 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 15/16 | 0/16 | 18 | 0.016 - 3.1 | 0.013 - 0.013 | 0.0085 - 0.0085 | 0.013 | 0.0085 | 0/1 | 0/1 |
| Naphthalene | mg/kg | 13/16 | 0/16 | 29 | 0.0016 - 0.78 | 0.013 - 0.25 | 0.0026 - 0.049 | 0.014 | 0.0027 | 0/3 | 0/3 |
| Phenanthrene | mg/kg | 16/16 | 0/16 | 29 | 0.0036 - 27 | N/A | N/A | N/A | N/A | N/A | N/A |
| Pyrene | mg/kg | 16/16 | 0/16 | 18 | 0.006 - 16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/16 | 0/16 | 0.015 | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | 16/16 | 16/16 |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/12 | 0/12 | 0.33 | N/A | 0.069 - 0.1 | 0.032 - 0.048 | 0.078 | 0.036 | 0/12 | 0/12 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/12 | 0/12 | 0.33 | N/A | 0.098 - 0.15 | 0.084 - 0.12 | 0.11 | 0.095 | 0/12 | 0/12 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/12 | 0/12 | 0.33 | N/A | 0.069 - 0.1 | 0.032 - 0.048 | 0.078 | 0.036 | 0/12 | 0/12 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/12 | 0/12 | 0.33 | N/A | 0.069 - 0.1 | 0.05 - 0.075 | 0.078 | 0.057 | 0/12 | 0/12 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/12 | 0/12 | 0.33 | N/A | 0.069 - 0.1 | 0.016 - 0.023 | 0.078 | 0.018 | 0/12 | 0/12 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/12 | 0/12 | 0.33 | N/A | 0.069 - 0.1 | 0.035 - 0.052 | 0.078 | 0.04 | 0/12 | 0/12 |
| PCB-1260 (Aroclor 1260) | mg/kg | 4/12 | 0/12 | 0.33 | 0.0048 - 0.0076 | 0.07 - 0.088 | 0.007 - 0.0089 | 0.078 | 0.0078 | 0/8 | 0/8 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/12 | 0/12 | 0.33 | N/A | 0.069 - 0.1 | 0.017 - 0.025 | 0.078 | 0.019 | 0/12 | 0/12 |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/12 | 0/12 | 0.33 | N/A | 0.069 - 0.1 | 0.007 - 0.01 | 0.078 | 0.0079 | 0/12 | 0/12 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 16/16 | 0/16 | N/A | 3200 - 11000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 15/16 | 0/16 | 78 | 0.095 - 0.36 | 0.22 - 0.22 | 0.11 - 0.11 | 0.22 | 0.11 | 0/1 | 0/1 |
| Arsenic | mg/kg | 16/16 | 0/16 | 6.8 | 2 - 4.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 16/16 | 0/16 | 330 | 10 - 56 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 16/16 | 0/16 | 40 | 0.076 - 0.44 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 16/16 | 0/16 | 140 | 0.053 - 0.55 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 16/16 | 0/16 | N/A | 500 - 110000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 16/16 | 0/16 | 0.34 | 2.5 - 11 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 16/16 | 0/16 | N/A | 0.54 - 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 16/16 | 0/16 | 80 | 3.8 - 28 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 16/16 | 0/16 | N/A | 4400 - 21000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 16/16 | 0/16 | 1700 | 3.4 - 54 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 16/16 | 0/16 | N/A | 310 - 9800 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 16/16 | 0/16 | 450 | 48 - 650 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 16/16 | 0/16 | 0.05 | 0.016 - 0.16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Nickel | mg/kg | 16/16 | 0/16 | 280 | 1.4 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 13
Summary Statistics and Ecological Project Action Limits (AOC 3 - Invertebrate)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Potassium | mg/kg | 16/16 | 0/16 | N/A | 170 - 1300 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 16/16 | 0/16 | 4.1 | 0.15 - 0.61 | N/A | N/A | N/A | N/A | N/A | N/A |
| Silver | mg/kg | 2/16 | 0/16 | N/A | 0.15 - 0.15 | 1.3 - 2.2 | 0.51 - 0.88 | 1.6 | 0.65 | N/A | N/A |
| Sodium | mg/kg | 12/16 | 0/16 | N/A | 47 - 98 | 490 - 640 | 98 - 130 | 600 | 120 | N/A | N/A |
| Thallium | mg/kg | 10/16 | 0/16 | N/A | 0.054 - 0.17 | 0.094 - 0.12 | 0.094 - 0.12 | 0.1 | 0.1 | N/A | N/A |
| Vanadium | mg/kg | 16/16 | 0/16 | N/A | 5.9 - 17 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 16/16 | 0/16 | 120 | 12 - 85 | N/A | N/A | N/A | N/A | N/A | N/A |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | |
| 1,1,1-Trichloroethane | mg/kg | 0/18 | 0/18 | 0.04 | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| 1,1,2,2-Tetrachloroethane | mg/kg | 0/18 | 0/18 | 0.19 | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.018 - 0.023 | 0.0057 - 0.0074 | 0.02 | 0.0064 | N/A | N/A |
| 1,1,2-Trichloroethane | mg/kg | 0/18 | 0/18 | 0.32 | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | 0/18 | 0/18 |
| 1,1-Dichloroethane | mg/kg | 0/18 | 0/18 | 0.14 | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| 1,1-Dichloroethene | mg/kg | 0/18 | 0/18 | 0.04 | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | 0/18 | 0/18 |
| 1,2,3-Trichlorobenzene | mg/kg | 0/18 | 0/18 | 20 | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | 0/18 | 0/18 |
| 1,2,4-Trichlorobenzene | mg/kg | 0/18 | 0/18 | 1.2 | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | 0/18 | 0/18 |
| 1,2-Dibromo-3-chloropropane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.0089 - 0.012 | 0.01 | 0.01 | N/A | N/A |
| 1,2-Dibromoethane (EDB) | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | N/A | N/A |
| 1,2-Dichlorobenzene | mg/kg | 0/18 | 0/18 | 0.09 | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| 1,2-Dichloroethane | mg/kg | 0/18 | 0/18 | 0.4 | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | 0/18 | 0/18 |
| 1,2-Dichloropropane | mg/kg | 0/18 | 0/18 | 0.28 | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | 0/18 | 0/18 |
| 1,3-Dichlorobenzene | mg/kg | 0/18 | 0/18 | 0.08 | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | 0/18 | 0/18 |
| 1,3-Dichloropropane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00036 - 0.00046 | 0.005 | 0.0004 | N/A | N/A |
| 1,4-Dichlorobenzene | mg/kg | 0/18 | 0/18 | 1.2 | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| 2-Butanone (MEK) | mg/kg | 5/18 | 0/18 | 1 | 0.0049 - 0.03 | 0.018 - 0.023 | 0.011 - 0.015 | 0.02 | 0.013 | 0/13 | 0/13 |
| 2-Hexanone | mg/kg | 0/18 | 0/18 | 2.5 | N/A | 0.018 - 0.023 | 0.011 - 0.015 | 0.02 | 0.013 | 0/18 | 0/18 |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.018 - 0.023 | 0.011 - 0.015 | 0.02 | 0.013 | N/A | N/A |
| Acetone | mg/kg | 6/18 | 0/18 | 0.04 | 0.036 - 0.32 | 0.064 - 0.083 | 0.064 - 0.083 | 0.073 | 0.073 | 12/12 | 12/12 |
| Benzene | mg/kg | 0/18 | 0/18 | 0.12 | N/A | 0.0045 - 0.0058 | 0.00036 - 0.00046 | 0.005 | 0.0004 | 0/18 | 0/18 |
| Bromochloromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Bromodichloromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Bromoform | mg/kg | 0/18 | 0/18 | 0.07 | N/A | 0.0046 - 0.0059 | 0.0046 - 0.0059 | 0.0051 | 0.0051 | 0/18 | 0/18 |
| Bromomethane | mg/kg | 0/18 | 0/18 | 0.002 | N/A | 0.0089 - 0.012 | 0.0029 - 0.0037 | 0.01 | 0.0032 | 18/18 | 18/18 |
| Carbon disulfide | mg/kg | 0/18 | 0/18 | 0.005 | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 8/18 | 8/18 |
| Carbon tetrachloride | mg/kg | 0/18 | 0/18 | 0.05 | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| Chlorobenzene | mg/kg | 0/18 | 0/18 | 2.4 | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| Chloroethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.0057 - 0.0074 | 0.01 | 0.0064 | N/A | N/A |
| Chloroform | mg/kg | 0/18 | 0/18 | 0.05 | N/A | 0.0089 - 0.012 | 0.00072 - 0.00093 | 0.01 | 0.0008 | 0/18 | 0/18 |
| Chloromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.0014 - 0.0019 | 0.01 | 0.0016 | N/A | N/A |
| cis-1,2-Dichloroethene | mg/kg | 0/18 | 0/18 | 0.04 | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| cis-1,3-Dichloropropene | mg/kg | 0/18 | 0/18 | 0.001 | N/A | 0.0045 - 0.0058 | 0.00036 - 0.00046 | 0.005 | 0.0004 | 18/18 | 0/18 |
| Cumene | mg/kg | 1/18 | 0/18 | 0.04 | 0.0059 - 0.0059 | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/17 | 0/17 |
| Cyclohexane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Dibromochloromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Dichlorodifluoromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.0057 - 0.0074 | 0.01 | 0.0064 | N/A | N/A |
| Ethylbenzene | mg/kg | 0/18 | 0/18 | 0.27 | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| m,p-Xylene | mg/kg | 0/18 | 0/18 | 0.1 | N/A | 0.0029 - 0.0037 | 0.0029 - 0.0037 | 0.0032 | 0.0032 | 0/18 | 0/18 |
| Methyl acetate | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0076 - 0.0098 | 0.0072 - 0.0093 | 0.0085 | 0.008 | N/A | N/A |
| Methyl tert-butyl ether (MTBE) | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.018 - 0.023 | 0.0057 - 0.0074 | 0.02 | 0.0064 | N/A | N/A |
| Methylcyclohexane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | N/A | N/A |

Table 13
Summary Statistics and Ecological Project Action Limits (AOC 3 - Invertebrate)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Methylene chloride | mg/kg | 0/18 | 0/18 | 0.21 | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | 0/18 | 0/18 |
| o-Xylene | mg/kg | 0/18 | 0/18 | 0.1 | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| Styrene | mg/kg | 0/18 | 0/18 | 1.2 | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| Tetrachloroethene (PCE) | mg/kg | 0/18 | 0/18 | 0.06 | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| N/A | mg/kg | 4/18 | 0/18 | 0.15 | 0.00024 - 0.00046 | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.0051 | 0.00081 | 0/14 | 0/14 |
| trans-1,2-Dichloroethene | mg/kg | 0/18 | 0/18 | 0.04 | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| trans-1,3-Dichloropropene | mg/kg | 0/18 | 0/18 | 0.001 | N/A | 0.0045 - 0.0058 | 0.00018 - 0.00023 | 0.005 | 0.0002 | 18/18 | 0/18 |
| Trichlorofluoromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.0089 - 0.012 | 0.01 | 0.01 | N/A | N/A |
| Vinyl chloride | mg/kg | 0/18 | 0/18 | 0.03 | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | 0/18 | 0/18 |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/20 | 5/25 | 0.18 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 0/20 |
| 1,4-Dioxane | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.35 - 0.42 | 0.4 | 0.4 | N/A | N/A |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/20 | 5/25 | 0.04 | N/A | 0.35 - 0.42 | 0.088 - 0.11 | 0.4 | 0.1 | 20/20 | 20/20 |
| 2,4,5-Trichlorophenol | mg/kg | 0/20 | 5/25 | 9 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2,4,6-Trichlorophenol | mg/kg | 0/20 | 5/25 | 10 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2,4-Dichlorophenol | mg/kg | 0/20 | 5/25 | 0.05 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 20/20 |
| 2,4-Dimethylphenol | mg/kg | 0/20 | 5/25 | 0.04 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 20/20 |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/20 | 5/25 | 1.8 | N/A | 0.7 - 0.85 | 0.35 - 0.42 | 0.8 | 0.4 | 0/20 | 0/20 |
| 2,4-Dinitrophenol | mg/kg | 0/20 | 5/25 | 0.15 | N/A | 1.8 - 2.2 | 1.4 - 1.7 | 2.1 | 1.6 | 20/20 | 20/20 |
| 2,4-Dinitrotoluene | mg/kg | 0/20 | 5/25 | 18 | N/A | 0.35 - 0.42 | 0.088 - 0.11 | 0.4 | 0.1 | 0/20 | 0/20 |
| 2,6-Dinitrotoluene | mg/kg | 0/20 | 5/25 | 30 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2-Chloronaphthalene | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 2-Chlorophenol | mg/kg | 0/20 | 5/25 | 0.06 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 20/20 |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/20 | 5/25 | 0.1 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 0/20 |
| 2-Nitroaniline | mg/kg | 0/20 | 5/25 | 0.02 | N/A | 1.8 - 2.2 | 0.18 - 0.22 | 2.1 | 0.21 | 20/20 | 20/20 |
| 2-Nitrophenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 3,3'-Dichlorobenzidine | mg/kg | 0/20 | 5/25 | 0.03 | N/A | 0.7 - 0.85 | 0.071 - 0.086 | 0.8 | 0.081 | 20/20 | 20/20 |
| 3-Nitroaniline | mg/kg | 0/20 | 5/25 | N/A | N/A | 1.8 - 2.2 | 0.088 - 0.11 | 2.1 | 0.1 | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 1.8 - 2.2 | 0.35 - 0.42 | 2.1 | 0.4 | N/A | N/A |
| 4-Bromophenyl phenyl ether | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 4-Chloroaniline | mg/kg | 0/20 | 5/25 | 1.8 | N/A | 0.7 - 0.85 | 0.088 - 0.11 | 0.8 | 0.1 | 0/20 | 0/20 |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/20 | 5/25 | N/A | N/A | 1.8 - 2.2 | 0.088 - 0.11 | 2.1 | 0.1 | N/A | N/A |
| 4-Nitrophenol | mg/kg | 0/20 | 5/25 | 7 | N/A | 1.8 - 2.2 | 0.71 - 0.86 | 2.1 | 0.81 | 0/20 | 0/20 |
| Acetophenone | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Atrazine | mg/kg | 0/20 | 5/25 | 0.00005 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 20/20 |
| Benzaldehyde | mg/kg | 1/20 | 5/25 | N/A | 0.19 - 0.19 | 0.35 - 0.42 | 0.18 - 0.22 | 0.39 | 0.2 | N/A | N/A |
| Benzyl butyl phthalate | mg/kg | 0/20 | 5/25 | 0.59 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Biphenyl (Diphenyl) | mg/kg | 0/20 | 5/25 | 0.2 | N/A | 1.8 - 2.2 | 0.35 - 0.42 | 2.1 | 0.4 | 20/20 | 20/20 |
| Bis(2-chloroethoxy)methane | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.088 - 0.11 | 0.4 | 0.1 | N/A | N/A |
| Bis(2-ethylhexyl)phthalate | mg/kg | 0/20 | 5/25 | 8.4 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Caprolactam | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.18 - 0.22 | 0.4 | 0.21 | N/A | N/A |
| Carbazole | mg/kg | 0/20 | 5/25 | 0.07 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 20/20 |
| Cresols, m- & p- | mg/kg | 0/20 | 5/25 | 0.08 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 10/20 |
| Dibenzofuran | mg/kg | 0/20 | 5/25 | 0.15 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 0/20 |
| Diethyl phthalate | mg/kg | 0/20 | 5/25 | 0.25 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 0/20 |
| Dimethyl phthalate | mg/kg | 0/20 | 5/25 | 10 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Di-n-butyl phthalate | mg/kg | 0/20 | 5/25 | 0.22 | N/A | 0.35 - 0.42 | 0.078 - 0.42 | 0.4 | 0.085 | 20/20 | 8/20 |

Table 13
Summary Statistics and Ecological Project Action Limits (AOC 3 - Invertebrate)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| di-n-Octyl phthalate | mg/kg | 0/20 | 5/25 | 303 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Hexachlorobenzene | mg/kg | 0/20 | 5/25 | 10 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Hexachlorobutadiene | mg/kg | 0/20 | 5/25 | 0.009 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 20/20 |
| Hexachlorocyclopentadiene | mg/kg | 0/20 | 5/25 | 0.001 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 20/20 |
| Hexachloroethane | mg/kg | 0/20 | 5/25 | 0.024 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 20/20 |
| Isophorone | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Nitrobenzene | mg/kg | 0/20 | 5/25 | 2.2 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| N-Nitrosodi-n-propylamine | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| N-Nitrosodiphenylamine | mg/kg | 0/20 | 5/25 | 20 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Pentachlorophenol | mg/kg | 0/20 | 5/25 | 31 | N/A | 1.8 - 2.2 | 0.71 - 0.86 | 2.1 | 0.81 | 0/20 | 0/20 |
| Phenol | mg/kg | 0/20 | 5/25 | 1.8 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 5/16 | 0/16 | 29 | 0.00065 - 0.018 | 0.011 - 0.23 | 0.0022 - 0.046 | 0.012 | 0.0024 | 0/11 | 0/11 |
| 2-Methylnaphthalene | mg/kg | 4/16 | 0/16 | 29 | 0.00074 - 0.016 | 0.011 - 0.23 | 0.0022 - 0.046 | 0.012 | 0.0024 | 0/12 | 0/12 |
| Acenaphthene | mg/kg | 3/16 | 0/16 | 29 | 0.00058 - 0.0029 | 0.011 - 0.23 | 0.0012 - 0.024 | 0.012 | 0.0013 | 0/13 | 0/13 |
| Acenaphthylene | mg/kg | 5/16 | 0/16 | 29 | 0.0029 - 0.04 | 0.011 - 0.23 | 0.0012 - 0.024 | 0.012 | 0.0014 | 0/11 | 0/11 |
| Anthracene | mg/kg | 7/16 | 0/16 | 29 | 0.0021 - 0.065 | 0.011 - 0.23 | 0.0048 - 0.099 | 0.012 | 0.0053 | 0/9 | 0/9 |
| Benzo(a)anthracene | mg/kg | 8/16 | 0/16 | 18 | 0.0025 - 0.43 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | 0/8 | 0/8 |
| Benzo(a)pyrene | mg/kg | 8/16 | 0/16 | 18 | 0.0027 - 1.3 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | 0/8 | 0/8 |
| Benzo(b)fluoranthene | mg/kg | 8/16 | 0/16 | 18 | 0.004 - 1.9 | 0.012 - 0.23 | 0.0078 - 0.15 | 0.012 | 0.0082 | 0/8 | 0/8 |
| Benzo(g,h,i)perylene | mg/kg | 6/16 | 0/16 | 18 | 0.0094 - 0.82 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | 0/10 | 0/10 |
| Benzo(k)fluoranthene | mg/kg | 7/16 | 0/16 | 18 | 0.0027 - 0.84 | 0.011 - 0.23 | 0.0048 - 0.099 | 0.012 | 0.0053 | 0/9 | 0/9 |
| Chrysene | mg/kg | 8/16 | 0/16 | 18 | 0.0028 - 1.2 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | 0/8 | 0/8 |
| Dibenz(a,h)anthracene | mg/kg | 4/16 | 0/16 | 18 | 0.0056 - 0.29 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | 0/12 | 0/12 |
| Fluoranthene | mg/kg | 8/16 | 0/16 | 29 | 0.0047 - 0.19 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | 0/8 | 0/8 |
| Fluorene | mg/kg | 7/16 | 0/16 | 29 | 0.0013 - 0.016 | 0.011 - 0.23 | 0.003 - 0.061 | 0.012 | 0.0033 | 0/9 | 0/9 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 7/16 | 0/16 | 18 | 0.0028 - 1 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | 0/9 | 0/9 |
| Naphthalene | mg/kg | 6/16 | 0/16 | 29 | 0.00079 - 0.0073 | 0.011 - 0.23 | 0.0022 - 0.046 | 0.012 | 0.0024 | 0/10 | 0/10 |
| Phenanthrene | mg/kg | 7/16 | 0/16 | 29 | 0.0052 - 0.11 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | 0/9 | 0/9 |
| Pyrene | mg/kg | 8/16 | 0/16 | 18 | 0.0039 - 0.26 | 0.012 - 0.23 | 0.0078 - 0.15 | 0.012 | 0.0082 | 0/8 | 0/8 |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/16 | 0/16 | 0.015 | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | 16/16 | 16/16 |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/12 | 0/12 | 0.33 | N/A | 0.071 - 0.085 | 0.033 - 0.04 | 0.078 | 0.036 | 0/12 | 0/12 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/12 | 0/12 | 0.33 | N/A | 0.1 - 0.12 | 0.086 - 0.1 | 0.11 | 0.094 | 0/12 | 0/12 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/12 | 0/12 | 0.33 | N/A | 0.071 - 0.085 | 0.033 - 0.04 | 0.078 | 0.036 | 0/12 | 0/12 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/12 | 0/12 | 0.33 | N/A | 0.071 - 0.085 | 0.052 - 0.062 | 0.078 | 0.057 | 0/12 | 0/12 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/12 | 0/12 | 0.33 | N/A | 0.071 - 0.085 | 0.016 - 0.019 | 0.078 | 0.018 | 0/12 | 0/12 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/12 | 0/12 | 0.33 | N/A | 0.071 - 0.085 | 0.036 - 0.043 | 0.078 | 0.039 | 0/12 | 0/12 |
| PCB-1260 (Aroclor 1260) | mg/kg | 2/12 | 0/12 | 0.33 | 0.0064 - 0.011 | 0.071 - 0.085 | 0.0072 - 0.0086 | 0.078 | 0.0079 | 0/10 | 0/10 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/12 | 0/12 | 0.33 | N/A | 0.071 - 0.085 | 0.017 - 0.021 | 0.078 | 0.019 | 0/12 | 0/12 |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/12 | 0/12 | 0.33 | N/A | 0.071 - 0.085 | 0.0072 - 0.0086 | 0.078 | 0.0079 | 0/12 | 0/12 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 16/16 | 0/16 | N/A | 4500 - 11000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 14/16 | 0/16 | 78 | 0.072 - 0.17 | 0.18 - 0.19 | 0.09 - 0.097 | 0.19 | 0.094 | 0/2 | 0/2 |
| Arsenic | mg/kg | 16/16 | 0/16 | 6.8 | 1.5 - 5.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 16/16 | 0/16 | 330 | 14 - 52 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 16/16 | 0/16 | 40 | 0.12 - 0.48 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 16/16 | 0/16 | 140 | 0.035 - 0.13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 16/16 | 0/16 | N/A | 700 - 66000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 16/16 | 0/16 | 0.34 | 5.5 - 11 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 13
Summary Statistics and Ecological Project Action Limits (AOC 3 - Invertebrate)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Cobalt | mg/kg | 16/16 | 0/16 | N/A | 2.8 - 10 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 16/16 | 0/16 | 80 | 5.8 - 29 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 16/16 | 0/16 | N/A | 8000 - 23000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 16/16 | 0/16 | 1700 | 2.7 - 56 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 16/16 | 0/16 | N/A | 1100 - 18000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 16/16 | 0/16 | 450 | 69 - 560 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 15/16 | 0/16 | 0.05 | 0.009 - 0.047 | 0.023 - 0.023 | 0.018 - 0.018 | 0.023 | 0.018 | 0/1 | 0/1 |
| Nickel | mg/kg | 16/16 | 0/16 | 280 | 6.4 - 24 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 16/16 | 0/16 | N/A | 290 - 1600 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 14/16 | 0/16 | 4.1 | 0.14 - 0.31 | 0.53 - 0.55 | 0.43 - 0.44 | 0.54 | 0.44 | 0/2 | 0/2 |
| Silver | mg/kg | 2/16 | 0/16 | N/A | 0.16 - 0.19 | 1.3 - 1.6 | 0.5 - 0.63 | 1.4 | 0.57 | N/A | N/A |
| Sodium | mg/kg | 16/16 | 0/16 | N/A | 31 - 120 | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | mg/kg | 11/16 | 0/16 | N/A | 0.042 - 0.49 | 0.087 - 0.11 | 0.087 - 0.11 | 0.1 | 0.1 | N/A | N/A |
| Vanadium | mg/kg | 16/16 | 0/16 | N/A | 7.4 - 16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 16/16 | 0/16 | 120 | 17 - 41 | N/A | N/A | N/A | N/A | N/A | N/A |

Notes

FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 14
Summary Statistics and Ecological Project Action Limits (AOC 3 - Bird)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 1,4-Dioxane | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.37 - 0.49 | 0.41 | 0.41 | N/A | N/A |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.094 - 0.12 | 0.41 | 0.1 | N/A | N/A |
| 2,4,5-Trichlorophenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 2,4,6-Trichlorophenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 2,4-Dichlorophenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 2,4-Dimethylphenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.75 - 0.98 | 0.37 - 0.49 | 0.82 | 0.41 | N/A | N/A |
| 2,4-Dinitrophenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 1.9 - 2.5 | 1.5 - 1.9 | 2.1 | 1.6 | N/A | N/A |
| 2,4-Dinitrotoluene | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.094 - 0.12 | 0.41 | 0.1 | N/A | N/A |
| 2,6-Dinitrotoluene | mg/kg | 0/16 | 5/21 | 52 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2-Chloronaphthalene | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 2-Chlorophenol | mg/kg | 0/16 | 5/21 | 0.39 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 11/16 | 0/16 |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 2-Nitroaniline | mg/kg | 0/16 | 5/21 | N/A | N/A | 1.9 - 2.5 | 0.19 - 0.25 | 2.1 | 0.21 | N/A | N/A |
| 2-Nitrophenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 3,3'-Dichlorobenzidine | mg/kg | 0/15 | 6/21 | N/A | N/A | 0.75 - 0.94 | 0.076 - 0.096 | 0.81 | 0.083 | N/A | N/A |
| 3-Nitroaniline | mg/kg | 0/16 | 5/21 | N/A | N/A | 1.9 - 2.5 | 0.094 - 0.12 | 2.1 | 0.1 | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 1.9 - 2.5 | 0.37 - 0.49 | 2.1 | 0.41 | N/A | N/A |
| 4-Bromophenyl phenyl ether | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 4-Chloroaniline | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.75 - 0.98 | 0.094 - 0.12 | 0.82 | 0.1 | N/A | N/A |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/16 | 5/21 | N/A | N/A | 1.9 - 2.5 | 0.094 - 0.12 | 2.1 | 0.1 | N/A | N/A |
| 4-Nitrophenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 1.9 - 2.5 | 0.76 - 0.99 | 2.1 | 0.83 | N/A | N/A |
| Acetophenone | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Atrazine | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Benzaldehyde | mg/kg | 5/16 | 5/21 | N/A | 0.12 - 0.23 | 0.37 - 0.46 | 0.19 - 0.24 | 0.41 | 0.21 | N/A | N/A |
| Benzyl butyl phthalate | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Biphenyl (Diphenyl) | mg/kg | 0/16 | 5/21 | N/A | N/A | 1.9 - 2.5 | 0.37 - 0.49 | 2.1 | 0.41 | N/A | N/A |
| Bis(2-chloroethoxy)methane | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.094 - 0.12 | 0.41 | 0.1 | N/A | N/A |
| Bis(2-ethylhexyl)phthalate | mg/kg | 2/16 | 5/21 | 0.02 | 0.14 - 3.4 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 14/14 | 14/14 |
| Caprolactam | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.19 - 0.25 | 0.41 | 0.21 | N/A | N/A |
| Carbazole | mg/kg | 3/16 | 5/21 | N/A | 0.045 - 0.55 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Cresols, m- & p- | mg/kg | 1/16 | 5/21 | N/A | 0.13 - 0.13 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Dibenzofuran | mg/kg | 2/16 | 5/21 | N/A | 0.12 - 0.12 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Diethyl phthalate | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Dimethyl phthalate | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Di-n-butyl phthalate | mg/kg | 0/16 | 5/21 | 0.011 | N/A | 0.37 - 0.49 | 0.076 - 0.49 | 0.41 | 0.098 | 16/16 | 16/16 |
| di-n-Octyl phthalate | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Hexachlorobenzene | mg/kg | 0/16 | 5/21 | 0.079 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 11/16 |
| Hexachlorobutadiene | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Hexachlorocyclopentadiene | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Hexachloroethane | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Isophorone | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Nitrobenzene | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| N-Nitrosodi-n-propylamine | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |

Table 14
Summary Statistics and Ecological Project Action Limits (AOC 3 - Bird)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| N-Nitrosodiphenylamine | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Pentachlorophenol | mg/kg | 0/16 | 5/21 | 2.1 | N/A | 1.9 - 2.5 | 0.76 - 0.99 | 2.1 | 0.83 | 7/16 | 0/16 |
| Phenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 12/16 | 0/16 | N/A | 0.0009 - 0.65 | 0.013 - 0.25 | 0.0026 - 0.049 | 0.014 | 0.0027 | N/A | N/A |
| 2-Methylnaphthalene | mg/kg | 14/16 | 0/16 | N/A | 0.0011 - 1 | 0.013 - 0.25 | 0.0026 - 0.049 | 0.13 | 0.026 | N/A | N/A |
| Acenaphthene | mg/kg | 7/16 | 0/16 | N/A | 0.0012 - 4.3 | 0.012 - 0.25 | 0.0012 - 0.026 | 0.014 | 0.0016 | N/A | N/A |
| Acenaphthylene | mg/kg | 13/16 | 0/16 | N/A | 0.0055 - 1.6 | 0.013 - 0.015 | 0.0014 - 0.0016 | 0.014 | 0.0015 | N/A | N/A |
| Anthracene | mg/kg | 15/16 | 0/16 | N/A | 0.0042 - 8.2 | 0.013 - 0.013 | 0.0055 - 0.0055 | 0.013 | 0.0055 | N/A | N/A |
| Benzo(a)anthracene | mg/kg | 16/16 | 0/16 | 0.73 | 0.0032 - 5.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(a)pyrene | mg/kg | 16/16 | 0/16 | N/A | 0.0047 - 4.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(b)fluoranthene | mg/kg | 16/16 | 0/16 | N/A | 0.0062 - 4.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(g,h,i)perylene | mg/kg | 16/16 | 0/16 | N/A | 0.003 - 2.1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 15/16 | 0/16 | N/A | 0.01 - 1.9 | 0.013 - 0.013 | 0.0055 - 0.0055 | 0.013 | 0.0055 | N/A | N/A |
| Chrysene | mg/kg | 16/16 | 0/16 | N/A | 0.0044 - 4.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dibenz(a,h)anthracene | mg/kg | 10/16 | 0/16 | N/A | 0.0093 - 0.69 | 0.012 - 0.015 | 0.0077 - 0.0098 | 0.013 | 0.0085 | N/A | N/A |
| Fluoranthene | mg/kg | 16/16 | 0/16 | N/A | 0.007 - 20 | N/A | N/A | N/A | N/A | N/A | N/A |
| Fluorene | mg/kg | 13/16 | 0/16 | N/A | 0.0022 - 4.3 | 0.012 - 0.014 | 0.0031 - 0.0036 | 0.013 | 0.0034 | N/A | N/A |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 15/16 | 0/16 | N/A | 0.016 - 3.1 | 0.013 - 0.013 | 0.0085 - 0.0085 | 0.013 | 0.0085 | N/A | N/A |
| Naphthalene | mg/kg | 13/16 | 0/16 | 3.4 | 0.0016 - 0.78 | 0.013 - 0.25 | 0.0026 - 0.049 | 0.014 | 0.0027 | 0/3 | 0/3 |
| Phenanthrene | mg/kg | 16/16 | 0/16 | N/A | 0.0036 - 27 | N/A | N/A | N/A | N/A | N/A | N/A |
| Pyrene | mg/kg | 16/16 | 0/16 | 33 | 0.006 - 16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/16 | 0/16 | N/A | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | N/A | N/A |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/12 | 0/12 | 0.041 | N/A | 0.069 - 0.1 | 0.032 - 0.048 | 0.078 | 0.036 | 12/12 | 1/12 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/12 | 0/12 | 0.041 | N/A | 0.098 - 0.15 | 0.084 - 0.12 | 0.11 | 0.095 | 12/12 | 12/12 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/12 | 0/12 | 0.041 | N/A | 0.069 - 0.1 | 0.032 - 0.048 | 0.078 | 0.036 | 12/12 | 1/12 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/12 | 0/12 | 0.041 | N/A | 0.069 - 0.1 | 0.05 - 0.075 | 0.078 | 0.057 | 12/12 | 12/12 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/12 | 0/12 | 0.041 | N/A | 0.069 - 0.1 | 0.016 - 0.023 | 0.078 | 0.018 | 12/12 | 0/12 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/12 | 0/12 | 0.041 | N/A | 0.069 - 0.1 | 0.035 - 0.052 | 0.078 | 0.04 | 12/12 | 3/12 |
| PCB-1260 (Aroclor 1260) | mg/kg | 4/12 | 0/12 | 0.041 | 0.0048 - 0.0076 | 0.07 - 0.088 | 0.007 - 0.0089 | 0.078 | 0.0078 | 8/8 | 0/8 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/12 | 0/12 | 0.041 | N/A | 0.069 - 0.1 | 0.017 - 0.025 | 0.078 | 0.019 | 12/12 | 0/12 |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/12 | 0/12 | 0.041 | N/A | 0.069 - 0.1 | 0.007 - 0.01 | 0.078 | 0.0079 | 12/12 | 0/12 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 16/16 | 0/16 | N/A | 3200 - 11000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 15/16 | 0/16 | N/A | 0.095 - 0.36 | 0.22 - 0.22 | 0.11 - 0.11 | 0.22 | 0.11 | N/A | N/A |
| Arsenic | mg/kg | 16/16 | 0/16 | 43 | 2 - 4.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 16/16 | 0/16 | 820 | 10 - 56 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 16/16 | 0/16 | N/A | 0.076 - 0.44 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 16/16 | 0/16 | 0.77 | 0.053 - 0.55 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 16/16 | 0/16 | N/A | 500 - 110000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 16/16 | 0/16 | 26 | 2.5 - 11 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 16/16 | 0/16 | 120 | 0.54 - 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 16/16 | 0/16 | 28 | 3.8 - 28 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 16/16 | 0/16 | N/A | 4400 - 21000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 16/16 | 0/16 | 11 | 3.4 - 54 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 16/16 | 0/16 | N/A | 310 - 9800 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 16/16 | 0/16 | 4300 | 48 - 650 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 16/16 | 0/16 | 0.013 | 0.016 - 0.16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Nickel | mg/kg | 16/16 | 0/16 | 210 | 1.4 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 14
Summary Statistics and Ecological Project Action Limits (AOC 3 - Bird)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Potassium | mg/kg | 16/16 | 0/16 | N/A | 170 - 1300 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 16/16 | 0/16 | 1.2 | 0.15 - 0.61 | N/A | N/A | N/A | N/A | N/A | N/A |
| Silver | mg/kg | 2/16 | 0/16 | 4.2 | 0.15 - 0.15 | 1.3 - 2.2 | 0.51 - 0.88 | 1.6 | 0.65 | 0/14 | 0/14 |
| Sodium | mg/kg | 12/16 | 0/16 | N/A | 47 - 98 | 490 - 640 | 98 - 130 | 600 | 120 | N/A | N/A |
| Thallium | mg/kg | 10/16 | 0/16 | 4.5 | 0.054 - 0.17 | 0.094 - 0.12 | 0.094 - 0.12 | 0.1 | 0.1 | 0/6 | 0/6 |
| Vanadium | mg/kg | 16/16 | 0/16 | 7.8 | 5.9 - 17 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 16/16 | 0/16 | 46 | 12 - 85 | N/A | N/A | N/A | N/A | N/A | N/A |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | |
| 1,1,1-Trichloroethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| 1,1,2,2-Tetrachloroethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | N/A | N/A |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.018 - 0.023 | 0.0057 - 0.0074 | 0.02 | 0.0064 | N/A | N/A |
| 1,1,2-Trichloroethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | N/A | N/A |
| 1,1-Dichloroethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | N/A | N/A |
| 1,1-Dichloroethene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | N/A | N/A |
| 1,2,3-Trichlorobenzene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | N/A | N/A |
| 1,2,4-Trichlorobenzene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | N/A | N/A |
| 1,2-Dibromo-3-chloropropane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.0089 - 0.012 | 0.01 | 0.01 | N/A | N/A |
| 1,2-Dibromoethane (EDB) | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | N/A | N/A |
| 1,2-Dichlorobenzene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| 1,2-Dichloroethane | mg/kg | 0/18 | 0/18 | 0.85 | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | 0/18 | 0/18 |
| 1,2-Dichloropropane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | N/A | N/A |
| 1,3-Dichlorobenzene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | N/A | N/A |
| 1,3-Dichloropropane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00036 - 0.00046 | 0.005 | 0.0004 | N/A | N/A |
| 1,4-Dichlorobenzene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | N/A | N/A |
| 2-Butanone (MEK) | mg/kg | 5/18 | 0/18 | N/A | 0.0049 - 0.03 | 0.018 - 0.023 | 0.011 - 0.015 | 0.02 | 0.013 | N/A | N/A |
| 2-Hexanone | mg/kg | 0/18 | 0/18 | 0.36 | N/A | 0.018 - 0.023 | 0.011 - 0.015 | 0.02 | 0.013 | 0/18 | 0/18 |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.018 - 0.023 | 0.011 - 0.015 | 0.02 | 0.013 | N/A | N/A |
| Acetone | mg/kg | 6/18 | 0/18 | 7.5 | 0.036 - 0.32 | 0.064 - 0.083 | 0.064 - 0.083 | 0.073 | 0.073 | 0/12 | 0/12 |
| Benzene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00036 - 0.00046 | 0.005 | 0.0004 | N/A | N/A |
| Bromochloromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Bromodichloromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Bromoform | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0046 - 0.0059 | 0.0046 - 0.0059 | 0.0051 | 0.0051 | N/A | N/A |
| Bromomethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.0029 - 0.0037 | 0.01 | 0.0032 | N/A | N/A |
| Carbon disulfide | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Carbon tetrachloride | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Chlorobenzene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Chloroethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.0057 - 0.0074 | 0.01 | 0.0064 | N/A | N/A |
| Chloroform | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.00072 - 0.00093 | 0.01 | 0.0008 | N/A | N/A |
| Chloromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.0014 - 0.0019 | 0.01 | 0.0016 | N/A | N/A |
| cis-1,2-Dichloroethene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | N/A | N/A |
| cis-1,3-Dichloropropene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00036 - 0.00046 | 0.005 | 0.0004 | N/A | N/A |
| Cumene | mg/kg | 1/18 | 0/18 | N/A | 0.0059 - 0.0059 | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Cyclohexane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Dibromochloromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Dichlorodifluoromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.0057 - 0.0074 | 0.01 | 0.0064 | N/A | N/A |
| Ethylbenzene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | N/A | N/A |
| m,p-Xylene | mg/kg | 0/18 | 0/18 | 41 | N/A | 0.0029 - 0.0037 | 0.0029 - 0.0037 | 0.0032 | 0.0032 | 0/18 | 0/18 |
| Methyl acetate | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0076 - 0.0098 | 0.0072 - 0.0093 | 0.0085 | 0.008 | N/A | N/A |
| Methyl tert-butyl ether (MTBE) | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.018 - 0.023 | 0.0057 - 0.0074 | 0.02 | 0.0064 | N/A | N/A |
| Methylcyclohexane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | N/A | N/A |

Table 14
Summary Statistics and Ecological Project Action Limits (AOC 3 - Bird)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Methylene chloride | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | N/A | N/A |
| o-Xylene | mg/kg | 0/18 | 0/18 | 41 | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| Styrene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | N/A | N/A |
| Tetrachloroethene (PCE) | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| N/A | mg/kg | 4/18 | 0/18 | N/A | 0.00024 - 0.00046 | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.0051 | 0.00081 | N/A | N/A |
| trans-1,2-Dichloroethene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | N/A | N/A |
| trans-1,3-Dichloropropene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00018 - 0.00023 | 0.005 | 0.0002 | N/A | N/A |
| Trichlorofluoromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.0089 - 0.012 | 0.01 | 0.01 | N/A | N/A |
| Vinyl chloride | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | N/A | N/A |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 1,4-Dioxane | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.35 - 0.42 | 0.4 | 0.4 | N/A | N/A |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.088 - 0.11 | 0.4 | 0.1 | N/A | N/A |
| 2,4,5-Trichlorophenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 2,4,6-Trichlorophenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 2,4-Dichlorophenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 2,4-Dimethylphenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.7 - 0.85 | 0.35 - 0.42 | 0.8 | 0.4 | N/A | N/A |
| 2,4-Dinitrophenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 1.8 - 2.2 | 1.4 - 1.7 | 2.1 | 1.6 | N/A | N/A |
| 2,4-Dinitrotoluene | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.088 - 0.11 | 0.4 | 0.1 | N/A | N/A |
| 2,6-Dinitrotoluene | mg/kg | 0/20 | 5/25 | 52 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2-Chloronaphthalene | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 2-Chlorophenol | mg/kg | 0/20 | 5/25 | 0.39 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 10/20 | 0/20 |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 2-Nitroaniline | mg/kg | 0/20 | 5/25 | N/A | N/A | 1.8 - 2.2 | 0.18 - 0.22 | 2.1 | 0.21 | N/A | N/A |
| 2-Nitrophenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 3,3'-Dichlorobenzidine | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.7 - 0.85 | 0.071 - 0.086 | 0.8 | 0.081 | N/A | N/A |
| 3-Nitroaniline | mg/kg | 0/20 | 5/25 | N/A | N/A | 1.8 - 2.2 | 0.088 - 0.11 | 2.1 | 0.1 | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 1.8 - 2.2 | 0.35 - 0.42 | 2.1 | 0.4 | N/A | N/A |
| 4-Bromophenyl phenyl ether | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 4-Chloroaniline | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.7 - 0.85 | 0.088 - 0.11 | 0.8 | 0.1 | N/A | N/A |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/20 | 5/25 | N/A | N/A | 1.8 - 2.2 | 0.088 - 0.11 | 2.1 | 0.1 | N/A | N/A |
| 4-Nitrophenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 1.8 - 2.2 | 0.71 - 0.86 | 2.1 | 0.81 | N/A | N/A |
| Acetophenone | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Atrazine | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Benzaldehyde | mg/kg | 1/20 | 5/25 | N/A | 0.19 - 0.19 | 0.35 - 0.42 | 0.18 - 0.22 | 0.39 | 0.2 | N/A | N/A |
| Benzyl butyl phthalate | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Biphenyl (Diphenyl) | mg/kg | 0/20 | 5/25 | N/A | N/A | 1.8 - 2.2 | 0.35 - 0.42 | 2.1 | 0.4 | N/A | N/A |
| Bis(2-chloroethoxy)methane | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.088 - 0.11 | 0.4 | 0.1 | N/A | N/A |
| Bis(2-ethylhexyl)phthalate | mg/kg | 0/20 | 5/25 | 0.02 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 20/20 |
| Caprolactam | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.18 - 0.22 | 0.4 | 0.21 | N/A | N/A |
| Carbazole | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Cresols, m- & p- | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Dibenzofuran | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Diethyl phthalate | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Dimethyl phthalate | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Di-n-butyl phthalate | mg/kg | 0/20 | 5/25 | 0.011 | N/A | 0.35 - 0.42 | 0.078 - 0.42 | 0.4 | 0.085 | 20/20 | 20/20 |

Table 14
Summary Statistics and Ecological Project Action Limits (AOC 3 - Bird)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| di-n-Octyl phthalate | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Hexachlorobenzene | mg/kg | 0/20 | 5/25 | 0.079 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 14/20 |
| Hexachlorobutadiene | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Hexachlorocyclopentadiene | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Hexachloroethane | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Isophorone | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Nitrobenzene | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| N-Nitrosodi-n-propylamine | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| N-Nitrosodiphenylamine | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Pentachlorophenol | mg/kg | 0/20 | 5/25 | 2.1 | N/A | 1.8 - 2.2 | 0.71 - 0.86 | 2.1 | 0.81 | 3/20 | 0/20 |
| Phenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 5/16 | 0/16 | N/A | 0.00065 - 0.018 | 0.011 - 0.23 | 0.0022 - 0.046 | 0.012 | 0.0024 | N/A | N/A |
| 2-Methylnaphthalene | mg/kg | 4/16 | 0/16 | N/A | 0.00074 - 0.016 | 0.011 - 0.23 | 0.0022 - 0.046 | 0.012 | 0.0024 | N/A | N/A |
| Acenaphthene | mg/kg | 3/16 | 0/16 | N/A | 0.00058 - 0.0029 | 0.011 - 0.23 | 0.0012 - 0.024 | 0.012 | 0.0013 | N/A | N/A |
| Acenaphthylene | mg/kg | 5/16 | 0/16 | N/A | 0.0029 - 0.04 | 0.011 - 0.23 | 0.0012 - 0.024 | 0.012 | 0.0014 | N/A | N/A |
| Anthracene | mg/kg | 7/16 | 0/16 | N/A | 0.0021 - 0.065 | 0.011 - 0.23 | 0.0048 - 0.099 | 0.012 | 0.0053 | N/A | N/A |
| Benzo(a)anthracene | mg/kg | 8/16 | 0/16 | 0.73 | 0.0025 - 0.43 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | 0/8 | 0/8 |
| Benzo(a)pyrene | mg/kg | 8/16 | 0/16 | N/A | 0.0027 - 1.3 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | N/A | N/A |
| Benzo(b)fluoranthene | mg/kg | 8/16 | 0/16 | N/A | 0.004 - 1.9 | 0.012 - 0.23 | 0.0078 - 0.15 | 0.012 | 0.0082 | N/A | N/A |
| Benzo(g,h,i)perylene | mg/kg | 6/16 | 0/16 | N/A | 0.0094 - 0.82 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 7/16 | 0/16 | N/A | 0.0027 - 0.84 | 0.011 - 0.23 | 0.0048 - 0.099 | 0.012 | 0.0053 | N/A | N/A |
| Chrysene | mg/kg | 8/16 | 0/16 | N/A | 0.0028 - 1.2 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | N/A | N/A |
| Dibenz(a,h)anthracene | mg/kg | 4/16 | 0/16 | N/A | 0.0056 - 0.29 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | N/A | N/A |
| Fluoranthene | mg/kg | 8/16 | 0/16 | N/A | 0.0047 - 0.19 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | N/A | N/A |
| Fluorene | mg/kg | 7/16 | 0/16 | N/A | 0.0013 - 0.016 | 0.011 - 0.23 | 0.003 - 0.061 | 0.012 | 0.0033 | N/A | N/A |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 7/16 | 0/16 | N/A | 0.0028 - 1 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | N/A | N/A |
| Naphthalene | mg/kg | 6/16 | 0/16 | 3.4 | 0.00079 - 0.0073 | 0.011 - 0.23 | 0.0022 - 0.046 | 0.012 | 0.0024 | 0/10 | 0/10 |
| Phenanthrene | mg/kg | 7/16 | 0/16 | N/A | 0.0052 - 0.11 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | N/A | N/A |
| Pyrene | mg/kg | 8/16 | 0/16 | 33 | 0.0039 - 0.26 | 0.012 - 0.23 | 0.0078 - 0.15 | 0.012 | 0.0082 | 0/8 | 0/8 |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/16 | 0/16 | N/A | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | N/A | N/A |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/12 | 0/12 | 0.041 | N/A | 0.071 - 0.085 | 0.033 - 0.04 | 0.078 | 0.036 | 12/12 | 0/12 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/12 | 0/12 | 0.041 | N/A | 0.1 - 0.12 | 0.086 - 0.1 | 0.11 | 0.094 | 12/12 | 12/12 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/12 | 0/12 | 0.041 | N/A | 0.071 - 0.085 | 0.033 - 0.04 | 0.078 | 0.036 | 12/12 | 0/12 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/12 | 0/12 | 0.041 | N/A | 0.071 - 0.085 | 0.052 - 0.062 | 0.078 | 0.057 | 12/12 | 12/12 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/12 | 0/12 | 0.041 | N/A | 0.071 - 0.085 | 0.016 - 0.019 | 0.078 | 0.018 | 12/12 | 0/12 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/12 | 0/12 | 0.041 | N/A | 0.071 - 0.085 | 0.036 - 0.043 | 0.078 | 0.039 | 12/12 | 1/12 |
| PCB-1260 (Aroclor 1260) | mg/kg | 2/12 | 0/12 | 0.041 | 0.0064 - 0.011 | 0.071 - 0.085 | 0.0072 - 0.0086 | 0.078 | 0.0079 | 10/10 | 0/10 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/12 | 0/12 | 0.041 | N/A | 0.071 - 0.085 | 0.017 - 0.021 | 0.078 | 0.019 | 12/12 | 0/12 |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/12 | 0/12 | 0.041 | N/A | 0.071 - 0.085 | 0.0072 - 0.0086 | 0.078 | 0.0079 | 12/12 | 0/12 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 16/16 | 0/16 | N/A | 4500 - 11000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 14/16 | 0/16 | N/A | 0.072 - 0.17 | 0.18 - 0.19 | 0.09 - 0.097 | 0.19 | 0.094 | N/A | N/A |
| Arsenic | mg/kg | 16/16 | 0/16 | 43 | 1.5 - 5.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 16/16 | 0/16 | 820 | 14 - 52 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 16/16 | 0/16 | N/A | 0.12 - 0.48 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 16/16 | 0/16 | 0.77 | 0.035 - 0.13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 16/16 | 0/16 | N/A | 700 - 66000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 16/16 | 0/16 | 26 | 5.5 - 11 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 14
Summary Statistics and Ecological Project Action Limits (AOC 3 - Bird)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Cobalt | mg/kg | 16/16 | 0/16 | 120 | 2.8 - 10 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 16/16 | 0/16 | 28 | 5.8 - 29 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 16/16 | 0/16 | N/A | 8000 - 23000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 16/16 | 0/16 | 11 | 2.7 - 56 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 16/16 | 0/16 | N/A | 1100 - 18000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 16/16 | 0/16 | 4300 | 69 - 560 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 15/16 | 0/16 | 0.013 | 0.009 - 0.047 | 0.023 - 0.023 | 0.018 - 0.018 | 0.023 | 0.018 | 1/1 | 1/1 |
| Nickel | mg/kg | 16/16 | 0/16 | 210 | 6.4 - 24 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 16/16 | 0/16 | N/A | 290 - 1600 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 14/16 | 0/16 | 1.2 | 0.14 - 0.31 | 0.53 - 0.55 | 0.43 - 0.44 | 0.54 | 0.44 | 0/2 | 0/2 |
| Silver | mg/kg | 2/16 | 0/16 | 4.2 | 0.16 - 0.19 | 1.3 - 1.6 | 0.5 - 0.63 | 1.4 | 0.57 | 0/14 | 0/14 |
| Sodium | mg/kg | 16/16 | 0/16 | N/A | 31 - 120 | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | mg/kg | 11/16 | 0/16 | 4.5 | 0.042 - 0.49 | 0.087 - 0.11 | 0.087 - 0.11 | 0.1 | 0.1 | 0/5 | 0/5 |
| Vanadium | mg/kg | 16/16 | 0/16 | 7.8 | 7.4 - 16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 16/16 | 0/16 | 46 | 17 - 41 | N/A | N/A | N/A | N/A | N/A | N/A |

Notes
FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 15
Summary Statistics and Ecological Project Action Limits (AOC 3 - Mammal)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/16 | 5/21 | 2.02 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 1,4-Dioxane | mg/kg | 0/16 | 5/21 | 2.05 | N/A | 0.37 - 0.49 | 0.37 - 0.49 | 0.41 | 0.41 | 0/16 | 0/16 |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/16 | 5/21 | 19.9 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/16 | 5/21 | 0.2 | N/A | 0.37 - 0.49 | 0.094 - 0.12 | 0.41 | 0.1 | 16/16 | 0/16 |
| 2,4,5-Trichlorophenol | mg/kg | 0/16 | 5/21 | 14.1 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2,4,6-Trichlorophenol | mg/kg | 0/16 | 5/21 | 9.94 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2,4-Dichlorophenol | mg/kg | 0/16 | 5/21 | 87.5 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2,4-Dimethylphenol | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/16 | 5/21 | 1.4 | N/A | 0.75 - 0.98 | 0.37 - 0.49 | 0.82 | 0.41 | 0/16 | 0/16 |
| 2,4-Dinitrophenol | mg/kg | 0/16 | 5/21 | 0.061 | N/A | 1.9 - 2.5 | 1.5 - 1.9 | 2.1 | 1.6 | 16/16 | 16/16 |
| 2,4-Dinitrotoluene | mg/kg | 0/16 | 5/21 | 14 | N/A | 0.37 - 0.49 | 0.094 - 0.12 | 0.41 | 0.1 | 0/16 | 0/16 |
| 2,6-Dinitrotoluene | mg/kg | 0/16 | 5/21 | 4 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2-Chloronaphthalene | mg/kg | 0/16 | 5/21 | 0.0122 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 16/16 |
| 2-Chlorophenol | mg/kg | 0/16 | 5/21 | 0.54 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/16 | 5/21 | 580 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 2-Nitroaniline | mg/kg | 0/16 | 5/21 | 5.3 | N/A | 1.9 - 2.5 | 0.19 - 0.25 | 2.1 | 0.21 | 0/16 | 0/16 |
| 2-Nitrophenol | mg/kg | 0/16 | 5/21 | 1.6 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 3,3'-Dichlorobenzidine | mg/kg | 0/15 | 6/21 | 0.646 | N/A | 0.75 - 0.94 | 0.076 - 0.096 | 0.81 | 0.083 | 15/15 | 0/15 |
| 3-Nitroaniline | mg/kg | 0/16 | 5/21 | 3.16 | N/A | 1.9 - 2.5 | 0.094 - 0.12 | 2.1 | 0.1 | 0/16 | 0/16 |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/16 | 5/21 | 0.144 | N/A | 1.9 - 2.5 | 0.37 - 0.49 | 2.1 | 0.41 | 16/16 | 16/16 |
| 4-Bromophenyl phenyl ether | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/16 | 5/21 | 7.95 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| 4-Chloroaniline | mg/kg | 0/16 | 5/21 | 1.1 | N/A | 0.75 - 0.98 | 0.094 - 0.12 | 0.82 | 0.1 | 0/16 | 0/16 |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/16 | 5/21 | 21.9 | N/A | 1.9 - 2.5 | 0.094 - 0.12 | 2.1 | 0.1 | 0/16 | 0/16 |
| 4-Nitrophenol | mg/kg | 0/16 | 5/21 | 5.12 | N/A | 1.9 - 2.5 | 0.76 - 0.99 | 2.1 | 0.83 | 0/16 | 0/16 |
| Acetophenone | mg/kg | 0/16 | 5/21 | 300 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Atrazine | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Benzaldehyde | mg/kg | 5/16 | 5/21 | N/A | 0.12 - 0.23 | 0.37 - 0.46 | 0.19 - 0.24 | 0.41 | 0.21 | N/A | N/A |
| Benzyl butyl phthalate | mg/kg | 0/16 | 5/21 | 90 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Biphenyl (Diphenyl) | mg/kg | 0/16 | 5/21 | N/A | N/A | 1.9 - 2.5 | 0.37 - 0.49 | 2.1 | 0.41 | N/A | N/A |
| Bis(2-chloroethoxy)methane | mg/kg | 0/16 | 5/21 | 0.302 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 0/16 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/16 | 5/21 | 23.7 | N/A | 0.37 - 0.49 | 0.094 - 0.12 | 0.41 | 0.1 | 0/16 | 0/16 |
| Bis(2-ethylhexyl)phthalate | mg/kg | 2/16 | 5/21 | 0.6 | 0.14 - 3.4 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/14 | 0/14 |
| Caprolactam | mg/kg | 0/16 | 5/21 | N/A | N/A | 0.37 - 0.49 | 0.19 - 0.25 | 0.41 | 0.21 | N/A | N/A |
| Carbazole | mg/kg | 3/16 | 5/21 | 79 | 0.045 - 0.55 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/13 | 0/13 |
| Cresols, m- & p- | mg/kg | 1/16 | 5/21 | 3.49 | 0.13 - 0.13 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/15 | 0/15 |
| Dibenzofuran | mg/kg | 2/16 | 5/21 | N/A | 0.12 - 0.12 | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | N/A | N/A |
| Diethyl phthalate | mg/kg | 0/16 | 5/21 | 3600 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Dimethyl phthalate | mg/kg | 0/16 | 5/21 | 38 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Di-n-butyl phthalate | mg/kg | 0/16 | 5/21 | 180 | N/A | 0.37 - 0.49 | 0.076 - 0.49 | 0.41 | 0.098 | 0/16 | 0/16 |
| di-n-Octyl phthalate | mg/kg | 0/16 | 5/21 | 0.91 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Hexachlorobenzene | mg/kg | 0/16 | 5/21 | 0.2 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 0/16 |
| Hexachlorobutadiene | mg/kg | 0/16 | 5/21 | 0.04 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 16/16 | 16/16 |
| Hexachlorocyclopentadiene | mg/kg | 0/16 | 5/21 | 0.755 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Hexachloroethane | mg/kg | 0/16 | 5/21 | 0.6 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Isophorone | mg/kg | 0/16 | 5/21 | 139 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Nitrobenzene | mg/kg | 0/16 | 5/21 | 4.8 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| N-Nitrosodi-n-propylamine | mg/kg | 0/16 | 5/21 | 0.544 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |

Table 15
Summary Statistics and Ecological Project Action Limits (AOC 3 - Mammal)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| N-Nitrosodiphenylamine | mg/kg | 0/16 | 5/21 | 0.545 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Pentachlorophenol | mg/kg | 0/16 | 5/21 | 2.8 | N/A | 1.9 - 2.5 | 0.76 - 0.99 | 2.1 | 0.83 | 0/16 | 0/16 |
| Phenol | mg/kg | 0/16 | 5/21 | 37 | N/A | 0.37 - 0.49 | 0.076 - 0.099 | 0.41 | 0.083 | 0/16 | 0/16 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 12/16 | 0/16 | 100 | 0.0009 - 0.65 | 0.013 - 0.25 | 0.0026 - 0.049 | 0.014 | 0.0027 | 0/4 | 0/4 |
| 2-Methylnaphthalene | mg/kg | 14/16 | 0/16 | 100 | 0.0011 - 1 | 0.013 - 0.25 | 0.0026 - 0.049 | 0.13 | 0.026 | 0/2 | 0/2 |
| Acenaphthene | mg/kg | 7/16 | 0/16 | 100 | 0.0012 - 4.3 | 0.012 - 0.25 | 0.0012 - 0.026 | 0.014 | 0.0016 | 0/9 | 0/9 |
| Acenaphthylene | mg/kg | 13/16 | 0/16 | 100 | 0.0055 - 1.6 | 0.013 - 0.015 | 0.0014 - 0.0016 | 0.014 | 0.0015 | 0/3 | 0/3 |
| Anthracene | mg/kg | 15/16 | 0/16 | 100 | 0.0042 - 8.2 | 0.013 - 0.013 | 0.0055 - 0.0055 | 0.013 | 0.0055 | 0/1 | 0/1 |
| Benzo(a)anthracene | mg/kg | 16/16 | 0/16 | 1.1 | 0.0032 - 5.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(a)pyrene | mg/kg | 16/16 | 0/16 | 1.1 | 0.0047 - 4.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(b)fluoranthene | mg/kg | 16/16 | 0/16 | 1.1 | 0.0062 - 4.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(g,h,i)perylene | mg/kg | 16/16 | 0/16 | 1.1 | 0.003 - 2.1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 15/16 | 0/16 | 1.1 | 0.01 - 1.9 | 0.013 - 0.013 | 0.0055 - 0.0055 | 0.013 | 0.0055 | 0/1 | 0/1 |
| Chrysene | mg/kg | 16/16 | 0/16 | 1.1 | 0.0044 - 4.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dibenz(a,h)anthracene | mg/kg | 10/16 | 0/16 | 1.1 | 0.0093 - 0.69 | 0.012 - 0.015 | 0.0077 - 0.0098 | 0.013 | 0.0085 | 0/6 | 0/6 |
| Fluoranthene | mg/kg | 16/16 | 0/16 | 100 | 0.007 - 20 | N/A | N/A | N/A | N/A | N/A | N/A |
| Fluorene | mg/kg | 13/16 | 0/16 | 100 | 0.0022 - 4.3 | 0.012 - 0.014 | 0.0031 - 0.0036 | 0.013 | 0.0034 | 0/3 | 0/3 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 15/16 | 0/16 | 1.1 | 0.016 - 3.1 | 0.013 - 0.013 | 0.0085 - 0.0085 | 0.013 | 0.0085 | 0/1 | 0/1 |
| Naphthalene | mg/kg | 13/16 | 0/16 | 100 | 0.0016 - 0.78 | 0.013 - 0.25 | 0.0026 - 0.049 | 0.014 | 0.0027 | 0/3 | 0/3 |
| Phenanthrene | mg/kg | 16/16 | 0/16 | 100 | 0.0036 - 27 | N/A | N/A | N/A | N/A | N/A | N/A |
| Pyrene | mg/kg | 16/16 | 0/16 | 1.1 | 0.006 - 16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/16 | 0/16 | 0.0061 | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | 16/16 | 16/16 |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/12 | 0/12 | 0.371 | N/A | 0.069 - 0.1 | 0.032 - 0.048 | 0.078 | 0.036 | 0/12 | 0/12 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/12 | 0/12 | 0.371 | N/A | 0.098 - 0.15 | 0.084 - 0.12 | 0.11 | 0.095 | 0/12 | 0/12 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/12 | 0/12 | 0.371 | N/A | 0.069 - 0.1 | 0.032 - 0.048 | 0.078 | 0.036 | 0/12 | 0/12 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/12 | 0/12 | 0.371 | N/A | 0.069 - 0.1 | 0.05 - 0.075 | 0.078 | 0.057 | 0/12 | 0/12 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/12 | 0/12 | 0.371 | N/A | 0.069 - 0.1 | 0.016 - 0.023 | 0.078 | 0.018 | 0/12 | 0/12 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/12 | 0/12 | 0.371 | N/A | 0.069 - 0.1 | 0.035 - 0.052 | 0.078 | 0.04 | 0/12 | 0/12 |
| PCB-1260 (Aroclor 1260) | mg/kg | 4/12 | 0/12 | 0.371 | 0.0048 - 0.0076 | 0.07 - 0.088 | 0.007 - 0.0089 | 0.078 | 0.0078 | 0/8 | 0/8 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/12 | 0/12 | 0.371 | N/A | 0.069 - 0.1 | 0.017 - 0.025 | 0.078 | 0.019 | 0/12 | 0/12 |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/12 | 0/12 | 0.371 | N/A | 0.069 - 0.1 | 0.007 - 0.01 | 0.078 | 0.0079 | 0/12 | 0/12 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 16/16 | 0/16 | N/A | 3200 - 11000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 15/16 | 0/16 | 0.27 | 0.095 - 0.36 | 0.22 - 0.22 | 0.11 - 0.11 | 0.22 | 0.11 | 0/1 | 0/1 |
| Arsenic | mg/kg | 16/16 | 0/16 | 46 | 2 - 4.4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 16/16 | 0/16 | 2000 | 10 - 56 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 16/16 | 0/16 | 21 | 0.076 - 0.44 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 16/16 | 0/16 | 0.36 | 0.053 - 0.55 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 16/16 | 0/16 | N/A | 500 - 110000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 16/16 | 0/16 | 34 | 2.5 - 11 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 16/16 | 0/16 | 230 | 0.54 - 8 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 16/16 | 0/16 | 49 | 3.8 - 28 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 16/16 | 0/16 | N/A | 4400 - 21000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 16/16 | 0/16 | 56 | 3.4 - 54 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 16/16 | 0/16 | N/A | 310 - 9800 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 16/16 | 0/16 | 4000 | 48 - 650 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 16/16 | 0/16 | 1.7 | 0.016 - 0.16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Nickel | mg/kg | 16/16 | 0/16 | 130 | 1.4 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 15
Summary Statistics and Ecological Project Action Limits (AOC 3 - Mammal)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Potassium | mg/kg | 16/16 | 0/16 | N/A | 170 - 1300 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 16/16 | 0/16 | 0.63 | 0.15 - 0.61 | N/A | N/A | N/A | N/A | N/A | N/A |
| Silver | mg/kg | 2/16 | 0/16 | 14 | 0.15 - 0.15 | 1.3 - 2.2 | 0.51 - 0.88 | 1.6 | 0.65 | 0/14 | 0/14 |
| Sodium | mg/kg | 12/16 | 0/16 | N/A | 47 - 98 | 490 - 640 | 98 - 130 | 600 | 120 | N/A | N/A |
| Thallium | mg/kg | 10/16 | 0/16 | 0.42 | 0.054 - 0.17 | 0.094 - 0.12 | 0.094 - 0.12 | 0.1 | 0.1 | 0/6 | 0/6 |
| Vanadium | mg/kg | 16/16 | 0/16 | 280 | 5.9 - 17 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 16/16 | 0/16 | 79 | 12 - 85 | N/A | N/A | N/A | N/A | N/A | N/A |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | |
| 1,1,1-Trichloroethane | mg/kg | 0/18 | 0/18 | 260 | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| 1,1,2,2-Tetrachloroethane | mg/kg | 0/18 | 0/18 | 0.127 | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.018 - 0.023 | 0.0057 - 0.0074 | 0.02 | 0.0064 | N/A | N/A |
| 1,1,2-Trichloroethane | mg/kg | 0/18 | 0/18 | 28.6 | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | 0/18 | 0/18 |
| 1,1-Dichloroethane | mg/kg | 0/18 | 0/18 | 210 | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| 1,1-Dichloroethene | mg/kg | 0/18 | 0/18 | 11 | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | 0/18 | 0/18 |
| 1,2,3-Trichlorobenzene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | N/A | N/A |
| 1,2,4-Trichlorobenzene | mg/kg | 0/18 | 0/18 | 0.27 | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | 0/18 | 0/18 |
| 1,2-Dibromo-3-chloropropane | mg/kg | 0/18 | 0/18 | 0.0352 | N/A | 0.0089 - 0.012 | 0.0089 - 0.012 | 0.01 | 0.01 | 0/18 | 0/18 |
| 1,2-Dibromoethane (EDB) | mg/kg | 0/18 | 0/18 | 1.23 | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | 0/18 | 0/18 |
| 1,2-Dichlorobenzene | mg/kg | 0/18 | 0/18 | 0.92 | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| 1,2-Dichloroethane | mg/kg | 0/18 | 0/18 | 27 | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | 0/18 | 0/18 |
| 1,2-Dichloropropane | mg/kg | 0/18 | 0/18 | 32.7 | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | 0/18 | 0/18 |
| 1,3-Dichlorobenzene | mg/kg | 0/18 | 0/18 | 0.74 | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | 0/18 | 0/18 |
| 1,3-Dichloropropane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00036 - 0.00046 | 0.005 | 0.0004 | N/A | N/A |
| 1,4-Dichlorobenzene | mg/kg | 0/18 | 0/18 | 0.89 | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| 2-Butanone (MEK) | mg/kg | 5/18 | 0/18 | 350 | 0.0049 - 0.03 | 0.018 - 0.023 | 0.011 - 0.015 | 0.02 | 0.013 | 0/13 | 0/13 |
| 2-Hexanone | mg/kg | 0/18 | 0/18 | 5.4 | N/A | 0.018 - 0.023 | 0.011 - 0.015 | 0.02 | 0.013 | 0/18 | 0/18 |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 0/18 | 0/18 | 443 | N/A | 0.018 - 0.023 | 0.011 - 0.015 | 0.02 | 0.013 | 0/18 | 0/18 |
| Acetone | mg/kg | 6/18 | 0/18 | 1.2 | 0.036 - 0.32 | 0.064 - 0.083 | 0.064 - 0.083 | 0.073 | 0.073 | 0/12 | 0/12 |
| Benzene | mg/kg | 0/18 | 0/18 | 24 | N/A | 0.0045 - 0.0058 | 0.00036 - 0.00046 | 0.005 | 0.0004 | 0/18 | 0/18 |
| Bromochloromethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Bromodichloromethane | mg/kg | 0/18 | 0/18 | 0.54 | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| Bromoform | mg/kg | 0/18 | 0/18 | 15.9 | N/A | 0.0046 - 0.0059 | 0.0046 - 0.0059 | 0.0051 | 0.0051 | 0/18 | 0/18 |
| Bromomethane | mg/kg | 0/18 | 0/18 | 0.24 | N/A | 0.0089 - 0.012 | 0.0029 - 0.0037 | 0.01 | 0.0032 | 0/18 | 0/18 |
| Carbon disulfide | mg/kg | 0/18 | 0/18 | 0.81 | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| Carbon tetrachloride | mg/kg | 0/18 | 0/18 | 2.98 | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| Chlorobenzene | mg/kg | 0/18 | 0/18 | 43 | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| Chloroethane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0089 - 0.012 | 0.0057 - 0.0074 | 0.01 | 0.0064 | N/A | N/A |
| Chloroform | mg/kg | 0/18 | 0/18 | 8 | N/A | 0.0089 - 0.012 | 0.00072 - 0.00093 | 0.01 | 0.0008 | 0/18 | 0/18 |
| Chloromethane | mg/kg | 0/18 | 0/18 | 10.4 | N/A | 0.0089 - 0.012 | 0.0014 - 0.0019 | 0.01 | 0.0016 | 0/18 | 0/18 |
| cis-1,2-Dichloroethene | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | N/A | N/A |
| cis-1,3-Dichloropropene | mg/kg | 0/18 | 0/18 | 0.398 | N/A | 0.0045 - 0.0058 | 0.00036 - 0.00046 | 0.005 | 0.0004 | 0/18 | 0/18 |
| Cumene | mg/kg | 1/18 | 0/18 | N/A | 0.0059 - 0.0059 | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Cyclohexane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | N/A | N/A |
| Dibromochloromethane | mg/kg | 0/18 | 0/18 | 2.05 | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| Dichlorodifluoromethane | mg/kg | 0/18 | 0/18 | 39.5 | N/A | 0.0089 - 0.012 | 0.0057 - 0.0074 | 0.01 | 0.0064 | 0/18 | 0/18 |
| Ethylbenzene | mg/kg | 0/18 | 0/18 | 5.16 | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| m,p-Xylene | mg/kg | 0/18 | 0/18 | 1.4 | N/A | 0.0029 - 0.0037 | 0.0029 - 0.0037 | 0.0032 | 0.0032 | 0/18 | 0/18 |
| Methyl acetate | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0076 - 0.0098 | 0.0072 - 0.0093 | 0.0085 | 0.008 | N/A | N/A |
| Methyl tert-butyl ether (MTBE) | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.018 - 0.023 | 0.0057 - 0.0074 | 0.02 | 0.0064 | N/A | N/A |
| Methylcyclohexane | mg/kg | 0/18 | 0/18 | N/A | N/A | 0.0045 - 0.0058 | 0.0014 - 0.0019 | 0.005 | 0.0016 | N/A | N/A |

Table 15
Summary Statistics and Ecological Project Action Limits (AOC 3 - Mammal)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Methylene chloride | mg/kg | 0/18 | 0/18 | 2.6 | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | 0/18 | 0/18 |
| o-Xylene | mg/kg | 0/18 | 0/18 | 1.4 | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| Styrene | mg/kg | 0/18 | 0/18 | 4.69 | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| Tetrachloroethene (PCE) | mg/kg | 0/18 | 0/18 | 0.18 | N/A | 0.0045 - 0.0058 | 0.0045 - 0.0058 | 0.005 | 0.005 | 0/18 | 0/18 |
| N/A | mg/kg | 4/18 | 0/18 | 23 | 0.00024 - 0.00046 | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.0051 | 0.00081 | 0/14 | 0/14 |
| trans-1,2-Dichloroethene | mg/kg | 0/18 | 0/18 | 0.784 | N/A | 0.0045 - 0.0058 | 0.00072 - 0.00093 | 0.005 | 0.0008 | 0/18 | 0/18 |
| trans-1,3-Dichloropropene | mg/kg | 0/18 | 0/18 | 0.398 | N/A | 0.0045 - 0.0058 | 0.00018 - 0.00023 | 0.005 | 0.0002 | 0/18 | 0/18 |
| Trichlorofluoromethane | mg/kg | 0/18 | 0/18 | 16.4 | N/A | 0.0089 - 0.012 | 0.0089 - 0.012 | 0.01 | 0.01 | 0/18 | 0/18 |
| Vinyl chloride | mg/kg | 0/18 | 0/18 | 0.12 | N/A | 0.0045 - 0.0058 | 0.0029 - 0.0037 | 0.005 | 0.0032 | 0/18 | 0/18 |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/20 | 5/25 | 2.02 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 1,4-Dioxane | mg/kg | 0/20 | 5/25 | 2.05 | N/A | 0.35 - 0.42 | 0.35 - 0.42 | 0.4 | 0.4 | 0/20 | 0/20 |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/20 | 5/25 | 19.9 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/20 | 5/25 | 0.2 | N/A | 0.35 - 0.42 | 0.088 - 0.11 | 0.4 | 0.1 | 20/20 | 0/20 |
| 2,4,5-Trichlorophenol | mg/kg | 0/20 | 5/25 | 14.1 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2,4,6-Trichlorophenol | mg/kg | 0/20 | 5/25 | 9.94 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2,4-Dichlorophenol | mg/kg | 0/20 | 5/25 | 87.5 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2,4-Dimethylphenol | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/20 | 5/25 | 1.4 | N/A | 0.7 - 0.85 | 0.35 - 0.42 | 0.8 | 0.4 | 0/20 | 0/20 |
| 2,4-Dinitrophenol | mg/kg | 0/20 | 5/25 | 0.061 | N/A | 1.8 - 2.2 | 1.4 - 1.7 | 2.1 | 1.6 | 20/20 | 20/20 |
| 2,4-Dinitrotoluene | mg/kg | 0/20 | 5/25 | 14 | N/A | 0.35 - 0.42 | 0.088 - 0.11 | 0.4 | 0.1 | 0/20 | 0/20 |
| 2,6-Dinitrotoluene | mg/kg | 0/20 | 5/25 | 4 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2-Chloronaphthalene | mg/kg | 0/20 | 5/25 | 0.0122 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 20/20 |
| 2-Chlorophenol | mg/kg | 0/20 | 5/25 | 0.54 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/20 | 5/25 | 580 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 2-Nitroaniline | mg/kg | 0/20 | 5/25 | 5.3 | N/A | 1.8 - 2.2 | 0.18 - 0.22 | 2.1 | 0.21 | 0/20 | 0/20 |
| 2-Nitrophenol | mg/kg | 0/20 | 5/25 | 1.6 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 3,3'-Dichlorobenzidine | mg/kg | 0/20 | 5/25 | 0.646 | N/A | 0.7 - 0.85 | 0.071 - 0.086 | 0.8 | 0.081 | 20/20 | 0/20 |
| 3-Nitroaniline | mg/kg | 0/20 | 5/25 | 3.16 | N/A | 1.8 - 2.2 | 0.088 - 0.11 | 2.1 | 0.1 | 0/20 | 0/20 |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/20 | 5/25 | 0.144 | N/A | 1.8 - 2.2 | 0.35 - 0.42 | 2.1 | 0.4 | 20/20 | 20/20 |
| 4-Bromophenyl phenyl ether | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/20 | 5/25 | 7.95 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| 4-Chloroaniline | mg/kg | 0/20 | 5/25 | 1.1 | N/A | 0.7 - 0.85 | 0.088 - 0.11 | 0.8 | 0.1 | 0/20 | 0/20 |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/20 | 5/25 | 21.9 | N/A | 1.8 - 2.2 | 0.088 - 0.11 | 2.1 | 0.1 | 0/20 | 0/20 |
| 4-Nitrophenol | mg/kg | 0/20 | 5/25 | 5.12 | N/A | 1.8 - 2.2 | 0.71 - 0.86 | 2.1 | 0.81 | 0/20 | 0/20 |
| Acetophenone | mg/kg | 0/20 | 5/25 | 300 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Atrazine | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Benzaldehyde | mg/kg | 1/20 | 5/25 | N/A | 0.19 - 0.19 | 0.35 - 0.42 | 0.18 - 0.22 | 0.39 | 0.2 | N/A | N/A |
| Benzyl butyl phthalate | mg/kg | 0/20 | 5/25 | 90 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Biphenyl (Diphenyl) | mg/kg | 0/20 | 5/25 | N/A | N/A | 1.8 - 2.2 | 0.35 - 0.42 | 2.1 | 0.4 | N/A | N/A |
| Bis(2-chloroethoxy)methane | mg/kg | 0/20 | 5/25 | 0.302 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 0/20 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/20 | 5/25 | 23.7 | N/A | 0.35 - 0.42 | 0.088 - 0.11 | 0.4 | 0.1 | 0/20 | 0/20 |
| Bis(2-ethylhexyl)phthalate | mg/kg | 0/20 | 5/25 | 0.6 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Caprolactam | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.18 - 0.22 | 0.4 | 0.21 | N/A | N/A |
| Carbazole | mg/kg | 0/20 | 5/25 | 79 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Cresols, m- & p- | mg/kg | 0/20 | 5/25 | 3.49 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Dibenzofuran | mg/kg | 0/20 | 5/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | N/A | N/A |
| Diethyl phthalate | mg/kg | 0/20 | 5/25 | 3600 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Dimethyl phthalate | mg/kg | 0/20 | 5/25 | 38 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Di-n-butyl phthalate | mg/kg | 0/20 | 5/25 | 180 | N/A | 0.35 - 0.42 | 0.078 - 0.42 | 0.4 | 0.085 | 0/20 | 0/20 |

Table 15
Summary Statistics and Ecological Project Action Limits (AOC 3 - Mammal)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| di-n-Octyl phthalate | mg/kg | 0/20 | 5/25 | 0.91 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Hexachlorobenzene | mg/kg | 0/20 | 5/25 | 0.2 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 0/20 |
| Hexachlorobutadiene | mg/kg | 0/20 | 5/25 | 0.04 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 20/20 | 20/20 |
| Hexachlorocyclopentadiene | mg/kg | 0/20 | 5/25 | 0.755 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Hexachloroethane | mg/kg | 0/20 | 5/25 | 0.6 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Isophorone | mg/kg | 0/20 | 5/25 | 139 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Nitrobenzene | mg/kg | 0/20 | 5/25 | 4.8 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| N-Nitrosodi-n-propylamine | mg/kg | 0/20 | 5/25 | 0.544 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| N-Nitrosodiphenylamine | mg/kg | 0/20 | 5/25 | 0.545 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Pentachlorophenol | mg/kg | 0/20 | 5/25 | 2.8 | N/A | 1.8 - 2.2 | 0.71 - 0.86 | 2.1 | 0.81 | 0/20 | 0/20 |
| Phenol | mg/kg | 0/20 | 5/25 | 37 | N/A | 0.35 - 0.42 | 0.071 - 0.086 | 0.4 | 0.081 | 0/20 | 0/20 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 5/16 | 0/16 | 100 | 0.00065 - 0.018 | 0.011 - 0.23 | 0.0022 - 0.046 | 0.012 | 0.0024 | 0/11 | 0/11 |
| 2-Methylnaphthalene | mg/kg | 4/16 | 0/16 | 100 | 0.00074 - 0.016 | 0.011 - 0.23 | 0.0022 - 0.046 | 0.012 | 0.0024 | 0/12 | 0/12 |
| Acenaphthene | mg/kg | 3/16 | 0/16 | 100 | 0.00058 - 0.0029 | 0.011 - 0.23 | 0.0012 - 0.024 | 0.012 | 0.0013 | 0/13 | 0/13 |
| Acenaphthylene | mg/kg | 5/16 | 0/16 | 100 | 0.0029 - 0.04 | 0.011 - 0.23 | 0.0012 - 0.024 | 0.012 | 0.0014 | 0/11 | 0/11 |
| Anthracene | mg/kg | 7/16 | 0/16 | 100 | 0.0021 - 0.065 | 0.011 - 0.23 | 0.0048 - 0.099 | 0.012 | 0.0053 | 0/9 | 0/9 |
| Benzo(a)anthracene | mg/kg | 8/16 | 0/16 | 1.1 | 0.0025 - 0.43 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | 0/8 | 0/8 |
| Benzo(a)pyrene | mg/kg | 8/16 | 0/16 | 1.1 | 0.0027 - 1.3 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | 0/8 | 0/8 |
| Benzo(b)fluoranthene | mg/kg | 8/16 | 0/16 | 1.1 | 0.004 - 1.9 | 0.012 - 0.23 | 0.0078 - 0.15 | 0.012 | 0.0082 | 0/8 | 0/8 |
| Benzo(g,h,i)perylene | mg/kg | 6/16 | 0/16 | 1.1 | 0.0094 - 0.82 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | 0/10 | 0/10 |
| Benzo(k)fluoranthene | mg/kg | 7/16 | 0/16 | 1.1 | 0.0027 - 0.84 | 0.011 - 0.23 | 0.0048 - 0.099 | 0.012 | 0.0053 | 0/9 | 0/9 |
| Chrysene | mg/kg | 8/16 | 0/16 | 1.1 | 0.0028 - 1.2 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | 0/8 | 0/8 |
| Dibenz(a,h)anthracene | mg/kg | 4/16 | 0/16 | 1.1 | 0.0056 - 0.29 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | 0/12 | 0/12 |
| Fluoranthene | mg/kg | 8/16 | 0/16 | 100 | 0.0047 - 0.19 | 0.012 - 0.23 | 0.0051 - 0.099 | 0.012 | 0.0053 | 0/8 | 0/8 |
| Fluorene | mg/kg | 7/16 | 0/16 | 100 | 0.0013 - 0.016 | 0.011 - 0.23 | 0.003 - 0.061 | 0.012 | 0.0033 | 0/9 | 0/9 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 7/16 | 0/16 | 1.1 | 0.0028 - 1 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | 0/9 | 0/9 |
| Naphthalene | mg/kg | 6/16 | 0/16 | 100 | 0.00079 - 0.0073 | 0.011 - 0.23 | 0.0022 - 0.046 | 0.012 | 0.0024 | 0/10 | 0/10 |
| Phenanthrene | mg/kg | 7/16 | 0/16 | 100 | 0.0052 - 0.11 | 0.011 - 0.23 | 0.0074 - 0.15 | 0.012 | 0.0081 | 0/9 | 0/9 |
| Pyrene | mg/kg | 8/16 | 0/16 | 1.1 | 0.0039 - 0.26 | 0.012 - 0.23 | 0.0078 - 0.15 | 0.012 | 0.0082 | 0/8 | 0/8 |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/16 | 0/16 | 0.0061 | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | 16/16 | 16/16 |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/12 | 0/12 | 0.371 | N/A | 0.071 - 0.085 | 0.033 - 0.04 | 0.078 | 0.036 | 0/12 | 0/12 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/12 | 0/12 | 0.371 | N/A | 0.1 - 0.12 | 0.086 - 0.1 | 0.11 | 0.094 | 0/12 | 0/12 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/12 | 0/12 | 0.371 | N/A | 0.071 - 0.085 | 0.033 - 0.04 | 0.078 | 0.036 | 0/12 | 0/12 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/12 | 0/12 | 0.371 | N/A | 0.071 - 0.085 | 0.052 - 0.062 | 0.078 | 0.057 | 0/12 | 0/12 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/12 | 0/12 | 0.371 | N/A | 0.071 - 0.085 | 0.016 - 0.019 | 0.078 | 0.018 | 0/12 | 0/12 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/12 | 0/12 | 0.371 | N/A | 0.071 - 0.085 | 0.036 - 0.043 | 0.078 | 0.039 | 0/12 | 0/12 |
| PCB-1260 (Aroclor 1260) | mg/kg | 2/12 | 0/12 | 0.371 | 0.0064 - 0.011 | 0.071 - 0.085 | 0.0072 - 0.0086 | 0.078 | 0.0079 | 0/10 | 0/10 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/12 | 0/12 | 0.371 | N/A | 0.071 - 0.085 | 0.017 - 0.021 | 0.078 | 0.019 | 0/12 | 0/12 |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/12 | 0/12 | 0.371 | N/A | 0.071 - 0.085 | 0.0072 - 0.0086 | 0.078 | 0.0079 | 0/12 | 0/12 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 16/16 | 0/16 | N/A | 4500 - 11000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 14/16 | 0/16 | 0.27 | 0.072 - 0.17 | 0.18 - 0.19 | 0.09 - 0.097 | 0.19 | 0.094 | 0/2 | 0/2 |
| Arsenic | mg/kg | 16/16 | 0/16 | 46 | 1.5 - 5.9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 16/16 | 0/16 | 2000 | 14 - 52 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 16/16 | 0/16 | 21 | 0.12 - 0.48 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 16/16 | 0/16 | 0.36 | 0.035 - 0.13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 16/16 | 0/16 | N/A | 700 - 66000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 16/16 | 0/16 | 34 | 5.5 - 11 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 15
Summary Statistics and Ecological Project Action Limits (AOC 3 - Mammal)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Cobalt | mg/kg | 16/16 | 0/16 | 230 | 2.8 - 10 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 16/16 | 0/16 | 49 | 5.8 - 29 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 16/16 | 0/16 | N/A | 8000 - 23000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 16/16 | 0/16 | 56 | 2.7 - 56 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 16/16 | 0/16 | N/A | 1100 - 18000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 16/16 | 0/16 | 4000 | 69 - 560 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 15/16 | 0/16 | 1.7 | 0.009 - 0.047 | 0.023 - 0.023 | 0.018 - 0.018 | 0.023 | 0.018 | 0/1 | 0/1 |
| Nickel | mg/kg | 16/16 | 0/16 | 130 | 6.4 - 24 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 16/16 | 0/16 | N/A | 290 - 1600 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 14/16 | 0/16 | 0.63 | 0.14 - 0.31 | 0.53 - 0.55 | 0.43 - 0.44 | 0.54 | 0.44 | 0/2 | 0/2 |
| Silver | mg/kg | 2/16 | 0/16 | 14 | 0.16 - 0.19 | 1.3 - 1.6 | 0.5 - 0.63 | 1.4 | 0.57 | 0/14 | 0/14 |
| Sodium | mg/kg | 16/16 | 0/16 | N/A | 31 - 120 | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | mg/kg | 11/16 | 0/16 | 0.42 | 0.042 - 0.49 | 0.087 - 0.11 | 0.087 - 0.11 | 0.1 | 0.1 | 0/5 | 0/5 |
| Vanadium | mg/kg | 16/16 | 0/16 | 280 | 7.4 - 16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 16/16 | 0/16 | 79 | 17 - 41 | N/A | N/A | N/A | N/A | N/A | N/A |

Notes
FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 16
Summary Statistics and Human Health Project Action Limits (AOC 4 Discrete)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/16 | 0/16 | N/A | N/A | N/A | 0.7 - 0.83 | 0.35 - 0.42 | 0.75 | 0.38 | N/A | N/A |
| 2,4-Dinitrophenol | mg/kg | 0/16 | 0/16 | 13 | (a) | N/A | 1.8 - 2.2 | 1.4 - 1.6 | 1.9 | 1.5 | 0/16 | 0/16 |
| Explosives | | | | | | | | | | | | |
| Picric acid | mg/kg | 0/16 | 0/16 | 13 | (a) | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | 0/16 | 0/16 |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/85 | 0/85 | N/A | N/A | N/A | 0.67 - 0.87 | 0.34 - 0.44 | 0.73 | 0.37 | N/A | N/A |
| 2,4-Dinitrophenol | mg/kg | 0/85 | 0/85 | 13 | (a) | N/A | 1.7 - 2.2 | 1.3 - 1.7 | 1.9 | 1.4 | 0/85 | 0/85 |
| Explosives | | | | | | | | | | | | |
| Picric acid | mg/kg | 0/85 | 0/85 | 13 | (a) | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | 0/85 | 0/85 |
| Soil: 5 - 10 feet below ground surface | | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/16 | 0/16 | N/A | N/A | N/A | 0.71 - 0.79 | 0.35 - 0.39 | 0.73 | 0.37 | N/A | N/A |
| 2,4-Dinitrophenol | mg/kg | 0/16 | 0/16 | 13 | (a) | N/A | 1.8 - 2 | 1.4 - 1.5 | 1.9 | 1.4 | 0/16 | 0/16 |
| Explosives | | | | | | | | | | | | |
| Picric acid | mg/kg | 0/16 | 0/16 | 13 | (a) | N/A | 0.23 - 0.24 | 0.15 - 0.16 | 0.24 | 0.16 | 0/16 | 0/16 |
| Groundwater | | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | µg/L | 0/16 | 0/16 | N/A | N/A | N/A | 20 - 23 | 9.8 - 12 | 21 | 10 | N/A | N/A |
| 2,4-Dinitrophenol | µg/L | 0/16 | 0/16 | 3.9 | (b) | N/A | 49 - 59 | 20 - 23 | 52 | 21 | 16/16 | 16/16 |
| Explosives | | | | | | | | | | | | |
| Picric acid | µg/L | 0/15 | 1/16 | 4 | (b) | N/A | 0.4 - 28 | 0.12 - 8.5 | 0.44 | 0.13 | 2/15 | 1/15 |

Notes

| | |
|---|---|
| FOD = Frequency of Detection | mg/kg = milligram per kilogram |
| FOE = Frequency of Exceedance | N/A = Not Available |
| FOR = Frequency of Rejection | ND = Non-Detect |
| LOD = Limit of Detection | PAL = Project Action Limit |
| LOQ = Limit of Quantitation | µg/L = microgram per liter |

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

(a) EPA Residential Soil Regional Screening Level, May 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(b) EPA Tapwater Regional Screening Level, May 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)

Table 17
Summary Statistics and Ecological Project Action Limits (AOC 4 Discrete - Plant)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/16 | 0/16 | 0.6 | N/A | 0.7 - 0.83 | 0.35 - 0.42 | 0.75 | 0.38 | 16/16 | 0/16 |
| 2,4-Dinitrophenol | mg/kg | 0/16 | 0/16 | 20 | N/A | 1.8 - 2.2 | 1.4 - 1.6 | 1.9 | 1.5 | 0/16 | 0/16 |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/16 | 0/16 | 2 | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | 0/16 | 0/16 |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/85 | 0/85 | 0.6 | N/A | 0.67 - 0.87 | 0.34 - 0.44 | 0.73 | 0.37 | 85/85 | 0/85 |
| 2,4-Dinitrophenol | mg/kg | 0/85 | 0/85 | 20 | N/A | 1.7 - 2.2 | 1.3 - 1.7 | 1.9 | 1.4 | 0/85 | 0/85 |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/85 | 0/85 | 2 | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | 0/85 | 0/85 |

Notes
FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 18
Summary Statistics and Ecological Project Action Limits (AOC 4 Discrete - Invertebrate)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/16 | 0/16 | 1.8 | N/A | 0.7 - 0.83 | 0.35 - 0.42 | 0.75 | 0.38 | 0/16 | 0/16 |
| 2,4-Dinitrophenol | mg/kg | 0/16 | 0/16 | 0.15 | N/A | 1.8 - 2.2 | 1.4 - 1.6 | 1.9 | 1.5 | 16/16 | 16/16 |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/16 | 0/16 | 0.015 | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | 16/16 | 16/16 |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/85 | 0/85 | 1.8 | N/A | 0.67 - 0.87 | 0.34 - 0.44 | 0.73 | 0.37 | 0/85 | 0/85 |
| 2,4-Dinitrophenol | mg/kg | 0/85 | 0/85 | 0.15 | N/A | 1.7 - 2.2 | 1.3 - 1.7 | 1.9 | 1.4 | 85/85 | 85/85 |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/85 | 0/85 | 0.015 | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | 85/85 | 85/85 |

Notes
FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 19
Summary Statistics and Ecological Project Action Limits (AOC 4 Discrete - Bird)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/16 | 0/16 | N/A | N/A | 0.7 - 0.83 | 0.35 - 0.42 | 0.75 | 0.38 | N/A | N/A |
| 2,4-Dinitrophenol | mg/kg | 0/16 | 0/16 | N/A | N/A | 1.8 - 2.2 | 1.4 - 1.6 | 1.9 | 1.5 | N/A | N/A |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/16 | 0/16 | N/A | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | N/A | N/A |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/85 | 0/85 | N/A | N/A | 0.67 - 0.87 | 0.34 - 0.44 | 0.73 | 0.37 | N/A | N/A |
| 2,4-Dinitrophenol | mg/kg | 0/85 | 0/85 | N/A | N/A | 1.7 - 2.2 | 1.3 - 1.7 | 1.9 | 1.4 | N/A | N/A |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/85 | 0/85 | N/A | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | N/A | N/A |

Notes
FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 20
Summary Statistics and Ecological Project Action Limits (AOC 4 Discrete - Mammal)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/16 | 0/16 | 1.4 | N/A | 0.7 - 0.83 | 0.35 - 0.42 | 0.75 | 0.38 | 0/16 | 0/16 |
| 2,4-Dinitrophenol | mg/kg | 0/16 | 0/16 | 0.061 | N/A | 1.8 - 2.2 | 1.4 - 1.6 | 1.9 | 1.5 | 16/16 | 16/16 |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/16 | 0/16 | 0.0061 | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | 16/16 | 16/16 |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/85 | 0/85 | 1.4 | N/A | 0.67 - 0.87 | 0.34 - 0.44 | 0.73 | 0.37 | 0/85 | 0/85 |
| 2,4-Dinitrophenol | mg/kg | 0/85 | 0/85 | 0.061 | N/A | 1.7 - 2.2 | 1.3 - 1.7 | 1.9 | 1.4 | 85/85 | 85/85 |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/85 | 0/85 | 0.0061 | N/A | 0.23 - 0.25 | 0.15 - 0.16 | 0.24 | 0.16 | 85/85 | 85/85 |

Notes
FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 21
Summary Statistics and Human Health Project Action Limits (AOC 4 ISM)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/34 | 2/36 | N/A | N/A | N/A | 0.31 - 1.9 | 0.15 - 0.97 | 0.33 | 0.16 | N/A | N/A |
| 2,4-Dinitrophenol | mg/kg | 0/29 | 7/36 | 13 | (a) | N/A | 0.79 - 5 | 0.6 - 3.8 | 0.85 | 0.65 | 0/29 | 0/29 |
| Explosives | | | | | | | | | | | | |
| Picric acid | mg/kg | 0/36 | 0/36 | 13 | (a) | N/A | 0.092 - 0.1 | 0.092 - 0.1 | 0.098 | 0.098 | 0/36 | 0/36 |

Notes

FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.
(a) EPA Residential Soil Regional Screening Level, May 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)

Table 22
Summary Statistics and Ecological Project Action Limits (AOC 4 ISM - Plant)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/34 | 2/36 | 0.6 | N/A | 0.31 - 1.9 | 0.15 - 0.97 | 0.33 | 0.16 | 2/34 | 1/34 |
| 2,4-Dinitrophenol | mg/kg | 0/29 | 7/36 | 20 | N/A | 0.79 - 5 | 0.6 - 3.8 | 0.85 | 0.65 | 0/29 | 0/29 |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/36 | 0/36 | 2 | N/A | 0.092 - 0.1 | 0.092 - 0.1 | 0.098 | 0.098 | 0/36 | 0/36 |

Notes
FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 23
Summary Statistics and Ecological Project Action Limits (AOC 4 ISM - Invertebrate)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/34 | 2/36 | 1.8 | N/A | 0.31 - 1.9 | 0.15 - 0.97 | 0.33 | 0.16 | 1/34 | 0/34 |
| 2,4-Dinitrophenol | mg/kg | 0/29 | 7/36 | 0.15 | N/A | 0.79 - 5 | 0.6 - 3.8 | 0.85 | 0.65 | 29/29 | 29/29 |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/36 | 0/36 | 0.015 | N/A | 0.092 - 0.1 | 0.092 - 0.1 | 0.098 | 0.098 | 36/36 | 36/36 |

Notes
FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 24
Summary Statistics and Ecological Project Action Limits (AOC 4 ISM - Bird)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/34 | 2/36 | N/A | N/A | 0.31 - 1.9 | 0.15 - 0.97 | 0.33 | 0.16 | N/A | N/A |
| 2,4-Dinitrophenol | mg/kg | 0/29 | 7/36 | N/A | N/A | 0.79 - 5 | 0.6 - 3.8 | 0.85 | 0.65 | N/A | N/A |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/36 | 0/36 | N/A | N/A | 0.092 - 0.1 | 0.092 - 0.1 | 0.098 | 0.098 | N/A | N/A |

Notes
FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 25
Summary Statistics and Ecological Project Action Limits (AOC 4 ISM - Mammal)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | mg/kg | 0/34 | 2/36 | 1.4 | N/A | 0.31 - 1.9 | 0.15 - 0.97 | 0.33 | 0.16 | 1/34 | 0/34 |
| 2,4-Dinitrophenol | mg/kg | 0/29 | 7/36 | 0.061 | N/A | 0.79 - 5 | 0.6 - 3.8 | 0.85 | 0.65 | 29/29 | 29/29 |
| Explosives | | | | | | | | | | | |
| Picric acid | mg/kg | 0/36 | 0/36 | 0.0061 | N/A | 0.092 - 0.1 | 0.092 - 0.1 | 0.098 | 0.098 | 36/36 | 36/36 |

Notes
FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 26
Summary Statistics and Human Health Project Action Limits (AOC 5)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/15 | 0/15 | 0.23 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 0/15 |
| 1,4-Dioxane | mg/kg | 0/15 | 0/15 | 5.3 | (a) | N/A | 0.35 - 0.39 | 0.35 - 0.39 | 0.37 | 0.37 | 0/15 | 0/15 |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/14 | 1/15 | 310 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.38 | 0.076 | 0/14 | 0/14 |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/15 | 0/15 | 190 | (a) | N/A | 0.35 - 0.39 | 0.087 - 0.099 | 0.37 | 0.094 | 0/15 | 0/15 |
| 2,4,5-Trichlorophenol | mg/kg | 0/15 | 0/15 | 630 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2,4,6-Trichlorophenol | mg/kg | 0/15 | 0/15 | 6.3 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2,4-Dichlorophenol | mg/kg | 0/15 | 0/15 | 19 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2,4-Dimethylphenol | mg/kg | 0/15 | 0/15 | 130 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2,4-Dinitrotoluene | mg/kg | 0/15 | 0/15 | 1.7 | (a) | N/A | 0.35 - 0.39 | 0.087 - 0.099 | 0.37 | 0.094 | 0/15 | 0/15 |
| 2,6-Dinitrotoluene | mg/kg | 0/15 | 0/15 | 0.36 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 11/15 | 0/15 |
| 2-Chloronaphthalene | mg/kg | 0/15 | 0/15 | 480 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2-Chlorophenol | mg/kg | 0/15 | 0/15 | 39 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/15 | 0/15 | 320 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2-Nitroaniline | mg/kg | 0/15 | 0/15 | 63 | (a) | N/A | 1.8 - 2 | 0.18 - 0.2 | 1.9 | 0.19 | 0/15 | 0/15 |
| 2-Nitrophenol | mg/kg | 0/15 | 0/15 | N/A | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 3,3'-Dichlorobenzidine | mg/kg | 0/15 | 0/15 | 1.2 | (a) | N/A | 0.69 - 0.79 | 0.07 - 0.08 | 0.74 | 0.076 | 0/15 | 0/15 |
| 3-Nitroaniline | mg/kg | 0/15 | 0/15 | N/A | N/A | N/A | 1.8 - 2 | 0.087 - 0.099 | 1.9 | 0.094 | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/15 | 0/15 | 0.51 | (a) | N/A | 1.8 - 2 | 0.35 - 0.39 | 1.9 | 0.37 | 15/15 | 0/15 |
| 4-Bromophenyl phenyl ether | mg/kg | 0/15 | 0/15 | N/A | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/15 | 0/15 | 630 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 4-Chloroaniline | mg/kg | 0/15 | 0/15 | 2.7 | (a) | N/A | 0.69 - 0.79 | 0.087 - 0.099 | 0.74 | 0.094 | 0/15 | 0/15 |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/15 | 0/15 | N/A | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/15 | 0/15 | 25 | (a) | N/A | 1.8 - 2 | 0.087 - 0.099 | 1.9 | 0.094 | 0/15 | 0/15 |
| 4-Nitrophenol | mg/kg | 0/15 | 0/15 | N/A | N/A | N/A | 1.8 - 2 | 0.7 - 0.8 | 1.9 | 0.76 | N/A | N/A |
| Acetophenone | mg/kg | 0/15 | 0/15 | 780 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Atrazine | mg/kg | 0/15 | 0/15 | 2.4 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Benzaldehyde | mg/kg | 1/15 | 0/15 | 170 | (a) | 0.063 - 0.063 | 0.35 - 0.39 | 0.18 - 0.2 | 0.38 | 0.2 | 0/14 | 0/14 |
| Benzyl butyl phthalate | mg/kg | 0/15 | 0/15 | 290 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Biphenyl (Diphenyl) | mg/kg | 0/15 | 0/15 | 4.7 | (a) | N/A | 1.8 - 2 | 0.35 - 0.39 | 1.9 | 0.37 | 0/15 | 0/15 |
| Bis(2-chloroethoxy)methane | mg/kg | 0/15 | 0/15 | 19 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/15 | 0/15 | 0.23 | (a) | N/A | 0.35 - 0.39 | 0.087 - 0.099 | 0.37 | 0.094 | 15/15 | 0/15 |
| Bis(2-ethylhexyl)phthalate | mg/kg | 0/15 | 0/15 | 39 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Caprolactam | mg/kg | 0/15 | 0/15 | 3100 | (a) | N/A | 0.35 - 0.39 | 0.18 - 0.2 | 0.37 | 0.19 | 0/15 | 0/15 |
| Carbazole | mg/kg | 0/15 | 0/15 | N/A | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Cresols, m- & p- | mg/kg | 0/15 | 0/15 | 130 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Dibenzofuran | mg/kg | 2/15 | 0/15 | 7.8 | (a) | 0.11 - 0.21 | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.075 | 0/13 | 0/13 |
| Diethyl phthalate | mg/kg | 0/15 | 0/15 | 5100 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Dimethyl phthalate | mg/kg | 0/15 | 0/15 | N/A | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Di-n-butyl phthalate | mg/kg | 1/15 | 0/15 | 630 | (a) | 0.39 - 0.39 | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/14 | 0/14 |
| di-n-Octyl phthalate | mg/kg | 0/15 | 0/15 | 63 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Hexachlorobenzene | mg/kg | 0/15 | 0/15 | 0.078 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 3/15 |
| Hexachlorobutadiene | mg/kg | 0/15 | 0/15 | 1.2 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Hexachlorocyclopentadiene | mg/kg | 0/15 | 0/15 | 0.18 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 0/15 |
| Hexachloroethane | mg/kg | 0/15 | 0/15 | 1.8 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Isophorone | mg/kg | 0/15 | 0/15 | 570 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Nitrobenzene | mg/kg | 0/15 | 0/15 | 5.1 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| N-Nitrosodi-n-propylamine | mg/kg | 0/15 | 0/15 | 0.078 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 3/15 |
| N-Nitrosodiphenylamine | mg/kg | 0/15 | 0/15 | 110 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Pentachlorophenol | mg/kg | 0/15 | 0/15 | 1 | (a) | N/A | 1.8 - 2 | 0.7 - 0.8 | 1.9 | 0.76 | 15/15 | 0/15 |

Table 26
Summary Statistics and Human Health Project Action Limits (AOC 5)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Phenol | mg/kg | 0/15 | 0/15 | 1900 | (a) | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 21/25 | 0/25 | 18 | (a) | 0.0014 - 10 | 0.01 - 0.011 | 0.002 - 0.0023 | 0.011 | 0.0022 | 0/4 | 0/4 |
| 2-Methylnaphthalene | mg/kg | 23/25 | 0/25 | 24 | (a) | 0.0014 - 14 | 0.01 - 0.011 | 0.0021 - 0.0023 | 0.011 | 0.0022 | 0/2 | 0/2 |
| Acenaphthene | mg/kg | 7/25 | 0/25 | 360 | (a) | 0.0017 - 0.1 | 0.0099 - 0.52 | 0.0011 - 0.056 | 0.012 | 0.0012 | 0/18 | 0/18 |
| Acenaphthylene | mg/kg | 15/25 | 0/25 | N/A | N/A | 0.0031 - 0.37 | 0.01 - 0.52 | 0.0011 - 0.056 | 0.012 | 0.0012 | N/A | N/A |
| Anthracene | mg/kg | 16/25 | 0/25 | 1800 | (a) | 0.0022 - 0.29 | 0.01 - 0.52 | 0.0044 - 0.23 | 0.012 | 0.005 | 0/9 | 0/9 |
| Benzo(a)anthracene | mg/kg | 25/25 | 0/25 | 1.1 | (a) | 0.0024 - 0.75 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(a)pyrene | mg/kg | 24/25 | 0/25 | 0.11 | (a) | 0.0042 - 0.79 | 0.01 - 0.01 | 0.0045 - 0.0045 | 0.01 | 0.0045 | 0/1 | 0/1 |
| Benzo(b)fluoranthene | mg/kg | 24/25 | 0/25 | 1.1 | (a) | 0.0076 - 1.4 | 0.01 - 0.01 | 0.0069 - 0.0069 | 0.01 | 0.0069 | 0/1 | 0/1 |
| Benzo(g,h,i)perylene | mg/kg | 20/25 | 0/25 | N/A | N/A | 0.0031 - 4.7 | 0.01 - 0.52 | 0.0069 - 0.35 | 0.11 | 0.072 | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 21/25 | 0/25 | 11 | (a) | 0.0023 - 0.4 | 0.01 - 0.52 | 0.0045 - 0.23 | 0.23 | 0.099 | 0/4 | 0/4 |
| Chrysene | mg/kg | 25/25 | 0/25 | 110 | (a) | 0.0035 - 1.1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dibenz(a,h)anthracene | mg/kg | 9/25 | 0/25 | 0.11 | (a) | 0.0032 - 0.88 | 0.0099 - 0.52 | 0.0066 - 0.35 | 0.012 | 0.0077 | 5/16 | 4/16 |
| Fluoranthene | mg/kg | 25/25 | 0/25 | 240 | (a) | 0.0049 - 0.76 | N/A | N/A | N/A | N/A | N/A | N/A |
| Fluorene | mg/kg | 16/25 | 0/25 | 240 | (a) | 0.0013 - 0.26 | 0.01 - 0.11 | 0.0027 - 0.029 | 0.011 | 0.0031 | 0/9 | 0/9 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 21/25 | 0/25 | 1.1 | (a) | 0.0025 - 3.4 | 0.01 - 0.52 | 0.0069 - 0.35 | 0.23 | 0.15 | 0/4 | 0/4 |
| Naphthalene | mg/kg | 24/25 | 0/25 | 2 | (a) | 0.0018 - 9.2 | 0.011 - 0.011 | 0.0023 - 0.0023 | 0.011 | 0.0023 | 0/1 | 0/1 |
| Phenanthrene | mg/kg | 25/25 | 0/25 | N/A | N/A | 0.003 - 5.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Pyrene | mg/kg | 25/25 | 0/25 | 180 | (a) | 0.0042 - 0.99 | N/A | N/A | N/A | N/A | N/A | N/A |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/10 | 0/10 | 0.41 | (a) | N/A | 0.068 - 0.078 | 0.031 - 0.036 | 0.072 | 0.034 | 0/10 | 0/10 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/10 | 0/10 | 0.2 | (a) | N/A | 0.096 - 0.11 | 0.082 - 0.094 | 0.1 | 0.087 | 0/10 | 0/10 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/10 | 0/10 | 0.17 | (a) | N/A | 0.068 - 0.078 | 0.031 - 0.036 | 0.072 | 0.034 | 0/10 | 0/10 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/10 | 0/10 | 0.23 | (a) | N/A | 0.068 - 0.078 | 0.049 - 0.057 | 0.072 | 0.052 | 0/10 | 0/10 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/10 | 0/10 | 0.23 | (a) | N/A | 0.068 - 0.078 | 0.015 - 0.018 | 0.072 | 0.016 | 0/10 | 0/10 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/10 | 0/10 | 0.12 | (a) | N/A | 0.068 - 0.078 | 0.034 - 0.039 | 0.072 | 0.036 | 0/10 | 0/10 |
| PCB-1260 (Aroclor 1260) | mg/kg | 4/10 | 0/10 | 0.24 | (a) | 0.0042 - 0.16 | 0.068 - 0.075 | 0.0068 - 0.0076 | 0.072 | 0.0073 | 0/6 | 0/6 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/10 | 0/10 | N/A | N/A | N/A | 0.068 - 0.078 | 0.016 - 0.019 | 0.072 | 0.017 | N/A | N/A |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/10 | 0/10 | N/A | N/A | N/A | 0.068 - 0.078 | 0.0068 - 0.0079 | 0.072 | 0.0073 | N/A | N/A |
| Metals - Total | | | | | | | | | | | | |
| Aluminum | mg/kg | 25/25 | 0/25 | 7700 | (a) | 1400 - 8200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 24/25 | 0/25 | 3.1 | (a) | 0.076 - 1 | 0.23 - 0.23 | 0.11 - 0.11 | 0.23 | 0.11 | 0/1 | 0/1 |
| Arsenic | mg/kg | 25/25 | 0/25 | 0.68 | (a) | 4.3 - 25 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 25/25 | 0/25 | 1500 | (a) | 27 - 76 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 25/25 | 0/25 | 16 | (a) | 0.1 - 0.63 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 25/25 | 0/25 | 0.71 | (a) | 0.038 - 4.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 25/25 | 0/25 | N/A | N/A | 2000 - 100000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 25/25 | 0/25 | 12000 | (a) | 5 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 25/25 | 0/25 | 2.3 | (a) | 1.8 - 9.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 25/25 | 0/25 | 310 | (a) | 5.3 - 110 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 25/25 | 0/25 | 5500 | (a) | 8100 - 22000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 25/25 | 0/25 | 400 | (a) | 4.2 - 200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 25/25 | 0/25 | N/A | N/A | 620 - 28000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 25/25 | 0/25 | 180 | (a) | 110 - 1200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 24/25 | 0/25 | 1.1 | (a) | 0.0075 - 0.23 | 0.021 - 0.021 | 0.021 - 0.021 | 0.021 | 0.021 | 0/1 | 0/1 |
| Nickel | mg/kg | 25/25 | 0/25 | 150 | (a) | 4.9 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 25/25 | 0/25 | N/A | N/A | 350 - 1200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 24/25 | 0/25 | 39 | (a) | 0.13 - 1.5 | 0.43 - 0.43 | 0.34 - 0.34 | 0.43 | 0.34 | 0/1 | 0/1 |
| Silver | mg/kg | 1/25 | 0/25 | 39 | (a) | 0.27 - 0.27 | 1.2 - 2.2 | 0.47 - 0.9 | 1.6 | 0.64 | 0/24 | 0/24 |
| Sodium | mg/kg | 11/25 | 0/25 | N/A | N/A | 37 - 250 | 400 - 680 | 82 - 600 | 540 | 120 | N/A | N/A |

Table 26
Summary Statistics and Human Health Project Action Limits (AOC 5)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Thallium | mg/kg | 15/25 | 0/25 | 0.078 | (a) | 0.061 - 0.6 | 0.073 - 0.12 | 0.073 - 0.12 | 0.093 | 0.093 | 8/10 | 8/10 |
| Vanadium | mg/kg | 25/25 | 0/25 | 39 | (a) | 7.6 - 17 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 25/25 | 0/25 | 2300 | (a) | 14 - 690 | N/A | N/A | N/A | N/A | N/A | N/A |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | | |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | mg/kg | 0/5 | 0/5 | 810 | (a) | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| 1,1,2,2-Tetrachloroethane | mg/kg | 0/5 | 0/5 | 0.6 | (a) | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0/5 | 0/5 | 670 | (a) | N/A | 0.016 - 0.019 | 0.0051 - 0.0061 | 0.016 | 0.0052 | 0/5 | 0/5 |
| 1,1,2-Trichloroethane | mg/kg | 0/5 | 0/5 | 0.15 | (a) | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | 0/5 | 0/5 |
| 1,1-Dichloroethane | mg/kg | 0/5 | 0/5 | 3.6 | (a) | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| 1,1-Dichloroethene | mg/kg | 0/5 | 0/5 | 23 | (a) | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | 0/5 | 0/5 |
| 1,2,3-Trichlorobenzene | mg/kg | 0/5 | 0/5 | 6.3 | (a) | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | 0/5 | 0/5 |
| 1,2,4-Trichlorobenzene | mg/kg | 0/5 | 0/5 | 5.8 | (a) | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | 0/5 | 0/5 |
| 1,2-Dibromo-3-chloropropane | mg/kg | 0/5 | 0/5 | 0.0053 | (a) | N/A | 0.008 - 0.0095 | 0.008 - 0.0095 | 0.0082 | 0.0082 | 5/5 | 5/5 |
| 1,2-Dibromoethane (EDB) | mg/kg | 0/5 | 0/5 | 0.036 | (a) | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | 0/5 | 0/5 |
| 1,2-Dichlorobenzene | mg/kg | 0/5 | 0/5 | 180 | (a) | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| 1,2-Dichloroethane | mg/kg | 0/5 | 0/5 | 0.46 | (a) | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | 0/5 | 0/5 |
| 1,2-Dichloropropane | mg/kg | 0/5 | 0/5 | 1.6 | (a) | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | 0/5 | 0/5 |
| 1,3-Dichlorobenzene | mg/kg | 0/5 | 0/5 | N/A | N/A | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | N/A | N/A |
| 1,3-Dichloropropane | mg/kg | 0/5 | 0/5 | 160 | (a) | N/A | 0.004 - 0.0048 | 0.00032 - 0.00038 | 0.0041 | 0.00033 | 0/5 | 0/5 |
| 1,4-Dichlorobenzene | mg/kg | 0/5 | 0/5 | 2.6 | (a) | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| 2-Butanone (MEK) | mg/kg | 2/5 | 0/5 | 2700 | (a) | 0.0078 - 0.0086 | 0.016 - 0.018 | 0.01 - 0.011 | 0.016 | 0.01 | 0/3 | 0/3 |
| 2-Hexanone | mg/kg | 0/5 | 0/5 | 20 | (a) | N/A | 0.016 - 0.019 | 0.01 - 0.012 | 0.016 | 0.01 | 0/5 | 0/5 |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 0/5 | 0/5 | 3300 | (a) | N/A | 0.016 - 0.019 | 0.01 - 0.012 | 0.016 | 0.01 | 0/5 | 0/5 |
| Acetone | mg/kg | 1/5 | 0/5 | 7000 | (a) | 0.069 - 0.069 | 0.057 - 0.069 | 0.057 - 0.069 | 0.061 | 0.061 | 0/4 | 0/4 |
| Benzene | mg/kg | 1/5 | 0/5 | 1.2 | (a) | 0.00048 - 0.00048 | 0.004 - 0.0048 | 0.00032 - 0.00038 | 0.0043 | 0.00034 | 0/4 | 0/4 |
| Bromochloromethane | mg/kg | 0/5 | 0/5 | 15 | (a) | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| Bromodichloromethane | mg/kg | 0/5 | 0/5 | 0.29 | (a) | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| Bromoform | mg/kg | 0/5 | 0/5 | 19 | (a) | N/A | 0.0041 - 0.0049 | 0.0041 - 0.0049 | 0.0042 | 0.0042 | 0/5 | 0/5 |
| Bromomethane | mg/kg | 0/5 | 0/5 | 0.68 | (a) | N/A | 0.008 - 0.0095 | 0.0025 - 0.0031 | 0.0082 | 0.0026 | 0/5 | 0/5 |
| Carbon disulfide | mg/kg | 0/5 | 0/5 | 77 | (a) | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| Carbon tetrachloride | mg/kg | 0/5 | 0/5 | 0.65 | (a) | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| Chlorobenzene | mg/kg | 0/5 | 0/5 | 28 | (a) | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| Chloroethane | mg/kg | 0/5 | 0/5 | 540 | (a) | N/A | 0.008 - 0.0095 | 0.0051 - 0.0061 | 0.0082 | 0.0052 | 0/5 | 0/5 |
| Chloroform | mg/kg | 0/5 | 0/5 | 0.32 | (a) | N/A | 0.008 - 0.0095 | 0.00064 - 0.00076 | 0.0082 | 0.00066 | 0/5 | 0/5 |
| Chloromethane | mg/kg | 0/5 | 0/5 | 11 | (a) | N/A | 0.008 - 0.0095 | 0.0013 - 0.0015 | 0.0082 | 0.0013 | 0/5 | 0/5 |
| cis-1,2-Dichloroethene | mg/kg | 0/5 | 0/5 | 16 | (a) | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| cis-1,3-Dichloropropene | mg/kg | 0/5 | 0/5 | 1.8 | (a) | N/A | 0.004 - 0.0048 | 0.00032 - 0.00038 | 0.0041 | 0.00033 | 0/5 | 0/5 |
| Cumene | mg/kg | 0/5 | 0/5 | 190 | (a) | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| Cyclohexane | mg/kg | 0/5 | 0/5 | 650 | (a) | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| Dibromochloromethane | mg/kg | 0/5 | 0/5 | 8.3 | (a) | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| Dichlorodifluoromethane | mg/kg | 0/5 | 0/5 | 8.7 | (a) | N/A | 0.008 - 0.0095 | 0.0051 - 0.0061 | 0.0082 | 0.0052 | 0/5 | 0/5 |
| Ethylbenzene | mg/kg | 0/5 | 0/5 | 5.8 | (a) | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| m,p-Xylene | mg/kg | 0/5 | 0/5 | 55 | (a) | N/A | 0.0025 - 0.0031 | 0.0025 - 0.0031 | 0.0026 | 0.0026 | 0/5 | 0/5 |
| Methyl acetate | mg/kg | 0/5 | 0/5 | 7800 | (a) | N/A | 0.0068 - 0.0081 | 0.0064 - 0.0076 | 0.007 | 0.0066 | 0/5 | 0/5 |
| Methyl tert-butyl ether (MTBE) | mg/kg | 0/5 | 0/5 | 47 | (a) | N/A | 0.016 - 0.019 | 0.0051 - 0.0061 | 0.016 | 0.0052 | 0/5 | 0/5 |
| Methylcyclohexane | mg/kg | 0/5 | 0/5 | N/A | N/A | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | N/A | N/A |
| Methylene chloride | mg/kg | 0/5 | 0/5 | 35 | (a) | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | 0/5 | 0/5 |
| o-Xylene | mg/kg | 0/5 | 0/5 | 64 | (a) | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| Styrene | mg/kg | 0/5 | 0/5 | 600 | (a) | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| Tetrachloroethene (PCE) | mg/kg | 0/5 | 0/5 | 8.1 | (a) | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |

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Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Toluene | mg/kg | 1/5 | 0/5 | 490 | (a) | 0.00058 - 0.00058 | 0.004 - 0.0048 | 0.00065 - 0.00076 | 0.0043 | 0.00068 | 0/4 | 0/4 |
| trans-1,2-Dichloroethene | mg/kg | 0/5 | 0/5 | 7 | (a) | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| trans-1,3-Dichloropropene | mg/kg | 0/5 | 0/5 | 1.8 | (a) | N/A | 0.004 - 0.0048 | 0.00016 - 0.00019 | 0.0041 | 0.00016 | 0/5 | 0/5 |
| Trichlorofluoromethane | mg/kg | 0/5 | 0/5 | 2300 | (a) | N/A | 0.008 - 0.0095 | 0.008 - 0.0095 | 0.0082 | 0.0082 | 0/5 | 0/5 |
| Vinyl chloride | mg/kg | 0/5 | 0/5 | 0.059 | (a) | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | 0/5 | 0/5 |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/25 | 0/25 | 0.23 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 0/25 |
| 1,4-Dioxane | mg/kg | 0/24 | 1/25 | 5.3 | (a) | N/A | 0.35 - 0.42 | 0.35 - 0.42 | 0.37 | 0.37 | 0/24 | 0/24 |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/24 | 1/25 | 310 | (a) | N/A | 0.35 - 0.39 | 0.071 - 0.08 | 0.37 | 0.076 | 0/24 | 0/24 |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/25 | 0/25 | 190 | (a) | N/A | 0.35 - 0.42 | 0.088 - 0.1 | 0.37 | 0.094 | 0/25 | 0/25 |
| 2,4,5-Trichlorophenol | mg/kg | 0/25 | 0/25 | 630 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2,4,6-Trichlorophenol | mg/kg | 0/25 | 0/25 | 6.3 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2,4-Dichlorophenol | mg/kg | 0/25 | 0/25 | 19 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2,4-Dimethylphenol | mg/kg | 0/25 | 0/25 | 130 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2,4-Dinitrotoluene | mg/kg | 0/25 | 0/25 | 1.7 | (a) | N/A | 0.35 - 0.42 | 0.088 - 0.1 | 0.37 | 0.094 | 0/25 | 0/25 |
| 2,6-Dinitrotoluene | mg/kg | 0/25 | 0/25 | 0.36 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 17/25 | 0/25 |
| 2-Chloronaphthalene | mg/kg | 0/25 | 0/25 | 480 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2-Chlorophenol | mg/kg | 0/25 | 0/25 | 39 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/25 | 0/25 | 320 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2-Nitroaniline | mg/kg | 0/25 | 0/25 | 63 | (a) | N/A | 1.8 - 2.1 | 0.18 - 0.21 | 1.9 | 0.19 | 0/25 | 0/25 |
| 2-Nitrophenol | mg/kg | 0/25 | 0/25 | N/A | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 3,3'-Dichlorobenzidine | mg/kg | 0/25 | 0/25 | 1.2 | (a) | N/A | 0.7 - 0.83 | 0.071 - 0.085 | 0.75 | 0.076 | 0/25 | 0/25 |
| 3-Nitroaniline | mg/kg | 0/25 | 0/25 | N/A | N/A | N/A | 1.8 - 2.1 | 0.088 - 0.1 | 1.9 | 0.094 | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/25 | 0/25 | 0.51 | (a) | N/A | 1.8 - 2.1 | 0.35 - 0.42 | 1.9 | 0.37 | 25/25 | 0/25 |
| 4-Bromophenyl phenyl ether | mg/kg | 0/25 | 0/25 | N/A | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/25 | 0/25 | 630 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 4-Chloroaniline | mg/kg | 0/25 | 0/25 | 2.7 | (a) | N/A | 0.7 - 0.83 | 0.088 - 0.1 | 0.75 | 0.094 | 0/25 | 0/25 |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/25 | 0/25 | N/A | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/25 | 0/25 | 25 | (a) | N/A | 1.8 - 2.1 | 0.088 - 0.1 | 1.9 | 0.094 | 0/25 | 0/25 |
| 4-Nitrophenol | mg/kg | 0/25 | 0/25 | N/A | N/A | N/A | 1.8 - 2.1 | 0.71 - 0.85 | 1.9 | 0.76 | N/A | N/A |
| Acetophenone | mg/kg | 0/25 | 0/25 | 780 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Atrazine | mg/kg | 0/25 | 0/25 | 2.4 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Benzaldehyde | mg/kg | 0/24 | 1/25 | 170 | (a) | N/A | 0.35 - 0.42 | 0.18 - 0.21 | 0.37 | 0.19 | 0/24 | 0/24 |
| Benzyl butyl phthalate | mg/kg | 0/25 | 0/25 | 290 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Biphenyl (Diphenyl) | mg/kg | 0/25 | 0/25 | 4.7 | (a) | N/A | 1.8 - 2.1 | 0.35 - 0.42 | 1.9 | 0.37 | 0/25 | 0/25 |
| Bis(2-chloroethoxy)methane | mg/kg | 0/25 | 0/25 | 19 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/25 | 0/25 | 0.23 | (a) | N/A | 0.35 - 0.42 | 0.088 - 0.1 | 0.37 | 0.094 | 25/25 | 0/25 |
| Bis(2-ethylhexyl)phthalate | mg/kg | 0/25 | 0/25 | 39 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Caprolactam | mg/kg | 0/25 | 0/25 | 3100 | (a) | N/A | 0.35 - 0.42 | 0.18 - 0.21 | 0.37 | 0.19 | 0/25 | 0/25 |
| Carbazole | mg/kg | 0/25 | 0/25 | N/A | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Cresols, m- & p- | mg/kg | 0/25 | 0/25 | 130 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Dibenzofuran | mg/kg | 1/25 | 0/25 | 7.8 | (a) | 0.077 - 0.077 | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/24 | 0/24 |
| Diethyl phthalate | mg/kg | 0/25 | 0/25 | 5100 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Dimethyl phthalate | mg/kg | 0/25 | 0/25 | N/A | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Di-n-butyl phthalate | mg/kg | 0/25 | 0/25 | 630 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| di-n-Octyl phthalate | mg/kg | 0/25 | 0/25 | 63 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Hexachlorobenzene | mg/kg | 0/25 | 0/25 | 0.078 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 6/25 |
| Hexachlorobutadiene | mg/kg | 0/25 | 0/25 | 1.2 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Hexachlorocyclopentadiene | mg/kg | 0/25 | 0/25 | 0.18 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 0/25 |
| Hexachloroethane | mg/kg | 0/24 | 1/25 | 1.8 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/24 | 0/24 |
| Isophorone | mg/kg | 0/25 | 0/25 | 570 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |

Table 26
Summary Statistics and Human Health Project Action Limits (AOC 5)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Nitrobenzene | mg/kg | 0/25 | 0/25 | 5.1 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| N-Nitrosodi-n-propylamine | mg/kg | 0/25 | 0/25 | 0.078 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 6/25 |
| N-Nitrosodiphenylamine | mg/kg | 0/25 | 0/25 | 110 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Pentachlorophenol | mg/kg | 0/25 | 0/25 | 1 | (a) | N/A | 1.8 - 2.1 | 0.71 - 0.85 | 1.9 | 0.76 | 25/25 | 0/25 |
| Phenol | mg/kg | 0/25 | 0/25 | 1900 | (a) | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 11/25 | 0/25 | 18 | (a) | 0.00082 - 0.083 | 0.01 - 0.012 | 0.002 - 0.0024 | 0.011 | 0.0022 | 0/14 | 0/14 |
| 2-Methylnaphthalene | mg/kg | 14/25 | 0/25 | 24 | (a) | 0.00067 - 0.13 | 0.01 - 0.012 | 0.002 - 0.0024 | 0.011 | 0.0022 | 0/11 | 0/11 |
| Acenaphthene | mg/kg | 0/25 | 0/25 | 360 | (a) | N/A | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | 0/25 | 0/25 |
| Acenaphthylene | mg/kg | 4/25 | 0/25 | N/A | N/A | 0.00092 - 0.0035 | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | N/A | N/A |
| Anthracene | mg/kg | 4/25 | 0/25 | 1800 | (a) | 0.002 - 0.0054 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0049 | 0/21 | 0/21 |
| Benzo(a)anthracene | mg/kg | 10/25 | 0/25 | 1.1 | (a) | 0.0023 - 0.016 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | 0/15 | 0/15 |
| Benzo(a)pyrene | mg/kg | 9/25 | 0/25 | 0.11 | (a) | 0.0029 - 0.016 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0048 | 0/16 | 0/16 |
| Benzo(b)fluoranthene | mg/kg | 12/25 | 0/25 | 1.1 | (a) | 0.0027 - 0.027 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0076 | 0/13 | 0/13 |
| Benzo(g,h,i)perylene | mg/kg | 9/25 | 0/25 | N/A | N/A | 0.0035 - 0.046 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0075 | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 6/25 | 0/25 | 11 | (a) | 0.0025 - 0.0091 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | 0/19 | 0/19 |
| Chrysene | mg/kg | 15/25 | 0/25 | 110 | (a) | 0.0023 - 0.025 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | 0/10 | 0/10 |
| Dibenz(a,h)anthracene | mg/kg | 1/25 | 0/25 | 0.11 | (a) | 0.0074 - 0.0074 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0076 | 0/24 | 0/24 |
| Fluoranthene | mg/kg | 13/25 | 0/25 | 240 | (a) | 0.0024 - 0.03 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | 0/12 | 0/12 |
| Fluorene | mg/kg | 3/25 | 0/25 | 240 | (a) | 0.0017 - 0.0024 | 0.01 - 0.012 | 0.0027 - 0.0032 | 0.011 | 0.003 | 0/22 | 0/22 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 9/25 | 0/25 | 1.1 | (a) | 0.0036 - 0.035 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0075 | 0/16 | 0/16 |
| Naphthalene | mg/kg | 19/25 | 0/25 | 2 | (a) | 0.00076 - 0.11 | 0.01 - 0.012 | 0.0021 - 0.0024 | 0.011 | 0.0023 | 0/6 | 0/6 |
| Phenanthrene | mg/kg | 9/25 | 0/25 | N/A | N/A | 0.003 - 0.034 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0073 | N/A | N/A |
| Pyrene | mg/kg | 12/25 | 0/25 | 180 | (a) | 0.0026 - 0.027 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0072 | 0/13 | 0/13 |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/5 | 0/5 | 0.41 | (a) | N/A | 0.07 - 0.085 | 0.033 - 0.04 | 0.073 | 0.034 | 0/5 | 0/5 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/5 | 0/5 | 0.2 | (a) | N/A | 0.1 - 0.12 | 0.085 - 0.1 | 0.1 | 0.088 | 0/5 | 0/5 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/5 | 0/5 | 0.17 | (a) | N/A | 0.07 - 0.085 | 0.033 - 0.04 | 0.073 | 0.034 | 0/5 | 0/5 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/5 | 0/5 | 0.23 | (a) | N/A | 0.07 - 0.085 | 0.051 - 0.062 | 0.073 | 0.053 | 0/5 | 0/5 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/5 | 0/5 | 0.23 | (a) | N/A | 0.07 - 0.085 | 0.016 - 0.019 | 0.073 | 0.016 | 0/5 | 0/5 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/5 | 0/5 | 0.12 | (a) | N/A | 0.07 - 0.085 | 0.036 - 0.043 | 0.073 | 0.037 | 0/5 | 0/5 |
| PCB-1260 (Aroclor 1260) | mg/kg | 0/5 | 0/5 | 0.24 | (a) | N/A | 0.07 - 0.085 | 0.0071 - 0.0086 | 0.073 | 0.0073 | 0/5 | 0/5 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/5 | 0/5 | N/A | N/A | N/A | 0.07 - 0.085 | 0.017 - 0.021 | 0.073 | 0.018 | N/A | N/A |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/5 | 0/5 | N/A | N/A | N/A | 0.07 - 0.085 | 0.0071 - 0.0086 | 0.073 | 0.0073 | N/A | N/A |
| Metals - Total | | | | | | | | | | | | |
| Aluminum | mg/kg | 25/25 | 0/25 | 7700 | (a) | 3200 - 19000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 22/25 | 0/25 | 3.1 | (a) | 0.071 - 0.21 | 0.17 - 0.2 | 0.087 - 0.099 | 0.18 | 0.091 | 0/3 | 0/3 |
| Arsenic | mg/kg | 25/25 | 0/25 | 0.68 | (a) | 2.8 - 26 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 25/25 | 0/25 | 1500 | (a) | 18 - 110 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 25/25 | 0/25 | 16 | (a) | 0.11 - 0.83 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 25/25 | 0/25 | 0.71 | (a) | 0.025 - 0.38 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 25/25 | 0/25 | N/A | N/A | 3500 - 82000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 25/25 | 0/25 | 12000 | (a) | 4.9 - 25 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 25/25 | 0/25 | 2.3 | (a) | 2.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 25/25 | 0/25 | 310 | (a) | 9.3 - 74 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 25/25 | 0/25 | 5500 | (a) | 9100 - 31000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 25/25 | 0/25 | 400 | (a) | 3 - 28 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 25/25 | 0/25 | N/A | N/A | 2200 - 26000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 25/25 | 0/25 | 180 | (a) | 320 - 2400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 18/25 | 0/25 | 1.1 | (a) | 0.013 - 0.099 | 0.019 - 0.021 | 0.015 - 0.017 | 0.02 | 0.016 | 0/7 | 0/7 |
| Nickel | mg/kg | 25/25 | 0/25 | 150 | (a) | 5.1 - 29 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 26
Summary Statistics and Human Health Project Action Limits (AOC 5)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Potassium | mg/kg | 25/25 | 0/25 | N/A | N/A | 400 - 3700 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 17/25 | 0/25 | 39 | (a) | 0.11 - 0.41 | 0.39 - 0.5 | 0.31 - 0.4 | 0.48 | 0.38 | 0/8 | 0/8 |
| Silver | mg/kg | 0/25 | 0/25 | 39 | (a) | N/A | 1.2 - 7.1 | 0.46 - 2.9 | 1.4 | 0.56 | 0/25 | 0/25 |
| Sodium | mg/kg | 11/25 | 0/25 | N/A | N/A | 46 - 230 | 390 - 2300 | 86 - 540 | 480 | 430 | N/A | N/A |
| Thallium | mg/kg | 12/25 | 0/25 | 0.078 | (a) | 0.032 - 0.2 | 0.078 - 0.12 | 0.078 - 0.12 | 0.097 | 0.097 | 12/13 | 12/13 |
| Vanadium | mg/kg | 25/25 | 0/25 | 39 | (a) | 8.7 - 31 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 25/25 | 0/25 | 2300 | (a) | 12 - 150 | N/A | N/A | N/A | N/A | N/A | N/A |
| Soil: 5 - 10 feet below ground surface | | | | | | | | | | | | |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | mg/kg | 0/5 | 0/5 | 810 | (a) | N/A | 0.004 - 0.0047 | 0.004 - 0.0047 | 0.0044 | 0.0044 | 0/5 | 0/5 |
| 1,1,2,2-Tetrachloroethane | mg/kg | 0/5 | 0/5 | 0.6 | (a) | N/A | 0.004 - 0.0047 | 0.00064 - 0.00075 | 0.0044 | 0.0007 | 0/5 | 0/5 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0/5 | 0/5 | 670 | (a) | N/A | 0.016 - 0.019 | 0.0051 - 0.006 | 0.017 | 0.0056 | 0/5 | 0/5 |
| 1,1,2-Trichloroethane | mg/kg | 0/5 | 0/5 | 0.15 | (a) | N/A | 0.004 - 0.0047 | 0.0026 - 0.003 | 0.0044 | 0.0028 | 0/5 | 0/5 |
| 1,1-Dichloroethane | mg/kg | 0/5 | 0/5 | 3.6 | (a) | N/A | 0.004 - 0.0047 | 0.00064 - 0.00075 | 0.0044 | 0.0007 | 0/5 | 0/5 |
| 1,1-Dichloroethene | mg/kg | 0/5 | 0/5 | 23 | (a) | N/A | 0.004 - 0.0047 | 0.0013 - 0.0015 | 0.0044 | 0.0014 | 0/5 | 0/5 |
| 1,2,3-Trichlorobenzene | mg/kg | 0/5 | 0/5 | 6.3 | (a) | N/A | 0.004 - 0.0047 | 0.0026 - 0.003 | 0.0044 | 0.0028 | 0/5 | 0/5 |
| 1,2,4-Trichlorobenzene | mg/kg | 0/5 | 0/5 | 5.8 | (a) | N/A | 0.004 - 0.0047 | 0.0013 - 0.0015 | 0.0044 | 0.0014 | 0/5 | 0/5 |
| 1,2-Dibromo-3-chloropropane | mg/kg | 0/5 | 0/5 | 0.0053 | (a) | N/A | 0.008 - 0.0094 | 0.008 - 0.0094 | 0.0087 | 0.0087 | 5/5 | 5/5 |
| 1,2-Dibromoethane (EDB) | mg/kg | 0/5 | 0/5 | 0.036 | (a) | N/A | 0.004 - 0.0047 | 0.0013 - 0.0015 | 0.0044 | 0.0014 | 0/5 | 0/5 |
| 1,2-Dichlorobenzene | mg/kg | 0/5 | 0/5 | 180 | (a) | N/A | 0.004 - 0.0047 | 0.004 - 0.0047 | 0.0044 | 0.0044 | 0/5 | 0/5 |
| 1,2-Dichloroethane | mg/kg | 0/5 | 0/5 | 0.46 | (a) | N/A | 0.004 - 0.0047 | 0.0013 - 0.0015 | 0.0044 | 0.0014 | 0/5 | 0/5 |
| 1,2-Dichloropropane | mg/kg | 0/5 | 0/5 | 1.6 | (a) | N/A | 0.004 - 0.0047 | 0.0013 - 0.0015 | 0.0044 | 0.0014 | 0/5 | 0/5 |
| 1,3-Dichlorobenzene | mg/kg | 0/5 | 0/5 | N/A | N/A | N/A | 0.004 - 0.0047 | 0.0013 - 0.0015 | 0.0044 | 0.0014 | N/A | N/A |
| 1,3-Dichloropropane | mg/kg | 0/5 | 0/5 | 160 | (a) | N/A | 0.004 - 0.0047 | 0.00032 - 0.00038 | 0.0044 | 0.00035 | 0/5 | 0/5 |
| 1,4-Dichlorobenzene | mg/kg | 0/5 | 0/5 | 2.6 | (a) | N/A | 0.004 - 0.0047 | 0.00064 - 0.00075 | 0.0044 | 0.0007 | 0/5 | 0/5 |
| 2-Butanone (MEK) | mg/kg | 0/5 | 0/5 | 2700 | (a) | N/A | 0.016 - 0.019 | 0.01 - 0.012 | 0.017 | 0.011 | 0/5 | 0/5 |
| 2-Hexanone | mg/kg | 0/5 | 0/5 | 20 | (a) | N/A | 0.016 - 0.019 | 0.01 - 0.012 | 0.017 | 0.011 | 0/5 | 0/5 |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 0/5 | 0/5 | 3300 | (a) | N/A | 0.016 - 0.019 | 0.01 - 0.012 | 0.017 | 0.011 | 0/5 | 0/5 |
| Acetone | mg/kg | 0/5 | 0/5 | 7000 | (a) | N/A | 0.058 - 0.068 | 0.058 - 0.068 | 0.063 | 0.063 | 0/5 | 0/5 |
| Benzene | mg/kg | 0/5 | 0/5 | 1.2 | (a) | N/A | 0.004 - 0.0047 | 0.00032 - 0.00038 | 0.0044 | 0.00035 | 0/5 | 0/5 |
| Bromochloromethane | mg/kg | 0/5 | 0/5 | 15 | (a) | N/A | 0.004 - 0.0047 | 0.004 - 0.0047 | 0.0044 | 0.0044 | 0/5 | 0/5 |
| Bromodichloromethane | mg/kg | 0/5 | 0/5 | 0.29 | (a) | N/A | 0.004 - 0.0047 | 0.004 - 0.0047 | 0.0044 | 0.0044 | 0/5 | 0/5 |
| Bromoform | mg/kg | 0/5 | 0/5 | 19 | (a) | N/A | 0.0041 - 0.0048 | 0.0041 - 0.0048 | 0.0044 | 0.0044 | 0/5 | 0/5 |
| Bromomethane | mg/kg | 0/5 | 0/5 | 0.68 | (a) | N/A | 0.008 - 0.0094 | 0.0026 - 0.003 | 0.0087 | 0.0028 | 0/5 | 0/5 |
| Carbon disulfide | mg/kg | 0/5 | 0/5 | 77 | (a) | N/A | 0.004 - 0.0047 | 0.004 - 0.0047 | 0.0044 | 0.0044 | 0/5 | 0/5 |
| Carbon tetrachloride | mg/kg | 0/5 | 0/5 | 0.65 | (a) | N/A | 0.004 - 0.0047 | 0.004 - 0.0047 | 0.0044 | 0.0044 | 0/5 | 0/5 |
| Chlorobenzene | mg/kg | 0/5 | 0/5 | 28 | (a) | N/A | 0.004 - 0.0047 | 0.004 - 0.0047 | 0.0044 | 0.0044 | 0/5 | 0/5 |
| Chloroethane | mg/kg | 0/5 | 0/5 | 540 | (a) | N/A | 0.008 - 0.0094 | 0.0051 - 0.006 | 0.0087 | 0.0056 | 0/5 | 0/5 |
| Chloroform | mg/kg | 0/5 | 0/5 | 0.32 | (a) | N/A | 0.008 - 0.0094 | 0.00064 - 0.00075 | 0.0087 | 0.0007 | 0/5 | 0/5 |
| Chloromethane | mg/kg | 0/5 | 0/5 | 11 | (a) | N/A | 0.008 - 0.0094 | 0.0013 - 0.0015 | 0.0087 | 0.0014 | 0/5 | 0/5 |
| cis-1,2-Dichloroethene | mg/kg | 0/5 | 0/5 | 16 | (a) | N/A | 0.004 - 0.0047 | 0.00064 - 0.00075 | 0.0044 | 0.0007 | 0/5 | 0/5 |
| cis-1,3-Dichloropropene | mg/kg | 0/5 | 0/5 | 1.8 | (a) | N/A | 0.004 - 0.0047 | 0.00032 - 0.00038 | 0.0044 | 0.00035 | 0/5 | 0/5 |
| Cumene | mg/kg | 0/5 | 0/5 | 190 | (a) | N/A | 0.004 - 0.0047 | 0.004 - 0.0047 | 0.0044 | 0.0044 | 0/5 | 0/5 |
| Cyclohexane | mg/kg | 0/5 | 0/5 | 650 | (a) | N/A | 0.004 - 0.0047 | 0.004 - 0.0047 | 0.0044 | 0.0044 | 0/5 | 0/5 |
| Dibromochloromethane | mg/kg | 0/5 | 0/5 | 8.3 | (a) | N/A | 0.004 - 0.0047 | 0.004 - 0.0047 | 0.0044 | 0.0044 | 0/5 | 0/5 |
| Dichlorodifluoromethane | mg/kg | 0/5 | 0/5 | 8.7 | (a) | N/A | 0.008 - 0.0094 | 0.0051 - 0.006 | 0.0087 | 0.0056 | 0/5 | 0/5 |
| Ethylbenzene | mg/kg | 0/5 | 0/5 | 5.8 | (a) | N/A | 0.004 - 0.0047 | 0.00064 - 0.00075 | 0.0044 | 0.0007 | 0/5 | 0/5 |
| m,p-Xylene | mg/kg | 0/5 | 0/5 | 55 | (a) | N/A | 0.0026 - 0.003 | 0.0026 - 0.003 | 0.0028 | 0.0028 | 0/5 | 0/5 |
| Methyl acetate | mg/kg | 0/5 | 0/5 | 7800 | (a) | N/A | 0.0068 - 0.008 | 0.0064 - 0.0075 | 0.0074 | 0.007 | 0/5 | 0/5 |
| Methyl tert-butyl ether (MTBE) | mg/kg | 0/5 | 0/5 | 47 | (a) | N/A | 0.016 - 0.019 | 0.0051 - 0.006 | 0.017 | 0.0056 | 0/5 | 0/5 |
| Methylcyclohexane | mg/kg | 0/5 | 0/5 | N/A | N/A | N/A | 0.004 - 0.0047 | 0.0013 - 0.0015 | 0.0044 | 0.0014 | N/A | N/A |

Table 26
Summary Statistics and Human Health Project Action Limits (AOC 5)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Methylene chloride | mg/kg | 0/5 | 0/5 | 35 | (a) | N/A | 0.004 - 0.0047 | 0.0026 - 0.003 | 0.0044 | 0.0028 | 0/5 | 0/5 |
| o-Xylene | mg/kg | 0/5 | 0/5 | 64 | (a) | N/A | 0.004 - 0.0047 | 0.00064 - 0.00075 | 0.0044 | 0.0007 | 0/5 | 0/5 |
| Styrene | mg/kg | 0/5 | 0/5 | 600 | (a) | N/A | 0.004 - 0.0047 | 0.00064 - 0.00075 | 0.0044 | 0.0007 | 0/5 | 0/5 |
| Tetrachloroethene (PCE) | mg/kg | 0/5 | 0/5 | 8.1 | (a) | N/A | 0.004 - 0.0047 | 0.004 - 0.0047 | 0.0044 | 0.0044 | 0/5 | 0/5 |
| Toluene | mg/kg | 0/5 | 0/5 | 490 | (a) | N/A | 0.004 - 0.0047 | 0.00064 - 0.00075 | 0.0044 | 0.0007 | 0/5 | 0/5 |
| trans-1,2-Dichloroethene | mg/kg | 0/5 | 0/5 | 7 | (a) | N/A | 0.004 - 0.0047 | 0.00064 - 0.00075 | 0.0044 | 0.0007 | 0/5 | 0/5 |
| trans-1,3-Dichloropropene | mg/kg | 0/5 | 0/5 | 1.8 | (a) | N/A | 0.004 - 0.0047 | 0.00016 - 0.00019 | 0.0044 | 0.00017 | 0/5 | 0/5 |
| Trichlorofluoromethane | mg/kg | 0/5 | 0/5 | 2300 | (a) | N/A | 0.008 - 0.0094 | 0.008 - 0.0094 | 0.0087 | 0.0087 | 0/5 | 0/5 |
| Vinyl chloride | mg/kg | 0/5 | 0/5 | 0.059 | (a) | N/A | 0.004 - 0.0047 | 0.0026 - 0.003 | 0.0044 | 0.0028 | 0/5 | 0/5 |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/25 | 0/25 | 0.23 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 25/25 | 0/25 |
| 1,4-Dioxane | mg/kg | 0/25 | 0/25 | 5.3 | (a) | N/A | 0.35 - 0.41 | 0.35 - 0.41 | 0.37 | 0.37 | 0/25 | 0/25 |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/25 | 0/25 | 310 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/25 | 0/25 | 190 | (a) | N/A | 0.35 - 0.41 | 0.088 - 0.1 | 0.37 | 0.094 | 0/25 | 0/25 |
| 2,4,5-Trichlorophenol | mg/kg | 0/25 | 0/25 | 630 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2,4,6-Trichlorophenol | mg/kg | 0/25 | 0/25 | 6.3 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2,4-Dichlorophenol | mg/kg | 0/25 | 0/25 | 19 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2,4-Dimethylphenol | mg/kg | 0/25 | 0/25 | 130 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2,4-Dinitrotoluene | mg/kg | 0/25 | 0/25 | 1.7 | (a) | N/A | 0.35 - 0.41 | 0.088 - 0.1 | 0.37 | 0.094 | 0/25 | 0/25 |
| 2,6-Dinitrotoluene | mg/kg | 0/25 | 0/25 | 0.36 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 22/25 | 0/25 |
| 2-Chloronaphthalene | mg/kg | 0/25 | 0/25 | 480 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2-Chlorophenol | mg/kg | 0/25 | 0/25 | 39 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/25 | 0/25 | 320 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2-Nitroaniline | mg/kg | 0/25 | 0/25 | 63 | (a) | N/A | 1.8 - 2.1 | 0.18 - 0.21 | 1.9 | 0.19 | 0/25 | 0/25 |
| 2-Nitrophenol | mg/kg | 0/25 | 0/25 | N/A | N/A | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | N/A | N/A |
| 3,3'-Dichlorobenzidine | mg/kg | 0/25 | 0/25 | 1.2 | (a) | N/A | 0.7 - 0.83 | 0.071 - 0.084 | 0.75 | 0.076 | 0/25 | 0/25 |
| 3-Nitroaniline | mg/kg | 0/25 | 0/25 | N/A | N/A | N/A | 1.8 - 2.1 | 0.088 - 0.1 | 1.9 | 0.094 | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/25 | 0/25 | 0.51 | (a) | N/A | 1.8 - 2.1 | 0.35 - 0.41 | 1.9 | 0.37 | 25/25 | 0/25 |
| 4-Bromophenyl phenyl ether | mg/kg | 0/25 | 0/25 | N/A | N/A | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/25 | 0/25 | 630 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| 4-Chloroaniline | mg/kg | 0/25 | 0/25 | 2.7 | (a) | N/A | 0.7 - 0.83 | 0.088 - 0.1 | 0.75 | 0.094 | 0/25 | 0/25 |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/25 | 0/25 | N/A | N/A | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/25 | 0/25 | 25 | (a) | N/A | 1.8 - 2.1 | 0.088 - 0.1 | 1.9 | 0.094 | 0/25 | 0/25 |
| 4-Nitrophenol | mg/kg | 0/25 | 0/25 | N/A | N/A | N/A | 1.8 - 2.1 | 0.71 - 0.84 | 1.9 | 0.76 | N/A | N/A |
| Acetophenone | mg/kg | 0/25 | 0/25 | 780 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| Atrazine | mg/kg | 0/25 | 0/25 | 2.4 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| Benzaldehyde | mg/kg | 0/25 | 0/25 | 170 | (a) | N/A | 0.35 - 0.41 | 0.18 - 0.21 | 0.37 | 0.19 | 0/25 | 0/25 |
| Benzyl butyl phthalate | mg/kg | 0/25 | 0/25 | 290 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| Biphenyl (Diphenyl) | mg/kg | 0/25 | 0/25 | 4.7 | (a) | N/A | 1.8 - 2.1 | 0.35 - 0.41 | 1.9 | 0.37 | 0/25 | 0/25 |
| Bis(2-chloroethoxy)methane | mg/kg | 0/25 | 0/25 | 19 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/25 | 0/25 | 0.23 | (a) | N/A | 0.35 - 0.41 | 0.088 - 0.1 | 0.37 | 0.094 | 25/25 | 0/25 |
| Bis(2-ethylhexyl)phthalate | mg/kg | 0/25 | 0/25 | 39 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| Caprolactam | mg/kg | 0/25 | 0/25 | 3100 | (a) | N/A | 0.35 - 0.41 | 0.18 - 0.21 | 0.37 | 0.19 | 0/25 | 0/25 |
| Carbazole | mg/kg | 0/25 | 0/25 | N/A | N/A | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | N/A | N/A |
| Cresols, m- & p- | mg/kg | 0/25 | 0/25 | 130 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| Dibenzofuran | mg/kg | 0/25 | 0/25 | 7.8 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| Diethyl phthalate | mg/kg | 0/25 | 0/25 | 5100 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| Dimethyl phthalate | mg/kg | 0/25 | 0/25 | N/A | N/A | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | N/A | N/A |
| Di-n-butyl phthalate | mg/kg | 0/25 | 0/25 | 630 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| di-n-Octyl phthalate | mg/kg | 0/25 | 0/25 | 63 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| Hexachlorobenzene | mg/kg | 0/25 | 0/25 | 0.078 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 25/25 | 4/25 |

Table 26
Summary Statistics and Human Health Project Action Limits (AOC 5)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Hexachlorobutadiene | mg/kg | 0/25 | 0/25 | 1.2 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| Hexachlorocyclopentadiene | mg/kg | 0/25 | 0/25 | 0.18 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 25/25 | 0/25 |
| Hexachloroethane | mg/kg | 0/25 | 0/25 | 1.8 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| Isophorone | mg/kg | 0/25 | 0/25 | 570 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| Nitrobenzene | mg/kg | 0/25 | 0/25 | 5.1 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| N-Nitrosodi-n-propylamine | mg/kg | 0/25 | 0/25 | 0.078 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 25/25 | 4/25 |
| N-Nitrosodiphenylamine | mg/kg | 0/25 | 0/25 | 110 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| Pentachlorophenol | mg/kg | 0/25 | 0/25 | 1 | (a) | N/A | 1.8 - 2.1 | 0.71 - 0.84 | 1.9 | 0.76 | 25/25 | 0/25 |
| Phenol | mg/kg | 0/25 | 0/25 | 1900 | (a) | N/A | 0.35 - 0.41 | 0.071 - 0.084 | 0.37 | 0.076 | 0/25 | 0/25 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 5/25 | 0/25 | 18 | (a) | 0.0012 - 0.13 | 0.01 - 0.012 | 0.002 - 0.0025 | 0.011 | 0.0022 | 0/20 | 0/20 |
| 2-Methylnaphthalene | mg/kg | 7/25 | 0/25 | 24 | (a) | 0.0015 - 0.16 | 0.01 - 0.012 | 0.002 - 0.0025 | 0.011 | 0.0022 | 0/18 | 0/18 |
| Acenaphthene | mg/kg | 1/25 | 0/25 | 360 | (a) | 0.0042 - 0.0042 | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | 0/24 | 0/24 |
| Acenaphthylene | mg/kg | 1/25 | 0/25 | N/A | N/A | 0.0063 - 0.0063 | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | N/A | N/A |
| Anthracene | mg/kg | 2/25 | 0/25 | 1800 | (a) | 0.002 - 0.0097 | 0.01 - 0.012 | 0.0044 - 0.0054 | 0.011 | 0.0048 | 0/23 | 0/23 |
| Benzo(a)anthracene | mg/kg | 8/25 | 0/25 | 1.1 | (a) | 0.002 - 0.042 | 0.01 - 0.012 | 0.0045 - 0.0052 | 0.011 | 0.0048 | 0/17 | 0/17 |
| Benzo(a)pyrene | mg/kg | 8/25 | 0/25 | 0.11 | (a) | 0.0017 - 0.033 | 0.01 - 0.012 | 0.0044 - 0.0052 | 0.011 | 0.0048 | 0/17 | 0/17 |
| Benzo(b)fluoranthene | mg/kg | 11/25 | 0/25 | 1.1 | (a) | 0.003 - 0.05 | 0.01 - 0.012 | 0.007 - 0.0078 | 0.011 | 0.0074 | 0/14 | 0/14 |
| Benzo(g,h,i)perylene | mg/kg | 5/25 | 0/25 | N/A | N/A | 0.0029 - 0.024 | 0.01 - 0.012 | 0.0068 - 0.008 | 0.011 | 0.0074 | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 4/25 | 0/25 | 11 | (a) | 0.0023 - 0.021 | 0.01 - 0.012 | 0.0044 - 0.0054 | 0.011 | 0.0048 | 0/21 | 0/21 |
| Chrysene | mg/kg | 13/25 | 0/25 | 110 | (a) | 0.0027 - 0.06 | 0.01 - 0.012 | 0.0045 - 0.0052 | 0.011 | 0.0049 | 0/12 | 0/12 |
| Dibenz(a,h)anthracene | mg/kg | 3/25 | 0/25 | 0.11 | (a) | 0.0029 - 0.008 | 0.01 - 0.012 | 0.0068 - 0.0083 | 0.011 | 0.0074 | 0/22 | 0/22 |
| Fluoranthene | mg/kg | 10/25 | 0/25 | 240 | (a) | 0.0025 - 0.063 | 0.01 - 0.012 | 0.0045 - 0.0051 | 0.011 | 0.0048 | 0/15 | 0/15 |
| Fluorene | mg/kg | 1/25 | 0/25 | 240 | (a) | 0.0091 - 0.0091 | 0.01 - 0.012 | 0.0027 - 0.0033 | 0.011 | 0.003 | 0/24 | 0/24 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 4/25 | 0/25 | 1.1 | (a) | 0.0034 - 0.029 | 0.01 - 0.012 | 0.0068 - 0.0083 | 0.011 | 0.0074 | 0/21 | 0/21 |
| Naphthalene | mg/kg | 18/25 | 0/25 | 2 | (a) | 0.00088 - 0.1 | 0.01 - 0.012 | 0.002 - 0.0024 | 0.011 | 0.0022 | 0/7 | 0/7 |
| Phenanthrene | mg/kg | 8/25 | 0/25 | N/A | N/A | 0.0025 - 0.12 | 0.01 - 0.012 | 0.007 - 0.0083 | 0.011 | 0.0074 | N/A | N/A |
| Pyrene | mg/kg | 12/25 | 0/25 | 180 | (a) | 0.0023 - 0.067 | 0.01 - 0.012 | 0.007 - 0.0078 | 0.011 | 0.0074 | 0/13 | 0/13 |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/5 | 0/5 | 0.41 | (a) | N/A | 0.069 - 0.079 | 0.032 - 0.037 | 0.074 | 0.035 | 0/5 | 0/5 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/5 | 0/5 | 0.2 | (a) | N/A | 0.099 - 0.11 | 0.084 - 0.096 | 0.11 | 0.09 | 0/5 | 0/5 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/5 | 0/5 | 0.17 | (a) | N/A | 0.069 - 0.079 | 0.032 - 0.037 | 0.074 | 0.035 | 0/5 | 0/5 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/5 | 0/5 | 0.23 | (a) | N/A | 0.069 - 0.079 | 0.05 - 0.058 | 0.074 | 0.054 | 0/5 | 0/5 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/5 | 0/5 | 0.23 | (a) | N/A | 0.069 - 0.079 | 0.016 - 0.018 | 0.074 | 0.017 | 0/5 | 0/5 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/5 | 0/5 | 0.12 | (a) | N/A | 0.069 - 0.079 | 0.035 - 0.04 | 0.074 | 0.038 | 0/5 | 0/5 |
| PCB-1260 (Aroclor 1260) | mg/kg | 0/5 | 0/5 | 0.24 | (a) | N/A | 0.069 - 0.079 | 0.007 - 0.008 | 0.074 | 0.0075 | 0/5 | 0/5 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/5 | 0/5 | N/A | N/A | N/A | 0.069 - 0.079 | 0.017 - 0.019 | 0.074 | 0.018 | N/A | N/A |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/5 | 0/5 | N/A | N/A | N/A | 0.069 - 0.079 | 0.007 - 0.008 | 0.074 | 0.0075 | N/A | N/A |
| Metals - Total | | | | | | | | | | | | |
| Aluminum | mg/kg | 25/25 | 0/25 | 7700 | (a) | 2000 - 20000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 19/25 | 0/25 | 3.1 | (a) | 0.081 - 0.21 | 0.16 - 0.21 | 0.078 - 0.11 | 0.21 | 0.1 | 0/6 | 0/6 |
| Arsenic | mg/kg | 25/25 | 0/25 | 0.68 | (a) | 2.9 - 79 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 25/25 | 0/25 | 1500 | (a) | 28 - 140 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 25/25 | 0/25 | 16 | (a) | 0.083 - 0.81 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 25/25 | 0/25 | 0.71 | (a) | 0.015 - 0.16 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 25/25 | 0/25 | N/A | N/A | 4800 - 91000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 25/25 | 0/25 | 12000 | (a) | 3.8 - 27 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 25/25 | 0/25 | 2.3 | (a) | 2.7 - 15 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 25/25 | 0/25 | 310 | (a) | 9.6 - 25 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 25/25 | 0/25 | 5500 | (a) | 8500 - 29000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 25/25 | 0/25 | 400 | (a) | 2.4 - 14 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 26
Summary Statistics and Human Health Project Action Limits (AOC 5)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Magnesium | mg/kg | 25/25 | 0/25 | N/A | N/A | 4300 - 28000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 25/25 | 0/25 | 180 | (a) | 320 - 1100 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 15/25 | 0/25 | 1.1 | (a) | 0.0077 - 0.2 | 0.02 - 0.023 | 0.016 - 0.018 | 0.022 | 0.017 | 0/10 | 0/10 |
| Nickel | mg/kg | 25/25 | 0/25 | 150 | (a) | 5 - 32 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 25/25 | 0/25 | N/A | N/A | 390 - 4400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 10/25 | 0/25 | 39 | (a) | 0.12 - 0.28 | 0.4 - 0.57 | 0.32 - 0.45 | 0.48 | 0.38 | 0/15 | 0/15 |
| Silver | mg/kg | 0/25 | 0/25 | 39 | (a) | N/A | 1.2 - 6.3 | 0.48 - 2.5 | 1.4 | 0.56 | 0/25 | 0/25 |
| Sodium | mg/kg | 10/25 | 0/25 | N/A | N/A | 64 - 220 | 400 - 2100 | 110 - 610 | 490 | 460 | N/A | N/A |
| Thallium | mg/kg | 16/25 | 0/25 | 0.078 | (a) | 0.023 - 0.71 | 0.08 - 0.11 | 0.08 - 0.11 | 0.089 | 0.089 | 9/9 | 9/9 |
| Vanadium | mg/kg | 25/25 | 0/25 | 39 | (a) | 5.9 - 37 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 25/25 | 0/25 | 2300 | (a) | 11 - 83 | N/A | N/A | N/A | N/A | N/A | N/A |
| Groundwater | | | | | | | | | | | | |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | µg/L | 0/3 | 0/3 | 800 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/3 | 0/3 |
| 1,1,2,2-Tetrachloroethane | µg/L | 0/3 | 0/3 | 0.076 | (b) | N/A | 1 - 1 | 0.8 - 0.8 | 1 | 0.8 | 3/3 | 3/3 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | µg/L | 0/3 | 0/3 | 1000 | (b) | N/A | 3 - 3 | 0.4 - 0.4 | 3 | 0.4 | 0/3 | 0/3 |
| 1,1,2-Trichloroethane | µg/L | 0/3 | 0/3 | 0.041 | (b) | N/A | 1 - 1 | 0.8 - 0.8 | 1 | 0.8 | 3/3 | 3/3 |
| 1,1-Dichloroethane | µg/L | 0/3 | 0/3 | 2.8 | (b) | N/A | 1 - 1 | 0.8 - 0.8 | 1 | 0.8 | 0/3 | 0/3 |
| 1,1-Dichloroethene | µg/L | 0/3 | 0/3 | 28 | (b) | N/A | 1 - 1 | 0.8 - 0.8 | 1 | 0.8 | 0/3 | 0/3 |
| 1,2,3-Trichlorobenzene | µg/L | 1/3 | 0/3 | 0.7 | (b) | 0.45 - 0.45 | 1 - 1 | 0.8 - 0.8 | 1 | 0.8 | 2/2 | 2/2 |
| 1,2,4-Trichlorobenzene | µg/L | 0/3 | 0/3 | 0.4 | (b) | N/A | 1 - 1 | 0.8 - 0.8 | 1 | 0.8 | 3/3 | 3/3 |
| 1,2-Dibromo-3-chloropropane | µg/L | 0/3 | 0/3 | 0.00033 | (b) | N/A | 5 - 5 | 1.6 - 1.6 | 5 | 1.6 | 3/3 | 3/3 |
| 1,2-Dibromoethane (EDB) | µg/L | 0/3 | 0/3 | 0.0075 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 3/3 | 3/3 |
| 1,2-Dichlorobenzene | µg/L | 0/3 | 0/3 | 30 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/3 | 0/3 |
| 1,2-Dichloroethane | µg/L | 0/3 | 0/3 | 0.17 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 3/3 | 3/3 |
| 1,2-Dichloropropane | µg/L | 0/3 | 0/3 | 0.82 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 3/3 | 0/3 |
| 1,3-Dichlorobenzene | µg/L | 0/3 | 0/3 | 3 | (c) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/3 | 0/3 |
| 1,3-Dichloropropane | µg/L | 0/3 | 0/3 | 37 | (b) | N/A | 1 - 1 | 0.2 - 0.2 | 1 | 0.2 | 0/3 | 0/3 |
| 1,4-Dichlorobenzene | µg/L | 0/3 | 0/3 | 0.48 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 3/3 | 0/3 |
| 2-Butanone (MEK) | µg/L | 0/3 | 0/3 | 560 | (b) | N/A | 6 - 6 | 4 - 4 | 6 | 4 | 0/3 | 0/3 |
| 2-Hexanone | µg/L | 0/3 | 0/3 | 3.8 | (b) | N/A | 5 - 5 | 4 - 4 | 5 | 4 | 3/3 | 3/3 |
| 4-Methyl-2-pentanone (MIBK) | µg/L | 0/3 | 0/3 | 630 | (b) | N/A | 5 - 5 | 3.2 - 3.2 | 5 | 3.2 | 0/3 | 0/3 |
| Acetone | µg/L | 0/3 | 0/3 | 1800 | (b) | N/A | 10 - 10 | 6.4 - 6.4 | 10 | 6.4 | 0/3 | 0/3 |
| Benzene | µg/L | 0/3 | 0/3 | 0.46 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 3/3 | 0/3 |
| Bromochloromethane | µg/L | 0/3 | 0/3 | 8.3 | (b) | N/A | 1 - 1 | 0.2 - 0.2 | 1 | 0.2 | 0/3 | 0/3 |
| Bromodichloromethane | µg/L | 0/3 | 0/3 | 0.13 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 3/3 | 3/3 |
| Bromoform | µg/L | 0/3 | 0/3 | 3.3 | (b) | N/A | 1 - 1 | 1 - 1 | 1 | 1 | 0/3 | 0/3 |
| Bromomethane | µg/L | 0/3 | 0/3 | 0.75 | (b) | N/A | 2 - 2 | 0.8 - 0.8 | 2 | 0.8 | 3/3 | 3/3 |
| Carbon disulfide | µg/L | 0/3 | 0/3 | 81 | (b) | N/A | 2 - 2 | 0.8 - 0.8 | 2 | 0.8 | 0/3 | 0/3 |
| Carbon tetrachloride | µg/L | 0/3 | 0/3 | 0.46 | (b) | N/A | 2 - 2 | 0.4 - 0.4 | 2 | 0.4 | 3/3 | 0/3 |
| Chlorobenzene | µg/L | 0/3 | 0/3 | 7.8 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/3 | 0/3 |
| Chloroethane | µg/L | 0/3 | 0/3 | 830 | (b) | N/A | 2 - 2 | 1.6 - 1.6 | 2 | 1.6 | 0/3 | 0/3 |
| Chloroform | µg/L | 0/3 | 0/3 | 0.22 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 3/3 | 3/3 |
| Chloromethane | µg/L | 0/3 | 0/3 | 19 | (b) | N/A | 2 - 2 | 0.8 - 0.8 | 2 | 0.8 | 0/3 | 0/3 |
| cis-1,2-Dichloroethene | µg/L | 0/3 | 0/3 | 3.6 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/3 | 0/3 |
| cis-1,3-Dichloropropene | µg/L | 0/3 | 0/3 | 0.47 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 3/3 | 0/3 |
| Cumene | µg/L | 0/3 | 0/3 | 45 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/3 | 0/3 |
| Cyclohexane | µg/L | 0/3 | 0/3 | 1300 | (b) | N/A | 2 - 2 | 0.8 - 0.8 | 2 | 0.8 | 0/3 | 0/3 |
| Dibromochloromethane | µg/L | 0/3 | 0/3 | 0.87 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 3/3 | 0/3 |
| Dichlorodifluoromethane | µg/L | 0/3 | 0/3 | 20 | (b) | N/A | 2 - 2 | 0.8 - 0.8 | 2 | 0.8 | 0/3 | 0/3 |
| Ethylbenzene | µg/L | 0/3 | 0/3 | 1.5 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/3 | 0/3 |

Table 26
Summary Statistics and Human Health Project Action Limits (AOC 5)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| m,p-Xylene | µg/L | 0/3 | 0/3 | 19 | (b) | N/A | 2 - 2 | 0.8 - 0.8 | 2 | 0.8 | 0/3 | 0/3 |
| Methyl acetate | µg/L | 0/3 | 0/3 | 2000 | (b) | N/A | 5 - 5 | 4 - 4 | 5 | 4 | 0/3 | 0/3 |
| Methyl tert-butyl ether (MTBE) | µg/L | 0/3 | 0/3 | 14 | (b) | N/A | 5 - 5 | 0.8 - 0.8 | 5 | 0.8 | 0/3 | 0/3 |
| Methylcyclohexane | µg/L | 0/3 | 0/3 | N/A | N/A | N/A | 2 - 2 | 0.4 - 0.4 | 2 | 0.4 | N/A | N/A |
| Methylene chloride | µg/L | 0/3 | 0/3 | 11 | (b) | N/A | 5 - 5 | 2 - 2 | 5 | 2 | 0/3 | 0/3 |
| o-Xylene | µg/L | 0/3 | 0/3 | 19 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/3 | 0/3 |
| Styrene | µg/L | 0/3 | 0/3 | 120 | (b) | N/A | 1 - 1 | 0.8 - 0.8 | 1 | 0.8 | 0/3 | 0/3 |
| Tetrachloroethene (PCE) | µg/L | 0/3 | 0/3 | 4.1 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/3 | 0/3 |
| Toluene | µg/L | 0/3 | 0/3 | 110 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/3 | 0/3 |
| trans-1,2-Dichloroethene | µg/L | 0/3 | 0/3 | 6.8 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 0/3 | 0/3 |
| trans-1,3-Dichloropropene | µg/L | 0/3 | 0/3 | 0.47 | (b) | N/A | 1 - 1 | 0.4 - 0.4 | 1 | 0.4 | 3/3 | 0/3 |
| Trichlorofluoromethane | µg/L | 0/3 | 0/3 | 520 | (b) | N/A | 2 - 2 | 0.8 - 0.8 | 2 | 0.8 | 0/3 | 0/3 |
| Vinyl chloride | µg/L | 0/3 | 0/3 | 0.019 | (b) | N/A | 1.5 - 1.5 | 0.2 - 0.2 | 1.5 | 0.2 | 3/3 | 3/3 |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | µg/L | 0/10 | 2/12 | 0.017 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 10/10 | 10/10 |
| 1,4-Dioxane | µg/L | 0/10 | 2/12 | 0.46 | (b) | N/A | 9.9 - 12 | 9.9 - 12 | 10 | 10 | 10/10 | 10/10 |
| 2,2'-Oxybis(1-chloropropane) | µg/L | 0/6 | 6/12 | 71 | (b) | N/A | 9.9 - 11 | 2 - 2.1 | 10 | 2.1 | 0/6 | 0/6 |
| 2,3,4,6-Tetrachlorophenol | µg/L | 0/12 | 0/12 | 24 | (b) | N/A | 9.9 - 13 | 2 - 2.6 | 10 | 2.1 | 0/12 | 0/12 |
| 2,4,5-Trichlorophenol | µg/L | 0/12 | 0/12 | 120 | (b) | N/A | 9.9 - 13 | 2 - 2.6 | 10 | 2.1 | 0/12 | 0/12 |
| 2,4,6-Trichlorophenol | µg/L | 0/12 | 0/12 | 1.2 | (b) | N/A | 9.9 - 13 | 2 - 2.6 | 10 | 2.1 | 12/12 | 12/12 |
| 2,4-Dichlorophenol | µg/L | 0/12 | 0/12 | 4.6 | (b) | N/A | 9.9 - 13 | 2 - 2.6 | 10 | 2.1 | 12/12 | 0/12 |
| 2,4-Dimethylphenol | µg/L | 0/12 | 0/12 | 36 | (b) | N/A | 9.9 - 13 | 9.9 - 13 | 10 | 10 | 0/12 | 0/12 |
| 2,4-Dinitrotoluene | µg/L | 0/10 | 2/12 | 0.24 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 10/10 | 10/10 |
| 2,6-Dinitrotoluene | µg/L | 0/10 | 2/12 | 0.049 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 10/10 | 10/10 |
| 2-Chloronaphthalene | µg/L | 0/10 | 2/12 | 75 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 0/10 | 0/10 |
| 2-Chlorophenol | µg/L | 0/12 | 0/12 | 9.1 | (b) | N/A | 9.9 - 13 | 2 - 2.6 | 10 | 2.1 | 12/12 | 0/12 |
| 2-Methylphenol (o-Cresol) | µg/L | 0/12 | 0/12 | 93 | (b) | N/A | 9.9 - 13 | 2 - 2.6 | 10 | 2.1 | 0/12 | 0/12 |
| 2-Nitroaniline | µg/L | 0/10 | 2/12 | 19 | (b) | N/A | 50 - 59 | 2 - 2.4 | 52 | 2.1 | 10/10 | 0/10 |
| 2-Nitrophenol | µg/L | 0/12 | 0/12 | N/A | N/A | N/A | 9.9 - 13 | 2 - 2.6 | 10 | 2.1 | N/A | N/A |
| 3,3'-Dichlorobenzidine | µg/L | 0/10 | 2/12 | 0.13 | (b) | N/A | 60 - 71 | 60 - 71 | 62 | 62 | 10/10 | 10/10 |
| 3-Nitroaniline | µg/L | 0/10 | 2/12 | 5 | (c) | N/A | 50 - 59 | 9.9 - 12 | 52 | 10 | 10/10 | 10/10 |
| 4,6-Dinitro-2-methylphenol | µg/L | 0/12 | 0/12 | 0.15 | (b) | N/A | 50 - 66 | 20 - 26 | 52 | 21 | 12/12 | 12/12 |
| 4-Bromophenyl phenyl ether | µg/L | 0/10 | 2/12 | N/A | N/A | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | N/A | N/A |
| 4-Chloro-3-methylphenol | µg/L | 0/12 | 0/12 | 140 | (b) | N/A | 9.9 - 13 | 2 - 2.6 | 10 | 2.1 | 0/12 | 0/12 |
| 4-Chloroaniline | µg/L | 0/10 | 2/12 | 0.37 | (b) | N/A | 20 - 24 | 5 - 5.9 | 21 | 5.2 | 10/10 | 10/10 |
| 4-Chlorophenyl phenyl ether | µg/L | 0/10 | 2/12 | N/A | N/A | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | N/A | N/A |
| 4-Nitroaniline | µg/L | 0/10 | 2/12 | 3.8 | (b) | N/A | 50 - 59 | 9.9 - 12 | 52 | 10 | 10/10 | 10/10 |
| 4-Nitrophenol | µg/L | 0/12 | 0/12 | N/A | N/A | N/A | 50 - 66 | 4 - 5.3 | 52 | 4.2 | N/A | N/A |
| Acetophenone | µg/L | 0/10 | 2/12 | 190 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 0/10 | 0/10 |
| Atrazine | µg/L | 0/10 | 2/12 | 0.3 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 10/10 | 10/10 |
| Benzaldehyde | µg/L | 0/10 | 2/12 | 19 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 0/10 | 0/10 |
| Benzyl butyl phthalate | µg/L | 0/10 | 2/12 | 16 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 0/10 | 0/10 |
| Biphenyl (Diphenyl) | µg/L | 0/10 | 2/12 | 0.083 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 10/10 | 10/10 |
| Bis(2-chloroethoxy)methane | µg/L | 0/10 | 2/12 | 5.9 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 10/10 | 0/10 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 0/10 | 2/12 | 0.014 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 10/10 | 10/10 |
| Bis(2-ethylhexyl)phthalate | µg/L | 0/10 | 2/12 | 5.6 | (b) | N/A | 9.9 - 12 | 2.5 - 3 | 10 | 2.6 | 10/10 | 0/10 |
| Caprolactam | µg/L | 1/10 | 2/12 | 990 | (b) | 2.2 - 2.2 | 10 - 12 | 2 - 2.4 | 10 | 2.1 | 0/9 | 0/9 |
| Carbazole | µg/L | 0/10 | 2/12 | N/A | N/A | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | N/A | N/A |
| Cresols, m- & p- | µg/L | 0/12 | 0/12 | 37 | (b) | N/A | 9.9 - 13 | 2 - 2.6 | 10 | 2.1 | 0/12 | 0/12 |
| Dibenzofuran | µg/L | 0/10 | 2/12 | 0.79 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 10/10 | 10/10 |
| Diethyl phthalate | µg/L | 0/10 | 2/12 | 1500 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 0/10 | 0/10 |

Table 26
Summary Statistics and Human Health Project Action Limits (AOC 5)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Dimethyl phthalate | µg/L | 0/10 | 2/12 | N/A | N/A | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | N/A | N/A |
| Di-n-butyl phthalate | µg/L | 0/10 | 2/12 | 90 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 0/10 | 0/10 |
| di-n-Octyl phthalate | µg/L | 0/10 | 2/12 | 20 | (b) | N/A | 9.9 - 12 | 2.5 - 3 | 10 | 2.6 | 0/10 | 0/10 |
| Hexachlorobenzene | µg/L | 0/10 | 2/12 | 0.0098 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 10/10 | 10/10 |
| Hexachlorobutadiene | µg/L | 0/10 | 2/12 | 0.14 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 10/10 | 10/10 |
| Hexachlorocyclopentadiene | µg/L | 0/10 | 2/12 | 0.041 | (b) | N/A | 9.9 - 12 | 5 - 5.9 | 10 | 5.2 | 10/10 | 10/10 |
| Hexachloroethane | µg/L | 0/10 | 2/12 | 0.33 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 10/10 | 10/10 |
| Isophorone | µg/L | 0/10 | 2/12 | 78 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 0/10 | 0/10 |
| Nitrobenzene | µg/L | 0/10 | 2/12 | 0.14 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 10/10 | 10/10 |
| N-Nitrosodi-n-propylamine | µg/L | 0/10 | 2/12 | 0.011 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 10/10 | 10/10 |
| N-Nitrosodiphenylamine | µg/L | 0/10 | 2/12 | 12 | (b) | N/A | 9.9 - 12 | 2 - 2.4 | 10 | 2.1 | 0/10 | 0/10 |
| Pentachlorophenol | µg/L | 0/12 | 0/12 | 0.041 | (b) | N/A | 50 - 66 | 4 - 5.3 | 52 | 4.2 | 12/12 | 12/12 |
| Phenol | µg/L | 1/12 | 0/12 | 580 | (b) | 2.5 - 2.5 | 9.9 - 13 | 2 - 2.6 | 10 | 2.1 | 0/11 | 0/11 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | µg/L | 5/12 | 0/12 | 1.1 | (b) | 0.042 - 0.63 | 0.098 - 0.12 | 0.039 - 0.048 | 0.1 | 0.041 | 0/7 | 0/7 |
| 2-Methylnaphthalene | µg/L | 5/12 | 0/12 | 3.6 | (b) | 0.085 - 0.89 | 0.099 - 0.12 | 0.049 - 0.06 | 0.11 | 0.054 | 0/7 | 0/7 |
| Acenaphthene | µg/L | 1/12 | 0/12 | 53 | (b) | 0.051 - 0.051 | 0.098 - 0.13 | 0.012 - 0.016 | 0.11 | 0.013 | 0/11 | 0/11 |
| Acenaphthylene | µg/L | 0/12 | 0/12 | N/A | N/A | N/A | 0.098 - 0.13 | 0.02 - 0.026 | 0.11 | 0.022 | N/A | N/A |
| Anthracene | µg/L | 1/12 | 0/12 | 180 | (b) | 0.071 - 0.071 | 0.098 - 0.13 | 0.098 - 0.13 | 0.11 | 0.11 | 0/11 | 0/11 |
| Benzo(a)anthracene | µg/L | 2/12 | 0/12 | 0.03 | (b) | 0.063 - 0.31 | 0.098 - 0.13 | 0.098 - 0.13 | 0.11 | 0.11 | 10/10 | 10/10 |
| Benzo(a)pyrene | µg/L | 2/12 | 0/12 | 0.025 | (b) | 0.056 - 0.31 | 0.098 - 0.13 | 0.049 - 0.066 | 0.11 | 0.053 | 10/10 | 10/10 |
| Benzo(b)fluoranthene | µg/L | 3/12 | 0/12 | 0.25 | (b) | 0.079 - 0.44 | 0.098 - 0.13 | 0.098 - 0.13 | 0.11 | 0.11 | 0/9 | 0/9 |
| Benzo(g,h,i)perylene | µg/L | 2/12 | 0/12 | N/A | N/A | 0.049 - 0.17 | 0.098 - 0.13 | 0.098 - 0.13 | 0.11 | 0.11 | N/A | N/A |
| Benzo(k)fluoranthene | µg/L | 3/12 | 0/12 | 2.5 | (b) | 0.03 - 0.22 | 0.098 - 0.13 | 0.049 - 0.066 | 0.11 | 0.055 | 0/9 | 0/9 |
| Chrysene | µg/L | 4/12 | 0/12 | 25 | (b) | 0.051 - 0.35 | 0.098 - 0.13 | 0.098 - 0.13 | 0.11 | 0.11 | 0/8 | 0/8 |
| Dibenz(a,h)anthracene | µg/L | 1/12 | 0/12 | 0.025 | (b) | 0.05 - 0.05 | 0.098 - 0.13 | 0.098 - 0.13 | 0.11 | 0.11 | 11/11 | 11/11 |
| Fluoranthene | µg/L | 3/12 | 0/12 | 80 | (b) | 0.081 - 0.6 | 0.098 - 0.13 | 0.098 - 0.13 | 0.11 | 0.11 | 0/9 | 0/9 |
| Fluorene | µg/L | 0/12 | 0/12 | 29 | (b) | N/A | 0.098 - 0.13 | 0.039 - 0.053 | 0.11 | 0.042 | 0/12 | 0/12 |
| Indeno(1,2,3-c,d)pyrene | µg/L | 2/12 | 0/12 | 0.25 | (b) | 0.045 - 0.21 | 0.098 - 0.13 | 0.098 - 0.13 | 0.11 | 0.11 | 0/10 | 0/10 |
| Naphthalene | µg/L | 9/12 | 0/12 | 0.12 | (b) | 0.039 - 0.97 | 0.1 - 0.12 | 0.051 - 0.06 | 0.11 | 0.055 | 0/3 | 0/3 |
| Phenanthrene | µg/L | 6/12 | 0/12 | N/A | N/A | 0.057 - 0.42 | 0.098 - 0.12 | 0.098 - 0.12 | 0.11 | 0.11 | N/A | N/A |
| Pyrene | µg/L | 3/12 | 0/12 | 12 | (b) | 0.072 - 0.48 | 0.098 - 0.13 | 0.098 - 0.13 | 0.11 | 0.11 | 0/9 | 0/9 |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | µg/L | 0/3 | 0/3 | 0.14 | (b) | N/A | 1 - 1.3 | 0.41 - 0.54 | 1.1 | 0.42 | 3/3 | 3/3 |
| PCB-1221 (Aroclor 1221) | µg/L | 0/3 | 0/3 | 0.0047 | (b) | N/A | 1 - 1.3 | 0.26 - 0.34 | 1.1 | 0.26 | 3/3 | 3/3 |
| PCB-1232 (Aroclor 1232) | µg/L | 0/3 | 0/3 | 0.0047 | (b) | N/A | 1 - 1.3 | 0.62 - 0.81 | 1.1 | 0.63 | 3/3 | 3/3 |
| PCB-1242 (Aroclor 1242) | µg/L | 0/3 | 0/3 | 0.0078 | (b) | N/A | 1 - 1.3 | 1 - 1.3 | 1.1 | 1.1 | 3/3 | 3/3 |
| PCB-1248 (Aroclor 1248) | µg/L | 0/3 | 0/3 | 0.0078 | (b) | N/A | 1 - 1.3 | 0.31 - 0.4 | 1.1 | 0.32 | 3/3 | 3/3 |
| PCB-1254 (Aroclor 1254) | µg/L | 0/3 | 0/3 | 0.0078 | (b) | N/A | 1 - 1.3 | 0.26 - 0.34 | 1.1 | 0.26 | 3/3 | 3/3 |
| PCB-1260 (Aroclor 1260) | µg/L | 0/3 | 0/3 | 0.0078 | (b) | N/A | 1 - 1.3 | 0.41 - 0.54 | 1.1 | 0.42 | 3/3 | 3/3 |
| PCB-1262 (Aroclor 1262) | µg/L | 0/3 | 0/3 | N/A | N/A | N/A | 1 - 1.3 | 0.51 - 0.67 | 1.1 | 0.53 | N/A | N/A |
| PCB-1268 (Aroclor 1268) | µg/L | 0/3 | 0/3 | N/A | N/A | N/A | 1 - 1.3 | 1 - 1.3 | 1.1 | 1.1 | N/A | N/A |
| Metals - Dissolved | | | | | | | | | | | | |
| Aluminum | µg/L | 6/12 | 0/12 | 2000 | (b) | 18 - 2100 | 300 - 300 | 70 - 70 | 300 | 70 | 0/6 | 0/6 |
| Antimony | µg/L | 4/12 | 0/12 | 0.78 | (b) | 0.94 - 2.2 | 6 - 6 | 1 - 6 | 6 | 1 | 8/8 | 8/8 |
| Arsenic | µg/L | 12/12 | 0/12 | 0.052 | (b) | 0.49 - 140 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | µg/L | 12/12 | 0/12 | 380 | (b) | 23 - 210 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | µg/L | 0/12 | 0/12 | 2.5 | (b) | N/A | 1.5 - 1.5 | 0.5 - 0.5 | 1.5 | 0.5 | 0/12 | 0/12 |
| Cadmium | µg/L | 0/12 | 0/12 | 0.18 | (b) | N/A | 5 - 5 | 1.8 - 1.8 | 5 | 1.8 | 12/12 | 12/12 |
| Calcium | µg/L | 12/12 | 0/12 | N/A | N/A | 25000 - 140000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | µg/L | 2/12 | 0/12 | 2200 | (b) | 0.52 - 12 | 10 - 10 | 1.8 - 1.8 | 10 | 1.8 | 0/10 | 0/10 |

Table 26
Summary Statistics and Human Health Project Action Limits (AOC 5)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL | | Range of Detects | Range of NDs [3] | | Median of NDs [3] | | FOE for NDs [3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Value | Reference | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Cobalt | µg/L | 12/12 | 0/12 | 0.6 | (b) | 0.14 - 3.7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | µg/L | 1/12 | 0/12 | 80 | (b) | 6.5 - 6.5 | 15 - 15 | 10 - 10 | 15 | 10 | 0/11 | 0/11 |
| Iron | µg/L | 8/12 | 0/12 | 1400 | (b) | 100 - 6300 | 100 - 100 | 85 - 85 | 100 | 85 | 0/4 | 0/4 |
| Lead | µg/L | 1/12 | 0/12 | 15 | (b) | 1.4 - 1.4 | 3 - 3 | 0.7 - 0.7 | 3 | 0.7 | 0/11 | 0/11 |
| Magnesium | µg/L | 12/12 | 0/12 | N/A | N/A | 2400 - 60000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | µg/L | 12/12 | 0/12 | 43 | (b) | 3.9 - 2600 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | µg/L | 0/12 | 0/12 | 0.063 | (b) | N/A | 0.2 - 0.2 | 0.08 - 0.08 | 0.2 | 0.08 | 12/12 | 12/12 |
| Nickel | µg/L | 4/12 | 0/12 | 39 | (b) | 3.2 - 16 | 40 - 40 | 8 - 8 | 40 | 8 | 8/8 | 0/8 |
| Potassium | µg/L | 12/12 | 0/12 | N/A | N/A | 2600 - 12000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | µg/L | 0/12 | 0/12 | 10 | (b) | N/A | 22 - 22 | 19 - 19 | 22 | 19 | 12/12 | 12/12 |
| Silver | µg/L | 0/12 | 0/12 | 9.4 | (b) | N/A | 15 - 15 | 5 - 5 | 15 | 5 | 12/12 | 0/12 |
| Sodium | µg/L | 12/12 | 0/12 | 20000 | (c) | 16000 - 100000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | µg/L | 0/12 | 0/12 | 0.02 | (b) | N/A | 1 - 1 | 0.2 - 1 | 1 | 0.2 | 12/12 | 12/12 |
| Vanadium | µg/L | 2/12 | 0/12 | 8.6 | (b) | 3.8 - 7.4 | 15 - 15 | 4 - 4 | 15 | 4 | 10/10 | 0/10 |
| Zinc | µg/L | 1/12 | 0/12 | 600 | (b) | 8.2 - 8.2 | 150 - 150 | 15 - 15 | 150 | 15 | 0/11 | 0/11 |

Notes

| | |
|---|---|
| FOD = Frequency of Detection | mg/kg = milligram per kilogram |
| FOE = Frequency of Exceedance | N/A = Not Available |
| FOR = Frequency of Rejection | ND = Non-Detect |
| LOD = Limit of Detection | PAL = Project Action Limit |
| LOQ = Limit of Quantitation | µg/L = microgram per liter |

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

(a) EPA Residential Soil Regional Screening Level, May 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(b) EPA Tapwater Regional Screening Level, May 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(c) New York State Groundwater Standards, 6 NYCRR Part 703.5. Last updated March 2021. (https://www.dec.ny.gov/chemical/23853.html)

Table 27
Summary Statistics and Ecological Project Action Limits (AOC 5 - Plant)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 1,4-Dioxane | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.35 - 0.39 | 0.37 | 0.37 | N/A | N/A |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/14 | 1/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.38 | 0.076 | N/A | N/A |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.087 - 0.099 | 0.37 | 0.094 | N/A | N/A |
| 2,4,5-Trichlorophenol | mg/kg | 0/15 | 0/15 | 4 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2,4,6-Trichlorophenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 2,4-Dichlorophenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 2,4-Dimethylphenol | mg/kg | 0/15 | 0/15 | 0.01 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 15/15 |
| 2,4-Dinitrotoluene | mg/kg | 0/15 | 0/15 | 6 | N/A | 0.35 - 0.39 | 0.087 - 0.099 | 0.37 | 0.094 | 0/15 | 0/15 |
| 2,6-Dinitrotoluene | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 2-Chloronaphthalene | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 2-Chlorophenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/15 | 0/15 | 0.67 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2-Nitroaniline | mg/kg | 0/15 | 0/15 | N/A | N/A | 1.8 - 2 | 0.18 - 0.2 | 1.9 | 0.19 | N/A | N/A |
| 2-Nitrophenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 3,3'-Dichlorobenzidine | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.69 - 0.79 | 0.07 - 0.08 | 0.74 | 0.076 | N/A | N/A |
| 3-Nitroaniline | mg/kg | 0/15 | 0/15 | N/A | N/A | 1.8 - 2 | 0.087 - 0.099 | 1.9 | 0.094 | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 1.8 - 2 | 0.35 - 0.39 | 1.9 | 0.37 | N/A | N/A |
| 4-Bromophenyl phenyl ether | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 4-Chloroaniline | mg/kg | 0/15 | 0/15 | 1 | N/A | 0.69 - 0.79 | 0.087 - 0.099 | 0.74 | 0.094 | 0/15 | 0/15 |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/15 | 0/15 | N/A | N/A | 1.8 - 2 | 0.087 - 0.099 | 1.9 | 0.094 | N/A | N/A |
| 4-Nitrophenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 1.8 - 2 | 0.7 - 0.8 | 1.9 | 0.76 | N/A | N/A |
| Acetophenone | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Atrazine | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Benzaldehyde | mg/kg | 1/15 | 0/15 | N/A | 0.063 - 0.063 | 0.35 - 0.39 | 0.18 - 0.2 | 0.38 | 0.2 | N/A | N/A |
| Benzyl butyl phthalate | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Biphenyl (Diphenyl) | mg/kg | 0/15 | 0/15 | 60 | N/A | 1.8 - 2 | 0.35 - 0.39 | 1.9 | 0.37 | 0/15 | 0/15 |
| Bis(2-chloroethoxy)methane | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.087 - 0.099 | 0.37 | 0.094 | N/A | N/A |
| Bis(2-ethylhexyl)phthalate | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Caprolactam | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.18 - 0.2 | 0.37 | 0.19 | N/A | N/A |
| Carbazole | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Cresols, m- & p- | mg/kg | 0/15 | 0/15 | 0.69 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Dibenzofuran | mg/kg | 2/15 | 0/15 | 6.1 | 0.11 - 0.21 | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.075 | 0/13 | 0/13 |
| Diethyl phthalate | mg/kg | 0/15 | 0/15 | 100 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Dimethyl phthalate | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Di-n-butyl phthalate | mg/kg | 1/15 | 0/15 | 160 | 0.39 - 0.39 | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/14 | 0/14 |
| di-n-Octyl phthalate | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Hexachlorobenzene | mg/kg | 0/15 | 0/15 | 10 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Hexachlorobutadiene | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Hexachlorocyclopentadiene | mg/kg | 0/15 | 0/15 | 10 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Hexachloroethane | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Isophorone | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Nitrobenzene | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| N-Nitrosodi-n-propylamine | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| N-Nitrosodiphenylamine | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Pentachlorophenol | mg/kg | 0/15 | 0/15 | 5 | N/A | 1.8 - 2 | 0.7 - 0.8 | 1.9 | 0.76 | 0/15 | 0/15 |

Table 27
Summary Statistics and Ecological Project Action Limits (AOC 5 - Plant)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Phenol | mg/kg | 0/15 | 0/15 | 0.79 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 21/25 | 0/25 | N/A | 0.0014 - 10 | 0.01 - 0.011 | 0.002 - 0.0023 | 0.011 | 0.0022 | N/A | N/A |
| 2-Methylnaphthalene | mg/kg | 23/25 | 0/25 | N/A | 0.0014 - 14 | 0.01 - 0.011 | 0.0021 - 0.0023 | 0.011 | 0.0022 | N/A | N/A |
| Acenaphthene | mg/kg | 7/25 | 0/25 | 0.25 | 0.0017 - 0.1 | 0.0099 - 0.52 | 0.0011 - 0.056 | 0.012 | 0.0012 | 2/18 | 0/18 |
| Acenaphthylene | mg/kg | 15/25 | 0/25 | N/A | 0.0031 - 0.37 | 0.01 - 0.52 | 0.0011 - 0.056 | 0.012 | 0.0012 | N/A | N/A |
| Anthracene | mg/kg | 16/25 | 0/25 | 6.8 | 0.0022 - 0.29 | 0.01 - 0.52 | 0.0044 - 0.23 | 0.012 | 0.005 | 0/9 | 0/9 |
| Benzo(a)anthracene | mg/kg | 25/25 | 0/25 | 18 | 0.0024 - 0.75 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(a)pyrene | mg/kg | 24/25 | 0/25 | N/A | 0.0042 - 0.79 | 0.01 - 0.01 | 0.0045 - 0.0045 | 0.01 | 0.0045 | N/A | N/A |
| Benzo(b)fluoranthene | mg/kg | 24/25 | 0/25 | 18 | 0.0076 - 1.4 | 0.01 - 0.01 | 0.0069 - 0.0069 | 0.01 | 0.0069 | 0/1 | 0/1 |
| Benzo(g,h,i)perylene | mg/kg | 20/25 | 0/25 | N/A | 0.0031 - 4.7 | 0.01 - 0.52 | 0.0069 - 0.35 | 0.11 | 0.072 | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 21/25 | 0/25 | N/A | 0.0023 - 0.4 | 0.01 - 0.52 | 0.0045 - 0.23 | 0.23 | 0.099 | N/A | N/A |
| Chrysene | mg/kg | 25/25 | 0/25 | N/A | 0.0035 - 1.1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dibenz(a,h)anthracene | mg/kg | 9/25 | 0/25 | N/A | 0.0032 - 0.88 | 0.0099 - 0.52 | 0.0066 - 0.35 | 0.012 | 0.0077 | N/A | N/A |
| Fluoranthene | mg/kg | 25/25 | 0/25 | N/A | 0.0049 - 0.76 | N/A | N/A | N/A | N/A | N/A | N/A |
| Fluorene | mg/kg | 16/25 | 0/25 | N/A | 0.0013 - 0.26 | 0.01 - 0.11 | 0.0027 - 0.029 | 0.011 | 0.0031 | N/A | N/A |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 21/25 | 0/25 | N/A | 0.0025 - 3.4 | 0.01 - 0.52 | 0.0069 - 0.35 | 0.23 | 0.15 | N/A | N/A |
| Naphthalene | mg/kg | 24/25 | 0/25 | 1 | 0.0018 - 9.2 | 0.011 - 0.011 | 0.0023 - 0.0023 | 0.011 | 0.0023 | 0/1 | 0/1 |
| Phenanthrene | mg/kg | 25/25 | 0/25 | N/A | 0.003 - 5.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Pyrene | mg/kg | 25/25 | 0/25 | N/A | 0.0042 - 0.99 | N/A | N/A | N/A | N/A | N/A | N/A |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/10 | 0/10 | 40 | N/A | 0.068 - 0.078 | 0.031 - 0.036 | 0.072 | 0.034 | 0/10 | 0/10 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/10 | 0/10 | 40 | N/A | 0.096 - 0.11 | 0.082 - 0.094 | 0.1 | 0.087 | 0/10 | 0/10 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/10 | 0/10 | 40 | N/A | 0.068 - 0.078 | 0.031 - 0.036 | 0.072 | 0.034 | 0/10 | 0/10 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/10 | 0/10 | 40 | N/A | 0.068 - 0.078 | 0.049 - 0.057 | 0.072 | 0.052 | 0/10 | 0/10 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/10 | 0/10 | 40 | N/A | 0.068 - 0.078 | 0.015 - 0.018 | 0.072 | 0.016 | 0/10 | 0/10 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/10 | 0/10 | 40 | N/A | 0.068 - 0.078 | 0.034 - 0.039 | 0.072 | 0.036 | 0/10 | 0/10 |
| PCB-1260 (Aroclor 1260) | mg/kg | 4/10 | 0/10 | 40 | 0.0042 - 0.16 | 0.068 - 0.075 | 0.0068 - 0.0076 | 0.072 | 0.0073 | 0/6 | 0/6 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/10 | 0/10 | 40 | N/A | 0.068 - 0.078 | 0.016 - 0.019 | 0.072 | 0.017 | 0/10 | 0/10 |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/10 | 0/10 | 40 | N/A | 0.068 - 0.078 | 0.0068 - 0.0079 | 0.072 | 0.0073 | 0/10 | 0/10 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 25/25 | 0/25 | N/A | 1400 - 8200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 24/25 | 0/25 | 5 | 0.076 - 1 | 0.23 - 0.23 | 0.11 - 0.11 | 0.23 | 0.11 | 0/1 | 0/1 |
| Arsenic | mg/kg | 25/25 | 0/25 | 18 | 4.3 - 25 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 25/25 | 0/25 | 110 | 27 - 76 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 25/25 | 0/25 | 2.5 | 0.1 - 0.63 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 25/25 | 0/25 | 32 | 0.038 - 4.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 25/25 | 0/25 | N/A | 2000 - 100000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 25/25 | 0/25 | 0.35 | 5 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 25/25 | 0/25 | 13 | 1.8 - 9.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 25/25 | 0/25 | 70 | 5.3 - 110 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 25/25 | 0/25 | N/A | 8100 - 22000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 25/25 | 0/25 | 120 | 4.2 - 200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 25/25 | 0/25 | N/A | 620 - 28000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 25/25 | 0/25 | 220 | 110 - 1200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 24/25 | 0/25 | 0.3 | 0.0075 - 0.23 | 0.021 - 0.021 | 0.021 - 0.021 | 0.021 | 0.021 | 0/1 | 0/1 |
| Nickel | mg/kg | 25/25 | 0/25 | 38 | 4.9 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 25/25 | 0/25 | N/A | 350 - 1200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 24/25 | 0/25 | 0.52 | 0.13 - 1.5 | 0.43 - 0.43 | 0.34 - 0.34 | 0.43 | 0.34 | 0/1 | 0/1 |
| Silver | mg/kg | 1/25 | 0/25 | 560 | 0.27 - 0.27 | 1.2 - 2.2 | 0.47 - 0.9 | 1.6 | 0.64 | 0/24 | 0/24 |
| Sodium | mg/kg | 11/25 | 0/25 | N/A | 37 - 250 | 400 - 680 | 82 - 600 | 540 | 120 | N/A | N/A |

Table 27
Summary Statistics and Ecological Project Action Limits (AOC 5 - Plant)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Thallium | mg/kg | 15/25 | 0/25 | 0.05 | 0.061 - 0.6 | 0.073 - 0.12 | 0.073 - 0.12 | 0.093 | 0.093 | 10/10 | 10/10 |
| Vanadium | mg/kg | 25/25 | 0/25 | 60 | 7.6 - 17 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 25/25 | 0/25 | 160 | 14 - 690 | N/A | N/A | N/A | N/A | N/A | N/A |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | |
| 1,1,1-Trichloroethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| 1,1,2,2-Tetrachloroethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | N/A | N/A |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.016 - 0.019 | 0.0051 - 0.0061 | 0.016 | 0.0052 | N/A | N/A |
| 1,1,2-Trichloroethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | N/A | N/A |
| 1,1-Dichloroethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | N/A | N/A |
| 1,1-Dichloroethene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | N/A | N/A |
| 1,2,3-Trichlorobenzene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | N/A | N/A |
| 1,2,4-Trichlorobenzene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | N/A | N/A |
| 1,2-Dibromo-3-chloropropane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.008 - 0.0095 | 0.0082 | 0.0082 | N/A | N/A |
| 1,2-Dibromoethane (EDB) | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | N/A | N/A |
| 1,2-Dichlorobenzene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| 1,2-Dichloroethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | N/A | N/A |
| 1,2-Dichloropropane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | N/A | N/A |
| 1,3-Dichlorobenzene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | N/A | N/A |
| 1,3-Dichloropropane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00032 - 0.00038 | 0.0041 | 0.00033 | N/A | N/A |
| 1,4-Dichlorobenzene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | N/A | N/A |
| 2-Butanone (MEK) | mg/kg | 2/5 | 0/5 | N/A | 0.0078 - 0.0086 | 0.016 - 0.018 | 0.01 - 0.011 | 0.016 | 0.01 | N/A | N/A |
| 2-Hexanone | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.016 - 0.019 | 0.01 - 0.012 | 0.016 | 0.01 | N/A | N/A |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.016 - 0.019 | 0.01 - 0.012 | 0.016 | 0.01 | N/A | N/A |
| Acetone | mg/kg | 1/5 | 0/5 | N/A | 0.069 - 0.069 | 0.057 - 0.069 | 0.057 - 0.069 | 0.061 | 0.061 | N/A | N/A |
| Benzene | mg/kg | 1/5 | 0/5 | N/A | 0.00048 - 0.00048 | 0.004 - 0.0048 | 0.00032 - 0.00038 | 0.0043 | 0.00034 | N/A | N/A |
| Bromochloromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Bromodichloromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Bromoform | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.0041 - 0.0049 | 0.0041 - 0.0049 | 0.0042 | 0.0042 | N/A | N/A |
| Bromomethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.0025 - 0.0031 | 0.0082 | 0.0026 | N/A | N/A |
| Carbon disulfide | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Carbon tetrachloride | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Chlorobenzene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Chloroethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.0051 - 0.0061 | 0.0082 | 0.0052 | N/A | N/A |
| Chloroform | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.00064 - 0.00076 | 0.0082 | 0.00066 | N/A | N/A |
| Chloromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.0013 - 0.0015 | 0.0082 | 0.0013 | N/A | N/A |
| cis-1,2-Dichloroethene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | N/A | N/A |
| cis-1,3-Dichloropropene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00032 - 0.00038 | 0.0041 | 0.00033 | N/A | N/A |
| Cumene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Cyclohexane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Dibromochloromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Dichlorodifluoromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.0051 - 0.0061 | 0.0082 | 0.0052 | N/A | N/A |
| Ethylbenzene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | N/A | N/A |
| m,p-Xylene | mg/kg | 0/5 | 0/5 | 100 | N/A | 0.0025 - 0.0031 | 0.0025 - 0.0031 | 0.0026 | 0.0026 | 0/5 | 0/5 |
| Methyl acetate | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.0068 - 0.0081 | 0.0064 - 0.0076 | 0.007 | 0.0066 | N/A | N/A |
| Methyl tert-butyl ether (MTBE) | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.016 - 0.019 | 0.0051 - 0.0061 | 0.016 | 0.0052 | N/A | N/A |
| Methylcyclohexane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | N/A | N/A |
| Methylene chloride | mg/kg | 0/5 | 0/5 | 1600 | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | 0/5 | 0/5 |
| o-Xylene | mg/kg | 0/5 | 0/5 | 100 | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| Styrene | mg/kg | 0/5 | 0/5 | 3.2 | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| Tetrachloroethene (PCE) | mg/kg | 0/5 | 0/5 | 10 | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |

Table 27
Summary Statistics and Ecological Project Action Limits (AOC 5 - Plant)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Toluene | mg/kg | 1/5 | 0/5 | 200 | 0.00058 - 0.00058 | 0.004 - 0.0048 | 0.00065 - 0.00076 | 0.0043 | 0.00068 | 0/4 | 0/4 |
| trans-1,2-Dichloroethene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | N/A | N/A |
| trans-1,3-Dichloropropene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00016 - 0.00019 | 0.0041 | 0.00016 | N/A | N/A |
| Trichlorofluoromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.008 - 0.0095 | 0.0082 | 0.0082 | N/A | N/A |
| Vinyl chloride | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | N/A | N/A |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 1,4-Dioxane | mg/kg | 0/24 | 1/25 | N/A | N/A | 0.35 - 0.42 | 0.35 - 0.42 | 0.37 | 0.37 | N/A | N/A |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/24 | 1/25 | N/A | N/A | 0.35 - 0.39 | 0.071 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.088 - 0.1 | 0.37 | 0.094 | N/A | N/A |
| 2,4,5-Trichlorophenol | mg/kg | 0/25 | 0/25 | 4 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2,4,6-Trichlorophenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 2,4-Dichlorophenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 2,4-Dimethylphenol | mg/kg | 0/25 | 0/25 | 0.01 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 25/25 |
| 2,4-Dinitrotoluene | mg/kg | 0/25 | 0/25 | 6 | N/A | 0.35 - 0.42 | 0.088 - 0.1 | 0.37 | 0.094 | 0/25 | 0/25 |
| 2,6-Dinitrotoluene | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 2-Chloronaphthalene | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 2-Chlorophenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/25 | 0/25 | 0.67 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2-Nitroaniline | mg/kg | 0/25 | 0/25 | N/A | N/A | 1.8 - 2.1 | 0.18 - 0.21 | 1.9 | 0.19 | N/A | N/A |
| 2-Nitrophenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 3,3'-Dichlorobenzidine | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.7 - 0.83 | 0.071 - 0.085 | 0.75 | 0.076 | N/A | N/A |
| 3-Nitroaniline | mg/kg | 0/25 | 0/25 | N/A | N/A | 1.8 - 2.1 | 0.088 - 0.1 | 1.9 | 0.094 | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 1.8 - 2.1 | 0.35 - 0.42 | 1.9 | 0.37 | N/A | N/A |
| 4-Bromophenyl phenyl ether | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 4-Chloroaniline | mg/kg | 0/25 | 0/25 | 1 | N/A | 0.7 - 0.83 | 0.088 - 0.1 | 0.75 | 0.094 | 0/25 | 0/25 |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/25 | 0/25 | N/A | N/A | 1.8 - 2.1 | 0.088 - 0.1 | 1.9 | 0.094 | N/A | N/A |
| 4-Nitrophenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 1.8 - 2.1 | 0.71 - 0.85 | 1.9 | 0.76 | N/A | N/A |
| Acetophenone | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Atrazine | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Benzaldehyde | mg/kg | 0/24 | 1/25 | N/A | N/A | 0.35 - 0.42 | 0.18 - 0.21 | 0.37 | 0.19 | N/A | N/A |
| Benzyl butyl phthalate | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Biphenyl (Diphenyl) | mg/kg | 0/25 | 0/25 | 60 | N/A | 1.8 - 2.1 | 0.35 - 0.42 | 1.9 | 0.37 | 0/25 | 0/25 |
| Bis(2-chloroethoxy)methane | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.088 - 0.1 | 0.37 | 0.094 | N/A | N/A |
| Bis(2-ethylhexyl)phthalate | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Caprolactam | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.18 - 0.21 | 0.37 | 0.19 | N/A | N/A |
| Carbazole | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Cresols, m- & p- | mg/kg | 0/25 | 0/25 | 0.69 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Dibenzofuran | mg/kg | 1/25 | 0/25 | 6.1 | 0.077 - 0.077 | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/24 | 0/24 |
| Diethyl phthalate | mg/kg | 0/25 | 0/25 | 100 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Dimethyl phthalate | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Di-n-butyl phthalate | mg/kg | 0/25 | 0/25 | 160 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| di-n-Octyl phthalate | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Hexachlorobenzene | mg/kg | 0/25 | 0/25 | 10 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Hexachlorobutadiene | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Hexachlorocyclopentadiene | mg/kg | 0/25 | 0/25 | 10 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Hexachloroethane | mg/kg | 0/24 | 1/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Isophorone | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |

Table 27
Summary Statistics and Ecological Project Action Limits (AOC 5 - Plant)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Nitrobenzene | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| N-Nitrosodi-n-propylamine | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| N-Nitrosodiphenylamine | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Pentachlorophenol | mg/kg | 0/25 | 0/25 | 5 | N/A | 1.8 - 2.1 | 0.71 - 0.85 | 1.9 | 0.76 | 0/25 | 0/25 |
| Phenol | mg/kg | 0/25 | 0/25 | 0.79 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 11/25 | 0/25 | N/A | 0.00082 - 0.083 | 0.01 - 0.012 | 0.002 - 0.0024 | 0.011 | 0.0022 | N/A | N/A |
| 2-Methylnaphthalene | mg/kg | 14/25 | 0/25 | N/A | 0.00067 - 0.13 | 0.01 - 0.012 | 0.002 - 0.0024 | 0.011 | 0.0022 | N/A | N/A |
| Acenaphthene | mg/kg | 0/25 | 0/25 | 0.25 | N/A | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | 0/25 | 0/25 |
| Acenaphthylene | mg/kg | 4/25 | 0/25 | N/A | 0.00092 - 0.0035 | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | N/A | N/A |
| Anthracene | mg/kg | 4/25 | 0/25 | 6.8 | 0.002 - 0.0054 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0049 | 0/21 | 0/21 |
| Benzo(a)anthracene | mg/kg | 10/25 | 0/25 | 18 | 0.0023 - 0.016 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | 0/15 | 0/15 |
| Benzo(a)pyrene | mg/kg | 9/25 | 0/25 | N/A | 0.0029 - 0.016 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0048 | N/A | N/A |
| Benzo(b)fluoranthene | mg/kg | 12/25 | 0/25 | 18 | 0.0027 - 0.027 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0076 | 0/13 | 0/13 |
| Benzo(g,h,i)perylene | mg/kg | 9/25 | 0/25 | N/A | 0.0035 - 0.046 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0075 | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 6/25 | 0/25 | N/A | 0.0025 - 0.0091 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | N/A | N/A |
| Chrysene | mg/kg | 15/25 | 0/25 | N/A | 0.0023 - 0.025 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | N/A | N/A |
| Dibenz(a,h)anthracene | mg/kg | 1/25 | 0/25 | N/A | 0.0074 - 0.0074 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0076 | N/A | N/A |
| Fluoranthene | mg/kg | 13/25 | 0/25 | N/A | 0.0024 - 0.03 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | N/A | N/A |
| Fluorene | mg/kg | 3/25 | 0/25 | N/A | 0.0017 - 0.0024 | 0.01 - 0.012 | 0.0027 - 0.0032 | 0.011 | 0.003 | N/A | N/A |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 9/25 | 0/25 | N/A | 0.0036 - 0.035 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0075 | N/A | N/A |
| Naphthalene | mg/kg | 19/25 | 0/25 | 1 | 0.00076 - 0.11 | 0.01 - 0.012 | 0.0021 - 0.0024 | 0.011 | 0.0023 | 0/6 | 0/6 |
| Phenanthrene | mg/kg | 9/25 | 0/25 | N/A | 0.003 - 0.034 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0073 | N/A | N/A |
| Pyrene | mg/kg | 12/25 | 0/25 | N/A | 0.0026 - 0.027 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0072 | N/A | N/A |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/5 | 0/5 | 40 | N/A | 0.07 - 0.085 | 0.033 - 0.04 | 0.073 | 0.034 | 0/5 | 0/5 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/5 | 0/5 | 40 | N/A | 0.1 - 0.12 | 0.085 - 0.1 | 0.1 | 0.088 | 0/5 | 0/5 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/5 | 0/5 | 40 | N/A | 0.07 - 0.085 | 0.033 - 0.04 | 0.073 | 0.034 | 0/5 | 0/5 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/5 | 0/5 | 40 | N/A | 0.07 - 0.085 | 0.051 - 0.062 | 0.073 | 0.053 | 0/5 | 0/5 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/5 | 0/5 | 40 | N/A | 0.07 - 0.085 | 0.016 - 0.019 | 0.073 | 0.016 | 0/5 | 0/5 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/5 | 0/5 | 40 | N/A | 0.07 - 0.085 | 0.036 - 0.043 | 0.073 | 0.037 | 0/5 | 0/5 |
| PCB-1260 (Aroclor 1260) | mg/kg | 0/5 | 0/5 | 40 | N/A | 0.07 - 0.085 | 0.0071 - 0.0086 | 0.073 | 0.0073 | 0/5 | 0/5 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/5 | 0/5 | 40 | N/A | 0.07 - 0.085 | 0.017 - 0.021 | 0.073 | 0.018 | 0/5 | 0/5 |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/5 | 0/5 | 40 | N/A | 0.07 - 0.085 | 0.0071 - 0.0086 | 0.073 | 0.0073 | 0/5 | 0/5 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 25/25 | 0/25 | N/A | 3200 - 19000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 22/25 | 0/25 | 5 | 0.071 - 0.21 | 0.17 - 0.2 | 0.087 - 0.099 | 0.18 | 0.091 | 0/3 | 0/3 |
| Arsenic | mg/kg | 25/25 | 0/25 | 18 | 2.8 - 26 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 25/25 | 0/25 | 110 | 18 - 110 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 25/25 | 0/25 | 2.5 | 0.11 - 0.83 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 25/25 | 0/25 | 32 | 0.025 - 0.38 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 25/25 | 0/25 | N/A | 3500 - 82000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 25/25 | 0/25 | 0.35 | 4.9 - 25 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 25/25 | 0/25 | 13 | 2.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 25/25 | 0/25 | 70 | 9.3 - 74 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 25/25 | 0/25 | N/A | 9100 - 31000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 25/25 | 0/25 | 120 | 3 - 28 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 25/25 | 0/25 | N/A | 2200 - 26000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 25/25 | 0/25 | 220 | 320 - 2400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 18/25 | 0/25 | 0.3 | 0.013 - 0.099 | 0.019 - 0.021 | 0.015 - 0.017 | 0.02 | 0.016 | 0/7 | 0/7 |
| Nickel | mg/kg | 25/25 | 0/25 | 38 | 5.1 - 29 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 27
Summary Statistics and Ecological Project Action Limits (AOC 5 - Plant)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Potassium | mg/kg | 25/25 | 0/25 | N/A | 400 - 3700 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 17/25 | 0/25 | 0.52 | 0.11 - 0.41 | 0.39 - 0.5 | 0.31 - 0.4 | 0.48 | 0.38 | 0/8 | 0/8 |
| Silver | mg/kg | 0/25 | 0/25 | 560 | N/A | 1.2 - 7.1 | 0.46 - 2.9 | 1.4 | 0.56 | 0/25 | 0/25 |
| Sodium | mg/kg | 11/25 | 0/25 | N/A | 46 - 230 | 390 - 2300 | 86 - 540 | 480 | 430 | N/A | N/A |
| Thallium | mg/kg | 12/25 | 0/25 | 0.05 | 0.032 - 0.2 | 0.078 - 0.12 | 0.078 - 0.12 | 0.097 | 0.097 | 13/13 | 13/13 |
| Vanadium | mg/kg | 25/25 | 0/25 | 60 | 8.7 - 31 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 25/25 | 0/25 | 160 | 12 - 150 | N/A | N/A | N/A | N/A | N/A | N/A |

Notes

FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 28
Summary Statistics and Ecological Project Action Limits (AOC 5 - Invertebrate)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/15 | 0/15 | 0.18 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 0/15 |
| 1,4-Dioxane | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.35 - 0.39 | 0.37 | 0.37 | N/A | N/A |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/14 | 1/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.38 | 0.076 | N/A | N/A |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/15 | 0/15 | 0.04 | N/A | 0.35 - 0.39 | 0.087 - 0.099 | 0.37 | 0.094 | 15/15 | 15/15 |
| 2,4,5-Trichlorophenol | mg/kg | 0/15 | 0/15 | 9 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2,4,6-Trichlorophenol | mg/kg | 0/15 | 0/15 | 10 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2,4-Dichlorophenol | mg/kg | 0/15 | 0/15 | 0.05 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 15/15 |
| 2,4-Dimethylphenol | mg/kg | 0/15 | 0/15 | 0.04 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 15/15 |
| 2,4-Dinitrotoluene | mg/kg | 0/15 | 0/15 | 18 | N/A | 0.35 - 0.39 | 0.087 - 0.099 | 0.37 | 0.094 | 0/15 | 0/15 |
| 2,6-Dinitrotoluene | mg/kg | 0/15 | 0/15 | 30 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2-Chloronaphthalene | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 2-Chlorophenol | mg/kg | 0/15 | 0/15 | 0.06 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 15/15 |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/15 | 0/15 | 0.1 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 0/15 |
| 2-Nitroaniline | mg/kg | 0/15 | 0/15 | 0.02 | N/A | 1.8 - 2 | 0.18 - 0.2 | 1.9 | 0.19 | 15/15 | 15/15 |
| 2-Nitrophenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 3,3'-Dichlorobenzidine | mg/kg | 0/15 | 0/15 | 0.03 | N/A | 0.69 - 0.79 | 0.07 - 0.08 | 0.74 | 0.076 | 15/15 | 15/15 |
| 3-Nitroaniline | mg/kg | 0/15 | 0/15 | N/A | N/A | 1.8 - 2 | 0.087 - 0.099 | 1.9 | 0.094 | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 1.8 - 2 | 0.35 - 0.39 | 1.9 | 0.37 | N/A | N/A |
| 4-Bromophenyl phenyl ether | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 4-Chloroaniline | mg/kg | 0/15 | 0/15 | 1.8 | N/A | 0.69 - 0.79 | 0.087 - 0.099 | 0.74 | 0.094 | 0/15 | 0/15 |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/15 | 0/15 | N/A | N/A | 1.8 - 2 | 0.087 - 0.099 | 1.9 | 0.094 | N/A | N/A |
| 4-Nitrophenol | mg/kg | 0/15 | 0/15 | 7 | N/A | 1.8 - 2 | 0.7 - 0.8 | 1.9 | 0.76 | 0/15 | 0/15 |
| Acetophenone | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Atrazine | mg/kg | 0/15 | 0/15 | 0.00005 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 15/15 |
| Benzaldehyde | mg/kg | 1/15 | 0/15 | N/A | 0.063 - 0.063 | 0.35 - 0.39 | 0.18 - 0.2 | 0.38 | 0.2 | N/A | N/A |
| Benzyl butyl phthalate | mg/kg | 0/15 | 0/15 | 0.59 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Biphenyl (Diphenyl) | mg/kg | 0/15 | 0/15 | 0.2 | N/A | 1.8 - 2 | 0.35 - 0.39 | 1.9 | 0.37 | 15/15 | 15/15 |
| Bis(2-chloroethoxy)methane | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.087 - 0.099 | 0.37 | 0.094 | N/A | N/A |
| Bis(2-ethylhexyl)phthalate | mg/kg | 0/15 | 0/15 | 8.4 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Caprolactam | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.18 - 0.2 | 0.37 | 0.19 | N/A | N/A |
| Carbazole | mg/kg | 0/15 | 0/15 | 0.07 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 14/15 |
| Cresols, m- & p- | mg/kg | 0/15 | 0/15 | 0.08 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 0/15 |
| Dibenzofuran | mg/kg | 2/15 | 0/15 | 0.15 | 0.11 - 0.21 | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.075 | 13/13 | 0/13 |
| Diethyl phthalate | mg/kg | 0/15 | 0/15 | 0.25 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 0/15 |
| Dimethyl phthalate | mg/kg | 0/15 | 0/15 | 10 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Di-n-butyl phthalate | mg/kg | 1/15 | 0/15 | 0.22 | 0.39 - 0.39 | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 14/14 | 0/14 |
| di-n-Octyl phthalate | mg/kg | 0/15 | 0/15 | 303 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Hexachlorobenzene | mg/kg | 0/15 | 0/15 | 10 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Hexachlorobutadiene | mg/kg | 0/15 | 0/15 | 0.009 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 15/15 |
| Hexachlorocyclopentadiene | mg/kg | 0/15 | 0/15 | 0.001 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 15/15 |
| Hexachloroethane | mg/kg | 0/15 | 0/15 | 0.024 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 15/15 |
| Isophorone | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Nitrobenzene | mg/kg | 0/15 | 0/15 | 2.2 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| N-Nitrosodi-n-propylamine | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| N-Nitrosodiphenylamine | mg/kg | 0/15 | 0/15 | 20 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Pentachlorophenol | mg/kg | 0/15 | 0/15 | 31 | N/A | 1.8 - 2 | 0.7 - 0.8 | 1.9 | 0.76 | 0/15 | 0/15 |

Table 28
Summary Statistics and Ecological Project Action Limits (AOC 5 - Invertebrate)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Phenol | mg/kg | 0/15 | 0/15 | 1.8 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 21/25 | 0/25 | 29 | 0.0014 - 10 | 0.01 - 0.011 | 0.002 - 0.0023 | 0.011 | 0.0022 | 0/4 | 0/4 |
| 2-Methylnaphthalene | mg/kg | 23/25 | 0/25 | 29 | 0.0014 - 14 | 0.01 - 0.011 | 0.0021 - 0.0023 | 0.011 | 0.0022 | 0/2 | 0/2 |
| Acenaphthene | mg/kg | 7/25 | 0/25 | 29 | 0.0017 - 0.1 | 0.0099 - 0.52 | 0.0011 - 0.056 | 0.012 | 0.0012 | 0/18 | 0/18 |
| Acenaphthylene | mg/kg | 15/25 | 0/25 | 29 | 0.0031 - 0.37 | 0.01 - 0.52 | 0.0011 - 0.056 | 0.012 | 0.0012 | 0/10 | 0/10 |
| Anthracene | mg/kg | 16/25 | 0/25 | 29 | 0.0022 - 0.29 | 0.01 - 0.52 | 0.0044 - 0.23 | 0.012 | 0.005 | 0/9 | 0/9 |
| Benzo(a)anthracene | mg/kg | 25/25 | 0/25 | 18 | 0.0024 - 0.75 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(a)pyrene | mg/kg | 24/25 | 0/25 | 18 | 0.0042 - 0.79 | 0.01 - 0.01 | 0.0045 - 0.0045 | 0.01 | 0.0045 | 0/1 | 0/1 |
| Benzo(b)fluoranthene | mg/kg | 24/25 | 0/25 | 18 | 0.0076 - 1.4 | 0.01 - 0.01 | 0.0069 - 0.0069 | 0.01 | 0.0069 | 0/1 | 0/1 |
| Benzo(g,h,i)perylene | mg/kg | 20/25 | 0/25 | 18 | 0.0031 - 4.7 | 0.01 - 0.52 | 0.0069 - 0.35 | 0.11 | 0.072 | 0/5 | 0/5 |
| Benzo(k)fluoranthene | mg/kg | 21/25 | 0/25 | 18 | 0.0023 - 0.4 | 0.01 - 0.52 | 0.0045 - 0.23 | 0.23 | 0.099 | 0/4 | 0/4 |
| Chrysene | mg/kg | 25/25 | 0/25 | 18 | 0.0035 - 1.1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dibenz(a,h)anthracene | mg/kg | 9/25 | 0/25 | 18 | 0.0032 - 0.88 | 0.0099 - 0.52 | 0.0066 - 0.35 | 0.012 | 0.0077 | 0/16 | 0/16 |
| Fluoranthene | mg/kg | 25/25 | 0/25 | 29 | 0.0049 - 0.76 | N/A | N/A | N/A | N/A | N/A | N/A |
| Fluorene | mg/kg | 16/25 | 0/25 | 29 | 0.0013 - 0.26 | 0.01 - 0.11 | 0.0027 - 0.029 | 0.011 | 0.0031 | 0/9 | 0/9 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 21/25 | 0/25 | 18 | 0.0025 - 3.4 | 0.01 - 0.52 | 0.0069 - 0.35 | 0.23 | 0.15 | 0/4 | 0/4 |
| Naphthalene | mg/kg | 24/25 | 0/25 | 29 | 0.0018 - 9.2 | 0.011 - 0.011 | 0.0023 - 0.0023 | 0.011 | 0.0023 | 0/1 | 0/1 |
| Phenanthrene | mg/kg | 25/25 | 0/25 | 29 | 0.003 - 5.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Pyrene | mg/kg | 25/25 | 0/25 | 18 | 0.0042 - 0.99 | N/A | N/A | N/A | N/A | N/A | N/A |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/10 | 0/10 | 0.33 | N/A | 0.068 - 0.078 | 0.031 - 0.036 | 0.072 | 0.034 | 0/10 | 0/10 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/10 | 0/10 | 0.33 | N/A | 0.096 - 0.11 | 0.082 - 0.094 | 0.1 | 0.087 | 0/10 | 0/10 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/10 | 0/10 | 0.33 | N/A | 0.068 - 0.078 | 0.031 - 0.036 | 0.072 | 0.034 | 0/10 | 0/10 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/10 | 0/10 | 0.33 | N/A | 0.068 - 0.078 | 0.049 - 0.057 | 0.072 | 0.052 | 0/10 | 0/10 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/10 | 0/10 | 0.33 | N/A | 0.068 - 0.078 | 0.015 - 0.018 | 0.072 | 0.016 | 0/10 | 0/10 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/10 | 0/10 | 0.33 | N/A | 0.068 - 0.078 | 0.034 - 0.039 | 0.072 | 0.036 | 0/10 | 0/10 |
| PCB-1260 (Aroclor 1260) | mg/kg | 4/10 | 0/10 | 0.33 | 0.0042 - 0.16 | 0.068 - 0.075 | 0.0068 - 0.0076 | 0.072 | 0.0073 | 0/6 | 0/6 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/10 | 0/10 | 0.33 | N/A | 0.068 - 0.078 | 0.016 - 0.019 | 0.072 | 0.017 | 0/10 | 0/10 |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/10 | 0/10 | 0.33 | N/A | 0.068 - 0.078 | 0.0068 - 0.0079 | 0.072 | 0.0073 | 0/10 | 0/10 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 25/25 | 0/25 | N/A | 1400 - 8200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 24/25 | 0/25 | 78 | 0.076 - 1 | 0.23 - 0.23 | 0.11 - 0.11 | 0.23 | 0.11 | 0/1 | 0/1 |
| Arsenic | mg/kg | 25/25 | 0/25 | 6.8 | 4.3 - 25 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 25/25 | 0/25 | 330 | 27 - 76 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 25/25 | 0/25 | 40 | 0.1 - 0.63 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 25/25 | 0/25 | 140 | 0.038 - 4.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 25/25 | 0/25 | N/A | 2000 - 100000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 25/25 | 0/25 | 0.34 | 5 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 25/25 | 0/25 | N/A | 1.8 - 9.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 25/25 | 0/25 | 80 | 5.3 - 110 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 25/25 | 0/25 | N/A | 8100 - 22000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 25/25 | 0/25 | 1700 | 4.2 - 200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 25/25 | 0/25 | N/A | 620 - 28000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 25/25 | 0/25 | 450 | 110 - 1200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 24/25 | 0/25 | 0.05 | 0.0075 - 0.23 | 0.021 - 0.021 | 0.021 - 0.021 | 0.021 | 0.021 | 0/1 | 0/1 |
| Nickel | mg/kg | 25/25 | 0/25 | 280 | 4.9 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 25/25 | 0/25 | N/A | 350 - 1200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 24/25 | 0/25 | 4.1 | 0.13 - 1.5 | 0.43 - 0.43 | 0.34 - 0.34 | 0.43 | 0.34 | 0/1 | 0/1 |
| Silver | mg/kg | 1/25 | 0/25 | N/A | 0.27 - 0.27 | 1.2 - 2.2 | 0.47 - 0.9 | 1.6 | 0.64 | N/A | N/A |
| Sodium | mg/kg | 11/25 | 0/25 | N/A | 37 - 250 | 400 - 680 | 82 - 600 | 540 | 120 | N/A | N/A |

Table 28
Summary Statistics and Ecological Project Action Limits (AOC 5 - Invertebrate)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Thallium | mg/kg | 15/25 | 0/25 | N/A | 0.061 - 0.6 | 0.073 - 0.12 | 0.073 - 0.12 | 0.093 | 0.093 | N/A | N/A |
| Vanadium | mg/kg | 25/25 | 0/25 | N/A | 7.6 - 17 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 25/25 | 0/25 | 120 | 14 - 690 | N/A | N/A | N/A | N/A | N/A | N/A |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | |
| 1,1,1-Trichloroethane | mg/kg | 0/5 | 0/5 | 0.04 | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| 1,1,2,2-Tetrachloroethane | mg/kg | 0/5 | 0/5 | 0.19 | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.016 - 0.019 | 0.0051 - 0.0061 | 0.016 | 0.0052 | N/A | N/A |
| 1,1,2-Trichloroethane | mg/kg | 0/5 | 0/5 | 0.32 | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | 0/5 | 0/5 |
| 1,1-Dichloroethane | mg/kg | 0/5 | 0/5 | 0.14 | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| 1,1-Dichloroethene | mg/kg | 0/5 | 0/5 | 0.04 | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | 0/5 | 0/5 |
| 1,2,3-Trichlorobenzene | mg/kg | 0/5 | 0/5 | 20 | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | 0/5 | 0/5 |
| 1,2,4-Trichlorobenzene | mg/kg | 0/5 | 0/5 | 1.2 | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | 0/5 | 0/5 |
| 1,2-Dibromo-3-chloropropane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.008 - 0.0095 | 0.0082 | 0.0082 | N/A | N/A |
| 1,2-Dibromoethane (EDB) | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | N/A | N/A |
| 1,2-Dichlorobenzene | mg/kg | 0/5 | 0/5 | 0.09 | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| 1,2-Dichloroethane | mg/kg | 0/5 | 0/5 | 0.4 | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | 0/5 | 0/5 |
| 1,2-Dichloropropane | mg/kg | 0/5 | 0/5 | 0.28 | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | 0/5 | 0/5 |
| 1,3-Dichlorobenzene | mg/kg | 0/5 | 0/5 | 0.08 | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | 0/5 | 0/5 |
| 1,3-Dichloropropane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00032 - 0.00038 | 0.0041 | 0.00033 | N/A | N/A |
| 1,4-Dichlorobenzene | mg/kg | 0/5 | 0/5 | 1.2 | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| 2-Butanone (MEK) | mg/kg | 2/5 | 0/5 | 1 | 0.0078 - 0.0086 | 0.016 - 0.018 | 0.01 - 0.011 | 0.016 | 0.01 | 0/3 | 0/3 |
| 2-Hexanone | mg/kg | 0/5 | 0/5 | 2.5 | N/A | 0.016 - 0.019 | 0.01 - 0.012 | 0.016 | 0.01 | 0/5 | 0/5 |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.016 - 0.019 | 0.01 - 0.012 | 0.016 | 0.01 | N/A | N/A |
| Acetone | mg/kg | 1/5 | 0/5 | 0.04 | 0.069 - 0.069 | 0.057 - 0.069 | 0.057 - 0.069 | 0.061 | 0.061 | 4/4 | 4/4 |
| Benzene | mg/kg | 1/5 | 0/5 | 0.12 | 0.00048 - 0.00048 | 0.004 - 0.0048 | 0.00032 - 0.00038 | 0.0043 | 0.00034 | 0/4 | 0/4 |
| Bromochloromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Bromodichloromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Bromoform | mg/kg | 0/5 | 0/5 | 0.07 | N/A | 0.0041 - 0.0049 | 0.0041 - 0.0049 | 0.0042 | 0.0042 | 0/5 | 0/5 |
| Bromomethane | mg/kg | 0/5 | 0/5 | 0.002 | N/A | 0.008 - 0.0095 | 0.0025 - 0.0031 | 0.0082 | 0.0026 | 5/5 | 5/5 |
| Carbon disulfide | mg/kg | 0/5 | 0/5 | 0.005 | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| Carbon tetrachloride | mg/kg | 0/5 | 0/5 | 0.05 | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| Chlorobenzene | mg/kg | 0/5 | 0/5 | 2.4 | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| Chloroethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.0051 - 0.0061 | 0.0082 | 0.0052 | N/A | N/A |
| Chloroform | mg/kg | 0/5 | 0/5 | 0.05 | N/A | 0.008 - 0.0095 | 0.00064 - 0.00076 | 0.0082 | 0.00066 | 0/5 | 0/5 |
| Chloromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.0013 - 0.0015 | 0.0082 | 0.0013 | N/A | N/A |
| cis-1,2-Dichloroethene | mg/kg | 0/5 | 0/5 | 0.04 | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| cis-1,3-Dichloropropene | mg/kg | 0/5 | 0/5 | 0.001 | N/A | 0.004 - 0.0048 | 0.00032 - 0.00038 | 0.0041 | 0.00033 | 5/5 | 0/5 |
| Cumene | mg/kg | 0/5 | 0/5 | 0.04 | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| Cyclohexane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Dibromochloromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Dichlorodifluoromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.0051 - 0.0061 | 0.0082 | 0.0052 | N/A | N/A |
| Ethylbenzene | mg/kg | 0/5 | 0/5 | 0.27 | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| m,p-Xylene | mg/kg | 0/5 | 0/5 | 0.1 | N/A | 0.0025 - 0.0031 | 0.0025 - 0.0031 | 0.0026 | 0.0026 | 0/5 | 0/5 |
| Methyl acetate | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.0068 - 0.0081 | 0.0064 - 0.0076 | 0.007 | 0.0066 | N/A | N/A |
| Methyl tert-butyl ether (MTBE) | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.016 - 0.019 | 0.0051 - 0.0061 | 0.016 | 0.0052 | N/A | N/A |
| Methylcyclohexane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | N/A | N/A |
| Methylene chloride | mg/kg | 0/5 | 0/5 | 0.21 | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | 0/5 | 0/5 |
| o-Xylene | mg/kg | 0/5 | 0/5 | 0.1 | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| Styrene | mg/kg | 0/5 | 0/5 | 1.2 | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| Tetrachloroethene (PCE) | mg/kg | 0/5 | 0/5 | 0.06 | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |

Table 28
Summary Statistics and Ecological Project Action Limits (AOC 5 - Invertebrate)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Toluene | mg/kg | 1/5 | 0/5 | 0.15 | 0.00058 - 0.00058 | 0.004 - 0.0048 | 0.00065 - 0.00076 | 0.0043 | 0.00068 | 0/4 | 0/4 |
| trans-1,2-Dichloroethene | mg/kg | 0/5 | 0/5 | 0.04 | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| trans-1,3-Dichloropropene | mg/kg | 0/5 | 0/5 | 0.001 | N/A | 0.004 - 0.0048 | 0.00016 - 0.00019 | 0.0041 | 0.00016 | 5/5 | 0/5 |
| Trichlorofluoromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.008 - 0.0095 | 0.0082 | 0.0082 | N/A | N/A |
| Vinyl chloride | mg/kg | 0/5 | 0/5 | 0.03 | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | 0/5 | 0/5 |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/25 | 0/25 | 0.18 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 0/25 |
| 1,4-Dioxane | mg/kg | 0/24 | 1/25 | N/A | N/A | 0.35 - 0.42 | 0.35 - 0.42 | 0.37 | 0.37 | N/A | N/A |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/24 | 1/25 | N/A | N/A | 0.35 - 0.39 | 0.071 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/25 | 0/25 | 0.04 | N/A | 0.35 - 0.42 | 0.088 - 0.1 | 0.37 | 0.094 | 25/25 | 25/25 |
| 2,4,5-Trichlorophenol | mg/kg | 0/25 | 0/25 | 9 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2,4,6-Trichlorophenol | mg/kg | 0/25 | 0/25 | 10 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2,4-Dichlorophenol | mg/kg | 0/25 | 0/25 | 0.05 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 25/25 |
| 2,4-Dimethylphenol | mg/kg | 0/25 | 0/25 | 0.04 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 25/25 |
| 2,4-Dinitrotoluene | mg/kg | 0/25 | 0/25 | 18 | N/A | 0.35 - 0.42 | 0.088 - 0.1 | 0.37 | 0.094 | 0/25 | 0/25 |
| 2,6-Dinitrotoluene | mg/kg | 0/25 | 0/25 | 30 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2-Chloronaphthalene | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 2-Chlorophenol | mg/kg | 0/25 | 0/25 | 0.06 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 25/25 |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/25 | 0/25 | 0.1 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 0/25 |
| 2-Nitroaniline | mg/kg | 0/25 | 0/25 | 0.02 | N/A | 1.8 - 2.1 | 0.18 - 0.21 | 1.9 | 0.19 | 25/25 | 25/25 |
| 2-Nitrophenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 3,3'-Dichlorobenzidine | mg/kg | 0/25 | 0/25 | 0.03 | N/A | 0.7 - 0.83 | 0.071 - 0.085 | 0.75 | 0.076 | 25/25 | 25/25 |
| 3-Nitroaniline | mg/kg | 0/25 | 0/25 | N/A | N/A | 1.8 - 2.1 | 0.088 - 0.1 | 1.9 | 0.094 | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 1.8 - 2.1 | 0.35 - 0.42 | 1.9 | 0.37 | N/A | N/A |
| 4-Bromophenyl phenyl ether | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 4-Chloroaniline | mg/kg | 0/25 | 0/25 | 1.8 | N/A | 0.7 - 0.83 | 0.088 - 0.1 | 0.75 | 0.094 | 0/25 | 0/25 |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/25 | 0/25 | N/A | N/A | 1.8 - 2.1 | 0.088 - 0.1 | 1.9 | 0.094 | N/A | N/A |
| 4-Nitrophenol | mg/kg | 0/25 | 0/25 | 7 | N/A | 1.8 - 2.1 | 0.71 - 0.85 | 1.9 | 0.76 | 0/25 | 0/25 |
| Acetophenone | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Atrazine | mg/kg | 0/25 | 0/25 | 0.00005 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 25/25 |
| Benzaldehyde | mg/kg | 0/24 | 1/25 | N/A | N/A | 0.35 - 0.42 | 0.18 - 0.21 | 0.37 | 0.19 | N/A | N/A |
| Benzyl butyl phthalate | mg/kg | 0/25 | 0/25 | 0.59 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Biphenyl (Diphenyl) | mg/kg | 0/25 | 0/25 | 0.2 | N/A | 1.8 - 2.1 | 0.35 - 0.42 | 1.9 | 0.37 | 25/25 | 25/25 |
| Bis(2-chloroethoxy)methane | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.088 - 0.1 | 0.37 | 0.094 | N/A | N/A |
| Bis(2-ethylhexyl)phthalate | mg/kg | 0/25 | 0/25 | 8.4 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Caprolactam | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.18 - 0.21 | 0.37 | 0.19 | N/A | N/A |
| Carbazole | mg/kg | 0/25 | 0/25 | 0.07 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 25/25 |
| Cresols, m- & p- | mg/kg | 0/25 | 0/25 | 0.08 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 1/25 |
| Dibenzofuran | mg/kg | 1/25 | 0/25 | 0.15 | 0.077 - 0.077 | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 24/24 | 0/24 |
| Diethyl phthalate | mg/kg | 0/25 | 0/25 | 0.25 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 0/25 |
| Dimethyl phthalate | mg/kg | 0/25 | 0/25 | 10 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Di-n-butyl phthalate | mg/kg | 0/25 | 0/25 | 0.22 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 0/25 |
| di-n-Octyl phthalate | mg/kg | 0/25 | 0/25 | 303 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Hexachlorobenzene | mg/kg | 0/25 | 0/25 | 10 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Hexachlorobutadiene | mg/kg | 0/25 | 0/25 | 0.009 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 25/25 |
| Hexachlorocyclopentadiene | mg/kg | 0/25 | 0/25 | 0.001 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 25/25 |
| Hexachloroethane | mg/kg | 0/24 | 1/25 | 0.024 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 24/24 | 24/24 |
| Isophorone | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |

Table 28
Summary Statistics and Ecological Project Action Limits (AOC 5 - Invertebrate)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Nitrobenzene | mg/kg | 0/25 | 0/25 | 2.2 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| N-Nitrosodi-n-propylamine | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| N-Nitrosodiphenylamine | mg/kg | 0/25 | 0/25 | 20 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Pentachlorophenol | mg/kg | 0/25 | 0/25 | 31 | N/A | 1.8 - 2.1 | 0.71 - 0.85 | 1.9 | 0.76 | 0/25 | 0/25 |
| Phenol | mg/kg | 0/25 | 0/25 | 1.8 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 11/25 | 0/25 | 29 | 0.00082 - 0.083 | 0.01 - 0.012 | 0.002 - 0.0024 | 0.011 | 0.0022 | 0/14 | 0/14 |
| 2-Methylnaphthalene | mg/kg | 14/25 | 0/25 | 29 | 0.00067 - 0.13 | 0.01 - 0.012 | 0.002 - 0.0024 | 0.011 | 0.0022 | 0/11 | 0/11 |
| Acenaphthene | mg/kg | 0/25 | 0/25 | 29 | N/A | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | 0/25 | 0/25 |
| Acenaphthylene | mg/kg | 4/25 | 0/25 | 29 | 0.00092 - 0.0035 | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | 0/21 | 0/21 |
| Anthracene | mg/kg | 4/25 | 0/25 | 29 | 0.002 - 0.0054 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0049 | 0/21 | 0/21 |
| Benzo(a)anthracene | mg/kg | 10/25 | 0/25 | 18 | 0.0023 - 0.016 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | 0/15 | 0/15 |
| Benzo(a)pyrene | mg/kg | 9/25 | 0/25 | 18 | 0.0029 - 0.016 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0048 | 0/16 | 0/16 |
| Benzo(b)fluoranthene | mg/kg | 12/25 | 0/25 | 18 | 0.0027 - 0.027 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0076 | 0/13 | 0/13 |
| Benzo(g,h,i)perylene | mg/kg | 9/25 | 0/25 | 18 | 0.0035 - 0.046 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0075 | 0/16 | 0/16 |
| Benzo(k)fluoranthene | mg/kg | 6/25 | 0/25 | 18 | 0.0025 - 0.0091 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | 0/19 | 0/19 |
| Chrysene | mg/kg | 15/25 | 0/25 | 18 | 0.0023 - 0.025 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | 0/10 | 0/10 |
| Dibenz(a,h)anthracene | mg/kg | 1/25 | 0/25 | 18 | 0.0074 - 0.0074 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0076 | 0/24 | 0/24 |
| Fluoranthene | mg/kg | 13/25 | 0/25 | 29 | 0.0024 - 0.03 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | 0/12 | 0/12 |
| Fluorene | mg/kg | 3/25 | 0/25 | 29 | 0.0017 - 0.0024 | 0.01 - 0.012 | 0.0027 - 0.0032 | 0.011 | 0.003 | 0/22 | 0/22 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 9/25 | 0/25 | 18 | 0.0036 - 0.035 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0075 | 0/16 | 0/16 |
| Naphthalene | mg/kg | 19/25 | 0/25 | 29 | 0.00076 - 0.11 | 0.01 - 0.012 | 0.0021 - 0.0024 | 0.011 | 0.0023 | 0/6 | 0/6 |
| Phenanthrene | mg/kg | 9/25 | 0/25 | 29 | 0.003 - 0.034 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0073 | 0/16 | 0/16 |
| Pyrene | mg/kg | 12/25 | 0/25 | 18 | 0.0026 - 0.027 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0072 | 0/13 | 0/13 |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/5 | 0/5 | 0.33 | N/A | 0.07 - 0.085 | 0.033 - 0.04 | 0.073 | 0.034 | 0/5 | 0/5 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/5 | 0/5 | 0.33 | N/A | 0.1 - 0.12 | 0.085 - 0.1 | 0.1 | 0.088 | 0/5 | 0/5 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/5 | 0/5 | 0.33 | N/A | 0.07 - 0.085 | 0.033 - 0.04 | 0.073 | 0.034 | 0/5 | 0/5 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/5 | 0/5 | 0.33 | N/A | 0.07 - 0.085 | 0.051 - 0.062 | 0.073 | 0.053 | 0/5 | 0/5 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/5 | 0/5 | 0.33 | N/A | 0.07 - 0.085 | 0.016 - 0.019 | 0.073 | 0.016 | 0/5 | 0/5 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/5 | 0/5 | 0.33 | N/A | 0.07 - 0.085 | 0.036 - 0.043 | 0.073 | 0.037 | 0/5 | 0/5 |
| PCB-1260 (Aroclor 1260) | mg/kg | 0/5 | 0/5 | 0.33 | N/A | 0.07 - 0.085 | 0.0071 - 0.0086 | 0.073 | 0.0073 | 0/5 | 0/5 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/5 | 0/5 | 0.33 | N/A | 0.07 - 0.085 | 0.017 - 0.021 | 0.073 | 0.018 | 0/5 | 0/5 |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/5 | 0/5 | 0.33 | N/A | 0.07 - 0.085 | 0.0071 - 0.0086 | 0.073 | 0.0073 | 0/5 | 0/5 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 25/25 | 0/25 | N/A | 3200 - 19000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 22/25 | 0/25 | 78 | 0.071 - 0.21 | 0.17 - 0.2 | 0.087 - 0.099 | 0.18 | 0.091 | 0/3 | 0/3 |
| Arsenic | mg/kg | 25/25 | 0/25 | 6.8 | 2.8 - 26 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 25/25 | 0/25 | 330 | 18 - 110 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 25/25 | 0/25 | 40 | 0.11 - 0.83 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 25/25 | 0/25 | 140 | 0.025 - 0.38 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 25/25 | 0/25 | N/A | 3500 - 82000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 25/25 | 0/25 | 0.34 | 4.9 - 25 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 25/25 | 0/25 | N/A | 2.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 25/25 | 0/25 | 80 | 9.3 - 74 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 25/25 | 0/25 | N/A | 9100 - 31000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 25/25 | 0/25 | 1700 | 3 - 28 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 25/25 | 0/25 | N/A | 2200 - 26000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 25/25 | 0/25 | 450 | 320 - 2400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 18/25 | 0/25 | 0.05 | 0.013 - 0.099 | 0.019 - 0.021 | 0.015 - 0.017 | 0.02 | 0.016 | 0/7 | 0/7 |
| Nickel | mg/kg | 25/25 | 0/25 | 280 | 5.1 - 29 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 28
Summary Statistics and Ecological Project Action Limits (AOC 5 - Invertebrate)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Potassium | mg/kg | 25/25 | 0/25 | N/A | 400 - 3700 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 17/25 | 0/25 | 4.1 | 0.11 - 0.41 | 0.39 - 0.5 | 0.31 - 0.4 | 0.48 | 0.38 | 0/8 | 0/8 |
| Silver | mg/kg | 0/25 | 0/25 | N/A | N/A | 1.2 - 7.1 | 0.46 - 2.9 | 1.4 | 0.56 | N/A | N/A |
| Sodium | mg/kg | 11/25 | 0/25 | N/A | 46 - 230 | 390 - 2300 | 86 - 540 | 480 | 430 | N/A | N/A |
| Thallium | mg/kg | 12/25 | 0/25 | N/A | 0.032 - 0.2 | 0.078 - 0.12 | 0.078 - 0.12 | 0.097 | 0.097 | N/A | N/A |
| Vanadium | mg/kg | 25/25 | 0/25 | N/A | 8.7 - 31 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 25/25 | 0/25 | 120 | 12 - 150 | N/A | N/A | N/A | N/A | N/A | N/A |

Notes

FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 29
Summary Statistics and Ecological Project Action Limits (AOC 5 - Bird)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 1,4-Dioxane | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.35 - 0.39 | 0.37 | 0.37 | N/A | N/A |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/14 | 1/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.38 | 0.076 | N/A | N/A |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.087 - 0.099 | 0.37 | 0.094 | N/A | N/A |
| 2,4,5-Trichlorophenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 2,4,6-Trichlorophenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 2,4-Dichlorophenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 2,4-Dimethylphenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 2,4-Dinitrotoluene | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.087 - 0.099 | 0.37 | 0.094 | N/A | N/A |
| 2,6-Dinitrotoluene | mg/kg | 0/15 | 0/15 | 52 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2-Chloronaphthalene | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 2-Chlorophenol | mg/kg | 0/15 | 0/15 | 0.39 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 2-Nitroaniline | mg/kg | 0/15 | 0/15 | N/A | N/A | 1.8 - 2 | 0.18 - 0.2 | 1.9 | 0.19 | N/A | N/A |
| 2-Nitrophenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 3,3'-Dichlorobenzidine | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.69 - 0.79 | 0.07 - 0.08 | 0.74 | 0.076 | N/A | N/A |
| 3-Nitroaniline | mg/kg | 0/15 | 0/15 | N/A | N/A | 1.8 - 2 | 0.087 - 0.099 | 1.9 | 0.094 | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 1.8 - 2 | 0.35 - 0.39 | 1.9 | 0.37 | N/A | N/A |
| 4-Bromophenyl phenyl ether | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 4-Chloroaniline | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.69 - 0.79 | 0.087 - 0.099 | 0.74 | 0.094 | N/A | N/A |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/15 | 0/15 | N/A | N/A | 1.8 - 2 | 0.087 - 0.099 | 1.9 | 0.094 | N/A | N/A |
| 4-Nitrophenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 1.8 - 2 | 0.7 - 0.8 | 1.9 | 0.76 | N/A | N/A |
| Acetophenone | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Atrazine | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Benzaldehyde | mg/kg | 1/15 | 0/15 | N/A | 0.063 - 0.063 | 0.35 - 0.39 | 0.18 - 0.2 | 0.38 | 0.2 | N/A | N/A |
| Benzyl butyl phthalate | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Biphenyl (Diphenyl) | mg/kg | 0/15 | 0/15 | N/A | N/A | 1.8 - 2 | 0.35 - 0.39 | 1.9 | 0.37 | N/A | N/A |
| Bis(2-chloroethoxy)methane | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.087 - 0.099 | 0.37 | 0.094 | N/A | N/A |
| Bis(2-ethylhexyl)phthalate | mg/kg | 0/15 | 0/15 | 0.02 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 15/15 |
| Caprolactam | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.18 - 0.2 | 0.37 | 0.19 | N/A | N/A |
| Carbazole | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Cresols, m- & p- | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Dibenzofuran | mg/kg | 2/15 | 0/15 | N/A | 0.11 - 0.21 | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.075 | N/A | N/A |
| Diethyl phthalate | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Dimethyl phthalate | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Di-n-butyl phthalate | mg/kg | 1/15 | 0/15 | 0.011 | 0.39 - 0.39 | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 14/14 | 14/14 |
| di-n-Octyl phthalate | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Hexachlorobenzene | mg/kg | 0/15 | 0/15 | 0.079 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 1/15 |
| Hexachlorobutadiene | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Hexachlorocyclopentadiene | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Hexachloroethane | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Isophorone | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Nitrobenzene | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| N-Nitrosodi-n-propylamine | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| N-Nitrosodiphenylamine | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Pentachlorophenol | mg/kg | 0/15 | 0/15 | 2.1 | N/A | 1.8 - 2 | 0.7 - 0.8 | 1.9 | 0.76 | 0/15 | 0/15 |

Table 29
Summary Statistics and Ecological Project Action Limits (AOC 5 - Bird)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Phenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 21/25 | 0/25 | N/A | 0.0014 - 10 | 0.01 - 0.011 | 0.002 - 0.0023 | 0.011 | 0.0022 | N/A | N/A |
| 2-Methylnaphthalene | mg/kg | 23/25 | 0/25 | N/A | 0.0014 - 14 | 0.01 - 0.011 | 0.0021 - 0.0023 | 0.011 | 0.0022 | N/A | N/A |
| Acenaphthene | mg/kg | 7/25 | 0/25 | N/A | 0.0017 - 0.1 | 0.0099 - 0.52 | 0.0011 - 0.056 | 0.012 | 0.0012 | N/A | N/A |
| Acenaphthylene | mg/kg | 15/25 | 0/25 | N/A | 0.0031 - 0.37 | 0.01 - 0.52 | 0.0011 - 0.056 | 0.012 | 0.0012 | N/A | N/A |
| Anthracene | mg/kg | 16/25 | 0/25 | N/A | 0.0022 - 0.29 | 0.01 - 0.52 | 0.0044 - 0.23 | 0.012 | 0.005 | N/A | N/A |
| Benzo(a)anthracene | mg/kg | 25/25 | 0/25 | 0.73 | 0.0024 - 0.75 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(a)pyrene | mg/kg | 24/25 | 0/25 | N/A | 0.0042 - 0.79 | 0.01 - 0.01 | 0.0045 - 0.0045 | 0.01 | 0.0045 | N/A | N/A |
| Benzo(b)fluoranthene | mg/kg | 24/25 | 0/25 | N/A | 0.0076 - 1.4 | 0.01 - 0.01 | 0.0069 - 0.0069 | 0.01 | 0.0069 | N/A | N/A |
| Benzo(g,h,i)perylene | mg/kg | 20/25 | 0/25 | N/A | 0.0031 - 4.7 | 0.01 - 0.52 | 0.0069 - 0.35 | 0.11 | 0.072 | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 21/25 | 0/25 | N/A | 0.0023 - 0.4 | 0.01 - 0.52 | 0.0045 - 0.23 | 0.23 | 0.099 | N/A | N/A |
| Chrysene | mg/kg | 25/25 | 0/25 | N/A | 0.0035 - 1.1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dibenz(a,h)anthracene | mg/kg | 9/25 | 0/25 | N/A | 0.0032 - 0.88 | 0.0099 - 0.52 | 0.0066 - 0.35 | 0.012 | 0.0077 | N/A | N/A |
| Fluoranthene | mg/kg | 25/25 | 0/25 | N/A | 0.0049 - 0.76 | N/A | N/A | N/A | N/A | N/A | N/A |
| Fluorene | mg/kg | 16/25 | 0/25 | N/A | 0.0013 - 0.26 | 0.01 - 0.11 | 0.0027 - 0.029 | 0.011 | 0.0031 | N/A | N/A |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 21/25 | 0/25 | N/A | 0.0025 - 3.4 | 0.01 - 0.52 | 0.0069 - 0.35 | 0.23 | 0.15 | N/A | N/A |
| Naphthalene | mg/kg | 24/25 | 0/25 | 3.4 | 0.0018 - 9.2 | 0.011 - 0.011 | 0.0023 - 0.0023 | 0.011 | 0.0023 | 0/1 | 0/1 |
| Phenanthrene | mg/kg | 25/25 | 0/25 | N/A | 0.003 - 5.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Pyrene | mg/kg | 25/25 | 0/25 | 33 | 0.0042 - 0.99 | N/A | N/A | N/A | N/A | N/A | N/A |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/10 | 0/10 | 0.041 | N/A | 0.068 - 0.078 | 0.031 - 0.036 | 0.072 | 0.034 | 10/10 | 0/10 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/10 | 0/10 | 0.041 | N/A | 0.096 - 0.11 | 0.082 - 0.094 | 0.1 | 0.087 | 10/10 | 10/10 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/10 | 0/10 | 0.041 | N/A | 0.068 - 0.078 | 0.031 - 0.036 | 0.072 | 0.034 | 10/10 | 0/10 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/10 | 0/10 | 0.041 | N/A | 0.068 - 0.078 | 0.049 - 0.057 | 0.072 | 0.052 | 10/10 | 10/10 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/10 | 0/10 | 0.041 | N/A | 0.068 - 0.078 | 0.015 - 0.018 | 0.072 | 0.016 | 10/10 | 0/10 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/10 | 0/10 | 0.041 | N/A | 0.068 - 0.078 | 0.034 - 0.039 | 0.072 | 0.036 | 10/10 | 0/10 |
| PCB-1260 (Aroclor 1260) | mg/kg | 4/10 | 0/10 | 0.041 | 0.0042 - 0.16 | 0.068 - 0.075 | 0.0068 - 0.0076 | 0.072 | 0.0073 | 6/6 | 0/6 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/10 | 0/10 | 0.041 | N/A | 0.068 - 0.078 | 0.016 - 0.019 | 0.072 | 0.017 | 10/10 | 0/10 |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/10 | 0/10 | 0.041 | N/A | 0.068 - 0.078 | 0.0068 - 0.0079 | 0.072 | 0.0073 | 10/10 | 0/10 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 25/25 | 0/25 | N/A | 1400 - 8200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 24/25 | 0/25 | N/A | 0.076 - 1 | 0.23 - 0.23 | 0.11 - 0.11 | 0.23 | 0.11 | N/A | N/A |
| Arsenic | mg/kg | 25/25 | 0/25 | 43 | 4.3 - 25 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 25/25 | 0/25 | 820 | 27 - 76 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 25/25 | 0/25 | N/A | 0.1 - 0.63 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 25/25 | 0/25 | 0.77 | 0.038 - 4.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 25/25 | 0/25 | N/A | 2000 - 100000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 25/25 | 0/25 | 26 | 5 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 25/25 | 0/25 | 120 | 1.8 - 9.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 25/25 | 0/25 | 28 | 5.3 - 110 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 25/25 | 0/25 | N/A | 8100 - 22000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 25/25 | 0/25 | 11 | 4.2 - 200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 25/25 | 0/25 | N/A | 620 - 28000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 25/25 | 0/25 | 4300 | 110 - 1200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 24/25 | 0/25 | 0.013 | 0.0075 - 0.23 | 0.021 - 0.021 | 0.021 - 0.021 | 0.021 | 0.021 | 1/1 | 1/1 |
| Nickel | mg/kg | 25/25 | 0/25 | 210 | 4.9 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 25/25 | 0/25 | N/A | 350 - 1200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 24/25 | 0/25 | 1.2 | 0.13 - 1.5 | 0.43 - 0.43 | 0.34 - 0.34 | 0.43 | 0.34 | 0/1 | 0/1 |
| Silver | mg/kg | 1/25 | 0/25 | 4.2 | 0.27 - 0.27 | 1.2 - 2.2 | 0.47 - 0.9 | 1.6 | 0.64 | 0/24 | 0/24 |
| Sodium | mg/kg | 11/25 | 0/25 | N/A | 37 - 250 | 400 - 680 | 82 - 600 | 540 | 120 | N/A | N/A |

Table 29
Summary Statistics and Ecological Project Action Limits (AOC 5 - Bird)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Thallium | mg/kg | 15/25 | 0/25 | 4.5 | 0.061 - 0.6 | 0.073 - 0.12 | 0.073 - 0.12 | 0.093 | 0.093 | 0/10 | 0/10 |
| Vanadium | mg/kg | 25/25 | 0/25 | 7.8 | 7.6 - 17 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 25/25 | 0/25 | 46 | 14 - 690 | N/A | N/A | N/A | N/A | N/A | N/A |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | |
| 1,1,1-Trichloroethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| 1,1,2,2-Tetrachloroethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | N/A | N/A |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.016 - 0.019 | 0.0051 - 0.0061 | 0.016 | 0.0052 | N/A | N/A |
| 1,1,2-Trichloroethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | N/A | N/A |
| 1,1-Dichloroethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | N/A | N/A |
| 1,1-Dichloroethene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | N/A | N/A |
| 1,2,3-Trichlorobenzene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | N/A | N/A |
| 1,2,4-Trichlorobenzene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | N/A | N/A |
| 1,2-Dibromo-3-chloropropane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.008 - 0.0095 | 0.0082 | 0.0082 | N/A | N/A |
| 1,2-Dibromoethane (EDB) | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | N/A | N/A |
| 1,2-Dichlorobenzene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| 1,2-Dichloroethane | mg/kg | 0/5 | 0/5 | 0.85 | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | 0/5 | 0/5 |
| 1,2-Dichloropropane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | N/A | N/A |
| 1,3-Dichlorobenzene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | N/A | N/A |
| 1,3-Dichloropropane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00032 - 0.00038 | 0.0041 | 0.00033 | N/A | N/A |
| 1,4-Dichlorobenzene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | N/A | N/A |
| 2-Butanone (MEK) | mg/kg | 2/5 | 0/5 | N/A | 0.0078 - 0.0086 | 0.016 - 0.018 | 0.01 - 0.011 | 0.016 | 0.01 | N/A | N/A |
| 2-Hexanone | mg/kg | 0/5 | 0/5 | 0.36 | N/A | 0.016 - 0.019 | 0.01 - 0.012 | 0.016 | 0.01 | 0/5 | 0/5 |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.016 - 0.019 | 0.01 - 0.012 | 0.016 | 0.01 | N/A | N/A |
| Acetone | mg/kg | 1/5 | 0/5 | 7.5 | 0.069 - 0.069 | 0.057 - 0.069 | 0.057 - 0.069 | 0.061 | 0.061 | 0/4 | 0/4 |
| Benzene | mg/kg | 1/5 | 0/5 | N/A | 0.00048 - 0.00048 | 0.004 - 0.0048 | 0.00032 - 0.00038 | 0.0043 | 0.00034 | N/A | N/A |
| Bromochloromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Bromodichloromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Bromoform | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.0041 - 0.0049 | 0.0041 - 0.0049 | 0.0042 | 0.0042 | N/A | N/A |
| Bromomethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.0025 - 0.0031 | 0.0082 | 0.0026 | N/A | N/A |
| Carbon disulfide | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Carbon tetrachloride | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Chlorobenzene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Chloroethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.0051 - 0.0061 | 0.0082 | 0.0052 | N/A | N/A |
| Chloroform | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.00064 - 0.00076 | 0.0082 | 0.00066 | N/A | N/A |
| Chloromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.0013 - 0.0015 | 0.0082 | 0.0013 | N/A | N/A |
| cis-1,2-Dichloroethene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | N/A | N/A |
| cis-1,3-Dichloropropene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00032 - 0.00038 | 0.0041 | 0.00033 | N/A | N/A |
| Cumene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Cyclohexane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Dibromochloromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Dichlorodifluoromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.0051 - 0.0061 | 0.0082 | 0.0052 | N/A | N/A |
| Ethylbenzene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | N/A | N/A |
| m,p-Xylene | mg/kg | 0/5 | 0/5 | 41 | N/A | 0.0025 - 0.0031 | 0.0025 - 0.0031 | 0.0026 | 0.0026 | 0/5 | 0/5 |
| Methyl acetate | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.0068 - 0.0081 | 0.0064 - 0.0076 | 0.007 | 0.0066 | N/A | N/A |
| Methyl tert-butyl ether (MTBE) | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.016 - 0.019 | 0.0051 - 0.0061 | 0.016 | 0.0052 | N/A | N/A |
| Methylcyclohexane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | N/A | N/A |
| Methylene chloride | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | N/A | N/A |
| o-Xylene | mg/kg | 0/5 | 0/5 | 41 | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| Styrene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | N/A | N/A |
| Tetrachloroethene (PCE) | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |

Table 29
Summary Statistics and Ecological Project Action Limits (AOC 5 - Bird)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Toluene | mg/kg | 1/5 | 0/5 | N/A | 0.00058 - 0.00058 | 0.004 - 0.0048 | 0.00065 - 0.00076 | 0.0043 | 0.00068 | N/A | N/A |
| trans-1,2-Dichloroethene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | N/A | N/A |
| trans-1,3-Dichloropropene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00016 - 0.00019 | 0.0041 | 0.00016 | N/A | N/A |
| Trichlorofluoromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.008 - 0.0095 | 0.0082 | 0.0082 | N/A | N/A |
| Vinyl chloride | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | N/A | N/A |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 1,4-Dioxane | mg/kg | 0/24 | 1/25 | N/A | N/A | 0.35 - 0.42 | 0.35 - 0.42 | 0.37 | 0.37 | N/A | N/A |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/24 | 1/25 | N/A | N/A | 0.35 - 0.39 | 0.071 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.088 - 0.1 | 0.37 | 0.094 | N/A | N/A |
| 2,4,5-Trichlorophenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 2,4,6-Trichlorophenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 2,4-Dichlorophenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 2,4-Dimethylphenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 2,4-Dinitrotoluene | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.088 - 0.1 | 0.37 | 0.094 | N/A | N/A |
| 2,6-Dinitrotoluene | mg/kg | 0/25 | 0/25 | 52 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2-Chloronaphthalene | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 2-Chlorophenol | mg/kg | 0/25 | 0/25 | 0.39 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 1/25 | 0/25 |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 2-Nitroaniline | mg/kg | 0/25 | 0/25 | N/A | N/A | 1.8 - 2.1 | 0.18 - 0.21 | 1.9 | 0.19 | N/A | N/A |
| 2-Nitrophenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 3,3'-Dichlorobenzidine | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.7 - 0.83 | 0.071 - 0.085 | 0.75 | 0.076 | N/A | N/A |
| 3-Nitroaniline | mg/kg | 0/25 | 0/25 | N/A | N/A | 1.8 - 2.1 | 0.088 - 0.1 | 1.9 | 0.094 | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 1.8 - 2.1 | 0.35 - 0.42 | 1.9 | 0.37 | N/A | N/A |
| 4-Bromophenyl phenyl ether | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 4-Chloroaniline | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.7 - 0.83 | 0.088 - 0.1 | 0.75 | 0.094 | N/A | N/A |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/25 | 0/25 | N/A | N/A | 1.8 - 2.1 | 0.088 - 0.1 | 1.9 | 0.094 | N/A | N/A |
| 4-Nitrophenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 1.8 - 2.1 | 0.71 - 0.85 | 1.9 | 0.76 | N/A | N/A |
| Acetophenone | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Atrazine | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Benzaldehyde | mg/kg | 0/24 | 1/25 | N/A | N/A | 0.35 - 0.42 | 0.18 - 0.21 | 0.37 | 0.19 | N/A | N/A |
| Benzyl butyl phthalate | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Biphenyl (Diphenyl) | mg/kg | 0/25 | 0/25 | N/A | N/A | 1.8 - 2.1 | 0.35 - 0.42 | 1.9 | 0.37 | N/A | N/A |
| Bis(2-chloroethoxy)methane | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.088 - 0.1 | 0.37 | 0.094 | N/A | N/A |
| Bis(2-ethylhexyl)phthalate | mg/kg | 0/25 | 0/25 | 0.02 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 25/25 |
| Caprolactam | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.18 - 0.21 | 0.37 | 0.19 | N/A | N/A |
| Carbazole | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Cresols, m- & p- | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Dibenzofuran | mg/kg | 1/25 | 0/25 | N/A | 0.077 - 0.077 | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Diethyl phthalate | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Dimethyl phthalate | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Di-n-butyl phthalate | mg/kg | 0/25 | 0/25 | 0.011 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 25/25 |
| di-n-Octyl phthalate | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Hexachlorobenzene | mg/kg | 0/25 | 0/25 | 0.079 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 3/25 |
| Hexachlorobutadiene | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Hexachlorocyclopentadiene | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Hexachloroethane | mg/kg | 0/24 | 1/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Isophorone | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |

Table 29
Summary Statistics and Ecological Project Action Limits (AOC 5 - Bird)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Nitrobenzene | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| N-Nitrosodi-n-propylamine | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| N-Nitrosodiphenylamine | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Pentachlorophenol | mg/kg | 0/25 | 0/25 | 2.1 | N/A | 1.8 - 2.1 | 0.71 - 0.85 | 1.9 | 0.76 | 0/25 | 0/25 |
| Phenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 11/25 | 0/25 | N/A | 0.00082 - 0.083 | 0.01 - 0.012 | 0.002 - 0.0024 | 0.011 | 0.0022 | N/A | N/A |
| 2-Methylnaphthalene | mg/kg | 14/25 | 0/25 | N/A | 0.00067 - 0.13 | 0.01 - 0.012 | 0.002 - 0.0024 | 0.011 | 0.0022 | N/A | N/A |
| Acenaphthene | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | N/A | N/A |
| Acenaphthylene | mg/kg | 4/25 | 0/25 | N/A | 0.00092 - 0.0035 | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | N/A | N/A |
| Anthracene | mg/kg | 4/25 | 0/25 | N/A | 0.002 - 0.0054 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0049 | N/A | N/A |
| Benzo(a)anthracene | mg/kg | 10/25 | 0/25 | 0.73 | 0.0023 - 0.016 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | 0/15 | 0/15 |
| Benzo(a)pyrene | mg/kg | 9/25 | 0/25 | N/A | 0.0029 - 0.016 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0048 | N/A | N/A |
| Benzo(b)fluoranthene | mg/kg | 12/25 | 0/25 | N/A | 0.0027 - 0.027 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0076 | N/A | N/A |
| Benzo(g,h,i)perylene | mg/kg | 9/25 | 0/25 | N/A | 0.0035 - 0.046 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0075 | N/A | N/A |
| Benzo(k)fluoranthene | mg/kg | 6/25 | 0/25 | N/A | 0.0025 - 0.0091 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | N/A | N/A |
| Chrysene | mg/kg | 15/25 | 0/25 | N/A | 0.0023 - 0.025 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | N/A | N/A |
| Dibenz(a,h)anthracene | mg/kg | 1/25 | 0/25 | N/A | 0.0074 - 0.0074 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0076 | N/A | N/A |
| Fluoranthene | mg/kg | 13/25 | 0/25 | N/A | 0.0024 - 0.03 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | N/A | N/A |
| Fluorene | mg/kg | 3/25 | 0/25 | N/A | 0.0017 - 0.0024 | 0.01 - 0.012 | 0.0027 - 0.0032 | 0.011 | 0.003 | N/A | N/A |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 9/25 | 0/25 | N/A | 0.0036 - 0.035 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0075 | N/A | N/A |
| Naphthalene | mg/kg | 19/25 | 0/25 | 3.4 | 0.00076 - 0.11 | 0.01 - 0.012 | 0.0021 - 0.0024 | 0.011 | 0.0023 | 0/6 | 0/6 |
| Phenanthrene | mg/kg | 9/25 | 0/25 | N/A | 0.003 - 0.034 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0073 | N/A | N/A |
| Pyrene | mg/kg | 12/25 | 0/25 | 33 | 0.0026 - 0.027 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0072 | 0/13 | 0/13 |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/5 | 0/5 | 0.041 | N/A | 0.07 - 0.085 | 0.033 - 0.04 | 0.073 | 0.034 | 5/5 | 0/5 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/5 | 0/5 | 0.041 | N/A | 0.1 - 0.12 | 0.085 - 0.1 | 0.1 | 0.088 | 5/5 | 5/5 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/5 | 0/5 | 0.041 | N/A | 0.07 - 0.085 | 0.033 - 0.04 | 0.073 | 0.034 | 5/5 | 0/5 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/5 | 0/5 | 0.041 | N/A | 0.07 - 0.085 | 0.051 - 0.062 | 0.073 | 0.053 | 5/5 | 5/5 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/5 | 0/5 | 0.041 | N/A | 0.07 - 0.085 | 0.016 - 0.019 | 0.073 | 0.016 | 5/5 | 0/5 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/5 | 0/5 | 0.041 | N/A | 0.07 - 0.085 | 0.036 - 0.043 | 0.073 | 0.037 | 5/5 | 1/5 |
| PCB-1260 (Aroclor 1260) | mg/kg | 0/5 | 0/5 | 0.041 | N/A | 0.07 - 0.085 | 0.0071 - 0.0086 | 0.073 | 0.0073 | 5/5 | 0/5 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/5 | 0/5 | 0.041 | N/A | 0.07 - 0.085 | 0.017 - 0.021 | 0.073 | 0.018 | 5/5 | 0/5 |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/5 | 0/5 | 0.041 | N/A | 0.07 - 0.085 | 0.0071 - 0.0086 | 0.073 | 0.0073 | 5/5 | 0/5 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 25/25 | 0/25 | N/A | 3200 - 19000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 22/25 | 0/25 | N/A | 0.071 - 0.21 | 0.17 - 0.2 | 0.087 - 0.099 | 0.18 | 0.091 | N/A | N/A |
| Arsenic | mg/kg | 25/25 | 0/25 | 43 | 2.8 - 26 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 25/25 | 0/25 | 820 | 18 - 110 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 25/25 | 0/25 | N/A | 0.11 - 0.83 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 25/25 | 0/25 | 0.77 | 0.025 - 0.38 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 25/25 | 0/25 | N/A | 3500 - 82000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 25/25 | 0/25 | 26 | 4.9 - 25 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 25/25 | 0/25 | 120 | 2.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 25/25 | 0/25 | 28 | 9.3 - 74 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 25/25 | 0/25 | N/A | 9100 - 31000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 25/25 | 0/25 | 11 | 3 - 28 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 25/25 | 0/25 | N/A | 2200 - 26000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 25/25 | 0/25 | 4300 | 320 - 2400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 18/25 | 0/25 | 0.013 | 0.013 - 0.099 | 0.019 - 0.021 | 0.015 - 0.017 | 0.02 | 0.016 | 7/7 | 7/7 |
| Nickel | mg/kg | 25/25 | 0/25 | 210 | 5.1 - 29 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 29
Summary Statistics and Ecological Project Action Limits (AOC 5 - Bird)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Potassium | mg/kg | 25/25 | 0/25 | N/A | 400 - 3700 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 17/25 | 0/25 | 1.2 | 0.11 - 0.41 | 0.39 - 0.5 | 0.31 - 0.4 | 0.48 | 0.38 | 0/8 | 0/8 |
| Silver | mg/kg | 0/25 | 0/25 | 4.2 | N/A | 1.2 - 7.1 | 0.46 - 2.9 | 1.4 | 0.56 | 1/25 | 0/25 |
| Sodium | mg/kg | 11/25 | 0/25 | N/A | 46 - 230 | 390 - 2300 | 86 - 540 | 480 | 430 | N/A | N/A |
| Thallium | mg/kg | 12/25 | 0/25 | 4.5 | 0.032 - 0.2 | 0.078 - 0.12 | 0.078 - 0.12 | 0.097 | 0.097 | 0/13 | 0/13 |
| Vanadium | mg/kg | 25/25 | 0/25 | 7.8 | 8.7 - 31 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 25/25 | 0/25 | 46 | 12 - 150 | N/A | N/A | N/A | N/A | N/A | N/A |

Notes

FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

Table 30
Summary Statistics and Ecological Project Action Limits (AOC 5 - Mammal)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Soil: 0 - 1 feet below ground surface | | | | | | | | | | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/15 | 0/15 | 2.02 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 1,4-Dioxane | mg/kg | 0/15 | 0/15 | 2.05 | N/A | 0.35 - 0.39 | 0.35 - 0.39 | 0.37 | 0.37 | 0/15 | 0/15 |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/14 | 1/15 | 19.9 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.38 | 0.076 | 0/14 | 0/14 |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/15 | 0/15 | 0.2 | N/A | 0.35 - 0.39 | 0.087 - 0.099 | 0.37 | 0.094 | 15/15 | 0/15 |
| 2,4,5-Trichlorophenol | mg/kg | 0/15 | 0/15 | 14.1 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2,4,6-Trichlorophenol | mg/kg | 0/15 | 0/15 | 9.94 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2,4-Dichlorophenol | mg/kg | 0/15 | 0/15 | 87.5 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2,4-Dimethylphenol | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 2,4-Dinitrotoluene | mg/kg | 0/15 | 0/15 | 14 | N/A | 0.35 - 0.39 | 0.087 - 0.099 | 0.37 | 0.094 | 0/15 | 0/15 |
| 2,6-Dinitrotoluene | mg/kg | 0/15 | 0/15 | 4 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2-Chloronaphthalene | mg/kg | 0/15 | 0/15 | 0.0122 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 15/15 |
| 2-Chlorophenol | mg/kg | 0/15 | 0/15 | 0.54 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/15 | 0/15 | 580 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 2-Nitroaniline | mg/kg | 0/15 | 0/15 | 5.3 | N/A | 1.8 - 2 | 0.18 - 0.2 | 1.9 | 0.19 | 0/15 | 0/15 |
| 2-Nitrophenol | mg/kg | 0/15 | 0/15 | 1.6 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 3,3'-Dichlorobenzidine | mg/kg | 0/15 | 0/15 | 0.646 | N/A | 0.69 - 0.79 | 0.07 - 0.08 | 0.74 | 0.076 | 15/15 | 0/15 |
| 3-Nitroaniline | mg/kg | 0/15 | 0/15 | 3.16 | N/A | 1.8 - 2 | 0.087 - 0.099 | 1.9 | 0.094 | 0/15 | 0/15 |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/15 | 0/15 | 0.144 | N/A | 1.8 - 2 | 0.35 - 0.39 | 1.9 | 0.37 | 15/15 | 15/15 |
| 4-Bromophenyl phenyl ether | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/15 | 0/15 | 7.95 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| 4-Chloroaniline | mg/kg | 0/15 | 0/15 | 1.1 | N/A | 0.69 - 0.79 | 0.087 - 0.099 | 0.74 | 0.094 | 0/15 | 0/15 |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/15 | 0/15 | 21.9 | N/A | 1.8 - 2 | 0.087 - 0.099 | 1.9 | 0.094 | 0/15 | 0/15 |
| 4-Nitrophenol | mg/kg | 0/15 | 0/15 | 5.12 | N/A | 1.8 - 2 | 0.7 - 0.8 | 1.9 | 0.76 | 0/15 | 0/15 |
| Acetophenone | mg/kg | 0/15 | 0/15 | 300 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Atrazine | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | N/A | N/A |
| Benzaldehyde | mg/kg | 1/15 | 0/15 | N/A | 0.063 - 0.063 | 0.35 - 0.39 | 0.18 - 0.2 | 0.38 | 0.2 | N/A | N/A |
| Benzyl butyl phthalate | mg/kg | 0/15 | 0/15 | 90 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Biphenyl (Diphenyl) | mg/kg | 0/15 | 0/15 | N/A | N/A | 1.8 - 2 | 0.35 - 0.39 | 1.9 | 0.37 | N/A | N/A |
| Bis(2-chloroethoxy)methane | mg/kg | 0/15 | 0/15 | 0.302 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 0/15 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/15 | 0/15 | 23.7 | N/A | 0.35 - 0.39 | 0.087 - 0.099 | 0.37 | 0.094 | 0/15 | 0/15 |
| Bis(2-ethylhexyl)phthalate | mg/kg | 0/15 | 0/15 | 0.6 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Caprolactam | mg/kg | 0/15 | 0/15 | N/A | N/A | 0.35 - 0.39 | 0.18 - 0.2 | 0.37 | 0.19 | N/A | N/A |
| Carbazole | mg/kg | 0/15 | 0/15 | 79 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Cresols, m- & p- | mg/kg | 0/15 | 0/15 | 3.49 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Dibenzofuran | mg/kg | 2/15 | 0/15 | N/A | 0.11 - 0.21 | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.075 | N/A | N/A |
| Diethyl phthalate | mg/kg | 0/15 | 0/15 | 3600 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Dimethyl phthalate | mg/kg | 0/15 | 0/15 | 38 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Di-n-butyl phthalate | mg/kg | 1/15 | 0/15 | 180 | 0.39 - 0.39 | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/14 | 0/14 |
| di-n-Octyl phthalate | mg/kg | 0/15 | 0/15 | 0.91 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Hexachlorobenzene | mg/kg | 0/15 | 0/15 | 0.2 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 0/15 |
| Hexachlorobutadiene | mg/kg | 0/15 | 0/15 | 0.04 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 15/15 | 15/15 |
| Hexachlorocyclopentadiene | mg/kg | 0/15 | 0/15 | 0.755 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Hexachloroethane | mg/kg | 0/15 | 0/15 | 0.6 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Isophorone | mg/kg | 0/15 | 0/15 | 139 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Nitrobenzene | mg/kg | 0/15 | 0/15 | 4.8 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| N-Nitrosodi-n-propylamine | mg/kg | 0/15 | 0/15 | 0.544 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| N-Nitrosodiphenylamine | mg/kg | 0/15 | 0/15 | 0.545 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Pentachlorophenol | mg/kg | 0/15 | 0/15 | 2.8 | N/A | 1.8 - 2 | 0.7 - 0.8 | 1.9 | 0.76 | 0/15 | 0/15 |

Table 30
Summary Statistics and Ecological Project Action Limits (AOC 5 - Mammal)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Phenol | mg/kg | 0/15 | 0/15 | 37 | N/A | 0.35 - 0.39 | 0.07 - 0.08 | 0.37 | 0.076 | 0/15 | 0/15 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 21/25 | 0/25 | 100 | 0.0014 - 10 | 0.01 - 0.011 | 0.002 - 0.0023 | 0.011 | 0.0022 | 0/4 | 0/4 |
| 2-Methylnaphthalene | mg/kg | 23/25 | 0/25 | 100 | 0.0014 - 14 | 0.01 - 0.011 | 0.0021 - 0.0023 | 0.011 | 0.0022 | 0/2 | 0/2 |
| Acenaphthene | mg/kg | 7/25 | 0/25 | 100 | 0.0017 - 0.1 | 0.0099 - 0.52 | 0.0011 - 0.056 | 0.012 | 0.0012 | 0/18 | 0/18 |
| Acenaphthylene | mg/kg | 15/25 | 0/25 | 100 | 0.0031 - 0.37 | 0.01 - 0.52 | 0.0011 - 0.056 | 0.012 | 0.0012 | 0/10 | 0/10 |
| Anthracene | mg/kg | 16/25 | 0/25 | 100 | 0.0022 - 0.29 | 0.01 - 0.52 | 0.0044 - 0.23 | 0.012 | 0.005 | 0/9 | 0/9 |
| Benzo(a)anthracene | mg/kg | 25/25 | 0/25 | 1.1 | 0.0024 - 0.75 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(a)pyrene | mg/kg | 24/25 | 0/25 | 1.1 | 0.0042 - 0.79 | 0.01 - 0.01 | 0.0045 - 0.0045 | 0.01 | 0.0045 | 0/1 | 0/1 |
| Benzo(b)fluoranthene | mg/kg | 24/25 | 0/25 | 1.1 | 0.0076 - 1.4 | 0.01 - 0.01 | 0.0069 - 0.0069 | 0.01 | 0.0069 | 0/1 | 0/1 |
| Benzo(g,h,i)perylene | mg/kg | 20/25 | 0/25 | 1.1 | 0.0031 - 4.7 | 0.01 - 0.52 | 0.0069 - 0.35 | 0.11 | 0.072 | 0/5 | 0/5 |
| Benzo(k)fluoranthene | mg/kg | 21/25 | 0/25 | 1.1 | 0.0023 - 0.4 | 0.01 - 0.52 | 0.0045 - 0.23 | 0.23 | 0.099 | 0/4 | 0/4 |
| Chrysene | mg/kg | 25/25 | 0/25 | 1.1 | 0.0035 - 1.1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dibenz(a,h)anthracene | mg/kg | 9/25 | 0/25 | 1.1 | 0.0032 - 0.88 | 0.0099 - 0.52 | 0.0066 - 0.35 | 0.012 | 0.0077 | 0/16 | 0/16 |
| Fluoranthene | mg/kg | 25/25 | 0/25 | 100 | 0.0049 - 0.76 | N/A | N/A | N/A | N/A | N/A | N/A |
| Fluorene | mg/kg | 16/25 | 0/25 | 100 | 0.0013 - 0.26 | 0.01 - 0.11 | 0.0027 - 0.029 | 0.011 | 0.0031 | 0/9 | 0/9 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 21/25 | 0/25 | 1.1 | 0.0025 - 3.4 | 0.01 - 0.52 | 0.0069 - 0.35 | 0.23 | 0.15 | 0/4 | 0/4 |
| Naphthalene | mg/kg | 24/25 | 0/25 | 100 | 0.0018 - 9.2 | 0.011 - 0.011 | 0.0023 - 0.0023 | 0.011 | 0.0023 | 0/1 | 0/1 |
| Phenanthrene | mg/kg | 25/25 | 0/25 | 100 | 0.003 - 5.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Pyrene | mg/kg | 25/25 | 0/25 | 1.1 | 0.0042 - 0.99 | N/A | N/A | N/A | N/A | N/A | N/A |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/10 | 0/10 | 0.371 | N/A | 0.068 - 0.078 | 0.031 - 0.036 | 0.072 | 0.034 | 0/10 | 0/10 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/10 | 0/10 | 0.371 | N/A | 0.096 - 0.11 | 0.082 - 0.094 | 0.1 | 0.087 | 0/10 | 0/10 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/10 | 0/10 | 0.371 | N/A | 0.068 - 0.078 | 0.031 - 0.036 | 0.072 | 0.034 | 0/10 | 0/10 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/10 | 0/10 | 0.371 | N/A | 0.068 - 0.078 | 0.049 - 0.057 | 0.072 | 0.052 | 0/10 | 0/10 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/10 | 0/10 | 0.371 | N/A | 0.068 - 0.078 | 0.015 - 0.018 | 0.072 | 0.016 | 0/10 | 0/10 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/10 | 0/10 | 0.371 | N/A | 0.068 - 0.078 | 0.034 - 0.039 | 0.072 | 0.036 | 0/10 | 0/10 |
| PCB-1260 (Aroclor 1260) | mg/kg | 4/10 | 0/10 | 0.371 | 0.0042 - 0.16 | 0.068 - 0.075 | 0.0068 - 0.0076 | 0.072 | 0.0073 | 0/6 | 0/6 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/10 | 0/10 | 0.371 | N/A | 0.068 - 0.078 | 0.016 - 0.019 | 0.072 | 0.017 | 0/10 | 0/10 |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/10 | 0/10 | 0.371 | N/A | 0.068 - 0.078 | 0.0068 - 0.0079 | 0.072 | 0.0073 | 0/10 | 0/10 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 25/25 | 0/25 | N/A | 1400 - 8200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 24/25 | 0/25 | 0.27 | 0.076 - 1 | 0.23 - 0.23 | 0.11 - 0.11 | 0.23 | 0.11 | 0/1 | 0/1 |
| Arsenic | mg/kg | 25/25 | 0/25 | 46 | 4.3 - 25 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 25/25 | 0/25 | 2000 | 27 - 76 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 25/25 | 0/25 | 21 | 0.1 - 0.63 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 25/25 | 0/25 | 0.36 | 0.038 - 4.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 25/25 | 0/25 | N/A | 2000 - 100000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 25/25 | 0/25 | 34 | 5 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 25/25 | 0/25 | 230 | 1.8 - 9.3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 25/25 | 0/25 | 49 | 5.3 - 110 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 25/25 | 0/25 | N/A | 8100 - 22000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 25/25 | 0/25 | 56 | 4.2 - 200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 25/25 | 0/25 | N/A | 620 - 28000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 25/25 | 0/25 | 4000 | 110 - 1200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 24/25 | 0/25 | 1.7 | 0.0075 - 0.23 | 0.021 - 0.021 | 0.021 - 0.021 | 0.021 | 0.021 | 0/1 | 0/1 |
| Nickel | mg/kg | 25/25 | 0/25 | 130 | 4.9 - 18 | N/A | N/A | N/A | N/A | N/A | N/A |
| Potassium | mg/kg | 25/25 | 0/25 | N/A | 350 - 1200 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 24/25 | 0/25 | 0.63 | 0.13 - 1.5 | 0.43 - 0.43 | 0.34 - 0.34 | 0.43 | 0.34 | 0/1 | 0/1 |
| Silver | mg/kg | 1/25 | 0/25 | 14 | 0.27 - 0.27 | 1.2 - 2.2 | 0.47 - 0.9 | 1.6 | 0.64 | 0/24 | 0/24 |
| Sodium | mg/kg | 11/25 | 0/25 | N/A | 37 - 250 | 400 - 680 | 82 - 600 | 540 | 120 | N/A | N/A |

Table 30
Summary Statistics and Ecological Project Action Limits (AOC 5 - Mammal)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Thallium | mg/kg | 15/25 | 0/25 | 0.42 | 0.061 - 0.6 | 0.073 - 0.12 | 0.073 - 0.12 | 0.093 | 0.093 | 0/10 | 0/10 |
| Vanadium | mg/kg | 25/25 | 0/25 | 280 | 7.6 - 17 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 25/25 | 0/25 | 79 | 14 - 690 | N/A | N/A | N/A | N/A | N/A | N/A |
| Soil: 1 - 5 feet below ground surface | | | | | | | | | | | |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | |
| 1,1,1-Trichloroethane | mg/kg | 0/5 | 0/5 | 260 | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| 1,1,2,2-Tetrachloroethane | mg/kg | 0/5 | 0/5 | 0.127 | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.016 - 0.019 | 0.0051 - 0.0061 | 0.016 | 0.0052 | N/A | N/A |
| 1,1,2-Trichloroethane | mg/kg | 0/5 | 0/5 | 28.6 | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | 0/5 | 0/5 |
| 1,1-Dichloroethane | mg/kg | 0/5 | 0/5 | 210 | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| 1,1-Dichloroethene | mg/kg | 0/5 | 0/5 | 11 | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | 0/5 | 0/5 |
| 1,2,3-Trichlorobenzene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | N/A | N/A |
| 1,2,4-Trichlorobenzene | mg/kg | 0/5 | 0/5 | 0.27 | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | 0/5 | 0/5 |
| 1,2-Dibromo-3-chloropropane | mg/kg | 0/5 | 0/5 | 0.0352 | N/A | 0.008 - 0.0095 | 0.008 - 0.0095 | 0.0082 | 0.0082 | 0/5 | 0/5 |
| 1,2-Dibromoethane (EDB) | mg/kg | 0/5 | 0/5 | 1.23 | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | 0/5 | 0/5 |
| 1,2-Dichlorobenzene | mg/kg | 0/5 | 0/5 | 0.92 | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| 1,2-Dichloroethane | mg/kg | 0/5 | 0/5 | 27 | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | 0/5 | 0/5 |
| 1,2-Dichloropropane | mg/kg | 0/5 | 0/5 | 32.7 | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | 0/5 | 0/5 |
| 1,3-Dichlorobenzene | mg/kg | 0/5 | 0/5 | 0.74 | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | 0/5 | 0/5 |
| 1,3-Dichloropropane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00032 - 0.00038 | 0.0041 | 0.00033 | N/A | N/A |
| 1,4-Dichlorobenzene | mg/kg | 0/5 | 0/5 | 0.89 | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| 2-Butanone (MEK) | mg/kg | 2/5 | 0/5 | 350 | 0.0078 - 0.0086 | 0.016 - 0.018 | 0.01 - 0.011 | 0.016 | 0.01 | 0/3 | 0/3 |
| 2-Hexanone | mg/kg | 0/5 | 0/5 | 5.4 | N/A | 0.016 - 0.019 | 0.01 - 0.012 | 0.016 | 0.01 | 0/5 | 0/5 |
| 4-Methyl-2-pentanone (MIBK) | mg/kg | 0/5 | 0/5 | 443 | N/A | 0.016 - 0.019 | 0.01 - 0.012 | 0.016 | 0.01 | 0/5 | 0/5 |
| Acetone | mg/kg | 1/5 | 0/5 | 1.2 | 0.069 - 0.069 | 0.057 - 0.069 | 0.057 - 0.069 | 0.061 | 0.061 | 0/4 | 0/4 |
| Benzene | mg/kg | 1/5 | 0/5 | 24 | 0.00048 - 0.00048 | 0.004 - 0.0048 | 0.00032 - 0.00038 | 0.0043 | 0.00034 | 0/4 | 0/4 |
| Bromochloromethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Bromodichloromethane | mg/kg | 0/5 | 0/5 | 0.54 | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| Bromoform | mg/kg | 0/5 | 0/5 | 15.9 | N/A | 0.0041 - 0.0049 | 0.0041 - 0.0049 | 0.0042 | 0.0042 | 0/5 | 0/5 |
| Bromomethane | mg/kg | 0/5 | 0/5 | 0.24 | N/A | 0.008 - 0.0095 | 0.0025 - 0.0031 | 0.0082 | 0.0026 | 0/5 | 0/5 |
| Carbon disulfide | mg/kg | 0/5 | 0/5 | 0.81 | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| Carbon tetrachloride | mg/kg | 0/5 | 0/5 | 2.98 | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| Chlorobenzene | mg/kg | 0/5 | 0/5 | 43 | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| Chloroethane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.008 - 0.0095 | 0.0051 - 0.0061 | 0.0082 | 0.0052 | N/A | N/A |
| Chloroform | mg/kg | 0/5 | 0/5 | 8 | N/A | 0.008 - 0.0095 | 0.00064 - 0.00076 | 0.0082 | 0.00066 | 0/5 | 0/5 |
| Chloromethane | mg/kg | 0/5 | 0/5 | 10.4 | N/A | 0.008 - 0.0095 | 0.0013 - 0.0015 | 0.0082 | 0.0013 | 0/5 | 0/5 |
| cis-1,2-Dichloroethene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | N/A | N/A |
| cis-1,3-Dichloropropene | mg/kg | 0/5 | 0/5 | 0.398 | N/A | 0.004 - 0.0048 | 0.00032 - 0.00038 | 0.0041 | 0.00033 | 0/5 | 0/5 |
| Cumene | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Cyclohexane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | N/A | N/A |
| Dibromochloromethane | mg/kg | 0/5 | 0/5 | 2.05 | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |
| Dichlorodifluoromethane | mg/kg | 0/5 | 0/5 | 39.5 | N/A | 0.008 - 0.0095 | 0.0051 - 0.0061 | 0.0082 | 0.0052 | 0/5 | 0/5 |
| Ethylbenzene | mg/kg | 0/5 | 0/5 | 5.16 | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| m,p-Xylene | mg/kg | 0/5 | 0/5 | 1.4 | N/A | 0.0025 - 0.0031 | 0.0025 - 0.0031 | 0.0026 | 0.0026 | 0/5 | 0/5 |
| Methyl acetate | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.0068 - 0.0081 | 0.0064 - 0.0076 | 0.007 | 0.0066 | N/A | N/A |
| Methyl tert-butyl ether (MTBE) | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.016 - 0.019 | 0.0051 - 0.0061 | 0.016 | 0.0052 | N/A | N/A |
| Methylcyclohexane | mg/kg | 0/5 | 0/5 | N/A | N/A | 0.004 - 0.0048 | 0.0013 - 0.0015 | 0.0041 | 0.0013 | N/A | N/A |
| Methylene chloride | mg/kg | 0/5 | 0/5 | 2.6 | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | 0/5 | 0/5 |
| o-Xylene | mg/kg | 0/5 | 0/5 | 1.4 | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| Styrene | mg/kg | 0/5 | 0/5 | 4.69 | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| Tetrachloroethene (PCE) | mg/kg | 0/5 | 0/5 | 0.18 | N/A | 0.004 - 0.0048 | 0.004 - 0.0048 | 0.0041 | 0.0041 | 0/5 | 0/5 |

Table 30
Summary Statistics and Ecological Project Action Limits (AOC 5 - Mammal)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Toluene | mg/kg | 1/5 | 0/5 | 23 | 0.00058 - 0.00058 | 0.004 - 0.0048 | 0.00065 - 0.00076 | 0.0043 | 0.00068 | 0/4 | 0/4 |
| trans-1,2-Dichloroethene | mg/kg | 0/5 | 0/5 | 0.784 | N/A | 0.004 - 0.0048 | 0.00064 - 0.00076 | 0.0041 | 0.00066 | 0/5 | 0/5 |
| trans-1,3-Dichloropropene | mg/kg | 0/5 | 0/5 | 0.398 | N/A | 0.004 - 0.0048 | 0.00016 - 0.00019 | 0.0041 | 0.00016 | 0/5 | 0/5 |
| Trichlorofluoromethane | mg/kg | 0/5 | 0/5 | 16.4 | N/A | 0.008 - 0.0095 | 0.008 - 0.0095 | 0.0082 | 0.0082 | 0/5 | 0/5 |
| Vinyl chloride | mg/kg | 0/5 | 0/5 | 0.12 | N/A | 0.004 - 0.0048 | 0.0025 - 0.0031 | 0.0041 | 0.0026 | 0/5 | 0/5 |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | mg/kg | 0/25 | 0/25 | 2.02 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 1,4-Dioxane | mg/kg | 0/24 | 1/25 | 2.05 | N/A | 0.35 - 0.42 | 0.35 - 0.42 | 0.37 | 0.37 | 0/24 | 0/24 |
| 2,2'-Oxybis(1-chloropropane) | mg/kg | 0/24 | 1/25 | 19.9 | N/A | 0.35 - 0.39 | 0.071 - 0.08 | 0.37 | 0.076 | 0/24 | 0/24 |
| 2,3,4,6-Tetrachlorophenol | mg/kg | 0/25 | 0/25 | 0.2 | N/A | 0.35 - 0.42 | 0.088 - 0.1 | 0.37 | 0.094 | 25/25 | 0/25 |
| 2,4,5-Trichlorophenol | mg/kg | 0/25 | 0/25 | 14.1 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2,4,6-Trichlorophenol | mg/kg | 0/25 | 0/25 | 9.94 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2,4-Dichlorophenol | mg/kg | 0/25 | 0/25 | 87.5 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2,4-Dimethylphenol | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 2,4-Dinitrotoluene | mg/kg | 0/25 | 0/25 | 14 | N/A | 0.35 - 0.42 | 0.088 - 0.1 | 0.37 | 0.094 | 0/25 | 0/25 |
| 2,6-Dinitrotoluene | mg/kg | 0/25 | 0/25 | 4 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2-Chloronaphthalene | mg/kg | 0/25 | 0/25 | 0.0122 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 25/25 |
| 2-Chlorophenol | mg/kg | 0/25 | 0/25 | 0.54 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2-Methylphenol (o-Cresol) | mg/kg | 0/25 | 0/25 | 580 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 2-Nitroaniline | mg/kg | 0/25 | 0/25 | 5.3 | N/A | 1.8 - 2.1 | 0.18 - 0.21 | 1.9 | 0.19 | 0/25 | 0/25 |
| 2-Nitrophenol | mg/kg | 0/25 | 0/25 | 1.6 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 3,3'-Dichlorobenzidine | mg/kg | 0/25 | 0/25 | 0.646 | N/A | 0.7 - 0.83 | 0.071 - 0.085 | 0.75 | 0.076 | 25/25 | 0/25 |
| 3-Nitroaniline | mg/kg | 0/25 | 0/25 | 3.16 | N/A | 1.8 - 2.1 | 0.088 - 0.1 | 1.9 | 0.094 | 0/25 | 0/25 |
| 4,6-Dinitro-2-methylphenol | mg/kg | 0/25 | 0/25 | 0.144 | N/A | 1.8 - 2.1 | 0.35 - 0.42 | 1.9 | 0.37 | 25/25 | 25/25 |
| 4-Bromophenyl phenyl ether | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 4-Chloro-3-methylphenol | mg/kg | 0/25 | 0/25 | 7.95 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| 4-Chloroaniline | mg/kg | 0/25 | 0/25 | 1.1 | N/A | 0.7 - 0.83 | 0.088 - 0.1 | 0.75 | 0.094 | 0/25 | 0/25 |
| 4-Chlorophenyl phenyl ether | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| 4-Nitroaniline | mg/kg | 0/25 | 0/25 | 21.9 | N/A | 1.8 - 2.1 | 0.088 - 0.1 | 1.9 | 0.094 | 0/25 | 0/25 |
| 4-Nitrophenol | mg/kg | 0/25 | 0/25 | 5.12 | N/A | 1.8 - 2.1 | 0.71 - 0.85 | 1.9 | 0.76 | 0/25 | 0/25 |
| Acetophenone | mg/kg | 0/25 | 0/25 | 300 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Atrazine | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Benzaldehyde | mg/kg | 0/24 | 1/25 | N/A | N/A | 0.35 - 0.42 | 0.18 - 0.21 | 0.37 | 0.19 | N/A | N/A |
| Benzyl butyl phthalate | mg/kg | 0/25 | 0/25 | 90 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Biphenyl (Diphenyl) | mg/kg | 0/25 | 0/25 | N/A | N/A | 1.8 - 2.1 | 0.35 - 0.42 | 1.9 | 0.37 | N/A | N/A |
| Bis(2-chloroethoxy)methane | mg/kg | 0/25 | 0/25 | 0.302 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 0/25 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0/25 | 0/25 | 23.7 | N/A | 0.35 - 0.42 | 0.088 - 0.1 | 0.37 | 0.094 | 0/25 | 0/25 |
| Bis(2-ethylhexyl)phthalate | mg/kg | 0/25 | 0/25 | 0.6 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Caprolactam | mg/kg | 0/25 | 0/25 | N/A | N/A | 0.35 - 0.42 | 0.18 - 0.21 | 0.37 | 0.19 | N/A | N/A |
| Carbazole | mg/kg | 0/25 | 0/25 | 79 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Cresols, m- & p- | mg/kg | 0/25 | 0/25 | 3.49 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Dibenzofuran | mg/kg | 1/25 | 0/25 | N/A | 0.077 - 0.077 | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | N/A | N/A |
| Diethyl phthalate | mg/kg | 0/25 | 0/25 | 3600 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Dimethyl phthalate | mg/kg | 0/25 | 0/25 | 38 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Di-n-butyl phthalate | mg/kg | 0/25 | 0/25 | 180 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| di-n-Octyl phthalate | mg/kg | 0/25 | 0/25 | 0.91 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Hexachlorobenzene | mg/kg | 0/25 | 0/25 | 0.2 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 0/25 |
| Hexachlorobutadiene | mg/kg | 0/25 | 0/25 | 0.04 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 25/25 | 25/25 |
| Hexachlorocyclopentadiene | mg/kg | 0/25 | 0/25 | 0.755 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Hexachloroethane | mg/kg | 0/24 | 1/25 | 0.6 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/24 | 0/24 |
| Isophorone | mg/kg | 0/25 | 0/25 | 139 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |

Table 30
Summary Statistics and Ecological Project Action Limits (AOC 5 - Mammal)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Nitrobenzene | mg/kg | 0/25 | 0/25 | 4.8 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| N-Nitrosodi-n-propylamine | mg/kg | 0/25 | 0/25 | 0.544 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| N-Nitrosodiphenylamine | mg/kg | 0/25 | 0/25 | 0.545 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Pentachlorophenol | mg/kg | 0/25 | 0/25 | 2.8 | N/A | 1.8 - 2.1 | 0.71 - 0.85 | 1.9 | 0.76 | 0/25 | 0/25 |
| Phenol | mg/kg | 0/25 | 0/25 | 37 | N/A | 0.35 - 0.42 | 0.071 - 0.085 | 0.37 | 0.076 | 0/25 | 0/25 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | |
| 1-Methylnaphthalene | mg/kg | 11/25 | 0/25 | 100 | 0.00082 - 0.083 | 0.01 - 0.012 | 0.002 - 0.0024 | 0.011 | 0.0022 | 0/14 | 0/14 |
| 2-Methylnaphthalene | mg/kg | 14/25 | 0/25 | 100 | 0.00067 - 0.13 | 0.01 - 0.012 | 0.002 - 0.0024 | 0.011 | 0.0022 | 0/11 | 0/11 |
| Acenaphthene | mg/kg | 0/25 | 0/25 | 100 | N/A | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | 0/25 | 0/25 |
| Acenaphthylene | mg/kg | 4/25 | 0/25 | 100 | 0.00092 - 0.0035 | 0.01 - 0.012 | 0.0011 - 0.0013 | 0.011 | 0.0012 | 0/21 | 0/21 |
| Anthracene | mg/kg | 4/25 | 0/25 | 100 | 0.002 - 0.0054 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0049 | 0/21 | 0/21 |
| Benzo(a)anthracene | mg/kg | 10/25 | 0/25 | 1.1 | 0.0023 - 0.016 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | 0/15 | 0/15 |
| Benzo(a)pyrene | mg/kg | 9/25 | 0/25 | 1.1 | 0.0029 - 0.016 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0048 | 0/16 | 0/16 |
| Benzo(b)fluoranthene | mg/kg | 12/25 | 0/25 | 1.1 | 0.0027 - 0.027 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0076 | 0/13 | 0/13 |
| Benzo(g,h,i)perylene | mg/kg | 9/25 | 0/25 | 1.1 | 0.0035 - 0.046 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0075 | 0/16 | 0/16 |
| Benzo(k)fluoranthene | mg/kg | 6/25 | 0/25 | 1.1 | 0.0025 - 0.0091 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | 0/19 | 0/19 |
| Chrysene | mg/kg | 15/25 | 0/25 | 1.1 | 0.0023 - 0.025 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | 0/10 | 0/10 |
| Dibenz(a,h)anthracene | mg/kg | 1/25 | 0/25 | 1.1 | 0.0074 - 0.0074 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0076 | 0/24 | 0/24 |
| Fluoranthene | mg/kg | 13/25 | 0/25 | 100 | 0.0024 - 0.03 | 0.01 - 0.012 | 0.0043 - 0.0052 | 0.011 | 0.0047 | 0/12 | 0/12 |
| Fluorene | mg/kg | 3/25 | 0/25 | 100 | 0.0017 - 0.0024 | 0.01 - 0.012 | 0.0027 - 0.0032 | 0.011 | 0.003 | 0/22 | 0/22 |
| Indeno(1,2,3-c,d)pyrene | mg/kg | 9/25 | 0/25 | 1.1 | 0.0036 - 0.035 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0075 | 0/16 | 0/16 |
| Naphthalene | mg/kg | 19/25 | 0/25 | 100 | 0.00076 - 0.11 | 0.01 - 0.012 | 0.0021 - 0.0024 | 0.011 | 0.0023 | 0/6 | 0/6 |
| Phenanthrene | mg/kg | 9/25 | 0/25 | 100 | 0.003 - 0.034 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0073 | 0/16 | 0/16 |
| Pyrene | mg/kg | 12/25 | 0/25 | 1.1 | 0.0026 - 0.027 | 0.01 - 0.012 | 0.0067 - 0.008 | 0.011 | 0.0072 | 0/13 | 0/13 |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | mg/kg | 0/5 | 0/5 | 0.371 | N/A | 0.07 - 0.085 | 0.033 - 0.04 | 0.073 | 0.034 | 0/5 | 0/5 |
| PCB-1221 (Aroclor 1221) | mg/kg | 0/5 | 0/5 | 0.371 | N/A | 0.1 - 0.12 | 0.085 - 0.1 | 0.1 | 0.088 | 0/5 | 0/5 |
| PCB-1232 (Aroclor 1232) | mg/kg | 0/5 | 0/5 | 0.371 | N/A | 0.07 - 0.085 | 0.033 - 0.04 | 0.073 | 0.034 | 0/5 | 0/5 |
| PCB-1242 (Aroclor 1242) | mg/kg | 0/5 | 0/5 | 0.371 | N/A | 0.07 - 0.085 | 0.051 - 0.062 | 0.073 | 0.053 | 0/5 | 0/5 |
| PCB-1248 (Aroclor 1248) | mg/kg | 0/5 | 0/5 | 0.371 | N/A | 0.07 - 0.085 | 0.016 - 0.019 | 0.073 | 0.016 | 0/5 | 0/5 |
| PCB-1254 (Aroclor 1254) | mg/kg | 0/5 | 0/5 | 0.371 | N/A | 0.07 - 0.085 | 0.036 - 0.043 | 0.073 | 0.037 | 0/5 | 0/5 |
| PCB-1260 (Aroclor 1260) | mg/kg | 0/5 | 0/5 | 0.371 | N/A | 0.07 - 0.085 | 0.0071 - 0.0086 | 0.073 | 0.0073 | 0/5 | 0/5 |
| PCB-1262 (Aroclor 1262) | mg/kg | 0/5 | 0/5 | 0.371 | N/A | 0.07 - 0.085 | 0.017 - 0.021 | 0.073 | 0.018 | 0/5 | 0/5 |
| PCB-1268 (Aroclor 1268) | mg/kg | 0/5 | 0/5 | 0.371 | N/A | 0.07 - 0.085 | 0.0071 - 0.0086 | 0.073 | 0.0073 | 0/5 | 0/5 |
| Metals - Total | | | | | | | | | | | |
| Aluminum | mg/kg | 25/25 | 0/25 | N/A | 3200 - 19000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Antimony | mg/kg | 22/25 | 0/25 | 0.27 | 0.071 - 0.21 | 0.17 - 0.2 | 0.087 - 0.099 | 0.18 | 0.091 | 0/3 | 0/3 |
| Arsenic | mg/kg | 25/25 | 0/25 | 46 | 2.8 - 26 | N/A | N/A | N/A | N/A | N/A | N/A |
| Barium | mg/kg | 25/25 | 0/25 | 2000 | 18 - 110 | N/A | N/A | N/A | N/A | N/A | N/A |
| Beryllium | mg/kg | 25/25 | 0/25 | 21 | 0.11 - 0.83 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | mg/kg | 25/25 | 0/25 | 0.36 | 0.025 - 0.38 | N/A | N/A | N/A | N/A | N/A | N/A |
| Calcium | mg/kg | 25/25 | 0/25 | N/A | 3500 - 82000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | mg/kg | 25/25 | 0/25 | 34 | 4.9 - 25 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cobalt | mg/kg | 25/25 | 0/25 | 230 | 2.9 - 13 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | mg/kg | 25/25 | 0/25 | 49 | 9.3 - 74 | N/A | N/A | N/A | N/A | N/A | N/A |
| Iron | mg/kg | 25/25 | 0/25 | N/A | 9100 - 31000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Lead | mg/kg | 25/25 | 0/25 | 56 | 3 - 28 | N/A | N/A | N/A | N/A | N/A | N/A |
| Magnesium | mg/kg | 25/25 | 0/25 | N/A | 2200 - 26000 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | mg/kg | 25/25 | 0/25 | 4000 | 320 - 2400 | N/A | N/A | N/A | N/A | N/A | N/A |
| Mercury | mg/kg | 18/25 | 0/25 | 1.7 | 0.013 - 0.099 | 0.019 - 0.021 | 0.015 - 0.017 | 0.02 | 0.016 | 0/7 | 0/7 |
| Nickel | mg/kg | 25/25 | 0/25 | 130 | 5.1 - 29 | N/A | N/A | N/A | N/A | N/A | N/A |

Table 30
Summary Statistics and Ecological Project Action Limits (AOC 5 - Mammal)
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Medium/Analyte | Units | FOD [1] | FOR [2] | PAL [3] | Range of Detects | Range of NDs [4] | | Median of NDs [4] | | FOE for NDs [4] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LOQ | LOD | LOQ | LOD | LOQ | LOD |
| Potassium | mg/kg | 25/25 | 0/25 | N/A | 400 - 3700 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | mg/kg | 17/25 | 0/25 | 0.63 | 0.11 - 0.41 | 0.39 - 0.5 | 0.31 - 0.4 | 0.48 | 0.38 | 0/8 | 0/8 |
| Silver | mg/kg | 0/25 | 0/25 | 14 | N/A | 1.2 - 7.1 | 0.46 - 2.9 | 1.4 | 0.56 | 0/25 | 0/25 |
| Sodium | mg/kg | 11/25 | 0/25 | N/A | 46 - 230 | 390 - 2300 | 86 - 540 | 480 | 430 | N/A | N/A |
| Thallium | mg/kg | 12/25 | 0/25 | 0.42 | 0.032 - 0.2 | 0.078 - 0.12 | 0.078 - 0.12 | 0.097 | 0.097 | 0/13 | 0/13 |
| Vanadium | mg/kg | 25/25 | 0/25 | 280 | 8.7 - 31 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | mg/kg | 25/25 | 0/25 | 79 | 12 - 150 | N/A | N/A | N/A | N/A | N/A | N/A |

Notes

FOD = Frequency of Detection
FOE = Frequency of Exceedance
FOR = Frequency of Rejection
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = milligram per kilogram
N/A = Not Available
ND = Non-Detect
PAL = Project Action Limit

Median Exceeds PAL

(1) FOD is the number of sample locations with a detection versus the number of sample locations without rejected data.
(2) FOR is the number of sample locations with rejected (R-qualified) data versus the number of sample locations.
(3) See Attachment A for receptor-specific PAL (or ecological screening value) selection tables.
(4) Summary statistics for the LOQ and LOD are calculated using only samples where the analyte was not detected.

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Table A-1
Ecological Screening Levels (ESLs) Comparison and Selection for Plant Risk Screening
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Analyte | CASRN | Potential Plant Screening Values (mg/kg) [1] | | | | | Final Selected Screening Value (mg/kg) [2] |
|---|---|---|---|---|---|---|---|
| | | EPA EcoSSLs | EPA Region 4 | EPA Region 5 | LANL | Derived | |
| Volatile Organic Compounds (VOCs) | | | | | | | |
| 1,1,1-Trichloroethane | 71-55-6 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,1,2-Trichloroethane | 79-00-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,1-Dichloroethane | 75-34-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,1-Dichloroethene | 75-35-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,2,3-Trichlorobenzene | 87-61-6 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,2,4-Trichlorobenzene | 120-82-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,2-Dibromo-3-chloropropane | 96-12-8 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,2-Dibromoethane (EDB) | 106-93-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,2-Dichlorobenzene | 95-50-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,2-Dichloroethane | 107-06-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,2-Dichloropropane | 78-87-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,3-Dichlorobenzene | 541-73-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,3-Dichloropropane | 142-28-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,4-Dichlorobenzene | 106-46-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2-Butanone (MEK) | 78-93-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2-Hexanone | 591-78-6 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Methyl-2-pentanone (MIBK) | 108-10-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Acetone | 67-64-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzene | 71-43-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bromochloromethane | 74-97-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bromodichloromethane | 75-27-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bromoform | 75-25-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bromomethane | 74-83-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Carbon disulfide | 75-15-0 | N/A | N/A | N/A | N/A | N/A | N/A |
| Carbon tetrachloride | 56-23-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chlorobenzene | 108-90-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chloroethane | 75-00-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chloroform | 67-66-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chloromethane | 74-87-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| cis-1,2-Dichloroethene | 156-59-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| cis-1,3-Dichloropropene | 10061-01-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cumene | 98-82-8 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cyclohexane | 110-82-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dibromochloromethane | 124-48-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dichlorodifluoromethane | 75-71-8 | N/A | N/A | N/A | N/A | N/A | N/A |
| Ethylbenzene | 100-41-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| m,p-Xylene | 179601-23-1 | N/A | 100 | 10 | 100 | N/A | 100 |
| Methyl acetate | 79-20-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Methyl tert-butyl ether (MTBE) | 1634-04-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Methylcyclohexane | 108-87-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Methylene chloride | 75-09-2 | N/A | 1600 | N/A | 1600 | N/A | 1600 |
| o-Xylene | 95-47-6 | N/A | 100 | 10 | 100 | N/A | 100 |
| Styrene | 100-42-5 | N/A | 3.2 | N/A | 3.2 | N/A | 3.2 |
| Tetrachloroethene (PCE) | 127-18-4 | N/A | 10 | N/A | 10 | N/A | 10 |
| Toluene | 108-88-3 | N/A | 200 | N/A | 200 | N/A | 200 |
| trans-1,2-Dichloroethene | 156-60-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| trans-1,3-Dichloropropene | 10061-02-6 | N/A | N/A | N/A | N/A | N/A | N/A |
| Trichlorofluoromethane | 75-69-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Vinyl chloride | 75-01-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,4-Dioxane | 123-91-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2,4,5-Trichlorophenol | 95-95-4 | N/A | 4 | N/A | N/A | N/A | 4 |
| 2,4,6-Trichlorophenol | 88-06-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2,4-Dichlorophenol | 120-83-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2,4-Dimethylphenol | 105-67-9 | N/A | N/A | 0.01 | N/A | N/A | 0.01 |
| 2,4-Dinitrochlorobenzene | 97-00-7 | N/A | N/A | N/A | N/A | 0.6 | 0.6 |
| 2,4-Dinitrophenol | 51-28-5 | N/A | 20 | N/A | N/A | N/A | 20 |
| 2,4-Dinitrotoluene | 121-14-2 | N/A | 6 | N/A | 6 | N/A | 6 |
| 2,6-Dinitrotoluene | 606-20-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2-Chloronaphthalene | 91-58-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2-Chlorophenol | 95-57-8 | N/A | N/A | N/A | N/A | N/A | N/A |

Table A-1
Ecological Screening Levels (ESLs) Comparison and Selection for Plant Risk Screening
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Analyte | CASRN | Potential Plant Screening Values (mg/kg) [1] | | | | | Final Selected Screening Value (mg/kg) [2] |
|---|---|---|---|---|---|---|---|
| | | EPA EcoSSLs | EPA Region 4 | EPA Region 5 | LANL | Derived | |
| 2-Methylphenol (o-Cresol) | 95-48-7 | N/A | 0.67 | N/A | 0.67 | N/A | 0.67 |
| 2-Nitroaniline | 88-74-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2-Nitrophenol | 88-75-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| 3,3'-Dichlorobenzidine | 91-94-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 3-Nitroaniline | 99-09-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Bromophenyl phenyl ether | 101-55-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Chloro-3-methylphenol | 59-50-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Chloroaniline | 106-47-8 | N/A | 1 | N/A | 1 | N/A | 1 |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Nitroaniline | 100-01-6 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Nitrophenol | 100-02-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Acetophenone | 98-86-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Atrazine | 1912-24-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzaldehyde | 100-52-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzyl butyl phthalate | 85-68-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Biphenyl (Diphenyl) | 92-52-4 | N/A | 60 | N/A | N/A | N/A | 60 |
| Bis(2-chloroethoxy)methane | 111-91-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Caprolactam | 105-60-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Carbazole | 86-74-8 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cresols, m- & p- | cresols-m,p | N/A | 0.69 | N/A | 0.69 | N/A | 0.69 |
| Dibenzofuran | 132-64-9 | N/A | 6.1 | N/A | 6.1 | N/A | 6.1 |
| Diethyl phthalate | 84-66-2 | N/A | 100 | N/A | 100 | N/A | 100 |
| Dimethyl phthalate | 131-11-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Di-n-butyl phthalate | 84-74-2 | N/A | 160 | N/A | 160 | N/A | 160 |
| di-n-Octyl phthalate | 117-84-0 | N/A | N/A | N/A | N/A | N/A | N/A |
| Hexachlorobenzene | 118-74-1 | N/A | 10 | N/A | 10 | N/A | 10 |
| Hexachlorobutadiene | 87-68-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Hexachlorocyclopentadiene | 77-47-4 | N/A | 10 | N/A | N/A | N/A | 10 |
| Hexachloroethane | 67-72-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Isophorone | 78-59-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Nitrobenzene | 98-95-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| N-Nitrosodi-n-propylamine | 621-64-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| N-Nitrosodiphenylamine | 86-30-6 | N/A | N/A | N/A | N/A | N/A | N/A |
| Pentachlorophenol | 87-86-5 | 5 | 5 | N/A | 5 | N/A | 5 |
| Phenol | 108-95-2 | N/A | 0.79 | N/A | 0.79 | N/A | 0.79 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2-Methylnaphthalene | 91-57-6 | N/A | N/A | N/A | N/A | N/A | N/A |
| Acenaphthene | 83-32-9 | N/A | 0.25 | N/A | 0.25 | N/A | 0.25 |
| Acenaphthylene | 208-96-8 | N/A | N/A | N/A | N/A | N/A | N/A |
| Anthracene | 120-12-7 | N/A | 6.8 | N/A | 6.8 | N/A | 6.8 |
| Benzo(a)anthracene | 56-55-3 | N/A | 18 | N/A | 18 | N/A | 18 |
| Benzo(a)pyrene | 50-32-8 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(b)fluoranthene | 205-99-2 | N/A | 18 | N/A | 18 | N/A | 18 |
| Benzo(g,h,i)perylene | 191-24-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(k)fluoranthene | 207-08-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chrysene | 218-01-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dibenz(a,h)anthracene | 53-70-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Fluoranthene | 206-44-0 | N/A | N/A | N/A | N/A | N/A | N/A |
| Fluorene | 86-73-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| Naphthalene | 91-20-3 | N/A | 1 | N/A | 1 | N/A | 1 |
| Phenanthrene | 85-01-8 | N/A | N/A | N/A | N/A | N/A | N/A |
| Pyrene | 129-00-0 | N/A | N/A | N/A | N/A | N/A | N/A |
| High Molecular Weight PAHs | HMW-PAHs | N/A | N/A | N/A | N/A | N/A | N/A |
| Low Molecular Weight PAHs | LMW-PAHs | N/A | N/A | N/A | N/A | N/A | N/A |
| Explosives | | | | | | | |
| Picric acid | 88-89-1 | N/A | N/A | N/A | N/A | 2 | 2 |
| Polychlorinated Biphenyls (PCBs) | | | | | | | |
| PCB-1016 (Aroclor 1016) | 12674-11-2 | N/A | 40[a] | N/A | N/A | N/A | 40 |
| PCB-1221 (Aroclor 1221) | 11104-28-2 | N/A | 40[a] | N/A | N/A | N/A | 40 |
| PCB-1232 (Aroclor 1232) | 11141-16-5 | N/A | 40[a] | N/A | N/A | N/A | 40 |
| PCB-1242 (Aroclor 1242) | 53469-21-9 | N/A | 40[a] | N/A | N/A | N/A | 40 |
| PCB-1248 (Aroclor 1248) | 12672-29-6 | N/A | 40[a] | N/A | N/A | N/A | 40 |

Table A-1
Ecological Screening Levels (ESLs) Comparison and Selection for Plant Risk Screening
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Analyte | CASRN | Potential Plant Screening Values (mg/kg) [1] | | | | | Final Selected Screening Value (mg/kg) [2] |
|---|---|---|---|---|---|---|---|
| | | EPA EcoSSLs | EPA Region 4 | EPA Region 5 | LANL | Derived | |
| PCB-1254 (Aroclor 1254) | 11097-69-1 | N/A | 40[a] | N/A | 160 | N/A | 40 |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | N/A | 40[a] | N/A | N/A | N/A | 40 |
| PCB-1262 (Aroclor 1262) | 37324-23-5 | N/A | 40[a] | N/A | N/A | N/A | 40 |
| PCB-1268 (Aroclor 1268) | 11100-14-4 | N/A | 40[a] | N/A | N/A | N/A | 40 |
| Total PCBs | 1336-36-3 | N/A | 40 | N/A | N/A | N/A | 40 |
| Metals | | | | | | | |
| Aluminum | 7429-90-5 | See Footnote (3) | | | | | |
| Antimony | 7440-36-0 | N/A | 5 | N/A | 11 | N/A | 5 |
| Arsenic | 7440-38-2 | 18 | 18 | N/A | 18 | N/A | 18 |
| Barium | 7440-39-3 | N/A | 110 | N/A | 110 | N/A | 110 |
| Beryllium | 7440-41-7 | N/A | 2.5 | N/A | 2.5 | N/A | 2.5 |
| Cadmium | 7440-43-9 | 32 | 32 | N/A | 32 | N/A | 32 |
| Calcium | 7440-70-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | 7440-47-3 | N/A | 0.35 | N/A | 0.35 | N/A | 0.35 |
| Cobalt | 7440-48-4 | 13 | 13 | N/A | 13 | N/A | 13 |
| Copper | 7440-50-8 | 70 | 70 | N/A | 70 | N/A | 70 |
| Iron | 7439-89-6 | See Footnote (4) | | | | | |
| Lead | 7439-92-1 | 120 | 120 | N/A | 120 | N/A | 120 |
| Magnesium | 7439-95-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | 7439-96-5 | 220 | 220 | N/A | 220 | N/A | 220 |
| Mercury | 7439-97-6 | N/A | 0.3 | N/A | 34 | N/A | 0.3 |
| Nickel | 7440-02-0 | 38 | 38 | N/A | 38 | N/A | 38 |
| Potassium | 7440-09-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | 7782-49-2 | 0.52 | 0.52 | N/A | 0.52 | N/A | 0.52 |
| Silver | 7440-22-4 | 560 | 560 | N/A | 560 | N/A | 560 |
| Sodium | 7440-23-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | 7440-28-0 | N/A | 0.05 | N/A | 0.05 | N/A | 0.05 |
| Vanadium | 7440-62-2 | N/A | 60 | N/A | 60 | N/A | 60 |
| Zinc | 7440-66-6 | 160 | 160 | N/A | 160 | N/A | 160 |

Notes:
CASRN = Chemical Abstracts Service Registry Number
EcoSSL = Ecological Soil Screening Levels
EPA = Environmental Protection Agency
LANL = Los Alamos National Laboratory
mg/kg = milligram per kilogram
N/A = None Available or Not Applicable
RCRA = Resource Conservation and Recovery Act
UFP-QAPP = Uniform Federal Policy for Quality Assurance Project Plans
USACE = United States Army Corps of Engineers

| Analyte | Surrogate |
|---|---|
| Chromium | Hexavalent Chromium |
| Cresols, m- & p- | Cresols, m- |
| m,p-Xylene | Total Xylenes |
| o-Xylene | Total Xylenes |
| Individual Aroclors | Total PCBs[a] [individual otherwise] |

1) Sources:
EPA Ecological Soil Screening Levels (EcoSSLs; various dates) (https://www.epa.gov/chemical-research/interim-ecological-soil-screening-level-documents)
EPA Region 4 (2018) Ecological Risk Assessment Supplemental Guidance. March. Table 3 - Soil Screening Values for Hazardous Waste Sites. (https://www.epa.gov/risk/regional-ecological-risk-assessment-era-supplemental-guidance)
EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf)
LANL (2017) ECORISK Database Ecological Screening Levels (https://rais.ornl.gov/documents/ECO_BENCH_LANL.pdf)
Derived. USACE (2020) UFP QAPP - Former New York Ordnance Works - Appendix A.1. December 2020. Final.

2) Final screening values were selected using the following hierarchy: (1) EPA EcoSSLs, (2) EPA Region 4, (3) EPA Region 5, (4) LANL, and (5) Derived.

3) An aluminum concentration-based risk screening value is not available. As noted in the UFP-QAPP (USACE, 2020), aluminum toxicity is based on soil pH (EPA EcoSSL, 2003a).

4) An iron concentration-based risk screening value is not available. As noted in the UFP-QAPP (USACE, 2020), the main concern from an ecological risk perspective for iron is not direct chemical toxicity, but the effect of iron as a mediator in the geochemistry of other (potentially toxic) metals and the potential physical hazard of depositing flocculent. A determination of the geochemical conditions (i.e., pH and Eh at a minimum) of the environmental setting, as well as the presence of iron floc and the toxic metals, is critical to the determination of the relative importance of iron at a site (EPA EcoSSL, 2003b).

Selected Screening Value for Plants
Surrogate Toxicity Values Used for Analyte

Table A-2
Ecological Screening Levels (ESLs) Comparison and Selection for Invertebrate Risk Screening
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Analyte | CASRN | Potential Invertebrate Screening Values (mg/kg) [1] | | | | | Final Selected Screening Value (mg/kg) [2] |
|---|---|---|---|---|---|---|---|
| | | EPA EcoSSLs | EPA Region 4 | EPA Region 5 | LANL | Derived | |
| Volatile Organic Compounds (VOCs) | | | | | | | |
| 1,1,1-Trichloroethane | 71-55-6 | N/A | 0.04 | N/A | N/A | N/A | 0.04 |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | N/A | 0.19 | N/A | N/A | N/A | 0.19 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,1,2-Trichloroethane | 79-00-5 | N/A | 0.32 | N/A | N/A | N/A | 0.32 |
| 1,1-Dichloroethane | 75-34-3 | N/A | 0.14 | N/A | N/A | N/A | 0.14 |
| 1,1-Dichloroethene | 75-35-4 | N/A | 0.04 | N/A | N/A | N/A | 0.04 |
| 1,2,3-Trichlorobenzene | 87-61-6 | N/A | 20 | N/A | N/A | N/A | 20 |
| 1,2,4-Trichlorobenzene | 120-82-1 | N/A | 1.2 | N/A | 1.2 | N/A | 1.2 |
| 1,2-Dibromo-3-chloropropane | 96-12-8 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,2-Dibromoethane (EDB) | 106-93-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,2-Dichlorobenzene | 95-50-1 | N/A | 0.09 | N/A | N/A | N/A | 0.09 |
| 1,2-Dichloroethane | 107-06-2 | N/A | 0.4 | N/A | N/A | N/A | 0.4 |
| 1,2-Dichloropropane | 78-87-5 | N/A | 0.28 | N/A | N/A | N/A | 0.28 |
| 1,3-Dichlorobenzene | 541-73-1 | N/A | 0.08 | N/A | N/A | N/A | 0.08 |
| 1,3-Dichloropropane | 142-28-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,4-Dichlorobenzene | 106-46-7 | N/A | 1.2 | N/A | 1.2 | N/A | 1.2 |
| 2-Butanone (MEK) | 78-93-3 | N/A | 1 | N/A | N/A | N/A | 1 |
| 2-Hexanone | 591-78-6 | N/A | 2.5 | N/A | N/A | N/A | 2.5 |
| 4-Methyl-2-pentanone (MIBK) | 108-10-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Acetone | 67-64-1 | N/A | 0.04 | N/A | N/A | N/A | 0.04 |
| Benzene | 71-43-2 | N/A | 0.12 | N/A | N/A | N/A | 0.12 |
| Bromochloromethane | 74-97-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bromodichloromethane | 75-27-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bromoform | 75-25-2 | N/A | 0.07 | N/A | N/A | N/A | 0.07 |
| Bromomethane | 74-83-9 | N/A | 0.002 | N/A | N/A | N/A | 0.002 |
| Carbon disulfide | 75-15-0 | N/A | 0.005 | N/A | N/A | N/A | 0.005 |
| Carbon tetrachloride | 56-23-5 | N/A | 0.05 | N/A | N/A | N/A | 0.05 |
| Chlorobenzene | 108-90-7 | N/A | 2.4 | N/A | 2.4 | N/A | 2.4 |
| Chloroethane | 75-00-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chloroform | 67-66-3 | N/A | 0.05 | N/A | N/A | N/A | 0.05 |
| Chloromethane | 74-87-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| cis-1,2-Dichloroethene | 156-59-2 | N/A | 0.04 | N/A | N/A | N/A | 0.04 |
| cis-1,3-Dichloropropene | 10061-01-5 | N/A | 0.001 | N/A | N/A | N/A | 0.001 |
| Cumene | 98-82-8 | N/A | 0.04 | N/A | N/A | N/A | 0.04 |
| Cyclohexane | 110-82-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dibromochloromethane | 124-48-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dichlorodifluoromethane | 75-71-8 | N/A | N/A | N/A | N/A | N/A | N/A |
| Ethylbenzene | 100-41-4 | N/A | 0.27 | N/A | N/A | N/A | 0.27 |
| m,p-Xylene | 179601-23-1 | N/A | 0.1 | N/A | N/A | N/A | 0.1 |
| Methyl acetate | 79-20-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Methyl tert-butyl ether (MTBE) | 1634-04-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Methylcyclohexane | 108-87-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Methylene chloride | 75-09-2 | N/A | 0.21 | N/A | N/A | N/A | 0.21 |
| o-Xylene | 95-47-6 | N/A | 0.1 | N/A | N/A | N/A | 0.1 |
| Styrene | 100-42-5 | N/A | 1.2 | N/A | 1.2 | N/A | 1.2 |
| Tetrachloroethene (PCE) | 127-18-4 | N/A | 0.06 | N/A | N/A | N/A | 0.06 |
| Toluene | 108-88-3 | N/A | 0.15 | N/A | N/A | N/A | 0.15 |
| trans-1,2-Dichloroethene | 156-60-5 | N/A | 0.04 | N/A | N/A | N/A | 0.04 |
| trans-1,3-Dichloropropene | 10061-02-6 | N/A | 0.001 | N/A | N/A | N/A | 0.001 |
| Trichlorofluoromethane | 75-69-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Vinyl chloride | 75-01-4 | N/A | 0.03 | N/A | N/A | N/A | 0.03 |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | N/A | 0.18 | N/A | N/A | N/A | 0.18 |
| 1,4-Dioxane | 123-91-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | N/A | 0.04 | N/A | N/A | N/A | 0.04 |
| 2,4,5-Trichlorophenol | 95-95-4 | N/A | 9 | N/A | N/A | N/A | 9 |
| 2,4,6-Trichlorophenol | 88-06-2 | N/A | 10 | N/A | N/A | N/A | 10 |
| 2,4-Dichlorophenol | 120-83-2 | N/A | 0.05 | N/A | N/A | N/A | 0.05 |
| 2,4-Dimethylphenol | 105-67-9 | N/A | 0.04 | N/A | N/A | N/A | 0.04 |
| 2,4-Dinitrochlorobenzene | 97-00-7 | N/A | N/A | N/A | N/A | 1.8 | 1.8 |
| 2,4-Dinitrophenol | 51-28-5 | N/A | 0.15 | N/A | N/A | N/A | 0.15 |
| 2,4-Dinitrotoluene | 121-14-2 | N/A | 18 | N/A | 18 | N/A | 18 |
| 2,6-Dinitrotoluene | 606-20-2 | N/A | 30 | N/A | 30 | N/A | 30 |
| 2-Chloronaphthalene | 91-58-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2-Chlorophenol | 95-57-8 | N/A | 0.06 | N/A | N/A | N/A | 0.06 |

Table A-2
Ecological Screening Levels (ESLs) Comparison and Selection for Invertebrate Risk Screening
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Analyte | CASRN | Potential Invertebrate Screening Values (mg/kg) [1] | | | | | Final Selected Screening Value (mg/kg) [2] |
|---|---|---|---|---|---|---|---|
| | | EPA EcoSSLs | EPA Region 4 | EPA Region 5 | LANL | Derived | |
| 2-Methylphenol (o-Cresol) | 95-48-7 | N/A | 0.1 | N/A | N/A | N/A | 0.1 |
| 2-Nitroaniline | 88-74-4 | N/A | 0.02 | N/A | N/A | N/A | 0.02 |
| 2-Nitrophenol | 88-75-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| 3,3'-Dichlorobenzidine | 91-94-1 | N/A | 0.03 | N/A | N/A | N/A | 0.03 |
| 3-Nitroaniline | 99-09-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Bromophenyl phenyl ether | 101-55-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Chloro-3-methylphenol | 59-50-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Chloroaniline | 106-47-8 | N/A | 1.8 | N/A | 1.8 | N/A | 1.8 |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Nitroaniline | 100-01-6 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Nitrophenol | 100-02-7 | N/A | 7 | N/A | N/A | N/A | 7 |
| Acetophenone | 98-86-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Atrazine | 1912-24-9 | N/A | 0.00005 | N/A | N/A | N/A | 0.00005 |
| Benzaldehyde | 100-52-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzyl butyl phthalate | 85-68-7 | N/A | 0.59 | N/A | N/A | N/A | 0.59 |
| Biphenyl (Diphenyl) | 92-52-4 | N/A | 0.2 | N/A | N/A | N/A | 0.2 |
| Bis(2-chloroethoxy)methane | 111-91-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | N/A | 8.4 | N/A | N/A | N/A | 8.4 |
| Caprolactam | 105-60-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Carbazole | 86-74-8 | N/A | 0.07 | N/A | N/A | N/A | 0.07 |
| Cresols, m- & p- | cresols-m,p | N/A | 0.08 | N/A | N/A | N/A | 0.08 |
| Dibenzofuran | 132-64-9 | N/A | 0.15 | N/A | N/A | N/A | 0.15 |
| Diethyl phthalate | 84-66-2 | N/A | 0.25 | N/A | N/A | N/A | 0.25 |
| Dimethyl phthalate | 131-11-3 | N/A | 10 | N/A | 10 | N/A | 10 |
| Di-n-butyl phthalate | 84-74-2 | N/A | 0.22 | N/A | N/A | N/A | 0.22 |
| di-n-Octyl phthalate | 117-84-0 | N/A | 303 | N/A | N/A | N/A | 303 |
| Hexachlorobenzene | 118-74-1 | N/A | 10 | N/A | 10 | N/A | 10 |
| Hexachlorobutadiene | 87-68-3 | N/A | 0.009 | N/A | N/A | N/A | 0.009 |
| Hexachlorocyclopentadiene | 77-47-4 | N/A | 0.001 | N/A | N/A | N/A | 0.001 |
| Hexachloroethane | 67-72-1 | N/A | 0.024 | N/A | N/A | N/A | 0.024 |
| Isophorone | 78-59-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Nitrobenzene | 98-95-3 | N/A | 2.2 | N/A | 2.2 | N/A | 2.2 |
| N-Nitrosodi-n-propylamine | 621-64-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| N-Nitrosodiphenylamine | 86-30-6 | N/A | 20 | N/A | N/A | N/A | 20 |
| Pentachlorophenol | 87-86-5 | 31 | 31 | N/A | 31 | N/A | 31 |
| Phenol | 108-95-2 | N/A | 1.8 | N/A | 1.8 | N/A | 1.8 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 29[a] | 0.14 | N/A | N/A | N/A | 29 |
| 2-Methylnaphthalene | 91-57-6 | 29[a] | 0.11 | N/A | N/A | N/A | 29 |
| Acenaphthene | 83-32-9 | 29[a] | 0.38 | N/A | N/A | N/A | 29 |
| Acenaphthylene | 208-96-8 | 29[a] | 0.34 | N/A | N/A | N/A | 29 |
| Anthracene | 120-12-7 | 29[a] | 0.0015 | N/A | N/A | N/A | 29 |
| Benzo(a)anthracene | 56-55-3 | 18[b] | 4.69 | N/A | N/A | N/A | 18 |
| Benzo(a)pyrene | 50-32-8 | 18[b] | 0.13 | N/A | N/A | N/A | 18 |
| Benzo(b)fluoranthene | 205-99-2 | 18[b] | 2.7 | N/A | N/A | N/A | 18 |
| Benzo(g,h,i)perylene | 191-24-2 | 18[b] | 0.07 | N/A | N/A | N/A | 18 |
| Benzo(k)fluoranthene | 207-08-9 | 18[b] | 0.13 | N/A | N/A | N/A | 18 |
| Chrysene | 218-01-9 | 18[b] | 5.18 | N/A | N/A | N/A | 18 |
| Dibenz(a,h)anthracene | 53-70-3 | 18[b] | 0.06 | N/A | N/A | N/A | 18 |
| Fluoranthene | 206-44-0 | 29[a] | 10 | N/A | 10 | N/A | 29 |
| Fluorene | 86-73-7 | 29[a] | 3.7 | N/A | 3.7 | N/A | 29 |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 18[b] | 0.08 | N/A | N/A | N/A | 18 |
| Naphthalene | 91-20-3 | 29[a] | 0.16 | N/A | N/A | N/A | 29 |
| Phenanthrene | 85-01-8 | 29[a] | 5.5 | N/A | 5.5 | N/A | 29 |
| Pyrene | 129-00-0 | 18[b] | 10 | N/A | 10 | N/A | 18 |
| High Molecular Weight PAHs | HMW-PAHs | 18 | 18 | N/A | N/A | N/A | 18 |
| Low Molecular Weight PAHs | LMW-PAHs | 29 | 29 | N/A | N/A | N/A | 29 |
| Explosives | | | | | | | |
| Picric acid | 88-89-1 | N/A | N/A | N/A | N/A | 0.015 | 0.015 |
| Polychlorinated Biphenyls (PCBs) | | | | | | | |
| PCB-1016 (Aroclor 1016) | 12674-11-2 | N/A | 0.33 | N/A | N/A | N/A | 0.33 |
| PCB-1221 (Aroclor 1221) | 11104-28-2 | N/A | 0.33 | N/A | N/A | N/A | 0.33 |

Table A-2
Ecological Screening Levels (ESLs) Comparison and Selection for Invertebrate Risk Screening
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Analyte | CASRN | Potential Invertebrate Screening Values (mg/kg) [1] | | | | | Final Selected Screening Value (mg/kg) [2] |
|---|---|---|---|---|---|---|---|
| | | EPA EcoSSLs | EPA Region 4 | EPA Region 5 | LANL | Derived | |
| PCB-1232 (Aroclor 1232) | 11141-16-5 | N/A | 0.33 | N/A | N/A | N/A | 0.33 |
| PCB-1242 (Aroclor 1242) | 53469-21-9 | N/A | 0.33 | N/A | N/A | N/A | 0.33 |
| PCB-1248 (Aroclor 1248) | 12672-29-6 | N/A | 0.33 | N/A | N/A | N/A | 0.33 |
| PCB-1254 (Aroclor 1254) | 11097-69-1 | N/A | 0.33 | N/A | N/A | N/A | 0.33 |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | N/A | 0.33 | N/A | N/A | N/A | 0.33 |
| PCB-1262 (Aroclor 1262) | 37324-23-5 | N/A | 0.33 | N/A | N/A | N/A | 0.33 |
| PCB-1268 (Aroclor 1268) | 11100-14-4 | N/A | 0.33 | N/A | N/A | N/A | 0.33 |
| Total PCBs | 1336-36-3 | N/A | 0.33 | N/A | N/A | N/A | 0.33 |
| Metals | | | | | | | |
| Aluminum | 7429-90-5 | See Footnote (3) | | | | | |
| Antimony | 7440-36-0 | 78 | 78 | N/A | 78 | N/A | 78 |
| Arsenic | 7440-38-2 | N/A | 6.8 | N/A | 6.8 | N/A | 6.8 |
| Barium | 7440-39-3 | 330 | 330 | N/A | 330 | N/A | 330 |
| Beryllium | 7440-41-7 | 40 | 40 | N/A | 40 | N/A | 40 |
| Cadmium | 7440-43-9 | 140 | 140 | N/A | 140 | N/A | 140 |
| Calcium | 7440-70-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | 7440-47-3 | N/A | 0.34[c] | 0.4[d] | 0.34[c] | N/A | 0.34 |
| Cobalt | 7440-48-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | 7440-50-8 | 80 | 80 | N/A | 80 | N/A | 80 |
| Iron | 7439-89-6 | See Footnote (4) | | | | | |
| Lead | 7439-92-1 | 1700 | 1700 | N/A | 1700 | N/A | 1700 |
| Magnesium | 7439-95-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | 7439-96-5 | 450 | 450 | N/A | 450 | N/A | 450 |
| Mercury | 7439-97-6 | N/A | 0.05 | 0.1 | 0.05 | N/A | 0.05 |
| Nickel | 7440-02-0 | 280 | 280 | N/A | 280 | N/A | 280 |
| Potassium | 7440-09-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | 7782-49-2 | 4.1 | 4.1 | N/A | 4.1 | N/A | 4.1 |
| Silver | 7440-22-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Sodium | 7440-23-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | 7440-28-0 | N/A | N/A | N/A | N/A | N/A | N/A |
| Vanadium | 7440-62-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Zinc | 7440-66-6 | 120 | 120 | 6.62 | 120 | N/A | 120 |

Notes:
CASRN = Chemical Abstracts Service Registry Number
EcoSSL = Ecological Soil Screening Levels
EPA = Environmental Protection Agency
LANL = Los Alamos National Laboratory
mg/kg = milligram per kilogram
N/A = None Available or Not Applicable
RCRA = Resource Conservation and Recovery Act
UFP-QAPP = Uniform Federal Policy for Quality Assurance Project Plans
USACE = United States Army Corps of Engineers

| Analyte | Surrogate |
|---|---|
| Chromium | Hexavalent[c] and Trivalent[d] Chromium |
| cis-1,3-Dichloropropene | 1,3-Dichloropropene |
| Cresols, m- & p- | Cresols, p- |
| m,p-Xylene | Total Xylenes |
| o-Xylene | Total Xylenes |
| trans-1,3-Dichloropropene | 1,3-Dichloropropene |
| Low Molecular Weight (LMW) PAHs | Total LMW PAHs[a] [individual otherwise] |
| High Molecular Weight (HMW) PAHs | Total HMW PAHs[b] [individual otherwise] |
| Individual Aroclors | Total PCBs |

1) Sources:
EPA Ecological Soil Screening Levels (EcoSSLs; various dates) (https://www.epa.gov/chemical-research/interim-ecological-soil-screening-level-documents)
EPA Region 4 (2018) Ecological Risk Assessment Supplemental Guidance. March. Table 3 - Soil Screening Values for Hazardous Waste Sites. (https://www.epa.gov/risk/regional-ecological-risk-assessment-era-supplemental-guidance)
EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf)
LANL (2017) ECORISK Database Ecological Screening Levels (https://rais.ornl.gov/documents/ECO_BENCH_LANL.pdf)
Derived. USACE (2020) UFP QAPP - Former New York Ordnance Works - Appendix A.1. December 2020. Final.

2) Final screening values were selected using the following hierarchy: (1) EPA EcoSSLs, (2) EPA Region 4, (3) EPA Region 5, (4) LANL, and (5) Derived.

3) An aluminum concentration-based risk screening value is not available. As noted in the UFP-QAPP (USACE, 2020), aluminum toxicity is based on soil pH (EPA EcoSSL, 2003a).

4) An iron concentration-based risk screening value is not available. As noted in the UFP-QAPP (USACE, 2020), the main concern from an ecological risk perspective for iron is not direct chemical toxicity, but the effect of iron as a mediator in the geochemistry of other (potentially toxic) metals and the potential physical hazard of depositing flocculent. A determination of the geochemical conditions (i.e., pH and Eh at a minimum) of the environmental setting, as well as the presence of iron floc and the toxic metals, is critical to the determination of the relative importance of iron at a site (EPA EcoSSL, 2003b).

Selected Screening Value for Invertebrates
Surrogate Toxicity Values Used for Analyte

Table A-3
Ecological Screening Levels (ESLs) Comparison and Selection for Bird Risk Screening
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Analyte | CASRN | Potential Bird Screening Values (mg/kg) [1] | | | | | Final Selected Screening Value (mg/kg) [2] |
|---|---|---|---|---|---|---|---|
| | | EPA EcoSSLs | EPA Region 4 | EPA Region 5 | LANL | Derived | |
| Volatile Organic Compounds (VOCs) | | | | | | | |
| 1,1,1-Trichloroethane | 71-55-6 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,1,2-Trichloroethane | 79-00-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,1-Dichloroethane | 75-34-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,1-Dichloroethene | 75-35-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,2,3-Trichlorobenzene | 87-61-6 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,2,4-Trichlorobenzene | 120-82-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,2-Dibromo-3-chloropropane | 96-12-8 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,2-Dibromoethane (EDB) | 106-93-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,2-Dichlorobenzene | 95-50-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,2-Dichloroethane | 107-06-2 | N/A | 0.85 | N/A | 0.85 | N/A | 0.85 |
| 1,2-Dichloropropane | 78-87-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,3-Dichlorobenzene | 541-73-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,3-Dichloropropane | 142-28-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,4-Dichlorobenzene | 106-46-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2-Butanone (MEK) | 78-93-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2-Hexanone | 591-78-6 | N/A | 0.36 | N/A | 0.36 | N/A | 0.36 |
| 4-Methyl-2-pentanone (MIBK) | 108-10-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Acetone | 67-64-1 | N/A | 7.5 | N/A | 7.5 | N/A | 7.5 |
| Benzene | 71-43-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bromochloromethane | 74-97-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bromodichloromethane | 75-27-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bromoform | 75-25-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bromomethane | 74-83-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Carbon disulfide | 75-15-0 | N/A | N/A | N/A | N/A | N/A | N/A |
| Carbon tetrachloride | 56-23-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chlorobenzene | 108-90-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chloroethane | 75-00-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chloroform | 67-66-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chloromethane | 74-87-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| cis-1,2-Dichloroethene | 156-59-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| cis-1,3-Dichloropropene | 10061-01-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cumene | 98-82-8 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cyclohexane | 110-82-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dibromochloromethane | 124-48-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dichlorodifluoromethane | 75-71-8 | N/A | N/A | N/A | N/A | N/A | N/A |
| Ethylbenzene | 100-41-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| m,p-Xylene | 179601-23-1 | N/A | 41 | N/A | 41 | N/A | 41 |
| Methyl acetate | 79-20-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Methyl tert-butyl ether (MTBE) | 1634-04-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Methylcyclohexane | 108-87-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Methylene chloride | 75-09-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| o-Xylene | 95-47-6 | N/A | 41 | N/A | 41 | N/A | 41 |
| Styrene | 100-42-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| Tetrachloroethene (PCE) | 127-18-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Toluene | 108-88-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| trans-1,2-Dichloroethene | 156-60-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| trans-1,3-Dichloropropene | 10061-02-6 | N/A | N/A | N/A | N/A | N/A | N/A |
| Trichlorofluoromethane | 75-69-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Vinyl chloride | 75-01-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,4-Dioxane | 123-91-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2,4,5-Trichlorophenol | 95-95-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2,4,6-Trichlorophenol | 88-06-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2,4-Dichlorophenol | 120-83-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2,4-Dimethylphenol | 105-67-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2,4-Dinitrochlorobenzene | 97-00-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2,4-Dinitrophenol | 51-28-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2,4-Dinitrotoluene | 121-14-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2,6-Dinitrotoluene | 606-20-2 | N/A | 52 | N/A | 52 | N/A | 52 |
| 2-Chloronaphthalene | 91-58-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2-Chlorophenol | 95-57-8 | N/A | 0.39 | N/A | 0.39 | N/A | 0.39 |

Table A-3
Ecological Screening Levels (ESLs) Comparison and Selection for Bird Risk Screening
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Analyte | CASRN | Potential Bird Screening Values (mg/kg) [1] | | | | | Final Selected Screening Value (mg/kg) [2] |
|---|---|---|---|---|---|---|---|
| | | EPA EcoSSLs | EPA Region 4 | EPA Region 5 | LANL | Derived | |
| 2-Methylphenol (o-Cresol) | 95-48-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2-Nitroaniline | 88-74-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2-Nitrophenol | 88-75-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| 3,3'-Dichlorobenzidine | 91-94-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 3-Nitroaniline | 99-09-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Bromophenyl phenyl ether | 101-55-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Chloro-3-methylphenol | 59-50-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Chloroaniline | 106-47-8 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Nitroaniline | 100-01-6 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Nitrophenol | 100-02-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Acetophenone | 98-86-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Atrazine | 1912-24-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzaldehyde | 100-52-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzyl butyl phthalate | 85-68-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Biphenyl (Diphenyl) | 92-52-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bis(2-chloroethoxy)methane | 111-91-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | N/A | 0.02 | N/A | 0.02 | N/A | 0.02 |
| Caprolactam | 105-60-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Carbazole | 86-74-8 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cresols, m- & p- | cresols-m,p | N/A | N/A | N/A | N/A | N/A | N/A |
| Dibenzofuran | 132-64-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Diethyl phthalate | 84-66-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dimethyl phthalate | 131-11-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Di-n-butyl phthalate | 84-74-2 | N/A | 0.011 | N/A | 0.011 | N/A | 0.011 |
| di-n-Octyl phthalate | 117-84-0 | N/A | N/A | N/A | N/A | N/A | N/A |
| Hexachlorobenzene | 118-74-1 | N/A | 0.079 | N/A | 0.079 | N/A | 0.079 |
| Hexachlorobutadiene | 87-68-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Hexachlorocyclopentadiene | 77-47-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Hexachloroethane | 67-72-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Isophorone | 78-59-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Nitrobenzene | 98-95-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| N-Nitrosodi-n-propylamine | 621-64-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| N-Nitrosodiphenylamine | 86-30-6 | N/A | N/A | N/A | N/A | N/A | N/A |
| Pentachlorophenol | 87-86-5 | 2.1 | 2.1 | N/A | 0.36 | N/A | 2.1 |
| Phenol | 108-95-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2-Methylnaphthalene | 91-57-6 | N/A | N/A | N/A | N/A | N/A | N/A |
| Acenaphthene | 83-32-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Acenaphthylene | 208-96-8 | N/A | N/A | N/A | N/A | N/A | N/A |
| Anthracene | 120-12-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(a)anthracene | 56-55-3 | N/A | 0.73 | N/A | 0.73 | N/A | 0.73 |
| Benzo(a)pyrene | 50-32-8 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(b)fluoranthene | 205-99-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(g,h,i)perylene | 191-24-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzo(k)fluoranthene | 207-08-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chrysene | 218-01-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dibenz(a,h)anthracene | 53-70-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Fluoranthene | 206-44-0 | N/A | N/A | N/A | N/A | N/A | N/A |
| Fluorene | 86-73-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| Naphthalene | 91-20-3 | N/A | 3.4 | N/A | 3.4 | N/A | 3.4 |
| Phenanthrene | 85-01-8 | N/A | N/A | N/A | N/A | N/A | N/A |
| Pyrene | 129-00-0 | N/A | 33 | N/A | 33 | N/A | 33 |
| High Molecular Weight PAHs | HMW-PAHs | N/A | N/A | N/A | N/A | N/A | N/A |
| Low Molecular Weight PAHs | LMW-PAHs | N/A | N/A | N/A | N/A | N/A | N/A |
| Explosives | | | | | | | |
| Picric acid | 88-89-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| Polychlorinated Biphenyls (PCBs) | | | | | | | |
| PCB-1016 (Aroclor 1016) | 12674-11-2 | N/A | 0.041[a] | N/A | N/A | N/A | 0.041 |
| PCB-1221 (Aroclor 1221) | 11104-28-2 | N/A | 0.041[a] | N/A | N/A | N/A | 0.041 |
| PCB-1232 (Aroclor 1232) | 11141-16-5 | N/A | 0.041[a] | N/A | N/A | N/A | 0.041 |
| PCB-1242 (Aroclor 1242) | 53469-21-9 | N/A | 0.041[a] | N/A | 0.041 | N/A | 0.041 |
| PCB-1248 (Aroclor 1248) | 12672-29-6 | N/A | 0.041[a] | N/A | 0.041 | N/A | 0.041 |

Table A-3
Ecological Screening Levels (ESLs) Comparison and Selection for Bird Risk Screening
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Analyte | CASRN | Potential Bird Screening Values (mg/kg) [1] | | | | | Final Selected Screening Value (mg/kg) [2] |
|---|---|---|---|---|---|---|---|
| | | EPA EcoSSLs | EPA Region 4 | EPA Region 5 | LANL | Derived | |
| PCB-1254 (Aroclor 1254) | 11097-69-1 | N/A | 0.041[a] | N/A | 0.041 | N/A | 0.041 |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | N/A | 0.041[a] | N/A | 0.88 | N/A | 0.041 |
| PCB-1262 (Aroclor 1262) | 37324-23-5 | N/A | 0.041[a] | N/A | N/A | N/A | 0.041 |
| PCB-1268 (Aroclor 1268) | 11100-14-4 | N/A | 0.041[a] | N/A | N/A | N/A | 0.041 |
| Total PCBs | 1336-36-3 | N/A | 0.041 | N/A | N/A | N/A | 0.041 |
| Metals | | | | | | | |
| Aluminum | 7429-90-5 | See Footnote (3) | | | | | |
| Antimony | 7440-36-0 | N/A | N/A | N/A | N/A | N/A | N/A |
| Arsenic | 7440-38-2 | 43 | 43 | N/A | 15 | N/A | 43 |
| Barium | 7440-39-3 | N/A | 820 | N/A | 720 | N/A | 820 |
| Beryllium | 7440-41-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cadmium | 7440-43-9 | 0.77 | 0.77 | N/A | 0.29 | N/A | 0.77 |
| Calcium | 7440-70-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | 7440-47-3 | 26[b] | 23 | N/A | 23 | N/A | 26 |
| Cobalt | 7440-48-4 | 120 | 120 | N/A | 76 | N/A | 120 |
| Copper | 7440-50-8 | 28 | 28 | N/A | 14 | N/A | 28 |
| Iron | 7439-89-6 | See Footnote (4) | | | | | |
| Lead | 7439-92-1 | 11 | 11 | N/A | 11 | N/A | 11 |
| Magnesium | 7439-95-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | 7439-96-5 | 4300 | 4300 | N/A | 1300 | N/A | 4300 |
| Mercury | 7439-97-6 | N/A | 0.013 | N/A | 0.013 | N/A | 0.013 |
| Nickel | 7440-02-0 | 210 | 210 | N/A | 20 | N/A | 210 |
| Potassium | 7440-09-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | 7782-49-2 | 1.2 | 1.2 | N/A | 0.71 | N/A | 1.2 |
| Silver | 7440-22-4 | 4.2 | 4.2 | N/A | 2.6 | N/A | 4.2 |
| Sodium | 7440-23-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | 7440-28-0 | N/A | 4.5 | N/A | 4.5 | N/A | 4.5 |
| Vanadium | 7440-62-2 | 7.8 | 7.8 | N/A | 4.7 | N/A | 7.8 |
| Zinc | 7440-66-6 | 46 | 46 | N/A | 47 | N/A | 46 |

Notes:
CASRN = Chemical Abstracts Service Registry Number
EcoSSL = Ecological Soil Screening Levels
EPA = Environmental Protection Agency
LANL = Los Alamos National Laboratory
mg/kg = milligram per kilogram
N/A = None Available or Not Applicable
RCRA = Resource Conservation and Recovery Act
UFP-QAPP = Uniform Federal Policy for Quality Assurance Project Plans
USACE = United States Army Corps of Engineers

| Analyte | Surrogate |
|---|---|
| Chromium | Hexavalent Chromium[b] [total otherwise] |
| m,p-Xylene | Total Xylenes |
| o-Xylene | Total Xylenes |
| Individual Aroclors | Total PCBs[a] [individual otherwise] |

1) Sources:
EPA Ecological Soil Screening Levels (EcoSSLs; various dates) (https://www.epa.gov/chemical-research/interim-ecological-soil-screening-level-documents)
EPA Region 4 (2018) Ecological Risk Assessment Supplemental Guidance. March. Table 3 - Soil Screening Values for Hazardous Waste Sites. (https://www.epa.gov/risk/regional-ecological-risk-assessment-era-supplemental-guidance)
EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf)
LANL (2017) ECORISK Database Ecological Screening Levels (https://rais.ornl.gov/documents/ECO_BENCH_LANL.pdf)
Derived. USACE (2020) UFP QAPP - Former New York Ordnance Works - Appendix A.1. December 2020. Final.

2) Final screening values were selected using the following hierarchy: (1) EPA EcoSSLs, (2) EPA Region 4, (3) EPA Region 5, (4) LANL, and (5) Derived.

3) An aluminum concentration-based risk screening value is not available. As noted in the UFP-QAPP (USACE, 2020), aluminum toxicity is based on soil pH (EPA EcoSSL, 2003a).

4) An iron concentration-based risk screening value is not available. As noted in the UFP-QAPP (USACE, 2020), the main concern from an ecological risk perspective for iron is not direct chemical toxicity, but the effect of iron as a mediator in the geochemistry of other (potentially toxic) metals and the potential physical hazard of depositing flocculent. A determination of the geochemical conditions (i.e., pH and Eh at a minimum) of the environmental setting, as well as the presence of iron floc and the toxic metals, is critical to the determination of the relative importance of iron at a site (EPA EcoSSL, 2003b).

Selected Screening Value for Birds
Surrogate Toxicity Values Used for Analyte

Table A-4
Ecological Screening Levels (ESLs) Comparison and Selection for Mammal Risk Screening
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Analyte | CASRN | Potential Mammal Screening Values (mg/kg) [1] | | | | | Final Selected Screening Value (mg/kg) [2] |
|---|---|---|---|---|---|---|---|
| | | EPA EcoSSLs | EPA Region 4 | EPA Region 5 | LANL | Derived | |
| Volatile Organic Compounds (VOCs) | | | | | | | |
| 1,1,1-Trichloroethane | 71-55-6 | N/A | 260 | 29.8 | 260 | N/A | 260 |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | N/A | 0.127 | 0.127 | N/A | N/A | 0.127 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,1,2-Trichloroethane | 79-00-5 | N/A | 28.6 | 28.6 | N/A | N/A | 28.6 |
| 1,1-Dichloroethane | 75-34-3 | N/A | 210 | 20.1 | 210 | N/A | 210 |
| 1,1-Dichloroethene | 75-35-4 | N/A | 11 | 8.28 | 11 | N/A | 11 |
| 1,2,3-Trichlorobenzene | 87-61-6 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,2,4-Trichlorobenzene | 120-82-1 | N/A | 0.27 | 11.1 | 0.27 | N/A | 0.27 |
| 1,2-Dibromo-3-chloropropane | 96-12-8 | N/A | N/A | 0.0352 | N/A | N/A | 0.0352 |
| 1,2-Dibromoethane (EDB) | 106-93-4 | N/A | N/A | 1.23 | N/A | N/A | 1.23 |
| 1,2-Dichlorobenzene | 95-50-1 | N/A | 0.92 | 2.96 | 0.92 | N/A | 0.92 |
| 1,2-Dichloroethane | 107-06-2 | N/A | 27 | 21.2 | 27 | N/A | 27 |
| 1,2-Dichloropropane | 78-87-5 | N/A | 32.7 | 32.7 | N/A | N/A | 32.7 |
| 1,3-Dichlorobenzene | 541-73-1 | N/A | 0.74 | 37.7 | 0.74 | N/A | 0.74 |
| 1,3-Dichloropropane | 142-28-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| 1,4-Dichlorobenzene | 106-46-7 | N/A | 0.89 | 0.546 | 0.89 | N/A | 0.89 |
| 2-Butanone (MEK) | 78-93-3 | N/A | 350 | 89.6 | 350 | N/A | 350 |
| 2-Hexanone | 591-78-6 | N/A | 5.4 | 12.6 | 5.4 | N/A | 5.4 |
| 4-Methyl-2-pentanone (MIBK) | 108-10-1 | N/A | N/A | 443 | 9.7 | N/A | 443 |
| Acetone | 67-64-1 | N/A | 1.2 | 2.5 | 1.2 | N/A | 1.2 |
| Benzene | 71-43-2 | N/A | 24 | 0.255 | 24 | N/A | 24 |
| Bromochloromethane | 74-97-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bromodichloromethane | 75-27-4 | N/A | N/A | 0.54 | N/A | N/A | 0.54 |
| Bromoform | 75-25-2 | N/A | 15.9 | 15.9 | N/A | N/A | 15.9 |
| Bromomethane | 74-83-9 | N/A | 0.24 | 0.235 | N/A | N/A | 0.24 |
| Carbon disulfide | 75-15-0 | N/A | 0.81 | 0.0941 | 0.81 | N/A | 0.81 |
| Carbon tetrachloride | 56-23-5 | N/A | 2.98 | 2.98 | N/A | N/A | 2.98 |
| Chlorobenzene | 108-90-7 | N/A | 43 | 13.1 | 43 | N/A | 43 |
| Chloroethane | 75-00-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chloroform | 67-66-3 | N/A | 8 | 1.19 | 8 | N/A | 8 |
| Chloromethane | 74-87-3 | N/A | N/A | 10.4 | N/A | N/A | 10.4 |
| cis-1,2-Dichloroethene | 156-59-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| cis-1,3-Dichloropropene | 10061-01-5 | N/A | N/A | 0.398 | N/A | N/A | 0.398 |
| Cumene | 98-82-8 | N/A | N/A | N/A | N/A | N/A | N/A |
| Cyclohexane | 110-82-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Dibromochloromethane | 124-48-1 | N/A | N/A | 2.05 | N/A | N/A | 2.05 |
| Dichlorodifluoromethane | 75-71-8 | N/A | N/A | 39.5 | N/A | N/A | 39.5 |
| Ethylbenzene | 100-41-4 | N/A | 5.16 | 5.16 | N/A | N/A | 5.16 |
| m,p-Xylene | 179601-23-1 | N/A | 1.4 | N/A | 1.4 | N/A | 1.4 |
| Methyl acetate | 79-20-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Methyl tert-butyl ether (MTBE) | 1634-04-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Methylcyclohexane | 108-87-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Methylene chloride | 75-09-2 | N/A | 2.6 | 4.05 | 2.6 | N/A | 2.6 |
| o-Xylene | 95-47-6 | N/A | 1.4 | N/A | 1.4 | N/A | 1.4 |
| Styrene | 100-42-5 | N/A | N/A | 4.69 | N/A | N/A | 4.69 |
| Tetrachloroethene (PCE) | 127-18-4 | N/A | 0.18 | 9.92 | 0.18 | N/A | 0.18 |
| Toluene | 108-88-3 | N/A | 23 | 5.45 | 23 | N/A | 23 |
| trans-1,2-Dichloroethene | 156-60-5 | N/A | 0.784 | 0.784 | N/A | N/A | 0.784 |
| trans-1,3-Dichloropropene | 10061-02-6 | N/A | N/A | 0.398 | N/A | N/A | 0.398 |
| Trichlorofluoromethane | 75-69-4 | N/A | 16.4 | 16.4 | 52 | N/A | 16.4 |
| Vinyl chloride | 75-01-4 | N/A | 0.12 | 0.646 | 0.12 | N/A | 0.12 |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | N/A | 2.02 | 2.02 | N/A | N/A | 2.02 |
| 1,4-Dioxane | 123-91-1 | N/A | N/A | 2.05 | N/A | N/A | 2.05 |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | N/A | N/A | 19.9 | N/A | N/A | 19.9 |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | N/A | 0.2 | 0.199 | N/A | N/A | 0.2 |
| 2,4,5-Trichlorophenol | 95-95-4 | N/A | 14.1 | 14.1 | N/A | N/A | 14.1 |
| 2,4,6-Trichlorophenol | 88-06-2 | N/A | 9.94 | 9.94 | N/A | N/A | 9.94 |
| 2,4-Dichlorophenol | 120-83-2 | N/A | 87.5 | 87.5 | N/A | N/A | 87.5 |
| 2,4-Dimethylphenol | 105-67-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2,4-Dinitrochlorobenzene | 97-00-7 | N/A | N/A | N/A | N/A | 1.4 | 1.4 |
| 2,4-Dinitrophenol | 51-28-5 | N/A | 0.061 | 0.0609 | N/A | N/A | 0.061 |
| 2,4-Dinitrotoluene | 121-14-2 | N/A | 14 | 1.28 | 14 | N/A | 14 |
| 2,6-Dinitrotoluene | 606-20-2 | N/A | 4 | 0.0328 | 4 | N/A | 4 |
| 2-Chloronaphthalene | 91-58-7 | N/A | N/A | 0.0122 | N/A | N/A | 0.0122 |
| 2-Chlorophenol | 95-57-8 | N/A | 0.54 | 0.243 | 0.54 | N/A | 0.54 |

Table A-4
Ecological Screening Levels (ESLs) Comparison and Selection for Mammal Risk Screening
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Analyte | CASRN | Potential Mammal Screening Values (mg/kg) [1] | | | | | Final Selected Screening Value (mg/kg) [2] |
|---|---|---|---|---|---|---|---|
| | | EPA EcoSSLs | EPA Region 4 | EPA Region 5 | LANL | Derived | |
| 2-Methylphenol (o-Cresol) | 95-48-7 | N/A | 580 | 40.4 | 580 | N/A | 580 |
| 2-Nitroaniline | 88-74-4 | N/A | 5.3 | 74.1 | 5.3 | N/A | 5.3 |
| 2-Nitrophenol | 88-75-5 | N/A | N/A | 1.6 | N/A | N/A | 1.6 |
| 3,3'-Dichlorobenzidine | 91-94-1 | N/A | 0.646 | 0.646 | N/A | N/A | 0.646 |
| 3-Nitroaniline | 99-09-2 | N/A | N/A | 3.16 | N/A | N/A | 3.16 |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | N/A | N/A | 0.144 | N/A | N/A | 0.144 |
| 4-Bromophenyl phenyl ether | 101-55-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Chloro-3-methylphenol | 59-50-7 | N/A | N/A | 7.95 | N/A | N/A | 7.95 |
| 4-Chloroaniline | 106-47-8 | N/A | 1.1 | 1.1 | N/A | N/A | 1.1 |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | N/A | N/A | N/A | N/A | N/A | N/A |
| 4-Nitroaniline | 100-01-6 | N/A | N/A | 21.9 | N/A | N/A | 21.9 |
| 4-Nitrophenol | 100-02-7 | N/A | 5.12 | N/A | N/A | N/A | 5.12 |
| Acetophenone | 98-86-2 | N/A | N/A | 300 | N/A | N/A | 300 |
| Atrazine | 1912-24-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzaldehyde | 100-52-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Benzyl butyl phthalate | 85-68-7 | N/A | 90 | 0.239 | 90 | N/A | 90 |
| Biphenyl (Diphenyl) | 92-52-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Bis(2-chloroethoxy)methane | 111-91-1 | N/A | N/A | 0.302 | N/A | N/A | 0.302 |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | N/A | N/A | 23.7 | N/A | N/A | 23.7 |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | N/A | 0.6 | 0.925 | 0.6 | N/A | 0.6 |
| Caprolactam | 105-60-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Carbazole | 86-74-8 | N/A | 79 | N/A | 79 | N/A | 79 |
| Cresols, m- & p- | cresols-m,p | N/A | 3.49 | 3.49 | N/A | N/A | 3.49 |
| Dibenzofuran | 132-64-9 | N/A | N/A | N/A | N/A | N/A | N/A |
| Diethyl phthalate | 84-66-2 | N/A | 3600 | 24.8 | 3600 | N/A | 3600 |
| Dimethyl phthalate | 131-11-3 | N/A | 38 | 734 | 38 | N/A | 38 |
| Di-n-butyl phthalate | 84-74-2 | N/A | 180 | 0.15 | 180 | N/A | 180 |
| di-n-Octyl phthalate | 117-84-0 | N/A | 0.91 | 709 | 0.91 | N/A | 0.91 |
| Hexachlorobenzene | 118-74-1 | N/A | 0.2 | 0.199 | 0.2 | N/A | 0.2 |
| Hexachlorobutadiene | 87-68-3 | N/A | 0.04 | 0.0398 | N/A | N/A | 0.04 |
| Hexachlorocyclopentadiene | 77-47-4 | N/A | 0.755 | 0.755 | N/A | N/A | 0.755 |
| Hexachloroethane | 67-72-1 | N/A | 0.6 | 0.596 | N/A | N/A | 0.6 |
| Isophorone | 78-59-1 | N/A | N/A | 139 | N/A | N/A | 139 |
| Nitrobenzene | 98-95-3 | N/A | 4.8 | 1.31 | 4.8 | N/A | 4.8 |
| N-Nitrosodi-n-propylamine | 621-64-7 | N/A | N/A | 0.544 | N/A | N/A | 0.544 |
| N-Nitrosodiphenylamine | 86-30-6 | N/A | 0.545 | 0.545 | N/A | N/A | 0.545 |
| Pentachlorophenol | 87-86-5 | 2.8 | 2.8 | 0.119 | 0.81 | N/A | 2.8 |
| Phenol | 108-95-2 | N/A | 37 | 120 | 37 | N/A | 37 |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 100[a] | N/A | N/A | N/A | N/A | 100 |
| 2-Methylnaphthalene | 91-57-6 | 100[a] | 16 | 3.24 | 16 | N/A | 100 |
| Acenaphthene | 83-32-9 | 100[a] | 130 | 682 | 130 | N/A | 100 |
| Acenaphthylene | 208-96-8 | 100[a] | 120 | 682 | 120 | N/A | 100 |
| Anthracene | 120-12-7 | 100[a] | 210 | 1480 | 210 | N/A | 100 |
| Benzo(a)anthracene | 56-55-3 | 1.1[b] | 3.4 | 5.21 | 3.4 | N/A | 1.1 |
| Benzo(a)pyrene | 50-32-8 | 1.1[b] | 62 | 1.52 | 62 | N/A | 1.1 |
| Benzo(b)fluoranthene | 205-99-2 | 1.1[b] | 44 | 59.8 | 44 | N/A | 1.1 |
| Benzo(g,h,i)perylene | 191-24-2 | 1.1[b] | 25 | 119 | 25 | N/A | 1.1 |
| Benzo(k)fluoranthene | 207-08-9 | 1.1[b] | 71 | 148 | 71 | N/A | 1.1 |
| Chrysene | 218-01-9 | 1.1[b] | 3.1 | 4.73 | 3.1 | N/A | 1.1 |
| Dibenz(a,h)anthracene | 53-70-3 | 1.1[b] | 14 | 18.4 | 14 | N/A | 1.1 |
| Fluoranthene | 206-44-0 | 100[a] | 22 | 122 | 22 | N/A | 100 |
| Fluorene | 86-73-7 | 100[a] | 250 | 122 | 250 | N/A | 100 |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 1.1[b] | 71 | 109 | 71 | N/A | 1.1 |
| Naphthalene | 91-20-3 | 100[a] | 9.6 | 0.0994 | 9.6 | N/A | 100 |
| Phenanthrene | 85-01-8 | 100[a] | 11 | 45.7 | 11 | N/A | 100 |
| Pyrene | 129-00-0 | 1.1[b] | 23 | 78.5 | 23 | N/A | 1.1 |
| High Molecular Weight PAHs | HMW-PAHs | 1.1 | 1.1 | N/A | N/A | N/A | 1.1 |
| Low Molecular Weight PAHs | LMW-PAHs | 100 | 100 | N/A | N/A | N/A | 100 |
| Explosives | | | | | | | |
| Picric acid | 88-89-1 | N/A | N/A | N/A | N/A | 0.0061 | 0.0061 |
| Polychlorinated Biphenyls (PCBs) | | | | | | | |
| PCB-1016 (Aroclor 1016) | 12674-11-2 | N/A | 0.371[c] | 0.000332[c] | 1.1 | N/A | 0.371 |
| PCB-1221 (Aroclor 1221) | 11104-28-2 | N/A | 0.371[c] | 0.000332[c] | N/A | N/A | 0.371 |

Table A-4
Ecological Screening Levels (ESLs) Comparison and Selection for Mammal Risk Screening
Data Usability Assessment
Former New York Ordnance Works, Onondaga, NY

| Analyte | CASRN | Potential Mammal Screening Values (mg/kg) [1] | | | | | Final Selected Screening Value (mg/kg) [2] |
|---|---|---|---|---|---|---|---|
| | | EPA EcoSSLs | EPA Region 4 | EPA Region 5 | LANL | Derived | |
| PCB-1232 (Aroclor 1232) | 11141-16-5 | N/A | 0.371[c] | 0.000332[c] | N/A | N/A | 0.371 |
| PCB-1242 (Aroclor 1242) | 53469-21-9 | N/A | 0.371[c] | 0.000332[c] | 0.39 | N/A | 0.371 |
| PCB-1248 (Aroclor 1248) | 12672-29-6 | N/A | 0.371[c] | 0.000332[c] | 0.0073 | N/A | 0.371 |
| PCB-1254 (Aroclor 1254) | 11097-69-1 | N/A | 0.371[c] | 0.000332[c] | 0.45 | N/A | 0.371 |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | N/A | 0.371[c] | 0.000332[c] | 10 | N/A | 0.371 |
| PCB-1262 (Aroclor 1262) | 37324-23-5 | N/A | 0.371[c] | 0.000332[c] | N/A | N/A | 0.371 |
| PCB-1268 (Aroclor 1268) | 11100-14-4 | N/A | 0.371[c] | 0.000332[c] | N/A | N/A | 0.371 |
| Total PCBs | 1336-36-3 | N/A | 0.371 | 0.000332 | N/A | N/A | 0.371 |
| Metals | | | | | | | |
| Aluminum | 7429-90-5 | See Footnote (3) | | | | | |
| Antimony | 7440-36-0 | 0.27 | 0.27 | 0.142 | 2.3 | N/A | 0.27 |
| Arsenic | 7440-38-2 | 46 | 46 | 5.7 | 19 | N/A | 46 |
| Barium | 7440-39-3 | 2000 | 2000 | 1.04 | 1800 | N/A | 2000 |
| Beryllium | 7440-41-7 | 21 | 21 | 1.06 | 35 | N/A | 21 |
| Cadmium | 7440-43-9 | 0.36 | 0.36 | 0.00222 | 0.27 | N/A | 0.36 |
| Calcium | 7440-70-2 | N/A | N/A | N/A | N/A | N/A | N/A |
| Chromium | 7440-47-3 | 34[d] | 63 | N/A | 63 | N/A | 34 |
| Cobalt | 7440-48-4 | 230 | 230 | 0.14 | 240 | N/A | 230 |
| Copper | 7440-50-8 | 49 | 49 | 5.4 | 42 | N/A | 49 |
| Iron | 7439-89-6 | See Footnote (4) | | | | | |
| Lead | 7439-92-1 | 56 | 56 | 0.0537 | 93 | N/A | 56 |
| Magnesium | 7439-95-4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Manganese | 7439-96-5 | 4000 | 4000 | N/A | 1400 | N/A | 4000 |
| Mercury | 7439-97-6 | N/A | 1.7 | N/A | 1.7 | N/A | 1.7 |
| Nickel | 7440-02-0 | 130 | 130 | 13.6 | 10 | N/A | 130 |
| Potassium | 7440-09-7 | N/A | N/A | N/A | N/A | N/A | N/A |
| Selenium | 7782-49-2 | 0.63 | 0.63 | 0.0276 | 0.7 | N/A | 0.63 |
| Silver | 7440-22-4 | 14 | 14 | 4.04 | 14 | N/A | 14 |
| Sodium | 7440-23-5 | N/A | N/A | N/A | N/A | N/A | N/A |
| Thallium | 7440-28-0 | N/A | 0.42 | 0.0569 | 0.42 | N/A | 0.42 |
| Vanadium | 7440-62-2 | 280 | 280 | 1.59 | 290 | N/A | 280 |
| Zinc | 7440-66-6 | 79 | 79 | N/A | 99 | N/A | 79 |

Notes:

CASRN = Chemical Abstracts Service Registry Number
EcoSSL = Ecological Soil Screening Levels
EPA = Environmental Protection Agency
LANL = Los Alamos National Laboratory
mg/kg = milligram per kilogram
N/A = None Available or Not Applicable
RCRA = Resource Conservation and Recovery Act
UFP-QAPP = Uniform Federal Policy for Quality Assurance Project Plans
USACE = United States Army Corps of Engineers

| Analyte | Surrogate |
|---|---|
| Chromium | Trivalent Chromium[d] [total otherwise] |
| Cresols, m- & p- | Cresols, m- |
| m,p-Xylene | Total Xylenes |
| o-Xylene | Total Xylenes |
| Low Molecular Weight (LMW) PAHs | Total LMW PAHs[a] [individual otherwise] |
| High Molecular Weight (HMW) PAHs | Total HMW PAHs[b] [individual otherwise] |
| Individual Aroclors | Total PCBs[c] [individual otherwise] |

1) Sources:
EPA Ecological Soil Screening Levels (EcoSSLs; various dates) (https://www.epa.gov/chemical-research/interim-ecological-soil-screening-level-documents)
EPA Region 4 (2018) Ecological Risk Assessment Supplemental Guidance. March. Table 3 - Soil Screening Values for Hazardous Waste Sites.
(https://www.epa.gov/risk/regional-ecological-risk-assessment-era-supplemental-guidance)
EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf)
LANL (2017) ECORISK Database Ecological Screening Levels (https://rais.ornl.gov/documents/ECO_BENCH_LANL.pdf)
Derived. USACE (2020) UFP QAPP - Former New York Ordnance Works - Appendix A.1. December 2020. Final.

2) Final screening values were selected using the following hierarchy: (1) EPA EcoSSLs, (2) EPA Region 4, (3) EPA Region 5, (4) LANL, and (5) Derived.

3) An aluminum concentration-based risk screening value is not available. As noted in the UFP-QAPP (USACE, 2020), aluminum toxicity is based on soil pH (EPA EcoSSL, 2003a).

4) An iron concentration-based risk screening value is not available. As noted in the UFP-QAPP (USACE, 2020), the main concern from an ecological risk perspective for iron is not direct chemical toxicity, but the effect of iron as a mediator in the geochemistry of other (potentially toxic) metals and the potential physical hazard of depositing flocculent. A determination of the geochemical conditions (i.e., pH and Eh at a minimum) of the environmental setting, as well as the presence of iron floc and the toxic metals, is critical to the determination of the relative importance of iron at a site (EPA EcoSSL, 2003b).

Selected Screening Value for Mammals
Surrogate Toxicity Values Used for Analyte

# APPENDIX C

# Data Reduction Support Tables

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# APPENDIX C.1
# LOQ Censoring

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**Table C.1-1**
**Analytes Never Detected at or Above the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Depth Interval (ft bgs) | Analyte |
|---|---|---|---|---|
| AOC 1 | NA | SO | 1 to 5 | Antimony |
| AOC 1 | NA | SO | 1 to 5 | Beryllium |
| AOC 1 | NA | SO | 1 to 5 | Selenium |
| AOC 1 | NA | SO | 1 to 5 | Silver |
| AOC 1 | NA | SO | 1 to 5 | Sodium |
| AOC 1 | NA | SO | 5 to 10 | Antimony |
| AOC 1 | NA | SO | 5 to 10 | Beryllium |
| AOC 1 | NA | SO | 5 to 10 | Cadmium |
| AOC 1 | NA | SO | 5 to 10 | Mercury |
| AOC 1 | NA | SO | 5 to 10 | Selenium |
| AOC 1 | NA | SO | 5 to 10 | Silver |
| AOC 1 | NA | SO | 5 to 10 | Sodium |
| AOC 1 | NA | SO | 0 to 1 | Beryllium |
| AOC 1 | NA | SO | 0 to 1 | Picric acid |
| AOC 1 | NA | SO | 0 to 1 | Selenium |
| AOC 1 | NA | SO | 0 to 1 | Silver |
| AOC 1 | NA | SO | 0 to 1 | Sodium |
| AOC 1 | NA | WG | NA | Antimony |
| AOC 1 | NA | WG | NA | Arsenic |
| AOC 1 | NA | WG | NA | Cadmium |
| AOC 1 | NA | WG | NA | Chromium |
| AOC 1 | NA | WG | NA | Copper |
| AOC 1 | NA | WG | NA | Lead |
| AOC 1 | NA | WG | NA | Nickel |
| AOC 1 | NA | WG | NA | Vanadium |
| AOC 1 | NA | WG | NA | Zinc |
| AOC 3 | NA | SO | 1 to 5 | Acenaphthene |
| AOC 3 | NA | SO | 1 to 5 | Antimony |
| AOC 3 | NA | SO | 1 to 5 | Benzaldehyde |
| AOC 3 | NA | SO | 1 to 5 | Naphthalene |
| AOC 3 | NA | SO | 1 to 5 | PCB-1260 (Aroclor 1260) |
| AOC 3 | NA | SO | 1 to 5 | Selenium |
| AOC 3 | NA | SO | 1 to 5 | Silver |
| AOC 3 | NA | SO | 1 to 5 | Sodium |
| AOC 3 | NA | SO | 1 to 5 | Toluene |
| AOC 3 | NA | SO | 0 to 1 | Benzaldehyde |
| AOC 3 | NA | SO | 0 to 1 | Beryllium |
| AOC 3 | NA | SO | 0 to 1 | Cresols, m- & p- |
| AOC 3 | NA | SO | 0 to 1 | Dibenzofuran |
| AOC 3 | NA | SO | 0 to 1 | PCB-1260 (Aroclor 1260) |
| AOC 3 | NA | SO | 0 to 1 | Silver |
| AOC 3 | NA | SO | 0 to 1 | Sodium |
| AOC 3 | NA | WG | NA | 4-Nitroaniline |
| AOC 3 | NA | WG | NA | Aluminum |
| AOC 3 | NA | WG | NA | Arsenic |
| AOC 3 | NA | WG | NA | Benzaldehyde |
| AOC 3 | NA | WG | NA | Benzene |
| AOC 3 | NA | WG | NA | Caprolactam |
| AOC 3 | NA | WG | NA | Lead |
| AOC 3 | NA | WG | NA | m,p-Xylene |
| AOC 3 | NA | WG | NA | Nickel |
| AOC 3 | NA | WG | NA | Selenium |
| AOC 3 | NA | WG | NA | Vanadium |
| AOC 3 | NA | WG | NA | Zinc |
| AOC 5 | Boiler_House | SO | 1 to 5 | 1-Methylnaphthalene |
| AOC 5 | Boiler_House | SO | 1 to 5 | 2-Methylnaphthalene |
| AOC 5 | Boiler_House | SO | 1 to 5 | Anthracene |
| AOC 5 | Boiler_House | SO | 1 to 5 | Antimony |
| AOC 5 | Boiler_House | SO | 1 to 5 | Benzo(a)anthracene |

**Table C.1-1**
**Analytes Never Detected at or Above the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Depth Interval (ft bgs) | Analyte |
|---|---|---|---|---|
| AOC 5 | Boiler_House | SO | 1 to 5 | Benzo(a)pyrene |
| AOC 5 | Boiler_House | SO | 1 to 5 | Benzo(b)fluoranthene |
| AOC 5 | Boiler_House | SO | 1 to 5 | Benzo(g,h,i)perylene |
| AOC 5 | Boiler_House | SO | 1 to 5 | Benzo(k)fluoranthene |
| AOC 5 | Boiler_House | SO | 1 to 5 | Fluorene |
| AOC 5 | Boiler_House | SO | 1 to 5 | Indeno(1,2,3-c,d)pyrene |
| AOC 5 | Boiler_House | SO | 1 to 5 | Naphthalene |
| AOC 5 | Boiler_House | SO | 1 to 5 | Phenanthrene |
| AOC 5 | Boiler_House | SO | 1 to 5 | Selenium |
| AOC 5 | Boiler_House | SO | 1 to 5 | Sodium |
| AOC 5 | Boiler_House | SO | 1 to 5 | Total Organic Carbon |
| AOC 5 | Boiler_House | SO | 5 to 10 | Acenaphthene |
| AOC 5 | Boiler_House | SO | 5 to 10 | Acenaphthylene |
| AOC 5 | Boiler_House | SO | 5 to 10 | Anthracene |
| AOC 5 | Boiler_House | SO | 5 to 10 | Dibenz(a,h)anthracene |
| AOC 5 | Boiler_House | SO | 5 to 10 | Fluorene |
| AOC 5 | Boiler_House | SO | 5 to 10 | Selenium |
| AOC 5 | Boiler_House | SO | 5 to 10 | Sodium |
| AOC 5 | Boiler_House | SO | 5 to 10 | Total Organic Carbon |
| AOC 5 | Boiler_House | SO | 0 to 1 | 1-Methylnaphthalene |
| AOC 5 | Boiler_House | SO | 0 to 1 | 2-Methylnaphthalene |
| AOC 5 | Boiler_House | SO | 0 to 1 | Acenaphthylene |
| AOC 5 | Boiler_House | SO | 0 to 1 | Anthracene |
| AOC 5 | Boiler_House | SO | 0 to 1 | Antimony |
| AOC 5 | Boiler_House | SO | 0 to 1 | Beryllium |
| AOC 5 | Boiler_House | SO | 0 to 1 | Dibenz(a,h)anthracene |
| AOC 5 | Boiler_House | SO | 0 to 1 | Fluorene |
| AOC 5 | Boiler_House | SO | 0 to 1 | Naphthalene |
| AOC 5 | Boiler_House | SO | 0 to 1 | Selenium |
| AOC 5 | Boiler_House | SO | 0 to 1 | Sodium |
| AOC 5 | Boiler_House | WG | NA | Acenaphthene |
| AOC 5 | Boiler_House | WG | NA | Aluminum |
| AOC 5 | Boiler_House | WG | NA | Anthracene |
| AOC 5 | Boiler_House | WG | NA | Antimony |
| AOC 5 | Boiler_House | WG | NA | Caprolactam |
| AOC 5 | Boiler_House | WG | NA | Cobalt |
| AOC 5 | Boiler_House | WG | NA | Dibenz(a,h)anthracene |
| AOC 5 | Boiler_House | WG | NA | Vanadium |
| AOC 5 | Coal_Aggregate_Bins | SO | 1 to 5 | Acenaphthylene |
| AOC 5 | Coal_Aggregate_Bins | SO | 1 to 5 | Anthracene |
| AOC 5 | Coal_Aggregate_Bins | SO | 1 to 5 | Benzo(k)fluoranthene |
| AOC 5 | Coal_Aggregate_Bins | SO | 1 to 5 | Beryllium |
| AOC 5 | Coal_Aggregate_Bins | SO | 1 to 5 | Dibenz(a,h)anthracene |
| AOC 5 | Coal_Aggregate_Bins | SO | 1 to 5 | Dibenzofuran |
| AOC 5 | Coal_Aggregate_Bins | SO | 1 to 5 | Fluorene |
| AOC 5 | Coal_Aggregate_Bins | SO | 1 to 5 | Selenium |
| AOC 5 | Coal_Aggregate_Bins | SO | 5 to 10 | 1-Methylnaphthalene |
| AOC 5 | Coal_Aggregate_Bins | SO | 5 to 10 | 2-Methylnaphthalene |
| AOC 5 | Coal_Aggregate_Bins | SO | 5 to 10 | Antimony |
| AOC 5 | Coal_Aggregate_Bins | SO | 5 to 10 | Benzo(a)anthracene |
| AOC 5 | Coal_Aggregate_Bins | SO | 5 to 10 | Benzo(a)pyrene |
| AOC 5 | Coal_Aggregate_Bins | SO | 5 to 10 | Benzo(b)fluoranthene |
| AOC 5 | Coal_Aggregate_Bins | SO | 5 to 10 | Benzo(g,h,i)perylene |
| AOC 5 | Coal_Aggregate_Bins | SO | 5 to 10 | Benzo(k)fluoranthene |
| AOC 5 | Coal_Aggregate_Bins | SO | 5 to 10 | Beryllium |
| AOC 5 | Coal_Aggregate_Bins | SO | 5 to 10 | Chrysene |
| AOC 5 | Coal_Aggregate_Bins | SO | 5 to 10 | Fluoranthene |
| AOC 5 | Coal_Aggregate_Bins | SO | 5 to 10 | Indeno(1,2,3-c,d)pyrene |
| AOC 5 | Coal_Aggregate_Bins | SO | 5 to 10 | Mercury |

**Table C.1-1**
**Analytes Never Detected at or Above the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Depth Interval (ft bgs) | Analyte |
|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | SO | 5 to 10 | Naphthalene |
| AOC 5 | Coal_Aggregate_Bins | SO | 5 to 10 | Pyrene |
| AOC 5 | Coal_Aggregate_Bins | SO | 5 to 10 | Selenium |
| AOC 5 | Coal_Aggregate_Bins | SO | 5 to 10 | Total Organic Carbon |
| AOC 5 | Coal_Aggregate_Bins | WG | NA | Arsenic |
| AOC 5 | Coal_Aggregate_Bins | WG | NA | Chrysene |
| AOC 5 | Coal_Aggregate_Bins | WG | NA | Copper |
| AOC 5 | Coal_Aggregate_Bins | WG | NA | Lead |
| AOC 5 | Coal_Aggregate_Bins | WG | NA | Nickel |
| AOC 5 | Coal_Aggregate_Bins | WG | NA | Phenol |
| AOC 5 | Coal_Aggregate_Bins | WG | NA | Vanadium |
| AOC 5 | Coal_Aggregate_Bins | WG | NA | Zinc |
| AOC 5 | Coal_Storage | SO | 1 to 5 | 1-Methylnaphthalene |
| AOC 5 | Coal_Storage | SO | 1 to 5 | 2-Methylnaphthalene |
| AOC 5 | Coal_Storage | SO | 1 to 5 | Antimony |
| AOC 5 | Coal_Storage | SO | 1 to 5 | Benzo(b)fluoranthene |
| AOC 5 | Coal_Storage | SO | 1 to 5 | Beryllium |
| AOC 5 | Coal_Storage | SO | 1 to 5 | Naphthalene |
| AOC 5 | Coal_Storage | SO | 1 to 5 | Selenium |
| AOC 5 | Coal_Storage | SO | 1 to 5 | Sodium |
| AOC 5 | Coal_Storage | SO | 1 to 5 | Thallium |
| AOC 5 | Coal_Storage | SO | 5 to 10 | 1-Methylnaphthalene |
| AOC 5 | Coal_Storage | SO | 5 to 10 | 2-Methylnaphthalene |
| AOC 5 | Coal_Storage | SO | 5 to 10 | Anthracene |
| AOC 5 | Coal_Storage | SO | 5 to 10 | Antimony |
| AOC 5 | Coal_Storage | SO | 5 to 10 | Beryllium |
| AOC 5 | Coal_Storage | SO | 5 to 10 | Cadmium |
| AOC 5 | Coal_Storage | SO | 5 to 10 | Dibenz(a,h)anthracene |
| AOC 5 | Coal_Storage | SO | 5 to 10 | Naphthalene |
| AOC 5 | Coal_Storage | SO | 5 to 10 | Phenanthrene |
| AOC 5 | Coal_Storage | SO | 5 to 10 | Sodium |
| AOC 5 | Coal_Storage | SO | 5 to 10 | Thallium |
| AOC 5 | Coal_Storage | SO | 0 to 1 | Acenaphthene |
| AOC 5 | Coal_Storage | SO | 0 to 1 | Acenaphthylene |
| AOC 5 | Coal_Storage | SO | 0 to 1 | Anthracene |
| AOC 5 | Coal_Storage | SO | 0 to 1 | Benzo(k)fluoranthene |
| AOC 5 | Coal_Storage | SO | 0 to 1 | Beryllium |
| AOC 5 | Coal_Storage | SO | 0 to 1 | Sodium |
| AOC 5 | Coal_Storage | WG | NA | Antimony |
| AOC 5 | Coal_Storage | WG | NA | Nickel |
| AOC 5 | Electric_Substation | SO | 1 to 5 | 1-Methylnaphthalene |
| AOC 5 | Electric_Substation | SO | 1 to 5 | 2-Methylnaphthalene |
| AOC 5 | Electric_Substation | SO | 1 to 5 | Acenaphthylene |
| AOC 5 | Electric_Substation | SO | 1 to 5 | Anthracene |
| AOC 5 | Electric_Substation | SO | 1 to 5 | Antimony |
| AOC 5 | Electric_Substation | SO | 1 to 5 | Benzo(a)anthracene |
| AOC 5 | Electric_Substation | SO | 1 to 5 | Benzo(a)pyrene |
| AOC 5 | Electric_Substation | SO | 1 to 5 | Benzo(g,h,i)perylene |
| AOC 5 | Electric_Substation | SO | 1 to 5 | Benzo(k)fluoranthene |
| AOC 5 | Electric_Substation | SO | 1 to 5 | Indeno(1,2,3-c,d)pyrene |
| AOC 5 | Electric_Substation | SO | 1 to 5 | Naphthalene |
| AOC 5 | Electric_Substation | SO | 1 to 5 | Selenium |
| AOC 5 | Electric_Substation | SO | 1 to 5 | Total Organic Carbon |
| AOC 5 | Electric_Substation | SO | 5 to 10 | 1-Methylnaphthalene |
| AOC 5 | Electric_Substation | SO | 5 to 10 | 2-Methylnaphthalene |
| AOC 5 | Electric_Substation | SO | 5 to 10 | Antimony |
| AOC 5 | Electric_Substation | SO | 5 to 10 | Dibenz(a,h)anthracene |
| AOC 5 | Electric_Substation | SO | 5 to 10 | Naphthalene |
| AOC 5 | Electric_Substation | SO | 5 to 10 | Phenanthrene |

**Table C.1-1**
**Analytes Never Detected at or Above the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Depth Interval (ft bgs) | Analyte |
|---|---|---|---|---|
| AOC 5 | Electric_Substation | SO | 5 to 10 | Selenium |
| AOC 5 | Electric_Substation | SO | 5 to 10 | Total Organic Carbon |
| AOC 5 | Electric_Substation | SO | 0 to 1 | 1-Methylnaphthalene |
| AOC 5 | Electric_Substation | SO | 0 to 1 | Acenaphthene |
| AOC 5 | Electric_Substation | SO | 0 to 1 | Acenaphthylene |
| AOC 5 | Electric_Substation | SO | 0 to 1 | Anthracene |
| AOC 5 | Electric_Substation | SO | 0 to 1 | Beryllium |
| AOC 5 | Electric_Substation | SO | 0 to 1 | Fluorene |
| AOC 5 | Electric_Substation | SO | 0 to 1 | Selenium |
| AOC 5 | Electric_Substation | WG | NA | Arsenic |
| AOC 5 | Electric_Substation | WG | NA | Cobalt |
| AOC 5 | Possible_Dump | SO | 1 to 5 | 1-Methylnaphthalene |
| AOC 5 | Possible_Dump | SO | 1 to 5 | 2-Butanone (MEK) |
| AOC 5 | Possible_Dump | SO | 1 to 5 | 2-Methylnaphthalene |
| AOC 5 | Possible_Dump | SO | 1 to 5 | Antimony |
| AOC 5 | Possible_Dump | SO | 1 to 5 | Benzene |
| AOC 5 | Possible_Dump | SO | 1 to 5 | Benzo(a)anthracene |
| AOC 5 | Possible_Dump | SO | 1 to 5 | Chrysene |
| AOC 5 | Possible_Dump | SO | 1 to 5 | Fluoranthene |
| AOC 5 | Possible_Dump | SO | 1 to 5 | Naphthalene |
| AOC 5 | Possible_Dump | SO | 1 to 5 | Phenanthrene |
| AOC 5 | Possible_Dump | SO | 1 to 5 | Pyrene |
| AOC 5 | Possible_Dump | SO | 1 to 5 | Selenium |
| AOC 5 | Possible_Dump | SO | 1 to 5 | Sodium |
| AOC 5 | Possible_Dump | SO | 1 to 5 | Toluene |
| AOC 5 | Possible_Dump | SO | 1 to 5 | Total Organic Carbon |
| AOC 5 | Possible_Dump | SO | 5 to 10 | 1-Methylnaphthalene |
| AOC 5 | Possible_Dump | SO | 5 to 10 | 2-Methylnaphthalene |
| AOC 5 | Possible_Dump | SO | 5 to 10 | Benzo(a)anthracene |
| AOC 5 | Possible_Dump | SO | 5 to 10 | Benzo(a)pyrene |
| AOC 5 | Possible_Dump | SO | 5 to 10 | Benzo(b)fluoranthene |
| AOC 5 | Possible_Dump | SO | 5 to 10 | Benzo(g,h,i)perylene |
| AOC 5 | Possible_Dump | SO | 5 to 10 | Cadmium |
| AOC 5 | Possible_Dump | SO | 5 to 10 | Chrysene |
| AOC 5 | Possible_Dump | SO | 5 to 10 | Fluoranthene |
| AOC 5 | Possible_Dump | SO | 5 to 10 | Mercury |
| AOC 5 | Possible_Dump | SO | 5 to 10 | Naphthalene |
| AOC 5 | Possible_Dump | SO | 5 to 10 | Phenanthrene |
| AOC 5 | Possible_Dump | SO | 5 to 10 | Selenium |
| AOC 5 | Possible_Dump | SO | 5 to 10 | Sodium |
| AOC 5 | Possible_Dump | SO | 5 to 10 | Total Organic Carbon |
| AOC 5 | Possible_Dump | SO | 0 to 1 | Acenaphthene |
| AOC 5 | Possible_Dump | SO | 0 to 1 | Acenaphthylene |
| AOC 5 | Possible_Dump | SO | 0 to 1 | Benzaldehyde |
| AOC 5 | Possible_Dump | SO | 0 to 1 | Benzo(k)fluoranthene |
| AOC 5 | Possible_Dump | SO | 0 to 1 | Beryllium |
| AOC 5 | Possible_Dump | SO | 0 to 1 | Dibenzofuran |
| AOC 5 | Possible_Dump | SO | 0 to 1 | Fluorene |
| AOC 5 | Possible_Dump | SO | 0 to 1 | Silver |
| AOC 5 | Possible_Dump | SO | 0 to 1 | Sodium |
| AOC 5 | Possible_Dump | WG | NA | 1,2,3-Trichlorobenzene |
| AOC 5 | Possible_Dump | WG | NA | 2-Methylnaphthalene |
| AOC 5 | Possible_Dump | WG | NA | Aluminum |
| AOC 5 | Possible_Dump | WG | NA | Benzo(b)fluoranthene |
| AOC 5 | Possible_Dump | WG | NA | Benzo(k)fluoranthene |
| AOC 5 | Possible_Dump | WG | NA | Chrysene |
| AOC 5 | Possible_Dump | WG | NA | Fluoranthene |
| AOC 5 | Possible_Dump | WG | NA | Nickel |
| AOC 5 | Possible_Dump | WG | NA | Phenanthrene |

**Table C.1-1**
**Analytes Never Detected at or Above the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Depth Interval (ft bgs) | Analyte |
|---|---|---|---|---|
| AOC 5 | Possible_Dump | WG | NA | Pyrene |
| Background | NA | SO | 1 to 5 | 1-Methylnaphthalene |
| Background | NA | SO | 1 to 5 | 2-Methylnaphthalene |
| Background | NA | SO | 1 to 5 | Acenaphthene |
| Background | NA | SO | 1 to 5 | Beryllium |
| Background | NA | SO | 1 to 5 | Fluorene |
| Background | NA | SO | 1 to 5 | Naphthalene |
| Background | NA | SO | 1 to 5 | Silver |
| Background | NA | SO | 1 to 5 | Sodium |
| Background | NA | SO | 5 to 10 | 1-Methylnaphthalene |
| Background | NA | SO | 5 to 10 | 2-Methylnaphthalene |
| Background | NA | SO | 5 to 10 | Acenaphthene |
| Background | NA | SO | 5 to 10 | Acenaphthylene |
| Background | NA | SO | 5 to 10 | Anthracene |
| Background | NA | SO | 5 to 10 | Benzo(a)anthracene |
| Background | NA | SO | 5 to 10 | Benzo(a)pyrene |
| Background | NA | SO | 5 to 10 | Benzo(g,h,i)perylene |
| Background | NA | SO | 5 to 10 | Benzo(k)fluoranthene |
| Background | NA | SO | 5 to 10 | Dibenz(a,h)anthracene |
| Background | NA | SO | 5 to 10 | Fluoranthene |
| Background | NA | SO | 5 to 10 | Fluorene |
| Background | NA | SO | 5 to 10 | Indeno(1,2,3-c,d)pyrene |
| Background | NA | SO | 5 to 10 | Mercury |
| Background | NA | SO | 5 to 10 | Phenanthrene |
| Background | NA | SO | 5 to 10 | Pyrene |
| Background | NA | SO | 5 to 10 | Selenium |
| Background | NA | SO | 5 to 10 | Silver |
| Background | NA | SO | 5 to 10 | Sodium |
| Background | NA | SO | 0 to 1 | Acenaphthene |
| Background | NA | SO | 0 to 1 | Beryllium |
| Background | NA | SO | 0 to 1 | Silver |
| Background | NA | SO | 0 to 1 | Sodium |
| Background | NA | WG | NA | Acenaphthene |
| Background | NA | WG | NA | Acenaphthylene |
| Background | NA | WG | NA | Arsenic |
| Background | NA | WG | NA | Benzo(a)anthracene |
| Background | NA | WG | NA | Benzo(a)pyrene |
| Background | NA | WG | NA | Benzo(b)fluoranthene |
| Background | NA | WG | NA | Benzo(g,h,i)perylene |
| Background | NA | WG | NA | Benzo(k)fluoranthene |
| Background | NA | WG | NA | Chromium |
| Background | NA | WG | NA | Chrysene |
| Background | NA | WG | NA | Copper |
| Background | NA | WG | NA | Dibenz(a,h)anthracene |
| Background | NA | WG | NA | Indeno(1,2,3-c,d)pyrene |
| Background | NA | WG | NA | Lead |
| Background | NA | WG | NA | Nickel |
| Background | NA | WG | NA | Phenanthrene |
| Background | NA | WG | NA | Vanadium |

**Notes:**
AOC = area of concern
ft bgs = foot or feet below ground surface
LOQ = limit of quantitation
NA = not applicable
SO = soil
WG = groundwater

1) EPA Tapwater Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)

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**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 1 | NA | SO | NYOW-01-PH002-B | 1.00-5.00 | Antimony | mg/kg | 0.16 J | TR | 0.17 J+ |
| AOC 1 | NA | SO | NYOW-01-PH002-B | 1.00-5.00 | Beryllium | mg/kg | 0.19 J | D/TR | 0.4 J+ |
| AOC 1 | NA | SO | NYOW-01-PH002-B | 1.00-5.00 | Selenium | mg/kg | 0.15 J | TR | 0.47 J+ |
| AOC 1 | NA | SO | NYOW-01-PH002-B | 1.00-5.00 | Silver | mg/kg | 0.14 J | TR | 1.2 J+ |
| AOC 1 | NA | SO | NYOW-01-PH002-B | 1.00-5.00 | Sodium | mg/kg | 62 J | D/TR | 400 J+ |
| AOC 1 | NA | SO | NYOW-01-PH002-C | 5.00-10.00 | Antimony | mg/kg | 0.074 J | TR | 0.15 J+ |
| AOC 1 | NA | SO | NYOW-01-PH002-C | 5.00-10.00 | Beryllium | mg/kg | 0.135 J | TR | 0.38 J+ |
| AOC 1 | NA | SO | NYOW-01-PH002-C | 5.00-10.00 | Cadmium | mg/kg | 0.03 J | TR | 0.083 J+ |
| AOC 1 | NA | SO | NYOW-01-PH002-C | 5.00-10.00 | Silver | mg/kg | 0.155 J | TR | 1.1 J+ |
| AOC 1 | NA | SO | NYOW-01-PH002-C | 5.00-10.00 | Sodium | mg/kg | 90 J | TR | 380 J+ |
| AOC 1 | NA | SO | NYOW-01-PH005-B | 1.00-5.00 | Beryllium | mg/kg | 0.15 J | TR | 0.4 J+ |
| AOC 1 | NA | SO | NYOW-01-PH005-B | 1.00-5.00 | Sodium | mg/kg | 71 J | TR | 400 J+ |
| AOC 1 | NA | SO | NYOW-01-PH005-C | 5.00-10.00 | Beryllium | mg/kg | 0.085 J | TR | 0.42 J+ |
| AOC 1 | NA | SO | NYOW-01-PH005-C | 5.00-10.00 | Cadmium | mg/kg | 0.0145 J | TR | 0.093 J+ |
| AOC 1 | NA | SO | NYOW-01-PH005-C | 5.00-10.00 | Sodium | mg/kg | 76.5 J | TR | 420 J+ |
| AOC 1 | NA | SO | NYOW-01-PH015-B | 1.00-5.00 | Antimony | mg/kg | 0.092 J | TR | 0.18 J+ |
| AOC 1 | NA | SO | NYOW-01-PH015-B | 1.00-5.00 | Beryllium | mg/kg | 0.31 J | TR | 0.36 J+ |
| AOC 1 | NA | SO | NYOW-01-PH015-B | 1.00-5.00 | Silver | mg/kg | 0.13 J | TR | 1.1 J+ |
| AOC 1 | NA | SO | NYOW-01-PH015-B | 1.00-5.00 | Sodium | mg/kg | 120 J | TR | 360 J+ |
| AOC 1 | NA | SO | NYOW-01-PH015-C | 5.00-10.00 | Antimony | mg/kg | 0.082 J | TR | 0.19 J+ |
| AOC 1 | NA | SO | NYOW-01-PH015-C | 5.00-10.00 | Beryllium | mg/kg | 0.29 J | TR | 0.4 J+ |
| AOC 1 | NA | SO | NYOW-01-PH015-C | 5.00-10.00 | Cadmium | mg/kg | 0.014 J | TR | 0.082 J+ |
| AOC 1 | NA | SO | NYOW-01-PH015-C | 5.00-10.00 | Mercury | mg/kg | 0.012 J | TR | 0.019 J+ |
| AOC 1 | NA | SO | NYOW-01-PH015-C | 5.00-10.00 | Selenium | mg/kg | 0.11 J | TR | 0.41 J+ |
| AOC 1 | NA | SO | NYOW-01-PH015-C | 5.00-10.00 | Silver | mg/kg | 0.14 J | TR | 1.2 J+ |
| AOC 1 | NA | SO | NYOW-01-PH015-C | 5.00-10.00 | Sodium | mg/kg | 130 J | TR | 400 J+ |
| AOC 1 | NA | SO | NYOW-01-PH016-B | 1.00-5.00 | Antimony | mg/kg | 0.15 J | TR | 0.16 J+ |
| AOC 1 | NA | SO | NYOW-01-PH016-B | 1.00-5.00 | Beryllium | mg/kg | 0.19 J | TR | 0.41 J+ |
| AOC 1 | NA | SO | NYOW-01-PH016-B | 1.00-5.00 | Silver | mg/kg | 0.16 J | TR | 1.2 J+ |
| AOC 1 | NA | SO | NYOW-01-PH016-B | 1.00-5.00 | Sodium | mg/kg | 54 J | TR | 410 J+ |
| AOC 1 | NA | SO | NYOW-01-PH016-C | 5.00-10.00 | Antimony | mg/kg | 0.079 J | TR | 0.19 J+ |
| AOC 1 | NA | SO | NYOW-01-PH016-C | 5.00-10.00 | Beryllium | mg/kg | 0.21 J | TR | 0.43 J+ |
| AOC 1 | NA | SO | NYOW-01-PH016-C | 5.00-10.00 | Cadmium | mg/kg | 0.017 J | TR | 0.08 J+ |
| AOC 1 | NA | SO | NYOW-01-PH016-C | 5.00-10.00 | Mercury | mg/kg | 0.0091 J | TR | 0.019 J+ |
| AOC 1 | NA | SO | NYOW-01-PH016-C | 5.00-10.00 | Silver | mg/kg | 0.19 J | TR | 1.3 J+ |
| AOC 1 | NA | SO | NYOW-01-PH016-C | 5.00-10.00 | Sodium | mg/kg | 130 J | TR | 430 J+ |
| AOC 1 | NA | SO | NYOW-01-PH018-B | 1.00-5.00 | Antimony | mg/kg | 0.091 J | TR | 0.17 J+ |
| AOC 1 | NA | SO | NYOW-01-PH018-B | 1.00-5.00 | Beryllium | mg/kg | 0.19 J | TR | 0.42 J+ |
| AOC 1 | NA | SO | NYOW-01-PH018-B | 1.00-5.00 | Sodium | mg/kg | 88 J | TR | 420 J+ |
| AOC 1 | NA | SO | NYOW-01-PH018-C | 5.00-10.00 | Beryllium | mg/kg | 0.13 J | TR | 0.49 J+ |
| AOC 1 | NA | SO | NYOW-01-PH018-C | 5.00-10.00 | Cadmium | mg/kg | 0.025 J | TR | 0.099 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 1 | NA | SO | NYOW-01-PH018-C | 5.00-10.00 | Mercury | mg/kg | 0.0073 J | TR | 0.02 J+ |
| AOC 1 | NA | SO | NYOW-01-PH018-C | 5.00-10.00 | Sodium | mg/kg | 89 J | TR | 490 J+ |
| AOC 1 | NA | SO | NYOW-01-PH019-B | 1.00-5.00 | Beryllium | mg/kg | 0.25 J- | M/TR | 0.43 J+ |
| AOC 1 | NA | SO | NYOW-01-PH019-B | 1.00-5.00 | Selenium | mg/kg | 0.13 J | TR | 0.39 J+ |
| AOC 1 | NA | SO | NYOW-01-PH019-B | 1.00-5.00 | Sodium | mg/kg | 49 J- | M/TR | 430 J+ |
| AOC 1 | NA | SO | NYOW-01-PH019-C | 5.00-10.00 | Antimony | mg/kg | 0.07 J | TR | 0.17 J+ |
| AOC 1 | NA | SO | NYOW-01-PH019-C | 5.00-10.00 | Beryllium | mg/kg | 0.185 J | TR | 0.5 J+ |
| AOC 1 | NA | SO | NYOW-01-PH019-C | 5.00-10.00 | Cadmium | mg/kg | 0.0185 J | TR | 0.076 J+ |
| AOC 1 | NA | SO | NYOW-01-PH019-C | 5.00-10.00 | Selenium | mg/kg | 0.18 J | TR | 0.38 J+ |
| AOC 1 | NA | SO | NYOW-01-PH019-C | 5.00-10.00 | Sodium | mg/kg | 100.5 J | TR | 500 J+ |
| AOC 1 | NA | SO | NYOW-01-PH020-B | 1.00-5.00 | Antimony | mg/kg | 0.12 J | TR | 0.2 J+ |
| AOC 1 | NA | SO | NYOW-01-PH020-B | 1.00-5.00 | Beryllium | mg/kg | 0.25 J | TR | 0.44 J+ |
| AOC 1 | NA | SO | NYOW-01-PH020-B | 1.00-5.00 | Selenium | mg/kg | 0.15 J | TR | 0.57 J+ |
| AOC 1 | NA | SO | NYOW-01-PH020-B | 1.00-5.00 | Sodium | mg/kg | 99 J | TR | 440 J+ |
| AOC 1 | NA | SO | NYOW-01-PH020-C | 5.00-10.00 | Antimony | mg/kg | 0.075 J | TR | 0.15 J+ |
| AOC 1 | NA | SO | NYOW-01-PH020-C | 5.00-10.00 | Beryllium | mg/kg | 0.4 J | TR | 0.46 J+ |
| AOC 1 | NA | SO | NYOW-01-PH020-C | 5.00-10.00 | Cadmium | mg/kg | 0.029 J | TR | 0.088 J+ |
| AOC 1 | NA | SO | NYOW-01-PH020-C | 5.00-10.00 | Selenium | mg/kg | 0.12 J | TR | 0.44 J+ |
| AOC 1 | NA | SO | NYOW-01-PH020-C | 5.00-10.00 | Sodium | mg/kg | 150 J | TR | 460 J+ |
| AOC 1 | NA | SO | NYOW-01-PH021-B | 1.00-5.00 | Beryllium | mg/kg | 0.15 J | TR | 0.51 J+ |
| AOC 1 | NA | SO | NYOW-01-PH021-B | 1.00-5.00 | Sodium | mg/kg | 42 J | TR | 510 J+ |
| AOC 1 | NA | SO | NYOW-01-PH021-C | 5.00-10.00 | Beryllium | mg/kg | 0.18 J | TR | 0.41 J+ |
| AOC 1 | NA | SO | NYOW-01-PH021-C | 5.00-10.00 | Cadmium | mg/kg | 0.027 J | TR | 0.097 J+ |
| AOC 1 | NA | SO | NYOW-01-PH021-C | 5.00-10.00 | Sodium | mg/kg | 79 J | TR | 410 J+ |
| AOC 1 | NA | SO | NYOW-01-PH022-B | 1.00-5.00 | Antimony | mg/kg | 0.094 J | TR | 0.19 J+ |
| AOC 1 | NA | SO | NYOW-01-PH022-B | 1.00-5.00 | Selenium | mg/kg | 0.33 J | TR | 0.41 J+ |
| AOC 1 | NA | SO | NYOW-01-PH022-B | 1.00-5.00 | Silver | mg/kg | 0.66 J | TR | 1.5 J+ |
| AOC 1 | NA | SO | NYOW-01-PH022-B | 1.00-5.00 | Sodium | mg/kg | 65 J | TR | 490 J+ |
| AOC 1 | NA | SO | NYOW-01-PH022-C | 5.00-10.00 | Antimony | mg/kg | 0.074 J | TR | 0.18 J+ |
| AOC 1 | NA | SO | NYOW-01-PH022-C | 5.00-10.00 | Beryllium | mg/kg | 0.24 J | TR | 0.41 J+ |
| AOC 1 | NA | SO | NYOW-01-PH022-C | 5.00-10.00 | Cadmium | mg/kg | 0.082 J | TR | 0.095 J+ |
| AOC 1 | NA | SO | NYOW-01-PH022-C | 5.00-10.00 | Selenium | mg/kg | 0.15 J | TR | 0.48 J+ |
| AOC 1 | NA | SO | NYOW-01-PH022-C | 5.00-10.00 | Sodium | mg/kg | 71 J | TR | 410 J+ |
| AOC 1 | NA | SO | NYOW-01-PH023-B | 1.00-5.00 | Antimony | mg/kg | 0.084 J | TR | 0.19 J+ |
| AOC 1 | NA | SO | NYOW-01-PH023-B | 1.00-5.00 | Beryllium | mg/kg | 0.23 J | D/TR | 0.44 J+ |
| AOC 1 | NA | SO | NYOW-01-PH023-B | 1.00-5.00 | Selenium | mg/kg | 0.17 J | TR | 0.45 J+ |
| AOC 1 | NA | SO | NYOW-01-PH023-B | 1.00-5.00 | Sodium | mg/kg | 55 J- | M/D/TR/M2 | 440 J+ |
| AOC 1 | NA | SO | NYOW-01-PH023-C | 5.00-10.00 | Antimony | mg/kg | 0.092 J | TR | 0.2 J+ |
| AOC 1 | NA | SO | NYOW-01-PH023-C | 5.00-10.00 | Beryllium | mg/kg | 0.21 J | TR | 0.38 J+ |
| AOC 1 | NA | SO | NYOW-01-PH023-C | 5.00-10.00 | Cadmium | mg/kg | 0.0185 J | TR | 0.083 J+ |
| AOC 1 | NA | SO | NYOW-01-PH023-C | 5.00-10.00 | Mercury | mg/kg | 0.0087 J | TR | 0.019 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 1 | NA | SO | NYOW-01-PH023-C | 5.00-10.00 | Sodium | mg/kg | 60.5 J | TR | 380 J+ |
| AOC 1 | NA | SO | NYOW-01-PH024-B | 1.00-5.00 | Antimony | mg/kg | 0.076 J | TR | 0.16 J+ |
| AOC 1 | NA | SO | NYOW-01-PH024-B | 1.00-5.00 | Beryllium | mg/kg | 0.24 J | TR | 0.5 J+ |
| AOC 1 | NA | SO | NYOW-01-PH024-B | 1.00-5.00 | Selenium | mg/kg | 0.18 J | TR | 0.45 J+ |
| AOC 1 | NA | SO | NYOW-01-PH024-B | 1.00-5.00 | Sodium | mg/kg | 130 J | TR | 500 J+ |
| AOC 1 | NA | SO | NYOW-01-PH024-C | 5.00-10.00 | Antimony | mg/kg | 0.092 J | TR | 0.19 J+ |
| AOC 1 | NA | SO | NYOW-01-PH024-C | 5.00-10.00 | Beryllium | mg/kg | 0.2 J | TR | 0.46 J+ |
| AOC 1 | NA | SO | NYOW-01-PH024-C | 5.00-10.00 | Cadmium | mg/kg | 0.035 J | TR | 0.086 J+ |
| AOC 1 | NA | SO | NYOW-01-PH024-C | 5.00-10.00 | Selenium | mg/kg | 0.14 J | TR | 0.43 J+ |
| AOC 1 | NA | SO | NYOW-01-PH024-C | 5.00-10.00 | Sodium | mg/kg | 120 J | TR | 460 J+ |
| AOC 1 | NA | SO | NYOW-01-SL002-A | 0.00-1.00 | Beryllium | mg/kg | 0.33 J | TR | 0.48 J+ |
| AOC 1 | NA | SO | NYOW-01-SL002-A | 0.00-1.00 | Selenium | mg/kg | 0.24 J | TR | 0.4 J+ |
| AOC 1 | NA | SO | NYOW-01-SL002-A | 0.00-1.00 | Silver | mg/kg | 0.2 J | TR | 1.4 J+ |
| AOC 1 | NA | SO | NYOW-01-SL002-A | 0.00-1.00 | Sodium | mg/kg | 100 J | TR | 480 J+ |
| AOC 1 | NA | SO | NYOW-01-SL005-A | 0.00-1.00 | Beryllium | mg/kg | 0.235 J | TR | 0.47 J+ |
| AOC 1 | NA | SO | NYOW-01-SL005-A | 0.00-1.00 | Selenium | mg/kg | 0.27 J | TR | 0.49 J+ |
| AOC 1 | NA | SO | NYOW-01-SL005-A | 0.00-1.00 | Sodium | mg/kg | 40 J | TR | 470 J+ |
| AOC 1 | NA | SO | NYOW-01-SL007-A | 0.00-1.00 | Beryllium | mg/kg | 0.22 J | TR | 0.72 J+ |
| AOC 1 | NA | SO | NYOW-01-SL007-A | 0.00-1.00 | Selenium | mg/kg | 0.42 J | TR | 0.77 J+ |
| AOC 1 | NA | SO | NYOW-01-SL007-A | 0.00-1.00 | Silver | mg/kg | 0.24 J | TR | 2.2 J+ |
| AOC 1 | NA | SO | NYOW-01-SL007-A | 0.00-1.00 | Sodium | mg/kg | 49 J | TR | 720 J+ |
| AOC 1 | NA | SO | NYOW-01-SL009-A | 0.00-1.00 | Beryllium | mg/kg | 0.09 J | TR | 0.56 J+ |
| AOC 1 | NA | SO | NYOW-01-SL009-A | 0.00-1.00 | Selenium | mg/kg | 0.27 J | TR | 0.55 J+ |
| AOC 1 | NA | SO | NYOW-01-SL009-A | 0.00-1.00 | Silver | mg/kg | 0.22 J | TR | 1.7 J+ |
| AOC 1 | NA | SO | NYOW-01-SL009-A | 0.00-1.00 | Sodium | mg/kg | 60 J | TR | 560 J+ |
| AOC 1 | NA | SO | NYOW-01-SL011-A | 0.00-1.00 | Beryllium | mg/kg | 0.091 J | TR | 0.52 J+ |
| AOC 1 | NA | SO | NYOW-01-SL011-A | 0.00-1.00 | Selenium | mg/kg | 0.22 J | TR | 0.54 J+ |
| AOC 1 | NA | SO | NYOW-01-SL011-A | 0.00-1.00 | Silver | mg/kg | 0.17 J | TR | 1.6 J+ |
| AOC 1 | NA | SO | NYOW-01-SL011-A | 0.00-1.00 | Sodium | mg/kg | 37 J | TR | 520 J+ |
| AOC 1 | NA | SO | NYOW-01-SL013-A | 0.00-1.00 | Beryllium | mg/kg | 0.25 J | TR | 0.57 J+ |
| AOC 1 | NA | SO | NYOW-01-SL013-A | 0.00-1.00 | Selenium | mg/kg | 0.21 J | TR | 0.59 J+ |
| AOC 1 | NA | SO | NYOW-01-SL013-A | 0.00-1.00 | Sodium | mg/kg | 65 J | TR | 570 J+ |
| AOC 1 | NA | SO | NYOW-01-SL015-A | 0.00-1.00 | Beryllium | mg/kg | 0.31 J | TR | 0.52 J+ |
| AOC 1 | NA | SO | NYOW-01-SL015-A | 0.00-1.00 | Selenium | mg/kg | 0.13 J | TR | 0.49 J+ |
| AOC 1 | NA | SO | NYOW-01-SL015-A | 0.00-1.00 | Sodium | mg/kg | 54 J | TR | 520 J+ |
| AOC 1 | NA | SO | NYOW-01-SL016-A | 0.00-1.00 | Beryllium | mg/kg | 0.24 J | TR | 0.44 J+ |
| AOC 1 | NA | SO | NYOW-01-SL016-A | 0.00-1.00 | Selenium | mg/kg | 0.15 J | TR | 0.49 J+ |
| AOC 1 | NA | SO | NYOW-01-SL016-A | 0.00-1.00 | Sodium | mg/kg | 79 J | TR | 440 J+ |
| AOC 1 | NA | SO | NYOW-01-SL018-A | 0.00-1.00 | Beryllium | mg/kg | 0.18 J | TR | 0.4 J+ |
| AOC 1 | NA | SO | NYOW-01-SL018-A | 0.00-1.00 | Selenium | mg/kg | 0.14 J | TR | 0.48 J+ |
| AOC 1 | NA | SO | NYOW-01-SL018-A | 0.00-1.00 | Sodium | mg/kg | 80 J | TR | 400 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 1 | NA | SO | NYOW-01-SL019-A | 0.00-1.00 | Beryllium | mg/kg | 0.205 J | TR | 0.45 J+ |
| AOC 1 | NA | SO | NYOW-01-SL019-A | 0.00-1.00 | Selenium | mg/kg | 0.195 J | TR | 0.43 J+ |
| AOC 1 | NA | SO | NYOW-01-SL019-A | 0.00-1.00 | Sodium | mg/kg | 61 J | TR | 450 J+ |
| AOC 1 | NA | SO | NYOW-01-SL020-A | 0.00-1.00 | Beryllium | mg/kg | 0.26 J | TR | 0.53 J+ |
| AOC 1 | NA | SO | NYOW-01-SL020-A | 0.00-1.00 | Selenium | mg/kg | 0.25 J | TR | 0.57 J+ |
| AOC 1 | NA | SO | NYOW-01-SL020-A | 0.00-1.00 | Sodium | mg/kg | 72 J | TR | 530 J+ |
| AOC 1 | NA | SO | NYOW-01-SL021-A | 0.00-1.00 | Beryllium | mg/kg | 0.26 J | TR | 0.43 J+ |
| AOC 1 | NA | SO | NYOW-01-SL021-A | 0.00-1.00 | Selenium | mg/kg | 0.33 J | TR | 0.53 J+ |
| AOC 1 | NA | SO | NYOW-01-SL021-A | 0.00-1.00 | Sodium | mg/kg | 41 J | TR | 430 J+ |
| AOC 1 | NA | SO | NYOW-01-SL022-A | 0.00-1.00 | Beryllium | mg/kg | 0.33 J | TR | 0.53 J+ |
| AOC 1 | NA | SO | NYOW-01-SL022-A | 0.00-1.00 | Selenium | mg/kg | 0.24 J | TR | 0.44 J+ |
| AOC 1 | NA | SO | NYOW-01-SL022-A | 0.00-1.00 | Sodium | mg/kg | 79 J | TR | 530 J+ |
| AOC 1 | NA | SO | NYOW-01-SL023-A | 0.00-1.00 | Beryllium | mg/kg | 0.25 J | TR | 0.46 J+ |
| AOC 1 | NA | SO | NYOW-01-SL023-A | 0.00-1.00 | Selenium | mg/kg | 0.2 J | TR | 0.56 J+ |
| AOC 1 | NA | SO | NYOW-01-SL023-A | 0.00-1.00 | Sodium | mg/kg | 63 J | TR | 460 J+ |
| AOC 1 | NA | SO | NYOW-01-SL024-A | 0.00-1.00 | Beryllium | mg/kg | 0.19 J | TR | 0.6 J+ |
| AOC 1 | NA | SO | NYOW-01-SL024-A | 0.00-1.00 | Selenium | mg/kg | 0.12 J | TR | 0.45 J+ |
| AOC 1 | NA | SO | NYOW-01-SL024-A | 0.00-1.00 | Sodium | mg/kg | 140 J | TR | 600 J+ |
| AOC 1 | NA | SO | NYOW-01-SL025-A | 0.00-1.00 | Beryllium | mg/kg | 0.14 J | TR | 0.55 J+ |
| AOC 1 | NA | SO | NYOW-01-SL025-A | 0.00-1.00 | Silver | mg/kg | 0.23 J | TR | 1.7 J+ |
| AOC 1 | NA | SO | NYOW-01-SL025-A | 0.00-1.00 | Sodium | mg/kg | 73 J | TR | 550 J+ |
| AOC 1 | NA | SO | NYOW-01-SL026-A | 0.00-1.00 | Beryllium | mg/kg | 0.14 J | TR | 0.87 J+ |
| AOC 1 | NA | SO | NYOW-01-SL026-A | 0.00-1.00 | Picric acid | ug/kg | 58 J | TR/P1 | 230 J+ |
| AOC 1 | NA | SO | NYOW-01-SL026-A | 0.00-1.00 | Selenium | mg/kg | 0.71 J | TR | 0.85 J+ |
| AOC 1 | NA | SO | NYOW-01-SL026-A | 0.00-1.00 | Silver | mg/kg | 0.36 J | TR | 2.6 J+ |
| AOC 1 | NA | SO | NYOW-01-SL027-A | 0.00-1.00 | Beryllium | mg/kg | 0.18 J | TR | 0.47 J+ |
| AOC 1 | NA | SO | NYOW-01-SL027-A | 0.00-1.00 | Selenium | mg/kg | 0.25 J | TR | 0.43 J+ |
| AOC 1 | NA | SO | NYOW-01-SL027-A | 0.00-1.00 | Sodium | mg/kg | 34 J | TR | 470 J+ |
| AOC 1 | NA | SO | NYOW-01-SL028-A | 0.00-1.00 | Beryllium | mg/kg | 0.12 J | TR | 0.63 J+ |
| AOC 1 | NA | SO | NYOW-01-SL028-A | 0.00-1.00 | Selenium | mg/kg | 0.4 J | TR | 0.7 J+ |
| AOC 1 | NA | SO | NYOW-01-SL028-A | 0.00-1.00 | Silver | mg/kg | 0.69 J | TR | 1.9 J+ |
| AOC 1 | NA | SO | NYOW-01-SL029-A | 0.00-1.00 | Beryllium | mg/kg | 0.09 J | TR | 0.51 J+ |
| AOC 1 | NA | SO | NYOW-01-SL029-A | 0.00-1.00 | Selenium | mg/kg | 0.34 J | TR | 0.6 J+ |
| AOC 1 | NA | SO | NYOW-01-SL029-A | 0.00-1.00 | Silver | mg/kg | 0.18 J | TR | 1.5 J+ |
| AOC 1 | NA | SO | NYOW-01-SL029-A | 0.00-1.00 | Sodium | mg/kg | 38 J | TR | 510 J+ |
| AOC 1 | NA | SO | NYOW-01-SL030-A | 0.00-1.00 | Beryllium | mg/kg | 0.15 J | TR | 0.47 J+ |
| AOC 1 | NA | SO | NYOW-01-SL030-A | 0.00-1.00 | Selenium | mg/kg | 0.28 J | TR | 0.51 J+ |
| AOC 1 | NA | SO | NYOW-01-SL031-A | 0.00-1.00 | Beryllium | mg/kg | 0.15 J | TR | 0.45 J+ |
| AOC 1 | NA | SO | NYOW-01-SL031-A | 0.00-1.00 | Selenium | mg/kg | 0.26 J | TR | 0.43 J+ |
| AOC 1 | NA | SO | NYOW-01-SL031-A | 0.00-1.00 | Silver | mg/kg | 0.15 J | TR | 1.3 J+ |
| AOC 1 | NA | SO | NYOW-01-SL031-A | 0.00-1.00 | Sodium | mg/kg | 34 J | TR | 450 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 1 | NA | SO | NYOW-01-SL032-A | 0.00-1.00 | Beryllium | mg/kg | 0.16 J | TR | 0.55 J+ |
| AOC 1 | NA | SO | NYOW-01-SL032-A | 0.00-1.00 | Selenium | mg/kg | 0.3 J | TR | 0.56 J+ |
| AOC 1 | NA | SO | NYOW-01-SL032-A | 0.00-1.00 | Sodium | mg/kg | 37 J | TR | 550 J+ |
| AOC 1 | NA | SO | NYOW-01-SL033-A | 0.00-1.00 | Beryllium | mg/kg | 0.19 J | TR | 0.51 J+ |
| AOC 1 | NA | SO | NYOW-01-SL033-A | 0.00-1.00 | Selenium | mg/kg | 0.29 J | TR | 0.45 J+ |
| AOC 1 | NA | SO | NYOW-01-SL034-A | 0.00-1.00 | Selenium | mg/kg | 0.21 J | TR | 0.61 J+ |
| AOC 1 | NA | SO | NYOW-01-SL034-A | 0.00-1.00 | Silver | mg/kg | 0.36 J | TR | 1.6 J+ |
| AOC 1 | NA | SO | NYOW-01-SL034-A | 0.00-1.00 | Sodium | mg/kg | 39 J | TR | 520 J+ |
| AOC 1 | NA | SO | NYOW-01-SL035-A | 0.00-1.00 | Beryllium | mg/kg | 0.34 J | TR | 0.57 J+ |
| AOC 1 | NA | SO | NYOW-01-SL035-A | 0.00-1.00 | Selenium | mg/kg | 0.42 J | TR | 0.49 J+ |
| AOC 1 | NA | SO | NYOW-01-SL036-A | 0.00-1.00 | Beryllium | mg/kg | 0.29 J | TR | 0.58 J+ |
| AOC 1 | NA | SO | NYOW-01-SL036-A | 0.00-1.00 | Selenium | mg/kg | 0.24 J | TR | 0.54 J+ |
| AOC 1 | NA | SO | NYOW-01-SL036-A | 0.00-1.00 | Sodium | mg/kg | 35 J | TR | 580 J+ |
| AOC 1 | NA | SO | NYOW-01-SL037-A | 0.00-1.00 | Beryllium | mg/kg | 0.16 J | TR | 0.67 J+ |
| AOC 1 | NA | SO | NYOW-01-SL037-A | 0.00-1.00 | Selenium | mg/kg | 0.35 J | TR | 0.59 J+ |
| AOC 1 | NA | SO | NYOW-01-SL038-A | 0.00-1.00 | Beryllium | mg/kg | 0.15 J | TR | 0.5 J+ |
| AOC 1 | NA | SO | NYOW-01-SL038-A | 0.00-1.00 | Selenium | mg/kg | 0.17 J | TR | 0.55 J+ |
| AOC 1 | NA | SO | NYOW-01-SL038-A | 0.00-1.00 | Silver | mg/kg | 0.19 J | TR | 1.5 J+ |
| AOC 1 | NA | SO | NYOW-01-SL038-A | 0.00-1.00 | Sodium | mg/kg | 67 J | TR | 500 J+ |
| AOC 1 | NA | SO | NYOW-01-SL039-A | 0.00-1.00 | Selenium | mg/kg | 0.27 J | TR | 0.45 J+ |
| AOC 1 | NA | SO | NYOW-01-SL039-A | 0.00-1.00 | Sodium | mg/kg | 150 J | TR | 560 J+ |
| AOC 1 | NA | WG | NYOW-01-WL001-A | 0.00-10.00 | Antimony | ug/L | 1.5 J- | M/TR | 6 J+ |
| AOC 1 | NA | WG | NYOW-01-WL001-A | 0.00-10.00 | Arsenic | ug/L | 0.42 J | TR | 5 J+ |
| AOC 1 | NA | WG | NYOW-01-WL001-A | 0.00-10.00 | Chromium | ug/L | 1.8 J | TR | 10 J+ |
| AOC 1 | NA | WG | NYOW-01-WL001-A | 0.00-10.00 | Lead | ug/L | 0.43 J | TR | 3 J+ |
| AOC 1 | NA | WG | NYOW-01-WL001-A | 0.00-10.00 | Zinc | ug/L | 6.4 J | TR | 150 J+ |
| AOC 1 | NA | WG | NYOW-01-WL005-A | 0.00-10.00 | Arsenic | ug/L | 2.4 J | TR | 5 J+ |
| AOC 1 | NA | WG | NYOW-01-WL005-A | 0.00-10.00 | Chromium | ug/L | 0.9 J | TR | 10 J+ |
| AOC 1 | NA | WG | NYOW-01-WL005-A | 0.00-10.00 | Copper | ug/L | 5.7 J | TR | 15 J+ |
| AOC 1 | NA | WG | NYOW-01-WL005-A | 0.00-10.00 | Lead | ug/L | 0.63 J | TR | 3 J+ |
| AOC 1 | NA | WG | NYOW-01-WL005-A | 0.00-10.00 | Nickel | ug/L | 4.85 J | TR | 40 J+ |
| AOC 1 | NA | WG | NYOW-01-WL005-A | 0.00-10.00 | Vanadium | ug/L | 4.1 J | TR | 15 J+ |
| AOC 1 | NA | WG | NYOW-01-WL005-A | 0.00-10.00 | Zinc | ug/L | 8.95 J | TR | 150 J+ |
| AOC 1 | NA | WG | NYOW-01-WL006-B | 0.00-10.00 | Arsenic | ug/L | 4.4 J | TR | 5 J+ |
| AOC 1 | NA | WG | NYOW-01-WL006-B | 0.00-10.00 | Vanadium | ug/L | 1.1 J | TR | 15 J+ |
| AOC 1 | NA | WG | NYOW-01-WL018-A | 0.00-10.00 | Antimony | ug/L | 1.3 J | TR | 6 J+ |
| AOC 1 | NA | WG | NYOW-01-WL018-A | 0.00-10.00 | Nickel | ug/L | 2.8 J | TR | 40 J+ |
| AOC 1 | NA | WG | NYOW-01-WL019-A | 0.00-10.00 | Arsenic | ug/L | 2.2 J | TR | 5 J+ |
| AOC 1 | NA | WG | NYOW-01-WL019-A | 0.00-10.00 | Vanadium | ug/L | 1.2 J | TR | 15 J+ |
| AOC 1 | NA | WG | NYOW-01-WL021-A | 0.00-10.00 | Antimony | ug/L | 0.42 J | TR | 6 J+ |
| AOC 1 | NA | WG | NYOW-01-WL021-A | 0.00-10.00 | Arsenic | ug/L | 0.92 J | TR | 5 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 1 | NA | WG | NYOW-01-WL021-A | 0.00-10.00 | Lead | ug/L | 1.9 J | TR | 3 J+ |
| AOC 1 | NA | WG | NYOW-01-WL022-A | 0.00-10.00 | Antimony | ug/L | 0.53 J | TR | 6 J+ |
| AOC 1 | NA | WG | NYOW-01-WL022-A | 0.00-10.00 | Arsenic | ug/L | 1.1 J | TR | 5 J+ |
| AOC 1 | NA | WG | NYOW-01-WL022-A | 0.00-10.00 | Cadmium | ug/L | 0.45 J | TR | 5 J+ |
| AOC 1 | NA | WG | NYOW-01-WL022-A | 0.00-10.00 | Chromium | ug/L | 0.97 J | TR | 10 J+ |
| AOC 1 | NA | WG | NYOW-01-WL022-A | 0.00-10.00 | Nickel | ug/L | 8.2 J | TR | 40 J+ |
| AOC 1 | NA | WG | NYOW-01-WL022-A | 0.00-10.00 | Vanadium | ug/L | 2.3 J | TR | 15 J+ |
| AOC 1 | NA | WG | NYOW-01-WL023-A | 0.00-10.00 | Arsenic | ug/L | 1.1 J | TR | 5 J+ |
| AOC 1 | NA | WG | NYOW-01-WL023-A | 0.00-10.00 | Chromium | ug/L | 0.54 J | TR | 10 J+ |
| AOC 1 | NA | WG | NYOW-01-WL023-A | 0.00-10.00 | Copper | ug/L | 6.8 J+ | TR/V6 | 15 J+ |
| AOC 1 | NA | WG | NYOW-01-WL023-A | 0.00-10.00 | Lead | ug/L | 0.28 J | TR | 3 J+ |
| AOC 1 | NA | WG | NYOW-01-WL023-A | 0.00-10.00 | Nickel | ug/L | 2.8 J | TR | 40 J+ |
| AOC 1 | NA | WG | NYOW-01-WL023-A | 0.00-10.00 | Vanadium | ug/L | 1.7 J | TR | 15 J+ |
| AOC 1 | NA | WG | NYOW-01-WL023-A | 0.00-10.00 | Zinc | ug/L | 6.1 J | TR | 150 J+ |
| AOC 3 | NA | SO | NYOW-03-PH001-B | 1.00-5.00 | Selenium | mg/kg | 0.23 J | TR | 0.51 J+ |
| AOC 3 | NA | SO | NYOW-03-PH001-B | 1.00-5.00 | Sodium | mg/kg | 31 J | TR | 470 J+ |
| AOC 3 | NA | SO | NYOW-03-PH002-B | 1.00-5.00 | Naphthalene | ug/kg | 0.79 J | TR | 12 J+ |
| AOC 3 | NA | SO | NYOW-03-PH002-B | 1.00-5.00 | Selenium | mg/kg | 0.14 J | TR | 0.43 J+ |
| AOC 3 | NA | SO | NYOW-03-PH002-B | 1.00-5.00 | Sodium | mg/kg | 35 J | TR | 420 J+ |
| AOC 3 | NA | SO | NYOW-03-PH003-B | 1.00-5.00 | Antimony | mg/kg | 0.079 J | TR | 0.17 J+ |
| AOC 3 | NA | SO | NYOW-03-PH003-B | 1.00-5.00 | Sodium | mg/kg | 39 J | TR | 420 J+ |
| AOC 3 | NA | SO | NYOW-03-PH004-B | 1.00-5.00 | Antimony | mg/kg | 0.081 J | TR | 0.18 J+ |
| AOC 3 | NA | SO | NYOW-03-PH004-B | 1.00-5.00 | Sodium | mg/kg | 31 J | TR | 440 J+ |
| AOC 3 | NA | SO | NYOW-03-PH005-B | 1.00-5.00 | Antimony | mg/kg | 0.155 J | TR | 0.2 J+ |
| AOC 3 | NA | SO | NYOW-03-PH005-B | 1.00-5.00 | Naphthalene | ug/kg | 7.3 J | TR | 12 J+ |
| AOC 3 | NA | SO | NYOW-03-PH005-B | 1.00-5.00 | PCB-1260 (Aroclor 1260) | ug/kg | 11 NJ | TR/F1/V2 | 86 J+ |
| AOC 3 | NA | SO | NYOW-03-PH005-B | 1.00-5.00 | Selenium | mg/kg | 0.31 J | TR | 0.46 J+ |
| AOC 3 | NA | SO | NYOW-03-PH005-B | 1.00-5.00 | Sodium | mg/kg | 50 J | TR | 480 J+ |
| AOC 3 | NA | SO | NYOW-03-PH005-B_R | 1.00-5.00 | Toluene | ug/kg | 0.34 J | TR | 4.8 J+ |
| AOC 3 | NA | SO | NYOW-03-PH006-B | 1.00-5.00 | Antimony | mg/kg | 0.13 J | TR | 0.24 J+ |
| AOC 3 | NA | SO | NYOW-03-PH006-B | 1.00-5.00 | Selenium | mg/kg | 0.2 J | TR | 0.6 J+ |
| AOC 3 | NA | SO | NYOW-03-PH006-B | 1.00-5.00 | Sodium | mg/kg | 52 J | TR | 510 J+ |
| AOC 3 | NA | SO | NYOW-03-PH006-B_R | 1.00-5.00 | Benzaldehyde | ug/kg | 190 J | TR | 420 J+ |
| AOC 3 | NA | SO | NYOW-03-PH006-B_R | 1.00-5.00 | Toluene | ug/kg | 0.44 J | TR | 5.1 J+ |
| AOC 3 | NA | SO | NYOW-03-PH007-B | 1.00-5.00 | Acenaphthene | ug/kg | 0.58 J | TR | 11 J+ |
| AOC 3 | NA | SO | NYOW-03-PH007-B | 1.00-5.00 | Antimony | mg/kg | 0.17 J | TR | 0.2 J+ |
| AOC 3 | NA | SO | NYOW-03-PH007-B | 1.00-5.00 | Naphthalene | ug/kg | 0.92 J | TR | 11 J+ |
| AOC 3 | NA | SO | NYOW-03-PH007-B | 1.00-5.00 | Selenium | mg/kg | 0.21 J | TR | 0.53 J+ |
| AOC 3 | NA | SO | NYOW-03-PH007-B | 1.00-5.00 | Sodium | mg/kg | 80 J | TR | 440 J+ |
| AOC 3 | NA | SO | NYOW-03-PH008-B | 1.00-5.00 | Antimony | mg/kg | 0.072 J | TR | 0.16 J+ |
| AOC 3 | NA | SO | NYOW-03-PH008-B | 1.00-5.00 | Naphthalene | ug/kg | 1.4 J | TR | 12 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 3 | NA | SO | NYOW-03-PH008-B | 1.00-5.00 | Selenium | mg/kg | 0.14 J | TR | 0.45 J+ |
| AOC 3 | NA | SO | NYOW-03-PH008-B | 1.00-5.00 | Sodium | mg/kg | 38 J- | M/TR | 460 J+ |
| AOC 3 | NA | SO | NYOW-03-PH009-B | 1.00-5.00 | Antimony | mg/kg | 0.086 J | TR | 0.2 J+ |
| AOC 3 | NA | SO | NYOW-03-PH009-B | 1.00-5.00 | Selenium | mg/kg | 0.17 J | TR | 0.58 J+ |
| AOC 3 | NA | SO | NYOW-03-PH009-B | 1.00-5.00 | Sodium | mg/kg | 57 J | TR | 470 J+ |
| AOC 3 | NA | SO | NYOW-03-PH010-B | 1.00-5.00 | Antimony | mg/kg | 0.14 J | TR | 0.16 J+ |
| AOC 3 | NA | SO | NYOW-03-PH010-B | 1.00-5.00 | Selenium | mg/kg | 0.2 J | TR | 0.52 J+ |
| AOC 3 | NA | SO | NYOW-03-PH010-B | 1.00-5.00 | Sodium | mg/kg | 50 J | TR | 430 J+ |
| AOC 3 | NA | SO | NYOW-03-PH011-B | 1.00-5.00 | Acenaphthene | ug/kg | 0.69 J | TR | 12 J+ |
| AOC 3 | NA | SO | NYOW-03-PH011-B | 1.00-5.00 | Antimony | mg/kg | 0.15 J | TR | 0.22 J+ |
| AOC 3 | NA | SO | NYOW-03-PH011-B | 1.00-5.00 | PCB-1260 (Aroclor 1260) | ug/kg | 6.4 J | TR | 74 J+ |
| AOC 3 | NA | SO | NYOW-03-PH011-B | 1.00-5.00 | Selenium | mg/kg | 0.18 J | TR | 0.54 J+ |
| AOC 3 | NA | SO | NYOW-03-PH011-B | 1.00-5.00 | Silver | mg/kg | 0.19 J | TR | 1.4 J+ |
| AOC 3 | NA | SO | NYOW-03-PH011-B | 1.00-5.00 | Sodium | mg/kg | 120 J | TR | 470 J+ |
| AOC 3 | NA | SO | NYOW-03-PH012-B | 1.00-5.00 | Acenaphthene | ug/kg | 2.85 J | TR | 10 J+ |
| AOC 3 | NA | SO | NYOW-03-PH012-B | 1.00-5.00 | Antimony | mg/kg | 0.1045 J | TR | 0.15 J+ |
| AOC 3 | NA | SO | NYOW-03-PH012-B | 1.00-5.00 | Naphthalene | ug/kg | 6.4 J | D3D3/TR | 10 J+ |
| AOC 3 | NA | SO | NYOW-03-PH012-B | 1.00-5.00 | Selenium | mg/kg | 0.16 J | TR | 0.39 J+ |
| AOC 3 | NA | SO | NYOW-03-PH012-B | 1.00-5.00 | Silver | mg/kg | 0.155 J | TR | 1.2 J+ |
| AOC 3 | NA | SO | NYOW-03-PH012-B | 1.00-5.00 | Sodium | mg/kg | 90 J | TR | 400 J+ |
| AOC 3 | NA | SO | NYOW-03-PH013-B | 1.00-5.00 | Antimony | mg/kg | 0.083 J | TR | 0.2 J+ |
| AOC 3 | NA | SO | NYOW-03-PH013-B | 1.00-5.00 | Selenium | mg/kg | 0.2 J | TR | 0.52 J+ |
| AOC 3 | NA | SO | NYOW-03-PH013-B | 1.00-5.00 | Sodium | mg/kg | 74 J | TR | 500 J+ |
| AOC 3 | NA | SO | NYOW-03-PH014-B | 1.00-5.00 | Antimony | mg/kg | 0.089 J | TR | 0.19 J+ |
| AOC 3 | NA | SO | NYOW-03-PH014-B | 1.00-5.00 | Selenium | mg/kg | 0.21 J | TR | 0.55 J+ |
| AOC 3 | NA | SO | NYOW-03-PH014-B | 1.00-5.00 | Sodium | mg/kg | 110 J | TR | 530 J+ |
| AOC 3 | NA | SO | NYOW-03-PH015-B | 1.00-5.00 | Antimony | mg/kg | 0.11 J | TR | 0.24 J+ |
| AOC 3 | NA | SO | NYOW-03-PH015-B | 1.00-5.00 | Naphthalene | ug/kg | 1 J | TR | 12 J+ |
| AOC 3 | NA | SO | NYOW-03-PH015-B | 1.00-5.00 | Selenium | mg/kg | 0.22 J | TR | 0.45 J+ |
| AOC 3 | NA | SO | NYOW-03-PH015-B | 1.00-5.00 | Sodium | mg/kg | 44 J | TR | 490 J+ |
| AOC 3 | NA | SO | NYOW-03-PH016-B | 1.00-5.00 | Antimony | mg/kg | 0.082 J | TR | 0.17 J+ |
| AOC 3 | NA | SO | NYOW-03-PH016-B | 1.00-5.00 | Selenium | mg/kg | 0.15 J | TR | 0.43 J+ |
| AOC 3 | NA | SO | NYOW-03-PH016-B | 1.00-5.00 | Sodium | mg/kg | 43 J | TR | 520 J+ |
| AOC 3 | NA | SO | NYOW-03-PH016-B_R | 1.00-5.00 | Toluene | ug/kg | 0.46 J | TR | 4.8 J+ |
| AOC 3 | NA | SO | NYOW-03-PH017-B_R | 1.00-5.00 | Toluene | ug/kg | 0.24 J | TR | 4.6 J+ |
| AOC 3 | NA | SO | NYOW-03-SL001-A | 0.00-1.00 | Benzaldehyde | ug/kg | 190 J | TR | 450 J+ |
| AOC 3 | NA | SO | NYOW-03-SL001-A | 0.00-1.00 | Beryllium | mg/kg | 0.076 J | TR | 0.49 J+ |
| AOC 3 | NA | SO | NYOW-03-SL002-A | 0.00-1.00 | Beryllium | mg/kg | 0.12 J | TR | 0.64 J+ |
| AOC 3 | NA | SO | NYOW-03-SL003-A | 0.00-1.00 | Beryllium | mg/kg | 0.19 J | TR | 0.58 J+ |
| AOC 3 | NA | SO | NYOW-03-SL004-A | 0.00-1.00 | Benzaldehyde | ug/kg | 120 J- | I/TR | 490 J+ |
| AOC 3 | NA | SO | NYOW-03-SL004-A | 0.00-1.00 | Beryllium | mg/kg | 0.22 J | TR | 0.62 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 3 | NA | SO | NYOW-03-SL005-A | 0.00-1.00 | Beryllium | mg/kg | 0.4 J | TR | 0.48 J+ |
| AOC 3 | NA | SO | NYOW-03-SL005-A | 0.00-1.00 | Sodium | mg/kg | 97 J | TR | 480 J+ |
| AOC 3 | NA | SO | NYOW-03-SL006-A | 0.00-1.00 | Benzaldehyde | ug/kg | 160 J | TR | 490 J+ |
| AOC 3 | NA | SO | NYOW-03-SL006-A | 0.00-1.00 | Beryllium | mg/kg | 0.405 J | TR | 0.53 J+ |
| AOC 3 | NA | SO | NYOW-03-SL006-A | 0.00-1.00 | Sodium | mg/kg | 52 J | TR | 530 J+ |
| AOC 3 | NA | SO | NYOW-03-SL007-A | 0.00-1.00 | Beryllium | mg/kg | 0.44 J | TR | 0.54 J+ |
| AOC 3 | NA | SO | NYOW-03-SL007-A | 0.00-1.00 | Sodium | mg/kg | 55 J | TR | 540 J+ |
| AOC 3 | NA | SO | NYOW-03-SL008-A | 0.00-1.00 | Beryllium | mg/kg | 0.31 J | TR | 0.47 J+ |
| AOC 3 | NA | SO | NYOW-03-SL008-A | 0.00-1.00 | PCB-1260 (Aroclor 1260) | ug/kg | 7.6 J+ | I/TR/P1 | 69 J+ |
| AOC 3 | NA | SO | NYOW-03-SL008-A | 0.00-1.00 | Sodium | mg/kg | 65 J | TR | 470 J+ |
| AOC 3 | NA | SO | NYOW-03-SL009-A | 0.00-1.00 | Beryllium | mg/kg | 0.3 J- | M/D/TR | 0.61 J+ |
| AOC 3 | NA | SO | NYOW-03-SL009-A | 0.00-1.00 | Sodium | mg/kg | 47 J- | M/D/TR | 610 J+ |
| AOC 3 | NA | SO | NYOW-03-SL010-A | 0.00-1.00 | Beryllium | mg/kg | 0.25 J | TR | 0.46 J+ |
| AOC 3 | NA | SO | NYOW-03-SL010-A | 0.00-1.00 | PCB-1260 (Aroclor 1260) | ug/kg | 5.9 J | TR/P1 | 79 J+ |
| AOC 3 | NA | SO | NYOW-03-SL010-A | 0.00-1.00 | Silver | mg/kg | 0.15 J | TR | 1.4 J+ |
| AOC 3 | NA | SO | NYOW-03-SL010-A | 0.00-1.00 | Sodium | mg/kg | 70 J | TR | 460 J+ |
| AOC 3 | NA | SO | NYOW-03-SL011-A | 0.00-1.00 | Beryllium | mg/kg | 0.24 J | TR | 0.56 J+ |
| AOC 3 | NA | SO | NYOW-03-SL011-A | 0.00-1.00 | Dibenzofuran | ug/kg | 120 J | TR | 420 J+ |
| AOC 3 | NA | SO | NYOW-03-SL011-A | 0.00-1.00 | Sodium | mg/kg | 91 J | TR | 560 J+ |
| AOC 3 | NA | SO | NYOW-03-SL012-A | 0.00-1.00 | Benzaldehyde | ug/kg | 230 J- | Z/I/TR | 390 J+ |
| AOC 3 | NA | SO | NYOW-03-SL012-A | 0.00-1.00 | Beryllium | mg/kg | 0.36 J | TR | 0.43 J+ |
| AOC 3 | NA | SO | NYOW-03-SL012-A | 0.00-1.00 | Cresols, m- & p- | ug/kg | 130 J- | C/Z/I/TR | 390 J+ |
| AOC 3 | NA | SO | NYOW-03-SL012-A | 0.00-1.00 | Dibenzofuran | ug/kg | 120 J- | C/Z/I/TR | 390 J+ |
| AOC 3 | NA | SO | NYOW-03-SL012-A | 0.00-1.00 | Sodium | mg/kg | 98 J | TR | 430 J+ |
| AOC 3 | NA | SO | NYOW-03-SL013-A | 0.00-1.00 | Beryllium | mg/kg | 0.305 J | TR | 0.45 J+ |
| AOC 3 | NA | SO | NYOW-03-SL013-A | 0.00-1.00 | PCB-1260 (Aroclor 1260) | ug/kg | 4.8 J | TR/P1TR | 78 J+ |
| AOC 3 | NA | SO | NYOW-03-SL013-A | 0.00-1.00 | Sodium | mg/kg | 54 J | TR | 450 J+ |
| AOC 3 | NA | SO | NYOW-03-SL014-A | 0.00-1.00 | Beryllium | mg/kg | 0.22 J | TR | 0.49 J+ |
| AOC 3 | NA | SO | NYOW-03-SL014-A | 0.00-1.00 | Sodium | mg/kg | 93 J | TR | 490 J+ |
| AOC 3 | NA | SO | NYOW-03-SL015-A | 0.00-1.00 | Beryllium | mg/kg | 0.25 J | TR | 0.73 J+ |
| AOC 3 | NA | SO | NYOW-03-SL015-A | 0.00-1.00 | PCB-1260 (Aroclor 1260) | ug/kg | 5.4 J | TR/P1 | 100 J+ |
| AOC 3 | NA | SO | NYOW-03-SL015-A | 0.00-1.00 | Sodium | mg/kg | 51 J | TR | 730 J+ |
| AOC 3 | NA | SO | NYOW-03-SL015-A_R | 0.00-1.00 | Benzaldehyde | ug/kg | 120 J- | I/TR | 470 J+ |
| AOC 3 | NA | SO | NYOW-03-SL016-A | 0.00-1.00 | Beryllium | mg/kg | 0.29 J | TR | 0.46 J+ |
| AOC 3 | NA | SO | NYOW-03-SL016-A | 0.00-1.00 | Silver | mg/kg | 0.15 J | TR | 1.4 J+ |
| AOC 3 | NA | SO | NYOW-03-SL016-A | 0.00-1.00 | Sodium | mg/kg | 76 J | TR | 460 J+ |
| AOC 3 | NA | WG | NYOW-03-WL002-A | 0.00-10.00 | Aluminum | ug/L | 32 J | TR | 300 J+ |
| AOC 3 | NA | WG | NYOW-03-WL002-A | 0.00-10.00 | Arsenic | ug/L | 0.33 J | TR | 5 J+ |
| AOC 3 | NA | WG | NYOW-03-WL002-A | 0.00-10.00 | Benzaldehyde | ug/L | 2 J- | I/TR/V2 | 11 J+ |
| AOC 3 | NA | WG | NYOW-03-WL002-A | 0.00-10.00 | Benzene | ug/L | 0.31 J- | TR/H1 | 1 J+ |
| AOC 3 | NA | WG | NYOW-03-WL002-A | 0.00-10.00 | Caprolactam | ug/L | 0.89 J- | I/TR/V2 | 11 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 3 | NA | WG | NYOW-03-WL002-A | 0.00-10.00 | Nickel | ug/L | 9.6 J | TR | 40 J+ |
| AOC 3 | NA | WG | NYOW-03-WL002-A | 0.00-10.00 | Selenium | ug/L | 11 J | TR | 22 J+ |
| AOC 3 | NA | WG | NYOW-03-WL007-A | 0.00-10.00 | Aluminum | ug/L | 35 J | TR | 300 J+ |
| AOC 3 | NA | WG | NYOW-03-WL007-A | 0.00-10.00 | Arsenic | ug/L | 0.79 J | TR | 5 J+ |
| AOC 3 | NA | WG | NYOW-03-WL007-A | 0.00-10.00 | Vanadium | ug/L | 1.5 J | TR | 15 J+ |
| AOC 3 | NA | WG | NYOW-03-WL009-A | 0.00-10.00 | Aluminum | ug/L | 23 J | TR | 300 J+ |
| AOC 3 | NA | WG | NYOW-03-WL009-A | 0.00-10.00 | Vanadium | ug/L | 1.2 J | TR | 15 J+ |
| AOC 3 | NA | WG | NYOW-03-WL009-A | 0.00-10.00 | Zinc | ug/L | 4.5 J | TR | 150 J+ |
| AOC 3 | NA | WG | NYOW-03-WL010-A | 0.00-10.00 | Aluminum | ug/L | 240 J | TR | 300 J+ |
| AOC 3 | NA | WG | NYOW-03-WL010-A | 0.00-10.00 | Benzene | ug/L | 0.35 J- | TR/P | 1 J+ |
| AOC 3 | NA | WG | NYOW-03-WL010-A | 0.00-10.00 | Lead | ug/L | 0.21 J | TR | 3 J+ |
| AOC 3 | NA | WG | NYOW-03-WL010-A | 0.00-10.00 | m,p-Xylene | ug/L | 0.57 J- | TR/P | 2 J+ |
| AOC 3 | NA | WG | NYOW-03-WL010-A | 0.00-10.00 | Nickel | ug/L | 4.4 J | TR | 40 J+ |
| AOC 3 | NA | WG | NYOW-03-WL010-A | 0.00-10.00 | Vanadium | ug/L | 2 J | TR | 15 J+ |
| AOC 3 | NA | WG | NYOW-03-WL013-A | 0.00-10.00 | Aluminum | ug/L | 64 J | TR | 300 J+ |
| AOC 3 | NA | WG | NYOW-03-WL013-A | 0.00-10.00 | Lead | ug/L | 0.63 J | TR | 3 J+ |
| AOC 3 | NA | WG | NYOW-03-WL013-A | 0.00-10.00 | Vanadium | ug/L | 1.3 J | TR | 15 J+ |
| AOC 3 | NA | WG | NYOW-03-WL014-A | 0.00-10.00 | Aluminum | ug/L | 55 J | TR | 300 J+ |
| AOC 3 | NA | WG | NYOW-03-WL014-A | 0.00-10.00 | Lead | ug/L | 0.37 J | TR | 3 J+ |
| AOC 3 | NA | WG | NYOW-03-WL014-A | 0.00-10.00 | Nickel | ug/L | 3.1 J | TR | 40 J+ |
| AOC 3 | NA | WG | NYOW-03-WL014-A | 0.00-10.00 | Vanadium | ug/L | 1.4 J | TR | 15 J+ |
| AOC 3 | NA | WG | NYOW-03-WL015-A | 0.00-10.00 | 4-Nitroaniline | ug/L | 17 J- | I/TR/U | 51 J+ |
| AOC 3 | NA | WG | NYOW-03-WL015-A | 0.00-10.00 | Aluminum | ug/L | 63 J | TR | 300 J+ |
| AOC 3 | NA | WG | NYOW-03-WL015-A | 0.00-10.00 | Lead | ug/L | 0.27 J | TR | 3 J+ |
| AOC 3 | NA | WG | NYOW-03-WL015-A | 0.00-10.00 | Nickel | ug/L | 3.4 J | TR | 40 J+ |
| AOC 3 | NA | WG | NYOW-03-WL015-A | 0.00-10.00 | Vanadium | ug/L | 1.7 J | TR | 15 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH016-B | 1.00-5.00 | Antimony | mg/kg | 0.083 J | TR | 0.19 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH016-B | 1.00-5.00 | Sodium | mg/kg | 160 J | TR | 460 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH016-B | 1.00-5.00 | Total Organic Carbon | mg/kg | 960 J- | TR/H1 | 4000 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH016-C | 5.00-10.00 | Sodium | mg/kg | 170 J | TR | 440 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH016-C | 5.00-10.00 | Total Organic Carbon | mg/kg | 1600 J- | TR/H1 | 4000 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH017-1-B | 1.00-5.00 | Antimony | mg/kg | 0.135 J | TR | 0.18 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH017-1-B | 1.00-5.00 | Sodium | mg/kg | 150 J | TR | 420 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH017-1-C | 5.00-10.00 | Selenium | mg/kg | 0.15 J | TR | 0.41 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH017-1-C | 5.00-10.00 | Sodium | mg/kg | 140 J | TR | 440 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-B | 1.00-5.00 | 1-Methylnaphthalene | ug/kg | 2.2 J | TR | 11 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-B | 1.00-5.00 | 2-Methylnaphthalene | ug/kg | 4.4 J | TR | 11 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-B | 1.00-5.00 | Antimony | mg/kg | 0.097 J | TR | 0.16 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-B | 1.00-5.00 | Benzo(a)anthracene | ug/kg | 5.3 J | TR | 11 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-B | 1.00-5.00 | Benzo(a)pyrene | ug/kg | 5 J | TR | 11 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-B | 1.00-5.00 | Benzo(b)fluoranthene | ug/kg | 8.3 J | TR | 11 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-B | 1.00-5.00 | Benzo(g,h,i)perylene | ug/kg | 3.8 J | TR | 11 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-B | 1.00-5.00 | Benzo(k)fluoranthene | ug/kg | 2.5 J | TR | 11 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-B | 1.00-5.00 | Indeno(1,2,3-c,d)pyrene | ug/kg | 4 J | TR | 11 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-B | 1.00-5.00 | Naphthalene | ug/kg | 2.8 J | TR | 11 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-B | 1.00-5.00 | Phenanthrene | ug/kg | 4.1 J | TR | 11 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-B | 1.00-5.00 | Selenium | mg/kg | 0.41 J | TR | 0.45 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-C | 5.00-6.00 | Acenaphthene | ug/kg | 4.2 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-C | 5.00-6.00 | Acenaphthylene | ug/kg | 6.3 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-C | 5.00-6.00 | Anthracene | ug/kg | 9.7 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-C | 5.00-6.00 | Dibenz(a,h)anthracene | ug/kg | 8 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-C | 5.00-6.00 | Fluorene | ug/kg | 9.1 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH018-C | 5.00-6.00 | Selenium | mg/kg | 0.28 J | TR | 0.49 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH019-B | 1.00-5.00 | Antimony | mg/kg | 0.091 J | TR | 0.16 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH019-B | 1.00-5.00 | Benzo(b)fluoranthene | ug/kg | 2.7 J- | I/TR | 11 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH019-B | 1.00-5.00 | Naphthalene | ug/kg | 0.76 J- | I/TR | 11 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH019-B | 1.00-5.00 | Selenium | mg/kg | 0.22 J | TR | 0.5 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH019-C | 5.00-10.00 | Selenium | mg/kg | 0.2 J | TR | 0.44 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH020-B | 1.00-5.00 | 1-Methylnaphthalene | ug/kg | 2.5 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH020-B | 1.00-5.00 | 2-Methylnaphthalene | ug/kg | 3.5 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH020-B | 1.00-5.00 | Anthracene | ug/kg | 2 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH020-B | 1.00-5.00 | Antimony | mg/kg | 0.2 J | TR | 0.21 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH020-B | 1.00-5.00 | Benzo(a)anthracene | ug/kg | 8.1 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH020-B | 1.00-5.00 | Benzo(a)pyrene | ug/kg | 6.2 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH020-B | 1.00-5.00 | Benzo(b)fluoranthene | ug/kg | 11 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH020-B | 1.00-5.00 | Benzo(g,h,i)perylene | ug/kg | 4.6 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH020-B | 1.00-5.00 | Benzo(k)fluoranthene | ug/kg | 3.7 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH020-B | 1.00-5.00 | Fluorene | ug/kg | 2.2 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH020-B | 1.00-5.00 | Indeno(1,2,3-c,d)pyrene | ug/kg | 4.6 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH020-B | 1.00-5.00 | Naphthalene | ug/kg | 4.7 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH020-B | 1.00-5.00 | Phenanthrene | ug/kg | 11 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-PH020-B | 1.00-5.00 | Selenium | mg/kg | 0.2 J | TR | 0.48 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL016-A | 0.00-1.00 | 1-Methylnaphthalene | ug/kg | 6.7 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL016-A | 0.00-1.00 | 2-Methylnaphthalene | ug/kg | 7.6 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL016-A | 0.00-1.00 | Acenaphthylene | ug/kg | 5.5 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL016-A | 0.00-1.00 | Anthracene | ug/kg | 4.7 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL016-A | 0.00-1.00 | Antimony | mg/kg | 0.11 J | TR | 0.2 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL016-A | 0.00-1.00 | Beryllium | mg/kg | 0.26 J | TR | 0.46 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL016-A | 0.00-1.00 | Dibenz(a,h)anthracene | ug/kg | 5.3 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL016-A | 0.00-1.00 | Naphthalene | ug/kg | 5.7 J | TR | 12 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL016-A | 0.00-1.00 | Sodium | mg/kg | 170 J | TR | 460 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL017-1-A | 0.00-1.00 | 2-Methylnaphthalene | ug/kg | 1.35 J | TR | 10 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | SO | NYOW-05-SL017-1-A | 0.00-1.00 | Acenaphthylene | ug/kg | 3.1 J | TR | 10 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL017-1-A | 0.00-1.00 | Anthracene | ug/kg | 4.3 J | TR | 10 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL017-1-A | 0.00-1.00 | Antimony | mg/kg | 0.125 J | TR | 0.17 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL017-1-A | 0.00-1.00 | Beryllium | mg/kg | 0.24 J | M/TRTR | 0.46 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL017-1-A | 0.00-1.00 | Dibenz(a,h)anthracene | ug/kg | 4.2 J | TR | 10 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL017-1-A | 0.00-1.00 | Fluorene | ug/kg | 1.75 J | TR | 10 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL017-1-A | 0.00-1.00 | Naphthalene | ug/kg | 2.15 J | TR | 10 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL017-1-A | 0.00-1.00 | Selenium | mg/kg | 0.15 J | TR | 0.45 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL017-1-A | 0.00-1.00 | Sodium | mg/kg | 56.5 J | M/TRTR | 460 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL018-A | 0.00-1.00 | Antimony | mg/kg | 0.13 J | TR | 0.22 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL018-A | 0.00-1.00 | Beryllium | mg/kg | 0.22 J | TR | 0.4 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL018-A | 0.00-1.00 | Selenium | mg/kg | 0.19 J | TR | 0.5 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL019-A | 0.00-1.00 | 1-Methylnaphthalene | ug/kg | 2.1 J- | I/TR | 10 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL019-A | 0.00-1.00 | 2-Methylnaphthalene | ug/kg | 2.5 J- | I/TR | 10 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL019-A | 0.00-1.00 | Antimony | mg/kg | 0.11 J | TR | 0.16 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL019-A | 0.00-1.00 | Beryllium | mg/kg | 0.22 J | TR | 0.42 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL019-A | 0.00-1.00 | Naphthalene | ug/kg | 2.2 J- | I/TR | 10 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL019-A | 0.00-1.00 | Selenium | mg/kg | 0.16 J | TR | 0.37 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL020-A | 0.00-1.00 | 2-Methylnaphthalene | ug/kg | 1.7 J- | I/TR | 11 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL020-A | 0.00-1.00 | Antimony | mg/kg | 0.09 J | TR | 0.18 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL020-A | 0.00-1.00 | Beryllium | mg/kg | 0.21 J | TR | 0.41 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL020-A | 0.00-1.00 | Naphthalene | ug/kg | 2.6 J- | I/TR | 11 J+ |
| AOC 5 | Boiler_House | SO | NYOW-05-SL020-A | 0.00-1.00 | Selenium | mg/kg | 0.14 J | TR | 0.41 J+ |
| AOC 5 | Boiler_House | WG | NYOW-05-WL016-A | 0.00-10.00 | Aluminum | ug/L | 26 J | TR | 300 J+ |
| AOC 5 | Boiler_House | WG | NYOW-05-WL016-A | 0.00-10.00 | Antimony | ug/L | 1.1 J | TR | 6 J+ |
| AOC 5 | Boiler_House | WG | NYOW-05-WL016-A | 0.00-10.00 | Cobalt | ug/L | 0.41 J | TR | 1 J+ |
| AOC 5 | Boiler_House | WG | NYOW-05-WL017-1-A | 0.00-10.00 | Aluminum | ug/L | 18 J | TR | 300 J+ |
| AOC 5 | Boiler_House | WG | NYOW-05-WL017-1-A | 0.00-10.00 | Antimony | ug/L | 1.5 J | TR | 6 J+ |
| AOC 5 | Boiler_House | WG | NYOW-05-WL017-1-A | 0.00-10.00 | Cobalt | ug/L | 0.17 J | TR | 1 J+ |
| AOC 5 | Boiler_House | WG | NYOW-05-WL019-A | 0.00-10.00 | Acenaphthene | ug/L | 0.051 J- | I/TR | 0.1 J+ |
| AOC 5 | Boiler_House | WG | NYOW-05-WL019-A | 0.00-10.00 | Aluminum | ug/L | 27 J | TR | 300 J+ |
| AOC 5 | Boiler_House | WG | NYOW-05-WL019-A | 0.00-10.00 | Anthracene | ug/L | 0.071 J- | I/TR | 0.1 J+ |
| AOC 5 | Boiler_House | WG | NYOW-05-WL019-A | 0.00-10.00 | Antimony | ug/L | 2.2 J | TR | 6 J+ |
| AOC 5 | Boiler_House | WG | NYOW-05-WL019-A | 0.00-10.00 | Caprolactam | ug/L | 2.2 J- | I/TR | 9.9 J+ |
| AOC 5 | Boiler_House | WG | NYOW-05-WL019-A | 0.00-10.00 | Cobalt | ug/L | 0.14 J | TR | 1 J+ |
| AOC 5 | Boiler_House | WG | NYOW-05-WL019-A | 0.00-10.00 | Dibenz(a,h)anthracene | ug/L | 0.05 J- | C/I/TR | 0.1 J+ |
| AOC 5 | Boiler_House | WG | NYOW-05-WL019-A | 0.00-10.00 | Vanadium | ug/L | 7.4 J | TR | 15 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH021-B | 1.00-5.00 | Acenaphthylene | ug/kg | 2.4 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH021-B | 1.00-5.00 | Anthracene | ug/kg | 2.3 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH021-B | 1.00-5.00 | Benzo(k)fluoranthene | ug/kg | 6 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH021-B | 1.00-5.00 | Beryllium | mg/kg | 0.3 J | TR | 0.44 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH021-B | 1.00-5.00 | Selenium | mg/kg | 0.41 J | TR | 0.54 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH021-C | 5.00-10.00 | Antimony | mg/kg | 0.11 J | TR | 0.21 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH021-C | 5.00-10.00 | Beryllium | mg/kg | 0.22 J | TR | 0.61 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH021-C | 5.00-10.00 | Mercury | mg/kg | 0.0086 J | TR | 0.023 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH021-C | 5.00-10.00 | Naphthalene | ug/kg | 1.4 J- | C/I/TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH022-B | 1.00-5.00 | Acenaphthylene | ug/kg | 1.9 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH022-B | 1.00-5.00 | Beryllium | mg/kg | 0.19 J | TR | 0.39 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH022-B | 1.00-5.00 | Selenium | mg/kg | 0.265 J | TR | 0.46 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH022-C | 5.00-10.00 | Antimony | mg/kg | 0.094 J | TR | 0.16 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH022-C | 5.00-10.00 | Benzo(a)anthracene | ug/kg | 3.6 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH022-C | 5.00-10.00 | Benzo(a)pyrene | ug/kg | 3.5 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH022-C | 5.00-10.00 | Benzo(b)fluoranthene | ug/kg | 6.5 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH022-C | 5.00-10.00 | Benzo(g,h,i)perylene | ug/kg | 3.3 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH022-C | 5.00-10.00 | Benzo(k)fluoranthene | ug/kg | 2.3 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH022-C | 5.00-10.00 | Beryllium | mg/kg | 0.33 J | TR | 0.46 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH022-C | 5.00-10.00 | Chrysene | ug/kg | 5.1 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH022-C | 5.00-10.00 | Fluoranthene | ug/kg | 4.9 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH022-C | 5.00-10.00 | Indeno(1,2,3-c,d)pyrene | ug/kg | 3.4 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH022-C | 5.00-10.00 | Naphthalene | ug/kg | 2.7 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH022-C | 5.00-10.00 | Pyrene | ug/kg | 4.3 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH022-C | 5.00-10.00 | Selenium | mg/kg | 0.22 J | TR | 0.46 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH023-B | 1.00-5.00 | Acenaphthylene | ug/kg | 3.5 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH023-B | 1.00-5.00 | Anthracene | ug/kg | 5.4 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH023-B | 1.00-5.00 | Benzo(k)fluoranthene | ug/kg | 9.1 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH023-B | 1.00-5.00 | Beryllium | mg/kg | 0.3 J | TR | 0.47 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH023-B | 1.00-5.00 | Dibenz(a,h)anthracene | ug/kg | 7.4 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH023-B | 1.00-5.00 | Fluorene | ug/kg | 1.7 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH023-B | 1.00-5.00 | Selenium | mg/kg | 0.4 J | TR | 0.55 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH023-C | 5.00-10.00 | Antimony | mg/kg | 0.11 J | TR | 0.21 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH023-C | 5.00-10.00 | Beryllium | mg/kg | 0.3 J | TR | 0.5 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH023-C | 5.00-10.00 | Mercury | mg/kg | 0.0077 J | TR | 0.022 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH023-C | 5.00-10.00 | Naphthalene | ug/kg | 3 J | TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH024-B | 1.00-5.00 | Benzo(k)fluoranthene | ug/kg | 3 J- | I/TR | 12 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH024-B | 1.00-5.00 | Beryllium | mg/kg | 0.3 J | TR | 0.54 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH024-B | 1.00-5.00 | Dibenzofuran | ug/kg | 77 J | TR | 380 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH024-B | 1.00-5.00 | Fluorene | ug/kg | 2.4 J- | I/TR | 12 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH024-B | 1.00-5.00 | Selenium | mg/kg | 0.26 J | TR | 0.43 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH024-C | 5.00-10.00 | 1-Methylnaphthalene | ug/kg | 2.1 J- | I/TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH024-C | 5.00-10.00 | 2-Methylnaphthalene | ug/kg | 3.2 J- | I/TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH024-C | 5.00-10.00 | Antimony | mg/kg | 0.091 J | TR | 0.16 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH024-C | 5.00-10.00 | Beryllium | mg/kg | 0.26 J | TR | 0.4 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH024-C | 5.00-10.00 | Naphthalene | ug/kg | 3.8 J- | I/TR | 11 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH025-B | 1.00-5.00 | Beryllium | mg/kg | 0.63 J | TR | 2.3 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH025-B | 1.00-5.00 | Selenium | mg/kg | 0.24 J | TR | 0.42 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH025-C | 5.00-10.00 | Antimony | mg/kg | 0.13 J | TR | 0.21 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH025-C | 5.00-10.00 | Beryllium | mg/kg | 0.37 J | TR | 0.41 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH025-C | 5.00-10.00 | Mercury | mg/kg | 0.0089 J | TR | 0.023 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH025-C | 5.00-10.00 | Selenium | mg/kg | 0.23 J | TR | 0.44 J+ |
| AOC 5 | Coal_Aggregate_Bins | SO | NYOW-05-PH025-C | 5.00-10.00 | Total Organic Carbon | mg/kg | 1100 J- | TR/H1 | 4000 J+ |
| AOC 5 | Coal_Aggregate_Bins | WG | NYOW-05-WL024-A | 0.00-10.00 | Arsenic | ug/L | 2.4 J | TR | 5 J+ |
| AOC 5 | Coal_Aggregate_Bins | WG | NYOW-05-WL024-A | 0.00-10.00 | Copper | ug/L | 6.5 J | TR | 15 J+ |
| AOC 5 | Coal_Aggregate_Bins | WG | NYOW-05-WL024-A | 0.00-10.00 | Lead | ug/L | 1.4 J | TR | 3 J+ |
| AOC 5 | Coal_Aggregate_Bins | WG | NYOW-05-WL024-A | 0.00-10.00 | Nickel | ug/L | 16 J | TR | 40 J+ |
| AOC 5 | Coal_Aggregate_Bins | WG | NYOW-05-WL024-A | 0.00-10.00 | Vanadium | ug/L | 3.8 J | TR | 15 J+ |
| AOC 5 | Coal_Aggregate_Bins | WG | NYOW-05-WL024-A | 0.00-10.00 | Zinc | ug/L | 8.2 J | TR | 150 J+ |
| AOC 5 | Coal_Aggregate_Bins | WG | NYOW-05-WL025-A | 0.00-10.00 | Arsenic | ug/L | 0.49 J | TR | 5 J+ |
| AOC 5 | Coal_Aggregate_Bins | WG | NYOW-05-WL025-A | 0.00-10.00 | Chrysene | ug/L | 0.051 J- | I/TR | 0.1 J+ |
| AOC 5 | Coal_Aggregate_Bins | WG | NYOW-05-WL025-A | 0.00-10.00 | Nickel | ug/L | 3.7 J | TR | 40 J+ |
| AOC 5 | Coal_Aggregate_Bins | WG | NYOW-05-WL025-A | 0.00-10.00 | Phenol | ug/L | 2.5 J | TR/V2 | 11 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH006-B | 1.00-5.00 | Antimony | mg/kg | 0.073 J | TR | 0.17 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH006-B | 1.00-5.00 | Beryllium | mg/kg | 0.21 J | TR | 0.43 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH006-B | 1.00-5.00 | Selenium | mg/kg | 0.29 J | TR | 0.46 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH006-C | 5.00-10.00 | 2-Methylnaphthalene | ug/kg | 1.5 J | TR | 11 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH006-C | 5.00-10.00 | Beryllium | mg/kg | 0.21 J | TR | 0.49 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH006-C | 5.00-10.00 | Cadmium | mg/kg | 0.031 J | TR | 0.08 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH006-C | 5.00-10.00 | Naphthalene | ug/kg | 3.9 J | TR | 11 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH007-B | 1.00-5.00 | Antimony | mg/kg | 0.071 J | TR | 0.17 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH007-B | 1.00-5.00 | Beryllium | mg/kg | 0.185 J | TR | 0.46 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH007-B | 1.00-5.00 | Naphthalene | ug/kg | 0.905 J | TRI/TR | 10 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH007-B | 1.00-5.00 | Sodium | mg/kg | 86.5 J | TR | 460 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH007-B | 1.00-5.00 | Thallium | mg/kg | 0.0495 J | TR | 0.09 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH007-C | 5.00-10.00 | Beryllium | mg/kg | 0.27 J | TR | 0.54 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH007-C | 5.00-10.00 | Cadmium | mg/kg | 0.037 J | TR | 0.09 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH007-C | 5.00-10.00 | Naphthalene | ug/kg | 2.7 J- | I/TR | 11 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH007-C | 5.00-10.00 | Sodium | mg/kg | 120 J | TR | 540 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH007-C | 5.00-10.00 | Thallium | mg/kg | 0.085 J | TR | 0.09 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH008-B | 1.00-5.00 | 1-Methylnaphthalene | ug/kg | 1.6 J | TR | 10 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH008-B | 1.00-5.00 | 2-Methylnaphthalene | ug/kg | 1.5 J | TR | 10 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH008-B | 1.00-5.00 | Antimony | mg/kg | 0.087 J | TR | 0.16 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH008-B | 1.00-5.00 | Beryllium | mg/kg | 0.25 J | TR | 0.42 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH008-B | 1.00-5.00 | Naphthalene | ug/kg | 1.5 J | TR | 10 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH008-B | 1.00-5.00 | Sodium | mg/kg | 120 J | TR | 420 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | SO | NYOW-05-PH008-B | 1.00-5.00 | Thallium | mg/kg | 0.066 J | TR | 0.094 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH008-C | 5.00-10.00 | 1-Methylnaphthalene | ug/kg | 2.5 J | TR | 11 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH008-C | 5.00-10.00 | 2-Methylnaphthalene | ug/kg | 2.9 J | TR | 11 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH008-C | 5.00-10.00 | Antimony | mg/kg | 0.092 J | TR | 0.21 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH008-C | 5.00-10.00 | Beryllium | mg/kg | 0.34 J | TR | 0.42 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH008-C | 5.00-10.00 | Cadmium | mg/kg | 0.042 J | TR | 0.11 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH008-C | 5.00-10.00 | Naphthalene | ug/kg | 5.9 J | TR | 11 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH008-C | 5.00-10.00 | Sodium | mg/kg | 140 J | TR | 420 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH008-C | 5.00-10.00 | Thallium | mg/kg | 0.086 J | TR | 0.11 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH009-B | 1.00-5.00 | Beryllium | mg/kg | 0.13 J | TR | 0.5 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH009-B | 1.00-5.00 | Sodium | mg/kg | 46 J | TR | 500 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH009-B | 1.00-5.00 | Thallium | mg/kg | 0.032 J | TR | 0.096 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH009-C | 5.00-10.00 | Beryllium | mg/kg | 0.083 J | TR | 0.44 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH009-C | 5.00-10.00 | Cadmium | mg/kg | 0.015 J | TR | 0.086 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH009-C | 5.00-10.00 | Naphthalene | ug/kg | 0.88 J | TR | 11 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH009-C | 5.00-10.00 | Sodium | mg/kg | 64 J | TR | 440 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH009-C | 5.00-10.00 | Thallium | mg/kg | 0.023 J | TR | 0.086 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH010-B | 1.00-5.00 | Antimony | mg/kg | 0.13 J | TR | 0.2 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH010-B | 1.00-5.00 | Benzo(b)fluoranthene | ug/kg | 2.9 J | TR | 10 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH010-B | 1.00-5.00 | Beryllium | mg/kg | 0.18 J | TR | 0.53 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH010-B | 1.00-5.00 | Sodium | mg/kg | 100 J | TR | 530 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH010-B | 1.00-5.00 | Thallium | mg/kg | 0.077 J | TR | 0.096 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH010-C | 5.00-10.00 | Anthracene | ug/kg | 2 J | TR | 11 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH010-C | 5.00-10.00 | Antimony | mg/kg | 0.081 J | TR | 0.18 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH010-C | 5.00-10.00 | Beryllium | mg/kg | 0.31 J | TR | 0.46 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH010-C | 5.00-10.00 | Cadmium | mg/kg | 0.018 J | TR | 0.095 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH010-C | 5.00-10.00 | Dibenz(a,h)anthracene | ug/kg | 2.9 J | TR | 11 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH010-C | 5.00-10.00 | Phenanthrene | ug/kg | 6.4 J | TR | 11 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH010-C | 5.00-10.00 | Sodium | mg/kg | 150 J | TR | 460 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-PH010-C | 5.00-10.00 | Thallium | mg/kg | 0.059 J | TR | 0.095 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL006-A | 0.00-1.00 | Acenaphthylene | ug/kg | 110 J | TR | 350 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL006-A | 0.00-1.00 | Anthracene | ug/kg | 110 J | TR | 350 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL006-A | 0.00-1.00 | Beryllium | mg/kg | 0.63 J | TR | 0.68 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL007-A | 0.00-1.00 | Acenaphthene | ug/kg | 73 J | TR | 320 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL007-A | 0.00-1.00 | Acenaphthylene | ug/kg | 180 J | TR | 320 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL007-A | 0.00-1.00 | Anthracene | ug/kg | 290 J | TR | 320 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL007-A | 0.00-1.00 | Benzo(k)fluoranthene | ug/kg | 120 J | TR | 320 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL007-A | 0.00-1.00 | Beryllium | mg/kg | 0.35 J | TR | 0.75 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL007-A | 0.00-1.00 | Sodium | mg/kg | 100 J | TR | 750 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL008-A | 0.00-1.00 | Acenaphthene | ug/kg | 100 J | TR | 340 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL008-A | 0.00-1.00 | Acenaphthylene | ug/kg | 180 J | TR | 340 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | SO | NYOW-05-SL008-A | 0.00-1.00 | Anthracene | ug/kg | 260 J | TR | 340 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL008-A | 0.00-1.00 | Benzo(k)fluoranthene | ug/kg | 85 J | TR | 340 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL008-A | 0.00-1.00 | Beryllium | mg/kg | 0.39 J | TR | 0.59 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL008-A | 0.00-1.00 | Sodium | mg/kg | 37 J | TR | 590 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL009-A | 0.00-1.00 | Acenaphthylene | ug/kg | 14 J | TR | 15 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL009-A | 0.00-1.00 | Benzo(k)fluoranthene | ug/kg | 12 J | TR | 15 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL009-A | 0.00-1.00 | Beryllium | mg/kg | 0.33 J | TR | 0.67 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL009-A | 0.00-1.00 | Sodium | mg/kg | 70 J | TR | 670 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL010-A | 0.00-1.00 | Acenaphthene | ug/kg | 6.8 J | TR | 12 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL010-A | 0.00-1.00 | Acenaphthylene | ug/kg | 5.1 J | TR | 12 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL010-A | 0.00-1.00 | Benzo(k)fluoranthene | ug/kg | 6.6 J | TR | 12 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL010-A | 0.00-1.00 | Beryllium | mg/kg | 0.27 J | TR | 0.47 J+ |
| AOC 5 | Coal_Storage | SO | NYOW-05-SL010-A | 0.00-1.00 | Sodium | mg/kg | 37 J | TR | 470 J+ |
| AOC 5 | Coal_Storage | WG | NYOW-05-WL010-A | 0.00-10.00 | Antimony | ug/L | 0.94 J+ | TR/V6 | 6 J+ |
| AOC 5 | Coal_Storage | WG | NYOW-05-WL010-A | 0.00-10.00 | Nickel | ug/L | 3.2 J | TR | 40 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH011-B | 1.00-5.00 | Antimony | mg/kg | 0.11 J | D/TR | 0.21 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH011-B | 1.00-5.00 | Naphthalene | ug/kg | 1.2 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH011-B | 1.00-5.00 | Selenium | mg/kg | 0.17 J | TR | 0.49 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH011-C | 5.00-10.00 | Antimony | mg/kg | 0.17 J | TR | 0.19 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH011-C | 5.00-10.00 | Dibenz(a,h)anthracene | ug/kg | 6.5 J- | C/TR | 12 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH011-C | 5.00-10.00 | Naphthalene | ug/kg | 2.3 J | TR | 12 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH011-C | 5.00-10.00 | Phenanthrene | ug/kg | 5.7 J | TR | 12 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH012-B | 1.00-5.00 | 2-Methylnaphthalene | ug/kg | 1.2 J | TR | 12 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH012-B | 1.00-5.00 | Antimony | mg/kg | 0.15 J | TR | 0.17 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH012-B | 1.00-5.00 | Naphthalene | ug/kg | 2.5 J | TR | 12 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH012-B | 1.00-5.00 | Selenium | mg/kg | 0.12 J | TR | 0.45 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH012-B | 1.00-5.00 | Total Organic Carbon | mg/kg | 1900 J- | TR/H1 | 4000 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH012-C | 5.00-10.00 | Antimony | mg/kg | 0.19 J | TR | 0.23 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH012-C | 5.00-10.00 | Naphthalene | ug/kg | 1.3 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH012-C | 5.00-10.00 | Phenanthrene | ug/kg | 2.5 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH012-C | 5.00-10.00 | Total Organic Carbon | mg/kg | 2700 J- | TR/H1 | 4000 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH013-B | 1.00-5.00 | 1-Methylnaphthalene | ug/kg | 3.8 J | TR | 10 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH013-B | 1.00-5.00 | 2-Methylnaphthalene | ug/kg | 6.7 J | TR | 10 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH013-B | 1.00-5.00 | Anthracene | ug/kg | 3.1 J | TR | 10 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH013-B | 1.00-5.00 | Antimony | mg/kg | 0.17 J | TR | 0.21 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH013-B | 1.00-5.00 | Benzo(a)anthracene | ug/kg | 8 J | TR | 10 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH013-B | 1.00-5.00 | Benzo(a)pyrene | ug/kg | 6.7 J- | C/TR | 10 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH013-B | 1.00-5.00 | Benzo(g,h,i)perylene | ug/kg | 5.8 J- | C/TR | 10 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH013-B | 1.00-5.00 | Benzo(k)fluoranthene | ug/kg | 5.2 J | TR | 10 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH013-B | 1.00-5.00 | Indeno(1,2,3-c,d)pyrene | ug/kg | 6 J- | C/TR | 10 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH013-B | 1.00-5.00 | Naphthalene | ug/kg | 7.1 J | TR | 10 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | SO | NYOW-05-PH013-B | 1.00-5.00 | Selenium | mg/kg | 0.18 J | TR | 0.47 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH013-C | 5.00-10.00 | Antimony | mg/kg | 0.145 J | TR | 0.23 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH014-B | 1.00-5.00 | 2-Methylnaphthalene | ug/kg | 0.67 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH014-B | 1.00-5.00 | Antimony | mg/kg | 0.16 J | TR | 0.18 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH014-B | 1.00-5.00 | Naphthalene | ug/kg | 2.3 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH014-B | 1.00-5.00 | Selenium | mg/kg | 0.11 J | TR | 0.41 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH014-C | 5.00-10.00 | Antimony | mg/kg | 0.11 J | TR | 0.17 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH014-C | 5.00-10.00 | Naphthalene | ug/kg | 2 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH014-C | 5.00-10.00 | Phenanthrene | ug/kg | 2.7 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH014-C | 5.00-10.00 | Selenium | mg/kg | 0.13 J | TR | 0.46 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH015-B | 1.00-5.00 | 1-Methylnaphthalene | ug/kg | 0.82 J | TR | 10 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH015-B | 1.00-5.00 | 2-Methylnaphthalene | ug/kg | 1.6 J | TR | 10 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH015-B | 1.00-5.00 | Acenaphthylene | ug/kg | 0.92 J | TR | 10 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH015-B | 1.00-5.00 | Antimony | mg/kg | 0.14 J | TR | 0.21 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH015-B | 1.00-5.00 | Benzo(a)anthracene | ug/kg | 3.5 J | TR | 10 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH015-B | 1.00-5.00 | Benzo(a)pyrene | ug/kg | 3.9 J- | C/TR | 10 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH015-B | 1.00-5.00 | Benzo(g,h,i)perylene | ug/kg | 3.5 J- | C/TR | 10 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH015-B | 1.00-5.00 | Indeno(1,2,3-c,d)pyrene | ug/kg | 3.6 J- | C/TR | 10 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH015-B | 1.00-5.00 | Naphthalene | ug/kg | 2.3 J | TR | 10 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH015-B | 1.00-5.00 | Selenium | mg/kg | 0.18 J | TR | 0.48 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH015-C | 5.00-10.00 | 1-Methylnaphthalene | ug/kg | 1.2 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH015-C | 5.00-10.00 | 2-Methylnaphthalene | ug/kg | 2.1 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH015-C | 5.00-10.00 | Antimony | mg/kg | 0.14 J | TR | 0.19 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH015-C | 5.00-10.00 | Naphthalene | ug/kg | 3.3 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH015-C | 5.00-10.00 | Phenanthrene | ug/kg | 3.6 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-PH015-C | 5.00-10.00 | Selenium | mg/kg | 0.16 J | TR | 0.44 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL011-A | 0.00-1.00 | 1-Methylnaphthalene | ug/kg | 9.9 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL011-A | 0.00-1.00 | Acenaphthene | ug/kg | 3.9 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL011-A | 0.00-1.00 | Acenaphthylene | ug/kg | 3.2 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL011-A | 0.00-1.00 | Anthracene | ug/kg | 2.6 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL011-A | 0.00-1.00 | Beryllium | mg/kg | 0.34 J | TR | 0.55 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL011-A | 0.00-1.00 | Fluorene | ug/kg | 1.6 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL011-A | 0.00-1.00 | Selenium | mg/kg | 0.3 J | TR | 0.46 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL012-A | 0.00-1.00 | 1-Methylnaphthalene | ug/kg | 2.3 J | TR | 12 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL012-A | 0.00-1.00 | Anthracene | ug/kg | 2.4 J | TR | 12 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL012-A | 0.00-1.00 | Beryllium | mg/kg | 0.28 J | TR | 0.49 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL012-A | 0.00-1.00 | Selenium | mg/kg | 0.22 J | TR | 0.47 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL013-A | 0.00-1.00 | 1-Methylnaphthalene | ug/kg | 1.4 J | TR | 12 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL013-A | 0.00-1.00 | Anthracene | ug/kg | 2.6 J | TR | 12 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL013-A | 0.00-1.00 | Beryllium | mg/kg | 0.26 J | TR | 0.47 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL013-A | 0.00-1.00 | Selenium | mg/kg | 0.2 J | TR | 0.59 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | SO | NYOW-05-SL014-A | 0.00-1.00 | 1-Methylnaphthalene | ug/kg | 2.1 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL014-A | 0.00-1.00 | Acenaphthylene | ug/kg | 4.8 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL014-A | 0.00-1.00 | Anthracene | ug/kg | 2.2 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL014-A | 0.00-1.00 | Beryllium | mg/kg | 0.34 J | TR | 0.57 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL014-A | 0.00-1.00 | Selenium | mg/kg | 0.17 J | TR | 0.54 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL015-A | 0.00-1.00 | 1-Methylnaphthalene | ug/kg | 6.1 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL015-A | 0.00-1.00 | Acenaphthene | ug/kg | 1.7 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL015-A | 0.00-1.00 | Acenaphthylene | ug/kg | 4.6 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL015-A | 0.00-1.00 | Anthracene | ug/kg | 7.6 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL015-A | 0.00-1.00 | Beryllium | mg/kg | 0.27 J | TR | 0.57 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL015-A | 0.00-1.00 | Fluorene | ug/kg | 2.1 J | TR | 11 J+ |
| AOC 5 | Electric_Substation | SO | NYOW-05-SL015-A | 0.00-1.00 | Selenium | mg/kg | 0.21 J | TR | 0.42 J+ |
| AOC 5 | Electric_Substation | WG | NYOW-05-WL012-A | 0.00-10.00 | Arsenic | ug/L | 1.45 J | TR | 5 J+ |
| AOC 5 | Electric_Substation | WG | NYOW-05-WL012-A | 0.00-10.00 | Cobalt | ug/L | 0.38 J | TR | 1 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH001-B | 1.00-5.00 | 2-Butanone (MEK) | ug/kg | 7.8 J | TR | 16 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH001-B | 1.00-5.00 | Fluoranthene | ug/kg | 2.4 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH001-B | 1.00-5.00 | Selenium | mg/kg | 0.28 J | TR | 0.48 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH001-B | 1.00-5.00 | Sodium | mg/kg | 150 J | TR | 430 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH001-C | 5.00-10.00 | Benzo(a)anthracene | ug/kg | 2.7 J | TR | 10 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH001-C | 5.00-10.00 | Benzo(b)fluoranthene | ug/kg | 3.3 J | TR | 10 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH001-C | 5.00-10.00 | Cadmium | mg/kg | 0.069 J | TR | 0.093 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH001-C | 5.00-10.00 | Chrysene | ug/kg | 6.1 J | TR | 10 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH001-C | 5.00-10.00 | Fluoranthene | ug/kg | 8.2 J | TR | 10 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH001-C | 5.00-10.00 | Mercury | mg/kg | 0.0078 J | TR | 0.021 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH001-C | 5.00-10.00 | Phenanthrene | ug/kg | 4 J | TR | 10 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH001-C | 5.00-10.00 | Selenium | mg/kg | 0.19 J | TR | 0.46 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH001-C | 5.00-10.00 | Sodium | mg/kg | 195 J | TR | 510 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH002-B | 1.00-5.00 | Antimony | mg/kg | 0.11 J | TR | 0.19 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH002-B | 1.00-5.00 | Benzene | ug/kg | 0.48 J | TR | 4 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH002-B | 1.00-5.00 | Naphthalene | ug/kg | 1 J | TR | 10 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH002-B | 1.00-5.00 | Sodium | mg/kg | 110 J | TR | 480 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH002-B | 1.00-5.00 | Toluene | ug/kg | 0.58 J | TR | 4 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH002-C | 5.00-10.00 | 1-Methylnaphthalene | ug/kg | 1.5 J | TR | 10 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH002-C | 5.00-10.00 | 2-Methylnaphthalene | ug/kg | 4 J | TR | 10 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH002-C | 5.00-10.00 | Cadmium | mg/kg | 0.046 J | TR | 0.094 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH002-C | 5.00-10.00 | Mercury | mg/kg | 0.013 J | TR | 0.02 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH002-C | 5.00-10.00 | Naphthalene | ug/kg | 7.1 J | TR | 10 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH002-C | 5.00-10.00 | Selenium | mg/kg | 0.12 J | TR | 0.47 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH002-C | 5.00-10.00 | Sodium | mg/kg | 110 J | TR | 470 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-B | 1.00-5.00 | 1-Methylnaphthalene | ug/kg | 1.3 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-B | 1.00-5.00 | 2-Butanone (MEK) | ug/kg | 8.6 J | TR | 19 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-B | 1.00-5.00 | 2-Methylnaphthalene | ug/kg | 1.7 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-B | 1.00-5.00 | Antimony | mg/kg | 0.17 J | M/D/TR | 0.26 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-B | 1.00-5.00 | Chrysene | ug/kg | 2.9 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-B | 1.00-5.00 | Naphthalene | ug/kg | 2.1 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-B | 1.00-5.00 | Selenium | mg/kg | 0.15 J | D/TR | 0.49 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-B | 1.00-5.00 | Sodium | mg/kg | 230 J | TR | 460 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-B | 1.00-5.00 | Total Organic Carbon | mg/kg | 2900 J- | TR/H1 | 4000 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-C | 5.00-10.00 | Benzo(a)anthracene | ug/kg | 2.7 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-C | 5.00-10.00 | Benzo(a)pyrene | ug/kg | 3.1 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-C | 5.00-10.00 | Benzo(b)fluoranthene | ug/kg | 5.5 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-C | 5.00-10.00 | Benzo(g,h,i)perylene | ug/kg | 2.9 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-C | 5.00-10.00 | Cadmium | mg/kg | 0.075 J | TR | 0.1 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-C | 5.00-10.00 | Chrysene | ug/kg | 8.3 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-C | 5.00-10.00 | Fluoranthene | ug/kg | 2.7 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-C | 5.00-10.00 | Mercury | mg/kg | 0.015 J | TR | 0.023 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-C | 5.00-10.00 | Naphthalene | ug/kg | 1.8 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-C | 5.00-10.00 | Selenium | mg/kg | 0.15 J | TR | 0.51 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-C | 5.00-10.00 | Sodium | mg/kg | 220 J | TR | 480 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH003-C | 5.00-10.00 | Total Organic Carbon | mg/kg | 2300 J- | TR/H1 | 4000 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH004-B | 1.00-5.00 | Benzo(a)anthracene | ug/kg | 2.3 J | TR | 11 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH004-B | 1.00-5.00 | Chrysene | ug/kg | 2.8 J | TR | 11 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH004-B | 1.00-5.00 | Fluoranthene | ug/kg | 7.4 J | TR | 11 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH004-B | 1.00-5.00 | Naphthalene | ug/kg | 1.2 J | TR | 11 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH004-B | 1.00-5.00 | Phenanthrene | ug/kg | 3 J | TR | 11 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH004-B | 1.00-5.00 | Pyrene | ug/kg | 6.9 J | TR | 11 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH004-B | 1.00-5.00 | Sodium | mg/kg | 85 J | TR | 500 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH004-C | 5.00-10.00 | Benzo(b)fluoranthene | ug/kg | 3.7 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH004-C | 5.00-10.00 | Cadmium | mg/kg | 0.074 J | TR | 0.11 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH004-C | 5.00-10.00 | Fluoranthene | ug/kg | 8.6 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH004-C | 5.00-10.00 | Mercury | mg/kg | 0.014 J | TR | 0.025 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH004-C | 5.00-10.00 | Phenanthrene | ug/kg | 6.2 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH004-C | 5.00-10.00 | Sodium | mg/kg | 190 J | TR | 480 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH005-B | 1.00-5.00 | 1-Methylnaphthalene | ug/kg | 3.1 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH005-B | 1.00-5.00 | 2-Methylnaphthalene | ug/kg | 3.9 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH005-B | 1.00-5.00 | Antimony | mg/kg | 0.12 J | TR | 0.19 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH005-B | 1.00-5.00 | Chrysene | ug/kg | 4.6 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH005-B | 1.00-5.00 | Naphthalene | ug/kg | 3.7 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH005-B | 1.00-5.00 | Selenium | mg/kg | 0.3 J | TR | 0.6 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH005-B | 1.00-5.00 | Sodium | mg/kg | 120 J | TR | 480 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH005-C | 5.00-10.00 | Benzo(a)anthracene | ug/kg | 2 J | TR | 11 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH005-C | 5.00-10.00 | Benzo(a)pyrene | ug/kg | 1.7 J | TR | 11 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | SO | NYOW-05-PH005-C | 5.00-10.00 | Benzo(b)fluoranthene | ug/kg | 3.1 J | TR | 11 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH005-C | 5.00-10.00 | Cadmium | mg/kg | 0.069 J | TR | 0.1 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH005-C | 5.00-10.00 | Chrysene | ug/kg | 2.7 J | TR | 11 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH005-C | 5.00-10.00 | Fluoranthene | ug/kg | 2.5 J | TR | 11 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH005-C | 5.00-10.00 | Mercury | mg/kg | 0.018 J | TR | 0.021 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-PH005-C | 5.00-10.00 | Naphthalene | ug/kg | 0.89 J | TR | 11 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL001-A | 0.00-1.00 | Benzaldehyde | ug/kg | 63 J | TR/V2 | 350 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL001-A | 0.00-1.00 | Beryllium | mg/kg | 0.14 J | TR | 0.55 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL001-A | 0.00-1.00 | Sodium | mg/kg | 110 J | TR | 550 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL002-A | 0.00-1.00 | Acenaphthene | ug/kg | 6.9 J | TR | 11 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL002-A | 0.00-1.00 | Benzo(k)fluoranthene | ug/kg | 8.1 | TR | 11 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL002-A | 0.00-1.00 | Beryllium | mg/kg | 0.225 J | TR | 0.47 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL002-A | 0.00-1.00 | Fluorene | ug/kg | 9 J | TR | 11 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL002-A | 0.00-1.00 | Sodium | mg/kg | 55 J | TR | 470 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL003-A | 0.00-1.00 | Benzo(k)fluoranthene | ug/kg | 2.3 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL003-A | 0.00-1.00 | Beryllium | mg/kg | 0.19 J | TR | 0.42 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL003-A | 0.00-1.00 | Dibenzofuran | ug/kg | 110 J | D/TR | 370 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL003-A | 0.00-1.00 | Fluorene | ug/kg | 1.4 J | TR | 12 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL003-A | 0.00-1.00 | Sodium | mg/kg | 76 J | TR | 420 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL004-A | 0.00-1.00 | Acenaphthylene | ug/kg | 3.2 J | TR | 9.9 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL004-A | 0.00-1.00 | Benzo(k)fluoranthene | ug/kg | 6.6 J | TR | 9.9 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL004-A | 0.00-1.00 | Beryllium | mg/kg | 0.1 J | TR | 0.54 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL004-A | 0.00-1.00 | Fluorene | ug/kg | 1.6 J | TR | 9.9 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL004-A | 0.00-1.00 | Sodium | mg/kg | 140 J | TR | 540 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL005-A | 0.00-1.00 | Beryllium | mg/kg | 0.21 J | TR | 0.56 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL005-A | 0.00-1.00 | Dibenzofuran | ug/kg | 210 J | TR | 390 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL005-A | 0.00-1.00 | Silver | mg/kg | 0.27 J | TR | 1.7 J+ |
| AOC 5 | Possible_Dump | SO | NYOW-05-SL005-A | 0.00-1.00 | Sodium | mg/kg | 250 J | TR | 560 J+ |
| AOC 5 | Possible_Dump | WG | NYOW-05-WL001-A | 0.00-10.00 | Aluminum | ug/L | 44 J | TR | 300 J+ |
| AOC 5 | Possible_Dump | WG | NYOW-05-WL004-A | 0.00-10.00 | 1,2,3-Trichlorobenzene | ug/L | 0.45 J | TR | 1 J+ |
| AOC 5 | Possible_Dump | WG | NYOW-05-WL004-A | 0.00-10.00 | 2-Methylnaphthalene | ug/L | 0.085 J | TR | 0.11 J+ |
| AOC 5 | Possible_Dump | WG | NYOW-05-WL004-A | 0.00-10.00 | Nickel | ug/L | 3.5 J | TR | 40 J+ |
| AOC 5 | Possible_Dump | WG | NYOW-05-WL005-A | 0.00-10.00 | Benzo(b)fluoranthene | ug/L | 0.079 J | TR | 0.1 J+ |
| AOC 5 | Possible_Dump | WG | NYOW-05-WL005-A | 0.00-10.00 | Benzo(k)fluoranthene | ug/L | 0.03 J | TR | 0.1 J+ |
| AOC 5 | Possible_Dump | WG | NYOW-05-WL005-A | 0.00-10.00 | Chrysene | ug/L | 0.065 J | TR | 0.1 J+ |
| AOC 5 | Possible_Dump | WG | NYOW-05-WL005-A | 0.00-10.00 | Fluoranthene | ug/L | 0.081 J | TR | 0.1 J+ |
| AOC 5 | Possible_Dump | WG | NYOW-05-WL005-A | 0.00-10.00 | Phenanthrene | ug/L | 0.057 J | TR | 0.1 J+ |
| AOC 5 | Possible_Dump | WG | NYOW-05-WL005-A | 0.00-10.00 | Pyrene | ug/L | 0.072 J | TR | 0.1 J+ |
| Background | NA | SO | NYOW-B-PH006-B | 1.00-5.00 | Beryllium | mg/kg | 0.19 J | TR | 0.45 J+ |
| Background | NA | SO | NYOW-B-PH006-B | 1.00-5.00 | Sodium | mg/kg | 66 J | TR | 450 J+ |
| Background | NA | SO | NYOW-B-PH006-C | 5.00-10.00 | Acenaphthene | ug/kg | 0.4 J | TR | 12 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| Background | NA | SO | NYOW-B-PH006-C | 5.00-10.00 | Sodium | mg/kg | 95 J | TR | 490 J+ |
| Background | NA | SO | NYOW-B-PH007-B | 1.00-5.00 | Beryllium | mg/kg | 0.16 J | TR | 0.53 J+ |
| Background | NA | SO | NYOW-B-PH007-C | 5.00-10.00 | Sodium | mg/kg | 37 J- | M/D/TR | 560 J+ |
| Background | NA | SO | NYOW-B-PH008-B | 1.00-5.00 | Beryllium | mg/kg | 0.15 J | TR | 0.49 J+ |
| Background | NA | SO | NYOW-B-PH008-B | 1.00-5.00 | Sodium | mg/kg | 140 J | TR | 490 J+ |
| Background | NA | SO | NYOW-B-PH008-C | 5.00-10.00 | Mercury | mg/kg | 0.0082 J | TR | 0.023 J+ |
| Background | NA | SO | NYOW-B-PH008-C | 5.00-10.00 | Silver | mg/kg | 0.16 J | TR | 1.4 J+ |
| Background | NA | SO | NYOW-B-PH008-C | 5.00-10.00 | Sodium | mg/kg | 93 J | TR | 470 J+ |
| Background | NA | SO | NYOW-B-PH009-B | 1.00-5.00 | Beryllium | mg/kg | 0.2 J | TR | 0.53 J+ |
| Background | NA | SO | NYOW-B-PH009-C | 5.00-10.00 | Benzo(a)anthracene | ug/kg | 2 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH009-C | 5.00-10.00 | Benzo(a)pyrene | ug/kg | 2 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH009-C | 5.00-10.00 | Silver | mg/kg | 0.16 J | TR | 1.5 J+ |
| Background | NA | SO | NYOW-B-PH009-C | 5.00-10.00 | Sodium | mg/kg | 68 J | TR | 490 J+ |
| Background | NA | SO | NYOW-B-PH010-B | 1.00-5.00 | 2-Methylnaphthalene | ug/kg | 1 J | TR | 12 J+ |
| Background | NA | SO | NYOW-B-PH010-B | 1.00-5.00 | Beryllium | mg/kg | 0.15 J | TR | 0.52 J+ |
| Background | NA | SO | NYOW-B-PH010-B | 1.00-5.00 | Naphthalene | ug/kg | 7.3 J | TR | 12 J+ |
| Background | NA | SO | NYOW-B-PH010-C | 5.00-10.00 | 2-Methylnaphthalene | ug/kg | 0.77 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH010-C | 5.00-10.00 | Benzo(a)anthracene | ug/kg | 5.9 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH010-C | 5.00-10.00 | Benzo(a)pyrene | ug/kg | 3.4 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH010-C | 5.00-10.00 | Fluoranthene | ug/kg | 3.7 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH010-C | 5.00-10.00 | Mercury | mg/kg | 0.007 J | TR | 0.021 J+ |
| Background | NA | SO | NYOW-B-PH010-C | 5.00-10.00 | Phenanthrene | ug/kg | 4.2 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH010-C | 5.00-10.00 | Pyrene | ug/kg | 5.7 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH010-C | 5.00-10.00 | Silver | mg/kg | 0.22 J | TR | 1.6 J+ |
| Background | NA | SO | NYOW-B-PH010-C | 5.00-10.00 | Sodium | mg/kg | 73 J | TR | 540 J+ |
| Background | NA | SO | NYOW-B-PH011-B | 1.00-5.00 | Beryllium | mg/kg | 0.21 J | TR | 0.44 J+ |
| Background | NA | SO | NYOW-B-PH011-B | 1.00-5.00 | Sodium | mg/kg | 110 J | TR | 440 J+ |
| Background | NA | SO | NYOW-B-PH011-C | 5.00-10.00 | Benzo(a)anthracene | ug/kg | 4.95 J | TR | 12 J+ |
| Background | NA | SO | NYOW-B-PH011-C | 5.00-10.00 | Benzo(a)pyrene | ug/kg | 4.05 J | TR | 12 J+ |
| Background | NA | SO | NYOW-B-PH011-C | 5.00-10.00 | Benzo(g,h,i)perylene | ug/kg | 2.7 J | TR | 12 J+ |
| Background | NA | SO | NYOW-B-PH011-C | 5.00-10.00 | Benzo(k)fluoranthene | ug/kg | 3.3 J | TR | 12 J+ |
| Background | NA | SO | NYOW-B-PH011-C | 5.00-10.00 | Fluoranthene | ug/kg | 6.6 J | TR | 12 J+ |
| Background | NA | SO | NYOW-B-PH011-C | 5.00-10.00 | Phenanthrene | ug/kg | 3.3 J | D3/TR | 12 J+ |
| Background | NA | SO | NYOW-B-PH011-C | 5.00-10.00 | Pyrene | ug/kg | 11 J | D3/TR | 12 J+ |
| Background | NA | SO | NYOW-B-PH011-C | 5.00-10.00 | Sodium | mg/kg | 104 J | TR | 500 J+ |
| Background | NA | SO | NYOW-B-PH012-B | 1.00-5.00 | Beryllium | mg/kg | 0.11 J | TR | 0.46 J+ |
| Background | NA | SO | NYOW-B-PH012-B | 1.00-5.00 | Naphthalene | ug/kg | 3.4 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH012-B | 1.00-5.00 | Sodium | mg/kg | 42 J | TR | 460 J+ |
| Background | NA | SO | NYOW-B-PH012-C | 5.00-10.00 | Sodium | mg/kg | 66 J | TR | 490 J+ |
| Background | NA | SO | NYOW-B-PH013-B | 1.00-5.00 | Beryllium | mg/kg | 0.15 J | TR | 0.42 J+ |
| Background | NA | SO | NYOW-B-PH013-B | 1.00-5.00 | Sodium | mg/kg | 88 J | TR | 420 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| Background | NA | SO | NYOW-B-PH013-C | 5.00-10.00 | Sodium | mg/kg | 71 J | TR | 520 J+ |
| Background | NA | SO | NYOW-B-PH014-B | 1.00-5.00 | Beryllium | mg/kg | 0.17 J | TR | 0.43 J+ |
| Background | NA | SO | NYOW-B-PH014-B | 1.00-5.00 | Naphthalene | ug/kg | 3.4 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH014-B | 1.00-5.00 | Silver | mg/kg | 0.15 J | TR | 1.3 J+ |
| Background | NA | SO | NYOW-B-PH014-B | 1.00-5.00 | Sodium | mg/kg | 41 J | TR | 430 J+ |
| Background | NA | SO | NYOW-B-PH014-C | 5.00-10.00 | Acenaphthene | ug/kg | 0.43 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH014-C | 5.00-10.00 | Mercury | mg/kg | 0.01 J | TR | 0.022 J+ |
| Background | NA | SO | NYOW-B-PH014-C | 5.00-10.00 | Silver | mg/kg | 0.19 J | TR | 1.5 J+ |
| Background | NA | SO | NYOW-B-PH014-C | 5.00-10.00 | Sodium | mg/kg | 100 J | TR | 500 J+ |
| Background | NA | SO | NYOW-B-PH015-B | 1.00-5.00 | Beryllium | mg/kg | 0.14 J | TR | 0.49 J+ |
| Background | NA | SO | NYOW-B-PH015-B | 1.00-5.00 | Sodium | mg/kg | 53 J | TR | 490 J+ |
| Background | NA | SO | NYOW-B-PH015-C | 5.00-10.00 | Selenium | mg/kg | 0.14 J | TR | 0.42 J+ |
| Background | NA | SO | NYOW-B-PH015-C | 5.00-10.00 | Sodium | mg/kg | 150 J | TR | 600 J+ |
| Background | NA | SO | NYOW-B-PH016-B | 1.00-5.00 | Beryllium | mg/kg | 0.18 J | TR | 0.5 J+ |
| Background | NA | SO | NYOW-B-PH016-B | 1.00-5.00 | Sodium | mg/kg | 220 J | TR | 500 J+ |
| Background | NA | SO | NYOW-B-PH016-C | 5.00-10.00 | Sodium | mg/kg | 200 J | TR | 440 J+ |
| Background | NA | SO | NYOW-B-PH017-B | 1.00-5.00 | Beryllium | mg/kg | 0.19 J | TR | 0.43 J+ |
| Background | NA | SO | NYOW-B-PH017-B | 1.00-5.00 | Sodium | mg/kg | 35 J | TR | 430 J+ |
| Background | NA | SO | NYOW-B-PH017-C | 5.00-10.00 | Mercury | mg/kg | 0.021 J | TR | 0.022 J+ |
| Background | NA | SO | NYOW-B-PH017-C | 5.00-10.00 | Sodium | mg/kg | 76 J | TR | 400 J+ |
| Background | NA | SO | NYOW-B-PH018-B | 1.00-5.00 | Beryllium | mg/kg | 0.18 J | TR | 0.39 J+ |
| Background | NA | SO | NYOW-B-PH018-B | 1.00-5.00 | Sodium | mg/kg | 130 J | TR | 390 J+ |
| Background | NA | SO | NYOW-B-PH018-C | 5.00-10.00 | Benzo(a)anthracene | ug/kg | 2.2 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH018-C | 5.00-10.00 | Benzo(a)pyrene | ug/kg | 1.5 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH018-C | 5.00-10.00 | Sodium | mg/kg | 79.5 J | TR | 430 J+ |
| Background | NA | SO | NYOW-B-PH019-B | 1.00-5.00 | Beryllium | mg/kg | 0.28 J | TR | 0.56 J+ |
| Background | NA | SO | NYOW-B-PH019-B | 1.00-5.00 | Sodium | mg/kg | 170 J | TR | 560 J+ |
| Background | NA | SO | NYOW-B-PH019-C | 5.00-10.00 | Sodium | mg/kg | 100 J | TR | 540 J+ |
| Background | NA | SO | NYOW-B-PH020-B | 1.00-5.00 | Beryllium | mg/kg | 0.18 J | TR | 0.49 J+ |
| Background | NA | SO | NYOW-B-PH020-B | 1.00-5.00 | Naphthalene | ug/kg | 6 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH020-B | 1.00-5.00 | Silver | mg/kg | 0.2 J | TR | 1.5 J+ |
| Background | NA | SO | NYOW-B-PH020-B | 1.00-5.00 | Sodium | mg/kg | 82 J | TR | 490 J+ |
| Background | NA | SO | NYOW-B-PH020-C | 5.00-10.00 | Silver | mg/kg | 0.13 J | TR | 1.2 J+ |
| Background | NA | SO | NYOW-B-PH020-C | 5.00-10.00 | Sodium | mg/kg | 64 J | TR | 410 J+ |
| Background | NA | SO | NYOW-B-PH021-B | 1.00-5.00 | Beryllium | mg/kg | 0.26 J | TR | 0.49 J+ |
| Background | NA | SO | NYOW-B-PH022-B | 1.00-5.00 | Beryllium | mg/kg | 0.28 J | TR | 0.41 J+ |
| Background | NA | SO | NYOW-B-PH022-B | 1.00-5.00 | Sodium | mg/kg | 68 J | TR | 410 J+ |
| Background | NA | SO | NYOW-B-PH022-C | 5.00-10.00 | Mercury | mg/kg | 0.0086 J | TR | 0.022 J+ |
| Background | NA | SO | NYOW-B-PH022-C | 5.00-10.00 | Sodium | mg/kg | 72 J | TR | 530 J+ |
| Background | NA | SO | NYOW-B-PH023-B | 1.00-5.00 | Beryllium | mg/kg | 0.35 J | TR | 0.51 J+ |
| Background | NA | SO | NYOW-B-PH023-B | 1.00-5.00 | Sodium | mg/kg | 55 J | TR | 510 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| Background | NA | SO | NYOW-B-PH023-C | 5.00-10.00 | 2-Methylnaphthalene | ug/kg | 0.64 J | TR | 9.8 J+ |
| Background | NA | SO | NYOW-B-PH023-C | 5.00-10.00 | Acenaphthene | ug/kg | 0.32 J | TR | 9.8 J+ |
| Background | NA | SO | NYOW-B-PH023-C | 5.00-10.00 | Benzo(a)pyrene | ug/kg | 1.6 J | TR | 9.8 J+ |
| Background | NA | SO | NYOW-B-PH023-C | 5.00-10.00 | Fluoranthene | ug/kg | 3 J | TR | 9.8 J+ |
| Background | NA | SO | NYOW-B-PH023-C | 5.00-10.00 | Indeno(1,2,3-c,d)pyrene | ug/kg | 2.2 J | TR | 9.8 J+ |
| Background | NA | SO | NYOW-B-PH023-C | 5.00-10.00 | Phenanthrene | ug/kg | 2.8 J | TR | 9.8 J+ |
| Background | NA | SO | NYOW-B-PH023-C | 5.00-10.00 | Pyrene | ug/kg | 2.6 J | TR | 9.8 J+ |
| Background | NA | SO | NYOW-B-PH023-C | 5.00-10.00 | Sodium | mg/kg | 110 J | TR | 390 J+ |
| Background | NA | SO | NYOW-B-PH024-B | 1.00-5.00 | Beryllium | mg/kg | 0.35 J | TR | 2.7 J+ |
| Background | NA | SO | NYOW-B-PH024-B | 1.00-5.00 | Sodium | mg/kg | 52 J | TR | 540 J+ |
| Background | NA | SO | NYOW-B-PH024-C | 5.00-10.00 | Selenium | mg/kg | 0.11 J | TR | 0.42 J+ |
| Background | NA | SO | NYOW-B-PH024-C | 5.00-10.00 | Sodium | mg/kg | 91 J | TR | 520 J+ |
| Background | NA | SO | NYOW-B-PH025-B | 1.00-5.00 | Beryllium | mg/kg | 0.17 J | TR | 0.54 J+ |
| Background | NA | SO | NYOW-B-PH025-B | 1.00-5.00 | Sodium | mg/kg | 36 J | TR | 540 J+ |
| Background | NA | SO | NYOW-B-PH025-C | 5.00-10.00 | Fluoranthene | ug/kg | 2.1 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH025-C | 5.00-10.00 | Silver | mg/kg | 0.18 J | TR | 1.6 J+ |
| Background | NA | SO | NYOW-B-PH025-C | 5.00-10.00 | Sodium | mg/kg | 100 J | TR | 540 J+ |
| Background | NA | SO | NYOW-B-PH026-B | 1.00-5.00 | 2-Methylnaphthalene | ug/kg | 0.96 J | TR | 12 J+ |
| Background | NA | SO | NYOW-B-PH026-B | 1.00-5.00 | Beryllium | mg/kg | 0.32 J- | M/TR | 0.57 J+ |
| Background | NA | SO | NYOW-B-PH026-B | 1.00-5.00 | Naphthalene | ug/kg | 2.7 J | TR | 12 J+ |
| Background | NA | SO | NYOW-B-PH026-C | 5.00-10.00 | Mercury | mg/kg | 0.008 J | TR | 0.02 J+ |
| Background | NA | SO | NYOW-B-PH026-C | 5.00-10.00 | Sodium | mg/kg | 72.5 J | TR | 470 J+ |
| Background | NA | SO | NYOW-B-PH027-B | 1.00-5.00 | Beryllium | mg/kg | 0.33 J | TR | 0.52 J+ |
| Background | NA | SO | NYOW-B-PH027-B | 1.00-5.00 | Sodium | mg/kg | 50 J | TR | 520 J+ |
| Background | NA | SO | NYOW-B-PH027-C | 5.00-10.00 | Sodium | mg/kg | 120 J | TR | 380 J+ |
| Background | NA | SO | NYOW-B-PH028-B | 1.00-5.00 | Beryllium | mg/kg | 0.26 J | D/TR | 0.42 J+ |
| Background | NA | SO | NYOW-B-PH028-B | 1.00-5.00 | Naphthalene | ug/kg | 0.8 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH028-B | 1.00-5.00 | Sodium | mg/kg | 41 J | D/TR | 420 J+ |
| Background | NA | SO | NYOW-B-PH028-C | 5.00-10.00 | Selenium | mg/kg | 0.18 J | TR | 0.39 J+ |
| Background | NA | SO | NYOW-B-PH028-C | 5.00-10.00 | Sodium | mg/kg | 140 J | TR | 480 J+ |
| Background | NA | SO | NYOW-B-PH029-B | 1.00-5.00 | Beryllium | mg/kg | 0.21 J | TR | 0.51 J+ |
| Background | NA | SO | NYOW-B-PH029-B | 1.00-5.00 | Sodium | mg/kg | 110 J | TR | 510 J+ |
| Background | NA | SO | NYOW-B-PH029-C | 5.00-10.00 | Benzo(a)anthracene | ug/kg | 4.8 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH029-C | 5.00-10.00 | Benzo(a)pyrene | ug/kg | 6.9 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH029-C | 5.00-10.00 | Benzo(g,h,i)perylene | ug/kg | 7.1 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH029-C | 5.00-10.00 | Benzo(k)fluoranthene | ug/kg | 5.2 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH029-C | 5.00-10.00 | Fluoranthene | ug/kg | 7.8 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH029-C | 5.00-10.00 | Indeno(1,2,3-c,d)pyrene | ug/kg | 8.5 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH029-C | 5.00-10.00 | Phenanthrene | ug/kg | 2.8 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH029-C | 5.00-10.00 | Pyrene | ug/kg | 7.2 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH029-C | 5.00-10.00 | Sodium | mg/kg | 100 J | TR | 520 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| Background | NA | SO | NYOW-B-PH030-B | 1.00-5.00 | Beryllium | mg/kg | 0.14 J | TR | 0.4 J+ |
| Background | NA | SO | NYOW-B-PH030-B | 1.00-5.00 | Sodium | mg/kg | 69 J | TR | 400 J+ |
| Background | NA | SO | NYOW-B-PH030-C | 5.00-10.00 | Sodium | mg/kg | 120 J | TR | 420 J+ |
| Background | NA | SO | NYOW-B-PH031-B | 1.00-5.00 | Beryllium | mg/kg | 0.37 J | TR | 0.51 J+ |
| Background | NA | SO | NYOW-B-PH031-B | 1.00-5.00 | Sodium | mg/kg | 30 J | TR | 510 J+ |
| Background | NA | SO | NYOW-B-PH031-C | 5.00-10.00 | Mercury | mg/kg | 0.0125 J | TR | 0.021 J+ |
| Background | NA | SO | NYOW-B-PH031-C | 5.00-10.00 | Selenium | mg/kg | 0.2 J | TR | 0.45 J+ |
| Background | NA | SO | NYOW-B-PH031-C | 5.00-10.00 | Silver | mg/kg | 0.15 J | TR | 1.4 J+ |
| Background | NA | SO | NYOW-B-PH031-C | 5.00-10.00 | Sodium | mg/kg | 110 J | TR | 460 J+ |
| Background | NA | SO | NYOW-B-PH032-B | 1.00-5.00 | Acenaphthene | ug/kg | 0.66 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH032-B | 1.00-5.00 | Beryllium | mg/kg | 0.27 J | TR | 0.41 J+ |
| Background | NA | SO | NYOW-B-PH032-B | 1.00-5.00 | Fluorene | ug/kg | 1.6 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH032-B | 1.00-5.00 | Sodium | mg/kg | 110 J | TR | 410 J+ |
| Background | NA | SO | NYOW-B-PH032-C | 5.00-10.00 | Benzo(a)anthracene | ug/kg | 1.9 J | TR | 9.8 J+ |
| Background | NA | SO | NYOW-B-PH032-C | 5.00-10.00 | Fluorene | ug/kg | 2.3 J | TR | 9.8 J+ |
| Background | NA | SO | NYOW-B-PH032-C | 5.00-10.00 | Phenanthrene | ug/kg | 3.1 J | TR | 9.8 J+ |
| Background | NA | SO | NYOW-B-PH032-C | 5.00-10.00 | Sodium | mg/kg | 120 J | TR | 480 J+ |
| Background | NA | SO | NYOW-B-PH033-B | 1.00-5.00 | 2-Methylnaphthalene | ug/kg | 0.89 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH033-B | 1.00-5.00 | Beryllium | mg/kg | 0.21 J | TR | 0.57 J+ |
| Background | NA | SO | NYOW-B-PH033-B | 1.00-5.00 | Naphthalene | ug/kg | 5.3 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH033-B | 1.00-5.00 | Sodium | mg/kg | 49 J | TR | 570 J+ |
| Background | NA | SO | NYOW-B-PH033-C | 5.00-10.00 | Sodium | mg/kg | 85 J | TR | 540 J+ |
| Background | NA | SO | NYOW-B-PH034-B | 1.00-5.00 | Beryllium | mg/kg | 0.2 J | TR | 0.51 J+ |
| Background | NA | SO | NYOW-B-PH034-B | 1.00-5.00 | Sodium | mg/kg | 35 J | TR | 510 J+ |
| Background | NA | SO | NYOW-B-PH034-C | 5.00-10.00 | Phenanthrene | ug/kg | 2.9 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH034-C | 5.00-10.00 | Sodium | mg/kg | 80 J | TR | 430 J+ |
| Background | NA | SO | NYOW-B-PH035-B | 1.00-5.00 | Beryllium | mg/kg | 0.19 J | TR | 0.48 J+ |
| Background | NA | SO | NYOW-B-PH035-B | 1.00-5.00 | Sodium | mg/kg | 36 J | TR | 480 J+ |
| Background | NA | SO | NYOW-B-PH035-C | 5.00-10.00 | Mercury | mg/kg | 0.008 J | TR | 0.022 J+ |
| Background | NA | SO | NYOW-B-PH035-C | 5.00-10.00 | Silver | mg/kg | 0.15 J- | TR/V6 | 1.4 J+ |
| Background | NA | SO | NYOW-B-PH035-C | 5.00-10.00 | Sodium | mg/kg | 160 J | TR | 480 J+ |
| Background | NA | SO | NYOW-B-PH036-B | 1.00-5.00 | Beryllium | mg/kg | 0.33 J- | M/TR | 0.54 J+ |
| Background | NA | SO | NYOW-B-PH036-B | 1.00-5.00 | Silver | mg/kg | 0.29 J | TR | 1.6 J+ |
| Background | NA | SO | NYOW-B-PH036-B | 1.00-5.00 | Sodium | mg/kg | 72 J- | M/TR | 540 J+ |
| Background | NA | SO | NYOW-B-PH036-C | 5.00-10.00 | 1-Methylnaphthalene | ug/kg | 0.79 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH036-C | 5.00-10.00 | 2-Methylnaphthalene | ug/kg | 1.5 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH036-C | 5.00-10.00 | Benzo(g,h,i)perylene | ug/kg | 2.65 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH036-C | 5.00-10.00 | Fluorene | ug/kg | 1.95 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH036-C | 5.00-10.00 | Phenanthrene | ug/kg | 4.85 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH036-C | 5.00-10.00 | Silver | mg/kg | 0.26 J | TR | 1.5 J+ |
| Background | NA | SO | NYOW-B-PH036-C | 5.00-10.00 | Sodium | mg/kg | 109.5 J | TR | 490 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| Background | NA | SO | NYOW-B-PH037-B | 1.00-5.00 | Beryllium | mg/kg | 0.24 J | TR | 0.54 J+ |
| Background | NA | SO | NYOW-B-PH037-C | 5.00-10.00 | Silver | mg/kg | 0.2 J | TR | 1.5 J+ |
| Background | NA | SO | NYOW-B-PH037-C | 5.00-10.00 | Sodium | mg/kg | 51 J | TR | 500 J+ |
| Background | NA | SO | NYOW-B-PH038-B | 1.00-5.00 | Beryllium | mg/kg | 0.27 J | TR | 0.58 J+ |
| Background | NA | SO | NYOW-B-PH038-C | 5.00-10.00 | Silver | mg/kg | 0.18 J | TR | 1.5 J+ |
| Background | NA | SO | NYOW-B-PH038-C | 5.00-10.00 | Sodium | mg/kg | 51 J | TR | 500 J+ |
| Background | NA | SO | NYOW-B-PH039-B | 1.00-5.00 | Beryllium | mg/kg | 0.27 J | TR | 0.52 J+ |
| Background | NA | SO | NYOW-B-PH039-C | 5.00-10.00 | Silver | mg/kg | 0.16 J | TR | 1.5 J+ |
| Background | NA | SO | NYOW-B-PH039-C | 5.00-10.00 | Sodium | mg/kg | 42 J | TR | 510 J+ |
| Background | NA | SO | NYOW-B-PH040-B | 1.00-5.00 | 1-Methylnaphthalene | ug/kg | 0.9 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-B | 1.00-5.00 | 2-Methylnaphthalene | ug/kg | 1 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-B | 1.00-5.00 | Acenaphthene | ug/kg | 0.51 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-B | 1.00-5.00 | Beryllium | mg/kg | 0.36 J | TR | 0.45 J+ |
| Background | NA | SO | NYOW-B-PH040-B | 1.00-5.00 | Naphthalene | ug/kg | 1.3 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-B | 1.00-5.00 | Sodium | mg/kg | 50 J | TR | 450 J+ |
| Background | NA | SO | NYOW-B-PH040-C | 5.00-10.00 | 1-Methylnaphthalene | ug/kg | 3.3 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-C | 5.00-10.00 | 2-Methylnaphthalene | ug/kg | 3.6 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-C | 5.00-10.00 | Acenaphthene | ug/kg | 4.6 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-C | 5.00-10.00 | Acenaphthylene | ug/kg | 5 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-C | 5.00-10.00 | Anthracene | ug/kg | 5.2 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-C | 5.00-10.00 | Benzo(a)anthracene | ug/kg | 7.5 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-C | 5.00-10.00 | Benzo(a)pyrene | ug/kg | 7.9 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-C | 5.00-10.00 | Benzo(g,h,i)perylene | ug/kg | 6.5 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-C | 5.00-10.00 | Benzo(k)fluoranthene | ug/kg | 6.6 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-C | 5.00-10.00 | Dibenz(a,h)anthracene | ug/kg | 5.1 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-C | 5.00-10.00 | Fluoranthene | ug/kg | 7.6 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-C | 5.00-10.00 | Fluorene | ug/kg | 5.4 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-C | 5.00-10.00 | Indeno(1,2,3-c,d)pyrene | ug/kg | 7.1 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-C | 5.00-10.00 | Phenanthrene | ug/kg | 6.1 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-C | 5.00-10.00 | Pyrene | ug/kg | 7.5 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH040-C | 5.00-10.00 | Sodium | mg/kg | 77 J | TR | 500 J+ |
| Background | NA | SO | NYOW-B-PH041-B | 1.00-5.00 | Beryllium | mg/kg | 0.23 J | TR | 0.54 J+ |
| Background | NA | SO | NYOW-B-PH041-C | 5.00-10.00 | Sodium | mg/kg | 71.5 J | TR | 520 J+ |
| Background | NA | SO | NYOW-B-PH042-B | 1.00-5.00 | Beryllium | mg/kg | 0.17 J | TR | 0.48 J+ |
| Background | NA | SO | NYOW-B-PH042-C | 5.00-10.00 | Mercury | mg/kg | 0.0086 J | TR | 0.021 J+ |
| Background | NA | SO | NYOW-B-PH042-C | 5.00-10.00 | Sodium | mg/kg | 53 J | TR | 470 J+ |
| Background | NA | SO | NYOW-B-PH043-B | 1.00-5.00 | Beryllium | mg/kg | 0.25 J | TR | 0.48 J+ |
| Background | NA | SO | NYOW-B-PH043-B | 1.00-5.00 | Sodium | mg/kg | 30 J | TR | 480 J+ |
| Background | NA | SO | NYOW-B-PH043-C | 5.00-10.00 | Sodium | mg/kg | 64 J | TR | 400 J+ |
| Background | NA | SO | NYOW-B-PH044-B | 1.00-5.00 | Beryllium | mg/kg | 0.25 J | TR | 0.41 J+ |
| Background | NA | SO | NYOW-B-PH044-C | 5.00-10.00 | Fluoranthene | ug/kg | 2.2 J | TR | 11 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| Background | NA | SO | NYOW-B-PH044-C | 5.00-10.00 | Mercury | mg/kg | 0.018 J | TR | 0.022 J+ |
| Background | NA | SO | NYOW-B-PH044-C | 5.00-10.00 | Pyrene | ug/kg | 3.1 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH044-C | 5.00-10.00 | Selenium | mg/kg | 0.24 J | TR | 0.53 J+ |
| Background | NA | SO | NYOW-B-PH044-C | 5.00-10.00 | Sodium | mg/kg | 40 J | TR | 470 J+ |
| Background | NA | SO | NYOW-B-PH045-B | 1.00-5.00 | Beryllium | mg/kg | 0.28 J | TR | 0.45 J+ |
| Background | NA | SO | NYOW-B-PH045-C | 5.00-10.00 | Mercury | mg/kg | 0.0079 J | TR | 0.019 J+ |
| Background | NA | SO | NYOW-B-PH045-C | 5.00-10.00 | Sodium | mg/kg | 76 J | TR | 380 J+ |
| Background | NA | SO | NYOW-B-PH046-B | 1.00-5.00 | Beryllium | mg/kg | 0.4 J- | M/D/TR/M2 | 0.53 J+ |
| Background | NA | SO | NYOW-B-PH046-B | 1.00-5.00 | Sodium | mg/kg | 37 J- | M/D/TR/M2 | 530 J+ |
| Background | NA | SO | NYOW-B-PH046-C | 5.00-10.00 | Mercury | mg/kg | 0.0089 J | TR | 0.022 J+ |
| Background | NA | SO | NYOW-B-PH046-C | 5.00-10.00 | Sodium | mg/kg | 75.5 J | TR | 410 J+ |
| Background | NA | SO | NYOW-B-PH047-B | 1.00-5.00 | 1-Methylnaphthalene | ug/kg | 1.5 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH047-B | 1.00-5.00 | 2-Methylnaphthalene | ug/kg | 2 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH047-B | 1.00-5.00 | Beryllium | mg/kg | 0.26 J | TR | 0.45 J+ |
| Background | NA | SO | NYOW-B-PH047-B | 1.00-5.00 | Naphthalene | ug/kg | 2.2 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH047-B | 1.00-5.00 | Sodium | mg/kg | 54 J | TR | 450 J+ |
| Background | NA | SO | NYOW-B-PH047-C | 5.00-10.00 | Fluoranthene | ug/kg | 2.5 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH047-C | 5.00-10.00 | Phenanthrene | ug/kg | 2.4 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH047-C | 5.00-10.00 | Pyrene | ug/kg | 3 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH047-C | 5.00-10.00 | Sodium | mg/kg | 120 J | TR | 400 J+ |
| Background | NA | SO | NYOW-B-PH048-B | 1.00-5.00 | 1-Methylnaphthalene | ug/kg | 0.77 J- | I/TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH048-B | 1.00-5.00 | 2-Methylnaphthalene | ug/kg | 0.86 J- | I/TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH048-B | 1.00-5.00 | Beryllium | mg/kg | 0.34 J | TR | 0.46 J+ |
| Background | NA | SO | NYOW-B-PH048-B | 1.00-5.00 | Fluorene | ug/kg | 1.1 J- | I/TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH048-B | 1.00-5.00 | Naphthalene | ug/kg | 1.2 J | C/Z/I/TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH048-B | 1.00-5.00 | Silver | mg/kg | 0.18 J | TR | 1.4 J+ |
| Background | NA | SO | NYOW-B-PH048-B | 1.00-5.00 | Sodium | mg/kg | 42 J | TR | 460 J+ |
| Background | NA | SO | NYOW-B-PH048-C | 5.00-10.00 | 1-Methylnaphthalene | ug/kg | 1.8 J- | I/TR | 9.8 J+ |
| Background | NA | SO | NYOW-B-PH048-C | 5.00-10.00 | 2-Methylnaphthalene | ug/kg | 4.1 J- | I/TR | 9.8 J+ |
| Background | NA | SO | NYOW-B-PH048-C | 5.00-10.00 | Acenaphthene | ug/kg | 0.6 J- | I/TR | 9.8 J+ |
| Background | NA | SO | NYOW-B-PH048-C | 5.00-10.00 | Acenaphthylene | ug/kg | 0.39 J- | I/TR | 9.8 J+ |
| Background | NA | SO | NYOW-B-PH048-C | 5.00-10.00 | Silver | mg/kg | 0.22 J | TR | 1.4 J+ |
| Background | NA | SO | NYOW-B-PH048-C | 5.00-10.00 | Sodium | mg/kg | 120 J | TR | 480 J+ |
| Background | NA | SO | NYOW-B-PH049-B | 1.00-5.00 | Beryllium | mg/kg | 0.19 J | TR | 0.46 J+ |
| Background | NA | SO | NYOW-B-PH049-B | 1.00-5.00 | Naphthalene | ug/kg | 0.87 J+ | C/Z/TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH049-B | 1.00-5.00 | Silver | mg/kg | 0.27 J | TR | 1.4 J+ |
| Background | NA | SO | NYOW-B-PH049-B | 1.00-5.00 | Sodium | mg/kg | 110 J | TR | 460 J+ |
| Background | NA | SO | NYOW-B-PH049-C | 5.00-10.00 | Silver | mg/kg | 0.21 J | TR | 1.6 J+ |
| Background | NA | SO | NYOW-B-PH049-C | 5.00-10.00 | Sodium | mg/kg | 130 J | TR | 540 J+ |
| Background | NA | SO | NYOW-B-PH050-B | 1.00-5.00 | 1-Methylnaphthalene | ug/kg | 1 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH050-B | 1.00-5.00 | 2-Methylnaphthalene | ug/kg | 1.9 J | TR | 10 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| Background | NA | SO | NYOW-B-PH050-B | 1.00-5.00 | Acenaphthene | ug/kg | 0.73 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH050-B | 1.00-5.00 | Beryllium | mg/kg | 0.22 J | TR | 0.4 J+ |
| Background | NA | SO | NYOW-B-PH050-B | 1.00-5.00 | Fluorene | ug/kg | 2.1 J | TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH050-B | 1.00-5.00 | Naphthalene | ug/kg | 5.8 J+ | C/Z/TR | 10 J+ |
| Background | NA | SO | NYOW-B-PH050-B | 1.00-5.00 | Silver | mg/kg | 0.23 J | TR | 1.2 J+ |
| Background | NA | SO | NYOW-B-PH050-B | 1.00-5.00 | Sodium | mg/kg | 110 J | TR | 400 J+ |
| Background | NA | SO | NYOW-B-PH050-C | 5.00-10.00 | Mercury | mg/kg | 0.01 J | TR | 0.022 J+ |
| Background | NA | SO | NYOW-B-PH050-C | 5.00-10.00 | Phenanthrene | ug/kg | 3.3 J- | I/TR | 11 J+ |
| Background | NA | SO | NYOW-B-PH050-C | 5.00-10.00 | Silver | mg/kg | 0.22 J | TR | 1.4 J+ |
| Background | NA | SO | NYOW-B-PH050-C | 5.00-10.00 | Sodium | mg/kg | 160 J | TR | 480 J+ |
| Background | NA | SO | NYOW-B-SL006-A | 0.00-1.00 | Acenaphthene | ug/kg | 0.55 J | TR | 13 J+ |
| Background | NA | SO | NYOW-B-SL006-A | 0.00-1.00 | Beryllium | mg/kg | 0.19 J | TR | 0.56 J+ |
| Background | NA | SO | NYOW-B-SL006-A | 0.00-1.00 | Sodium | mg/kg | 72 J | TR | 560 J+ |
| Background | NA | SO | NYOW-B-SL007-A | 0.00-1.00 | Acenaphthene | ug/kg | 0.57 J | TR | 13 J+ |
| Background | NA | SO | NYOW-B-SL007-A | 0.00-1.00 | Beryllium | mg/kg | 0.135 J | TR | 0.51 J+ |
| Background | NA | SO | NYOW-B-SL007-A | 0.00-1.00 | Sodium | mg/kg | 40 J | TR | 510 J+ |
| Background | NA | SO | NYOW-B-SL008-A | 0.00-1.00 | Beryllium | mg/kg | 0.14 J | TR | 0.48 J+ |
| Background | NA | SO | NYOW-B-SL008-A | 0.00-1.00 | Sodium | mg/kg | 140 J | TR | 480 J+ |
| Background | NA | SO | NYOW-B-SL010-A | 0.00-1.00 | Acenaphthene | ug/kg | 0.53 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-SL010-A | 0.00-1.00 | Beryllium | mg/kg | 0.24 J | TR | 0.52 J+ |
| Background | NA | SO | NYOW-B-SL011-A | 0.00-1.00 | Beryllium | mg/kg | 0.26 J | TR | 0.5 J+ |
| Background | NA | SO | NYOW-B-SL011-A | 0.00-1.00 | Sodium | mg/kg | 84 J | TR | 500 J+ |
| Background | NA | SO | NYOW-B-SL012-A | 0.00-1.00 | Beryllium | mg/kg | 0.34 J | TR | 0.64 J+ |
| Background | NA | SO | NYOW-B-SL012-A | 0.00-1.00 | Sodium | mg/kg | 56 J | TR | 640 J+ |
| Background | NA | SO | NYOW-B-SL013-A | 0.00-1.00 | Acenaphthene | ug/kg | 0.63 J | TR | 12 J+ |
| Background | NA | SO | NYOW-B-SL013-A | 0.00-1.00 | Beryllium | mg/kg | 0.35 J | TR | 0.61 J+ |
| Background | NA | SO | NYOW-B-SL013-A | 0.00-1.00 | Sodium | mg/kg | 39 J | TR | 610 J+ |
| Background | NA | SO | NYOW-B-SL014-A | 0.00-1.00 | Beryllium | mg/kg | 0.16 J | TR | 0.51 J+ |
| Background | NA | SO | NYOW-B-SL015-A | 0.00-1.00 | Beryllium | mg/kg | 0.077 J | TR | 0.59 J+ |
| Background | NA | SO | NYOW-B-SL016-A | 0.00-1.00 | Beryllium | mg/kg | 0.18 J | D/TR | 0.57 J+ |
| Background | NA | SO | NYOW-B-SL016-A | 0.00-1.00 | Sodium | mg/kg | 250 J | D/TR | 570 J+ |
| Background | NA | SO | NYOW-B-SL017-A | 0.00-1.00 | Beryllium | mg/kg | 0.13 J | TR | 0.53 J+ |
| Background | NA | SO | NYOW-B-SL018-A | 0.00-1.00 | Beryllium | mg/kg | 0.2 J | TR | 0.52 J+ |
| Background | NA | SO | NYOW-B-SL018-A | 0.00-1.00 | Sodium | mg/kg | 58 J | TR | 520 J+ |
| Background | NA | SO | NYOW-B-SL019-A | 0.00-1.00 | Beryllium | mg/kg | 0.17 J | TR | 0.46 J+ |
| Background | NA | SO | NYOW-B-SL019-A | 0.00-1.00 | Sodium | mg/kg | 100 J | TR | 460 J+ |
| Background | NA | SO | NYOW-B-SL020-A | 0.00-1.00 | Acenaphthene | ug/kg | 0.77 J | TR | 13 J+ |
| Background | NA | SO | NYOW-B-SL020-A | 0.00-1.00 | Sodium | mg/kg | 71 J | TR | 550 J+ |
| Background | NA | SO | NYOW-B-SL021-A | 0.00-1.00 | Acenaphthene | ug/kg | 0.41 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-SL021-A | 0.00-1.00 | Beryllium | mg/kg | 0.37 J | TR | 0.58 J+ |
| Background | NA | SO | NYOW-B-SL022-A | 0.00-1.00 | Beryllium | mg/kg | 0.39 J | TR | 0.42 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| Background | NA | SO | NYOW-B-SL022-A | 0.00-1.00 | Sodium | mg/kg | 34 J | TR | 420 J+ |
| Background | NA | SO | NYOW-B-SL023-A | 0.00-1.00 | Beryllium | mg/kg | 0.42 J | TR | 0.52 J+ |
| Background | NA | SO | NYOW-B-SL023-A | 0.00-1.00 | Sodium | mg/kg | 35 J | TR | 520 J+ |
| Background | NA | SO | NYOW-B-SL024-A | 0.00-1.00 | Beryllium | mg/kg | 0.38 J | TR | 0.61 J+ |
| Background | NA | SO | NYOW-B-SL025-A | 0.00-1.00 | Acenaphthene | ug/kg | 1.7 J- | I/TR | 12 J+ |
| Background | NA | SO | NYOW-B-SL025-A | 0.00-1.00 | Beryllium | mg/kg | 0.34 J | TR | 0.6 J+ |
| Background | NA | SO | NYOW-B-SL025-A | 0.00-1.00 | Sodium | mg/kg | 42 J | TR | 600 J+ |
| Background | NA | SO | NYOW-B-SL026-A | 0.00-1.00 | Beryllium | mg/kg | 0.36 J- | M/TR | 0.53 J+ |
| Background | NA | SO | NYOW-B-SL027-A | 0.00-1.00 | Beryllium | mg/kg | 0.31 J | TR | 0.43 J+ |
| Background | NA | SO | NYOW-B-SL027-A | 0.00-1.00 | Silver | mg/kg | 0.15 J | TR | 1.3 J+ |
| Background | NA | SO | NYOW-B-SL027-A | 0.00-1.00 | Sodium | mg/kg | 33.5 J | TR | 430 J+ |
| Background | NA | SO | NYOW-B-SL028-A | 0.00-1.00 | Beryllium | mg/kg | 0.3 J | TR | 0.52 J+ |
| Background | NA | SO | NYOW-B-SL029-A | 0.00-1.00 | Beryllium | mg/kg | 0.28 J | TR | 0.48 J+ |
| Background | NA | SO | NYOW-B-SL029-A | 0.00-1.00 | Sodium | mg/kg | 52 J | TR | 480 J+ |
| Background | NA | SO | NYOW-B-SL030-A | 0.00-1.00 | Beryllium | mg/kg | 0.23 J | TR | 0.55 J+ |
| Background | NA | SO | NYOW-B-SL030-A | 0.00-1.00 | Sodium | mg/kg | 61 J | TR | 550 J+ |
| Background | NA | SO | NYOW-B-SL031-A | 0.00-1.00 | Beryllium | mg/kg | 0.36 J | TR | 0.42 J+ |
| Background | NA | SO | NYOW-B-SL031-A | 0.00-1.00 | Silver | mg/kg | 0.13 J | TR | 1.2 J+ |
| Background | NA | SO | NYOW-B-SL031-A | 0.00-1.00 | Sodium | mg/kg | 27 J | TR | 420 J+ |
| Background | NA | SO | NYOW-B-SL032-A | 0.00-1.00 | Beryllium | mg/kg | 0.41 J | TR | 0.68 J+ |
| Background | NA | SO | NYOW-B-SL032-A | 0.00-1.00 | Sodium | mg/kg | 72 J | TR | 680 J+ |
| Background | NA | SO | NYOW-B-SL033-A | 0.00-1.00 | Beryllium | mg/kg | 0.24 J | TR | 0.5 J+ |
| Background | NA | SO | NYOW-B-SL033-A | 0.00-1.00 | Sodium | mg/kg | 31 J | TR | 500 J+ |
| Background | NA | SO | NYOW-B-SL034-A | 0.00-1.00 | Acenaphthene | ug/kg | 0.43 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-SL034-A | 0.00-1.00 | Beryllium | mg/kg | 0.23 J | TR | 0.49 J+ |
| Background | NA | SO | NYOW-B-SL034-A | 0.00-1.00 | Sodium | mg/kg | 30 J | TR | 490 J+ |
| Background | NA | SO | NYOW-B-SL035-A | 0.00-1.00 | Beryllium | mg/kg | 0.29 J | TR | 0.51 J+ |
| Background | NA | SO | NYOW-B-SL035-A | 0.00-1.00 | Sodium | mg/kg | 33 J | TR | 510 J+ |
| Background | NA | SO | NYOW-B-SL036-A | 0.00-1.00 | Beryllium | mg/kg | 0.29 J | TR | 0.63 J+ |
| Background | NA | SO | NYOW-B-SL037-A | 0.00-1.00 | Beryllium | mg/kg | 0.345 J | TR | 0.52 J+ |
| Background | NA | SO | NYOW-B-SL038-A | 0.00-1.00 | Beryllium | mg/kg | 0.39 J | TR | 0.63 J+ |
| Background | NA | SO | NYOW-B-SL039-A | 0.00-1.00 | Beryllium | mg/kg | 0.28 J | TR | 0.57 J+ |
| Background | NA | SO | NYOW-B-SL040-A | 0.00-1.00 | Beryllium | mg/kg | 0.34 J | TR | 0.49 J+ |
| Background | NA | SO | NYOW-B-SL040-A | 0.00-1.00 | Sodium | mg/kg | 35 J | TR | 490 J+ |
| Background | NA | SO | NYOW-B-SL041-A | 0.00-1.00 | Beryllium | mg/kg | 0.31 J | TR | 0.53 J+ |
| Background | NA | SO | NYOW-B-SL042-A | 0.00-1.00 | Beryllium | mg/kg | 0.23 J | TR | 0.49 J+ |
| Background | NA | SO | NYOW-B-SL043-A | 0.00-1.00 | Acenaphthene | ug/kg | 1.3 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-SL043-A | 0.00-1.00 | Beryllium | mg/kg | 0.32 J | TR | 0.6 J+ |
| Background | NA | SO | NYOW-B-SL043-A | 0.00-1.00 | Silver | mg/kg | 0.36 J- | TR/V6 | 1.8 J+ |
| Background | NA | SO | NYOW-B-SL043-A | 0.00-1.00 | Sodium | mg/kg | 320 J | TR | 600 J+ |
| Background | NA | SO | NYOW-B-SL044-A | 0.00-1.00 | Beryllium | mg/kg | 0.18 J | TR | 0.42 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| Background | NA | SO | NYOW-B-SL044-A | 0.00-1.00 | Sodium | mg/kg | 42 J | TR | 420 J+ |
| Background | NA | SO | NYOW-B-SL045-A | 0.00-1.00 | Acenaphthene | ug/kg | 6.8 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-SL045-A | 0.00-1.00 | Beryllium | mg/kg | 0.32 J | TR | 0.56 J+ |
| Background | NA | SO | NYOW-B-SL045-A | 0.00-1.00 | Sodium | mg/kg | 35 J | TR | 560 J+ |
| Background | NA | SO | NYOW-B-SL046-A | 0.00-1.00 | Acenaphthene | ug/kg | 8 J | TR | 11 J+ |
| Background | NA | SO | NYOW-B-SL046-A | 0.00-1.00 | Beryllium | mg/kg | 0.26 J | TR | 0.56 J+ |
| Background | NA | SO | NYOW-B-SL046-A | 0.00-1.00 | Sodium | mg/kg | 51 J | TR | 560 J+ |
| Background | NA | SO | NYOW-B-SL047-A | 0.00-1.00 | Acenaphthene | ug/kg | 10.5 | TR | 11 J+ |
| Background | NA | SO | NYOW-B-SL047-A | 0.00-1.00 | Beryllium | mg/kg | 0.385 J | TR | 0.53 J+ |
| Background | NA | SO | NYOW-B-SL047-A | 0.00-1.00 | Sodium | mg/kg | 57 J | TR | 530 J+ |
| Background | NA | SO | NYOW-B-SL048-A | 0.00-1.00 | Acenaphthene | ug/kg | 4.8 J- | I/TR | 11 J+ |
| Background | NA | SO | NYOW-B-SL048-A | 0.00-1.00 | Beryllium | mg/kg | 0.23 J | TR | 0.53 J+ |
| Background | NA | SO | NYOW-B-SL048-A | 0.00-1.00 | Silver | mg/kg | 0.24 J | TR | 1.6 J+ |
| Background | NA | SO | NYOW-B-SL048-A | 0.00-1.00 | Sodium | mg/kg | 68 J | TR | 530 J+ |
| Background | NA | SO | NYOW-B-SL049-A | 0.00-1.00 | Beryllium | mg/kg | 0.22 J | TR | 0.51 J+ |
| Background | NA | SO | NYOW-B-SL049-A | 0.00-1.00 | Silver | mg/kg | 0.25 J | TR | 1.5 J+ |
| Background | NA | SO | NYOW-B-SL049-A | 0.00-1.00 | Sodium | mg/kg | 86 J | TR | 510 J+ |
| Background | NA | SO | NYOW-B-SL050-A | 0.00-1.00 | Beryllium | mg/kg | 0.36 J- | M/D/TR | 0.54 J+ |
| Background | NA | SO | NYOW-B-SL050-A | 0.00-1.00 | Silver | mg/kg | 0.25 J | TR | 1.6 J+ |
| Background | NA | SO | NYOW-B-SL050-A | 0.00-1.00 | Sodium | mg/kg | 52 J- | M/D/TR | 540 J+ |
| Background | NA | WG | NYOW-B-WL001-A | 0.00-10.00 | Arsenic | ug/L | 1.4 J | TR | 5 J+ |
| Background | NA | WG | NYOW-B-WL002-A | 0.00-10.00 | Acenaphthene | ug/L | 0.013 J | Z/TR | 0.1 J+ |
| Background | NA | WG | NYOW-B-WL002-A | 0.00-10.00 | Acenaphthylene | ug/L | 0.03 J | Z/TR | 0.1 J+ |
| Background | NA | WG | NYOW-B-WL002-A | 0.00-10.00 | Arsenic | ug/L | 0.71 J | TR | 5 J+ |
| Background | NA | WG | NYOW-B-WL002-A | 0.00-10.00 | Chromium | ug/L | 0.85 J | TR | 10 J+ |
| Background | NA | WG | NYOW-B-WL002-A | 0.00-10.00 | Lead | ug/L | 0.56 J | TR | 3 J+ |
| Background | NA | WG | NYOW-B-WL003-A | 0.00-10.00 | Arsenic | ug/L | 0.725 J | TR | 5 J+ |
| Background | NA | WG | NYOW-B-WL003-A | 0.00-10.00 | Lead | ug/L | 0.34 J | TR | 3 J+ |
| Background | NA | WG | NYOW-B-WL004-A | 0.00-10.00 | Acenaphthylene | ug/L | 0.074 J- | Z/I/TR | 0.11 J+ |
| Background | NA | WG | NYOW-B-WL004-A | 0.00-10.00 | Arsenic | ug/L | 0.78 J | TR | 5 J+ |
| Background | NA | WG | NYOW-B-WL004-A | 0.00-10.00 | Benzo(g,h,i)perylene | ug/L | 0.043 J- | I/TR | 0.11 J+ |
| Background | NA | WG | NYOW-B-WL004-A | 0.00-10.00 | Chromium | ug/L | 2.8 J | TR | 10 J+ |
| Background | NA | WG | NYOW-B-WL005-A | 0.00-10.00 | Arsenic | ug/L | 1.4 J | TR | 5 J+ |
| Background | NA | WG | NYOW-B-WL005-A | 0.00-10.00 | Benzo(a)pyrene | ug/L | 0.026 J | TR | 0.11 J+ |
| Background | NA | WG | NYOW-B-WL005-A | 0.00-10.00 | Benzo(g,h,i)perylene | ug/L | 0.051 J | TR | 0.11 J+ |
| Background | NA | WG | NYOW-B-WL005-A | 0.00-10.00 | Dibenz(a,h)anthracene | ug/L | 0.039 J | TR | 0.11 J+ |
| Background | NA | WG | NYOW-B-WL005-A | 0.00-10.00 | Indeno(1,2,3-c,d)pyrene | ug/L | 0.048 J | TR | 0.11 J+ |
| Background | NA | WG | NYOW-B-WL010-A | 0.00-10.00 | Benzo(k)fluoranthene | ug/L | 0.04 J- | C/TR | 0.13 J+ |
| Background | NA | WG | NYOW-B-WL031-A | 0.00-10.00 | Acenaphthylene | ug/L | 0.03 J | Z/TR | 0.12 J+ |
| Background | NA | WG | NYOW-B-WL031-A | 0.00-10.00 | Benzo(a)anthracene | ug/L | 0.07 J+ | C/Z/TR | 0.12 J+ |
| Background | NA | WG | NYOW-B-WL031-A | 0.00-10.00 | Benzo(b)fluoranthene | ug/L | 0.091 J | Z/TR | 0.12 J+ |

**Table C.1-2**
**Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Matrix | Sample ID | Depth Interval (ft bgs) | Analyte | Units | Original Result | Qualifier Reason Code | Raised Result |
|---|---|---|---|---|---|---|---|---|---|
| Background | NA | WG | NYOW-B-WL031-A | 0.00-10.00 | Benzo(g,h,i)perylene | ug/L | 0.07 J | TR | 0.12 J+ |
| Background | NA | WG | NYOW-B-WL031-A | 0.00-10.00 | Benzo(k)fluoranthene | ug/L | 0.086 J | Z/TR | 0.12 J+ |
| Background | NA | WG | NYOW-B-WL031-A | 0.00-10.00 | Chrysene | ug/L | 0.094 J+ | C/Z/TR | 0.12 J+ |
| Background | NA | WG | NYOW-B-WL031-A | 0.00-10.00 | Phenanthrene | ug/L | 0.061 J | Z/TR | 0.12 J+ |
| Background | NA | WG | NYOW-B-WL047-A | 0.00-10.00 | Arsenic | ug/L | 2.8 J | TR | 5 J+ |
| Background | NA | WG | NYOW-B-WL047-A | 0.00-10.00 | Chromium | ug/L | 5.2 J | TR | 10 J+ |
| Background | NA | WG | NYOW-B-WL047-A | 0.00-10.00 | Copper | ug/L | 9 J | TR | 15 J+ |
| Background | NA | WG | NYOW-B-WL047-A | 0.00-10.00 | Lead | ug/L | 1.5 J | TR | 3 J+ |
| Background | NA | WG | NYOW-B-WL047-A | 0.00-10.00 | Nickel | ug/L | 4.9 J | TR | 40 J+ |
| Background | NA | WG | NYOW-B-WL047-A | 0.00-10.00 | Vanadium | ug/L | 3.6 J | TR | 15 J+ |
| Background | NA | WG | NYOW-B-WL050-A | 0.00-10.00 | Arsenic | ug/L | 0.54 J | TR | 5 J+ |

**Notes:**

AOC = area of concern
C = LCS recovery
D = MS RPD
D3 = field duplicate RPD
F1 = hydrocarbon pattern does not match standard
ft bgs = foot or feet below ground surface
H1 = test hold time
I = surrogate recovery
J = The reported result was an estimated value (+/- indicates a positive/negative bias).
LOQ = limit of quantitation
M = MS/MSD recovery
M2 = post spike
mg/kg = milligrams per kilogram
NA = not applicable
NJ = the Aroclor peak exhibited a marginal pattern-matching quality and is considered quantitatively and qualitatively estimated
P = sample preservation/collection requirement not met
P1 = column RPD
SO = soil
TR = trace level detect
U = receipt temperature
V2 = CCV
V6 = low level calibration verification
WG = groundwater
Z = LCS RPD

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**Table C.1-3**
**Summary of Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Analyte | Groundwater | Soil (ft bgs) | | |
|---|---|---|---|---|---|---|
| | | | | 0 to 1 | 1 to 5 | 5 to 10 |
| AOC 1 | NA | Antimony | 4 | | 8 | 8 |
| AOC 1 | NA | Arsenic | 7 | | | |
| AOC 1 | NA | Beryllium | | 28 | 10 | 11 |
| AOC 1 | NA | Cadmium | 1 | | | 11 |
| AOC 1 | NA | Chromium | 4 | | | |
| AOC 1 | NA | Copper | 2 | | | |
| AOC 1 | NA | Lead | 4 | | | |
| AOC 1 | NA | Mercury | | | | 4 |
| AOC 1 | NA | Nickel | 4 | | | |
| AOC 1 | NA | Picric acid | | 1 | | |
| AOC 1 | NA | Selenium | | 29 | 6 | 5 |
| AOC 1 | NA | Silver | | 11 | 4 | 3 |
| AOC 1 | NA | Sodium | | 24 | 11 | 11 |
| AOC 1 | NA | Vanadium | 5 | | | |
| AOC 1 | NA | Zinc | 3 | | | |
| AOC 3 | NA | 4-Nitroaniline | 1 | | | |
| AOC 3 | NA | Acenaphthene | | | 3 | |
| AOC 3 | NA | Aluminum | 7 | | | |
| AOC 3 | NA | Antimony | | | 14 | |
| AOC 3 | NA | Arsenic | 2 | | | |
| AOC 3 | NA | Benzaldehyde | 1 | 5 | 1 | |
| AOC 3 | NA | Benzene | 2 | | | |
| AOC 3 | NA | Beryllium | | 16 | | |
| AOC 3 | NA | Caprolactam | 1 | | | |
| AOC 3 | NA | Cresols, m- & p- | | 1 | | |
| AOC 3 | NA | Dibenzofuran | | 2 | | |
| AOC 3 | NA | Lead | 4 | | | |
| AOC 3 | NA | m,p-Xylene | 1 | | | |
| AOC 3 | NA | Naphthalene | | | 6 | |
| AOC 3 | NA | Nickel | 4 | | | |
| AOC 3 | NA | PCB-1260 (Aroclor 1260) | | 4 | 2 | |
| AOC 3 | NA | Selenium | 1 | | 14 | |
| AOC 3 | NA | Silver | | 2 | 2 | |
| AOC 3 | NA | Sodium | | 12 | 16 | |
| AOC 3 | NA | Toluene | | | 4 | |
| AOC 3 | NA | Vanadium | 6 | | | |
| AOC 3 | NA | Zinc | 1 | | | |
| AOC 5 | Boiler House | 1-Methylnaphthalene | | 2 | 2 | |
| AOC 5 | Boiler House | 2-Methylnaphthalene | | 4 | 2 | |
| AOC 5 | Boiler House | Acenaphthene | 1 | | | 1 |
| AOC 5 | Boiler House | Acenaphthylene | | 2 | | 1 |
| AOC 5 | Boiler House | Aluminum | 3 | | | |
| AOC 5 | Boiler House | Anthracene | 1 | 2 | 1 | 1 |
| AOC 5 | Boiler House | Antimony | 3 | 5 | 5 | |
| AOC 5 | Boiler House | Benzo(a)anthracene | | | 2 | |
| AOC 5 | Boiler House | Benzo(a)pyrene | | | 2 | |
| AOC 5 | Boiler House | Benzo(b)fluoranthene | | | 3 | |
| AOC 5 | Boiler House | Benzo(g,h,i)perylene | | | 2 | |
| AOC 5 | Boiler House | Benzo(k)fluoranthene | | | 2 | |

**Table C.1-3**
**Summary of Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Analyte | Groundwater | Soil (ft bgs) | | |
|---|---|---|---|---|---|---|
| | | | | 0 to 1 | 1 to 5 | 5 to 10 |
| AOC 5 | Boiler House | Beryllium | | 5 | | |
| AOC 5 | Boiler House | Caprolactam | 1 | | | |
| AOC 5 | Boiler House | Cobalt | 3 | | | |
| AOC 5 | Boiler House | Dibenz(a,h)anthracene | 1 | 2 | | 1 |
| AOC 5 | Boiler House | Fluorene | | 1 | 1 | 1 |
| AOC 5 | Boiler House | Indeno(1,2,3-c,d)pyrene | | | 2 | |
| AOC 5 | Boiler House | Naphthalene | | 4 | 3 | |
| AOC 5 | Boiler House | Phenanthrene | | | 2 | |
| AOC 5 | Boiler House | Selenium | | 4 | 3 | 3 |
| AOC 5 | Boiler House | Sodium | | 2 | 2 | 2 |
| AOC 5 | Boiler House | Total Organic Carbon | | | 1 | 1 |
| AOC 5 | Boiler House | Vanadium | 1 | | | |
| AOC 5 | Coal Aggregate Bins | 1-Methylnaphthalene | | | | 1 |
| AOC 5 | Coal Aggregate Bins | 2-Methylnaphthalene | | | | 1 |
| AOC 5 | Coal Aggregate Bins | Acenaphthylene | | | 3 | |
| AOC 5 | Coal Aggregate Bins | Anthracene | | | 2 | |
| AOC 5 | Coal Aggregate Bins | Antimony | | | | 5 |
| AOC 5 | Coal Aggregate Bins | Arsenic | 2 | | | |
| AOC 5 | Coal Aggregate Bins | Benzo(a)anthracene | | | | 1 |
| AOC 5 | Coal Aggregate Bins | Benzo(a)pyrene | | | | 1 |
| AOC 5 | Coal Aggregate Bins | Benzo(b)fluoranthene | | | | 1 |
| AOC 5 | Coal Aggregate Bins | Benzo(g,h,i)perylene | | | | 1 |
| AOC 5 | Coal Aggregate Bins | Benzo(k)fluoranthene | | | 3 | 1 |
| AOC 5 | Coal Aggregate Bins | Beryllium | | | 5 | 5 |
| AOC 5 | Coal Aggregate Bins | Chrysene | 1 | | | 1 |
| AOC 5 | Coal Aggregate Bins | Copper | 1 | | | |
| AOC 5 | Coal Aggregate Bins | Dibenz(a,h)anthracene | | | 1 | |
| AOC 5 | Coal Aggregate Bins | Dibenzofuran | | | 1 | |
| AOC 5 | Coal Aggregate Bins | Fluoranthene | | | | 1 |
| AOC 5 | Coal Aggregate Bins | Fluorene | | | 2 | |
| AOC 5 | Coal Aggregate Bins | Indeno(1,2,3-c,d)pyrene | | | | 1 |
| AOC 5 | Coal Aggregate Bins | Lead | 1 | | | |
| AOC 5 | Coal Aggregate Bins | Mercury | | | | 3 |
| AOC 5 | Coal Aggregate Bins | Naphthalene | | | | 4 |
| AOC 5 | Coal Aggregate Bins | Nickel | 2 | | | |
| AOC 5 | Coal Aggregate Bins | Phenol | 1 | | | |
| AOC 5 | Coal Aggregate Bins | Pyrene | | | | 1 |
| AOC 5 | Coal Aggregate Bins | Selenium | | | 5 | 2 |
| AOC 5 | Coal Aggregate Bins | Total Organic Carbon | | | | 1 |
| AOC 5 | Coal Aggregate Bins | Vanadium | 1 | | | |
| AOC 5 | Coal Aggregate Bins | Zinc | 1 | | | |
| AOC 5 | Coal Storage Area | 1-Methylnaphthalene | | | 1 | 1 |
| AOC 5 | Coal Storage Area | 2-Methylnaphthalene | | | 1 | 2 |
| AOC 5 | Coal Storage Area | Acenaphthene | | 3 | | |
| AOC 5 | Coal Storage Area | Acenaphthylene | | 5 | | |
| AOC 5 | Coal Storage Area | Anthracene | | 3 | | 1 |
| AOC 5 | Coal Storage Area | Antimony | 1 | | 4 | 2 |
| AOC 5 | Coal Storage Area | Benzo(b)fluoranthene | | | 1 | |
| AOC 5 | Coal Storage Area | Benzo(k)fluoranthene | | 4 | | |

**Table C.1-3**
**Summary of Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Analyte | Groundwater | Soil (ft bgs) | | |
|---|---|---|---|---|---|---|
| | | | | 0 to 1 | 1 to 5 | 5 to 10 |
| AOC 5 | Coal Storage Area | Beryllium | | 5 | 5 | 5 |
| AOC 5 | Coal Storage Area | Cadmium | | | | 5 |
| AOC 5 | Coal Storage Area | Dibenz(a,h)anthracene | | | | 1 |
| AOC 5 | Coal Storage Area | Naphthalene | | | 2 | 4 |
| AOC 5 | Coal Storage Area | Nickel | 1 | | | |
| AOC 5 | Coal Storage Area | Phenanthrene | | | | 1 |
| AOC 5 | Coal Storage Area | Selenium | | | 1 | |
| AOC 5 | Coal Storage Area | Sodium | | 4 | 4 | 4 |
| AOC 5 | Coal Storage Area | Thallium | | | 4 | 4 |
| AOC 5 | Electric Substation | 1-Methylnaphthalene | | 5 | 2 | 1 |
| AOC 5 | Electric Substation | 2-Methylnaphthalene | | | 4 | 1 |
| AOC 5 | Electric Substation | Acenaphthene | | 2 | | |
| AOC 5 | Electric Substation | Acenaphthylene | | 3 | 1 | |
| AOC 5 | Electric Substation | Anthracene | | 5 | 1 | |
| AOC 5 | Electric Substation | Antimony | | | 5 | 5 |
| AOC 5 | Electric Substation | Arsenic | 1 | | | |
| AOC 5 | Electric Substation | Benzo(a)anthracene | | | 2 | |
| AOC 5 | Electric Substation | Benzo(a)pyrene | | | 2 | |
| AOC 5 | Electric Substation | Benzo(g,h,i)perylene | | | 2 | |
| AOC 5 | Electric Substation | Benzo(k)fluoranthene | | | 1 | |
| AOC 5 | Electric Substation | Beryllium | | 5 | | |
| AOC 5 | Electric Substation | Cobalt | 1 | | | |
| AOC 5 | Electric Substation | Dibenz(a,h)anthracene | | | | 1 |
| AOC 5 | Electric Substation | Fluorene | | 2 | | |
| AOC 5 | Electric Substation | Indeno(1,2,3-c,d)pyrene | | | 2 | |
| AOC 5 | Electric Substation | Naphthalene | | | 5 | 4 |
| AOC 5 | Electric Substation | Phenanthrene | | | | 4 |
| AOC 5 | Electric Substation | Selenium | | 5 | 5 | 2 |
| AOC 5 | Electric Substation | Total Organic Carbon | | | 1 | 1 |
| AOC 5 | Possible Dump | 1,2,3-Trichlorobenzene | 1 | | | |
| AOC 5 | Possible Dump | 1-Methylnaphthalene | | | 2 | 1 |
| AOC 5 | Possible Dump | 2-Butanone (MEK) | | | 2 | |
| AOC 5 | Possible Dump | 2-Methylnaphthalene | 1 | | 2 | 1 |
| AOC 5 | Possible Dump | Acenaphthene | | 1 | | |
| AOC 5 | Possible Dump | Acenaphthylene | | 1 | | |
| AOC 5 | Possible Dump | Aluminum | 1 | | | |
| AOC 5 | Possible Dump | Antimony | | | 3 | |
| AOC 5 | Possible Dump | Benzaldehyde | | 1 | | |
| AOC 5 | Possible Dump | Benzene | | | 1 | |
| AOC 5 | Possible Dump | Benzo(a)anthracene | | | 1 | 3 |
| AOC 5 | Possible Dump | Benzo(a)pyrene | | | | 2 |
| AOC 5 | Possible Dump | Benzo(b)fluoranthene | 1 | | | 4 |
| AOC 5 | Possible Dump | Benzo(g,h,i)perylene | | | | 1 |
| AOC 5 | Possible Dump | Benzo(k)fluoranthene | 1 | 3 | | |
| AOC 5 | Possible Dump | Beryllium | | 5 | | |
| AOC 5 | Possible Dump | Cadmium | | | | 5 |
| AOC 5 | Possible Dump | Chrysene | 1 | | 3 | 3 |
| AOC 5 | Possible Dump | Dibenzofuran | | 2 | | |
| AOC 5 | Possible Dump | Fluoranthene | 1 | | 2 | 4 |

**Table C.1-3**
**Summary of Detected Results Raised to the LOQ**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| AOC | Subarea | Analyte | Groundwater | Soil (ft bgs) | | |
|---|---|---|---|---|---|---|
| | | | | 0 to 1 | 1 to 5 | 5 to 10 |
| AOC 5 | Possible Dump | Fluorene | | 3 | | |
| AOC 5 | Possible Dump | Mercury | | | | 5 |
| AOC 5 | Possible Dump | Naphthalene | | | 4 | 3 |
| AOC 5 | Possible Dump | Nickel | 1 | | | |
| AOC 5 | Possible Dump | Phenanthrene | 1 | | 1 | 2 |
| AOC 5 | Possible Dump | Pyrene | 1 | | 1 | |
| AOC 5 | Possible Dump | Selenium | | | 3 | 3 |
| AOC 5 | Possible Dump | Silver | | 1 | | |
| AOC 5 | Possible Dump | Sodium | | 5 | 5 | 4 |
| AOC 5 | Possible Dump | Toluene | | | 1 | |
| AOC 5 | Possible Dump | Total Organic Carbon | | | 1 | 1 |
| Background | NA | 1-Methylnaphthalene | | | 4 | 3 |
| Background | NA | 2-Methylnaphthalene | | | 7 | 5 |
| Background | NA | Acenaphthene | 1 | 13 | 3 | 5 |
| Background | NA | Acenaphthylene | 3 | | | 2 |
| Background | NA | Anthracene | | | | 1 |
| Background | NA | Arsenic | 7 | | | |
| Background | NA | Benzo(a)anthracene | 1 | | | 7 |
| Background | NA | Benzo(a)pyrene | 1 | | | 7 |
| Background | NA | Benzo(b)fluoranthene | 1 | | | |
| Background | NA | Benzo(g,h,i)perylene | 3 | | | 4 |
| Background | NA | Benzo(k)fluoranthene | 2 | | | 3 |
| Background | NA | Beryllium | | 43 | 45 | |
| Background | NA | Chromium | 3 | | | |
| Background | NA | Chrysene | 1 | | | |
| Background | NA | Copper | 1 | | | |
| Background | NA | Dibenz(a,h)anthracene | 1 | | | 1 |
| Background | NA | Fluoranthene | | | | 8 |
| Background | NA | Fluorene | | | 3 | 3 |
| Background | NA | Indeno(1,2,3-c,d)pyrene | 1 | | | 3 |
| Background | NA | Lead | 3 | | | |
| Background | NA | Mercury | | | | 13 |
| Background | NA | Naphthalene | | | 12 | |
| Background | NA | Nickel | 1 | | | |
| Background | NA | Phenanthrene | 1 | | | 10 |
| Background | NA | Pyrene | | | | 7 |
| Background | NA | Selenium | | | | 5 |
| Background | NA | Silver | | 6 | 6 | 15 |
| Background | NA | Sodium | | 30 | 33 | 44 |
| Background | NA | Vanadium | 1 | | | |

**Notes:**

AOC = area of concern

ft bgs = foot or feet below ground surface

LOQ = limit of quantitation

NA = not applicable

# APPENDIX C.2

# PAH Summation Support

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Appendix C.2
PAH Summation Support
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sample Name | High Molecular Weight (HMW) PAHs | | | | | | | | | Low Molecular Weight (HMW) PAHs | | | | | | | | | Mean[1] | | | Summation[1] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BaA | BaP | BbF | BgP | BkF | Chry | DaA | InP | Pyr | 1MN | 2MN | Acn | Acnthy | Anth | FlA | Flu | Naph | Phen | LMW | HMW | Total | LMW | HMW | Total |
| NYOW-03-PH001-B | *0.0053* | *0.0053* | *0.0081* | *0.0081* | *0.0053* | *0.0053* | *0.0081* | *0.0081* | *0.0081* | *0.0024* | *0.0024* | *0.0013* | *0.0013* | *0.0053* | *0.0053* | *0.0033* | *0.0024* | *0.0081* | N/A | N/A | N/A | 0.032 | 0.062 | 0.094 |
| NYOW-03-PH002-B | *0.0052* | *0.0052* | *0.0079* | *0.0079* | *0.0052* | *0.0052* | *0.0079* | *0.0079* | *0.0079* | *0.0024* | *0.0024* | *0.0013* | *0.0013* | *0.0052* | *0.0052* | *0.0032* | 0.012 | *0.0079* | 0.00249 | N/A | 0.00189 | 0.022 | 0.06 | 0.034 |
| NYOW-03-PH003-B | *0.0053* | *0.0053* | *0.0082* | *0.0082* | *0.0053* | *0.0053* | *0.0082* | *0.0082* | *0.0082* | *0.0025* | *0.0025* | *0.0013* | *0.0013* | *0.0053* | *0.0053* | *0.0033* | *0.0025* | *0.0082* | N/A | N/A | N/A | 0.032 | 0.062 | 0.094 |
| NYOW-03-PH004-B | *0.0052* | *0.0052* | *0.0079* | *0.0079* | *0.0052* | *0.0052* | *0.0079* | *0.0079* | *0.0079* | *0.0024* | *0.0024* | *0.0013* | *0.0013* | *0.0052* | *0.0052* | *0.0032* | *0.0024* | *0.0079* | N/A | N/A | N/A | 0.031 | 0.06 | 0.092 |
| NYOW-03-PH005-B | 0.43 | 1.3 | 1.9 | 0.82 | 0.84 | 1.2 | 0.29 | 1 | 0.26 | 0.018 | 0.016 | *0.0013* | 0.04 | 0.065 | 0.19 | 0.005 | 0.012 | 0.05 | 0.0441 | 0.893 | 0.469 | 0.4 | 8 | 8.4 |
| NYOW-03-PH006-B | *0.0056* | *0.0056* | *0.0086* | *0.0086* | *0.0056* | *0.0056* | *0.0086* | *0.0086* | *0.0086* | *0.0026* | *0.0026* | *0.0014* | *0.0014* | *0.0056* | *0.0056* | *0.0035* | *0.0026* | *0.0086* | N/A | N/A | N/A | 0.034 | 0.065 | 0.099 |
| NYOW-03-PH007-B | 0.013 | 0.018 | 0.027 | 0.012 | 0.0082 | 0.016 | *0.0076* | 0.012 | 0.02 | 0.00077 | 0.00074 | 0.011 | 0.0097 | 0.0055 | 0.017 | 0.0015 | 0.011 | 0.007 | 0.00713 | 0.0149 | 0.0108 | 0.064 | 0.13 | 0.19 |
| NYOW-03-PH008-B | 0.014 | 0.018 | 0.022 | 0.0094 | 0.0084 | 0.013 | 0.0056 | 0.012 | 0.021 | 0.00092 | *0.0024* | *0.012* | 0.018 | 0.0063 | 0.018 | 0.0052 | 0.012 | 0.014 | 0.00874 | 0.0137 | 0.0113 | 0.079 | 0.12 | 0.2 |
| NYOW-03-PH009-B | *0.0051* | *0.0051* | *0.0078* | *0.0078* | *0.0051* | *0.0051* | *0.0078* | *0.0078* | *0.0078* | *0.0023* | *0.0023* | *0.0013* | *0.012* | *0.0051* | *0.0051* | *0.0031* | *0.0023* | *0.0078* | N/A | N/A | N/A | 0.041 | 0.059 | 0.1 |
| NYOW-03-PH010-B | *0.099* | *0.099* | *0.15* | *0.15* | *0.099* | *0.099* | *0.15* | *0.15* | *0.15* | *0.046* | *0.046* | *0.024* | *0.024* | *0.099* | *0.099* | *0.061* | *0.046* | *0.15* | N/A | N/A | N/A | 0.6 | 1.1 | 1.7 |
| NYOW-03-PH011-B | 0.022 | 0.031 | 0.055 | 0.023 | 0.019 | 0.034 | 0.0063 | 0.035 | 0.048 | *0.0024* | *0.0024* | 0.012 | 0.0029 | 0.0025 | 0.06 | 0.0013 | *0.0024* | 0.022 | 0.0116 | 0.0304 | 0.021 | 0.1 | 0.27 | 0.38 |
| NYOW-03-PH012-B | 0.061 | 0.056 | 0.081 | 0.031 | 0.037 | 0.066 | 0.01 | 0.04 | 0.11 | 0.0044 | 0.0043 | 0.01 | 0.037 | 0.016 | 0.16 | 0.016 | 0.01 | 0.11 | 0.0401 | 0.0546 | 0.0473 | 0.36 | 0.49 | 0.85 |
| NYOW-03-PH013-B | *0.0054* | *0.0054* | *0.0084* | *0.0084* | *0.0054* | *0.0054* | *0.0084* | *0.0084* | *0.0084* | *0.0025* | *0.0025* | *0.0013* | *0.013* | *0.0054* | *0.0054* | *0.0033* | *0.0025* | *0.0084* | N/A | N/A | N/A | 0.044 | 0.064 | 0.11 |
| NYOW-03-PH014-B | 0.0037 | 0.0039 | 0.0061 | *0.0081* | 0.0027 | 0.0044 | *0.0081* | 0.0028 | 0.0059 | *0.0024* | *0.0024* | *0.0013* | *0.012* | 0.0021 | 0.0075 | 0.0014 | *0.0024* | 0.0052 | 0.00279 | 0.00421 | 0.00345 | 0.025 | 0.038 | 0.062 |
| NYOW-03-PH015-B | 0.019 | 0.019 | 0.031 | 0.01 | 0.0099 | 0.02 | *0.0082* | 0.012 | 0.029 | 0.00065 | 0.00085 | *0.0013* | *0.012* | 0.0065 | 0.029 | 0.0017 | 0.012 | 0.012 | 0.00728 | 0.0176 | 0.0122 | 0.066 | 0.16 | 0.22 |
| NYOW-03-PH016-B | 0.0025 | 0.0027 | 0.004 | *0.0074* | *0.0048* | 0.0028 | *0.0074* | *0.0074* | 0.0039 | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | 0.0047 | *0.003* | *0.0022* | *0.0074* | 0.0017 | 0.00318 | 0.00236 | 0.015 | 0.029 | 0.042 |
| NYOW-03-SL001-A | 0.02 | 0.022 | 0.034 | 0.013 | 0.012 | 0.024 | *0.0091* | 0.016 | 0.033 | *0.0027* | 0.0014 | *0.0015* | *0.0015* | 0.0042 | 0.04 | *0.0036* | *0.0027* | 0.018 | 0.00784 | 0.0203 | 0.0137 | 0.071 | 0.18 | 0.25 |
| NYOW-03-SL002-A | 0.028 | 0.033 | 0.044 | 0.018 | 0.016 | 0.034 | *0.0085* | 0.021 | 0.054 | *0.0026* | 0.0021 | 0.0018 | 0.0055 | 0.0049 | 0.062 | 0.0023 | 0.0024 | 0.027 | 0.0122 | 0.0285 | 0.0201 | 0.11 | 0.26 | 0.36 |
| NYOW-03-SL003-A | 0.0032 | 0.0047 | 0.0062 | 0.003 | *0.0055* | 0.0044 | *0.0085* | *0.0085* | 0.006 | *0.0026* | *0.0026* | *0.0014* | *0.0014* | *0.0055* | 0.007 | *0.0034* | *0.0026* | 0.0036 | 0.0023 | 0.00448 | 0.00325 | 0.021 | 0.04 | 0.059 |
| NYOW-03-SL004-A | 0.018 | 0.019 | 0.029 | 0.014 | 0.01 | 0.022 | *0.0098* | 0.017 | 0.034 | 0.0027 | 0.0031 | *0.0016* | *0.0016* | 0.008 | 0.042 | 0.0054 | 0.0055 | 0.031 | 0.0112 | 0.0192 | 0.0149 | 0.1 | 0.17 | 0.27 |
| NYOW-03-SL005-A | 0.33 | 0.28 | 0.32 | 0.19 | 0.14 | 0.29 | 0.046 | 0.21 | 0.4 | 0.0041 | 0.0037 | 0.0061 | 0.1 | 0.094 | 0.56 | 0.037 | 0.0064 | 0.31 | 0.125 | 0.245 | 0.185 | 1.1 | 2.2 | 3.3 |
| NYOW-03-SL006-A | 0.035 | 0.038 | 0.052 | 0.022 | 0.019 | 0.037 | *0.0078* | 0.026 | 0.054 | 0.0009 | 0.0011 | *0.0012* | 0.0078 | 0.0061 | 0.059 | *0.0031* | 0.0016 | 0.015 | 0.0104 | 0.032 | 0.0209 | 0.094 | 0.29 | 0.38 |
| NYOW-03-SL007-A | 2 | 2.3 | 2.6 | 1.2 | 1 | 2 | 0.35 | 1.7 | 3.6 | 0.026 | 0.031 | 0.029 | 0.77 | 0.35 | 3.2 | 0.12 | 0.054 | 1.4 | 0.664 | 1.861 | 1.263 | 6 | 17 | 23 |
| NYOW-03-SL008-A | 4.5 | 4.4 | 4.7 | 2.1 | 1.9 | 3.3 | 0.69 | 3.1 | 7 | 0.3 | 0.21 | 0.23 | 1.6 | 1.5 | 6.8 | 1.4 | 0.11 | 6.7 | 2.094 | 3.521 | 2.808 | 19 | 32 | 51 |
| NYOW-03-SL009-A | 0.14 | 0.15 | 0.23 | 0.098 | 0.094 | 0.16 | 0.026 | 0.11 | 0.23 | 0.011 | 0.012 | *0.014* | 0.09 | 0.047 | 0.28 | 0.031 | 0.015 | 0.2 | 0.0775 | 0.138 | 0.108 | 0.7 | 1.2 | 1.9 |
| NYOW-03-SL010-A | 0.58 | 0.84 | 1 | 0.52 | 0.43 | 0.73 | 0.14 | 0.6 | 1.1 | 0.027 | 0.035 | *0.026* | 0.49 | 0.17 | 1.1 | 0.077 | 0.042 | 0.45 | 0.269 | 0.66 | 0.464 | 2.4 | 5.9 | 8.4 |
| NYOW-03-SL011-A | 0.32 | 0.44 | 0.56 | 0.28 | 0.24 | 0.42 | 0.081 | 0.34 | 0.64 | *0.049* | *0.049* | *0.026* | 0.29 | 0.092 | 0.56 | 0.033 | *0.049* | 0.24 | 0.148 | 0.369 | 0.258 | 1.3 | 3.3 | 4.6 |
| NYOW-03-SL012-A | 0.64 | 0.76 | 1.1 | 0.34 | 0.35 | 0.72 | 0.097 | 0.64 | 1.1 | 0.025 | 0.028 | 0.018 | 0.39 | 0.15 | 1.5 | 0.092 | 0.052 | 0.71 | 0.329 | 0.639 | 0.484 | 3 | 5.8 | 8.7 |
| NYOW-03-SL013-A | 0.056 | 0.065 | 0.12 | 0.052 | 0.037 | 0.074 | 0.0093 | 0.053 | 0.082 | 0.0011 | 0.0019 | *0.0013* | 0.02 | 0.021 | 0.093 | 0.0023 | 0.0029 | 0.014 | 0.0174 | 0.0605 | 0.039 | 0.16 | 0.54 | 0.7 |
| NYOW-03-SL014-A | 0.26 | 0.26 | 0.37 | 0.15 | 0.16 | 0.27 | 0.05 | 0.19 | 0.44 | 0.01 | 0.012 | *0.012* | 0.12 | 0.08 | 0.45 | 0.039 | 0.008 | 0.29 | 0.113 | 0.239 | 0.176 | 1 | 2.2 | 3.2 |
| NYOW-03-SL015-A | 5.3 | 3.2 | 4.9 | 1.3 | 1.7 | 4.9 | 0.44 | 1.7 | 16 | 0.65 | 1 | 4.3 | 1.1 | 8.2 | 20 | 4.3 | 0.78 | 27 | 7.481 | 4.382 | 5.932 | 67 | 39 | 110 |
| NYOW-03-SL016-A | 0.046 | 0.056 | 0.075 | 0.035 | 0.027 | 0.052 | *0.0077* | 0.043 | 0.075 | 0.0023 | 0.0024 | 0.0012 | 0.02 | 0.0082 | 0.078 | 0.0022 | 0.0025 | 0.022 | 0.0154 | 0.0463 | 0.0306 | 0.14 | 0.42 | 0.55 |
| NYOW-05-PH001-B | *0.005* | *0.005* | *0.0077* | *0.0077* | *0.005* | *0.005* | *0.0077* | *0.0077* | *0.0077* | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.005* | 0.012 | *0.0031* | *0.0023* | *0.0077* | 0.0024 | N/A | 0.0018 | 0.022 | 0.059 | 0.032 |
| NYOW-05-PH001-C | 0.01 | *0.0044* | 0.01 | *0.0068* | *0.0044* | 0.01 | *0.0068* | *0.0068* | 0.0088 | *0.002* | *0.002* | *0.0011* | *0.0011* | *0.0044* | 0.01 | *0.0027* | *0.002* | 0.01 | 0.00308 | 0.00676 | 0.004 | 0.028 | 0.061 | 0.072 |
| NYOW-05-PH002-B | *0.0045* | *0.0045* | *0.0069* | *0.0069* | *0.0045* | *0.0045* | *0.0069* | *0.0069* | *0.0069* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0045* | *0.0045* | *0.0028* | 0.01 | *0.0069* | 0.00209 | N/A | 0.00159 | 0.019 | 0.053 | 0.029 |
| NYOW-05-PH002-C | *0.0045* | *0.0045* | *0.007* | *0.007* | *0.0045* | *0.0045* | *0.007* | *0.007* | *0.007* | 0.01 | 0.01 | *0.0011* | *0.0011* | *0.0045* | *0.0045* | *0.0028* | 0.01 | *0.007* | 0.00407 | N/A | 0.00258 | 0.037 | 0.053 | 0.046 |
| NYOW-05-PH003-B | *0.0052* | *0.0052* | *0.008* | *0.008* | *0.0052* | 0.012 | *0.008* | *0.008* | *0.008* | 0.012 | 0.012 | *0.0013* | *0.0013* | *0.0052* | *0.0052* | *0.0032* | 0.012 | *0.008* | 0.00487 | 0.00596 | 0.00368 | 0.044 | 0.054 | 0.066 |
| NYOW-05-PH003-C | 0.012 | 0.012 | 0.012 | 0.012 | *0.0054* | 0.012 | *0.0083* | *0.0083* | 0.0044 | *0.0025* | *0.0025* | *0.0013* | *0.0013* | *0.0054* | 0.012 | *0.0033* | 0.012 | *0.0083* | 0.00368 | 0.00862 | 0.00578 | 0.033 | 0.078 | 0.1 |
| NYOW-05-PH004-B | 0.011 | *0.0049* | *0.0076* | *0.0076* | *0.0049* | 0.011 | *0.0076* | *0.0076* | 0.011 | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.0049* | 0.011 | *0.003* | 0.011 | 0.011 | 0.00447 | 0.00693 | 0.00447 | 0.04 | 0.062 | 0.08 |
| NYOW-05-PH004-C | *0.0052* | *0.0052* | 0.012 | *0.008* | *0.0052* | *0.0052* | *0.008* | *0.008* | 0.012 | *0.0024* | *0.0024* | *0.0013* | *0.0013* | *0.0052* | 0.012 | *0.0032* | *0.0024* | 0.012 | 0.00368 | 0.00671 | 0.00368 | 0.033 | 0.06 | 0.066 |
| NYOW-05-PH005-B | *0.0051* | *0.0051* | *0.0079* | *0.0079* | *0.0051* | 0.012 | *0.0079* | *0.0079* | *0.0079* | 0.012 | 0.012 | *0.0013* | *0.0013* | *0.0051* | *0.0051* | *0.0032* | 0.012 | *0.0079* | 0.00487 | 0.00587 | 0.00368 | 0.044 | 0.053 | 0.066 |
| NYOW-05-PH005-C | 0.011 | 0.011 | 0.011 | *0.0071* | *0.0046* | 0.011 | *0.0071* | *0.0071* | 0.0024 | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0046* | 0.011 | *0.0029* | 0.011 | *0.0071* | 0.0033 | 0.00622 | 0.00457 | 0.03 | 0.056 | 0.082 |
| NYOW-05-PH006-B | *0.0052* | *0.0052* | *0.008* | *0.008* | *0.0052* | *0.0052* | *0.008* | *0.008* | *0.008* | *0.0024* | *0.0024* | *0.0013* | *0.0013* | *0.0052* | *0.0052* | *0.0032* | *0.0024* | *0.008* | N/A | N/A | N/A | 0.031 | 0.061 | 0.092 |
| NYOW-05-PH006-C | *0.005* | *0.005* | *0.0076* | *0.0076* | *0.005* | *0.005* | *0.0076* | *0.0076* | *0.0076* | *0.0023* | 0.011 | *0.0012* | *0.0012* | *0.005* | *0.005* | *0.003* | 0.011 | *0.0076* | 0.00338 | N/A | 0.00229 | 0.03 | 0.058 | 0.041 |
| NYOW-05-PH007-B | *0.0043* | *0.0043* | *0.0067* | *0.0067* | *0.0043* | *0.0043* | *0.0067* | *0.0067* | *0.0067* | *0.002* | *0.002* | *0.0011* | *0.0011* | *0.0043* | *0.0043* | *0.0027* | 0.01 | *0.0067* | 0.00209 | N/A | 0.00159 | 0.019 | 0.051 | 0.029 |
| NYOW-05-PH007-C | 0.0026 | 0.0019 | 0.0065 | *0.0075* | *0.0049* | 0.0057 | *0.0075* | *0.0075* | *0.0075* | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.0049* | *0.0049* | *0.003* | 0.011 | *0.0075* | 0.00229 | 0.00379 | 0.00285 | 0.021 | 0.034 | 0.051 |
| NYOW-05-PH008-B | *0.0045* | *0.0045* | *0.0069* | *0.0069* | *0.0045* | *0.0045* | *0.0069* | *0.0069* | *0.0069* | 0.01 | 0.01 | *0.0011* | *0.0011* | *0.0045* | *0.0045* | *0.0028* | 0.01 | *0.0069* | 0.00407 | N/A | 0.00258 | 0.037 | 0.053 | 0.046 |
| NYOW-05-PH008-C | *0.0049* | *0.0049* | *0.0076* | *0.0076* | *0.0049* | *0.0049* | *0.0076* | *0.0076* | *0.0076* | 0.011 | 0.011 | *0.0012* | *0.0012* | *0.0049* | *0.0049* | *0.003* | 0.011 | *0.0076* | 0.00447 | N/A | 0.00283 | 0.04 | 0.058 | 0.051 |
| NYOW-05-PH009-B | *0.0049* | *0.0049* | *0.0076* | *0.0076* | *0.0049* | *0.0049* | *0.0076* | *0.0076* | *0.0076* | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.0049* | *0.0049* | *0.003* | *0.0023* | *0.0076* | N/A | N/A | N/A | 0.03 | 0.058 | 0.087 |
| NYOW-05-PH009-C | *0.0049* | *0.0049* | *0.0075* | *0.0075* | *0.0049* | *0.0049* | *0.0075* | *0.0075* | *0.0075* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0049* | *0.0049* | *0.003* | 0.011 | *0.0075* | 0.00229 | N/A | 0.00174 | 0.021 | 0.057 | 0.031 |
| NYOW-05-PH010-B | *0.0045* | *0.0045* | 0.01 | *0.0069* | *0.0045* | *0.0045* | *0.0069* | *0.0069* | *0.0069* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0045* | *0.0045* | *0.0027* | *0.0021* | *0.0069* | N/A | 0.00511 | 0.00159 | 0.027 | 0.046 | 0.029 |
| NYOW-05-PH010-C | 0.019 | 0.011 | 0.039 | 0.011 | 0.012 | 0.036 | 0.011 | 0.012 | 0.023 | *0.0021* | *0.0021* | *0.0011* | *0.0011* | 0.011 | 0.023 | *0.0028* | *0.0021* | 0.011 | 0.00573 | 0.0193 | 0.0125 | 0.052 | 0.17 | 0.23 |
| NYOW-05-PH011-B | *0.0049* | *0.0049* | *0.0076* | *0.0076* | *0.0049* | *0.0049* | *0.0076* | *0.0076* | 0.0026 | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.0049* | 0.0026 | *0.003* | 0.011 | *0.0076* | 0.00254 | 0.0026 | 0.00219 | 0.023 | 0.023 | 0.039 |
| NYOW-05-PH011-C | 0.024 | 0.032 | 0.05 | 0.023 | 0.021 | 0.04 | 0.012 | 0.029 | 0.039 | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.0051* | 0.041 | *0.0031* | 0.012 | 0.012 | 0.00802 | 0.03 | 0.019 | 0.072 | 0.27 | 0.34 |

Appendix C.2
PAH Summation Support
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sample Name | High Molecular Weight (HMW) PAHs | | | | | | | | | Low Molecular Weight (HMW) PAHs | | | | | | | | | Mean[1] | | | Summation[1] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BaA | BaP | BbF | BgP | BkF | Chry | DaA | InP | Pyr | 1MN | 2MN | Acn | Acnthy | Anth | FlA | Flu | Naph | Phen | LMW | HMW | Total | LMW | HMW | Total |
| NYOW-05-PH012-B | *0.005* | *0.005* | *0.0077* | *0.0077* | *0.005* | 0.003 | *0.0077* | *0.0077* | *0.0077* | *0.0023* | 0.012 | *0.0012* | *0.0012* | *0.005* | *0.005* | *0.0031* | 0.012 | *0.0077* | 0.0036 | 0.003 | 0.0028 | 0.032 | 0.027 | 0.05 |
| NYOW-05-PH012-C | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0048* | 0.0067 | *0.0074* | *0.0074* | *0.0074* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.003* | 0.011 | 0.011 | 0.00338 | 0.00528 | 0.00273 | 0.03 | 0.048 | 0.049 |
| NYOW-05-PH013-B | 0.01 | 0.01 | 0.015 | 0.01 | 0.01 | 0.015 | *0.0069* | 0.01 | 0.013 | 0.01 | 0.01 | *0.0011* | *0.0011* | 0.01 | 0.015 | *0.0028* | 0.01 | 0.01 | 0.00759 | 0.0111 | 0.00902 | 0.068 | 0.1 | 0.16 |
| NYOW-05-PH013-C | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0071* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0046* | *0.0046* | *0.0028* | *0.0021* | *0.0071* | N/A | N/A | N/A | 0.028 | 0.054 | 0.082 |
| NYOW-05-PH014-B | *0.0047* | *0.0047* | 0.003 | *0.0072* | *0.0047* | 0.0023 | *0.0072* | *0.0072* | *0.0072* | *0.0022* | 0.011 | *0.0012* | *0.0012* | *0.0047* | *0.0047* | *0.0029* | 0.011 | *0.0072* | 0.00338 | 0.00265 | 0.00276 | 0.03 | 0.024 | 0.05 |
| NYOW-05-PH014-C | *0.0049* | *0.0049* | 0.003 | *0.0075* | *0.0049* | 0.0044 | *0.0075* | *0.0075* | 0.0025 | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.0049* | *0.0049* | *0.003* | 0.011 | 0.011 | 0.00338 | 0.0033 | 0.00302 | 0.03 | 0.03 | 0.054 |
| NYOW-05-PH015-B | 0.01 | 0.01 | 0.0081 | 0.01 | *0.0045* | 0.0066 | *0.0069* | 0.01 | 0.0071 | 0.01 | 0.01 | *0.0011* | 0.01 | *0.0045* | 0.0085 | *0.0027* | 0.01 | 0.0046 | 0.00627 | 0.00798 | 0.00677 | 0.056 | 0.072 | 0.12 |
| NYOW-05-PH015-C | *0.0047* | 0.0019 | 0.0035 | *0.0073* | *0.0047* | 0.0032 | *0.0073* | *0.0073* | 0.0035 | 0.011 | 0.011 | *0.0012* | *0.0012* | *0.0047* | 0.0043 | *0.0029* | 0.011 | 0.011 | 0.00599 | 0.00303 | 0.00441 | 0.054 | 0.027 | 0.079 |
| NYOW-05-PH016-B | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0071* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0046* | *0.0046* | *0.0028* | *0.0021* | *0.0071* | N/A | N/A | N/A | 0.028 | 0.054 | 0.082 |
| NYOW-05-PH016-C | *0.0049* | *0.0049* | *0.0076* | *0.0076* | *0.0049* | 0.0046 | *0.0076* | *0.0076* | *0.0076* | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.0049* | *0.0049* | *0.003* | *0.0023* | *0.0076* | N/A | 0.0046 | 0.00169 | 0.03 | 0.041 | 0.03 |
| NYOW-05-PH017-1-B | *0.0047* | *0.0047* | *0.0072* | *0.0072* | *0.0047* | *0.0047* | *0.0072* | *0.0072* | *0.0072* | *0.0022* | *0.0022* | *0.0011* | *0.0011* | *0.0047* | *0.0047* | *0.0029* | *0.0022* | *0.0072* | N/A | N/A | N/A | 0.028 | 0.055 | 0.083 |
| NYOW-05-PH017-1-C | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0074* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.003* | *0.0022* | *0.0074* | N/A | N/A | N/A | 0.029 | 0.056 | 0.085 |
| NYOW-05-PH018-B | 0.011 | 0.011 | 0.011 | 0.011 | 0.011 | 0.0066 | *0.0075* | 0.011 | 0.0099 | 0.011 | 0.011 | *0.0012* | *0.0012* | *0.0049* | 0.01 | *0.003* | 0.011 | 0.011 | 0.00653 | 0.0099 | 0.00798 | 0.059 | 0.089 | 0.14 |
| NYOW-05-PH018-C | 0.042 | 0.033 | 0.048 | 0.024 | 0.016 | 0.06 | 0.012 | 0.024 | 0.067 | 0.13 | 0.16 | 0.012 | 0.012 | 0.012 | 0.063 | 0.012 | 0.1 | 0.12 | 0.069 | 0.0362 | 0.0526 | 0.62 | 0.33 | 0.95 |
| NYOW-05-PH019-B | *0.0047* | *0.0047* | 0.011 | *0.0073* | *0.0047* | 0.0023 | *0.0073* | *0.0073* | 0.0031 | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0047* | 0.0033 | *0.0029* | 0.011 | *0.0073* | 0.0026 | 0.00362 | 0.00288 | 0.023 | 0.033 | 0.052 |
| NYOW-05-PH019-C | *0.0051* | *0.0051* | *0.0078* | *0.0078* | *0.0051* | *0.0051* | *0.0078* | *0.0078* | 0.0027 | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.0051* | 0.0031 | *0.0031* | 0.0014 | *0.0078* | 0.00153 | 0.0027 | 0.0017 | 0.014 | 0.024 | 0.031 |
| NYOW-05-PH020-B | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.015 | *0.008* | 0.012 | 0.017 | 0.012 | 0.012 | *0.0013* | *0.0013* | 0.012 | 0.02 | 0.012 | 0.012 | 0.012 | 0.0105 | 0.0124 | 0.0111 | 0.095 | 0.11 | 0.2 |
| NYOW-05-PH020-C | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0046* | 0.004 | *0.0071* | *0.0071* | 0.0023 | *0.0021* | 0.0015 | *0.0011* | *0.0011* | *0.0046* | *0.0046* | *0.0028* | 0.0029 | *0.0071* | 0.00151 | 0.00315 | 0.00195 | 0.014 | 0.028 | 0.035 |
| NYOW-05-PH021-B | 0.011 | 0.0096 | 0.02 | 0.012 | 0.011 | 0.016 | *0.0076* | 0.011 | 0.018 | 0.014 | 0.019 | *0.0012* | 0.011 | 0.011 | 0.019 | *0.003* | 0.019 | 0.013 | 0.012 | 0.0129 | 0.0121 | 0.11 | 0.12 | 0.22 |
| NYOW-05-PH021-C | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0074* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.003* | 0.011 | *0.0074* | 0.00229 | N/A | 0.00174 | 0.021 | 0.056 | 0.031 |
| NYOW-05-PH022-B | 0.0026 | 0.0029 | 0.0055 | 0.017 | *0.0045* | 0.004 | *0.0069* | 0.013 | 0.004 | *0.0021* | 0.0018 | *0.0011* | 0.011 | *0.0045* | 0.0043 | *0.0028* | 0.0039 | *0.0069* | 0.0033 | 0.00623 | 0.00477 | 0.03 | 0.056 | 0.086 |
| NYOW-05-PH022-C | 0.011 | 0.011 | 0.011 | 0.011 | 0.011 | 0.011 | *0.0071* | 0.011 | 0.011 | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0046* | 0.011 | *0.0029* | 0.011 | *0.0071* | 0.0033 | 0.0106 | 0.0066 | 0.03 | 0.095 | 0.12 |
| NYOW-05-PH023-B | 0.016 | 0.016 | 0.027 | 0.046 | 0.011 | 0.025 | 0.011 | 0.035 | 0.027 | 0.008 | 0.012 | *0.0011* | 0.011 | 0.011 | 0.03 | 0.011 | 0.02 | 0.022 | 0.014 | 0.0238 | 0.0189 | 0.13 | 0.21 | 0.34 |
| NYOW-05-PH023-C | *0.0048* | *0.0048* | *0.0073* | *0.0073* | *0.0048* | *0.0048* | *0.0073* | *0.0073* | *0.0073* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.0029* | 0.011 | *0.0073* | 0.00229 | N/A | 0.00174 | 0.021 | 0.056 | 0.031 |
| NYOW-05-PH024-B | 0.0081 | 0.006 | 0.011 | 0.0053 | 0.012 | 0.011 | *0.0078* | 0.0052 | 0.012 | 0.083 | 0.13 | *0.0013* | *0.0013* | *0.0051* | 0.012 | 0.012 | 0.11 | 0.034 | 0.0428 | 0.00846 | 0.0255 | 0.39 | 0.076 | 0.46 |
| NYOW-05-PH024-C | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0074* | 0.011 | 0.011 | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.003* | 0.011 | *0.0074* | 0.00447 | N/A | 0.00283 | 0.04 | 0.056 | 0.051 |
| NYOW-05-PH025-B | 0.0025 | 0.0032 | 0.0067 | 0.011 | *0.0052* | 0.0062 | *0.0079* | 0.01 | 0.0041 | 0.0022 | 0.0028 | *0.0013* | *0.0013* | *0.0052* | 0.0048 | *0.0032* | 0.0027 | 0.0041 | 0.00266 | 0.0057 | 0.00411 | 0.024 | 0.051 | 0.074 |
| NYOW-05-PH025-C | *0.0051* | *0.0051* | *0.0078* | *0.0078* | *0.0051* | *0.0051* | *0.0078* | *0.0078* | *0.0078* | *0.0023* | *0.0023* | *0.0013* | *0.0013* | *0.0051* | *0.0051* | *0.0031* | *0.0023* | *0.0078* | N/A | N/A | N/A | 0.031 | 0.059 | 0.09 |
| NYOW-05-SL001-A | 0.0024 | *0.0045* | *0.0069* | *0.0069* | *0.0045* | 0.0035 | *0.0069* | *0.0069* | 0.0042 | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0045* | 0.0049 | *0.0028* | 0.0018 | 0.003 | 0.00194 | 0.00337 | 0.00233 | 0.017 | 0.03 | 0.042 |
| NYOW-05-SL002-A | 0.02 | 0.016 | 0.022 | 0.016 | 0.011 | 0.021 | *0.0077* | 0.011 | 0.045 | 0.01 | 0.013 | 0.011 | *0.0012* | 0.018 | 0.051 | 0.011 | 0.01 | 0.046 | 0.019 | 0.0188 | 0.0185 | 0.17 | 0.17 | 0.33 |
| NYOW-05-SL003-A | 0.0065 | 0.0042 | 0.0076 | 0.0031 | 0.012 | 0.0092 | *0.0077* | 0.0025 | 0.011 | 0.065 | 0.087 | *0.0012* | *0.0012* | *0.005* | 0.0091 | 0.012 | 0.065 | 0.034 | 0.0306 | 0.00676 | 0.0187 | 0.28 | 0.061 | 0.34 |
| NYOW-05-SL004-A | 0.012 | 0.012 | 0.019 | 0.0088 | 0.0099 | 0.025 | *0.0066* | 0.0085 | 0.023 | 0.069 | 0.09 | *0.0011* | 0.0099 | 0.0032 | 0.023 | 0.0099 | 0.071 | 0.044 | 0.0357 | 0.0139 | 0.0245 | 0.32 | 0.13 | 0.44 |
| NYOW-05-SL005-A | 0.042 | 0.034 | 0.058 | *0.072* | *0.047* | 0.056 | *0.072* | *0.072* | 0.068 | 0.29 | 0.37 | *0.012* | *0.012* | *0.047* | 0.069 | *0.029* | 0.29 | 0.16 | 0.136 | 0.0493 | 0.0905 | 1.2 | 0.44 | 1.6 |
| NYOW-05-SL006-A | 0.27 | 0.12 | 0.19 | *0.23* | *0.15* | 0.35 | *0.23* | *0.23* | 0.45 | 5.7 | 7.7 | *0.037* | 0.35 | 0.35 | 0.32 | 0.096 | 5.6 | 2.3 | 2.495 | 0.214 | 1.346 | 22 | 1.9 | 24 |
| NYOW-05-SL007-A | 0.75 | 0.38 | 0.46 | 0.28 | 0.32 | 0.91 | *0.22* | 0.11 | 0.98 | 10 | 14 | 0.32 | 0.32 | 0.32 | 0.66 | 0.17 | 9.2 | 5.3 | 4.477 | 0.478 | 2.479 | 40 | 4.3 | 45 |
| NYOW-05-SL008-A | 0.61 | 0.31 | 0.43 | 0.25 | 0.34 | 1 | *0.23* | 0.08 | 0.99 | 6 | 4.8 | 0.34 | 0.34 | 0.34 | 0.76 | 0.26 | 2 | 4.2 | 2.116 | 0.454 | 1.285 | 19 | 4.1 | 23 |
| NYOW-05-SL009-A | 0.044 | 0.032 | 0.1 | 0.027 | 0.015 | 0.31 | 0.018 | 0.019 | 0.13 | 0.12 | 0.086 | *0.0016* | 0.015 | *0.0066* | 0.1 | 0.03 | 0.039 | 0.34 | 0.0815 | 0.0772 | 0.0793 | 0.73 | 0.69 | 1.4 |
| NYOW-05-SL010-A | 0.036 | 0.014 | 0.06 | 0.016 | 0.012 | 0.18 | 0.013 | 0.0069 | 0.068 | 0.039 | 0.017 | 0.012 | 0.012 | *0.005* | 0.044 | 0.012 | 0.017 | 0.16 | 0.0353 | 0.0451 | 0.0402 | 0.32 | 0.41 | 0.72 |
| NYOW-05-SL011-A | 0.0098 | 0.011 | 0.02 | 0.0083 | 0.0072 | 0.014 | *0.0073* | 0.0096 | 0.019 | 0.011 | 0.018 | 0.011 | 0.011 | 0.011 | 0.02 | 0.011 | 0.015 | 0.0091 | 0.013 | 0.0118 | 0.0124 | 0.12 | 0.11 | 0.22 |
| NYOW-05-SL012-A | 0.012 | 0.013 | 0.023 | 0.013 | 0.0084 | 0.017 | *0.0077* | 0.013 | 0.024 | 0.012 | 0.003 | *0.0012* | *0.0012* | 0.012 | 0.025 | *0.0031* | 0.0052 | 0.0094 | 0.00787 | 0.0146 | 0.0109 | 0.071 | 0.13 | 0.2 |
| NYOW-05-SL013-A | 0.012 | 0.012 | 0.019 | 0.0098 | 0.0074 | 0.015 | *0.0078* | 0.011 | 0.017 | 0.012 | 0.0019 | *0.0012* | *0.0012* | 0.012 | 0.019 | *0.0031* | 0.0033 | 0.0084 | 0.00671 | 0.0123 | 0.00924 | 0.06 | 0.11 | 0.17 |
| NYOW-05-SL014-A | 0.013 | 0.017 | 0.024 | 0.012 | 0.01 | 0.018 | 0.0032 | 0.013 | 0.02 | 0.011 | 0.0029 | *0.0011* | 0.011 | 0.011 | 0.022 | *0.0029* | 0.0029 | 0.0099 | 0.0081 | 0.0145 | 0.0113 | 0.073 | 0.13 | 0.2 |
| NYOW-05-SL015-A | 0.018 | 0.065 | 0.072 | 0.049 | 0.027 | 0.026 | 0.013 | 0.055 | 0.029 | 0.011 | 0.0094 | 0.011 | 0.011 | 0.011 | 0.031 | 0.011 | 0.0075 | 0.018 | 0.0134 | 0.0393 | 0.0264 | 0.12 | 0.35 | 0.48 |
| NYOW-05-SL016-A | 0.031 | 0.029 | 0.04 | 0.02 | 0.016 | 0.034 | 0.012 | 0.023 | 0.055 | 0.012 | 0.012 | *0.0013* | 0.012 | 0.012 | 0.056 | *0.0032* | 0.012 | 0.019 | 0.0153 | 0.0289 | 0.0221 | 0.14 | 0.26 | 0.4 |
| NYOW-05-SL017-1-A | 0.024 | 0.024 | 0.035 | 0.017 | 0.012 | 0.027 | 0.01 | 0.02 | 0.042 | *0.002* | 0.01 | *0.0011* | 0.01 | 0.01 | 0.045 | 0.01 | 0.01 | 0.019 | 0.0129 | 0.0232 | 0.0181 | 0.12 | 0.21 | 0.33 |
| NYOW-05-SL018-A | 0.0067 | 0.0061 | 0.01 | *0.0076* | 0.0034 | 0.0085 | *0.0076* | 0.005 | 0.013 | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.005* | 0.013 | *0.0031* | *0.0023* | 0.0058 | 0.00302 | 0.00703 | 0.00479 | 0.027 | 0.063 | 0.086 |
| NYOW-05-SL019-A | 0.01 | 0.01 | 0.016 | 0.0075 | 0.0055 | 0.012 | *0.0068* | 0.0085 | 0.016 | 0.01 | 0.01 | *0.0011* | *0.0011* | *0.0044* | 0.017 | *0.0027* | 0.01 | 0.0061 | 0.00639 | 0.0101 | 0.00809 | 0.058 | 0.091 | 0.15 |
| NYOW-05-SL020-A | 0.0076 | 0.0079 | 0.012 | 0.0061 | 0.0044 | 0.0091 | *0.0074* | 0.0064 | 0.012 | *0.0022* | 0.011 | *0.0012* | *0.0012* | *0.0048* | 0.013 | *0.003* | 0.011 | 0.0051 | 0.00512 | 0.0079 | 0.00641 | 0.046 | 0.071 | 0.12 |
| NYOW-05-SL021-A | 0.21 | 0.12 | 0.21 | 0.13 | 0.063 | 0.25 | *0.081* | 0.11 | 0.34 | 1.8 | 2.5 | *0.013* | 0.054 | 0.062 | 0.31 | 0.031 | 1.8 | 0.98 | 0.839 | 0.166 | 0.502 | 7.6 | 1.5 | 9 |
| NYOW-05-SL022-A | 0.019 | 0.022 | 0.034 | 0.022 | 0.012 | 0.024 | 0.0047 | 0.026 | 0.031 | 0.0054 | 0.0071 | *0.0013* | 0.0036 | 0.0036 | 0.034 | 0.0013 | 0.009 | 0.014 | 0.00881 | 0.0216 | 0.0152 | 0.079 | 0.19 | 0.27 |
| NYOW-05-SL023-A | 0.39 | 0.79 | 1.4 | 4.7 | 0.4 | 1.1 | 0.88 | 3.4 | 0.41 | 2.3 | 3.2 | 0.065 | 0.37 | 0.22 | 0.32 | 0.041 | 2.6 | 1.1 | 1.13 | 1.496 | 1.313 | 10 | 13 | 24 |
| NYOW-05-SL024-A | 0.44 | 0.18 | 0.28 | *0.35* | *0.23* | 0.57 | *0.35* | *0.35* | 0.73 | 7.4 | 10 | *0.056* | *0.056* | *0.23* | 0.46 | 0.11 | 7.1 | 3.9 | 3.24 | 0.336 | 1.77 | 29 | 3 | 32 |
| NYOW-05-SL025-A | 0.019 | 0.023 | 0.059 | 0.065 | 0.014 | 0.04 | 0.012 | 0.05 | 0.029 | 0.077 | 0.089 | *0.0013* | 0.0081 | 0.0048 | 0.029 | 0.0021 | 0.063 | 0.057 | 0.0368 | 0.0346 | 0.0357 | 0.33 | 0.31 | 0.64 |
| NYOW-B-PH006-B | 0.0025 | 0.0026 | 0.0034 | *0.0078* | *0.0051* | 0.0023 | *0.0078* | 0.0026 | 0.0026 | *0.0023* | *0.0023* | *0.0013* | *0.0013* | *0.0051* | 0.0028 | *0.0031* | *0.0023* | *0.0078* | 0.00155 | 0.00267 | 0.0021 | 0.014 | 0.024 | 0.038 |

Appendix C.2
PAH Summation Support
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sample Name | High Molecular Weight (HMW) PAHs | | | | | | | | | Low Molecular Weight (HMW) PAHs | | | | | | | | | Mean[1] | | | Summation[1] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BaA | BaP | BbF | BgP | BkF | Chry | DaA | InP | Pyr | 1MN | 2MN | Acn | Acnthy | Anth | FlA | Flu | Naph | Phen | LMW | HMW | Total | LMW | HMW | Total |
| NYOW-B-PH006-C | *0.005* | *0.005* | *0.0077* | *0.0077* | *0.005* | *0.005* | *0.0077* | *0.0077* | *0.0077* | *0.0023* | *0.0023* | 0.012 | *0.0012* | *0.005* | *0.005* | *0.0031* | *0.0023* | *0.0077* | 0.0024 | N/A | 0.0018 | 0.022 | 0.059 | 0.032 |
| NYOW-B-PH007-B | *0.005* | *0.005* | *0.0077* | *0.0077* | *0.005* | *0.005* | *0.0077* | *0.0077* | *0.0077* | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.005* | *0.005* | *0.0031* | *0.0023* | *0.0077* | N/A | N/A | N/A | 0.03 | 0.059 | 0.089 |
| NYOW-B-PH007-C | *0.005* | *0.005* | *0.0077* | *0.0077* | *0.005* | 0.0029 | *0.0077* | *0.0077* | *0.0077* | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.005* | *0.005* | *0.0031* | *0.0023* | *0.0077* | N/A | 0.0029 | 0.00148 | 0.03 | 0.026 | 0.027 |
| NYOW-B-PH008-B | *0.0052* | *0.0052* | *0.0081* | *0.0081* | *0.0052* | *0.0052* | *0.0081* | *0.0081* | *0.0081* | *0.0024* | *0.0024* | *0.0013* | *0.0013* | *0.0052* | *0.0052* | *0.0032* | *0.0024* | *0.0081* | N/A | N/A | N/A | 0.032 | 0.061 | 0.093 |
| NYOW-B-PH008-C | *0.005* | *0.005* | *0.0078* | *0.0078* | *0.005* | *0.005* | *0.0078* | *0.0078* | *0.0078* | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.005* | *0.005* | *0.0031* | *0.0023* | *0.0078* | N/A | N/A | N/A | 0.03 | 0.059 | 0.089 |
| NYOW-B-PH009-B | *0.0051* | *0.0051* | *0.0078* | *0.0078* | *0.0051* | *0.0051* | *0.0078* | *0.0078* | *0.0078* | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.0051* | *0.0051* | *0.0031* | *0.0023* | *0.0078* | N/A | N/A | N/A | 0.03 | 0.059 | 0.09 |
| NYOW-B-PH009-C | 0.011 | 0.011 | 0.0045 | *0.0072* | *0.0047* | 0.0031 | *0.0072* | *0.0072* | *0.0072* | *0.0022* | *0.0022* | *0.0011* | *0.0011* | *0.0047* | *0.0047* | *0.0029* | *0.0022* | *0.0072* | N/A | 0.0054 | 0.0028 | 0.028 | 0.049 | 0.05 |
| NYOW-B-PH010-B | *0.0051* | *0.0051* | *0.0079* | *0.0079* | *0.0051* | *0.0051* | *0.0079* | *0.0079* | *0.0079* | *0.0024* | 0.012 | *0.0013* | *0.0013* | *0.0051* | *0.0051* | *0.0031* | 0.012 | *0.0079* | 0.00368 | N/A | 0.00249 | 0.033 | 0.06 | 0.045 |
| NYOW-B-PH010-C | 0.011 | 0.011 | 0.0035 | *0.0076* | *0.0049* | 0.0098 | *0.0076* | *0.0076* | 0.011 | *0.0023* | 0.011 | *0.0012* | *0.0012* | *0.0049* | 0.011 | *0.003* | 0.0022 | 0.011 | 0.00469 | 0.0067 | 0.00535 | 0.042 | 0.06 | 0.096 |
| NYOW-B-PH011-B | *0.0052* | *0.0052* | *0.0081* | *0.0081* | *0.0052* | *0.0052* | *0.0081* | *0.0081* | *0.0081* | *0.0024* | *0.0024* | *0.0013* | *0.0013* | *0.0052* | *0.0052* | *0.0032* | *0.0024* | *0.0081* | N/A | N/A | N/A | 0.032 | 0.061 | 0.093 |
| NYOW-B-PH011-C | 0.012 | 0.012 | 0.0049 | 0.012 | 0.012 | 0.0086 | *0.0083* | *0.0083* | 0.012 | *0.0025* | *0.0025* | *0.0013* | *0.0013* | *0.0054* | 0.012 | *0.0033* | *0.0025* | 0.012 | 0.00368 | 0.00926 | 0.00615 | 0.033 | 0.083 | 0.11 |
| NYOW-B-PH012-B | *0.0049* | *0.0049* | *0.0075* | *0.0075* | *0.0049* | *0.0049* | *0.0075* | *0.0075* | *0.0075* | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.0049* | *0.0049* | *0.003* | 0.011 | *0.0075* | 0.00229 | N/A | 0.00174 | 0.021 | 0.057 | 0.031 |
| NYOW-B-PH012-C | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0071* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0046* | *0.0046* | *0.0028* | *0.0021* | *0.0071* | N/A | N/A | N/A | 0.028 | 0.054 | 0.082 |
| NYOW-B-PH013-B | *0.0051* | *0.0051* | *0.0078* | *0.0078* | *0.0051* | *0.0051* | *0.0078* | *0.0078* | *0.0078* | *0.0024* | *0.0024* | *0.0013* | *0.0013* | *0.0051* | *0.0051* | *0.0031* | *0.0024* | *0.0078* | N/A | N/A | N/A | 0.031 | 0.059 | 0.09 |
| NYOW-B-PH013-C | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0074* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.003* | *0.0022* | *0.0074* | N/A | N/A | N/A | 0.029 | 0.056 | 0.085 |
| NYOW-B-PH014-B | 0.0052 | 0.0054 | 0.0065 | 0.0032 | 0.0023 | 0.0047 | *0.0074* | 0.0031 | 0.0074 | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | 0.008 | *0.0029* | 0.011 | 0.0051 | 0.00348 | 0.00468 | 0.00408 | 0.031 | 0.042 | 0.073 |
| NYOW-B-PH014-C | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0071* | *0.0021* | *0.0021* | 0.011 | *0.0011* | *0.0046* | *0.0046* | *0.0028* | 0.0012 | *0.0071* | 0.00224 | N/A | 0.0017 | 0.02 | 0.054 | 0.031 |
| NYOW-B-PH015-B | *0.0049* | *0.0049* | *0.0075* | *0.0075* | *0.0049* | *0.0049* | *0.0075* | *0.0075* | *0.0075* | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.0049* | *0.0049* | *0.003* | *0.0023* | *0.0075* | N/A | N/A | N/A | 0.03 | 0.057 | 0.087 |
| NYOW-B-PH015-C | *0.0053* | *0.0053* | *0.0081* | *0.0081* | *0.0053* | *0.0053* | *0.0081* | *0.0081* | *0.0081* | *0.0024* | *0.0024* | *0.0013* | *0.0013* | *0.0053* | *0.0053* | *0.0032* | *0.0024* | *0.0081* | N/A | N/A | N/A | 0.032 | 0.062 | 0.093 |
| NYOW-B-PH016-B | *0.0044* | *0.0044* | *0.0068* | *0.0068* | *0.0044* | *0.0044* | *0.0068* | *0.0068* | *0.0068* | *0.002* | *0.002* | *0.0011* | *0.0011* | *0.0044* | *0.0044* | *0.0027* | *0.002* | *0.0068* | N/A | N/A | N/A | 0.027 | 0.052 | 0.078 |
| NYOW-B-PH016-C | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0071* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0046* | *0.0046* | *0.0028* | *0.0021* | *0.0071* | N/A | N/A | N/A | 0.028 | 0.054 | 0.082 |
| NYOW-B-PH017-B | *0.0046* | *0.0046* | *0.007* | *0.007* | *0.0046* | *0.0046* | *0.007* | *0.007* | *0.007* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0046* | *0.0046* | *0.0028* | *0.0021* | *0.007* | N/A | N/A | N/A | 0.028 | 0.053 | 0.081 |
| NYOW-B-PH017-C | *0.005* | *0.005* | *0.0077* | *0.0077* | *0.005* | 0.0025 | *0.0077* | *0.0077* | *0.0077* | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.005* | *0.005* | *0.0031* | *0.0023* | *0.0077* | N/A | 0.0025 | 0.00142 | 0.03 | 0.023 | 0.026 |
| NYOW-B-PH018-B | 0.0027 | 0.0019 | *0.0074* | *0.0074* | *0.0048* | 0.0038 | *0.0074* | *0.0074* | *0.0074* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.003* | *0.0022* | *0.0074* | N/A | 0.0028 | 0.00186 | 0.029 | 0.025 | 0.033 |
| NYOW-B-PH018-C | 0.01 | 0.01 | *0.0067* | *0.0067* | *0.0044* | 0.0051 | *0.0067* | *0.0067* | *0.0067* | *0.002* | *0.002* | *0.0011* | *0.0011* | *0.0044* | *0.0044* | *0.0027* | *0.002* | *0.0067* | N/A | 0.00592 | 0.00244 | 0.026 | 0.053 | 0.044 |
| NYOW-B-PH019-B | *0.0048* | *0.0048* | *0.0073* | *0.0073* | *0.0048* | 0.0022 | *0.0073* | *0.0073* | *0.0073* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.0029* | *0.0022* | *0.0073* | N/A | 0.0022 | 0.00137 | 0.029 | 0.02 | 0.025 |
| NYOW-B-PH019-C | *0.0044* | *0.0044* | *0.0068* | *0.0068* | *0.0044* | *0.0044* | *0.0068* | *0.0068* | *0.0068* | *0.002* | *0.002* | *0.0011* | *0.0011* | *0.0044* | *0.0044* | *0.0027* | *0.002* | *0.0068* | N/A | N/A | N/A | 0.027 | 0.052 | 0.078 |
| NYOW-B-PH020-B | *0.0049* | *0.0049* | *0.0076* | *0.0076* | *0.0049* | *0.0049* | *0.0076* | *0.0076* | *0.0076* | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.0049* | *0.0049* | *0.003* | 0.011 | *0.0076* | 0.00229 | N/A | 0.00174 | 0.021 | 0.058 | 0.031 |
| NYOW-B-PH020-C | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0071* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0046* | *0.0046* | *0.0029* | *0.0021* | *0.0071* | N/A | N/A | N/A | 0.028 | 0.054 | 0.082 |
| NYOW-B-PH021-B | *0.0047* | *0.0047* | *0.0072* | *0.0072* | *0.0047* | *0.0047* | *0.0072* | *0.0072* | *0.0072* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0047* | *0.0047* | *0.0029* | *0.0022* | *0.0072* | N/A | N/A | N/A | 0.029 | 0.055 | 0.083 |
| NYOW-B-PH021-C | *0.0051* | *0.0051* | *0.0079* | *0.0079* | *0.0051* | *0.0051* | *0.0079* | *0.0079* | *0.0079* | *0.0024* | *0.0024* | *0.0013* | *0.0013* | *0.0051* | *0.0051* | *0.0032* | *0.0024* | *0.0079* | N/A | N/A | N/A | 0.031 | 0.06 | 0.091 |
| NYOW-B-PH022-B | *0.0048* | *0.0048* | *0.0073* | *0.0073* | *0.0048* | *0.0048* | *0.0073* | *0.0073* | *0.0073* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.0029* | *0.0022* | *0.0073* | N/A | N/A | N/A | 0.029 | 0.056 | 0.085 |
| NYOW-B-PH022-C | *0.0047* | *0.0047* | *0.0072* | *0.0072* | *0.0047* | *0.0047* | *0.0072* | *0.0072* | *0.0072* | *0.0022* | *0.0022* | *0.0011* | *0.0011* | *0.0047* | *0.0047* | *0.0029* | *0.0022* | *0.0072* | N/A | N/A | N/A | 0.028 | 0.055 | 0.083 |
| NYOW-B-PH023-B | *0.0047* | *0.0047* | *0.0072* | *0.0072* | *0.0047* | *0.0047* | *0.0072* | *0.0072* | *0.0072* | *0.0022* | *0.0022* | *0.0011* | *0.0011* | *0.0047* | *0.0047* | *0.0029* | *0.0022* | *0.0072* | N/A | N/A | N/A | 0.028 | 0.055 | 0.083 |
| NYOW-B-PH023-C | *0.0042* | 0.0098 | 0.0043 | *0.0065* | *0.0042* | 0.0032 | *0.0065* | 0.0098 | 0.0098 | *0.002* | 0.0098 | 0.0098 | *0.001* | *0.0042* | 0.0098 | *0.0026* | 0.00074 | 0.0098 | 0.00477 | 0.00558 | 0.00477 | 0.043 | 0.05 | 0.086 |
| NYOW-B-PH024-B | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0074* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.003* | *0.0022* | *0.0074* | N/A | N/A | N/A | 0.029 | 0.056 | 0.085 |
| NYOW-B-PH024-C | *0.0044* | *0.0044* | 0.0027 | *0.0068* | *0.0044* | 0.0026 | *0.0068* | *0.0068* | *0.0068* | *0.002* | *0.002* | *0.0011* | *0.0011* | *0.0044* | *0.0044* | *0.0027* | *0.002* | *0.0068* | N/A | 0.00265 | 0.00152 | 0.027 | 0.024 | 0.027 |
| NYOW-B-PH025-B | *0.0048* | *0.0048* | *0.0073* | *0.0073* | *0.0048* | *0.0048* | *0.0073* | *0.0073* | *0.0073* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.0029* | *0.0022* | *0.0073* | N/A | N/A | N/A | 0.029 | 0.056 | 0.085 |
| NYOW-B-PH025-C | *0.0045* | *0.0045* | 0.0047 | *0.0069* | *0.0045* | 0.0034 | *0.0069* | *0.0069* | *0.0069* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0045* | 0.01 | *0.0028* | *0.0021* | *0.0069* | 0.00209 | 0.00366 | 0.00216 | 0.019 | 0.033 | 0.039 |
| NYOW-B-PH026-B | *0.0053* | *0.0053* | *0.0082* | *0.0082* | *0.0053* | *0.0053* | *0.0082* | *0.0082* | *0.0082* | *0.0025* | 0.012 | *0.0013* | *0.0013* | *0.0053* | *0.0053* | *0.0033* | 0.012 | *0.0082* | 0.00368 | N/A | 0.00249 | 0.033 | 0.062 | 0.045 |
| NYOW-B-PH026-C | *0.0049* | *0.0049* | *0.0075* | *0.0075* | *0.0049* | *0.0049* | *0.0075* | *0.0075* | *0.0075* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0049* | *0.0049* | *0.003* | 0.0015 | *0.0075* | 0.0013 | N/A | 0.0013 | 0.012 | 0.057 | 0.023 |
| NYOW-B-PH027-B | *0.0044* | *0.0044* | *0.0068* | *0.0068* | *0.0044* | *0.0044* | *0.0068* | *0.0068* | *0.0068* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0044* | 0.0022 | *0.0027* | *0.0021* | *0.0068* | 0.00128 | N/A | 0.00128 | 0.012 | 0.052 | 0.023 |
| NYOW-B-PH027-C | *0.0043* | *0.0043* | *0.0067* | *0.0067* | *0.0043* | *0.0043* | *0.0067* | *0.0067* | *0.0067* | *0.002* | *0.002* | *0.0011* | *0.0011* | *0.0043* | *0.0043* | *0.0027* | *0.002* | *0.0067* | N/A | N/A | N/A | 0.026 | 0.051 | 0.077 |
| NYOW-B-PH028-B | *0.0047* | *0.0047* | *0.0072* | *0.0072* | *0.0047* | *0.0047* | *0.0072* | *0.0072* | *0.0072* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0047* | *0.0047* | *0.0029* | 0.011 | *0.0072* | 0.00229 | N/A | 0.00174 | 0.021 | 0.055 | 0.031 |
| NYOW-B-PH028-C | *0.0049* | *0.0049* | *0.0076* | *0.0076* | *0.0049* | *0.0049* | *0.0076* | *0.0076* | *0.0076* | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.0049* | *0.0049* | *0.003* | *0.0023* | *0.0076* | N/A | N/A | N/A | 0.03 | 0.058 | 0.087 |
| NYOW-B-PH029-B | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0074* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.003* | *0.0022* | *0.0074* | N/A | N/A | N/A | 0.029 | 0.056 | 0.085 |
| NYOW-B-PH029-C | 0.01 | 0.01 | 0.016 | 0.01 | 0.01 | 0.011 | *0.0067* | 0.01 | 0.01 | *0.002* | *0.002* | *0.0011* | *0.0011* | *0.0044* | 0.01 | *0.0027* | *0.002* | 0.01 | 0.00308 | 0.0104 | 0.00643 | 0.028 | 0.094 | 0.12 |
| NYOW-B-PH030-B | *0.0049* | *0.0049* | 0.0035 | 0.0025 | 0.0026 | 0.0029 | *0.0075* | 0.0031 | *0.0075* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0049* | *0.0049* | *0.003* | *0.0022* | *0.0075* | N/A | 0.00292 | 0.00203 | 0.029 | 0.026 | 0.037 |
| NYOW-B-PH030-C | *0.0048* | *0.0048* | *0.0073* | *0.0073* | *0.0048* | *0.0048* | *0.0073* | *0.0073* | *0.0073* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.0029* | *0.0022* | *0.0073* | N/A | N/A | N/A | 0.029 | 0.056 | 0.085 |
| NYOW-B-PH031-B | 0.0021 | 0.0034 | 0.0057 | 0.0032 | *0.0051* | 0.0034 | *0.0078* | 0.0043 | 0.0036 | *0.0024* | *0.0024* | *0.0013* | *0.0013* | *0.0051* | 0.0046 | *0.0031* | *0.0024* | *0.0078* | 0.00177 | 0.00363 | 0.00277 | 0.016 | 0.033 | 0.05 |
| NYOW-B-PH031-C | *0.0045* | *0.0045* | 0.0029 | *0.0069* | *0.0045* | *0.0045* | *0.0069* | *0.0069* | *0.0069* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0045* | *0.0045* | *0.0028* | *0.0021* | *0.0069* | N/A | 0.0029 | 0.00136 | 0.027 | 0.026 | 0.024 |
| NYOW-B-PH032-B | *0.0047* | *0.0047* | 0.0026 | *0.0073* | *0.0047* | *0.0047* | *0.0073* | *0.0073* | 0.0063 | *0.0022* | *0.0022* | 0.011 | *0.0012* | *0.0047* | *0.0047* | 0.011 | *0.0022* | 0.0035 | 0.00374 | 0.00322 | 0.00314 | 0.034 | 0.029 | 0.057 |
| NYOW-B-PH032-C | 0.0098 | *0.0042* | *0.0065* | *0.0065* | *0.0042* | *0.0042* | *0.0065* | *0.0065* | *0.0065* | *0.002* | *0.002* | *0.001* | *0.001* | *0.0042* | *0.0042* | 0.0098 | 0.00071 | 0.0098 | 0.00273 | 0.00482 | 0.00223 | 0.025 | 0.043 | 0.04 |
| NYOW-B-PH033-B | *0.0048* | *0.0048* | 0.0029 | *0.0075* | *0.0048* | 0.0025 | *0.0075* | *0.0075* | *0.0075* | *0.0022* | 0.011 | *0.0012* | *0.0012* | *0.0048* | 0.0029 | *0.003* | 0.011 | *0.0075* | 0.00371 | 0.0027 | 0.00299 | 0.033 | 0.024 | 0.054 |

Appendix C.2
PAH Summation Support
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sample Name | High Molecular Weight (HMW) PAHs | | | | | | | | | Low Molecular Weight (HMW) PAHs | | | | | | | | | Mean[1] | | | Summation[1] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BaA | BaP | BbF | BgP | BkF | Chry | DaA | InP | Pyr | 1MN | 2MN | Acn | Acnthy | Anth | FlA | Flu | Naph | Phen | LMW | HMW | Total | LMW | HMW | Total |
| NYOW-B-PH033-C | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0071* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0046* | *0.0046* | *0.0028* | *0.0021* | *0.0071* | N/A | N/A | N/A | 0.028 | 0.054 | 0.082 |
| NYOW-B-PH034-B | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0074* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.003* | *0.0022* | *0.0074* | N/A | N/A | N/A | 0.029 | 0.056 | 0.085 |
| NYOW-B-PH034-C | *0.0046* | *0.0046* | *0.007* | *0.007* | *0.0046* | 0.0021 | *0.007* | *0.007* | *0.007* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0046* | *0.0046* | *0.0028* | *0.0021* | 0.011 | 0.0022 | 0.0021 | 0.00181 | 0.02 | 0.019 | 0.033 |
| NYOW-B-PH035-B | 0.0019 | 0.0016 | 0.0028 | *0.0069* | *0.0045* | 0.0026 | *0.0069* | *0.0069* | *0.0069* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0045* | *0.0045* | *0.0028* | *0.0021* | *0.0069* | N/A | 0.00223 | 0.00169 | 0.027 | 0.02 | 0.03 |
| NYOW-B-PH035-C | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0074* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.003* | *0.0022* | *0.0074* | N/A | N/A | N/A | 0.029 | 0.056 | 0.085 |
| NYOW-B-PH036-B | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0071* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0046* | *0.0046* | *0.0028* | *0.0021* | *0.0071* | N/A | N/A | N/A | 0.028 | 0.054 | 0.082 |
| NYOW-B-PH036-C | *0.0044* | *0.0044* | 0.0042 | 0.01 | *0.0044* | 0.0048 | *0.0068* | *0.0068* | *0.0068* | 0.01 | 0.01 | *0.0011* | *0.0011* | *0.0044* | *0.0044* | 0.01 | 0.0023 | 0.01 | 0.00528 | 0.00495 | 0.00454 | 0.048 | 0.045 | 0.082 |
| NYOW-B-PH037-B | *0.0053* | *0.0053* | *0.0082* | *0.0082* | *0.0053* | *0.0053* | *0.0082* | *0.0082* | *0.0082* | *0.0025* | *0.0025* | *0.0013* | *0.0013* | *0.0053* | *0.0053* | *0.0033* | *0.0025* | *0.0082* | N/A | N/A | N/A | 0.032 | 0.062 | 0.094 |
| NYOW-B-PH037-C | *0.0048* | *0.0048* | *0.0073* | *0.0073* | *0.0048* | *0.0048* | *0.0073* | *0.0073* | *0.0073* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.0029* | *0.0022* | *0.0073* | N/A | N/A | N/A | 0.029 | 0.056 | 0.085 |
| NYOW-B-PH038-B | *0.005* | *0.005* | *0.0077* | *0.0077* | *0.005* | *0.005* | *0.0077* | *0.0077* | *0.0077* | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.005* | *0.005* | *0.0031* | *0.0023* | *0.0077* | N/A | N/A | N/A | 0.03 | 0.059 | 0.089 |
| NYOW-B-PH038-C | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0071* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0046* | *0.0046* | *0.0029* | *0.0021* | *0.0071* | N/A | N/A | N/A | 0.028 | 0.054 | 0.082 |
| NYOW-B-PH039-B | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0046* | *0.0046* | *0.0071* | *0.0071* | *0.0071* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0046* | *0.0046* | *0.0029* | *0.0021* | *0.0071* | N/A | N/A | N/A | 0.028 | 0.054 | 0.082 |
| NYOW-B-PH039-C | *0.0047* | *0.0047* | *0.0072* | *0.0072* | *0.0047* | *0.0047* | *0.0072* | *0.0072* | *0.0072* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0047* | *0.0047* | *0.0029* | *0.0022* | *0.0072* | N/A | N/A | N/A | 0.029 | 0.055 | 0.083 |
| NYOW-B-PH040-B | *0.0049* | *0.0049* | *0.0076* | *0.0076* | *0.0049* | *0.0049* | *0.0076* | *0.0076* | *0.0076* | 0.011 | 0.011 | 0.011 | *0.0012* | *0.0049* | *0.0049* | *0.003* | 0.011 | *0.0076* | 0.00556 | N/A | 0.00338 | 0.05 | 0.058 | 0.061 |
| NYOW-B-PH040-C | 0.011 | 0.011 | 0.0081 | 0.011 | 0.011 | 0.0067 | 0.011 | 0.011 | 0.011 | 0.011 | 0.011 | 0.011 | 0.011 | 0.011 | 0.011 | 0.011 | 0.0031 | 0.011 | 0.0101 | 0.0102 | 0.0102 | 0.091 | 0.092 | 0.18 |
| NYOW-B-PH041-B | *0.0046* | *0.0046* | *0.007* | *0.007* | *0.0046* | *0.0046* | *0.007* | *0.007* | *0.007* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0046* | *0.0046* | *0.0028* | *0.0021* | *0.007* | N/A | N/A | N/A | 0.028 | 0.053 | 0.081 |
| NYOW-B-PH041-C | *0.0045* | *0.0045* | *0.007* | *0.007* | *0.0045* | *0.0045* | *0.007* | *0.007* | *0.007* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0045* | *0.0045* | *0.0028* | *0.0021* | *0.007* | N/A | N/A | N/A | 0.027 | 0.053 | 0.08 |
| NYOW-B-PH042-B | *0.0044* | *0.0044* | *0.0068* | *0.0068* | *0.0044* | *0.0044* | *0.0068* | *0.0068* | *0.0068* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0044* | *0.0044* | *0.0027* | *0.0021* | *0.0068* | N/A | N/A | N/A | 0.027 | 0.052 | 0.078 |
| NYOW-B-PH042-C | *0.0045* | *0.0045* | *0.0069* | *0.0069* | *0.0045* | *0.0045* | *0.0069* | *0.0069* | *0.0069* | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0045* | *0.0045* | *0.0028* | *0.0021* | *0.0069* | N/A | N/A | N/A | 0.027 | 0.053 | 0.08 |
| NYOW-B-PH043-B | *0.0047* | *0.0047* | *0.0073* | *0.0073* | *0.0047* | *0.0047* | *0.0073* | *0.0073* | *0.0073* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0047* | *0.0047* | *0.0029* | *0.0022* | *0.0073* | N/A | N/A | N/A | 0.029 | 0.055 | 0.084 |
| NYOW-B-PH043-C | *0.0042* | *0.0042* | *0.0064* | *0.0064* | *0.0042* | *0.0042* | *0.0064* | *0.0064* | *0.0064* | *0.0019* | *0.0019* | *0.001* | *0.001* | *0.0042* | *0.0042* | *0.0026* | *0.0019* | *0.0064* | N/A | N/A | N/A | 0.025 | 0.049 | 0.074 |
| NYOW-B-PH044-B | 0.0037 | *0.0049* | 0.0081 | 0.0032 | 0.0025 | 0.005 | *0.0075* | 0.0032 | 0.0067 | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.0049* | 0.0068 | *0.003* | *0.0023* | 0.0038 | 0.00215 | 0.00439 | 0.0032 | 0.019 | 0.04 | 0.058 |
| NYOW-B-PH044-C | *0.0047* | *0.0047* | 0.003 | *0.0073* | *0.0047* | *0.0047* | *0.0073* | *0.0073* | 0.011 | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0047* | 0.011 | *0.0029* | *0.0022* | *0.0073* | 0.00229 | 0.00389 | 0.00252 | 0.021 | 0.035 | 0.045 |
| NYOW-B-PH045-B | 0.0023 | *0.0045* | 0.0052 | *0.0069* | *0.0045* | 0.0036 | *0.0069* | *0.0069* | 0.0046 | *0.0021* | *0.0021* | *0.0011* | *0.0011* | *0.0045* | 0.0047 | *0.0028* | *0.0021* | 0.0031 | 0.00175 | 0.0036 | 0.00237 | 0.016 | 0.032 | 0.043 |
| NYOW-B-PH045-C | *0.0047* | *0.0047* | *0.0072* | *0.0072* | *0.0047* | *0.0047* | *0.0072* | *0.0072* | *0.0072* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0047* | *0.0047* | *0.0029* | *0.0022* | *0.0072* | N/A | N/A | N/A | 0.029 | 0.055 | 0.083 |
| NYOW-B-PH046-B | 0.0073 | *0.0053* | 0.012 | 0.0059 | 0.0044 | 0.0086 | *0.0081* | *0.0081* | 0.012 | *0.0024* | *0.0024* | *0.0013* | *0.0013* | 0.0018 | 0.014 | *0.0032* | *0.0024* | 0.0064 | 0.00341 | 0.00729 | 0.00493 | 0.031 | 0.066 | 0.089 |
| NYOW-B-PH046-C | *0.0047* | *0.0047* | *0.0072* | *0.0072* | *0.0047* | *0.0047* | *0.0072* | *0.0072* | *0.0072* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0047* | *0.0047* | *0.0029* | *0.0022* | *0.0072* | N/A | N/A | N/A | 0.029 | 0.055 | 0.083 |
| NYOW-B-PH047-B | 0.015 | 0.018 | 0.026 | 0.013 | 0.0085 | 0.018 | *0.0071* | 0.014 | 0.026 | 0.011 | 0.011 | *0.0011* | 0.0079 | 0.0038 | 0.027 | *0.0028* | 0.011 | 0.013 | 0.00966 | 0.0162 | 0.0126 | 0.087 | 0.15 | 0.23 |
| NYOW-B-PH047-C | *0.0044* | *0.0044* | 0.0031 | *0.0068* | *0.0044* | *0.0044* | *0.0068* | *0.0068* | 0.01 | *0.002* | *0.002* | *0.0011* | *0.0011* | *0.0044* | 0.01 | *0.0027* | *0.002* | 0.01 | 0.00308 | 0.00387 | 0.00282 | 0.028 | 0.035 | 0.051 |
| NYOW-B-PH048-B | 0.0099 | 0.013 | 0.018 | 0.011 | 0.0055 | 0.013 | 0.0035 | 0.013 | 0.016 | 0.01 | 0.01 | *0.0011* | 0.0042 | 0.0025 | 0.015 | 0.01 | 0.01 | 0.0067 | 0.00772 | 0.0114 | 0.00958 | 0.069 | 0.1 | 0.17 |
| NYOW-B-PH048-C | *0.0042* | *0.0042* | 0.0023 | *0.0065* | *0.0042* | 0.002 | *0.0065* | *0.0065* | *0.0065* | 0.0098 | 0.0098 | 0.0098 | 0.0098 | *0.0042* | *0.0042* | *0.0026* | 0.024 | *0.0065* | 0.00818 | 0.00215 | 0.00506 | 0.074 | 0.019 | 0.091 |
| NYOW-B-PH049-B | 0.0031 | 0.0024 | 0.004 | *0.0067* | *0.0043* | 0.005 | *0.0067* | *0.0067* | 0.0055 | *0.002* | *0.002* | *0.0011* | *0.0011* | *0.0043* | 0.0059 | *0.0027* | 0.01 | 0.0038 | 0.00297 | 0.00386 | 0.00323 | 0.027 | 0.035 | 0.058 |
| NYOW-B-PH049-C | *0.0048* | *0.0048* | *0.0073* | *0.0073* | *0.0048* | *0.0048* | *0.0073* | *0.0073* | *0.0073* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.0029* | *0.0022* | *0.0073* | N/A | N/A | N/A | 0.029 | 0.056 | 0.085 |
| NYOW-B-PH050-B | 0.089 | 0.09 | 0.099 | 0.05 | 0.046 | 0.081 | 0.013 | 0.058 | 0.14 | 0.01 | 0.01 | 0.01 | 0.016 | 0.012 | 0.15 | 0.01 | 0.01 | 0.035 | 0.0292 | 0.074 | 0.0516 | 0.26 | 0.67 | 0.93 |
| NYOW-B-PH050-C | *0.0047* | *0.0047* | *0.0073* | *0.0073* | *0.0047* | 0.0031 | *0.0073* | *0.0073* | *0.0073* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0047* | *0.0047* | *0.0029* | *0.0022* | 0.011 | 0.00229 | 0.0031 | 0.002 | 0.021 | 0.028 | 0.036 |
| NYOW-B-SL006-A | 0.019 | 0.027 | 0.033 | 0.017 | 0.015 | 0.022 | *0.0089* | 0.02 | 0.029 | 0.00077 | 0.0011 | 0.013 | *0.0014* | 0.0027 | 0.034 | *0.0036* | *0.0027* | 0.011 | 0.0073 | 0.0212 | 0.0138 | 0.066 | 0.19 | 0.25 |
| NYOW-B-SL007-A | 0.0057 | 0.009 | 0.01 | 0.0055 | 0.0057 | 0.0073 | *0.008* | 0.0058 | 0.011 | *0.0024* | *0.0024* | 0.013 | *0.0013* | *0.0052* | 0.012 | *0.0032* | *0.0024* | 0.0084 | 0.00458 | 0.00733 | 0.00581 | 0.041 | 0.066 | 0.1 |
| NYOW-B-SL008-A | 0.015 | 0.025 | 0.033 | 0.017 | 0.014 | 0.019 | *0.0086* | 0.019 | 0.03 | 0.00094 | 0.0011 | *0.0014* | 0.0018 | 0.0022 | 0.036 | *0.0035* | 0.0013 | 0.011 | 0.00632 | 0.0201 | 0.0128 | 0.057 | 0.18 | 0.23 |
| NYOW-B-SL009-A | 0.0022 | 0.0028 | 0.0038 | *0.0078* | *0.0051* | 0.0026 | *0.0078* | *0.0078* | 0.0031 | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.0051* | 0.0036 | *0.0031* | *0.0023* | *0.0078* | 0.00154 | 0.0029 | 0.00224 | 0.014 | 0.026 | 0.04 |
| NYOW-B-SL010-A | 0.0044 | 0.0072 | 0.0097 | 0.0052 | 0.0031 | 0.0054 | *0.0076* | 0.005 | 0.0077 | 0.00061 | 0.0009 | 0.011 | 0.00084 | *0.0049* | 0.0089 | *0.003* | 0.0016 | 0.0045 | 0.00343 | 0.00586 | 0.00458 | 0.031 | 0.053 | 0.082 |
| NYOW-B-SL011-A | 0.0051 | 0.0075 | 0.0077 | 0.0048 | 0.0051 | 0.0049 | *0.0079* | 0.0049 | 0.0067 | *0.0024* | *0.0024* | *0.0013* | *0.0013* | *0.0051* | 0.0077 | *0.0032* | *0.0024* | 0.0029 | 0.00225 | 0.00584 | 0.004 | 0.02 | 0.053 | 0.072 |
| NYOW-B-SL012-A | 0.0083 | 0.01 | 0.016 | 0.0078 | 0.0065 | 0.013 | *0.0093* | 0.0084 | 0.015 | *0.0028* | *0.0028* | *0.0015* | 0.0012 | *0.006* | 0.018 | *0.0037* | 0.0012 | 0.0078 | 0.0038 | 0.0103 | 0.00684 | 0.034 | 0.093 | 0.12 |
| NYOW-B-SL013-A | 0.011 | 0.013 | 0.021 | 0.01 | *0.0051* | 0.016 | *0.0078* | 0.011 | 0.031 | 0.0011 | *0.0024* | 0.012 | 0.0015 | *0.0051* | 0.024 | 0.0011 | 0.0013 | 0.01 | 0.00594 | 0.0137 | 0.00939 | 0.053 | 0.12 | 0.17 |
| NYOW-B-SL014-A | 0.0031 | 0.0043 | 0.0058 | 0.0027 | *0.0051* | 0.0043 | *0.0079* | 0.003 | 0.0057 | *0.0024* | *0.0024* | *0.0013* | *0.0013* | *0.0051* | 0.0062 | *0.0031* | 0.00088 | 0.0028 | 0.00176 | 0.00405 | 0.00284 | 0.016 | 0.036 | 0.051 |
| NYOW-B-SL015-A | 0.0075 | 0.012 | 0.015 | 0.0081 | 0.0069 | 0.01 | *0.0075* | 0.0088 | 0.015 | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.0049* | 0.018 | *0.003* | *0.0023* | 0.007 | 0.00371 | 0.01 | 0.00662 | 0.033 | 0.09 | 0.12 |
| NYOW-B-SL016-A | 0.0086 | 0.0082 | 0.0088 | 0.0041 | 0.0039 | 0.022 | *0.0076* | 0.0045 | 0.008 | *0.0023* | *0.0023* | *0.0012* | *0.0012* | *0.005* | 0.0083 | *0.0031* | *0.0023* | 0.003 | 0.00226 | 0.00803 | 0.00508 | 0.02 | 0.072 | 0.091 |
| NYOW-B-SL017-A | 0.008 | 0.011 | 0.015 | 0.0064 | 0.006 | 0.012 | *0.0075* | 0.0098 | 0.014 | *0.0022* | *0.0022* | *0.0012* | 0.0021 | 0.0025 | 0.016 | *0.003* | 0.0013 | 0.0065 | 0.00376 | 0.00977 | 0.00659 | 0.034 | 0.088 | 0.12 |
| NYOW-B-SL018-A | 0.016 | 0.011 | 0.011 | 0.0049 | 0.004 | 0.02 | *0.0074* | 0.0046 | 0.023 | *0.0022* | *0.0022* | *0.0012* | *0.0012* | 0.0048 | 0.015 | *0.0029* | *0.0022* | 0.0056 | 0.00362 | 0.011 | 0.00722 | 0.033 | 0.099 | 0.13 |
| NYOW-B-SL019-A | 0.0088 | 0.015 | 0.018 | 0.0092 | 0.0079 | 0.012 | *0.0082* | 0.011 | 0.018 | *0.0025* | *0.0025* | *0.0013* | *0.0013* | *0.0054* | 0.022 | *0.0033* | *0.0025* | 0.0078 | 0.00432 | 0.012 | 0.00786 | 0.039 | 0.11 | 0.14 |
| NYOW-B-SL020-A | 0.006 | 0.0073 | 0.011 | 0.0054 | 0.0037 | 0.0085 | *0.0088* | 0.0052 | 0.011 | 0.00075 | *0.0026* | 0.013 | 0.0018 | *0.0057* | 0.013 | *0.0035* | 0.0017 | 0.0068 | 0.00459 | 0.00712 | 0.00582 | 0.041 | 0.064 | 0.1 |
| NYOW-B-SL021-A | 0.01 | 0.014 | 0.019 | 0.0097 | 0.0063 | 0.013 | *0.0072* | 0.012 | 0.018 | 0.0008 | 0.00094 | 0.011 | 0.0028 | 0.0019 | 0.02 | *0.0029* | 0.0011 | 0.0078 | 0.00532 | 0.012 | 0.00845 | 0.048 | 0.11 | 0.15 |
| NYOW-B-SL022-A | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0074* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.003* | 0.00083 | *0.0074* | 0.00083 | N/A | 0.00083 | 0.0075 | 0.056 | 0.015 |
| NYOW-B-SL023-A | 0.0045 | 0.0064 | 0.0085 | 0.0037 | 0.0031 | 0.006 | *0.0078* | 0.0064 | 0.0085 | 0.00064 | *0.0023* | *0.0013* | *0.0013* | *0.0051* | 0.0085 | *0.0031* | *0.0023* | 0.0039 | 0.00193 | 0.00579 | 0.00378 | 0.017 | 0.052 | 0.068 |
| NYOW-B-SL024-A | 0.0032 | 0.0052 | 0.0067 | 0.0028 | 0.0027 | 0.0042 | *0.0081* | 0.0035 | 0.0059 | *0.0024* | *0.0024* | *0.0013* | *0.0013* | *0.0053* | 0.0059 | *0.0033* | *0.0024* | 0.0027 | 0.00202 | 0.00428 | 0.00317 | 0.018 | 0.039 | 0.057 |

Appendix C.2
PAH Summation Support
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sample Name | High Molecular Weight (HMW) PAHs | | | | | | | | | Low Molecular Weight (LMW) PAHs | | | | | | | | | Mean[1] | | | Summation[1] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BaA | BaP | BbF | BgP | BkF | Chry | DaA | InP | Pyr | 1MN | 2MN | Acn | Acnthy | Anth | FlA | Flu | Naph | Phen | LMW | HMW | Total | LMW | HMW | Total |
| NYOW-B-SL025-A | 0.032 | 0.059 | 0.064 | 0.032 | 0.025 | 0.037 | 0.0049 | 0.044 | 0.039 | 0.0017 | 0.0019 | 0.012 | 0.0062 | 0.0046 | 0.041 | 0.002 | 0.0022 | 0.01 | 0.00907 | 0.0374 | 0.0233 | 0.082 | 0.34 | 0.42 |
| NYOW-B-SL026-A | *0.0047* | 0.0019 | 0.0031 | *0.0072* | *0.0047* | 0.0023 | *0.0072* | *0.0072* | 0.0025 | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0047* | 0.0024 | *0.0029* | *0.0022* | *0.0072* | 0.0014 | 0.00245 | 0.00188 | 0.013 | 0.022 | 0.034 |
| NYOW-B-SL027-A | 0.0056 | 0.0089 | 0.013 | 0.0064 | 0.005 | 0.0077 | *0.0078* | 0.0092 | 0.012 | 0.00073 | 0.00089 | *0.0012* | 0.0015 | *0.0051* | 0.014 | *0.0031* | 0.00082 | 0.0048 | 0.00289 | 0.00822 | 0.00541 | 0.026 | 0.074 | 0.097 |
| NYOW-B-SL028-A | *0.0052* | *0.0052* | *0.008* | *0.008* | *0.0052* | *0.0052* | *0.008* | *0.008* | *0.008* | *0.0024* | *0.0024* | *0.0013* | *0.0013* | *0.0052* | *0.0052* | *0.0032* | *0.0024* | *0.008* | N/A | N/A | N/A | 0.031 | 0.061 | 0.092 |
| NYOW-B-SL029-A | *0.0057* | *0.0057* | 0.0038 | *0.0088* | *0.0057* | 0.0028 | *0.0088* | *0.0088* | 0.0053 | *0.0026* | *0.0026* | *0.0014* | *0.0014* | *0.0057* | 0.0052 | *0.0035* | *0.0026* | *0.0088* | 0.00194 | 0.00397 | 0.00257 | 0.017 | 0.036 | 0.046 |
| NYOW-B-SL030-A | 0.0075 | 0.017 | 0.028 | 0.018 | 0.0091 | 0.017 | 0.0036 | 0.018 | 0.023 | *0.0027* | *0.0027* | *0.0014* | 0.0012 | *0.0059* | 0.026 | *0.0036* | *0.0027* | 0.0083 | 0.00474 | 0.0157 | 0.0102 | 0.043 | 0.14 | 0.18 |
| NYOW-B-SL031-A | 0.0061 | 0.014 | 0.022 | 0.012 | 0.0077 | 0.011 | *0.0073* | 0.016 | 0.013 | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0047* | 0.016 | *0.0029* | *0.0022* | 0.0054 | 0.00331 | 0.012 | 0.00743 | 0.03 | 0.11 | 0.13 |
| NYOW-B-SL032-A | 0.019 | 0.031 | 0.04 | 0.022 | 0.013 | 0.025 | 0.0051 | 0.025 | 0.037 | 0.0021 | 0.0024 | *0.0018* | 0.0071 | 0.0061 | 0.044 | 0.0027 | 0.0026 | 0.019 | 0.00976 | 0.0241 | 0.0169 | 0.088 | 0.22 | 0.3 |
| NYOW-B-SL033-A | 0.0084 | 0.014 | 0.021 | 0.012 | 0.0084 | 0.015 | *0.0076* | 0.012 | 0.017 | 0.00073 | 0.0008 | *0.0012* | *0.011* | *0.005* | 0.021 | *0.0031* | 0.00095 | 0.007 | 0.00385 | 0.0128 | 0.00808 | 0.035 | 0.12 | 0.15 |
| NYOW-B-SL034-A | 0.011 | 0.015 | 0.024 | 0.011 | 0.0077 | 0.016 | *0.0075* | 0.012 | 0.02 | *0.0023* | *0.0023* | 0.011 | *0.011* | 0.002 | 0.025 | 0.0011 | 0.00073 | 0.0098 | 0.0061 | 0.0138 | 0.00963 | 0.055 | 0.12 | 0.17 |
| NYOW-B-SL035-A | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0048* | *0.0048* | *0.0074* | *0.0074* | *0.0074* | *0.0022* | *0.0022* | *0.0012* | *0.0012* | *0.0048* | *0.0048* | *0.0029* | *0.0022* | *0.0074* | N/A | N/A | N/A | 0.029 | 0.056 | 0.085 |
| NYOW-B-SL036-A | 0.0053 | 0.0062 | 0.0089 | 0.0048 | 0.0039 | 0.0073 | *0.0091* | 0.0051 | 0.011 | *0.0027* | *0.0027* | *0.0015* | 0.0013 | *0.0059* | 0.011 | *0.0037* | *0.0027* | 0.0036 | 0.00272 | 0.00649 | 0.00455 | 0.024 | 0.058 | 0.082 |
| NYOW-B-SL037-A | 0.006 | 0.0085 | 0.013 | 0.006 | 0.005 | 0.0084 | *0.0078* | 0.0068 | 0.011 | 0.00072 | *0.0023* | *0.0013* | 0.002 | *0.0051* | 0.012 | *0.0031* | 0.0017 | 0.0048 | 0.00292 | 0.00785 | 0.00526 | 0.026 | 0.071 | 0.095 |
| NYOW-B-SL038-A | 0.008 | 0.01 | 0.014 | 0.0071 | 0.0048 | 0.01 | *0.0087* | 0.0077 | 0.018 | *0.0026* | *0.0026* | *0.0014* | 0.0022 | *0.0056* | 0.018 | *0.0035* | *0.0026* | 0.0057 | 0.00403 | 0.00961 | 0.00668 | 0.036 | 0.086 | 0.12 |
| NYOW-B-SL039-A | 0.0062 | 0.0074 | 0.011 | 0.0049 | 0.0036 | 0.0097 | *0.0079* | 0.0056 | 0.01 | 0.00064 | 0.0011 | *0.0013* | 0.0016 | *0.0051* | 0.012 | *0.0031* | 0.0012 | 0.0047 | 0.00277 | 0.0071 | 0.00484 | 0.025 | 0.064 | 0.087 |
| NYOW-B-SL040-A | 0.0086 | 0.014 | 0.017 | 0.0085 | 0.0061 | 0.011 | *0.008* | 0.012 | 0.018 | 0.00072 | 0.001 | *0.0013* | 0.0022 | 0.0021 | 0.016 | *0.0032* | 0.00093 | 0.0071 | 0.00358 | 0.0113 | 0.00722 | 0.032 | 0.1 | 0.13 |
| NYOW-B-SL041-A | 0.0041 | 0.006 | 0.0093 | 0.0041 | 0.0037 | 0.0075 | *0.0078* | 0.0052 | 0.0085 | *0.0023* | *0.0023* | *0.0012* | *0.012* | *0.005* | 0.011 | *0.0031* | *0.0023* | 0.0049 | 0.00296 | 0.00594 | 0.00448 | 0.027 | 0.053 | 0.081 |
| NYOW-B-SL042-A | 0.0056 | *0.012* | 0.012 | 0.0061 | 0.0038 | 0.0086 | *0.0078* | 0.0062 | 0.01 | *0.0023* | *0.0023* | *0.0012* | 0.0012 | *0.0051* | 0.012 | *0.0031* | 0.0012 | 0.0054 | 0.00287 | 0.00714 | 0.00474 | 0.026 | 0.064 | 0.085 |
| NYOW-B-SL043-A | 0.056 | 0.058 | 0.059 | 0.036 | 0.019 | 0.071 | 0.007 | 0.03 | 0.17 | *0.0022* | *0.0022* | 0.011 | 0.002 | 0.007 | 0.088 | 0.0019 | 0.0013 | 0.068 | 0.0203 | 0.0562 | 0.0383 | 0.18 | 0.51 | 0.69 |
| NYOW-B-SL044-A | 0.046 | *0.11* | 0.093 | 0.061 | 0.029 | 0.057 | *0.073* | 0.052 | 0.092 | 0.0069 | 0.0087 | *0.012* | 0.018 | *0.048* | 0.065 | *0.029* | 0.008 | 0.033 | 0.019 | 0.0599 | 0.0374 | 0.17 | 0.54 | 0.67 |
| NYOW-B-SL045-A | 0.15 | 0.17 | 0.22 | 0.097 | 0.078 | 0.18 | 0.027 | 0.12 | 0.33 | 0.0064 | 0.006 | 0.011 | 0.021 | *0.0047* | 0.39 | 0.018 | 0.01 | 0.31 | 0.0863 | 0.152 | 0.119 | 0.78 | 1.4 | 2.1 |
| NYOW-B-SL046-A | 0.25 | 0.23 | 0.27 | 0.13 | 0.11 | 0.22 | 0.041 | 0.16 | 0.35 | 0.011 | 0.013 | 0.011 | 0.044 | 0.04 | 0.4 | 0.015 | 0.012 | 0.19 | 0.0818 | 0.196 | 0.139 | 0.74 | 1.8 | 2.5 |
| NYOW-B-SL047-A | 0.35 | 0.34 | 0.44 | 0.24 | 0.19 | 0.39 | 0.072 | 0.3 | 0.59 | 0.028 | 0.036 | 0.011 | 0.12 | 0.067 | 0.61 | 0.026 | 0.034 | 0.3 | 0.136 | 0.324 | 0.23 | 1.2 | 2.9 | 4.1 |
| NYOW-B-SL048-A | 0.12 | 0.14 | 0.17 | 0.083 | 0.059 | 0.12 | 0.022 | 0.092 | 0.2 | 0.0099 | 0.012 | 0.011 | 0.051 | 0.034 | 0.2 | 0.01 | 0.012 | 0.11 | 0.05 | 0.112 | 0.0809 | 0.45 | 1 | 1.5 |
| NYOW-B-SL049-A | 0.0047 | 0.0071 | 0.0095 | 0.0053 | 0.0032 | 0.047 | *0.0068* | 0.0053 | 0.0091 | 0.0011 | 0.0011 | *0.0011* | 0.0013 | *0.0044* | 0.01 | *0.0027* | *0.002* | 0.0047 | 0.00253 | 0.0106 | 0.00649 | 0.023 | 0.095 | 0.12 |
| NYOW-B-SL050-A | 0.25 | 0.29 | 0.35 | 0.19 | 0.17 | 0.25 | 0.045 | 0.21 | 0.33 | 0.0029 | 0.0072 | *0.0012* | 0.056 | 0.034 | 0.37 | 0.0042 | 0.032 | 0.086 | 0.0659 | 0.232 | 0.149 | 0.59 | 2.1 | 2.7 |

Notes
(1) For data sets with non-detect results, Kaplan-Meier (KM) statistical methods were used to derive means and summations.
(2) All units represented in milligrams per kilogram (mg/kg).
(3) **Bold** shaded results indicate a detection; non-detects censored at the limit of detection are noted in *italics* .

N/A = Not Applicable
PAH = Polycyclic Aromatic Hydrocarbon
-- = Not Evaluated

| PAH Abbreviations Used | |
|---|---|
| Benzo(a)anthracene = BaA | 1-Methylnaphthalene = 1MN |
| Benzo(a)pyrene = BaP | 2-Methylnaphthalene = 2MN |
| Benzo(b)fluoranthene = BbF | Acenaphthene = Acn |
| Benzo(g,h,i)perylene = BgP | Acenaphthylene = Acnthy |
| Benzo(k)fluoranthene = BkF | Anthracene = Anth |
| Chrysene = Chry | Fluoranthene = FlA |
| Dibenz(a,h)anthracene = DaA | Fluorene = Flu |
| Indeno(1,2,3-c,d)pyrene = InP | Naphthalene = Naph |
| Pyrene = Pyr | Phenanthrene = Phen |

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# APPENDIX D
# Reduced Datasets

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# APPENDIX D.1

# Reduced Dataset – Groundwater

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Table D.1-1
Reduced Validated Analytical Results[1] - AOC 1, Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sample Location: | | NYOW-01-001 | | NYOW-01-005 | | NYOW-01-006 | | NYOW-01-006 | | NYOW-01-018 | | NYOW-01-019 | | NYOW-01-021 | | NYOW-01-022 | | NYOW-01-022 | | NYOW-01-023 | |
| | Sample Name: | | NYOW-01-WL001-A | | NYOW-01-WL005-A | | NYOW-01-WL006-A | | NYOW-01-WL006-B | | NYOW-01-WL018-A | | NYOW-01-WL019-A | | NYOW-01-WL021-A | | NYOW-01-WL022-A | | NYOW-01-WL022-A_R | | NYOW-01-WL023-A | |
| | Sample Type: | | N | | C | | N | | N | | N | | N | | N | | N | | N | | N | |
| | Sample Depth (feet): | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | Sample Date: | | 2021-04-12 | | 2021-04-12 | | 2021-04-08 | | 2021-04-08 | | 2021-04-12 | | 2021-04-08 | | 2021-04-09 | | 2021-04-09 | | 2021-05-14 | | 2021-04-09 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | µg/L | 9.5 | UJ | 11 | UJ | -- | -- | 11 | UJ | 11 | UJ | 10 | UJ | 10 | UJ | -- | -- | 10 | UJ | -- | -- |
| 2,4-Dinitrophenol | 51-28-5 | µg/L | 19 | U | 22 | U | -- | -- | 21 | U | 21 | U | 20 | U | 20 | U | -- | -- | 21 | U | -- | -- |
| Explosives | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | µg/L | 0.13 | UJ | 0.13 | U | 0.12 | U | 0.13 | U | 0.13 | U | 0.12 | UJ | 0.12 | U | -- | -- | 0.13 | U | -- | -- |
| Metals (Dissolved) | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | µg/L | 680 | | 950 | J | -- | -- | 32 | J | 23 | J | 30 | J | 70 | U | 63 | J | -- | -- | 280 | J |
| Antimony | 7440-36-0 | µg/L | 6 | J+ | 1 | U | -- | -- | 1 | U | 6 | J+ | 1 | U | 6 | J+ | 6 | J+ | -- | -- | 1 | U |
| Arsenic | 7440-38-2 | µg/L | 5 | J+ | 5 | J+ | -- | -- | 5 | J+ | 1 | U | 5 | J+ | 5 | J+ | 5 | J+ | -- | -- | 5 | J+ |
| Barium | 7440-39-3 | µg/L | 38 | | 210 | | -- | -- | 250 | | 89 | | 170 | | 330 | | 690 | | -- | -- | 150 | |
| Beryllium | 7440-41-7 | µg/L | 0.5 | U | 0.5 | U | -- | -- | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | -- | -- | 0.5 | U |
| Cadmium | 7440-43-9 | µg/L | 1.8 | U | 1.8 | U | -- | -- | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 5 | J+ | -- | -- | 1.8 | U |
| Calcium | 7440-70-2 | µg/L | 76000 | | 130000 | | -- | -- | 130000 | | 120000 | | 140000 | | 100000 | | 130000 | | -- | -- | 130000 | |
| Chromium | 7440-47-3 | µg/L | 10 | J+ | 10 | J+ | -- | -- | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 10 | J+ | -- | -- | 10 | J+ |
| Cobalt | 7440-48-4 | µg/L | 1.3 | | 3.9 | | -- | -- | 1.7 | | 1.2 | | 3.1 | | 0.38 | J | 1.1 | | -- | -- | 1.7 | |
| Copper | 7440-50-8 | µg/L | 10 | U | 15 | J+ | -- | -- | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | -- | -- | 15 | J+ |
| Iron | 7439-89-6 | µg/L | 1300 | | 4300 | J | -- | -- | 15000 | | 92 | J | 8500 | | 96 | J | 220 | | -- | -- | 3200 | |
| Lead | 7439-92-1 | µg/L | 3 | J+ | 3 | J+ | -- | -- | 0.7 | U | 0.7 | U | 0.7 | U | 3 | J+ | 0.7 | U | -- | -- | 3 | J+ |
| Magnesium | 7439-95-4 | µg/L | 17000 | | 48000 | | -- | -- | 34000 | | 41000 | | 53000 | | 29000 | | 72000 | | -- | -- | 30000 | |
| Manganese | 7439-96-5 | µg/L | 1300 | | 990 | | -- | -- | 770 | | 320 | | 2900 | | 500 | | 2000 | | -- | -- | 1200 | |
| Mercury | 7439-97-6 | µg/L | 0.08 | U | 0.08 | U | -- | -- | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | -- | -- | 0.08 | U |
| Nickel | 7440-02-0 | µg/L | 8 | U | 40 | J+ | -- | -- | 8 | U | 40 | J+ | 8 | U | 8 | U | 40 | J+ | -- | -- | 40 | J+ |
| Potassium | 7440-09-7 | µg/L | 1200 | J | 3200 | | -- | -- | 980 | J | 1400 | J | 1500 | J | 5200 | | 11000 | | -- | -- | 4400 | |
| Selenium | 7782-49-2 | µg/L | 19 | U | 19 | U | -- | -- | 19 | U | 19 | U | 19 | U | 19 | U | 19 | U | -- | -- | 19 | U |
| Silver | 7440-22-4 | µg/L | 5 | U | 5 | U | -- | -- | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | -- | -- | 5 | U |
| Sodium | 7440-23-5 | µg/L | 2100 | J+ | 5700 | J+ | -- | -- | 4300 | J | 4700 | J+ | 5300 | | 68000 | | 17000 | | -- | -- | 4900 | J |
| Thallium | 7440-28-0 | µg/L | 0.2 | UJ | 0.2 | UJ | -- | -- | 0.2 | UJ | 0.2 | UJ | 0.2 | UJ | 0.2 | UJ | 0.2 | U | -- | -- | 0.2 | U |
| Vanadium | 7440-62-2 | µg/L | 4 | U | 15 | J+ | -- | -- | 15 | J+ | 4 | U | 15 | J+ | 4 | U | 15 | J+ | -- | -- | 15 | J+ |
| Zinc | 7440-66-6 | µg/L | 150 | J+ | 150 | J+ | -- | -- | 15 | U | 15 | U | 15 | U | 15 | U | 15 | U | -- | -- | 150 | J+ |

Notes

| | |
|---|---|
| ND | ND at LOD |
| Detect | Detected result |

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

Table D.1-1
Reduced Validated Analytical Results[1] - AOC 1, Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-01-023 | | NYOW-01-024 | |
|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-01-WL023-A_R | | NYOW-01-WL024-A | |
| | | Sample Type: | N | | N | |
| | | Sample Depth (feet): | 0 - 10 | | 0 - 10 | |
| | | Sample Date: | 2021-05-14 | | 2021-04-12 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | µg/L | 10 | U | 10 | UJ |
| 2,4-Dinitrophenol | 51-28-5 | µg/L | 20 | U | 21 | U |
| Explosives | | | | | | |
| Picric acid | 88-89-1 | µg/L | 0.12 | U | 0.12 | UJ |
| Metals (Dissolved) | | | | | | |
| Aluminum | 7429-90-5 | µg/L | -- | -- | 70 | U |
| Antimony | 7440-36-0 | µg/L | -- | -- | 1 | U |
| Arsenic | 7440-38-2 | µg/L | -- | -- | 1 | U |
| Barium | 7440-39-3 | µg/L | -- | -- | 76 | |
| Beryllium | 7440-41-7 | µg/L | -- | -- | 0.5 | U |
| Cadmium | 7440-43-9 | µg/L | -- | -- | 1.8 | U |
| Calcium | 7440-70-2 | µg/L | -- | -- | 110000 | |
| Chromium | 7440-47-3 | µg/L | -- | -- | 1.8 | U |
| Cobalt | 7440-48-4 | µg/L | -- | -- | 1 | |
| Copper | 7440-50-8 | µg/L | -- | -- | 10 | U |
| Iron | 7439-89-6 | µg/L | -- | -- | 36 | J |
| Lead | 7439-92-1 | µg/L | -- | -- | 0.7 | U |
| Magnesium | 7439-95-4 | µg/L | -- | -- | 18000 | |
| Manganese | 7439-96-5 | µg/L | -- | -- | 1200 | |
| Mercury | 7439-97-6 | µg/L | -- | -- | 0.08 | U |
| Nickel | 7440-02-0 | µg/L | -- | -- | 8 | U |
| Potassium | 7440-09-7 | µg/L | -- | -- | 3500 | |
| Selenium | 7782-49-2 | µg/L | -- | -- | 19 | U |
| Silver | 7440-22-4 | µg/L | -- | -- | 5 | U |
| Sodium | 7440-23-5 | µg/L | -- | -- | 140000 | J+ |
| Thallium | 7440-28-0 | µg/L | -- | -- | 0.2 | UJ |
| Vanadium | 7440-62-2 | µg/L | -- | -- | 4 | U |
| Zinc | 7440-66-6 | µg/L | -- | -- | 15 | U |

Notes

| | |
|---|---|
| ND | ND at LOD |
| Detect | Detected result |

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

Table D.1-2
Reduced Validated Analytical Results[1] - AOC 3, Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-03-002 | | NYOW-03-007 | | NYOW-03-009 | | NYOW-03-010 | | NYOW-03-013 | | NYOW-03-014 | | NYOW-03-015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-03-WL002-A | | NYOW-03-WL007-A | | NYOW-03-WL009-A | | NYOW-03-WL010-A | | NYOW-03-WL013-A | | NYOW-03-WL014-A | | NYOW-03-WL015-A | |
| | | Sample Type: | N | | N | | N | | N | | C | | N | | N | |
| | | Sample Depth (feet): | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | Sample Date: | 2021-04-02 | | 2021-04-02 | | 2021-04-07 | | 2021-04-02 | | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 71-55-6 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | µg/L | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | U |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| 1,1,2-Trichloroethane | 79-00-5 | µg/L | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | U |
| 1,1-Dichloroethane | 75-34-3 | µg/L | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | U |
| 1,1-Dichloroethene | 75-35-4 | µg/L | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | U |
| 1,2,3-Trichlorobenzene | 87-61-6 | µg/L | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | U |
| 1,2,4-Trichlorobenzene | 120-82-1 | µg/L | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | U |
| 1,2-Dibromo-3-chloropropane | 96-12-8 | µg/L | 1.6 | UJ | 1.6 | U | 1.6 | UJ | 1.6 | UJ | 1.6 | UJ | 1.6 | UJ | 1.6 | UJ |
| 1,2-Dibromoethane (EDB) | 106-93-4 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| 1,2-Dichlorobenzene | 95-50-1 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| 1,2-Dichloroethane | 107-06-2 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| 1,2-Dichloropropane | 78-87-5 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| 1,3-Dichlorobenzene | 541-73-1 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| 1,3-Dichloropropane | 142-28-9 | µg/L | 0.2 | UJ | 0.2 | U | 0.2 | U | 0.2 | UJ | 0.2 | U | 0.2 | U | 0.2 | U |
| 1,4-Dichlorobenzene | 106-46-7 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| 2-Butanone (MEK) | 78-93-3 | µg/L | 4 | UJ | 4 | U | 4 | U | 4 | UJ | 4 | U | 4 | U | 4 | U |
| 2-Hexanone | 591-78-6 | µg/L | 4 | UJ | 4 | U | 4 | U | 4 | UJ | 4 | U | 4 | U | 4 | U |
| 4-Methyl-2-pentanone (MIBK) | 108-10-1 | µg/L | 3.2 | UJ | 3.2 | U | 3.2 | U | 3.2 | UJ | 3.2 | U | 3.2 | U | 3.2 | U |
| Acetone | 67-64-1 | µg/L | 10 | J- | 4.3 | J | 6.4 | U | 5 | J- | 6.4 | U | 6.4 | U | 6.4 | U |
| Benzene | 71-43-2 | µg/L | 1 | J+ | 0.4 | U | 0.4 | U | 1 | J+ | 0.4 | U | 0.4 | U | 0.4 | U |
| Bromochloromethane | 74-97-5 | µg/L | 0.2 | UJ | 0.2 | U | 0.2 | U | 0.2 | UJ | 0.2 | U | 0.2 | U | 0.2 | U |
| Bromodichloromethane | 75-27-4 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| Bromoform | 75-25-2 | µg/L | 1 | UJ | 1 | UJ | 1 | UJ | 1 | UJ | 1 | UJ | 1 | UJ | 1 | UJ |
| Bromomethane | 74-83-9 | µg/L | 0.8 | UJ | 0.8 | UJ | 0.8 | U | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | U |
| Carbon disulfide | 75-15-0 | µg/L | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | U |
| Carbon tetrachloride | 56-23-5 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| Chlorobenzene | 108-90-7 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| Chloroethane | 75-00-3 | µg/L | 1.6 | UJ | 1.6 | U | 1.6 | U | 1.6 | UJ | 1.6 | U | 1.6 | U | 1.6 | U |
| Chloroform | 67-66-3 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| Chloromethane | 74-87-3 | µg/L | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | U |
| cis-1,2-Dichloroethene | 156-59-2 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| cis-1,3-Dichloropropene | 10061-01-5 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| Cumene | 98-82-8 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| Cyclohexane | 110-82-7 | µg/L | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | U |
| Dibromochloromethane | 124-48-1 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| Dichlorodifluoromethane | 75-71-8 | µg/L | 0.8 | UJ | 0.8 | U | 0.8 | UJ | 0.8 | UJ | 0.8 | UJ | 0.8 | UJ | 0.8 | UJ |
| Ethylbenzene | 100-41-4 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| m,p-Xylene | 179601-23-1 | µg/L | 0.8 | UJ | 0.8 | U | 0.8 | U | 2 | J+ | 0.8 | U | 0.8 | U | 0.8 | U |
| Methyl acetate | 79-20-9 | µg/L | 4 | UJ | 4 | U | 4 | U | 4 | UJ | 4 | U | 4 | U | 4 | U |
| Methyl tert-butyl ether (MTBE) | 1634-04-4 | µg/L | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | U |
| Methylcyclohexane | 108-87-2 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| Methylene chloride | 75-09-2 | µg/L | 2 | UJ | 2 | U | 2 | U | 2 | UJ | 2 | U | 2 | U | 2 | U |
| o-Xylene | 95-47-6 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| Styrene | 100-42-5 | µg/L | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | U |
| Tetrachloroethene (PCE) | 127-18-4 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| Toluene | 108-88-3 | µg/L | 0.4 | UJ | 3 | | 0.4 | U | 0.56 | J- | 0.4 | U | 0.4 | U | 0.4 | U |
| trans-1,2-Dichloroethene | 156-60-5 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| trans-1,3-Dichloropropene | 10061-02-6 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | UJ | 0.4 | U | 0.4 | U | 0.4 | U |
| Trichlorofluoromethane | 75-69-4 | µg/L | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | UJ | 0.8 | U | 0.8 | U | 0.8 | U |
| Vinyl chloride | 75-01-4 | µg/L | 0.2 | UJ | 0.2 | U | 0.2 | U | 0.2 | UJ | 0.2 | U | 0.2 | U | 0.2 | U |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ |
| 1,4-Dioxane | 123-91-1 | µg/L | 11 | UJ | 19 | UJ | 10 | UJ | 10 | U | 9.7 | UJ | 11 | UJ | 10 | UJ |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | µg/L | 2.1 | U | 3.8 | U | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ |
| 2,4,5-Trichlorophenol | 95-95-4 | µg/L | 2.1 | U | 3.8 | U | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ |
| 2,4,6-Trichlorophenol | 88-06-2 | µg/L | 2.1 | U | 3.8 | U | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ |
| 2,4-Dichlorophenol | 120-83-2 | µg/L | 2.1 | U | 3.8 | U | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ |
| 2,4-Dimethylphenol | 105-67-9 | µg/L | 11 | U | 19 | U | 10 | UJ | 10 | U | 9.7 | UJ | 11 | UJ | 10 | UJ |
| 2,4-Dinitrochlorobenzene | 97-00-7 | µg/L | 11 | UJ | 19 | UJ | 10 | UJ | 10 | UJ | 9.7 | UJ | 11 | UJ | 10 | UJ |

Table D.1-2
Reduced Validated Analytical Results[1] - AOC 3, Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-03-002 | | NYOW-03-007 | | NYOW-03-009 | | NYOW-03-010 | | NYOW-03-013 | | NYOW-03-014 | | NYOW-03-015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-03-WL002-A | | NYOW-03-WL007-A | | NYOW-03-WL009-A | | NYOW-03-WL010-A | | NYOW-03-WL013-A | | NYOW-03-WL014-A | | NYOW-03-WL015-A | |
| | | | Sample Type: | | N | | N | | N | | N | | C | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | | Sample Date: | | 2021-04-02 | | 2021-04-02 | | 2021-04-07 | | 2021-04-02 | | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| 2,4-Dinitrophenol | 51-28-5 | µg/L | 21 | U | 38 | U | 20 | UJ | 21 | U | 19 | UJ | 21 | UJ | 21 | UJ | | |
| 2,4-Dinitrotoluene | 121-14-2 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| 2,6-Dinitrotoluene | 606-20-2 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| 2-Chloronaphthalene | 91-58-7 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| 2-Chlorophenol | 95-57-8 | µg/L | 2.1 | U | 3.8 | U | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| 2-Methylphenol (o-Cresol) | 95-48-7 | µg/L | 2.1 | U | 3.8 | U | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| 2-Nitroaniline | 88-74-4 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| 2-Nitrophenol | 88-75-5 | µg/L | 2.1 | U | 3.8 | U | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| 3,3'-Dichlorobenzidine | 91-94-1 | µg/L | 64 | UJ | 110 | UJ | 61 | UJ | 62 | U | 58 | UJ | 63 | UJ | 62 | UJ | | |
| 3-Nitroaniline | 99-09-2 | µg/L | 11 | UJ | 19 | UJ | 10 | UJ | 10 | U | 9.7 | UJ | 11 | UJ | 10 | UJ | | |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | µg/L | 21 | U | 38 | U | 20 | UJ | 21 | U | 19 | UJ | 21 | UJ | 21 | UJ | | |
| 4-Bromophenyl phenyl ether | 101-55-3 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| 4-Chloro-3-methylphenol | 59-50-7 | µg/L | 2.1 | U | 3.8 | U | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| 4-Chloroaniline | 106-47-8 | µg/L | 5.3 | UJ | 9.5 | UJ | 5.1 | UJ | 5.2 | U | 4.8 | UJ | 5.3 | UJ | 5.1 | UJ | | |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| 4-Nitroaniline | 100-01-6 | µg/L | 11 | UJ | 19 | UJ | 10 | UJ | 10 | U | 9.7 | UJ | 11 | UJ | 51 | J+ | | |
| 4-Nitrophenol | 100-02-7 | µg/L | 4.3 | U | 7.6 | U | 4 | UJ | 4.1 | U | 3.9 | UJ | 4.2 | UJ | 4.1 | UJ | | |
| Acetophenone | 98-86-2 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Atrazine | 1912-24-9 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Benzaldehyde | 100-52-7 | µg/L | 11 | J+ | 3.8 | UJ | 2 | UJ | 2.1 | UJ | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Benzyl butyl phthalate | 85-68-7 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Biphenyl (Diphenyl) | 92-52-4 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Bis(2-chloroethoxy)methane | 111-91-1 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | µg/L | 2.7 | UJ | 4.7 | UJ | 2.5 | UJ | 2.6 | U | 2.4 | UJ | 2.6 | UJ | 2.6 | UJ | | |
| Caprolactam | 105-60-2 | µg/L | 11 | J+ | 3.8 | UJ | 2 | UJ | 2.1 | UJ | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Carbazole | 86-74-8 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Cresols, m- & p- | cresols-m,p | µg/L | 2.1 | U | 3.8 | U | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Dibenzofuran | 132-64-9 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Diethyl phthalate | 84-66-2 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Dimethyl phthalate | 131-11-3 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Di-n-butyl phthalate | 84-74-2 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| di-n-Octyl phthalate | 117-84-0 | µg/L | 2.7 | UJ | 4.7 | UJ | 2.5 | UJ | 2.6 | U | 2.4 | UJ | 2.6 | UJ | 2.6 | UJ | | |
| Hexachlorobenzene | 118-74-1 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Hexachlorobutadiene | 87-68-3 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Hexachlorocyclopentadiene | 77-47-4 | µg/L | 5.3 | UJ | 9.5 | UJ | 5.1 | UJ | 5.2 | U | 4.8 | UJ | 5.3 | UJ | 5.1 | UJ | | |
| Hexachloroethane | 67-72-1 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Isophorone | 78-59-1 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Nitrobenzene | 98-95-3 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| N-Nitrosodi-n-propylamine | 621-64-7 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| N-Nitrosodiphenylamine | 86-30-6 | µg/L | 2.1 | UJ | 3.8 | UJ | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Pentachlorophenol | 87-86-5 | µg/L | 4.3 | U | 7.6 | U | 4 | UJ | 4.1 | U | 3.9 | UJ | 4.2 | UJ | 4.1 | UJ | | |
| Phenol | 108-95-2 | µg/L | 2.1 | U | 3.8 | U | 2 | UJ | 2.1 | U | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | µg/L | 0.042 | U | 0.041 | U | 0.041 | U | 0.042 | U | 0.04 | U | 0.04 | U | 0.044 | U | | |
| 2-Methylnaphthalene | 91-57-6 | µg/L | 0.052 | U | 0.051 | U | 0.051 | U | 0.053 | U | 0.05 | U | 0.05 | U | 0.055 | U | | |
| Acenaphthene | 83-32-9 | µg/L | 0.013 | U | 0.012 | U | 0.012 | U | 0.013 | U | 0.012 | U | 0.012 | U | 0.013 | U | | |
| Acenaphthylene | 208-96-8 | µg/L | 0.021 | U | 0.02 | U | 0.02 | U | 0.021 | U | 0.02 | U | 0.02 | U | 0.022 | U | | |
| Anthracene | 120-12-7 | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U | | |
| Benzo(a)anthracene | 56-55-3 | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U | | |
| Benzo(a)pyrene | 50-32-8 | µg/L | 0.052 | U | 0.051 | U | 0.051 | U | 0.053 | U | 0.05 | U | 0.05 | U | 0.055 | U | | |
| Benzo(b)fluoranthene | 205-99-2 | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U | | |
| Benzo(g,h,i)perylene | 191-24-2 | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U | | |
| Benzo(k)fluoranthene | 207-08-9 | µg/L | 0.052 | U | 0.051 | U | 0.051 | U | 0.053 | U | 0.05 | U | 0.05 | U | 0.055 | U | | |
| Chrysene | 218-01-9 | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U | | |
| Dibenz(a,h)anthracene | 53-70-3 | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U | | |
| Fluoranthene | 206-44-0 | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U | | |
| Fluorene | 86-73-7 | µg/L | 0.042 | U | 0.041 | U | 0.041 | U | 0.042 | U | 0.04 | U | 0.04 | U | 0.044 | U | | |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U | | |
| Naphthalene | 91-20-3 | µg/L | 0.052 | U | 0.051 | U | 0.051 | U | 0.053 | U | 0.05 | U | 0.05 | U | 0.055 | U | | |
| Phenanthrene | 85-01-8 | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U | | |
| Pyrene | 129-00-0 | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U | | |

Table D.1-2
Reduced Validated Analytical Results[1] - AOC 3, Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | Sample Location: | NYOW-03-002 | | NYOW-03-007 | | NYOW-03-009 | | NYOW-03-010 | | NYOW-03-013 | | NYOW-03-014 | | NYOW-03-015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sample Name: | NYOW-03-WL002-A | | NYOW-03-WL007-A | | NYOW-03-WL009-A | | NYOW-03-WL010-A | | NYOW-03-WL013-A | | NYOW-03-WL014-A | | NYOW-03-WL015-A | |
| | Sample Type: | N | | N | | N | | N | | C | | N | | N | |
| | Sample Depth (feet): | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | Sample Date: | 2021-04-02 | | 2021-04-02 | | 2021-04-07 | | 2021-04-02 | | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | µg/L | 0.13 | U | 0.13 | UJ | 0.13 | UJ | 0.13 | U | 0.12 | U | 0.13 | U | 0.13 | UJ |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | 12674-11-2 | µg/L | -- | -- | 0.43 | UJ | 0.4 | UJ | 0.44 | UJ | 0.4 | UJ | 0.43 | UJ | 0.41 | UJ |
| PCB-1221 (Aroclor 1221) | 11104-28-2 | µg/L | -- | -- | 0.27 | U | 0.25 | U | 0.28 | U | 0.25 | U | 0.27 | U | 0.26 | U |
| PCB-1232 (Aroclor 1232) | 11141-16-5 | µg/L | -- | -- | 0.64 | U | 0.6 | U | 0.66 | U | 0.6 | U | 0.64 | U | 0.62 | U |
| PCB-1242 (Aroclor 1242) | 53469-21-9 | µg/L | -- | -- | 1.1 | U | 1 | U | 1.1 | U | 1 | U | 1.1 | U | 1 | U |
| PCB-1248 (Aroclor 1248) | 12672-29-6 | µg/L | -- | -- | 0.32 | U | 0.3 | U | 0.33 | U | 0.3 | U | 0.32 | U | 0.31 | U |
| PCB-1254 (Aroclor 1254) | 11097-69-1 | µg/L | -- | -- | 0.27 | U | 0.25 | U | 0.28 | U | 0.25 | U | 0.27 | U | 0.26 | U |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | µg/L | -- | -- | 0.43 | U | 0.4 | UJ | 0.44 | U | 0.4 | UJ | 0.43 | UJ | 0.41 | UJ |
| PCB-1262 (Aroclor 1262) | 37324-23-5 | µg/L | -- | -- | 0.53 | U | 0.5 | U | 0.55 | U | 0.5 | U | 0.54 | U | 0.52 | U |
| PCB-1268 (Aroclor 1268) | 11100-14-4 | µg/L | -- | -- | 1.1 | U | 1 | U | 1.1 | U | 1 | U | 1.1 | U | 1 | U |
| Metals (Dissolved) | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | µg/L | 300 | J+ | 300 | J+ | 300 | J+ | 300 | J+ | 300 | J+ | 300 | J+ | 300 | J+ |
| Antimony | 7440-36-0 | µg/L | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Arsenic | 7440-38-2 | µg/L | 5 | J+ | 5 | J+ | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Barium | 7440-39-3 | µg/L | 100 | | 67 | | 12 | | 80 | | 60 | | 57 | | 50 | |
| Beryllium | 7440-41-7 | µg/L | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U |
| Cadmium | 7440-43-9 | µg/L | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U |
| Calcium | 7440-70-2 | µg/L | 110000 | | 110000 | | 74000 | J- | 170000 | | 150000 | | 130000 | | 160000 | |
| Chromium | 7440-47-3 | µg/L | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U |
| Cobalt | 7440-48-4 | µg/L | 5.1 | | 0.82 | J | 0.35 | U | 1.6 | | 0.43 | J | 0.4 | J | 0.44 | J |
| Copper | 7440-50-8 | µg/L | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Iron | 7439-89-6 | µg/L | 530 | | 1100 | | 85 | U | 380 | | 120 | J | 85 | U | 85 | U |
| Lead | 7439-92-1 | µg/L | 0.7 | U | 0.7 | U | 0.7 | U | 3 | J+ | 3 | J+ | 3 | J+ | 3 | J+ |
| Magnesium | 7439-95-4 | µg/L | 34000 | | 20000 | | 11000 | | 24000 | | 30000 | | 20000 | | 18000 | |
| Manganese | 7439-96-5 | µg/L | 11000 | | 260 | | 7.7 | J | 530 | | 29 | J | 280 | | 2200 | |
| Mercury | 7439-97-6 | µg/L | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U |
| Nickel | 7440-02-0 | µg/L | 40 | J+ | 8 | U | 8 | U | 40 | J+ | 8 | U | 40 | J+ | 40 | J+ |
| Potassium | 7440-09-7 | µg/L | 2500 | J | 1400 | J | 1500 | J | 1700 | J | 3800 | | 3800 | | 2600 | J |
| Selenium | 7782-49-2 | µg/L | 22 | J+ | 19 | U | 19 | U | 19 | U | 19 | U | 19 | U | 19 | U |
| Silver | 7440-22-4 | µg/L | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| Sodium | 7440-23-5 | µg/L | 9600 | | 760 | J | 15000 | | 24000 | | 73000 | | 73000 | | 73000 | |
| Thallium | 7440-28-0 | µg/L | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U |
| Vanadium | 7440-62-2 | µg/L | 4 | U | 15 | J+ | 15 | J+ | 15 | J+ | 15 | J+ | 15 | J+ | 15 | J+ |
| Zinc | 7440-66-6 | µg/L | 15 | U | 15 | U | 150 | J+ | 15 | U | 15 | U | 15 | U | 15 | U |

Notes

| | |
|---|---|
| ND | ND at LOD |
| Detect | Detected result |

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

Table D.1-3
Reduced Validated Analytical Results[1] - AOC 4 (Discrete), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | NYOW-04-001 | | NYOW-04-002 | | NYOW-04-003 | | NYOW-04-004 | | NYOW-04-005 | | NYOW-04-006 | | NYOW-04-036 | | NYOW-04-037 | | NYOW-04-038 | | NYOW-04-079 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | NYOW-04-WL001-A | | NYOW-04-WL002-A | | NYOW-04-WL003-A | | NYOW-04-WL004-A | | NYOW-04-WL005-A | | NYOW-04-WL006-A | | NYOW-04-WL036-A | | NYOW-04-WL037-A | | NYOW-04-WL038-A | | NYOW-04-WL079-A | |
| | | | Sample Type: | N | | N | | N | | C | | N | | N | | N | | N | | N | | C | |
| | | | Sample Depth (feet): | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | | Sample Date: | 2021-02-05 | | 2021-02-01 | | 2021-02-05 | | 2021-02-01 | | 2021-02-01 | | 2021-02-04 | | 2021-02-04 | | 2021-02-04 | | 2021-02-05 | | 2021-02-01 | |
| Analyte | CASRN | Units | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | µg/L | | 10 | UJ | 11 | UJ | 10 | U | 10 | U | 12 | UJ | 10 | U | 10 | U | 9.9 | U | 10 | U | 10 | U |
| 2,4-Dinitrophenol | 51-28-5 | µg/L | | 21 | U | 22 | U | 21 | U | 20 | U | 23 | U | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | µg/L | | 0.34 | UJ | 0.12 | U | 8.5 | UJ | 0.12 | U | 0.13 | U | 0.35 | UJ | 0.78 | U | 0.25 | UJ | 0.12 | U | 0.12 | UJ |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected

| | |
|---|---|
| ND | ND at LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.1-3
Reduced Validated Analytical Results[1] - AOC 4 (Discrete), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-04-080 | | NYOW-04-081 | | NYOW-04-082 | | NYOW-04-083 | | NYOW-04-084 | | NYOW-04-085 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-04-WL080-A | | NYOW-04-WL081-A | | NYOW-04-WL082-A | | NYOW-04-WL083-A | | NYOW-04-WL084-A | | NYOW-04-WL085-A | |
| | | | Sample Type: | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | | Sample Date: | | 2021-02-04 | | 2021-02-01 | | 2021-02-04 | | 2021-02-01 | | 2021-02-04 | | 2021-02-04 | |
| Analyte | CASRN | Units | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | µg/L | | | 10 | UJ | 11 | UJ | 10 | UJ | 10 | UJ | 9.8 | U | 10 | U |
| 2,4-Dinitrophenol | 51-28-5 | µg/L | | | 21 | U | 22 | U | 21 | UJ | 21 | U | 20 | U | 20 | U |
| Explosives | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | µg/L | | | | R | 0.14 | U | 0.13 | U | 1.9 | U | 0.12 | U | 0.12 | U |

Notes

| | |
|---|---|
| ND | ND at LOD |
| Detect | Detected result |

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.1-4
Reduced Validated Analytical Results[1] - AOC 5 (Boiler House Area), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-05-016 | | NYOW-05-017-1 | | NYOW-05-019 | |
|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-05-WL016-A | | NYOW-05-WL017-1-A | | NYOW-05-WL019-A | |
| | | Sample Type: | N | | N | | N | |
| | | Sample Depth (feet): | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | Sample Date: | 2021-01-15 | | 2021-01-15 | | 2021-01-15 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| 1,4-Dioxane | 123-91-1 | µg/L | 11 | UJ | 10 | UJ | 9.9 | UJ |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | µg/L | 2.1 | UJ | 2.1 | U | 2 | U |
| 2,4,5-Trichlorophenol | 95-95-4 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| 2,4,6-Trichlorophenol | 88-06-2 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| 2,4-Dichlorophenol | 120-83-2 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| 2,4-Dimethylphenol | 105-67-9 | µg/L | 11 | UJ | 10 | U | 9.9 | U |
| 2,4-Dinitrotoluene | 121-14-2 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| 2,6-Dinitrotoluene | 606-20-2 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| 2-Chloronaphthalene | 91-58-7 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| 2-Chlorophenol | 95-57-8 | µg/L | 2.1 | UJ | 2.1 | U | 2 | U |
| 2-Methylphenol (o-Cresol) | 95-48-7 | µg/L | 2.1 | UJ | 2.1 | U | 2 | U |
| 2-Nitroaniline | 88-74-4 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| 2-Nitrophenol | 88-75-5 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| 3,3'-Dichlorobenzidine | 91-94-1 | µg/L | 64 | UJ | 62 | UJ | 60 | UJ |
| 3-Nitroaniline | 99-09-2 | µg/L | 11 | UJ | 10 | UJ | 9.9 | UJ |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | µg/L | 21 | UJ | 21 | U | 20 | U |
| 4-Bromophenyl phenyl ether | 101-55-3 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| 4-Chloro-3-methylphenol | 59-50-7 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| 4-Chloroaniline | 106-47-8 | µg/L | 5.4 | UJ | 5.2 | UJ | 5 | UJ |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| 4-Nitroaniline | 100-01-6 | µg/L | 11 | UJ | 10 | UJ | 9.9 | UJ |
| 4-Nitrophenol | 100-02-7 | µg/L | 4.3 | UJ | 4.2 | U | 4 | U |
| Acetophenone | 98-86-2 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| Atrazine | 1912-24-9 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| Benzaldehyde | 100-52-7 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| Benzyl butyl phthalate | 85-68-7 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| Biphenyl (Diphenyl) | 92-52-4 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | µg/L | 2.7 | UJ | 2.6 | UJ | 2.5 | UJ |
| Caprolactam | 105-60-2 | µg/L | 2.1 | UJ | 2.1 | UJ | 9.9 | J+ |
| Carbazole | 86-74-8 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| Cresols, m- & p- | cresols-m,p | µg/L | 2.1 | UJ | 2.1 | U | 2 | U |
| Dibenzofuran | 132-64-9 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| Diethyl phthalate | 84-66-2 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| Dimethyl phthalate | 131-11-3 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| Di-n-butyl phthalate | 84-74-2 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| di-n-Octyl phthalate | 117-84-0 | µg/L | 2.7 | UJ | 2.6 | UJ | 2.5 | UJ |
| Hexachlorobenzene | 118-74-1 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| Hexachlorobutadiene | 87-68-3 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |

Table D.1-4
Reduced Validated Analytical Results[(1)] - AOC 5 (Boiler House Area), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-05-016 | | NYOW-05-017-1 | | NYOW-05-019 | |
|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-05-WL016-A | | NYOW-05-WL017-1-A | | NYOW-05-WL019-A | |
| | | Sample Type: | N | | N | | N | |
| | | Sample Depth (feet): | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | Sample Date: | 2021-01-15 | | 2021-01-15 | | 2021-01-15 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Hexachlorocyclopentadiene | 77-47-4 | µg/L | 5.4 | UJ | 5.2 | UJ | 5 | UJ |
| Hexachloroethane | 67-72-1 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| Isophorone | 78-59-1 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| Nitrobenzene | 98-95-3 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| N-Nitrosodi-n-propylamine | 621-64-7 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| N-Nitrosodiphenylamine | 86-30-6 | µg/L | 2.1 | UJ | 2.1 | UJ | 2 | UJ |
| Pentachlorophenol | 87-86-5 | µg/L | 4.3 | UJ | 4.2 | UJ | 4 | UJ |
| Phenol | 108-95-2 | µg/L | 2.1 | UJ | 2.1 | U | 2 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | µg/L | 0.042 | J | 0.068 | J- | 0.19 | J- |
| 2-Methylnaphthalene | 91-57-6 | µg/L | 0.054 | UJ | 0.11 | J- | 0.2 | J- |
| Acenaphthene | 83-32-9 | µg/L | 0.013 | UJ | 0.013 | UJ | 0.1 | J+ |
| Acenaphthylene | 208-96-8 | µg/L | 0.022 | UJ | 0.022 | UJ | 0.021 | UJ |
| Anthracene | 120-12-7 | µg/L | 0.11 | UJ | 0.11 | UJ | 0.1 | J+ |
| Benzo(a)anthracene | 56-55-3 | µg/L | 0.063 | J | 0.11 | UJ | 0.31 | J- |
| Benzo(a)pyrene | 50-32-8 | µg/L | 0.056 | J | 0.055 | UJ | 0.31 | J- |
| Benzo(b)fluoranthene | 205-99-2 | µg/L | 0.085 | J | 0.11 | UJ | 0.44 | J- |
| Benzo(g,h,i)perylene | 191-24-2 | µg/L | 0.049 | J | 0.11 | UJ | 0.17 | J- |
| Benzo(k)fluoranthene | 207-08-9 | µg/L | 0.04 | J | 0.055 | UJ | 0.22 | J- |
| Chrysene | 218-01-9 | µg/L | 0.092 | J | 0.11 | UJ | 0.35 | J- |
| Dibenz(a,h)anthracene | 53-70-3 | µg/L | 0.11 | UJ | 0.11 | UJ | 0.1 | J+ |
| Fluoranthene | 206-44-0 | µg/L | 0.11 | J | 0.11 | UJ | 0.6 | J- |
| Fluorene | 86-73-7 | µg/L | 0.043 | UJ | 0.044 | UJ | 0.041 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | µg/L | 0.045 | J | 0.11 | UJ | 0.21 | J- |
| Naphthalene | 91-20-3 | µg/L | 0.13 | J | 0.18 | J | 0.23 | J |
| Phenanthrene | 85-01-8 | µg/L | 0.11 | J | 0.11 | J- | 0.42 | J- |
| Pyrene | 129-00-0 | µg/L | 0.11 | J | 0.11 | UJ | 0.48 | J- |
| Metals (Dissolved) | | | | | | | | |
| Aluminum | 7429-90-5 | µg/L | 300 | J+ | 300 | J+ | 300 | J+ |
| Antimony | 7440-36-0 | µg/L | 6 | J+ | 6 | J+ | 6 | J+ |
| Arsenic | 7440-38-2 | µg/L | 9 | | 2.9 | J | 140 | |
| Barium | 7440-39-3 | µg/L | 150 | | 84 | | 23 | |
| Beryllium | 7440-41-7 | µg/L | 0.5 | U | 0.5 | U | 0.5 | U |
| Cadmium | 7440-43-9 | µg/L | 1.8 | U | 1.8 | U | 1.8 | U |
| Calcium | 7440-70-2 | µg/L | 31000 | | 25000 | | 37000 | |
| Chromium | 7440-47-3 | µg/L | 1.8 | U | 1.8 | U | 1.8 | U |
| Cobalt | 7440-48-4 | µg/L | 1 | J+ | 1 | J+ | 1 | J+ |
| Copper | 7440-50-8 | µg/L | 10 | U | 10 | U | 10 | U |
| Iron | 7439-89-6 | µg/L | 100 | | 85 | U | 85 | U |
| Lead | 7439-92-1 | µg/L | 0.7 | U | 0.7 | U | 0.7 | U |
| Magnesium | 7439-95-4 | µg/L | 23000 | | 15000 | | 2400 | |
| Manganese | 7439-96-5 | µg/L | 170 | | 29 | | 3.9 | J |
| Mercury | 7439-97-6 | µg/L | 0.08 | U | 0.08 | U | 0.08 | U |

Table D.1-4
Reduced Validated Analytical Results[1] - AOC 5 (Boiler House Area), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-05-016 | | NYOW-05-017-1 | | NYOW-05-019 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-05-WL016-A | | NYOW-05-WL017-1-A | | NYOW-05-WL019-A | |
| | | | Sample Type: | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | | Sample Date: | | 2021-01-15 | | 2021-01-15 | | 2021-01-15 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | | |
| Nickel | 7440-02-0 | µg/L | 8 | U | 8 | U | 8 | U | | |
| Potassium | 7440-09-7 | µg/L | 4700 | | 8500 | | 9000 | | | |
| Selenium | 7782-49-2 | µg/L | 19 | UJ | 19 | UJ | 19 | UJ | | |
| Silver | 7440-22-4 | µg/L | 5 | U | 5 | U | 5 | U | | |
| Sodium | 7440-23-5 | µg/L | 18000 | | 18000 | | 33000 | | | |
| Thallium | 7440-28-0 | µg/L | 0.2 | U | 1 | U | 0.2 | U | | |
| Vanadium | 7440-62-2 | µg/L | 4 | U | 4 | U | 15 | J+ | | |
| Zinc | 7440-66-6 | µg/L | 15 | U | 15 | U | 15 | U | | |

Notes

| | |
|---|---|
| ND | ND at LOD |
| Detect | Detected result |

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.1-5
Reduced Validated Analytical Results[1] - AOC 5 (Coal Aggregate Bins), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | Sample Location: | | NYOW-05-024 | | NYOW-05-025 | |
|---|---|---|---|---|---|---|
| | Sample Name: | | NYOW-05-WL024-A | | NYOW-05-WL025-A | |
| | Sample Type: | | N | | N | |
| | Sample Depth (feet): | | 0 - 10 | | 0 - 10 | |
| | Sample Date: | | 2021-01-11 | | 2021-01-12 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | µg/L | | R | 2.1 | UJ |
| 1,4-Dioxane | 123-91-1 | µg/L | | R | 11 | UJ |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | µg/L | | R | | R |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | µg/L | 2.6 | U | 2.1 | U |
| 2,4,5-Trichlorophenol | 95-95-4 | µg/L | 2.6 | U | 2.1 | U |
| 2,4,6-Trichlorophenol | 88-06-2 | µg/L | 2.6 | U | 2.1 | U |
| 2,4-Dichlorophenol | 120-83-2 | µg/L | 2.6 | U | 2.1 | U |
| 2,4-Dimethylphenol | 105-67-9 | µg/L | 13 | U | 11 | U |
| 2,4-Dinitrotoluene | 121-14-2 | µg/L | | R | 2.1 | UJ |
| 2,6-Dinitrotoluene | 606-20-2 | µg/L | | R | 2.1 | UJ |
| 2-Chloronaphthalene | 91-58-7 | µg/L | | R | 2.1 | UJ |
| 2-Chlorophenol | 95-57-8 | µg/L | 2.6 | U | 2.1 | U |
| 2-Methylphenol (o-Cresol) | 95-48-7 | µg/L | 2.6 | U | 2.1 | U |
| 2-Nitroaniline | 88-74-4 | µg/L | | R | 2.1 | UJ |
| 2-Nitrophenol | 88-75-5 | µg/L | 2.6 | U | 2.1 | U |
| 3,3'-Dichlorobenzidine | 91-94-1 | µg/L | | R | 63 | UJ |
| 3-Nitroaniline | 99-09-2 | µg/L | | R | 11 | UJ |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | µg/L | 26 | U | 21 | U |
| 4-Bromophenyl phenyl ether | 101-55-3 | µg/L | | R | 2.1 | UJ |
| 4-Chloro-3-methylphenol | 59-50-7 | µg/L | 2.6 | U | 2.1 | U |
| 4-Chloroaniline | 106-47-8 | µg/L | | R | 5.3 | UJ |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | µg/L | | R | 2.1 | UJ |
| 4-Nitroaniline | 100-01-6 | µg/L | | R | 11 | UJ |
| 4-Nitrophenol | 100-02-7 | µg/L | 5.3 | U | 4.2 | U |
| Acetophenone | 98-86-2 | µg/L | | R | 2.1 | UJ |
| Atrazine | 1912-24-9 | µg/L | | R | 2.1 | UJ |
| Benzaldehyde | 100-52-7 | µg/L | | R | 2.1 | UJ |
| Benzyl butyl phthalate | 85-68-7 | µg/L | | R | 2.1 | UJ |
| Biphenyl (Diphenyl) | 92-52-4 | µg/L | | R | 2.1 | UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | µg/L | | R | 2.1 | UJ |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | µg/L | | R | 2.1 | UJ |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | µg/L | | R | 2.6 | UJ |
| Caprolactam | 105-60-2 | µg/L | | R | 2.1 | UJ |
| Carbazole | 86-74-8 | µg/L | | R | 2.1 | UJ |
| Cresols, m- & p- | cresols-m,p | µg/L | 2.6 | U | 2.1 | U |
| Dibenzofuran | 132-64-9 | µg/L | | R | 2.1 | UJ |
| Diethyl phthalate | 84-66-2 | µg/L | | R | 2.1 | UJ |
| Dimethyl phthalate | 131-11-3 | µg/L | | R | 2.1 | UJ |
| Di-n-butyl phthalate | 84-74-2 | µg/L | | R | 2.1 | UJ |
| di-n-Octyl phthalate | 117-84-0 | µg/L | | R | 2.6 | UJ |
| Hexachlorobenzene | 118-74-1 | µg/L | | R | 2.1 | UJ |
| Hexachlorobutadiene | 87-68-3 | µg/L | | R | 2.1 | UJ |
| Hexachlorocyclopentadiene | 77-47-4 | µg/L | | R | 5.3 | UJ |
| Hexachloroethane | 67-72-1 | µg/L | | R | 2.1 | UJ |
| Isophorone | 78-59-1 | µg/L | | R | 2.1 | UJ |
| Nitrobenzene | 98-95-3 | µg/L | | R | 2.1 | UJ |
| N-Nitrosodi-n-propylamine | 621-64-7 | µg/L | | R | 2.1 | UJ |
| N-Nitrosodiphenylamine | 86-30-6 | µg/L | | R | 2.1 | UJ |
| Pentachlorophenol | 87-86-5 | µg/L | 5.3 | U | 4.2 | U |
| Phenol | 108-95-2 | µg/L | 2.6 | UJ | 11 | J+ |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | µg/L | 0.63 | J- | 0.041 | UJ |
| 2-Methylnaphthalene | 91-57-6 | µg/L | 0.89 | J- | 0.051 | UJ |
| Acenaphthene | 83-32-9 | µg/L | 0.016 | UJ | 0.012 | UJ |
| Acenaphthylene | 208-96-8 | µg/L | 0.026 | UJ | 0.02 | UJ |
| Anthracene | 120-12-7 | µg/L | 0.13 | UJ | 0.1 | UJ |
| Benzo(a)anthracene | 56-55-3 | µg/L | 0.13 | UJ | 0.1 | UJ |
| Benzo(a)pyrene | 50-32-8 | µg/L | 0.066 | UJ | 0.051 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | µg/L | 0.13 | UJ | 0.1 | UJ |
| Benzo(g,h,i)perylene | 191-24-2 | µg/L | 0.13 | UJ | 0.1 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | µg/L | 0.066 | UJ | 0.051 | UJ |
| Chrysene | 218-01-9 | µg/L | 0.13 | UJ | 0.1 | J+ |
| Dibenz(a,h)anthracene | 53-70-3 | µg/L | 0.13 | UJ | 0.1 | UJ |
| Fluoranthene | 206-44-0 | µg/L | 0.13 | UJ | 0.1 | UJ |
| Fluorene | 86-73-7 | µg/L | 0.053 | UJ | 0.041 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | µg/L | 0.13 | UJ | 0.1 | UJ |
| Naphthalene | 91-20-3 | µg/L | 0.97 | J- | 0.051 | UJ |

Table D.1-5
Reduced Validated Analytical Results[1] - AOC 5 (Coal Aggregate Bins), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-05-024 | | NYOW-05-025 | |
|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-05-WL024-A | | NYOW-05-WL025-A | |
| | | Sample Type: | N | | N | |
| | | Sample Depth (feet): | 0 - 10 | | 0 - 10 | |
| | | Sample Date: | 2021-01-11 | | 2021-01-12 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier |
| Phenanthrene | 85-01-8 | µg/L | 0.24 | J- | 0.1 | UJ |
| Pyrene | 129-00-0 | µg/L | 0.13 | UJ | 0.1 | UJ |
| Metals (Dissolved) | | | | | | |
| Aluminum | 7429-90-5 | µg/L | 2100 | | 36 | J |
| Antimony | 7440-36-0 | µg/L | 1 | U | 1 | U |
| Arsenic | 7440-38-2 | µg/L | 5 | J+ | 5 | J+ |
| Barium | 7440-39-3 | µg/L | 130 | | 55 | |
| Beryllium | 7440-41-7 | µg/L | 0.5 | U | 0.5 | U |
| Cadmium | 7440-43-9 | µg/L | 1.8 | U | 1.8 | U |
| Calcium | 7440-70-2 | µg/L | 110000 | | 110000 | |
| Chromium | 7440-47-3 | µg/L | 12 | | 0.52 | J |
| Cobalt | 7440-48-4 | µg/L | 3.7 | | 1.3 | |
| Copper | 7440-50-8 | µg/L | 15 | J+ | 10 | U |
| Iron | 7439-89-6 | µg/L | 6300 | | 100 | U |
| Lead | 7439-92-1 | µg/L | 3 | J+ | 0.7 | U |
| Magnesium | 7439-95-4 | µg/L | 37000 | | 22000 | |
| Manganese | 7439-96-5 | µg/L | 1200 | | 1200 | |
| Mercury | 7439-97-6 | µg/L | 0.08 | U | 0.08 | U |
| Nickel | 7440-02-0 | µg/L | 40 | J+ | 40 | J+ |
| Potassium | 7440-09-7 | µg/L | 8100 | | 4600 | |
| Selenium | 7782-49-2 | µg/L | 19 | U | 19 | U |
| Silver | 7440-22-4 | µg/L | 5 | U | 5 | U |
| Sodium | 7440-23-5 | µg/L | 93000 | | 20000 | |
| Thallium | 7440-28-0 | µg/L | 0.2 | U | 0.2 | U |
| Vanadium | 7440-62-2 | µg/L | 15 | J+ | 4 | U |
| Zinc | 7440-66-6 | µg/L | 150 | J+ | 15 | U |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected

| | |
|---|---|
| ND | ND at LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.1-6
Reduced Validated Analytical Results[1] - AOC 5 (Coal Storage Area), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-05-006 | | NYOW-05-008 | | NYOW-05-010 | |
|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-05-WL006-A | | NYOW-05-WL008-A | | NYOW-05-WL010-A | |
| | | Sample Type: | N | | N | | N | |
| | | Sample Depth (feet): | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | Sample Date: | 2021-01-11 | | 2021-01-11 | | 2021-01-12 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| 1,4-Dioxane | 123-91-1 | µg/L | 10 | UJ | 12 | UJ | | R |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | µg/L | | R | | R | | R |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | µg/L | 2 | U | 2.4 | U | 2.1 | U |
| 2,4,5-Trichlorophenol | 95-95-4 | µg/L | 2 | U | 2.4 | U | 2.1 | U |
| 2,4,6-Trichlorophenol | 88-06-2 | µg/L | 2 | U | 2.4 | U | 2.1 | U |
| 2,4-Dichlorophenol | 120-83-2 | µg/L | 2 | U | 2.4 | U | 2.1 | U |
| 2,4-Dimethylphenol | 105-67-9 | µg/L | 10 | U | 12 | U | 10 | U |
| 2,4-Dinitrotoluene | 121-14-2 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| 2,6-Dinitrotoluene | 606-20-2 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| 2-Chloronaphthalene | 91-58-7 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| 2-Chlorophenol | 95-57-8 | µg/L | 2 | U | 2.4 | U | 2.1 | U |
| 2-Methylphenol (o-Cresol) | 95-48-7 | µg/L | 2 | U | 2.4 | U | 2.1 | U |
| 2-Nitroaniline | 88-74-4 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| 2-Nitrophenol | 88-75-5 | µg/L | 2 | U | 2.4 | U | 2.1 | U |
| 3,3'-Dichlorobenzidine | 91-94-1 | µg/L | 61 | UJ | 71 | UJ | | R |
| 3-Nitroaniline | 99-09-2 | µg/L | 10 | UJ | 12 | UJ | | R |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | µg/L | 20 | U | 24 | U | 21 | U |
| 4-Bromophenyl phenyl ether | 101-55-3 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| 4-Chloro-3-methylphenol | 59-50-7 | µg/L | 2 | U | 2.4 | U | 2.1 | U |
| 4-Chloroaniline | 106-47-8 | µg/L | 5.1 | UJ | 5.9 | UJ | | R |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| 4-Nitroaniline | 100-01-6 | µg/L | 10 | UJ | 12 | UJ | | R |
| 4-Nitrophenol | 100-02-7 | µg/L | 4.1 | U | 4.7 | U | 4.2 | U |
| Acetophenone | 98-86-2 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| Atrazine | 1912-24-9 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| Benzaldehyde | 100-52-7 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| Benzyl butyl phthalate | 85-68-7 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| Biphenyl (Diphenyl) | 92-52-4 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| Bis(2-chloroethoxy)methane | 111-91-1 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | µg/L | 2.5 | UJ | 3 | UJ | | R |
| Caprolactam | 105-60-2 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| Carbazole | 86-74-8 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| Cresols, m- & p- | cresols-m,p | µg/L | 2 | U | 2.4 | U | 2.1 | U |
| Dibenzofuran | 132-64-9 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| Diethyl phthalate | 84-66-2 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| Dimethyl phthalate | 131-11-3 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| Di-n-butyl phthalate | 84-74-2 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| di-n-Octyl phthalate | 117-84-0 | µg/L | 2.5 | UJ | 3 | UJ | | R |
| Hexachlorobenzene | 118-74-1 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| Hexachlorobutadiene | 87-68-3 | µg/L | 2 | UJ | 2.4 | UJ | | R |

Table D.1-6
Reduced Validated Analytical Results[1] - AOC 5 (Coal Storage Area), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-05-006 | | NYOW-05-008 | | NYOW-05-010 | |
|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-05-WL006-A | | NYOW-05-WL008-A | | NYOW-05-WL010-A | |
| | | Sample Type: | N | | N | | N | |
| | | Sample Depth (feet): | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | Sample Date: | 2021-01-11 | | 2021-01-11 | | 2021-01-12 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Hexachlorocyclopentadiene | 77-47-4 | µg/L | 5.1 | UJ | 5.9 | UJ | | R |
| Hexachloroethane | 67-72-1 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| Isophorone | 78-59-1 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| Nitrobenzene | 98-95-3 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| N-Nitrosodi-n-propylamine | 621-64-7 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| N-Nitrosodiphenylamine | 86-30-6 | µg/L | 2 | UJ | 2.4 | UJ | | R |
| Pentachlorophenol | 87-86-5 | µg/L | 4.1 | U | 4.7 | U | 4.2 | U |
| Phenol | 108-95-2 | µg/L | 2 | UJ | 2.4 | UJ | 2.1 | UJ |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | µg/L | 0.047 | UJ | 0.048 | U | 0.21 | J- |
| 2-Methylnaphthalene | 91-57-6 | µg/L | 0.058 | UJ | 0.06 | U | 0.22 | J- |
| Acenaphthene | 83-32-9 | µg/L | 0.014 | UJ | 0.014 | U | 0.012 | UJ |
| Acenaphthylene | 208-96-8 | µg/L | 0.023 | UJ | 0.024 | U | 0.021 | UJ |
| Anthracene | 120-12-7 | µg/L | 0.12 | UJ | 0.12 | U | 0.1 | UJ |
| Benzo(a)anthracene | 56-55-3 | µg/L | 0.12 | UJ | 0.12 | U | 0.1 | UJ |
| Benzo(a)pyrene | 50-32-8 | µg/L | 0.058 | UJ | 0.06 | UJ | 0.051 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | µg/L | 0.12 | UJ | 0.12 | UJ | 0.1 | UJ |
| Benzo(g,h,i)perylene | 191-24-2 | µg/L | 0.12 | UJ | 0.12 | UJ | 0.1 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | µg/L | 0.058 | UJ | 0.06 | UJ | 0.051 | UJ |
| Chrysene | 218-01-9 | µg/L | 0.12 | UJ | 0.12 | U | 0.1 | UJ |
| Dibenz(a,h)anthracene | 53-70-3 | µg/L | 0.12 | UJ | 0.12 | UJ | 0.1 | UJ |
| Fluoranthene | 206-44-0 | µg/L | 0.12 | UJ | 0.12 | U | 0.1 | UJ |
| Fluorene | 86-73-7 | µg/L | 0.047 | UJ | 0.048 | U | 0.041 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | µg/L | 0.12 | UJ | 0.12 | UJ | 0.1 | UJ |
| Naphthalene | 91-20-3 | µg/L | 0.039 | J- | 0.06 | U | 0.17 | J- |
| Phenanthrene | 85-01-8 | µg/L | 0.12 | UJ | 0.12 | U | 0.28 | J- |
| Pyrene | 129-00-0 | µg/L | 0.12 | UJ | 0.12 | U | 0.1 | UJ |
| Metals (Dissolved) | | | | | | | | |
| Aluminum | 7429-90-5 | µg/L | 70 | U | 70 | U | 70 | U |
| Antimony | 7440-36-0 | µg/L | 1 | U | 1 | U | 6 | J+ |
| Arsenic | 7440-38-2 | µg/L | 1.6 | J | 0.9 | J | 7.1 | |
| Barium | 7440-39-3 | µg/L | 140 | | 38 | | 160 | |
| Beryllium | 7440-41-7 | µg/L | 0.5 | U | 0.5 | U | 0.5 | U |
| Cadmium | 7440-43-9 | µg/L | 1.8 | U | 1.8 | U | 1.8 | U |
| Calcium | 7440-70-2 | µg/L | 83000 | | 140000 | | 48000 | |
| Chromium | 7440-47-3 | µg/L | 1.8 | U | 1.8 | U | 1.8 | U |
| Cobalt | 7440-48-4 | µg/L | 0.84 | J | 1.1 | | 0.69 | J |
| Copper | 7440-50-8 | µg/L | 10 | U | 10 | U | 10 | U |
| Iron | 7439-89-6 | µg/L | 2500 | | 3400 | | 750 | |
| Lead | 7439-92-1 | µg/L | 0.7 | U | 0.7 | U | 0.7 | U |
| Magnesium | 7439-95-4 | µg/L | 56000 | | 33000 | | 22000 | |
| Manganese | 7439-96-5 | µg/L | 440 | | 290 | | 220 | |
| Mercury | 7439-97-6 | µg/L | 0.08 | U | 0.08 | U | 0.08 | U |

Table D.1-6
Reduced Validated Analytical Results[1] - AOC 5 (Coal Storage Area), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-05-006 | | NYOW-05-008 | | NYOW-05-010 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-05-WL006-A | | NYOW-05-WL008-A | | NYOW-05-WL010-A | |
| | | | Sample Type: | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | | Sample Date: | | 2021-01-11 | | 2021-01-11 | | 2021-01-12 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | | |
| Nickel | 7440-02-0 | µg/L | 8 | U | 8 | U | 40 | J+ | | |
| Potassium | 7440-09-7 | µg/L | 8200 | | 2600 | J | 7800 | | | |
| Selenium | 7782-49-2 | µg/L | 19 | U | 19 | U | 19 | U | | |
| Silver | 7440-22-4 | µg/L | 5 | U | 5 | U | 5 | U | | |
| Sodium | 7440-23-5 | µg/L | 38000 | | 18000 | | 20000 | | | |
| Thallium | 7440-28-0 | µg/L | 0.2 | U | 0.2 | U | 0.2 | U | | |
| Vanadium | 7440-62-2 | µg/L | 4 | U | 4 | U | 4 | U | | |
| Zinc | 7440-66-6 | µg/L | 15 | U | 15 | U | 15 | U | | |

Notes

| | |
|---|---|
| ND | ND at LOD |
| Detect | Detected result |

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

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Table D.1-7
Reduced Validated Analytical Results[(1)] - AOC 5 (Electric Substation), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-05-012 | |
|---|---|---|---|---|
| | | Sample Name: | NYOW-05-WL012-A | |
| | | Sample Type: | C | |
| | | Sample Depth (feet): | 0 - 10 | |
| | | Sample Date: | 2021-01-14 | |
| Analyte | CASRN | Units | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | µg/L | 2 | U |
| 1,4-Dioxane | 123-91-1 | µg/L | 10 | U |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | µg/L | 2 | UJ |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | µg/L | 2 | U |
| 2,4,5-Trichlorophenol | 95-95-4 | µg/L | 2 | UJ |
| 2,4,6-Trichlorophenol | 88-06-2 | µg/L | 2 | UJ |
| 2,4-Dichlorophenol | 120-83-2 | µg/L | 2 | UJ |
| 2,4-Dimethylphenol | 105-67-9 | µg/L | 10 | U |
| 2,4-Dinitrotoluene | 121-14-2 | µg/L | 2 | U |
| 2,6-Dinitrotoluene | 606-20-2 | µg/L | 2 | U |
| 2-Chloronaphthalene | 91-58-7 | µg/L | 2 | U |
| 2-Chlorophenol | 95-57-8 | µg/L | 2 | U |
| 2-Methylphenol (o-Cresol) | 95-48-7 | µg/L | 2 | U |
| 2-Nitroaniline | 88-74-4 | µg/L | 2 | U |
| 2-Nitrophenol | 88-75-5 | µg/L | 2 | UJ |
| 3,3'-Dichlorobenzidine | 91-94-1 | µg/L | 61 | U |
| 3-Nitroaniline | 99-09-2 | µg/L | 10 | U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | µg/L | 20 | U |
| 4-Bromophenyl phenyl ether | 101-55-3 | µg/L | 2 | U |
| 4-Chloro-3-methylphenol | 59-50-7 | µg/L | 2 | UJ |
| 4-Chloroaniline | 106-47-8 | µg/L | 5.1 | UJ |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | µg/L | 2 | U |
| 4-Nitroaniline | 100-01-6 | µg/L | 10 | U |
| 4-Nitrophenol | 100-02-7 | µg/L | 4.1 | U |
| Acetophenone | 98-86-2 | µg/L | 2 | UJ |
| Atrazine | 1912-24-9 | µg/L | 2 | U |
| Benzaldehyde | 100-52-7 | µg/L | 2 | UJ |
| Benzyl butyl phthalate | 85-68-7 | µg/L | 2 | U |
| Biphenyl (Diphenyl) | 92-52-4 | µg/L | 2 | U |
| Bis(2-chloroethoxy)methane | 111-91-1 | µg/L | 2 | UJ |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | µg/L | 2 | UJ |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | µg/L | 2.5 | U |
| Caprolactam | 105-60-2 | µg/L | 2 | U |
| Carbazole | 86-74-8 | µg/L | 2 | U |
| Cresols, m- & p- | cresols-m,p | µg/L | 2 | U |
| Dibenzofuran | 132-64-9 | µg/L | 2 | UJ |
| Diethyl phthalate | 84-66-2 | µg/L | 2 | U |
| Dimethyl phthalate | 131-11-3 | µg/L | 2 | U |
| Di-n-butyl phthalate | 84-74-2 | µg/L | 2 | U |
| di-n-Octyl phthalate | 117-84-0 | µg/L | 2.5 | U |
| Hexachlorobenzene | 118-74-1 | µg/L | 2 | UJ |
| Hexachlorobutadiene | 87-68-3 | µg/L | 2 | U |
| Hexachlorocyclopentadiene | 77-47-4 | µg/L | 5.1 | U |
| Hexachloroethane | 67-72-1 | µg/L | 2 | U |
| Isophorone | 78-59-1 | µg/L | 2 | UJ |
| Nitrobenzene | 98-95-3 | µg/L | 2 | UJ |
| N-Nitrosodi-n-propylamine | 621-64-7 | µg/L | 2 | UJ |
| N-Nitrosodiphenylamine | 86-30-6 | µg/L | 2 | U |
| Pentachlorophenol | 87-86-5 | µg/L | 4.1 | UJ |
| Phenol | 108-95-2 | µg/L | 2 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | |
| 1-Methylnaphthalene | 90-12-0 | µg/L | 0.039 | U |
| 2-Methylnaphthalene | 91-57-6 | µg/L | 0.049 | U |
| Acenaphthene | 83-32-9 | µg/L | 0.012 | U |
| Acenaphthylene | 208-96-8 | µg/L | 0.02 | U |
| Anthracene | 120-12-7 | µg/L | 0.099 | U |
| Benzo(a)anthracene | 56-55-3 | µg/L | 0.099 | U |
| Benzo(a)pyrene | 50-32-8 | µg/L | 0.049 | U |
| Benzo(b)fluoranthene | 205-99-2 | µg/L | 0.099 | U |
| Benzo(g,h,i)perylene | 191-24-2 | µg/L | 0.099 | U |
| Benzo(k)fluoranthene | 207-08-9 | µg/L | 0.049 | U |

Table D.1-7
Reduced Validated Analytical Results[1] - AOC 5 (Electric Substation), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-05-012 | |
|---|---|---|---|---|
| | | Sample Name: | NYOW-05-WL012-A | |
| | | Sample Type: | C | |
| | | Sample Depth (feet): | 0 - 10 | |
| | | Sample Date: | 2021-01-14 | |
| Analyte | CASRN | Units | Result | Qualifier |
| Chrysene | 218-01-9 | µg/L | 0.099 | U |
| Dibenz(a,h)anthracene | 53-70-3 | µg/L | 0.099 | UJ |
| Fluoranthene | 206-44-0 | µg/L | 0.099 | U |
| Fluorene | 86-73-7 | µg/L | 0.039 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | µg/L | 0.099 | U |
| Naphthalene | 91-20-3 | µg/L | 0.14 | J |
| Phenanthrene | 85-01-8 | µg/L | 0.099 | U |
| Pyrene | 129-00-0 | µg/L | 0.099 | U |
| Metals (Dissolved) | | | | |
| Aluminum | 7429-90-5 | µg/L | 70 | U |
| Antimony | 7440-36-0 | µg/L | 1 | U |
| Arsenic | 7440-38-2 | µg/L | 5 | J+ |
| Barium | 7440-39-3 | µg/L | 210 | |
| Beryllium | 7440-41-7 | µg/L | 0.5 | U |
| Cadmium | 7440-43-9 | µg/L | 1.8 | U |
| Calcium | 7440-70-2 | µg/L | 95000 | |
| Chromium | 7440-47-3 | µg/L | 1.8 | U |
| Cobalt | 7440-48-4 | µg/L | 1 | J+ |
| Copper | 7440-50-8 | µg/L | 10 | U |
| Iron | 7439-89-6 | µg/L | 680 | J |
| Lead | 7439-92-1 | µg/L | 0.7 | U |
| Magnesium | 7439-95-4 | µg/L | 60000 | |
| Manganese | 7439-96-5 | µg/L | 170 | |
| Mercury | 7439-97-6 | µg/L | 0.08 | U |
| Nickel | 7440-02-0 | µg/L | 8 | U |
| Potassium | 7440-09-7 | µg/L | 12000 | |
| Selenium | 7782-49-2 | µg/L | 19 | U |
| Silver | 7440-22-4 | µg/L | 5 | U |
| Sodium | 7440-23-5 | µg/L | 68000 | |
| Thallium | 7440-28-0 | µg/L | 0.2 | U |
| Vanadium | 7440-62-2 | µg/L | 4 | U |
| Zinc | 7440-66-6 | µg/L | 15 | U |

Notes

| | |
|---|---|
| ND | ND at LOD |
| Detect | Detected result |

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.1-8
Reduced Validated Analytical Results[1] - AOC 5 (Possible Dump Area), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-05-001 | | NYOW-05-004 | | NYOW-05-005 | |
|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-05-WL001-A | | NYOW-05-WL004-A | | NYOW-05-WL005-A | |
| | | Sample Type: | N | | C | | N | |
| | | Sample Depth (feet): | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | Sample Date: | 2021-01-13 | | 2021-01-14 | | 2021-01-14 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | |
| 1,1,1-Trichloroethane | 71-55-6 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | µg/L | 0.8 | U | 0.8 | U | 0.8 | U |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U |
| 1,1,2-Trichloroethane | 79-00-5 | µg/L | 0.8 | U | 0.8 | U | 0.8 | U |
| 1,1-Dichloroethane | 75-34-3 | µg/L | 0.8 | U | 0.8 | U | 0.8 | U |
| 1,1-Dichloroethene | 75-35-4 | µg/L | 0.8 | UJ | 0.8 | U | 0.8 | U |
| 1,2,3-Trichlorobenzene | 87-61-6 | µg/L | 0.8 | U | 1 | J+ | 0.8 | U |
| 1,2,4-Trichlorobenzene | 120-82-1 | µg/L | 0.8 | U | 0.8 | U | 0.8 | U |
| 1,2-Dibromo-3-chloropropane | 96-12-8 | µg/L | 1.6 | UJ | 1.6 | U | 1.6 | U |
| 1,2-Dibromoethane (EDB) | 106-93-4 | µg/L | 0.4 | U | 0.4 | U | 0.4 | U |
| 1,2-Dichlorobenzene | 95-50-1 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U |
| 1,2-Dichloroethane | 107-06-2 | µg/L | 0.4 | U | 0.4 | U | 0.4 | U |
| 1,2-Dichloropropane | 78-87-5 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U |
| 1,3-Dichlorobenzene | 541-73-1 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U |
| 1,3-Dichloropropane | 142-28-9 | µg/L | 0.2 | U | 0.2 | U | 0.2 | U |
| 1,4-Dichlorobenzene | 106-46-7 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U |
| 2-Butanone (MEK) | 78-93-3 | µg/L | 4 | U | 4 | U | 4 | U |
| 2-Hexanone | 591-78-6 | µg/L | 4 | U | 4 | U | 4 | U |
| 4-Methyl-2-pentanone (MIBK) | 108-10-1 | µg/L | 3.2 | U | 3.2 | U | 3.2 | U |
| Acetone | 67-64-1 | µg/L | 6.4 | U | 6.4 | U | 6.4 | U |
| Benzene | 71-43-2 | µg/L | 0.4 | U | 0.4 | U | 0.4 | U |
| Bromochloromethane | 74-97-5 | µg/L | 0.2 | U | 0.2 | U | 0.2 | U |
| Bromodichloromethane | 75-27-4 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U |
| Bromoform | 75-25-2 | µg/L | 1 | UJ | 1 | U | 1 | U |
| Bromomethane | 74-83-9 | µg/L | 0.8 | UJ | 0.8 | UJ | 0.8 | UJ |
| Carbon disulfide | 75-15-0 | µg/L | 0.8 | U | 0.8 | U | 0.8 | U |
| Carbon tetrachloride | 56-23-5 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U |
| Chlorobenzene | 108-90-7 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U |
| Chloroethane | 75-00-3 | µg/L | 1.6 | U | 1.6 | U | 1.6 | U |
| Chloroform | 67-66-3 | µg/L | 0.4 | U | 0.4 | U | 0.4 | U |
| Chloromethane | 74-87-3 | µg/L | 0.8 | U | 0.8 | U | 0.8 | U |
| cis-1,2-Dichloroethene | 156-59-2 | µg/L | 0.4 | U | 0.4 | U | 0.4 | U |
| cis-1,3-Dichloropropene | 10061-01-5 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U |
| Cumene | 98-82-8 | µg/L | 0.4 | U | 0.4 | U | 0.4 | U |
| Cyclohexane | 110-82-7 | µg/L | 0.8 | UJ | 0.8 | U | 0.8 | U |
| Dibromochloromethane | 124-48-1 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U |
| Dichlorodifluoromethane | 75-71-8 | µg/L | 0.8 | U | 0.8 | U | 0.8 | U |
| Ethylbenzene | 100-41-4 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U |
| m,p-Xylene | 179601-23-1 | µg/L | 0.8 | UJ | 0.8 | U | 0.8 | U |
| Methyl acetate | 79-20-9 | µg/L | 4 | U | 4 | U | 4 | U |
| Methyl tert-butyl ether (MTBE) | 1634-04-4 | µg/L | 0.8 | U | 0.8 | U | 0.8 | U |
| Methylcyclohexane | 108-87-2 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U |
| Methylene chloride | 75-09-2 | µg/L | 2 | U | 2 | U | 2 | U |
| o-Xylene | 95-47-6 | µg/L | 0.4 | U | 0.4 | U | 0.4 | U |

Table D.1-8
Reduced Validated Analytical Results[1] - AOC 5 (Possible Dump Area), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-05-001 | | NYOW-05-004 | | NYOW-05-005 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-05-WL001-A | | NYOW-05-WL004-A | | NYOW-05-WL005-A | |
| | | | Sample Type: | | N | | C | | N | |
| | | | Sample Depth (feet): | | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | | Sample Date: | | 2021-01-13 | | 2021-01-14 | | 2021-01-14 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | | |
| Styrene | 100-42-5 | µg/L | 0.8 | U | 0.8 | U | 0.8 | U | | |
| Tetrachloroethene (PCE) | 127-18-4 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | | |
| Toluene | 108-88-3 | µg/L | 0.4 | U | 0.4 | U | 0.4 | U | | |
| trans-1,2-Dichloroethene | 156-60-5 | µg/L | 0.4 | U | 0.4 | U | 0.4 | U | | |
| trans-1,3-Dichloropropene | 10061-02-6 | µg/L | 0.4 | UJ | 0.4 | U | 0.4 | U | | |
| Trichlorofluoromethane | 75-69-4 | µg/L | 0.8 | U | 0.8 | U | 0.8 | U | | |
| Vinyl chloride | 75-01-4 | µg/L | 0.2 | U | 0.2 | U | 0.2 | U | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| 1,4-Dioxane | 123-91-1 | µg/L | 10 | UJ | 10 | UJ | 10 | UJ | | |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | µg/L | | R | 2.1 | UJ | 2.1 | UJ | | |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | µg/L | 2 | U | 2.1 | U | 2.1 | U | | |
| 2,4,5-Trichlorophenol | 95-95-4 | µg/L | 2 | U | 2.1 | U | 2.1 | U | | |
| 2,4,6-Trichlorophenol | 88-06-2 | µg/L | 2 | U | 2.1 | U | 2.1 | U | | |
| 2,4-Dichlorophenol | 120-83-2 | µg/L | 2 | U | 2.1 | U | 2.1 | U | | |
| 2,4-Dimethylphenol | 105-67-9 | µg/L | 10 | U | 10 | U | 10 | U | | |
| 2,4-Dinitrotoluene | 121-14-2 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| 2,6-Dinitrotoluene | 606-20-2 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| 2-Chloronaphthalene | 91-58-7 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| 2-Chlorophenol | 95-57-8 | µg/L | 2 | U | 2.1 | U | 2.1 | U | | |
| 2-Methylphenol (o-Cresol) | 95-48-7 | µg/L | 2 | U | 2.1 | U | 2.1 | U | | |
| 2-Nitroaniline | 88-74-4 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| 2-Nitrophenol | 88-75-5 | µg/L | 2 | U | 2.1 | U | 2.1 | U | | |
| 3,3'-Dichlorobenzidine | 91-94-1 | µg/L | 61 | UJ | 62 | UJ | 62 | UJ | | |
| 3-Nitroaniline | 99-09-2 | µg/L | 10 | UJ | 10 | UJ | 10 | UJ | | |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | µg/L | 20 | U | 21 | U | 21 | U | | |
| 4-Bromophenyl phenyl ether | 101-55-3 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| 4-Chloro-3-methylphenol | 59-50-7 | µg/L | 2 | U | 2.1 | U | 2.1 | U | | |
| 4-Chloroaniline | 106-47-8 | µg/L | 5 | UJ | 5.2 | UJ | 5.1 | UJ | | |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| 4-Nitroaniline | 100-01-6 | µg/L | 10 | UJ | 10 | UJ | 10 | UJ | | |
| 4-Nitrophenol | 100-02-7 | µg/L | 4 | U | 4.1 | U | 4.1 | U | | |
| Acetophenone | 98-86-2 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Atrazine | 1912-24-9 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Benzaldehyde | 100-52-7 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Benzyl butyl phthalate | 85-68-7 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Biphenyl (Diphenyl) | 92-52-4 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Bis(2-chloroethoxy)methane | 111-91-1 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | µg/L | 2.5 | UJ | 2.6 | UJ | 2.6 | UJ | | |
| Caprolactam | 105-60-2 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Carbazole | 86-74-8 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Cresols, m- & p- | cresols-m,p | µg/L | 2 | U | 2.1 | U | 2.1 | U | | |
| Dibenzofuran | 132-64-9 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ | | |
| Diethyl phthalate | 84-66-2 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ | | |

Table D.1-8
Reduced Validated Analytical Results[1] - AOC 5 (Possible Dump Area), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-05-001 | | NYOW-05-004 | | NYOW-05-005 | |
|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-05-WL001-A | | NYOW-05-WL004-A | | NYOW-05-WL005-A | |
| | | Sample Type: | N | | C | | N | |
| | | Sample Depth (feet): | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | Sample Date: | 2021-01-13 | | 2021-01-14 | | 2021-01-14 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Dimethyl phthalate | 131-11-3 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ |
| Di-n-butyl phthalate | 84-74-2 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ |
| di-n-Octyl phthalate | 117-84-0 | µg/L | 2.5 | UJ | 2.6 | UJ | 2.6 | UJ |
| Hexachlorobenzene | 118-74-1 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ |
| Hexachlorobutadiene | 87-68-3 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ |
| Hexachlorocyclopentadiene | 77-47-4 | µg/L | 5 | UJ | 5.2 | UJ | 5.1 | UJ |
| Hexachloroethane | 67-72-1 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ |
| Isophorone | 78-59-1 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ |
| Nitrobenzene | 98-95-3 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ |
| N-Nitrosodi-n-propylamine | 621-64-7 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ |
| N-Nitrosodiphenylamine | 86-30-6 | µg/L | 2 | UJ | 2.1 | UJ | 2.1 | UJ |
| Pentachlorophenol | 87-86-5 | µg/L | 4 | U | 4.1 | UJ | 4.1 | UJ |
| Phenol | 108-95-2 | µg/L | 2 | UJ | 2.1 | U | 2.1 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | µg/L | 0.044 | U | 0.039 | U | 0.041 | U |
| 2-Methylnaphthalene | 91-57-6 | µg/L | 0.055 | U | 0.11 | J+ | 0.051 | U |
| Acenaphthene | 83-32-9 | µg/L | 0.013 | U | 0.012 | U | 0.012 | U |
| Acenaphthylene | 208-96-8 | µg/L | 0.022 | U | 0.02 | U | 0.021 | U |
| Anthracene | 120-12-7 | µg/L | 0.11 | U | 0.098 | U | 0.1 | U |
| Benzo(a)anthracene | 56-55-3 | µg/L | 0.11 | U | 0.098 | U | 0.1 | U |
| Benzo(a)pyrene | 50-32-8 | µg/L | 0.055 | UJ | 0.049 | U | 0.051 | U |
| Benzo(b)fluoranthene | 205-99-2 | µg/L | 0.11 | U | 0.098 | U | 0.1 | J+ |
| Benzo(g,h,i)perylene | 191-24-2 | µg/L | 0.11 | UJ | 0.098 | U | 0.1 | U |
| Benzo(k)fluoranthene | 207-08-9 | µg/L | 0.055 | U | 0.049 | U | 0.1 | J+ |
| Chrysene | 218-01-9 | µg/L | 0.11 | U | 0.098 | U | 0.1 | J+ |
| Dibenz(a,h)anthracene | 53-70-3 | µg/L | 0.11 | UJ | 0.098 | UJ | 0.1 | UJ |
| Fluoranthene | 206-44-0 | µg/L | 0.11 | U | 0.098 | U | 0.1 | J+ |
| Fluorene | 86-73-7 | µg/L | 0.044 | U | 0.039 | U | 0.041 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | µg/L | 0.11 | UJ | 0.098 | U | 0.1 | U |
| Naphthalene | 91-20-3 | µg/L | 0.055 | U | 0.15 | J+ | 0.14 | J+ |
| Phenanthrene | 85-01-8 | µg/L | 0.11 | U | 0.098 | U | 0.1 | J+ |
| Pyrene | 129-00-0 | µg/L | 0.11 | U | 0.098 | U | 0.1 | J+ |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | |
| PCB-1016 (Aroclor 1016) | 12674-11-2 | µg/L | 0.54 | UJ | 0.42 | UJ | 0.41 | UJ |
| PCB-1221 (Aroclor 1221) | 11104-28-2 | µg/L | 0.34 | U | 0.26 | U | 0.26 | U |
| PCB-1232 (Aroclor 1232) | 11141-16-5 | µg/L | 0.81 | U | 0.63 | U | 0.62 | U |
| PCB-1242 (Aroclor 1242) | 53469-21-9 | µg/L | 1.3 | U | 1.1 | U | 1 | U |
| PCB-1248 (Aroclor 1248) | 12672-29-6 | µg/L | 0.4 | U | 0.32 | U | 0.31 | U |
| PCB-1254 (Aroclor 1254) | 11097-69-1 | µg/L | 0.34 | U | 0.26 | U | 0.26 | U |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | µg/L | 0.54 | UJ | 0.42 | UJ | 0.41 | UJ |
| PCB-1262 (Aroclor 1262) | 37324-23-5 | µg/L | 0.67 | U | 0.53 | U | 0.51 | U |
| PCB-1268 (Aroclor 1268) | 11100-14-4 | µg/L | 1.3 | U | 1.1 | U | 1 | U |
| Metals (Dissolved) | | | | | | | | |
| Aluminum | 7429-90-5 | µg/L | 300 | J+ | 70 | U | 70 | U |
| Antimony | 7440-36-0 | µg/L | 6 | U | 1 | U | 1 | U |

Table D.1-8
Reduced Validated Analytical Results[1] - AOC 5 (Possible Dump Area), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-05-001 | | NYOW-05-004 | | NYOW-05-005 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-05-WL001-A | | NYOW-05-WL004-A | | NYOW-05-WL005-A | |
| | | | Sample Type: | | N | | C | | N | |
| | | | Sample Depth (feet): | | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | | Sample Date: | | 2021-01-13 | | 2021-01-14 | | 2021-01-14 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | | |
| Arsenic | 7440-38-2 | µg/L | 2 | J | 6 | | 0.53 | J | | |
| Barium | 7440-39-3 | µg/L | 42 | | 110 | | 130 | | | |
| Beryllium | 7440-41-7 | µg/L | 0.5 | U | 0.5 | U | 0.5 | U | | |
| Cadmium | 7440-43-9 | µg/L | 1.8 | U | 1.8 | U | 1.8 | U | | |
| Calcium | 7440-70-2 | µg/L | 34000 | | 52000 | | 100000 | | | |
| Chromium | 7440-47-3 | µg/L | 1.8 | U | 1.8 | U | 1.8 | U | | |
| Cobalt | 7440-48-4 | µg/L | 0.17 | J | 0.61 | J | 1 | | | |
| Copper | 7440-50-8 | µg/L | 10 | U | 10 | U | 10 | U | | |
| Iron | 7439-89-6 | µg/L | 85 | U | 1300 | | 940 | | | |
| Lead | 7439-92-1 | µg/L | 0.7 | U | 0.7 | U | 0.7 | U | | |
| Magnesium | 7439-95-4 | µg/L | 14000 | | 38000 | | 32000 | | | |
| Manganese | 7439-96-5 | µg/L | 120 | | 500 | | 2600 | | | |
| Mercury | 7439-97-6 | µg/L | 0.08 | U | 0.08 | U | 0.08 | U | | |
| Nickel | 7440-02-0 | µg/L | 8 | U | 40 | J+ | 8 | U | | |
| Potassium | 7440-09-7 | µg/L | 3200 | | 6200 | | 5600 | | | |
| Selenium | 7782-49-2 | µg/L | 19 | U | 19 | U | 19 | U | | |
| Silver | 7440-22-4 | µg/L | 5 | U | 5 | U | 5 | U | | |
| Sodium | 7440-23-5 | µg/L | 25000 | | 16000 | | 100000 | | | |
| Thallium | 7440-28-0 | µg/L | 1 | U | 0.2 | U | 0.2 | U | | |
| Vanadium | 7440-62-2 | µg/L | 4 | U | 4 | U | 4 | U | | |
| Zinc | 7440-66-6 | µg/L | 15 | U | 15 | U | 15 | U | | |

Notes

| | |
|---|---|
| ND | ND at LOD |
| Detect | Detected result |

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.1-9
Reduced Validated Analytical Results[1] - Background, Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | NYOW-B-001 | | NYOW-B-002 | | NYOW-B-003 | | NYOW-B-004 | | NYOW-B-005 | | NYOW-B-010 | | NYOW-B-031 | | NYOW-B-047 | | NYOW-B-050 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | NYOW-B-WL001-A | | NYOW-B-WL002-A | | NYOW-B-WL003-A | | NYOW-B-WL004-A | | NYOW-B-WL005-A | | NYOW-B-WL010-A | | NYOW-B-WL031-A | | NYOW-B-WL047-A | | NYOW-B-WL050-A | |
| | | | Sample Type: | N | | N | | C | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | | Sample Date: | 2021-05-13 | | 2021-05-14 | | 2021-05-14 | | 2021-05-13 | | 2021-05-17 | | 2021-05-18 | | 2021-05-13 | | 2021-05-17 | | 2021-05-17 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | µg/L | 0.043 | UJ | 0.04 | U | 0.042 | U | 0.043 | UJ | 0.042 | U | 0.052 | U | 0.048 | U | 0.041 | U | 0.041 | U | |
| 2-Methylnaphthalene | 91-57-6 | µg/L | 0.054 | UJ | 0.05 | U | 0.052 | U | 0.054 | UJ | 0.053 | U | 0.065 | U | 0.06 | U | 0.052 | U | 0.052 | U | |
| Acenaphthene | 83-32-9 | µg/L | 0.013 | UJ | 0.1 | J+ | 0.013 | U | 0.013 | UJ | 0.013 | U | 0.016 | U | 0.014 | U | 0.012 | U | 0.012 | U | |
| Acenaphthylene | 208-96-8 | µg/L | 0.021 | UJ | 0.1 | J+ | 0.021 | U | 0.11 | J+ | 0.021 | U | 0.026 | U | 0.12 | J+ | 0.021 | U | 0.021 | U | |
| Anthracene | 120-12-7 | µg/L | 0.11 | UJ | 0.1 | U | 0.1 | U | 0.11 | UJ | 0.11 | U | 0.13 | UJ | 0.12 | U | 0.1 | U | 0.1 | U | |
| Benzo(a)anthracene | 56-55-3 | µg/L | 0.11 | UJ | 0.1 | U | 0.1 | U | 0.11 | UJ | 0.11 | U | 0.13 | U | 0.12 | J+ | 0.1 | U | 0.1 | U | |
| Benzo(a)pyrene | 50-32-8 | µg/L | 0.054 | UJ | 0.05 | U | 0.052 | U | 0.054 | UJ | 0.11 | J+ | 0.065 | UJ | 0.06 | U | 0.052 | U | 0.052 | U | |
| Benzo(b)fluoranthene | 205-99-2 | µg/L | 0.11 | UJ | 0.1 | U | 0.1 | U | 0.11 | UJ | 0.11 | U | 0.13 | U | 0.12 | J+ | 0.1 | U | 0.1 | U | |
| Benzo(g,h,i)perylene | 191-24-2 | µg/L | 0.11 | UJ | 0.1 | U | 0.1 | U | 0.11 | J+ | 0.11 | J+ | 0.13 | UJ | 0.12 | J+ | 0.1 | U | 0.1 | U | |
| Benzo(k)fluoranthene | 207-08-9 | µg/L | 0.054 | UJ | 0.05 | U | 0.052 | U | 0.054 | UJ | 0.053 | U | 0.13 | J+ | 0.12 | J+ | 0.052 | U | 0.052 | U | |
| Chrysene | 218-01-9 | µg/L | 0.11 | UJ | 0.1 | U | 0.1 | U | 0.11 | UJ | 0.11 | U | 0.13 | U | 0.12 | J+ | 0.1 | U | 0.1 | U | |
| Dibenz(a,h)anthracene | 53-70-3 | µg/L | 0.11 | UJ | 0.1 | U | 0.1 | U | 0.11 | UJ | 0.11 | J+ | 0.13 | UJ | 0.12 | U | 0.1 | U | 0.1 | U | |
| Fluoranthene | 206-44-0 | µg/L | 0.11 | UJ | 0.1 | U | 0.1 | U | 0.11 | UJ | 0.11 | U | 0.13 | U | 0.12 | U | 0.1 | U | 0.1 | U | |
| Fluorene | 86-73-7 | µg/L | 0.043 | UJ | 0.04 | U | 0.042 | UJ | 0.043 | UJ | 0.042 | UJ | 0.052 | U | 0.048 | U | 0.041 | UJ | 0.041 | UJ | |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | µg/L | 0.11 | UJ | 0.1 | U | 0.1 | U | 0.11 | UJ | 0.11 | J+ | 0.13 | UJ | 0.12 | U | 0.1 | U | 0.1 | U | |
| Naphthalene | 91-20-3 | µg/L | 0.054 | UJ | 0.05 | U | 0.052 | U | 0.054 | UJ | 0.053 | U | 0.065 | U | 0.06 | U | 0.052 | U | 0.052 | U | |
| Phenanthrene | 85-01-8 | µg/L | 0.11 | UJ | 0.1 | U | 0.1 | U | 0.11 | UJ | 0.11 | U | 0.13 | U | 0.12 | J+ | 0.1 | U | 0.1 | U | |
| Pyrene | 129-00-0 | µg/L | 0.11 | UJ | 0.1 | U | 0.1 | U | 0.11 | UJ | 0.11 | U | 0.13 | U | 0.12 | U | 0.1 | U | 0.1 | U | |
| Metals (Dissolved) | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | µg/L | 70 | U | 440 | | 70 | U | 350 | | 70 | U | 70 | U | 70 | U | 1700 | | 70 | U | |
| Antimony | 7440-36-0 | µg/L | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | |
| Arsenic | 7440-38-2 | µg/L | 5 | J+ | 5 | J+ | 5 | J+ | 5 | J+ | 5 | J+ | 1 | U | 1 | U | 5 | J+ | 5 | J+ | |
| Barium | 7440-39-3 | µg/L | 85 | | 78 | | 28 | J+ | 64 | | 310 | | 110 | | 44 | | 170 | | 110 | | |
| Beryllium | 7440-41-7 | µg/L | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | |
| Cadmium | 7440-43-9 | µg/L | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | |
| Calcium | 7440-70-2 | µg/L | 95000 | | 120000 | | 73000 | | 77000 | | 170000 | | 86000 | | 95000 | | 96000 | | 130000 | | |
| Chromium | 7440-47-3 | µg/L | 1.8 | U | 10 | J+ | 1.8 | U | 10 | J+ | 1.8 | U | 1.8 | U | 1.8 | U | 10 | J+ | 1.8 | U | |
| Cobalt | 7440-48-4 | µg/L | 0.098 | J | 4.2 | | 0.44 | J | 1.7 | | 1.9 | | 1.4 | | 0.35 | U | 2.7 | | 0.56 | J | |
| Copper | 7440-50-8 | µg/L | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | 15 | J+ | 10 | U | |
| Iron | 7439-89-6 | µg/L | 3900 | | 570 | | 130 | J+ | 500 | | 470 | | 85 | U | 27 | J | 4000 | | 170 | | |
| Lead | 7439-92-1 | µg/L | 0.7 | U | 3 | J+ | 3 | J+ | 3 | U | 0.7 | U | 0.7 | U | 0.7 | U | 3 | J+ | 0.7 | U | |
| Magnesium | 7439-95-4 | µg/L | 8100 | | 24000 | | 15000 | | 14000 | | 80000 | | 45000 | | 25000 | | 45000 | | 29000 | | |
| Manganese | 7439-96-5 | µg/L | 940 | | 2800 | | 390 | | 1200 | | 1100 | | 570 | | 9.5 | J | 1300 | | 790 | | |
| Mercury | 7439-97-6 | µg/L | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | |
| Nickel | 7440-02-0 | µg/L | 8 | U | 8 | U | 8 | U | 8 | U | 8 | U | 8 | U | 8 | U | 40 | J+ | 8 | U | |
| Potassium | 7440-09-7 | µg/L | 1100 | J | 3000 | U | 940 | U | 700 | J | 3900 | | 1900 | J | 910 | J | 6000 | | 3000 | U | |
| Selenium | 7782-49-2 | µg/L | 19 | U | 19 | U | 19 | U | 19 | U | 19 | UJ | 19 | UJ | 19 | U | 19 | UJ | 19 | UJ | |
| Silver | 7440-22-4 | µg/L | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | |
| Sodium | 7440-23-5 | µg/L | 1500 | J | 7600 | | 5000 | U | 2800 | J | 23000 | | 5800 | | 63000 | | 160000 | | 77000 | | |
| Thallium | 7440-28-0 | µg/L | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | |
| Vanadium | 7440-62-2 | µg/L | 4 | U | 4 | U | 4 | U | 4 | U | 4 | U | 4 | U | 4 | U | 15 | J+ | 4 | U | |
| Zinc | 7440-66-6 | µg/L | 15 | U | 15 | U | 15 | U | 15 | U | 15 | U | 15 | U | 15 | U | 15 | U | 15 | U | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected

| | |
|---|---|
| ND | ND at LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

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# APPENDIX D.2

# Reduced Dataset – Soil

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Table D.2-1
Reduced Validated Analytical Results[(1)] - AOC 1, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-01-002 | | NYOW-01-002 | | NYOW-01-002 | | NYOW-01-005 | | NYOW-01-005 | | NYOW-01-005 | | NYOW-01-007 | | NYOW-01-009 | | NYOW-01-011 | | NYOW-01-013 | | NYOW-01-015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-01-SL002-A | | NYOW-01-PH002-B | | NYOW-01-PH002-C | | NYOW-01-SL005-A | | NYOW-01-PH005-B | | NYOW-01-PH005-C | | NYOW-01-SL007-A | | NYOW-01-SL009-A | | NYOW-01-SL011-A | | NYOW-01-SL013-A | | NYOW-01-SL015-A | |
| | | | Sample Type: | | N | | N | | C | | C | | C | | C | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | Sample Date: | | 2021-04-09 | | 2021-04-09 | | 2021-04-09 | | 2021-04-08 | | 2021-04-08 | | 2021-04-08 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-14 | | 2021-04-02 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.39 | UJ | 0.38 | UJ | 0.36 | UJ | 0.39 | U | 0.36 | U | 0.38 | U | 0.53 | UJ | 0.47 | U | 0.44 | U | 0.38 | U | 0.39 | U | | |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 1.5 | UJ | 1.5 | UJ | 1.4 | UJ | 1.5 | U | 1.4 | U | 1.5 | U | 2.1 | UJ | 1.8 | UJ | 1.7 | UJ | 1.5 | UJ | 1.5 | U | | |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.16 | UJ | 0.16 | UJ | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U | | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 11000 | | 7000 | | 4300 | | 6400 | | 3400 | | 2100 | | 6500 | | 3900 | | 4200 | | 4600 | | 7900 | | | |
| Antimony | 7440-36-0 | mg/kg | 0.16 | J- | 0.17 | J+ | 0.15 | J+ | 0.11 | J | 0.081 | U | 0.11 | U | 0.23 | J | 0.19 | J | 0.13 | J | 0.13 | J | 0.17 | J | | |
| Arsenic | 7440-38-2 | mg/kg | 4.2 | | 3.7 | | 3.7 | | 4 | | 3.7 | | 2.1 | | 5.7 | | 4.7 | | 2.4 | | 4.8 | | 4.9 | | | |
| Barium | 7440-39-3 | mg/kg | 81 | | 41 | | 24 | | 46 | J+ | 31 | J+ | 17 | J+ | 86 | | 72 | | 32 | | 39 | | 61 | | | |
| Beryllium | 7440-41-7 | mg/kg | 0.48 | J+ | 0.4 | J+ | 0.38 | J+ | 0.47 | J+ | 0.4 | J+ | 0.42 | J+ | 0.72 | J+ | 0.56 | J+ | 0.52 | J+ | 0.57 | J+ | 0.52 | J+ | | |
| Cadmium | 7440-43-9 | mg/kg | 0.17 | | 0.092 | J | 0.083 | J+ | 0.13 | | 0.039 | J | 0.093 | J+ | 0.37 | | 0.19 | | 0.32 | | 0.14 | | 0.31 | | | |
| Calcium | 7440-70-2 | mg/kg | 26000 | | 21000 | J | 71000 | | 13000 | | 38000 | | 43000 | | 21000 | | 31000 | | 20000 | | 55000 | | 25000 | J | | |
| Chromium | 7440-47-3 | mg/kg | 11 | J- | 8.4 | | 5.5 | | 7 | | 6.2 | | 3.4 | | 9.3 | | 5.4 | | 5 | | 6.8 | | 9.9 | | | |
| Cobalt | 7440-48-4 | mg/kg | 7.3 | | 5.9 | J | 5.5 | | 4.6 | | 3.8 | | 2.2 | | 5.7 | | 3.9 | | 3.7 | | 6.4 | | 7.6 | | | |
| Copper | 7440-50-8 | mg/kg | 21 | | 19 | | 16 | | 11 | | 10 | | 6.8 | | 21 | | 15 | | 23 | | 80 | | 22 | | | |
| Iron | 7439-89-6 | mg/kg | 17000 | | 16000 | | 11000 | | 13000 | | 9600 | | 6800 | | 16000 | | 10000 | | 9100 | | 14000 | | 17000 | J | | |
| Lead | 7439-92-1 | mg/kg | 29 | | 14 | | 5.9 | | 11 | | 3.3 | | 2.7 | | 37 | | 23 | | 7.6 | | 14 | | 10 | | | |
| Magnesium | 7439-95-4 | mg/kg | 6600 | J- | 5700 | J | 14000 | | 4300 | | 9500 | | 14000 | | 8200 | | 8000 | | 5400 | | 12000 | | 7000 | | | |
| Manganese | 7439-96-5 | mg/kg | 1400 | J | 550 | | 430 | | 550 | | 340 | | 290 | | 450 | | 1100 | | 740 | | 580 | | 710 | | | |
| Mercury | 7439-97-6 | mg/kg | 0.039 | | 0.015 | J | 0.016 | U | 0.053 | | 0.017 | U | 0.018 | U | 0.073 | | 0.019 | J | 0.032 | | 0.038 | | 0.021 | J | | |
| Nickel | 7440-02-0 | mg/kg | 12 | | 11 | J | 7.5 | | 8 | | 6.9 | | 3.8 | | 12 | | 7.3 | | 6.9 | | 9.1 | | 12 | | | |
| Potassium | 7440-09-7 | mg/kg | 1400 | J+ | 1000 | J+ | 870 | | 550 | | 610 | | 400 | | 1200 | | 810 | | 700 | | 1100 | | 1300 | | | |
| Selenium | 7782-49-2 | mg/kg | 0.4 | J+ | 0.47 | J+ | 0.33 | U | 0.49 | J+ | 0.33 | U | 0.37 | U | 0.77 | J+ | 0.55 | J+ | 0.54 | J+ | 0.59 | J+ | 0.49 | J+ | | |
| Silver | 7440-22-4 | mg/kg | 1.4 | J+ | 1.2 | J+ | 1.1 | J+ | 0.56 | U | 0.48 | U | 0.51 | U | 2.2 | J+ | 1.7 | J+ | 1.6 | J+ | 0.69 | U | 0.63 | U | | |
| Sodium | 7440-23-5 | mg/kg | 480 | J+ | 400 | J+ | 380 | J+ | 470 | J+ | 400 | J+ | 420 | J+ | 720 | J+ | 560 | J+ | 520 | J+ | 570 | J+ | 520 | J+ | | |
| Thallium | 7440-28-0 | mg/kg | 0.071 | J | 0.058 | J | 0.052 | J | 0.059 | J | 0.037 | J | 0.022 | J | 0.083 | J | 0.052 | J | 0.031 | J | 0.069 | J | 0.052 | J | | |
| Vanadium | 7440-62-2 | mg/kg | 20 | | 16 | | 10 | | 12 | | 9.3 | | 6.8 | | 15 | | 11 | | 8.8 | | 10 | | 16 | | | |
| Zinc | 7440-66-6 | mg/kg | 52 | | 40 | | 21 | | 180 | J | 32 | | 18 | | 110 | | 57 | | 55 | | 38 | | 39 | | | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 21 | | 10 | | 4.1 | | -- | -- | -- | -- | -- | -- | 47 | | 15 | | -- | -- | -- | -- | 11 | | | |
| Total Organic Carbon | N/A | mg/kg | 3500 | J+ | 3400 | J+ | 5400 | J | -- | -- | -- | -- | -- | -- | 18000 | | 19000 | | -- | -- | -- | -- | 5300 | | | |
| Solids | N/A | % | 83.1 | | 84.5 | | 89.3 | | 82.75 | | 88.15 | | 82.4 | | 60.1 | | 68 | | 72.7 | | 82.9 | | 81.3 | | | |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 18.5 | | 6.7 | | 5.4 | | -- | -- | -- | -- | -- | -- | 6.6 | | 8.5 | | -- | -- | -- | -- | 11.4 | | | |
| Coarse Sand | N/A | % | 7 | | 2.5 | | 3.6 | | -- | -- | -- | -- | -- | -- | 8.7 | | 4.2 | | -- | -- | -- | -- | 4.7 | | | |
| Medium Sand | N/A | % | 10.6 | | 4.9 | | 5.5 | | -- | -- | -- | -- | -- | -- | 15.9 | | 6 | | -- | -- | -- | -- | 5.6 | | | |
| Fine Sand | N/A | % | 27.6 | | 44 | | 36.6 | | -- | -- | -- | -- | -- | -- | 31.8 | | 34.6 | | -- | -- | -- | -- | 27.9 | | | |
| Silt | N/A | % | 22.5 | | 33.9 | | 44.6 | | -- | -- | -- | -- | -- | -- | 29.7 | | 38 | | -- | -- | -- | -- | 38.7 | | | |
| Clay | N/A | % | 13.7 | | 8 | | 4.4 | | -- | -- | -- | -- | -- | -- | 7.3 | | 8.7 | | -- | -- | -- | -- | 11.7 | | | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend
ND — ND at the LOD
Detect — Detected result

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.2-1
Reduced Validated Analytical Results[(1)] - AOC 1, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-01-015 | | NYOW-01-015 | | NYOW-01-016 | | NYOW-01-016 | | NYOW-01-016 | | NYOW-01-018 | | NYOW-01-018 | | NYOW-01-018 | | NYOW-01-019 | | NYOW-01-019 | | NYOW-01-019 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-01-PH015-B | | NYOW-01-PH015-C | | NYOW-01-SL016-A | | NYOW-01-PH016-B | | NYOW-01-PH016-C | | NYOW-01-SL018-A | | NYOW-01-PH018-B | | NYOW-01-PH018-C | | NYOW-01-SL019-A | | NYOW-01-PH019-B | | NYOW-01-PH019-C | |
| | | | Sample Type: | | N | | N | | N | | N | | N | | N | | N | | N | | C | | N | | C | |
| | | | Sample Depth (feet): | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | Sample Date: | | 2021-04-02 | | 2021-04-02 | | 2021-04-02 | | 2021-04-02 | | 2021-04-02 | | 2021-04-08 | | 2021-04-08 | | 2021-04-08 | | 2021-04-06 | | 2021-04-06 | | 2021-04-06 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.35 | UJ | 0.35 | U | 0.39 | UJ | 0.34 | UJ | 0.34 | UJ | 0.36 | U | 0.37 | U | 0.37 | U | 0.36 | U | 0.36 | U | 0.36 | U | | |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 1.4 | UJ | 1.4 | U | 1.5 | U | 1.4 | U | 1.3 | U | 1.4 | UJ | 1.4 | UJ | 1.5 | U | 1.4 | U | 1.4 | U | 1.4 | U | | |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.16 | U | 0.15 | U | 0.16 | U | 0.15 | U | 0.16 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.14 | U | 0.15 | UJ | 0.16 | U | | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 6100 | | 5700 | | 6500 | | 5300 | | 4800 | | 5100 | | 4900 | | 3000 | | 4000 | J | 4900 | | 3600 | | | |
| Antimony | 7440-36-0 | mg/kg | 0.18 | J+ | 0.19 | J+ | 0.15 | J | 0.16 | J+ | 0.19 | J+ | 0.082 | J | 0.17 | J+ | 0.084 | U | 0.095 | J | 0.11 | UJ | 0.17 | J+ | | |
| Arsenic | 7440-38-2 | mg/kg | 6.6 | | 7.7 | | 5.2 | | 7.6 | | 6.1 | | 4.7 | | 6 | | 3.7 | | 3.9 | | 2.8 | | 4.3 | | | |
| Barium | 7440-39-3 | mg/kg | 50 | | 44 | | 55 | | 55 | | 45 | | 40 | J+ | 40 | J+ | 29 | J+ | 25 | J | 43 | J- | 31 | | | |
| Beryllium | 7440-41-7 | mg/kg | 0.36 | J+ | 0.4 | J+ | 0.44 | J+ | 0.41 | J+ | 0.43 | J+ | 0.4 | J+ | 0.42 | J+ | 0.49 | J+ | 0.45 | J+ | 0.43 | J+ | 0.5 | J+ | | |
| Cadmium | 7440-43-9 | mg/kg | 0.013 | J | 0.082 | J+ | 0.13 | | 0.1 | | 0.08 | J+ | 0.058 | J | 0.044 | J | 0.099 | J+ | 0.058 | J | 0.04 | J | 0.076 | J+ | | |
| Calcium | 7440-70-2 | mg/kg | 76000 | J | 84000 | J | 40000 | J | 50000 | J | 92000 | J | 40000 | | 47000 | | 54000 | | 13000 | | 8800 | J- | 77000 | | | |
| Chromium | 7440-47-3 | mg/kg | 7.4 | | 7.2 | | 8.6 | | 10 | | 6.7 | | 6.1 | | 6.3 | | 4.6 | | 6.4 | J | 6.8 | J- | 5.2 | | | |
| Cobalt | 7440-48-4 | mg/kg | 13 | | 11 | | 4.5 | | 5.7 | | 8.5 | | 4.9 | | 5.4 | | 4.5 | | 3.4 | J | 5 | J- | 4.6 | | | |
| Copper | 7440-50-8 | mg/kg | 26 | | 26 | | 14 | | 26 | | 100 | | 13 | | 15 | | 11 | | 14 | J | 13 | | 24 | J | | |
| Iron | 7439-89-6 | mg/kg | 14000 | J | 15000 | J | 12000 | J | 20000 | J | 14000 | J | 12000 | | 15000 | | 10000 | | 10000 | | 13000 | J | 11000 | | | |
| Lead | 7439-92-1 | mg/kg | 8.8 | | 9.1 | | 14 | | 40 | | 7.1 | | 6.1 | | 5.9 | | 3.3 | | 4.2 | J | 3.2 | J- | 3.7 | | | |
| Magnesium | 7439-95-4 | mg/kg | 24000 | | 26000 | | 7800 | | 10000 | | 31000 | | 10000 | | 14000 | | 15000 | | 4800 | | 4000 | J- | 21000 | | | |
| Manganese | 7439-96-5 | mg/kg | 460 | | 540 | | 450 | | 850 | | 580 | | 420 | | 610 | | 420 | | 320 | | 260 | J- | 450 | | | |
| Mercury | 7439-97-6 | mg/kg | 0.015 | J | 0.019 | J+ | 0.015 | J | 0.013 | J | 0.019 | J+ | 0.018 | J | 0.012 | J | 0.02 | J+ | 0.017 | J | 0.018 | U | 0.016 | U | | |
| Nickel | 7440-02-0 | mg/kg | 13 | | 12 | | 8.2 | | 13 | | 11 | | 8.3 | | 9 | | 6.6 | | 8.1 | J | 9.7 | J- | 7.6 | | | |
| Potassium | 7440-09-7 | mg/kg | 2000 | | 2000 | | 930 | | 790 | | 1600 | | 850 | | 830 | | 620 | | 480 | J | 830 | | 1100 | | | |
| Selenium | 7782-49-2 | mg/kg | 0.39 | U | 0.41 | J+ | 0.49 | J+ | 0.4 | U | 0.32 | U | 0.48 | J+ | 0.35 | U | 0.4 | U | 0.43 | J+ | 0.39 | J+ | 0.38 | J+ | | |
| Silver | 7440-22-4 | mg/kg | 1.1 | J+ | 1.2 | J+ | 0.53 | U | 1.2 | J+ | 1.3 | J+ | 0.47 | U | 0.5 | U | 0.58 | U | 0.53 | U | 0.52 | UJ | 0.6 | U | | |
| Sodium | 7440-23-5 | mg/kg | 360 | J+ | 400 | J+ | 440 | J+ | 410 | J+ | 430 | J+ | 400 | J+ | 420 | J+ | 490 | J+ | 450 | J+ | 430 | J+ | 500 | J+ | | |
| Thallium | 7440-28-0 | mg/kg | 0.11 | | 0.098 | | 0.081 | J | 0.094 | J | 0.08 | | 0.051 | J | 0.067 | J | 0.044 | J | 0.086 | U | 0.078 | U | 0.076 | U | | |
| Vanadium | 7440-62-2 | mg/kg | 11 | | 11 | | 13 | | 12 | | 9.5 | | 11 | | 11 | | 7.6 | | 8.4 | J | 10 | J- | 7.7 | | | |
| Zinc | 7440-66-6 | mg/kg | 25 | | 26 | | 40 | | 130 | | 29 | | 11 | | 12 | | 19 | | 22 | | 18 | J- | 21 | J | | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 4.7 | | 5.8 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 7.75 | | 7.7 | | 4 | | | |
| Total Organic Carbon | N/A | mg/kg | 6700 | | 3600 | J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 8900 | J | 10000 | J- | 8000 | J | | |
| Solids | N/A | % | 93.9 | | 94.3 | | 83.7 | | 90.8 | | 94.4 | | 90.1 | | 88.4 | | 87.6 | | 86.85 | | 87 | | 86.25 | | | |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 7.2 | | 14.1 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 39.2 | | 7.8 | | 14.3 | | | |
| Coarse Sand | N/A | % | 7.4 | | 5.7 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 12.3 | | 2.8 | | 3.3 | | | |
| Medium Sand | N/A | % | 10.3 | | 11.7 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 9.1 | | 5.2 | | 6.3 | | | |
| Fine Sand | N/A | % | 23.7 | | 23.7 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 21.8 | | 44.8 | | 41.9 | | | |
| Silt | N/A | % | 33.4 | | 26.5 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 15.8 | | 33.6 | | 24.4 | | | |
| Clay | N/A | % | 18 | | 18.3 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1.9 | | 5.8 | | 10 | | | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.2-1
Reduced Validated Analytical Results[(1)] - AOC 1, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-01-020 | | NYOW-01-020 | | NYOW-01-020 | | NYOW-01-021 | | NYOW-01-021 | | NYOW-01-021 | | NYOW-01-022 | | NYOW-01-022 | | NYOW-01-022 | | NYOW-01-023 | | NYOW-01-023 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-01-SL020-A | | NYOW-01-PH020-B | | NYOW-01-PH020-C | | NYOW-01-SL021-A | | NYOW-01-PH021-B | | NYOW-01-PH021-C | | NYOW-01-SL022-A | | NYOW-01-PH022-B | | NYOW-01-PH022-C | | NYOW-01-SL023-A | | NYOW-01-PH023-B | |
| | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | Sample Date: | 2021-04-06 | | 2021-04-06 | | 2021-04-06 | | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | | 2021-04-02 | | 2021-04-02 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.41 | U | 0.38 | UJ | 0.36 | U | 0.4 | UJ | 0.36 | UJ | 0.35 | UJ | 0.41 | UJ | 0.39 | UJ | 0.37 | UJ | 0.4 | UJ | 0.36 | U |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 1.6 | U | 1.5 | U | 1.4 | U | 1.6 | UJ | 1.4 | UJ | 1.4 | UJ | 1.6 | UJ | 1.5 | UJ | 1.5 | UJ | 1.6 | U | 1.4 | U |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.16 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 5800 | | 5000 | | 7400 | | 6400 | | 3400 | | 4500 | | 7800 | | 5800 | | 6000 | | 6000 | | 5500 | |
| Antimony | 7440-36-0 | mg/kg | 0.14 | J | 0.2 | J+ | 0.15 | J+ | 0.15 | J | 0.093 | U | 0.097 | U | 0.18 | | 0.19 | J+ | 0.18 | J+ | 0.13 | J | 0.19 | J+ |
| Arsenic | 7440-38-2 | mg/kg | 6.9 | | 7.9 | | 7 | | 4.5 | | 2.1 | | 3.7 | | 4.7 | | 4.9 | | 4.6 | | 4.7 | | 4.2 | |
| Barium | 7440-39-3 | mg/kg | 43 | | 39 | | 53 | | 51 | | 35 | | 58 | | 61 | | 260 | | 73 | | 40 | | 35 | |
| Beryllium | 7440-41-7 | mg/kg | 0.53 | J+ | 0.44 | J+ | 0.46 | J+ | 0.43 | J+ | 0.51 | J+ | 0.41 | J+ | 0.53 | J+ | 0.12 | U | 0.41 | J+ | 0.46 | J+ | 0.44 | J+ |
| Cadmium | 7440-43-9 | mg/kg | 0.13 | | 0.078 | J | 0.088 | J+ | 0.14 | | 0.058 | J | 0.097 | J+ | 0.65 | | 0.34 | | 0.095 | J+ | 0.79 | | 0.079 | J |
| Calcium | 7440-70-2 | mg/kg | 40000 | | 80000 | | 73000 | | 13000 | J | 13000 | | 36000 | | 35000 | | 61000 | | 3800 | | 33000 | J | 32000 | J |
| Chromium | 7440-47-3 | mg/kg | 7.5 | | 6.7 | | 9.5 | | 7.9 | | 4.6 | | 9.1 | | 9.3 | | 6.7 | | 9.6 | | 7.2 | | 7.9 | J- |
| Cobalt | 7440-48-4 | mg/kg | 9.4 | | 10 | | 11 | | 6.2 | | 2.9 | | 4.9 | | 6 | | 12 | | 6.9 | | 5.9 | | 9.7 | J- |
| Copper | 7440-50-8 | mg/kg | 28 | | 27 | | 19 | | 20 | | 7.2 | | 12 | | 24 | | 11 | | 13 | | 28 | | 39 | J- |
| Iron | 7439-89-6 | mg/kg | 17000 | | 15000 | | 16000 | | 15000 | | 8300 | | 11000 | | 18000 | | 22000 | | 15000 | | 14000 | J | 14000 | J |
| Lead | 7439-92-1 | mg/kg | 19 | | 13 | | 7.9 | | 12 | | 3.8 | | 3.4 | | 30 | | 6.9 | | 6.2 | | 7.2 | | 7.3 | J- |
| Magnesium | 7439-95-4 | mg/kg | 15000 | | 17000 | | 23000 | | 3800 | J | 4400 | | 10000 | | 8100 | | 2400 | | 2800 | | 7600 | | 7900 | J- |
| Manganese | 7439-96-5 | mg/kg | 600 | | 550 | | 450 | | 590 | J | 230 | | 380 | | 500 | | 7000 | | 570 | | 620 | | 510 | |
| Mercury | 7439-97-6 | mg/kg | 0.02 | J | 0.019 | U | 0.015 | U | 0.032 | | 0.048 | | 0.015 | U | 0.046 | | 0.032 | | 0.017 | U | 0.017 | J | 0.022 | |
| Nickel | 7440-02-0 | mg/kg | 12 | | 11 | | 15 | | 9.3 | | 4.9 | | 9 | | 12 | | 7.2 | | 11 | | 8.8 | | 12 | J- |
| Potassium | 7440-09-7 | mg/kg | 1100 | | 1200 | | 2500 | | 700 | | 570 | | 1000 | | 810 | | 500 | | 900 | | 870 | | 740 | J |
| Selenium | 7782-49-2 | mg/kg | 0.57 | J+ | 0.57 | J+ | 0.44 | J+ | 0.53 | J+ | 0.44 | U | 0.39 | U | 0.44 | J+ | 0.41 | J+ | 0.48 | J+ | 0.56 | J+ | 0.45 | J+ |
| Silver | 7440-22-4 | mg/kg | 0.64 | U | 0.53 | U | 0.56 | U | 0.52 | U | 0.61 | U | 0.49 | U | 0.63 | U | 1.5 | J+ | 0.49 | U | 0.55 | U | 0.52 | UJ |
| Sodium | 7440-23-5 | mg/kg | 530 | J+ | 440 | J+ | 460 | J+ | 430 | J+ | 510 | J+ | 410 | J+ | 530 | J+ | 490 | J+ | 410 | J+ | 460 | J+ | 440 | J+ |
| Thallium | 7440-28-0 | mg/kg | 0.11 | U | 0.11 | U | 0.097 | | 0.088 | J | 0.045 | J | 0.046 | J | 0.07 | J | 0.082 | | 0.053 | J | 0.073 | J | 0.071 | J |
| Vanadium | 7440-62-2 | mg/kg | 11 | | 10 | | 12 | | 12 | | 8.3 | | 9.4 | | 14 | | 19 | | 12 | | 12 | | 15 | J |
| Zinc | 7440-66-6 | mg/kg | 44 | | 37 | | 29 | | 28 | J | 81 | | 33 | | 27 | | 110 | | 28 | | 44 | | 31 | J- |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | -- | -- | -- | -- | -- | -- | 18 | | 6.8 | | 3.7 | | -- | -- | -- | -- | -- | -- | 16 | | 11 | |
| Total Organic Carbon | N/A | mg/kg | -- | -- | -- | -- | -- | -- | 8500 | | 2900 | J | 29000 | | -- | -- | -- | -- | -- | -- | 11000 | J- | 18000 | J |
| Solids | N/A | % | 77.3 | | 81.5 | | 90.2 | | 82.4 | | 87.7 | | 91.3 | | 78.6 | | 82.7 | | 86.3 | | 81 | | 89.7 | |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | -- | -- | -- | -- | -- | -- | 16.3 | | 11 | | 9.3 | | -- | -- | -- | -- | -- | -- | 13.9 | | 16.2 | |
| Coarse Sand | N/A | % | -- | -- | -- | -- | -- | -- | 5 | | 3.4 | | 5.7 | | -- | -- | -- | -- | -- | -- | 5.6 | | 5 | |
| Medium Sand | N/A | % | -- | -- | -- | -- | -- | -- | 6.5 | | 5.7 | | 7.1 | | -- | -- | -- | -- | -- | -- | 7.2 | | 7.3 | |
| Fine Sand | N/A | % | -- | -- | -- | -- | -- | -- | 39.8 | | 54.4 | | 36.3 | | -- | -- | -- | -- | -- | -- | 41.6 | | 38.1 | |
| Silt | N/A | % | -- | -- | -- | -- | -- | -- | 28.7 | | 22.1 | | 33.1 | | -- | -- | -- | -- | -- | -- | 26.5 | | 25.5 | |
| Clay | N/A | % | -- | -- | -- | -- | -- | -- | 3.7 | | 3.6 | | 8.5 | | -- | -- | -- | -- | -- | -- | 5.2 | | 7.9 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend
ND — ND at the LOD
Detect — Detected result

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.2-1
Reduced Validated Analytical Results[(1)] - AOC 1, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-01-023 | | NYOW-01-024 | | NYOW-01-024 | | NYOW-01-024 | | NYOW-01-025 | | NYOW-01-026 | | NYOW-01-027 | | NYOW-01-028 | | NYOW-01-029 | | NYOW-01-030 | | NYOW-01-031 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-01-PH023-C | | NYOW-01-SL024-A | | NYOW-01-PH024-B | | NYOW-01-PH024-C | | NYOW-01-SL025-A | | NYOW-01-SL026-A | | NYOW-01-SL027-A | | NYOW-01-SL028-A | | NYOW-01-SL029-A | | NYOW-01-SL030-A | | NYOW-01-SL031-A | |
| | | | Sample Type: | | C | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | Sample Date: | | 2021-04-02 | | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.35 | U | 0.43 | UJ | 0.37 | UJ | 0.4 | UJ | 0.38 | U | 3.2 | U | 0.41 | U | 2.8 | U | 0.44 | U | 0.41 | UJ | 0.4 | U | | |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 1.4 | U | 1.7 | UJ | 1.5 | UJ | 1.6 | UJ | 1.5 | UJ | 13 | UJ | 1.6 | UJ | 11 | UJ | 1.7 | UJ | 1.6 | UJ | 1.6 | UJ | | |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.15 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | UJ | 0.23 | J+ | 0.16 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U | | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 4800 | | 4400 | | 5300 | | 5000 | | 5100 | | 4200 | | 6800 | | 4500 | | 6900 | | 6800 | | 6500 | | | |
| Antimony | 7440-36-0 | mg/kg | 0.2 | J+ | 0.1 | J | 0.16 | J+ | 0.19 | J+ | 0.11 | J | 0.34 | | 0.11 | J | 0.56 | | 0.18 | J | 0.16 | J | 0.42 | | | |
| Arsenic | 7440-38-2 | mg/kg | 3.1 | | 4 | | 4.3 | | 5.5 | | 8.7 | | 3.3 | | 5 | | 5.1 | | 11 | | 4.5 | | 4.8 | | | |
| Barium | 7440-39-3 | mg/kg | 47 | | 37 | | 37 | | 30 | | 61 | | 83 | | 52 | | 120 | | 96 | | 58 | | 44 | | | |
| Beryllium | 7440-41-7 | mg/kg | 0.38 | J+ | 0.6 | J+ | 0.5 | J+ | 0.46 | J+ | 0.55 | J+ | 0.87 | J+ | 0.47 | J+ | 0.63 | J+ | 0.51 | J+ | 0.47 | J+ | 0.45 | J+ | | |
| Cadmium | 7440-43-9 | mg/kg | 0.083 | J+ | 0.058 | J | 0.11 | | 0.086 | J+ | 0.053 | J | 0.51 | | 0.2 | | 0.53 | | 0.29 | | 0.49 | | 0.23 | | | |
| Calcium | 7440-70-2 | mg/kg | 29000 | J | 38000 | | 13000 | | 4500 | | 63000 | | 32000 | | 14000 | | 10000 | | 11000 | | 5400 | | 16000 | | | |
| Chromium | 7440-47-3 | mg/kg | 6.6 | | 5.4 | | 6.9 | | 6.7 | | 6.5 | | 10 | | 8.1 | | 18 | | 10 | | 9.8 | | 9.2 | | | |
| Cobalt | 7440-48-4 | mg/kg | 4.8 | J | 4.8 | | 4.6 | | 5.5 | | 7.4 | | 4.2 | | 6.5 | | 4.5 | | 8.3 | | 5.8 | | 8 | | | |
| Copper | 7440-50-8 | mg/kg | 15 | | 13 | | 14 | | 20 | | 22 | | 20 | | 24 | | 24 | | 24 | | 21 | | 22 | | | |
| Iron | 7439-89-6 | mg/kg | 10000 | J | 12000 | | 12000 | | 14000 | | 17000 | | 9600 | | 18000 | | 12000 | | 26000 | | 16000 | | 18000 | | | |
| Lead | 7439-92-1 | mg/kg | 3.1 | | 5.9 | | 6.4 | | 4.8 | | 11 | | 54 | | 14 | | 72 | | 26 | | 21 | | 18 | | | |
| Magnesium | 7439-95-4 | mg/kg | 7700 | J | 12000 | | 4900 | | 3100 | | 12000 | | 5200 | | 5100 | | 3000 | | 5300 | | 3300 | | 6400 | | | |
| Manganese | 7439-96-5 | mg/kg | 280 | | 450 | | 420 | | 490 | | 510 | | 950 | | 770 | | 550 | | 1000 | | 540 | | 760 | | | |
| Mercury | 7439-97-6 | mg/kg | 0.019 | J+ | 0.018 | U | 0.026 | | 0.017 | U | 0.013 | J | 0.26 | | 0.042 | | 0.76 | | 0.056 | | 0.053 | | 0.14 | | | |
| Nickel | 7440-02-0 | mg/kg | 9.3 | J | 7.1 | | 7.7 | | 9.4 | | 11 | | 9.2 | | 12 | | 11 | | 13 | | 11 | | 13 | | | |
| Potassium | 7440-09-7 | mg/kg | 1100 | | 760 | | 640 | | 700 | | 1300 | | 1100 | | 1300 | | 1100 | | 940 | | 720 | | 1200 | | | |
| Selenium | 7782-49-2 | mg/kg | 0.33 | U | 0.45 | J+ | 0.45 | J+ | 0.43 | J+ | 0.4 | U | 0.85 | J+ | 0.43 | J+ | 0.7 | J+ | 0.6 | J+ | 0.51 | J+ | 0.43 | J+ | | |
| Silver | 7440-22-4 | mg/kg | 0.46 | U | 0.72 | U | 0.6 | U | 0.55 | U | 1.7 | J+ | 2.6 | J+ | 0.56 | U | 1.9 | J+ | 1.5 | J+ | 0.56 | U | 1.3 | J+ | | |
| Sodium | 7440-23-5 | mg/kg | 380 | J+ | 600 | J+ | 500 | J+ | 460 | J+ | 550 | J+ | 170 | U | 470 | J+ | 130 | U | 510 | J+ | 93 | U | 450 | J+ | | |
| Thallium | 7440-28-0 | mg/kg | 0.046 | J | 0.048 | J | 0.069 | J | 0.076 | J | 0.053 | J | 0.074 | J | 0.065 | J | 0.062 | J | 0.078 | J | 0.056 | J | 0.064 | J | | |
| Vanadium | 7440-62-2 | mg/kg | 9.5 | | 9.5 | | 11 | | 9.8 | | 11 | | 13 | | 15 | | 14 | | 16 | | 13 | | 14 | | | |
| Zinc | 7440-66-6 | mg/kg | 17 | | 41 | | 26 | | 30 | | 29 | | 170 | | 56 | | 120 | | 60 | | 85 | | 51 | | | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 3 | | -- | -- | -- | -- | -- | -- | 7.6 | | 73 | | 20 | | 67 | | 26 | | 18 | | -- | -- | | |
| Total Organic Carbon | N/A | mg/kg | 4500 | J | -- | -- | -- | -- | -- | -- | 12000 | | 180000 | J- | 8200 | | 96000 | | 18000 | J | 27000 | J- | -- | -- | | |
| Solids | N/A | % | 89.7 | | 75.5 | | 86.6 | | 81.2 | | 83.4 | | 49.7 | | 79.7 | | 59.2 | | 73.5 | | 78 | | 80.7 | | | |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 15.7 | | -- | -- | -- | -- | -- | -- | 17.4 | | 11.6 | | 13.8 | | 7.6 | | 3.3 | | 5.5 | | -- | -- | | |
| Coarse Sand | N/A | % | 6.2 | | -- | -- | -- | -- | -- | -- | 4.2 | | 8.2 | | 6.4 | | 3 | | 3.8 | | 3.6 | | -- | -- | | |
| Medium Sand | N/A | % | 9.8 | | -- | -- | -- | -- | -- | -- | 6.8 | | 26.8 | | 13.3 | | 17.8 | | 7.2 | | 7.4 | | -- | -- | | |
| Fine Sand | N/A | % | 35.4 | | -- | -- | -- | -- | -- | -- | 30.9 | | 34 | | 37.4 | | 44.4 | | 37.1 | | 46.3 | | -- | -- | | |
| Silt | N/A | % | 23.7 | | -- | -- | -- | -- | -- | -- | 29.4 | | 13.7 | | 22.2 | | 22.3 | | 37.3 | | 29.1 | | -- | -- | | |
| Clay | N/A | % | 9.3 | | -- | -- | -- | -- | -- | -- | 11.4 | | 5.6 | | 6.9 | | 5 | | 11.3 | | 8.1 | | -- | -- | | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend
ND — ND at the LOD
Detect — Detected result

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.2-1
Reduced Validated Analytical Results[(1)] - AOC 1, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-01-032 | | NYOW-01-033 | | NYOW-01-034 | | NYOW-01-035 | | NYOW-01-036 | | NYOW-01-037 | | NYOW-01-038 | | NYOW-01-039 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-01-SL032-A | | NYOW-01-SL033-A | | NYOW-01-SL034-A | | NYOW-01-SL035-A | | NYOW-01-SL036-A | | NYOW-01-SL037-A | | NYOW-01-SL038-A | | NYOW-01-SL039-A | |
| | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | |
| | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | Sample Date: | 2021-04-13 | | 2021-04-13 | | 2021-04-14 | | 2021-04-14 | | 2021-04-14 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 2.1 | U | 0.39 | UJ | 0.51 | UJ | 0.44 | UJ | 0.47 | UJ | 0.48 | UJ | 0.4 | U | 0.39 | U |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 8.4 | UJ | 1.5 | UJ+ | 2 | UJ | 1.7 | UJ | | R | 1.9 | UJ | 1.6 | UJ+ | 1.6 | UJ+ |
| Explosives | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | UJ | 0.15 | U | 0.15 | U | 0.16 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 6600 | | 7800 | | 2000 | | 6900 | | 5700 | | 6100 | | 5400 | | 8000 | |
| Antimony | 7440-36-0 | mg/kg | 0.23 | | 0.17 | J | 0.41 | | 0.24 | J | 0.31 | | 0.17 | J | 0.091 | J | 0.31 | |
| Arsenic | 7440-38-2 | mg/kg | 7.1 | | 5.7 | | 3.7 | | 7.8 | | 5.6 | | 3.6 | | 4.7 | | 4.1 | |
| Barium | 7440-39-3 | mg/kg | 58 | | 49 | | 41 | | 67 | | 62 | | 42 | | 37 | | 40 | |
| Beryllium | 7440-41-7 | mg/kg | 0.55 | J+ | 0.51 | J+ | 0.52 | U | 0.57 | J+ | 0.58 | J+ | 0.67 | J+ | 0.5 | J+ | 0.67 | U |
| Cadmium | 7440-43-9 | mg/kg | 0.28 | | 0.26 | | 0.57 | | 0.37 | | 0.25 | | 0.45 | | 0.14 | | 0.16 | |
| Calcium | 7440-70-2 | mg/kg | 11000 | | 6100 | | 41000 | | 18000 | | 17000 | | 16000 | | 38000 | | 16000 | |
| Chromium | 7440-47-3 | mg/kg | 9.8 | | 8.5 | | 18 | | 9.2 | | 14 | | 7.6 | | 6.3 | | 11 | J |
| Cobalt | 7440-48-4 | mg/kg | 8.6 | | 6.4 | | 3.9 | | 9.4 | | 8.4 | | 5.7 | | 5.5 | | 4.5 | |
| Copper | 7440-50-8 | mg/kg | 33 | | 20 | | 19 | | 32 | | 33 | | 21 | | 14 | | 19 | |
| Iron | 7439-89-6 | mg/kg | 17000 | | 17000 | | 6000 | | 20000 | | 18000 | | 15000 | | 13000 | | 13000 | |
| Lead | 7439-92-1 | mg/kg | 23 | | 17 | | 200 | | 31 | | 44 | | 21 | | 6.8 | | 39 | |
| Magnesium | 7439-95-4 | mg/kg | 4700 | | 3700 | | 8700 | | 2900 | | 6400 | | 3100 | | 11000 | | 1700 | |
| Manganese | 7439-96-5 | mg/kg | 740 | | 680 | | 270 | | 1000 | | 830 | | 640 | | 470 | | 410 | |
| Mercury | 7439-97-6 | mg/kg | 0.052 | | 0.06 | | 0.096 | | 0.078 | | 0.085 | | 0.062 | | 0.022 | | 0.037 | |
| Nickel | 7440-02-0 | mg/kg | 12 | | 12 | | 7.4 | | 12 | | 13 | | 11 | | 9 | | 8.4 | |
| Potassium | 7440-09-7 | mg/kg | 970 | | 1200 | | 660 | | 1300 | | 1300 | | 1000 | | 1100 | | 1100 | J |
| Selenium | 7782-49-2 | mg/kg | 0.56 | J+ | 0.45 | J+ | 0.61 | J+ | 0.49 | J+ | 0.54 | J+ | 0.59 | J+ | 0.55 | J+ | 0.45 | J+ |
| Silver | 7440-22-4 | mg/kg | 0.66 | U | 0.61 | U | 1.6 | J+ | 0.68 | U | 0.7 | U | 0.8 | U | 1.5 | J+ | 0.67 | U |
| Sodium | 7440-23-5 | mg/kg | 550 | J+ | 100 | U | 520 | J+ | 110 | U | 580 | J+ | 130 | U | 500 | J+ | 560 | J+ |
| Thallium | 7440-28-0 | mg/kg | 0.072 | J | 0.072 | J | 0.048 | J | 0.11 | | 0.086 | J | 0.059 | J | 0.054 | J | 0.055 | J |
| Vanadium | 7440-62-2 | mg/kg | 15 | | 14 | | 7.2 | | 14 | | 13 | | 13 | | 12 | | 14 | |
| Zinc | 7440-66-6 | mg/kg | 75 | | 53 | | 110 | | 64 | | 55 | | 87 | | 39 | | 39 | |
| Other Inorganics | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 53 | | 25 | | 22 | |
| Total Organic Carbon | N/A | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 84000 | | 9400 | | 14000 | |
| Solids | N/A | % | 74.4 | | 80.3 | | 64.8 | | 74.2 | | 68.5 | | 67.7 | | 80.6 | | 80 | |
| Grain Size | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.4 | | 17.4 | | 3.3 | |
| Coarse Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.6 | | 2.2 | | 3.9 | |
| Medium Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 13.4 | | 5.2 | | 8.9 | |
| Fine Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 59.6 | | 32.3 | | 53.7 | |
| Silt | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 26 | | 37.7 | | 26.5 | |
| Clay | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0 | U | 5.2 | | 3.7 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend
ND — ND at the LOD
Detect — Detected result

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
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UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.2-2
Reduced Validated Analytical Results[(1)] - AOC 3, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sample Location: | | NYOW-03-001 | | NYOW-03-001 | | NYOW-03-002 | | NYOW-03-002 | | NYOW-03-003 | | NYOW-03-003 | | NYOW-03-004 | | NYOW-03-004 | | NYOW-03-005 | | NYOW-03-005 | | NYOW-03-005 | |
| | Sample Name: | | NYOW-03-SL001-A | | NYOW-03-PH001-B | | NYOW-03-SL002-A | | NYOW-03-PH002-B | | NYOW-03-SL003-A | | NYOW-03-PH003-B | | NYOW-03-SL004-A | | NYOW-03-PH004-B | | NYOW-03-SL005-A | | NYOW-03-PH005-B | | NYOW-03-PH005-B_R | |
| | Sample Type: | | N | | N | | N | | N | | N | | N | | N | | N | | N | | C | | N | |
| | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 1 - 5 | |
| | Sample Date: | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-04-01 | | 2021-04-01 | | 2021-05-04 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 71-55-6 | mg/kg | -- | -- | 0.0045 | U | -- | -- | 0.0048 | U | -- | -- | 0.0052 | U | -- | -- | 0.005 | U | -- | -- | -- | -- | 0.0048 | U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | mg/kg | -- | -- | 0.00072 | U | -- | -- | 0.00076 | U | -- | -- | 0.00083 | U | -- | -- | 0.0008 | U | -- | -- | -- | -- | 0.00077 | U |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | mg/kg | -- | -- | 0.0058 | U | -- | -- | 0.0061 | U | -- | -- | 0.0067 | U | -- | -- | 0.0064 | U | -- | -- | -- | -- | 0.0061 | U |
| 1,1,2-Trichloroethane | 79-00-5 | mg/kg | -- | -- | 0.0029 | U | -- | -- | 0.0031 | U | -- | -- | 0.0033 | U | -- | -- | 0.0032 | U | -- | -- | -- | -- | 0.0031 | U |
| 1,1-Dichloroethane | 75-34-3 | mg/kg | -- | -- | 0.00072 | U | -- | -- | 0.00076 | U | -- | -- | 0.00083 | U | -- | -- | 0.0008 | U | -- | -- | -- | -- | 0.00077 | U |
| 1,1-Dichloroethene | 75-35-4 | mg/kg | -- | -- | 0.0014 | U | -- | -- | 0.0015 | U | -- | -- | 0.0017 | U | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0015 | U |
| 1,2,3-Trichlorobenzene | 87-61-6 | mg/kg | -- | -- | 0.0029 | U | -- | -- | 0.0031 | U | -- | -- | 0.0033 | U | -- | -- | 0.0032 | U | -- | -- | -- | -- | 0.0031 | U |
| 1,2,4-Trichlorobenzene | 120-82-1 | mg/kg | -- | -- | 0.0014 | U | -- | -- | 0.0015 | U | -- | -- | 0.0017 | U | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0015 | U |
| 1,2-Dibromo-3-chloropropane | 96-12-8 | mg/kg | -- | -- | 0.009 | U | -- | -- | 0.0096 | U | -- | -- | 0.01 | U | -- | -- | 0.0099 | U | -- | -- | -- | -- | 0.0096 | U |
| 1,2-Dibromoethane (EDB) | 106-93-4 | mg/kg | -- | -- | 0.0014 | U | -- | -- | 0.0015 | U | -- | -- | 0.0017 | U | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0015 | U |
| 1,2-Dichlorobenzene | 95-50-1 | mg/kg | -- | -- | 0.0045 | U | -- | -- | 0.0048 | U | -- | -- | 0.0052 | U | -- | -- | 0.005 | U | -- | -- | -- | -- | 0.0048 | U |
| 1,2-Dichloroethane | 107-06-2 | mg/kg | -- | -- | 0.0014 | U | -- | -- | 0.0015 | U | -- | -- | 0.0017 | U | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0015 | U |
| 1,2-Dichloropropane | 78-87-5 | mg/kg | -- | -- | 0.0014 | U | -- | -- | 0.0015 | U | -- | -- | 0.0017 | U | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0015 | U |
| 1,3-Dichlorobenzene | 541-73-1 | mg/kg | -- | -- | 0.0014 | U | -- | -- | 0.0015 | U | -- | -- | 0.0017 | U | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0015 | U |
| 1,3-Dichloropropane | 142-28-9 | mg/kg | -- | -- | 0.00036 | U | -- | -- | 0.00038 | U | -- | -- | 0.00042 | U | -- | -- | 0.0004 | U | -- | -- | -- | -- | 0.00038 | U |
| 1,4-Dichlorobenzene | 106-46-7 | mg/kg | -- | -- | 0.00072 | U | -- | -- | 0.00076 | U | -- | -- | 0.00083 | U | -- | -- | 0.0008 | U | -- | -- | -- | -- | 0.00077 | U |
| 2-Butanone (MEK) | 78-93-3 | mg/kg | -- | -- | 0.012 | U | -- | -- | 0.012 | U | -- | -- | 0.013 | U | -- | -- | 0.013 | U | -- | -- | -- | -- | 0.012 | UJ |
| 2-Hexanone | 591-78-6 | mg/kg | -- | -- | 0.012 | U | -- | -- | 0.012 | U | -- | -- | 0.013 | U | -- | -- | 0.013 | U | -- | -- | -- | -- | 0.012 | U |
| 4-Methyl-2-pentanone (MIBK) | 108-10-1 | mg/kg | -- | -- | 0.012 | U | -- | -- | 0.012 | U | -- | -- | 0.013 | U | -- | -- | 0.013 | U | -- | -- | -- | -- | 0.012 | U |
| Acetone | 67-64-1 | mg/kg | -- | -- | 0.065 | U | -- | -- | 0.069 | U | -- | -- | 0.075 | U | -- | -- | 0.072 | U | -- | -- | -- | -- | 0.083 | |
| Benzene | 71-43-2 | mg/kg | -- | -- | 0.00036 | U | -- | -- | 0.00038 | U | -- | -- | 0.00042 | U | -- | -- | 0.0004 | U | -- | -- | -- | -- | 0.00038 | U |
| Bromochloromethane | 74-97-5 | mg/kg | -- | -- | 0.0045 | U | -- | -- | 0.0048 | U | -- | -- | 0.0052 | U | -- | -- | 0.005 | U | -- | -- | -- | -- | 0.0048 | U |
| Bromodichloromethane | 75-27-4 | mg/kg | -- | -- | 0.0045 | U | -- | -- | 0.0048 | U | -- | -- | 0.0052 | U | -- | -- | 0.005 | U | -- | -- | -- | -- | 0.0048 | U |
| Bromoform | 75-25-2 | mg/kg | -- | -- | 0.0046 | U | -- | -- | 0.0049 | U | -- | -- | 0.0053 | U | -- | -- | 0.0051 | U | -- | -- | -- | -- | 0.0049 | U |
| Bromomethane | 74-83-9 | mg/kg | -- | -- | 0.0029 | U | -- | -- | 0.0031 | U | -- | -- | 0.0033 | U | -- | -- | 0.0032 | U | -- | -- | -- | -- | 0.0031 | U |
| Carbon disulfide | 75-15-0 | mg/kg | -- | -- | 0.0045 | U | -- | -- | 0.0048 | U | -- | -- | 0.0052 | U | -- | -- | 0.005 | U | -- | -- | -- | -- | 0.0048 | U |
| Carbon tetrachloride | 56-23-5 | mg/kg | -- | -- | 0.0045 | U | -- | -- | 0.0048 | U | -- | -- | 0.0052 | U | -- | -- | 0.005 | U | -- | -- | -- | -- | 0.0048 | U |
| Chlorobenzene | 108-90-7 | mg/kg | -- | -- | 0.0045 | U | -- | -- | 0.0048 | U | -- | -- | 0.0052 | U | -- | -- | 0.005 | U | -- | -- | -- | -- | 0.0048 | U |
| Chloroethane | 75-00-3 | mg/kg | -- | -- | 0.0058 | U | -- | -- | 0.0061 | U | -- | -- | 0.0067 | U | -- | -- | 0.0064 | U | -- | -- | -- | -- | 0.0061 | U |
| Chloroform | 67-66-3 | mg/kg | -- | -- | 0.00072 | U | -- | -- | 0.00076 | U | -- | -- | 0.00083 | U | -- | -- | 0.0008 | U | -- | -- | -- | -- | 0.00077 | UJ |
| Chloromethane | 74-87-3 | mg/kg | -- | -- | 0.0014 | U | -- | -- | 0.0015 | U | -- | -- | 0.0017 | U | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0015 | U |
| cis-1,2-Dichloroethene | 156-59-2 | mg/kg | -- | -- | 0.00072 | U | -- | -- | 0.00076 | U | -- | -- | 0.00083 | U | -- | -- | 0.0008 | U | -- | -- | -- | -- | 0.00077 | U |
| cis-1,3-Dichloropropene | 10061-01-5 | mg/kg | -- | -- | 0.00036 | U | -- | -- | 0.00038 | U | -- | -- | 0.00042 | U | -- | -- | 0.0004 | U | -- | -- | -- | -- | 0.00038 | U |
| Cumene | 98-82-8 | mg/kg | -- | -- | 0.0045 | U | -- | -- | 0.0048 | U | -- | -- | 0.0052 | U | -- | -- | 0.005 | U | -- | -- | -- | -- | 0.0048 | U |
| Cyclohexane | 110-82-7 | mg/kg | -- | -- | 0.0045 | U | -- | -- | 0.0048 | U | -- | -- | 0.0052 | U | -- | -- | 0.005 | U | -- | -- | -- | -- | 0.0048 | U |
| Dibromochloromethane | 124-48-1 | mg/kg | -- | -- | 0.0045 | U | -- | -- | 0.0048 | U | -- | -- | 0.0052 | U | -- | -- | 0.005 | U | -- | -- | -- | -- | 0.0048 | U |
| Dichlorodifluoromethane | 75-71-8 | mg/kg | -- | -- | 0.0058 | U | -- | -- | 0.0061 | U | -- | -- | 0.0067 | U | -- | -- | 0.0064 | U | -- | -- | -- | -- | 0.0061 | U |
| Ethylbenzene | 100-41-4 | mg/kg | -- | -- | 0.00072 | U | -- | -- | 0.00076 | U | -- | -- | 0.00083 | U | -- | -- | 0.0008 | U | -- | -- | -- | -- | 0.00077 | U |
| m,p-Xylene | 179601-23-1 | mg/kg | -- | -- | 0.0029 | U | -- | -- | 0.0031 | U | -- | -- | 0.0033 | U | -- | -- | 0.0032 | U | -- | -- | -- | -- | 0.0031 | U |
| Methyl acetate | 79-20-9 | mg/kg | -- | -- | 0.0072 | U | -- | -- | 0.0076 | U | -- | -- | 0.0083 | U | -- | -- | 0.008 | U | -- | -- | -- | -- | 0.0077 | U |
| Methyl tert-butyl ether (MTBE) | 1634-04-4 | mg/kg | -- | -- | 0.0058 | U | -- | -- | 0.0061 | U | -- | -- | 0.0067 | U | -- | -- | 0.0064 | U | -- | -- | -- | -- | 0.0061 | U |
| Methylcyclohexane | 108-87-2 | mg/kg | -- | -- | 0.0014 | U | -- | -- | 0.0015 | U | -- | -- | 0.0017 | U | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0015 | U |
| Methylene chloride | 75-09-2 | mg/kg | -- | -- | 0.0029 | U | -- | -- | 0.0031 | U | -- | -- | 0.0033 | U | -- | -- | 0.0032 | U | -- | -- | -- | -- | 0.0031 | U |
| o-Xylene | 95-47-6 | mg/kg | -- | -- | 0.00072 | U | -- | -- | 0.00076 | U | -- | -- | 0.00083 | U | -- | -- | 0.0008 | U | -- | -- | -- | -- | 0.00077 | U |
| Styrene | 100-42-5 | mg/kg | -- | -- | 0.00072 | U | -- | -- | 0.00076 | U | -- | -- | 0.00083 | U | -- | -- | 0.0008 | U | -- | -- | -- | -- | 0.00077 | U |
| Tetrachloroethene (PCE) | 127-18-4 | mg/kg | -- | -- | 0.0045 | U | -- | -- | 0.0048 | U | -- | -- | 0.0052 | U | -- | -- | 0.005 | U | -- | -- | -- | -- | 0.0048 | U |
| Toluene | 108-88-3 | mg/kg | -- | -- | 0.00072 | U | -- | -- | 0.00076 | U | -- | -- | 0.00083 | U | -- | -- | 0.0008 | U | -- | -- | -- | -- | 0.0048 | J+ |
| trans-1,2-Dichloroethene | 156-60-5 | mg/kg | -- | -- | 0.00072 | U | -- | -- | 0.00076 | U | -- | -- | 0.00083 | U | -- | -- | 0.0008 | U | -- | -- | -- | -- | 0.00077 | U |
| trans-1,3-Dichloropropene | 10061-02-6 | mg/kg | -- | -- | 0.00018 | U | -- | -- | 0.00019 | U | -- | -- | 0.00021 | U | -- | -- | 0.0002 | U | -- | -- | -- | -- | 0.00019 | U |
| Trichlorofluoromethane | 75-69-4 | mg/kg | -- | -- | 0.009 | U | -- | -- | 0.0096 | U | -- | -- | 0.01 | U | -- | -- | 0.0099 | U | -- | -- | -- | -- | 0.0096 | UJ |
| Vinyl chloride | 75-01-4 | mg/kg | -- | -- | 0.0029 | U | -- | -- | 0.0031 | U | -- | -- | 0.0033 | U | -- | -- | 0.0032 | U | -- | -- | -- | -- | 0.0031 | U |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| 1,4-Dioxane | 123-91-1 | mg/kg | 0.45 | U | 0.41 | U | 0.43 | U | 0.39 | U | 0.42 | U | 0.41 | U | 0.49 | UJ | 0.42 | UJ | 0.41 | UJ | 0.42 | U | 0.38 | UJ |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | mg/kg | 0.11 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.11 | U | 0.1 | U | 0.12 | U | 0.11 | U | 0.1 | U | 0.11 | U | 0.096 | U |
| 2,4,5-Trichlorophenol | 95-95-4 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | U | 0.086 | U | 0.083 | U | 0.086 | U | 0.078 | U |
| 2,4,6-Trichlorophenol | 88-06-2 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | U | 0.086 | U | 0.083 | U | 0.086 | U | 0.078 | U |
| 2,4-Dichlorophenol | 120-83-2 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | U | 0.086 | U | 0.083 | U | 0.086 | U | 0.078 | U |
| 2,4-Dimethylphenol | 105-67-9 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | U | 0.086 | U | 0.083 | U | 0.086 | U | 0.078 | U |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.45 | U | 0.41 | U | 0.43 | U | 0.39 | U | 0.42 | U | 0.41 | U | 0.49 | UJ | 0.42 | UJ | 0.41 | UJ | 0.42 | U | 0.38 | UJ |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 1.8 | U | 1.6 | U | 1.7 | U | 1.6 | U | 1.7 | U | 1.6 | U | 1.9 | U | 1.7 | U | 1.6 | U | 1.7 | U | 1.5 | U |
| 2,4-Dinitrotoluene | 121-14-2 | mg/kg | 0.11 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.11 | U | 0.1 | U | 0.12 | UJ | 0.11 | UJ | 0.1 | UJ | 0.11 | U | 0.096 | UJ |
| 2,6-Dinitrotoluene | 606-20-2 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |

Table D.2-2
Reduced Validated Analytical Results[(1)] - AOC 3, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-03-001 | | NYOW-03-001 | | NYOW-03-002 | | NYOW-03-002 | | NYOW-03-003 | | NYOW-03-003 | | NYOW-03-004 | | NYOW-03-004 | | NYOW-03-005 | | NYOW-03-005 | | NYOW-03-005 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-03-SL001-A | | NYOW-03-PH001-B | | NYOW-03-SL002-A | | NYOW-03-PH002-B | | NYOW-03-SL003-A | | NYOW-03-PH003-B | | NYOW-03-SL004-A | | NYOW-03-PH004-B | | NYOW-03-SL005-A | | NYOW-03-PH005-B | | NYOW-03-PH005-B_R | |
| | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | | C | | N | |
| | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 1 - 5 | |
| | | Sample Date: | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-04-01 | | 2021-04-01 | | 2021-05-04 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| 2-Chloronaphthalene | 91-58-7 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| 2-Chlorophenol | 95-57-8 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | U | 0.086 | U | 0.083 | U | 0.086 | U | 0.078 | U |
| 2-Methylphenol (o-Cresol) | 95-48-7 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | U | 0.086 | U | 0.083 | U | 0.086 | U | 0.078 | U |
| 2-Nitroaniline | 88-74-4 | mg/kg | 0.23 | U | 0.21 | U | 0.22 | U | 0.2 | U | 0.22 | U | 0.21 | U | 0.25 | UJ | 0.22 | UJ | 0.21 | UJ | 0.22 | U | 0.2 | UJ |
| 2-Nitrophenol | 88-75-5 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | U | 0.086 | U | 0.083 | U | 0.086 | U | 0.078 | U |
| 3,3'-Dichlorobenzidine | 91-94-1 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | | R | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| 3-Nitroaniline | 99-09-2 | mg/kg | 0.11 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.11 | U | 0.1 | U | 0.12 | UJ | 0.11 | UJ | 0.1 | UJ | 0.11 | U | 0.096 | UJ |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | mg/kg | 0.45 | U | 0.41 | U | 0.43 | U | 0.39 | U | 0.42 | U | 0.41 | U | 0.49 | U | 0.42 | U | 0.41 | U | 0.42 | U | 0.38 | U |
| 4-Bromophenyl phenyl ether | 101-55-3 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| 4-Chloro-3-methylphenol | 59-50-7 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | U | 0.086 | U | 0.083 | U | 0.086 | U | 0.078 | U |
| 4-Chloroaniline | 106-47-8 | mg/kg | 0.11 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.11 | U | 0.1 | U | 0.12 | UJ | 0.11 | UJ | 0.1 | UJ | 0.11 | U | 0.096 | UJ |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| 4-Nitroaniline | 100-01-6 | mg/kg | 0.11 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.11 | U | 0.1 | U | 0.12 | UJ | 0.11 | UJ | 0.1 | UJ | 0.11 | U | 0.096 | UJ |
| 4-Nitrophenol | 100-02-7 | mg/kg | 0.91 | UJ | 0.82 | UJ | 0.88 | UJ | 0.8 | UJ | 0.85 | UJ | 0.83 | UJ | 0.99 | UJ | 0.86 | UJ | 0.83 | U | 0.86 | U | 0.78 | U |
| Acetophenone | 98-86-2 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| Atrazine | 1912-24-9 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| Benzaldehyde | 100-52-7 | mg/kg | 0.45 | J+ | 0.21 | UJ | 0.22 | UJ | 0.2 | UJ | 0.22 | UJ | 0.21 | UJ | 0.49 | J+ | 0.22 | UJ | 0.21 | UJ | 0.22 | U | 0.2 | UJ |
| Benzyl butyl phthalate | 85-68-7 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| Biphenyl (Diphenyl) | 92-52-4 | mg/kg | 0.45 | U | 0.41 | U | 0.43 | U | 0.39 | U | 0.42 | U | 0.41 | U | 0.49 | UJ | 0.42 | UJ | 0.41 | UJ | 0.42 | U | 0.38 | UJ |
| Bis(2-chloroethoxy)methane | 111-91-1 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | mg/kg | 0.11 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.11 | U | 0.1 | U | 0.12 | UJ | 0.11 | UJ | 0.1 | UJ | 0.11 | U | 0.096 | UJ |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| Caprolactam | 105-60-2 | mg/kg | 0.23 | UJ | 0.21 | UJ | 0.22 | UJ | 0.2 | UJ | 0.22 | UJ | 0.21 | UJ | 0.25 | UJ | 0.22 | UJ | 0.21 | UJ | 0.22 | U | 0.2 | UJ |
| Carbazole | 86-74-8 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| Cresols, m- & p- | cresols-m,p | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | U | 0.086 | U | 0.083 | U | 0.086 | U | 0.078 | U |
| Dibenzofuran | 132-64-9 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| Diethyl phthalate | 84-66-2 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| Dimethyl phthalate | 131-11-3 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| Di-n-butyl phthalate | 84-74-2 | mg/kg | 0.45 | U | 0.41 | U | 0.43 | U | 0.39 | U | 0.42 | U | 0.41 | U | 0.49 | UJ | 0.42 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| di-n-Octyl phthalate | 117-84-0 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| Hexachlorobenzene | 118-74-1 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| Hexachlorobutadiene | 87-68-3 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| Hexachlorocyclopentadiene | 77-47-4 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| Hexachloroethane | 67-72-1 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| Isophorone | 78-59-1 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| Nitrobenzene | 98-95-3 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| N-Nitrosodi-n-propylamine | 621-64-7 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| N-Nitrosodiphenylamine | 86-30-6 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ |
| Pentachlorophenol | 87-86-5 | mg/kg | 0.91 | U | 0.82 | U | 0.88 | U | 0.8 | U | 0.85 | U | 0.83 | U | 0.99 | U | 0.86 | U | 0.83 | UJ | 0.86 | UJ | 0.78 | UJ |
| Phenol | 108-95-2 | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | U | 0.086 | U | 0.083 | U | 0.086 | U | 0.078 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0027 | U | 0.0024 | U | 0.0026 | U | 0.0024 | U | 0.0026 | U | 0.0025 | U | 0.0027 | J | 0.0024 | U | 0.0041 | J | 0.018 | J | -- | -- |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0014 | J | 0.0024 | U | 0.0021 | J | 0.0024 | U | 0.0026 | U | 0.0025 | U | 0.0031 | J | 0.0024 | U | 0.0037 | J | 0.016 | J | -- | -- |
| Acenaphthene | 83-32-9 | mg/kg | 0.0015 | U | 0.0013 | U | 0.0018 | J | 0.0013 | U | 0.0014 | U | 0.0013 | U | 0.0016 | U | 0.0013 | U | 0.0061 | J | 0.0013 | U | -- | -- |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0015 | U | 0.0013 | U | 0.0055 | J | 0.0013 | U | 0.0014 | U | 0.0013 | U | 0.0016 | U | 0.0013 | U | 0.1 | | 0.04 | J | -- | -- |
| Anthracene | 120-12-7 | mg/kg | 0.0042 | J | 0.0053 | U | 0.0049 | J | 0.0052 | U | 0.0055 | U | 0.0053 | U | 0.008 | J | 0.0052 | U | 0.094 | | 0.065 | J- | -- | -- |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.02 | | 0.0053 | U | 0.028 | | 0.0052 | U | 0.0032 | J | 0.0053 | U | 0.018 | | 0.0052 | U | 0.33 | | 0.43 | J | -- | -- |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.022 | | 0.0053 | U | 0.033 | | 0.0052 | U | 0.0047 | J | 0.0053 | U | 0.019 | | 0.0052 | U | 0.28 | | 1.3 | J | -- | -- |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.034 | | 0.0081 | U | 0.044 | | 0.0079 | U | 0.0062 | J | 0.0082 | U | 0.029 | J- | 0.0079 | U | 0.32 | | 1.9 | J | -- | -- |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.013 | J | 0.0081 | U | 0.018 | | 0.0079 | U | 0.003 | J | 0.0082 | U | 0.014 | J- | 0.0079 | U | 0.19 | | 0.82 | J | -- | -- |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.012 | J | 0.0053 | U | 0.016 | | 0.0052 | U | 0.0055 | U | 0.0053 | U | 0.01 | J | 0.0052 | U | 0.14 | | 0.84 | J | -- | -- |
| Chrysene | 218-01-9 | mg/kg | 0.024 | | 0.0053 | U | 0.034 | | 0.0052 | U | 0.0044 | J | 0.0053 | U | 0.022 | | 0.0052 | U | 0.29 | | 1.2 | J | -- | -- |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0091 | U | 0.0081 | U | 0.0085 | U | 0.0079 | U | 0.0085 | U | 0.0082 | U | 0.0098 | U | 0.0079 | U | 0.046 | | 0.29 | J- | -- | -- |
| Fluoranthene | 206-44-0 | mg/kg | 0.04 | | 0.0053 | U | 0.062 | | 0.0052 | U | 0.007 | J | 0.0053 | U | 0.042 | | 0.0052 | U | 0.56 | | 0.19 | J- | -- | -- |
| Fluorene | 86-73-7 | mg/kg | 0.0036 | U | 0.0033 | U | 0.0023 | J | 0.0032 | U | 0.0034 | U | 0.0033 | U | 0.0054 | J | 0.0032 | U | 0.037 | | 0.005 | J | -- | -- |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.016 | | 0.0081 | U | 0.021 | | 0.0079 | U | 0.0085 | U | 0.0082 | U | 0.017 | J- | 0.0079 | U | 0.21 | | 1 | J | -- | -- |
| Naphthalene | 91-20-3 | mg/kg | 0.0027 | U | 0.0024 | U | 0.0024 | J | 0.012 | J+ | 0.0026 | U | 0.0025 | U | 0.0055 | J | 0.0024 | U | 0.0064 | J | 0.012 | J+ | -- | -- |
| Phenanthrene | 85-01-8 | mg/kg | 0.018 | | 0.0081 | U | 0.027 | | 0.0079 | U | 0.0036 | J | 0.0082 | U | 0.031 | | 0.0079 | U | 0.31 | | 0.05 | J- | -- | -- |
| Pyrene | 129-00-0 | mg/kg | 0.033 | | 0.0081 | U | 0.054 | | 0.0079 | U | 0.006 | J | 0.0082 | U | 0.034 | | 0.0079 | U | 0.4 | | 0.26 | J- | -- | -- |
| High Molecular Weight PAHs | N/A | mg/kg | 0.18 | | 0.062 | U | 0.26 | | 0.06 | U | 0.04 | | 0.062 | U | 0.17 | | 0.06 | U | 2.2 | | 8 | | -- | -- |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.071 | | 0.032 | U | 0.11 | | 0.022 | | 0.021 | | 0.032 | U | 0.1 | | 0.031 | U | 1.1 | | 0.4 | | -- | -- |
| Total PAHs | N/A | mg/kg | 0.25 | | 0.094 | U | 0.36 | | 0.034 | | 0.059 | | 0.094 | U | 0.27 | | 0.092 | U | 3.3 | | 8.4 | | -- | -- |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.16 | U | 0.16 | U | 0.16 | UJ | 0.15 | U | 0.16 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.16 | U | -- | -- |

Table D.2-2
Reduced Validated Analytical Results[1] - AOC 3, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-03-001 | | NYOW-03-001 | | NYOW-03-002 | | NYOW-03-002 | | NYOW-03-003 | | NYOW-03-003 | | NYOW-03-004 | | NYOW-03-004 | | NYOW-03-005 | | NYOW-03-005 | | NYOW-03-005 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-03-SL001-A | | NYOW-03-PH001-B | | NYOW-03-SL002-A | | NYOW-03-PH002-B | | NYOW-03-SL003-A | | NYOW-03-PH003-B | | NYOW-03-SL004-A | | NYOW-03-PH004-B | | NYOW-03-SL005-A | | NYOW-03-PH005-B | | NYOW-03-PH005-B_R | |
| | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | | C | | N | |
| | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 1 - 5 | |
| | | Sample Date: | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-04-01 | | 2021-04-01 | | 2021-05-04 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Polychlorinated Biphenyls (PCBs)** | | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | 12674-11-2 | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.038 | UJ | 0.037 | UJ | -- | -- |
| PCB-1221 (Aroclor 1221) | 11104-28-2 | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.099 | U | 0.096 | U | -- | -- |
| PCB-1232 (Aroclor 1232) | 11141-16-5 | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.038 | U | 0.037 | U | -- | -- |
| PCB-1242 (Aroclor 1242) | 53469-21-9 | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.059 | U | 0.057 | U | -- | -- |
| PCB-1248 (Aroclor 1248) | 12672-29-6 | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.018 | U | 0.018 | U | -- | -- |
| PCB-1254 (Aroclor 1254) | 11097-69-1 | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.041 | U | 0.04 | U | -- | -- |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.0082 | UJ | 0.086 | J+ | -- | -- |
| PCB-1262 (Aroclor 1262) | 37324-23-5 | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.02 | U | 0.019 | U | -- | -- |
| PCB-1268 (Aroclor 1268) | 11100-14-4 | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.0082 | U | 0.008 | U | -- | -- |
| **Metals (Total)** | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 3200 | | 7600 | | 5000 | | 6300 | | 9100 | | 6300 | | 8500 | | 4500 | | 7200 | | 7200 | | -- | -- |
| Antimony | 7440-36-0 | mg/kg | 0.14 | J | 0.09 | U | 0.14 | J | 0.097 | U | 0.11 | U | 0.17 | J+ | 0.21 | J | 0.18 | J+ | 0.13 | J | 0.2 | J+ | -- | -- |
| Arsenic | 7440-38-2 | mg/kg | 3 | | 1.6 | | 2 | | 2.4 | | 2.1 | | 2.1 | | 2.4 | J | 2.4 | | 3.9 | | 5.7 | | -- | -- |
| Barium | 7440-39-3 | mg/kg | 10 | | 14 | | 17 | | 32 | | 16 | | 24 | | 14 | | 25 | | 36 | | 33 | | -- | -- |
| Beryllium | 7440-41-7 | mg/kg | 0.49 | J+ | 0.12 | J | 0.64 | J+ | 0.26 | J | 0.58 | J+ | 0.25 | J | 0.62 | J+ | 0.18 | J | 0.48 | J+ | 0.25 | J | -- | -- |
| Cadmium | 7440-43-9 | mg/kg | 0.15 | | 0.038 | J | 0.17 | | 0.065 | J | 0.087 | J | 0.058 | J | 0.15 | J | 0.053 | J | 0.099 | | 0.13 | | -- | -- |
| Calcium | 7440-70-2 | mg/kg | 960 | | 700 | | 1600 | | 850 | | 500 | | 1100 | | 760 | | 1200 | | 110000 | J | 7200 | J | -- | -- |
| Chromium | 7440-47-3 | mg/kg | 2.5 | J | 5.9 | | 3.8 | J | 6.5 | | 6.4 | | 7.5 | | 5.9 | | 5.5 | | 8.2 | | 7.7 | | -- | -- |
| Cobalt | 7440-48-4 | mg/kg | 0.54 | J | 2.8 | | 1.2 | J | 3.3 | | 1.7 | | 3.9 | | 1.6 | | 3.6 | | 4.2 | | 3.1 | | -- | -- |
| Copper | 7440-50-8 | mg/kg | 3.8 | J | 5.8 | | 4 | J | 7.8 | | 4.3 | J | 9.4 | | 4.4 | J | 9.2 | | 11 | | 9.2 | | -- | -- |
| Iron | 7439-89-6 | mg/kg | 4400 | | 8000 | | 5500 | | 9100 | | 7300 | | 11000 | | 8200 | | 9300 | | 10000 | | 13000 | | -- | -- |
| Lead | 7439-92-1 | mg/kg | 9.9 | J+ | 3.3 | J+ | 9.9 | J+ | 2.7 | J+ | 7.1 | J+ | 3.5 | J+ | 13 | J- | 2.8 | | 11 | | 16 | | -- | -- |
| Magnesium | 7439-95-4 | mg/kg | 310 | | 1100 | | 590 | | 1300 | | 710 | | 1500 | | 640 | | 1200 | | 3300 | J | 1600 | J | -- | -- |
| Manganese | 7439-96-5 | mg/kg | 48 | | 69 | | 93 | | 220 | | 48 | | 330 | | 65 | J- | 560 | | 480 | J | 210 | J | -- | -- |
| Mercury | 7439-97-6 | mg/kg | 0.048 | | 0.037 | | 0.049 | | 0.011 | J | 0.047 | | 0.018 | U | 0.088 | | 0.009 | J | 0.034 | | 0.037 | | -- | -- |
| Nickel | 7440-02-0 | mg/kg | 1.4 | J | 7.7 | | 2.9 | J | 6.4 | | 3.3 | J | 8.6 | | 3.3 | J | 7.1 | | 8.7 | | 7.5 | | -- | -- |
| Potassium | 7440-09-7 | mg/kg | 260 | J | 290 | | 230 | J | 360 | | 170 | J | 380 | | 210 | J | 380 | | 750 | J+ | 520 | | -- | -- |
| Selenium | 7782-49-2 | mg/kg | 0.3 | J | 0.51 | J+ | 0.38 | J | 0.43 | J+ | 0.36 | J | 0.44 | U | 0.61 | J | 0.43 | U | 0.25 | J | 0.46 | J+ | -- | -- |
| Silver | 7440-22-4 | mg/kg | 0.59 | U | 0.56 | U | 0.77 | U | 0.5 | U | 0.69 | U | 0.51 | U | 0.75 | U | 0.53 | U | 0.58 | U | 0.57 | U | -- | -- |
| Sodium | 7440-23-5 | mg/kg | 98 | U | 470 | J+ | 130 | U | 420 | J+ | 120 | U | 420 | J+ | 120 | U | 440 | J+ | 480 | J+ | 480 | J+ | -- | -- |
| Thallium | 7440-28-0 | mg/kg | 0.11 | U | 0.1 | U | 0.098 | U | 0.087 | U | 0.1 | U | 0.11 | U | 0.12 | UJ | 0.11 | U | 0.11 | | 0.14 | | -- | -- |
| Vanadium | 7440-62-2 | mg/kg | 5.9 | | 9.9 | | 8.3 | | 10 | | 11 | | 12 | | 12 | | 10 | | 15 | | 14 | | -- | -- |
| Zinc | 7440-66-6 | mg/kg | 12 | | 19 | | 21 | | 17 | | 22 | | 22 | | 23 | | 20 | | 24 | | 34 | | -- | -- |
| **Other Inorganics** | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 33 | | 23 | | -- | -- | -- | -- | 35 | | 5.5 | | -- | -- | -- | -- | 21 | | 19.5 | | -- | -- |
| Total Organic Carbon | N/A | mg/kg | 34000 | | 12000 | | -- | -- | -- | -- | 23000 | | 2300 | J | -- | -- | -- | -- | 3700 | J | 7400 | | -- | -- |
| Solids | N/A | % | 72.5 | | 77.7 | | 73 | | 81.9 | | 75.4 | | 79.9 | | 64.4 | | 77.4 | | 79.6 | | 76.3 | | 81.6 | |
| **Grain Size** | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 7.4 | | 2.2 | | -- | -- | -- | -- | 0.9 | | 0 | U | -- | -- | -- | -- | 6.6 | | 0.2 | | -- | -- |
| Coarse Sand | N/A | % | 0.9 | | 0 | U | -- | -- | -- | -- | 1 | | 0 | U | -- | -- | -- | -- | 1.1 | | 0.5 | | -- | -- |
| Medium Sand | N/A | % | 1.5 | | 0.2 | | -- | -- | -- | -- | 1.5 | | 0.1 | | -- | -- | -- | -- | 1.6 | | 0.5 | | -- | -- |
| Fine Sand | N/A | % | 63.7 | | 39.8 | | -- | -- | -- | -- | 25.1 | | 25.6 | | -- | -- | -- | -- | 21.1 | | 38.1 | | -- | -- |
| Silt | N/A | % | 25.6 | | 56 | | -- | -- | -- | -- | 68.9 | | 67.1 | | -- | -- | -- | -- | 59.5 | | 53.9 | | -- | -- |
| Clay | N/A | % | 0.9 | | 1.8 | | -- | -- | -- | -- | 2.6 | | 7.3 | | -- | -- | -- | -- | 10.1 | | 6.8 | | -- | -- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-2
Reduced Validated Analytical Results[(1)] - AOC 3, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-03-006 | | NYOW-03-006 | | NYOW-03-006 | | NYOW-03-007 | | NYOW-03-007 | | NYOW-03-007 | | NYOW-03-008 | | NYOW-03-008 | | NYOW-03-008 | | NYOW-03-008 | | NYOW-03-009 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-03-SL006-A | | NYOW-03-PH006-B | | NYOW-03-PH006-B_R | | NYOW-03-SL007-A | | NYOW-03-PH007-B | | NYOW-03-PH007-B_R | | NYOW-03-SL008-A | | NYOW-03-SL008-A_R | | NYOW-03-PH008-B | | NYOW-03-PH008-B_R | | NYOW-03-SL009-A | |
| | | | Sample Type: | | C | | N | | C | | N | | N | | N | | N | | C | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | |
| | | | Sample Date: | | 2021-04-01 | | 2021-04-01 | | 2021-05-04 | | 2021-04-01 | | 2021-04-01 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 71-55-6 | mg/kg | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | 0.0045 | U | -- | -- | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | mg/kg | -- | -- | -- | -- | 0.00081 | U | -- | -- | -- | -- | 0.00072 | U | -- | -- | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | mg/kg | -- | -- | -- | -- | 0.0065 | U | -- | -- | -- | -- | 0.0057 | U | -- | -- | -- | -- | 0.0067 | U | -- | -- | -- | -- | -- | -- |
| 1,1,2-Trichloroethane | 79-00-5 | mg/kg | -- | -- | -- | -- | 0.0032 | U | -- | -- | -- | -- | 0.0029 | U | -- | -- | -- | -- | 0.0034 | U | -- | -- | -- | -- | -- | -- |
| 1,1-Dichloroethane | 75-34-3 | mg/kg | -- | -- | -- | -- | 0.00081 | U | -- | -- | -- | -- | 0.00072 | U | -- | -- | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| 1,1-Dichloroethene | 75-35-4 | mg/kg | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0014 | U | -- | -- | -- | -- | 0.0017 | U | -- | -- | -- | -- | -- | -- |
| 1,2,3-Trichlorobenzene | 87-61-6 | mg/kg | -- | -- | -- | -- | 0.0032 | U | -- | -- | -- | -- | 0.0029 | U | -- | -- | -- | -- | 0.0034 | U | -- | -- | -- | -- | -- | -- |
| 1,2,4-Trichlorobenzene | 120-82-1 | mg/kg | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0014 | U | -- | -- | -- | -- | 0.0017 | U | -- | -- | -- | -- | -- | -- |
| 1,2-Dibromo-3-chloropropane | 96-12-8 | mg/kg | -- | -- | -- | -- | 0.01 | U | -- | -- | -- | -- | 0.0089 | U | -- | -- | -- | -- | 0.01 | U | -- | -- | -- | -- | -- | -- |
| 1,2-Dibromoethane (EDB) | 106-93-4 | mg/kg | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0014 | U | -- | -- | -- | -- | 0.0017 | U | -- | -- | -- | -- | -- | -- |
| 1,2-Dichlorobenzene | 95-50-1 | mg/kg | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | 0.0045 | U | -- | -- | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| 1,2-Dichloroethane | 107-06-2 | mg/kg | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0014 | U | -- | -- | -- | -- | 0.0017 | U | -- | -- | -- | -- | -- | -- |
| 1,2-Dichloropropane | 78-87-5 | mg/kg | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0014 | U | -- | -- | -- | -- | 0.0017 | U | -- | -- | -- | -- | -- | -- |
| 1,3-Dichlorobenzene | 541-73-1 | mg/kg | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0014 | U | -- | -- | -- | -- | 0.0017 | U | -- | -- | -- | -- | -- | -- |
| 1,3-Dichloropropane | 142-28-9 | mg/kg | -- | -- | -- | -- | 0.00041 | U | -- | -- | -- | -- | 0.00036 | U | -- | -- | -- | -- | 0.00042 | U | -- | -- | -- | -- | -- | -- |
| 1,4-Dichlorobenzene | 106-46-7 | mg/kg | -- | -- | -- | -- | 0.00081 | U | -- | -- | -- | -- | 0.00072 | U | -- | -- | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| 2-Butanone (MEK) | 78-93-3 | mg/kg | -- | -- | -- | -- | 0.005 | J- | -- | -- | -- | -- | 0.011 | UJ | -- | -- | -- | -- | 0.013 | U | -- | -- | -- | -- | -- | -- |
| 2-Hexanone | 591-78-6 | mg/kg | -- | -- | -- | -- | 0.013 | U | -- | -- | -- | -- | 0.011 | U | -- | -- | -- | -- | 0.013 | U | -- | -- | -- | -- | -- | -- |
| 4-Methyl-2-pentanone (MIBK) | 108-10-1 | mg/kg | -- | -- | -- | -- | 0.013 | U | -- | -- | -- | -- | 0.011 | U | -- | -- | -- | -- | 0.013 | U | -- | -- | -- | -- | -- | -- |
| Acetone | 67-64-1 | mg/kg | -- | -- | -- | -- | 0.077 | J | -- | -- | -- | -- | 0.064 | U | -- | -- | -- | -- | 0.075 | UJ | -- | -- | -- | -- | -- | -- |
| Benzene | 71-43-2 | mg/kg | -- | -- | -- | -- | 0.00041 | U | -- | -- | -- | -- | 0.00036 | U | -- | -- | -- | -- | 0.00042 | U | -- | -- | -- | -- | -- | -- |
| Bromochloromethane | 74-97-5 | mg/kg | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | 0.0045 | U | -- | -- | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| Bromodichloromethane | 75-27-4 | mg/kg | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | 0.0045 | U | -- | -- | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| Bromoform | 75-25-2 | mg/kg | -- | -- | -- | -- | 0.0052 | U | -- | -- | -- | -- | 0.0046 | U | -- | -- | -- | -- | 0.0053 | U | -- | -- | -- | -- | -- | -- |
| Bromomethane | 74-83-9 | mg/kg | -- | -- | -- | -- | 0.0032 | U | -- | -- | -- | -- | 0.0029 | U | -- | -- | -- | -- | 0.0034 | U | -- | -- | -- | -- | -- | -- |
| Carbon disulfide | 75-15-0 | mg/kg | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | 0.0045 | U | -- | -- | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| Carbon tetrachloride | 56-23-5 | mg/kg | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | 0.0045 | U | -- | -- | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| Chlorobenzene | 108-90-7 | mg/kg | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | 0.0045 | U | -- | -- | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| Chloroethane | 75-00-3 | mg/kg | -- | -- | -- | -- | 0.0065 | U | -- | -- | -- | -- | 0.0057 | U | -- | -- | -- | -- | 0.0067 | U | -- | -- | -- | -- | -- | -- |
| Chloroform | 67-66-3 | mg/kg | -- | -- | -- | -- | 0.00081 | UJ | -- | -- | -- | -- | 0.00072 | UJ | -- | -- | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| Chloromethane | 74-87-3 | mg/kg | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0014 | U | -- | -- | -- | -- | 0.0017 | U | -- | -- | -- | -- | -- | -- |
| cis-1,2-Dichloroethene | 156-59-2 | mg/kg | -- | -- | -- | -- | 0.00081 | U | -- | -- | -- | -- | 0.00072 | U | -- | -- | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| cis-1,3-Dichloropropene | 10061-01-5 | mg/kg | -- | -- | -- | -- | 0.00041 | U | -- | -- | -- | -- | 0.00036 | U | -- | -- | -- | -- | 0.00042 | U | -- | -- | -- | -- | -- | -- |
| Cumene | 98-82-8 | mg/kg | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | 0.0045 | U | -- | -- | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| Cyclohexane | 110-82-7 | mg/kg | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | 0.0045 | U | -- | -- | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| Dibromochloromethane | 124-48-1 | mg/kg | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | 0.0045 | U | -- | -- | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| Dichlorodifluoromethane | 75-71-8 | mg/kg | -- | -- | -- | -- | 0.0065 | U | -- | -- | -- | -- | 0.0057 | U | -- | -- | -- | -- | 0.0067 | U | -- | -- | -- | -- | -- | -- |
| Ethylbenzene | 100-41-4 | mg/kg | -- | -- | -- | -- | 0.00081 | U | -- | -- | -- | -- | 0.00072 | U | -- | -- | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| m,p-Xylene | 179601-23-1 | mg/kg | -- | -- | -- | -- | 0.0032 | U | -- | -- | -- | -- | 0.0029 | U | -- | -- | -- | -- | 0.0034 | U | -- | -- | -- | -- | -- | -- |
| Methyl acetate | 79-20-9 | mg/kg | -- | -- | -- | -- | 0.0081 | U | -- | -- | -- | -- | 0.0072 | U | -- | -- | -- | -- | 0.0084 | U | -- | -- | -- | -- | -- | -- |
| Methyl tert-butyl ether (MTBE) | 1634-04-4 | mg/kg | -- | -- | -- | -- | 0.0065 | U | -- | -- | -- | -- | 0.0057 | U | -- | -- | -- | -- | 0.0067 | U | -- | -- | -- | -- | -- | -- |
| Methylcyclohexane | 108-87-2 | mg/kg | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0014 | U | -- | -- | -- | -- | 0.0017 | U | -- | -- | -- | -- | -- | -- |
| Methylene chloride | 75-09-2 | mg/kg | -- | -- | -- | -- | 0.0032 | U | -- | -- | -- | -- | 0.0029 | U | -- | -- | -- | -- | 0.0034 | U | -- | -- | -- | -- | -- | -- |
| o-Xylene | 95-47-6 | mg/kg | -- | -- | -- | -- | 0.00081 | U | -- | -- | -- | -- | 0.00072 | U | -- | -- | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| Styrene | 100-42-5 | mg/kg | -- | -- | -- | -- | 0.00081 | U | -- | -- | -- | -- | 0.00072 | U | -- | -- | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| Tetrachloroethene (PCE) | 127-18-4 | mg/kg | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | 0.0045 | U | -- | -- | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| Toluene | 108-88-3 | mg/kg | -- | -- | -- | -- | 0.0051 | J+ | -- | -- | -- | -- | 0.00072 | U | -- | -- | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| trans-1,2-Dichloroethene | 156-60-5 | mg/kg | -- | -- | -- | -- | 0.00081 | U | -- | -- | -- | -- | 0.00072 | U | -- | -- | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| trans-1,3-Dichloropropene | 10061-02-6 | mg/kg | -- | -- | -- | -- | 0.0002 | U | -- | -- | -- | -- | 0.00018 | U | -- | -- | -- | -- | 0.00021 | U | -- | -- | -- | -- | -- | -- |
| Trichlorofluoromethane | 75-69-4 | mg/kg | -- | -- | -- | -- | 0.01 | UJ | -- | -- | -- | -- | 0.0089 | UJ | -- | -- | -- | -- | 0.01 | U | -- | -- | -- | -- | -- | -- |
| Vinyl chloride | 75-01-4 | mg/kg | -- | -- | -- | -- | 0.0032 | U | -- | -- | -- | -- | 0.0029 | U | -- | -- | -- | -- | 0.0034 | U | -- | -- | -- | -- | -- | -- |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| 1,4-Dioxane | 123-91-1 | mg/kg | 0.4 | UJ | 0.41 | U | 0.42 | U | 0.39 | U | 0.41 | U | 0.38 | U | | R | 0.38 | U | | R | 0.39 | UJ | | R | | |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | UJ | 0.079 | U | 0.083 | U | 0.078 | UJ | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | mg/kg | 0.1 | UJ | 0.1 | U | 0.11 | U | 0.097 | U | 0.1 | U | 0.096 | U | | R | 0.096 | U | | R | 0.099 | UJ | | R | | |
| 2,4,5-Trichlorophenol | 95-95-4 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| 2,4,6-Trichlorophenol | 88-06-2 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| 2,4-Dichlorophenol | 120-83-2 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| 2,4-Dimethylphenol | 105-67-9 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.4 | U | 0.41 | U | 0.42 | U | 0.39 | U | 0.41 | U | 0.38 | U | | R | 0.38 | U | | R | 0.39 | UJ | | R | | |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 1.6 | UJ | 1.6 | U | 1.7 | U | 1.5 | U | 1.6 | U | 1.5 | U | | R | 1.5 | U | | R | 1.5 | UJ | | R | | |
| 2,4-Dinitrotoluene | 121-14-2 | mg/kg | 0.1 | UJ | 0.1 | U | 0.11 | U | 0.097 | U | 0.1 | U | 0.096 | U | | R | 0.096 | U | | R | 0.099 | UJ | | R | | |
| 2,6-Dinitrotoluene | 606-20-2 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | UJ | 0.079 | U | 0.083 | U | 0.078 | UJ | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |

Table D.2-2
Reduced Validated Analytical Results[(1)] - AOC 3, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-03-006 | | NYOW-03-006 | | NYOW-03-006 | | NYOW-03-007 | | NYOW-03-007 | | NYOW-03-007 | | NYOW-03-008 | | NYOW-03-008 | | NYOW-03-008 | | NYOW-03-008 | | NYOW-03-009 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-03-SL006-A | | NYOW-03-PH006-B | | NYOW-03-PH006-B_R | | NYOW-03-SL007-A | | NYOW-03-PH007-B | | NYOW-03-PH007-B_R | | NYOW-03-SL008-A | | NYOW-03-SL008-A_R | | NYOW-03-PH008-B | | NYOW-03-PH008-B_R | | NYOW-03-SL009-A | |
| | | | Sample Type: | | C | | N | | C | | N | | N | | N | | N | | C | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | |
| | | | Sample Date: | | 2021-04-01 | | 2021-04-01 | | 2021-05-04 | | 2021-04-01 | | 2021-04-01 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| 2-Chloronaphthalene | 91-58-7 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| 2-Chlorophenol | 95-57-8 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| 2-Methylphenol (o-Cresol) | 95-48-7 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| 2-Nitroaniline | 88-74-4 | mg/kg | 0.21 | UJ | 0.21 | U | 0.22 | U | 0.2 | U | 0.21 | U | 0.2 | U | | R | 0.2 | U | | R | 0.2 | UJ | | R | | |
| 2-Nitrophenol | 88-75-5 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| 3,3'-Dichlorobenzidine | 91-94-1 | mg/kg | 0.082 | U | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| 3-Nitroaniline | 99-09-2 | mg/kg | 0.1 | UJ | 0.1 | U | 0.11 | U | 0.097 | U | 0.1 | U | 0.096 | U | | R | 0.096 | U | | R | 0.099 | UJ | | R | | |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | mg/kg | 0.4 | UJ | 0.41 | U | 0.42 | U | 0.39 | U | 0.41 | U | 0.38 | U | | R | 0.38 | U | | R | 0.39 | UJ | | R | | |
| 4-Bromophenyl phenyl ether | 101-55-3 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| 4-Chloro-3-methylphenol | 59-50-7 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| 4-Chloroaniline | 106-47-8 | mg/kg | 0.1 | U | 0.1 | U | 0.11 | U | 0.097 | U | 0.1 | U | 0.096 | U | | R | 0.096 | U | | R | 0.099 | UJ | | R | | |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| 4-Nitroaniline | 100-01-6 | mg/kg | 0.1 | UJ | 0.1 | U | 0.11 | U | 0.097 | U | 0.1 | U | 0.096 | U | | R | 0.096 | U | | R | 0.099 | UJ | | R | | |
| 4-Nitrophenol | 100-02-7 | mg/kg | 0.82 | UJ | 0.84 | U | 0.85 | U | 0.79 | U | 0.83 | U | 0.78 | U | | R | 0.77 | U | | R | 0.8 | UJ | | R | | |
| Acetophenone | 98-86-2 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| Atrazine | 1912-24-9 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| Benzaldehyde | 100-52-7 | mg/kg | 0.49 | J+ | 0.21 | U | 0.42 | J+ | 0.2 | U | 0.21 | U | 0.2 | U | | R | 0.2 | U | | R | 0.2 | UJ | | R | | |
| Benzyl butyl phthalate | 85-68-7 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | UJ | 0.079 | U | 0.083 | U | 0.078 | UJ | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| Biphenyl (Diphenyl) | 92-52-4 | mg/kg | 0.4 | UJ | 0.41 | U | 0.42 | U | 0.39 | U | 0.41 | U | 0.38 | U | | R | 0.38 | U | | R | 0.39 | UJ | | R | | |
| Bis(2-chloroethoxy)methane | 111-91-1 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | mg/kg | 0.1 | UJ | 0.1 | U | 0.11 | UJ | 0.097 | U | 0.1 | U | 0.096 | UJ | | R | 0.096 | U | | R | 0.099 | UJ | | R | | |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | UJ | 0.079 | U | 0.083 | U | 0.078 | UJ | | R | 0.14 | J | | R | 0.08 | UJ | | R | | |
| Caprolactam | 105-60-2 | mg/kg | 0.21 | UJ | 0.21 | U | 0.22 | U | 0.2 | U | 0.21 | U | 0.2 | U | | R | 0.2 | U | | R | 0.2 | UJ | | R | | |
| Carbazole | 86-74-8 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.045 | J | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| Cresols, m- & p- | cresols-m,p | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| Dibenzofuran | 132-64-9 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| Diethyl phthalate | 84-66-2 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| Dimethyl phthalate | 131-11-3 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| Di-n-butyl phthalate | 84-74-2 | mg/kg | 0.1 | U | 0.084 | U | 0.085 | U | 0.079 | U | 0.41 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| di-n-Octyl phthalate | 117-84-0 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| Hexachlorobenzene | 118-74-1 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| Hexachlorobutadiene | 87-68-3 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| Hexachlorocyclopentadiene | 77-47-4 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | UJ | 0.079 | U | 0.083 | U | 0.078 | UJ | | R | 0.077 | UJ | | R | 0.08 | UJ | | R | | |
| Hexachloroethane | 67-72-1 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| Isophorone | 78-59-1 | mg/kg | 0.082 | U | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| Nitrobenzene | 98-95-3 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| N-Nitrosodi-n-propylamine | 621-64-7 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | UJ | 0.079 | U | 0.083 | U | 0.078 | UJ | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| N-Nitrosodiphenylamine | 86-30-6 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| Pentachlorophenol | 87-86-5 | mg/kg | 0.82 | UJ | 0.84 | UJ | 0.85 | U | 0.79 | UJ | 0.83 | UJ | 0.78 | U | | R | 0.77 | UJ | | R | 0.8 | UJ | | R | | |
| Phenol | 108-95-2 | mg/kg | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0009 | J | 0.0026 | U | -- | -- | 0.026 | J+ | 0.00077 | J | -- | -- | 0.3 | J+ | -- | -- | 0.00092 | J | -- | -- | 0.011 | J | | |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0011 | J | 0.0026 | U | -- | -- | 0.031 | J+ | 0.00074 | J | -- | -- | 0.21 | J+ | -- | -- | 0.0024 | U | -- | -- | 0.012 | J | | |
| Acenaphthene | 83-32-9 | mg/kg | 0.0012 | U | 0.0014 | U | -- | -- | 0.029 | J+ | 0.011 | J+ | -- | -- | 0.23 | J+ | -- | -- | 0.012 | U | -- | -- | 0.014 | U | | |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0078 | J | 0.0014 | U | -- | -- | 0.77 | | 0.0097 | J | -- | -- | 1.6 | | -- | -- | 0.018 | | -- | -- | 0.09 | J- | | |
| Anthracene | 120-12-7 | mg/kg | 0.0061 | J | 0.0056 | U | -- | -- | 0.35 | J+ | 0.0055 | J | -- | -- | 1.5 | | -- | -- | 0.0063 | J | -- | -- | 0.047 | J- | | |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.035 | J | 0.0056 | U | -- | -- | 2 | | 0.013 | | -- | -- | 4.5 | | -- | -- | 0.014 | | -- | -- | 0.14 | J- | | |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.038 | J | 0.0056 | U | -- | -- | 2.3 | | 0.018 | | -- | -- | 4.4 | | -- | -- | 0.018 | | -- | -- | 0.15 | J- | | |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.052 | J | 0.0086 | U | -- | -- | 2.6 | | 0.027 | | -- | -- | 4.7 | | -- | -- | 0.022 | | -- | -- | 0.23 | J- | | |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.022 | J | 0.0086 | U | -- | -- | 1.2 | | 0.012 | | -- | -- | 2.1 | | -- | -- | 0.0094 | J | -- | -- | 0.098 | J- | | |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.019 | J | 0.0056 | U | -- | -- | 1 | | 0.0082 | J | -- | -- | 1.9 | | -- | -- | 0.0084 | J | -- | -- | 0.094 | J- | | |
| Chrysene | 218-01-9 | mg/kg | 0.037 | J | 0.0056 | U | -- | -- | 2 | | 0.016 | | -- | -- | 3.3 | | -- | -- | 0.013 | | -- | -- | 0.16 | J- | | |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0078 | U | 0.0086 | U | -- | -- | 0.35 | J+ | 0.0076 | U | -- | -- | 0.69 | | -- | -- | 0.0056 | J | -- | -- | 0.026 | | | |
| Fluoranthene | 206-44-0 | mg/kg | 0.059 | J | 0.0056 | U | -- | -- | 3.2 | | 0.017 | | -- | -- | 6.8 | | -- | -- | 0.018 | | -- | -- | 0.28 | J- | | |
| Fluorene | 86-73-7 | mg/kg | 0.0031 | U | 0.0035 | U | -- | -- | 0.12 | J+ | 0.0015 | J | -- | -- | 1.4 | | -- | -- | 0.0052 | J | -- | -- | 0.031 | J- | | |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.026 | J | 0.0086 | U | -- | -- | 1.7 | | 0.012 | | -- | -- | 3.1 | | -- | -- | 0.012 | | -- | -- | 0.11 | J- | | |
| Naphthalene | 91-20-3 | mg/kg | 0.0016 | J | 0.0026 | U | -- | -- | 0.054 | J+ | 0.011 | J+ | -- | -- | 0.11 | J+ | -- | -- | 0.012 | J+ | -- | -- | 0.015 | | | |
| Phenanthrene | 85-01-8 | mg/kg | 0.015 | | 0.0086 | U | -- | -- | 1.4 | | 0.007 | J | -- | -- | 6.7 | | -- | -- | 0.014 | | -- | -- | 0.2 | J- | | |
| Pyrene | 129-00-0 | mg/kg | 0.054 | J | 0.0086 | U | -- | -- | 3.6 | | 0.02 | | -- | -- | 7 | | -- | -- | 0.021 | | -- | -- | 0.23 | J- | | |
| High Molecular Weight PAHs | N/A | mg/kg | 0.29 | | 0.065 | U | -- | -- | 17 | | 0.13 | | -- | -- | 32 | | -- | -- | 0.12 | | -- | -- | 1.2 | | | |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.094 | | 0.034 | U | -- | -- | 6 | | 0.064 | | -- | -- | 19 | | -- | -- | 0.079 | | -- | -- | 0.7 | | | |
| Total PAHs | N/A | mg/kg | 0.38 | | 0.099 | U | -- | -- | 23 | | 0.19 | | -- | -- | 51 | | -- | -- | 0.2 | | -- | -- | 1.9 | | | |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.16 | U | 0.16 | U | -- | -- | 0.16 | U | 0.16 | U | -- | -- | 0.15 | U | -- | -- | 0.16 | UJ | -- | -- | 0.16 | UJ | | |

Table D.2-2
Reduced Validated Analytical Results[1] - AOC 3, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-03-006 | | NYOW-03-006 | | NYOW-03-006 | | NYOW-03-007 | | NYOW-03-007 | | NYOW-03-007 | | NYOW-03-008 | | NYOW-03-008 | | NYOW-03-008 | | NYOW-03-008 | | NYOW-03-008 | | NYOW-03-009 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-03-SL006-A | | NYOW-03-PH006-B | | NYOW-03-PH006-B_R | | NYOW-03-SL007-A | | NYOW-03-PH007-B | | NYOW-03-PH007-B_R | | NYOW-03-SL008-A | | NYOW-03-SL008-A_R | | NYOW-03-PH008-B | | NYOW-03-PH008-B_R | | NYOW-03-SL009-A | | | |
| | | | Sample Type: | | C | | N | | C | | N | | N | | N | | N | | C | | N | | N | | N | | | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | | |
| | | | Sample Date: | | 2021-04-01 | | 2021-04-01 | | 2021-05-04 | | 2021-04-01 | | 2021-04-01 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Polychlorinated Biphenyls (PCBs)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | 12674-11-2 | mg/kg | 0.036 | UJ | 0.04 | UJ | -- | -- | 0.036 | UJ | 0.038 | UJ | -- | -- | 0.032 | UJ | -- | -- | 0.034 | UJ | -- | -- | 0.039 | UJ | | |
| PCB-1221 (Aroclor 1221) | 11104-28-2 | mg/kg | 0.094 | U | 0.1 | U | -- | -- | 0.093 | U | 0.099 | U | -- | -- | 0.084 | U | -- | -- | 0.088 | U | -- | -- | 0.1 | U | | |
| PCB-1232 (Aroclor 1232) | 11141-16-5 | mg/kg | 0.036 | U | 0.04 | U | -- | -- | 0.036 | U | 0.038 | U | -- | -- | 0.032 | U | -- | -- | 0.034 | U | -- | -- | 0.039 | U | | |
| PCB-1242 (Aroclor 1242) | 53469-21-9 | mg/kg | 0.056 | U | 0.062 | U | -- | -- | 0.056 | U | 0.059 | U | -- | -- | 0.05 | U | -- | -- | 0.053 | U | -- | -- | 0.061 | U | | |
| PCB-1248 (Aroclor 1248) | 12672-29-6 | mg/kg | 0.018 | U | 0.019 | U | -- | -- | 0.017 | U | 0.019 | U | -- | -- | 0.016 | U | -- | -- | 0.016 | U | -- | -- | 0.019 | U | | |
| PCB-1254 (Aroclor 1254) | 11097-69-1 | mg/kg | 0.039 | U | 0.043 | U | -- | -- | 0.039 | U | 0.041 | U | -- | -- | 0.035 | U | -- | -- | 0.037 | U | -- | -- | 0.042 | U | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | mg/kg | 0.0078 | UJ | 0.0086 | UJ | -- | -- | 0.0077 | UJ | 0.0083 | UJ | -- | -- | 0.069 | J+ | -- | -- | 0.0073 | U | -- | -- | 0.0084 | U | | |
| PCB-1262 (Aroclor 1262) | 37324-23-5 | mg/kg | 0.019 | U | 0.021 | U | -- | -- | 0.019 | U | 0.02 | U | -- | -- | 0.017 | U | -- | -- | 0.018 | U | -- | -- | 0.02 | U | | |
| PCB-1268 (Aroclor 1268) | 11100-14-4 | mg/kg | 0.0078 | U | 0.0086 | U | -- | -- | 0.0077 | U | 0.0083 | U | -- | -- | 0.007 | U | -- | -- | 0.0073 | U | -- | -- | 0.0084 | U | | |
| **Metals (Total)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 9500 | | 8200 | | -- | -- | 8200 | | 6600 | | -- | -- | 5600 | | -- | -- | 6400 | J | -- | -- | 11000 | | | |
| Antimony | 7440-36-0 | mg/kg | 0.11 | J | 0.24 | J+ | -- | -- | 0.36 | | 0.2 | J+ | -- | -- | 0.31 | | -- | -- | 0.16 | J+ | -- | -- | 0.17 | J | | |
| Arsenic | 7440-38-2 | mg/kg | 3.1 | | 5.9 | | -- | -- | 4.4 | | 4.3 | | -- | -- | 4.3 | | -- | -- | 1.9 | | -- | -- | 2.3 | | | |
| Barium | 7440-39-3 | mg/kg | 52 | | 52 | | -- | -- | 56 | | 31 | | -- | -- | 38 | | -- | -- | 19 | J- | -- | -- | 21 | J- | | |
| Beryllium | 7440-41-7 | mg/kg | 0.53 | J+ | 0.47 | J | -- | -- | 0.54 | J+ | 0.35 | J | -- | -- | 0.47 | J+ | -- | -- | 0.23 | J- | -- | -- | 0.61 | J+ | | |
| Cadmium | 7440-43-9 | mg/kg | 0.35 | J | 0.092 | J | -- | -- | 0.26 | | 0.064 | J | -- | -- | 0.27 | | -- | -- | 0.083 | J | -- | -- | 0.22 | | | |
| Calcium | 7440-70-2 | mg/kg | 7200 | J | 4800 | J | -- | -- | 18000 | J | 60000 | J | -- | -- | 30000 | | -- | -- | 5900 | J- | -- | -- | 3900 | J+ | | |
| Chromium | 7440-47-3 | mg/kg | 11 | | 11 | | -- | -- | 10 | | 7.6 | | -- | -- | 7.6 | | -- | -- | 6.1 | J- | -- | -- | 7.5 | J- | | |
| Cobalt | 7440-48-4 | mg/kg | 7.2 | | 7.3 | | -- | -- | 8 | | 7 | | -- | -- | 4.7 | | -- | -- | 3.4 | J- | -- | -- | 2.6 | J- | | |
| Copper | 7440-50-8 | mg/kg | 12 | | 20 | | -- | -- | 26 | | 20 | | -- | -- | 13 | | -- | -- | 6.4 | J- | -- | -- | 4.9 | J- | | |
| Iron | 7439-89-6 | mg/kg | 21000 | | 23000 | | -- | -- | 20000 | | 17000 | | -- | -- | 12000 | | -- | -- | 8700 | J | -- | -- | 12000 | | | |
| Lead | 7439-92-1 | mg/kg | 23 | | 25 | | -- | -- | 54 | | 25 | | -- | -- | 3.4 | | -- | -- | 6.5 | J- | -- | -- | 7.6 | J- | | |
| Magnesium | 7439-95-4 | mg/kg | 4600 | J | 2900 | J | -- | -- | 6200 | J | 16000 | J | -- | -- | 9800 | | -- | -- | 3100 | J- | -- | -- | 1100 | J | | |
| Manganese | 7439-96-5 | mg/kg | 550 | J | 500 | J | -- | -- | 480 | J | 520 | J | -- | -- | 400 | | -- | -- | 160 | J- | -- | -- | 120 | J+ | | |
| Mercury | 7439-97-6 | mg/kg | 0.061 | | 0.032 | | -- | -- | 0.16 | | 0.039 | | -- | -- | 0.05 | | -- | -- | 0.023 | | -- | -- | 0.058 | | | |
| Nickel | 7440-02-0 | mg/kg | 13 | | 20 | | -- | -- | 18 | | 17 | | -- | -- | 10 | | -- | -- | 6.7 | J- | -- | -- | 5.4 | J- | | |
| Potassium | 7440-09-7 | mg/kg | 1000 | | 1200 | | -- | -- | 1300 | | 1400 | | -- | -- | 1100 | | -- | -- | 470 | J- | -- | -- | 330 | J | | |
| Selenium | 7782-49-2 | mg/kg | 0.35 | J | 0.6 | J+ | -- | -- | 0.29 | J | 0.53 | J+ | -- | -- | 0.2 | J | -- | -- | 0.45 | J+ | -- | -- | 0.36 | J | | |
| Silver | 7440-22-4 | mg/kg | 0.64 | U | 0.61 | U | -- | -- | 0.65 | U | 0.52 | U | -- | -- | 0.57 | U | -- | -- | 0.55 | UJ | -- | -- | 0.73 | UJ | | |
| Sodium | 7440-23-5 | mg/kg | 530 | J+ | 510 | J+ | -- | -- | 540 | J+ | 440 | J+ | -- | -- | 470 | J+ | -- | -- | 460 | J+ | -- | -- | 610 | J+ | | |
| Thallium | 7440-28-0 | mg/kg | 0.12 | | 0.14 | | -- | -- | 0.17 | | 0.18 | | -- | -- | 0.11 | | -- | -- | 0.068 | J | -- | -- | 0.1 | J | | |
| Vanadium | 7440-62-2 | mg/kg | 17 | | 15 | | -- | -- | 14 | | 11 | | -- | -- | 10 | | -- | -- | 10 | J- | -- | -- | 16 | J- | | |
| Zinc | 7440-66-6 | mg/kg | 56 | | 41 | | -- | -- | 81 | | 34 | | -- | -- | 60 | | -- | -- | 25 | J- | -- | -- | 22 | J | | |
| **Other Inorganics** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | -- | -- | -- | -- | -- | -- | 25 | | 14 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 27 | | | |
| Total Organic Carbon | N/A | mg/kg | -- | -- | -- | -- | -- | -- | 8000 | | 5000 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 26000 | | | |
| Solids | N/A | % | 71.6 | J | 76.6 | | 76.95 | | 80.8 | | 79.7 | | 85.3 | | 88.1 | | 81.05 | | 83.2 | | 82 | | 71.1 | | | |
| **Grain Size** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | -- | -- | -- | -- | -- | -- | 10.7 | | 9.7 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.6 | | | |
| Coarse Sand | N/A | % | -- | -- | -- | -- | -- | -- | 6.6 | | 6.8 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.1 | | | |
| Medium Sand | N/A | % | -- | -- | -- | -- | -- | -- | 7.6 | | 8.2 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1 | | | |
| Fine Sand | N/A | % | -- | -- | -- | -- | -- | -- | 28.8 | | 25 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 31.7 | | | |
| Silt | N/A | % | -- | -- | -- | -- | -- | -- | 32.7 | | 29.8 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 64.6 | | | |
| Clay | N/A | % | -- | -- | -- | -- | -- | -- | 13.5 | | 20.5 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2.1 | | | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-2
Reduced Validated Analytical Results[(1)] - AOC 3, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-03-009 | | NYOW-03-009 | | NYOW-03-009 | | NYOW-03-010 | | NYOW-03-010 | | NYOW-03-011 | | NYOW-03-011 | | NYOW-03-012 | | NYOW-03-012 | | NYOW-03-013 | | NYOW-03-013 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-03-SL009-A_R | | NYOW-03-PH009-B | | NYOW-03-PH009-B_R | | NYOW-03-SL010-A | | NYOW-03-PH010-B | | NYOW-03-SL011-A | | NYOW-03-PH011-B | | NYOW-03-SL012-A | | NYOW-03-PH012-B | | NYOW-03-SL013-A | | NYOW-03-SL013-A_R | |
| | | | Sample Type: | | N | | N | | N | | N | | N | | N | | N | | N | | C | | C | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 0 - 1 | |
| | | | Sample Date: | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-04-05 | | 2021-05-04 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 71-55-6 | mg/kg | -- | -- | 0.0049 | U | -- | -- | -- | -- | 0.0048 | U | -- | -- | 0.0058 | U | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | mg/kg | -- | -- | 0.00079 | U | -- | -- | -- | -- | 0.00077 | U | -- | -- | 0.00093 | U | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | mg/kg | -- | -- | 0.0063 | U | -- | -- | -- | -- | 0.0062 | U | -- | -- | 0.0074 | U | -- | -- | 0.0067 | U | -- | -- | -- | -- | -- | -- |
| 1,1,2-Trichloroethane | 79-00-5 | mg/kg | -- | -- | 0.0032 | U | -- | -- | -- | -- | 0.0031 | U | -- | -- | 0.0037 | U | -- | -- | 0.0034 | U | -- | -- | -- | -- | -- | -- |
| 1,1-Dichloroethane | 75-34-3 | mg/kg | -- | -- | 0.00079 | U | -- | -- | -- | -- | 0.00077 | U | -- | -- | 0.00093 | U | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| 1,1-Dichloroethene | 75-35-4 | mg/kg | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0015 | U | -- | -- | 0.0019 | U | -- | -- | 0.0017 | U | -- | -- | -- | -- | -- | -- |
| 1,2,3-Trichlorobenzene | 87-61-6 | mg/kg | -- | -- | 0.0032 | U | -- | -- | -- | -- | 0.0031 | U | -- | -- | 0.0037 | U | -- | -- | 0.0034 | U | -- | -- | -- | -- | -- | -- |
| 1,2,4-Trichlorobenzene | 120-82-1 | mg/kg | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0015 | U | -- | -- | 0.0019 | U | -- | -- | 0.0017 | U | -- | -- | -- | -- | -- | -- |
| 1,2-Dibromo-3-chloropropane | 96-12-8 | mg/kg | -- | -- | 0.0099 | U | -- | -- | -- | -- | 0.0097 | U | -- | -- | 0.012 | U | -- | -- | 0.01 | U | -- | -- | -- | -- | -- | -- |
| 1,2-Dibromoethane (EDB) | 106-93-4 | mg/kg | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0015 | U | -- | -- | 0.0019 | U | -- | -- | 0.0017 | U | -- | -- | -- | -- | -- | -- |
| 1,2-Dichlorobenzene | 95-50-1 | mg/kg | -- | -- | 0.0049 | U | -- | -- | -- | -- | 0.0048 | U | -- | -- | 0.0058 | U | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| 1,2-Dichloroethane | 107-06-2 | mg/kg | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0015 | U | -- | -- | 0.0019 | U | -- | -- | 0.0017 | U | -- | -- | -- | -- | -- | -- |
| 1,2-Dichloropropane | 78-87-5 | mg/kg | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0015 | U | -- | -- | 0.0019 | U | -- | -- | 0.0017 | U | -- | -- | -- | -- | -- | -- |
| 1,3-Dichlorobenzene | 541-73-1 | mg/kg | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0015 | U | -- | -- | 0.0019 | U | -- | -- | 0.0017 | U | -- | -- | -- | -- | -- | -- |
| 1,3-Dichloropropane | 142-28-9 | mg/kg | -- | -- | 0.0004 | U | -- | -- | -- | -- | 0.00039 | U | -- | -- | 0.00046 | U | -- | -- | 0.00042 | U | -- | -- | -- | -- | -- | -- |
| 1,4-Dichlorobenzene | 106-46-7 | mg/kg | -- | -- | 0.00079 | U | -- | -- | -- | -- | 0.00077 | U | -- | -- | 0.00093 | U | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| 2-Butanone (MEK) | 78-93-3 | mg/kg | -- | -- | 0.013 | U | -- | -- | -- | -- | 0.0077 | J | -- | -- | 0.015 | U | -- | -- | 0.013 | U | -- | -- | -- | -- | -- | -- |
| 2-Hexanone | 591-78-6 | mg/kg | -- | -- | 0.013 | U | -- | -- | -- | -- | 0.012 | U | -- | -- | 0.015 | U | -- | -- | 0.013 | U | -- | -- | -- | -- | -- | -- |
| 4-Methyl-2-pentanone (MIBK) | 108-10-1 | mg/kg | -- | -- | 0.013 | U | -- | -- | -- | -- | 0.012 | U | -- | -- | 0.015 | U | -- | -- | 0.013 | U | -- | -- | -- | -- | -- | -- |
| Acetone | 67-64-1 | mg/kg | -- | -- | 0.071 | UJ | -- | -- | -- | -- | 0.036 | J | -- | -- | 0.083 | U | -- | -- | 0.075 | U | -- | -- | -- | -- | -- | -- |
| Benzene | 71-43-2 | mg/kg | -- | -- | 0.0004 | U | -- | -- | -- | -- | 0.00039 | U | -- | -- | 0.00046 | U | -- | -- | 0.00042 | U | -- | -- | -- | -- | -- | -- |
| Bromochloromethane | 74-97-5 | mg/kg | -- | -- | 0.0049 | U | -- | -- | -- | -- | 0.0048 | U | -- | -- | 0.0058 | U | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| Bromodichloromethane | 75-27-4 | mg/kg | -- | -- | 0.0049 | U | -- | -- | -- | -- | 0.0048 | U | -- | -- | 0.0058 | U | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| Bromoform | 75-25-2 | mg/kg | -- | -- | 0.005 | U | -- | -- | -- | -- | 0.0049 | U | -- | -- | 0.0059 | U | -- | -- | 0.0053 | U | -- | -- | -- | -- | -- | -- |
| Bromomethane | 74-83-9 | mg/kg | -- | -- | 0.0032 | U | -- | -- | -- | -- | 0.0031 | U | -- | -- | 0.0037 | U | -- | -- | 0.0034 | U | -- | -- | -- | -- | -- | -- |
| Carbon disulfide | 75-15-0 | mg/kg | -- | -- | 0.0049 | U | -- | -- | -- | -- | 0.0048 | U | -- | -- | 0.0058 | U | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| Carbon tetrachloride | 56-23-5 | mg/kg | -- | -- | 0.0049 | U | -- | -- | -- | -- | 0.0048 | U | -- | -- | 0.0058 | U | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| Chlorobenzene | 108-90-7 | mg/kg | -- | -- | 0.0049 | U | -- | -- | -- | -- | 0.0048 | U | -- | -- | 0.0058 | U | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| Chloroethane | 75-00-3 | mg/kg | -- | -- | 0.0063 | U | -- | -- | -- | -- | 0.0062 | U | -- | -- | 0.0074 | U | -- | -- | 0.0067 | U | -- | -- | -- | -- | -- | -- |
| Chloroform | 67-66-3 | mg/kg | -- | -- | 0.00079 | U | -- | -- | -- | -- | 0.00077 | U | -- | -- | 0.00093 | U | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| Chloromethane | 74-87-3 | mg/kg | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0015 | U | -- | -- | 0.0019 | U | -- | -- | 0.0017 | U | -- | -- | -- | -- | -- | -- |
| cis-1,2-Dichloroethene | 156-59-2 | mg/kg | -- | -- | 0.00079 | U | -- | -- | -- | -- | 0.00077 | U | -- | -- | 0.00093 | U | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| cis-1,3-Dichloropropene | 10061-01-5 | mg/kg | -- | -- | 0.0004 | U | -- | -- | -- | -- | 0.00039 | U | -- | -- | 0.00046 | U | -- | -- | 0.00042 | U | -- | -- | -- | -- | -- | -- |
| Cumene | 98-82-8 | mg/kg | -- | -- | 0.0049 | U | -- | -- | -- | -- | 0.0059 | | -- | -- | 0.0058 | U | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| Cyclohexane | 110-82-7 | mg/kg | -- | -- | 0.0049 | U | -- | -- | -- | -- | 0.0048 | U | -- | -- | 0.0058 | U | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| Dibromochloromethane | 124-48-1 | mg/kg | -- | -- | 0.0049 | U | -- | -- | -- | -- | 0.0048 | U | -- | -- | 0.0058 | U | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| Dichlorodifluoromethane | 75-71-8 | mg/kg | -- | -- | 0.0063 | U | -- | -- | -- | -- | 0.0062 | U | -- | -- | 0.0074 | U | -- | -- | 0.0067 | U | -- | -- | -- | -- | -- | -- |
| Ethylbenzene | 100-41-4 | mg/kg | -- | -- | 0.00079 | U | -- | -- | -- | -- | 0.00077 | U | -- | -- | 0.00093 | U | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| m,p-Xylene | 179601-23-1 | mg/kg | -- | -- | 0.0032 | U | -- | -- | -- | -- | 0.0031 | U | -- | -- | 0.0037 | U | -- | -- | 0.0034 | U | -- | -- | -- | -- | -- | -- |
| Methyl acetate | 79-20-9 | mg/kg | -- | -- | 0.0079 | U | -- | -- | -- | -- | 0.0077 | U | -- | -- | 0.0093 | U | -- | -- | 0.0084 | U | -- | -- | -- | -- | -- | -- |
| Methyl tert-butyl ether (MTBE) | 1634-04-4 | mg/kg | -- | -- | 0.0063 | U | -- | -- | -- | -- | 0.0062 | U | -- | -- | 0.0074 | U | -- | -- | 0.0067 | U | -- | -- | -- | -- | -- | -- |
| Methylcyclohexane | 108-87-2 | mg/kg | -- | -- | 0.0016 | U | -- | -- | -- | -- | 0.0015 | U | -- | -- | 0.0019 | U | -- | -- | 0.0017 | U | -- | -- | -- | -- | -- | -- |
| Methylene chloride | 75-09-2 | mg/kg | -- | -- | 0.0032 | U | -- | -- | -- | -- | 0.0031 | U | -- | -- | 0.0037 | U | -- | -- | 0.0034 | U | -- | -- | -- | -- | -- | -- |
| o-Xylene | 95-47-6 | mg/kg | -- | -- | 0.00079 | U | -- | -- | -- | -- | 0.00077 | U | -- | -- | 0.00093 | U | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| Styrene | 100-42-5 | mg/kg | -- | -- | 0.00079 | U | -- | -- | -- | -- | 0.00077 | U | -- | -- | 0.00093 | U | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| Tetrachloroethene (PCE) | 127-18-4 | mg/kg | -- | -- | 0.0049 | U | -- | -- | -- | -- | 0.0048 | U | -- | -- | 0.0058 | U | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- |
| Toluene | 108-88-3 | mg/kg | -- | -- | 0.00079 | U | -- | -- | -- | -- | 0.00077 | U | -- | -- | 0.00093 | U | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| trans-1,2-Dichloroethene | 156-60-5 | mg/kg | -- | -- | 0.00079 | U | -- | -- | -- | -- | 0.00077 | U | -- | -- | 0.00093 | U | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- |
| trans-1,3-Dichloropropene | 10061-02-6 | mg/kg | -- | -- | 0.0002 | U | -- | -- | -- | -- | 0.00019 | U | -- | -- | 0.00023 | U | -- | -- | 0.00021 | U | -- | -- | -- | -- | -- | -- |
| Trichlorofluoromethane | 75-69-4 | mg/kg | -- | -- | 0.0099 | U | -- | -- | -- | -- | 0.0097 | U | -- | -- | 0.012 | U | -- | -- | 0.01 | U | -- | -- | -- | -- | -- | -- |
| Vinyl chloride | 75-01-4 | mg/kg | -- | -- | 0.0032 | U | -- | -- | -- | -- | 0.0031 | U | -- | -- | 0.0037 | U | -- | -- | 0.0034 | U | -- | -- | -- | -- | -- | -- |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U | | |
| 1,4-Dioxane | 123-91-1 | mg/kg | 0.46 | U | | R | 0.39 | U | 0.41 | U | 0.37 | U | 0.42 | U | 0.39 | U | 0.39 | UJ | 0.35 | U | | R | 0.4 | U | | |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U | | |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | mg/kg | 0.12 | U | | R | 0.099 | U | 0.1 | U | 0.093 | U | 0.11 | U | 0.098 | U | 0.097 | UJ | 0.088 | U | | R | 0.1 | U | | |
| 2,4,5-Trichlorophenol | 95-95-4 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U | | |
| 2,4,6-Trichlorophenol | 88-06-2 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U | | |
| 2,4-Dichlorophenol | 120-83-2 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U | | |
| 2,4-Dimethylphenol | 105-67-9 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.46 | U | | R | 0.39 | U | 0.41 | U | 0.37 | U | 0.42 | U | 0.39 | U | 0.39 | UJ | 0.35 | U | | R | 0.4 | U | | |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 1.8 | U | | R | 1.6 | U | 1.6 | U | 1.5 | U | 1.7 | U | 1.5 | U | 1.5 | UJ | 1.4 | U | | R | 1.6 | U | | |
| 2,4-Dinitrotoluene | 121-14-2 | mg/kg | 0.12 | U | | R | 0.099 | U | 0.1 | U | 0.093 | U | 0.11 | U | 0.098 | U | 0.097 | UJ | 0.088 | U | | R | 0.1 | U | | |
| 2,6-Dinitrotoluene | 606-20-2 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U | | |

Table D.2-2
Reduced Validated Analytical Results[(1)] - AOC 3, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-03-009 | | NYOW-03-009 | | NYOW-03-009 | | NYOW-03-010 | | NYOW-03-010 | | NYOW-03-011 | | NYOW-03-011 | | NYOW-03-012 | | NYOW-03-012 | | NYOW-03-013 | | NYOW-03-013 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-03-SL009-A_R | | NYOW-03-PH009-B | | NYOW-03-PH009-B_R | | NYOW-03-SL010-A | | NYOW-03-PH010-B | | NYOW-03-SL011-A | | NYOW-03-PH011-B | | NYOW-03-SL012-A | | NYOW-03-PH012-B | | NYOW-03-SL013-A | | NYOW-03-SL013-A_R | |
| | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | C | | C | | N | |
| | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 0 - 1 | |
| | | Sample Date: | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-04-05 | | 2021-05-04 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| 2-Chloronaphthalene | 91-58-7 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| 2-Chlorophenol | 95-57-8 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| 2-Methylphenol (o-Cresol) | 95-48-7 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| 2-Nitroaniline | 88-74-4 | mg/kg | 0.24 | U | | R | 0.2 | U | 0.21 | U | 0.19 | U | 0.22 | U | 0.2 | U | 0.2 | UJ | 0.18 | U | | R | 0.21 | U |
| 2-Nitrophenol | 88-75-5 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| 3,3'-Dichlorobenzidine | 91-94-1 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| 3-Nitroaniline | 99-09-2 | mg/kg | 0.12 | U | | R | 0.099 | U | 0.1 | U | 0.093 | U | 0.11 | U | 0.098 | U | 0.097 | UJ | 0.088 | U | | R | 0.1 | U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | mg/kg | 0.46 | U | | R | 0.39 | U | 0.41 | U | 0.37 | U | 0.42 | U | 0.39 | U | 0.39 | UJ | 0.35 | U | | R | 0.4 | U |
| 4-Bromophenyl phenyl ether | 101-55-3 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| 4-Chloro-3-methylphenol | 59-50-7 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| 4-Chloroaniline | 106-47-8 | mg/kg | 0.12 | U | | R | 0.099 | U | 0.1 | U | 0.093 | U | 0.11 | U | 0.098 | U | 0.097 | UJ | 0.088 | U | | R | 0.1 | U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| 4-Nitroaniline | 100-01-6 | mg/kg | 0.12 | U | | R | 0.099 | U | 0.1 | U | 0.093 | U | 0.11 | U | 0.098 | U | 0.097 | UJ | 0.088 | U | | R | 0.1 | U |
| 4-Nitrophenol | 100-02-7 | mg/kg | 0.93 | U | | R | 0.8 | U | 0.83 | UJ | 0.75 | UJ | 0.86 | UJ | 0.79 | UJ | 0.79 | UJ | 0.71 | UJ | | R | 0.82 | U |
| Acetophenone | 98-86-2 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| Atrazine | 1912-24-9 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| Benzaldehyde | 100-52-7 | mg/kg | 0.24 | U | | R | 0.2 | U | 0.21 | UJ | 0.19 | UJ | 0.22 | UJ | 0.2 | UJ | 0.39 | J+ | 0.18 | UJ | | R | 0.21 | U |
| Benzyl butyl phthalate | 85-68-7 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| Biphenyl (Diphenyl) | 92-52-4 | mg/kg | 0.46 | U | | R | 0.39 | U | 0.41 | U | 0.37 | U | 0.42 | U | 0.39 | U | 0.39 | UJ | 0.35 | U | | R | 0.4 | U |
| Bis(2-chloroethoxy)methane | 111-91-1 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | mg/kg | 0.12 | U | | R | 0.099 | U | 0.1 | U | 0.093 | U | 0.11 | U | 0.098 | U | 0.097 | UJ | 0.088 | U | | R | 0.1 | U |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| Caprolactam | 105-60-2 | mg/kg | 0.24 | UJ | | R | 0.2 | U | 0.21 | UJ | 0.19 | UJ | 0.22 | UJ | 0.2 | UJ | 0.2 | UJ | 0.18 | UJ | | R | 0.21 | U |
| Carbazole | 86-74-8 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.55 | | 0.079 | U | 0.12 | J- | 0.071 | U | | R | 0.082 | U |
| Cresols, m- & p- | cresols-m,p | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.39 | J+ | 0.071 | U | | R | 0.082 | U |
| Dibenzofuran | 132-64-9 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.42 | J+ | 0.079 | U | 0.39 | J+ | 0.071 | U | | R | 0.082 | U |
| Diethyl phthalate | 84-66-2 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| Dimethyl phthalate | 131-11-3 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| Di-n-butyl phthalate | 84-74-2 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.41 | U | 0.37 | U | 0.42 | U | 0.39 | U | 0.39 | UJ | 0.35 | U | | R | 0.082 | U |
| di-n-Octyl phthalate | 117-84-0 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| Hexachlorobenzene | 118-74-1 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| Hexachlorobutadiene | 87-68-3 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| Hexachlorocyclopentadiene | 77-47-4 | mg/kg | 0.093 | UJ | | R | 0.08 | UJ | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | UJ |
| Hexachloroethane | 67-72-1 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| Isophorone | 78-59-1 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| Nitrobenzene | 98-95-3 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| N-Nitrosodi-n-propylamine | 621-64-7 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| N-Nitrosodiphenylamine | 86-30-6 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| Pentachlorophenol | 87-86-5 | mg/kg | 0.93 | UJ | | R | 0.8 | UJ | 0.83 | U | 0.75 | U | 0.86 | U | 0.79 | U | 0.79 | UJ | 0.71 | U | | R | 0.82 | UJ |
| Phenol | 108-95-2 | mg/kg | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | -- | -- | 0.0023 | UJ | -- | -- | 0.027 | J | 0.046 | U | 0.049 | U | 0.0024 | U | 0.025 | J- | 0.0044 | J | 0.0011 | J | -- | -- |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | -- | -- | 0.0023 | UJ | -- | -- | 0.035 | J | 0.046 | U | 0.049 | U | 0.0024 | U | 0.028 | J- | 0.0043 | J | 0.0019 | J | -- | -- |
| Acenaphthene | 83-32-9 | mg/kg | -- | -- | 0.0013 | UJ | -- | -- | 0.026 | U | 0.024 | U | 0.026 | U | 0.012 | J+ | 0.018 | J- | 0.01 | J+ | 0.0013 | U | -- | -- |
| Acenaphthylene | 208-96-8 | mg/kg | -- | -- | 0.012 | UJ | -- | -- | 0.49 | | 0.024 | U | 0.29 | | 0.0029 | J | 0.39 | J- | 0.037 | | 0.02 | J | -- | -- |
| Anthracene | 120-12-7 | mg/kg | -- | -- | 0.0051 | UJ | -- | -- | 0.17 | J | 0.099 | U | 0.092 | J | 0.0025 | J | 0.15 | J- | 0.016 | | 0.021 | J | -- | -- |
| Benzo(a)anthracene | 56-55-3 | mg/kg | -- | -- | 0.0051 | UJ | -- | -- | 0.58 | | 0.099 | U | 0.32 | | 0.022 | | 0.64 | J- | 0.061 | | 0.056 | J | -- | -- |
| Benzo(a)pyrene | 50-32-8 | mg/kg | -- | -- | 0.0051 | UJ | -- | -- | 0.84 | | 0.099 | U | 0.44 | | 0.031 | | 0.76 | J- | 0.056 | | 0.065 | J | -- | -- |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | -- | -- | 0.0078 | UJ | -- | -- | 1 | | 0.15 | U | 0.56 | | 0.055 | | 1.1 | J- | 0.081 | | 0.12 | J | -- | -- |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | -- | -- | 0.0078 | UJ | -- | -- | 0.52 | | 0.15 | U | 0.28 | | 0.023 | | 0.34 | J- | 0.031 | J | 0.052 | J | -- | -- |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | -- | -- | 0.0051 | UJ | -- | -- | 0.43 | | 0.099 | U | 0.24 | J | 0.019 | | 0.35 | J- | 0.037 | | 0.037 | J | -- | -- |
| Chrysene | 218-01-9 | mg/kg | -- | -- | 0.0051 | UJ | -- | -- | 0.73 | | 0.099 | U | 0.42 | | 0.034 | | 0.72 | J- | 0.066 | | 0.074 | J | -- | -- |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | -- | -- | 0.0078 | UJ | -- | -- | 0.14 | J | 0.15 | U | 0.081 | J | 0.0063 | J | 0.097 | J- | 0.01 | | 0.0093 | J | -- | -- |
| Fluoranthene | 206-44-0 | mg/kg | -- | -- | 0.0051 | UJ | -- | -- | 1.1 | | 0.099 | U | 0.56 | | 0.06 | | 1.5 | J- | 0.16 | | 0.093 | J | -- | -- |
| Fluorene | 86-73-7 | mg/kg | -- | -- | 0.0031 | UJ | -- | -- | 0.077 | J | 0.061 | U | 0.033 | J | 0.0013 | J | 0.092 | J- | 0.016 | J | 0.0023 | J | -- | -- |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | -- | -- | 0.0078 | UJ | -- | -- | 0.6 | | 0.15 | U | 0.34 | | 0.035 | | 0.64 | J- | 0.04 | | 0.053 | | -- | -- |
| Naphthalene | 91-20-3 | mg/kg | -- | -- | 0.0023 | UJ | -- | -- | 0.042 | J | 0.046 | U | 0.049 | U | 0.0024 | U | 0.052 | J- | 0.01 | J+ | 0.0029 | J | -- | -- |
| Phenanthrene | 85-01-8 | mg/kg | -- | -- | 0.0078 | UJ | -- | -- | 0.45 | | 0.15 | U | 0.24 | J | 0.022 | | 0.71 | J- | 0.11 | J | 0.014 | J | -- | -- |
| Pyrene | 129-00-0 | mg/kg | -- | -- | 0.0078 | UJ | -- | -- | 1.1 | | 0.15 | U | 0.64 | | 0.048 | | 1.1 | J- | 0.11 | | 0.082 | | -- | -- |
| High Molecular Weight PAHs | N/A | mg/kg | -- | -- | 0.059 | U | -- | -- | 5.9 | | 1.1 | U | 3.3 | | 0.27 | | 5.8 | | 0.49 | | 0.54 | | -- | -- |
| Low Molecular Weight PAHs | N/A | mg/kg | -- | -- | 0.041 | U | -- | -- | 2.4 | | 0.6 | U | 1.3 | | 0.1 | | 3 | | 0.36 | | 0.16 | | -- | -- |
| Total PAHs | N/A | mg/kg | -- | -- | 0.1 | U | -- | -- | 8.4 | | 1.7 | U | 4.6 | | 0.38 | | 8.7 | | 0.85 | | 0.7 | | -- | -- |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | -- | -- | 0.15 | U | -- | -- | 0.16 | U | 0.16 | U | 0.16 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.15 | U | -- | -- |

Table D.2-2
Reduced Validated Analytical Results[(1)] - AOC 3, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-03-009 | | NYOW-03-009 | | NYOW-03-009 | | NYOW-03-010 | | NYOW-03-010 | | NYOW-03-011 | | NYOW-03-011 | | NYOW-03-012 | | NYOW-03-012 | | NYOW-03-013 | | NYOW-03-013 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-03-SL009-A_R | | NYOW-03-PH009-B | | NYOW-03-PH009-B_R | | NYOW-03-SL010-A | | NYOW-03-PH010-B | | NYOW-03-SL011-A | | NYOW-03-PH011-B | | NYOW-03-SL012-A | | NYOW-03-PH012-B | | NYOW-03-SL013-A | | NYOW-03-SL013-A_R | |
| | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | C | | C | | N | |
| | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 0 - 1 | |
| | | Sample Date: | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-04-05 | | 2021-05-04 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Polychlorinated Biphenyls (PCBs)** | | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | 12674-11-2 | mg/kg | -- | -- | 0.036 | U | -- | -- | 0.037 | UJ | 0.035 | UJ | 0.041 | UJ | 0.034 | UJ | 0.035 | UJ | 0.033 | UJ | 0.036 | UJ | -- | -- |
| PCB-1221 (Aroclor 1221) | 11104-28-2 | mg/kg | -- | -- | 0.094 | U | -- | -- | 0.096 | U | 0.09 | U | 0.11 | U | 0.089 | U | 0.092 | U | 0.086 | U | 0.095 | U | -- | -- |
| PCB-1232 (Aroclor 1232) | 11141-16-5 | mg/kg | -- | -- | 0.036 | U | -- | -- | 0.037 | U | 0.035 | U | 0.041 | U | 0.034 | U | 0.035 | U | 0.033 | U | 0.036 | U | -- | -- |
| PCB-1242 (Aroclor 1242) | 53469-21-9 | mg/kg | -- | -- | 0.057 | U | -- | -- | 0.057 | U | 0.054 | U | 0.064 | U | 0.054 | U | 0.055 | U | 0.052 | U | 0.057 | U | -- | -- |
| PCB-1248 (Aroclor 1248) | 12672-29-6 | mg/kg | -- | -- | 0.018 | U | -- | -- | 0.018 | U | 0.017 | U | 0.02 | U | 0.017 | U | 0.017 | U | 0.016 | U | 0.018 | U | -- | -- |
| PCB-1254 (Aroclor 1254) | 11097-69-1 | mg/kg | -- | -- | 0.039 | U | -- | -- | 0.04 | U | 0.037 | U | 0.045 | U | 0.037 | U | 0.038 | U | 0.036 | U | 0.04 | U | -- | -- |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | mg/kg | -- | -- | 0.0079 | U | -- | -- | 0.079 | J+ | 0.0075 | U | 0.0089 | U | 0.074 | J+ | 0.0077 | U | 0.0072 | U | 0.078 | J+ | -- | -- |
| PCB-1262 (Aroclor 1262) | 37324-23-5 | mg/kg | -- | -- | 0.019 | U | -- | -- | 0.019 | U | 0.018 | U | 0.021 | U | 0.018 | U | 0.018 | U | 0.017 | U | 0.019 | U | -- | -- |
| PCB-1268 (Aroclor 1268) | 11100-14-4 | mg/kg | -- | -- | 0.0079 | U | -- | -- | 0.008 | U | 0.0075 | U | 0.0089 | U | 0.0075 | U | 0.0077 | U | 0.0072 | U | 0.0079 | U | -- | -- |
| **Metals (Total)** | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | -- | -- | 9300 | | -- | -- | 5500 | | 7900 | | 5900 | | 6100 | | 8500 | | 5000 | | 6100 | | -- | -- |
| Antimony | 7440-36-0 | mg/kg | -- | -- | 0.2 | J+ | -- | -- | 0.19 | J | 0.16 | J+ | 0.16 | J | 0.22 | J+ | 0.18 | J | 0.15 | J+ | 0.095 | J | -- | -- |
| Arsenic | 7440-38-2 | mg/kg | -- | -- | 2.6 | | -- | -- | 2.5 | | 2.4 | | 2.4 | | 4.8 | | 2.8 | | 3 | | 2.3 | | -- | -- |
| Barium | 7440-39-3 | mg/kg | -- | -- | 22 | | -- | -- | 41 | | 25 | | 30 | | 33 | | 49 | | 25 | | 20 | | -- | -- |
| Beryllium | 7440-41-7 | mg/kg | -- | -- | 0.34 | J | -- | -- | 0.46 | J+ | 0.28 | J | 0.56 | J+ | 0.48 | | 0.43 | J+ | 0.4 | J | 0.45 | J+ | -- | -- |
| Cadmium | 7440-43-9 | mg/kg | -- | -- | 0.051 | J | -- | -- | 0.15 | | 0.087 | J | 0.2 | | 0.035 | J | 0.3 | | 0.089 | J | 0.053 | J | -- | -- |
| Calcium | 7440-70-2 | mg/kg | -- | -- | 1400 | | -- | -- | 37000 | | 2200 | | 9800 | | 66000 | | 11000 | | 40000 | J | 1600 | | -- | -- |
| Chromium | 7440-47-3 | mg/kg | -- | -- | 9.3 | | -- | -- | 7.2 | | 7.6 | | 7.4 | | 6.7 | | 10 | | 5.6 | | 6.7 | | -- | -- |
| Cobalt | 7440-48-4 | mg/kg | -- | -- | 5.1 | | -- | -- | 4.1 | | 4.3 | | 4.2 | | 10 | | 6 | | 7.5 | | 3.9 | | -- | -- |
| Copper | 7440-50-8 | mg/kg | -- | -- | 11 | | -- | -- | 12 | | 7.6 | | 13 | | 29 | | 18 | | 18 | | 9.5 | | -- | -- |
| Iron | 7439-89-6 | mg/kg | -- | -- | 12000 | | -- | -- | 12000 | | 10000 | | 11000 | | 20000 | | 15000 | | 16000 | | 11000 | | -- | -- |
| Lead | 7439-92-1 | mg/kg | -- | -- | 4.3 | | -- | -- | 21 | J+ | 8.3 | J+ | 11 | J+ | 56 | | 23 | | 38 | J | 3.9 | | -- | -- |
| Magnesium | 7439-95-4 | mg/kg | -- | -- | 1900 | | -- | -- | 8000 | | 1900 | | 2900 | | 18000 | | 3600 | | 14000 | J | 1600 | | -- | -- |
| Manganese | 7439-96-5 | mg/kg | -- | -- | 380 | | -- | -- | 340 | | 320 | | 370 | | 450 | | 650 | | 440 | | 350 | | -- | -- |
| Mercury | 7439-97-6 | mg/kg | -- | -- | 0.024 | | -- | -- | 0.04 | | 0.034 | | 0.033 | | 0.047 | | 0.022 | J | 0.045 | | 0.016 | J | -- | -- |
| Nickel | 7440-02-0 | mg/kg | -- | -- | 9.9 | | -- | -- | 9.5 | | 10 | | 9.2 | | 24 | | 13 | | 17 | | 7.9 | | -- | -- |
| Potassium | 7440-09-7 | mg/kg | -- | -- | 560 | | -- | -- | 750 | | 460 | | 750 | | 1600 | | 1200 | | 1100 | J | 600 | | -- | -- |
| Selenium | 7782-49-2 | mg/kg | -- | -- | 0.58 | J+ | -- | -- | 0.23 | J | 0.52 | J+ | 0.24 | J | 0.54 | J+ | 0.33 | J | 0.39 | J+ | 0.15 | J | -- | -- |
| Silver | 7440-22-4 | mg/kg | -- | -- | 0.57 | U | -- | -- | 1.4 | J+ | 0.52 | U | 0.67 | U | 1.4 | J+ | 0.51 | U | 1.2 | J+ | 0.54 | U | -- | -- |
| Sodium | 7440-23-5 | mg/kg | -- | -- | 470 | J+ | -- | -- | 460 | J+ | 430 | J+ | 560 | J+ | 470 | J+ | 430 | J+ | 400 | J+ | 450 | J+ | -- | -- |
| Thallium | 7440-28-0 | mg/kg | -- | -- | 0.063 | J | -- | -- | 0.094 | U | 0.1 | U | 0.1 | U | 0.49 | | 0.09 | | 0.15 | J | 0.054 | J | -- | -- |
| Vanadium | 7440-62-2 | mg/kg | -- | -- | 15 | | -- | -- | 11 | | 12 | | 12 | | 7.9 | | 16 | | 7.4 | | 12 | | -- | -- |
| Zinc | 7440-66-6 | mg/kg | -- | -- | 21 | | -- | -- | 36 | | 25 | | 36 | | 18 | | 44 | | 17 | | 23 | | -- | -- |
| **Other Inorganics** | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | -- | -- | 9.5 | | -- | -- | -- | -- | -- | -- | 26 | | 19 | | -- | -- | -- | -- | 16 | J | -- | -- |
| Total Organic Carbon | N/A | mg/kg | -- | -- | 1300 | J | -- | -- | -- | -- | -- | -- | 30000 | | 2100 | J | -- | -- | -- | -- | 24000 | J | -- | -- |
| Solids | N/A | % | 70.7 | | 80.9 | | 82.8 | | 79.9 | | 84.4 | | 74.2 | | 81.3 | | 82.3 | | 88.55 | | 81.5 | | 79.3 | |
| **Grain Size** | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | -- | -- | 0 | U | -- | -- | -- | -- | -- | -- | 3.4 | | 8.3 | | -- | -- | -- | -- | 7.9 | | -- | -- |
| Coarse Sand | N/A | % | -- | -- | 0.1 | | -- | -- | -- | -- | -- | -- | 1.8 | | 4 | | -- | -- | -- | -- | 1.3 | | -- | -- |
| Medium Sand | N/A | % | -- | -- | 0.1 | | -- | -- | -- | -- | -- | -- | 3.8 | | 6.1 | | -- | -- | -- | -- | 2.9 | | -- | -- |
| Fine Sand | N/A | % | -- | -- | 18.7 | | -- | -- | -- | -- | -- | -- | 27.2 | | 23.8 | | -- | -- | -- | -- | 29.4 | | -- | -- |
| Silt | N/A | % | -- | -- | 75.7 | | -- | -- | -- | -- | -- | -- | 60 | | 39.2 | | -- | -- | -- | -- | 57.3 | | -- | -- |
| Clay | N/A | % | -- | -- | 5.3 | | -- | -- | -- | -- | -- | -- | 3.8 | | 18.6 | | -- | -- | -- | -- | 1.4 | | -- | -- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-2
Reduced Validated Analytical Results[(1)] - AOC 3, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-03-013 | | NYOW-03-013 | | NYOW-03-014 | | NYOW-03-014 | | NYOW-03-014 | | NYOW-03-014 | | NYOW-03-015 | | NYOW-03-015 | | NYOW-03-015 | | NYOW-03-015 | | NYOW-03-016 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-03-PH013-B | | NYOW-03-PH013-B_R | | NYOW-03-SL014-A | | NYOW-03-SL014-A_R | | NYOW-03-PH014-B | | NYOW-03-PH014-B_R | | NYOW-03-SL015-A | | NYOW-03-SL015-A_R | | NYOW-03-PH015-B | | NYOW-03-PH015-B_R | | NYOW-03-SL016-A | |
| | | | Sample Type: | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | |
| | | | Sample Date: | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-01 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 71-55-6 | mg/kg | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.005 | U | -- | -- | -- | -- | | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | mg/kg | 0.00081 | U | -- | -- | -- | -- | -- | -- | 0.00082 | U | -- | -- | -- | -- | -- | -- | 0.0008 | U | -- | -- | -- | -- | | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | mg/kg | 0.0065 | U | -- | -- | -- | -- | -- | -- | 0.0065 | U | -- | -- | -- | -- | -- | -- | 0.0064 | U | -- | -- | -- | -- | | |
| 1,1,2-Trichloroethane | 79-00-5 | mg/kg | 0.0033 | U | -- | -- | -- | -- | -- | -- | 0.0033 | U | -- | -- | -- | -- | -- | -- | 0.0032 | U | -- | -- | -- | -- | | |
| 1,1-Dichloroethane | 75-34-3 | mg/kg | 0.00081 | U | -- | -- | -- | -- | -- | -- | 0.00082 | U | -- | -- | -- | -- | -- | -- | 0.0008 | U | -- | -- | -- | -- | | |
| 1,1-Dichloroethene | 75-35-4 | mg/kg | 0.0016 | U | -- | -- | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | | |
| 1,2,3-Trichlorobenzene | 87-61-6 | mg/kg | 0.0033 | U | -- | -- | -- | -- | -- | -- | 0.0033 | U | -- | -- | -- | -- | -- | -- | 0.0032 | U | -- | -- | -- | -- | | |
| 1,2,4-Trichlorobenzene | 120-82-1 | mg/kg | 0.0016 | U | -- | -- | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | | |
| 1,2-Dibromo-3-chloropropane | 96-12-8 | mg/kg | 0.01 | U | -- | -- | -- | -- | -- | -- | 0.01 | U | -- | -- | -- | -- | -- | -- | 0.01 | U | -- | -- | -- | -- | | |
| 1,2-Dibromoethane (EDB) | 106-93-4 | mg/kg | 0.0016 | U | -- | -- | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | | |
| 1,2-Dichlorobenzene | 95-50-1 | mg/kg | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.005 | U | -- | -- | -- | -- | | |
| 1,2-Dichloroethane | 107-06-2 | mg/kg | 0.0016 | U | -- | -- | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | | |
| 1,2-Dichloropropane | 78-87-5 | mg/kg | 0.0016 | U | -- | -- | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | | |
| 1,3-Dichlorobenzene | 541-73-1 | mg/kg | 0.0016 | U | -- | -- | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | | |
| 1,3-Dichloropropane | 142-28-9 | mg/kg | 0.00041 | U | -- | -- | -- | -- | -- | -- | 0.00041 | U | -- | -- | -- | -- | -- | -- | 0.0004 | U | -- | -- | -- | -- | | |
| 1,4-Dichlorobenzene | 106-46-7 | mg/kg | 0.00081 | U | -- | -- | -- | -- | -- | -- | 0.00082 | U | -- | -- | -- | -- | -- | -- | 0.0008 | U | -- | -- | -- | -- | | |
| 2-Butanone (MEK) | 78-93-3 | mg/kg | 0.013 | U | -- | -- | -- | -- | -- | -- | 0.013 | U | -- | -- | -- | -- | -- | -- | 0.013 | U | -- | -- | -- | -- | | |
| 2-Hexanone | 591-78-6 | mg/kg | 0.013 | U | -- | -- | -- | -- | -- | -- | 0.013 | U | -- | -- | -- | -- | -- | -- | 0.013 | U | -- | -- | -- | -- | | |
| 4-Methyl-2-pentanone (MIBK) | 108-10-1 | mg/kg | 0.013 | U | -- | -- | -- | -- | -- | -- | 0.013 | U | -- | -- | -- | -- | -- | -- | 0.013 | U | -- | -- | -- | -- | | |
| Acetone | 67-64-1 | mg/kg | 0.073 | UJ | -- | -- | -- | -- | -- | -- | 0.074 | UJ | -- | -- | -- | -- | -- | -- | 0.072 | UJ | -- | -- | -- | -- | | |
| Benzene | 71-43-2 | mg/kg | 0.00041 | U | -- | -- | -- | -- | -- | -- | 0.00041 | U | -- | -- | -- | -- | -- | -- | 0.0004 | U | -- | -- | -- | -- | | |
| Bromochloromethane | 74-97-5 | mg/kg | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.005 | U | -- | -- | -- | -- | | |
| Bromodichloromethane | 75-27-4 | mg/kg | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.005 | U | -- | -- | -- | -- | | |
| Bromoform | 75-25-2 | mg/kg | 0.0052 | U | -- | -- | -- | -- | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | | |
| Bromomethane | 74-83-9 | mg/kg | 0.0033 | U | -- | -- | -- | -- | -- | -- | 0.0033 | U | -- | -- | -- | -- | -- | -- | 0.0032 | U | -- | -- | -- | -- | | |
| Carbon disulfide | 75-15-0 | mg/kg | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.005 | U | -- | -- | -- | -- | | |
| Carbon tetrachloride | 56-23-5 | mg/kg | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.005 | U | -- | -- | -- | -- | | |
| Chlorobenzene | 108-90-7 | mg/kg | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.005 | U | -- | -- | -- | -- | | |
| Chloroethane | 75-00-3 | mg/kg | 0.0065 | U | -- | -- | -- | -- | -- | -- | 0.0065 | U | -- | -- | -- | -- | -- | -- | 0.0064 | U | -- | -- | -- | -- | | |
| Chloroform | 67-66-3 | mg/kg | 0.00081 | U | -- | -- | -- | -- | -- | -- | 0.00082 | U | -- | -- | -- | -- | -- | -- | 0.0008 | U | -- | -- | -- | -- | | |
| Chloromethane | 74-87-3 | mg/kg | 0.0016 | U | -- | -- | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | | |
| cis-1,2-Dichloroethene | 156-59-2 | mg/kg | 0.00081 | U | -- | -- | -- | -- | -- | -- | 0.00082 | U | -- | -- | -- | -- | -- | -- | 0.0008 | U | -- | -- | -- | -- | | |
| cis-1,3-Dichloropropene | 10061-01-5 | mg/kg | 0.00041 | U | -- | -- | -- | -- | -- | -- | 0.00041 | U | -- | -- | -- | -- | -- | -- | 0.0004 | U | -- | -- | -- | -- | | |
| Cumene | 98-82-8 | mg/kg | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.005 | U | -- | -- | -- | -- | | |
| Cyclohexane | 110-82-7 | mg/kg | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.005 | U | -- | -- | -- | -- | | |
| Dibromochloromethane | 124-48-1 | mg/kg | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.005 | U | -- | -- | -- | -- | | |
| Dichlorodifluoromethane | 75-71-8 | mg/kg | 0.0065 | U | -- | -- | -- | -- | -- | -- | 0.0065 | U | -- | -- | -- | -- | -- | -- | 0.0064 | U | -- | -- | -- | -- | | |
| Ethylbenzene | 100-41-4 | mg/kg | 0.00081 | U | -- | -- | -- | -- | -- | -- | 0.00082 | U | -- | -- | -- | -- | -- | -- | 0.0008 | U | -- | -- | -- | -- | | |
| m,p-Xylene | 179601-23-1 | mg/kg | 0.0033 | U | -- | -- | -- | -- | -- | -- | 0.0033 | U | -- | -- | -- | -- | -- | -- | 0.0032 | U | -- | -- | -- | -- | | |
| Methyl acetate | 79-20-9 | mg/kg | 0.0081 | U | -- | -- | -- | -- | -- | -- | 0.0082 | U | -- | -- | -- | -- | -- | -- | 0.008 | U | -- | -- | -- | -- | | |
| Methyl tert-butyl ether (MTBE) | 1634-04-4 | mg/kg | 0.0065 | U | -- | -- | -- | -- | -- | -- | 0.0065 | U | -- | -- | -- | -- | -- | -- | 0.0064 | U | -- | -- | -- | -- | | |
| Methylcyclohexane | 108-87-2 | mg/kg | 0.0016 | U | -- | -- | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | -- | -- | 0.0016 | U | -- | -- | -- | -- | | |
| Methylene chloride | 75-09-2 | mg/kg | 0.0033 | U | -- | -- | -- | -- | -- | -- | 0.0033 | U | -- | -- | -- | -- | -- | -- | 0.0032 | U | -- | -- | -- | -- | | |
| o-Xylene | 95-47-6 | mg/kg | 0.00081 | U | -- | -- | -- | -- | -- | -- | 0.00082 | U | -- | -- | -- | -- | -- | -- | 0.0008 | U | -- | -- | -- | -- | | |
| Styrene | 100-42-5 | mg/kg | 0.00081 | U | -- | -- | -- | -- | -- | -- | 0.00082 | U | -- | -- | -- | -- | -- | -- | 0.0008 | U | -- | -- | -- | -- | | |
| Tetrachloroethene (PCE) | 127-18-4 | mg/kg | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.005 | U | -- | -- | -- | -- | | |
| Toluene | 108-88-3 | mg/kg | 0.00081 | U | -- | -- | -- | -- | -- | -- | 0.00082 | U | -- | -- | -- | -- | -- | -- | 0.0008 | U | -- | -- | -- | -- | | |
| trans-1,2-Dichloroethene | 156-60-5 | mg/kg | 0.00081 | U | -- | -- | -- | -- | -- | -- | 0.00082 | U | -- | -- | -- | -- | -- | -- | 0.0008 | U | -- | -- | -- | -- | | |
| trans-1,3-Dichloropropene | 10061-02-6 | mg/kg | 0.0002 | U | -- | -- | -- | -- | -- | -- | 0.0002 | U | -- | -- | -- | -- | -- | -- | 0.0002 | U | -- | -- | -- | -- | | |
| Trichlorofluoromethane | 75-69-4 | mg/kg | 0.01 | U | -- | -- | -- | -- | -- | -- | 0.01 | U | -- | -- | -- | -- | -- | -- | 0.01 | U | -- | -- | -- | -- | | |
| Vinyl chloride | 75-01-4 | mg/kg | 0.0033 | U | -- | -- | -- | -- | -- | -- | 0.0033 | U | -- | -- | -- | -- | -- | -- | 0.0032 | U | -- | -- | -- | -- | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U | | |
| 1,4-Dioxane | 123-91-1 | mg/kg | | R | 0.39 | UJ | | R | 0.38 | U | | R | 0.4 | U | | R | 0.47 | UJ | | R | 0.4 | UJ | 0.37 | U | | |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U | | |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | mg/kg | | R | 0.098 | U | | R | 0.095 | U | | R | 0.1 | U | | R | 0.12 | U | | R | 0.1 | U | 0.094 | U | | |
| 2,4,5-Trichlorophenol | 95-95-4 | mg/kg | | R | 0.079 | U | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | U | | R | 0.081 | U | 0.076 | U | | |
| 2,4,6-Trichlorophenol | 88-06-2 | mg/kg | | R | 0.079 | U | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | U | | R | 0.081 | U | 0.076 | U | | |
| 2,4-Dichlorophenol | 120-83-2 | mg/kg | | R | 0.079 | U | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | U | | R | 0.081 | U | 0.076 | U | | |
| 2,4-Dimethylphenol | 105-67-9 | mg/kg | | R | 0.079 | U | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | U | | R | 0.081 | U | 0.076 | U | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | | R | 0.39 | UJ | | R | 0.38 | U | | R | 0.4 | U | | R | 0.47 | UJ | | R | 0.4 | UJ | 0.37 | U | | |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | | R | 1.5 | U | | R | 1.5 | U | | R | 1.6 | U | | R | 1.9 | U | | R | 1.6 | U | 1.5 | U | | |
| 2,4-Dinitrotoluene | 121-14-2 | mg/kg | | R | 0.098 | UJ | | R | 0.095 | U | | R | 0.1 | U | | R | 0.12 | UJ | | R | 0.1 | UJ | 0.094 | U | | |
| 2,6-Dinitrotoluene | 606-20-2 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U | | |

Table D.2-2
Reduced Validated Analytical Results[1] - AOC 3, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sample Location: | | NYOW-03-013 | | NYOW-03-013 | | NYOW-03-014 | | NYOW-03-014 | | NYOW-03-014 | | NYOW-03-014 | | NYOW-03-015 | | NYOW-03-015 | | NYOW-03-015 | | NYOW-03-015 | | NYOW-03-016 | |
| | Sample Name: | | NYOW-03-PH013-B | | NYOW-03-PH013-B_R | | NYOW-03-SL014-A | | NYOW-03-SL014-A_R | | NYOW-03-PH014-B | | NYOW-03-PH014-B_R | | NYOW-03-SL015-A | | NYOW-03-SL015-A_R | | NYOW-03-PH015-B | | NYOW-03-PH015-B_R | | NYOW-03-SL016-A | |
| | Sample Type: | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | Sample Depth (feet): | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | |
| | Sample Date: | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-01 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| 2-Chloronaphthalene | 91-58-7 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| 2-Chlorophenol | 95-57-8 | mg/kg | | R | 0.079 | U | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | U | | R | 0.081 | U | 0.076 | U |
| 2-Methylphenol (o-Cresol) | 95-48-7 | mg/kg | | R | 0.079 | U | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | U | | R | 0.081 | U | 0.076 | U |
| 2-Nitroaniline | 88-74-4 | mg/kg | | R | 0.2 | UJ | | R | 0.2 | U | | R | 0.21 | U | | R | 0.24 | UJ | | R | 0.21 | UJ | 0.19 | U |
| 2-Nitrophenol | 88-75-5 | mg/kg | | R | 0.079 | U | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | U | | R | 0.081 | U | 0.076 | U |
| 3,3'-Dichlorobenzidine | 91-94-1 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| 3-Nitroaniline | 99-09-2 | mg/kg | | R | 0.098 | UJ | | R | 0.095 | U | | R | 0.1 | U | | R | 0.12 | UJ | | R | 0.1 | UJ | 0.094 | U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | mg/kg | | R | 0.39 | U | | R | 0.38 | U | | R | 0.4 | U | | R | 0.47 | U | | R | 0.4 | U | 0.37 | U |
| 4-Bromophenyl phenyl ether | 101-55-3 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| 4-Chloro-3-methylphenol | 59-50-7 | mg/kg | | R | 0.079 | U | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | U | | R | 0.081 | U | 0.076 | U |
| 4-Chloroaniline | 106-47-8 | mg/kg | | R | 0.098 | UJ | | R | 0.095 | U | | R | 0.1 | U | | R | 0.12 | UJ | | R | 0.1 | UJ | 0.094 | U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| 4-Nitroaniline | 100-01-6 | mg/kg | | R | 0.098 | UJ | | R | 0.095 | U | | R | 0.1 | U | | R | 0.12 | UJ | | R | 0.1 | UJ | 0.094 | U |
| 4-Nitrophenol | 100-02-7 | mg/kg | | R | 0.79 | U | | R | 0.77 | U | | R | 0.82 | U | | R | 0.96 | U | | R | 0.81 | U | 0.76 | U |
| Acetophenone | 98-86-2 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| Atrazine | 1912-24-9 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| Benzaldehyde | 100-52-7 | mg/kg | | R | 0.2 | UJ | | R | 0.2 | U | | R | 0.21 | U | | R | 0.47 | J+ | | R | 0.21 | UJ | 0.19 | U |
| Benzyl butyl phthalate | 85-68-7 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| Biphenyl (Diphenyl) | 92-52-4 | mg/kg | | R | 0.39 | UJ | | R | 0.38 | U | | R | 0.4 | U | | R | 0.47 | UJ | | R | 0.4 | UJ | 0.37 | U |
| Bis(2-chloroethoxy)methane | 111-91-1 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | mg/kg | | R | 0.098 | UJ | | R | 0.095 | U | | R | 0.1 | U | | R | 0.12 | UJ | | R | 0.1 | UJ | 0.094 | U |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 3.4 | J- | | R | 0.081 | UJ | 0.076 | U |
| Caprolactam | 105-60-2 | mg/kg | | R | 0.2 | UJ | | R | 0.2 | U | | R | 0.21 | U | | R | 0.24 | UJ | | R | 0.21 | UJ | 0.19 | U |
| Carbazole | 86-74-8 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| Cresols, m- & p- | cresols-m,p | mg/kg | | R | 0.079 | U | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | U | | R | 0.081 | U | 0.076 | U |
| Dibenzofuran | 132-64-9 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| Diethyl phthalate | 84-66-2 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| Dimethyl phthalate | 131-11-3 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| Di-n-butyl phthalate | 84-74-2 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| di-n-Octyl phthalate | 117-84-0 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| Hexachlorobenzene | 118-74-1 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| Hexachlorobutadiene | 87-68-3 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| Hexachlorocyclopentadiene | 77-47-4 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | UJ | | R | 0.082 | UJ | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| Hexachloroethane | 67-72-1 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| Isophorone | 78-59-1 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| Nitrobenzene | 98-95-3 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| N-Nitrosodi-n-propylamine | 621-64-7 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| N-Nitrosodiphenylamine | 86-30-6 | mg/kg | | R | 0.079 | UJ | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U |
| Pentachlorophenol | 87-86-5 | mg/kg | | R | 0.79 | UJ | | R | 0.77 | UJ | | R | 0.82 | UJ | | R | 0.96 | UJ | | R | 0.81 | UJ | 0.76 | UJ |
| Phenol | 108-95-2 | mg/kg | | R | 0.079 | U | | R | 0.077 | U | | R | 0.082 | U | | R | 0.096 | U | | R | 0.081 | U | 0.076 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0025 | U | -- | -- | 0.01 | J | -- | -- | 0.0024 | U | -- | -- | 0.65 | | -- | -- | 0.00065 | J | -- | -- | 0.0023 | J |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0025 | U | -- | -- | 0.012 | J | -- | -- | 0.0024 | U | -- | -- | 1 | | -- | -- | 0.00085 | J | -- | -- | 0.0024 | J |
| Acenaphthene | 83-32-9 | mg/kg | 0.0013 | U | -- | -- | 0.012 | U | -- | -- | 0.0013 | U | -- | -- | 4.3 | | -- | -- | 0.0013 | U | -- | -- | 0.0012 | J |
| Acenaphthylene | 208-96-8 | mg/kg | 0.013 | U | -- | -- | 0.12 | | -- | -- | 0.012 | U | -- | -- | 1.1 | | -- | -- | 0.012 | U | -- | -- | 0.02 | |
| Anthracene | 120-12-7 | mg/kg | 0.0054 | U | -- | -- | 0.08 | J | -- | -- | 0.0021 | J | -- | -- | 8.2 | | -- | -- | 0.0065 | J | -- | -- | 0.0082 | J |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0054 | U | -- | -- | 0.26 | | -- | -- | 0.0037 | J | -- | -- | 5.3 | | -- | -- | 0.019 | | -- | -- | 0.046 | |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0054 | U | -- | -- | 0.26 | | -- | -- | 0.0039 | J | -- | -- | 3.2 | | -- | -- | 0.019 | | -- | -- | 0.056 | |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.0084 | U | -- | -- | 0.37 | | -- | -- | 0.0061 | J | -- | -- | 4.9 | | -- | -- | 0.031 | | -- | -- | 0.075 | |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0084 | U | -- | -- | 0.15 | | -- | -- | 0.0081 | U | -- | -- | 1.3 | | -- | -- | 0.01 | J | -- | -- | 0.035 | |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0054 | U | -- | -- | 0.16 | | -- | -- | 0.0027 | J | -- | -- | 1.7 | | -- | -- | 0.0099 | J | -- | -- | 0.027 | |
| Chrysene | 218-01-9 | mg/kg | 0.0054 | U | -- | -- | 0.27 | | -- | -- | 0.0044 | J | -- | -- | 4.9 | | -- | -- | 0.02 | | -- | -- | 0.052 | |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0084 | U | -- | -- | 0.05 | J | -- | -- | 0.0081 | U | -- | -- | 0.44 | | -- | -- | 0.0082 | U | -- | -- | 0.0077 | U |
| Fluoranthene | 206-44-0 | mg/kg | 0.0054 | U | -- | -- | 0.45 | | -- | -- | 0.0075 | J | -- | -- | 20 | | -- | -- | 0.029 | | -- | -- | 0.078 | |
| Fluorene | 86-73-7 | mg/kg | 0.0033 | U | -- | -- | 0.039 | J | -- | -- | 0.0014 | J | -- | -- | 4.3 | | -- | -- | 0.0017 | J | -- | -- | 0.0022 | J |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0084 | U | -- | -- | 0.19 | | -- | -- | 0.0028 | J | -- | -- | 1.7 | | -- | -- | 0.012 | | -- | -- | 0.043 | |
| Naphthalene | 91-20-3 | mg/kg | 0.0025 | U | -- | -- | 0.008 | J | -- | -- | 0.0024 | U | -- | -- | 0.78 | | -- | -- | 0.012 | J+ | -- | -- | 0.0025 | J |
| Phenanthrene | 85-01-8 | mg/kg | 0.0084 | U | -- | -- | 0.29 | | -- | -- | 0.0052 | J | -- | -- | 27 | | -- | -- | 0.012 | | -- | -- | 0.022 | |
| Pyrene | 129-00-0 | mg/kg | 0.0084 | U | -- | -- | 0.44 | | -- | -- | 0.0059 | J | -- | -- | 16 | | -- | -- | 0.029 | | -- | -- | 0.075 | |
| High Molecular Weight PAHs | N/A | mg/kg | 0.064 | U | -- | -- | 2.2 | | -- | -- | 0.038 | | -- | -- | 39 | | -- | -- | 0.16 | | -- | -- | 0.42 | |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.044 | U | -- | -- | 1 | | -- | -- | 0.025 | | -- | -- | 67 | | -- | -- | 0.066 | | -- | -- | 0.14 | |
| Total PAHs | N/A | mg/kg | 0.11 | U | -- | -- | 3.2 | | -- | -- | 0.062 | | -- | -- | 110 | | -- | -- | 0.22 | | -- | -- | 0.55 | |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.15 | U | -- | -- | 0.16 | U | -- | -- | 0.16 | U | -- | -- | 0.15 | U | -- | -- | 0.16 | U | -- | -- | 0.16 | U |

Table D.2-2
Reduced Validated Analytical Results[1] - AOC 3, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Location: | NYOW-03-013 | | NYOW-03-013 | | NYOW-03-014 | | NYOW-03-014 | | NYOW-03-014 | | NYOW-03-014 | | NYOW-03-015 | | NYOW-03-015 | | NYOW-03-015 | | NYOW-03-015 | | NYOW-03-016 | |
| | | Sample Name: | NYOW-03-PH013-B | | NYOW-03-PH013-B_R | | NYOW-03-SL014-A | | NYOW-03-SL014-A_R | | NYOW-03-PH014-B | | NYOW-03-PH014-B_R | | NYOW-03-SL015-A | | NYOW-03-SL015-A_R | | NYOW-03-PH015-B | | NYOW-03-PH015-B_R | | NYOW-03-SL016-A | |
| | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | |
| | | Sample Date: | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-01 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Polychlorinated Biphenyls (PCBs)** | | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | 12674-11-2 | mg/kg | 0.036 | U | -- | -- | 0.032 | U | -- | -- | 0.035 | U | -- | -- | 0.048 | U | -- | -- | 0.038 | U | -- | -- | 0.035 | UJ |
| PCB-1221 (Aroclor 1221) | 11104-28-2 | mg/kg | 0.094 | U | -- | -- | 0.084 | U | -- | -- | 0.09 | U | -- | -- | 0.12 | U | -- | -- | 0.098 | U | -- | -- | 0.092 | U |
| PCB-1232 (Aroclor 1232) | 11141-16-5 | mg/kg | 0.036 | U | -- | -- | 0.032 | U | -- | -- | 0.035 | U | -- | -- | 0.048 | U | -- | -- | 0.038 | U | -- | -- | 0.035 | U |
| PCB-1242 (Aroclor 1242) | 53469-21-9 | mg/kg | 0.056 | U | -- | -- | 0.051 | U | -- | -- | 0.054 | U | -- | -- | 0.075 | U | -- | -- | 0.059 | U | -- | -- | 0.055 | U |
| PCB-1248 (Aroclor 1248) | 12672-29-6 | mg/kg | 0.018 | U | -- | -- | 0.016 | U | -- | -- | 0.017 | U | -- | -- | 0.023 | U | -- | -- | 0.018 | U | -- | -- | 0.017 | U |
| PCB-1254 (Aroclor 1254) | 11097-69-1 | mg/kg | 0.039 | U | -- | -- | 0.035 | U | -- | -- | 0.038 | U | -- | -- | 0.052 | U | -- | -- | 0.041 | U | -- | -- | 0.038 | U |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | mg/kg | 0.0078 | U | -- | -- | 0.007 | U | -- | -- | 0.0075 | U | -- | -- | 0.1 | J+ | -- | -- | 0.0082 | U | -- | -- | 0.0076 | UJ |
| PCB-1262 (Aroclor 1262) | 37324-23-5 | mg/kg | 0.019 | U | -- | -- | 0.017 | U | -- | -- | 0.018 | U | -- | -- | 0.025 | U | -- | -- | 0.02 | U | -- | -- | 0.018 | U |
| PCB-1268 (Aroclor 1268) | 11100-14-4 | mg/kg | 0.0078 | U | -- | -- | 0.007 | U | -- | -- | 0.0075 | U | -- | -- | 0.01 | U | -- | -- | 0.0082 | U | -- | -- | 0.0076 | U |
| **Metals (Total)** | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 9100 | | -- | -- | 4400 | | -- | -- | 10000 | | -- | -- | 6100 | | -- | -- | 11000 | | -- | -- | 7300 | |
| Antimony | 7440-36-0 | mg/kg | 0.2 | J+ | -- | -- | 0.13 | J | -- | -- | 0.19 | J+ | -- | -- | 0.24 | J | -- | -- | 0.24 | J+ | -- | -- | 0.3 | |
| Arsenic | 7440-38-2 | mg/kg | 2.2 | | -- | -- | 2.7 | | -- | -- | 3 | | -- | -- | 3.8 | | -- | -- | 3.7 | | -- | -- | 3.6 | |
| Barium | 7440-39-3 | mg/kg | 19 | | -- | -- | 26 | | -- | -- | 29 | | -- | -- | 39 | | -- | -- | 30 | | -- | -- | 40 | |
| Beryllium | 7440-41-7 | mg/kg | 0.31 | J | -- | -- | 0.49 | J+ | -- | -- | 0.38 | J | -- | -- | 0.73 | J+ | -- | -- | 0.36 | J | -- | -- | 0.46 | J+ |
| Cadmium | 7440-43-9 | mg/kg | 0.081 | J | -- | -- | 0.22 | | -- | -- | 0.083 | J | -- | -- | 0.49 | | -- | -- | 0.11 | | -- | -- | 0.55 | |
| Calcium | 7440-70-2 | mg/kg | 1200 | | -- | -- | 74000 | | -- | -- | 3800 | | -- | -- | 25000 | | -- | -- | 2200 | | -- | -- | 32000 | J |
| Chromium | 7440-47-3 | mg/kg | 8.4 | | -- | -- | 8.1 | | -- | -- | 10 | | -- | -- | 9.3 | | -- | -- | 10 | | -- | -- | 8.7 | |
| Cobalt | 7440-48-4 | mg/kg | 4.7 | | -- | -- | 4.1 | | -- | -- | 5.3 | | -- | -- | 3.8 | | -- | -- | 6.3 | | -- | -- | 6 | |
| Copper | 7440-50-8 | mg/kg | 8.9 | | -- | -- | 19 | | -- | -- | 13 | | -- | -- | 21 | | -- | -- | 9.8 | | -- | -- | 28 | |
| Iron | 7439-89-6 | mg/kg | 11000 | | -- | -- | 10000 | | -- | -- | 14000 | | -- | -- | 11000 | | -- | -- | 14000 | | -- | -- | 19000 | |
| Lead | 7439-92-1 | mg/kg | 4.7 | | -- | -- | 18 | | -- | -- | 10 | | -- | -- | 28 | | -- | -- | 8.8 | | -- | -- | 38 | |
| Magnesium | 7439-95-4 | mg/kg | 1700 | | -- | -- | 7100 | | -- | -- | 2500 | | -- | -- | 3100 | | -- | -- | 1700 | | -- | -- | 9200 | J |
| Manganese | 7439-96-5 | mg/kg | 300 | | -- | -- | 420 | | -- | -- | 420 | | -- | -- | 340 | | -- | -- | 370 | | -- | -- | 560 | J |
| Mercury | 7439-97-6 | mg/kg | 0.023 | | -- | -- | 0.025 | | -- | -- | 0.036 | | -- | -- | 0.059 | | -- | -- | 0.034 | | -- | -- | 0.045 | |
| Nickel | 7440-02-0 | mg/kg | 9.7 | | -- | -- | 9.8 | | -- | -- | 10 | | -- | -- | 8.8 | | -- | -- | 9.8 | | -- | -- | 11 | |
| Potassium | 7440-09-7 | mg/kg | 500 | | -- | -- | 830 | | -- | -- | 590 | | -- | -- | 920 | | -- | -- | 500 | | -- | -- | 870 | |
| Selenium | 7782-49-2 | mg/kg | 0.52 | J+ | -- | -- | 0.2 | J | -- | -- | 0.55 | J+ | -- | -- | 0.31 | J | -- | -- | 0.45 | J+ | -- | -- | 0.29 | J |
| Silver | 7440-22-4 | mg/kg | 0.6 | U | -- | -- | 0.59 | U | -- | -- | 0.63 | U | -- | -- | 0.88 | U | -- | -- | 0.59 | U | -- | -- | 1.4 | J+ |
| Sodium | 7440-23-5 | mg/kg | 500 | J+ | -- | -- | 490 | J+ | -- | -- | 530 | J+ | -- | -- | 730 | J+ | -- | -- | 490 | J+ | -- | -- | 460 | J+ |
| Thallium | 7440-28-0 | mg/kg | 0.061 | J | -- | -- | 0.09 | | -- | -- | 0.073 | J | -- | -- | 0.11 | J | -- | -- | 0.083 | J | -- | -- | 0.13 | |
| Vanadium | 7440-62-2 | mg/kg | 14 | | -- | -- | 11 | | -- | -- | 16 | | -- | -- | 14 | | -- | -- | 16 | | -- | -- | 16 | |
| Zinc | 7440-66-6 | mg/kg | 23 | | -- | -- | 55 | | -- | -- | 33 | | -- | -- | 85 | | -- | -- | 28 | | -- | -- | 50 | |
| **Other Inorganics** | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 10 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 57 | | -- | -- | 19 | | -- | -- | -- | -- |
| Total Organic Carbon | N/A | mg/kg | 4200 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 93000 | | -- | -- | 11000 | | -- | -- | -- | -- |
| Solids | N/A | % | 79.6 | | 81.8 | | 85.6 | | 83.7 | | 80.6 | | 81.2 | | 57.7 | | 68.2 | | 80.2 | | 79.2 | | 84.5 | |
| **Grain Size** | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 0 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 7.9 | | -- | -- | 5.6 | | -- | -- | -- | -- |
| Coarse Sand | N/A | % | 0.1 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2.4 | | -- | -- | 1.6 | | -- | -- | -- | -- |
| Medium Sand | N/A | % | 0.2 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 7.6 | | -- | -- | 2 | | -- | -- | -- | -- |
| Fine Sand | N/A | % | 17.6 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 24.7 | | -- | -- | 27.3 | | -- | -- | -- | -- |
| Silt | N/A | % | 78.6 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 50.9 | | -- | -- | 57 | | -- | -- | -- | -- |
| Clay | N/A | % | 3.5 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 6.5 | | -- | -- | 6.5 | | -- | -- | -- | -- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-2
Reduced Validated Analytical Results[1] - AOC 3, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Location: | NYOW-03-016 | | NYOW-03-016 | | NYOW-03-017 | | NYOW-03-017 | | NYOW-03-018 | | NYOW-03-018 | |
| | | Sample Name: | NYOW-03-PH016-B | | NYOW-03-PH016-B_R | | NYOW-03-PH017-B | | NYOW-03-PH017-B_R | | NYOW-03-PH018-B | | NYOW-03-PH018-B_R | |
| | | Sample Type: | N | | N | | N | | N | | N | | N | |
| | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | Sample Date: | 2021-04-01 | | 2021-05-04 | | 2021-04-01 | | 2021-05-04 | | 2021-04-01 | | 2021-05-04 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 71-55-6 | mg/kg | -- | -- | 0.0048 | U | -- | -- | 0.0046 | U | -- | -- | 0.0058 | U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | mg/kg | -- | -- | 0.00077 | U | -- | -- | 0.00073 | U | -- | -- | 0.00092 | U |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | mg/kg | -- | -- | 0.0061 | U | -- | -- | 0.0058 | U | -- | -- | 0.0074 | U |
| 1,1,2-Trichloroethane | 79-00-5 | mg/kg | -- | -- | 0.0031 | U | -- | -- | 0.0029 | U | -- | -- | 0.0037 | U |
| 1,1-Dichloroethane | 75-34-3 | mg/kg | -- | -- | 0.00077 | U | -- | -- | 0.00073 | U | -- | -- | 0.00092 | U |
| 1,1-Dichloroethene | 75-35-4 | mg/kg | -- | -- | 0.0015 | U | -- | -- | 0.0015 | U | -- | -- | 0.0018 | U |
| 1,2,3-Trichlorobenzene | 87-61-6 | mg/kg | -- | -- | 0.0031 | U | -- | -- | 0.0029 | U | -- | -- | 0.0037 | U |
| 1,2,4-Trichlorobenzene | 120-82-1 | mg/kg | -- | -- | 0.0015 | U | -- | -- | 0.0015 | U | -- | -- | 0.0018 | U |
| 1,2-Dibromo-3-chloropropane | 96-12-8 | mg/kg | -- | -- | 0.0096 | U | -- | -- | 0.0091 | U | -- | -- | 0.012 | U |
| 1,2-Dibromoethane (EDB) | 106-93-4 | mg/kg | -- | -- | 0.0015 | U | -- | -- | 0.0015 | U | -- | -- | 0.0018 | U |
| 1,2-Dichlorobenzene | 95-50-1 | mg/kg | -- | -- | 0.0048 | U | -- | -- | 0.0046 | U | -- | -- | 0.0058 | U |
| 1,2-Dichloroethane | 107-06-2 | mg/kg | -- | -- | 0.0015 | U | -- | -- | 0.0015 | U | -- | -- | 0.0018 | U |
| 1,2-Dichloropropane | 78-87-5 | mg/kg | -- | -- | 0.0015 | U | -- | -- | 0.0015 | U | -- | -- | 0.0018 | U |
| 1,3-Dichlorobenzene | 541-73-1 | mg/kg | -- | -- | 0.0015 | U | -- | -- | 0.0015 | U | -- | -- | 0.0018 | U |
| 1,3-Dichloropropane | 142-28-9 | mg/kg | -- | -- | 0.00038 | U | -- | -- | 0.00036 | U | -- | -- | 0.00046 | U |
| 1,4-Dichlorobenzene | 106-46-7 | mg/kg | -- | -- | 0.00077 | U | -- | -- | 0.00073 | U | -- | -- | 0.00092 | U |
| 2-Butanone (MEK) | 78-93-3 | mg/kg | -- | -- | 0.0049 | J- | -- | -- | 0.0057 | J- | -- | -- | 0.03 | J- |
| 2-Hexanone | 591-78-6 | mg/kg | -- | -- | 0.012 | U | -- | -- | 0.012 | U | -- | -- | 0.015 | U |
| 4-Methyl-2-pentanone (MIBK) | 108-10-1 | mg/kg | -- | -- | 0.012 | U | -- | -- | 0.012 | U | -- | -- | 0.015 | U |
| Acetone | 67-64-1 | mg/kg | -- | -- | 0.099 | | -- | -- | 0.12 | | -- | -- | 0.32 | |
| Benzene | 71-43-2 | mg/kg | -- | -- | 0.00038 | U | -- | -- | 0.00036 | U | -- | -- | 0.00046 | U |
| Bromochloromethane | 74-97-5 | mg/kg | -- | -- | 0.0048 | U | -- | -- | 0.0046 | U | -- | -- | 0.0058 | U |
| Bromodichloromethane | 75-27-4 | mg/kg | -- | -- | 0.0048 | U | -- | -- | 0.0046 | U | -- | -- | 0.0058 | U |
| Bromoform | 75-25-2 | mg/kg | -- | -- | 0.0049 | U | -- | -- | 0.0047 | U | -- | -- | 0.0059 | U |
| Bromomethane | 74-83-9 | mg/kg | -- | -- | 0.0031 | U | -- | -- | 0.0029 | U | -- | -- | 0.0037 | U |
| Carbon disulfide | 75-15-0 | mg/kg | -- | -- | 0.0048 | U | -- | -- | 0.0046 | U | -- | -- | 0.0058 | U |
| Carbon tetrachloride | 56-23-5 | mg/kg | -- | -- | 0.0048 | U | -- | -- | 0.0046 | U | -- | -- | 0.0058 | U |
| Chlorobenzene | 108-90-7 | mg/kg | -- | -- | 0.0048 | U | -- | -- | 0.0046 | U | -- | -- | 0.0058 | U |
| Chloroethane | 75-00-3 | mg/kg | -- | -- | 0.0061 | U | -- | -- | 0.0058 | U | -- | -- | 0.0074 | U |
| Chloroform | 67-66-3 | mg/kg | -- | -- | 0.00077 | UJ | -- | -- | 0.00073 | UJ | -- | -- | 0.00092 | UJ |
| Chloromethane | 74-87-3 | mg/kg | -- | -- | 0.0015 | U | -- | -- | 0.0015 | U | -- | -- | 0.0018 | U |
| cis-1,2-Dichloroethene | 156-59-2 | mg/kg | -- | -- | 0.00077 | U | -- | -- | 0.00073 | U | -- | -- | 0.00092 | U |
| cis-1,3-Dichloropropene | 10061-01-5 | mg/kg | -- | -- | 0.00038 | U | -- | -- | 0.00036 | U | -- | -- | 0.00046 | U |
| Cumene | 98-82-8 | mg/kg | -- | -- | 0.0048 | U | -- | -- | 0.0046 | U | -- | -- | 0.0058 | U |
| Cyclohexane | 110-82-7 | mg/kg | -- | -- | 0.0048 | U | -- | -- | 0.0046 | U | -- | -- | 0.0058 | U |
| Dibromochloromethane | 124-48-1 | mg/kg | -- | -- | 0.0048 | U | -- | -- | 0.0046 | U | -- | -- | 0.0058 | U |
| Dichlorodifluoromethane | 75-71-8 | mg/kg | -- | -- | 0.0061 | U | -- | -- | 0.0058 | U | -- | -- | 0.0074 | U |
| Ethylbenzene | 100-41-4 | mg/kg | -- | -- | 0.00077 | U | -- | -- | 0.00073 | U | -- | -- | 0.00092 | U |
| m,p-Xylene | 179601-23-1 | mg/kg | -- | -- | 0.0031 | U | -- | -- | 0.0029 | U | -- | -- | 0.0037 | U |
| Methyl acetate | 79-20-9 | mg/kg | -- | -- | 0.0077 | U | -- | -- | 0.0073 | U | -- | -- | 0.0092 | U |
| Methyl tert-butyl ether (MTBE) | 1634-04-4 | mg/kg | -- | -- | 0.0061 | U | -- | -- | 0.0058 | U | -- | -- | 0.0074 | U |
| Methylcyclohexane | 108-87-2 | mg/kg | -- | -- | 0.0015 | U | -- | -- | 0.0015 | U | -- | -- | 0.0018 | U |
| Methylene chloride | 75-09-2 | mg/kg | -- | -- | 0.0031 | U | -- | -- | 0.0029 | U | -- | -- | 0.0037 | U |
| o-Xylene | 95-47-6 | mg/kg | -- | -- | 0.00077 | U | -- | -- | 0.00073 | U | -- | -- | 0.00092 | U |
| Styrene | 100-42-5 | mg/kg | -- | -- | 0.00077 | U | -- | -- | 0.00073 | U | -- | -- | 0.00092 | U |
| Tetrachloroethene (PCE) | 127-18-4 | mg/kg | -- | -- | 0.0048 | U | -- | -- | 0.0046 | U | -- | -- | 0.0058 | U |
| Toluene | 108-88-3 | mg/kg | -- | -- | 0.0048 | J+ | -- | -- | 0.0046 | J+ | -- | -- | 0.00092 | U |
| trans-1,2-Dichloroethene | 156-60-5 | mg/kg | -- | -- | 0.00077 | U | -- | -- | 0.00073 | U | -- | -- | 0.00092 | U |
| trans-1,3-Dichloropropene | 10061-02-6 | mg/kg | -- | -- | 0.00019 | U | -- | -- | 0.00018 | U | -- | -- | 0.00023 | U |
| Trichlorofluoromethane | 75-69-4 | mg/kg | -- | -- | 0.0096 | UJ | -- | -- | 0.0091 | UJ | -- | -- | 0.012 | UJ |
| Vinyl chloride | 75-01-4 | mg/kg | -- | -- | 0.0031 | U | -- | -- | 0.0029 | U | -- | -- | 0.0037 | U |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,4-Dioxane | 123-91-1 | mg/kg | 0.4 | U | 0.39 | U | -- | -- | -- | -- | -- | -- | -- | -- |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | mg/kg | 0.1 | U | 0.099 | U | -- | -- | -- | -- | -- | -- | -- | -- |
| 2,4,5-Trichlorophenol | 95-95-4 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- |
| 2,4,6-Trichlorophenol | 88-06-2 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- |
| 2,4-Dichlorophenol | 120-83-2 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- |
| 2,4-Dimethylphenol | 105-67-9 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.4 | U | 0.39 | U | -- | -- | -- | -- | -- | -- | -- | -- |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 1.6 | U | 1.5 | U | -- | -- | -- | -- | -- | -- | -- | -- |
| 2,4-Dinitrotoluene | 121-14-2 | mg/kg | 0.1 | U | 0.099 | U | -- | -- | -- | -- | -- | -- | -- | -- |
| 2,6-Dinitrotoluene | 606-20-2 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- |

Table D.2-2
Reduced Validated Analytical Results[1] - AOC 3, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-03-016 | | NYOW-03-016 | | NYOW-03-017 | | NYOW-03-017 | | NYOW-03-018 | | NYOW-03-018 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-03-PH016-B | | NYOW-03-PH016-B_R | | NYOW-03-PH017-B | | NYOW-03-PH017-B_R | | NYOW-03-PH018-B | | NYOW-03-PH018-B_R | |
| | | | Sample Type: | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | Sample Date: | | 2021-04-01 | | 2021-05-04 | | 2021-04-01 | | 2021-05-04 | | 2021-04-01 | | 2021-05-04 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| 2-Chloronaphthalene | 91-58-7 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2-Chlorophenol | 95-57-8 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2-Methylphenol (o-Cresol) | 95-48-7 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2-Nitroaniline | 88-74-4 | mg/kg | 0.21 | U | 0.2 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2-Nitrophenol | 88-75-5 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3,3'-Dichlorobenzidine | 91-94-1 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3-Nitroaniline | 99-09-2 | mg/kg | 0.1 | U | 0.099 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | mg/kg | 0.4 | U | 0.39 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 4-Bromophenyl phenyl ether | 101-55-3 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 4-Chloro-3-methylphenol | 59-50-7 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 4-Chloroaniline | 106-47-8 | mg/kg | 0.1 | U | 0.099 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 4-Nitroaniline | 100-01-6 | mg/kg | 0.1 | U | 0.099 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 4-Nitrophenol | 100-02-7 | mg/kg | 0.82 | U | 0.8 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Acetophenone | 98-86-2 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Atrazine | 1912-24-9 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzaldehyde | 100-52-7 | mg/kg | 0.21 | U | 0.2 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzyl butyl phthalate | 85-68-7 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Biphenyl (Diphenyl) | 92-52-4 | mg/kg | 0.4 | U | 0.39 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Bis(2-chloroethoxy)methane | 111-91-1 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | mg/kg | 0.1 | U | 0.099 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Caprolactam | 105-60-2 | mg/kg | 0.21 | U | 0.2 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbazole | 86-74-8 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Cresols, m- & p- | cresols-m,p | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dibenzofuran | 132-64-9 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Diethyl phthalate | 84-66-2 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dimethyl phthalate | 131-11-3 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Di-n-butyl phthalate | 84-74-2 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| di-n-Octyl phthalate | 117-84-0 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hexachlorobenzene | 118-74-1 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hexachlorobutadiene | 87-68-3 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hexachlorocyclopentadiene | 77-47-4 | mg/kg | 0.082 | U | 0.08 | UJ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hexachloroethane | 67-72-1 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Isophorone | 78-59-1 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrobenzene | 98-95-3 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| N-Nitrosodi-n-propylamine | 621-64-7 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| N-Nitrosodiphenylamine | 86-30-6 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Pentachlorophenol | 87-86-5 | mg/kg | 0.82 | UJ | 0.8 | UJ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phenol | 108-95-2 | mg/kg | 0.082 | U | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0022 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0022 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Acenaphthene | 83-32-9 | mg/kg | 0.0012 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0012 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Anthracene | 120-12-7 | mg/kg | 0.0048 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0025 | J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0027 | J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.004 | J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0074 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0048 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chrysene | 218-01-9 | mg/kg | 0.0028 | J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0074 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Fluoranthene | 206-44-0 | mg/kg | 0.0047 | J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Fluorene | 86-73-7 | mg/kg | 0.003 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0074 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Naphthalene | 91-20-3 | mg/kg | 0.0022 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phenanthrene | 85-01-8 | mg/kg | 0.0074 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Pyrene | 129-00-0 | mg/kg | 0.0039 | J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| High Molecular Weight PAHs | N/A | mg/kg | 0.029 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.015 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total PAHs | N/A | mg/kg | 0.042 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Explosives | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.16 | UJ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

Table D.2-2
Reduced Validated Analytical Results[1] - AOC 3, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Location: | NYOW-03-016 | | NYOW-03-016 | | NYOW-03-017 | | NYOW-03-017 | | NYOW-03-018 | | NYOW-03-018 | |
| | | Sample Name: | NYOW-03-PH016-B | | NYOW-03-PH016-B_R | | NYOW-03-PH017-B | | NYOW-03-PH017-B_R | | NYOW-03-PH018-B | | NYOW-03-PH018-B_R | |
| | | Sample Type: | N | | N | | N | | N | | N | | N | |
| | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | Sample Date: | 2021-04-01 | | 2021-05-04 | | 2021-04-01 | | 2021-05-04 | | 2021-04-01 | | 2021-05-04 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | 12674-11-2 | mg/kg | 0.037 | UJ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| PCB-1221 (Aroclor 1221) | 11104-28-2 | mg/kg | 0.097 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| PCB-1232 (Aroclor 1232) | 11141-16-5 | mg/kg | 0.037 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| PCB-1242 (Aroclor 1242) | 53469-21-9 | mg/kg | 0.058 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| PCB-1248 (Aroclor 1248) | 12672-29-6 | mg/kg | 0.018 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| PCB-1254 (Aroclor 1254) | 11097-69-1 | mg/kg | 0.04 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | mg/kg | 0.0081 | UJ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| PCB-1262 (Aroclor 1262) | 37324-23-5 | mg/kg | 0.019 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| PCB-1268 (Aroclor 1268) | 11100-14-4 | mg/kg | 0.0081 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals (Total) | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 9200 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Antimony | 7440-36-0 | mg/kg | 0.17 | J+ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Arsenic | 7440-38-2 | mg/kg | 1.5 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Barium | 7440-39-3 | mg/kg | 23 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | 7440-41-7 | mg/kg | 0.18 | J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Cadmium | 7440-43-9 | mg/kg | 0.055 | J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Calcium | 7440-70-2 | mg/kg | 2200 | J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chromium | 7440-47-3 | mg/kg | 7.4 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Cobalt | 7440-48-4 | mg/kg | 3 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Copper | 7440-50-8 | mg/kg | 6.8 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Iron | 7439-89-6 | mg/kg | 10000 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Lead | 7439-92-1 | mg/kg | 7.1 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Magnesium | 7439-95-4 | mg/kg | 1400 | J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Manganese | 7439-96-5 | mg/kg | 210 | J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury | 7439-97-6 | mg/kg | 0.035 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nickel | 7440-02-0 | mg/kg | 6.5 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Potassium | 7440-09-7 | mg/kg | 380 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Selenium | 7782-49-2 | mg/kg | 0.43 | J+ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silver | 7440-22-4 | mg/kg | 0.62 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sodium | 7440-23-5 | mg/kg | 520 | J+ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Thallium | 7440-28-0 | mg/kg | 0.042 | J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | 7440-62-2 | mg/kg | 14 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Zinc | 7440-66-6 | mg/kg | 25 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Other Inorganics | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Organic Carbon | N/A | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Solids | N/A | % | 80 | | 78.2 | | 79.1 | | 79.9 | | 79.4 | | 77.7 | |
| Grain Size | | | | | | | | | | | | | | |
| Gravel | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Coarse Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Medium Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Fine Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silt | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Clay | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-3
Reduced Validated Analytical Results[(1)] - AOC 4 (Discrete), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-04-001 | | NYOW-04-001 | | NYOW-04-001 | | NYOW-04-002 | | NYOW-04-002 | | NYOW-04-002 | | NYOW-04-003 | | NYOW-04-003 | | NYOW-04-003 | | NYOW-04-004 | | NYOW-04-004 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-04-SL001-A | | NYOW-04-PH001-B | | NYOW-04-PH001-C | | NYOW-04-SL002-A | | NYOW-04-PH002-B | | NYOW-04-PH002-C | | NYOW-04-SL003-A | | NYOW-04-PH003-B | | NYOW-04-PH003-C | | NYOW-04-SL004-A | | NYOW-04-PH004-B | |
| | | | Sample Type: | | N | | N | | C | | C | | N | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | Sample Date: | | 2021-02-04 | | 2021-02-04 | | 2021-02-04 | | 2021-01-28 | | 2021-01-28 | | 2021-01-28 | | 2021-02-04 | | 2021-02-04 | | 2021-02-04 | | 2021-01-29 | | 2021-01-29 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.39 | UJ | 0.38 | UJ | 0.37 | U | 0.38 | U | 0.38 | U | 0.36 | U | 0.37 | UJ | 0.37 | UJ | 0.37 | UJ | 0.36 | U | 0.44 | U | | |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 1.5 | U | 1.5 | U | 1.5 | U | 1.5 | U | 1.5 | U | 1.4 | U | 1.5 | U | 1.5 | U | 1.5 | U | 1.4 | U | 1.7 | U | | |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.15 | UJ | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.15 | UJ | 0.16 | U | 0.16 | U | 0.15 | U | 0.16 | U | 0.16 | U | | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solids | N/A | % | 82.8 | | 83.2 | | 88.2 | | 80.2 | | 86.1 | | 87.8 | | 88 | | 84.6 | | 86.7 | | 90.9 | | 71.8 | | | |

Notes

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CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
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Table D.2-3
Reduced Validated Analytical Results[(1)] - AOC 4 (Discrete), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-04-004 | | NYOW-04-005 | | NYOW-04-005 | | NYOW-04-005 | | NYOW-04-006 | | NYOW-04-006 | | NYOW-04-006 | | NYOW-04-007 | | NYOW-04-008 | | NYOW-04-009 | | NYOW-04-010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-04-PH004-C | | NYOW-04-SL005-A | | NYOW-04-PH005-B | | NYOW-04-PH005-C | | NYOW-04-SL006-A | | NYOW-04-PH006-B | | NYOW-04-PH006-C | | NYOW-04-PH007-B | | NYOW-04-PH008-B | | NYOW-04-PH009-B | | NYOW-04-PH010-B | |
| | | | Sample Type: | | N | | N | | N | | N | | N | | N | | C | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | Sample Date: | | 2021-01-29 | | 2021-01-29 | | 2021-01-29 | | 2021-01-29 | | 2021-02-03 | | 2021-02-03 | | 2021-02-03 | | 2021-01-25 | | 2021-01-25 | | 2021-01-25 | | 2021-02-04 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.39 | U | 0.36 | U | 0.38 | U | 0.38 | U | 0.38 | U | 0.37 | U | 0.36 | U | 0.37 | UJ | 0.36 | U | 0.36 | U | 0.37 | UJ | | |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 1.5 | U | 1.4 | U | 1.5 | U | 1.5 | U | 1.5 | U | 1.4 | U | 1.4 | U | 1.5 | U | 1.4 | U | 1.4 | U | 1.4 | U | | |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.16 | U | | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solids | N/A | % | 79.9 | | 88.4 | | 82.9 | | 86 | | 83.8 | | 87.6 | | 88.55 | | 86.7 | | 89.4 | | 89.9 | | 87.9 | | | |

Notes

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CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

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J – The reported result was an estimated value (+/- indicates a positive/negative bias).
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Table D.2-3
Reduced Validated Analytical Results[(1)] - AOC 4 (Discrete), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-04-011 | | NYOW-04-012 | | NYOW-04-013 | | NYOW-04-014 | | NYOW-04-015 | | NYOW-04-016 | | NYOW-04-017 | | NYOW-04-018 | | NYOW-04-019 | | NYOW-04-020 | | NYOW-04-021 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-04-PH011-B | | NYOW-04-PH012-B | | NYOW-04-PH013-B | | NYOW-04-PH014-B | | NYOW-04-PH015-B | | NYOW-04-PH016-B | | NYOW-04-PH017-B | | NYOW-04-PH018-B | | NYOW-04-PH019-B | | NYOW-04-PH020-B | | NYOW-04-PH021-B | |
| | | | Sample Type: | | N | | N | | N | | N | | N | | C | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | Sample Date: | | 2021-02-04 | | 2021-01-25 | | 2021-01-25 | | 2021-01-25 | | 2021-01-27 | | 2021-01-27 | | 2021-01-25 | | 2021-01-25 | | 2021-01-25 | | 2021-01-27 | | 2021-01-27 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.36 | UJ | 0.36 | U | 0.36 | U | 0.36 | U | 0.36 | U | 0.36 | U | 0.35 | U | 0.36 | U | 0.36 | U | 0.36 | U | 0.34 | U | 0.35 | U |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 1.4 | U | 1.4 | U | 1.4 | U | 1.4 | U | 1.4 | U | 1.4 | U | 1.4 | U | 1.4 | U | 1.4 | U | 1.4 | UJ | 1.3 | U | 1.4 | U |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.15 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.16 | U |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solids | N/A | % | 89.3 | | 88.8 | | 90.2 | | 90.3 | | 89.6 | | 89.45 | | 90 | | 89.3 | | 90.1 | | 92.5 | | 91.7 | | | |

Notes

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LOD = Limit of Detection
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Legend

| | |
|---|---|
| ND | ND at the LOD |
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Table D.2-3
Reduced Validated Analytical Results[(1)] - AOC 4 (Discrete), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-04-022 | | NYOW-04-023 | | NYOW-04-024 | | NYOW-04-025 | | NYOW-04-026 | | NYOW-04-027 | | NYOW-04-028 | | NYOW-04-029 | | NYOW-04-030 | | NYOW-04-031 | | NYOW-04-032 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-04-PH022-B | | NYOW-04-PH023-B | | NYOW-04-PH024-B | | NYOW-04-PH025-B | | NYOW-04-PH026-B | | NYOW-04-PH027-B | | NYOW-04-PH028-B | | NYOW-04-PH029-B | | NYOW-04-PH030-B | | NYOW-04-PH031-B | | NYOW-04-PH032-B | |
| | | | Sample Type: | | N | | N | | N | | N | | C | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | Sample Date: | | 2021-01-25 | | 2021-01-25 | | 2021-01-25 | | 2021-01-25 | | 2021-01-27 | | 2021-01-27 | | 2021-01-25 | | 2021-01-25 | | 2021-01-25 | | 2021-01-27 | | 2021-01-27 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.34 | U | 0.37 | U | 0.36 | U | 0.35 | U | 0.35 | U | 0.37 | U | 0.35 | U | 0.36 | U | 0.35 | U | 0.35 | U | 0.36 | U | | |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 1.4 | UJ | 1.4 | UJ | 1.4 | UJ | 1.4 | UJ | 1.4 | U | 1.4 | U | 1.4 | UJ | 1.4 | UJ | 1.4 | UJ | 1.4 | U | 1.4 | U | | |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U | | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solids | N/A | % | 90.7 | | 89.1 | | 89.2 | | 89.1 | | 88.3 | | 87.2 | | 88.8 | | 89.7 | | 89.9 | | 91 | | 87.8 | | | |

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Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

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Table D.2-3
Reduced Validated Analytical Results[(1)] - AOC 4 (Discrete), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-04-033 | | NYOW-04-034 | | NYOW-04-035 | | NYOW-04-036 | | NYOW-04-036 | | NYOW-04-036 | | NYOW-04-037 | | NYOW-04-037 | | NYOW-04-037 | | NYOW-04-038 | | NYOW-04-038 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-04-PH033-B | | NYOW-04-PH034-B | | NYOW-04-PH035-B | | NYOW-04-SL036-A | | NYOW-04-PH036-B | | NYOW-04-PH036-C | | NYOW-04-SL037-A | | NYOW-04-PH037-B | | NYOW-04-PH037-C | | NYOW-04-SL038-A | | NYOW-04-PH038-B | |
| | | | Sample Type: | | N | | N | | N | | N | | C | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | Sample Date: | | 2021-01-25 | | 2021-01-25 | | 2021-01-25 | | 2021-02-02 | | 2021-02-02 | | 2021-02-02 | | 2021-02-03 | | 2021-02-03 | | 2021-02-03 | | 2021-02-03 | | 2021-02-03 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.35 | U | 0.37 | U | 0.4 | U | 0.38 | U | 0.37 | U | 0.37 | U | 0.37 | U | 0.36 | U | 0.37 | U | 0.36 | U | 0.38 | U | 0.36 | U |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 1.4 | UJ | 1.5 | UJ | 1.6 | UJ | 1.5 | U | 1.4 | U | 1.4 | U | 1.4 | U | 1.4 | U | 1.5 | U | 1.4 | U | 1.5 | U | 1.4 | U |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.15 | U | 0.16 | U | 0.16 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.16 | U |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solids | N/A | % | 91.5 | | 86.4 | | 82.6 | | 84.6 | | 84.45 | | 85.8 | | 85.3 | | 85.7 | | 89.7 | | 81.9 | | 87 | | | |

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mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.2-3
Reduced Validated Analytical Results[(1)] - AOC 4 (Discrete), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-04-038 | | NYOW-04-039 | | NYOW-04-040 | | NYOW-04-041 | | NYOW-04-042 | | NYOW-04-043 | | NYOW-04-044 | | NYOW-04-045 | | NYOW-04-046 | | NYOW-04-047 | | NYOW-04-048 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-04-PH038-C | | NYOW-04-PH039-B | | NYOW-04-PH040-B | | NYOW-04-PH041-B | | NYOW-04-PH042-B | | NYOW-04-PH043-B | | NYOW-04-PH044-B | | NYOW-04-PH045-B | | NYOW-04-PH046-B | | NYOW-04-PH047-B | | NYOW-04-PH048-B | |
| | | | Sample Type: | | N | | N | | N | | N | | N | | C | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 5 - 10 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | Sample Date: | | 2021-02-03 | | 2021-01-26 | | 2021-01-26 | | 2021-01-26 | | 2021-01-27 | | 2021-01-27 | | 2021-01-26 | | 2021-01-26 | | 2021-01-26 | | 2021-01-26 | | 2021-01-26 | |
| Analyte | CASRN | Units | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | | 0.39 | U | 0.35 | UJ | 0.35 | UJ | 0.4 | UJ | 0.38 | U | 0.38 | U | 0.39 | UJ | 0.36 | UJ | 0.37 | UJ | 0.38 | UJ | 0.37 | UJ |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | | 1.5 | U | 1.4 | UJ | 1.4 | UJ | 1.6 | UJ | 1.5 | U | 1.5 | U | 1.5 | UJ | 1.4 | UJ | 1.5 | UJ | 1.5 | UJ | 1.5 | UJ |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | | 0.15 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.15 | U | 0.16 | U |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solids | N/A | % | | 82.5 | | 88.1 | | 89.5 | | 81.9 | | 86.8 | | 81.4 | | 83.8 | | 88.7 | | 87.1 | | 85.4 | | 87.1 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.2-3
Reduced Validated Analytical Results[(1)] - AOC 4 (Discrete), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-04-049 | | NYOW-04-050 | | NYOW-04-051 | | NYOW-04-052 | | NYOW-04-053 | | NYOW-04-054 | | NYOW-04-055 | | NYOW-04-056 | | NYOW-04-057 | | NYOW-04-058 | | NYOW-04-059 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-04-PH049-B | | NYOW-04-PH050-B | | NYOW-04-PH051-B | | NYOW-04-PH052-B | | NYOW-04-PH053-B | | NYOW-04-PH054-B | | NYOW-04-PH055-B | | NYOW-04-PH056-B | | NYOW-04-PH057-B | | NYOW-04-PH058-B | | NYOW-04-PH059-B | |
| | | | Sample Type: | | N | | N | | N | | N | | C | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | Sample Date: | | 2021-02-04 | | 2021-02-04 | | 2021-01-26 | | 2021-01-26 | | 2021-01-26 | | 2021-02-04 | | 2021-02-04 | | 2021-01-26 | | 2021-01-26 | | 2021-01-26 | | 2021-01-27 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.35 | UJ | 0.36 | UJ | 0.37 | UJ | 0.37 | UJ | 0.36 | UJ | 0.38 | UJ | 0.36 | UJ | 0.37 | UJ | 0.36 | UJ | 0.38 | UJ | 0.35 | U | | |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 1.4 | U | 1.4 | U | 1.5 | UJ | 1.4 | UJ | 1.4 | UJ | 1.5 | U | 1.4 | U | 1.5 | UJ | 1.4 | UJ | 1.5 | UJ | 1.4 | U | | |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.15 | U | 0.15 | U | 0.15 | U | 0.16 | UJ | 0.16 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solids | N/A | % | 89.7 | | 88.9 | | 87 | | 87.1 | | 87 | | 85.9 | | 87.6 | | 88.1 | | 87.7 | | 86.1 | | 90.1 | | | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.2-3
Reduced Validated Analytical Results[(1)] - AOC 4 (Discrete), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-04-060 | | NYOW-04-061 | | NYOW-04-062 | | NYOW-04-063 | | NYOW-04-064 | | NYOW-04-065 | | NYOW-04-066 | | NYOW-04-067 | | NYOW-04-068 | | NYOW-04-069 | | NYOW-04-070 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-04-PH060-B | | NYOW-04-PH061-B | | NYOW-04-PH062-B | | NYOW-04-PH063-B | | NYOW-04-PH064-B | | NYOW-04-PH065-B | | NYOW-04-PH066-B | | NYOW-04-PH067-B | | NYOW-04-PH068-B | | NYOW-04-PH069-B | | NYOW-04-PH070-B | |
| | | | Sample Type: | | N | | N | | N | | C | | N | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | Sample Date: | | 2021-01-27 | | 2021-01-26 | | 2021-01-26 | | 2021-01-26 | | 2021-01-27 | | 2021-01-27 | | 2021-01-26 | | 2021-01-26 | | 2021-01-26 | | 2021-02-04 | | 2021-02-04 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.37 | U | 0.38 | UJ | 0.37 | UJ | 0.37 | UJ | 0.38 | U | 0.37 | U | 0.37 | UJ | 0.36 | U | 0.36 | U | 0.37 | UJ | 0.38 | UJ | | |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 1.4 | U | 1.5 | UJ | 1.5 | UJ | 1.5 | UJ | 1.5 | U | 1.5 | U | 1.5 | UJ | 1.4 | U | 1.4 | U | 1.4 | U | 1.5 | U | | |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.16 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.15 | U | 0.16 | U |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solids | N/A | % | 84.9 | | 87 | | 86.6 | | 84.7 | | 87.2 | | 86.7 | | 87.3 | | 88.4 | | 89.8 | | 89.2 | | 85.3 | | | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
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Table D.2-3
Reduced Validated Analytical Results[(1)] - AOC 4 (Discrete), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-04-071 | | NYOW-04-072 | | NYOW-04-073 | | NYOW-04-074 | | NYOW-04-075 | | NYOW-04-076 | | NYOW-04-077 | | NYOW-04-078 | | NYOW-04-079 | | NYOW-04-079 | | NYOW-04-079 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-04-PH071-B | | NYOW-04-PH072-B | | NYOW-04-PH073-B | | NYOW-04-PH074-B | | NYOW-04-PH075-B | | NYOW-04-PH076-B | | NYOW-04-PH077-B | | NYOW-04-PH078-B | | NYOW-04-SL079-A | | NYOW-04-PH079-B | | NYOW-04-PH079-C | |
| | | | Sample Type: | | N | | N | | N | | C | | N | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | Sample Date: | | 2021-01-26 | | 2021-01-26 | | 2021-01-26 | | 2021-02-03 | | 2021-02-03 | | 2021-01-26 | | 2021-01-26 | | 2021-01-26 | | 2021-01-28 | | 2021-01-28 | | 2021-01-28 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.36 | UJ | 0.35 | U | 0.37 | U | 0.37 | U | 0.36 | U | 0.36 | U | 0.36 | U | 0.37 | U | 0.39 | U | 0.4 | U | 0.4 | U | 0.37 | U |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 1.4 | UJ | 1.4 | U | 1.5 | U | 1.4 | U | 1.4 | U | 1.4 | U | 1.4 | U | 1.5 | U | 1.5 | U | 1.6 | U | 1.6 | UJ | 1.4 | U |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.15 | U | 0.16 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solids | N/A | % | 85.6 | | 89 | | 87.9 | | 88.15 | | 90.5 | | 89.2 | | 88.8 | | 83 | | 79.6 | | 80.9 | | 87.8 | | | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
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Table D.2-3
Reduced Validated Analytical Results[(1)] - AOC 4 (Discrete), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-04-080 | | NYOW-04-080 | | NYOW-04-080 | | NYOW-04-081 | | NYOW-04-081 | | NYOW-04-081 | | NYOW-04-082 | | NYOW-04-082 | | NYOW-04-082 | | NYOW-04-083 | | NYOW-04-083 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-04-SL080-A | | NYOW-04-PH080-B | | NYOW-04-PH080-C | | NYOW-04-SL081-A | | NYOW-04-PH081-B | | NYOW-04-PH081-C | | NYOW-04-SL082-A | | NYOW-04-PH082-B | | NYOW-04-PH082-C | | NYOW-04-SL083-A | | NYOW-04-PH083-B | |
| | | | Sample Type: | | N | | N | | N | | C | | C | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | Sample Date: | | 2021-02-02 | | 2021-02-02 | | 2021-02-02 | | 2021-01-28 | | 2021-01-28 | | 2021-01-28 | | 2021-02-02 | | 2021-02-02 | | 2021-02-02 | | 2021-01-27 | | 2021-01-27 | |
| Analyte | CASRN | Units | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | | 0.42 | U | 0.39 | U | 0.35 | U | 0.37 | U | 0.36 | U | 0.36 | U | 0.36 | U | 0.43 | U | 0.35 | U | 0.36 | U | 0.37 | U |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | | 1.6 | U | 1.5 | U | 1.4 | U | 1.5 | U | 1.4 | U | 1.4 | U | 1.4 | U | 1.7 | U | 1.4 | U | 1.4 | U | 1.5 | U |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Solids | N/A | % | | 75.1 | | 82.9 | | 88.2 | | 86 | | 88.5 | | 90.1 | | 88.2 | | 75.8 | | 89.5 | | 87.8 | | 86.5 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
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Table D.2-3
Reduced Validated Analytical Results[(1)] - AOC 4 (Discrete), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Location: | NYOW-04-083 | | NYOW-04-084 | | NYOW-04-084 | | NYOW-04-084 | | NYOW-04-085 | | NYOW-04-085 | | NYOW-04-085 | |
| | | Sample Name: | NYOW-04-PH083-C | | NYOW-04-SL084-A | | NYOW-04-PH084-B | | NYOW-04-PH084-C | | NYOW-04-SL085-A | | NYOW-04-PH085-B | | NYOW-04-PH085-C | |
| | | Sample Type: | N | | N | | N | | N | | N | | C | | N | |
| | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | Sample Date: | 2021-01-27 | | 2021-02-03 | | 2021-02-03 | | 2021-02-03 | | 2021-02-03 | | 2021-02-03 | | 2021-02-03 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.35 | U | 0.35 | U | 0.36 | U | 0.37 | U | 0.38 | U | 0.36 | U | 0.36 | U |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 1.4 | U | 1.4 | U | 1.4 | U | 1.5 | U | 1.5 | U | 1.4 | U | 1.4 | U |
| Explosives | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.15 | U | 0.15 | U | 0.15 | UJ | 0.16 | U | 0.16 | U | 0.15 | U | 0.16 | UJ |
| Other Inorganics | | | | | | | | | | | | | | | | |
| Solids | N/A | % | 88.6 | | 89.7 | | 87.2 | | 86.9 | | 84.5 | | 86.95 | | 90.6 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend
ND — ND at the LOD
Detect — Detected result

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.2-4
Reduced Validated Analytical Results[(1)] - AOC 4 (ISM), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-04-DU001 | | NYOW-04-DU001 | | NYOW-04-DU001 | | NYOW-04-DU002 | | NYOW-04-DU002 | | NYOW-04-DU002 | | NYOW-04-DU004 | | NYOW-04-DU004 | | NYOW-04-DU004 | | NYOW-04-DU005 | | NYOW-04-DU005 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-04-DU001-SL-A | | NYOW-04-DU001-SL-B | | NYOW-04-DU001-SL-C | | NYOW-04-DU002-SL-A | | NYOW-04-DU002-SL-B | | NYOW-04-DU002-SL-C | | NYOW-04-DU004-SL-A | | NYOW-04-DU004-SL-B | | NYOW-04-DU004-SL-C | | NYOW-04-DU005-SL-A | | NYOW-04-DU005-SL-B | |
| | | | Sample Type: | | FR | | FR | | FR | | FR | | FR | | FR | | FR | | FR | | FR | | FR | | FR | |
| | | | Sample Depth (feet): | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | Sample Date: | | 2021-06-07 | | 2021-06-07 | | 2021-06-07 | | 2021-06-07 | | 2021-06-07 | | 2021-06-07 | | 2021-06-08 | | 2021-06-08 | | 2021-06-08 | | 2021-06-08 | | 2021-06-08 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.16 | UJ | 0.17 | UJ | 0.17 | U | 0.17 | UJ | 0.16 | UJ | 0.16 | UJ | 0.17 | UJ | 0.17 | UJ | 0.18 | UJ | 0.32 | UJ | 0.97 | UJ |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | | R | | R | | R | 0.67 | UJ | 0.64 | UJ | 0.64 | UJ | 0.67 | UJ | 0.66 | U | 0.69 | UJ | 1.2 | UJ | 3.8 | UJ |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.097 | UJ | 0.096 | UJ | 0.095 | UJ | 0.093 | U | 0.1 | U | 0.095 | U | 0.092 | U | 0.097 | U | 0.099 | U | 0.093 | UJ | 0.095 | UJ |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend
ND — ND at the LOD
Detect — Detected result

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-4
Reduced Validated Analytical Results[1] - AOC 4 (ISM), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-04-DU005 | | NYOW-04-DU006 | | NYOW-04-DU006 | | NYOW-04-DU006 | | NYOW-04-DU007 | | NYOW-04-DU007 | | NYOW-04-DU007 | | NYOW-04-DU009 | | NYOW-04-DU009 | | NYOW-04-DU009 | | NYOW-04-DU010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-04-DU005-SL-C | | NYOW-04-DU006-SL-A | | NYOW-04-DU006-SL-B | | NYOW-04-DU006-SL-C | | NYOW-04-DU007-SL-A | | NYOW-04-DU007-SL-B | | NYOW-04-DU007-SL-C | | NYOW-04-DU009-SL-A | | NYOW-04-DU009-SL-B | | NYOW-04-DU009-SL-C | | NYOW-04-DU010-SL-A | |
| | | Sample Type: | FR | | FR | | FR | | FR | | FR | | FR | | FR | | FR | | FR | | FR | | FR | |
| | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | Sample Date: | 2021-06-08 | | 2021-06-09 | | 2021-06-09 | | 2021-06-09 | | 2021-06-08 | | 2021-06-08 | | 2021-06-08 | | 2021-06-08 | | 2021-06-08 | | 2021-06-08 | | 2021-06-09 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | | R | 0.16 | UJ | 0.17 | UJ | 0.15 | UJ | 0.17 | UJ | 0.16 | UJ | 0.17 | UJ | 0.16 | UJ | 0.16 | UJ | 0.17 | UJ | 0.16 | UJ |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | | R | 0.65 | UJ | 0.65 | UJ | 0.6 | UJ | 0.69 | UJ | 0.62 | UJ | 0.65 | UJ | | R | | R | | R | 0.64 | UJ |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.099 | UJ | 0.099 | U | 0.1 | U | 0.099 | U | 0.097 | U | 0.1 | U | 0.096 | U | 0.099 | U | 0.099 | U | 0.096 | U | 0.095 | U |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend
ND — ND at the LOD
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(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
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R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-4
Reduced Validated Analytical Results[(1)] - AOC 4 (ISM), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-04-DU010 | | NYOW-04-DU011 | | NYOW-04-DU011 | | NYOW-04-DU011 | | NYOW-04-DU012 | | NYOW-04-DU012 | | NYOW-04-DU012 | | NYOW-04-DU013 | | NYOW-04-DU013 | | NYOW-04-DU013 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-04-DU010-SL-B | | NYOW-04-DU010-SL-C | | NYOW-04-DU011-SL-A | | NYOW-04-DU011-SL-B | | NYOW-04-DU011-SL-C | | NYOW-04-DU012-SL-A | | NYOW-04-DU012-SL-B | | NYOW-04-DU012-SL-C | | NYOW-04-DU013-SL-A | | NYOW-04-DU013-SL-B | | NYOW-04-DU013-SL-C | |
| | | | Sample Type: | | FR | | FR | | FR | | FR | | FR | | FR | | FR | | FR | | FR | | FR | |
| | | | Sample Depth (feet): | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | Sample Date: | | 2021-06-09 | | 2021-06-09 | | 2021-06-09 | | 2021-06-09 | | 2021-06-09 | | 2021-06-08 | | 2021-06-08 | | 2021-06-08 | | 2021-06-09 | | 2021-06-09 | | 2021-06-09 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.16 | UJ | | R | 0.16 | UJ | 0.17 | UJ | 0.16 | UJ | 0.17 | UJ | 0.16 | UJ | 0.16 | UJ | 0.15 | UJ | 0.16 | UJ | 0.17 | UJ |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 0.65 | UJ | 0.62 | UJ | 0.63 | UJ | 0.66 | UJ | 0.63 | UJ | 0.66 | UJ | 0.65 | UJ | 0.63 | UJ | 0.61 | U | 0.64 | UJ | 0.66 | UJ |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.1 | U | 0.099 | U | 0.098 | U | 0.098 | U | 0.099 | U | 0.096 | U | 0.099 | U | 0.093 | U | 0.1 | UJ | 0.098 | UJ | 0.096 | UJ |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend
ND — ND at the LOD
Detect — Detected result

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-4
Reduced Validated Analytical Results[1] - AOC 4 (ISM), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-04-DU014 | | NYOW-04-DU014 | |
|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | NYOW-04-DU014-SL-A | | NYOW-04-DU014-SL-B | | NYOW-04-DU014-SL-C |
| | | | Sample Type: | FR | | FR | | FR |
| | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 |
| | | | Sample Date: | 2021-06-09 | | 2021-06-09 | | 2021-06-09 |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | |
| 2,4-Dinitrochlorobenzene | 97-00-7 | mg/kg | 0.16 | UJ | 0.17 | UJ | 0.16 | UJ |
| 2,4-Dinitrophenol | 51-28-5 | mg/kg | 0.63 | UJ | 0.65 | UJ | 0.64 | UJ |
| Explosives | | | | | | | | |
| Picric acid | 88-89-1 | mg/kg | 0.1 | U | 0.098 | U | 0.1 | U |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend
ND — ND at the LOD
Detect — Detected result

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-5
Reduced Validated Analytical Results[1] - AOC 5 (Boiler House), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-05-016 | | NYOW-05-016 | | NYOW-05-016 | | NYOW-05-017-1 | | NYOW-05-017-1 | | NYOW-05-017-1 | | NYOW-05-018 | | NYOW-05-018 | | NYOW-05-018 | | NYOW-05-019 | | NYOW-05-019 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-05-SL016-A | | NYOW-05-PH016-B | | NYOW-05-PH016-C | | NYOW-05-SL017-1-A | | NYOW-05-PH017-1-B | | NYOW-05-PH017-1-C | | NYOW-05-SL018-A | | NYOW-05-PH018-B | | NYOW-05-PH018-C | | NYOW-05-SL019-A | | NYOW-05-PH019-B | |
| | | | Sample Type: | | N | | N | | N | | C | | C | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 6 | | 0 - 1 | | 1 - 5 | |
| | | | Sample Date: | | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-11 | | 2021-01-11 | | 2021-01-11 | | 2021-01-11 | | 2021-01-11 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | UJ | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| 1,4-Dioxane | 123-91-1 | mg/kg | 0.39 | U | | R | 0.38 | U | 0.36 | U | 0.37 | U | 0.39 | U | 0.37 | U | 0.36 | U | 0.38 | U | 0.35 | U | 0.36 | UJ | | |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | UJ | 0.075 | U | 0.078 | U | 0.074 | UJ | 0.073 | UJ | 0.077 | UJ | 0.07 | UJ | 0.073 | UJ | | |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | mg/kg | 0.099 | U | 0.091 | UJ | 0.097 | U | 0.091 | U | 0.093 | UJ | 0.097 | U | 0.092 | U | 0.091 | U | 0.095 | U | 0.087 | U | 0.09 | UJ | | |
| 2,4,5-Trichlorophenol | 95-95-4 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | U | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| 2,4,6-Trichlorophenol | 88-06-2 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | U | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| 2,4-Dichlorophenol | 120-83-2 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | UJ | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| 2,4-Dimethylphenol | 105-67-9 | mg/kg | 0.08 | UJ | 0.073 | UJ | 0.078 | UJ | 0.073 | UJ | 0.075 | U | 0.078 | UJ | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| 2,4-Dinitrotoluene | 121-14-2 | mg/kg | 0.099 | U | 0.091 | UJ | 0.097 | U | 0.091 | U | 0.093 | U | 0.097 | U | 0.092 | U | 0.091 | U | 0.095 | U | 0.087 | U | 0.09 | UJ | | |
| 2,6-Dinitrotoluene | 606-20-2 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | U | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| 2-Chloronaphthalene | 91-58-7 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | UJ | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| 2-Chlorophenol | 95-57-8 | mg/kg | 0.08 | UJ | 0.073 | UJ | 0.078 | UJ | 0.073 | UJ | 0.075 | U | 0.078 | UJ | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| 2-Methylphenol (o-Cresol) | 95-48-7 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | U | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| 2-Nitroaniline | 88-74-4 | mg/kg | 0.2 | U | 0.19 | UJ | 0.2 | U | 0.19 | U | 0.19 | U | 0.2 | U | 0.19 | U | 0.19 | U | 0.19 | U | 0.18 | U | 0.18 | UJ | | |
| 2-Nitrophenol | 88-75-5 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | UJ | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| 3,3'-Dichlorobenzidine | 91-94-1 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | U | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| 3-Nitroaniline | 99-09-2 | mg/kg | 0.099 | U | 0.091 | UJ | 0.097 | U | 0.091 | U | 0.093 | U | 0.097 | U | 0.092 | U | 0.091 | U | 0.095 | U | 0.087 | U | 0.09 | UJ | | |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | mg/kg | 0.39 | U | 0.36 | UJ | 0.38 | U | 0.36 | U | 0.37 | U | 0.39 | U | 0.37 | U | 0.36 | U | 0.38 | U | 0.35 | U | 0.36 | UJ | | |
| 4-Bromophenyl phenyl ether | 101-55-3 | mg/kg | 0.08 | UJ | 0.073 | UJ | 0.078 | UJ | 0.073 | UJ | 0.075 | UJ | 0.078 | UJ | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| 4-Chloro-3-methylphenol | 59-50-7 | mg/kg | 0.08 | UJ | 0.073 | UJ | 0.078 | UJ | 0.073 | UJ | 0.075 | U | 0.078 | UJ | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| 4-Chloroaniline | 106-47-8 | mg/kg | 0.099 | UJ | 0.091 | UJ | 0.097 | UJ | 0.091 | UJ | 0.093 | U | 0.097 | UJ | 0.092 | U | 0.091 | U | 0.095 | U | 0.087 | U | 0.09 | UJ | | |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | U | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| 4-Nitroaniline | 100-01-6 | mg/kg | 0.099 | U | 0.091 | UJ | 0.097 | U | 0.091 | U | 0.093 | U | 0.097 | U | 0.092 | U | 0.091 | U | 0.095 | U | 0.087 | U | 0.09 | UJ | | |
| 4-Nitrophenol | 100-02-7 | mg/kg | 0.8 | U | 0.73 | UJ | 0.78 | U | 0.73 | U | 0.75 | U | 0.78 | U | 0.74 | U | 0.73 | U | 0.77 | U | 0.7 | U | 0.73 | UJ | | |
| Acetophenone | 98-86-2 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | U | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| Atrazine | 1912-24-9 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | U | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| Benzaldehyde | 100-52-7 | mg/kg | 0.2 | UJ | | R | 0.2 | UJ | 0.19 | UJ | 0.19 | U | 0.2 | UJ | 0.19 | U | 0.19 | U | 0.19 | U | 0.18 | U | 0.18 | UJ | | |
| Benzyl butyl phthalate | 85-68-7 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | UJ | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| Biphenyl (Diphenyl) | 92-52-4 | mg/kg | 0.39 | U | 0.36 | UJ | 0.38 | U | 0.36 | UJ | 0.37 | U | 0.39 | U | 0.37 | U | 0.36 | U | 0.38 | U | 0.35 | U | 0.36 | UJ | | |
| Bis(2-chloroethoxy)methane | 111-91-1 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | U | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | mg/kg | 0.099 | U | 0.091 | UJ | 0.097 | U | 0.091 | UJ | 0.093 | U | 0.097 | U | 0.092 | U | 0.091 | U | 0.095 | U | 0.087 | U | 0.09 | UJ | | |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | UJ | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| Caprolactam | 105-60-2 | mg/kg | 0.2 | U | 0.19 | UJ | 0.2 | U | 0.19 | U | 0.19 | U | 0.2 | U | 0.19 | UJ | 0.19 | UJ | 0.19 | UJ | 0.18 | UJ | 0.18 | UJ | | |
| Carbazole | 86-74-8 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | U | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| Cresols, m- & p- | cresols-m,p | mg/kg | 0.08 | UJ | 0.073 | UJ | 0.078 | UJ | 0.073 | UJ | 0.075 | U | 0.078 | UJ | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| Dibenzofuran | 132-64-9 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | UJ | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| Diethyl phthalate | 84-66-2 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | U | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| Dimethyl phthalate | 131-11-3 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | U | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| Di-n-butyl phthalate | 84-74-2 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | U | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| di-n-Octyl phthalate | 117-84-0 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | UJ | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| Hexachlorobenzene | 118-74-1 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | U | 0.075 | U | 0.078 | U | 0.074 | UJ | 0.073 | UJ | 0.077 | UJ | 0.07 | UJ | 0.073 | UJ | | |
| Hexachlorobutadiene | 87-68-3 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | U | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| Hexachlorocyclopentadiene | 77-47-4 | mg/kg | 0.08 | UJ | 0.073 | UJ | 0.078 | UJ | 0.073 | UJ | 0.075 | U | 0.078 | UJ | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| Hexachloroethane | 67-72-1 | mg/kg | 0.08 | UJ | | R | 0.078 | UJ | 0.073 | UJ | 0.075 | U | 0.078 | UJ | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| Isophorone | 78-59-1 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | U | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| Nitrobenzene | 98-95-3 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | UJ | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| N-Nitrosodi-n-propylamine | 621-64-7 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | UJ | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| N-Nitrosodiphenylamine | 86-30-6 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | U | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| Pentachlorophenol | 87-86-5 | mg/kg | 0.8 | U | 0.73 | UJ | 0.78 | U | 0.73 | U | 0.75 | UJ | 0.78 | U | 0.74 | UJ | 0.73 | UJ | 0.77 | UJ | 0.7 | UJ | 0.73 | UJ | | |
| Phenol | 108-95-2 | mg/kg | 0.08 | U | 0.073 | UJ | 0.078 | U | 0.073 | U | 0.075 | U | 0.078 | U | 0.074 | U | 0.073 | U | 0.077 | U | 0.07 | U | 0.073 | UJ | | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.012 | J+ | 0.0021 | U | 0.0023 | U | 0.002 | U | 0.0022 | U | 0.0022 | UJ | 0.0023 | UJ | 0.011 | J+ | 0.13 | | 0.01 | J+ | 0.0022 | UJ | | |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.012 | J+ | 0.0021 | U | 0.0023 | U | 0.01 | J+ | 0.0022 | U | 0.0022 | UJ | 0.0023 | UJ | 0.011 | J+ | 0.16 | | 0.01 | J+ | 0.0022 | UJ | | |
| Acenaphthene | 83-32-9 | mg/kg | 0.0013 | U | 0.0011 | U | 0.0012 | U | 0.0011 | U | 0.0011 | U | 0.0012 | UJ | 0.0012 | UJ | 0.0012 | U | 0.012 | J+ | 0.0011 | UJ | 0.0012 | UJ | | |
| Acenaphthylene | 208-96-8 | mg/kg | 0.012 | J+ | 0.0011 | U | 0.0012 | U | 0.01 | J+ | 0.0011 | U | 0.0012 | UJ | 0.0012 | UJ | 0.0012 | U | 0.012 | J+ | 0.0011 | UJ | 0.0012 | UJ | | |
| Anthracene | 120-12-7 | mg/kg | 0.012 | J+ | 0.0046 | U | 0.0049 | U | 0.01 | J+ | 0.0047 | U | 0.0048 | UJ | 0.005 | UJ | 0.0049 | U | 0.012 | J+ | 0.0044 | UJ | 0.0047 | UJ | | |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.031 | | 0.0046 | U | 0.0049 | U | 0.024 | | 0.0047 | U | 0.0048 | UJ | 0.0067 | J- | 0.011 | J+ | 0.042 | | 0.01 | J- | 0.0047 | UJ | | |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.029 | | 0.0046 | U | 0.0049 | U | 0.024 | | 0.0047 | U | 0.0048 | UJ | 0.0061 | J- | 0.011 | J+ | 0.033 | | 0.01 | J- | 0.0047 | UJ | | |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.04 | | 0.0071 | U | 0.0076 | U | 0.035 | | 0.0072 | U | 0.0074 | UJ | 0.01 | J- | 0.011 | J+ | 0.048 | | 0.016 | J- | 0.011 | J+ | | |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.02 | | 0.0071 | U | 0.0076 | U | 0.017 | | 0.0072 | U | 0.0074 | UJ | 0.0076 | UJ | 0.011 | J+ | 0.024 | | 0.0075 | J- | 0.0073 | UJ | | |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.016 | | 0.0046 | U | 0.0049 | U | 0.012 | | 0.0047 | U | 0.0048 | UJ | 0.0034 | J- | 0.011 | J+ | 0.016 | | 0.0055 | J- | 0.0047 | UJ | | |
| Chrysene | 218-01-9 | mg/kg | 0.034 | | 0.0046 | U | 0.0046 | J | 0.027 | | 0.0047 | U | 0.0048 | UJ | 0.0085 | J- | 0.0066 | J | 0.06 | | 0.012 | J- | 0.0023 | J- | | |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.012 | J+ | 0.0071 | U | 0.0076 | U | 0.01 | J+ | 0.0072 | U | 0.0074 | UJ | 0.0076 | UJ | 0.0075 | U | 0.012 | J+ | 0.0068 | UJ | 0.0073 | UJ | | |
| Fluoranthene | 206-44-0 | mg/kg | 0.056 | | 0.0046 | U | 0.0049 | U | 0.045 | | 0.0047 | U | 0.0048 | UJ | 0.013 | J- | 0.01 | J | 0.063 | | 0.017 | J- | 0.0033 | J- | | |

Table D.2-5
Reduced Validated Analytical Results[1] - AOC 5 (Boiler House), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-05-016 | | NYOW-05-016 | | NYOW-05-016 | | NYOW-05-017-1 | | NYOW-05-017-1 | | NYOW-05-017-1 | | NYOW-05-018 | | NYOW-05-018 | | NYOW-05-018 | | NYOW-05-019 | | NYOW-05-019 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-05-SL016-A | | NYOW-05-PH016-B | | NYOW-05-PH016-C | | NYOW-05-SL017-1-A | | NYOW-05-PH017-1-B | | NYOW-05-PH017-1-C | | NYOW-05-SL018-A | | NYOW-05-PH018-B | | NYOW-05-PH018-C | | NYOW-05-SL019-A | | NYOW-05-PH019-B | |
| | | | Sample Type: | | N | | N | | N | | C | | C | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 6 | | 0 - 1 | | 1 - 5 | |
| | | | Sample Date: | | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-11 | | 2021-01-11 | | 2021-01-11 | | 2021-01-11 | | 2021-01-11 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Fluorene | 86-73-7 | mg/kg | 0.0032 | U | 0.0028 | U | 0.003 | U | 0.01 | J+ | 0.0029 | U | 0.003 | UJ | 0.0031 | UJ | 0.003 | U | 0.012 | J+ | 0.0027 | UJ | 0.0029 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.023 | | 0.0071 | U | 0.0076 | U | 0.02 | | 0.0072 | U | 0.0074 | UJ | 0.005 | J- | 0.011 | J+ | 0.024 | | 0.0085 | J- | 0.0073 | UJ |
| Naphthalene | 91-20-3 | mg/kg | 0.012 | J+ | 0.0021 | U | 0.0023 | U | 0.01 | J+ | 0.0022 | U | 0.0022 | UJ | 0.0023 | UJ | 0.011 | J+ | 0.1 | | 0.01 | J+ | 0.011 | J+ |
| Phenanthrene | 85-01-8 | mg/kg | 0.019 | | 0.0071 | U | 0.0076 | U | 0.019 | | 0.0072 | U | 0.0074 | UJ | 0.0058 | J- | 0.011 | J+ | 0.12 | | 0.0061 | J- | 0.0073 | UJ |
| Pyrene | 129-00-0 | mg/kg | 0.055 | | 0.0071 | U | 0.0076 | U | 0.042 | | 0.0072 | U | 0.0074 | UJ | 0.013 | J- | 0.0099 | J | 0.067 | | 0.016 | J- | 0.0031 | J- |
| High Molecular Weight PAHs | N/A | mg/kg | 0.26 | | 0.054 | U | 0.041 | | 0.21 | | 0.055 | U | 0.056 | U | 0.063 | | 0.089 | | 0.33 | | 0.091 | | 0.033 | |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.14 | | 0.028 | U | 0.03 | U | 0.12 | | 0.028 | U | 0.029 | U | 0.027 | | 0.059 | | 0.62 | | 0.058 | | 0.023 | |
| Total PAHs | N/A | mg/kg | 0.4 | | 0.082 | U | 0.03 | | 0.33 | | 0.083 | U | 0.085 | U | 0.086 | | 0.14 | | 0.95 | | 0.15 | | 0.052 | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 6200 | | 9000 | | 9100 | | 5600 | | 9900 | | 11000 | | 5200 | | 5900 | | 8100 | | 5300 | | 5100 | |
| Antimony | 7440-36-0 | mg/kg | 0.2 | J+ | 0.19 | J+ | 0.12 | J | 0.17 | J+ | 0.18 | J+ | 0.15 | J | 0.22 | J+ | 0.16 | J+ | 0.2 | | 0.16 | J+ | 0.16 | J+ |
| Arsenic | 7440-38-2 | mg/kg | 25 | | 12 | | 16 | | 6.3 | | 4.6 | | 4.2 | | 5.8 | | 9.5 | | 6.8 | | 5.8 | | 6.5 | |
| Barium | 7440-39-3 | mg/kg | 53 | | 69 | | 73 | | 56 | | 68 | | 96 | | 53 | | 53 | | 53 | | 41 | | 52 | |
| Beryllium | 7440-41-7 | mg/kg | 0.46 | J+ | 0.39 | J | 0.41 | J | 0.46 | J+ | 0.44 | J | 0.43 | J | 0.4 | J+ | 0.27 | J | 0.39 | J | 0.42 | J+ | 0.21 | J |
| Cadmium | 7440-43-9 | mg/kg | 0.038 | J | 0.025 | J | 0.056 | J | 0.066 | J | 0.063 | J | 0.051 | J | 0.09 | J | 0.14 | | 0.1 | | 0.086 | | 0.039 | J |
| Calcium | 7440-70-2 | mg/kg | 42000 | | 42000 | | 52000 | | 16000 | | 54000 | | 60000 | | 25000 | | 30000 | | 47000 | | 19000 | | 14000 | |
| Chromium | 7440-47-3 | mg/kg | 8.8 | | 12 | | 13 | | 7.5 | | 14 | | 15 | | 7.4 | | 8.4 | | 12 | | 7.2 | | 6.8 | |
| Cobalt | 7440-48-4 | mg/kg | 5.8 | | 7.8 | | 7.9 | | 5.9 | | 8.2 | | 8.5 | | 5 | | 5.5 | | 6.7 | | 4.7 | | 5.3 | |
| Copper | 7440-50-8 | mg/kg | 20 | | 16 | | 20 | | 19 | | 17 | | 18 | | 16 | | 17 | | 20 | | 14 | | 22 | |
| Iron | 7439-89-6 | mg/kg | 15000 | | 20000 | | 19000 | | 18000 | | 18000 | | 19000 | | 15000 | | 16000 | | 17000 | | 14000 | | 16000 | |
| Lead | 7439-92-1 | mg/kg | 7.5 | | 5.5 | | 6.5 | | 7.7 | | 7.5 | | 7.3 | | 7.6 | | 7.8 | | 13 | | 6.4 | | 6.3 | |
| Magnesium | 7439-95-4 | mg/kg | 13000 | | 14000 | | 18000 | | 5700 | | 15000 | | 16000 | | 9400 | | 9200 | | 14000 | | 6100 | | 4600 | |
| Manganese | 7439-96-5 | mg/kg | 630 | | 390 | | 460 | | 710 | | 480 | | 590 | | 670 | | 670 | | 520 | | 490 | | 750 | |
| Mercury | 7439-97-6 | mg/kg | 0.033 | | 0.015 | U | 0.017 | U | 0.021 | U | 0.016 | U | 0.017 | U | 0.0075 | J | 0.015 | U | 0.2 | | 0.054 | | 0.015 | J |
| Nickel | 7440-02-0 | mg/kg | 11 | | 16 | | 16 | | 12 | | 18 | | 20 | | 10 | | 11 | | 14 | | 9.6 | | 11 | |
| Potassium | 7440-09-7 | mg/kg | 1200 | | 2000 | | 1900 | | 890 | | 1900 | | 2000 | | 930 | | 980 | | 1600 | | 870 | | 710 | J |
| Selenium | 7782-49-2 | mg/kg | 0.34 | U | 0.31 | U | 0.35 | U | 0.45 | J+ | 0.38 | U | 0.41 | J+ | 0.5 | J+ | 0.45 | J+ | 0.49 | J+ | 0.37 | J+ | 0.5 | J+ |
| Silver | 7440-22-4 | mg/kg | 0.55 | U | 0.56 | U | 0.53 | U | 0.55 | U | 0.51 | U | 0.53 | U | 0.47 | U | 0.57 | U | 0.54 | U | 0.51 | U | 0.47 | U |
| Sodium | 7440-23-5 | mg/kg | 460 | J+ | 460 | J+ | 440 | J+ | 460 | J+ | 420 | J+ | 440 | J+ | 400 | U | 95 | U | 450 | U | 85 | U | 390 | U |
| Thallium | 7440-28-0 | mg/kg | 0.086 | U | 0.078 | U | 0.096 | | 0.1 | | 0.13 | | 0.083 | U | 0.099 | U | 0.14 | | 0.13 | | 0.073 | U | 0.099 | U |
| Vanadium | 7440-62-2 | mg/kg | 13 | | 18 | | 19 | | 13 | | 19 | | 19 | | 12 | | 13 | | 15 | | 11 | | 11 | |
| Zinc | 7440-66-6 | mg/kg | 31 | | 31 | | 32 | | 28 | | 37 | | 38 | | 25 | | 26 | | 83 | | 25 | | 22 | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 9.4 | | 11 | | 8.4 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Organic Carbon | N/A | mg/kg | 6400 | J- | 4000 | J+ | 4000 | J+ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Solids | N/A | % | 83 | | 89.6 | | 83.4 | | 87.5 | | 85.35 | | 83.7 | | 87.4 | | 87.8 | | 84 | | 91.7 | | 88 | |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 38 | | 3.9 | | 0 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Coarse Sand | N/A | % | 5.9 | | 2.9 | | 0.1 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Medium Sand | N/A | % | 5.9 | | 4.5 | | 1.2 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Fine Sand | N/A | % | 21.9 | | 21.1 | | 6.1 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silt | N/A | % | 16.8 | | 47.6 | | 50 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Clay | N/A | % | 11.5 | | 20 | | 42.6 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-5
Reduced Validated Analytical Results[1] - AOC 5 (Boiler House), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-05-019 | | NYOW-05-020 | | NYOW-05-020 | | NYOW-05-020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-05-PH019-C | | NYOW-05-SL020-A | | NYOW-05-PH020-B | | NYOW-05-PH020-C | |
| | | | Sample Type: | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | Sample Date: | | 2021-01-11 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| 1,4-Dioxane | 123-91-1 | mg/kg | 0.37 | U | 0.37 | U | 0.39 | U | 0.38 | U | | |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | mg/kg | 0.076 | UJ | 0.074 | U | 0.079 | U | 0.077 | U | | |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | mg/kg | 0.094 | U | 0.092 | U | 0.098 | U | 0.096 | U | | |
| 2,4,5-Trichlorophenol | 95-95-4 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| 2,4,6-Trichlorophenol | 88-06-2 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| 2,4-Dichlorophenol | 120-83-2 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| 2,4-Dimethylphenol | 105-67-9 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| 2,4-Dinitrotoluene | 121-14-2 | mg/kg | 0.094 | U | 0.092 | U | 0.098 | U | 0.096 | U | | |
| 2,6-Dinitrotoluene | 606-20-2 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| 2-Chloronaphthalene | 91-58-7 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| 2-Chlorophenol | 95-57-8 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| 2-Methylphenol (o-Cresol) | 95-48-7 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| 2-Nitroaniline | 88-74-4 | mg/kg | 0.19 | U | 0.19 | U | 0.2 | U | 0.2 | U | | |
| 2-Nitrophenol | 88-75-5 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| 3,3'-Dichlorobenzidine | 91-94-1 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| 3-Nitroaniline | 99-09-2 | mg/kg | 0.094 | U | 0.092 | U | 0.098 | U | 0.096 | U | | |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | mg/kg | 0.37 | U | 0.37 | U | 0.39 | U | 0.38 | U | | |
| 4-Bromophenyl phenyl ether | 101-55-3 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| 4-Chloro-3-methylphenol | 59-50-7 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| 4-Chloroaniline | 106-47-8 | mg/kg | 0.094 | U | 0.092 | U | 0.098 | U | 0.096 | U | | |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| 4-Nitroaniline | 100-01-6 | mg/kg | 0.094 | U | 0.092 | U | 0.098 | U | 0.096 | U | | |
| 4-Nitrophenol | 100-02-7 | mg/kg | 0.76 | U | 0.74 | U | 0.79 | U | 0.77 | U | | |
| Acetophenone | 98-86-2 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| Atrazine | 1912-24-9 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| Benzaldehyde | 100-52-7 | mg/kg | 0.19 | U | 0.19 | U | 0.2 | U | 0.2 | U | | |
| Benzyl butyl phthalate | 85-68-7 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| Biphenyl (Diphenyl) | 92-52-4 | mg/kg | 0.37 | U | 0.37 | U | 0.39 | U | 0.38 | U | | |
| Bis(2-chloroethoxy)methane | 111-91-1 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | mg/kg | 0.094 | U | 0.092 | U | 0.098 | U | 0.096 | U | | |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| Caprolactam | 105-60-2 | mg/kg | 0.19 | UJ | 0.19 | U | 0.2 | U | 0.2 | U | | |
| Carbazole | 86-74-8 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| Cresols, m- & p- | cresols-m,p | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| Dibenzofuran | 132-64-9 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| Diethyl phthalate | 84-66-2 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| Dimethyl phthalate | 131-11-3 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| Di-n-butyl phthalate | 84-74-2 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| di-n-Octyl phthalate | 117-84-0 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| Hexachlorobenzene | 118-74-1 | mg/kg | 0.076 | UJ | 0.074 | U | 0.079 | U | 0.077 | U | | |
| Hexachlorobutadiene | 87-68-3 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| Hexachlorocyclopentadiene | 77-47-4 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| Hexachloroethane | 67-72-1 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| Isophorone | 78-59-1 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| Nitrobenzene | 98-95-3 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| N-Nitrosodi-n-propylamine | 621-64-7 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| N-Nitrosodiphenylamine | 86-30-6 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| Pentachlorophenol | 87-86-5 | mg/kg | 0.76 | UJ | 0.74 | U | 0.79 | U | 0.77 | U | | |
| Phenol | 108-95-2 | mg/kg | 0.076 | U | 0.074 | U | 0.079 | U | 0.077 | U | | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0023 | U | 0.0022 | UJ | 0.012 | J+ | 0.0021 | U | | |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0023 | U | 0.011 | J+ | 0.012 | J+ | 0.0015 | J | | |
| Acenaphthene | 83-32-9 | mg/kg | 0.0012 | U | 0.0012 | UJ | 0.0013 | U | 0.0011 | U | | |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0012 | U | 0.0012 | UJ | 0.0013 | U | 0.0011 | U | | |
| Anthracene | 120-12-7 | mg/kg | 0.0051 | U | 0.0048 | UJ | 0.012 | J+ | 0.0046 | U | | |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0051 | U | 0.0076 | J- | 0.012 | J+ | 0.0046 | U | | |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0051 | U | 0.0079 | J- | 0.012 | J+ | 0.0046 | U | | |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.0078 | U | 0.012 | J- | 0.012 | J+ | 0.0071 | U | | |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0078 | U | 0.0061 | J- | 0.012 | J+ | 0.0071 | U | | |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0051 | U | 0.0044 | J- | 0.012 | J+ | 0.0046 | U | | |
| Chrysene | 218-01-9 | mg/kg | 0.0051 | U | 0.0091 | J- | 0.015 | | 0.004 | J | | |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0078 | U | 0.0074 | UJ | 0.008 | U | 0.0071 | U | | |
| Fluoranthene | 206-44-0 | mg/kg | 0.0031 | J | 0.013 | J- | 0.02 | | 0.0046 | U | | |

Table D.2-5
Reduced Validated Analytical Results[1] - AOC 5 (Boiler House), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-05-019 | | NYOW-05-020 | | NYOW-05-020 | | NYOW-05-020 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-05-PH019-C | | NYOW-05-SL020-A | | NYOW-05-PH020-B | | NYOW-05-PH020-C | |
| | | Sample Type: | N | | N | | N | | N | |
| | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | Sample Date: | 2021-01-11 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Fluorene | 86-73-7 | mg/kg | 0.0031 | U | 0.003 | UJ | 0.012 | J+ | 0.0028 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0078 | U | 0.0064 | J- | 0.012 | J+ | 0.0071 | U |
| Naphthalene | 91-20-3 | mg/kg | 0.0014 | J | 0.011 | J+ | 0.012 | J+ | 0.0029 | J |
| Phenanthrene | 85-01-8 | mg/kg | 0.0078 | U | 0.0051 | J- | 0.012 | J+ | 0.0071 | U |
| Pyrene | 129-00-0 | mg/kg | 0.0027 | J | 0.012 | J- | 0.017 | | 0.0023 | J |
| High Molecular Weight PAHs | N/A | mg/kg | 0.024 | | 0.071 | | 0.11 | | 0.028 | |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.014 | | 0.046 | | 0.095 | | 0.014 | |
| Total PAHs | N/A | mg/kg | 0.031 | | 0.12 | | 0.2 | | 0.035 | |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 9100 | | 5100 | J+ | 6300 | J+ | 10000 | J+ |
| Antimony | 7440-36-0 | mg/kg | 0.16 | J | 0.18 | J+ | 0.21 | J+ | 0.11 | U |
| Arsenic | 7440-38-2 | mg/kg | 40 | | 4.8 | | 5.1 | | 3.7 | |
| Barium | 7440-39-3 | mg/kg | 48 | | 49 | | 44 | | 130 | |
| Beryllium | 7440-41-7 | mg/kg | 0.36 | J | 0.41 | J+ | 0.27 | J | 0.46 | |
| Cadmium | 7440-43-9 | mg/kg | 0.098 | | 0.055 | J | 0.083 | J | 0.056 | J |
| Calcium | 7440-70-2 | mg/kg | 47000 | | 22000 | | 63000 | | 55000 | |
| Chromium | 7440-47-3 | mg/kg | 12 | | 7.9 | | 9.5 | | 16 | |
| Cobalt | 7440-48-4 | mg/kg | 7.8 | | 5.3 | | 6.3 | | 7.9 | |
| Copper | 7440-50-8 | mg/kg | 17 | | 20 | | 17 | | 18 | |
| Iron | 7439-89-6 | mg/kg | 17000 | | 15000 | | 15000 | | 19000 | |
| Lead | 7439-92-1 | mg/kg | 7.1 | | 7.5 | | 28 | | 8.1 | |
| Magnesium | 7439-95-4 | mg/kg | 17000 | | 7700 | | 16000 | | 14000 | |
| Manganese | 7439-96-5 | mg/kg | 460 | | 710 | | 480 | | 450 | |
| Mercury | 7439-97-6 | mg/kg | 0.045 | | 0.014 | J | 0.048 | | 0.017 | U |
| Nickel | 7440-02-0 | mg/kg | 17 | | 11 | | 14 | | 17 | |
| Potassium | 7440-09-7 | mg/kg | 1800 | | 770 | | 960 | | 1800 | |
| Selenium | 7782-49-2 | mg/kg | 0.44 | J+ | 0.41 | J+ | 0.48 | J+ | 0.42 | U |
| Silver | 7440-22-4 | mg/kg | 0.49 | U | 0.49 | U | 0.51 | U | 0.55 | U |
| Sodium | 7440-23-5 | mg/kg | 410 | U | 82 | U | 420 | U | 460 | U |
| Thallium | 7440-28-0 | mg/kg | 0.71 | | 0.061 | J | 0.099 | | 0.098 | J |
| Vanadium | 7440-62-2 | mg/kg | 16 | | 12 | | 13 | | 18 | |
| Zinc | 7440-66-6 | mg/kg | 34 | | 27 | | 150 | | 37 | |
| Other Inorganics | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Organic Carbon | N/A | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- |
| Solids | N/A | % | 85.5 | | 88.2 | | 83.5 | | 85.2 | |
| Grain Size | | | | | | | | | | |
| Gravel | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- |
| Coarse Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- |
| Medium Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- |
| Fine Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- |
| Silt | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- |
| Clay | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-6
Reduced Validated Analytical Results[1] - AOC 5 (Coal Aggregate Bins), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-05-021 | | NYOW-05-021 | | NYOW-05-021 | | NYOW-05-022 | | NYOW-05-022 | | NYOW-05-022 | | NYOW-05-023 | | NYOW-05-023 | | NYOW-05-023 | | NYOW-05-024 | | NYOW-05-024 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-05-SL021-A | | NYOW-05-PH021-B | | NYOW-05-PH021-C | | NYOW-05-SL022-A | | NYOW-05-PH022-B | | NYOW-05-PH022-C | | NYOW-05-SL023-A | | NYOW-05-PH023-B | | NYOW-05-PH023-C | | NYOW-05-SL024-A | | NYOW-05-PH024-B | |
| | | | Sample Type: | | N | | N | | N | | N | | C | | N | | C | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | Sample Date: | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| 1,4-Dioxane | 123-91-1 | mg/kg | -- | -- | 0.39 | U | 0.39 | U | -- | -- | 0.36 | U | 0.38 | U | -- | -- | 0.37 | U | 0.37 | U | -- | -- | 0.38 | U |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | mg/kg | -- | -- | 0.098 | U | 0.098 | UJ | -- | -- | 0.09 | U | 0.096 | U | -- | -- | 0.094 | UJ | 0.092 | UJ | -- | -- | 0.096 | UJ |
| 2,4,5-Trichlorophenol | 95-95-4 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| 2,4,6-Trichlorophenol | 88-06-2 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| 2,4-Dichlorophenol | 120-83-2 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| 2,4-Dimethylphenol | 105-67-9 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| 2,4-Dinitrotoluene | 121-14-2 | mg/kg | -- | -- | 0.098 | U | 0.098 | UJ | -- | -- | 0.09 | U | 0.096 | U | -- | -- | 0.094 | U | 0.092 | U | -- | -- | 0.096 | U |
| 2,6-Dinitrotoluene | 606-20-2 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| 2-Chloronaphthalene | 91-58-7 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| 2-Chlorophenol | 95-57-8 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| 2-Methylphenol (o-Cresol) | 95-48-7 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| 2-Nitroaniline | 88-74-4 | mg/kg | -- | -- | 0.2 | U | 0.2 | U | -- | -- | 0.18 | U | 0.2 | U | -- | -- | 0.19 | U | 0.19 | U | -- | -- | 0.2 | U |
| 2-Nitrophenol | 88-75-5 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| 3,3'-Dichlorobenzidine | 91-94-1 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| 3-Nitroaniline | 99-09-2 | mg/kg | -- | -- | 0.098 | U | 0.098 | U | -- | -- | 0.09 | U | 0.096 | U | -- | -- | 0.094 | U | 0.092 | U | -- | -- | 0.096 | U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | mg/kg | -- | -- | 0.39 | U | 0.39 | U | -- | -- | 0.36 | U | 0.38 | U | -- | -- | 0.37 | U | 0.37 | U | -- | -- | 0.38 | U |
| 4-Bromophenyl phenyl ether | 101-55-3 | mg/kg | -- | -- | 0.079 | U | 0.079 | UJ | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| 4-Chloro-3-methylphenol | 59-50-7 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| 4-Chloroaniline | 106-47-8 | mg/kg | -- | -- | 0.098 | U | 0.098 | U | -- | -- | 0.09 | U | 0.096 | U | -- | -- | 0.094 | U | 0.092 | U | -- | -- | 0.096 | U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| 4-Nitroaniline | 100-01-6 | mg/kg | -- | -- | 0.098 | U | 0.098 | UJ | -- | -- | 0.09 | U | 0.096 | U | -- | -- | 0.094 | UJ | 0.092 | UJ | -- | -- | 0.096 | UJ |
| 4-Nitrophenol | 100-02-7 | mg/kg | -- | -- | 0.79 | U | 0.79 | U | -- | -- | 0.73 | U | 0.77 | U | -- | -- | 0.76 | U | 0.74 | U | -- | -- | 0.78 | U |
| Acetophenone | 98-86-2 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| Atrazine | 1912-24-9 | mg/kg | -- | -- | 0.079 | U | 0.079 | UJ | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | UJ | 0.074 | UJ | -- | -- | 0.078 | UJ |
| Benzaldehyde | 100-52-7 | mg/kg | -- | -- | 0.2 | U | 0.2 | UJ | -- | -- | 0.18 | U | 0.2 | U | -- | -- | 0.19 | UJ | 0.19 | UJ | -- | -- | 0.2 | UJ |
| Benzyl butyl phthalate | 85-68-7 | mg/kg | -- | -- | 0.079 | U | 0.079 | UJ | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | UJ | 0.074 | UJ | -- | -- | 0.078 | UJ |
| Biphenyl (Diphenyl) | 92-52-4 | mg/kg | -- | -- | 0.39 | U | 0.39 | U | -- | -- | 0.36 | U | 0.38 | U | -- | -- | 0.37 | U | 0.37 | U | -- | -- | 0.38 | U |
| Bis(2-chloroethoxy)methane | 111-91-1 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | mg/kg | -- | -- | 0.098 | U | 0.098 | U | -- | -- | 0.09 | U | 0.096 | U | -- | -- | 0.094 | U | 0.092 | U | -- | -- | 0.096 | U |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| Caprolactam | 105-60-2 | mg/kg | -- | -- | 0.2 | U | 0.2 | UJ | -- | -- | 0.18 | U | 0.2 | U | -- | -- | 0.19 | UJ | 0.19 | UJ | -- | -- | 0.2 | UJ |
| Carbazole | 86-74-8 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| Cresols, m- & p- | cresols-m,p | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| Dibenzofuran | 132-64-9 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.38 | J+ |
| Diethyl phthalate | 84-66-2 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| Dimethyl phthalate | 131-11-3 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| Di-n-butyl phthalate | 84-74-2 | mg/kg | -- | -- | 0.079 | U | 0.079 | UJ | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| di-n-Octyl phthalate | 117-84-0 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| Hexachlorobenzene | 118-74-1 | mg/kg | -- | -- | 0.079 | U | 0.079 | UJ | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| Hexachlorobutadiene | 87-68-3 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| Hexachlorocyclopentadiene | 77-47-4 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| Hexachloroethane | 67-72-1 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| Isophorone | 78-59-1 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| Nitrobenzene | 98-95-3 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| N-Nitrosodi-n-propylamine | 621-64-7 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| N-Nitrosodiphenylamine | 86-30-6 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| Pentachlorophenol | 87-86-5 | mg/kg | -- | -- | 0.79 | U | 0.79 | U | -- | -- | 0.73 | U | 0.77 | U | -- | -- | 0.76 | U | 0.74 | U | -- | -- | 0.78 | U |
| Phenol | 108-95-2 | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.078 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 1.8 | | 0.014 | | 0.0022 | UJ | 0.0054 | J | 0.0021 | UJ | 0.0021 | U | 2.3 | | 0.008 | J | 0.0022 | U | 7.4 | | 0.083 | J- |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 2.5 | | 0.019 | | 0.0022 | UJ | 0.0071 | J | 0.0018 | J | 0.0021 | U | 3.2 | | 0.012 | | 0.0022 | U | 10 | | 0.13 | J- |
| Acenaphthene | 83-32-9 | mg/kg | 0.013 | U | 0.0012 | U | 0.0012 | UJ | 0.0013 | U | 0.0011 | UJ | 0.0011 | U | 0.065 | J- | 0.0011 | U | 0.0012 | U | 0.056 | U | 0.0013 | UJ |
| Acenaphthylene | 208-96-8 | mg/kg | 0.054 | J | 0.011 | J+ | 0.0012 | UJ | 0.0036 | J | 0.011 | J+ | 0.0011 | U | 0.37 | | 0.011 | J+ | 0.0012 | U | 0.056 | U | 0.0013 | UJ |
| Anthracene | 120-12-7 | mg/kg | 0.062 | J | 0.011 | J+ | 0.0048 | UJ | 0.0036 | J | 0.0045 | UJ | 0.0046 | U | 0.22 | J | 0.011 | J+ | 0.0048 | U | 0.23 | U | 0.0051 | UJ |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.21 | | 0.011 | | 0.0048 | UJ | 0.019 | | 0.0026 | J | 0.011 | J+ | 0.39 | | 0.016 | | 0.0048 | U | 0.44 | J | 0.0081 | J- |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.12 | | 0.0096 | J | 0.0048 | UJ | 0.022 | | 0.0029 | J | 0.011 | J+ | 0.79 | | 0.016 | | 0.0048 | U | 0.18 | J | 0.006 | J- |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.21 | | 0.02 | | 0.0074 | UJ | 0.034 | | 0.0055 | J | 0.011 | J+ | 1.4 | | 0.027 | | 0.0073 | U | 0.28 | J | 0.011 | J- |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.13 | | 0.012 | | 0.0074 | UJ | 0.022 | | 0.017 | J | 0.011 | J+ | 4.7 | | 0.046 | | 0.0073 | U | 0.35 | U | 0.0053 | J- |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.063 | J | 0.011 | J+ | 0.0048 | UJ | 0.012 | | 0.0045 | UJ | 0.011 | J+ | 0.4 | | 0.011 | J+ | 0.0048 | U | 0.23 | U | 0.012 | J+ |
| Chrysene | 218-01-9 | mg/kg | 0.25 | | 0.016 | | 0.0048 | UJ | 0.024 | | 0.004 | J | 0.011 | J+ | 1.1 | | 0.025 | | 0.0048 | U | 0.57 | | 0.011 | J- |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.081 | U | 0.0076 | U | 0.0074 | UJ | 0.0047 | J | 0.0069 | UJ | 0.0071 | U | 0.88 | | 0.011 | J+ | 0.0073 | U | 0.35 | U | 0.0078 | UJ |
| Fluoranthene | 206-44-0 | mg/kg | 0.31 | | 0.019 | | 0.0048 | UJ | 0.034 | | 0.0043 | J | 0.011 | J+ | 0.32 | | 0.03 | | 0.0048 | U | 0.46 | J | 0.012 | J- |

Table D.2-6
Reduced Validated Analytical Results[1] - AOC 5 (Coal Aggregate Bins), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-05-021 | | NYOW-05-021 | | NYOW-05-021 | | NYOW-05-022 | | NYOW-05-022 | | NYOW-05-022 | | NYOW-05-023 | | NYOW-05-023 | | NYOW-05-023 | | NYOW-05-024 | | NYOW-05-024 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-05-SL021-A | | NYOW-05-PH021-B | | NYOW-05-PH021-C | | NYOW-05-SL022-A | | NYOW-05-PH022-B | | NYOW-05-PH022-C | | NYOW-05-SL023-A | | NYOW-05-PH023-B | | NYOW-05-PH023-C | | NYOW-05-SL024-A | | NYOW-05-PH024-B | |
| | | | Sample Type: | | N | | N | | N | | N | | C | | N | | C | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | Sample Date: | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Fluorene | 86-73-7 | mg/kg | 0.031 | J | 0.003 | U | 0.003 | UJ | 0.0013 | J | 0.0028 | UJ | 0.0029 | U | 0.041 | J- | 0.011 | J+ | 0.0029 | U | 0.11 | J | 0.012 | J+ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.11 | J | 0.011 | | 0.0074 | UJ | 0.026 | | 0.013 | J | 0.011 | J+ | 3.4 | | 0.035 | | 0.0073 | U | 0.35 | U | 0.0052 | J- |
| Naphthalene | 91-20-3 | mg/kg | 1.8 | | 0.019 | | 0.011 | J+ | 0.009 | J | 0.0039 | J | 0.011 | J+ | 2.6 | | 0.02 | | 0.011 | J+ | 7.1 | | 0.11 | J- |
| Phenanthrene | 85-01-8 | mg/kg | 0.98 | | 0.013 | | 0.0074 | UJ | 0.014 | | 0.0069 | UJ | 0.0071 | U | 1.1 | | 0.022 | | 0.0073 | U | 3.9 | | 0.034 | J- |
| Pyrene | 129-00-0 | mg/kg | 0.34 | | 0.018 | | 0.0074 | UJ | 0.031 | | 0.004 | J | 0.011 | J+ | 0.41 | | 0.027 | | 0.0073 | U | 0.73 | | 0.012 | J- |
| High Molecular Weight PAHs | N/A | mg/kg | 1.5 | | 0.12 | | 0.056 | U | 0.19 | | 0.056 | | 0.095 | | 13 | | 0.21 | | 0.056 | U | 3 | | 0.076 | |
| Low Molecular Weight PAHs | N/A | mg/kg | 7.6 | | 0.11 | | 0.021 | | 0.079 | | 0.03 | | 0.03 | | 10 | | 0.13 | | 0.021 | | 29 | | 0.39 | |
| Total PAHs | N/A | mg/kg | 9 | | 0.22 | | 0.031 | | 0.27 | | 0.086 | | 0.12 | | 24 | | 0.34 | | 0.031 | | 32 | | 0.46 | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 5700 | J+ | 8800 | J+ | 5900 | J+ | 8000 | J+ | 5400 | J+ | 7100 | J+ | 4000 | J+ | 6900 | J+ | 6900 | J+ | 1400 | J+ | 6500 | J+ |
| Antimony | 7440-36-0 | mg/kg | 0.25 | | 0.21 | | 0.21 | J+ | 0.15 | J | 0.15 | | 0.16 | J+ | 0.33 | | 0.17 | J | 0.21 | J+ | 0.19 | J | 0.095 | J |
| Arsenic | 7440-38-2 | mg/kg | 10 | | 7.4 | | 3.3 | | 5.4 | | 5.8 | | 5.8 | | 13 | | 6.9 | | 3.5 | | 16 | | 6.3 | |
| Barium | 7440-39-3 | mg/kg | 52 | | 78 | | 75 | | 54 | J+ | 41 | | 45 | | 37 | | 51 | | 45 | | 27 | | 48 | |
| Beryllium | 7440-41-7 | mg/kg | 0.42 | J | 0.44 | J+ | 0.61 | J+ | 0.39 | J- | 0.39 | J+ | 0.46 | J+ | 0.29 | J | 0.47 | J+ | 0.5 | J+ | 0.63 | | 0.54 | J+ |
| Cadmium | 7440-43-9 | mg/kg | 0.25 | | 0.25 | | 0.036 | J | 0.15 | | 0.14 | | 0.1 | | 0.37 | | 0.21 | | 0.038 | J | 0.11 | J | 0.1 | |
| Calcium | 7440-70-2 | mg/kg | 13000 | | 5200 | | 55000 | | 17000 | J | 44000 | J | 46000 | | 72000 | J | 7700 | | 36000 | | 4400 | | 18000 | |
| Chromium | 7440-47-3 | mg/kg | 8.3 | | 9.9 | | 8.5 | | 13 | J- | 7 | | 9.8 | | 8.2 | | 7.7 | | 10 | | 5.8 | | 8.6 | |
| Cobalt | 7440-48-4 | mg/kg | 6.4 | | 9 | | 6.3 | | 7.5 | J- | 5 | | 7.3 | | 4.9 | | 6.3 | | 6.4 | | 1.8 | | 6 | |
| Copper | 7440-50-8 | mg/kg | 20 | | 34 | | 19 | | 22 | | 22 | | 17 | | 17 | | 20 | | 18 | | 10 | | 24 | |
| Iron | 7439-89-6 | mg/kg | 17000 | | 31000 | | 18000 | | 21000 | J | 19000 | | 16000 | | 13000 | | 20000 | | 16000 | | 11000 | | 20000 | |
| Lead | 7439-92-1 | mg/kg | 21 | | 18 | | 14 | | 8.6 | J- | 11 | J | 5.8 | | 17 | | 15 | | 6.6 | | 8.9 | | 8.8 | |
| Magnesium | 7439-95-4 | mg/kg | 4000 | | 3800 | | 28000 | | 9000 | J | 7900 | | 12000 | | 6500 | | 2800 | | 11000 | | 620 | | 5800 | |
| Manganese | 7439-96-5 | mg/kg | 650 | | 2400 | | 1100 | J | 660 | J | 920 | | 490 | | 420 | | 910 | | 610 | | 110 | | 820 | |
| Mercury | 7439-97-6 | mg/kg | 0.11 | | 0.084 | | 0.023 | J+ | 0.03 | | 0.032 | | 0.016 | U | 0.077 | | 0.076 | | 0.022 | J+ | 0.064 | | 0.033 | |
| Nickel | 7440-02-0 | mg/kg | 13 | | 14 | | 13 | | 15 | | 9.4 | | 15 | | 12 | | 10 | | 14 | | 6.1 | | 11 | |
| Potassium | 7440-09-7 | mg/kg | 1000 | | 490 | | 1000 | | 970 | J+ | 560 | | 1100 | | 1000 | | 620 | | 1000 | | 420 | | 690 | |
| Selenium | 7782-49-2 | mg/kg | 0.9 | | 0.54 | J+ | 0.34 | UJ | 0.22 | J | 0.46 | J+ | 0.46 | J+ | 0.65 | | 0.55 | J+ | 0.45 | U | 0.83 | | 0.43 | J+ |
| Silver | 7440-22-4 | mg/kg | 0.78 | U | 0.53 | U | 0.73 | U | 0.61 | U | 0.46 | U | 0.55 | U | 0.63 | U | 0.56 | U | 0.59 | U | 0.72 | U | 0.65 | U |
| Sodium | 7440-23-5 | mg/kg | 130 | U | 440 | U | 610 | U | 510 | UJ | 100 | U | 460 | U | 130 | U | 94 | U | 500 | U | 600 | U | 540 | U |
| Thallium | 7440-28-0 | mg/kg | 0.18 | | 0.12 | | 0.082 | J | 0.11 | U | 0.092 | U | 0.092 | U | 0.24 | | 0.11 | U | 0.11 | U | 0.26 | | 0.087 | U |
| Vanadium | 7440-62-2 | mg/kg | 15 | | 18 | | 16 | | 17 | | 12 | | 14 | | 11 | | 15 | | 13 | | 7.6 | | 14 | |
| Zinc | 7440-66-6 | mg/kg | 55 | | 66 | | 44 | J+ | 36 | J- | 29 | | 28 | | 54 | | 37 | | 29 | | 16 | | 30 | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Total Organic Carbon | N/A | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Solids | N/A | % | 75.2 | | 82.7 | | 81.5 | | 79.4 | | 87.6 | | 85.1 | | 66.35 | | 84.5 | | 85.7 | | 74.1 | | 84.8 | | | |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Coarse Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Medium Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Fine Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Silt | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Clay | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.2-6
Reduced Validated Analytical Results[1] - AOC 5 (Coal Aggregate Bins), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-05-024 | | NYOW-05-025 | | NYOW-05-025 | | NYOW-05-025 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-05-PH024-C | | NYOW-05-SL025-A | | NYOW-05-PH025-B | | NYOW-05-PH025-C | |
| | | Sample Type: | N | | N | | N | | N | |
| | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | Sample Date: | 2021-01-08 | | 2021-01-11 | | 2021-01-11 | | 2021-01-11 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| 1,4-Dioxane | 123-91-1 | mg/kg | 0.36 | U | -- | -- | 0.38 | U | 0.39 | U |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | mg/kg | 0.073 | U | -- | -- | 0.076 | UJ | 0.079 | UJ |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | mg/kg | 0.09 | UJ | -- | -- | 0.094 | U | 0.098 | U |
| 2,4,5-Trichlorophenol | 95-95-4 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| 2,4,6-Trichlorophenol | 88-06-2 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| 2,4-Dichlorophenol | 120-83-2 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| 2,4-Dimethylphenol | 105-67-9 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| 2,4-Dinitrotoluene | 121-14-2 | mg/kg | 0.09 | U | -- | -- | 0.094 | U | 0.098 | U |
| 2,6-Dinitrotoluene | 606-20-2 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| 2-Chloronaphthalene | 91-58-7 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| 2-Chlorophenol | 95-57-8 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| 2-Methylphenol (o-Cresol) | 95-48-7 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| 2-Nitroaniline | 88-74-4 | mg/kg | 0.18 | U | -- | -- | 0.19 | U | 0.2 | U |
| 2-Nitrophenol | 88-75-5 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| 3,3'-Dichlorobenzidine | 91-94-1 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| 3-Nitroaniline | 99-09-2 | mg/kg | 0.09 | U | -- | -- | 0.094 | U | 0.098 | U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | mg/kg | 0.36 | U | -- | -- | 0.38 | U | 0.39 | U |
| 4-Bromophenyl phenyl ether | 101-55-3 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| 4-Chloro-3-methylphenol | 59-50-7 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| 4-Chloroaniline | 106-47-8 | mg/kg | 0.09 | U | -- | -- | 0.094 | U | 0.098 | U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| 4-Nitroaniline | 100-01-6 | mg/kg | 0.09 | UJ | -- | -- | 0.094 | U | 0.098 | U |
| 4-Nitrophenol | 100-02-7 | mg/kg | 0.73 | U | -- | -- | 0.76 | U | 0.79 | U |
| Acetophenone | 98-86-2 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| Atrazine | 1912-24-9 | mg/kg | 0.073 | UJ | -- | -- | 0.076 | U | 0.079 | U |
| Benzaldehyde | 100-52-7 | mg/kg | 0.18 | UJ | -- | -- | 0.19 | U | 0.2 | U |
| Benzyl butyl phthalate | 85-68-7 | mg/kg | 0.073 | UJ | -- | -- | 0.076 | U | 0.079 | U |
| Biphenyl (Diphenyl) | 92-52-4 | mg/kg | 0.36 | U | -- | -- | 0.38 | U | 0.39 | U |
| Bis(2-chloroethoxy)methane | 111-91-1 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | mg/kg | 0.09 | U | -- | -- | 0.094 | U | 0.098 | U |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| Caprolactam | 105-60-2 | mg/kg | 0.18 | UJ | -- | -- | 0.19 | UJ | 0.2 | UJ |
| Carbazole | 86-74-8 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| Cresols, m- & p- | cresols-m,p | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| Dibenzofuran | 132-64-9 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| Diethyl phthalate | 84-66-2 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| Dimethyl phthalate | 131-11-3 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| Di-n-butyl phthalate | 84-74-2 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| di-n-Octyl phthalate | 117-84-0 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| Hexachlorobenzene | 118-74-1 | mg/kg | 0.073 | U | -- | -- | 0.076 | UJ | 0.079 | UJ |
| Hexachlorobutadiene | 87-68-3 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| Hexachlorocyclopentadiene | 77-47-4 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| Hexachloroethane | 67-72-1 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| Isophorone | 78-59-1 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| Nitrobenzene | 98-95-3 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| N-Nitrosodi-n-propylamine | 621-64-7 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| N-Nitrosodiphenylamine | 86-30-6 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| Pentachlorophenol | 87-86-5 | mg/kg | 0.73 | U | -- | -- | 0.76 | UJ | 0.79 | UJ |
| Phenol | 108-95-2 | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.011 | J+ | 0.077 | | 0.0022 | J | 0.0023 | U |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.011 | J+ | 0.089 | | 0.0028 | J | 0.0023 | U |
| Acenaphthene | 83-32-9 | mg/kg | 0.0012 | UJ | 0.0013 | U | 0.0013 | U | 0.0013 | U |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0012 | UJ | 0.0081 | J | 0.0013 | U | 0.0013 | U |
| Anthracene | 120-12-7 | mg/kg | 0.0048 | UJ | 0.0048 | J | 0.0052 | U | 0.0051 | U |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0048 | UJ | 0.019 | J+ | 0.0025 | J | 0.0051 | U |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0048 | UJ | 0.023 | | 0.0032 | J | 0.0051 | U |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.0074 | UJ | 0.059 | | 0.0067 | J | 0.0078 | U |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0074 | UJ | 0.065 | | 0.011 | J | 0.0078 | U |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0048 | UJ | 0.014 | | 0.0052 | U | 0.0051 | U |
| Chrysene | 218-01-9 | mg/kg | 0.0048 | UJ | 0.04 | J+ | 0.0062 | J | 0.0051 | U |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0074 | UJ | 0.012 | | 0.0079 | U | 0.0078 | U |
| Fluoranthene | 206-44-0 | mg/kg | 0.0048 | UJ | 0.029 | J+ | 0.0048 | J | 0.0051 | U |

Table D.2-6
Reduced Validated Analytical Results[1] - AOC 5 (Coal Aggregate Bins), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-05-024 | | NYOW-05-025 | | NYOW-05-025 | | NYOW-05-025 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-05-PH024-C | | NYOW-05-SL025-A | | NYOW-05-PH025-B | | NYOW-05-PH025-C | |
| | | Sample Type: | N | | N | | N | | N | |
| | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | Sample Date: | 2021-01-08 | | 2021-01-11 | | 2021-01-11 | | 2021-01-11 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Fluorene | 86-73-7 | mg/kg | 0.003 | UJ | 0.0021 | J | 0.0032 | U | 0.0031 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0074 | UJ | 0.05 | | 0.01 | J | 0.0078 | U |
| Naphthalene | 91-20-3 | mg/kg | 0.011 | J+ | 0.063 | | 0.0027 | J | 0.0023 | U |
| Phenanthrene | 85-01-8 | mg/kg | 0.0074 | UJ | 0.057 | | 0.0041 | J | 0.0078 | U |
| Pyrene | 129-00-0 | mg/kg | 0.0074 | UJ | 0.029 | J+ | 0.0041 | J | 0.0078 | U |
| High Molecular Weight PAHs | N/A | mg/kg | 0.056 | U | 0.31 | | 0.051 | | 0.059 | U |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.04 | | 0.33 | | 0.024 | | 0.031 | U |
| Total PAHs | N/A | mg/kg | 0.051 | | 0.64 | | 0.074 | | 0.09 | U |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 6100 | J+ | 5600 | | 9000 | | 9000 | |
| Antimony | 7440-36-0 | mg/kg | 0.16 | J+ | 0.16 | J | 0.16 | J | 0.21 | J+ |
| Arsenic | 7440-38-2 | mg/kg | 4.1 | | 4.6 | | 5.4 | | 9.7 | |
| Barium | 7440-39-3 | mg/kg | 48 | | 34 | | 66 | | 61 | |
| Beryllium | 7440-41-7 | mg/kg | 0.4 | J+ | 0.28 | J- | 2.3 | J+ | 0.41 | J+ |
| Cadmium | 7440-43-9 | mg/kg | 0.021 | J | 0.1 | J | 0.11 | | 0.086 | J |
| Calcium | 7440-70-2 | mg/kg | 42000 | | 26000 | | 18000 | | 53000 | |
| Chromium | 7440-47-3 | mg/kg | 9.2 | | 8.6 | J- | 11 | | 13 | |
| Cobalt | 7440-48-4 | mg/kg | 5.4 | | 5.2 | J- | 7.6 | | 7.5 | |
| Copper | 7440-50-8 | mg/kg | 14 | | 14 | | 21 | | 18 | |
| Iron | 7439-89-6 | mg/kg | 14000 | | 14000 | | 24000 | | 20000 | |
| Lead | 7439-92-1 | mg/kg | 4.7 | | 8.9 | J- | 11 | | 7.3 | |
| Magnesium | 7439-95-4 | mg/kg | 8700 | | 11000 | J- | 4400 | | 18000 | |
| Manganese | 7439-96-5 | mg/kg | 480 | | 410 | J | 1100 | | 480 | |
| Mercury | 7439-97-6 | mg/kg | 0.017 | U | 0.026 | | 0.051 | | 0.023 | J+ |
| Nickel | 7440-02-0 | mg/kg | 11 | | 11 | J- | 14 | | 17 | |
| Potassium | 7440-09-7 | mg/kg | 990 | | 1100 | | 820 | J | 1700 | |
| Selenium | 7782-49-2 | mg/kg | 0.35 | U | 0.31 | J | 0.42 | J+ | 0.44 | J+ |
| Silver | 7440-22-4 | mg/kg | 0.48 | U | 0.68 | UJ | 0.55 | U | 0.49 | U |
| Sodium | 7440-23-5 | mg/kg | 400 | U | 110 | U | 460 | U | 410 | U |
| Thallium | 7440-28-0 | mg/kg | 0.088 | U | 0.12 | | 0.11 | | 0.1 | |
| Vanadium | 7440-62-2 | mg/kg | 12 | | 13 | | 17 | | 17 | |
| Zinc | 7440-66-6 | mg/kg | 22 | | 34 | J- | 36 | | 33 | |
| Other Inorganics | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | -- | -- | 24 | | 7 | | 12 | |
| Total Organic Carbon | N/A | mg/kg | -- | -- | 28000 | J- | 7800 | J- | 4000 | J+ |
| Solids | N/A | % | 89.3 | | 81.7 | | 83.4 | | 82.9 | |
| Grain Size | | | | | | | | | | |
| Gravel | N/A | % | -- | -- | 4.1 | | 17.6 | | 0.4 | |
| Coarse Sand | N/A | % | -- | -- | 3.4 | | 6.9 | | 0.7 | |
| Medium Sand | N/A | % | -- | -- | 4.4 | | 10.3 | | 0.8 | |
| Fine Sand | N/A | % | -- | -- | 33 | | 30 | | 11.9 | |
| Silt | N/A | % | -- | -- | 44.9 | | 23.4 | | 70 | |
| Clay | N/A | % | -- | -- | 10.2 | | 11.7 | | 16.2 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.2-7
Reduced Validated Analytical Results[1] - AOC 5 (Coal Storage Area), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Location: | | | NYOW-05-006 | | NYOW-05-006 | | NYOW-05-006 | | NYOW-05-007 | | NYOW-05-007 | | NYOW-05-007 | | NYOW-05-008 | | NYOW-05-008 | | NYOW-05-008 | | NYOW-05-009 | | NYOW-05-009 | |
| Sample Name: | | | NYOW-05-SL006-A | | NYOW-05-PH006-B | | NYOW-05-PH006-C | | NYOW-05-SL007-A | | NYOW-05-PH007-B | | NYOW-05-PH007-C | | NYOW-05-SL008-A | | NYOW-05-PH008-B | | NYOW-05-PH008-C | | NYOW-05-SL009-A | | NYOW-05-PH009-B | |
| Sample Type: | | | N | | N | | N | | N | | C | | N | | N | | N | | N | | N | | N | |
| Sample Depth (feet): | | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| Sample Date: | | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| 1,4-Dioxane | 123-91-1 | mg/kg | -- | -- | 0.39 | U | 0.37 | U | -- | -- | 0.36 | U | 0.37 | U | -- | -- | 0.37 | U | 0.37 | U | -- | -- | 0.36 | U |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | mg/kg | -- | -- | 0.099 | UJ | 0.093 | UJ | -- | -- | 0.09 | U | 0.093 | U | -- | -- | 0.093 | U | 0.092 | U | -- | -- | 0.091 | U |
| 2,4,5-Trichlorophenol | 95-95-4 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| 2,4,6-Trichlorophenol | 88-06-2 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| 2,4-Dichlorophenol | 120-83-2 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| 2,4-Dimethylphenol | 105-67-9 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| 2,4-Dinitrotoluene | 121-14-2 | mg/kg | -- | -- | 0.099 | U | 0.093 | U | -- | -- | 0.09 | U | 0.093 | U | -- | -- | 0.093 | U | 0.092 | U | -- | -- | 0.091 | U |
| 2,6-Dinitrotoluene | 606-20-2 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| 2-Chloronaphthalene | 91-58-7 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| 2-Chlorophenol | 95-57-8 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| 2-Methylphenol (o-Cresol) | 95-48-7 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| 2-Nitroaniline | 88-74-4 | mg/kg | -- | -- | 0.2 | U | 0.19 | U | -- | -- | 0.18 | U | 0.19 | U | -- | -- | 0.19 | U | 0.19 | U | -- | -- | 0.19 | U |
| 2-Nitrophenol | 88-75-5 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| 3,3'-Dichlorobenzidine | 91-94-1 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | UJ | 0.075 | UJ | -- | -- | 0.075 | UJ | 0.074 | UJ | -- | -- | 0.074 | UJ |
| 3-Nitroaniline | 99-09-2 | mg/kg | -- | -- | 0.099 | U | 0.093 | U | -- | -- | 0.09 | U | 0.093 | U | -- | -- | 0.093 | U | 0.092 | U | -- | -- | 0.091 | U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | mg/kg | -- | -- | 0.39 | U | 0.37 | U | -- | -- | 0.36 | U | 0.37 | U | -- | -- | 0.37 | U | 0.37 | U | -- | -- | 0.36 | U |
| 4-Bromophenyl phenyl ether | 101-55-3 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| 4-Chloro-3-methylphenol | 59-50-7 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| 4-Chloroaniline | 106-47-8 | mg/kg | -- | -- | 0.099 | U | 0.093 | U | -- | -- | 0.09 | U | 0.093 | U | -- | -- | 0.093 | U | 0.092 | U | -- | -- | 0.091 | U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| 4-Nitroaniline | 100-01-6 | mg/kg | -- | -- | 0.099 | UJ | 0.093 | UJ | -- | -- | 0.09 | U | 0.093 | U | -- | -- | 0.093 | U | 0.092 | U | -- | -- | 0.091 | U |
| 4-Nitrophenol | 100-02-7 | mg/kg | -- | -- | 0.8 | U | 0.75 | U | -- | -- | 0.73 | U | 0.75 | U | -- | -- | 0.75 | U | 0.74 | U | -- | -- | 0.74 | U |
| Acetophenone | 98-86-2 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| Atrazine | 1912-24-9 | mg/kg | -- | -- | 0.08 | UJ | 0.075 | UJ | -- | -- | 0.073 | UJ | 0.075 | UJ | -- | -- | 0.075 | UJ | 0.074 | UJ | -- | -- | 0.074 | UJ |
| Benzaldehyde | 100-52-7 | mg/kg | -- | -- | 0.2 | UJ | 0.19 | UJ | -- | -- | 0.18 | U | 0.19 | U | -- | -- | 0.19 | U | 0.19 | U | -- | -- | 0.19 | U |
| Benzyl butyl phthalate | 85-68-7 | mg/kg | -- | -- | 0.08 | UJ | 0.075 | UJ | -- | -- | 0.073 | UJ | 0.075 | UJ | -- | -- | 0.075 | UJ | 0.074 | UJ | -- | -- | 0.074 | UJ |
| Biphenyl (Diphenyl) | 92-52-4 | mg/kg | -- | -- | 0.39 | U | 0.37 | U | -- | -- | 0.36 | U | 0.37 | U | -- | -- | 0.37 | U | 0.37 | U | -- | -- | 0.36 | U |
| Bis(2-chloroethoxy)methane | 111-91-1 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | mg/kg | -- | -- | 0.099 | U | 0.093 | U | -- | -- | 0.09 | U | 0.093 | U | -- | -- | 0.093 | U | 0.092 | U | -- | -- | 0.091 | U |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | UJ | 0.075 | UJ | -- | -- | 0.075 | UJ | 0.074 | UJ | -- | -- | 0.074 | UJ |
| Caprolactam | 105-60-2 | mg/kg | -- | -- | 0.2 | UJ | 0.19 | UJ | -- | -- | 0.18 | U | 0.19 | U | -- | -- | 0.19 | U | 0.19 | U | -- | -- | 0.19 | U |
| Carbazole | 86-74-8 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| Cresols, m- & p- | cresols-m,p | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| Dibenzofuran | 132-64-9 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| Diethyl phthalate | 84-66-2 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| Dimethyl phthalate | 131-11-3 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| Di-n-butyl phthalate | 84-74-2 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| di-n-Octyl phthalate | 117-84-0 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | UJ | 0.075 | UJ | -- | -- | 0.075 | UJ | 0.074 | UJ | -- | -- | 0.074 | UJ |
| Hexachlorobenzene | 118-74-1 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | UJ | 0.075 | UJ | -- | -- | 0.075 | UJ | 0.074 | UJ | -- | -- | 0.074 | UJ |
| Hexachlorobutadiene | 87-68-3 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| Hexachlorocyclopentadiene | 77-47-4 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| Hexachloroethane | 67-72-1 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| Isophorone | 78-59-1 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| Nitrobenzene | 98-95-3 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| N-Nitrosodi-n-propylamine | 621-64-7 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| N-Nitrosodiphenylamine | 86-30-6 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| Pentachlorophenol | 87-86-5 | mg/kg | -- | -- | 0.8 | U | 0.75 | U | -- | -- | 0.73 | U | 0.75 | U | -- | -- | 0.75 | U | 0.74 | U | -- | -- | 0.74 | U |
| Phenol | 108-95-2 | mg/kg | -- | -- | 0.08 | U | 0.075 | U | -- | -- | 0.073 | U | 0.075 | U | -- | -- | 0.075 | U | 0.074 | U | -- | -- | 0.074 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 5.7 | | 0.0024 | U | 0.0023 | U | 10 | | 0.002 | UJ | 0.0023 | UJ | 6 | | 0.01 | J+ | 0.011 | J+ | 0.12 | | 0.0023 | U |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 7.7 | | 0.0024 | U | 0.011 | J+ | 14 | | 0.002 | UJ | 0.0023 | UJ | 4.8 | | 0.01 | J+ | 0.011 | J+ | 0.086 | | 0.0023 | U |
| Acenaphthene | 83-32-9 | mg/kg | 0.037 | U | 0.0013 | U | 0.0012 | U | 0.32 | J+ | 0.0011 | UJ | 0.0012 | UJ | 0.34 | J+ | 0.0011 | U | 0.0012 | U | 0.0016 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | mg/kg | 0.35 | J+ | 0.0013 | U | 0.0012 | U | 0.32 | J+ | 0.0011 | UJ | 0.0012 | UJ | 0.34 | J+ | 0.0011 | U | 0.0012 | U | 0.015 | J+ | 0.0012 | U |
| Anthracene | 120-12-7 | mg/kg | 0.35 | J+ | 0.0052 | U | 0.005 | U | 0.32 | J+ | 0.0043 | UJ | 0.0049 | UJ | 0.34 | J+ | 0.0045 | U | 0.0049 | U | 0.0066 | U | 0.0049 | U |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.27 | J | 0.0052 | U | 0.005 | U | 0.75 | | 0.0043 | UJ | 0.0026 | J- | 0.61 | | 0.0045 | U | 0.0049 | U | 0.044 | | 0.0049 | U |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.12 | J | 0.0052 | U | 0.005 | U | 0.38 | | 0.0043 | UJ | 0.0019 | J- | 0.31 | J | 0.0045 | U | 0.0049 | U | 0.032 | | 0.0049 | U |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.19 | J | 0.008 | U | 0.0076 | U | 0.46 | | 0.0067 | UJ | 0.0065 | J- | 0.43 | | 0.0069 | U | 0.0076 | U | 0.1 | | 0.0076 | U |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.23 | U | 0.008 | U | 0.0076 | U | 0.28 | J | 0.0067 | UJ | 0.0075 | UJ | 0.25 | J | 0.0069 | U | 0.0076 | U | 0.027 | | 0.0076 | U |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.15 | U | 0.0052 | U | 0.005 | U | 0.32 | J+ | 0.0043 | UJ | 0.0049 | UJ | 0.34 | J+ | 0.0045 | U | 0.0049 | U | 0.015 | J+ | 0.0049 | U |
| Chrysene | 218-01-9 | mg/kg | 0.35 | | 0.0052 | U | 0.005 | U | 0.91 | | 0.0043 | UJ | 0.0057 | J- | 1 | | 0.0045 | U | 0.0049 | U | 0.31 | | 0.0049 | U |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.23 | U | 0.008 | U | 0.0076 | U | 0.22 | U | 0.0067 | UJ | 0.0075 | UJ | 0.23 | U | 0.0069 | U | 0.0076 | U | 0.018 | | 0.0076 | U |
| Fluoranthene | 206-44-0 | mg/kg | 0.32 | J | 0.0052 | U | 0.005 | U | 0.66 | | 0.0043 | UJ | 0.0049 | UJ | 0.76 | | 0.0045 | U | 0.0049 | U | 0.1 | | 0.0049 | U |

Table D.2-7
Reduced Validated Analytical Results[1] - AOC 5 (Coal Storage Area), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-05-006 | | NYOW-05-006 | | NYOW-05-006 | | NYOW-05-007 | | NYOW-05-007 | | NYOW-05-007 | | NYOW-05-008 | | NYOW-05-008 | | NYOW-05-008 | | NYOW-05-009 | | NYOW-05-009 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-05-SL006-A | | NYOW-05-PH006-B | | NYOW-05-PH006-C | | NYOW-05-SL007-A | | NYOW-05-PH007-B | | NYOW-05-PH007-C | | NYOW-05-SL008-A | | NYOW-05-PH008-B | | NYOW-05-PH008-C | | NYOW-05-SL009-A | | NYOW-05-PH009-B | |
| | | | Sample Type: | | N | | N | | N | | N | | C | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | Sample Date: | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Fluorene | 86-73-7 | mg/kg | 0.096 | J | 0.0032 | U | 0.003 | U | 0.17 | J | 0.0027 | UJ | 0.003 | UJ | 0.26 | J | 0.0028 | U | 0.003 | U | 0.03 | | 0.003 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.23 | U | 0.008 | U | 0.0076 | U | 0.11 | J | 0.0067 | UJ | 0.0075 | UJ | 0.08 | J | 0.0069 | U | 0.0076 | U | 0.019 | | 0.0076 | U |
| Naphthalene | 91-20-3 | mg/kg | 5.6 | | 0.0024 | U | 0.011 | J+ | 9.2 | | 0.01 | J+ | 0.011 | J+ | 2 | | 0.01 | J+ | 0.011 | J+ | 0.039 | | 0.0023 | U |
| Phenanthrene | 85-01-8 | mg/kg | 2.3 | | 0.008 | U | 0.0076 | U | 5.3 | | 0.0067 | UJ | 0.0075 | UJ | 4.2 | | 0.0069 | U | 0.0076 | U | 0.34 | | 0.0076 | U |
| Pyrene | 129-00-0 | mg/kg | 0.45 | | 0.008 | U | 0.0076 | U | 0.98 | | 0.0067 | UJ | 0.0075 | UJ | 0.99 | | 0.0069 | U | 0.0076 | U | 0.13 | | 0.0076 | U |
| High Molecular Weight PAHs | N/A | mg/kg | 1.9 | | 0.061 | U | 0.058 | U | 4.3 | | 0.051 | U | 0.034 | | 4.1 | | 0.053 | U | 0.058 | U | 0.69 | | 0.058 | U |
| Low Molecular Weight PAHs | N/A | mg/kg | 22 | | 0.031 | U | 0.03 | | 40 | | 0.019 | | 0.021 | | 19 | | 0.037 | | 0.04 | | 0.73 | | 0.03 | U |
| Total PAHs | N/A | mg/kg | 24 | | 0.092 | U | 0.041 | | 45 | | 0.029 | | 0.051 | | 23 | | 0.046 | | 0.051 | | 1.4 | | 0.087 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 2500 | J+ | 5400 | J+ | 5900 | J+ | 2600 | | 4700 | | 5900 | | 2700 | | 6500 | | 8200 | | 2800 | | 3600 | |
| Antimony | 7440-36-0 | mg/kg | 0.32 | | 0.17 | J+ | 0.085 | U | 0.24 | J | 0.17 | J+ | 0.1 | U | 0.46 | | 0.16 | J+ | 0.21 | J+ | 0.16 | J | 0.087 | U |
| Arsenic | 7440-38-2 | mg/kg | 24 | | 3.9 | | 4 | | 19 | | 2.8 | | 3.3 | | 12 | | 4 | | 5.8 | | 9.7 | | 5.1 | |
| Barium | 7440-39-3 | mg/kg | 34 | | 46 | | 48 | | 43 | | 39 | | 43 | | 37 | | 36 | | 59 | | 45 | | 37 | |
| Beryllium | 7440-41-7 | mg/kg | 0.68 | J+ | 0.43 | J+ | 0.49 | J+ | 0.75 | J+ | 0.46 | J+ | 0.54 | J+ | 0.59 | J+ | 0.42 | J+ | 0.42 | J+ | 0.67 | J+ | 0.5 | J+ |
| Cadmium | 7440-43-9 | mg/kg | 0.23 | | 0.17 | | 0.08 | J+ | 0.38 | | 0.029 | J | 0.09 | J+ | 0.21 | | 0.04 | J | 0.11 | J+ | 0.19 | | 0.038 | J |
| Calcium | 7440-70-2 | mg/kg | 11000 | | 6300 | | 54000 | | 16000 | | 29000 | | 55000 | | 5500 | | 46000 | | 37000 | | 4500 | | 5000 | |
| Chromium | 7440-47-3 | mg/kg | 7.2 | | 7.2 | | 8.8 | | 6 | | 6.5 | | 9.3 | | 6.6 | | 8.9 | | 12 | | 6 | | 5 | |
| Cobalt | 7440-48-4 | mg/kg | 6.6 | | 4.8 | | 6.5 | | 4.2 | | 3.9 | | 6.1 | | 2.1 | | 4.9 | | 7.4 | | 2.4 | | 3.5 | |
| Copper | 7440-50-8 | mg/kg | 22 | | 13 | | 13 | | 22 | | 14 | | 13 | | 9.8 | | 19 | | 16 | | 7.4 | | 9.3 | |
| Iron | 7439-89-6 | mg/kg | 16000 | | 16000 | | 19000 | | 13000 | | 10000 | | 14000 | | 12000 | | 14000 | | 18000 | | 8100 | | 9500 | |
| Lead | 7439-92-1 | mg/kg | 21 | | 7.2 | | 4.6 | | 18 | | 3 | | 5.3 | | 18 | | 4.7 | | 5.7 | | 13 | | 3.1 | |
| Magnesium | 7439-95-4 | mg/kg | 2700 | | 2200 | | 15000 | | 2900 | | 6300 | | 15000 | | 740 | | 12000 | | 10000 | | 930 | | 2400 | |
| Manganese | 7439-96-5 | mg/kg | 320 | | 630 | | 780 | | 270 | | 440 | | 400 | | 110 | | 360 | | 510 | | 330 | | 340 | |
| Mercury | 7439-97-6 | mg/kg | 0.086 | | 0.031 | | 0.016 | U | 0.093 | | 0.017 | U | 0.017 | U | 0.19 | | 0.015 | U | 0.016 | U | 0.1 | | 0.017 | U |
| Nickel | 7440-02-0 | mg/kg | 13 | | 8.2 | | 13 | | 9.2 | | 8.3 | | 13 | | 4.9 | | 11 | | 16 | | 5.4 | | 5.5 | |
| Potassium | 7440-09-7 | mg/kg | 610 | | 480 | | 750 | | 640 | | 760 | | 1000 | | 420 | | 1200 | | 1400 | | 350 | J | 400 | |
| Selenium | 7782-49-2 | mg/kg | 1 | | 0.46 | J+ | 0.32 | U | 0.98 | | 0.36 | U | 0.36 | U | 1.5 | | 0.38 | U | 0.43 | U | 0.64 | J | 0.39 | U |
| Silver | 7440-22-4 | mg/kg | 0.82 | U | 0.51 | U | 0.59 | U | 0.9 | U | 0.56 | U | 0.65 | U | 0.71 | U | 0.5 | U | 0.5 | U | 0.8 | U | 0.59 | U |
| Sodium | 7440-23-5 | mg/kg | 140 | U | 86 | U | 490 | U | 750 | J+ | 460 | J+ | 540 | J+ | 590 | J+ | 420 | J+ | 420 | J+ | 670 | J+ | 500 | J+ |
| Thallium | 7440-28-0 | mg/kg | 0.34 | | 0.092 | U | 0.08 | U | 0.34 | | 0.09 | J+ | 0.09 | J+ | 0.6 | | 0.094 | J+ | 0.11 | J+ | 0.24 | | 0.096 | J+ |
| Vanadium | 7440-62-2 | mg/kg | 12 | | 13 | | 12 | | 10 | | 9.8 | | 12 | | 15 | | 13 | | 17 | | 11 | | 8.7 | |
| Zinc | 7440-66-6 | mg/kg | 44 | | 24 | | 23 | | 58 | | 19 | | 25 | | 35 | | 23 | | 29 | | 28 | | 15 | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 69 | | 8.4 | | 4.1 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Organic Carbon | N/A | mg/kg | 380000 | J- | 9600 | J- | 2000 | UJ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Solids | N/A | % | 56.1 | | 80.8 | | 85.2 | | 58.9 | | 89.3 | | 85.2 | | 57.2 | | 87.8 | | 86.1 | | 63 | | 87.1 | |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 15.2 | | 7.6 | | 14.3 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Coarse Sand | N/A | % | 7.4 | | 4.4 | | 7.7 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Medium Sand | N/A | % | 26 | | 8.1 | | 8.7 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Fine Sand | N/A | % | 35.7 | | 60.9 | | 32 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silt | N/A | % | 8.2 | | 10.5 | | 29 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Clay | N/A | % | 7.5 | | 8.5 | | 8.3 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.2-7
Reduced Validated Analytical Results[1] - AOC 5 (Coal Storage Area), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-05-009 | | NYOW-05-010 | | NYOW-05-010 | | NYOW-05-010 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-05-PH009-C | | NYOW-05-SL010-A | | NYOW-05-PH010-B | | NYOW-05-PH010-C | |
| | | Sample Type: | N | | N | | N | | N | |
| | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | Sample Date: | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| 1,4-Dioxane | 123-91-1 | mg/kg | 0.37 | U | -- | -- | 0.37 | U | 0.35 | U |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | mg/kg | 0.094 | U | -- | -- | 0.094 | U | 0.088 | U |
| 2,4,5-Trichlorophenol | 95-95-4 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| 2,4,6-Trichlorophenol | 88-06-2 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| 2,4-Dichlorophenol | 120-83-2 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| 2,4-Dimethylphenol | 105-67-9 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| 2,4-Dinitrotoluene | 121-14-2 | mg/kg | 0.094 | U | -- | -- | 0.094 | U | 0.088 | U |
| 2,6-Dinitrotoluene | 606-20-2 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| 2-Chloronaphthalene | 91-58-7 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| 2-Chlorophenol | 95-57-8 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| 2-Methylphenol (o-Cresol) | 95-48-7 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| 2-Nitroaniline | 88-74-4 | mg/kg | 0.19 | U | -- | -- | 0.19 | U | 0.18 | U |
| 2-Nitrophenol | 88-75-5 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| 3,3'-Dichlorobenzidine | 91-94-1 | mg/kg | 0.076 | UJ | -- | -- | 0.076 | UJ | 0.071 | UJ |
| 3-Nitroaniline | 99-09-2 | mg/kg | 0.094 | U | -- | -- | 0.094 | U | 0.088 | U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | mg/kg | 0.37 | U | -- | -- | 0.37 | U | 0.35 | U |
| 4-Bromophenyl phenyl ether | 101-55-3 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| 4-Chloro-3-methylphenol | 59-50-7 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| 4-Chloroaniline | 106-47-8 | mg/kg | 0.094 | U | -- | -- | 0.094 | U | 0.088 | U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| 4-Nitroaniline | 100-01-6 | mg/kg | 0.094 | U | -- | -- | 0.094 | U | 0.088 | U |
| 4-Nitrophenol | 100-02-7 | mg/kg | 0.76 | U | -- | -- | 0.76 | U | 0.71 | U |
| Acetophenone | 98-86-2 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| Atrazine | 1912-24-9 | mg/kg | 0.076 | UJ | -- | -- | 0.076 | UJ | 0.071 | UJ |
| Benzaldehyde | 100-52-7 | mg/kg | 0.19 | U | -- | -- | 0.19 | U | 0.18 | U |
| Benzyl butyl phthalate | 85-68-7 | mg/kg | 0.076 | UJ | -- | -- | 0.076 | UJ | 0.071 | UJ |
| Biphenyl (Diphenyl) | 92-52-4 | mg/kg | 0.37 | U | -- | -- | 0.37 | U | 0.35 | U |
| Bis(2-chloroethoxy)methane | 111-91-1 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | mg/kg | 0.094 | U | -- | -- | 0.094 | U | 0.088 | U |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | mg/kg | 0.076 | UJ | -- | -- | 0.076 | UJ | 0.071 | UJ |
| Caprolactam | 105-60-2 | mg/kg | 0.19 | U | -- | -- | 0.19 | U | 0.18 | U |
| Carbazole | 86-74-8 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| Cresols, m- & p- | cresols-m,p | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| Dibenzofuran | 132-64-9 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| Diethyl phthalate | 84-66-2 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| Dimethyl phthalate | 131-11-3 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| Di-n-butyl phthalate | 84-74-2 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| di-n-Octyl phthalate | 117-84-0 | mg/kg | 0.076 | UJ | -- | -- | 0.076 | UJ | 0.071 | UJ |
| Hexachlorobenzene | 118-74-1 | mg/kg | 0.076 | UJ | -- | -- | 0.076 | UJ | 0.071 | UJ |
| Hexachlorobutadiene | 87-68-3 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| Hexachlorocyclopentadiene | 77-47-4 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| Hexachloroethane | 67-72-1 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| Isophorone | 78-59-1 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| Nitrobenzene | 98-95-3 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| N-Nitrosodi-n-propylamine | 621-64-7 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| N-Nitrosodiphenylamine | 86-30-6 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| Pentachlorophenol | 87-86-5 | mg/kg | 0.76 | U | -- | -- | 0.76 | U | 0.71 | U |
| Phenol | 108-95-2 | mg/kg | 0.076 | U | -- | -- | 0.076 | U | 0.071 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0022 | U | 0.039 | J- | 0.0021 | U | 0.0021 | U |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0022 | U | 0.017 | | 0.0021 | U | 0.0021 | U |
| Acenaphthene | 83-32-9 | mg/kg | 0.0012 | U | 0.012 | J+ | 0.0011 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0012 | U | 0.012 | J+ | 0.0011 | U | 0.0011 | U |
| Anthracene | 120-12-7 | mg/kg | 0.0049 | U | 0.005 | U | 0.0045 | U | 0.011 | J+ |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0049 | U | 0.036 | | 0.0045 | U | 0.019 | |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0049 | U | 0.014 | | 0.0045 | U | 0.011 | |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.0075 | U | 0.06 | J- | 0.01 | J+ | 0.039 | |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0075 | U | 0.016 | | 0.0069 | U | 0.011 | |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0049 | U | 0.012 | J+ | 0.0045 | U | 0.012 | |
| Chrysene | 218-01-9 | mg/kg | 0.0049 | U | 0.18 | J- | 0.0045 | U | 0.036 | |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0075 | U | 0.013 | | 0.0069 | U | 0.011 | J+ |
| Fluoranthene | 206-44-0 | mg/kg | 0.0049 | U | 0.044 | | 0.0045 | U | 0.023 | |

Table D.2-7
Reduced Validated Analytical Results[1] - AOC 5 (Coal Storage Area), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-05-009 | | NYOW-05-010 | | NYOW-05-010 | | NYOW-05-010 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-05-PH009-C | | NYOW-05-SL010-A | | NYOW-05-PH010-B | | NYOW-05-PH010-C | |
| | | Sample Type: | N | | N | | N | | N | |
| | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | Sample Date: | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Fluorene | 86-73-7 | mg/kg | 0.003 | U | 0.012 | | 0.0027 | U | 0.0028 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0075 | U | 0.0069 | J | 0.0069 | U | 0.012 | |
| Naphthalene | 91-20-3 | mg/kg | 0.011 | J+ | 0.017 | J- | 0.0021 | U | 0.0021 | U |
| Phenanthrene | 85-01-8 | mg/kg | 0.0075 | U | 0.16 | J- | 0.0069 | U | 0.011 | J+ |
| Pyrene | 129-00-0 | mg/kg | 0.0075 | U | 0.068 | J- | 0.0069 | U | 0.023 | |
| High Molecular Weight PAHs | N/A | mg/kg | 0.057 | U | 0.41 | | 0.046 | | 0.17 | |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.021 | | 0.32 | | 0.027 | U | 0.052 | |
| Total PAHs | N/A | mg/kg | 0.031 | | 0.72 | | 0.029 | | 0.23 | |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 2000 | | 4800 | J | 5600 | | 7000 | |
| Antimony | 7440-36-0 | mg/kg | 0.1 | U | 0.11 | UJ | 0.2 | J+ | 0.18 | J+ |
| Arsenic | 7440-38-2 | mg/kg | 6.2 | | 4.5 | | 26 | | 79 | |
| Barium | 7440-39-3 | mg/kg | 28 | | 65 | | 110 | | 76 | |
| Beryllium | 7440-41-7 | mg/kg | 0.44 | J+ | 0.47 | J+ | 0.53 | J+ | 0.46 | J+ |
| Cadmium | 7440-43-9 | mg/kg | 0.086 | J+ | 0.11 | | 0.026 | J | 0.095 | J+ |
| Calcium | 7440-70-2 | mg/kg | 37000 | | 2000 | J+ | 76000 | | 91000 | |
| Chromium | 7440-47-3 | mg/kg | 3.8 | | 7.2 | | 7.3 | | 9.8 | |
| Cobalt | 7440-48-4 | mg/kg | 2.7 | | 3.4 | | 8 | | 8.4 | |
| Copper | 7440-50-8 | mg/kg | 11 | | 5.3 | | 27 | | 15 | |
| Iron | 7439-89-6 | mg/kg | 8500 | | 14000 | | 25000 | | 26000 | |
| Lead | 7439-92-1 | mg/kg | 2.4 | | 4.2 | | 4.5 | | 4.3 | |
| Magnesium | 7439-95-4 | mg/kg | 7000 | | 1100 | J | 8400 | | 27000 | |
| Manganese | 7439-96-5 | mg/kg | 320 | | 400 | J- | 870 | | 480 | |
| Mercury | 7439-97-6 | mg/kg | 0.018 | U | 0.11 | | 0.016 | U | 0.017 | U |
| Nickel | 7440-02-0 | mg/kg | 5 | | 5.7 | | 14 | | 16 | |
| Potassium | 7440-09-7 | mg/kg | 390 | | 350 | | 1200 | | 1600 | |
| Selenium | 7782-49-2 | mg/kg | 0.34 | U | 0.4 | J | 0.38 | U | 0.38 | U |
| Silver | 7440-22-4 | mg/kg | 0.53 | U | 0.57 | U | 0.63 | U | 0.55 | U |
| Sodium | 7440-23-5 | mg/kg | 440 | J+ | 470 | J+ | 530 | J+ | 460 | J+ |
| Thallium | 7440-28-0 | mg/kg | 0.086 | J+ | 0.18 | | 0.096 | J+ | 0.095 | J+ |
| Vanadium | 7440-62-2 | mg/kg | 5.9 | | 15 | | 13 | | 11 | |
| Zinc | 7440-66-6 | mg/kg | 11 | | 14 | | 27 | | 21 | |
| Other Inorganics | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Organic Carbon | N/A | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- |
| Solids | N/A | % | 86.6 | | 81.5 | | 87.4 | | 89.1 | |
| Grain Size | | | | | | | | | | |
| Gravel | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- |
| Coarse Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- |
| Medium Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- |
| Fine Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- |
| Silt | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- |
| Clay | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.2-8
Reduced Validated Analytical Results[1] - AOC 5 (Electric Substation), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Location: | | | NYOW-05-011 | | NYOW-05-011 | | NYOW-05-011 | | NYOW-05-012 | | NYOW-05-012 | | NYOW-05-012 | | NYOW-05-013 | | NYOW-05-013 | | NYOW-05-013 | | NYOW-05-014 | | NYOW-05-014 | | NYOW-05-014 | |
| Sample Name: | | | NYOW-05-SL011-A | | NYOW-05-PH011-B | | NYOW-05-PH011-C | | NYOW-05-SL012-A | | NYOW-05-PH012-B | | NYOW-05-PH012-C | | NYOW-05-SL013-A | | NYOW-05-PH013-B | | NYOW-05-PH013-C | | NYOW-05-SL014-A | | NYOW-05-PH014-B | | NYOW-05-PH014-C | |
| Sample Type: | | | N | | N | | N | | N | | N | | N | | N | | N | | C | | N | | N | | N | |
| Sample Depth (feet): | | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| Sample Date: | | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| 1,4-Dioxane | 123-91-1 | mg/kg | 0.37 | U | 0.39 | U | 0.37 | U | 0.38 | U | 0.39 | U | 0.38 | U | 0.39 | U | 0.35 | U | 0.37 | U | 0.38 | U | 0.37 | U | 0.36 | U |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | mg/kg | 0.093 | UJ | 0.097 | UJ | 0.093 | UJ | 0.096 | UJ | 0.097 | UJ | 0.095 | UJ | 0.098 | UJ | 0.088 | UJ | 0.094 | UJ | 0.096 | UJ | 0.094 | UJ | 0.091 | UJ |
| 2,4,5-Trichlorophenol | 95-95-4 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| 2,4,6-Trichlorophenol | 88-06-2 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| 2,4-Dichlorophenol | 120-83-2 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| 2,4-Dimethylphenol | 105-67-9 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| 2,4-Dinitrotoluene | 121-14-2 | mg/kg | 0.093 | U | 0.097 | U | 0.093 | U | 0.096 | U | 0.097 | U | 0.095 | U | 0.098 | U | 0.088 | U | 0.094 | U | 0.096 | U | 0.094 | U | 0.091 | U |
| 2,6-Dinitrotoluene | 606-20-2 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| 2-Chloronaphthalene | 91-58-7 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| 2-Chlorophenol | 95-57-8 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| 2-Methylphenol (o-Cresol) | 95-48-7 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| 2-Nitroaniline | 88-74-4 | mg/kg | 0.19 | U | 0.2 | U | 0.19 | U | 0.2 | U | 0.2 | U | 0.19 | U | 0.2 | U | 0.18 | U | 0.19 | U | 0.2 | U | 0.19 | U | 0.19 | U |
| 2-Nitrophenol | 88-75-5 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| 3,3'-Dichlorobenzidine | 91-94-1 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| 3-Nitroaniline | 99-09-2 | mg/kg | 0.093 | U | 0.097 | U | 0.093 | U | 0.096 | U | 0.097 | U | 0.095 | U | 0.098 | U | 0.088 | U | 0.094 | U | 0.096 | U | 0.094 | U | 0.091 | U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | mg/kg | 0.37 | U | 0.39 | U | 0.37 | U | 0.38 | U | 0.39 | U | 0.38 | U | 0.39 | U | 0.35 | U | 0.37 | U | 0.38 | U | 0.37 | U | 0.36 | U |
| 4-Bromophenyl phenyl ether | 101-55-3 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| 4-Chloro-3-methylphenol | 59-50-7 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| 4-Chloroaniline | 106-47-8 | mg/kg | 0.093 | U | 0.097 | U | 0.093 | U | 0.096 | U | 0.097 | U | 0.095 | U | 0.098 | U | 0.088 | U | 0.094 | U | 0.096 | U | 0.094 | U | 0.091 | U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | mg/kg | 0.075 | UJ | 0.078 | UJ | 0.075 | UJ | 0.078 | UJ | 0.079 | UJ | 0.076 | UJ | 0.079 | UJ | 0.071 | UJ | 0.076 | UJ | 0.078 | UJ | 0.076 | UJ | 0.073 | UJ |
| 4-Nitroaniline | 100-01-6 | mg/kg | 0.093 | U | 0.097 | U | 0.093 | U | 0.096 | U | 0.097 | U | 0.095 | U | 0.098 | U | 0.088 | U | 0.094 | U | 0.096 | U | 0.094 | U | 0.091 | U |
| 4-Nitrophenol | 100-02-7 | mg/kg | 0.75 | U | 0.78 | U | 0.75 | U | 0.78 | U | 0.79 | U | 0.76 | U | 0.79 | U | 0.71 | U | 0.76 | U | 0.78 | U | 0.76 | U | 0.73 | U |
| Acetophenone | 98-86-2 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| Atrazine | 1912-24-9 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| Benzaldehyde | 100-52-7 | mg/kg | 0.19 | UJ | 0.2 | UJ | 0.19 | UJ | 0.2 | UJ | 0.2 | UJ | 0.19 | UJ | 0.2 | UJ | 0.18 | UJ | 0.19 | UJ | 0.2 | UJ | 0.19 | UJ | 0.19 | UJ |
| Benzyl butyl phthalate | 85-68-7 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| Biphenyl (Diphenyl) | 92-52-4 | mg/kg | 0.37 | U | 0.39 | U | 0.37 | U | 0.38 | U | 0.39 | U | 0.38 | U | 0.39 | U | 0.35 | U | 0.37 | U | 0.38 | U | 0.37 | U | 0.36 | U |
| Bis(2-chloroethoxy)methane | 111-91-1 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | mg/kg | 0.093 | U | 0.097 | U | 0.093 | U | 0.096 | U | 0.097 | U | 0.095 | U | 0.098 | U | 0.088 | U | 0.094 | U | 0.096 | U | 0.094 | U | 0.091 | U |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| Caprolactam | 105-60-2 | mg/kg | 0.19 | U | 0.2 | U | 0.19 | U | 0.2 | U | 0.2 | U | 0.19 | U | 0.2 | U | 0.18 | U | 0.19 | U | 0.2 | U | 0.19 | U | 0.19 | U |
| Carbazole | 86-74-8 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| Cresols, m- & p- | cresols-m,p | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| Dibenzofuran | 132-64-9 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| Diethyl phthalate | 84-66-2 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| Dimethyl phthalate | 131-11-3 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| Di-n-butyl phthalate | 84-74-2 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| di-n-Octyl phthalate | 117-84-0 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| Hexachlorobenzene | 118-74-1 | mg/kg | 0.075 | UJ | 0.078 | UJ | 0.075 | UJ | 0.078 | UJ | 0.079 | UJ | 0.076 | UJ | 0.079 | UJ | 0.071 | UJ | 0.076 | UJ | 0.078 | UJ | 0.076 | UJ | 0.073 | UJ |
| Hexachlorobutadiene | 87-68-3 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| Hexachlorocyclopentadiene | 77-47-4 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| Hexachloroethane | 67-72-1 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| Isophorone | 78-59-1 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| Nitrobenzene | 98-95-3 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| N-Nitrosodi-n-propylamine | 621-64-7 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| N-Nitrosodiphenylamine | 86-30-6 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| Pentachlorophenol | 87-86-5 | mg/kg | 0.75 | UJ | 0.78 | UJ | 0.75 | UJ | 0.78 | UJ | 0.79 | UJ | 0.76 | UJ | 0.79 | UJ | 0.71 | UJ | 0.76 | UJ | 0.78 | UJ | 0.76 | UJ | 0.73 | UJ |
| Phenol | 108-95-2 | mg/kg | 0.075 | U | 0.078 | U | 0.075 | U | 0.078 | U | 0.079 | U | 0.076 | U | 0.079 | U | 0.071 | U | 0.076 | U | 0.078 | U | 0.076 | U | 0.073 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.011 | J+ | 0.0023 | U | 0.0023 | U | 0.012 | J+ | 0.0023 | U | 0.0022 | U | 0.012 | J+ | 0.01 | J+ | 0.0021 | U | 0.011 | J+ | 0.0022 | U | 0.0023 | U |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.018 | | 0.0023 | U | 0.0023 | U | 0.003 | J | 0.012 | J+ | 0.0022 | U | 0.0019 | J | 0.01 | J+ | 0.0021 | U | 0.0029 | J | 0.011 | J+ | 0.0023 | U |
| Acenaphthene | 83-32-9 | mg/kg | 0.011 | J+ | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0011 | U | 0.0011 | U | 0.0011 | U | 0.0012 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | mg/kg | 0.011 | J+ | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0011 | U | 0.0011 | U | 0.011 | J+ | 0.0012 | U | 0.0012 | U |
| Anthracene | 120-12-7 | mg/kg | 0.011 | J+ | 0.0049 | U | 0.0051 | U | 0.012 | J+ | 0.005 | U | 0.0048 | U | 0.012 | J+ | 0.01 | J+ | 0.0046 | U | 0.011 | J+ | 0.0047 | U | 0.0049 | U |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0098 | J | 0.0049 | U | 0.024 | | 0.012 | | 0.005 | U | 0.0048 | U | 0.012 | | 0.01 | J+ | 0.0046 | U | 0.013 | | 0.0047 | U | 0.0049 | U |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.011 | J- | 0.0049 | UJ | 0.032 | J- | 0.013 | J- | 0.005 | UJ | 0.0048 | UJ | 0.012 | J- | 0.01 | J+ | 0.0046 | UJ | 0.017 | J- | 0.0047 | UJ | 0.0049 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.02 | | 0.0076 | U | 0.05 | | 0.023 | | 0.0077 | U | 0.0074 | U | 0.019 | | 0.015 | | 0.0071 | U | 0.024 | | 0.003 | J | 0.003 | J |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0083 | J- | 0.0076 | UJ | 0.023 | J- | 0.013 | J- | 0.0077 | UJ | 0.0074 | UJ | 0.0098 | J- | 0.01 | J+ | 0.0071 | UJ | 0.012 | J- | 0.0072 | UJ | 0.0075 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0072 | J | 0.0049 | U | 0.021 | | 0.0084 | J | 0.005 | U | 0.0048 | U | 0.0074 | J | 0.01 | J+ | 0.0046 | U | 0.01 | J | 0.0047 | U | 0.0049 | U |
| Chrysene | 218-01-9 | mg/kg | 0.014 | | 0.0049 | U | 0.04 | | 0.017 | | 0.003 | J | 0.0067 | J | 0.015 | | 0.015 | | 0.0046 | U | 0.018 | | 0.0023 | J | 0.0044 | J |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0073 | UJ | 0.0076 | UJ | 0.012 | J+ | 0.0077 | UJ | 0.0077 | UJ | 0.0074 | UJ | 0.0078 | UJ | 0.0069 | UJ | 0.0071 | UJ | 0.0032 | J- | 0.0072 | UJ | 0.0075 | UJ |
| Fluoranthene | 206-44-0 | mg/kg | 0.02 | | 0.0026 | J | 0.041 | | 0.025 | | 0.005 | U | 0.0048 | U | 0.019 | | 0.015 | | 0.0046 | U | 0.022 | | 0.0047 | U | 0.0049 | U |
| Fluorene | 86-73-7 | mg/kg | 0.011 | J+ | 0.003 | U | 0.0031 | U | 0.0031 | U | 0.0031 | U | 0.003 | U | 0.0031 | U | 0.0028 | U | 0.0028 | U | 0.0029 | U | 0.0029 | U | 0.003 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0096 | J- | 0.0076 | UJ | 0.029 | J- | 0.013 | J- | 0.0077 | UJ | 0.0074 | UJ | 0.011 | J- | 0.01 | J+ | 0.0071 | UJ | 0.013 | J- | 0.0072 | UJ | 0.0075 | UJ |
| Naphthalene | 91-20-3 | mg/kg | 0.015 | | 0.011 | J+ | 0.012 | J+ | 0.0052 | J | 0.012 | J+ | 0.011 | J+ | 0.0033 | J | 0.01 | J+ | 0.0021 | U | 0.0029 | J | 0.011 | J+ | 0.011 | J+ |
| Phenanthrene | 85-01-8 | mg/kg | 0.0091 | J | 0.0076 | U | 0.012 | J+ | 0.0094 | J | 0.0077 | U | 0.011 | J+ | 0.0084 | J | 0.01 | | 0.0071 | U | 0.0099 | J | 0.0072 | U | 0.011 | J+ |
| Pyrene | 129-00-0 | mg/kg | 0.019 | | 0.0026 | J | 0.039 | | 0.024 | | 0.0077 | U | 0.0074 | U | 0.017 | | 0.013 | | 0.0071 | U | 0.02 | | 0.0072 | U | 0.0025 | J |

Table D.2-8
Reduced Validated Analytical Results[1] - AOC 5 (Electric Substation), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-05-011 | | NYOW-05-011 | | NYOW-05-011 | | NYOW-05-012 | | NYOW-05-012 | | NYOW-05-012 | | NYOW-05-013 | | NYOW-05-013 | | NYOW-05-013 | | NYOW-05-014 | | NYOW-05-014 | | NYOW-05-014 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-05-SL011-A | | NYOW-05-PH011-B | | NYOW-05-PH011-C | | NYOW-05-SL012-A | | NYOW-05-PH012-B | | NYOW-05-PH012-C | | NYOW-05-SL013-A | | NYOW-05-PH013-B | | NYOW-05-PH013-C | | NYOW-05-SL014-A | | NYOW-05-PH014-B | | NYOW-05-PH014-C | |
| | | | Sample Type: | | N | | N | | N | | N | | N | | N | | N | | N | | C | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | Sample Date: | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| High Molecular Weight PAHs | N/A | mg/kg | 0.11 | | 0.023 | | 0.27 | | 0.13 | | 0.027 | | 0.048 | | 0.11 | | 0.1 | | 0.054 | U | 0.13 | | 0.024 | | 0.03 | |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.12 | | 0.023 | | 0.072 | | 0.071 | | 0.032 | | 0.03 | | 0.06 | | 0.068 | | 0.028 | U | 0.073 | | 0.03 | | 0.03 | |
| Total PAHs | N/A | mg/kg | 0.22 | | 0.039 | | 0.34 | | 0.2 | | 0.05 | | 0.049 | | 0.17 | | 0.16 | | 0.082 | U | 0.2 | | 0.05 | | 0.054 | |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | 12674-11-2 | mg/kg | 0.031 | U | -- | -- | -- | -- | 0.034 | U | -- | -- | -- | -- | 0.035 | U | -- | -- | -- | -- | 0.036 | U | -- | -- | -- | -- |
| PCB-1221 (Aroclor 1221) | 11104-28-2 | mg/kg | 0.082 | U | -- | -- | -- | -- | 0.087 | U | -- | -- | -- | -- | 0.092 | U | -- | -- | -- | -- | 0.094 | U | -- | -- | -- | -- |
| PCB-1232 (Aroclor 1232) | 11141-16-5 | mg/kg | 0.031 | U | -- | -- | -- | -- | 0.034 | U | -- | -- | -- | -- | 0.035 | U | -- | -- | -- | -- | 0.036 | U | -- | -- | -- | -- |
| PCB-1242 (Aroclor 1242) | 53469-21-9 | mg/kg | 0.049 | U | -- | -- | -- | -- | 0.052 | U | -- | -- | -- | -- | 0.055 | U | -- | -- | -- | -- | 0.057 | U | -- | -- | -- | -- |
| PCB-1248 (Aroclor 1248) | 12672-29-6 | mg/kg | 0.015 | U | -- | -- | -- | -- | 0.016 | U | -- | -- | -- | -- | 0.017 | U | -- | -- | -- | -- | 0.018 | U | -- | -- | -- | -- |
| PCB-1254 (Aroclor 1254) | 11097-69-1 | mg/kg | 0.034 | U | -- | -- | -- | -- | 0.036 | U | -- | -- | -- | -- | 0.038 | U | -- | -- | -- | -- | 0.039 | U | -- | -- | -- | -- |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | mg/kg | 0.0068 | U | -- | -- | -- | -- | 0.029 | J | -- | -- | -- | -- | 0.16 | | -- | -- | -- | -- | 0.013 | J | -- | -- | -- | -- |
| PCB-1262 (Aroclor 1262) | 37324-23-5 | mg/kg | 0.016 | U | -- | -- | -- | -- | 0.017 | U | -- | -- | -- | -- | 0.018 | U | -- | -- | -- | -- | 0.019 | U | -- | -- | -- | -- |
| PCB-1268 (Aroclor 1268) | 11100-14-4 | mg/kg | 0.0068 | U | -- | -- | -- | -- | 0.0073 | U | -- | -- | -- | -- | 0.0077 | U | -- | -- | -- | -- | 0.0079 | U | -- | -- | -- | -- |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 8200 | | 8900 | J | 15000 | | 6500 | | 18000 | | 17000 | | 5500 | | 5800 | | 11000 | | 6600 | | 10000 | | 6600 | | | |
| Antimony | 7440-36-0 | mg/kg | 0.19 | | 0.21 | J+ | 0.19 | J+ | 0.17 | | 0.17 | J+ | 0.23 | J+ | 0.096 | J | 0.21 | J+ | 0.23 | J+ | 0.13 | J | 0.18 | J+ | 0.17 | J+ | | |
| Arsenic | 7440-38-2 | mg/kg | 5.2 | | 4.4 | | 8.1 | | 5.9 | | 5 | | 4.1 | | 4.3 | | 5.5 | | 3.9 | | 4.9 | | 4.9 | | 2.9 | | | |
| Barium | 7440-39-3 | mg/kg | 62 | | 46 | | 98 | | 66 | | 110 | | 110 | | 43 | | 51 | | 82 | | 51 | | 59 | | 36 | | | |
| Beryllium | 7440-41-7 | mg/kg | 0.55 | J+ | 0.43 | J | 0.67 | | 0.49 | J+ | 0.83 | | 0.81 | | 0.47 | J+ | 0.27 | J | 0.49 | | 0.57 | J+ | 0.47 | J | 0.31 | J | | |
| Cadmium | 7440-43-9 | mg/kg | 0.14 | | 0.078 | J | 0.072 | J | 0.14 | | 0.061 | J | 0.053 | J | 0.14 | | 0.38 | | 0.052 | J | 0.11 | | 0.054 | J | 0.059 | J | | |
| Calcium | 7440-70-2 | mg/kg | 17000 | | 23000 | J | 45000 | | 20000 | | 47000 | | 46000 | | 30000 | | 51000 | | 69000 | | 37000 | | 82000 | | 58000 | | | |
| Chromium | 7440-47-3 | mg/kg | 10 | | 14 | | 20 | | 8.5 | | 25 | | 24 | | 8.4 | | 8.3 | | 16 | | 9.6 | | 15 | | 11 | | | |
| Cobalt | 7440-48-4 | mg/kg | 7.1 | | 9.7 | | 10 | | 7 | | 13 | | 11 | | 6.1 | | 5.9 | | 9 | | 9.3 | | 6.2 | | 7.3 | | | |
| Copper | 7440-50-8 | mg/kg | 25 | | 21 | | 25 | | 24 | | 25 | | 25 | | 16 | | 74 | | 19 | | 21 | | 15 | | 16 | | | |
| Iron | 7439-89-6 | mg/kg | 22000 | | 19000 | J | 25000 | | 21000 | | 27000 | | 26000 | | 17000 | | 19000 | | 20000 | | 18000 | | 18000 | | 15000 | | | |
| Lead | 7439-92-1 | mg/kg | 12 | | 8.4 | | 8.8 | | 24 | | 9.4 | | 9.1 | | 7.9 | | 8.5 | | 8.5 | | 13 | | 7.8 | | 6.9 | | | |
| Magnesium | 7439-95-4 | mg/kg | 6800 | | 8600 | J+ | 16000 | | 7900 | | 12000 | | 13000 | | 11000 | | 14000 | | 20000 | | 12000 | | 17000 | | 24000 | | | |
| Manganese | 7439-96-5 | mg/kg | 1100 | | 760 | | 470 | | 1200 | | 600 | | 510 | | 590 | | 870 | | 490 | | 660 | | 330 | | 460 | | | |
| Mercury | 7439-97-6 | mg/kg | 0.085 | | 0.03 | | 0.016 | J | 0.23 | | 0.099 | | 0.022 | | 0.029 | | 0.035 | | 0.014 | J | 0.026 | | 0.013 | J | 0.011 | J | | |
| Nickel | 7440-02-0 | mg/kg | 15 | | 20 | | 22 | | 12 | | 29 | | 27 | | 12 | | 12 | | 20 | | 15 | | 16 | | 15 | | | |
| Potassium | 7440-09-7 | mg/kg | 770 | | 1100 | J+ | 2500 | | 770 | | 3300 | | 3400 | | 870 | | 830 | | 1600 | | 850 | | 1300 | | 1100 | | | |
| Selenium | 7782-49-2 | mg/kg | 0.46 | J+ | 0.49 | J+ | 0.44 | U | 0.47 | J+ | 0.45 | J+ | 0.39 | U | 0.59 | J+ | 0.47 | J+ | 0.34 | U | 0.54 | J+ | 0.41 | J+ | 0.46 | J+ | | |
| Silver | 7440-22-4 | mg/kg | 0.67 | U | 0.61 | U | 0.7 | U | 0.58 | U | 0.61 | U | 0.68 | U | 0.56 | U | 0.53 | U | 0.53 | U | 0.68 | U | 0.58 | U | 0.62 | U | | |
| Sodium | 7440-23-5 | mg/kg | 110 | U | 510 | U | 590 | U | 97 | U | 510 | U | 560 | U | 93 | U | 88 | U | 440 | U | 570 | U | 480 | U | 520 | U | | |
| Thallium | 7440-28-0 | mg/kg | 0.12 | | 0.099 | U | 0.18 | | 0.14 | | 0.16 | | 0.15 | | 0.12 | U | 0.094 | U | 0.085 | U | 0.11 | U | 0.096 | | 0.092 | U | | |
| Vanadium | 7440-62-2 | mg/kg | 16 | | 16 | | 28 | | 15 | | 31 | | 32 | | 14 | | 13 | | 20 | | 14 | | 17 | | 13 | | | |
| Zinc | 7440-66-6 | mg/kg | 42 | | 35 | | 50 | | 49 | | 56 | | 55 | | 35 | | 42 | | 40 | | 40 | | 35 | | 30 | | | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | -- | -- | -- | -- | -- | -- | 17 | | 12 | | 15 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Total Organic Carbon | N/A | mg/kg | -- | -- | -- | -- | -- | -- | 15000 | J- | 4000 | J+ | 4000 | J+ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Solids | N/A | % | 87.1 | | 84.3 | | 84.7 | | 85.3 | | 83.7 | | 84.4 | | 81.7 | | 88.6 | | 82.3 | | 85 | | 85.1 | | 86.6 | | | |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | -- | -- | -- | -- | -- | -- | 31.8 | | -- | -- | 0 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Coarse Sand | N/A | % | -- | -- | -- | -- | -- | -- | 4.6 | | -- | -- | 0 | U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Medium Sand | N/A | % | -- | -- | -- | -- | -- | -- | 9.5 | | -- | -- | 0.6 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Fine Sand | N/A | % | -- | -- | -- | -- | -- | -- | 28.7 | | -- | -- | 8.8 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Silt | N/A | % | -- | -- | -- | -- | -- | -- | 16.1 | | -- | -- | 40.8 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | |
| Clay | N/A | % | -- | -- | -- | -- | -- | -- | 9.3 | | -- | -- | 49.8 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.2-8
Reduced Validated Analytical Results[1] - AOC 5 (Electric Substation), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-05-015 | | NYOW-05-015 | | NYOW-05-015 | |
|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-05-SL015-A | | NYOW-05-PH015-B | | NYOW-05-PH015-C | |
| | | Sample Type: | N | | N | | N | |
| | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | Sample Date: | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| 1,4-Dioxane | 123-91-1 | mg/kg | 0.38 | U | 0.35 | U | 0.37 | U |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | mg/kg | 0.095 | UJ | 0.088 | UJ | 0.094 | UJ |
| 2,4,5-Trichlorophenol | 95-95-4 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| 2,4,6-Trichlorophenol | 88-06-2 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| 2,4-Dichlorophenol | 120-83-2 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| 2,4-Dimethylphenol | 105-67-9 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| 2,4-Dinitrotoluene | 121-14-2 | mg/kg | 0.095 | U | 0.088 | U | 0.094 | U |
| 2,6-Dinitrotoluene | 606-20-2 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| 2-Chloronaphthalene | 91-58-7 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| 2-Chlorophenol | 95-57-8 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| 2-Methylphenol (o-Cresol) | 95-48-7 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| 2-Nitroaniline | 88-74-4 | mg/kg | 0.2 | U | 0.18 | U | 0.19 | U |
| 2-Nitrophenol | 88-75-5 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| 3,3'-Dichlorobenzidine | 91-94-1 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| 3-Nitroaniline | 99-09-2 | mg/kg | 0.095 | U | 0.088 | U | 0.094 | U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | mg/kg | 0.38 | U | 0.35 | U | 0.37 | U |
| 4-Bromophenyl phenyl ether | 101-55-3 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| 4-Chloro-3-methylphenol | 59-50-7 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| 4-Chloroaniline | 106-47-8 | mg/kg | 0.095 | U | 0.088 | U | 0.094 | U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | mg/kg | 0.077 | UJ | 0.071 | UJ | 0.076 | UJ |
| 4-Nitroaniline | 100-01-6 | mg/kg | 0.095 | U | 0.088 | U | 0.094 | U |
| 4-Nitrophenol | 100-02-7 | mg/kg | 0.77 | U | 0.71 | U | 0.76 | U |
| Acetophenone | 98-86-2 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| Atrazine | 1912-24-9 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| Benzaldehyde | 100-52-7 | mg/kg | 0.2 | UJ | 0.18 | UJ | 0.19 | UJ |
| Benzyl butyl phthalate | 85-68-7 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| Biphenyl (Diphenyl) | 92-52-4 | mg/kg | 0.38 | U | 0.35 | U | 0.37 | U |
| Bis(2-chloroethoxy)methane | 111-91-1 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | mg/kg | 0.095 | U | 0.088 | U | 0.094 | U |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| Caprolactam | 105-60-2 | mg/kg | 0.2 | U | 0.18 | U | 0.19 | U |
| Carbazole | 86-74-8 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| Cresols, m- & p- | cresols-m,p | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| Dibenzofuran | 132-64-9 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| Diethyl phthalate | 84-66-2 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| Dimethyl phthalate | 131-11-3 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| Di-n-butyl phthalate | 84-74-2 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| di-n-Octyl phthalate | 117-84-0 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| Hexachlorobenzene | 118-74-1 | mg/kg | 0.077 | UJ | 0.071 | UJ | 0.076 | UJ |
| Hexachlorobutadiene | 87-68-3 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| Hexachlorocyclopentadiene | 77-47-4 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| Hexachloroethane | 67-72-1 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| Isophorone | 78-59-1 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| Nitrobenzene | 98-95-3 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| N-Nitrosodi-n-propylamine | 621-64-7 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| N-Nitrosodiphenylamine | 86-30-6 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| Pentachlorophenol | 87-86-5 | mg/kg | 0.77 | UJ | 0.71 | UJ | 0.76 | UJ |
| Phenol | 108-95-2 | mg/kg | 0.077 | U | 0.071 | U | 0.076 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.011 | J+ | 0.01 | J+ | 0.011 | J+ |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0094 | J | 0.01 | J+ | 0.011 | J+ |
| Acenaphthene | 83-32-9 | mg/kg | 0.011 | J+ | 0.0011 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | mg/kg | 0.011 | J+ | 0.01 | J+ | 0.0012 | U |
| Anthracene | 120-12-7 | mg/kg | 0.011 | J+ | 0.0045 | U | 0.0047 | U |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.018 | | 0.01 | J+ | 0.0047 | U |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.065 | J- | 0.01 | J+ | 0.0019 | J- |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.072 | | 0.0081 | J | 0.0035 | J |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.049 | J- | 0.01 | J+ | 0.0073 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.027 | | 0.0045 | U | 0.0047 | U |
| Chrysene | 218-01-9 | mg/kg | 0.026 | | 0.0066 | J | 0.0032 | J |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.013 | J- | 0.0069 | UJ | 0.0073 | UJ |
| Fluoranthene | 206-44-0 | mg/kg | 0.031 | | 0.0085 | J | 0.0043 | J |
| Fluorene | 86-73-7 | mg/kg | 0.011 | J+ | 0.0027 | U | 0.0029 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.055 | J- | 0.01 | J+ | 0.0073 | UJ |
| Naphthalene | 91-20-3 | mg/kg | 0.0075 | J | 0.01 | J+ | 0.011 | J+ |
| Phenanthrene | 85-01-8 | mg/kg | 0.018 | | 0.0046 | J | 0.011 | J+ |
| Pyrene | 129-00-0 | mg/kg | 0.029 | | 0.0071 | J | 0.0035 | J |

Table D.2-8
Reduced Validated Analytical Results[1] - AOC 5 (Electric Substation), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-05-015 | | NYOW-05-015 | |
|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | NYOW-05-SL015-A | | NYOW-05-PH015-B | | NYOW-05-PH015-C | |
| | | | Sample Type: | N | | N | | N | |
| | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | Sample Date: | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| High Molecular Weight PAHs | N/A | mg/kg | 0.35 | | 0.072 | | 0.027 | |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.12 | | 0.056 | | 0.054 | |
| Total PAHs | N/A | mg/kg | 0.48 | | 0.12 | | 0.079 | |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | |
| PCB-1016 (Aroclor 1016) | 12674-11-2 | mg/kg | 0.036 | U | -- | -- | -- | -- |
| PCB-1221 (Aroclor 1221) | 11104-28-2 | mg/kg | 0.093 | U | -- | -- | -- | -- |
| PCB-1232 (Aroclor 1232) | 11141-16-5 | mg/kg | 0.036 | U | -- | -- | -- | -- |
| PCB-1242 (Aroclor 1242) | 53469-21-9 | mg/kg | 0.056 | U | -- | -- | -- | -- |
| PCB-1248 (Aroclor 1248) | 12672-29-6 | mg/kg | 0.018 | U | -- | -- | -- | -- |
| PCB-1254 (Aroclor 1254) | 11097-69-1 | mg/kg | 0.039 | U | -- | -- | -- | -- |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | mg/kg | 0.0042 | J | -- | -- | -- | -- |
| PCB-1262 (Aroclor 1262) | 37324-23-5 | mg/kg | 0.019 | U | -- | -- | -- | -- |
| PCB-1268 (Aroclor 1268) | 11100-14-4 | mg/kg | 0.0078 | U | -- | -- | -- | -- |
| Metals (Total) | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 5400 | | 7300 | | 6600 | |
| Antimony | 7440-36-0 | mg/kg | 0.12 | J | 0.21 | J+ | 0.19 | J+ |
| Arsenic | 7440-38-2 | mg/kg | 4.3 | | 4.8 | | 8.6 | |
| Barium | 7440-39-3 | mg/kg | 48 | | 50 | | 59 | |
| Beryllium | 7440-41-7 | mg/kg | 0.57 | J+ | 0.35 | J | 0.34 | J |
| Cadmium | 7440-43-9 | mg/kg | 0.39 | | 0.046 | J | 0.16 | |
| Calcium | 7440-70-2 | mg/kg | 35000 | | 73000 | | 49000 | |
| Chromium | 7440-47-3 | mg/kg | 7.9 | | 10 | | 12 | |
| Cobalt | 7440-48-4 | mg/kg | 5.6 | | 6.3 | | 7.1 | |
| Copper | 7440-50-8 | mg/kg | 16 | | 16 | | 18 | |
| Iron | 7439-89-6 | mg/kg | 15000 | | 16000 | | 16000 | |
| Lead | 7439-92-1 | mg/kg | 7.6 | | 10 | | 9 | |
| Magnesium | 7439-95-4 | mg/kg | 9800 | | 26000 | | 19000 | |
| Manganese | 7439-96-5 | mg/kg | 630 | | 670 | | 490 | |
| Mercury | 7439-97-6 | mg/kg | 0.026 | | 0.024 | | 0.026 | |
| Nickel | 7440-02-0 | mg/kg | 12 | | 13 | | 15 | |
| Potassium | 7440-09-7 | mg/kg | 810 | | 900 | | 1000 | |
| Selenium | 7782-49-2 | mg/kg | 0.42 | J+ | 0.48 | J+ | 0.44 | J+ |
| Silver | 7440-22-4 | mg/kg | 0.69 | U | 0.58 | U | 0.67 | U |
| Sodium | 7440-23-5 | mg/kg | 110 | U | 480 | U | 110 | U |
| Thallium | 7440-28-0 | mg/kg | 0.085 | U | 0.096 | U | 0.089 | U |
| Vanadium | 7440-62-2 | mg/kg | 12 | | 14 | | 14 | |
| Zinc | 7440-66-6 | mg/kg | 33 | | 29 | | 31 | |
| Other Inorganics | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | -- | -- | -- | -- | -- | -- |
| Total Organic Carbon | N/A | mg/kg | -- | -- | -- | -- | -- | -- |
| Solids | N/A | % | 84.5 | | 90.4 | | 83.6 | |
| Grain Size | | | | | | | | |
| Gravel | N/A | % | -- | -- | -- | -- | -- | -- |
| Coarse Sand | N/A | % | -- | -- | -- | -- | -- | -- |
| Medium Sand | N/A | % | -- | -- | -- | -- | -- | -- |
| Fine Sand | N/A | % | -- | -- | -- | -- | -- | -- |
| Silt | N/A | % | -- | -- | -- | -- | -- | -- |
| Clay | N/A | % | -- | -- | -- | -- | -- | -- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

Table D.2-9
Reduced Validated Analytical Results[(1)] - AOC 5 (Possible Dump Area), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-05-001 | | NYOW-05-001 | | NYOW-05-001 | | NYOW-05-002 | | NYOW-05-002 | | NYOW-05-002 | | NYOW-05-003 | | NYOW-05-003 | | NYOW-05-003 | | NYOW-05-004 | | NYOW-05-004 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-05-SL001-A | | NYOW-05-PH001-B | | NYOW-05-PH001-C | | NYOW-05-SL002-A | | NYOW-05-PH002-B | | NYOW-05-PH002-C | | NYOW-05-SL003-A | | NYOW-05-PH003-B | | NYOW-05-PH003-C | | NYOW-05-SL004-A | | NYOW-05-PH004-B | |
| | | | Sample Type: | | N | | N | | C | | C | | N | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | Sample Date: | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 71-55-6 | mg/kg | -- | -- | 0.0041 | U | 0.004 | U | -- | -- | 0.004 | U | 0.0042 | U | -- | -- | 0.0048 | U | 0.0047 | U | -- | -- | 0.004 | U | | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | mg/kg | -- | -- | 0.00066 | U | 0.00064 | U | -- | -- | 0.00064 | U | 0.00066 | U | -- | -- | 0.00076 | U | 0.00075 | U | -- | -- | 0.00065 | U | | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | mg/kg | -- | -- | 0.0052 | U | 0.0051 | U | -- | -- | 0.0051 | U | 0.0053 | U | -- | -- | 0.0061 | U | 0.006 | U | -- | -- | 0.0052 | U | | |
| 1,1,2-Trichloroethane | 79-00-5 | mg/kg | -- | -- | 0.0026 | U | 0.0026 | U | -- | -- | 0.0025 | U | 0.0027 | U | -- | -- | 0.0031 | U | 0.003 | U | -- | -- | 0.0026 | U | | |
| 1,1-Dichloroethane | 75-34-3 | mg/kg | -- | -- | 0.00066 | U | 0.00064 | U | -- | -- | 0.00064 | U | 0.00066 | U | -- | -- | 0.00076 | U | 0.00075 | U | -- | -- | 0.00065 | U | | |
| 1,1-Dichloroethene | 75-35-4 | mg/kg | -- | -- | 0.0013 | U | 0.0013 | U | -- | -- | 0.0013 | U | 0.0013 | U | -- | -- | 0.0015 | U | 0.0015 | U | -- | -- | 0.0013 | U | | |
| 1,2,3-Trichlorobenzene | 87-61-6 | mg/kg | -- | -- | 0.0026 | U | 0.0026 | U | -- | -- | 0.0025 | U | 0.0027 | U | -- | -- | 0.0031 | U | 0.003 | U | -- | -- | 0.0026 | U | | |
| 1,2,4-Trichlorobenzene | 120-82-1 | mg/kg | -- | -- | 0.0013 | U | 0.0013 | U | -- | -- | 0.0013 | U | 0.0013 | U | -- | -- | 0.0015 | U | 0.0015 | U | -- | -- | 0.0013 | U | | |
| 1,2-Dibromo-3-chloropropane | 96-12-8 | mg/kg | -- | -- | 0.0082 | U | 0.008 | U | -- | -- | 0.008 | U | 0.0083 | U | -- | -- | 0.0095 | U | 0.0094 | U | -- | -- | 0.0081 | U | | |
| 1,2-Dibromoethane (EDB) | 106-93-4 | mg/kg | -- | -- | 0.0013 | U | 0.0013 | U | -- | -- | 0.0013 | U | 0.0013 | U | -- | -- | 0.0015 | U | 0.0015 | U | -- | -- | 0.0013 | U | | |
| 1,2-Dichlorobenzene | 95-50-1 | mg/kg | -- | -- | 0.0041 | U | 0.004 | U | -- | -- | 0.004 | U | 0.0042 | U | -- | -- | 0.0048 | U | 0.0047 | U | -- | -- | 0.004 | U | | |
| 1,2-Dichloroethane | 107-06-2 | mg/kg | -- | -- | 0.0013 | U | 0.0013 | U | -- | -- | 0.0013 | U | 0.0013 | U | -- | -- | 0.0015 | U | 0.0015 | U | -- | -- | 0.0013 | U | | |
| 1,2-Dichloropropane | 78-87-5 | mg/kg | -- | -- | 0.0013 | U | 0.0013 | U | -- | -- | 0.0013 | U | 0.0013 | U | -- | -- | 0.0015 | U | 0.0015 | U | -- | -- | 0.0013 | U | | |
| 1,3-Dichlorobenzene | 541-73-1 | mg/kg | -- | -- | 0.0013 | U | 0.0013 | U | -- | -- | 0.0013 | U | 0.0013 | U | -- | -- | 0.0015 | U | 0.0015 | U | -- | -- | 0.0013 | U | | |
| 1,3-Dichloropropane | 142-28-9 | mg/kg | -- | -- | 0.00033 | U | 0.00032 | U | -- | -- | 0.00032 | U | 0.00033 | U | -- | -- | 0.00038 | U | 0.00038 | U | -- | -- | 0.00032 | U | | |
| 1,4-Dichlorobenzene | 106-46-7 | mg/kg | -- | -- | 0.00066 | U | 0.00064 | U | -- | -- | 0.00064 | U | 0.00066 | U | -- | -- | 0.00076 | U | 0.00075 | U | -- | -- | 0.00065 | U | | |
| 2-Butanone (MEK) | 78-93-3 | mg/kg | -- | -- | 0.016 | J+ | 0.01 | U | -- | -- | 0.01 | U | 0.011 | U | -- | -- | 0.019 | J+ | 0.012 | U | -- | -- | 0.01 | U | | |
| 2-Hexanone | 591-78-6 | mg/kg | -- | -- | 0.01 | U | 0.01 | U | -- | -- | 0.01 | U | 0.011 | U | -- | -- | 0.012 | U | 0.012 | U | -- | -- | 0.01 | U | | |
| 4-Methyl-2-pentanone (MIBK) | 108-10-1 | mg/kg | -- | -- | 0.01 | U | 0.01 | U | -- | -- | 0.01 | U | 0.011 | U | -- | -- | 0.012 | U | 0.012 | U | -- | -- | 0.01 | U | | |
| Acetone | 67-64-1 | mg/kg | -- | -- | 0.069 | | 0.058 | U | -- | -- | 0.057 | U | 0.06 | U | -- | -- | 0.069 | U | 0.068 | U | -- | -- | 0.058 | U | | |
| Benzene | 71-43-2 | mg/kg | -- | -- | 0.00033 | U | 0.00032 | U | -- | -- | 0.004 | J+ | 0.00033 | U | -- | -- | 0.00038 | U | 0.00038 | U | -- | -- | 0.00032 | U | | |
| Bromochloromethane | 74-97-5 | mg/kg | -- | -- | 0.0041 | U | 0.004 | U | -- | -- | 0.004 | U | 0.0042 | U | -- | -- | 0.0048 | U | 0.0047 | U | -- | -- | 0.004 | U | | |
| Bromodichloromethane | 75-27-4 | mg/kg | -- | -- | 0.0041 | U | 0.004 | U | -- | -- | 0.004 | U | 0.0042 | U | -- | -- | 0.0048 | U | 0.0047 | U | -- | -- | 0.004 | U | | |
| Bromoform | 75-25-2 | mg/kg | -- | -- | 0.0042 | U | 0.0041 | U | -- | -- | 0.0041 | U | 0.0042 | U | -- | -- | 0.0049 | U | 0.0048 | U | -- | -- | 0.0041 | U | | |
| Bromomethane | 74-83-9 | mg/kg | -- | -- | 0.0026 | U | 0.0026 | U | -- | -- | 0.0025 | U | 0.0027 | U | -- | -- | 0.0031 | U | 0.003 | U | -- | -- | 0.0026 | U | | |
| Carbon disulfide | 75-15-0 | mg/kg | -- | -- | 0.0041 | U | 0.004 | U | -- | -- | 0.004 | U | 0.0042 | U | -- | -- | 0.0048 | U | 0.0047 | U | -- | -- | 0.004 | U | | |
| Carbon tetrachloride | 56-23-5 | mg/kg | -- | -- | 0.0041 | U | 0.004 | U | -- | -- | 0.004 | U | 0.0042 | U | -- | -- | 0.0048 | U | 0.0047 | U | -- | -- | 0.004 | U | | |
| Chlorobenzene | 108-90-7 | mg/kg | -- | -- | 0.0041 | U | 0.004 | U | -- | -- | 0.004 | U | 0.0042 | U | -- | -- | 0.0048 | U | 0.0047 | U | -- | -- | 0.004 | U | | |
| Chloroethane | 75-00-3 | mg/kg | -- | -- | 0.0052 | U | 0.0051 | U | -- | -- | 0.0051 | U | 0.0053 | U | -- | -- | 0.0061 | U | 0.006 | U | -- | -- | 0.0052 | U | | |
| Chloroform | 67-66-3 | mg/kg | -- | -- | 0.00066 | U | 0.00064 | U | -- | -- | 0.00064 | U | 0.00066 | U | -- | -- | 0.00076 | U | 0.00075 | U | -- | -- | 0.00065 | U | | |
| Chloromethane | 74-87-3 | mg/kg | -- | -- | 0.0013 | U | 0.0013 | U | -- | -- | 0.0013 | U | 0.0013 | U | -- | -- | 0.0015 | U | 0.0015 | U | -- | -- | 0.0013 | U | | |
| cis-1,2-Dichloroethene | 156-59-2 | mg/kg | -- | -- | 0.00066 | U | 0.00064 | U | -- | -- | 0.00064 | U | 0.00066 | U | -- | -- | 0.00076 | U | 0.00075 | U | -- | -- | 0.00065 | U | | |
| cis-1,3-Dichloropropene | 10061-01-5 | mg/kg | -- | -- | 0.00033 | U | 0.00032 | U | -- | -- | 0.00032 | U | 0.00033 | U | -- | -- | 0.00038 | U | 0.00038 | U | -- | -- | 0.00032 | U | | |
| Cumene | 98-82-8 | mg/kg | -- | -- | 0.0041 | U | 0.004 | U | -- | -- | 0.004 | U | 0.0042 | U | -- | -- | 0.0048 | U | 0.0047 | U | -- | -- | 0.004 | U | | |
| Cyclohexane | 110-82-7 | mg/kg | -- | -- | 0.0041 | U | 0.004 | U | -- | -- | 0.004 | U | 0.0042 | U | -- | -- | 0.0048 | U | 0.0047 | U | -- | -- | 0.004 | U | | |
| Dibromochloromethane | 124-48-1 | mg/kg | -- | -- | 0.0041 | U | 0.004 | U | -- | -- | 0.004 | U | 0.0042 | U | -- | -- | 0.0048 | U | 0.0047 | U | -- | -- | 0.004 | U | | |
| Dichlorodifluoromethane | 75-71-8 | mg/kg | -- | -- | 0.0052 | U | 0.0051 | U | -- | -- | 0.0051 | U | 0.0053 | U | -- | -- | 0.0061 | U | 0.006 | U | -- | -- | 0.0052 | U | | |
| Ethylbenzene | 100-41-4 | mg/kg | -- | -- | 0.00066 | U | 0.00064 | U | -- | -- | 0.00064 | U | 0.00066 | U | -- | -- | 0.00076 | U | 0.00075 | U | -- | -- | 0.00065 | U | | |
| m,p-Xylene | 179601-23-1 | mg/kg | -- | -- | 0.0026 | U | 0.0026 | U | -- | -- | 0.0025 | U | 0.0027 | U | -- | -- | 0.0031 | U | 0.003 | U | -- | -- | 0.0026 | U | | |
| Methyl acetate | 79-20-9 | mg/kg | -- | -- | 0.0066 | U | 0.0064 | U | -- | -- | 0.0064 | U | 0.0066 | U | -- | -- | 0.0076 | U | 0.0075 | U | -- | -- | 0.0065 | U | | |
| Methyl tert-butyl ether (MTBE) | 1634-04-4 | mg/kg | -- | -- | 0.0052 | U | 0.0051 | U | -- | -- | 0.0051 | U | 0.0053 | U | -- | -- | 0.0061 | U | 0.006 | U | -- | -- | 0.0052 | U | | |
| Methylcyclohexane | 108-87-2 | mg/kg | -- | -- | 0.0013 | U | 0.0013 | U | -- | -- | 0.0013 | U | 0.0013 | U | -- | -- | 0.0015 | U | 0.0015 | U | -- | -- | 0.0013 | U | | |
| Methylene chloride | 75-09-2 | mg/kg | -- | -- | 0.0026 | U | 0.0026 | U | -- | -- | 0.0025 | U | 0.0027 | U | -- | -- | 0.0031 | U | 0.003 | U | -- | -- | 0.0026 | U | | |
| o-Xylene | 95-47-6 | mg/kg | -- | -- | 0.00066 | U | 0.00064 | U | -- | -- | 0.00064 | U | 0.00066 | U | -- | -- | 0.00076 | U | 0.00075 | U | -- | -- | 0.00065 | U | | |
| Styrene | 100-42-5 | mg/kg | -- | -- | 0.00066 | U | 0.00064 | U | -- | -- | 0.00064 | U | 0.00066 | U | -- | -- | 0.00076 | U | 0.00075 | U | -- | -- | 0.00065 | U | | |
| Tetrachloroethene (PCE) | 127-18-4 | mg/kg | -- | -- | 0.0041 | U | 0.004 | U | -- | -- | 0.004 | U | 0.0042 | U | -- | -- | 0.0048 | U | 0.0047 | U | -- | -- | 0.004 | U | | |
| Toluene | 108-88-3 | mg/kg | -- | -- | 0.00066 | U | 0.00064 | U | -- | -- | 0.004 | J+ | 0.00066 | U | -- | -- | 0.00076 | U | 0.00075 | U | -- | -- | 0.00065 | U | | |
| trans-1,2-Dichloroethene | 156-60-5 | mg/kg | -- | -- | 0.00066 | U | 0.00064 | U | -- | -- | 0.00064 | U | 0.00066 | U | -- | -- | 0.00076 | U | 0.00075 | U | -- | -- | 0.00065 | U | | |
| trans-1,3-Dichloropropene | 10061-02-6 | mg/kg | -- | -- | 0.00016 | U | 0.00016 | U | -- | -- | 0.00016 | U | 0.00017 | U | -- | -- | 0.00019 | U | 0.00019 | U | -- | -- | 0.00016 | U | | |
| Trichlorofluoromethane | 75-69-4 | mg/kg | -- | -- | 0.0082 | U | 0.008 | U | -- | -- | 0.008 | U | 0.0083 | U | -- | -- | 0.0095 | U | 0.0094 | U | -- | -- | 0.0081 | U | | |
| Vinyl chloride | 75-01-4 | mg/kg | -- | -- | 0.0026 | U | 0.0026 | U | -- | -- | 0.0025 | U | 0.0027 | U | -- | -- | 0.0031 | U | 0.003 | U | -- | -- | 0.0026 | U | | |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U | | |
| 1,4-Dioxane | 123-91-1 | mg/kg | 0.35 | U | 0.37 | U | 0.37 | U | 0.38 | UJ | 0.37 | U | 0.37 | U | 0.37 | U | 0.42 | UJ | 0.41 | U | 0.35 | U | 0.37 | U | | |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | | R | | R | 0.084 | U | 0.072 | U | 0.076 | U | | |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | mg/kg | 0.088 | UJ | 0.094 | U | 0.093 | U | 0.096 | U | 0.093 | U | 0.093 | U | 0.094 | U | 0.1 | U | 0.1 | U | 0.089 | U | 0.094 | U | | |
| 2,4,5-Trichlorophenol | 95-95-4 | mg/kg | 0.071 | UJ | 0.076 | U | 0.075 | U | 0.078 | U | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | U | 0.084 | U | 0.072 | U | 0.076 | U | | |
| 2,4,6-Trichlorophenol | 88-06-2 | mg/kg | 0.071 | UJ | 0.076 | U | 0.075 | U | 0.078 | U | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | U | 0.084 | U | 0.072 | U | 0.076 | U | | |
| 2,4-Dichlorophenol | 120-83-2 | mg/kg | 0.071 | UJ | 0.076 | U | 0.075 | U | 0.078 | U | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | U | 0.084 | U | 0.072 | U | 0.076 | U | | |
| 2,4-Dimethylphenol | 105-67-9 | mg/kg | 0.071 | UJ | 0.076 | U | 0.075 | U | 0.078 | U | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | U | 0.084 | U | 0.072 | U | 0.076 | U | | |
| 2,4-Dinitrotoluene | 121-14-2 | mg/kg | 0.088 | U | 0.094 | U | 0.093 | U | 0.096 | UJ | 0.093 | U | 0.093 | U | 0.094 | U | 0.1 | UJ | 0.1 | U | 0.089 | U | 0.094 | U | | |
| 2,6-Dinitrotoluene | 606-20-2 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U | | |
| 2-Chloronaphthalene | 91-58-7 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U | | |
| 2-Chlorophenol | 95-57-8 | mg/kg | 0.071 | UJ | 0.076 | U | 0.075 | U | 0.078 | U | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | U | 0.084 | U | 0.072 | U | 0.076 | U | | |

Table D.2-9
Reduced Validated Analytical Results[(1)] - AOC 5 (Possible Dump Area), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Location: | | | NYOW-05-001 | | NYOW-05-001 | | NYOW-05-001 | | NYOW-05-002 | | NYOW-05-002 | | NYOW-05-002 | | NYOW-05-003 | | NYOW-05-003 | | NYOW-05-003 | | NYOW-05-004 | | NYOW-05-004 | |
| Sample Name: | | | NYOW-05-SL001-A | | NYOW-05-PH001-B | | NYOW-05-PH001-C | | NYOW-05-SL002-A | | NYOW-05-PH002-B | | NYOW-05-PH002-C | | NYOW-05-SL003-A | | NYOW-05-PH003-B | | NYOW-05-PH003-C | | NYOW-05-SL004-A | | NYOW-05-PH004-B | |
| Sample Type: | | | N | | N | | C | | C | | N | | N | | N | | N | | N | | N | | N | |
| Sample Depth (feet): | | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| Sample Date: | | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| 2-Methylphenol (o-Cresol) | 95-48-7 | mg/kg | 0.071 | UJ | 0.076 | U | 0.075 | U | 0.078 | U | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | U | 0.084 | U | 0.072 | U | 0.076 | U |
| 2-Nitroaniline | 88-74-4 | mg/kg | 0.18 | U | 0.19 | U | 0.19 | U | 0.2 | UJ | 0.19 | U | 0.19 | U | 0.19 | U | 0.21 | UJ | 0.21 | U | 0.18 | U | 0.19 | U |
| 2-Nitrophenol | 88-75-5 | mg/kg | 0.071 | UJ | 0.076 | U | 0.075 | U | 0.078 | U | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | U | 0.084 | U | 0.072 | U | 0.076 | U |
| 3,3'-Dichlorobenzidine | 91-94-1 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| 3-Nitroaniline | 99-09-2 | mg/kg | 0.088 | U | 0.094 | U | 0.093 | U | 0.096 | UJ | 0.093 | U | 0.093 | U | 0.094 | U | 0.1 | UJ | 0.1 | U | 0.089 | U | 0.094 | U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | mg/kg | 0.35 | UJ | 0.37 | U | 0.37 | U | 0.38 | U | 0.37 | U | 0.37 | U | 0.37 | U | 0.42 | U | 0.41 | U | 0.35 | U | 0.37 | U |
| 4-Bromophenyl phenyl ether | 101-55-3 | mg/kg | 0.071 | UJ | 0.076 | UJ | 0.075 | UJ | 0.078 | UJ | 0.075 | UJ | 0.075 | UJ | 0.076 | U | 0.085 | UJ | 0.084 | UJ | 0.072 | UJ | 0.076 | UJ |
| 4-Chloro-3-methylphenol | 59-50-7 | mg/kg | 0.071 | UJ | 0.076 | U | 0.075 | U | 0.078 | U | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | U | 0.084 | U | 0.072 | U | 0.076 | U |
| 4-Chloroaniline | 106-47-8 | mg/kg | 0.088 | U | 0.094 | U | 0.093 | U | 0.096 | UJ | 0.093 | U | 0.093 | U | 0.094 | U | 0.1 | UJ | 0.1 | U | 0.089 | U | 0.094 | U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| 4-Nitroaniline | 100-01-6 | mg/kg | 0.088 | U | 0.094 | U | 0.093 | U | 0.096 | UJ | 0.093 | U | 0.093 | U | 0.094 | U | 0.1 | UJ | 0.1 | U | 0.089 | U | 0.094 | U |
| 4-Nitrophenol | 100-02-7 | mg/kg | 0.71 | UJ | 0.76 | U | 0.75 | U | 0.78 | U | 0.75 | U | 0.75 | U | 0.76 | U | 0.85 | U | 0.84 | U | 0.72 | U | 0.76 | U |
| Acetophenone | 98-86-2 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| Atrazine | 1912-24-9 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | UJ | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| Benzaldehyde | 100-52-7 | mg/kg | 0.35 | J+ | 0.19 | UJ | 0.19 | UJ | 0.2 | UJ | 0.19 | UJ | 0.19 | UJ | 0.19 | U | 0.21 | UJ | 0.21 | UJ | 0.18 | UJ | 0.19 | UJ |
| Benzyl butyl phthalate | 85-68-7 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | UJ | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| Biphenyl (Diphenyl) | 92-52-4 | mg/kg | 0.35 | U | 0.37 | U | 0.37 | U | 0.38 | UJ | 0.37 | U | 0.37 | U | 0.37 | U | 0.42 | UJ | 0.41 | U | 0.35 | U | 0.37 | U |
| Bis(2-chloroethoxy)methane | 111-91-1 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | mg/kg | 0.088 | U | 0.094 | U | 0.093 | U | 0.096 | UJ | 0.093 | U | 0.093 | U | 0.094 | UJ | 0.1 | UJ | 0.1 | U | 0.089 | U | 0.094 | U |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | UJ | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| Caprolactam | 105-60-2 | mg/kg | 0.18 | U | 0.19 | U | 0.19 | U | 0.2 | UJ | 0.19 | U | 0.19 | U | 0.19 | U | 0.21 | UJ | 0.21 | U | 0.18 | U | 0.19 | U |
| Carbazole | 86-74-8 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | UJ | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| Cresols, m- & p- | cresols-m,p | mg/kg | 0.071 | UJ | 0.076 | U | 0.075 | U | 0.078 | U | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | U | 0.084 | U | 0.072 | U | 0.076 | U |
| Dibenzofuran | 132-64-9 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.37 | J+ | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| Diethyl phthalate | 84-66-2 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | UJ | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| Dimethyl phthalate | 131-11-3 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | UJ | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| Di-n-butyl phthalate | 84-74-2 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | UJ | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| di-n-Octyl phthalate | 117-84-0 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | UJ | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| Hexachlorobenzene | 118-74-1 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | UJ | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| Hexachlorobutadiene | 87-68-3 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| Hexachlorocyclopentadiene | 77-47-4 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| Hexachloroethane | 67-72-1 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| Isophorone | 78-59-1 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | UJ | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| Nitrobenzene | 98-95-3 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| N-Nitrosodi-n-propylamine | 621-64-7 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| N-Nitrosodiphenylamine | 86-30-6 | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | U | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| Pentachlorophenol | 87-86-5 | mg/kg | 0.71 | UJ | 0.76 | UJ | 0.75 | UJ | 0.78 | UJ | 0.75 | UJ | 0.75 | UJ | 0.76 | U | 0.85 | U | 0.84 | UJ | 0.72 | UJ | 0.76 | UJ |
| Phenol | 108-95-2 | mg/kg | 0.071 | UJ | 0.076 | U | 0.075 | U | 0.078 | U | 0.075 | U | 0.075 | U | 0.076 | UJ | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0021 | U | 0.0023 | U | 0.002 | U | 0.01 | | 0.0021 | U | 0.01 | J+ | 0.065 | J+ | 0.012 | J+ | 0.0025 | U | 0.069 | | 0.0023 | U |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0021 | U | 0.0023 | U | 0.002 | U | 0.013 | | 0.0021 | U | 0.01 | J+ | 0.087 | J+ | 0.012 | J+ | 0.0025 | U | 0.09 | | 0.0023 | U |
| Acenaphthene | 83-32-9 | mg/kg | 0.0011 | U | 0.0012 | U | 0.0011 | U | 0.011 | J+ | 0.0011 | U | 0.0011 | U | 0.0012 | U | 0.0013 | U | 0.0013 | U | 0.0011 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0011 | U | 0.0012 | U | 0.0011 | U | 0.0012 | U | 0.0011 | U | 0.0011 | U | 0.0012 | U | 0.0013 | U | 0.0013 | U | 0.0099 | J+ | 0.0012 | U |
| Anthracene | 120-12-7 | mg/kg | 0.0045 | U | 0.005 | U | 0.0044 | U | 0.018 | J | 0.0045 | U | 0.0045 | U | 0.005 | U | 0.0052 | U | 0.0054 | U | 0.0032 | J | 0.0049 | U |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0024 | J | 0.005 | U | 0.01 | J+ | 0.02 | J | 0.0045 | U | 0.0045 | U | 0.0065 | J | 0.0052 | U | 0.012 | J+ | 0.012 | | 0.011 | J+ |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0045 | U | 0.005 | U | 0.0044 | U | 0.016 | J | 0.0045 | U | 0.0045 | U | 0.0042 | J | 0.0052 | U | 0.012 | J+ | 0.012 | | 0.0049 | U |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.0069 | U | 0.0077 | U | 0.01 | J+ | 0.022 | J | 0.0069 | U | 0.007 | U | 0.0076 | J | 0.008 | U | 0.012 | J+ | 0.019 | | 0.0076 | U |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0069 | U | 0.0077 | U | 0.0068 | U | 0.016 | J | 0.0069 | U | 0.007 | U | 0.0031 | J | 0.008 | U | 0.012 | J+ | 0.0088 | J | 0.0076 | U |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0045 | U | 0.005 | U | 0.0044 | U | 0.011 | J+ | 0.0045 | U | 0.0045 | U | 0.012 | J+ | 0.0052 | U | 0.0054 | U | 0.0099 | J+ | 0.0049 | U |
| Chrysene | 218-01-9 | mg/kg | 0.0035 | J | 0.005 | U | 0.01 | J+ | 0.021 | J | 0.0045 | U | 0.0045 | U | 0.0092 | J+ | 0.012 | J+ | 0.012 | J+ | 0.025 | | 0.011 | J+ |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0069 | U | 0.0077 | U | 0.0068 | U | 0.0077 | U | 0.0069 | U | 0.007 | U | 0.0077 | U | 0.008 | U | 0.0083 | U | 0.0066 | U | 0.0076 | U |
| Fluoranthene | 206-44-0 | mg/kg | 0.0049 | J | 0.012 | J+ | 0.01 | J+ | 0.051 | J | 0.0045 | U | 0.0045 | U | 0.0091 | J+ | 0.0052 | U | 0.012 | J+ | 0.023 | | 0.011 | J+ |
| Fluorene | 86-73-7 | mg/kg | 0.0028 | U | 0.0031 | U | 0.0027 | U | 0.011 | J+ | 0.0028 | U | 0.0028 | U | 0.012 | J+ | 0.0032 | U | 0.0033 | U | 0.0099 | J+ | 0.003 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0069 | U | 0.0077 | U | 0.0068 | U | 0.011 | J | 0.0069 | U | 0.007 | U | 0.0025 | J | 0.008 | U | 0.0083 | U | 0.0085 | J | 0.0076 | U |
| Naphthalene | 91-20-3 | mg/kg | 0.0018 | J | 0.0023 | U | 0.002 | U | 0.01 | | 0.01 | J+ | 0.01 | J+ | 0.065 | J+ | 0.012 | J+ | 0.012 | J+ | 0.071 | | 0.011 | J+ |
| Phenanthrene | 85-01-8 | mg/kg | 0.003 | J | 0.0077 | U | 0.01 | J+ | 0.046 | J | 0.0069 | U | 0.007 | U | 0.034 | J+ | 0.008 | U | 0.0083 | U | 0.044 | | 0.011 | J+ |
| Pyrene | 129-00-0 | mg/kg | 0.0042 | J | 0.0077 | U | 0.0088 | J | 0.045 | J | 0.0069 | U | 0.007 | U | 0.011 | J+ | 0.008 | U | 0.0044 | J | 0.023 | | 0.011 | J+ |
| High Molecular Weight PAHs | N/A | mg/kg | 0.03 | | 0.059 | U | 0.061 | | 0.17 | | 0.053 | U | 0.053 | U | 0.061 | | 0.054 | | 0.078 | | 0.13 | | 0.062 | |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.017 | | 0.022 | | 0.028 | | 0.17 | | 0.019 | | 0.037 | | 0.28 | | 0.044 | | 0.033 | | 0.32 | | 0.04 | |
| Total PAHs | N/A | mg/kg | 0.042 | | 0.032 | | 0.072 | | 0.33 | | 0.029 | | 0.046 | | 0.34 | | 0.066 | | 0.1 | | 0.44 | | 0.08 | |
| **Polychlorinated Biphenyls (PCBs)** | | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | 12674-11-2 | mg/kg | 0.032 | UJ | 0.033 | UJ | 0.032 | UJ | 0.033 | UJ | 0.034 | UJ | 0.035 | UJ | 0.035 | UJ | 0.04 | UJ | 0.036 | UJ | 0.033 | UJ | 0.034 | UJ |
| PCB-1221 (Aroclor 1221) | 11104-28-2 | mg/kg | 0.083 | U | 0.085 | U | 0.084 | U | 0.086 | U | 0.088 | U | 0.09 | U | 0.091 | U | 0.1 | U | 0.095 | U | 0.087 | U | 0.088 | U |
| PCB-1232 (Aroclor 1232) | 11141-16-5 | mg/kg | 0.032 | U | 0.033 | U | 0.032 | U | 0.033 | U | 0.034 | U | 0.035 | U | 0.035 | U | 0.04 | U | 0.036 | U | 0.033 | U | 0.034 | U |
| PCB-1242 (Aroclor 1242) | 53469-21-9 | mg/kg | 0.05 | U | 0.051 | U | 0.05 | U | 0.052 | U | 0.053 | U | 0.054 | U | 0.055 | U | 0.062 | U | 0.057 | U | 0.052 | U | 0.053 | U |

Table D.2-9
Reduced Validated Analytical Results[(1)] - AOC 5 (Possible Dump Area), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-05-001 | | NYOW-05-001 | | NYOW-05-002 | | NYOW-05-002 | | NYOW-05-002 | | NYOW-05-003 | | NYOW-05-003 | | NYOW-05-003 | | NYOW-05-004 | | NYOW-05-004 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-05-SL001-A | | NYOW-05-PH001-B | | NYOW-05-SL002-A | | NYOW-05-PH002-B | | NYOW-05-PH002-C | | NYOW-05-SL003-A | | NYOW-05-PH003-B | | NYOW-05-PH003-C | | NYOW-05-SL004-A | | NYOW-05-PH004-B | |
| | | | Sample Type: | | N | | N | | C | | N | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | Sample Date: | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| PCB-1248 (Aroclor 1248) | 12672-29-6 | mg/kg | 0.015 | U | 0.016 | U | 0.016 | U | 0.016 | U | 0.016 | U | 0.017 | U | 0.017 | U | 0.019 | U | 0.018 | U | 0.016 | U | 0.016 | U |
| PCB-1254 (Aroclor 1254) | 11097-69-1 | mg/kg | 0.034 | U | 0.036 | U | 0.035 | U | 0.036 | U | 0.037 | U | 0.038 | U | 0.038 | U | 0.043 | U | 0.039 | U | 0.036 | U | 0.036 | U |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | mg/kg | 0.0069 | UJ | 0.0071 | UJ | 0.007 | UJ | 0.0072 | UJ | 0.0073 | UJ | 0.0075 | UJ | 0.0076 | UJ | 0.0086 | UJ | 0.0079 | UJ | 0.0073 | UJ | 0.0073 | UJ |
| PCB-1262 (Aroclor 1262) | 37324-23-5 | mg/kg | 0.017 | U | 0.017 | U | 0.017 | U | 0.017 | U | 0.018 | U | 0.018 | U | 0.018 | U | 0.021 | U | 0.019 | U | 0.017 | U | 0.018 | U |
| PCB-1268 (Aroclor 1268) | 11100-14-4 | mg/kg | 0.0069 | U | 0.0071 | U | 0.007 | U | 0.0072 | U | 0.0073 | U | 0.0075 | U | 0.0076 | U | 0.0086 | U | 0.0079 | U | 0.0073 | U | 0.0073 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 5000 | | 6600 | | 13000 | J | 6000 | | 4900 | | 5100 | | 4400 | J | 19000 | J | 18000 | | 4200 | | 3200 | |
| Antimony | 7440-36-0 | mg/kg | 0.12 | J | 0.099 | U | 0.2 | J | 0.12 | J | 0.19 | J+ | 0.078 | U | 0.18 | J | 0.26 | J+ | 0.13 | J | 0.076 | J | 0.091 | U |
| Arsenic | 7440-38-2 | mg/kg | 4.6 | | 3.9 | | 3.1 | J | 5.1 | | 6.4 | | 13 | | 6.8 | J+ | 4.5 | J | 5 | | 4.3 | | 3.6 | |
| Barium | 7440-39-3 | mg/kg | 30 | | 68 | | 75 | J | 40 | | 29 | | 39 | | 32 | | 110 | J | 110 | | 31 | | 18 | |
| Beryllium | 7440-41-7 | mg/kg | 0.55 | J+ | 0.19 | J | 0.53 | | 0.47 | J+ | 0.19 | J | 0.19 | J | 0.42 | J+ | 0.77 | | 0.77 | | 0.54 | J+ | 0.11 | J |
| Cadmium | 7440-43-9 | mg/kg | 0.072 | J | 0.081 | J | 0.093 | J+ | 0.33 | | 0.063 | J | 0.094 | J+ | 0.15 | | 0.073 | J | 0.1 | J+ | 0.076 | | 0.036 | J |
| Calcium | 7440-70-2 | mg/kg | 100000 | | 29000 | | 54000 | | 15000 | J | 3500 | | 40000 | | 25000 | J | 43000 | J | 42000 | | 95000 | | 39000 | |
| Chromium | 7440-47-3 | mg/kg | 6.4 | | 11 | | 18 | J | 7.9 | | 13 | J | 6.8 | | 5.5 | J- | 25 | | 24 | | 5 | | 4.9 | |
| Cobalt | 7440-48-4 | mg/kg | 4.1 | | 4.1 | | 10 | J | 4.7 | | 8.3 | | 4.8 | | 3.6 | J- | 9 | | 12 | | 6.7 | | 2.9 | |
| Copper | 7440-50-8 | mg/kg | 23 | | 13 | | 19 | | 18 | | 16 | J | 9.6 | | 20 | | 18 | | 21 | | 32 | | 10 | |
| Iron | 7439-89-6 | mg/kg | 12000 | | 13000 | | 23000 | J | 15000 | | 20000 | | 12000 | | 11000 | J | 24000 | J | 27000 | | 15000 | | 9100 | |
| Lead | 7439-92-1 | mg/kg | 4.6 | | 5.8 | | 8 | | 9.3 | | 4 | J | 2.6 | | 11 | J- | 7.9 | | 8.6 | | 8.3 | | 3.4 | |
| Magnesium | 7439-95-4 | mg/kg | 11000 | | 4800 | | 18000 | J | 4400 | J | 3600 | | 7100 | | 4900 | J | 10000 | J- | 10000 | | 28000 | | 19000 | |
| Manganese | 7439-96-5 | mg/kg | 710 | | 1000 | | 440 | | 520 | | 410 | | 360 | | 400 | J- | 450 | J | 490 | | 780 | | 320 | |
| Mercury | 7439-97-6 | mg/kg | 0.016 | J | 0.054 | | 0.021 | J+ | 0.059 | | 0.013 | J | 0.02 | J+ | 0.031 | | 0.018 | J | 0.023 | J+ | 0.0078 | J | 0.02 | |
| Nickel | 7440-02-0 | mg/kg | 8.1 | | 7.6 | | 22 | | 8.3 | | 11 | J | 9.5 | | 8.3 | J- | 25 | | 27 | | 9.9 | | 5.1 | |
| Potassium | 7440-09-7 | mg/kg | 810 | | 550 | | 3100 | J | 890 | | 760 | | 1200 | | 580 | | 3700 | J+ | 4200 | | 760 | | 690 | |
| Selenium | 7782-49-2 | mg/kg | 0.15 | J | 0.48 | J+ | 0.46 | J+ | 0.49 | | 0.39 | U | 0.47 | J+ | 0.27 | J | 0.49 | J+ | 0.51 | J+ | 0.13 | J | 0.4 | U |
| Silver | 7440-22-4 | mg/kg | 0.67 | U | 0.52 | U | 0.61 | U | 0.56 | U | 2.9 | U | 0.56 | U | 0.5 | U | 0.55 | U | 0.58 | U | 0.64 | U | 0.6 | U |
| Sodium | 7440-23-5 | mg/kg | 550 | J+ | 430 | J+ | 510 | J+ | 470 | J+ | 480 | J+ | 470 | J+ | 420 | J+ | 460 | J+ | 480 | J+ | 540 | J+ | 500 | J+ |
| Thallium | 7440-28-0 | mg/kg | 0.091 | U | 0.097 | U | 0.16 | | 0.094 | U | 0.097 | U | 0.11 | | 0.12 | | 0.2 | J | 0.19 | | 0.075 | U | 0.1 | U |
| Vanadium | 7440-62-2 | mg/kg | 10 | | 15 | | 25 | J | 14 | | 24 | | 10 | | 9.9 | | 31 | | 34 | | 7.9 | | 9.7 | |
| Zinc | 7440-66-6 | mg/kg | 29 | | 23 | | 41 | | 35 | | 21 | J | 17 | | 35 | J- | 52 | J- | 50 | | 28 | | 12 | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 12 | | 25 | | 16 | | -- | -- | -- | -- |
| Total Organic Carbon | N/A | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 6600 | J- | 4000 | J+ | 4000 | J+ | -- | -- | -- | -- |
| Solids | N/A | % | 90.2 | | 85.1 | | 87.2 | | 81.7 | | 87 | | 88.6 | | 86.2 | | 76.4 | | 78.7 | | 90.7 | | 85.1 | |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 41.9 | | 0 | U | 1.8 | | -- | -- | -- | -- |
| Coarse Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 10.5 | | 0.7 | | 5.8 | | -- | -- | -- | -- |
| Medium Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 10.1 | | 3.9 | | 16.1 | | -- | -- | -- | -- |
| Fine Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 24.6 | | 28.1 | | 37.1 | | -- | -- | -- | -- |
| Silt | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 10.5 | | 39.5 | | 23.5 | | -- | -- | -- | -- |
| Clay | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2.4 | | 27.8 | | 15.7 | | -- | -- | -- | -- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend
ND — ND at the LOD
Detect — Detected result

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-9
Reduced Validated Analytical Results[1] - AOC 5 (Possible Dump Area), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-05-004 | | NYOW-05-005 | | NYOW-05-005 | | NYOW-05-005 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-05-PH004-C | | NYOW-05-SL005-A | | NYOW-05-PH005-B | | NYOW-05-PH005-C | |
| | | Sample Type: | N | | N | | N | | N | |
| | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | Sample Date: | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | |
| 1,1,1-Trichloroethane | 71-55-6 | mg/kg | 0.0044 | U | -- | -- | 0.0044 | U | 0.0044 | U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | mg/kg | 0.0007 | U | -- | -- | 0.0007 | U | 0.0007 | U |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | mg/kg | 0.0056 | U | -- | -- | 0.0056 | U | 0.0056 | U |
| 1,1,2-Trichloroethane | 79-00-5 | mg/kg | 0.0028 | U | -- | -- | 0.0028 | U | 0.0028 | U |
| 1,1-Dichloroethane | 75-34-3 | mg/kg | 0.0007 | U | -- | -- | 0.0007 | U | 0.0007 | U |
| 1,1-Dichloroethene | 75-35-4 | mg/kg | 0.0014 | U | -- | -- | 0.0014 | U | 0.0014 | U |
| 1,2,3-Trichlorobenzene | 87-61-6 | mg/kg | 0.0028 | U | -- | -- | 0.0028 | U | 0.0028 | U |
| 1,2,4-Trichlorobenzene | 120-82-1 | mg/kg | 0.0014 | U | -- | -- | 0.0014 | U | 0.0014 | U |
| 1,2-Dibromo-3-chloropropane | 96-12-8 | mg/kg | 0.0087 | U | -- | -- | 0.0088 | U | 0.0087 | U |
| 1,2-Dibromoethane (EDB) | 106-93-4 | mg/kg | 0.0014 | U | -- | -- | 0.0014 | U | 0.0014 | U |
| 1,2-Dichlorobenzene | 95-50-1 | mg/kg | 0.0044 | U | -- | -- | 0.0044 | U | 0.0044 | U |
| 1,2-Dichloroethane | 107-06-2 | mg/kg | 0.0014 | U | -- | -- | 0.0014 | U | 0.0014 | U |
| 1,2-Dichloropropane | 78-87-5 | mg/kg | 0.0014 | U | -- | -- | 0.0014 | U | 0.0014 | U |
| 1,3-Dichlorobenzene | 541-73-1 | mg/kg | 0.0014 | U | -- | -- | 0.0014 | U | 0.0014 | U |
| 1,3-Dichloropropane | 142-28-9 | mg/kg | 0.00035 | U | -- | -- | 0.00035 | U | 0.00035 | U |
| 1,4-Dichlorobenzene | 106-46-7 | mg/kg | 0.0007 | U | -- | -- | 0.0007 | U | 0.0007 | U |
| 2-Butanone (MEK) | 78-93-3 | mg/kg | 0.011 | U | -- | -- | 0.011 | U | 0.011 | U |
| 2-Hexanone | 591-78-6 | mg/kg | 0.011 | U | -- | -- | 0.011 | U | 0.011 | U |
| 4-Methyl-2-pentanone (MIBK) | 108-10-1 | mg/kg | 0.011 | U | -- | -- | 0.011 | U | 0.011 | U |
| Acetone | 67-64-1 | mg/kg | 0.063 | U | -- | -- | 0.063 | U | 0.063 | U |
| Benzene | 71-43-2 | mg/kg | 0.00035 | U | -- | -- | 0.00035 | U | 0.00035 | U |
| Bromochloromethane | 74-97-5 | mg/kg | 0.0044 | U | -- | -- | 0.0044 | U | 0.0044 | U |
| Bromodichloromethane | 75-27-4 | mg/kg | 0.0044 | U | -- | -- | 0.0044 | U | 0.0044 | U |
| Bromoform | 75-25-2 | mg/kg | 0.0044 | U | -- | -- | 0.0045 | U | 0.0045 | U |
| Bromomethane | 74-83-9 | mg/kg | 0.0028 | U | -- | -- | 0.0028 | U | 0.0028 | U |
| Carbon disulfide | 75-15-0 | mg/kg | 0.0044 | U | -- | -- | 0.0044 | U | 0.0044 | U |
| Carbon tetrachloride | 56-23-5 | mg/kg | 0.0044 | U | -- | -- | 0.0044 | U | 0.0044 | U |
| Chlorobenzene | 108-90-7 | mg/kg | 0.0044 | U | -- | -- | 0.0044 | U | 0.0044 | U |
| Chloroethane | 75-00-3 | mg/kg | 0.0056 | U | -- | -- | 0.0056 | U | 0.0056 | U |
| Chloroform | 67-66-3 | mg/kg | 0.0007 | U | -- | -- | 0.0007 | U | 0.0007 | U |
| Chloromethane | 74-87-3 | mg/kg | 0.0014 | U | -- | -- | 0.0014 | U | 0.0014 | U |
| cis-1,2-Dichloroethene | 156-59-2 | mg/kg | 0.0007 | U | -- | -- | 0.0007 | U | 0.0007 | U |
| cis-1,3-Dichloropropene | 10061-01-5 | mg/kg | 0.00035 | U | -- | -- | 0.00035 | U | 0.00035 | U |
| Cumene | 98-82-8 | mg/kg | 0.0044 | U | -- | -- | 0.0044 | U | 0.0044 | U |
| Cyclohexane | 110-82-7 | mg/kg | 0.0044 | U | -- | -- | 0.0044 | U | 0.0044 | U |
| Dibromochloromethane | 124-48-1 | mg/kg | 0.0044 | U | -- | -- | 0.0044 | U | 0.0044 | U |
| Dichlorodifluoromethane | 75-71-8 | mg/kg | 0.0056 | U | -- | -- | 0.0056 | U | 0.0056 | U |
| Ethylbenzene | 100-41-4 | mg/kg | 0.0007 | U | -- | -- | 0.0007 | U | 0.0007 | U |
| m,p-Xylene | 179601-23-1 | mg/kg | 0.0028 | U | -- | -- | 0.0028 | U | 0.0028 | U |
| Methyl acetate | 79-20-9 | mg/kg | 0.007 | U | -- | -- | 0.007 | U | 0.007 | U |
| Methyl tert-butyl ether (MTBE) | 1634-04-4 | mg/kg | 0.0056 | U | -- | -- | 0.0056 | U | 0.0056 | U |
| Methylcyclohexane | 108-87-2 | mg/kg | 0.0014 | U | -- | -- | 0.0014 | U | 0.0014 | U |
| Methylene chloride | 75-09-2 | mg/kg | 0.0028 | U | -- | -- | 0.0028 | U | 0.0028 | U |
| o-Xylene | 95-47-6 | mg/kg | 0.0007 | U | -- | -- | 0.0007 | U | 0.0007 | U |
| Styrene | 100-42-5 | mg/kg | 0.0007 | U | -- | -- | 0.0007 | U | 0.0007 | U |
| Tetrachloroethene (PCE) | 127-18-4 | mg/kg | 0.0044 | U | -- | -- | 0.0044 | U | 0.0044 | U |
| Toluene | 108-88-3 | mg/kg | 0.0007 | U | -- | -- | 0.0007 | U | 0.0007 | U |
| trans-1,2-Dichloroethene | 156-60-5 | mg/kg | 0.0007 | U | -- | -- | 0.0007 | U | 0.0007 | U |
| trans-1,3-Dichloropropene | 10061-02-6 | mg/kg | 0.00017 | U | -- | -- | 0.00018 | U | 0.00017 | U |
| Trichlorofluoromethane | 75-69-4 | mg/kg | 0.0087 | U | -- | -- | 0.0088 | U | 0.0087 | U |
| Vinyl chloride | 75-01-4 | mg/kg | 0.0028 | U | -- | -- | 0.0028 | U | 0.0028 | U |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| 1,4-Dioxane | 123-91-1 | mg/kg | 0.39 | U | 0.39 | U | 0.39 | U | 0.38 | U |
| 2,2'-Oxybis(1-chloropropane) | 108-60-1 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | mg/kg | 0.098 | U | 0.098 | U | 0.099 | U | 0.095 | U |
| 2,4,5-Trichlorophenol | 95-95-4 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| 2,4,6-Trichlorophenol | 88-06-2 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| 2,4-Dichlorophenol | 120-83-2 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| 2,4-Dimethylphenol | 105-67-9 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| 2,4-Dinitrotoluene | 121-14-2 | mg/kg | 0.098 | U | 0.098 | U | 0.099 | U | 0.095 | U |
| 2,6-Dinitrotoluene | 606-20-2 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| 2-Chloronaphthalene | 91-58-7 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| 2-Chlorophenol | 95-57-8 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |

Table D.2-9
Reduced Validated Analytical Results[1] - AOC 5 (Possible Dump Area), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-05-004 | | NYOW-05-005 | | NYOW-05-005 | | NYOW-05-005 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-05-PH004-C | | NYOW-05-SL005-A | | NYOW-05-PH005-B | | NYOW-05-PH005-C | |
| | | Sample Type: | N | | N | | N | | N | |
| | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | Sample Date: | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| 2-Methylphenol (o-Cresol) | 95-48-7 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| 2-Nitroaniline | 88-74-4 | mg/kg | 0.2 | U | 0.2 | U | 0.2 | U | 0.19 | U |
| 2-Nitrophenol | 88-75-5 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| 3,3'-Dichlorobenzidine | 91-94-1 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| 3-Nitroaniline | 99-09-2 | mg/kg | 0.098 | U | 0.098 | U | 0.099 | U | 0.095 | U |
| 4,6-Dinitro-2-methylphenol | 534-52-1 | mg/kg | 0.39 | U | 0.39 | U | 0.39 | U | 0.38 | U |
| 4-Bromophenyl phenyl ether | 101-55-3 | mg/kg | 0.079 | UJ | 0.079 | UJ | 0.08 | UJ | 0.077 | UJ |
| 4-Chloro-3-methylphenol | 59-50-7 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| 4-Chloroaniline | 106-47-8 | mg/kg | 0.098 | U | 0.098 | U | 0.099 | U | 0.095 | U |
| 4-Chlorophenyl phenyl ether | 7005-72-3 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| 4-Nitroaniline | 100-01-6 | mg/kg | 0.098 | U | 0.098 | U | 0.099 | U | 0.095 | U |
| 4-Nitrophenol | 100-02-7 | mg/kg | 0.79 | U | 0.79 | U | 0.8 | U | 0.77 | U |
| Acetophenone | 98-86-2 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| Atrazine | 1912-24-9 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| Benzaldehyde | 100-52-7 | mg/kg | 0.2 | UJ | 0.2 | UJ | 0.2 | UJ | 0.19 | UJ |
| Benzyl butyl phthalate | 85-68-7 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| Biphenyl (Diphenyl) | 92-52-4 | mg/kg | 0.39 | U | 0.39 | U | 0.39 | U | 0.38 | U |
| Bis(2-chloroethoxy)methane | 111-91-1 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 111-44-4 | mg/kg | 0.098 | U | 0.098 | U | 0.099 | U | 0.095 | U |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| Caprolactam | 105-60-2 | mg/kg | 0.2 | U | 0.2 | U | 0.2 | U | 0.19 | U |
| Carbazole | 86-74-8 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| Cresols, m- & p- | cresols-m,p | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| Dibenzofuran | 132-64-9 | mg/kg | 0.079 | U | 0.39 | J+ | 0.08 | U | 0.077 | U |
| Diethyl phthalate | 84-66-2 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| Dimethyl phthalate | 131-11-3 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| Di-n-butyl phthalate | 84-74-2 | mg/kg | 0.079 | U | 0.39 | | 0.08 | U | 0.077 | U |
| di-n-Octyl phthalate | 117-84-0 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| Hexachlorobenzene | 118-74-1 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| Hexachlorobutadiene | 87-68-3 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| Hexachlorocyclopentadiene | 77-47-4 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| Hexachloroethane | 67-72-1 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| Isophorone | 78-59-1 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| Nitrobenzene | 98-95-3 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| N-Nitrosodi-n-propylamine | 621-64-7 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| N-Nitrosodiphenylamine | 86-30-6 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| Pentachlorophenol | 87-86-5 | mg/kg | 0.79 | UJ | 0.79 | UJ | 0.8 | UJ | 0.77 | UJ |
| Phenol | 108-95-2 | mg/kg | 0.079 | U | 0.079 | U | 0.08 | U | 0.077 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0024 | U | 0.29 | | 0.012 | J+ | 0.0021 | U |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0024 | U | 0.37 | | 0.012 | J+ | 0.0021 | U |
| Acenaphthene | 83-32-9 | mg/kg | 0.0013 | U | 0.012 | U | 0.0013 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0013 | U | 0.012 | U | 0.0013 | U | 0.0011 | U |
| Anthracene | 120-12-7 | mg/kg | 0.0052 | U | 0.047 | U | 0.0051 | U | 0.0046 | U |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0052 | U | 0.042 | J | 0.0051 | U | 0.011 | J+ |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0052 | U | 0.034 | J | 0.0051 | U | 0.011 | J+ |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.012 | J+ | 0.058 | J | 0.0079 | U | 0.011 | J+ |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.008 | U | 0.072 | U | 0.0079 | U | 0.0071 | U |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0052 | U | 0.047 | U | 0.0051 | U | 0.0046 | U |
| Chrysene | 218-01-9 | mg/kg | 0.0052 | U | 0.056 | J | 0.012 | J+ | 0.011 | J+ |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.008 | U | 0.072 | U | 0.0079 | U | 0.0071 | U |
| Fluoranthene | 206-44-0 | mg/kg | 0.012 | J+ | 0.069 | J | 0.0051 | U | 0.011 | J+ |
| Fluorene | 86-73-7 | mg/kg | 0.0032 | U | 0.029 | U | 0.0032 | U | 0.0029 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.008 | U | 0.072 | U | 0.0079 | U | 0.0071 | U |
| Naphthalene | 91-20-3 | mg/kg | 0.0024 | U | 0.29 | | 0.012 | J+ | 0.011 | J+ |
| Phenanthrene | 85-01-8 | mg/kg | 0.012 | J+ | 0.16 | | 0.0079 | U | 0.0071 | U |
| Pyrene | 129-00-0 | mg/kg | 0.012 | | 0.068 | J | 0.0079 | U | 0.0024 | J |
| High Molecular Weight PAHs | N/A | mg/kg | 0.06 | | 0.44 | | 0.053 | | 0.056 | |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.033 | | 1.2 | | 0.044 | | 0.03 | |
| Total PAHs | N/A | mg/kg | 0.066 | | 1.6 | | 0.066 | | 0.082 | |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | |
| PCB-1016 (Aroclor 1016) | 12674-11-2 | mg/kg | 0.037 | UJ | 0.034 | UJ | 0.036 | UJ | 0.035 | UJ |
| PCB-1221 (Aroclor 1221) | 11104-28-2 | mg/kg | 0.096 | U | 0.087 | U | 0.093 | U | 0.09 | U |
| PCB-1232 (Aroclor 1232) | 11141-16-5 | mg/kg | 0.037 | U | 0.034 | U | 0.036 | U | 0.035 | U |
| PCB-1242 (Aroclor 1242) | 53469-21-9 | mg/kg | 0.058 | U | 0.052 | U | 0.056 | U | 0.054 | U |

Table D.2-9
Reduced Validated Analytical Results[1] - AOC 5 (Possible Dump Area), Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-05-004 | | NYOW-05-005 | | NYOW-05-005 | | NYOW-05-005 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-05-PH004-C | | NYOW-05-SL005-A | | NYOW-05-PH005-B | | NYOW-05-PH005-C | |
| | | Sample Type: | N | | N | | N | | N | |
| | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | Sample Date: | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| PCB-1248 (Aroclor 1248) | 12672-29-6 | mg/kg | 0.018 | U | 0.016 | U | 0.017 | U | 0.017 | U |
| PCB-1254 (Aroclor 1254) | 11097-69-1 | mg/kg | 0.04 | U | 0.036 | U | 0.039 | U | 0.038 | U |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | mg/kg | 0.008 | UJ | 0.0073 | UJ | 0.0077 | UJ | 0.0075 | UJ |
| PCB-1262 (Aroclor 1262) | 37324-23-5 | mg/kg | 0.019 | U | 0.017 | U | 0.019 | U | 0.018 | U |
| PCB-1268 (Aroclor 1268) | 11100-14-4 | mg/kg | 0.008 | U | 0.0073 | U | 0.0077 | U | 0.0075 | U |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 20000 | | 3800 | | 8600 | | 6600 | |
| Antimony | 7440-36-0 | mg/kg | 0.21 | | 1 | | 0.19 | J+ | 0.1 | U |
| Arsenic | 7440-38-2 | mg/kg | 9 | | 6.9 | | 6.2 | | 5.5 | |
| Barium | 7440-39-3 | mg/kg | 140 | | 76 | | 48 | | 50 | |
| Beryllium | 7440-41-7 | mg/kg | 0.8 | | 0.56 | J+ | 0.37 | J | 0.62 | J |
| Cadmium | 7440-43-9 | mg/kg | 0.11 | J+ | 4.3 | | 0.12 | | 0.1 | J+ |
| Calcium | 7440-70-2 | mg/kg | 48000 | | 13000 | | 16000 | | 4800 | |
| Chromium | 7440-47-3 | mg/kg | 27 | | 13 | | 11 | | 10 | J |
| Cobalt | 7440-48-4 | mg/kg | 15 | | 4.3 | | 6.1 | | 6.4 | |
| Copper | 7440-50-8 | mg/kg | 25 | | 110 | | 19 | | 17 | J |
| Iron | 7439-89-6 | mg/kg | 29000 | | 22000 | | 18000 | | 19000 | |
| Lead | 7439-92-1 | mg/kg | 9.4 | | 200 | | 6 | | 4 | |
| Magnesium | 7439-95-4 | mg/kg | 12000 | | 3000 | | 5300 | | 4300 | |
| Manganese | 7439-96-5 | mg/kg | 730 | | 450 | | 630 | | 440 | |
| Mercury | 7439-97-6 | mg/kg | 0.025 | J+ | 0.14 | | 0.019 | J | 0.021 | J+ |
| Nickel | 7440-02-0 | mg/kg | 32 | | 18 | | 14 | | 14 | J |
| Potassium | 7440-09-7 | mg/kg | 4400 | | 550 | | 1300 | | 1000 | J |
| Selenium | 7782-49-2 | mg/kg | 0.44 | U | 0.47 | | 0.6 | J+ | 0.41 | U |
| Silver | 7440-22-4 | mg/kg | 0.58 | U | 1.7 | J+ | 0.58 | U | 2.5 | U |
| Sodium | 7440-23-5 | mg/kg | 480 | J+ | 560 | J+ | 480 | J+ | 420 | U |
| Thallium | 7440-28-0 | mg/kg | 0.2 | | 0.15 | | 0.12 | U | 0.1 | U |
| Vanadium | 7440-62-2 | mg/kg | 37 | | 10 | | 16 | | 16 | |
| Zinc | 7440-66-6 | mg/kg | 57 | | 690 | | 52 | | 26 | J |
| Other Inorganics | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Organic Carbon | N/A | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- |
| Solids | N/A | % | 80.6 | | 83.2 | | 81.4 | | 87 | |
| Grain Size | | | | | | | | | | |
| Gravel | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- |
| Coarse Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- |
| Medium Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- |
| Fine Sand | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- |
| Silt | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- |
| Clay | N/A | % | -- | -- | -- | -- | -- | -- | -- | -- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend
ND — ND at the LOD
Detect — Detected result

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-B-006 | | NYOW-B-006 | | NYOW-B-006 | | NYOW-B-007 | | NYOW-B-007 | | NYOW-B-007 | | NYOW-B-008 | | NYOW-B-008 | | NYOW-B-008 | | NYOW-B-009 | | NYOW-B-009 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-B-SL006-A | | NYOW-B-PH006-B | | NYOW-B-PH006-C | | NYOW-B-SL007-A | | NYOW-B-PH007-B | | NYOW-B-PH007-C | | NYOW-B-SL008-A | | NYOW-B-PH008-B | | NYOW-B-PH008-C | | NYOW-B-SL009-A | | NYOW-B-PH009-B | |
| | | | Sample Type: | | N | | N | | N | | C | | N | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | Sample Date: | | 2021-05-18 | | 2021-05-18 | | 2021-05-18 | | 2021-05-18 | | 2021-05-18 | | 2021-05-18 | | 2021-05-17 | | 2021-05-17 | | 2021-05-17 | | 2021-05-17 | | 2021-05-17 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.00077 | J | 0.0023 | U | 0.0023 | U | 0.0024 | U | 0.0023 | U | 0.0023 | U | 0.00094 | J | 0.0024 | U | 0.0023 | U | 0.0023 | U | 0.0023 | U | | |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0011 | J | 0.0023 | U | 0.0023 | U | 0.0024 | U | 0.0023 | U | 0.0023 | U | 0.0011 | J | 0.0024 | U | 0.0023 | U | 0.0023 | U | 0.0023 | U | | |
| Acenaphthene | 83-32-9 | mg/kg | 0.013 | J+ | 0.0013 | U | 0.012 | J+ | 0.013 | J+ | 0.0012 | U | 0.0012 | U | 0.0014 | U | 0.0013 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | | |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0014 | U | 0.0013 | U | 0.0012 | U | 0.0013 | U | 0.0012 | U | 0.0012 | U | 0.0018 | J | 0.0013 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | | |
| Anthracene | 120-12-7 | mg/kg | 0.0027 | J | 0.0051 | U | 0.005 | U | 0.0052 | U | 0.005 | U | 0.005 | U | 0.0022 | J | 0.0052 | U | 0.005 | U | 0.0051 | U | 0.0051 | U | | |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.019 | | 0.0025 | J | 0.005 | U | 0.0057 | J | 0.005 | U | 0.005 | U | 0.015 | | 0.0052 | U | 0.005 | U | 0.0022 | J | 0.0051 | U | | |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.027 | | 0.0026 | J | 0.005 | U | 0.009 | J | 0.005 | U | 0.005 | U | 0.025 | | 0.0052 | U | 0.005 | U | 0.0028 | J | 0.0051 | U | | |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.033 | | 0.0034 | J | 0.0077 | U | 0.01 | J | 0.0077 | U | 0.0077 | U | 0.033 | | 0.0081 | U | 0.0078 | U | 0.0038 | J | 0.0078 | U | | |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.017 | | 0.0078 | U | 0.0077 | U | 0.0055 | J | 0.0077 | U | 0.0077 | U | 0.017 | | 0.0081 | U | 0.0078 | U | 0.0078 | U | 0.0078 | U | | |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.015 | J- | 0.0051 | U | 0.005 | U | 0.0057 | J | 0.005 | U | 0.005 | U | 0.014 | | 0.0052 | U | 0.005 | U | 0.0051 | U | 0.0051 | U | | |
| Chrysene | 218-01-9 | mg/kg | 0.022 | J- | 0.0023 | J | 0.005 | U | 0.0073 | J | 0.005 | U | 0.0029 | J | 0.019 | | 0.0052 | U | 0.005 | U | 0.0026 | J | 0.0051 | U | | |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0089 | U | 0.0078 | U | 0.0077 | U | 0.008 | U | 0.0077 | U | 0.0077 | U | 0.0086 | U | 0.0081 | U | 0.0078 | U | 0.0078 | U | 0.0078 | U | | |
| Fluoranthene | 206-44-0 | mg/kg | 0.034 | J- | 0.0028 | J | 0.005 | U | 0.012 | J | 0.005 | U | 0.005 | U | 0.036 | | 0.0052 | U | 0.005 | U | 0.0036 | J | 0.0051 | U | | |
| Fluorene | 86-73-7 | mg/kg | 0.0036 | U | 0.0031 | U | 0.0031 | U | 0.0032 | U | 0.0031 | U | 0.0031 | U | 0.0035 | U | 0.0032 | U | 0.0031 | U | 0.0031 | U | 0.0031 | U | | |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.02 | | 0.0026 | J | 0.0077 | U | 0.0058 | J | 0.0077 | U | 0.0077 | U | 0.019 | | 0.0081 | U | 0.0078 | U | 0.0078 | U | 0.0078 | U | | |
| Naphthalene | 91-20-3 | mg/kg | 0.0027 | U | 0.0023 | U | 0.0023 | U | 0.0024 | U | 0.0023 | U | 0.0023 | U | 0.0013 | J | 0.0024 | U | 0.0023 | U | 0.0023 | U | 0.0023 | U | | |
| Phenanthrene | 85-01-8 | mg/kg | 0.011 | J | 0.0078 | U | 0.0077 | U | 0.0084 | J | 0.0077 | U | 0.0077 | U | 0.011 | J | 0.0081 | U | 0.0078 | U | 0.0078 | U | 0.0078 | U | | |
| Pyrene | 129-00-0 | mg/kg | 0.029 | J- | 0.0026 | J | 0.0077 | U | 0.011 | J | 0.0077 | U | 0.0077 | U | 0.03 | | 0.0081 | U | 0.0078 | U | 0.0031 | J | 0.0078 | U | | |
| High Molecular Weight PAHs | N/A | mg/kg | 0.19 | | 0.024 | | 0.059 | U | 0.066 | | 0.059 | U | 0.026 | | 0.18 | | 0.061 | U | 0.059 | U | 0.026 | | 0.059 | U | | |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.066 | | 0.014 | | 0.022 | | 0.041 | | 0.03 | U | 0.03 | U | 0.057 | | 0.032 | U | 0.03 | U | 0.014 | | 0.03 | U | | |
| Total PAHs | N/A | mg/kg | 0.25 | | 0.038 | | 0.032 | | 0.1 | | 0.089 | U | 0.027 | | 0.23 | | 0.093 | U | 0.089 | U | 0.04 | | 0.09 | U | | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 4700 | | 3900 | | 2200 | | 4200 | | 2900 | | 2200 | J+ | 4100 | | 3400 | | 3900 | | 2300 | | 4100 | | | |
| Antimony | 7440-36-0 | mg/kg | 0.11 | U | 0.2 | U | 0.17 | U | 0.097 | U | 0.083 | U | 0.082 | U | 0.091 | U | 0.11 | U | 0.092 | U | 0.095 | U | 0.082 | U | | |
| Arsenic | 7440-38-2 | mg/kg | 1.4 | | 1 | | 1.1 | | 0.68 | | 0.85 | | 1.2 | | 3.8 | | 2.3 | | 2 | | 0.85 | | 3.1 | | | |
| Barium | 7440-39-3 | mg/kg | 33 | | 23 | | 9.6 | | 32 | | 22 | | 16 | J- | 36 | | 33 | | 95 | | 23 | | 49 | | | |
| Beryllium | 7440-41-7 | mg/kg | 0.56 | J+ | 0.45 | J+ | 0.12 | J | 0.51 | J+ | 0.53 | J+ | 0.16 | J- | 0.48 | J+ | 0.49 | J+ | 0.2 | J | 0.1 | U | 0.53 | J+ | | |
| Cadmium | 7440-43-9 | mg/kg | 0.12 | | 0.032 | J | 0.019 | J | 0.095 | J | 0.017 | J | 0.0085 | J | 0.13 | | 0.028 | J | 0.019 | J | 0.024 | J | 0.031 | J | | |
| Calcium | 7440-70-2 | mg/kg | 3400 | J+ | 1200 | | 19000 | | 2000 | | 1200 | | 8500 | J+ | 1300 | | 1300 | | 41000 | | 1100 | | 1400 | | | |
| Chromium | 7440-47-3 | mg/kg | 5.5 | | 5.5 | | 3.5 | | 4.2 | | 5.7 | | 4.3 | J- | 4.6 | | 5.7 | | 6.5 | | 2.6 | J | 5.9 | | | |
| Cobalt | 7440-48-4 | mg/kg | 2.3 | | 2.3 | J- | 1.7 | | 1.2 | | 2 | | 1.6 | J- | 1.7 | | 2.8 | | 3.4 | | 0.82 | J | 5.7 | | | |
| Copper | 7440-50-8 | mg/kg | 3.9 | J | 4.3 | J | 4.9 | | 1.6 | J | 3.9 | J | 4.7 | J | 1.9 | J | 3.3 | J | 9.3 | | 0.75 | J | 3.7 | J | | |
| Iron | 7439-89-6 | mg/kg | 6400 | | 7300 | | 5400 | | 3900 | | 6500 | | 7400 | | 6900 | | 8500 | | 9800 | | 4400 | | 12000 | | | |
| Lead | 7439-92-1 | mg/kg | 4.9 | | 1.8 | | 1.3 | | 4.3 | | 1.3 | | 1.2 | J- | 6.9 | J+ | 2.2 | J+ | 3.1 | J+ | 3.2 | J+ | 2.5 | J+ | | |
| Magnesium | 7439-95-4 | mg/kg | 1400 | | 1100 | | 6400 | | 780 | | 930 | | 4100 | J+ | 670 | | 1100 | | 14000 | | 530 | | 1300 | | | |
| Manganese | 7439-96-5 | mg/kg | 160 | J+ | 140 | J+ | 240 | | 65 | | 71 | | 150 | J+ | 140 | | 250 | | 380 | | 28 | | 470 | | | |
| Mercury | 7439-97-6 | mg/kg | 0.055 | | 0.017 | U | 0.017 | U | 0.046 | J | 0.017 | U | 0.018 | U | 0.042 | | 0.0099 | J | 0.023 | J+ | 0.0099 | J | 0.012 | J | | |
| Nickel | 7440-02-0 | mg/kg | 3.7 | J | 4.4 | | 3.3 | J | 2.3 | J | 4 | J | 3.2 | J- | 2.4 | J | 5.1 | | 7.3 | | 1.8 | J | 6.1 | | | |
| Potassium | 7440-09-7 | mg/kg | 330 | | 410 | | 470 | | 250 | J | 430 | | 430 | J | 220 | J | 450 | | 850 | | 200 | J | 530 | | | |
| Selenium | 7782-49-2 | mg/kg | 0.26 | J | 0.36 | U | 0.44 | U | 0.21 | J | 0.4 | U | 0.34 | U | 0.43 | J | 0.44 | U | 0.33 | U | 0.45 | U | 0.37 | U | | |
| Silver | 7440-22-4 | mg/kg | 0.67 | U | 0.54 | U | 0.59 | U | 0.61 | U | 0.64 | U | 0.67 | U | 0.57 | U | 0.59 | U | 1.4 | J+ | 0.52 | U | 0.64 | U | | |
| Sodium | 7440-23-5 | mg/kg | 560 | J+ | 450 | J+ | 490 | J+ | 510 | J+ | 110 | U | 560 | J+ | 480 | J+ | 490 | J+ | 470 | J+ | 87 | U | 110 | U | | |
| Thallium | 7440-28-0 | mg/kg | 0.042 | J | 0.035 | J | 0.028 | J | 0.036 | J | 0.095 | J | 0.01 | J | 0.11 | U | 0.11 | U | 0.081 | U | 0.11 | U | 0.094 | U | | |
| Vanadium | 7440-62-2 | mg/kg | 9.7 | | 10 | | 6.4 | | 6.7 | | 8.7 | | 8.7 | J- | 11 | | 9.1 | | 10 | | 7.8 | | 12 | | | |
| Zinc | 7440-66-6 | mg/kg | 17 | J- | 10 | | 8.9 | | 16 | | 9.6 | | 9.3 | J- | 14 | | 10 | | 17 | | 6.9 | U | 11 | | | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 19 | | 4.3 | | 1.3 | | 14.2 | J | 7 | | 3.3 | | 15 | | 4.9 | | 3.4 | | 8.3 | | 5.4 | | | |
| Total Organic Carbon | N/A | mg/kg | 8800 | J- | 550 | J- | 2400 | J- | 12000 | J- | 410 | UJ | 1600 | J- | 7500 | J- | 270 | J- | 960 | UJ | 14000 | J | 2500 | J- | | |
| Solids | N/A | % | 71 | | 84 | | 82.1 | | 75.95 | | 83.2 | | 84.1 | | 76.3 | | 77.4 | | 85.4 | | 82.3 | | 82 | | | |

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-B-006 | | NYOW-B-006 | | NYOW-B-006 | | NYOW-B-007 | | NYOW-B-007 | | NYOW-B-007 | | NYOW-B-008 | | NYOW-B-008 | | NYOW-B-008 | | NYOW-B-009 | | NYOW-B-009 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-B-SL006-A | | NYOW-B-PH006-B | | NYOW-B-PH006-C | | NYOW-B-SL007-A | | NYOW-B-PH007-B | | NYOW-B-PH007-C | | NYOW-B-SL008-A | | NYOW-B-PH008-B | | NYOW-B-PH008-C | | NYOW-B-SL009-A | | NYOW-B-PH009-B | |
| | | Sample Type: | N | | N | | N | | C | | N | | N | | N | | N | | N | | N | | N | |
| | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | Sample Date: | 2021-05-18 | | 2021-05-18 | | 2021-05-18 | | 2021-05-18 | | 2021-05-18 | | 2021-05-18 | | 2021-05-17 | | 2021-05-17 | | 2021-05-17 | | 2021-05-17 | | 2021-05-17 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 4.1 | | 0 | U | 0 | U | 0 | U | 0 | U | 0 | U | 0.4 | | 0 | U | 0 | U | 0.3 | | 0.5 | |
| Coarse Sand | N/A | % | 0.7 | | 0.7 | | 0 | U | 0.5 | | 0 | U | 0 | U | 0.3 | | 0 | U | 0 | U | 0.2 | | 2.7 | |
| Medium Sand | N/A | % | 1.4 | | 0.8 | | 0 | U | 0.9 | | 0.3 | | 0.3 | | 3.6 | | 1.4 | | 0.3 | | 2.7 | | 8 | |
| Fine Sand | N/A | % | 64.2 | | 81.8 | | 38.6 | | 80.5 | | 63.4 | | 49.2 | | 79.7 | | 52.5 | | 33.9 | | 82.9 | | 74.2 | |
| Silt | N/A | % | 27.3 | | 13.2 | | 59.5 | | 14.8 | | 32.8 | | 46.9 | | 12.8 | | 41.2 | | 62.4 | | 9.7 | | 9 | |
| Clay | N/A | % | 2.3 | | 3.6 | | 1.8 | | 3.6 | | 3.6 | | 3.6 | | 3.3 | | 4.9 | | 3.4 | | 4.3 | | 5.7 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-B-009 | | NYOW-B-010 | | NYOW-B-010 | | NYOW-B-010 | | NYOW-B-011 | | NYOW-B-011 | | NYOW-B-011 | | NYOW-B-012 | | NYOW-B-012 | | NYOW-B-012 | | NYOW-B-013 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-B-PH009-C | | NYOW-B-SL010-A | | NYOW-B-PH010-B | | NYOW-B-PH010-C | | NYOW-B-SL011-A | | NYOW-B-PH011-B | | NYOW-B-PH011-C | | NYOW-B-SL012-A | | NYOW-B-PH012-B | | NYOW-B-PH012-C | | NYOW-B-SL013-A | |
| | | | Sample Type: | | N | | N | | N | | N | | N | | N | | C | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | |
| | | | Sample Date: | | 2021-05-17 | | 2021-05-17 | | 2021-05-17 | | 2021-05-17 | | 2021-05-18 | | 2021-05-18 | | 2021-05-18 | | 2021-05-12 | | 2021-05-12 | | 2021-05-12 | | 2021-05-12 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0022 | U | 0.00061 | J | 0.0024 | U | 0.0023 | U | 0.0024 | U | 0.0024 | U | 0.0025 | U | 0.0028 | U | 0.0023 | U | 0.0021 | U | 0.0011 | J | | |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0022 | U | 0.0009 | J | 0.012 | J+ | 0.011 | J+ | 0.0024 | U | 0.0024 | U | 0.0025 | U | 0.0028 | U | 0.0023 | U | 0.0021 | U | 0.0024 | U | | |
| Acenaphthene | 83-32-9 | mg/kg | 0.0011 | U | 0.011 | J+ | 0.0013 | U | 0.0012 | U | 0.0013 | U | 0.0013 | U | 0.0013 | U | 0.0015 | U | 0.0012 | U | 0.0011 | U | 0.012 | J+ | | |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0011 | U | 0.00084 | J | 0.0013 | U | 0.0012 | U | 0.0013 | U | 0.0013 | U | 0.0013 | U | 0.0012 | J | 0.0012 | U | 0.0011 | U | 0.0015 | J | | |
| Anthracene | 120-12-7 | mg/kg | 0.0047 | U | 0.0049 | U | 0.0051 | U | 0.0049 | U | 0.0051 | U | 0.0052 | U | 0.0054 | U | 0.006 | U | 0.0049 | U | 0.0046 | U | 0.0051 | U | | |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.011 | J+ | 0.0044 | J | 0.0051 | U | 0.011 | J+ | 0.0051 | J | 0.0052 | U | 0.012 | J+ | 0.0083 | J | 0.0049 | U | 0.0046 | U | 0.011 | J | | |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.011 | J+ | 0.0072 | J | 0.0051 | U | 0.011 | J+ | 0.0075 | J | 0.0052 | U | 0.012 | J+ | 0.01 | J | 0.0049 | U | 0.0046 | U | 0.013 | | | |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.0045 | J | 0.0097 | J | 0.0079 | U | 0.0035 | J | 0.0077 | J | 0.0081 | U | 0.0049 | J | 0.016 | | 0.0075 | U | 0.0071 | U | 0.021 | | | |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0072 | U | 0.0052 | J | 0.0079 | U | 0.0076 | U | 0.0048 | J | 0.0081 | U | 0.012 | J+ | 0.0078 | J | 0.0075 | U | 0.0071 | U | 0.01 | J | | |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0047 | U | 0.0031 | J | 0.0051 | U | 0.0049 | U | 0.0051 | J | 0.0052 | U | 0.012 | J+ | 0.0065 | J | 0.0049 | U | 0.0046 | U | 0.0051 | U | | |
| Chrysene | 218-01-9 | mg/kg | 0.0031 | J | 0.0054 | J | 0.0051 | U | 0.0098 | J | 0.0049 | J | 0.0052 | U | 0.0086 | J | 0.013 | J | 0.0049 | U | 0.0046 | U | 0.016 | | | |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0072 | U | 0.0076 | U | 0.0079 | U | 0.0076 | U | 0.0079 | U | 0.0081 | U | 0.0083 | U | 0.0093 | U | 0.0075 | U | 0.0071 | U | 0.0078 | U | | |
| Fluoranthene | 206-44-0 | mg/kg | 0.0047 | U | 0.0089 | J | 0.0051 | U | 0.011 | J+ | 0.0077 | J | 0.0052 | U | 0.012 | J+ | 0.018 | | 0.0049 | U | 0.0046 | U | 0.024 | | | |
| Fluorene | 86-73-7 | mg/kg | 0.0029 | U | 0.003 | U | 0.0031 | U | 0.003 | U | 0.0032 | U | 0.0032 | U | 0.0033 | U | 0.0037 | U | 0.003 | U | 0.0028 | U | 0.0011 | J | | |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0072 | U | 0.005 | J | 0.0079 | U | 0.0076 | U | 0.0049 | J | 0.0081 | U | 0.0083 | U | 0.0084 | J | 0.0075 | U | 0.0071 | U | 0.011 | J | | |
| Naphthalene | 91-20-3 | mg/kg | 0.0022 | U | 0.0016 | J | 0.012 | J+ | 0.0022 | J | 0.0024 | U | 0.0024 | U | 0.0025 | U | 0.0012 | J | 0.011 | J+ | 0.0021 | U | 0.0013 | J | | |
| Phenanthrene | 85-01-8 | mg/kg | 0.0072 | U | 0.0045 | J | 0.0079 | U | 0.011 | J+ | 0.0029 | J | 0.0081 | U | 0.012 | J+ | 0.0078 | J | 0.0075 | U | 0.0071 | U | 0.01 | J | | |
| Pyrene | 129-00-0 | mg/kg | 0.0072 | U | 0.0077 | J | 0.0079 | U | 0.011 | J+ | 0.0067 | J | 0.0081 | U | 0.012 | J+ | 0.015 | | 0.0075 | U | 0.0071 | U | 0.031 | | | |
| High Molecular Weight PAHs | N/A | mg/kg | 0.049 | | 0.053 | | 0.06 | U | 0.06 | | 0.053 | | 0.061 | U | 0.083 | | 0.093 | | 0.057 | U | 0.054 | U | 0.12 | | | |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.028 | U | 0.031 | | 0.033 | | 0.042 | | 0.02 | | 0.032 | U | 0.033 | | 0.034 | | 0.021 | | 0.028 | U | 0.053 | | | |
| Total PAHs | N/A | mg/kg | 0.05 | | 0.082 | | 0.045 | | 0.096 | | 0.072 | | 0.093 | U | 0.11 | | 0.12 | | 0.031 | | 0.082 | U | 0.17 | | | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 4700 | | 4500 | | 3100 | | 3900 | | 5600 | | 3700 | | 2900 | | 7800 | | 2300 | | 2500 | | 7800 | | | |
| Antimony | 7440-36-0 | mg/kg | 0.092 | U | 0.091 | U | 0.1 | U | 0.097 | U | 0.2 | U | 0.089 | U | 0.086 | U | 0.16 | J | 0.099 | U | 0.09 | U | 0.22 | J | | |
| Arsenic | 7440-38-2 | mg/kg | 4.1 | | 2.7 | | 3.2 | | 3.4 | | 2.4 | | 2 | | 0.96 | | 5.1 | | 2.3 | | 1.8 | | 7.2 | | | |
| Barium | 7440-39-3 | mg/kg | 32 | | 63 | | 29 | | 36 | | 51 | | 27 | | 32 | | 68 | | 11 | | 15 | | 50 | | | |
| Beryllium | 7440-41-7 | mg/kg | 0.24 | J | 0.52 | J+ | 0.52 | J+ | 0.19 | J | 0.5 | J+ | 0.44 | J+ | 0.17 | J | 0.64 | J+ | 0.46 | J+ | 0.12 | J | 0.61 | J+ | | |
| Cadmium | 7440-43-9 | mg/kg | 0.022 | J | 0.13 | | 0.041 | J | 0.025 | J | 0.09 | | 0.044 | J | 0.021 | J | 0.4 | | 0.032 | J | 0.019 | J | 0.2 | | | |
| Calcium | 7440-70-2 | mg/kg | 30000 | | 2200 | | 2100 | | 55000 | | 2200 | | 13000 | | 26000 | | 12000 | | 3000 | | 26000 | | 4300 | | | |
| Chromium | 7440-47-3 | mg/kg | 7 | | 5.8 | | 5.1 | | 6.9 | | 7.1 | | 5.8 | | 6 | | 11 | | 3.6 | | 4.7 | | 9.1 | | | |
| Cobalt | 7440-48-4 | mg/kg | 4.8 | | 3.7 | | 4.5 | | 4.8 | | 3 | | 3.2 | | 2.4 | | 5 | | 1.9 | | 2.5 | | 6.2 | | | |
| Copper | 7440-50-8 | mg/kg | 8 | | 5.5 | | 12 | | 18 | | 5 | | 7.9 | | 6.3 | | 12 | | 4.1 | J | 7.6 | | 21 | | | |
| Iron | 7439-89-6 | mg/kg | 12000 | | 11000 | | 9800 | | 12000 | | 9400 | | 8700 | | 6900 | | 22000 | | 6200 | | 7000 | | 22000 | | | |
| Lead | 7439-92-1 | mg/kg | 2.4 | J+ | 6.9 | J+ | 3.1 | J+ | 4 | J+ | 3.2 | | 2.5 | | 2.1 | | 13 | J+ | 2 | J+ | 2.2 | J+ | 19 | J+ | | |
| Magnesium | 7439-95-4 | mg/kg | 9900 | | 1200 | | 2000 | | 8700 | | 1400 | | 5000 | | 7800 | | 6400 | | 1800 | | 6300 | | 2100 | | | |
| Manganese | 7439-96-5 | mg/kg | 350 | | 430 | | 330 | | 410 | | 240 | | 320 | | 260 | | 940 | | 170 | | 250 | | 840 | | | |
| Mercury | 7439-97-6 | mg/kg | 0.017 | U | 0.044 | | 0.013 | J | 0.021 | J+ | 0.026 | | 0.017 | U | 0.018 | U | 0.12 | | 0.0086 | J | 0.017 | U | 0.081 | | | |
| Nickel | 7440-02-0 | mg/kg | 9.1 | | 4.6 | | 6.2 | | 8.6 | | 5.5 | | 5.6 | | 4.6 | | 6.5 | | 3.5 | J | 4.1 | | 7.8 | | | |
| Potassium | 7440-09-7 | mg/kg | 1100 | | 400 | | 430 | | 730 | | 450 | | 570 | | 640 | | 600 | | 380 | | 500 | | 580 | | | |
| Selenium | 7782-49-2 | mg/kg | 0.37 | U | 0.24 | J | 0.41 | U | 0.33 | U | 0.15 | J | 0.42 | U | 0.35 | U | 0.6 | | 0.45 | U | 0.4 | U | 0.57 | | | |
| Silver | 7440-22-4 | mg/kg | 1.5 | J+ | 0.62 | U | 0.62 | U | 1.6 | J+ | 0.6 | U | 0.53 | U | 0.6 | U | 0.77 | U | 0.56 | U | 0.59 | U | 0.73 | U | | |
| Sodium | 7440-23-5 | mg/kg | 490 | J+ | 100 | U | 100 | U | 540 | J+ | 500 | J+ | 440 | J+ | 500 | J+ | 640 | J+ | 460 | J+ | 490 | J+ | 610 | J+ | | |
| Thallium | 7440-28-0 | mg/kg | 0.094 | U | 0.1 | U | 0.1 | U | 0.083 | U | 0.042 | J | 0.033 | J | 0.022 | J | 0.1 | U | 0.11 | U | 0.099 | U | 0.11 | | | |
| Vanadium | 7440-62-2 | mg/kg | 9.8 | | 12 | | 8.6 | | 9.7 | | 12 | | 11 | | 8.4 | | 20 | | 6.6 | | 7.9 | | 18 | | | |
| Zinc | 7440-66-6 | mg/kg | 14 | | 21 | | 14 | | 22 | | 17 | | 14 | | 12 | | 39 | | 11 | | 12 | | 42 | | | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 2.3 | | 15 | | 5.7 | | 2.2 | | 11 | | 5.2 | | 1.8 | J | 42 | | 1.4 | | 1.8 | | 23 | | | |
| Total Organic Carbon | N/A | mg/kg | 950 | J- | 14000 | J | 710 | J | 6200 | J | 4800 | J- | 1900 | J- | 6000 | J- | 22000 | J- | 2600 | J- | 10000 | J- | 12000 | J- | | |
| Solids | N/A | % | 90.6 | | 80.1 | | 83.7 | | 86.5 | | 82.3 | | 82.2 | | 79.1 | | 68.3 | | 83.8 | | 87.9 | | 76.7 | | | |

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-B-009 | | NYOW-B-010 | | NYOW-B-010 | | NYOW-B-010 | | NYOW-B-011 | | NYOW-B-011 | | NYOW-B-011 | | NYOW-B-012 | | NYOW-B-012 | | NYOW-B-012 | | NYOW-B-013 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-B-PH009-C | | NYOW-B-SL010-A | | NYOW-B-PH010-B | | NYOW-B-PH010-C | | NYOW-B-SL011-A | | NYOW-B-PH011-B | | NYOW-B-PH011-C | | NYOW-B-SL012-A | | NYOW-B-PH012-B | | NYOW-B-PH012-C | | NYOW-B-SL013-A | |
| | | Sample Type: | N | | N | | N | | N | | N | | N | | C | | N | | N | | N | | N | |
| | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | |
| | | Sample Date: | 2021-05-17 | | 2021-05-17 | | 2021-05-17 | | 2021-05-17 | | 2021-05-18 | | 2021-05-18 | | 2021-05-18 | | 2021-05-12 | | 2021-05-12 | | 2021-05-12 | | 2021-05-12 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 1.7 | | 2.5 | | 3.2 | | 14.3 | | 2.6 | | 0 | U | 0 | U | 4.6 | | 1.9 | | 2.7 | | 19.7 | |
| Coarse Sand | N/A | % | 4.4 | | 0.4 | | 1.6 | | 5.4 | | 0 | U | 0.5 | | 0 | U | 2.8 | | 0.9 | | 2.5 | | 4.2 | |
| Medium Sand | N/A | % | 9.1 | | 3.9 | | 3.6 | | 6.4 | | 0.7 | | 0.2 | | 0.3 | | 9.6 | | 2.7 | | 5.3 | | 5 | |
| Fine Sand | N/A | % | 58.2 | | 73.4 | | 65.2 | | 32.9 | | 47.7 | | 29.8 | | 57.8 | | 56.9 | | 56.2 | | 34.3 | | 46.7 | |
| Silt | N/A | % | 18.9 | | 16.1 | | 22.9 | | 35.4 | | 41.6 | | 64.4 | | 38.1 | | 16.9 | | 28.2 | | 42.7 | | 17 | |
| Clay | N/A | % | 7.7 | | 3.7 | | 3.5 | | 5.7 | | 7.3 | | 5.1 | | 4 | | 9.1 | | 10 | | 12.5 | | 7.4 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-B-013 | | NYOW-B-013 | | NYOW-B-014 | | NYOW-B-014 | | NYOW-B-014 | | NYOW-B-015 | | NYOW-B-015 | | NYOW-B-015 | | NYOW-B-016 | | NYOW-B-016 | | NYOW-B-016 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-B-PH013-B | | NYOW-B-PH013-C | | NYOW-B-SL014-A | | NYOW-B-PH014-B | | NYOW-B-PH014-C | | NYOW-B-SL015-A | | NYOW-B-PH015-B | | NYOW-B-PH015-C | | NYOW-B-SL016-A | | NYOW-B-PH016-B | | NYOW-B-PH016-C | |
| | | | Sample Type: | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | Sample Date: | | 2021-05-12 | | 2021-05-12 | | 2021-05-17 | | 2021-05-17 | | 2021-05-17 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0024 | U | 0.0022 | U | 0.0024 | U | 0.0022 | U | 0.0021 | U | 0.0023 | U | 0.0023 | U | 0.0024 | U | 0.0023 | U | 0.002 | U | 0.0021 | U | | |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0024 | U | 0.0022 | U | 0.0024 | U | 0.0022 | U | 0.0021 | U | 0.0023 | U | 0.0023 | U | 0.0024 | U | 0.0023 | U | 0.002 | U | 0.0021 | U | | |
| Acenaphthene | 83-32-9 | mg/kg | 0.0013 | U | 0.0012 | U | 0.0013 | U | 0.0012 | U | 0.011 | J+ | 0.0012 | U | 0.0012 | U | 0.0013 | U | 0.0012 | U | 0.0011 | U | 0.0011 | U | | |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0013 | U | 0.0012 | U | 0.0013 | U | 0.0012 | U | 0.0011 | U | 0.0012 | U | 0.0012 | U | 0.0013 | U | 0.0012 | U | 0.0011 | U | 0.0011 | U | | |
| Anthracene | 120-12-7 | mg/kg | 0.0051 | U | 0.0048 | U | 0.0051 | U | 0.0048 | U | 0.0046 | U | 0.0049 | U | 0.0049 | U | 0.0053 | U | 0.005 | U | 0.0044 | U | 0.0046 | U | | |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0051 | U | 0.0048 | U | 0.0031 | J | 0.0052 | J | 0.0046 | U | 0.0075 | J | 0.0049 | U | 0.0053 | U | 0.0086 | J | 0.0044 | U | 0.0046 | U | | |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0051 | U | 0.0048 | U | 0.0043 | J | 0.0054 | J | 0.0046 | U | 0.012 | | 0.0049 | U | 0.0053 | U | 0.0082 | J | 0.0044 | U | 0.0046 | U | | |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.0078 | U | 0.0074 | U | 0.0058 | J | 0.0065 | J | 0.0071 | U | 0.015 | | 0.0075 | U | 0.0081 | U | 0.0088 | J | 0.0068 | U | 0.0071 | U | | |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0078 | U | 0.0074 | U | 0.0027 | J | 0.0032 | J | 0.0071 | U | 0.0081 | J | 0.0075 | U | 0.0081 | U | 0.0041 | J | 0.0068 | U | 0.0071 | U | | |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0051 | U | 0.0048 | U | 0.0051 | U | 0.0023 | J | 0.0046 | U | 0.0069 | J | 0.0049 | U | 0.0053 | U | 0.0039 | J | 0.0044 | U | 0.0046 | U | | |
| Chrysene | 218-01-9 | mg/kg | 0.0051 | U | 0.0048 | U | 0.0043 | J | 0.0047 | J | 0.0046 | U | 0.01 | J | 0.0049 | U | 0.0053 | U | 0.022 | | 0.0044 | U | 0.0046 | U | | |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0078 | U | 0.0074 | U | 0.0079 | U | 0.0074 | U | 0.0071 | U | 0.0075 | U | 0.0075 | U | 0.0081 | U | 0.0076 | U | 0.0068 | U | 0.0071 | U | | |
| Fluoranthene | 206-44-0 | mg/kg | 0.0051 | U | 0.0048 | U | 0.0062 | J | 0.008 | J | 0.0046 | U | 0.018 | | 0.0049 | U | 0.0053 | U | 0.0083 | J | 0.0044 | U | 0.0046 | U | | |
| Fluorene | 86-73-7 | mg/kg | 0.0031 | U | 0.003 | U | 0.0031 | U | 0.0029 | U | 0.0028 | U | 0.003 | U | 0.003 | U | 0.0032 | U | 0.0031 | U | 0.0027 | U | 0.0028 | U | | |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0078 | U | 0.0074 | U | 0.003 | J | 0.0031 | J | 0.0071 | U | 0.0088 | J | 0.0075 | UJ | 0.0081 | UJ | 0.0045 | J | 0.0068 | U | 0.0071 | U | | |
| Naphthalene | 91-20-3 | mg/kg | 0.0024 | U | 0.0022 | U | 0.00088 | J | 0.011 | J+ | 0.0012 | J | 0.0023 | U | 0.0023 | U | 0.0024 | U | 0.0023 | U | 0.002 | U | 0.0021 | U | | |
| Phenanthrene | 85-01-8 | mg/kg | 0.0078 | U | 0.0074 | U | 0.0028 | J | 0.0051 | J | 0.0071 | U | 0.007 | J | 0.0075 | U | 0.0081 | U | 0.003 | J | 0.0068 | U | 0.0071 | U | | |
| Pyrene | 129-00-0 | mg/kg | 0.0078 | U | 0.0074 | U | 0.0057 | J | 0.0074 | J | 0.0071 | U | 0.015 | | 0.0075 | U | 0.0081 | U | 0.008 | J | 0.0068 | U | 0.0071 | U | | |
| High Molecular Weight PAHs | N/A | mg/kg | 0.059 | U | 0.056 | U | 0.036 | | 0.042 | | 0.054 | U | 0.09 | | 0.057 | U | 0.062 | U | 0.072 | | 0.052 | U | 0.054 | U | | |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.031 | U | 0.029 | U | 0.016 | | 0.031 | | 0.02 | | 0.033 | | 0.03 | U | 0.032 | U | 0.02 | | 0.027 | U | 0.028 | U | | |
| Total PAHs | N/A | mg/kg | 0.09 | U | 0.085 | U | 0.051 | | 0.073 | | 0.031 | | 0.12 | | 0.087 | U | 0.093 | U | 0.091 | | 0.078 | U | 0.082 | U | | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 3600 | | 2800 | | 3900 | | 3300 | | 3700 | | 3100 | | 3700 | | 5300 | | 3800 | J+ | 3600 | | 3600 | | | |
| Antimony | 7440-36-0 | mg/kg | 0.1 | U | 0.093 | U | 0.085 | U | 0.097 | U | 0.089 | U | 0.22 | U | 0.1 | U | 0.21 | U | 0.22 | U | 0.22 | U | 0.11 | U | | |
| Arsenic | 7440-38-2 | mg/kg | 3.1 | | 3.6 | | 3 | | 6.7 | | 3.1 | | 1.1 | | 0.36 | J | 2.7 | | 2.4 | J | 2.5 | | 2.3 | | | |
| Barium | 7440-39-3 | mg/kg | 26 | | 17 | | 46 | | 38 | | 32 | | 14 | | 25 | | 32 | | 47 | J | 37 | | 46 | | | |
| Beryllium | 7440-41-7 | mg/kg | 0.42 | J+ | 0.14 | J | 0.51 | J+ | 0.43 | J+ | 0.2 | J | 0.59 | J+ | 0.49 | J+ | 0.23 | J | 0.57 | J+ | 0.5 | J+ | 0.19 | J | | |
| Cadmium | 7440-43-9 | mg/kg | 0.024 | J | 0.017 | J | 0.05 | J | 0.03 | J | 0.023 | J | 0.06 | J | 0.015 | J | 0.036 | J | 0.097 | J+ | 0.03 | J+ | 0.014 | J | | |
| Calcium | 7440-70-2 | mg/kg | 44000 | | 39000 | | 6300 | | 28000 | | 86000 | | 240 | | 500 | | 38000 | | 1400 | J | 31000 | | 21000 | | | |
| Chromium | 7440-47-3 | mg/kg | 4.9 | | 4.9 | | 5.4 | | 5.8 | | 6.5 | | 3 | J | 4.2 | | 8 | | 5.8 | J | 5.7 | | 5.6 | | | |
| Cobalt | 7440-48-4 | mg/kg | 4.7 | | 2.8 | | 2.8 | | 3.4 | | 3.2 | | 0.61 | J- | 1.7 | J- | 3.9 | J- | 3.1 | J- | 3.1 | J- | 3.8 | J- | | |
| Copper | 7440-50-8 | mg/kg | 15 | | 8.8 | | 3.8 | J | 9.6 | | 6.6 | | 1.2 | J | 1.6 | J | 10 | | 8 | J | 7.8 | | 7.6 | | | |
| Iron | 7439-89-6 | mg/kg | 13000 | | 8100 | | 10000 | | 11000 | | 8300 | | 2500 | | 4700 | | 10000 | | 9400 | | 9200 | | 9700 | | | |
| Lead | 7439-92-1 | mg/kg | 5.9 | J+ | 2.5 | J+ | 3.6 | J+ | 2.9 | J+ | 4.2 | J+ | 3.3 | | 1.4 | | 3.2 | | 2.7 | J+ | 2.5 | | 2.4 | | | |
| Magnesium | 7439-95-4 | mg/kg | 21000 | | 7500 | | 2200 | | 7100 | | 11000 | | 270 | | 940 | | 13000 | | 1200 | J | 10000 | | 6000 | | | |
| Manganese | 7439-96-5 | mg/kg | 660 | | 290 | | 270 | | 360 | | 270 | | 27 | | 52 | | 380 | | 290 | J | 310 | | 300 | | | |
| Mercury | 7439-97-6 | mg/kg | 0.017 | U | 0.017 | U | 0.026 | | 0.009 | J | 0.022 | J+ | 0.019 | J | 0.017 | U | 0.016 | U | 0.031 | | 0.016 | U | 0.016 | U | | |
| Nickel | 7440-02-0 | mg/kg | 6.3 | | 4.5 | | 4.6 | | 6.6 | | 6.7 | | 1.2 | J | 4.2 | | 8 | | 6.3 | J | 5.7 | | 6.6 | | | |
| Potassium | 7440-09-7 | mg/kg | 730 | | 630 | | 410 | | 520 | | 850 | | 220 | J | 550 | | 1100 | | 810 | J+ | 770 | | 890 | | | |
| Selenium | 7782-49-2 | mg/kg | 0.42 | U | 0.45 | U | 0.15 | J | 0.36 | U | 0.39 | U | 0.25 | J | 0.42 | U | 0.42 | J+ | 0.15 | J | 0.39 | U | 0.39 | U | | |
| Silver | 7440-22-4 | mg/kg | 0.51 | U | 0.63 | U | 0.62 | U | 1.3 | J+ | 1.5 | J+ | 0.71 | U | 0.59 | U | 0.72 | U | 0.68 | U | 0.59 | U | 0.53 | U | | |
| Sodium | 7440-23-5 | mg/kg | 420 | J+ | 520 | J+ | 100 | U | 430 | J+ | 500 | J+ | 120 | U | 490 | J+ | 600 | J+ | 570 | J+ | 500 | J+ | 440 | J+ | | |
| Thallium | 7440-28-0 | mg/kg | 0.1 | U | 0.11 | U | 0.093 | U | 0.09 | U | 0.098 | U | 0.099 | U | 0.1 | U | 0.084 | U | 0.086 | UJ | 0.097 | U | 0.099 | U | | |
| Vanadium | 7440-62-2 | mg/kg | 8.2 | | 7.6 | | 11 | | 9.4 | | 9.9 | | 4.7 | | 6 | | 12 | | 11 | J | 11 | | 9.5 | | | |
| Zinc | 7440-66-6 | mg/kg | 18 | | 12 | | 12 | | 15 | | 13 | | 7 | J | 9.7 | | 18 | | 13 | J | 15 | | 11 | | | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 5 | | 1.5 | | 14 | | 4.1 | | 5.3 | | 9.6 | | 4.6 | | 4.3 | | 16 | | 2.9 | | 13 | | | |
| Total Organic Carbon | N/A | mg/kg | 17000 | J- | 11000 | J- | 6300 | J | 6900 | J | 11000 | J | 5300 | J- | 260 | J- | 2000 | UJ | 5800 | J- | 2000 | UJ | 2000 | UJ | | |
| Solids | N/A | % | 82.8 | | 87.9 | | 82 | | 87.8 | | 90.8 | | 80 | | 83.3 | | 82.2 | | 83 | | 86.7 | | 88.4 | | | |

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-B-013 | | NYOW-B-014 | | NYOW-B-014 | | NYOW-B-014 | | NYOW-B-015 | | NYOW-B-015 | | NYOW-B-015 | | NYOW-B-016 | | NYOW-B-016 | | NYOW-B-016 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-B-PH013-B | | NYOW-B-PH013-C | | NYOW-B-SL014-A | | NYOW-B-PH014-B | | NYOW-B-PH014-C | | NYOW-B-SL015-A | | NYOW-B-PH015-B | | NYOW-B-PH015-C | | NYOW-B-SL016-A | | NYOW-B-PH016-B | | NYOW-B-PH016-C | |
| | | | Sample Type: | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | Sample Date: | | 2021-05-12 | | 2021-05-12 | | 2021-05-17 | | 2021-05-17 | | 2021-05-17 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 26.1 | | 7.8 | | 2.6 | | 18.8 | | 11.5 | | 0.4 | | 0 | U | 0 | U | 0 | U | 1.4 | | 10.6 | |
| Coarse Sand | N/A | % | 3.9 | | 2 | | 0.4 | | 6.6 | | 6.3 | | 0.3 | | 0 | U | 0 | U | 0.6 | | 0.2 | | 3.2 | |
| Medium Sand | N/A | % | 3.3 | | 3.8 | | 3.8 | | 16.4 | | 10.8 | | 1.7 | | 1 | | 0.1 | | 0.6 | | 0.5 | | 4.6 | |
| Fine Sand | N/A | % | 62.3 | | 66.5 | | 76.3 | | 46.6 | | 41.8 | | 85.2 | | 92.3 | | 19.1 | | 63.8 | | 32.4 | | 47.6 | |
| Silt | N/A | % | 1 | | 16.5 | | 11.9 | | 8.2 | | 21.5 | | 8.9 | | 4.1 | | 77.2 | | 28.5 | | 60.8 | | 27.8 | |
| Clay | N/A | % | 3.4 | | 3.4 | | 5 | | 3.4 | | 8.1 | | 3.4 | | 2.5 | | 3.6 | | 6.5 | | 4.8 | | 6.2 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-B-017 | | NYOW-B-017 | | NYOW-B-017 | | NYOW-B-018 | | NYOW-B-018 | | NYOW-B-018 | | NYOW-B-019 | | NYOW-B-019 | | NYOW-B-019 | | NYOW-B-020 | | NYOW-B-020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-B-SL017-A | | NYOW-B-PH017-B | | NYOW-B-PH017-C | | NYOW-B-SL018-A | | NYOW-B-PH018-B | | NYOW-B-PH018-C | | NYOW-B-SL019-A | | NYOW-B-PH019-B | | NYOW-B-PH019-C | | NYOW-B-SL020-A | | NYOW-B-PH020-B | |
| | | | Sample Type: | | C | | N | | N | | N | | C | | C | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | Sample Date: | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-14 | | 2021-05-14 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0022 | U | 0.0021 | U | 0.0023 | U | 0.0022 | U | 0.0022 | U | 0.002 | U | 0.0025 | U | 0.0022 | U | 0.002 | U | 0.00075 | J | 0.0023 | U |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0022 | U | 0.0021 | U | 0.0023 | U | 0.0022 | U | 0.0022 | U | 0.002 | U | 0.0025 | U | 0.0022 | U | 0.002 | U | 0.0026 | U | 0.0023 | U |
| Acenaphthene | 83-32-9 | mg/kg | 0.0012 | U | 0.0011 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0011 | U | 0.0013 | U | 0.0012 | U | 0.0011 | U | 0.013 | J+ | 0.0012 | U |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0021 | J | 0.0011 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0011 | U | 0.0013 | U | 0.0012 | U | 0.0011 | U | 0.0018 | J | 0.0012 | U |
| Anthracene | 120-12-7 | mg/kg | 0.0025 | J | 0.0046 | U | 0.005 | U | 0.0048 | J | 0.0048 | U | 0.0044 | U | 0.0054 | U | 0.0048 | U | 0.0044 | U | 0.0057 | U | 0.0049 | U |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.008 | J | 0.0046 | U | 0.005 | U | 0.016 | | 0.0027 | J | 0.01 | J+ | 0.0088 | J | 0.0048 | U | 0.0044 | U | 0.006 | J | 0.0049 | U |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.011 | | 0.0046 | U | 0.005 | U | 0.011 | | 0.0019 | J | 0.01 | J+ | 0.015 | | 0.0048 | U | 0.0044 | U | 0.0073 | J | 0.0049 | U |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.015 | | 0.007 | U | 0.0077 | U | 0.011 | | 0.0074 | U | 0.0067 | U | 0.018 | | 0.0073 | U | 0.0068 | U | 0.011 | J | 0.0076 | U |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0064 | J | 0.007 | U | 0.0077 | U | 0.0049 | J | 0.0074 | U | 0.0067 | U | 0.0092 | J | 0.0073 | U | 0.0068 | U | 0.0054 | J | 0.0076 | U |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.006 | J | 0.0046 | U | 0.005 | U | 0.004 | J | 0.0048 | U | 0.0044 | U | 0.0079 | J | 0.0048 | U | 0.0044 | U | 0.0037 | J | 0.0049 | U |
| Chrysene | 218-01-9 | mg/kg | 0.012 | | 0.0046 | U | 0.0025 | J | 0.02 | | 0.0038 | J- | 0.0051 | J | 0.012 | | 0.0022 | J | 0.0044 | U | 0.0085 | J | 0.0049 | U |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0075 | U | 0.007 | U | 0.0077 | U | 0.0074 | U | 0.0074 | U | 0.0067 | U | 0.0082 | U | 0.0073 | U | 0.0068 | U | 0.0088 | U | 0.0076 | U |
| Fluoranthene | 206-44-0 | mg/kg | 0.016 | | 0.0046 | U | 0.005 | U | 0.015 | | 0.0048 | U | 0.0044 | U | 0.022 | | 0.0048 | U | 0.0044 | U | 0.013 | | 0.0049 | U |
| Fluorene | 86-73-7 | mg/kg | 0.003 | U | 0.0028 | U | 0.0031 | U | 0.0029 | U | 0.003 | U | 0.0027 | U | 0.0033 | U | 0.0029 | U | 0.0027 | U | 0.0035 | U | 0.003 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0098 | | 0.007 | UJ | 0.0077 | UJ | 0.0046 | J | 0.0074 | UJ | 0.0067 | U | 0.011 | J | 0.0073 | U | 0.0068 | U | 0.0052 | J | 0.0076 | U |
| Naphthalene | 91-20-3 | mg/kg | 0.0013 | J | 0.0021 | U | 0.0023 | U | 0.0022 | U | 0.0022 | U | 0.002 | U | 0.0025 | U | 0.0022 | U | 0.002 | U | 0.0017 | J | 0.011 | J+ |
| Phenanthrene | 85-01-8 | mg/kg | 0.0065 | J | 0.007 | U | 0.0077 | U | 0.0056 | J | 0.0074 | U | 0.0067 | U | 0.0078 | J | 0.0073 | U | 0.0068 | U | 0.0068 | J | 0.0076 | U |
| Pyrene | 129-00-0 | mg/kg | 0.014 | | 0.007 | U | 0.0077 | U | 0.023 | | 0.0074 | U | 0.0067 | U | 0.018 | | 0.0073 | U | 0.0068 | U | 0.011 | J | 0.0076 | U |
| High Molecular Weight PAHs | N/A | mg/kg | 0.088 | | 0.053 | U | 0.023 | | 0.099 | | 0.025 | | 0.053 | | 0.11 | | 0.02 | | 0.052 | U | 0.064 | | 0.058 | U |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.034 | | 0.028 | U | 0.03 | U | 0.033 | | 0.029 | U | 0.026 | U | 0.039 | | 0.029 | U | 0.027 | U | 0.041 | | 0.021 | |
| Total PAHs | N/A | mg/kg | 0.12 | | 0.081 | U | 0.026 | | 0.13 | | 0.033 | | 0.044 | | 0.14 | | 0.025 | | 0.078 | U | 0.1 | | 0.031 | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 3800 | | 3700 | | 4200 | | 4900 | | 4000 | | 2500 | | 6300 | | 5900 | | 3100 | | 2900 | J | 3000 | J |
| Antimony | 7440-36-0 | mg/kg | 0.08 | U | 0.11 | U | 0.12 | U | 0.1 | U | 0.092 | U | 0.088 | U | 0.094 | U | 0.18 | U | 0.11 | U | 0.23 | U | 0.098 | U |
| Arsenic | 7440-38-2 | mg/kg | 1.8 | | 2.3 | | 1.8 | | 2.7 | | 2.4 | J | 1.8 | | 1.5 | | 2.8 | | 1.8 | | 2.9 | J- | 5.1 | |
| Barium | 7440-39-3 | mg/kg | 33 | | 28 | | 32 | | 40 | | 26 | | 24 | | 26 | | 57 | | 33 | | 21 | | 22 | |
| Beryllium | 7440-41-7 | mg/kg | 0.53 | J+ | 0.43 | J+ | 0.19 | J | 0.52 | J+ | 0.39 | J+ | 0.12 | J | 0.46 | J+ | 0.56 | J+ | 0.15 | J | 0.13 | U | 0.49 | J+ |
| Cadmium | 7440-43-9 | mg/kg | 0.1 | | 0.038 | J | 0.012 | J | 0.045 | J | 0.035 | J | 0.035 | J | 0.059 | J | 0.044 | J | 0.022 | J | 0.069 | J | 0.036 | J |
| Calcium | 7440-70-2 | mg/kg | 2000 | | 860 | | 3400 | | 1500 | | 32000 | | 25000 | | 800 | | 14000 | | 23000 | | 2400 | | 31000 | |
| Chromium | 7440-47-3 | mg/kg | 4 | | 4.8 | | 6.3 | | 5.7 | | 6.8 | | 4.3 | J | 5.5 | | 9 | | 5.5 | | 4.8 | | 4.8 | |
| Cobalt | 7440-48-4 | mg/kg | 1.8 | J- | 2.4 | J- | 3.2 | J- | 2.6 | J- | 4.5 | J- | 2 | J- | 2.6 | J- | 3.7 | J- | 2.5 | J- | 2.8 | | 4.4 | |
| Copper | 7440-50-8 | mg/kg | 3.1 | J | 1.7 | J | 7.2 | | 5 | J | 7.9 | | 4.9 | | 1.6 | J | 8.4 | | 5.8 | | 5.7 | | 12 | |
| Iron | 7439-89-6 | mg/kg | 6200 | | 9300 | | 9000 | | 8000 | | 8900 | | 5500 | | 8700 | | 11000 | | 7500 | | 9500 | J | 14000 | J |
| Lead | 7439-92-1 | mg/kg | 6.2 | | 2.4 | | 2.2 | | 3.2 | | 2.8 | | 1.6 | J | 4.4 | | 3.1 | | 2.1 | | 3.5 | J+ | 5 | J+ |
| Magnesium | 7439-95-4 | mg/kg | 770 | | 880 | | 1900 | | 1100 | | 10000 | | 6200 | J | 820 | | 7300 | | 6000 | | 1300 | | 13000 | |
| Manganese | 7439-96-5 | mg/kg | 170 | | 160 | | 280 | | 180 | | 290 | | 200 | | 140 | | 290 | | 210 | | 330 | J- | 680 | |
| Mercury | 7439-97-6 | mg/kg | 0.019 | J | 0.017 | U | 0.022 | J+ | 0.039 | | 0.014 | J | 0.015 | U | 0.021 | J | 0.016 | U | 0.017 | U | 0.035 | | 0.0097 | J |
| Nickel | 7440-02-0 | mg/kg | 2.9 | J | 3.9 | | 6.3 | | 5 | | 6 | | 4 | | 4.6 | | 7.7 | | 5 | | 5.3 | | 7 | |
| Potassium | 7440-09-7 | mg/kg | 320 | | 340 | | 780 | | 510 | | 790 | | 550 | | 380 | | 940 | | 650 | | 420 | | 480 | |
| Selenium | 7782-49-2 | mg/kg | 0.18 | J | 0.35 | U | 0.42 | U | 0.37 | U | 0.14 | J | 0.33 | U | 0.23 | J | 0.41 | U | 0.35 | U | 0.2 | J | 0.47 | U |
| Silver | 7440-22-4 | mg/kg | 0.63 | U | 0.51 | U | 0.48 | U | 0.62 | U | 0.47 | U | 0.51 | U | 0.55 | U | 0.68 | U | 0.65 | U | 0.65 | U | 1.5 | J+ |
| Sodium | 7440-23-5 | mg/kg | 110 | U | 430 | J+ | 400 | J+ | 520 | J+ | 390 | J+ | 430 | J+ | 460 | J+ | 560 | J+ | 540 | J+ | 550 | J+ | 490 | J+ |
| Thallium | 7440-28-0 | mg/kg | 0.084 | U | 0.086 | U | 0.11 | U | 0.092 | U | 0.098 | U | 0.084 | U | 0.09 | U | 0.1 | U | 0.088 | U | 0.13 | U | 0.12 | U |
| Vanadium | 7440-62-2 | mg/kg | 9.3 | | 13 | | 13 | | 11 | | 11 | | 6.4 | J | 13 | | 15 | | 8.7 | | 8.1 | | 9.2 | |
| Zinc | 7440-66-6 | mg/kg | 12 | | 7.5 | | 13 | | 13 | | 15 | | 9.7 | | 12 | | 19 | | 13 | | 14 | | 16 | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 7.65 | | 3.9 | | 9.4 | | 14 | | 5.35 | J | 2.8 | | 14 | | 7.5 | | 6.6 | | 22 | | 2.2 | |
| Total Organic Carbon | N/A | mg/kg | 17000 | J- | 860 | J- | 2500 | J- | 3300 | J- | 3700 | J- | 3200 | J- | 20000 | J- | 4100 | J- | 3100 | J- | 5200 | J- | 4000 | J- |
| Solids | N/A | % | 81.95 | | 85.6 | | 84.1 | | 86 | | 85 | | 88.35 | | 77.8 | | 83.7 | | 86.3 | | 70.5 | | 83.6 | |

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-B-017 | | NYOW-B-017 | | NYOW-B-017 | | NYOW-B-018 | | NYOW-B-018 | | NYOW-B-018 | | NYOW-B-019 | | NYOW-B-019 | | NYOW-B-019 | | NYOW-B-020 | | NYOW-B-020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-B-SL017-A | | NYOW-B-PH017-B | | NYOW-B-PH017-C | | NYOW-B-SL018-A | | NYOW-B-PH018-B | | NYOW-B-PH018-C | | NYOW-B-SL019-A | | NYOW-B-PH019-B | | NYOW-B-PH019-C | | NYOW-B-SL020-A | | NYOW-B-PH020-B | |
| | | Sample Type: | C | | N | | N | | N | | C | | C | | N | | N | | N | | N | | N | |
| | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | Sample Date: | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-13 | | 2021-05-14 | | 2021-05-14 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 1.1 | | 0 | U | 0 | U | 0 | U | 0 | U | 0 | U | 0 | U | 0 | U | 0 | U | 0.4 | | 16.2 | |
| Coarse Sand | N/A | % | 0.3 | | 0 | U | 0 | U | 0.7 | | 0.2 | | 0.2 | | 0.8 | | 0.1 | | 0.3 | | 0.4 | | 2.1 | |
| Medium Sand | N/A | % | 2.7 | | 3.4 | | 0.4 | | 5.3 | | 2.6 | | 1 | | 1.7 | | 0.3 | | 1.2 | | 3.5 | | 14.7 | |
| Fine Sand | N/A | % | 79 | | 86.1 | | 60 | | 61.7 | | 52.8 | | 28 | | 84.7 | | 32 | | 60 | | 81.9 | | 59.3 | |
| Silt | N/A | % | 13 | | 8.9 | | 36.3 | | 26.9 | | 37.3 | | 65 | | 10.1 | | 61.2 | | 33.4 | | 11.9 | | 6 | |
| Clay | N/A | % | 4 | | 1.6 | | 3.3 | | 5.4 | | 7.1 | | 6 | | 2.7 | | 6.4 | | 5 | | 1.8 | | 1.7 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
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Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-B-020 | | NYOW-B-021 | | NYOW-B-021 | | NYOW-B-021 | | NYOW-B-022 | | NYOW-B-022 | | NYOW-B-022 | | NYOW-B-023 | | NYOW-B-023 | | NYOW-B-023 | | NYOW-B-024 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-B-PH020-C | | NYOW-B-SL021-A | | NYOW-B-PH021-B | | NYOW-B-PH021-C | | NYOW-B-SL022-A | | NYOW-B-PH022-B | | NYOW-B-PH022-C | | NYOW-B-SL023-A | | NYOW-B-PH023-B | | NYOW-B-PH023-C | | NYOW-B-SL024-A | |
| | | | Sample Type: | | N | | N | | N | | C | | N | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | |
| | | | Sample Date: | | 2021-05-14 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-11 | | 2021-05-11 | | 2021-05-11 | | 2021-05-11 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0021 | U | 0.0008 | J | 0.0022 | U | 0.0024 | U | 0.0022 | U | 0.0022 | U | 0.0022 | U | 0.00064 | J | 0.0022 | U | 0.002 | U | 0.0024 | UJ | | |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0021 | U | 0.00094 | J | 0.0022 | U | 0.0024 | U | 0.0022 | U | 0.0022 | U | 0.0022 | U | 0.0023 | U | 0.0022 | U | 0.0098 | J+ | 0.0024 | UJ | | |
| Acenaphthene | 83-32-9 | mg/kg | 0.0011 | U | 0.011 | J+ | 0.0012 | U | 0.0013 | U | 0.0012 | U | 0.0012 | U | 0.0011 | U | 0.0013 | U | 0.0011 | U | 0.0098 | J+ | 0.0013 | UJ | | |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0011 | U | 0.0028 | J | 0.0012 | U | 0.0013 | U | 0.0012 | U | 0.0012 | U | 0.0011 | U | 0.0013 | U | 0.0011 | U | 0.001 | U | 0.0013 | UJ | | |
| Anthracene | 120-12-7 | mg/kg | 0.0046 | U | 0.0019 | J | 0.0047 | U | 0.0051 | U | 0.0048 | U | 0.0048 | U | 0.0047 | U | 0.0051 | U | 0.0047 | U | 0.0042 | U | 0.0053 | UJ | | |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0046 | U | 0.01 | J | 0.0047 | U | 0.0051 | U | 0.0048 | U | 0.0048 | U | 0.0047 | U | 0.0045 | J | 0.0047 | U | 0.0042 | U | 0.0032 | J- | | |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0046 | U | 0.014 | | 0.0047 | U | 0.0051 | U | 0.0048 | U | 0.0048 | U | 0.0047 | U | 0.0064 | J | 0.0047 | U | 0.0098 | J+ | 0.0052 | J- | | |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.0071 | U | 0.019 | | 0.0072 | U | 0.0079 | U | 0.0074 | U | 0.0073 | U | 0.0072 | U | 0.0085 | J | 0.0072 | U | 0.0043 | J | 0.0067 | J- | | |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0071 | U | 0.0097 | J | 0.0072 | U | 0.0079 | U | 0.0074 | U | 0.0073 | U | 0.0072 | U | 0.0037 | J | 0.0072 | U | 0.0065 | U | 0.0028 | J- | | |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0046 | U | 0.0063 | J | 0.0047 | U | 0.0051 | U | 0.0048 | U | 0.0048 | U | 0.0047 | U | 0.0031 | J | 0.0047 | U | 0.0042 | U | 0.0027 | J- | | |
| Chrysene | 218-01-9 | mg/kg | 0.0046 | U | 0.013 | | 0.0047 | U | 0.0051 | U | 0.0048 | U | 0.0048 | U | 0.0047 | U | 0.006 | J- | 0.0047 | U | 0.0032 | J | 0.0042 | J- | | |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0071 | U | 0.0072 | U | 0.0072 | U | 0.0079 | U | 0.0074 | U | 0.0073 | U | 0.0072 | U | 0.0078 | U | 0.0072 | U | 0.0065 | U | 0.0081 | UJ | | |
| Fluoranthene | 206-44-0 | mg/kg | 0.0046 | U | 0.02 | | 0.0047 | U | 0.0051 | U | 0.0048 | U | 0.0048 | U | 0.0047 | U | 0.0085 | J | 0.0047 | U | 0.0098 | J+ | 0.0059 | J- | | |
| Fluorene | 86-73-7 | mg/kg | 0.0029 | U | 0.0029 | U | 0.0029 | U | 0.0032 | U | 0.003 | U | 0.0029 | U | 0.0029 | U | 0.0031 | U | 0.0029 | U | 0.0026 | U | 0.0033 | UJ | | |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0071 | U | 0.012 | J- | 0.0072 | UJ | 0.0079 | UJ | 0.0074 | U | 0.0073 | U | 0.0072 | U | 0.0064 | J | 0.0072 | U | 0.0098 | J+ | 0.0035 | J- | | |
| Naphthalene | 91-20-3 | mg/kg | 0.0021 | U | 0.0011 | J | 0.0022 | U | 0.0024 | U | 0.00083 | J | 0.0022 | U | 0.0022 | U | 0.0023 | U | 0.0022 | U | 0.00074 | J | 0.0024 | UJ | | |
| Phenanthrene | 85-01-8 | mg/kg | 0.0071 | U | 0.0078 | J | 0.0072 | U | 0.0079 | U | 0.0074 | U | 0.0073 | U | 0.0072 | U | 0.0039 | J | 0.0072 | U | 0.0098 | J+ | 0.0027 | J- | | |
| Pyrene | 129-00-0 | mg/kg | 0.0071 | U | 0.018 | | 0.0072 | U | 0.0079 | U | 0.0074 | U | 0.0073 | U | 0.0072 | U | 0.0085 | J | 0.0072 | U | 0.0098 | J+ | 0.0059 | J- | | |
| High Molecular Weight PAHs | N/A | mg/kg | 0.054 | U | 0.11 | | 0.055 | U | 0.06 | U | 0.056 | U | 0.056 | U | 0.055 | U | 0.052 | | 0.055 | U | 0.05 | | 0.039 | | | |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.028 | U | 0.048 | | 0.029 | U | 0.031 | U | 0.0075 | | 0.029 | U | 0.028 | U | 0.017 | | 0.028 | U | 0.043 | | 0.018 | | | |
| Total PAHs | N/A | mg/kg | 0.082 | U | 0.15 | | 0.083 | U | 0.091 | U | 0.015 | | 0.085 | U | 0.083 | U | 0.068 | | 0.083 | U | 0.086 | | 0.057 | | | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 2500 | J | 8600 | | 5800 | | 5400 | | 8600 | J | 6100 | J | 5100 | J | 8000 | | 5500 | | 4300 | | 7800 | J | | |
| Antimony | 7440-36-0 | mg/kg | 0.1 | U | 0.17 | U | 0.096 | U | 0.095 | U | 0.2 | U | 0.11 | U | 0.1 | U | 0.23 | U | 0.19 | U | 0.17 | U | 0.17 | U | | |
| Arsenic | 7440-38-2 | mg/kg | 4.8 | | 11 | | 5.3 | | 4.9 | | 6.2 | | 4.4 | | 4.9 | | 4.6 | | 5.5 | | 4.5 | | 4.6 | | | |
| Barium | 7440-39-3 | mg/kg | 20 | | 73 | | 48 | | 50 | | 62 | | 42 | | 43 | | 62 | | 56 | | 38 | | 58 | | | |
| Beryllium | 7440-41-7 | mg/kg | 0.14 | J | 0.58 | J+ | 0.49 | J+ | 0.27 | J | 0.42 | J+ | 0.41 | J+ | 0.3 | J | 0.52 | J+ | 0.51 | J+ | 0.26 | J | 0.61 | J+ | | |
| Cadmium | 7440-43-9 | mg/kg | 0.02 | J | 0.19 | J- | 0.037 | J- | 0.043 | J- | 0.085 | | 0.027 | J | 0.021 | J | 0.19 | | 0.044 | J | 0.016 | J | 0.13 | | | |
| Calcium | 7440-70-2 | mg/kg | 32000 | | 1500 | | 1400 | | 9200 | J | 1200 | J | 8500 | J | 25000 | J | 1500 | | 4100 | | 77000 | | 1700 | | | |
| Chromium | 7440-47-3 | mg/kg | 3.7 | | 8.9 | | 7 | | 8.2 | | 9.7 | | 7 | | 6.7 | | 8.9 | | 7.1 | | 6.1 | | 8 | | | |
| Cobalt | 7440-48-4 | mg/kg | 2.5 | | 7.2 | | 5.2 | | 5.9 | | 6 | | 4.8 | | 6.3 | | 5.7 | | 8.7 | | 6.5 | | 6.4 | | | |
| Copper | 7440-50-8 | mg/kg | 9 | | 21 | | 18 | | 16 | | 14 | | 15 | | 15 | | 15 | | 19 | | 14 | | 17 | | | |
| Iron | 7439-89-6 | mg/kg | 7500 | J | 19000 | | 14000 | | 17000 | | 18000 | J | 14000 | J | 15000 | J | 17000 | | 20000 | | 12000 | | 20000 | J | | |
| Lead | 7439-92-1 | mg/kg | 2.3 | J+ | 15 | | 5.9 | | 7.1 | | 5.9 | | 3.6 | | 8 | | 9.9 | | 6.6 | | 8.4 | | 12 | | | |
| Magnesium | 7439-95-4 | mg/kg | 5700 | | 1600 | | 1700 | | 3100 | J | 1700 | | 2800 | | 6900 | | 1700 | | 2900 | | 19000 | | 1400 | | | |
| Manganese | 7439-96-5 | mg/kg | 260 | | 970 | | 490 | | 670 | | 460 | | 340 | | 600 | | 690 | | 690 | | 490 | | 1000 | J | | |
| Mercury | 7439-97-6 | mg/kg | 0.016 | U | 0.068 | | 0.037 | | 0.018 | U | 0.037 | | 0.01 | J | 0.022 | J+ | 0.064 | | 0.014 | J | 0.016 | U | 0.048 | | | |
| Nickel | 7440-02-0 | mg/kg | 4.7 | | 10 | | 9.7 | | 11 | | 9.1 | | 9.5 | | 11 | | 8.7 | | 12 | | 8.5 | | 8.6 | | | |
| Potassium | 7440-09-7 | mg/kg | 460 | | 540 | | 880 | | 830 | | 460 | | 870 | | 930 | | 570 | | 810 | | 1100 | | 400 | | | |
| Selenium | 7782-49-2 | mg/kg | 0.44 | U | 0.4 | J | 0.45 | U | 0.45 | U | 0.2 | J | 0.42 | U | 0.4 | U | 0.35 | J | 0.35 | U | 0.39 | U | 0.34 | J | | |
| Silver | 7440-22-4 | mg/kg | 1.2 | J+ | 0.7 | U | 0.58 | U | 0.66 | U | 0.51 | U | 0.5 | U | 0.64 | U | 0.62 | U | 0.62 | U | 0.47 | U | 0.73 | U | | |
| Sodium | 7440-23-5 | mg/kg | 410 | J+ | 120 | U | 97 | U | 110 | U | 420 | J+ | 410 | J+ | 530 | J+ | 520 | J+ | 510 | J+ | 390 | J+ | 120 | U | | |
| Thallium | 7440-28-0 | mg/kg | 0.11 | U | 0.11 | | 0.11 | U | 0.11 | U | 0.064 | J- | 0.04 | J- | 0.05 | J- | 0.071 | J- | 0.07 | J- | 0.058 | J- | 0.11 | U | | |
| Vanadium | 7440-62-2 | mg/kg | 6.4 | | 17 | | 12 | | 12 | | 17 | | 12 | | 9.8 | | 15 | | 12 | | 9.3 | | 16 | | | |
| Zinc | 7440-66-6 | mg/kg | 12 | | 40 | | 24 | | 23 | | 26 | | 23 | | 22 | | 28 | | 23 | | 20 | | 42 | | | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 1.2 | | 18 | | 7.9 | | 9.65 | | 13 | | 11 | | 4.1 | | 25 | | 11 | | 5.7 | | 17 | | | |
| Total Organic Carbon | N/A | mg/kg | 2400 | J- | 10000 | | 1100 | J | 3000 | | 3300 | | 2400 | | 18000 | | 12000 | | 2100 | | 38000 | | 7700 | | | |
| Solids | N/A | % | 85.3 | | 84.9 | | 85.8 | | 80.4 | | 85.2 | | 85.6 | | 88.1 | | 80 | | 82.9 | | 92.5 | | 80.3 | | | |

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-B-020 | | NYOW-B-021 | | NYOW-B-021 | | NYOW-B-021 | | NYOW-B-022 | | NYOW-B-022 | | NYOW-B-022 | | NYOW-B-023 | | NYOW-B-023 | | NYOW-B-023 | | NYOW-B-024 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-B-PH020-C | | NYOW-B-SL021-A | | NYOW-B-PH021-B | | NYOW-B-PH021-C | | NYOW-B-SL022-A | | NYOW-B-PH022-B | | NYOW-B-PH022-C | | NYOW-B-SL023-A | | NYOW-B-PH023-B | | NYOW-B-PH023-C | | NYOW-B-SL024-A | |
| | | Sample Type: | N | | N | | N | | C | | N | | N | | N | | N | | N | | N | | N | |
| | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | |
| | | Sample Date: | 2021-05-14 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-11 | | 2021-05-11 | | 2021-05-11 | | 2021-05-11 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 2.8 | | 32.2 | | 2.6 | | 7.7 | | 10.1 | | 1.6 | | 11.5 | | 4.2 | | 14 | | 7 | | 4.6 | |
| Coarse Sand | N/A | % | 3.4 | | 6.6 | | 3.6 | | 3.8 | | 4 | | 3.6 | | 6.2 | | 2.3 | | 3 | | 6.3 | | 5.5 | |
| Medium Sand | N/A | % | 14.3 | | 7.6 | | 6.7 | | 6.9 | | 6.9 | | 6.9 | | 6.9 | | 7.4 | | 5.7 | | 8.8 | | 9.8 | |
| Fine Sand | N/A | % | 53.9 | | 24.7 | | 39.3 | | 35.5 | | 40.9 | | 45 | | 24.3 | | 44.6 | | 31.9 | | 24.2 | | 45.4 | |
| Silt | N/A | % | 19.7 | | 24.1 | | 37.6 | | 35.5 | | 29.1 | | 29.6 | | 42.7 | | 31.4 | | 35.8 | | 38.4 | | 31.3 | |
| Clay | N/A | % | 5.9 | | 4.8 | | 10.2 | | 10.8 | | 9.1 | | 13.4 | | 8.4 | | 10 | | 9.7 | | 15.4 | | 3.5 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-B-024 | | NYOW-B-025 | | NYOW-B-025 | | NYOW-B-025 | | NYOW-B-026 | | NYOW-B-026 | | NYOW-B-026 | | NYOW-B-027 | | NYOW-B-027 | | NYOW-B-027 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-B-PH024-B | | NYOW-B-SL025-A | | NYOW-B-PH025-B | | NYOW-B-PH025-C | | NYOW-B-SL026-A | | NYOW-B-PH026-B | | NYOW-B-PH026-C | | NYOW-B-SL027-A | | NYOW-B-PH027-B | | NYOW-B-PH027-C | |
| | | | Sample Type: | | N | | N | | N | | N | | N | | N | | C | | C | | N | | N | |
| | | | Sample Depth (feet): | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | Sample Date: | | 2021-05-11 | | 2021-05-11 | | 2021-05-11 | | 2021-05-11 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-11 | | 2021-05-11 | | 2021-05-11 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0022 | U | 0.002 | U | 0.0017 | J- | 0.0022 | UJ | 0.0021 | U | 0.0022 | U | 0.0025 | U | 0.0022 | U | 0.00073 | J- | 0.0021 | U | 0.002 | U |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0022 | U | 0.002 | U | 0.0019 | J- | 0.0022 | UJ | 0.0021 | U | 0.0022 | U | 0.012 | J+ | 0.0022 | U | 0.00089 | J- | 0.0021 | U | 0.002 | U |
| Acenaphthene | 83-32-9 | mg/kg | 0.0012 | U | 0.0011 | U | 0.012 | J+ | 0.0012 | UJ | 0.0011 | U | 0.0012 | U | 0.0013 | U | 0.0012 | U | 0.0012 | UJ | 0.0011 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0012 | U | 0.0011 | U | 0.0062 | J- | 0.0012 | UJ | 0.0011 | U | 0.0012 | U | 0.0013 | U | 0.0012 | U | 0.0015 | J- | 0.0011 | U | 0.0011 | U |
| Anthracene | 120-12-7 | mg/kg | 0.0048 | U | 0.0044 | U | 0.0046 | J- | 0.0048 | UJ | 0.0045 | U | 0.0047 | U | 0.0053 | U | 0.0049 | U | 0.0051 | UJ | 0.0044 | U | 0.0043 | U |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0048 | U | 0.0044 | U | 0.032 | J- | 0.0048 | UJ | 0.0045 | U | 0.0047 | U | 0.0053 | U | 0.0049 | U | 0.0056 | J- | 0.0044 | U | 0.0043 | U |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0048 | U | 0.0044 | U | 0.059 | J- | 0.0048 | UJ | 0.0045 | U | 0.0019 | J | 0.0053 | U | 0.0049 | U | 0.0089 | J- | 0.0044 | U | 0.0043 | U |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.0074 | U | 0.0027 | J | 0.064 | J- | 0.0073 | UJ | 0.0047 | J | 0.0031 | J | 0.0082 | U | 0.0075 | U | 0.013 | J- | 0.0068 | U | 0.0067 | U |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0074 | U | 0.0068 | U | 0.032 | J- | 0.0073 | UJ | 0.0069 | U | 0.0072 | U | 0.0082 | U | 0.0075 | U | 0.0064 | J- | 0.0068 | U | 0.0067 | U |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0048 | U | 0.0044 | U | 0.025 | J- | 0.0048 | UJ | 0.0045 | U | 0.0047 | U | 0.0053 | U | 0.0049 | U | 0.005 | J- | 0.0044 | U | 0.0043 | U |
| Chrysene | 218-01-9 | mg/kg | 0.0048 | U | 0.0026 | J | 0.037 | J- | 0.0048 | UJ | 0.0034 | J | 0.0023 | J | 0.0053 | U | 0.0049 | U | 0.0077 | J- | 0.0044 | U | 0.0043 | U |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0074 | U | 0.0068 | U | 0.0049 | J- | 0.0073 | UJ | 0.0069 | U | 0.0072 | U | 0.0082 | U | 0.0075 | U | 0.0078 | UJ | 0.0068 | U | 0.0067 | U |
| Fluoranthene | 206-44-0 | mg/kg | 0.0048 | U | 0.0044 | U | 0.041 | J- | 0.0048 | UJ | 0.01 | J+ | 0.0024 | J | 0.0053 | U | 0.0049 | U | 0.014 | J- | 0.0022 | J | 0.0043 | U |
| Fluorene | 86-73-7 | mg/kg | 0.003 | U | 0.0027 | U | 0.002 | J- | 0.0029 | UJ | 0.0028 | U | 0.0029 | U | 0.0033 | U | 0.003 | U | 0.0031 | UJ | 0.0027 | U | 0.0027 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0074 | U | 0.0068 | U | 0.044 | J- | 0.0073 | UJ | 0.0069 | U | 0.0072 | UJ | 0.0082 | UJ | 0.0075 | U | 0.0092 | J- | 0.0068 | U | 0.0067 | U |
| Naphthalene | 91-20-3 | mg/kg | 0.0022 | U | 0.002 | U | 0.0022 | J- | 0.0022 | UJ | 0.0021 | U | 0.0022 | U | 0.012 | J+ | 0.0015 | J | 0.00082 | J- | 0.0021 | U | 0.002 | U |
| Phenanthrene | 85-01-8 | mg/kg | 0.0074 | U | 0.0068 | U | 0.01 | J- | 0.0073 | UJ | 0.0069 | U | 0.0072 | U | 0.0082 | U | 0.0075 | U | 0.0048 | J- | 0.0068 | U | 0.0067 | U |
| Pyrene | 129-00-0 | mg/kg | 0.0074 | U | 0.0068 | U | 0.039 | J- | 0.0073 | UJ | 0.0069 | U | 0.0025 | J | 0.0082 | U | 0.0075 | U | 0.012 | J- | 0.0068 | U | 0.0067 | U |
| High Molecular Weight PAHs | N/A | mg/kg | 0.056 | U | 0.024 | | 0.34 | | 0.056 | U | 0.033 | | 0.022 | | 0.062 | U | 0.057 | U | 0.074 | | 0.052 | U | 0.051 | U |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.029 | U | 0.027 | U | 0.082 | | 0.029 | U | 0.019 | | 0.013 | | 0.033 | | 0.012 | | 0.026 | | 0.012 | | 0.026 | U |
| Total PAHs | N/A | mg/kg | 0.085 | U | 0.027 | | 0.42 | | 0.085 | U | 0.039 | | 0.034 | | 0.045 | | 0.023 | | 0.097 | | 0.023 | | 0.077 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 7000 | J | 3900 | J | 6400 | J | 3100 | J | 4300 | J | 7600 | | 7100 | | 5500 | J | 6300 | J | 7100 | J | 3600 | J |
| Antimony | 7440-36-0 | mg/kg | 0.11 | U | 0.17 | U | 0.25 | U | 0.084 | U | 0.11 | U | 0.17 | U | 0.19 | U | 0.11 | U | 0.086 | U | 0.2 | U | 0.11 | U |
| Arsenic | 7440-38-2 | mg/kg | 7.9 | | 10 | | 15 | | 3.5 | | 6.3 | | 6.1 | | 6.2 | | 5.4 | | 6.6 | | 9.5 | | 4.1 | |
| Barium | 7440-39-3 | mg/kg | 39 | | 46 | | 90 | | 29 | | 180 | | 75 | J- | 68 | | 48 | | 67 | | 49 | | 30 | |
| Beryllium | 7440-41-7 | mg/kg | 2.7 | J+ | 0.24 | J | 0.6 | J+ | 0.54 | J+ | 0.24 | J | 0.53 | J+ | 0.57 | J+ | 0.33 | J | 0.43 | J+ | 0.52 | J+ | 0.18 | J |
| Cadmium | 7440-43-9 | mg/kg | 0.16 | | 0.03 | J | 0.43 | | 0.048 | J | 0.012 | J | 0.21 | J- | 0.063 | J- | 0.025 | J | 0.26 | | 0.18 | | 0.024 | J |
| Calcium | 7440-70-2 | mg/kg | 20000 | | 77000 | | 3400 | | 2200 | | 94000 | | 1200 | | 1600 | | 36000 | J | 6800 | J | 29000 | | 68000 | |
| Chromium | 7440-47-3 | mg/kg | 7.1 | | 5.5 | | 8.6 | | 4.5 | | 5.9 | | 9 | J- | 8.5 | | 6.6 | | 6.8 | | 7.8 | | 5.2 | |
| Cobalt | 7440-48-4 | mg/kg | 6 | | 6.7 | | 7 | | 3.9 | | 10 | | 7.2 | J- | 7 | J- | 5.2 | | 5.3 | | 6.5 | | 4.5 | |
| Copper | 7440-50-8 | mg/kg | 24 | | 12 | | 15 | | 8.1 | | 29 | | 26 | | 20 | | 13 | | 15 | | 27 | | 23 | |
| Iron | 7439-89-6 | mg/kg | 22000 | J | 16000 | J | 21000 | J | 10000 | J | 29000 | J | 20000 | | 18000 | | 15000 | J | 17000 | J | 23000 | J | 14000 | J |
| Lead | 7439-92-1 | mg/kg | 7.1 | | 6.3 | | 15 | | 3.7 | | 7.7 | | 8 | J- | 7.1 | | 5 | | 14 | | 11 | | 5.2 | |
| Magnesium | 7439-95-4 | mg/kg | 2900 | | 9600 | | 1900 | | 1300 | | 15000 | | 1600 | | 1700 | | 5500 | | 2500 | | 6800 | | 27000 | |
| Manganese | 7439-96-5 | mg/kg | 660 | J | 750 | J | 1500 | J | 410 | J | 1900 | J | 920 | | 660 | | 470 | | 1500 | J | 1200 | J | 730 | J |
| Mercury | 7439-97-6 | mg/kg | 0.07 | | 0.015 | U | 0.06 | | 0.0094 | J | 0.016 | U | 0.068 | J- | 0.047 | | 0.02 | J+ | 0.046 | | 0.032 | | 0.016 | U |
| Nickel | 7440-02-0 | mg/kg | 9.8 | | 13 | | 10 | | 5.2 | | 13 | | 9.7 | J- | 11 | | 8.8 | | 8.5 | | 10 | | 6.3 | |
| Potassium | 7440-09-7 | mg/kg | 600 | | 890 | | 740 | | 490 | | 1100 | | 510 | | 690 | | 950 | | 490 | | 620 | | 740 | |
| Selenium | 7782-49-2 | mg/kg | 0.39 | J | 0.42 | J+ | 0.56 | | 0.35 | U | 0.4 | U | 0.3 | J | 0.21 | J | 0.34 | U | 0.41 | J | 0.45 | | 0.43 | U |
| Silver | 7440-22-4 | mg/kg | 0.65 | U | 0.62 | U | 0.72 | U | 0.65 | U | 1.6 | J+ | 0.63 | U | 0.68 | U | 0.57 | U | 1.3 | J+ | 0.63 | U | 0.46 | U |
| Sodium | 7440-23-5 | mg/kg | 540 | J+ | 520 | J+ | 600 | J+ | 540 | J+ | 540 | J+ | 110 | UJ | 110 | UJ | 470 | J+ | 430 | J+ | 520 | J+ | 380 | J+ |
| Thallium | 7440-28-0 | mg/kg | 0.13 | | 0.086 | | 0.11 | U | 0.088 | U | 0.1 | U | 0.1 | J | 0.12 | U | 0.051 | J- | 0.1 | | 0.11 | | 0.049 | J |
| Vanadium | 7440-62-2 | mg/kg | 12 | | 9.7 | | 16 | | 7.9 | | 11 | | 16 | J- | 14 | | 13 | | 13 | | 15 | | 9.4 | |
| Zinc | 7440-66-6 | mg/kg | 23 | | 18 | | 50 | | 16 | | 32 | | 32 | | 25 | | 22 | | 39 | | 32 | | 24 | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 12 | | 5.3 | | 24 | | 6.4 | | 8.5 | | 22 | | 4.9 | | 5.55 | | 22.5 | | 10 | | 3.2 | |
| Total Organic Carbon | N/A | mg/kg | 2500 | | 12000 | J- | 17000 | | 1700 | J | 13000 | J- | 8600 | | 2700 | | 9400 | J | 13000 | | 22000 | J- | 31000 | J- |
| Solids | N/A | % | 84.6 | | 90.1 | | 74.2 | | 83.2 | | 87.3 | | 85.8 | | 79.9 | | 85.2 | | 80.65 | | 88.7 | | 89.5 | |

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-B-024 | | NYOW-B-024 | | NYOW-B-025 | | NYOW-B-025 | | NYOW-B-025 | | NYOW-B-026 | | NYOW-B-026 | | NYOW-B-026 | | NYOW-B-027 | | NYOW-B-027 | | NYOW-B-027 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-B-PH024-B | | NYOW-B-PH024-C | | NYOW-B-SL025-A | | NYOW-B-PH025-B | | NYOW-B-PH025-C | | NYOW-B-SL026-A | | NYOW-B-PH026-B | | NYOW-B-PH026-C | | NYOW-B-SL027-A | | NYOW-B-PH027-B | | NYOW-B-PH027-C | |
| | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | C | | C | | N | | N | |
| | | Sample Depth (feet): | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | Sample Date: | 2021-05-11 | | 2021-05-11 | | 2021-05-11 | | 2021-05-11 | | 2021-05-11 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-11 | | 2021-05-11 | | 2021-05-11 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 9.2 | | | R | 24.8 | | | R | 21 | | 22.4 | | 17.5 | | 8.3 | | 13.3 | | 23.6 | | 45.5 | |
| Coarse Sand | N/A | % | 4.1 | | | R | 4.4 | | | R | 3.9 | | 7.2 | | 11.6 | | 3.4 | | 2 | | 7.9 | | 9.9 | |
| Medium Sand | N/A | % | 6.7 | | | R | 22.8 | | | R | 7.3 | | 9 | | 9.1 | | 6.3 | | 7.9 | | 9 | | 9.4 | |
| Fine Sand | N/A | % | 39.4 | | | R | 40.4 | | | R | 25.3 | | 30.3 | | 27.1 | | 39.3 | | 45.7 | | 29.8 | | 26.3 | |
| Silt | N/A | % | 36 | | | R | 4.9 | | | R | 31.6 | | 21.6 | | 24.4 | | 33.4 | | 25.3 | | 22 | | 4.3 | |
| Clay | N/A | % | 4.5 | | | R | 2.8 | | | R | 10.9 | | 9.5 | | 10.3 | | 9.5 | | 5.9 | | 7.7 | | 4.5 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-B-028 | | NYOW-B-028 | | NYOW-B-028 | | NYOW-B-029 | | NYOW-B-029 | | NYOW-B-029 | | NYOW-B-030 | | NYOW-B-030 | | NYOW-B-030 | | NYOW-B-031 | | NYOW-B-031 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-B-SL028-A | | NYOW-B-PH028-B | | NYOW-B-PH028-C | | NYOW-B-SL029-A | | NYOW-B-PH029-B | | NYOW-B-PH029-C | | NYOW-B-SL030-A | | NYOW-B-PH030-B | | NYOW-B-PH030-C | | NYOW-B-SL031-A | | NYOW-B-PH031-B | |
| | | | Sample Type: | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | Sample Date: | | 2021-05-11 | | 2021-05-11 | | 2021-05-11 | | 2021-05-12 | | 2021-05-12 | | 2021-05-12 | | 2021-05-12 | | 2021-05-12 | | 2021-05-12 | | 2021-05-11 | | 2021-05-11 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0024 | U | 0.0022 | U | 0.0023 | UJ | 0.0026 | U | 0.0022 | UJ | 0.002 | U | 0.0027 | U | 0.0022 | U | 0.0022 | U | 0.0022 | UJ | 0.0024 | U |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0024 | U | 0.0022 | U | 0.0023 | UJ | 0.0026 | U | 0.0022 | UJ | 0.002 | U | 0.0027 | U | 0.0022 | U | 0.0022 | U | 0.0022 | UJ | 0.0024 | U |
| Acenaphthene | 83-32-9 | mg/kg | 0.0013 | U | 0.0012 | U | 0.0012 | UJ | 0.0014 | U | 0.0012 | UJ | 0.0011 | U | 0.0014 | U | 0.0012 | U | 0.0012 | U | 0.0012 | UJ | 0.0013 | U |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0013 | U | 0.0012 | U | 0.0012 | UJ | 0.0014 | U | 0.0012 | UJ | 0.0011 | U | 0.0012 | J | 0.0012 | U | 0.0012 | U | 0.0012 | UJ | 0.0013 | U |
| Anthracene | 120-12-7 | mg/kg | 0.0052 | U | 0.0047 | U | 0.0049 | UJ | 0.0057 | U | 0.0048 | UJ | 0.0044 | U | 0.0059 | U | 0.0049 | U | 0.0048 | U | 0.0047 | UJ | 0.0051 | U |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0052 | U | 0.0047 | U | 0.0049 | UJ | 0.0057 | U | 0.0048 | UJ | 0.01 | J+ | 0.0075 | J | 0.0049 | U | 0.0048 | U | 0.0061 | J- | 0.0021 | J |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0052 | U | 0.0047 | U | 0.0049 | UJ | 0.0057 | U | 0.0048 | UJ | 0.01 | J+ | 0.017 | | 0.0049 | U | 0.0048 | U | 0.014 | J- | 0.0034 | J |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.008 | U | 0.0072 | U | 0.0076 | UJ | 0.0038 | J | 0.0074 | UJ | 0.016 | | 0.028 | | 0.0035 | J | 0.0073 | U | 0.022 | J- | 0.0057 | J |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.008 | U | 0.0072 | U | 0.0076 | UJ | 0.0088 | U | 0.0074 | UJ | 0.01 | J+ | 0.018 | | 0.0025 | J | 0.0073 | U | 0.012 | J- | 0.0032 | J |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0052 | U | 0.0047 | U | 0.0049 | UJ | 0.0057 | U | 0.0048 | UJ | 0.01 | J+ | 0.0091 | J | 0.0026 | J | 0.0048 | U | 0.0077 | J- | 0.0051 | U |
| Chrysene | 218-01-9 | mg/kg | 0.0052 | U | 0.0047 | U | 0.0049 | UJ | 0.0028 | J | 0.0048 | UJ | 0.011 | | 0.017 | | 0.0029 | J | 0.0048 | U | 0.011 | J- | 0.0034 | J |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.008 | U | 0.0072 | U | 0.0076 | UJ | 0.0088 | U | 0.0074 | UJ | 0.0067 | U | 0.0036 | J | 0.0075 | U | 0.0073 | U | 0.0073 | UJ | 0.0078 | U |
| Fluoranthene | 206-44-0 | mg/kg | 0.0052 | U | 0.0047 | U | 0.0049 | UJ | 0.0052 | J | 0.0048 | UJ | 0.01 | J+ | 0.026 | | 0.0049 | U | 0.0048 | U | 0.016 | J- | 0.0046 | J |
| Fluorene | 86-73-7 | mg/kg | 0.0032 | U | 0.0029 | U | 0.003 | UJ | 0.0035 | U | 0.003 | UJ | 0.0027 | U | 0.0036 | U | 0.003 | U | 0.0029 | U | 0.0029 | UJ | 0.0031 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.008 | U | 0.0072 | U | 0.0076 | UJ | 0.0088 | U | 0.0074 | UJ | 0.01 | J+ | 0.018 | | 0.0031 | J | 0.0073 | U | 0.016 | J- | 0.0043 | J |
| Naphthalene | 91-20-3 | mg/kg | 0.0024 | U | 0.011 | J+ | 0.0023 | UJ | 0.0026 | U | 0.0022 | UJ | 0.002 | U | 0.0027 | U | 0.0022 | U | 0.0022 | U | 0.0022 | UJ | 0.0024 | U |
| Phenanthrene | 85-01-8 | mg/kg | 0.008 | U | 0.0072 | U | 0.0076 | UJ | 0.0088 | U | 0.0074 | UJ | 0.01 | J+ | 0.0083 | J | 0.0075 | U | 0.0073 | U | 0.0054 | J- | 0.0078 | U |
| Pyrene | 129-00-0 | mg/kg | 0.008 | U | 0.0072 | U | 0.0076 | UJ | 0.0053 | J | 0.0074 | UJ | 0.01 | J+ | 0.023 | | 0.0075 | U | 0.0073 | U | 0.013 | J- | 0.0036 | J |
| High Molecular Weight PAHs | N/A | mg/kg | 0.061 | U | 0.055 | U | 0.058 | U | 0.036 | | 0.056 | U | 0.094 | | 0.14 | | 0.026 | | 0.056 | U | 0.11 | | 0.033 | |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.031 | U | 0.021 | | 0.03 | U | 0.017 | | 0.029 | U | 0.028 | | 0.043 | | 0.029 | U | 0.029 | U | 0.03 | | 0.016 | |
| Total PAHs | N/A | mg/kg | 0.092 | U | 0.031 | | 0.087 | U | 0.046 | | 0.085 | U | 0.12 | | 0.18 | | 0.037 | | 0.085 | U | 0.13 | | 0.05 | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 6400 | | 5000 | J | 5300 | J | 3000 | J | 4700 | | 2800 | | 5500 | | 2800 | | 4200 | | 7200 | J | 8100 | J |
| Antimony | 7440-36-0 | mg/kg | 0.11 | U | 0.17 | U | 0.12 | U | 0.2 | U | 0.16 | | 0.1 | U | 0.11 | U | 0.1 | U | 0.081 | U | 0.18 | U | 0.11 | U |
| Arsenic | 7440-38-2 | mg/kg | 4.5 | | 3.9 | | 6 | | 0.6 | J | 5.3 | | 5.2 | | 18 | | 15 | | 11 | | 11 | | 5.1 | |
| Barium | 7440-39-3 | mg/kg | 49 | | 38 | J | 48 | | 17 | | 42 | | 25 | | 49 | | 19 | | 33 | | 68 | | 52 | |
| Beryllium | 7440-41-7 | mg/kg | 0.52 | J+ | 0.42 | J+ | 0.31 | J | 0.48 | J+ | 0.51 | J+ | 0.14 | J | 0.55 | J+ | 0.4 | J+ | 0.25 | J | 0.42 | J+ | 0.51 | J+ |
| Cadmium | 7440-43-9 | mg/kg | 0.15 | | 0.043 | J | 0.022 | J | 0.089 | J | 0.025 | J | 0.02 | J | 0.19 | | 0.018 | J | 0.016 | J | 0.25 | | 0.14 | |
| Calcium | 7440-70-2 | mg/kg | 1600 | | 3300 | J- | 86000 | | 2400 | | 59000 | | 61000 | | 5500 | | 53000 | | 93000 | | 2400 | | 5000 | |
| Chromium | 7440-47-3 | mg/kg | 6.8 | | 6 | J | 6.7 | | 6.1 | | 6.8 | | 4 | | 9.1 | | 4.1 | | 5.6 | | 7.8 | | 7.7 | |
| Cobalt | 7440-48-4 | mg/kg | 6 | | 4.7 | J | 4.7 | | 1.5 | | 7.7 | | 5.2 | | 3.7 | | 4.9 | | 7.9 | | 6.3 | | 6.3 | |
| Copper | 7440-50-8 | mg/kg | 20 | | 14 | J | 36 | | 2.3 | J | 20 | | 14 | | 5.9 | | 13 | | 14 | | 19 | | 19 | |
| Iron | 7439-89-6 | mg/kg | 17000 | | 12000 | J | 17000 | J | 3000 | J | 14000 | | 9000 | | 10000 | | 14000 | | 14000 | | 21000 | J | 21000 | J |
| Lead | 7439-92-1 | mg/kg | 11 | | 4.8 | J | 8.2 | | 4.7 | J+ | 5.5 | J+ | 4.2 | J+ | 9 | J+ | 4 | J+ | 7 | J+ | 13 | | 9.8 | |
| Magnesium | 7439-95-4 | mg/kg | 1400 | | 2500 | J | 13000 | | 790 | | 16000 | | 15000 | | 2500 | | 11000 | | 20000 | | 1700 | | 3600 | |
| Manganese | 7439-96-5 | mg/kg | 700 | | 400 | J | 710 | J | 53 | J+ | 680 | | 330 | | 420 | | 220 | | 450 | | 2400 | J | 1300 | J |
| Mercury | 7439-97-6 | mg/kg | 0.041 | | 0.017 | U | 0.017 | U | 0.053 | | 0.016 | U | 0.016 | U | 0.057 | | 0.017 | U | 0.017 | U | 0.083 | | 0.04 | |
| Nickel | 7440-02-0 | mg/kg | 7.7 | | 8.5 | J- | 8 | | 2.5 | J | 9.2 | | 5.6 | | 6 | | 6.2 | | 10 | | 8.3 | | 9.3 | |
| Potassium | 7440-09-7 | mg/kg | 400 | | 600 | J | 1100 | | 310 | | 960 | | 970 | | 580 | | 730 | | 1400 | | 410 | | 370 | |
| Selenium | 7782-49-2 | mg/kg | 0.29 | J | 0.12 | J | 0.39 | J+ | 0.17 | J | 0.34 | U | 0.34 | U | 0.39 | J | 0.35 | U | 0.36 | U | 0.48 | J | 0.37 | J |
| Silver | 7440-22-4 | mg/kg | 0.62 | U | 0.5 | U | 0.58 | U | 0.57 | U | 0.61 | U | 0.62 | U | 0.66 | U | 0.49 | U | 0.51 | U | 1.2 | J+ | 0.61 | U |
| Sodium | 7440-23-5 | mg/kg | 100 | U | 420 | J+ | 480 | J+ | 480 | J+ | 510 | J+ | 520 | J+ | 550 | J+ | 400 | J+ | 420 | J+ | 420 | J+ | 510 | J+ |
| Thallium | 7440-28-0 | mg/kg | 0.059 | J- | 0.087 | U | 0.083 | | 0.12 | U | 0.085 | U | 0.086 | U | 0.12 | U | 0.088 | U | 0.09 | U | 0.1 | J | 0.091 | J |
| Vanadium | 7440-62-2 | mg/kg | 14 | | 9.3 | J | 12 | | 4.8 | | 9.9 | | 6.9 | | 11 | | 6.7 | | 8.7 | | 15 | | 15 | |
| Zinc | 7440-66-6 | mg/kg | 32 | | 16 | J | 17 | | 14 | | 19 | | 13 | | 23 | | 14 | | 19 | | 38 | | 31 | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 20 | | 11 | | 7.8 | | 32 | | 7.3 | | 3.4 | | 43 | | 3.1 | | 4.7 | | 16 | | 16 | |
| Total Organic Carbon | N/A | mg/kg | 9800 | | 1900 | J | 13000 | J- | 16000 | J- | 15000 | J- | 8200 | J- | 12000 | J- | 6900 | J- | 21000 | J- | 9900 | | 2800 | |
| Solids | N/A | % | 83.7 | | 85.8 | | 86 | | 73.1 | | 89.4 | | 91.6 | | 68.7 | | 87.2 | | 88.7 | | 81.5 | | 84.4 | |

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-B-028 | | NYOW-B-028 | | NYOW-B-028 | | NYOW-B-029 | | NYOW-B-029 | | NYOW-B-029 | | NYOW-B-030 | | NYOW-B-030 | | NYOW-B-030 | | NYOW-B-031 | | NYOW-B-031 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-B-SL028-A | | NYOW-B-PH028-B | | NYOW-B-PH028-C | | NYOW-B-SL029-A | | NYOW-B-PH029-B | | NYOW-B-PH029-C | | NYOW-B-SL030-A | | NYOW-B-PH030-B | | NYOW-B-PH030-C | | NYOW-B-SL031-A | | NYOW-B-PH031-B | |
| | | | Sample Type: | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | Sample Date: | | 2021-05-11 | | 2021-05-11 | | 2021-05-11 | | 2021-05-12 | | 2021-05-12 | | 2021-05-12 | | 2021-05-12 | | 2021-05-12 | | 2021-05-12 | | 2021-05-11 | | 2021-05-11 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 23.2 | | 13.5 | | 13.5 | | 0.5 | | 19 | | 24.4 | | 13.5 | | 9.6 | | 10.8 | | 15.6 | | 29 | |
| Coarse Sand | N/A | % | 9.3 | | 4.2 | | 7.3 | | 1.4 | | 8.6 | | 6.9 | | 6.1 | | 4.8 | | 8.1 | | 5.3 | | 5.7 | |
| Medium Sand | N/A | % | 12.7 | | 3.7 | | 8.1 | | 4.6 | | 10.7 | | 10.3 | | 8.7 | | 8.5 | | 11.5 | | 11.2 | | 6.7 | |
| Fine Sand | N/A | % | 35.9 | | 53 | | 26.6 | | 69.4 | | 34.7 | | 26.3 | | 45.9 | | 52.4 | | 38.7 | | 44.1 | | 38.6 | |
| Silt | N/A | % | 16.7 | | 21 | | 33.6 | | 16.9 | | 15.9 | | 20.4 | | 16.3 | | 17 | | 19 | | 17.2 | | 11.4 | |
| Clay | N/A | % | 2.3 | | 4.6 | | 10.9 | | 7.3 | | 11.3 | | 11.7 | | 9.5 | | 7.7 | | 11.9 | | 6.5 | | 8.7 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-10
Reduced Validated Analytical Results[1] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-B-031 | | NYOW-B-032 | | NYOW-B-032 | | NYOW-B-032 | | NYOW-B-033 | | NYOW-B-033 | | NYOW-B-033 | | NYOW-B-034 | | NYOW-B-034 | | NYOW-B-034 | | NYOW-B-035 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-B-PH031-C | | NYOW-B-SL032-A | | NYOW-B-PH032-B | | NYOW-B-PH032-C | | NYOW-B-SL033-A | | NYOW-B-PH033-B | | NYOW-B-PH033-C | | NYOW-B-SL034-A | | NYOW-B-PH034-B | | NYOW-B-PH034-C | | NYOW-B-SL035-A | |
| | | | Sample Type: | | C | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | |
| | | | Sample Date: | | 2021-05-11 | | 2021-05-12 | | 2021-05-12 | | 2021-05-12 | | 2021-05-07 | | 2021-05-07 | | 2021-05-07 | | 2021-05-07 | | 2021-05-07 | | 2021-05-07 | | 2021-05-07 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0021 | U | 0.0021 | J | 0.0022 | U | 0.002 | U | 0.00073 | J | 0.0022 | U | 0.0021 | U | 0.0023 | U | 0.0022 | U | 0.0021 | U | 0.0022 | U |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0021 | U | 0.0024 | J | 0.0022 | U | 0.002 | U | 0.0008 | J | 0.011 | J+ | 0.0021 | U | 0.0023 | U | 0.0022 | U | 0.0021 | U | 0.0022 | U |
| Acenaphthene | 83-32-9 | mg/kg | 0.0011 | U | 0.0018 | U | 0.011 | J+ | 0.001 | U | 0.0012 | U | 0.0012 | U | 0.0011 | U | 0.011 | J+ | 0.0012 | U | 0.0011 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0011 | U | 0.0071 | J | 0.0012 | U | 0.001 | U | 0.011 | U | 0.0012 | U | 0.0011 | U | 0.011 | U | 0.0012 | U | 0.0011 | U | 0.0012 | U |
| Anthracene | 120-12-7 | mg/kg | 0.0045 | U | 0.0061 | J | 0.0047 | U | 0.0042 | U | 0.005 | U | 0.0048 | U | 0.0046 | U | 0.002 | J | 0.0048 | U | 0.0046 | U | 0.0048 | U |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0045 | U | 0.019 | | 0.0047 | U | 0.0098 | J+ | 0.0084 | J | 0.0048 | U | 0.0046 | U | 0.011 | | 0.0048 | U | 0.0046 | U | 0.0048 | U |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0045 | U | 0.031 | | 0.0047 | U | 0.0042 | U | 0.014 | | 0.0048 | U | 0.0046 | U | 0.015 | | 0.0048 | U | 0.0046 | U | 0.0048 | U |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.0029 | J | 0.04 | | 0.0026 | J | 0.0065 | U | 0.021 | | 0.0029 | J | 0.0071 | U | 0.024 | | 0.0074 | U | 0.007 | U | 0.0074 | U |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0069 | U | 0.022 | | 0.0073 | U | 0.0065 | U | 0.012 | | 0.0075 | U | 0.0071 | U | 0.011 | | 0.0074 | U | 0.007 | U | 0.0074 | U |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0045 | U | 0.013 | J | 0.0047 | U | 0.0042 | U | 0.0084 | J | 0.0048 | U | 0.0046 | U | 0.0077 | J | 0.0048 | U | 0.0046 | U | 0.0048 | U |
| Chrysene | 218-01-9 | mg/kg | 0.0045 | U | 0.025 | | 0.0047 | U | 0.0042 | U | 0.015 | | 0.0025 | J | 0.0046 | U | 0.016 | | 0.0048 | U | 0.0021 | J | 0.0048 | U |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0069 | U | 0.0051 | J | 0.0073 | U | 0.0065 | U | 0.0076 | U | 0.0075 | U | 0.0071 | U | 0.0075 | U | 0.0074 | U | 0.007 | U | 0.0074 | U |
| Fluoranthene | 206-44-0 | mg/kg | 0.0045 | U | 0.044 | | 0.0047 | U | 0.0042 | U | 0.021 | | 0.0029 | J | 0.0046 | U | 0.025 | | 0.0048 | U | 0.0046 | U | 0.0048 | U |
| Fluorene | 86-73-7 | mg/kg | 0.0028 | U | 0.0027 | J | 0.011 | J+ | 0.0098 | J+ | 0.0031 | U | 0.003 | U | 0.0028 | U | 0.0011 | J | 0.003 | U | 0.0028 | U | 0.0029 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0069 | U | 0.025 | | 0.0073 | U | 0.0065 | U | 0.012 | | 0.0075 | U | 0.0071 | U | 0.012 | | 0.0074 | U | 0.007 | U | 0.0074 | U |
| Naphthalene | 91-20-3 | mg/kg | 0.0021 | U | 0.0026 | J | 0.0022 | U | 0.00071 | J | 0.00095 | J | 0.011 | J+ | 0.0021 | U | 0.00073 | J | 0.0022 | U | 0.0021 | U | 0.0022 | U |
| Phenanthrene | 85-01-8 | mg/kg | 0.0069 | U | 0.019 | | 0.0035 | J | 0.0098 | J+ | 0.007 | J | 0.0075 | U | 0.0071 | U | 0.0098 | J | 0.0074 | U | 0.011 | J+ | 0.0074 | U |
| Pyrene | 129-00-0 | mg/kg | 0.0069 | U | 0.037 | | 0.0063 | J | 0.0065 | U | 0.017 | | 0.0075 | U | 0.0071 | U | 0.02 | | 0.0074 | U | 0.007 | U | 0.0074 | U |
| High Molecular Weight PAHs | N/A | mg/kg | 0.026 | | 0.22 | | 0.029 | | 0.043 | | 0.12 | | 0.024 | | 0.054 | U | 0.12 | | 0.056 | U | 0.019 | | 0.056 | U |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.027 | U | 0.088 | | 0.034 | | 0.025 | | 0.035 | | 0.033 | | 0.028 | U | 0.055 | | 0.029 | U | 0.02 | | 0.029 | U |
| Total PAHs | N/A | mg/kg | 0.024 | | 0.3 | | 0.057 | | 0.04 | | 0.15 | | 0.054 | | 0.082 | U | 0.17 | | 0.085 | U | 0.033 | | 0.085 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 4100 | J | 8100 | | 5200 | | 4800 | | 5900 | J | 4400 | J | 3100 | J | 5400 | J | 4500 | J | 5200 | J | 6000 | J |
| Antimony | 7440-36-0 | mg/kg | 0.1 | U | 0.33 | U | 0.096 | U | 0.093 | U | 0.22 | U | 0.095 | U | 0.098 | U | 0.22 | U | 0.19 | U | 0.1 | U | 0.098 | U |
| Arsenic | 7440-38-2 | mg/kg | 6.1 | | 12 | | 21 | | 4.5 | | 3.9 | | 5.3 | | 5.1 | | 3.9 | | 3.9 | | 11 | | 4.9 | |
| Barium | 7440-39-3 | mg/kg | 36 | | 83 | | 32 | | 40 | | 44 | | 38 | | 23 | | 43 | | 52 | | 37 | | 23 | |
| Beryllium | 7440-41-7 | mg/kg | 0.21 | J | 0.68 | J+ | 0.41 | J+ | 0.29 | J | 0.5 | J+ | 0.57 | J+ | 0.17 | J | 0.49 | J+ | 0.51 | J+ | 0.24 | J | 0.51 | J+ |
| Cadmium | 7440-43-9 | mg/kg | 0.054 | J | 0.41 | | 0.016 | J | 0.0083 | J | 0.15 | | 0.055 | J | 0.027 | J | 0.13 | | 0.082 | J | 0.023 | J | 0.091 | J |
| Calcium | 7440-70-2 | mg/kg | 56000 | | 6600 | | 66000 | | 97000 | | 1900 | | 24000 | | 82000 | | 2600 | | 1200 | | 46000 | | 11000 | |
| Chromium | 7440-47-3 | mg/kg | 6 | | 14 | | 6.4 | | 6 | | 6.4 | | 5.9 | | 4.6 | | 7 | | 5.8 | | 7.4 | | 9.9 | |
| Cobalt | 7440-48-4 | mg/kg | 5.7 | | 5.8 | | 7.3 | | 7.3 | | 4 | | 3.3 | | 3.9 | | 4 | | 2.8 | | 5.5 | | 5 | |
| Copper | 7440-50-8 | mg/kg | 31 | | 12 | | 20 | | 15 | | 9.8 | | 11 | | 13 | | 9.5 | | 4.9 | J | 13 | | 24 | |
| Iron | 7439-89-6 | mg/kg | 16000 | J | 17000 | | 15000 | | 12000 | | 13000 | J | 11000 | J | 9200 | J | 12000 | J | 8300 | J | 15000 | J | 16000 | J |
| Lead | 7439-92-1 | mg/kg | 7.3 | | 18 | J+ | 6.9 | J+ | 6.7 | J+ | 9.3 | | 5.3 | | 4.2 | | 10 | | 3.1 | | 3.3 | | 6.6 | |
| Magnesium | 7439-95-4 | mg/kg | 21000 | | 2300 | | 16000 | | 16000 | | 1200 | | 9600 | | 11000 | | 1900 | | 1100 | | 8600 | | 5400 | |
| Manganese | 7439-96-5 | mg/kg | 1000 | J | 910 | | 340 | | 370 | | 590 | | 520 | | 270 | | 640 | | 520 | | 460 | | 640 | |
| Mercury | 7439-97-6 | mg/kg | 0.021 | J+ | 0.16 | | 0.011 | J | 0.014 | U | 0.046 | | 0.021 | | 0.016 | U | 0.048 | | 0.031 | | 0.017 | U | 0.042 | |
| Nickel | 7440-02-0 | mg/kg | 9.2 | | 9.1 | | 9.8 | | 9.4 | | 5.8 | | 5.8 | | 6.5 | | 6.3 | | 5.2 | | 9.8 | | 9.4 | |
| Potassium | 7440-09-7 | mg/kg | 670 | | 700 | | 1700 | | 1800 | | 440 | | 520 | | 780 | | 430 | | 380 | | 1100 | | 550 | |
| Selenium | 7782-49-2 | mg/kg | 0.45 | J+ | 0.75 | | 0.32 | U | 0.27 | U | 0.24 | J | 0.12 | J | 0.4 | U | 0.27 | J | 0.16 | J | 0.34 | U | 0.2 | J |
| Silver | 7440-22-4 | mg/kg | 1.4 | J+ | 0.81 | U | 0.49 | U | 0.57 | U | 0.6 | UJ | 0.68 | UJ | 0.65 | UJ | 0.59 | UJ | 0.62 | UJ | 0.52 | UJ | 0.62 | UJ |
| Sodium | 7440-23-5 | mg/kg | 460 | J+ | 680 | J+ | 410 | J+ | 480 | J+ | 500 | J+ | 570 | J+ | 540 | J+ | 490 | J+ | 510 | J+ | 430 | J+ | 510 | J+ |
| Thallium | 7440-28-0 | mg/kg | 0.088 | | 0.13 | U | 0.081 | U | 0.068 | U | 0.11 | U | 0.084 | U | 0.1 | U | 0.065 | J | 0.038 | J | 0.057 | J | 0.052 | J |
| Vanadium | 7440-62-2 | mg/kg | 10 | | 16 | | 9.4 | | 9.2 | | 12 | | 9.4 | | 7 | | 10 | | 8 | | 9.1 | | 10 | |
| Zinc | 7440-66-6 | mg/kg | 22 | | 48 | | 20 | | 16 | | 29 | | 17 | | 18 | | 26 | | 13 | | 18 | | 26 | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 11.8 | | 63 | | 16 | | 4.3 | | 20 | | 11 | | 2.3 | | 15 | | 9.8 | | 5.2 | | 16 | |
| Total Organic Carbon | N/A | mg/kg | 12000 | J- | 26000 | J- | 21000 | J- | 17000 | J- | 7800 | J- | 7800 | J- | 14000 | J- | 8200 | J- | 2100 | J- | 14000 | J- | 17000 | J- |
| Solids | N/A | % | 84.45 | | 58.4 | | 89.5 | | 99.3 | | 84.3 | | 87.1 | | 90.7 | | 84.8 | | 87.5 | | 89.9 | | 89.9 | |

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-B-031 | | NYOW-B-032 | | NYOW-B-032 | | NYOW-B-032 | | NYOW-B-033 | | NYOW-B-033 | | NYOW-B-033 | | NYOW-B-034 | | NYOW-B-034 | | NYOW-B-034 | | NYOW-B-035 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-B-PH031-C | | NYOW-B-SL032-A | | NYOW-B-PH032-B | | NYOW-B-PH032-C | | NYOW-B-SL033-A | | NYOW-B-PH033-B | | NYOW-B-PH033-C | | NYOW-B-SL034-A | | NYOW-B-PH034-B | | NYOW-B-PH034-C | | NYOW-B-SL035-A | |
| | | Sample Type: | C | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | |
| | | Sample Date: | 2021-05-11 | | 2021-05-12 | | 2021-05-12 | | 2021-05-12 | | 2021-05-07 | | 2021-05-07 | | 2021-05-07 | | 2021-05-07 | | 2021-05-07 | | 2021-05-07 | | 2021-05-07 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 31.7 | | 9.2 | | 5.5 | | 12.7 | | 15.3 | | 7.2 | | 18.9 | | 2.1 | | 0.6 | | 13.9 | | 12.3 | |
| Coarse Sand | N/A | % | 5.8 | | 2.6 | | 3.7 | | 6.7 | | 4.8 | | 5.5 | | 8.9 | | 2.5 | | 0.6 | | 13.9 | | 8.8 | |
| Medium Sand | N/A | % | 8.5 | | 13.6 | | 7.3 | | 10.8 | | 7.2 | | 8.6 | | 12.4 | | 7.6 | | 17.3 | | 15.3 | | 21.9 | |
| Fine Sand | N/A | % | 33.9 | | 46.4 | | 49.7 | | 30.4 | | 49.1 | | 54.1 | | 38.3 | | 62.8 | | 63.2 | | 34.1 | | 42.8 | |
| Silt | N/A | % | 11.1 | | 21.2 | | 19.1 | | 23.4 | | 18.7 | | 18.3 | | 15.5 | | 19.9 | | 13.6 | | 15.2 | | 10.3 | |
| Clay | N/A | % | 9.1 | | 7 | | 14.6 | | 16 | | 5 | | 6.3 | | 6 | | 5 | | 4.8 | | 7.7 | | 3.9 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-B-035 | | NYOW-B-035 | | NYOW-B-036 | | NYOW-B-036 | | NYOW-B-036 | | NYOW-B-037 | | NYOW-B-037 | | NYOW-B-037 | | NYOW-B-038 | | NYOW-B-038 | | NYOW-B-038 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-B-PH035-B | | NYOW-B-PH035-C | | NYOW-B-SL036-A | | NYOW-B-PH036-B | | NYOW-B-PH036-C | | NYOW-B-SL037-A | | NYOW-B-PH037-B | | NYOW-B-PH037-C | | NYOW-B-SL038-A | | NYOW-B-PH038-B | | NYOW-B-PH038-C | |
| | | | Sample Type: | | N | | N | | N | | N | | C | | C | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | Sample Date: | | 2021-05-07 | | 2021-05-07 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0021 | U | 0.0022 | U | 0.0027 | U | 0.0021 | UJ | 0.01 | J+ | 0.00072 | J | 0.0025 | U | 0.0022 | U | 0.0026 | UJ | 0.0023 | U | 0.0021 | U | | |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0021 | U | 0.0022 | U | 0.0027 | U | 0.0021 | UJ | 0.01 | J+ | 0.0023 | U | 0.0025 | U | 0.0022 | U | 0.0026 | UJ | 0.0023 | U | 0.0021 | U | | |
| Acenaphthene | 83-32-9 | mg/kg | 0.0011 | U | 0.0012 | U | 0.0015 | U | 0.0011 | UJ | 0.0011 | U | 0.0013 | U | 0.0013 | U | 0.0012 | U | 0.0014 | UJ | 0.0012 | U | 0.0011 | U | | |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0011 | U | 0.0012 | U | 0.0013 | J | 0.0011 | UJ | 0.0011 | U | 0.002 | J | 0.0013 | U | 0.0012 | U | 0.0022 | J- | 0.0012 | U | 0.0011 | U | | |
| Anthracene | 120-12-7 | mg/kg | 0.0045 | U | 0.0048 | U | 0.0059 | U | 0.0046 | U | 0.0044 | U | 0.0051 | U | 0.0053 | U | 0.0048 | U | 0.0056 | UJ | 0.005 | U | 0.0046 | U | | |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0019 | J | 0.0048 | U | 0.0053 | J | 0.0046 | U | 0.0044 | U | 0.006 | J | 0.0053 | U | 0.0048 | U | 0.008 | J- | 0.005 | U | 0.0046 | U | | |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0016 | J | 0.0048 | U | 0.0062 | J | 0.0046 | U | 0.0044 | U | 0.0085 | J | 0.0053 | U | 0.0048 | U | 0.01 | J- | 0.005 | U | 0.0046 | U | | |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.0028 | J | 0.0074 | U | 0.0089 | J | 0.0071 | U | 0.0042 | J | 0.013 | | 0.0082 | U | 0.0073 | U | 0.014 | J- | 0.0077 | U | 0.0071 | U | | |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0069 | U | 0.0074 | U | 0.0048 | J | 0.0071 | U | 0.01 | J+ | 0.006 | J | 0.0082 | U | 0.0073 | U | 0.0071 | J- | 0.0077 | U | 0.0071 | U | | |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0045 | U | 0.0048 | U | 0.0039 | J | 0.0046 | U | 0.0044 | U | 0.005 | J | 0.0053 | U | 0.0048 | U | 0.0048 | J- | 0.005 | U | 0.0046 | U | | |
| Chrysene | 218-01-9 | mg/kg | 0.0026 | J | 0.0048 | U | 0.0073 | J | 0.0046 | U | 0.0048 | J | 0.0084 | J | 0.0053 | U | 0.0048 | U | 0.01 | J- | 0.005 | U | 0.0046 | U | | |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0069 | U | 0.0074 | U | 0.0091 | U | 0.0071 | U | 0.0068 | U | 0.0078 | U | 0.0082 | U | 0.0073 | U | 0.0087 | UJ | 0.0077 | U | 0.0071 | U | | |
| Fluoranthene | 206-44-0 | mg/kg | 0.0045 | U | 0.0048 | U | 0.011 | J | 0.0046 | U | 0.0044 | U | 0.012 | | 0.0053 | U | 0.0048 | U | 0.018 | J- | 0.005 | U | 0.0046 | U | | |
| Fluorene | 86-73-7 | mg/kg | 0.0028 | U | 0.003 | U | 0.0037 | U | 0.0028 | U | 0.01 | J+ | 0.0031 | U | 0.0033 | U | 0.0029 | U | 0.0035 | UJ | 0.0031 | U | 0.0029 | U | | |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0069 | U | 0.0074 | U | 0.0051 | J- | 0.0071 | UJ | 0.0068 | UJ | 0.0068 | J- | 0.0082 | UJ | 0.0073 | UJ | 0.0077 | J- | 0.0077 | UJ | 0.0071 | UJ | | |
| Naphthalene | 91-20-3 | mg/kg | 0.0021 | U | 0.0022 | U | 0.0027 | U | 0.0021 | U | 0.0023 | J | 0.0017 | J | 0.0025 | U | 0.0022 | U | 0.0026 | UJ | 0.0023 | U | 0.0021 | U | | |
| Phenanthrene | 85-01-8 | mg/kg | 0.0069 | U | 0.0074 | U | 0.0036 | J | 0.0071 | U | 0.01 | J+ | 0.0048 | J | 0.0082 | U | 0.0073 | U | 0.0057 | J- | 0.0077 | U | 0.0071 | U | | |
| Pyrene | 129-00-0 | mg/kg | 0.0069 | U | 0.0074 | U | 0.011 | J | 0.0071 | U | 0.0068 | U | 0.011 | | 0.0082 | U | 0.0073 | U | 0.018 | J- | 0.0077 | U | 0.0071 | U | | |
| High Molecular Weight PAHs | N/A | mg/kg | 0.02 | | 0.056 | U | 0.058 | | 0.054 | U | 0.045 | | 0.071 | | 0.062 | U | 0.056 | U | 0.086 | | 0.059 | U | 0.054 | U | | |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.027 | U | 0.029 | U | 0.024 | | 0.028 | U | 0.048 | | 0.026 | | 0.032 | U | 0.029 | U | 0.036 | | 0.03 | U | 0.028 | U | | |
| Total PAHs | N/A | mg/kg | 0.03 | | 0.085 | U | 0.082 | | 0.082 | U | 0.082 | | 0.095 | | 0.094 | U | 0.085 | U | 0.12 | | 0.089 | U | 0.082 | U | | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 4000 | J | 3100 | J | 6200 | | 5300 | | 4400 | | 8800 | | 4100 | | 4200 | | 8600 | | 5500 | | 4600 | | | |
| Antimony | 7440-36-0 | mg/kg | 0.096 | U | 0.093 | U | 0.21 | U | 0.077 | U | 0.24 | J | 0.22 | | 0.18 | U | 0.077 | U | 0.13 | U | 0.09 | U | 0.074 | U | | |
| Arsenic | 7440-38-2 | mg/kg | 4.3 | | 38 | | 4.7 | | 4.3 | | 5.8 | | 6.7 | | 8.8 | | 4.8 | | 4.1 | | 3.8 | | 3.3 | | | |
| Barium | 7440-39-3 | mg/kg | 26 | | 320 | | 45 | | 43 | | 39 | | 46 | | 31 | | 64 | | 78 | | 52 | | 46 | | | |
| Beryllium | 7440-41-7 | mg/kg | 0.48 | J+ | 0.068 | J | 0.63 | J+ | 0.54 | J+ | 0.26 | J | 0.52 | J+ | 0.54 | J+ | 0.22 | J | 0.63 | J+ | 0.58 | J+ | 0.23 | J | | |
| Cadmium | 7440-43-9 | mg/kg | 0.048 | J | 0.04 | J | 0.22 | J+ | 0.016 | J+ | 0.015 | J | 0.11 | J+ | 0.11 | J+ | 0.016 | J+ | 0.24 | J+ | 0.055 | J+ | 0.014 | J+ | | |
| Calcium | 7440-70-2 | mg/kg | 14000 | | 74000 | | 3500 | | 75000 | | 100000 | | 980 | J | 1200 | | 33000 | | 2200 | | 5100 | | 36000 | | | |
| Chromium | 7440-47-3 | mg/kg | 5.2 | | 6.4 | | 7.3 | | 6.8 | J- | 6 | | 9.7 | | 6.3 | | 6.9 | | 11 | | 7.5 | | 6.5 | | | |
| Cobalt | 7440-48-4 | mg/kg | 4.1 | | 5.1 | | 4 | | 7.6 | J- | 5.1 | | 6.9 | | 4.2 | | 4.3 | | 5.4 | | 4.8 | | 4.3 | | | |
| Copper | 7440-50-8 | mg/kg | 15 | | 15 | | 12 | | 29 | J- | 14 | | 24 | | 22 | | 9.2 | | 10 | | 17 | | 11 | | | |
| Iron | 7439-89-6 | mg/kg | 12000 | J | 32000 | J | 13000 | | 14000 | | 14000 | | 18000 | | 14000 | | 11000 | | 19000 | | 15000 | | 11000 | | | |
| Lead | 7439-92-1 | mg/kg | 6 | | 8.6 | | 12 | | 11 | J- | 10 | | 11 | | 4.9 | | 2.5 | | 7.8 | | 5.7 | | 2.5 | | | |
| Magnesium | 7439-95-4 | mg/kg | 7100 | | 32000 | | 1200 | | 18000 | J | 27000 | | 2100 | | 1300 | | 6900 | | 1900 | | 2000 | | 6500 | | | |
| Manganese | 7439-96-5 | mg/kg | 600 | | 1800 | | 380 | | 520 | | 480 | | 640 | | 460 | | 410 | | 1100 | | 600 | | 310 | | | |
| Mercury | 7439-97-6 | mg/kg | 0.013 | J | 0.022 | J+ | 0.064 | | 0.026 | J+ | 0.016 | U | 0.053 | | 0.03 | J+ | 0.017 | U | 0.11 | | 0.017 | U | 0.017 | U | | |
| Nickel | 7440-02-0 | mg/kg | 7.7 | | 7.2 | | 6.3 | | 12 | J- | 8.9 | | 11 | | 7.1 | | 9.1 | | 9.6 | | 9.1 | | 8.9 | | | |
| Potassium | 7440-09-7 | mg/kg | 530 | | 530 | | 440 | | 1400 | J+ | 1500 | | 570 | | 560 | | 1000 | | 500 | | 660 | | 1000 | | | |
| Selenium | 7782-49-2 | mg/kg | 0.12 | J | 0.43 | U | 0.39 | J | 0.35 | U | 0.34 | U | 0.28 | J | 0.39 | J | 0.37 | U | 0.48 | | 0.41 | U | 0.4 | U | | |
| Silver | 7440-22-4 | mg/kg | 0.57 | UJ | 1.4 | J+ | 0.76 | U | 1.6 | J+ | 1.5 | J+ | 0.63 | U | 0.65 | U | 1.5 | J+ | 0.76 | U | 0.7 | U | 1.5 | J+ | | |
| Sodium | 7440-23-5 | mg/kg | 480 | J+ | 480 | J+ | 130 | U | 540 | J+ | 490 | J+ | 100 | U | 110 | U | 500 | J+ | 130 | U | 120 | U | 500 | J+ | | |
| Thallium | 7440-28-0 | mg/kg | 0.041 | J | 0.081 | J | 0.11 | U | 0.1 | J- | 0.098 | | 0.11 | | 0.1 | U | 0.092 | U | 0.099 | | 0.1 | U | 0.1 | U | | |
| Vanadium | 7440-62-2 | mg/kg | 7.4 | | 13 | | 12 | | 9.8 | | 8.7 | | 16 | | 11 | | 10 | | 18 | | 12 | | 9.8 | | | |
| Zinc | 7440-66-6 | mg/kg | 18 | | 33 | | 32 | | 24 | J- | 18 | | 37 | | 20 | | 16 | | 30 | | 23 | | 19 | | | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 6.1 | | 4.8 | | 26 | | 6.8 | | 6.3 | | 17.5 | | 12 | | 5.8 | | 24 | | 15 | | 5.2 | | | |
| Total Organic Carbon | N/A | mg/kg | 9400 | | 33000 | | 18000 | | 41000 | | 52000 | | 12000 | | 3100 | | 3800 | J- | 13000 | J- | 2800 | | 2900 | J- | | |
| Solids | N/A | % | 89.2 | | 86.7 | | 72.1 | | 90.9 | | 93.5 | | 82.2 | | 79.6 | | 89.9 | | 74.2 | | 83.4 | | 89.7 | | | |

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-B-035 | | NYOW-B-035 | | NYOW-B-036 | | NYOW-B-036 | | NYOW-B-036 | | NYOW-B-037 | | NYOW-B-037 | | NYOW-B-037 | | NYOW-B-038 | | NYOW-B-038 | | NYOW-B-038 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-B-PH035-B | | NYOW-B-PH035-C | | NYOW-B-SL036-A | | NYOW-B-PH036-B | | NYOW-B-PH036-C | | NYOW-B-SL037-A | | NYOW-B-PH037-B | | NYOW-B-PH037-C | | NYOW-B-SL038-A | | NYOW-B-PH038-B | | NYOW-B-PH038-C | |
| | | Sample Type: | N | | N | | N | | N | | C | | C | | N | | N | | N | | N | | N | |
| | | Sample Depth (feet): | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | Sample Date: | 2021-05-07 | | 2021-05-07 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 22 | | 33.8 | | 2.6 | | 8.3 | | 13.5 | | 15.4 | | 34.1 | | 12.3 | | 5 | | 9.7 | | 6.7 | |
| Coarse Sand | N/A | % | 8.5 | | 9.9 | | 1.2 | | 7 | | 7.6 | | 10.1 | | 7.7 | | 5.7 | | 2.5 | | 5.2 | | 4.6 | |
| Medium Sand | N/A | % | 21.3 | | 7.7 | | 5.3 | | 9.4 | | 10.7 | | 14.9 | | 9.9 | | 6.7 | | 4.9 | | 5.8 | | 6.7 | |
| Fine Sand | N/A | % | 39.2 | | 27.3 | | 58.6 | | 31.1 | | 24 | | 30.9 | | 31.7 | | 33.5 | | 42.5 | | 50.2 | | 38.2 | |
| Silt | N/A | % | 6 | | 16.6 | | 26.7 | | 26.6 | | 24.6 | | 21.5 | | 10.3 | | 31.4 | | 39.4 | | 22.7 | | 33.5 | |
| Clay | N/A | % | 3 | | 4.6 | | 5.6 | | 17.6 | | 19.8 | | 7.3 | | 6.3 | | 10.4 | | 5.6 | | 6.5 | | 10.4 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-B-039 | | NYOW-B-039 | | NYOW-B-039 | | NYOW-B-040 | | NYOW-B-040 | | NYOW-B-040 | | NYOW-B-041 | | NYOW-B-041 | | NYOW-B-041 | | NYOW-B-042 | | NYOW-B-042 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-B-SL039-A | | NYOW-B-PH039-B | | NYOW-B-PH039-C | | NYOW-B-SL040-A | | NYOW-B-PH040-B | | NYOW-B-PH040-C | | NYOW-B-SL041-A | | NYOW-B-PH041-B | | NYOW-B-PH041-C | | NYOW-B-SL042-A | | NYOW-B-PH042-B | |
| | | | Sample Type: | | N | | N | | N | | N | | N | | N | | N | | N | | C | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | Sample Date: | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-11 | | 2021-05-11 | | 2021-05-11 | | 2021-05-07 | | 2021-05-07 | | 2021-05-07 | | 2021-05-06 | | 2021-05-06 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.00064 | J | 0.0021 | U | 0.0022 | UJ | 0.00072 | J- | 0.011 | J+ | 0.011 | J+ | 0.0023 | UJ | 0.0021 | U | 0.0021 | U | 0.0023 | U | 0.0021 | U | | |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0011 | J | 0.0021 | U | 0.0022 | UJ | 0.001 | J- | 0.011 | J+ | 0.011 | J+ | 0.0023 | UJ | 0.0021 | U | 0.0021 | U | 0.0023 | U | 0.0021 | U | | |
| Acenaphthene | 83-32-9 | mg/kg | 0.0013 | U | 0.0011 | U | 0.0012 | UJ | 0.0013 | UJ | 0.011 | J+ | 0.011 | J+ | 0.0012 | UJ | 0.0011 | U | 0.0011 | U | 0.0012 | U | 0.0011 | U | | |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0016 | J | 0.0011 | U | 0.0012 | UJ | 0.0022 | J- | 0.0012 | U | 0.011 | J+ | 0.012 | UJ | 0.0011 | U | 0.0011 | U | 0.0012 | J | 0.0011 | U | | |
| Anthracene | 120-12-7 | mg/kg | 0.0051 | U | 0.0046 | U | 0.0047 | UJ | 0.0021 | J- | 0.0049 | U | 0.011 | J+ | 0.005 | UJ | 0.0046 | U | 0.0045 | U | 0.0051 | U | 0.0044 | U | | |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0062 | J | 0.0046 | U | 0.0047 | UJ | 0.0086 | J- | 0.0049 | U | 0.011 | J+ | 0.0041 | J- | 0.0046 | U | 0.0045 | U | 0.0056 | J | 0.0044 | U | | |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0074 | J | 0.0046 | U | 0.0047 | UJ | 0.014 | J- | 0.0049 | U | 0.011 | J+ | 0.006 | J- | 0.0046 | U | 0.0045 | U | 0.012 | U | 0.0044 | U | | |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.011 | J | 0.0071 | U | 0.0072 | UJ | 0.017 | J- | 0.0076 | U | 0.0081 | J | 0.0093 | J- | 0.007 | U | 0.007 | U | 0.012 | | 0.0068 | U | | |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0049 | J | 0.0071 | U | 0.0072 | UJ | 0.0085 | J- | 0.0076 | U | 0.011 | J+ | 0.0041 | J- | 0.007 | U | 0.007 | U | 0.0061 | J- | 0.0068 | UJ | | |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0036 | J | 0.0046 | U | 0.0047 | UJ | 0.0061 | J- | 0.0049 | U | 0.011 | J+ | 0.0037 | J- | 0.0046 | U | 0.0045 | U | 0.0038 | J- | 0.0044 | UJ | | |
| Chrysene | 218-01-9 | mg/kg | 0.0097 | J | 0.0046 | U | 0.0047 | UJ | 0.011 | J- | 0.0049 | U | 0.0067 | J | 0.0075 | J- | 0.0046 | U | 0.0045 | U | 0.0086 | J | 0.0044 | U | | |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0079 | U | 0.0071 | U | 0.0072 | UJ | 0.008 | UJ | 0.0076 | U | 0.011 | J+ | 0.0078 | UJ | 0.007 | U | 0.007 | U | 0.0078 | UJ | 0.0068 | UJ | | |
| Fluoranthene | 206-44-0 | mg/kg | 0.012 | | 0.0046 | U | 0.0047 | UJ | 0.016 | J- | 0.0049 | U | 0.011 | J+ | 0.011 | J- | 0.0046 | U | 0.0045 | U | 0.012 | | 0.0044 | U | | |
| Fluorene | 86-73-7 | mg/kg | 0.0031 | U | 0.0029 | U | 0.0029 | UJ | 0.0032 | UJ | 0.003 | U | 0.011 | J+ | 0.0031 | UJ | 0.0028 | U | 0.0028 | U | 0.0031 | U | 0.0027 | U | | |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0056 | J- | 0.0071 | UJ | 0.0072 | UJ | 0.012 | J- | 0.0076 | U | 0.011 | J+ | 0.0052 | J- | 0.007 | U | 0.007 | U | 0.0062 | J- | 0.0068 | UJ | | |
| Naphthalene | 91-20-3 | mg/kg | 0.0012 | J | 0.0021 | U | 0.0022 | UJ | 0.00093 | J- | 0.011 | J+ | 0.0031 | J | 0.0023 | UJ | 0.0021 | U | 0.0021 | U | 0.0012 | J | 0.0021 | U | | |
| Phenanthrene | 85-01-8 | mg/kg | 0.0047 | J | 0.0071 | U | 0.0072 | UJ | 0.0071 | J- | 0.0076 | U | 0.011 | J+ | 0.0049 | J- | 0.007 | U | 0.007 | U | 0.0054 | J | 0.0068 | U | | |
| Pyrene | 129-00-0 | mg/kg | 0.01 | J | 0.0071 | U | 0.0072 | UJ | 0.018 | J- | 0.0076 | U | 0.011 | J+ | 0.0085 | J- | 0.007 | U | 0.007 | U | 0.01 | J | 0.0068 | U | | |
| High Molecular Weight PAHs | N/A | mg/kg | 0.064 | | 0.054 | U | 0.055 | U | 0.1 | | 0.058 | U | 0.092 | | 0.053 | | 0.053 | U | 0.053 | U | 0.064 | | 0.052 | U | | |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.025 | | 0.028 | U | 0.029 | U | 0.032 | | 0.05 | | 0.091 | | 0.027 | | 0.028 | U | 0.027 | U | 0.026 | | 0.027 | U | | |
| Total PAHs | N/A | mg/kg | 0.087 | | 0.082 | U | 0.083 | U | 0.13 | | 0.061 | | 0.18 | | 0.081 | | 0.081 | U | 0.08 | U | 0.085 | | 0.078 | U | | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 6400 | | 6300 | | 4600 | | 7100 | | 6400 | | 4400 | | 7300 | J | 3700 | J | 2900 | J | 5400 | J | 3400 | J | | |
| Antimony | 7440-36-0 | mg/kg | 0.18 | U | 0.083 | U | 0.079 | U | 0.21 | U | 0.16 | U | 0.096 | U | 0.26 | J+ | 0.18 | U | 0.097 | U | 0.14 | J | 0.074 | J | | |
| Arsenic | 7440-38-2 | mg/kg | 0.66 | J | 5.1 | | 3.5 | | 3.1 | | 6.2 | | 4.7 | | 4.9 | | 3.1 | | 2.8 | | 2.9 | | 2.2 | | | |
| Barium | 7440-39-3 | mg/kg | 44 | | 57 | | 42 | | 59 | | 57 | | 39 | | 55 | | 21 | | 14 | | 31 | | 15 | | | |
| Beryllium | 7440-41-7 | mg/kg | 0.57 | J+ | 0.52 | J+ | 0.22 | J | 0.49 | J+ | 0.45 | J+ | 0.26 | J | 0.53 | J+ | 0.54 | J+ | 0.14 | J | 0.49 | J+ | 0.48 | J+ | | |
| Cadmium | 7440-43-9 | mg/kg | 0.081 | J+ | 0.034 | J+ | 0.02 | J+ | 0.15 | | 0.049 | J | 0.016 | J | 0.19 | | 0.038 | J | 0.019 | J | 0.21 | | 0.064 | J | | |
| Calcium | 7440-70-2 | mg/kg | 940 | | 1500 | | 17000 | | 2600 | | 1700 | | 48000 | | 860 | | 760 | | 48000 | | 1200 | J | 660 | J | | |
| Chromium | 7440-47-3 | mg/kg | 7.1 | | 7.4 | | 6.1 | | 8.1 | | 7.8 | | 5.9 | | 7.3 | | 4.8 | | 4 | | 5.3 | | 3.9 | | | |
| Cobalt | 7440-48-4 | mg/kg | 4.1 | | 5.9 | | 5 | | 4.6 | | 5.9 | | 5.5 | | 6.4 | | 3.7 | | 3.3 | | 4.9 | | 4 | | | |
| Copper | 7440-50-8 | mg/kg | 7.2 | | 13 | | 11 | | 9.9 | | 15 | | 17 | | 10 | | 15 | | 9.9 | | 10 | | 8 | | | |
| Iron | 7439-89-6 | mg/kg | 11000 | | 14000 | | 11000 | | 13000 | | 17000 | | 14000 | | 17000 | J | 11000 | J | 9100 | J | 12000 | J | 8000 | J | | |
| Lead | 7439-92-1 | mg/kg | 7.6 | | 3.8 | | 3.1 | | 10 | | 9 | | 5.4 | | 11 | | 6.1 | | 4.7 | | 15 | | 3.9 | | | |
| Magnesium | 7439-95-4 | mg/kg | 1300 | | 1700 | | 4400 | | 1900 | | 1800 | | 7400 | | 1300 | | 1000 | | 12000 | | 1100 | | 810 | | | |
| Manganese | 7439-96-5 | mg/kg | 260 | | 530 | | 390 | | 540 | | 530 | | 510 | | 1500 | | 510 | | 420 | | 540 | J | 400 | J | | |
| Mercury | 7439-97-6 | mg/kg | 0.044 | | 0.022 | U | 0.021 | U | 0.046 | | 0.014 | J | 0.016 | U | 0.048 | | 0.016 | U | 0.016 | U | 0.042 | | 0.015 | J | | |
| Nickel | 7440-02-0 | mg/kg | 7.3 | | 11 | | 9.8 | | 8.5 | | 11 | | 9.6 | | 7.6 | | 5.7 | | 5.2 | | 6.1 | | 5.2 | | | |
| Potassium | 7440-09-7 | mg/kg | 510 | | 830 | | 920 | | 700 | | 960 | | 910 | | 340 | | 340 | | 460 | | 420 | | 350 | | | |
| Selenium | 7782-49-2 | mg/kg | 0.46 | U | 0.36 | U | 0.36 | U | 0.27 | J | 0.15 | J | 0.35 | U | 0.38 | J | 0.13 | J | 0.38 | U | 0.22 | J | 0.15 | J | | |
| Silver | 7440-22-4 | mg/kg | 0.68 | U | 0.62 | U | 1.5 | J+ | 0.59 | U | 0.54 | U | 0.6 | U | 0.63 | U | 0.64 | U | 0.62 | UJ | 0.59 | UJ | 0.57 | UJ | | |
| Sodium | 7440-23-5 | mg/kg | 110 | U | 100 | U | 510 | J+ | 490 | J+ | 450 | J+ | 500 | J+ | 110 | U | 110 | U | 520 | J+ | 99 | U | 95 | U | | |
| Thallium | 7440-28-0 | mg/kg | 0.11 | U | 0.09 | U | 0.09 | U | 0.055 | J- | 0.061 | J- | 0.044 | J- | 0.11 | U | 0.09 | U | 0.095 | U | 0.055 | J | 0.031 | J | | |
| Vanadium | 7440-62-2 | mg/kg | 12 | | 12 | | 9.8 | | 13 | | 12 | | 9.2 | | 15 | | 9.1 | | 7.8 | | 9.6 | | 7.3 | | | |
| Zinc | 7440-66-6 | mg/kg | 21 | | 19 | | 18 | | 29 | | 26 | | 18 | | 31 | | 18 | | 15 | | 170 | | 20 | | | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 13 | | 9 | | 8.2 | | 26 | | 16 | | 9.6 | | 17 | | 7.7 | | 3 | J | 13 | | 4.9 | | | |
| Total Organic Carbon | N/A | mg/kg | 9400 | J- | 1500 | J | 3300 | J- | 16000 | | 1100 | J | 3300 | J- | 11000 | | 2000 | U | 4000 | J | 13000 | | 1300 | J | | |
| Solids | N/A | % | 83 | | 85.3 | | 87.4 | | 76.2 | | 84.5 | | 86.6 | | 84.8 | | 90 | | 89.35 | | 85.7 | | 88.6 | | | |

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-B-039 | | NYOW-B-039 | | NYOW-B-039 | | NYOW-B-040 | | NYOW-B-040 | | NYOW-B-040 | | NYOW-B-041 | | NYOW-B-041 | | NYOW-B-041 | | NYOW-B-042 | | NYOW-B-042 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-B-SL039-A | | NYOW-B-PH039-B | | NYOW-B-PH039-C | | NYOW-B-SL040-A | | NYOW-B-PH040-B | | NYOW-B-PH040-C | | NYOW-B-SL041-A | | NYOW-B-PH041-B | | NYOW-B-PH041-C | | NYOW-B-SL042-A | | NYOW-B-PH042-B | |
| | | | Sample Type: | | N | | N | | N | | N | | N | | N | | N | | N | | C | | N | | N | |
| | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | Sample Date: | | 2021-05-10 | | 2021-05-10 | | 2021-05-10 | | 2021-05-11 | | 2021-05-11 | | 2021-05-11 | | 2021-05-07 | | 2021-05-07 | | 2021-05-07 | | 2021-05-06 | | 2021-05-06 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 12 | | 5.7 | | 9.2 | | 49.5 | | 0.7 | | 4.6 | | 10.1 | | 6.9 | | 0.9 | | 3.7 | | 0 | U | | |
| Coarse Sand | N/A | % | 2.3 | | 3.5 | | 4.2 | | 3.1 | | 2.8 | | 4.7 | | 5.8 | | 2.4 | | 1.6 | | 2.5 | | 0.4 | | | |
| Medium Sand | N/A | % | 5 | | 5.2 | | 6.5 | | 3.7 | | 5.5 | | 6.6 | | 11.3 | | 3.9 | | 3.7 | | 7.8 | | 2.9 | | | |
| Fine Sand | N/A | % | 38.5 | | 42 | | 38.6 | | 22.3 | | 40.4 | | 36.2 | | 44.6 | | 52.1 | | 38.6 | | 65.4 | | 74.1 | | | |
| Silt | N/A | % | 35.8 | | 31.6 | | 29.3 | | 16 | | 38 | | 36.3 | | 21.7 | | 28.3 | | 50.1 | | 18.1 | | 20.2 | | | |
| Clay | N/A | % | 6.4 | | 11.9 | | 12.2 | | 5.4 | | 12.6 | | 11.5 | | 6.6 | | 6.4 | | 5.2 | | 2.5 | | 2.5 | | | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-B-042 | | NYOW-B-043 | | NYOW-B-043 | | NYOW-B-043 | | NYOW-B-044 | | NYOW-B-044 | | NYOW-B-044 | | NYOW-B-045 | | NYOW-B-045 | | NYOW-B-045 | | NYOW-B-046 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-B-PH042-C | | NYOW-B-SL043-A | | NYOW-B-PH043-B | | NYOW-B-PH043-C | | NYOW-B-SL044-A | | NYOW-B-PH044-B | | NYOW-B-PH044-C | | NYOW-B-SL045-A | | NYOW-B-PH045-B | | NYOW-B-PH045-C | | NYOW-B-SL046-A | |
| | | | Sample Type: | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | |
| | | | Sample Date: | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0021 | U | 0.0022 | U | 0.0022 | U | 0.0019 | U | 0.0069 | J | 0.0023 | U | 0.0022 | U | 0.0064 | J | 0.0021 | U | 0.0022 | U | 0.011 | |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0021 | U | 0.0022 | U | 0.0022 | U | 0.0019 | U | 0.0087 | J | 0.0023 | U | 0.0022 | U | 0.006 | J | 0.0021 | U | 0.0022 | U | 0.013 | |
| Acenaphthene | 83-32-9 | mg/kg | 0.0011 | U | 0.011 | J+ | 0.0012 | U | 0.001 | U | 0.012 | U | 0.0012 | U | 0.0012 | U | 0.011 | J+ | 0.0011 | U | 0.0012 | U | 0.011 | J+ |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0011 | U | 0.002 | J | 0.0012 | U | 0.001 | U | 0.018 | J | 0.0012 | U | 0.0012 | U | 0.021 | | 0.0011 | U | 0.0012 | U | 0.044 | |
| Anthracene | 120-12-7 | mg/kg | 0.0045 | U | 0.007 | J | 0.0047 | U | 0.0042 | U | 0.048 | U | 0.0049 | U | 0.0047 | U | 0.0047 | U | 0.0045 | U | 0.0047 | U | 0.04 | J |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0045 | U | 0.056 | | 0.0047 | U | 0.0042 | U | 0.046 | J | 0.0037 | J | 0.0047 | U | 0.15 | | 0.0023 | J | 0.0047 | U | 0.25 | J |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0045 | U | 0.058 | J | 0.0047 | U | 0.0042 | U | 0.11 | U | 0.0049 | U | 0.0047 | U | 0.17 | J | 0.0045 | U | 0.0047 | U | 0.23 | J |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.0069 | U | 0.059 | | 0.0073 | U | 0.0064 | U | 0.093 | J | 0.0081 | J | 0.003 | J | 0.22 | | 0.0052 | J | 0.0072 | U | 0.27 | J+ |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0069 | UJ | 0.036 | J- | 0.0073 | UJ | 0.0064 | UJ | 0.061 | J- | 0.0032 | J- | 0.0073 | UJ | 0.097 | J- | 0.0069 | UJ | 0.0072 | UJ | 0.13 | J- |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0045 | UJ | 0.019 | J- | 0.0047 | UJ | 0.0042 | UJ | 0.029 | J- | 0.0025 | J- | 0.0047 | UJ | 0.078 | J- | 0.0045 | UJ | 0.0047 | UJ | 0.11 | J |
| Chrysene | 218-01-9 | mg/kg | 0.0045 | U | 0.071 | | 0.0047 | U | 0.0042 | U | 0.057 | J | 0.005 | J | 0.0047 | U | 0.18 | | 0.0036 | J | 0.0047 | U | 0.22 | J |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0069 | UJ | 0.007 | J- | 0.0073 | UJ | 0.0064 | UJ | 0.073 | UJ | 0.0075 | UJ | 0.0073 | UJ | 0.027 | J- | 0.0069 | UJ | 0.0072 | UJ | 0.041 | J- |
| Fluoranthene | 206-44-0 | mg/kg | 0.0045 | U | 0.088 | | 0.0047 | U | 0.0042 | U | 0.065 | J | 0.0068 | J | 0.011 | J+ | 0.39 | | 0.0047 | J | 0.0047 | U | 0.4 | J- |
| Fluorene | 86-73-7 | mg/kg | 0.0028 | U | 0.0019 | J | 0.0029 | U | 0.0026 | U | 0.029 | U | 0.003 | U | 0.0029 | U | 0.018 | | 0.0028 | U | 0.0029 | U | 0.015 | J |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0069 | UJ | 0.03 | J- | 0.0073 | UJ | 0.0064 | UJ | 0.052 | J- | 0.0032 | J- | 0.0073 | UJ | 0.12 | J- | 0.0069 | UJ | 0.0072 | UJ | 0.16 | J |
| Naphthalene | 91-20-3 | mg/kg | 0.0021 | U | 0.0013 | J | 0.0022 | U | 0.0019 | U | 0.008 | J | 0.0023 | U | 0.0022 | U | 0.01 | J | 0.0021 | U | 0.0022 | U | 0.012 | |
| Phenanthrene | 85-01-8 | mg/kg | 0.0069 | U | 0.068 | | 0.0073 | U | 0.0064 | U | 0.033 | J | 0.0038 | J | 0.0073 | U | 0.31 | | 0.0031 | J | 0.0072 | U | 0.19 | J |
| Pyrene | 129-00-0 | mg/kg | 0.0069 | U | 0.17 | | 0.0073 | U | 0.0064 | U | 0.092 | J | 0.0067 | J | 0.011 | J+ | 0.33 | | 0.0046 | J | 0.0072 | U | 0.35 | J- |
| High Molecular Weight PAHs | N/A | mg/kg | 0.053 | U | 0.51 | | 0.055 | U | 0.049 | U | 0.54 | | 0.04 | | 0.035 | | 1.4 | | 0.032 | | 0.055 | U | 1.8 | |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.027 | U | 0.18 | | 0.029 | U | 0.025 | U | 0.17 | | 0.019 | | 0.021 | | 0.78 | | 0.016 | | 0.029 | U | 0.74 | |
| Total PAHs | N/A | mg/kg | 0.08 | U | 0.69 | | 0.084 | U | 0.074 | U | 0.67 | | 0.058 | | 0.045 | | 2.1 | | 0.043 | | 0.083 | U | 2.5 | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 4200 | J | 7800 | J | 5100 | J | 3000 | J | 4500 | J | 6000 | J | 5200 | J | 7000 | J | 6200 | J | 3700 | J | 6100 | J |
| Antimony | 7440-36-0 | mg/kg | 0.081 | J | 0.23 | | 0.094 | J | 0.083 | U | 0.15 | J | 0.13 | J | 0.13 | J | 1 | | 0.11 | J | 0.093 | J | 0.22 | |
| Arsenic | 7440-38-2 | mg/kg | 2.9 | | 5.9 | | 5.9 | | 2.7 | | 5 | | 5.6 | | 8.8 | | 5.1 | | 3.1 | | 2.6 | | 5.6 | |
| Barium | 7440-39-3 | mg/kg | 27 | | 110 | | 28 | | 21 | | 29 | | 39 | | 43 | | 45 | | 43 | | 32 | | 46 | |
| Beryllium | 7440-41-7 | mg/kg | 0.21 | J | 0.6 | J+ | 0.48 | J+ | 0.13 | J | 0.42 | J+ | 0.41 | J+ | 0.23 | J | 0.56 | J+ | 0.45 | J+ | 0.17 | J | 0.56 | J+ |
| Cadmium | 7440-43-9 | mg/kg | 0.034 | J | 0.28 | | 0.049 | J | 0.029 | J | 0.11 | | 0.12 | | 0.099 | J | 0.35 | | 0.1 | | 0.31 | | 0.19 | |
| Calcium | 7440-70-2 | mg/kg | 31000 | J | 28000 | J | 12000 | J | 46000 | J | 36000 | J | 1500 | J | 23000 | J | 3500 | J | 980 | J | 48000 | J | 29000 | J |
| Chromium | 7440-47-3 | mg/kg | 5.6 | | 9.8 | | 6 | | 4.2 | | 5.3 | | 6.1 | | 7.4 | | 11 | | 6.5 | | 4.9 | | 6.6 | |
| Cobalt | 7440-48-4 | mg/kg | 3.7 | | 5.5 | | 5.1 | | 3.3 | | 3.6 | | 4.8 | | 4.7 | | 5 | | 5 | | 4 | | 4.4 | |
| Copper | 7440-50-8 | mg/kg | 14 | | 29 | | 20 | | 11 | | 12 | | 12 | | 15 | | 29 | | 8.9 | | 10 | | 16 | |
| Iron | 7439-89-6 | mg/kg | 11000 | J | 19000 | J | 17000 | J | 8400 | J | 11000 | J | 14000 | J | 14000 | J | 22000 | J | 13000 | J | 13000 | J | 14000 | J |
| Lead | 7439-92-1 | mg/kg | 3.9 | | 70 | | 7.8 | | 3.2 | | 10 | | 9.4 | | 5.7 | | 320 | | 8.7 | | 3.7 | | 17 | |
| Magnesium | 7439-95-4 | mg/kg | 8200 | | 1600 | | 2600 | | 11000 | | 3800 | | 1200 | | 3400 | | 1400 | | 1000 | | 9900 | | 5300 | J+ |
| Manganese | 7439-96-5 | mg/kg | 400 | J | 1300 | J | 700 | J | 350 | J | 540 | J | 700 | J | 630 | J | 670 | J | 780 | J | 550 | J | 730 | J |
| Mercury | 7439-97-6 | mg/kg | 0.021 | J+ | 0.26 | | 0.036 | | 0.015 | U | 0.04 | | 0.053 | | 0.022 | J+ | 0.16 | | 0.047 | | 0.019 | J+ | 0.076 | |
| Nickel | 7440-02-0 | mg/kg | 5.9 | | 8.5 | | 8.1 | | 5.2 | | 6.8 | | 6.9 | | 8.7 | | 9.6 | | 6.5 | | 7 | | 7.1 | |
| Potassium | 7440-09-7 | mg/kg | 680 | | 490 | | 510 | | 600 | | 440 | | 330 | | 490 | | 480 | | 310 | | 630 | | 560 | |
| Selenium | 7782-49-2 | mg/kg | 0.32 | U | 0.4 | J | 0.19 | J | 0.4 | U | 0.26 | J | 0.31 | J | 0.53 | J+ | 0.87 | | 0.18 | J | 0.44 | U | 0.34 | J |
| Silver | 7440-22-4 | mg/kg | 0.57 | UJ | 1.8 | J+ | 0.58 | UJ | 0.48 | UJ | 0.51 | UJ | 0.49 | UJ | 0.56 | UJ | 0.67 | UJ | 0.54 | UJ | 0.46 | UJ | 0.68 | UJ |
| Sodium | 7440-23-5 | mg/kg | 470 | J+ | 600 | J+ | 480 | J+ | 400 | J+ | 420 | J+ | 82 | U | 470 | J+ | 560 | J+ | 91 | U | 380 | J+ | 560 | J+ |
| Thallium | 7440-28-0 | mg/kg | 0.038 | J | 0.097 | | 0.051 | J | 0.041 | J | 0.066 | J | 0.094 | J | 0.079 | J | 0.079 | J | 0.057 | J | 0.04 | J | 0.096 | J |
| Vanadium | 7440-62-2 | mg/kg | 11 | | 15 | | 11 | | 7.3 | | 9.5 | | 11 | | 10 | | 14 | | 12 | | 9.6 | | 12 | |
| Zinc | 7440-66-6 | mg/kg | 18 | | 93 | | 22 | | 14 | | 29 | | 24 | | 19 | | 2500 | | 33 | | 21 | | 35 | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 5.7 | | 30 | | 7.9 | | 3.8 | | 8.8 | | 13 | | 13 | | 16 | | 11 | | 8.4 | | 22 | |
| Total Organic Carbon | N/A | mg/kg | 2000 | U | 22000 | | 2800 | J | 2000 | U | 13000 | | 7500 | | 3300 | J | 17000 | | 7300 | | 2400 | J | 19000 | |
| Solids | N/A | % | 88.4 | | 80.1 | | 87.6 | | 92.2 | | 85.7 | | 85.2 | | 84.3 | | 82.6 | | 85 | | 89.1 | | 81.2 | |

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-B-042 | | NYOW-B-043 | | NYOW-B-043 | | NYOW-B-043 | | NYOW-B-044 | | NYOW-B-044 | | NYOW-B-044 | | NYOW-B-045 | | NYOW-B-045 | | NYOW-B-045 | | NYOW-B-046 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-B-PH042-C | | NYOW-B-SL043-A | | NYOW-B-PH043-B | | NYOW-B-PH043-C | | NYOW-B-SL044-A | | NYOW-B-PH044-B | | NYOW-B-PH044-C | | NYOW-B-SL045-A | | NYOW-B-PH045-B | | NYOW-B-PH045-C | | NYOW-B-SL046-A | |
| | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | |
| | | Sample Date: | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 6.8 | | 22.1 | | 22.8 | | 13.8 | | 20.9 | | 10.8 | | 20.4 | | 4.1 | | 2.9 | | 2.3 | | 6.1 | |
| Coarse Sand | N/A | % | 2.7 | | 3.4 | | 2.8 | | 4.9 | | 8.8 | | 2.6 | | 3.6 | | 2.9 | | 2.3 | | 3.1 | | 4.9 | |
| Medium Sand | N/A | % | 7.5 | | 8.1 | | 6.5 | | 7.3 | | 8.2 | | 5 | | 5.9 | | 6.9 | | 5.2 | | 6.2 | | 10.2 | |
| Fine Sand | N/A | % | 48.2 | | 40.2 | | 37.9 | | 44.4 | | 34.1 | | 41.3 | | 38.1 | | 50.5 | | 54.2 | | 50.2 | | 46 | |
| Silt | N/A | % | 30.1 | | 22.8 | | 26.8 | | 23.5 | | 24.4 | | 35.1 | | 22.2 | | 30.6 | | 27.2 | | 29.2 | | 28.6 | |
| Clay | N/A | % | 4.7 | | 3.5 | | 3.3 | | 6.2 | | 3.6 | | 5.2 | | 9.8 | | 5 | | 8.2 | | 9.1 | | 4.3 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-B-046 | | NYOW-B-047 | | NYOW-B-047 | | NYOW-B-047 | | NYOW-B-048 | | NYOW-B-048 | | NYOW-B-048 | | NYOW-B-049 | | NYOW-B-049 | | NYOW-B-049 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-B-PH046-B | | NYOW-B-PH046-C | | NYOW-B-SL047-A | | NYOW-B-PH047-B | | NYOW-B-PH047-C | | NYOW-B-SL048-A | | NYOW-B-PH048-B | | NYOW-B-PH048-C | | NYOW-B-SL049-A | | NYOW-B-PH049-B | | NYOW-B-PH049-C | |
| | | | Sample Type: | | N | | C | | C | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | Sample Date: | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-05 | | 2021-05-05 | | 2021-05-05 | | 2021-05-05 | | 2021-05-05 | | 2021-05-05 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0024 | U | 0.0022 | U | 0.028 | | 0.011 | J+ | 0.002 | U | 0.0099 | J- | 0.01 | J+ | 0.0098 | J+ | 0.0011 | J- | 0.002 | U | 0.0022 | U |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0024 | U | 0.0022 | U | 0.036 | | 0.011 | J+ | 0.002 | U | 0.012 | J- | 0.01 | J+ | 0.0098 | J+ | 0.0011 | J- | 0.002 | U | 0.0022 | U |
| Acenaphthene | 83-32-9 | mg/kg | 0.0013 | U | 0.0012 | U | 0.011 | J+ | 0.0011 | U | 0.0011 | U | 0.011 | J+ | 0.0011 | UJ | 0.0098 | J+ | 0.0011 | UJ | 0.0011 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0013 | U | 0.0012 | U | 0.12 | | 0.0079 | J | 0.0011 | U | 0.051 | J- | 0.0042 | J- | 0.0098 | J+ | 0.0013 | J- | 0.0011 | U | 0.0012 | U |
| Anthracene | 120-12-7 | mg/kg | 0.0018 | J | 0.0047 | U | 0.067 | | 0.0038 | J | 0.0044 | U | 0.034 | J- | 0.0025 | J- | 0.0042 | UJ | 0.0044 | UJ | 0.0043 | U | 0.0048 | U |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0073 | J | 0.0047 | U | 0.35 | | 0.015 | | 0.0044 | U | 0.12 | J- | 0.0099 | J- | 0.0042 | UJ | 0.0047 | J- | 0.0031 | J | 0.0048 | U |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0053 | U | 0.0047 | U | 0.34 | J | 0.018 | J | 0.0044 | U | 0.14 | J- | 0.013 | J- | 0.0042 | UJ | 0.0071 | J- | 0.0024 | J | 0.0048 | U |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.012 | | 0.0072 | U | 0.44 | | 0.026 | | 0.0031 | J | 0.17 | J- | 0.018 | J- | 0.0023 | J- | 0.0095 | J- | 0.004 | J | 0.0073 | U |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0059 | J- | 0.0072 | UJ | 0.24 | J- | 0.013 | J- | 0.0068 | UJ | 0.083 | J- | 0.011 | J- | 0.0065 | UJ | 0.0053 | J- | 0.0067 | U | 0.0073 | U |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0044 | J- | 0.0047 | UJ | 0.19 | J- | 0.0085 | J- | 0.0044 | UJ | 0.059 | J- | 0.0055 | J- | 0.0042 | UJ | 0.0032 | J- | 0.0043 | U | 0.0048 | U |
| Chrysene | 218-01-9 | mg/kg | 0.0086 | J | 0.0047 | U | 0.39 | | 0.018 | | 0.0044 | U | 0.12 | J- | 0.013 | J- | 0.002 | J- | 0.047 | J- | 0.005 | J | 0.0048 | U |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0081 | UJ | 0.0072 | UJ | 0.072 | J- | 0.0071 | UJ | 0.0068 | UJ | 0.022 | J- | 0.0035 | J- | 0.0065 | UJ | 0.0068 | UJ | 0.0067 | U | 0.0073 | U |
| Fluoranthene | 206-44-0 | mg/kg | 0.014 | | 0.0047 | U | 0.61 | | 0.027 | | 0.01 | J+ | 0.2 | J- | 0.015 | J | 0.0042 | UJ | 0.01 | J- | 0.0059 | J | 0.0048 | U |
| Fluorene | 86-73-7 | mg/kg | 0.0032 | U | 0.0029 | U | 0.026 | | 0.0028 | U | 0.0027 | U | 0.01 | J- | 0.01 | J+ | 0.0026 | UJ | 0.0027 | UJ | 0.0027 | U | 0.0029 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0081 | UJ | 0.0072 | UJ | 0.3 | J- | 0.014 | J- | 0.0068 | UJ | 0.092 | J- | 0.013 | J- | 0.0065 | UJ | 0.0053 | J- | 0.0067 | U | 0.0073 | U |
| Naphthalene | 91-20-3 | mg/kg | 0.0024 | U | 0.0022 | U | 0.034 | | 0.011 | J+ | 0.002 | U | 0.012 | J | 0.01 | J+ | 0.024 | J | 0.002 | UJ | 0.01 | J+ | 0.0022 | U |
| Phenanthrene | 85-01-8 | mg/kg | 0.0064 | J | 0.0072 | U | 0.3 | | 0.013 | | 0.01 | J+ | 0.11 | J- | 0.0067 | J- | 0.0065 | UJ | 0.0047 | J- | 0.0038 | J | 0.0073 | U |
| Pyrene | 129-00-0 | mg/kg | 0.012 | | 0.0072 | U | 0.59 | | 0.026 | | 0.01 | J+ | 0.2 | J- | 0.016 | J | 0.0065 | UJ | 0.0091 | J- | 0.0055 | J | 0.0073 | U |
| High Molecular Weight PAHs | N/A | mg/kg | 0.066 | | 0.055 | U | 2.9 | | 0.15 | | 0.035 | | 1 | | 0.1 | | 0.019 | | 0.095 | | 0.035 | | 0.056 | U |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.031 | | 0.029 | U | 1.2 | | 0.087 | | 0.028 | | 0.45 | | 0.069 | | 0.074 | | 0.023 | | 0.027 | | 0.029 | U |
| Total PAHs | N/A | mg/kg | 0.089 | | 0.083 | U | 4.1 | | 0.23 | | 0.051 | | 1.5 | | 0.17 | | 0.091 | | 0.12 | | 0.058 | | 0.085 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 8500 | J | 4500 | J | 8100 | J | 6500 | J | 3200 | J | 5300 | J | 7600 | J | 3100 | J | 4900 | J | 5000 | J | 2200 | J |
| Antimony | 7440-36-0 | mg/kg | 0.25 | | 0.15 | J | 0.33 | | 0.24 | | 0.15 | U | 0.19 | J+ | 0.15 | J+ | 0.076 | J+ | 0.12 | J+ | 0.1 | J+ | 0.08 | J+ |
| Arsenic | 7440-38-2 | mg/kg | 6.3 | | 3.3 | | 7.5 | | 5.3 | | 3.3 | | 5.1 | | 11 | | 3.8 | | 5.5 | | 3.9 | | 1.8 | |
| Barium | 7440-39-3 | mg/kg | 62 | J- | 25 | | 58 | | 38 | | 18 | | 39 | | 46 | | 18 | | 31 | | 63 | | 13 | |
| Beryllium | 7440-41-7 | mg/kg | 0.53 | J+ | 0.23 | J | 0.53 | J+ | 0.45 | J+ | 0.17 | J | 0.53 | J+ | 0.46 | J+ | 0.16 | J | 0.51 | J+ | 0.46 | J+ | 0.1 | J |
| Cadmium | 7440-43-9 | mg/kg | 0.16 | | 0.04 | J | 0.28 | | 0.064 | J | 0.012 | J | 0.15 | | 0.17 | | 0.024 | J | 0.07 | J | 0.056 | J | 0.04 | U |
| Calcium | 7440-70-2 | mg/kg | 8700 | J | 39000 | J | 23000 | J | 57000 | J | 140000 | J | 56000 | J | 8800 | J | 94000 | J | 100000 | J | 61000 | J | 44000 | J |
| Chromium | 7440-47-3 | mg/kg | 8.8 | J- | 6.9 | | 9.6 | | 6.9 | | 4.8 | | 6.4 | | 8.4 | | 3.8 | | 6.1 | | 6.3 | | 3.6 | J |
| Cobalt | 7440-48-4 | mg/kg | 6.3 | J- | 4 | | 6.7 | | 5.1 | | 3.3 | | 4.5 | | 9.7 | | 3 | | 4.8 | | 4.3 | | 2 | |
| Copper | 7440-50-8 | mg/kg | 22 | J- | 12 | | 30 | | 24 | | 23 | | 21 | | 28 | | 17 | | 27 | | 23 | | 5.9 | |
| Iron | 7439-89-6 | mg/kg | 19000 | J | 11000 | J | 20000 | J | 18000 | J | 11000 | J | 15000 | J | 22000 | J | 11000 | J | 15000 | J | 18000 | J | 6000 | J |
| Lead | 7439-92-1 | mg/kg | 15 | J- | 4 | | 32 | | 9.1 | | 9 | | 16 | J+ | 13 | J+ | 5.5 | J+ | 9.9 | J+ | 6.2 | J+ | 2.3 | J+ |
| Magnesium | 7439-95-4 | mg/kg | 4300 | J- | 10000 | | 7600 | | 9200 | | 18000 | | 12000 | J | 2800 | J | 28000 | J | 17000 | J | 14000 | J | 9700 | J |
| Manganese | 7439-96-5 | mg/kg | 1100 | J | 390 | J | 970 | J | 820 | J | 590 | J | 770 | J | 1200 | J | 630 | J | 790 | J | 1100 | J | 250 | J |
| Mercury | 7439-97-6 | mg/kg | 0.08 | | 0.022 | J+ | 0.094 | | 0.03 | | 0.015 | U | 0.036 | | 0.065 | | 0.015 | U | 0.027 | | 0.017 | J | 0.018 | U |
| Nickel | 7440-02-0 | mg/kg | 9.6 | J- | 7.9 | | 12 | | 9.9 | | 6.9 | | 8.2 | | 12 | | 5.9 | | 8.7 | | 7.7 | | 4.1 | J |
| Potassium | 7440-09-7 | mg/kg | 530 | J | 720 | | 920 | | 710 | | 690 | | 810 | | 520 | | 570 | | 850 | | 750 | | 510 | |
| Selenium | 7782-49-2 | mg/kg | 0.37 | J | 0.4 | U | 0.4 | J | 0.19 | J | 0.4 | U | 0.26 | J | 0.34 | J | 0.38 | U | 0.21 | J | 0.12 | J | 0.45 | U |
| Silver | 7440-22-4 | mg/kg | 0.63 | UJ | 0.49 | UJ | 0.64 | UJ | 0.54 | UJ | 0.48 | UJ | 1.6 | J+ | 1.4 | J+ | 1.4 | J+ | 1.5 | J+ | 1.4 | J+ | 1.6 | J+ |
| Sodium | 7440-23-5 | mg/kg | 530 | J+ | 410 | J+ | 530 | J+ | 450 | J+ | 400 | J+ | 530 | J+ | 460 | J+ | 480 | J+ | 510 | J+ | 460 | J+ | 540 | J+ |
| Thallium | 7440-28-0 | mg/kg | 0.12 | | 0.085 | J | 0.14 | | 0.061 | J | 0.053 | J | 0.081 | J | 0.11 | | 0.048 | J | 0.075 | J | 0.054 | J | 0.025 | J |
| Vanadium | 7440-62-2 | mg/kg | 16 | J | 10 | | 16 | | 12 | | 7 | | 12 | | 16 | | 7.5 | | 11 | | 13 | | 7.1 | |
| Zinc | 7440-66-6 | mg/kg | 38 | J- | 20 | | 66 | | 29 | | 18 | | 34 | | 38 | | 19 | | 28 | | 30 | | 12 | |
| Other Inorganics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 19 | | 4.65 | | 24.5 | | 8.5 | | 3.9 | | 15 | | 15 | | 6.2 | | 15 | | 7.1 | | 2.1 | |
| Total Organic Carbon | N/A | mg/kg | 5000 | | 16000 | J | 32000 | | 19000 | | 39000 | | 21000 | | 6700 | | 14000 | | 39000 | | 20000 | | 16000 | |
| Solids | N/A | % | 81.8 | | 86.35 | | 81 | | 89.6 | | 93 | | 85.7 | | 87.2 | | 93.1 | | 90.1 | | 90.9 | | 84.8 | |

Table D.2-10
Reduced Validated Analytical Results[(1)] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | Sample Location: | | NYOW-B-046 | | NYOW-B-047 | | NYOW-B-047 | | NYOW-B-047 | | NYOW-B-048 | | NYOW-B-048 | | NYOW-B-048 | | NYOW-B-049 | | NYOW-B-049 | | NYOW-B-049 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Name: | | NYOW-B-PH046-B | | NYOW-B-PH046-C | | NYOW-B-SL047-A | | NYOW-B-PH047-B | | NYOW-B-PH047-C | | NYOW-B-SL048-A | | NYOW-B-PH048-B | | NYOW-B-PH048-C | | NYOW-B-SL049-A | | NYOW-B-PH049-B | | NYOW-B-PH049-C | |
| | | | Sample Type: | | N | | C | | C | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | Sample Depth (feet): | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | Sample Date: | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-06 | | 2021-05-05 | | 2021-05-05 | | 2021-05-05 | | 2021-05-05 | | 2021-05-05 | | 2021-05-05 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Grain Size | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gravel | N/A | % | 20.9 | | 13 | | 3.9 | | 25 | | 36.8 | | 32.8 | | 27.6 | | 22 | | 33.6 | | 30.1 | | 10.1 | |
| Coarse Sand | N/A | % | 4.4 | | 3 | | 2.6 | | 12.8 | | 15.3 | | 10 | | 3.3 | | 12.7 | | 12.7 | | 16.5 | | 5.7 | |
| Medium Sand | N/A | % | 9.2 | | 4.4 | | 9.1 | | 19 | | 19.5 | | 14.7 | | 30.3 | | 28.4 | | 28.1 | | 21.7 | | 6.4 | |
| Fine Sand | N/A | % | 37.5 | | 34.7 | | 37.2 | | 25 | | 18.7 | | 28.3 | | 21 | | 24.7 | | 19.8 | | 23.6 | | 48.9 | |
| Silt | N/A | % | 22.7 | | 36.1 | | 37.9 | | 11.8 | | 7.4 | | 6.2 | | 8.9 | | 6.6 | | 0 | U | 3.2 | | 22.8 | |
| Clay | N/A | % | 5.2 | | 8.9 | | 9.4 | | 6.3 | | 2.3 | | 8 | | 8.8 | | 5.6 | | 5.7 | | 4.9 | | 6 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table D.2-10
Reduced Validated Analytical Results[1] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-B-050 | | NYOW-B-050 | | NYOW-B-050 | |
|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-B-SL050-A | | NYOW-B-PH050-B | | NYOW-B-PH050-C | |
| | | Sample Type: | N | | N | | N | |
| | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | Sample Date: | 2021-05-05 | | 2021-05-05 | | 2021-05-05 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0029 | J | 0.01 | J+ | 0.0022 | UJ |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0072 | J | 0.01 | J+ | 0.0022 | UJ |
| Acenaphthene | 83-32-9 | mg/kg | 0.0012 | U | 0.01 | J+ | 0.0012 | UJ |
| Acenaphthylene | 208-96-8 | mg/kg | 0.056 | | 0.016 | | 0.0012 | UJ |
| Anthracene | 120-12-7 | mg/kg | 0.034 | | 0.012 | | 0.0047 | UJ |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.25 | | 0.089 | | 0.0047 | UJ |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.29 | | 0.09 | | 0.0047 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.35 | | 0.099 | | 0.0073 | UJ |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.19 | | 0.05 | | 0.0073 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.17 | | 0.046 | | 0.0047 | UJ |
| Chrysene | 218-01-9 | mg/kg | 0.25 | | 0.081 | | 0.0031 | J- |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.045 | | 0.013 | | 0.0073 | UJ |
| Fluoranthene | 206-44-0 | mg/kg | 0.37 | J- | 0.15 | | 0.0047 | UJ |
| Fluorene | 86-73-7 | mg/kg | 0.0042 | J | 0.01 | J+ | 0.0029 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.21 | | 0.058 | | 0.0073 | UJ |
| Naphthalene | 91-20-3 | mg/kg | 0.032 | J+ | 0.01 | J+ | 0.0022 | UJ |
| Phenanthrene | 85-01-8 | mg/kg | 0.086 | | 0.035 | | 0.011 | J+ |
| Pyrene | 129-00-0 | mg/kg | 0.33 | J- | 0.14 | | 0.0073 | UJ |
| High Molecular Weight PAHs | N/A | mg/kg | 2.1 | | 0.67 | | 0.028 | |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.59 | | 0.26 | | 0.021 | |
| Total PAHs | N/A | mg/kg | 2.7 | | 0.93 | | 0.036 | |
| Metals (Total) | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 8400 | J | 4800 | J | 13000 | J |
| Antimony | 7440-36-0 | mg/kg | 0.27 | J+ | 0.24 | | 0.16 | J+ |
| Arsenic | 7440-38-2 | mg/kg | 8.1 | | 5.2 | | 4 | |
| Barium | 7440-39-3 | mg/kg | 95 | | 67 | | 75 | |
| Beryllium | 7440-41-7 | mg/kg | 0.54 | J+ | 0.4 | J+ | 0.56 | |
| Cadmium | 7440-43-9 | mg/kg | 0.34 | | 0.22 | | 0.049 | J |
| Calcium | 7440-70-2 | mg/kg | 30000 | J | 120000 | J | 60000 | J |
| Chromium | 7440-47-3 | mg/kg | 11 | J- | 6.2 | | 18 | |
| Cobalt | 7440-48-4 | mg/kg | 7.1 | J- | 3.7 | | 12 | |
| Copper | 7440-50-8 | mg/kg | 26 | | 20 | | 22 | |
| Iron | 7439-89-6 | mg/kg | 22000 | J | 12000 | J | 21000 | J |
| Lead | 7439-92-1 | mg/kg | 87 | J | 92 | J | 8.9 | J+ |
| Magnesium | 7439-95-4 | mg/kg | 11000 | J- | 18000 | J | 14000 | J |
| Manganese | 7439-96-5 | mg/kg | 980 | J | 650 | J | 530 | J |
| Mercury | 7439-97-6 | mg/kg | 0.15 | | 0.1 | | 0.022 | J+ |
| Nickel | 7440-02-0 | mg/kg | 13 | J- | 7.9 | | 23 | |
| Potassium | 7440-09-7 | mg/kg | 990 | | 810 | | 2700 | |
| Selenium | 7782-49-2 | mg/kg | 0.43 | J | 0.16 | J | 0.47 | U |
| Silver | 7440-22-4 | mg/kg | 1.6 | J+ | 1.2 | J+ | 1.4 | J+ |
| Sodium | 7440-23-5 | mg/kg | 540 | J+ | 400 | J+ | 480 | J+ |
| Thallium | 7440-28-0 | mg/kg | 0.13 | | 0.07 | J | 0.13 | |
| Vanadium | 7440-62-2 | mg/kg | 18 | J- | 11 | | 24 | |
| Zinc | 7440-66-6 | mg/kg | 98 | J+ | 88 | | 45 | |
| Other Inorganics | | | | | | | | |
| Cation-Exchange Capacity | N/A | mEQ/100g | 17 | | 13 | | 27 | |
| Total Organic Carbon | N/A | mg/kg | 30000 | | 22000 | | 2200 | J |
| Solids | N/A | % | 83.2 | | 89.9 | | 84.2 | |

Table D.2-10
Reduced Validated Analytical Results[1] - Background, Soil
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | Sample Location: | NYOW-B-050 | | NYOW-B-050 | | NYOW-B-050 | |
|---|---|---|---|---|---|---|---|---|
| | | Sample Name: | NYOW-B-SL050-A | | NYOW-B-PH050-B | | NYOW-B-PH050-C | |
| | | Sample Type: | N | | N | | N | |
| | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | Sample Date: | 2021-05-05 | | 2021-05-05 | | 2021-05-05 | |
| Analyte | CASRN | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Grain Size | | | | | | | | |
| Gravel | N/A | % | 15.4 | | 25.3 | | 0 | U |
| Coarse Sand | N/A | % | 9.5 | | 5.9 | | 0.1 | |
| Medium Sand | N/A | % | 22 | | 14.5 | | 0.1 | |
| Fine Sand | N/A | % | 32 | | 14.4 | | 5.2 | |
| Silt | N/A | % | 12.9 | | 27.1 | | 64.7 | |
| Clay | N/A | % | 8.2 | | 12.9 | | 30 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
mEQ/100g = millequivalents per 100 grams of soil
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
% = Percent

Legend

| | |
|---|---|
| ND | ND at the LOD |
| Detect | Detected result |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

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# APPENDIX E

# Comparison of Non-detect Analyte LOQs with Screening Levels

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# APPENDIX E.1

# Sample by Sample Comparison Tables

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Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 1 | NA | NYOW-01-WL001-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 1 | NA | NYOW-01-WL001-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 1 | NA | NYOW-01-WL001-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 1 | NA | NYOW-01-WL001-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 1 | NA | NYOW-01-WL001-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 1 | NA | NYOW-01-WL001-A | 2,4-Dinitrochlorobenzene | µg/L | 19 | 0.24 | 79.16666667 |
| AOC 1 | NA | NYOW-01-WL001-A | 2,4-Dinitrophenol | µg/L | 48 | 3.9 | 12.30769231 |
| AOC 1 | NA | NYOW-01-WL001-A | Picric acid | µg/L | 0.43 | 4 | 0.1075 |
| AOC 1 | NA | NYOW-01-WL005-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 1 | NA | NYOW-01-WL005-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 1 | NA | NYOW-01-WL005-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 1 | NA | NYOW-01-WL005-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 1 | NA | NYOW-01-WL005-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 1 | NA | NYOW-01-WL005-A | 2,4-Dinitrochlorobenzene | µg/L | 22 | 0.24 | 91.66666667 |
| AOC 1 | NA | NYOW-01-WL005-A | 2,4-Dinitrophenol | µg/L | 54 | 3.9 | 13.84615385 |
| AOC 1 | NA | NYOW-01-WL005-A | Picric acid | µg/L | 0.43 | 4 | 0.1075 |
| AOC 1 | NA | NYOW-01-WL006-A | Picric acid | µg/L | 0.39 | 4 | 0.0975 |
| AOC 1 | NA | NYOW-01-WL006-B | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 1 | NA | NYOW-01-WL006-B | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 1 | NA | NYOW-01-WL006-B | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 1 | NA | NYOW-01-WL006-B | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 1 | NA | NYOW-01-WL006-B | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 1 | NA | NYOW-01-WL006-B | 2,4-Dinitrochlorobenzene | µg/L | 21 | 0.24 | 87.5 |
| AOC 1 | NA | NYOW-01-WL006-B | 2,4-Dinitrophenol | µg/L | 53 | 3.9 | 13.58974359 |
| AOC 1 | NA | NYOW-01-WL006-B | Picric acid | µg/L | 0.43 | 4 | 0.1075 |
| AOC 1 | NA | NYOW-01-WL018-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 1 | NA | NYOW-01-WL018-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 1 | NA | NYOW-01-WL018-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 1 | NA | NYOW-01-WL018-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 1 | NA | NYOW-01-WL018-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 1 | NA | NYOW-01-WL018-A | 2,4-Dinitrochlorobenzene | µg/L | 21 | 0.24 | 87.5 |
| AOC 1 | NA | NYOW-01-WL018-A | 2,4-Dinitrophenol | µg/L | 53 | 3.9 | 13.58974359 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 1 | NA | NYOW-01-WL018-A | Picric acid | µg/L | 0.42 | 4 | 0.105 |
| AOC 1 | NA | NYOW-01-WL019-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 1 | NA | NYOW-01-WL019-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 1 | NA | NYOW-01-WL019-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 1 | NA | NYOW-01-WL019-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 1 | NA | NYOW-01-WL019-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 1 | NA | NYOW-01-WL019-A | 2,4-Dinitrochlorobenzene | µg/L | 20 | 0.24 | 83.33333333 |
| AOC 1 | NA | NYOW-01-WL019-A | 2,4-Dinitrophenol | µg/L | 51 | 3.9 | 13.07692308 |
| AOC 1 | NA | NYOW-01-WL019-A | Picric acid | µg/L | 0.41 | 4 | 0.1025 |
| AOC 1 | NA | NYOW-01-WL021-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 1 | NA | NYOW-01-WL021-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 1 | NA | NYOW-01-WL021-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 1 | NA | NYOW-01-WL021-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 1 | NA | NYOW-01-WL021-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 1 | NA | NYOW-01-WL021-A | 2,4-Dinitrochlorobenzene | µg/L | 20 | 0.24 | 83.33333333 |
| AOC 1 | NA | NYOW-01-WL021-A | 2,4-Dinitrophenol | µg/L | 51 | 3.9 | 13.07692308 |
| AOC 1 | NA | NYOW-01-WL021-A | Picric acid | µg/L | 0.41 | 4 | 0.1025 |
| AOC 1 | NA | NYOW-01-WL022-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 1 | NA | NYOW-01-WL022-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 1 | NA | NYOW-01-WL022-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 1 | NA | NYOW-01-WL022-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 1 | NA | NYOW-01-WL022-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 1 | NA | NYOW-01-WL022-A_R | 2,4-Dinitrochlorobenzene | µg/L | 21 | 0.24 | 87.5 |
| AOC 1 | NA | NYOW-01-WL022-A_R | 2,4-Dinitrophenol | µg/L | 52 | 3.9 | 13.33333333 |
| AOC 1 | NA | NYOW-01-WL022-A_R | Picric acid | µg/L | 0.42 | 4 | 0.105 |
| AOC 1 | NA | NYOW-01-WL023-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 1 | NA | NYOW-01-WL023-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 1 | NA | NYOW-01-WL023-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 1 | NA | NYOW-01-WL023-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 1 | NA | NYOW-01-WL023-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 1 | NA | NYOW-01-WL023-A_R | 2,4-Dinitrochlorobenzene | µg/L | 20 | 0.24 | 83.33333333 |
| AOC 1 | NA | NYOW-01-WL023-A_R | 2,4-Dinitrophenol | µg/L | 51 | 3.9 | 13.07692308 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 1 | NA | NYOW-01-WL023-A_R | Picric acid | µg/L | 0.4 | 4 | 0.1 |
| AOC 1 | NA | NYOW-01-WL024-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 1 | NA | NYOW-01-WL024-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 1 | NA | NYOW-01-WL024-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 1 | NA | NYOW-01-WL024-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 1 | NA | NYOW-01-WL024-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 1 | NA | NYOW-01-WL024-A | 2,4-Dinitrochlorobenzene | µg/L | 21 | 0.24 | 87.5 |
| AOC 1 | NA | NYOW-01-WL024-A | 2,4-Dinitrophenol | µg/L | 52 | 3.9 | 13.33333333 |
| AOC 1 | NA | NYOW-01-WL024-A | Picric acid | µg/L | 0.4 | 4 | 0.1 |
| AOC 3 | NA | NYOW-03-WL002-A | 1-Methylnaphthalene | µg/L | 0.1 | 1.1 | 0.090909091 |
| AOC 3 | NA | NYOW-03-WL002-A | 2-Methylnaphthalene | µg/L | 0.1 | 3.6 | 0.027777778 |
| AOC 3 | NA | NYOW-03-WL002-A | Acenaphthene | µg/L | 0.1 | 53 | 0.001886792 |
| AOC 3 | NA | NYOW-03-WL002-A | Acenaphthylene | µg/L | 0.1 | 53 | 0.001886792 |
| AOC 3 | NA | NYOW-03-WL002-A | Anthracene | µg/L | 0.1 | 180 | 0.000555556 |
| AOC 3 | NA | NYOW-03-WL002-A | Benzo(a)anthracene | µg/L | 0.1 | 0.03 | 3.333333333 |
| AOC 3 | NA | NYOW-03-WL002-A | Benzo(a)pyrene | µg/L | 0.1 | 0.025 | 4 |
| AOC 3 | NA | NYOW-03-WL002-A | Benzo(b)fluoranthene | µg/L | 0.1 | 0.25 | 0.4 |
| AOC 3 | NA | NYOW-03-WL002-A | Benzo(g,h,i)perylene | µg/L | 0.1 | 12 | 0.008333333 |
| AOC 3 | NA | NYOW-03-WL002-A | Benzo(k)fluoranthene | µg/L | 0.1 | 2.5 | 0.04 |
| AOC 3 | NA | NYOW-03-WL002-A | Chrysene | µg/L | 0.1 | 25 | 0.004 |
| AOC 3 | NA | NYOW-03-WL002-A | Dibenz(a,h)anthracene | µg/L | 0.1 | 0.025 | 4 |
| AOC 3 | NA | NYOW-03-WL002-A | Fluoranthene | µg/L | 0.1 | 80 | 0.00125 |
| AOC 3 | NA | NYOW-03-WL002-A | Fluorene | µg/L | 0.1 | 29 | 0.003448276 |
| AOC 3 | NA | NYOW-03-WL002-A | Indeno(1,2,3-c,d)pyrene | µg/L | 0.1 | 0.25 | 0.4 |
| AOC 3 | NA | NYOW-03-WL002-A | Naphthalene | µg/L | 0.1 | 0.12 | 0.833333333 |
| AOC 3 | NA | NYOW-03-WL002-A | Phenanthrene | µg/L | 0.1 | 180 | 0.000555556 |
| AOC 3 | NA | NYOW-03-WL002-A | Pyrene | µg/L | 0.1 | 12 | 0.008333333 |
| AOC 3 | NA | NYOW-03-WL002-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 3 | NA | NYOW-03-WL002-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 3 | NA | NYOW-03-WL002-A | Copper | µg/L | 15 | 80 | 0.1875 |
| AOC 3 | NA | NYOW-03-WL002-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 3 | NA | NYOW-03-WL002-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL002-A | Chromium | µg/L | 10 | 2200 | 0.004545455 |
| AOC 3 | NA | NYOW-03-WL002-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 3 | NA | NYOW-03-WL002-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 3 | NA | NYOW-03-WL002-A | 1,1,1-Trichloroethane | µg/L | 1 | 800 | 0.00125 |
| AOC 3 | NA | NYOW-03-WL002-A | 1,1,2,2-Tetrachloroethane | µg/L | 1 | 0.076 | 13.15789474 |
| AOC 3 | NA | NYOW-03-WL002-A | 1,1,2-Trichloro-1,2,2-trifluoroethane | µg/L | 3 | 1000 | 0.003 |
| AOC 3 | NA | NYOW-03-WL002-A | 1,1,2-Trichloroethane | µg/L | 1 | 0.041 | 24.3902439 |
| AOC 3 | NA | NYOW-03-WL002-A | 1,1-Dichloroethane | µg/L | 1 | 2.8 | 0.357142857 |
| AOC 3 | NA | NYOW-03-WL002-A | 1,1-Dichloroethene | µg/L | 1 | 28 | 0.035714286 |
| AOC 3 | NA | NYOW-03-WL002-A | 1,2,3-Trichlorobenzene | µg/L | 1 | 0.7 | 1.428571429 |
| AOC 3 | NA | NYOW-03-WL002-A | 1,2,4-Trichlorobenzene | µg/L | 1 | 0.4 | 2.5 |
| AOC 3 | NA | NYOW-03-WL002-A | 1,2-Dibromo-3-chloropropane | µg/L | 5 | 0.00033 | 15151.51515 |
| AOC 3 | NA | NYOW-03-WL002-A | 1,2-Dibromoethane (EDB) | µg/L | 1 | 0.0075 | 133.3333333 |
| AOC 3 | NA | NYOW-03-WL002-A | 1,2-Dichlorobenzene | µg/L | 1 | 30 | 0.033333333 |
| AOC 3 | NA | NYOW-03-WL002-A | 1,2-Dichloroethane | µg/L | 1 | 0.17 | 5.882352941 |
| AOC 3 | NA | NYOW-03-WL002-A | 1,2-Dichloropropane | µg/L | 1 | 0.82 | 1.219512195 |
| AOC 3 | NA | NYOW-03-WL002-A | 1,3-Dichlorobenzene | µg/L | 1 | 3 | 0.333333333 |
| AOC 3 | NA | NYOW-03-WL002-A | 1,3-Dichloropropane | µg/L | 1 | 37 | 0.027027027 |
| AOC 3 | NA | NYOW-03-WL002-A | 1,4-Dichlorobenzene | µg/L | 1 | 0.48 | 2.083333333 |
| AOC 3 | NA | NYOW-03-WL002-A | 2-Butanone (MEK) | µg/L | 6 | 560 | 0.010714286 |
| AOC 3 | NA | NYOW-03-WL002-A | 2-Hexanone | µg/L | 5 | 3.8 | 1.315789474 |
| AOC 3 | NA | NYOW-03-WL002-A | 4-Methyl-2-pentanone (MIBK) | µg/L | 5 | 630 | 0.007936508 |
| AOC 3 | NA | NYOW-03-WL002-A | Bromochloromethane | µg/L | 1 | 8.3 | 0.120481928 |
| AOC 3 | NA | NYOW-03-WL002-A | Bromodichloromethane | µg/L | 1 | 0.13 | 7.692307692 |
| AOC 3 | NA | NYOW-03-WL002-A | Bromoform | µg/L | 1 | 3.3 | 0.303030303 |
| AOC 3 | NA | NYOW-03-WL002-A | Bromomethane | µg/L | 2 | 0.75 | 2.666666667 |
| AOC 3 | NA | NYOW-03-WL002-A | Carbon disulfide | µg/L | 2 | 81 | 0.024691358 |
| AOC 3 | NA | NYOW-03-WL002-A | Carbon Tetrachloride | µg/L | 2 | 0.46 | 4.347826087 |
| AOC 3 | NA | NYOW-03-WL002-A | Chlorobenzene | µg/L | 1 | 7.8 | 0.128205128 |
| AOC 3 | NA | NYOW-03-WL002-A | Chloroethane | µg/L | 2 | 830 | 0.002409639 |
| AOC 3 | NA | NYOW-03-WL002-A | Chloroform | µg/L | 1 | 0.22 | 4.545454545 |
| AOC 3 | NA | NYOW-03-WL002-A | Chloromethane | µg/L | 2 | 19 | 0.105263158 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL002-A | cis-1,2-Dichloroethene | µg/L | 1 | 2.5 | 0.4 |
| AOC 3 | NA | NYOW-03-WL002-A | cis-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 3 | NA | NYOW-03-WL002-A | Cumene | µg/L | 1 | 45 | 0.022222222 |
| AOC 3 | NA | NYOW-03-WL002-A | Cyclohexane | µg/L | 2 | 1300 | 0.001538462 |
| AOC 3 | NA | NYOW-03-WL002-A | Dibromochloromethane | µg/L | 1 | 0.87 | 1.149425287 |
| AOC 3 | NA | NYOW-03-WL002-A | Dichlorodifluoromethane | µg/L | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-WL002-A | Ethylbenzene | µg/L | 1 | 1.5 | 0.666666667 |
| AOC 3 | NA | NYOW-03-WL002-A | Methyl acetate | µg/L | 5 | 2000 | 0.0025 |
| AOC 3 | NA | NYOW-03-WL002-A | Methyl tert-butyl ether (MTBE) | µg/L | 5 | 14 | 0.357142857 |
| AOC 3 | NA | NYOW-03-WL002-A | Methylene chloride | µg/L | 5 | 11 | 0.454545455 |
| AOC 3 | NA | NYOW-03-WL002-A | o-Xylene | µg/L | 1 | 19 | 0.052631579 |
| AOC 3 | NA | NYOW-03-WL002-A | Styrene | µg/L | 1 | 120 | 0.008333333 |
| AOC 3 | NA | NYOW-03-WL002-A | Tetrachloroethene (PCE) | µg/L | 1 | 4.1 | 0.243902439 |
| AOC 3 | NA | NYOW-03-WL002-A | trans-1,2-Dichloroethene | µg/L | 1 | 6.8 | 0.147058824 |
| AOC 3 | NA | NYOW-03-WL002-A | trans-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 3 | NA | NYOW-03-WL002-A | Trichlorofluoromethane | µg/L | 2 | 520 | 0.003846154 |
| AOC 3 | NA | NYOW-03-WL002-A | Vinyl chloride | µg/L | 1.5 | 0.019 | 78.94736842 |
| AOC 3 | NA | NYOW-03-WL002-A | 1,2,4,5-Tetrachlorobenzene | µg/L | 11 | 0.017 | 647.0588235 |
| AOC 3 | NA | NYOW-03-WL002-A | 1,4-Dioxane | µg/L | 11 | 0.46 | 23.91304348 |
| AOC 3 | NA | NYOW-03-WL002-A | 2,2'-Oxybis(1-chloropropane) | µg/L | 11 | 71 | 0.154929577 |
| AOC 3 | NA | NYOW-03-WL002-A | 2,3,4,6-Tetrachlorophenol | µg/L | 11 | 24 | 0.458333333 |
| AOC 3 | NA | NYOW-03-WL002-A | 2,4,5-Trichlorophenol | µg/L | 11 | 120 | 0.091666667 |
| AOC 3 | NA | NYOW-03-WL002-A | 2,4,6-Trichlorophenol | µg/L | 11 | 1.2 | 9.166666667 |
| AOC 3 | NA | NYOW-03-WL002-A | 2,4-Dichlorophenol | µg/L | 11 | 4.6 | 2.391304348 |
| AOC 3 | NA | NYOW-03-WL002-A | 2,4-Dimethylphenol | µg/L | 11 | 36 | 0.305555556 |
| AOC 3 | NA | NYOW-03-WL002-A | 2,4-Dinitrochlorobenzene | µg/L | 21 | 0.24 | 87.5 |
| AOC 3 | NA | NYOW-03-WL002-A | 2,4-Dinitrophenol | µg/L | 53 | 3.9 | 13.58974359 |
| AOC 3 | NA | NYOW-03-WL002-A | 2,4-Dinitrotoluene | µg/L | 11 | 0.24 | 45.83333333 |
| AOC 3 | NA | NYOW-03-WL002-A | 2,6-Dinitrotoluene | µg/L | 11 | 0.049 | 224.4897959 |
| AOC 3 | NA | NYOW-03-WL002-A | 2-Chloronaphthalene | µg/L | 11 | 75 | 0.146666667 |
| AOC 3 | NA | NYOW-03-WL002-A | 2-Chlorophenol | µg/L | 11 | 9.1 | 1.208791209 |
| AOC 3 | NA | NYOW-03-WL002-A | 2-Methylphenol (o-Cresol) | µg/L | 11 | 93 | 0.11827957 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL002-A | 2-Nitroaniline | µg/L | 53 | 19 | 2.789473684 |
| AOC 3 | NA | NYOW-03-WL002-A | 2-Nitrophenol | µg/L | 11 | 9.1 | 1.208791209 |
| AOC 3 | NA | NYOW-03-WL002-A | 3,3'-Dichlorobenzidine | µg/L | 64 | 0.13 | 492.3076923 |
| AOC 3 | NA | NYOW-03-WL002-A | 3-Nitroaniline | µg/L | 53 | 5 | 10.6 |
| AOC 3 | NA | NYOW-03-WL002-A | 4,6-Dinitro-2-methylphenol | µg/L | 53 | 0.15 | 353.3333333 |
| AOC 3 | NA | NYOW-03-WL002-A | 4-Chloro-3-methylphenol | µg/L | 11 | 140 | 0.078571429 |
| AOC 3 | NA | NYOW-03-WL002-A | 4-Chloroaniline | µg/L | 21 | 0.37 | 56.75675676 |
| AOC 3 | NA | NYOW-03-WL002-A | 4-Nitrophenol | µg/L | 53 | 9.1 | 5.824175824 |
| AOC 3 | NA | NYOW-03-WL002-A | Acetophenone | µg/L | 11 | 190 | 0.057894737 |
| AOC 3 | NA | NYOW-03-WL002-A | Atrazine | µg/L | 11 | 0.3 | 36.66666667 |
| AOC 3 | NA | NYOW-03-WL002-A | Benzyl butyl phthalate | µg/L | 11 | 16 | 0.6875 |
| AOC 3 | NA | NYOW-03-WL002-A | Biphenyl (Diphenyl) | µg/L | 11 | 0.083 | 132.5301205 |
| AOC 3 | NA | NYOW-03-WL002-A | Bis(2-chloroethoxy)methane | µg/L | 11 | 5.9 | 1.86440678 |
| AOC 3 | NA | NYOW-03-WL002-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 11 | 0.014 | 785.7142857 |
| AOC 3 | NA | NYOW-03-WL002-A | Bis(2-ethylhexyl)phthalate | µg/L | 11 | 5.6 | 1.964285714 |
| AOC 3 | NA | NYOW-03-WL002-A | Carbazole | µg/L | 11 | 29 | 0.379310345 |
| AOC 3 | NA | NYOW-03-WL002-A | Cresols, m- & p- | µg/L | 11 | 37 | 0.297297297 |
| AOC 3 | NA | NYOW-03-WL002-A | Dibenzofuran | µg/L | 11 | 0.79 | 13.92405063 |
| AOC 3 | NA | NYOW-03-WL002-A | Diethyl phthalate | µg/L | 11 | 1500 | 0.007333333 |
| AOC 3 | NA | NYOW-03-WL002-A | di-n-Butyl phthalate | µg/L | 11 | 90 | 0.122222222 |
| AOC 3 | NA | NYOW-03-WL002-A | di-n-Octyl phthalate | µg/L | 11 | 20 | 0.55 |
| AOC 3 | NA | NYOW-03-WL002-A | Hexachlorobenzene | µg/L | 11 | 0.0098 | 1122.44898 |
| AOC 3 | NA | NYOW-03-WL002-A | Hexachlorobutadiene | µg/L | 11 | 0.14 | 78.57142857 |
| AOC 3 | NA | NYOW-03-WL002-A | Hexachlorocyclopentadiene | µg/L | 11 | 0.041 | 268.2926829 |
| AOC 3 | NA | NYOW-03-WL002-A | Hexachloroethane | µg/L | 11 | 0.33 | 33.33333333 |
| AOC 3 | NA | NYOW-03-WL002-A | Isophorone | µg/L | 11 | 78 | 0.141025641 |
| AOC 3 | NA | NYOW-03-WL002-A | Nitrobenzene | µg/L | 11 | 0.14 | 78.57142857 |
| AOC 3 | NA | NYOW-03-WL002-A | N-Nitrosodi-n-propylamine | µg/L | 11 | 0.011 | 1000 |
| AOC 3 | NA | NYOW-03-WL002-A | N-Nitrosodiphenylamine | µg/L | 11 | 12 | 0.916666667 |
| AOC 3 | NA | NYOW-03-WL002-A | Pentachlorophenol | µg/L | 53 | 0.041 | 1292.682927 |
| AOC 3 | NA | NYOW-03-WL002-A | Phenol | µg/L | 11 | 580 | 0.018965517 |
| AOC 3 | NA | NYOW-03-WL002-A | Picric acid | µg/L | 0.45 | 4 | 0.1125 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL007-A | 1-Methylnaphthalene | µg/L | 0.1 | 1.1 | 0.090909091 |
| AOC 3 | NA | NYOW-03-WL007-A | 2-Methylnaphthalene | µg/L | 0.1 | 3.6 | 0.027777778 |
| AOC 3 | NA | NYOW-03-WL007-A | Acenaphthene | µg/L | 0.1 | 53 | 0.001886792 |
| AOC 3 | NA | NYOW-03-WL007-A | Acenaphthylene | µg/L | 0.1 | 53 | 0.001886792 |
| AOC 3 | NA | NYOW-03-WL007-A | Anthracene | µg/L | 0.1 | 180 | 0.000555556 |
| AOC 3 | NA | NYOW-03-WL007-A | Benzo(a)anthracene | µg/L | 0.1 | 0.03 | 3.333333333 |
| AOC 3 | NA | NYOW-03-WL007-A | Benzo(a)pyrene | µg/L | 0.1 | 0.025 | 4 |
| AOC 3 | NA | NYOW-03-WL007-A | Benzo(b)fluoranthene | µg/L | 0.1 | 0.25 | 0.4 |
| AOC 3 | NA | NYOW-03-WL007-A | Benzo(g,h,i)perylene | µg/L | 0.1 | 12 | 0.008333333 |
| AOC 3 | NA | NYOW-03-WL007-A | Benzo(k)fluoranthene | µg/L | 0.1 | 2.5 | 0.04 |
| AOC 3 | NA | NYOW-03-WL007-A | Chrysene | µg/L | 0.1 | 25 | 0.004 |
| AOC 3 | NA | NYOW-03-WL007-A | Dibenz(a,h)anthracene | µg/L | 0.1 | 0.025 | 4 |
| AOC 3 | NA | NYOW-03-WL007-A | Fluoranthene | µg/L | 0.1 | 80 | 0.00125 |
| AOC 3 | NA | NYOW-03-WL007-A | Fluorene | µg/L | 0.1 | 29 | 0.003448276 |
| AOC 3 | NA | NYOW-03-WL007-A | Indeno(1,2,3-c,d)pyrene | µg/L | 0.1 | 0.25 | 0.4 |
| AOC 3 | NA | NYOW-03-WL007-A | Naphthalene | µg/L | 0.1 | 0.12 | 0.833333333 |
| AOC 3 | NA | NYOW-03-WL007-A | Phenanthrene | µg/L | 0.1 | 180 | 0.000555556 |
| AOC 3 | NA | NYOW-03-WL007-A | Pyrene | µg/L | 0.1 | 12 | 0.008333333 |
| AOC 3 | NA | NYOW-03-WL007-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 3 | NA | NYOW-03-WL007-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 3 | NA | NYOW-03-WL007-A | Copper | µg/L | 15 | 80 | 0.1875 |
| AOC 3 | NA | NYOW-03-WL007-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 3 | NA | NYOW-03-WL007-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| AOC 3 | NA | NYOW-03-WL007-A | Chromium | µg/L | 10 | 2200 | 0.004545455 |
| AOC 3 | NA | NYOW-03-WL007-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 3 | NA | NYOW-03-WL007-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 3 | NA | NYOW-03-WL007-A | PCB-1016 (Aroclor 1016) | µg/L | 1.1 | 0.14 | 7.857142857 |
| AOC 3 | NA | NYOW-03-WL007-A | PCB-1221 (Aroclor 1221) | µg/L | 1.1 | 0.0047 | 234.0425532 |
| AOC 3 | NA | NYOW-03-WL007-A | PCB-1232 (Aroclor 1232) | µg/L | 1.1 | 0.0047 | 234.0425532 |
| AOC 3 | NA | NYOW-03-WL007-A | PCB-1242 (Aroclor 1242) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 3 | NA | NYOW-03-WL007-A | PCB-1248 (Aroclor 1248) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 3 | NA | NYOW-03-WL007-A | PCB-1254 (Aroclor 1254) | µg/L | 1.1 | 0.0078 | 141.025641 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL007-A | PCB-1260 (Aroclor 1260) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 3 | NA | NYOW-03-WL007-A | PCB-1262 (Aroclor 1262) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 3 | NA | NYOW-03-WL007-A | PCB-1268 (Aroclor 1268) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 3 | NA | NYOW-03-WL007-A | 1,1,1-Trichloroethane | µg/L | 1 | 800 | 0.00125 |
| AOC 3 | NA | NYOW-03-WL007-A | 1,1,2,2-Tetrachloroethane | µg/L | 1 | 0.076 | 13.15789474 |
| AOC 3 | NA | NYOW-03-WL007-A | 1,1,2-Trichloro-1,2,2-trifluoroethane | µg/L | 3 | 1000 | 0.003 |
| AOC 3 | NA | NYOW-03-WL007-A | 1,1,2-Trichloroethane | µg/L | 1 | 0.041 | 24.3902439 |
| AOC 3 | NA | NYOW-03-WL007-A | 1,1-Dichloroethane | µg/L | 1 | 2.8 | 0.357142857 |
| AOC 3 | NA | NYOW-03-WL007-A | 1,1-Dichloroethene | µg/L | 1 | 28 | 0.035714286 |
| AOC 3 | NA | NYOW-03-WL007-A | 1,2,3-Trichlorobenzene | µg/L | 1 | 0.7 | 1.428571429 |
| AOC 3 | NA | NYOW-03-WL007-A | 1,2,4-Trichlorobenzene | µg/L | 1 | 0.4 | 2.5 |
| AOC 3 | NA | NYOW-03-WL007-A | 1,2-Dibromo-3-chloropropane | µg/L | 5 | 0.00033 | 15151.51515 |
| AOC 3 | NA | NYOW-03-WL007-A | 1,2-Dibromoethane (EDB) | µg/L | 1 | 0.0075 | 133.3333333 |
| AOC 3 | NA | NYOW-03-WL007-A | 1,2-Dichlorobenzene | µg/L | 1 | 30 | 0.033333333 |
| AOC 3 | NA | NYOW-03-WL007-A | 1,2-Dichloroethane | µg/L | 1 | 0.17 | 5.882352941 |
| AOC 3 | NA | NYOW-03-WL007-A | 1,2-Dichloropropane | µg/L | 1 | 0.82 | 1.219512195 |
| AOC 3 | NA | NYOW-03-WL007-A | 1,3-Dichlorobenzene | µg/L | 1 | 3 | 0.333333333 |
| AOC 3 | NA | NYOW-03-WL007-A | 1,3-Dichloropropane | µg/L | 1 | 37 | 0.027027027 |
| AOC 3 | NA | NYOW-03-WL007-A | 1,4-Dichlorobenzene | µg/L | 1 | 0.48 | 2.083333333 |
| AOC 3 | NA | NYOW-03-WL007-A | 2-Butanone (MEK) | µg/L | 6 | 560 | 0.010714286 |
| AOC 3 | NA | NYOW-03-WL007-A | 2-Hexanone | µg/L | 5 | 3.8 | 1.315789474 |
| AOC 3 | NA | NYOW-03-WL007-A | 4-Methyl-2-pentanone (MIBK) | µg/L | 5 | 630 | 0.007936508 |
| AOC 3 | NA | NYOW-03-WL007-A | Bromochloromethane | µg/L | 1 | 8.3 | 0.120481928 |
| AOC 3 | NA | NYOW-03-WL007-A | Bromodichloromethane | µg/L | 1 | 0.13 | 7.692307692 |
| AOC 3 | NA | NYOW-03-WL007-A | Bromoform | µg/L | 1 | 3.3 | 0.303030303 |
| AOC 3 | NA | NYOW-03-WL007-A | Bromomethane | µg/L | 2 | 0.75 | 2.666666667 |
| AOC 3 | NA | NYOW-03-WL007-A | Carbon disulfide | µg/L | 2 | 81 | 0.024691358 |
| AOC 3 | NA | NYOW-03-WL007-A | Carbon Tetrachloride | µg/L | 2 | 0.46 | 4.347826087 |
| AOC 3 | NA | NYOW-03-WL007-A | Chlorobenzene | µg/L | 1 | 7.8 | 0.128205128 |
| AOC 3 | NA | NYOW-03-WL007-A | Chloroethane | µg/L | 2 | 830 | 0.002409639 |
| AOC 3 | NA | NYOW-03-WL007-A | Chloroform | µg/L | 1 | 0.22 | 4.545454545 |
| AOC 3 | NA | NYOW-03-WL007-A | Chloromethane | µg/L | 2 | 19 | 0.105263158 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL007-A | cis-1,2-Dichloroethene | µg/L | 1 | 2.5 | 0.4 |
| AOC 3 | NA | NYOW-03-WL007-A | cis-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 3 | NA | NYOW-03-WL007-A | Cumene | µg/L | 1 | 45 | 0.022222222 |
| AOC 3 | NA | NYOW-03-WL007-A | Cyclohexane | µg/L | 2 | 1300 | 0.001538462 |
| AOC 3 | NA | NYOW-03-WL007-A | Dibromochloromethane | µg/L | 1 | 0.87 | 1.149425287 |
| AOC 3 | NA | NYOW-03-WL007-A | Dichlorodifluoromethane | µg/L | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-WL007-A | Ethylbenzene | µg/L | 1 | 1.5 | 0.666666667 |
| AOC 3 | NA | NYOW-03-WL007-A | Methyl acetate | µg/L | 5 | 2000 | 0.0025 |
| AOC 3 | NA | NYOW-03-WL007-A | Methyl tert-butyl ether (MTBE) | µg/L | 5 | 14 | 0.357142857 |
| AOC 3 | NA | NYOW-03-WL007-A | Methylene chloride | µg/L | 5 | 11 | 0.454545455 |
| AOC 3 | NA | NYOW-03-WL007-A | o-Xylene | µg/L | 1 | 19 | 0.052631579 |
| AOC 3 | NA | NYOW-03-WL007-A | Styrene | µg/L | 1 | 120 | 0.008333333 |
| AOC 3 | NA | NYOW-03-WL007-A | Tetrachloroethene (PCE) | µg/L | 1 | 4.1 | 0.243902439 |
| AOC 3 | NA | NYOW-03-WL007-A | trans-1,2-Dichloroethene | µg/L | 1 | 6.8 | 0.147058824 |
| AOC 3 | NA | NYOW-03-WL007-A | trans-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 3 | NA | NYOW-03-WL007-A | Trichlorofluoromethane | µg/L | 2 | 520 | 0.003846154 |
| AOC 3 | NA | NYOW-03-WL007-A | Vinyl chloride | µg/L | 1.5 | 0.019 | 78.94736842 |
| AOC 3 | NA | NYOW-03-WL007-A | 1,2,4,5-Tetrachlorobenzene | µg/L | 19 | 0.017 | 1117.647059 |
| AOC 3 | NA | NYOW-03-WL007-A | 1,4-Dioxane | µg/L | 19 | 0.46 | 41.30434783 |
| AOC 3 | NA | NYOW-03-WL007-A | 2,2'-Oxybis(1-chloropropane) | µg/L | 19 | 71 | 0.267605634 |
| AOC 3 | NA | NYOW-03-WL007-A | 2,3,4,6-Tetrachlorophenol | µg/L | 19 | 24 | 0.791666667 |
| AOC 3 | NA | NYOW-03-WL007-A | 2,4,5-Trichlorophenol | µg/L | 19 | 120 | 0.158333333 |
| AOC 3 | NA | NYOW-03-WL007-A | 2,4,6-Trichlorophenol | µg/L | 19 | 1.2 | 15.83333333 |
| AOC 3 | NA | NYOW-03-WL007-A | 2,4-Dichlorophenol | µg/L | 19 | 4.6 | 4.130434783 |
| AOC 3 | NA | NYOW-03-WL007-A | 2,4-Dimethylphenol | µg/L | 19 | 36 | 0.527777778 |
| AOC 3 | NA | NYOW-03-WL007-A | 2,4-Dinitrochlorobenzene | µg/L | 38 | 0.24 | 158.3333333 |
| AOC 3 | NA | NYOW-03-WL007-A | 2,4-Dinitrophenol | µg/L | 95 | 3.9 | 24.35897436 |
| AOC 3 | NA | NYOW-03-WL007-A | 2,4-Dinitrotoluene | µg/L | 19 | 0.24 | 79.16666667 |
| AOC 3 | NA | NYOW-03-WL007-A | 2,6-Dinitrotoluene | µg/L | 19 | 0.049 | 387.755102 |
| AOC 3 | NA | NYOW-03-WL007-A | 2-Chloronaphthalene | µg/L | 19 | 75 | 0.253333333 |
| AOC 3 | NA | NYOW-03-WL007-A | 2-Chlorophenol | µg/L | 19 | 9.1 | 2.087912088 |
| AOC 3 | NA | NYOW-03-WL007-A | 2-Methylphenol (o-Cresol) | µg/L | 19 | 93 | 0.204301075 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL007-A | 2-Nitroaniline | µg/L | 95 | 19 | 5 |
| AOC 3 | NA | NYOW-03-WL007-A | 2-Nitrophenol | µg/L | 19 | 9.1 | 2.087912088 |
| AOC 3 | NA | NYOW-03-WL007-A | 3,3'-Dichlorobenzidine | µg/L | 110 | 0.13 | 846.1538462 |
| AOC 3 | NA | NYOW-03-WL007-A | 3-Nitroaniline | µg/L | 95 | 5 | 19 |
| AOC 3 | NA | NYOW-03-WL007-A | 4,6-Dinitro-2-methylphenol | µg/L | 95 | 0.15 | 633.3333333 |
| AOC 3 | NA | NYOW-03-WL007-A | 4-Chloro-3-methylphenol | µg/L | 19 | 140 | 0.135714286 |
| AOC 3 | NA | NYOW-03-WL007-A | 4-Chloroaniline | µg/L | 38 | 0.37 | 102.7027027 |
| AOC 3 | NA | NYOW-03-WL007-A | 4-Nitrophenol | µg/L | 95 | 9.1 | 10.43956044 |
| AOC 3 | NA | NYOW-03-WL007-A | Acetophenone | µg/L | 19 | 190 | 0.1 |
| AOC 3 | NA | NYOW-03-WL007-A | Atrazine | µg/L | 19 | 0.3 | 63.33333333 |
| AOC 3 | NA | NYOW-03-WL007-A | Benzyl butyl phthalate | µg/L | 19 | 16 | 1.1875 |
| AOC 3 | NA | NYOW-03-WL007-A | Biphenyl (Diphenyl) | µg/L | 19 | 0.083 | 228.9156627 |
| AOC 3 | NA | NYOW-03-WL007-A | Bis(2-chloroethoxy)methane | µg/L | 19 | 5.9 | 3.220338983 |
| AOC 3 | NA | NYOW-03-WL007-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 19 | 0.014 | 1357.142857 |
| AOC 3 | NA | NYOW-03-WL007-A | Bis(2-ethylhexyl)phthalate | µg/L | 19 | 5.6 | 3.392857143 |
| AOC 3 | NA | NYOW-03-WL007-A | Carbazole | µg/L | 19 | 29 | 0.655172414 |
| AOC 3 | NA | NYOW-03-WL007-A | Cresols, m- & p- | µg/L | 19 | 37 | 0.513513514 |
| AOC 3 | NA | NYOW-03-WL007-A | Dibenzofuran | µg/L | 19 | 0.79 | 24.05063291 |
| AOC 3 | NA | NYOW-03-WL007-A | Diethyl phthalate | µg/L | 19 | 1500 | 0.012666667 |
| AOC 3 | NA | NYOW-03-WL007-A | di-n-Butyl phthalate | µg/L | 19 | 90 | 0.211111111 |
| AOC 3 | NA | NYOW-03-WL007-A | di-n-Octyl phthalate | µg/L | 19 | 20 | 0.95 |
| AOC 3 | NA | NYOW-03-WL007-A | Hexachlorobenzene | µg/L | 19 | 0.0098 | 1938.77551 |
| AOC 3 | NA | NYOW-03-WL007-A | Hexachlorobutadiene | µg/L | 19 | 0.14 | 135.7142857 |
| AOC 3 | NA | NYOW-03-WL007-A | Hexachlorocyclopentadiene | µg/L | 19 | 0.041 | 463.4146341 |
| AOC 3 | NA | NYOW-03-WL007-A | Hexachloroethane | µg/L | 19 | 0.33 | 57.57575758 |
| AOC 3 | NA | NYOW-03-WL007-A | Isophorone | µg/L | 19 | 78 | 0.243589744 |
| AOC 3 | NA | NYOW-03-WL007-A | Nitrobenzene | µg/L | 19 | 0.14 | 135.7142857 |
| AOC 3 | NA | NYOW-03-WL007-A | N-Nitrosodi-n-propylamine | µg/L | 19 | 0.011 | 1727.272727 |
| AOC 3 | NA | NYOW-03-WL007-A | N-Nitrosodiphenylamine | µg/L | 19 | 12 | 1.583333333 |
| AOC 3 | NA | NYOW-03-WL007-A | Pentachlorophenol | µg/L | 95 | 0.041 | 2317.073171 |
| AOC 3 | NA | NYOW-03-WL007-A | Phenol | µg/L | 19 | 580 | 0.032758621 |
| AOC 3 | NA | NYOW-03-WL007-A | Picric acid | µg/L | 0.43 | 4 | 0.1075 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL009-A | 1-Methylnaphthalene | µg/L | 0.1 | 1.1 | 0.090909091 |
| AOC 3 | NA | NYOW-03-WL009-A | 2-Methylnaphthalene | µg/L | 0.1 | 3.6 | 0.027777778 |
| AOC 3 | NA | NYOW-03-WL009-A | Acenaphthene | µg/L | 0.1 | 53 | 0.001886792 |
| AOC 3 | NA | NYOW-03-WL009-A | Acenaphthylene | µg/L | 0.1 | 53 | 0.001886792 |
| AOC 3 | NA | NYOW-03-WL009-A | Anthracene | µg/L | 0.1 | 180 | 0.000555556 |
| AOC 3 | NA | NYOW-03-WL009-A | Benzo(a)anthracene | µg/L | 0.1 | 0.03 | 3.333333333 |
| AOC 3 | NA | NYOW-03-WL009-A | Benzo(a)pyrene | µg/L | 0.1 | 0.025 | 4 |
| AOC 3 | NA | NYOW-03-WL009-A | Benzo(b)fluoranthene | µg/L | 0.1 | 0.25 | 0.4 |
| AOC 3 | NA | NYOW-03-WL009-A | Benzo(g,h,i)perylene | µg/L | 0.1 | 12 | 0.008333333 |
| AOC 3 | NA | NYOW-03-WL009-A | Benzo(k)fluoranthene | µg/L | 0.1 | 2.5 | 0.04 |
| AOC 3 | NA | NYOW-03-WL009-A | Chrysene | µg/L | 0.1 | 25 | 0.004 |
| AOC 3 | NA | NYOW-03-WL009-A | Dibenz(a,h)anthracene | µg/L | 0.1 | 0.025 | 4 |
| AOC 3 | NA | NYOW-03-WL009-A | Fluoranthene | µg/L | 0.1 | 80 | 0.00125 |
| AOC 3 | NA | NYOW-03-WL009-A | Fluorene | µg/L | 0.1 | 29 | 0.003448276 |
| AOC 3 | NA | NYOW-03-WL009-A | Indeno(1,2,3-c,d)pyrene | µg/L | 0.1 | 0.25 | 0.4 |
| AOC 3 | NA | NYOW-03-WL009-A | Naphthalene | µg/L | 0.1 | 0.12 | 0.833333333 |
| AOC 3 | NA | NYOW-03-WL009-A | Phenanthrene | µg/L | 0.1 | 180 | 0.000555556 |
| AOC 3 | NA | NYOW-03-WL009-A | Pyrene | µg/L | 0.1 | 12 | 0.008333333 |
| AOC 3 | NA | NYOW-03-WL009-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 3 | NA | NYOW-03-WL009-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 3 | NA | NYOW-03-WL009-A | Copper | µg/L | 15 | 80 | 0.1875 |
| AOC 3 | NA | NYOW-03-WL009-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 3 | NA | NYOW-03-WL009-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| AOC 3 | NA | NYOW-03-WL009-A | Chromium | µg/L | 10 | 2200 | 0.004545455 |
| AOC 3 | NA | NYOW-03-WL009-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 3 | NA | NYOW-03-WL009-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 3 | NA | NYOW-03-WL009-A | PCB-1016 (Aroclor 1016) | µg/L | 1 | 0.14 | 7.142857143 |
| AOC 3 | NA | NYOW-03-WL009-A | PCB-1221 (Aroclor 1221) | µg/L | 1 | 0.0047 | 212.7659574 |
| AOC 3 | NA | NYOW-03-WL009-A | PCB-1232 (Aroclor 1232) | µg/L | 1 | 0.0047 | 212.7659574 |
| AOC 3 | NA | NYOW-03-WL009-A | PCB-1242 (Aroclor 1242) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 3 | NA | NYOW-03-WL009-A | PCB-1248 (Aroclor 1248) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 3 | NA | NYOW-03-WL009-A | PCB-1254 (Aroclor 1254) | µg/L | 1 | 0.0078 | 128.2051282 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL009-A | PCB-1260 (Aroclor 1260) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 3 | NA | NYOW-03-WL009-A | PCB-1262 (Aroclor 1262) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 3 | NA | NYOW-03-WL009-A | PCB-1268 (Aroclor 1268) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 3 | NA | NYOW-03-WL009-A | 1,1,1-Trichloroethane | µg/L | 1 | 800 | 0.00125 |
| AOC 3 | NA | NYOW-03-WL009-A | 1,1,2,2-Tetrachloroethane | µg/L | 1 | 0.076 | 13.15789474 |
| AOC 3 | NA | NYOW-03-WL009-A | 1,1,2-Trichloro-1,2,2-trifluoroethane | µg/L | 3 | 1000 | 0.003 |
| AOC 3 | NA | NYOW-03-WL009-A | 1,1,2-Trichloroethane | µg/L | 1 | 0.041 | 24.3902439 |
| AOC 3 | NA | NYOW-03-WL009-A | 1,1-Dichloroethane | µg/L | 1 | 2.8 | 0.357142857 |
| AOC 3 | NA | NYOW-03-WL009-A | 1,1-Dichloroethene | µg/L | 1 | 28 | 0.035714286 |
| AOC 3 | NA | NYOW-03-WL009-A | 1,2,3-Trichlorobenzene | µg/L | 1 | 0.7 | 1.428571429 |
| AOC 3 | NA | NYOW-03-WL009-A | 1,2,4-Trichlorobenzene | µg/L | 1 | 0.4 | 2.5 |
| AOC 3 | NA | NYOW-03-WL009-A | 1,2-Dibromo-3-chloropropane | µg/L | 5 | 0.00033 | 15151.51515 |
| AOC 3 | NA | NYOW-03-WL009-A | 1,2-Dibromoethane (EDB) | µg/L | 1 | 0.0075 | 133.3333333 |
| AOC 3 | NA | NYOW-03-WL009-A | 1,2-Dichlorobenzene | µg/L | 1 | 30 | 0.033333333 |
| AOC 3 | NA | NYOW-03-WL009-A | 1,2-Dichloroethane | µg/L | 1 | 0.17 | 5.882352941 |
| AOC 3 | NA | NYOW-03-WL009-A | 1,2-Dichloropropane | µg/L | 1 | 0.82 | 1.219512195 |
| AOC 3 | NA | NYOW-03-WL009-A | 1,3-Dichlorobenzene | µg/L | 1 | 3 | 0.333333333 |
| AOC 3 | NA | NYOW-03-WL009-A | 1,3-Dichloropropane | µg/L | 1 | 37 | 0.027027027 |
| AOC 3 | NA | NYOW-03-WL009-A | 1,4-Dichlorobenzene | µg/L | 1 | 0.48 | 2.083333333 |
| AOC 3 | NA | NYOW-03-WL009-A | 2-Butanone (MEK) | µg/L | 6 | 560 | 0.010714286 |
| AOC 3 | NA | NYOW-03-WL009-A | 2-Hexanone | µg/L | 5 | 3.8 | 1.315789474 |
| AOC 3 | NA | NYOW-03-WL009-A | 4-Methyl-2-pentanone (MIBK) | µg/L | 5 | 630 | 0.007936508 |
| AOC 3 | NA | NYOW-03-WL009-A | Bromochloromethane | µg/L | 1 | 8.3 | 0.120481928 |
| AOC 3 | NA | NYOW-03-WL009-A | Bromodichloromethane | µg/L | 1 | 0.13 | 7.692307692 |
| AOC 3 | NA | NYOW-03-WL009-A | Bromoform | µg/L | 1 | 3.3 | 0.303030303 |
| AOC 3 | NA | NYOW-03-WL009-A | Bromomethane | µg/L | 2 | 0.75 | 2.666666667 |
| AOC 3 | NA | NYOW-03-WL009-A | Carbon disulfide | µg/L | 2 | 81 | 0.024691358 |
| AOC 3 | NA | NYOW-03-WL009-A | Carbon Tetrachloride | µg/L | 2 | 0.46 | 4.347826087 |
| AOC 3 | NA | NYOW-03-WL009-A | Chlorobenzene | µg/L | 1 | 7.8 | 0.128205128 |
| AOC 3 | NA | NYOW-03-WL009-A | Chloroethane | µg/L | 2 | 830 | 0.002409639 |
| AOC 3 | NA | NYOW-03-WL009-A | Chloroform | µg/L | 1 | 0.22 | 4.545454545 |
| AOC 3 | NA | NYOW-03-WL009-A | Chloromethane | µg/L | 2 | 19 | 0.105263158 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL009-A | cis-1,2-Dichloroethene | µg/L | 1 | 2.5 | 0.4 |
| AOC 3 | NA | NYOW-03-WL009-A | cis-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 3 | NA | NYOW-03-WL009-A | Cumene | µg/L | 1 | 45 | 0.022222222 |
| AOC 3 | NA | NYOW-03-WL009-A | Cyclohexane | µg/L | 2 | 1300 | 0.001538462 |
| AOC 3 | NA | NYOW-03-WL009-A | Dibromochloromethane | µg/L | 1 | 0.87 | 1.149425287 |
| AOC 3 | NA | NYOW-03-WL009-A | Dichlorodifluoromethane | µg/L | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-WL009-A | Ethylbenzene | µg/L | 1 | 1.5 | 0.666666667 |
| AOC 3 | NA | NYOW-03-WL009-A | Methyl acetate | µg/L | 5 | 2000 | 0.0025 |
| AOC 3 | NA | NYOW-03-WL009-A | Methyl tert-butyl ether (MTBE) | µg/L | 5 | 14 | 0.357142857 |
| AOC 3 | NA | NYOW-03-WL009-A | Methylene chloride | µg/L | 5 | 11 | 0.454545455 |
| AOC 3 | NA | NYOW-03-WL009-A | o-Xylene | µg/L | 1 | 19 | 0.052631579 |
| AOC 3 | NA | NYOW-03-WL009-A | Styrene | µg/L | 1 | 120 | 0.008333333 |
| AOC 3 | NA | NYOW-03-WL009-A | Tetrachloroethene (PCE) | µg/L | 1 | 4.1 | 0.243902439 |
| AOC 3 | NA | NYOW-03-WL009-A | trans-1,2-Dichloroethene | µg/L | 1 | 6.8 | 0.147058824 |
| AOC 3 | NA | NYOW-03-WL009-A | trans-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 3 | NA | NYOW-03-WL009-A | Trichlorofluoromethane | µg/L | 2 | 520 | 0.003846154 |
| AOC 3 | NA | NYOW-03-WL009-A | Vinyl chloride | µg/L | 1.5 | 0.019 | 78.94736842 |
| AOC 3 | NA | NYOW-03-WL009-A | 1,2,4,5-Tetrachlorobenzene | µg/L | 10 | 0.017 | 588.2352941 |
| AOC 3 | NA | NYOW-03-WL009-A | 1,4-Dioxane | µg/L | 10 | 0.46 | 21.73913043 |
| AOC 3 | NA | NYOW-03-WL009-A | 2,2'-Oxybis(1-chloropropane) | µg/L | 10 | 71 | 0.14084507 |
| AOC 3 | NA | NYOW-03-WL009-A | 2,3,4,6-Tetrachlorophenol | µg/L | 10 | 24 | 0.416666667 |
| AOC 3 | NA | NYOW-03-WL009-A | 2,4,5-Trichlorophenol | µg/L | 10 | 120 | 0.083333333 |
| AOC 3 | NA | NYOW-03-WL009-A | 2,4,6-Trichlorophenol | µg/L | 10 | 1.2 | 8.333333333 |
| AOC 3 | NA | NYOW-03-WL009-A | 2,4-Dichlorophenol | µg/L | 10 | 4.6 | 2.173913043 |
| AOC 3 | NA | NYOW-03-WL009-A | 2,4-Dimethylphenol | µg/L | 10 | 36 | 0.277777778 |
| AOC 3 | NA | NYOW-03-WL009-A | 2,4-Dinitrochlorobenzene | µg/L | 20 | 0.24 | 83.33333333 |
| AOC 3 | NA | NYOW-03-WL009-A | 2,4-Dinitrophenol | µg/L | 51 | 3.9 | 13.07692308 |
| AOC 3 | NA | NYOW-03-WL009-A | 2,4-Dinitrotoluene | µg/L | 10 | 0.24 | 41.66666667 |
| AOC 3 | NA | NYOW-03-WL009-A | 2,6-Dinitrotoluene | µg/L | 10 | 0.049 | 204.0816327 |
| AOC 3 | NA | NYOW-03-WL009-A | 2-Chloronaphthalene | µg/L | 10 | 75 | 0.133333333 |
| AOC 3 | NA | NYOW-03-WL009-A | 2-Chlorophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 3 | NA | NYOW-03-WL009-A | 2-Methylphenol (o-Cresol) | µg/L | 10 | 93 | 0.107526882 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL009-A | 2-Nitroaniline | µg/L | 51 | 19 | 2.684210526 |
| AOC 3 | NA | NYOW-03-WL009-A | 2-Nitrophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 3 | NA | NYOW-03-WL009-A | 3,3'-Dichlorobenzidine | µg/L | 61 | 0.13 | 469.2307692 |
| AOC 3 | NA | NYOW-03-WL009-A | 3-Nitroaniline | µg/L | 51 | 5 | 10.2 |
| AOC 3 | NA | NYOW-03-WL009-A | 4,6-Dinitro-2-methylphenol | µg/L | 51 | 0.15 | 340 |
| AOC 3 | NA | NYOW-03-WL009-A | 4-Chloro-3-methylphenol | µg/L | 10 | 140 | 0.071428571 |
| AOC 3 | NA | NYOW-03-WL009-A | 4-Chloroaniline | µg/L | 20 | 0.37 | 54.05405405 |
| AOC 3 | NA | NYOW-03-WL009-A | 4-Nitrophenol | µg/L | 51 | 9.1 | 5.604395604 |
| AOC 3 | NA | NYOW-03-WL009-A | Acetophenone | µg/L | 10 | 190 | 0.052631579 |
| AOC 3 | NA | NYOW-03-WL009-A | Atrazine | µg/L | 10 | 0.3 | 33.33333333 |
| AOC 3 | NA | NYOW-03-WL009-A | Benzyl butyl phthalate | µg/L | 10 | 16 | 0.625 |
| AOC 3 | NA | NYOW-03-WL009-A | Biphenyl (Diphenyl) | µg/L | 10 | 0.083 | 120.4819277 |
| AOC 3 | NA | NYOW-03-WL009-A | Bis(2-chloroethoxy)methane | µg/L | 10 | 5.9 | 1.694915254 |
| AOC 3 | NA | NYOW-03-WL009-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 10 | 0.014 | 714.2857143 |
| AOC 3 | NA | NYOW-03-WL009-A | Bis(2-ethylhexyl)phthalate | µg/L | 10 | 5.6 | 1.785714286 |
| AOC 3 | NA | NYOW-03-WL009-A | Carbazole | µg/L | 10 | 29 | 0.344827586 |
| AOC 3 | NA | NYOW-03-WL009-A | Cresols, m- & p- | µg/L | 10 | 37 | 0.27027027 |
| AOC 3 | NA | NYOW-03-WL009-A | Dibenzofuran | µg/L | 10 | 0.79 | 12.65822785 |
| AOC 3 | NA | NYOW-03-WL009-A | Diethyl phthalate | µg/L | 10 | 1500 | 0.006666667 |
| AOC 3 | NA | NYOW-03-WL009-A | di-n-Butyl phthalate | µg/L | 10 | 90 | 0.111111111 |
| AOC 3 | NA | NYOW-03-WL009-A | di-n-Octyl phthalate | µg/L | 10 | 20 | 0.5 |
| AOC 3 | NA | NYOW-03-WL009-A | Hexachlorobenzene | µg/L | 10 | 0.0098 | 1020.408163 |
| AOC 3 | NA | NYOW-03-WL009-A | Hexachlorobutadiene | µg/L | 10 | 0.14 | 71.42857143 |
| AOC 3 | NA | NYOW-03-WL009-A | Hexachlorocyclopentadiene | µg/L | 10 | 0.041 | 243.902439 |
| AOC 3 | NA | NYOW-03-WL009-A | Hexachloroethane | µg/L | 10 | 0.33 | 30.3030303 |
| AOC 3 | NA | NYOW-03-WL009-A | Isophorone | µg/L | 10 | 78 | 0.128205128 |
| AOC 3 | NA | NYOW-03-WL009-A | Nitrobenzene | µg/L | 10 | 0.14 | 71.42857143 |
| AOC 3 | NA | NYOW-03-WL009-A | N-Nitrosodi-n-propylamine | µg/L | 10 | 0.011 | 909.0909091 |
| AOC 3 | NA | NYOW-03-WL009-A | N-Nitrosodiphenylamine | µg/L | 10 | 12 | 0.833333333 |
| AOC 3 | NA | NYOW-03-WL009-A | Pentachlorophenol | µg/L | 51 | 0.041 | 1243.902439 |
| AOC 3 | NA | NYOW-03-WL009-A | Phenol | µg/L | 10 | 580 | 0.017241379 |
| AOC 3 | NA | NYOW-03-WL009-A | Picric acid | µg/L | 0.42 | 4 | 0.105 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL010-A | 1-Methylnaphthalene | µg/L | 0.11 | 1.1 | 0.1 |
| AOC 3 | NA | NYOW-03-WL010-A | 2-Methylnaphthalene | µg/L | 0.11 | 3.6 | 0.030555556 |
| AOC 3 | NA | NYOW-03-WL010-A | Acenaphthene | µg/L | 0.11 | 53 | 0.002075472 |
| AOC 3 | NA | NYOW-03-WL010-A | Acenaphthylene | µg/L | 0.11 | 53 | 0.002075472 |
| AOC 3 | NA | NYOW-03-WL010-A | Anthracene | µg/L | 0.11 | 180 | 0.000611111 |
| AOC 3 | NA | NYOW-03-WL010-A | Benzo(a)anthracene | µg/L | 0.11 | 0.03 | 3.666666667 |
| AOC 3 | NA | NYOW-03-WL010-A | Benzo(a)pyrene | µg/L | 0.11 | 0.025 | 4.4 |
| AOC 3 | NA | NYOW-03-WL010-A | Benzo(b)fluoranthene | µg/L | 0.11 | 0.25 | 0.44 |
| AOC 3 | NA | NYOW-03-WL010-A | Benzo(g,h,i)perylene | µg/L | 0.11 | 12 | 0.009166667 |
| AOC 3 | NA | NYOW-03-WL010-A | Benzo(k)fluoranthene | µg/L | 0.11 | 2.5 | 0.044 |
| AOC 3 | NA | NYOW-03-WL010-A | Chrysene | µg/L | 0.11 | 25 | 0.0044 |
| AOC 3 | NA | NYOW-03-WL010-A | Dibenz(a,h)anthracene | µg/L | 0.11 | 0.025 | 4.4 |
| AOC 3 | NA | NYOW-03-WL010-A | Fluoranthene | µg/L | 0.11 | 80 | 0.001375 |
| AOC 3 | NA | NYOW-03-WL010-A | Fluorene | µg/L | 0.11 | 29 | 0.003793103 |
| AOC 3 | NA | NYOW-03-WL010-A | Indeno(1,2,3-c,d)pyrene | µg/L | 0.11 | 0.25 | 0.44 |
| AOC 3 | NA | NYOW-03-WL010-A | Naphthalene | µg/L | 0.11 | 0.12 | 0.916666667 |
| AOC 3 | NA | NYOW-03-WL010-A | Phenanthrene | µg/L | 0.11 | 180 | 0.000611111 |
| AOC 3 | NA | NYOW-03-WL010-A | Pyrene | µg/L | 0.11 | 12 | 0.009166667 |
| AOC 3 | NA | NYOW-03-WL010-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 3 | NA | NYOW-03-WL010-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 3 | NA | NYOW-03-WL010-A | Copper | µg/L | 15 | 80 | 0.1875 |
| AOC 3 | NA | NYOW-03-WL010-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 3 | NA | NYOW-03-WL010-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| AOC 3 | NA | NYOW-03-WL010-A | Chromium | µg/L | 10 | 2200 | 0.004545455 |
| AOC 3 | NA | NYOW-03-WL010-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 3 | NA | NYOW-03-WL010-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 3 | NA | NYOW-03-WL010-A | PCB-1016 (Aroclor 1016) | µg/L | 1.1 | 0.14 | 7.857142857 |
| AOC 3 | NA | NYOW-03-WL010-A | PCB-1221 (Aroclor 1221) | µg/L | 1.1 | 0.0047 | 234.0425532 |
| AOC 3 | NA | NYOW-03-WL010-A | PCB-1232 (Aroclor 1232) | µg/L | 1.1 | 0.0047 | 234.0425532 |
| AOC 3 | NA | NYOW-03-WL010-A | PCB-1242 (Aroclor 1242) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 3 | NA | NYOW-03-WL010-A | PCB-1248 (Aroclor 1248) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 3 | NA | NYOW-03-WL010-A | PCB-1254 (Aroclor 1254) | µg/L | 1.1 | 0.0078 | 141.025641 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL010-A | PCB-1260 (Aroclor 1260) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 3 | NA | NYOW-03-WL010-A | PCB-1262 (Aroclor 1262) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 3 | NA | NYOW-03-WL010-A | PCB-1268 (Aroclor 1268) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 3 | NA | NYOW-03-WL010-A | 1,1,1-Trichloroethane | µg/L | 1 | 800 | 0.00125 |
| AOC 3 | NA | NYOW-03-WL010-A | 1,1,2,2-Tetrachloroethane | µg/L | 1 | 0.076 | 13.15789474 |
| AOC 3 | NA | NYOW-03-WL010-A | 1,1,2-Trichloro-1,2,2-trifluoroethane | µg/L | 3 | 1000 | 0.003 |
| AOC 3 | NA | NYOW-03-WL010-A | 1,1,2-Trichloroethane | µg/L | 1 | 0.041 | 24.3902439 |
| AOC 3 | NA | NYOW-03-WL010-A | 1,1-Dichloroethane | µg/L | 1 | 2.8 | 0.357142857 |
| AOC 3 | NA | NYOW-03-WL010-A | 1,1-Dichloroethene | µg/L | 1 | 28 | 0.035714286 |
| AOC 3 | NA | NYOW-03-WL010-A | 1,2,3-Trichlorobenzene | µg/L | 1 | 0.7 | 1.428571429 |
| AOC 3 | NA | NYOW-03-WL010-A | 1,2,4-Trichlorobenzene | µg/L | 1 | 0.4 | 2.5 |
| AOC 3 | NA | NYOW-03-WL010-A | 1,2-Dibromo-3-chloropropane | µg/L | 5 | 0.00033 | 15151.51515 |
| AOC 3 | NA | NYOW-03-WL010-A | 1,2-Dibromoethane (EDB) | µg/L | 1 | 0.0075 | 133.3333333 |
| AOC 3 | NA | NYOW-03-WL010-A | 1,2-Dichlorobenzene | µg/L | 1 | 30 | 0.033333333 |
| AOC 3 | NA | NYOW-03-WL010-A | 1,2-Dichloroethane | µg/L | 1 | 0.17 | 5.882352941 |
| AOC 3 | NA | NYOW-03-WL010-A | 1,2-Dichloropropane | µg/L | 1 | 0.82 | 1.219512195 |
| AOC 3 | NA | NYOW-03-WL010-A | 1,3-Dichlorobenzene | µg/L | 1 | 3 | 0.333333333 |
| AOC 3 | NA | NYOW-03-WL010-A | 1,3-Dichloropropane | µg/L | 1 | 37 | 0.027027027 |
| AOC 3 | NA | NYOW-03-WL010-A | 1,4-Dichlorobenzene | µg/L | 1 | 0.48 | 2.083333333 |
| AOC 3 | NA | NYOW-03-WL010-A | 2-Butanone (MEK) | µg/L | 6 | 560 | 0.010714286 |
| AOC 3 | NA | NYOW-03-WL010-A | 2-Hexanone | µg/L | 5 | 3.8 | 1.315789474 |
| AOC 3 | NA | NYOW-03-WL010-A | 4-Methyl-2-pentanone (MIBK) | µg/L | 5 | 630 | 0.007936508 |
| AOC 3 | NA | NYOW-03-WL010-A | Bromochloromethane | µg/L | 1 | 8.3 | 0.120481928 |
| AOC 3 | NA | NYOW-03-WL010-A | Bromodichloromethane | µg/L | 1 | 0.13 | 7.692307692 |
| AOC 3 | NA | NYOW-03-WL010-A | Bromoform | µg/L | 1 | 3.3 | 0.303030303 |
| AOC 3 | NA | NYOW-03-WL010-A | Bromomethane | µg/L | 2 | 0.75 | 2.666666667 |
| AOC 3 | NA | NYOW-03-WL010-A | Carbon disulfide | µg/L | 2 | 81 | 0.024691358 |
| AOC 3 | NA | NYOW-03-WL010-A | Carbon Tetrachloride | µg/L | 2 | 0.46 | 4.347826087 |
| AOC 3 | NA | NYOW-03-WL010-A | Chlorobenzene | µg/L | 1 | 7.8 | 0.128205128 |
| AOC 3 | NA | NYOW-03-WL010-A | Chloroethane | µg/L | 2 | 830 | 0.002409639 |
| AOC 3 | NA | NYOW-03-WL010-A | Chloroform | µg/L | 1 | 0.22 | 4.545454545 |
| AOC 3 | NA | NYOW-03-WL010-A | Chloromethane | µg/L | 2 | 19 | 0.105263158 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL010-A | cis-1,2-Dichloroethene | µg/L | 1 | 2.5 | 0.4 |
| AOC 3 | NA | NYOW-03-WL010-A | cis-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 3 | NA | NYOW-03-WL010-A | Cumene | µg/L | 1 | 45 | 0.022222222 |
| AOC 3 | NA | NYOW-03-WL010-A | Cyclohexane | µg/L | 2 | 1300 | 0.001538462 |
| AOC 3 | NA | NYOW-03-WL010-A | Dibromochloromethane | µg/L | 1 | 0.87 | 1.149425287 |
| AOC 3 | NA | NYOW-03-WL010-A | Dichlorodifluoromethane | µg/L | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-WL010-A | Ethylbenzene | µg/L | 1 | 1.5 | 0.666666667 |
| AOC 3 | NA | NYOW-03-WL010-A | Methyl acetate | µg/L | 5 | 2000 | 0.0025 |
| AOC 3 | NA | NYOW-03-WL010-A | Methyl tert-butyl ether (MTBE) | µg/L | 5 | 14 | 0.357142857 |
| AOC 3 | NA | NYOW-03-WL010-A | Methylene chloride | µg/L | 5 | 11 | 0.454545455 |
| AOC 3 | NA | NYOW-03-WL010-A | o-Xylene | µg/L | 1 | 19 | 0.052631579 |
| AOC 3 | NA | NYOW-03-WL010-A | Styrene | µg/L | 1 | 120 | 0.008333333 |
| AOC 3 | NA | NYOW-03-WL010-A | Tetrachloroethene (PCE) | µg/L | 1 | 4.1 | 0.243902439 |
| AOC 3 | NA | NYOW-03-WL010-A | trans-1,2-Dichloroethene | µg/L | 1 | 6.8 | 0.147058824 |
| AOC 3 | NA | NYOW-03-WL010-A | trans-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 3 | NA | NYOW-03-WL010-A | Trichlorofluoromethane | µg/L | 2 | 520 | 0.003846154 |
| AOC 3 | NA | NYOW-03-WL010-A | Vinyl chloride | µg/L | 1.5 | 0.019 | 78.94736842 |
| AOC 3 | NA | NYOW-03-WL010-A | 1,2,4,5-Tetrachlorobenzene | µg/L | 10 | 0.017 | 588.2352941 |
| AOC 3 | NA | NYOW-03-WL010-A | 1,4-Dioxane | µg/L | 10 | 0.46 | 21.73913043 |
| AOC 3 | NA | NYOW-03-WL010-A | 2,2'-Oxybis(1-chloropropane) | µg/L | 10 | 71 | 0.14084507 |
| AOC 3 | NA | NYOW-03-WL010-A | 2,3,4,6-Tetrachlorophenol | µg/L | 10 | 24 | 0.416666667 |
| AOC 3 | NA | NYOW-03-WL010-A | 2,4,5-Trichlorophenol | µg/L | 10 | 120 | 0.083333333 |
| AOC 3 | NA | NYOW-03-WL010-A | 2,4,6-Trichlorophenol | µg/L | 10 | 1.2 | 8.333333333 |
| AOC 3 | NA | NYOW-03-WL010-A | 2,4-Dichlorophenol | µg/L | 10 | 4.6 | 2.173913043 |
| AOC 3 | NA | NYOW-03-WL010-A | 2,4-Dimethylphenol | µg/L | 10 | 36 | 0.277777778 |
| AOC 3 | NA | NYOW-03-WL010-A | 2,4-Dinitrochlorobenzene | µg/L | 21 | 0.24 | 87.5 |
| AOC 3 | NA | NYOW-03-WL010-A | 2,4-Dinitrophenol | µg/L | 52 | 3.9 | 13.33333333 |
| AOC 3 | NA | NYOW-03-WL010-A | 2,4-Dinitrotoluene | µg/L | 10 | 0.24 | 41.66666667 |
| AOC 3 | NA | NYOW-03-WL010-A | 2,6-Dinitrotoluene | µg/L | 10 | 0.049 | 204.0816327 |
| AOC 3 | NA | NYOW-03-WL010-A | 2-Chloronaphthalene | µg/L | 10 | 75 | 0.133333333 |
| AOC 3 | NA | NYOW-03-WL010-A | 2-Chlorophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 3 | NA | NYOW-03-WL010-A | 2-Methylphenol (o-Cresol) | µg/L | 10 | 93 | 0.107526882 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL010-A | 2-Nitroaniline | µg/L | 52 | 19 | 2.736842105 |
| AOC 3 | NA | NYOW-03-WL010-A | 2-Nitrophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 3 | NA | NYOW-03-WL010-A | 3,3'-Dichlorobenzidine | µg/L | 62 | 0.13 | 476.9230769 |
| AOC 3 | NA | NYOW-03-WL010-A | 3-Nitroaniline | µg/L | 52 | 5 | 10.4 |
| AOC 3 | NA | NYOW-03-WL010-A | 4,6-Dinitro-2-methylphenol | µg/L | 52 | 0.15 | 346.6666667 |
| AOC 3 | NA | NYOW-03-WL010-A | 4-Chloro-3-methylphenol | µg/L | 10 | 140 | 0.071428571 |
| AOC 3 | NA | NYOW-03-WL010-A | 4-Chloroaniline | µg/L | 21 | 0.37 | 56.75675676 |
| AOC 3 | NA | NYOW-03-WL010-A | 4-Nitrophenol | µg/L | 52 | 9.1 | 5.714285714 |
| AOC 3 | NA | NYOW-03-WL010-A | Acetophenone | µg/L | 10 | 190 | 0.052631579 |
| AOC 3 | NA | NYOW-03-WL010-A | Atrazine | µg/L | 10 | 0.3 | 33.33333333 |
| AOC 3 | NA | NYOW-03-WL010-A | Benzyl butyl phthalate | µg/L | 10 | 16 | 0.625 |
| AOC 3 | NA | NYOW-03-WL010-A | Biphenyl (Diphenyl) | µg/L | 10 | 0.083 | 120.4819277 |
| AOC 3 | NA | NYOW-03-WL010-A | Bis(2-chloroethoxy)methane | µg/L | 10 | 5.9 | 1.694915254 |
| AOC 3 | NA | NYOW-03-WL010-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 10 | 0.014 | 714.2857143 |
| AOC 3 | NA | NYOW-03-WL010-A | Bis(2-ethylhexyl)phthalate | µg/L | 10 | 5.6 | 1.785714286 |
| AOC 3 | NA | NYOW-03-WL010-A | Carbazole | µg/L | 10 | 29 | 0.344827586 |
| AOC 3 | NA | NYOW-03-WL010-A | Cresols, m- & p- | µg/L | 10 | 37 | 0.27027027 |
| AOC 3 | NA | NYOW-03-WL010-A | Dibenzofuran | µg/L | 10 | 0.79 | 12.65822785 |
| AOC 3 | NA | NYOW-03-WL010-A | Diethyl phthalate | µg/L | 10 | 1500 | 0.006666667 |
| AOC 3 | NA | NYOW-03-WL010-A | di-n-Butyl phthalate | µg/L | 10 | 90 | 0.111111111 |
| AOC 3 | NA | NYOW-03-WL010-A | di-n-Octyl phthalate | µg/L | 10 | 20 | 0.5 |
| AOC 3 | NA | NYOW-03-WL010-A | Hexachlorobenzene | µg/L | 10 | 0.0098 | 1020.408163 |
| AOC 3 | NA | NYOW-03-WL010-A | Hexachlorobutadiene | µg/L | 10 | 0.14 | 71.42857143 |
| AOC 3 | NA | NYOW-03-WL010-A | Hexachlorocyclopentadiene | µg/L | 10 | 0.041 | 243.902439 |
| AOC 3 | NA | NYOW-03-WL010-A | Hexachloroethane | µg/L | 10 | 0.33 | 30.3030303 |
| AOC 3 | NA | NYOW-03-WL010-A | Isophorone | µg/L | 10 | 78 | 0.128205128 |
| AOC 3 | NA | NYOW-03-WL010-A | Nitrobenzene | µg/L | 10 | 0.14 | 71.42857143 |
| AOC 3 | NA | NYOW-03-WL010-A | N-Nitrosodi-n-propylamine | µg/L | 10 | 0.011 | 909.0909091 |
| AOC 3 | NA | NYOW-03-WL010-A | N-Nitrosodiphenylamine | µg/L | 10 | 12 | 0.833333333 |
| AOC 3 | NA | NYOW-03-WL010-A | Pentachlorophenol | µg/L | 52 | 0.041 | 1268.292683 |
| AOC 3 | NA | NYOW-03-WL010-A | Phenol | µg/L | 10 | 580 | 0.017241379 |
| AOC 3 | NA | NYOW-03-WL010-A | Picric acid | µg/L | 0.43 | 4 | 0.1075 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL013-A | 1-Methylnaphthalene | µg/L | 0.099 | 1.1 | 0.09 |
| AOC 3 | NA | NYOW-03-WL013-A | 2-Methylnaphthalene | µg/L | 0.099 | 3.6 | 0.0275 |
| AOC 3 | NA | NYOW-03-WL013-A | Acenaphthene | µg/L | 0.099 | 53 | 0.001867925 |
| AOC 3 | NA | NYOW-03-WL013-A | Acenaphthylene | µg/L | 0.099 | 53 | 0.001867925 |
| AOC 3 | NA | NYOW-03-WL013-A | Anthracene | µg/L | 0.099 | 180 | 0.00055 |
| AOC 3 | NA | NYOW-03-WL013-A | Benzo(a)anthracene | µg/L | 0.099 | 0.03 | 3.3 |
| AOC 3 | NA | NYOW-03-WL013-A | Benzo(a)pyrene | µg/L | 0.099 | 0.025 | 3.96 |
| AOC 3 | NA | NYOW-03-WL013-A | Benzo(b)fluoranthene | µg/L | 0.099 | 0.25 | 0.396 |
| AOC 3 | NA | NYOW-03-WL013-A | Benzo(g,h,i)perylene | µg/L | 0.099 | 12 | 0.00825 |
| AOC 3 | NA | NYOW-03-WL013-A | Benzo(k)fluoranthene | µg/L | 0.099 | 2.5 | 0.0396 |
| AOC 3 | NA | NYOW-03-WL013-A | Chrysene | µg/L | 0.099 | 25 | 0.00396 |
| AOC 3 | NA | NYOW-03-WL013-A | Dibenz(a,h)anthracene | µg/L | 0.099 | 0.025 | 3.96 |
| AOC 3 | NA | NYOW-03-WL013-A | Fluoranthene | µg/L | 0.099 | 80 | 0.0012375 |
| AOC 3 | NA | NYOW-03-WL013-A | Fluorene | µg/L | 0.099 | 29 | 0.003413793 |
| AOC 3 | NA | NYOW-03-WL013-A | Indeno(1,2,3-c,d)pyrene | µg/L | 0.099 | 0.25 | 0.396 |
| AOC 3 | NA | NYOW-03-WL013-A | Naphthalene | µg/L | 0.099 | 0.12 | 0.825 |
| AOC 3 | NA | NYOW-03-WL013-A | Phenanthrene | µg/L | 0.099 | 180 | 0.00055 |
| AOC 3 | NA | NYOW-03-WL013-A | Pyrene | µg/L | 0.099 | 12 | 0.00825 |
| AOC 3 | NA | NYOW-03-WL013-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 3 | NA | NYOW-03-WL013-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 3 | NA | NYOW-03-WL013-A | Copper | µg/L | 15 | 80 | 0.1875 |
| AOC 3 | NA | NYOW-03-WL013-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 3 | NA | NYOW-03-WL013-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| AOC 3 | NA | NYOW-03-WL013-A | Chromium | µg/L | 10 | 2200 | 0.004545455 |
| AOC 3 | NA | NYOW-03-WL013-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 3 | NA | NYOW-03-WL013-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 3 | NA | NYOW-03-WL013-A | PCB-1016 (Aroclor 1016) | µg/L | 1 | 0.14 | 7.142857143 |
| AOC 3 | NA | NYOW-03-WL013-A | PCB-1221 (Aroclor 1221) | µg/L | 1 | 0.0047 | 212.7659574 |
| AOC 3 | NA | NYOW-03-WL013-A | PCB-1232 (Aroclor 1232) | µg/L | 1 | 0.0047 | 212.7659574 |
| AOC 3 | NA | NYOW-03-WL013-A | PCB-1242 (Aroclor 1242) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 3 | NA | NYOW-03-WL013-A | PCB-1248 (Aroclor 1248) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 3 | NA | NYOW-03-WL013-A | PCB-1254 (Aroclor 1254) | µg/L | 1 | 0.0078 | 128.2051282 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL013-A | PCB-1260 (Aroclor 1260) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 3 | NA | NYOW-03-WL013-A | PCB-1262 (Aroclor 1262) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 3 | NA | NYOW-03-WL013-A | PCB-1268 (Aroclor 1268) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 3 | NA | NYOW-03-WL013-A | 1,1,1-Trichloroethane | µg/L | 1 | 800 | 0.00125 |
| AOC 3 | NA | NYOW-03-WL013-A | 1,1,2,2-Tetrachloroethane | µg/L | 1 | 0.076 | 13.15789474 |
| AOC 3 | NA | NYOW-03-WL013-A | 1,1,2-Trichloro-1,2,2-trifluoroethane | µg/L | 3 | 1000 | 0.003 |
| AOC 3 | NA | NYOW-03-WL013-A | 1,1,2-Trichloroethane | µg/L | 1 | 0.041 | 24.3902439 |
| AOC 3 | NA | NYOW-03-WL013-A | 1,1-Dichloroethane | µg/L | 1 | 2.8 | 0.357142857 |
| AOC 3 | NA | NYOW-03-WL013-A | 1,1-Dichloroethene | µg/L | 1 | 28 | 0.035714286 |
| AOC 3 | NA | NYOW-03-WL013-A | 1,2,3-Trichlorobenzene | µg/L | 1 | 0.7 | 1.428571429 |
| AOC 3 | NA | NYOW-03-WL013-A | 1,2,4-Trichlorobenzene | µg/L | 1 | 0.4 | 2.5 |
| AOC 3 | NA | NYOW-03-WL013-A | 1,2-Dibromo-3-chloropropane | µg/L | 5 | 0.00033 | 15151.51515 |
| AOC 3 | NA | NYOW-03-WL013-A | 1,2-Dibromoethane (EDB) | µg/L | 1 | 0.0075 | 133.3333333 |
| AOC 3 | NA | NYOW-03-WL013-A | 1,2-Dichlorobenzene | µg/L | 1 | 30 | 0.033333333 |
| AOC 3 | NA | NYOW-03-WL013-A | 1,2-Dichloroethane | µg/L | 1 | 0.17 | 5.882352941 |
| AOC 3 | NA | NYOW-03-WL013-A | 1,2-Dichloropropane | µg/L | 1 | 0.82 | 1.219512195 |
| AOC 3 | NA | NYOW-03-WL013-A | 1,3-Dichlorobenzene | µg/L | 1 | 3 | 0.333333333 |
| AOC 3 | NA | NYOW-03-WL013-A | 1,3-Dichloropropane | µg/L | 1 | 37 | 0.027027027 |
| AOC 3 | NA | NYOW-03-WL013-A | 1,4-Dichlorobenzene | µg/L | 1 | 0.48 | 2.083333333 |
| AOC 3 | NA | NYOW-03-WL013-A | 2-Butanone (MEK) | µg/L | 6 | 560 | 0.010714286 |
| AOC 3 | NA | NYOW-03-WL013-A | 2-Hexanone | µg/L | 5 | 3.8 | 1.315789474 |
| AOC 3 | NA | NYOW-03-WL013-A | 4-Methyl-2-pentanone (MIBK) | µg/L | 5 | 630 | 0.007936508 |
| AOC 3 | NA | NYOW-03-WL013-A | Bromochloromethane | µg/L | 1 | 8.3 | 0.120481928 |
| AOC 3 | NA | NYOW-03-WL013-A | Bromodichloromethane | µg/L | 1 | 0.13 | 7.692307692 |
| AOC 3 | NA | NYOW-03-WL013-A | Bromoform | µg/L | 1 | 3.3 | 0.303030303 |
| AOC 3 | NA | NYOW-03-WL013-A | Bromomethane | µg/L | 2 | 0.75 | 2.666666667 |
| AOC 3 | NA | NYOW-03-WL013-A | Carbon disulfide | µg/L | 2 | 81 | 0.024691358 |
| AOC 3 | NA | NYOW-03-WL013-A | Carbon Tetrachloride | µg/L | 2 | 0.46 | 4.347826087 |
| AOC 3 | NA | NYOW-03-WL013-A | Chlorobenzene | µg/L | 1 | 7.8 | 0.128205128 |
| AOC 3 | NA | NYOW-03-WL013-A | Chloroethane | µg/L | 2 | 830 | 0.002409639 |
| AOC 3 | NA | NYOW-03-WL013-A | Chloroform | µg/L | 1 | 0.22 | 4.545454545 |
| AOC 3 | NA | NYOW-03-WL013-A | Chloromethane | µg/L | 2 | 19 | 0.105263158 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL013-A | cis-1,2-Dichloroethene | µg/L | 1 | 2.5 | 0.4 |
| AOC 3 | NA | NYOW-03-WL013-A | cis-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 3 | NA | NYOW-03-WL013-A | Cumene | µg/L | 1 | 45 | 0.022222222 |
| AOC 3 | NA | NYOW-03-WL013-A | Cyclohexane | µg/L | 2 | 1300 | 0.001538462 |
| AOC 3 | NA | NYOW-03-WL013-A | Dibromochloromethane | µg/L | 1 | 0.87 | 1.149425287 |
| AOC 3 | NA | NYOW-03-WL013-A | Dichlorodifluoromethane | µg/L | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-WL013-A | Ethylbenzene | µg/L | 1 | 1.5 | 0.666666667 |
| AOC 3 | NA | NYOW-03-WL013-A | Methyl acetate | µg/L | 5 | 2000 | 0.0025 |
| AOC 3 | NA | NYOW-03-WL013-A | Methyl tert-butyl ether (MTBE) | µg/L | 5 | 14 | 0.357142857 |
| AOC 3 | NA | NYOW-03-WL013-A | Methylene chloride | µg/L | 5 | 11 | 0.454545455 |
| AOC 3 | NA | NYOW-03-WL013-A | o-Xylene | µg/L | 1 | 19 | 0.052631579 |
| AOC 3 | NA | NYOW-03-WL013-A | Styrene | µg/L | 1 | 120 | 0.008333333 |
| AOC 3 | NA | NYOW-03-WL013-A | Tetrachloroethene (PCE) | µg/L | 1 | 4.1 | 0.243902439 |
| AOC 3 | NA | NYOW-03-WL013-A | trans-1,2-Dichloroethene | µg/L | 1 | 6.8 | 0.147058824 |
| AOC 3 | NA | NYOW-03-WL013-A | trans-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 3 | NA | NYOW-03-WL013-A | Trichlorofluoromethane | µg/L | 2 | 520 | 0.003846154 |
| AOC 3 | NA | NYOW-03-WL013-A | Vinyl chloride | µg/L | 1.5 | 0.019 | 78.94736842 |
| AOC 3 | NA | NYOW-03-WL013-A | 1,2,4,5-Tetrachlorobenzene | µg/L | 9.7 | 0.017 | 570.5882353 |
| AOC 3 | NA | NYOW-03-WL013-A | 1,4-Dioxane | µg/L | 9.7 | 0.46 | 21.08695652 |
| AOC 3 | NA | NYOW-03-WL013-A | 2,2'-Oxybis(1-chloropropane) | µg/L | 9.7 | 71 | 0.136619718 |
| AOC 3 | NA | NYOW-03-WL013-A | 2,3,4,6-Tetrachlorophenol | µg/L | 9.7 | 24 | 0.404166667 |
| AOC 3 | NA | NYOW-03-WL013-A | 2,4,5-Trichlorophenol | µg/L | 9.7 | 120 | 0.080833333 |
| AOC 3 | NA | NYOW-03-WL013-A | 2,4,6-Trichlorophenol | µg/L | 9.7 | 1.2 | 8.083333333 |
| AOC 3 | NA | NYOW-03-WL013-A | 2,4-Dichlorophenol | µg/L | 9.7 | 4.6 | 2.108695652 |
| AOC 3 | NA | NYOW-03-WL013-A | 2,4-Dimethylphenol | µg/L | 9.7 | 36 | 0.269444444 |
| AOC 3 | NA | NYOW-03-WL013-A | 2,4-Dinitrochlorobenzene | µg/L | 19 | 0.24 | 79.16666667 |
| AOC 3 | NA | NYOW-03-WL013-A | 2,4-Dinitrophenol | µg/L | 48 | 3.9 | 12.30769231 |
| AOC 3 | NA | NYOW-03-WL013-A | 2,4-Dinitrotoluene | µg/L | 9.7 | 0.24 | 40.41666667 |
| AOC 3 | NA | NYOW-03-WL013-A | 2,6-Dinitrotoluene | µg/L | 9.7 | 0.049 | 197.9591837 |
| AOC 3 | NA | NYOW-03-WL013-A | 2-Chloronaphthalene | µg/L | 9.7 | 75 | 0.129333333 |
| AOC 3 | NA | NYOW-03-WL013-A | 2-Chlorophenol | µg/L | 9.7 | 9.1 | 1.065934066 |
| AOC 3 | NA | NYOW-03-WL013-A | 2-Methylphenol (o-Cresol) | µg/L | 9.7 | 93 | 0.104301075 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL013-A | 2-Nitroaniline | µg/L | 48 | 19 | 2.526315789 |
| AOC 3 | NA | NYOW-03-WL013-A | 2-Nitrophenol | µg/L | 9.7 | 9.1 | 1.065934066 |
| AOC 3 | NA | NYOW-03-WL013-A | 3,3'-Dichlorobenzidine | µg/L | 58 | 0.13 | 446.1538462 |
| AOC 3 | NA | NYOW-03-WL013-A | 3-Nitroaniline | µg/L | 48 | 5 | 9.6 |
| AOC 3 | NA | NYOW-03-WL013-A | 4,6-Dinitro-2-methylphenol | µg/L | 48 | 0.15 | 320 |
| AOC 3 | NA | NYOW-03-WL013-A | 4-Chloro-3-methylphenol | µg/L | 9.7 | 140 | 0.069285714 |
| AOC 3 | NA | NYOW-03-WL013-A | 4-Chloroaniline | µg/L | 19 | 0.37 | 51.35135135 |
| AOC 3 | NA | NYOW-03-WL013-A | 4-Nitrophenol | µg/L | 48 | 9.1 | 5.274725275 |
| AOC 3 | NA | NYOW-03-WL013-A | Acetophenone | µg/L | 9.7 | 190 | 0.051052632 |
| AOC 3 | NA | NYOW-03-WL013-A | Atrazine | µg/L | 9.7 | 0.3 | 32.33333333 |
| AOC 3 | NA | NYOW-03-WL013-A | Benzyl butyl phthalate | µg/L | 9.7 | 16 | 0.60625 |
| AOC 3 | NA | NYOW-03-WL013-A | Biphenyl (Diphenyl) | µg/L | 9.7 | 0.083 | 116.8674699 |
| AOC 3 | NA | NYOW-03-WL013-A | Bis(2-chloroethoxy)methane | µg/L | 9.7 | 5.9 | 1.644067797 |
| AOC 3 | NA | NYOW-03-WL013-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 9.7 | 0.014 | 692.8571429 |
| AOC 3 | NA | NYOW-03-WL013-A | Bis(2-ethylhexyl)phthalate | µg/L | 9.7 | 5.6 | 1.732142857 |
| AOC 3 | NA | NYOW-03-WL013-A | Carbazole | µg/L | 9.7 | 29 | 0.334482759 |
| AOC 3 | NA | NYOW-03-WL013-A | Cresols, m- & p- | µg/L | 9.7 | 37 | 0.262162162 |
| AOC 3 | NA | NYOW-03-WL013-A | Dibenzofuran | µg/L | 9.7 | 0.79 | 12.27848101 |
| AOC 3 | NA | NYOW-03-WL013-A | Diethyl phthalate | µg/L | 9.7 | 1500 | 0.006466667 |
| AOC 3 | NA | NYOW-03-WL013-A | di-n-Butyl phthalate | µg/L | 9.7 | 90 | 0.107777778 |
| AOC 3 | NA | NYOW-03-WL013-A | di-n-Octyl phthalate | µg/L | 9.7 | 20 | 0.485 |
| AOC 3 | NA | NYOW-03-WL013-A | Hexachlorobenzene | µg/L | 9.7 | 0.0098 | 989.7959184 |
| AOC 3 | NA | NYOW-03-WL013-A | Hexachlorobutadiene | µg/L | 9.7 | 0.14 | 69.28571429 |
| AOC 3 | NA | NYOW-03-WL013-A | Hexachlorocyclopentadiene | µg/L | 9.7 | 0.041 | 236.5853659 |
| AOC 3 | NA | NYOW-03-WL013-A | Hexachloroethane | µg/L | 9.7 | 0.33 | 29.39393939 |
| AOC 3 | NA | NYOW-03-WL013-A | Isophorone | µg/L | 9.7 | 78 | 0.124358974 |
| AOC 3 | NA | NYOW-03-WL013-A | Nitrobenzene | µg/L | 9.7 | 0.14 | 69.28571429 |
| AOC 3 | NA | NYOW-03-WL013-A | N-Nitrosodi-n-propylamine | µg/L | 9.7 | 0.011 | 881.8181818 |
| AOC 3 | NA | NYOW-03-WL013-A | N-Nitrosodiphenylamine | µg/L | 9.7 | 12 | 0.808333333 |
| AOC 3 | NA | NYOW-03-WL013-A | Pentachlorophenol | µg/L | 48 | 0.041 | 1170.731707 |
| AOC 3 | NA | NYOW-03-WL013-A | Phenol | µg/L | 9.7 | 580 | 0.016724138 |
| AOC 3 | NA | NYOW-03-WL013-A | Picric acid | µg/L | 0.39 | 4 | 0.0975 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL014-A | 1-Methylnaphthalene | µg/L | 0.1 | 1.1 | 0.090909091 |
| AOC 3 | NA | NYOW-03-WL014-A | 2-Methylnaphthalene | µg/L | 0.1 | 3.6 | 0.027777778 |
| AOC 3 | NA | NYOW-03-WL014-A | Acenaphthene | µg/L | 0.1 | 53 | 0.001886792 |
| AOC 3 | NA | NYOW-03-WL014-A | Acenaphthylene | µg/L | 0.1 | 53 | 0.001886792 |
| AOC 3 | NA | NYOW-03-WL014-A | Anthracene | µg/L | 0.1 | 180 | 0.000555556 |
| AOC 3 | NA | NYOW-03-WL014-A | Benzo(a)anthracene | µg/L | 0.1 | 0.03 | 3.333333333 |
| AOC 3 | NA | NYOW-03-WL014-A | Benzo(a)pyrene | µg/L | 0.1 | 0.025 | 4 |
| AOC 3 | NA | NYOW-03-WL014-A | Benzo(b)fluoranthene | µg/L | 0.1 | 0.25 | 0.4 |
| AOC 3 | NA | NYOW-03-WL014-A | Benzo(g,h,i)perylene | µg/L | 0.1 | 12 | 0.008333333 |
| AOC 3 | NA | NYOW-03-WL014-A | Benzo(k)fluoranthene | µg/L | 0.1 | 2.5 | 0.04 |
| AOC 3 | NA | NYOW-03-WL014-A | Chrysene | µg/L | 0.1 | 25 | 0.004 |
| AOC 3 | NA | NYOW-03-WL014-A | Dibenz(a,h)anthracene | µg/L | 0.1 | 0.025 | 4 |
| AOC 3 | NA | NYOW-03-WL014-A | Fluoranthene | µg/L | 0.1 | 80 | 0.00125 |
| AOC 3 | NA | NYOW-03-WL014-A | Fluorene | µg/L | 0.1 | 29 | 0.003448276 |
| AOC 3 | NA | NYOW-03-WL014-A | Indeno(1,2,3-c,d)pyrene | µg/L | 0.1 | 0.25 | 0.4 |
| AOC 3 | NA | NYOW-03-WL014-A | Naphthalene | µg/L | 0.1 | 0.12 | 0.833333333 |
| AOC 3 | NA | NYOW-03-WL014-A | Phenanthrene | µg/L | 0.1 | 180 | 0.000555556 |
| AOC 3 | NA | NYOW-03-WL014-A | Pyrene | µg/L | 0.1 | 12 | 0.008333333 |
| AOC 3 | NA | NYOW-03-WL014-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 3 | NA | NYOW-03-WL014-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 3 | NA | NYOW-03-WL014-A | Copper | µg/L | 15 | 80 | 0.1875 |
| AOC 3 | NA | NYOW-03-WL014-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 3 | NA | NYOW-03-WL014-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| AOC 3 | NA | NYOW-03-WL014-A | Chromium | µg/L | 10 | 2200 | 0.004545455 |
| AOC 3 | NA | NYOW-03-WL014-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 3 | NA | NYOW-03-WL014-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 3 | NA | NYOW-03-WL014-A | PCB-1016 (Aroclor 1016) | µg/L | 1.1 | 0.14 | 7.857142857 |
| AOC 3 | NA | NYOW-03-WL014-A | PCB-1221 (Aroclor 1221) | µg/L | 1.1 | 0.0047 | 234.0425532 |
| AOC 3 | NA | NYOW-03-WL014-A | PCB-1232 (Aroclor 1232) | µg/L | 1.1 | 0.0047 | 234.0425532 |
| AOC 3 | NA | NYOW-03-WL014-A | PCB-1242 (Aroclor 1242) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 3 | NA | NYOW-03-WL014-A | PCB-1248 (Aroclor 1248) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 3 | NA | NYOW-03-WL014-A | PCB-1254 (Aroclor 1254) | µg/L | 1.1 | 0.0078 | 141.025641 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL014-A | PCB-1260 (Aroclor 1260) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 3 | NA | NYOW-03-WL014-A | PCB-1262 (Aroclor 1262) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 3 | NA | NYOW-03-WL014-A | PCB-1268 (Aroclor 1268) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 3 | NA | NYOW-03-WL014-A | 1,1,1-Trichloroethane | µg/L | 1 | 800 | 0.00125 |
| AOC 3 | NA | NYOW-03-WL014-A | 1,1,2,2-Tetrachloroethane | µg/L | 1 | 0.076 | 13.15789474 |
| AOC 3 | NA | NYOW-03-WL014-A | 1,1,2-Trichloro-1,2,2-trifluoroethane | µg/L | 3 | 1000 | 0.003 |
| AOC 3 | NA | NYOW-03-WL014-A | 1,1,2-Trichloroethane | µg/L | 1 | 0.041 | 24.3902439 |
| AOC 3 | NA | NYOW-03-WL014-A | 1,1-Dichloroethane | µg/L | 1 | 2.8 | 0.357142857 |
| AOC 3 | NA | NYOW-03-WL014-A | 1,1-Dichloroethene | µg/L | 1 | 28 | 0.035714286 |
| AOC 3 | NA | NYOW-03-WL014-A | 1,2,3-Trichlorobenzene | µg/L | 1 | 0.7 | 1.428571429 |
| AOC 3 | NA | NYOW-03-WL014-A | 1,2,4-Trichlorobenzene | µg/L | 1 | 0.4 | 2.5 |
| AOC 3 | NA | NYOW-03-WL014-A | 1,2-Dibromo-3-chloropropane | µg/L | 5 | 0.00033 | 15151.51515 |
| AOC 3 | NA | NYOW-03-WL014-A | 1,2-Dibromoethane (EDB) | µg/L | 1 | 0.0075 | 133.3333333 |
| AOC 3 | NA | NYOW-03-WL014-A | 1,2-Dichlorobenzene | µg/L | 1 | 30 | 0.033333333 |
| AOC 3 | NA | NYOW-03-WL014-A | 1,2-Dichloroethane | µg/L | 1 | 0.17 | 5.882352941 |
| AOC 3 | NA | NYOW-03-WL014-A | 1,2-Dichloropropane | µg/L | 1 | 0.82 | 1.219512195 |
| AOC 3 | NA | NYOW-03-WL014-A | 1,3-Dichlorobenzene | µg/L | 1 | 3 | 0.333333333 |
| AOC 3 | NA | NYOW-03-WL014-A | 1,3-Dichloropropane | µg/L | 1 | 37 | 0.027027027 |
| AOC 3 | NA | NYOW-03-WL014-A | 1,4-Dichlorobenzene | µg/L | 1 | 0.48 | 2.083333333 |
| AOC 3 | NA | NYOW-03-WL014-A | 2-Butanone (MEK) | µg/L | 6 | 560 | 0.010714286 |
| AOC 3 | NA | NYOW-03-WL014-A | 2-Hexanone | µg/L | 5 | 3.8 | 1.315789474 |
| AOC 3 | NA | NYOW-03-WL014-A | 4-Methyl-2-pentanone (MIBK) | µg/L | 5 | 630 | 0.007936508 |
| AOC 3 | NA | NYOW-03-WL014-A | Bromochloromethane | µg/L | 1 | 8.3 | 0.120481928 |
| AOC 3 | NA | NYOW-03-WL014-A | Bromodichloromethane | µg/L | 1 | 0.13 | 7.692307692 |
| AOC 3 | NA | NYOW-03-WL014-A | Bromoform | µg/L | 1 | 3.3 | 0.303030303 |
| AOC 3 | NA | NYOW-03-WL014-A | Bromomethane | µg/L | 2 | 0.75 | 2.666666667 |
| AOC 3 | NA | NYOW-03-WL014-A | Carbon disulfide | µg/L | 2 | 81 | 0.024691358 |
| AOC 3 | NA | NYOW-03-WL014-A | Carbon Tetrachloride | µg/L | 2 | 0.46 | 4.347826087 |
| AOC 3 | NA | NYOW-03-WL014-A | Chlorobenzene | µg/L | 1 | 7.8 | 0.128205128 |
| AOC 3 | NA | NYOW-03-WL014-A | Chloroethane | µg/L | 2 | 830 | 0.002409639 |
| AOC 3 | NA | NYOW-03-WL014-A | Chloroform | µg/L | 1 | 0.22 | 4.545454545 |
| AOC 3 | NA | NYOW-03-WL014-A | Chloromethane | µg/L | 2 | 19 | 0.105263158 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL014-A | cis-1,2-Dichloroethene | µg/L | 1 | 2.5 | 0.4 |
| AOC 3 | NA | NYOW-03-WL014-A | cis-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 3 | NA | NYOW-03-WL014-A | Cumene | µg/L | 1 | 45 | 0.022222222 |
| AOC 3 | NA | NYOW-03-WL014-A | Cyclohexane | µg/L | 2 | 1300 | 0.001538462 |
| AOC 3 | NA | NYOW-03-WL014-A | Dibromochloromethane | µg/L | 1 | 0.87 | 1.149425287 |
| AOC 3 | NA | NYOW-03-WL014-A | Dichlorodifluoromethane | µg/L | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-WL014-A | Ethylbenzene | µg/L | 1 | 1.5 | 0.666666667 |
| AOC 3 | NA | NYOW-03-WL014-A | Methyl acetate | µg/L | 5 | 2000 | 0.0025 |
| AOC 3 | NA | NYOW-03-WL014-A | Methyl tert-butyl ether (MTBE) | µg/L | 5 | 14 | 0.357142857 |
| AOC 3 | NA | NYOW-03-WL014-A | Methylene chloride | µg/L | 5 | 11 | 0.454545455 |
| AOC 3 | NA | NYOW-03-WL014-A | o-Xylene | µg/L | 1 | 19 | 0.052631579 |
| AOC 3 | NA | NYOW-03-WL014-A | Styrene | µg/L | 1 | 120 | 0.008333333 |
| AOC 3 | NA | NYOW-03-WL014-A | Tetrachloroethene (PCE) | µg/L | 1 | 4.1 | 0.243902439 |
| AOC 3 | NA | NYOW-03-WL014-A | trans-1,2-Dichloroethene | µg/L | 1 | 6.8 | 0.147058824 |
| AOC 3 | NA | NYOW-03-WL014-A | trans-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 3 | NA | NYOW-03-WL014-A | Trichlorofluoromethane | µg/L | 2 | 520 | 0.003846154 |
| AOC 3 | NA | NYOW-03-WL014-A | Vinyl chloride | µg/L | 1.5 | 0.019 | 78.94736842 |
| AOC 3 | NA | NYOW-03-WL014-A | 1,2,4,5-Tetrachlorobenzene | µg/L | 11 | 0.017 | 647.0588235 |
| AOC 3 | NA | NYOW-03-WL014-A | 1,4-Dioxane | µg/L | 11 | 0.46 | 23.91304348 |
| AOC 3 | NA | NYOW-03-WL014-A | 2,2'-Oxybis(1-chloropropane) | µg/L | 11 | 71 | 0.154929577 |
| AOC 3 | NA | NYOW-03-WL014-A | 2,3,4,6-Tetrachlorophenol | µg/L | 11 | 24 | 0.458333333 |
| AOC 3 | NA | NYOW-03-WL014-A | 2,4,5-Trichlorophenol | µg/L | 11 | 120 | 0.091666667 |
| AOC 3 | NA | NYOW-03-WL014-A | 2,4,6-Trichlorophenol | µg/L | 11 | 1.2 | 9.166666667 |
| AOC 3 | NA | NYOW-03-WL014-A | 2,4-Dichlorophenol | µg/L | 11 | 4.6 | 2.391304348 |
| AOC 3 | NA | NYOW-03-WL014-A | 2,4-Dimethylphenol | µg/L | 11 | 36 | 0.305555556 |
| AOC 3 | NA | NYOW-03-WL014-A | 2,4-Dinitrochlorobenzene | µg/L | 21 | 0.24 | 87.5 |
| AOC 3 | NA | NYOW-03-WL014-A | 2,4-Dinitrophenol | µg/L | 53 | 3.9 | 13.58974359 |
| AOC 3 | NA | NYOW-03-WL014-A | 2,4-Dinitrotoluene | µg/L | 11 | 0.24 | 45.83333333 |
| AOC 3 | NA | NYOW-03-WL014-A | 2,6-Dinitrotoluene | µg/L | 11 | 0.049 | 224.4897959 |
| AOC 3 | NA | NYOW-03-WL014-A | 2-Chloronaphthalene | µg/L | 11 | 75 | 0.146666667 |
| AOC 3 | NA | NYOW-03-WL014-A | 2-Chlorophenol | µg/L | 11 | 9.1 | 1.208791209 |
| AOC 3 | NA | NYOW-03-WL014-A | 2-Methylphenol (o-Cresol) | µg/L | 11 | 93 | 0.11827957 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL014-A | 2-Nitroaniline | µg/L | 53 | 19 | 2.789473684 |
| AOC 3 | NA | NYOW-03-WL014-A | 2-Nitrophenol | µg/L | 11 | 9.1 | 1.208791209 |
| AOC 3 | NA | NYOW-03-WL014-A | 3,3'-Dichlorobenzidine | µg/L | 63 | 0.13 | 484.6153846 |
| AOC 3 | NA | NYOW-03-WL014-A | 3-Nitroaniline | µg/L | 53 | 5 | 10.6 |
| AOC 3 | NA | NYOW-03-WL014-A | 4,6-Dinitro-2-methylphenol | µg/L | 53 | 0.15 | 353.3333333 |
| AOC 3 | NA | NYOW-03-WL014-A | 4-Chloro-3-methylphenol | µg/L | 11 | 140 | 0.078571429 |
| AOC 3 | NA | NYOW-03-WL014-A | 4-Chloroaniline | µg/L | 21 | 0.37 | 56.75675676 |
| AOC 3 | NA | NYOW-03-WL014-A | 4-Nitrophenol | µg/L | 53 | 9.1 | 5.824175824 |
| AOC 3 | NA | NYOW-03-WL014-A | Acetophenone | µg/L | 11 | 190 | 0.057894737 |
| AOC 3 | NA | NYOW-03-WL014-A | Atrazine | µg/L | 11 | 0.3 | 36.66666667 |
| AOC 3 | NA | NYOW-03-WL014-A | Benzyl butyl phthalate | µg/L | 11 | 16 | 0.6875 |
| AOC 3 | NA | NYOW-03-WL014-A | Biphenyl (Diphenyl) | µg/L | 11 | 0.083 | 132.5301205 |
| AOC 3 | NA | NYOW-03-WL014-A | Bis(2-chloroethoxy)methane | µg/L | 11 | 5.9 | 1.86440678 |
| AOC 3 | NA | NYOW-03-WL014-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 11 | 0.014 | 785.7142857 |
| AOC 3 | NA | NYOW-03-WL014-A | Bis(2-ethylhexyl)phthalate | µg/L | 11 | 5.6 | 1.964285714 |
| AOC 3 | NA | NYOW-03-WL014-A | Carbazole | µg/L | 11 | 29 | 0.379310345 |
| AOC 3 | NA | NYOW-03-WL014-A | Cresols, m- & p- | µg/L | 11 | 37 | 0.297297297 |
| AOC 3 | NA | NYOW-03-WL014-A | Dibenzofuran | µg/L | 11 | 0.79 | 13.92405063 |
| AOC 3 | NA | NYOW-03-WL014-A | Diethyl phthalate | µg/L | 11 | 1500 | 0.007333333 |
| AOC 3 | NA | NYOW-03-WL014-A | di-n-Butyl phthalate | µg/L | 11 | 90 | 0.122222222 |
| AOC 3 | NA | NYOW-03-WL014-A | di-n-Octyl phthalate | µg/L | 11 | 20 | 0.55 |
| AOC 3 | NA | NYOW-03-WL014-A | Hexachlorobenzene | µg/L | 11 | 0.0098 | 1122.44898 |
| AOC 3 | NA | NYOW-03-WL014-A | Hexachlorobutadiene | µg/L | 11 | 0.14 | 78.57142857 |
| AOC 3 | NA | NYOW-03-WL014-A | Hexachlorocyclopentadiene | µg/L | 11 | 0.041 | 268.2926829 |
| AOC 3 | NA | NYOW-03-WL014-A | Hexachloroethane | µg/L | 11 | 0.33 | 33.33333333 |
| AOC 3 | NA | NYOW-03-WL014-A | Isophorone | µg/L | 11 | 78 | 0.141025641 |
| AOC 3 | NA | NYOW-03-WL014-A | Nitrobenzene | µg/L | 11 | 0.14 | 78.57142857 |
| AOC 3 | NA | NYOW-03-WL014-A | N-Nitrosodi-n-propylamine | µg/L | 11 | 0.011 | 1000 |
| AOC 3 | NA | NYOW-03-WL014-A | N-Nitrosodiphenylamine | µg/L | 11 | 12 | 0.916666667 |
| AOC 3 | NA | NYOW-03-WL014-A | Pentachlorophenol | µg/L | 53 | 0.041 | 1292.682927 |
| AOC 3 | NA | NYOW-03-WL014-A | Phenol | µg/L | 11 | 580 | 0.018965517 |
| AOC 3 | NA | NYOW-03-WL014-A | Picric acid | µg/L | 0.42 | 4 | 0.105 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL015-A | 1-Methylnaphthalene | µg/L | 0.11 | 1.1 | 0.1 |
| AOC 3 | NA | NYOW-03-WL015-A | 2-Methylnaphthalene | µg/L | 0.11 | 3.6 | 0.030555556 |
| AOC 3 | NA | NYOW-03-WL015-A | Acenaphthene | µg/L | 0.11 | 53 | 0.002075472 |
| AOC 3 | NA | NYOW-03-WL015-A | Acenaphthylene | µg/L | 0.11 | 53 | 0.002075472 |
| AOC 3 | NA | NYOW-03-WL015-A | Anthracene | µg/L | 0.11 | 180 | 0.000611111 |
| AOC 3 | NA | NYOW-03-WL015-A | Benzo(a)anthracene | µg/L | 0.11 | 0.03 | 3.666666667 |
| AOC 3 | NA | NYOW-03-WL015-A | Benzo(a)pyrene | µg/L | 0.11 | 0.025 | 4.4 |
| AOC 3 | NA | NYOW-03-WL015-A | Benzo(b)fluoranthene | µg/L | 0.11 | 0.25 | 0.44 |
| AOC 3 | NA | NYOW-03-WL015-A | Benzo(g,h,i)perylene | µg/L | 0.11 | 12 | 0.009166667 |
| AOC 3 | NA | NYOW-03-WL015-A | Benzo(k)fluoranthene | µg/L | 0.11 | 2.5 | 0.044 |
| AOC 3 | NA | NYOW-03-WL015-A | Chrysene | µg/L | 0.11 | 25 | 0.0044 |
| AOC 3 | NA | NYOW-03-WL015-A | Dibenz(a,h)anthracene | µg/L | 0.11 | 0.025 | 4.4 |
| AOC 3 | NA | NYOW-03-WL015-A | Fluoranthene | µg/L | 0.11 | 80 | 0.001375 |
| AOC 3 | NA | NYOW-03-WL015-A | Fluorene | µg/L | 0.11 | 29 | 0.003793103 |
| AOC 3 | NA | NYOW-03-WL015-A | Indeno(1,2,3-c,d)pyrene | µg/L | 0.11 | 0.25 | 0.44 |
| AOC 3 | NA | NYOW-03-WL015-A | Naphthalene | µg/L | 0.11 | 0.12 | 0.916666667 |
| AOC 3 | NA | NYOW-03-WL015-A | Phenanthrene | µg/L | 0.11 | 180 | 0.000611111 |
| AOC 3 | NA | NYOW-03-WL015-A | Pyrene | µg/L | 0.11 | 12 | 0.009166667 |
| AOC 3 | NA | NYOW-03-WL015-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 3 | NA | NYOW-03-WL015-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 3 | NA | NYOW-03-WL015-A | Copper | µg/L | 15 | 80 | 0.1875 |
| AOC 3 | NA | NYOW-03-WL015-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 3 | NA | NYOW-03-WL015-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| AOC 3 | NA | NYOW-03-WL015-A | Chromium | µg/L | 10 | 2200 | 0.004545455 |
| AOC 3 | NA | NYOW-03-WL015-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 3 | NA | NYOW-03-WL015-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 3 | NA | NYOW-03-WL015-A | PCB-1016 (Aroclor 1016) | µg/L | 1 | 0.14 | 7.142857143 |
| AOC 3 | NA | NYOW-03-WL015-A | PCB-1221 (Aroclor 1221) | µg/L | 1 | 0.0047 | 212.7659574 |
| AOC 3 | NA | NYOW-03-WL015-A | PCB-1232 (Aroclor 1232) | µg/L | 1 | 0.0047 | 212.7659574 |
| AOC 3 | NA | NYOW-03-WL015-A | PCB-1242 (Aroclor 1242) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 3 | NA | NYOW-03-WL015-A | PCB-1248 (Aroclor 1248) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 3 | NA | NYOW-03-WL015-A | PCB-1254 (Aroclor 1254) | µg/L | 1 | 0.0078 | 128.2051282 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL015-A | PCB-1260 (Aroclor 1260) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 3 | NA | NYOW-03-WL015-A | PCB-1262 (Aroclor 1262) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 3 | NA | NYOW-03-WL015-A | PCB-1268 (Aroclor 1268) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 3 | NA | NYOW-03-WL015-A | 1,1,1-Trichloroethane | µg/L | 1 | 800 | 0.00125 |
| AOC 3 | NA | NYOW-03-WL015-A | 1,1,2,2-Tetrachloroethane | µg/L | 1 | 0.076 | 13.15789474 |
| AOC 3 | NA | NYOW-03-WL015-A | 1,1,2-Trichloro-1,2,2-trifluoroethane | µg/L | 3 | 1000 | 0.003 |
| AOC 3 | NA | NYOW-03-WL015-A | 1,1,2-Trichloroethane | µg/L | 1 | 0.041 | 24.3902439 |
| AOC 3 | NA | NYOW-03-WL015-A | 1,1-Dichloroethane | µg/L | 1 | 2.8 | 0.357142857 |
| AOC 3 | NA | NYOW-03-WL015-A | 1,1-Dichloroethene | µg/L | 1 | 28 | 0.035714286 |
| AOC 3 | NA | NYOW-03-WL015-A | 1,2,3-Trichlorobenzene | µg/L | 1 | 0.7 | 1.428571429 |
| AOC 3 | NA | NYOW-03-WL015-A | 1,2,4-Trichlorobenzene | µg/L | 1 | 0.4 | 2.5 |
| AOC 3 | NA | NYOW-03-WL015-A | 1,2-Dibromo-3-chloropropane | µg/L | 5 | 0.00033 | 15151.51515 |
| AOC 3 | NA | NYOW-03-WL015-A | 1,2-Dibromoethane (EDB) | µg/L | 1 | 0.0075 | 133.3333333 |
| AOC 3 | NA | NYOW-03-WL015-A | 1,2-Dichlorobenzene | µg/L | 1 | 30 | 0.033333333 |
| AOC 3 | NA | NYOW-03-WL015-A | 1,2-Dichloroethane | µg/L | 1 | 0.17 | 5.882352941 |
| AOC 3 | NA | NYOW-03-WL015-A | 1,2-Dichloropropane | µg/L | 1 | 0.82 | 1.219512195 |
| AOC 3 | NA | NYOW-03-WL015-A | 1,3-Dichlorobenzene | µg/L | 1 | 3 | 0.333333333 |
| AOC 3 | NA | NYOW-03-WL015-A | 1,3-Dichloropropane | µg/L | 1 | 37 | 0.027027027 |
| AOC 3 | NA | NYOW-03-WL015-A | 1,4-Dichlorobenzene | µg/L | 1 | 0.48 | 2.083333333 |
| AOC 3 | NA | NYOW-03-WL015-A | 2-Butanone (MEK) | µg/L | 6 | 560 | 0.010714286 |
| AOC 3 | NA | NYOW-03-WL015-A | 2-Hexanone | µg/L | 5 | 3.8 | 1.315789474 |
| AOC 3 | NA | NYOW-03-WL015-A | 4-Methyl-2-pentanone (MIBK) | µg/L | 5 | 630 | 0.007936508 |
| AOC 3 | NA | NYOW-03-WL015-A | Bromochloromethane | µg/L | 1 | 8.3 | 0.120481928 |
| AOC 3 | NA | NYOW-03-WL015-A | Bromodichloromethane | µg/L | 1 | 0.13 | 7.692307692 |
| AOC 3 | NA | NYOW-03-WL015-A | Bromoform | µg/L | 1 | 3.3 | 0.303030303 |
| AOC 3 | NA | NYOW-03-WL015-A | Bromomethane | µg/L | 2 | 0.75 | 2.666666667 |
| AOC 3 | NA | NYOW-03-WL015-A | Carbon disulfide | µg/L | 2 | 81 | 0.024691358 |
| AOC 3 | NA | NYOW-03-WL015-A | Carbon Tetrachloride | µg/L | 2 | 0.46 | 4.347826087 |
| AOC 3 | NA | NYOW-03-WL015-A | Chlorobenzene | µg/L | 1 | 7.8 | 0.128205128 |
| AOC 3 | NA | NYOW-03-WL015-A | Chloroethane | µg/L | 2 | 830 | 0.002409639 |
| AOC 3 | NA | NYOW-03-WL015-A | Chloroform | µg/L | 1 | 0.22 | 4.545454545 |
| AOC 3 | NA | NYOW-03-WL015-A | Chloromethane | µg/L | 2 | 19 | 0.105263158 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL015-A | cis-1,2-Dichloroethene | µg/L | 1 | 2.5 | 0.4 |
| AOC 3 | NA | NYOW-03-WL015-A | cis-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 3 | NA | NYOW-03-WL015-A | Cumene | µg/L | 1 | 45 | 0.022222222 |
| AOC 3 | NA | NYOW-03-WL015-A | Cyclohexane | µg/L | 2 | 1300 | 0.001538462 |
| AOC 3 | NA | NYOW-03-WL015-A | Dibromochloromethane | µg/L | 1 | 0.87 | 1.149425287 |
| AOC 3 | NA | NYOW-03-WL015-A | Dichlorodifluoromethane | µg/L | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-WL015-A | Ethylbenzene | µg/L | 1 | 1.5 | 0.666666667 |
| AOC 3 | NA | NYOW-03-WL015-A | Methyl acetate | µg/L | 5 | 2000 | 0.0025 |
| AOC 3 | NA | NYOW-03-WL015-A | Methyl tert-butyl ether (MTBE) | µg/L | 5 | 14 | 0.357142857 |
| AOC 3 | NA | NYOW-03-WL015-A | Methylene chloride | µg/L | 5 | 11 | 0.454545455 |
| AOC 3 | NA | NYOW-03-WL015-A | o-Xylene | µg/L | 1 | 19 | 0.052631579 |
| AOC 3 | NA | NYOW-03-WL015-A | Styrene | µg/L | 1 | 120 | 0.008333333 |
| AOC 3 | NA | NYOW-03-WL015-A | Tetrachloroethene (PCE) | µg/L | 1 | 4.1 | 0.243902439 |
| AOC 3 | NA | NYOW-03-WL015-A | trans-1,2-Dichloroethene | µg/L | 1 | 6.8 | 0.147058824 |
| AOC 3 | NA | NYOW-03-WL015-A | trans-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 3 | NA | NYOW-03-WL015-A | Trichlorofluoromethane | µg/L | 2 | 520 | 0.003846154 |
| AOC 3 | NA | NYOW-03-WL015-A | Vinyl chloride | µg/L | 1.5 | 0.019 | 78.94736842 |
| AOC 3 | NA | NYOW-03-WL015-A | 1,2,4,5-Tetrachlorobenzene | µg/L | 10 | 0.017 | 588.2352941 |
| AOC 3 | NA | NYOW-03-WL015-A | 1,4-Dioxane | µg/L | 10 | 0.46 | 21.73913043 |
| AOC 3 | NA | NYOW-03-WL015-A | 2,2'-Oxybis(1-chloropropane) | µg/L | 10 | 71 | 0.14084507 |
| AOC 3 | NA | NYOW-03-WL015-A | 2,3,4,6-Tetrachlorophenol | µg/L | 10 | 24 | 0.416666667 |
| AOC 3 | NA | NYOW-03-WL015-A | 2,4,5-Trichlorophenol | µg/L | 10 | 120 | 0.083333333 |
| AOC 3 | NA | NYOW-03-WL015-A | 2,4,6-Trichlorophenol | µg/L | 10 | 1.2 | 8.333333333 |
| AOC 3 | NA | NYOW-03-WL015-A | 2,4-Dichlorophenol | µg/L | 10 | 4.6 | 2.173913043 |
| AOC 3 | NA | NYOW-03-WL015-A | 2,4-Dimethylphenol | µg/L | 10 | 36 | 0.277777778 |
| AOC 3 | NA | NYOW-03-WL015-A | 2,4-Dinitrochlorobenzene | µg/L | 21 | 0.24 | 87.5 |
| AOC 3 | NA | NYOW-03-WL015-A | 2,4-Dinitrophenol | µg/L | 51 | 3.9 | 13.07692308 |
| AOC 3 | NA | NYOW-03-WL015-A | 2,4-Dinitrotoluene | µg/L | 10 | 0.24 | 41.66666667 |
| AOC 3 | NA | NYOW-03-WL015-A | 2,6-Dinitrotoluene | µg/L | 10 | 0.049 | 204.0816327 |
| AOC 3 | NA | NYOW-03-WL015-A | 2-Chloronaphthalene | µg/L | 10 | 75 | 0.133333333 |
| AOC 3 | NA | NYOW-03-WL015-A | 2-Chlorophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 3 | NA | NYOW-03-WL015-A | 2-Methylphenol (o-Cresol) | µg/L | 10 | 93 | 0.107526882 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-WL015-A | 2-Nitroaniline | µg/L | 51 | 19 | 2.684210526 |
| AOC 3 | NA | NYOW-03-WL015-A | 2-Nitrophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 3 | NA | NYOW-03-WL015-A | 3,3'-Dichlorobenzidine | µg/L | 62 | 0.13 | 476.9230769 |
| AOC 3 | NA | NYOW-03-WL015-A | 3-Nitroaniline | µg/L | 51 | 5 | 10.2 |
| AOC 3 | NA | NYOW-03-WL015-A | 4,6-Dinitro-2-methylphenol | µg/L | 51 | 0.15 | 340 |
| AOC 3 | NA | NYOW-03-WL015-A | 4-Chloro-3-methylphenol | µg/L | 10 | 140 | 0.071428571 |
| AOC 3 | NA | NYOW-03-WL015-A | 4-Chloroaniline | µg/L | 21 | 0.37 | 56.75675676 |
| AOC 3 | NA | NYOW-03-WL015-A | 4-Nitrophenol | µg/L | 51 | 9.1 | 5.604395604 |
| AOC 3 | NA | NYOW-03-WL015-A | Acetophenone | µg/L | 10 | 190 | 0.052631579 |
| AOC 3 | NA | NYOW-03-WL015-A | Atrazine | µg/L | 10 | 0.3 | 33.33333333 |
| AOC 3 | NA | NYOW-03-WL015-A | Benzyl butyl phthalate | µg/L | 10 | 16 | 0.625 |
| AOC 3 | NA | NYOW-03-WL015-A | Biphenyl (Diphenyl) | µg/L | 10 | 0.083 | 120.4819277 |
| AOC 3 | NA | NYOW-03-WL015-A | Bis(2-chloroethoxy)methane | µg/L | 10 | 5.9 | 1.694915254 |
| AOC 3 | NA | NYOW-03-WL015-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 10 | 0.014 | 714.2857143 |
| AOC 3 | NA | NYOW-03-WL015-A | Bis(2-ethylhexyl)phthalate | µg/L | 10 | 5.6 | 1.785714286 |
| AOC 3 | NA | NYOW-03-WL015-A | Carbazole | µg/L | 10 | 29 | 0.344827586 |
| AOC 3 | NA | NYOW-03-WL015-A | Cresols, m- & p- | µg/L | 10 | 37 | 0.27027027 |
| AOC 3 | NA | NYOW-03-WL015-A | Dibenzofuran | µg/L | 10 | 0.79 | 12.65822785 |
| AOC 3 | NA | NYOW-03-WL015-A | Diethyl phthalate | µg/L | 10 | 1500 | 0.006666667 |
| AOC 3 | NA | NYOW-03-WL015-A | di-n-Butyl phthalate | µg/L | 10 | 90 | 0.111111111 |
| AOC 3 | NA | NYOW-03-WL015-A | di-n-Octyl phthalate | µg/L | 10 | 20 | 0.5 |
| AOC 3 | NA | NYOW-03-WL015-A | Hexachlorobenzene | µg/L | 10 | 0.0098 | 1020.408163 |
| AOC 3 | NA | NYOW-03-WL015-A | Hexachlorobutadiene | µg/L | 10 | 0.14 | 71.42857143 |
| AOC 3 | NA | NYOW-03-WL015-A | Hexachlorocyclopentadiene | µg/L | 10 | 0.041 | 243.902439 |
| AOC 3 | NA | NYOW-03-WL015-A | Hexachloroethane | µg/L | 10 | 0.33 | 30.3030303 |
| AOC 3 | NA | NYOW-03-WL015-A | Isophorone | µg/L | 10 | 78 | 0.128205128 |
| AOC 3 | NA | NYOW-03-WL015-A | Nitrobenzene | µg/L | 10 | 0.14 | 71.42857143 |
| AOC 3 | NA | NYOW-03-WL015-A | N-Nitrosodi-n-propylamine | µg/L | 10 | 0.011 | 909.0909091 |
| AOC 3 | NA | NYOW-03-WL015-A | N-Nitrosodiphenylamine | µg/L | 10 | 12 | 0.833333333 |
| AOC 3 | NA | NYOW-03-WL015-A | Pentachlorophenol | µg/L | 51 | 0.041 | 1243.902439 |
| AOC 3 | NA | NYOW-03-WL015-A | Phenol | µg/L | 10 | 580 | 0.017241379 |
| AOC 3 | NA | NYOW-03-WL015-A | Picric acid | µg/L | 0.44 | 4 | 0.11 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-WL001-A | 2,4-Dinitrochlorobenzene | µg/L | 21 | 0.24 | 87.5 |
| AOC 4 - Discrete | NA | NYOW-04-WL001-A | 2,4-Dinitrophenol | µg/L | 52 | 3.9 | 13.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-WL001-A | Picric acid | µg/L | 1.1 | 4 | 0.275 |
| AOC 4 - Discrete | NA | NYOW-04-WL002-A | 2,4-Dinitrochlorobenzene | µg/L | 22 | 0.24 | 91.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-WL002-A | 2,4-Dinitrophenol | µg/L | 54 | 3.9 | 13.84615385 |
| AOC 4 - Discrete | NA | NYOW-04-WL002-A | Picric acid | µg/L | 0.41 | 4 | 0.1025 |
| AOC 4 - Discrete | NA | NYOW-04-WL003-A | 2,4-Dinitrochlorobenzene | µg/L | 21 | 0.24 | 87.5 |
| AOC 4 - Discrete | NA | NYOW-04-WL003-A | 2,4-Dinitrophenol | µg/L | 52 | 3.9 | 13.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-WL003-A | Picric acid | µg/L | 28 | 4 | 7 |
| AOC 4 - Discrete | NA | NYOW-04-WL004-A | 2,4-Dinitrochlorobenzene | µg/L | 20 | 0.24 | 83.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-WL004-A | 2,4-Dinitrophenol | µg/L | 50 | 3.9 | 12.82051282 |
| AOC 4 - Discrete | NA | NYOW-04-WL004-A | Picric acid | µg/L | 0.41 | 4 | 0.1025 |
| AOC 4 - Discrete | NA | NYOW-04-WL005-A | 2,4-Dinitrochlorobenzene | µg/L | 23 | 0.24 | 95.83333333 |
| AOC 4 - Discrete | NA | NYOW-04-WL005-A | 2,4-Dinitrophenol | µg/L | 59 | 3.9 | 15.12820513 |
| AOC 4 - Discrete | NA | NYOW-04-WL005-A | Picric acid | µg/L | 0.43 | 4 | 0.1075 |
| AOC 4 - Discrete | NA | NYOW-04-WL006-A | 2,4-Dinitrochlorobenzene | µg/L | 20 | 0.24 | 83.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-WL006-A | 2,4-Dinitrophenol | µg/L | 50 | 3.9 | 12.82051282 |
| AOC 4 - Discrete | NA | NYOW-04-WL006-A | Picric acid | µg/L | 1.2 | 4 | 0.3 |
| AOC 4 - Discrete | NA | NYOW-04-WL036-A | 2,4-Dinitrochlorobenzene | µg/L | 20 | 0.24 | 83.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-WL036-A | 2,4-Dinitrophenol | µg/L | 51 | 3.9 | 13.07692308 |
| AOC 4 - Discrete | NA | NYOW-04-WL036-A | Picric acid | µg/L | 2.6 | 4 | 0.65 |
| AOC 4 - Discrete | NA | NYOW-04-WL037-A | 2,4-Dinitrochlorobenzene | µg/L | 20 | 0.24 | 83.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-WL037-A | 2,4-Dinitrophenol | µg/L | 50 | 3.9 | 12.82051282 |
| AOC 4 - Discrete | NA | NYOW-04-WL037-A | Picric acid | µg/L | 0.84 | 4 | 0.21 |
| AOC 4 - Discrete | NA | NYOW-04-WL038-A | 2,4-Dinitrochlorobenzene | µg/L | 20 | 0.24 | 83.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-WL038-A | 2,4-Dinitrophenol | µg/L | 51 | 3.9 | 13.07692308 |
| AOC 4 - Discrete | NA | NYOW-04-WL038-A | Picric acid | µg/L | 0.41 | 4 | 0.1025 |
| AOC 4 - Discrete | NA | NYOW-04-WL079-A | 2,4-Dinitrochlorobenzene | µg/L | 20 | 0.24 | 83.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-WL079-A | 2,4-Dinitrophenol | µg/L | 51 | 3.9 | 13.07692308 |
| AOC 4 - Discrete | NA | NYOW-04-WL079-A | Picric acid | µg/L | 0.41 | 4 | 0.1025 |
| AOC 4 - Discrete | NA | NYOW-04-WL080-A | 2,4-Dinitrochlorobenzene | µg/L | 21 | 0.24 | 87.5 |
| AOC 4 - Discrete | NA | NYOW-04-WL080-A | 2,4-Dinitrophenol | µg/L | 52 | 3.9 | 13.33333333 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-WL081-A | 2,4-Dinitrochlorobenzene | µg/L | 22 | 0.24 | 91.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-WL081-A | 2,4-Dinitrophenol | µg/L | 55 | 3.9 | 14.1025641 |
| AOC 4 - Discrete | NA | NYOW-04-WL081-A | Picric acid | µg/L | 0.45 | 4 | 0.1125 |
| AOC 4 - Discrete | NA | NYOW-04-WL082-A | 2,4-Dinitrochlorobenzene | µg/L | 21 | 0.24 | 87.5 |
| AOC 4 - Discrete | NA | NYOW-04-WL082-A | 2,4-Dinitrophenol | µg/L | 52 | 3.9 | 13.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-WL082-A | Picric acid | µg/L | 0.44 | 4 | 0.11 |
| AOC 4 - Discrete | NA | NYOW-04-WL083-A | 2,4-Dinitrochlorobenzene | µg/L | 21 | 0.24 | 87.5 |
| AOC 4 - Discrete | NA | NYOW-04-WL083-A | 2,4-Dinitrophenol | µg/L | 52 | 3.9 | 13.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-WL083-A | Picric acid | µg/L | 6.3 | 4 | 1.575 |
| AOC 4 - Discrete | NA | NYOW-04-WL084-A | 2,4-Dinitrochlorobenzene | µg/L | 20 | 0.24 | 83.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-WL084-A | 2,4-Dinitrophenol | µg/L | 49 | 3.9 | 12.56410256 |
| AOC 4 - Discrete | NA | NYOW-04-WL084-A | Picric acid | µg/L | 0.41 | 4 | 0.1025 |
| AOC 4 - Discrete | NA | NYOW-04-WL085-A | 2,4-Dinitrochlorobenzene | µg/L | 20 | 0.24 | 83.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-WL085-A | 2,4-Dinitrophenol | µg/L | 51 | 3.9 | 13.07692308 |
| AOC 4 - Discrete | NA | NYOW-04-WL085-A | Picric acid | µg/L | 0.4 | 4 | 0.1 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Acenaphthylene | µg/L | 0.11 | 53 | 0.002075472 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Fluorene | µg/L | 0.11 | 29 | 0.003793103 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Copper | µg/L | 15 | 80 | 0.1875 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Nickel | µg/L | 40 | 39 | 1.025641026 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Zinc | µg/L | 150 | 600 | 0.25 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Chromium | µg/L | 10 | 2200 | 0.004545455 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Lead | µg/L | 3 | 15 | 0.2 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 1,2,4,5-Tetrachlorobenzene | µg/L | 11 | 0.017 | 647.0588235 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 1,4-Dioxane | µg/L | 11 | 0.46 | 23.91304348 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 2,2'-Oxybis(1-chloropropane) | µg/L | 11 | 71 | 0.154929577 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 2,3,4,6-Tetrachlorophenol | µg/L | 11 | 24 | 0.458333333 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 2,4,5-Trichlorophenol | µg/L | 11 | 120 | 0.091666667 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 2,4,6-Trichlorophenol | µg/L | 11 | 1.2 | 9.166666667 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 2,4-Dichlorophenol | µg/L | 11 | 4.6 | 2.391304348 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 2,4-Dimethylphenol | µg/L | 11 | 36 | 0.305555556 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 2,4-Dinitrotoluene | µg/L | 11 | 0.24 | 45.83333333 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 2,6-Dinitrotoluene | µg/L | 11 | 0.049 | 224.4897959 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 2-Chloronaphthalene | µg/L | 11 | 75 | 0.146666667 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 2-Chlorophenol | µg/L | 11 | 9.1 | 1.208791209 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 2-Methylphenol (o-Cresol) | µg/L | 11 | 93 | 0.11827957 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 2-Nitroaniline | µg/L | 54 | 19 | 2.842105263 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 2-Nitrophenol | µg/L | 11 | 9.1 | 1.208791209 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 3,3'-Dichlorobenzidine | µg/L | 64 | 0.13 | 492.3076923 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 3-Nitroaniline | µg/L | 54 | 5 | 10.8 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 4,6-Dinitro-2-methylphenol | µg/L | 54 | 0.15 | 360 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 4-Chloro-3-methylphenol | µg/L | 11 | 140 | 0.078571429 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 4-Chloroaniline | µg/L | 21 | 0.37 | 56.75675676 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 4-Nitroaniline | µg/L | 54 | 3.8 | 14.21052632 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | 4-Nitrophenol | µg/L | 54 | 9.1 | 5.934065934 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Acetophenone | µg/L | 11 | 190 | 0.057894737 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Atrazine | µg/L | 11 | 0.3 | 36.66666667 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Benzaldehyde | µg/L | 11 | 19 | 0.578947368 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Benzyl butyl phthalate | µg/L | 11 | 16 | 0.6875 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Biphenyl (Diphenyl) | µg/L | 11 | 0.083 | 132.5301205 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Bis(2-chloroethoxy)methane | µg/L | 11 | 5.9 | 1.86440678 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 11 | 0.014 | 785.7142857 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Bis(2-ethylhexyl)phthalate | µg/L | 11 | 5.6 | 1.964285714 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Carbazole | µg/L | 11 | 29 | 0.379310345 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Cresols, m- & p- | µg/L | 11 | 37 | 0.297297297 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Dibenzofuran | µg/L | 11 | 0.79 | 13.92405063 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Diethyl phthalate | µg/L | 11 | 1500 | 0.007333333 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | di-n-Butyl phthalate | µg/L | 11 | 90 | 0.122222222 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | di-n-Octyl phthalate | µg/L | 11 | 20 | 0.55 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Hexachlorobenzene | µg/L | 11 | 0.0098 | 1122.44898 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Hexachlorobutadiene | µg/L | 11 | 0.14 | 78.57142857 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Hexachlorocyclopentadiene | µg/L | 11 | 0.041 | 268.2926829 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Hexachloroethane | µg/L | 11 | 0.33 | 33.33333333 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Isophorone | µg/L | 11 | 78 | 0.141025641 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Nitrobenzene | µg/L | 11 | 0.14 | 78.57142857 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | N-Nitrosodi-n-propylamine | µg/L | 11 | 0.011 | 1000 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | N-Nitrosodiphenylamine | µg/L | 11 | 12 | 0.916666667 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Pentachlorophenol | µg/L | 54 | 0.041 | 1317.073171 |
| AOC 5 | Boiler_House | NYOW-05-WL016-A | Phenol | µg/L | 11 | 580 | 0.018965517 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Acenaphthylene | µg/L | 0.11 | 53 | 0.002075472 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Fluorene | µg/L | 0.11 | 29 | 0.003793103 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Copper | µg/L | 15 | 80 | 0.1875 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Nickel | µg/L | 40 | 39 | 1.025641026 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Zinc | µg/L | 150 | 600 | 0.25 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Chromium | µg/L | 10 | 2200 | 0.004545455 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Lead | µg/L | 3 | 15 | 0.2 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 1,2,4,5-Tetrachlorobenzene | µg/L | 10 | 0.017 | 588.2352941 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 1,4-Dioxane | µg/L | 10 | 0.46 | 21.73913043 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 2,2'-Oxybis(1-chloropropane) | µg/L | 10 | 71 | 0.14084507 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 2,3,4,6-Tetrachlorophenol | µg/L | 10 | 24 | 0.416666667 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 2,4,5-Trichlorophenol | µg/L | 10 | 120 | 0.083333333 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 2,4,6-Trichlorophenol | µg/L | 10 | 1.2 | 8.333333333 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 2,4-Dichlorophenol | µg/L | 10 | 4.6 | 2.173913043 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 2,4-Dimethylphenol | µg/L | 10 | 36 | 0.277777778 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 2,4-Dinitrotoluene | µg/L | 10 | 0.24 | 41.66666667 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 2,6-Dinitrotoluene | µg/L | 10 | 0.049 | 204.0816327 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 2-Chloronaphthalene | µg/L | 10 | 75 | 0.133333333 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 2-Chlorophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 2-Methylphenol (o-Cresol) | µg/L | 10 | 93 | 0.107526882 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 2-Nitroaniline | µg/L | 52 | 19 | 2.736842105 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 2-Nitrophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 3,3'-Dichlorobenzidine | µg/L | 62 | 0.13 | 476.9230769 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 3-Nitroaniline | µg/L | 52 | 5 | 10.4 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 4,6-Dinitro-2-methylphenol | µg/L | 52 | 0.15 | 346.6666667 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 4-Chloro-3-methylphenol | µg/L | 10 | 140 | 0.071428571 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 4-Chloroaniline | µg/L | 21 | 0.37 | 56.75675676 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 4-Nitroaniline | µg/L | 52 | 3.8 | 13.68421053 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | 4-Nitrophenol | µg/L | 52 | 9.1 | 5.714285714 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Acetophenone | µg/L | 10 | 190 | 0.052631579 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Atrazine | µg/L | 10 | 0.3 | 33.33333333 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Benzaldehyde | µg/L | 10 | 19 | 0.526315789 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Benzyl butyl phthalate | µg/L | 10 | 16 | 0.625 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Biphenyl (Diphenyl) | µg/L | 10 | 0.083 | 120.4819277 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Bis(2-chloroethoxy)methane | µg/L | 10 | 5.9 | 1.694915254 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 10 | 0.014 | 714.2857143 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Bis(2-ethylhexyl)phthalate | µg/L | 10 | 5.6 | 1.785714286 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Carbazole | µg/L | 10 | 29 | 0.344827586 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Cresols, m- & p- | µg/L | 10 | 37 | 0.27027027 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Dibenzofuran | µg/L | 10 | 0.79 | 12.65822785 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Diethyl phthalate | µg/L | 10 | 1500 | 0.006666667 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | di-n-Butyl phthalate | µg/L | 10 | 90 | 0.111111111 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | di-n-Octyl phthalate | µg/L | 10 | 20 | 0.5 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Hexachlorobenzene | µg/L | 10 | 0.0098 | 1020.408163 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Hexachlorobutadiene | µg/L | 10 | 0.14 | 71.42857143 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Hexachlorocyclopentadiene | µg/L | 10 | 0.041 | 243.902439 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Hexachloroethane | µg/L | 10 | 0.33 | 30.3030303 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Isophorone | µg/L | 10 | 78 | 0.128205128 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Nitrobenzene | µg/L | 10 | 0.14 | 71.42857143 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | N-Nitrosodi-n-propylamine | µg/L | 10 | 0.011 | 909.0909091 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | N-Nitrosodiphenylamine | µg/L | 10 | 12 | 0.833333333 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Pentachlorophenol | µg/L | 52 | 0.041 | 1268.292683 |
| AOC 5 | Boiler_House | NYOW-05-WL017-1-A | Phenol | µg/L | 10 | 580 | 0.017241379 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Acenaphthylene | µg/L | 0.1 | 53 | 0.001886792 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Fluorene | µg/L | 0.1 | 29 | 0.003448276 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Copper | µg/L | 15 | 80 | 0.1875 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Nickel | µg/L | 40 | 39 | 1.025641026 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Zinc | µg/L | 150 | 600 | 0.25 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Chromium | µg/L | 10 | 2200 | 0.004545455 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Lead | µg/L | 3 | 15 | 0.2 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 1,2,4,5-Tetrachlorobenzene | µg/L | 9.9 | 0.017 | 582.3529412 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 1,4-Dioxane | µg/L | 9.9 | 0.46 | 21.52173913 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 2,2'-Oxybis(1-chloropropane) | µg/L | 9.9 | 71 | 0.13943662 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 2,3,4,6-Tetrachlorophenol | µg/L | 9.9 | 24 | 0.4125 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 2,4,5-Trichlorophenol | µg/L | 9.9 | 120 | 0.0825 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 2,4,6-Trichlorophenol | µg/L | 9.9 | 1.2 | 8.25 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 2,4-Dichlorophenol | µg/L | 9.9 | 4.6 | 2.152173913 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 2,4-Dimethylphenol | µg/L | 9.9 | 36 | 0.275 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 2,4-Dinitrotoluene | µg/L | 9.9 | 0.24 | 41.25 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 2,6-Dinitrotoluene | µg/L | 9.9 | 0.049 | 202.0408163 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 2-Chloronaphthalene | µg/L | 9.9 | 75 | 0.132 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 2-Chlorophenol | µg/L | 9.9 | 9.1 | 1.087912088 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 2-Methylphenol (o-Cresol) | µg/L | 9.9 | 93 | 0.106451613 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 2-Nitroaniline | µg/L | 50 | 19 | 2.631578947 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 2-Nitrophenol | µg/L | 9.9 | 9.1 | 1.087912088 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 3,3'-Dichlorobenzidine | µg/L | 60 | 0.13 | 461.5384615 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 3-Nitroaniline | µg/L | 50 | 5 | 10 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 4,6-Dinitro-2-methylphenol | µg/L | 50 | 0.15 | 333.3333333 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 4-Chloro-3-methylphenol | µg/L | 9.9 | 140 | 0.070714286 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 4-Chloroaniline | µg/L | 20 | 0.37 | 54.05405405 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 4-Nitroaniline | µg/L | 50 | 3.8 | 13.15789474 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | 4-Nitrophenol | µg/L | 50 | 9.1 | 5.494505495 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Acetophenone | µg/L | 9.9 | 190 | 0.052105263 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Atrazine | µg/L | 9.9 | 0.3 | 33 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Benzaldehyde | µg/L | 9.9 | 19 | 0.521052632 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Benzyl butyl phthalate | µg/L | 9.9 | 16 | 0.61875 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Biphenyl (Diphenyl) | µg/L | 9.9 | 0.083 | 119.2771084 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Bis(2-chloroethoxy)methane | µg/L | 9.9 | 5.9 | 1.677966102 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 9.9 | 0.014 | 707.1428571 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Bis(2-ethylhexyl)phthalate | µg/L | 9.9 | 5.6 | 1.767857143 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Carbazole | µg/L | 9.9 | 29 | 0.34137931 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Cresols, m- & p- | µg/L | 9.9 | 37 | 0.267567568 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Dibenzofuran | µg/L | 9.9 | 0.79 | 12.53164557 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Diethyl phthalate | µg/L | 9.9 | 1500 | 0.0066 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | di-n-Butyl phthalate | µg/L | 9.9 | 90 | 0.11 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | di-n-Octyl phthalate | µg/L | 9.9 | 20 | 0.495 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Hexachlorobenzene | µg/L | 9.9 | 0.0098 | 1010.204082 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Hexachlorobutadiene | µg/L | 9.9 | 0.14 | 70.71428571 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Hexachlorocyclopentadiene | µg/L | 9.9 | 0.041 | 241.4634146 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Hexachloroethane | µg/L | 9.9 | 0.33 | 30 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Isophorone | µg/L | 9.9 | 78 | 0.126923077 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Nitrobenzene | µg/L | 9.9 | 0.14 | 70.71428571 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | N-Nitrosodi-n-propylamine | µg/L | 9.9 | 0.011 | 900 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | N-Nitrosodiphenylamine | µg/L | 9.9 | 12 | 0.825 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Pentachlorophenol | µg/L | 50 | 0.041 | 1219.512195 |
| AOC 5 | Boiler_House | NYOW-05-WL019-A | Phenol | µg/L | 9.9 | 580 | 0.017068966 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Acenaphthene | µg/L | 0.13 | 53 | 0.00245283 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Acenaphthylene | µg/L | 0.13 | 53 | 0.00245283 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Anthracene | µg/L | 0.13 | 180 | 0.000722222 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Benzo(a)anthracene | µg/L | 0.13 | 0.03 | 4.333333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Benzo(a)pyrene | µg/L | 0.13 | 0.025 | 5.2 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Benzo(b)fluoranthene | µg/L | 0.13 | 0.25 | 0.52 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Benzo(g,h,i)perylene | µg/L | 0.13 | 12 | 0.010833333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Benzo(k)fluoranthene | µg/L | 0.13 | 2.5 | 0.052 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Dibenz(a,h)anthracene | µg/L | 0.13 | 0.025 | 5.2 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Fluoranthene | µg/L | 0.13 | 80 | 0.001625 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Fluorene | µg/L | 0.13 | 29 | 0.004482759 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Indeno(1,2,3-c,d)pyrene | µg/L | 0.13 | 0.25 | 0.52 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Pyrene | µg/L | 0.13 | 12 | 0.010833333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | 2,3,4,6-Tetrachlorophenol | µg/L | 13 | 24 | 0.541666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | 2,4,5-Trichlorophenol | µg/L | 13 | 120 | 0.108333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | 2,4,6-Trichlorophenol | µg/L | 13 | 1.2 | 10.83333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | 2,4-Dichlorophenol | µg/L | 13 | 4.6 | 2.826086957 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | 2,4-Dimethylphenol | µg/L | 13 | 36 | 0.361111111 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | 2-Chlorophenol | µg/L | 13 | 9.1 | 1.428571429 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | 2-Methylphenol (o-Cresol) | µg/L | 13 | 93 | 0.139784946 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | 2-Nitrophenol | µg/L | 13 | 9.1 | 1.428571429 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | 4,6-Dinitro-2-methylphenol | µg/L | 66 | 0.15 | 440 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | 4-Chloro-3-methylphenol | µg/L | 13 | 140 | 0.092857143 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | 4-Nitrophenol | µg/L | 66 | 9.1 | 7.252747253 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Cresols, m- & p- | µg/L | 13 | 37 | 0.351351351 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL024-A | Pentachlorophenol | µg/L | 66 | 0.041 | 1609.756098 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Acenaphthene | µg/L | 0.1 | 53 | 0.001886792 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Acenaphthylene | µg/L | 0.1 | 53 | 0.001886792 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Anthracene | µg/L | 0.1 | 180 | 0.000555556 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Benzo(a)anthracene | µg/L | 0.1 | 0.03 | 3.333333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Benzo(a)pyrene | µg/L | 0.1 | 0.025 | 4 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Benzo(b)fluoranthene | µg/L | 0.1 | 0.25 | 0.4 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Benzo(g,h,i)perylene | µg/L | 0.1 | 12 | 0.008333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Benzo(k)fluoranthene | µg/L | 0.1 | 2.5 | 0.04 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Dibenz(a,h)anthracene | µg/L | 0.1 | 0.025 | 4 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Fluoranthene | µg/L | 0.1 | 80 | 0.00125 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Fluorene | µg/L | 0.1 | 29 | 0.003448276 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Indeno(1,2,3-c,d)pyrene | µg/L | 0.1 | 0.25 | 0.4 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Pyrene | µg/L | 0.1 | 12 | 0.008333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 1,2,4,5-Tetrachlorobenzene | µg/L | 11 | 0.017 | 647.0588235 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 1,4-Dioxane | µg/L | 11 | 0.46 | 23.91304348 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 2,3,4,6-Tetrachlorophenol | µg/L | 11 | 24 | 0.458333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 2,4,5-Trichlorophenol | µg/L | 11 | 120 | 0.091666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 2,4,6-Trichlorophenol | µg/L | 11 | 1.2 | 9.166666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 2,4-Dichlorophenol | µg/L | 11 | 4.6 | 2.391304348 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 2,4-Dimethylphenol | µg/L | 11 | 36 | 0.305555556 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 2,4-Dinitrotoluene | µg/L | 11 | 0.24 | 45.83333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 2,6-Dinitrotoluene | µg/L | 11 | 0.049 | 224.4897959 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 2-Chloronaphthalene | µg/L | 11 | 75 | 0.146666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 2-Chlorophenol | µg/L | 11 | 9.1 | 1.208791209 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 2-Methylphenol (o-Cresol) | µg/L | 11 | 93 | 0.11827957 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 2-Nitroaniline | µg/L | 53 | 19 | 2.789473684 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 2-Nitrophenol | µg/L | 11 | 9.1 | 1.208791209 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 3,3'-Dichlorobenzidine | µg/L | 63 | 0.13 | 484.6153846 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 3-Nitroaniline | µg/L | 53 | 5 | 10.6 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 4,6-Dinitro-2-methylphenol | µg/L | 53 | 0.15 | 353.3333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 4-Chloro-3-methylphenol | µg/L | 11 | 140 | 0.078571429 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 4-Chloroaniline | µg/L | 21 | 0.37 | 56.75675676 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 4-Nitroaniline | µg/L | 53 | 3.8 | 13.94736842 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | 4-Nitrophenol | µg/L | 53 | 9.1 | 5.824175824 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Acetophenone | µg/L | 11 | 190 | 0.057894737 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Atrazine | µg/L | 11 | 0.3 | 36.66666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Benzaldehyde | µg/L | 11 | 19 | 0.578947368 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Benzyl butyl phthalate | µg/L | 11 | 16 | 0.6875 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Biphenyl (Diphenyl) | µg/L | 11 | 0.083 | 132.5301205 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Bis(2-chloroethoxy)methane | µg/L | 11 | 5.9 | 1.86440678 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 11 | 0.014 | 785.7142857 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Bis(2-ethylhexyl)phthalate | µg/L | 11 | 5.6 | 1.964285714 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Caprolactam | µg/L | 11 | 990 | 0.011111111 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Carbazole | µg/L | 11 | 29 | 0.379310345 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Cresols, m- & p- | µg/L | 11 | 37 | 0.297297297 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Dibenzofuran | µg/L | 11 | 0.79 | 13.92405063 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Diethyl phthalate | µg/L | 11 | 1500 | 0.007333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | di-n-Butyl phthalate | µg/L | 11 | 90 | 0.122222222 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | di-n-Octyl phthalate | µg/L | 11 | 20 | 0.55 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Hexachlorobenzene | µg/L | 11 | 0.0098 | 1122.44898 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Hexachlorobutadiene | µg/L | 11 | 0.14 | 78.57142857 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Hexachlorocyclopentadiene | µg/L | 11 | 0.041 | 268.2926829 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Hexachloroethane | µg/L | 11 | 0.33 | 33.33333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Isophorone | µg/L | 11 | 78 | 0.141025641 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Nitrobenzene | µg/L | 11 | 0.14 | 78.57142857 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | N-Nitrosodi-n-propylamine | µg/L | 11 | 0.011 | 1000 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | N-Nitrosodiphenylamine | µg/L | 11 | 12 | 0.916666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-WL025-A | Pentachlorophenol | µg/L | 53 | 0.041 | 1292.682927 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Acenaphthene | µg/L | 0.12 | 53 | 0.002264151 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Acenaphthylene | µg/L | 0.12 | 53 | 0.002264151 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Anthracene | µg/L | 0.12 | 180 | 0.000666667 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Benzo(a)anthracene | µg/L | 0.12 | 0.03 | 4 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Benzo(a)pyrene | µg/L | 0.12 | 0.025 | 4.8 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Benzo(b)fluoranthene | µg/L | 0.12 | 0.25 | 0.48 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Benzo(g,h,i)perylene | µg/L | 0.12 | 12 | 0.01 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Benzo(k)fluoranthene | µg/L | 0.12 | 2.5 | 0.048 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Chrysene | µg/L | 0.12 | 25 | 0.0048 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Dibenz(a,h)anthracene | µg/L | 0.12 | 0.025 | 4.8 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Fluoranthene | µg/L | 0.12 | 80 | 0.0015 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Fluorene | µg/L | 0.12 | 29 | 0.004137931 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Indeno(1,2,3-c,d)pyrene | µg/L | 0.12 | 0.25 | 0.48 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Pyrene | µg/L | 0.12 | 12 | 0.01 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Aluminum | µg/L | 300 | 2000 | 0.15 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Copper | µg/L | 15 | 80 | 0.1875 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Vanadium | µg/L | 15 | 8.6 | 1.744186047 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Zinc | µg/L | 150 | 600 | 0.25 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Chromium | µg/L | 10 | 2200 | 0.004545455 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Lead | µg/L | 3 | 15 | 0.2 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 1,2,4,5-Tetrachlorobenzene | µg/L | 10 | 0.017 | 588.2352941 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 1,4-Dioxane | µg/L | 10 | 0.46 | 21.73913043 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 2,3,4,6-Tetrachlorophenol | µg/L | 10 | 24 | 0.416666667 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 2,4,5-Trichlorophenol | µg/L | 10 | 120 | 0.083333333 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 2,4,6-Trichlorophenol | µg/L | 10 | 1.2 | 8.333333333 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 2,4-Dichlorophenol | µg/L | 10 | 4.6 | 2.173913043 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 2,4-Dimethylphenol | µg/L | 10 | 36 | 0.277777778 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 2,4-Dinitrotoluene | µg/L | 10 | 0.24 | 41.66666667 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 2,6-Dinitrotoluene | µg/L | 10 | 0.049 | 204.0816327 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 2-Chloronaphthalene | µg/L | 10 | 75 | 0.133333333 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 2-Chlorophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 2-Methylphenol (o-Cresol) | µg/L | 10 | 93 | 0.107526882 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 2-Nitroaniline | µg/L | 51 | 19 | 2.684210526 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 2-Nitrophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 3,3'-Dichlorobenzidine | µg/L | 61 | 0.13 | 469.2307692 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 3-Nitroaniline | µg/L | 51 | 5 | 10.2 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 4,6-Dinitro-2-methylphenol | µg/L | 51 | 0.15 | 340 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 4-Chloro-3-methylphenol | µg/L | 10 | 140 | 0.071428571 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 4-Chloroaniline | µg/L | 20 | 0.37 | 54.05405405 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 4-Nitroaniline | µg/L | 51 | 3.8 | 13.42105263 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | 4-Nitrophenol | µg/L | 51 | 9.1 | 5.604395604 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Acetophenone | µg/L | 10 | 190 | 0.052631579 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Atrazine | µg/L | 10 | 0.3 | 33.33333333 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Benzaldehyde | µg/L | 10 | 19 | 0.526315789 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Benzyl butyl phthalate | µg/L | 10 | 16 | 0.625 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Biphenyl (Diphenyl) | µg/L | 10 | 0.083 | 120.4819277 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Bis(2-chloroethoxy)methane | µg/L | 10 | 5.9 | 1.694915254 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 10 | 0.014 | 714.2857143 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Bis(2-ethylhexyl)phthalate | µg/L | 10 | 5.6 | 1.785714286 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Caprolactam | µg/L | 10 | 990 | 0.01010101 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Carbazole | µg/L | 10 | 29 | 0.344827586 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Cresols, m- & p- | µg/L | 10 | 37 | 0.27027027 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Dibenzofuran | µg/L | 10 | 0.79 | 12.65822785 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Diethyl phthalate | µg/L | 10 | 1500 | 0.006666667 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | di-n-Butyl phthalate | µg/L | 10 | 90 | 0.111111111 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | di-n-Octyl phthalate | µg/L | 10 | 20 | 0.5 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Hexachlorobenzene | µg/L | 10 | 0.0098 | 1020.408163 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Hexachlorobutadiene | µg/L | 10 | 0.14 | 71.42857143 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Hexachlorocyclopentadiene | µg/L | 10 | 0.041 | 243.902439 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Hexachloroethane | µg/L | 10 | 0.33 | 30.3030303 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Isophorone | µg/L | 10 | 78 | 0.128205128 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Nitrobenzene | µg/L | 10 | 0.14 | 71.42857143 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | N-Nitrosodi-n-propylamine | µg/L | 10 | 0.011 | 909.0909091 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | N-Nitrosodiphenylamine | µg/L | 10 | 12 | 0.833333333 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Pentachlorophenol | µg/L | 51 | 0.041 | 1243.902439 |
| AOC 5 | Coal_Storage | NYOW-05-WL006-A | Phenol | µg/L | 10 | 580 | 0.017241379 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Acenaphthene | µg/L | 0.12 | 53 | 0.002264151 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Acenaphthylene | µg/L | 0.12 | 53 | 0.002264151 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Anthracene | µg/L | 0.12 | 180 | 0.000666667 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Benzo(a)anthracene | µg/L | 0.12 | 0.03 | 4 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Benzo(a)pyrene | µg/L | 0.12 | 0.025 | 4.8 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Benzo(b)fluoranthene | µg/L | 0.12 | 0.25 | 0.48 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Benzo(g,h,i)perylene | µg/L | 0.12 | 12 | 0.01 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Benzo(k)fluoranthene | µg/L | 0.12 | 2.5 | 0.048 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Chrysene | µg/L | 0.12 | 25 | 0.0048 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Dibenz(a,h)anthracene | µg/L | 0.12 | 0.025 | 4.8 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Fluoranthene | µg/L | 0.12 | 80 | 0.0015 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Fluorene | µg/L | 0.12 | 29 | 0.004137931 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Indeno(1,2,3-c,d)pyrene | µg/L | 0.12 | 0.25 | 0.48 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Pyrene | µg/L | 0.12 | 12 | 0.01 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Aluminum | µg/L | 300 | 2000 | 0.15 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Copper | µg/L | 15 | 80 | 0.1875 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Vanadium | µg/L | 15 | 8.6 | 1.744186047 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Zinc | µg/L | 150 | 600 | 0.25 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Chromium | µg/L | 10 | 2200 | 0.004545455 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Lead | µg/L | 3 | 15 | 0.2 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 1,2,4,5-Tetrachlorobenzene | µg/L | 12 | 0.017 | 705.8823529 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 1,4-Dioxane | µg/L | 12 | 0.46 | 26.08695652 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 2,3,4,6-Tetrachlorophenol | µg/L | 12 | 24 | 0.5 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 2,4,5-Trichlorophenol | µg/L | 12 | 120 | 0.1 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 2,4,6-Trichlorophenol | µg/L | 12 | 1.2 | 10 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 2,4-Dichlorophenol | µg/L | 12 | 4.6 | 2.608695652 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 2,4-Dimethylphenol | µg/L | 12 | 36 | 0.333333333 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 2,4-Dinitrotoluene | µg/L | 12 | 0.24 | 50 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 2,6-Dinitrotoluene | µg/L | 12 | 0.049 | 244.8979592 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 2-Chloronaphthalene | µg/L | 12 | 75 | 0.16 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 2-Chlorophenol | µg/L | 12 | 9.1 | 1.318681319 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 2-Methylphenol (o-Cresol) | µg/L | 12 | 93 | 0.129032258 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 2-Nitroaniline | µg/L | 59 | 19 | 3.105263158 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 2-Nitrophenol | µg/L | 12 | 9.1 | 1.318681319 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 3,3'-Dichlorobenzidine | µg/L | 71 | 0.13 | 546.1538462 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 3-Nitroaniline | µg/L | 59 | 5 | 11.8 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 4,6-Dinitro-2-methylphenol | µg/L | 59 | 0.15 | 393.3333333 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 4-Chloro-3-methylphenol | µg/L | 12 | 140 | 0.085714286 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 4-Chloroaniline | µg/L | 24 | 0.37 | 64.86486486 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 4-Nitroaniline | µg/L | 59 | 3.8 | 15.52631579 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | 4-Nitrophenol | µg/L | 59 | 9.1 | 6.483516484 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Acetophenone | µg/L | 12 | 190 | 0.063157895 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Atrazine | µg/L | 12 | 0.3 | 40 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Benzaldehyde | µg/L | 12 | 19 | 0.631578947 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Benzyl butyl phthalate | µg/L | 12 | 16 | 0.75 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Biphenyl (Diphenyl) | µg/L | 12 | 0.083 | 144.5783133 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Bis(2-chloroethoxy)methane | µg/L | 12 | 5.9 | 2.033898305 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 12 | 0.014 | 857.1428571 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Bis(2-ethylhexyl)phthalate | µg/L | 12 | 5.6 | 2.142857143 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Caprolactam | µg/L | 12 | 990 | 0.012121212 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Carbazole | µg/L | 12 | 29 | 0.413793103 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Cresols, m- & p- | µg/L | 12 | 37 | 0.324324324 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Dibenzofuran | µg/L | 12 | 0.79 | 15.18987342 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Diethyl phthalate | µg/L | 12 | 1500 | 0.008 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | di-n-Butyl phthalate | µg/L | 12 | 90 | 0.133333333 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | di-n-Octyl phthalate | µg/L | 12 | 20 | 0.6 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Hexachlorobenzene | µg/L | 12 | 0.0098 | 1224.489796 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Hexachlorobutadiene | µg/L | 12 | 0.14 | 85.71428571 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Hexachlorocyclopentadiene | µg/L | 12 | 0.041 | 292.6829268 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Hexachloroethane | µg/L | 12 | 0.33 | 36.36363636 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Isophorone | µg/L | 12 | 78 | 0.153846154 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Nitrobenzene | µg/L | 12 | 0.14 | 85.71428571 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | N-Nitrosodi-n-propylamine | µg/L | 12 | 0.011 | 1090.909091 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | N-Nitrosodiphenylamine | µg/L | 12 | 12 | 1 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Pentachlorophenol | µg/L | 59 | 0.041 | 1439.02439 |
| AOC 5 | Coal_Storage | NYOW-05-WL008-A | Phenol | µg/L | 12 | 580 | 0.020689655 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Acenaphthene | µg/L | 0.1 | 53 | 0.001886792 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Acenaphthylene | µg/L | 0.1 | 53 | 0.001886792 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Anthracene | µg/L | 0.1 | 180 | 0.000555556 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Benzo(a)anthracene | µg/L | 0.1 | 0.03 | 3.333333333 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Benzo(a)pyrene | µg/L | 0.1 | 0.025 | 4 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Benzo(b)fluoranthene | µg/L | 0.1 | 0.25 | 0.4 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Benzo(g,h,i)perylene | µg/L | 0.1 | 12 | 0.008333333 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Benzo(k)fluoranthene | µg/L | 0.1 | 2.5 | 0.04 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Chrysene | µg/L | 0.1 | 25 | 0.004 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Dibenz(a,h)anthracene | µg/L | 0.1 | 0.025 | 4 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Fluoranthene | µg/L | 0.1 | 80 | 0.00125 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Fluorene | µg/L | 0.1 | 29 | 0.003448276 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Indeno(1,2,3-c,d)pyrene | µg/L | 0.1 | 0.25 | 0.4 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Pyrene | µg/L | 0.1 | 12 | 0.008333333 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Aluminum | µg/L | 300 | 2000 | 0.15 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Copper | µg/L | 15 | 80 | 0.1875 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Vanadium | µg/L | 15 | 8.6 | 1.744186047 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Zinc | µg/L | 150 | 600 | 0.25 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Chromium | µg/L | 10 | 2200 | 0.004545455 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Lead | µg/L | 3 | 15 | 0.2 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | 2,3,4,6-Tetrachlorophenol | µg/L | 10 | 24 | 0.416666667 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | 2,4,5-Trichlorophenol | µg/L | 10 | 120 | 0.083333333 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | 2,4,6-Trichlorophenol | µg/L | 10 | 1.2 | 8.333333333 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | 2,4-Dichlorophenol | µg/L | 10 | 4.6 | 2.173913043 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | 2,4-Dimethylphenol | µg/L | 10 | 36 | 0.277777778 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | 2-Chlorophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | 2-Methylphenol (o-Cresol) | µg/L | 10 | 93 | 0.107526882 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | 2-Nitrophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | 4,6-Dinitro-2-methylphenol | µg/L | 52 | 0.15 | 346.6666667 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | 4-Chloro-3-methylphenol | µg/L | 10 | 140 | 0.071428571 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | 4-Nitrophenol | µg/L | 52 | 9.1 | 5.714285714 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Cresols, m- & p- | µg/L | 10 | 37 | 0.27027027 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Pentachlorophenol | µg/L | 52 | 0.041 | 1268.292683 |
| AOC 5 | Coal_Storage | NYOW-05-WL010-A | Phenol | µg/L | 10 | 580 | 0.017241379 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 1-Methylnaphthalene | µg/L | 0.099 | 1.1 | 0.09 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 2-Methylnaphthalene | µg/L | 0.099 | 3.6 | 0.0275 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Acenaphthene | µg/L | 0.099 | 53 | 0.001867925 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Acenaphthylene | µg/L | 0.099 | 53 | 0.001867925 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Anthracene | µg/L | 0.099 | 180 | 0.00055 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Benzo(a)anthracene | µg/L | 0.099 | 0.03 | 3.3 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Benzo(a)pyrene | µg/L | 0.099 | 0.025 | 3.96 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Benzo(b)fluoranthene | µg/L | 0.099 | 0.25 | 0.396 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Benzo(g,h,i)perylene | µg/L | 0.099 | 12 | 0.00825 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Benzo(k)fluoranthene | µg/L | 0.099 | 2.5 | 0.0396 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Chrysene | µg/L | 0.099 | 25 | 0.00396 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Dibenz(a,h)anthracene | µg/L | 0.099 | 0.025 | 3.96 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Fluoranthene | µg/L | 0.099 | 80 | 0.0012375 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Fluorene | µg/L | 0.099 | 29 | 0.003413793 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Indeno(1,2,3-c,d)pyrene | µg/L | 0.099 | 0.25 | 0.396 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Phenanthrene | µg/L | 0.099 | 180 | 0.00055 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Pyrene | µg/L | 0.099 | 12 | 0.00825 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Aluminum | µg/L | 300 | 2000 | 0.15 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Copper | µg/L | 15 | 80 | 0.1875 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Nickel | µg/L | 40 | 39 | 1.025641026 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Vanadium | µg/L | 15 | 8.6 | 1.744186047 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Zinc | µg/L | 150 | 600 | 0.25 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Chromium | µg/L | 10 | 2200 | 0.004545455 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Lead | µg/L | 3 | 15 | 0.2 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 1,2,4,5-Tetrachlorobenzene | µg/L | 10 | 0.017 | 588.2352941 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 1,4-Dioxane | µg/L | 10 | 0.46 | 21.73913043 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 2,2'-Oxybis(1-chloropropane) | µg/L | 10 | 71 | 0.14084507 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 2,3,4,6-Tetrachlorophenol | µg/L | 10 | 24 | 0.416666667 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 2,4,5-Trichlorophenol | µg/L | 10 | 120 | 0.083333333 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 2,4,6-Trichlorophenol | µg/L | 10 | 1.2 | 8.333333333 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 2,4-Dichlorophenol | µg/L | 10 | 4.6 | 2.173913043 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 2,4-Dimethylphenol | µg/L | 10 | 36 | 0.277777778 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 2,4-Dinitrotoluene | µg/L | 10 | 0.24 | 41.66666667 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 2,6-Dinitrotoluene | µg/L | 10 | 0.049 | 204.0816327 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 2-Chloronaphthalene | µg/L | 10 | 75 | 0.133333333 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 2-Chlorophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 2-Methylphenol (o-Cresol) | µg/L | 10 | 93 | 0.107526882 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 2-Nitroaniline | µg/L | 51 | 19 | 2.684210526 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 2-Nitrophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 3,3'-Dichlorobenzidine | µg/L | 61 | 0.13 | 469.2307692 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 3-Nitroaniline | µg/L | 51 | 5 | 10.2 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 4,6-Dinitro-2-methylphenol | µg/L | 51 | 0.15 | 340 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 4-Chloro-3-methylphenol | µg/L | 10 | 140 | 0.071428571 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 4-Chloroaniline | µg/L | 20 | 0.37 | 54.05405405 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 4-Nitroaniline | µg/L | 51 | 3.8 | 13.42105263 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | 4-Nitrophenol | µg/L | 51 | 9.1 | 5.604395604 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Acetophenone | µg/L | 10 | 190 | 0.052631579 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Atrazine | µg/L | 10 | 0.3 | 33.33333333 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Benzaldehyde | µg/L | 10 | 19 | 0.526315789 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Benzyl butyl phthalate | µg/L | 10 | 16 | 0.625 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Biphenyl (Diphenyl) | µg/L | 10 | 0.083 | 120.4819277 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Bis(2-chloroethoxy)methane | µg/L | 10 | 5.9 | 1.694915254 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 10 | 0.014 | 714.2857143 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Bis(2-ethylhexyl)phthalate | µg/L | 10 | 5.6 | 1.785714286 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Caprolactam | µg/L | 10 | 990 | 0.01010101 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Carbazole | µg/L | 10 | 29 | 0.344827586 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Cresols, m- & p- | µg/L | 10 | 37 | 0.27027027 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Dibenzofuran | µg/L | 10 | 0.79 | 12.65822785 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Diethyl phthalate | µg/L | 10 | 1500 | 0.006666667 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | di-n-Butyl phthalate | µg/L | 10 | 90 | 0.111111111 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | di-n-Octyl phthalate | µg/L | 10 | 20 | 0.5 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Hexachlorobenzene | µg/L | 10 | 0.0098 | 1020.408163 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Hexachlorobutadiene | µg/L | 10 | 0.14 | 71.42857143 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Hexachlorocyclopentadiene | µg/L | 10 | 0.041 | 243.902439 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Hexachloroethane | µg/L | 10 | 0.33 | 30.3030303 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Isophorone | µg/L | 10 | 78 | 0.128205128 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Nitrobenzene | µg/L | 10 | 0.14 | 71.42857143 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | N-Nitrosodi-n-propylamine | µg/L | 10 | 0.011 | 909.0909091 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | N-Nitrosodiphenylamine | µg/L | 10 | 12 | 0.833333333 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Pentachlorophenol | µg/L | 51 | 0.041 | 1243.902439 |
| AOC 5 | Electric_Substation | NYOW-05-WL012-A | Phenol | µg/L | 10 | 580 | 0.017241379 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 1-Methylnaphthalene | µg/L | 0.11 | 1.1 | 0.1 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Acenaphthene | µg/L | 0.11 | 53 | 0.002075472 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Acenaphthylene | µg/L | 0.11 | 53 | 0.002075472 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Anthracene | µg/L | 0.11 | 180 | 0.000611111 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Benzo(a)anthracene | µg/L | 0.11 | 0.03 | 3.666666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Benzo(a)pyrene | µg/L | 0.11 | 0.025 | 4.4 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Benzo(g,h,i)perylene | µg/L | 0.11 | 12 | 0.009166667 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Dibenz(a,h)anthracene | µg/L | 0.11 | 0.025 | 4.4 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Fluorene | µg/L | 0.11 | 29 | 0.003793103 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Indeno(1,2,3-c,d)pyrene | µg/L | 0.11 | 0.25 | 0.44 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Copper | µg/L | 15 | 80 | 0.1875 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Vanadium | µg/L | 15 | 8.6 | 1.744186047 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Zinc | µg/L | 150 | 600 | 0.25 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Chromium | µg/L | 10 | 2200 | 0.004545455 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Lead | µg/L | 3 | 15 | 0.2 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | PCB-1016 (Aroclor 1016) | µg/L | 1.3 | 0.14 | 9.285714286 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | PCB-1221 (Aroclor 1221) | µg/L | 1.3 | 0.0047 | 276.5957447 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | PCB-1232 (Aroclor 1232) | µg/L | 1.3 | 0.0047 | 276.5957447 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | PCB-1242 (Aroclor 1242) | µg/L | 1.3 | 0.0078 | 166.6666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | PCB-1248 (Aroclor 1248) | µg/L | 1.3 | 0.0078 | 166.6666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | PCB-1254 (Aroclor 1254) | µg/L | 1.3 | 0.0078 | 166.6666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | PCB-1260 (Aroclor 1260) | µg/L | 1.3 | 0.0078 | 166.6666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | PCB-1262 (Aroclor 1262) | µg/L | 1.3 | 0.0078 | 166.6666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | PCB-1268 (Aroclor 1268) | µg/L | 1.3 | 0.0078 | 166.6666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 1,1,1-Trichloroethane | µg/L | 1 | 800 | 0.00125 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 1,1,2,2-Tetrachloroethane | µg/L | 1 | 0.076 | 13.15789474 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 1,1,2-Trichloro-1,2,2-trifluoroethane | µg/L | 3 | 1000 | 0.003 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 1,1,2-Trichloroethane | µg/L | 1 | 0.041 | 24.3902439 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 1,1-Dichloroethane | µg/L | 1 | 2.8 | 0.357142857 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 1,1-Dichloroethene | µg/L | 1 | 28 | 0.035714286 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 1,2,4-Trichlorobenzene | µg/L | 1 | 0.4 | 2.5 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 1,2-Dibromo-3-chloropropane | µg/L | 5 | 0.00033 | 15151.51515 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 1,2-Dibromoethane (EDB) | µg/L | 1 | 0.0075 | 133.3333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 1,2-Dichlorobenzene | µg/L | 1 | 30 | 0.033333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 1,2-Dichloroethane | µg/L | 1 | 0.17 | 5.882352941 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 1,2-Dichloropropane | µg/L | 1 | 0.82 | 1.219512195 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 1,3-Dichlorobenzene | µg/L | 1 | 3 | 0.333333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 1,3-Dichloropropane | µg/L | 1 | 37 | 0.027027027 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 1,4-Dichlorobenzene | µg/L | 1 | 0.48 | 2.083333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 2-Butanone (MEK) | µg/L | 6 | 560 | 0.010714286 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 2-Hexanone | µg/L | 5 | 3.8 | 1.315789474 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 4-Methyl-2-pentanone (MIBK) | µg/L | 5 | 630 | 0.007936508 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Acetone | µg/L | 10 | 1800 | 0.005555556 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Benzene | µg/L | 1 | 0.46 | 2.173913043 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Bromochloromethane | µg/L | 1 | 8.3 | 0.120481928 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Bromodichloromethane | µg/L | 1 | 0.13 | 7.692307692 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Bromoform | µg/L | 1 | 3.3 | 0.303030303 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Bromomethane | µg/L | 2 | 0.75 | 2.666666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Carbon disulfide | µg/L | 2 | 81 | 0.024691358 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Carbon Tetrachloride | µg/L | 2 | 0.46 | 4.347826087 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Chlorobenzene | µg/L | 1 | 7.8 | 0.128205128 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Chloroethane | µg/L | 2 | 830 | 0.002409639 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Chloroform | µg/L | 1 | 0.22 | 4.545454545 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Chloromethane | µg/L | 2 | 19 | 0.105263158 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | cis-1,2-Dichloroethene | µg/L | 1 | 2.5 | 0.4 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | cis-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Cumene | µg/L | 1 | 45 | 0.022222222 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Cyclohexane | µg/L | 2 | 1300 | 0.001538462 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Dibromochloromethane | µg/L | 1 | 0.87 | 1.149425287 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Dichlorodifluoromethane | µg/L | 2 | 20 | 0.1 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Ethylbenzene | µg/L | 1 | 1.5 | 0.666666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | m,p-Xylene | µg/L | 2 | 19 | 0.105263158 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Methyl acetate | µg/L | 5 | 2000 | 0.0025 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Methyl tert-butyl ether (MTBE) | µg/L | 5 | 14 | 0.357142857 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Methylene chloride | µg/L | 5 | 11 | 0.454545455 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | o-Xylene | µg/L | 1 | 19 | 0.052631579 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Styrene | µg/L | 1 | 120 | 0.008333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Tetrachloroethene (PCE) | µg/L | 1 | 4.1 | 0.243902439 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Toluene | µg/L | 1 | 110 | 0.009090909 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | trans-1,2-Dichloroethene | µg/L | 1 | 6.8 | 0.147058824 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | trans-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Trichlorofluoromethane | µg/L | 2 | 520 | 0.003846154 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Vinyl chloride | µg/L | 1.5 | 0.019 | 78.94736842 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 1,2,4,5-Tetrachlorobenzene | µg/L | 10 | 0.017 | 588.2352941 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 1,4-Dioxane | µg/L | 10 | 0.46 | 21.73913043 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 2,3,4,6-Tetrachlorophenol | µg/L | 10 | 24 | 0.416666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 2,4,5-Trichlorophenol | µg/L | 10 | 120 | 0.083333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 2,4,6-Trichlorophenol | µg/L | 10 | 1.2 | 8.333333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 2,4-Dichlorophenol | µg/L | 10 | 4.6 | 2.173913043 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 2,4-Dimethylphenol | µg/L | 10 | 36 | 0.277777778 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 2,4-Dinitrotoluene | µg/L | 10 | 0.24 | 41.66666667 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 2,6-Dinitrotoluene | µg/L | 10 | 0.049 | 204.0816327 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 2-Chloronaphthalene | µg/L | 10 | 75 | 0.133333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 2-Chlorophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 2-Methylphenol (o-Cresol) | µg/L | 10 | 93 | 0.107526882 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 2-Nitroaniline | µg/L | 50 | 19 | 2.631578947 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 2-Nitrophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 3,3'-Dichlorobenzidine | µg/L | 61 | 0.13 | 469.2307692 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 3-Nitroaniline | µg/L | 50 | 5 | 10 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 4,6-Dinitro-2-methylphenol | µg/L | 50 | 0.15 | 333.3333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 4-Chloro-3-methylphenol | µg/L | 10 | 140 | 0.071428571 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 4-Chloroaniline | µg/L | 20 | 0.37 | 54.05405405 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 4-Nitroaniline | µg/L | 50 | 3.8 | 13.15789474 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | 4-Nitrophenol | µg/L | 50 | 9.1 | 5.494505495 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Acetophenone | µg/L | 10 | 190 | 0.052631579 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Atrazine | µg/L | 10 | 0.3 | 33.33333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Benzaldehyde | µg/L | 10 | 19 | 0.526315789 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Benzyl butyl phthalate | µg/L | 10 | 16 | 0.625 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Biphenyl (Diphenyl) | µg/L | 10 | 0.083 | 120.4819277 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Bis(2-chloroethoxy)methane | µg/L | 10 | 5.9 | 1.694915254 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 10 | 0.014 | 714.2857143 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Bis(2-ethylhexyl)phthalate | µg/L | 10 | 5.6 | 1.785714286 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Caprolactam | µg/L | 10 | 990 | 0.01010101 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Carbazole | µg/L | 10 | 29 | 0.344827586 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Cresols, m- & p- | µg/L | 10 | 37 | 0.27027027 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Dibenzofuran | µg/L | 10 | 0.79 | 12.65822785 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Diethyl phthalate | µg/L | 10 | 1500 | 0.006666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | di-n-Butyl phthalate | µg/L | 10 | 90 | 0.111111111 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | di-n-Octyl phthalate | µg/L | 10 | 20 | 0.5 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Hexachlorobenzene | µg/L | 10 | 0.0098 | 1020.408163 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Hexachlorobutadiene | µg/L | 10 | 0.14 | 71.42857143 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Hexachlorocyclopentadiene | µg/L | 10 | 0.041 | 243.902439 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Hexachloroethane | µg/L | 10 | 0.33 | 30.3030303 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Isophorone | µg/L | 10 | 78 | 0.128205128 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Nitrobenzene | µg/L | 10 | 0.14 | 71.42857143 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | N-Nitrosodi-n-propylamine | µg/L | 10 | 0.011 | 909.0909091 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | N-Nitrosodiphenylamine | µg/L | 10 | 12 | 0.833333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Pentachlorophenol | µg/L | 50 | 0.041 | 1219.512195 |
| AOC 5 | Possible_Dump | NYOW-05-WL001-A | Phenol | µg/L | 10 | 580 | 0.017241379 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 1-Methylnaphthalene | µg/L | 0.098 | 1.1 | 0.089090909 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Acenaphthene | µg/L | 0.098 | 53 | 0.001849057 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Acenaphthylene | µg/L | 0.098 | 53 | 0.001849057 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Anthracene | µg/L | 0.098 | 180 | 0.000544444 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Benzo(a)anthracene | µg/L | 0.098 | 0.03 | 3.266666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Benzo(a)pyrene | µg/L | 0.098 | 0.025 | 3.92 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Benzo(g,h,i)perylene | µg/L | 0.098 | 12 | 0.008166667 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Dibenz(a,h)anthracene | µg/L | 0.098 | 0.025 | 3.92 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Fluorene | µg/L | 0.098 | 29 | 0.00337931 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Indeno(1,2,3-c,d)pyrene | µg/L | 0.098 | 0.25 | 0.392 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Copper | µg/L | 15 | 80 | 0.1875 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Vanadium | µg/L | 15 | 8.6 | 1.744186047 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Zinc | µg/L | 150 | 600 | 0.25 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Chromium | µg/L | 10 | 2200 | 0.004545455 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Lead | µg/L | 3 | 15 | 0.2 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | PCB-1016 (Aroclor 1016) | µg/L | 1.1 | 0.14 | 7.857142857 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | PCB-1221 (Aroclor 1221) | µg/L | 1.1 | 0.0047 | 234.0425532 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | PCB-1232 (Aroclor 1232) | µg/L | 1.1 | 0.0047 | 234.0425532 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | PCB-1242 (Aroclor 1242) | µg/L | 1.1 | 0.0078 | 141.025641 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | PCB-1248 (Aroclor 1248) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | PCB-1254 (Aroclor 1254) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | PCB-1260 (Aroclor 1260) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | PCB-1262 (Aroclor 1262) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | PCB-1268 (Aroclor 1268) | µg/L | 1.1 | 0.0078 | 141.025641 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 1,1,1-Trichloroethane | µg/L | 1 | 800 | 0.00125 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 1,1,2,2-Tetrachloroethane | µg/L | 1 | 0.076 | 13.15789474 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 1,1,2-Trichloro-1,2,2-trifluoroethane | µg/L | 3 | 1000 | 0.003 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 1,1,2-Trichloroethane | µg/L | 1 | 0.041 | 24.3902439 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 1,1-Dichloroethane | µg/L | 1 | 2.8 | 0.357142857 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 1,1-Dichloroethene | µg/L | 1 | 28 | 0.035714286 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 1,2,4-Trichlorobenzene | µg/L | 1 | 0.4 | 2.5 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 1,2-Dibromo-3-chloropropane | µg/L | 5 | 0.00033 | 15151.51515 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 1,2-Dibromoethane (EDB) | µg/L | 1 | 0.0075 | 133.3333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 1,2-Dichlorobenzene | µg/L | 1 | 30 | 0.033333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 1,2-Dichloroethane | µg/L | 1 | 0.17 | 5.882352941 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 1,2-Dichloropropane | µg/L | 1 | 0.82 | 1.219512195 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 1,3-Dichlorobenzene | µg/L | 1 | 3 | 0.333333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 1,3-Dichloropropane | µg/L | 1 | 37 | 0.027027027 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 1,4-Dichlorobenzene | µg/L | 1 | 0.48 | 2.083333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 2-Butanone (MEK) | µg/L | 6 | 560 | 0.010714286 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 2-Hexanone | µg/L | 5 | 3.8 | 1.315789474 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 4-Methyl-2-pentanone (MIBK) | µg/L | 5 | 630 | 0.007936508 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Acetone | µg/L | 10 | 1800 | 0.005555556 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Benzene | µg/L | 1 | 0.46 | 2.173913043 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Bromochloromethane | µg/L | 1 | 8.3 | 0.120481928 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Bromodichloromethane | µg/L | 1 | 0.13 | 7.692307692 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Bromoform | µg/L | 1 | 3.3 | 0.303030303 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Bromomethane | µg/L | 2 | 0.75 | 2.666666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Carbon disulfide | µg/L | 2 | 81 | 0.024691358 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Carbon Tetrachloride | µg/L | 2 | 0.46 | 4.347826087 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Chlorobenzene | µg/L | 1 | 7.8 | 0.128205128 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Chloroethane | µg/L | 2 | 830 | 0.002409639 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Chloroform | µg/L | 1 | 0.22 | 4.545454545 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Chloromethane | µg/L | 2 | 19 | 0.105263158 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | cis-1,2-Dichloroethene | µg/L | 1 | 2.5 | 0.4 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | cis-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Cumene | µg/L | 1 | 45 | 0.022222222 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Cyclohexane | µg/L | 2 | 1300 | 0.001538462 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Dibromochloromethane | µg/L | 1 | 0.87 | 1.149425287 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Dichlorodifluoromethane | µg/L | 2 | 20 | 0.1 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Ethylbenzene | µg/L | 1 | 1.5 | 0.666666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | m,p-Xylene | µg/L | 2 | 19 | 0.105263158 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Methyl acetate | µg/L | 5 | 2000 | 0.0025 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Methyl tert-butyl ether (MTBE) | µg/L | 5 | 14 | 0.357142857 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Methylene chloride | µg/L | 5 | 11 | 0.454545455 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | o-Xylene | µg/L | 1 | 19 | 0.052631579 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Styrene | µg/L | 1 | 120 | 0.008333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Tetrachloroethene (PCE) | µg/L | 1 | 4.1 | 0.243902439 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Toluene | µg/L | 1 | 110 | 0.009090909 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | trans-1,2-Dichloroethene | µg/L | 1 | 6.8 | 0.147058824 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | trans-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Trichlorofluoromethane | µg/L | 2 | 520 | 0.003846154 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Vinyl chloride | µg/L | 1.5 | 0.019 | 78.94736842 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 1,2,4,5-Tetrachlorobenzene | µg/L | 10 | 0.017 | 588.2352941 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 1,4-Dioxane | µg/L | 10 | 0.46 | 21.73913043 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 2,2'-Oxybis(1-chloropropane) | µg/L | 10 | 71 | 0.14084507 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 2,3,4,6-Tetrachlorophenol | µg/L | 10 | 24 | 0.416666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 2,4,5-Trichlorophenol | µg/L | 10 | 120 | 0.083333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 2,4,6-Trichlorophenol | µg/L | 10 | 1.2 | 8.333333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 2,4-Dichlorophenol | µg/L | 10 | 4.6 | 2.173913043 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 2,4-Dimethylphenol | µg/L | 10 | 36 | 0.277777778 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 2,4-Dinitrotoluene | µg/L | 10 | 0.24 | 41.66666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 2,6-Dinitrotoluene | µg/L | 10 | 0.049 | 204.0816327 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 2-Chloronaphthalene | µg/L | 10 | 75 | 0.133333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 2-Chlorophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 2-Methylphenol (o-Cresol) | µg/L | 10 | 93 | 0.107526882 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 2-Nitroaniline | µg/L | 52 | 19 | 2.736842105 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 2-Nitrophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 3,3'-Dichlorobenzidine | µg/L | 62 | 0.13 | 476.9230769 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 3-Nitroaniline | µg/L | 52 | 5 | 10.4 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 4,6-Dinitro-2-methylphenol | µg/L | 52 | 0.15 | 346.6666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 4-Chloro-3-methylphenol | µg/L | 10 | 140 | 0.071428571 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 4-Chloroaniline | µg/L | 21 | 0.37 | 56.75675676 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 4-Nitroaniline | µg/L | 52 | 3.8 | 13.68421053 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | 4-Nitrophenol | µg/L | 52 | 9.1 | 5.714285714 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Acetophenone | µg/L | 10 | 190 | 0.052631579 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Atrazine | µg/L | 10 | 0.3 | 33.33333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Benzaldehyde | µg/L | 10 | 19 | 0.526315789 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Benzyl butyl phthalate | µg/L | 10 | 16 | 0.625 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Biphenyl (Diphenyl) | µg/L | 10 | 0.083 | 120.4819277 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Bis(2-chloroethoxy)methane | µg/L | 10 | 5.9 | 1.694915254 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 10 | 0.014 | 714.2857143 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Bis(2-ethylhexyl)phthalate | µg/L | 10 | 5.6 | 1.785714286 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Caprolactam | µg/L | 10 | 990 | 0.01010101 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Carbazole | µg/L | 10 | 29 | 0.344827586 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Cresols, m- & p- | µg/L | 10 | 37 | 0.27027027 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Dibenzofuran | µg/L | 10 | 0.79 | 12.65822785 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Diethyl phthalate | µg/L | 10 | 1500 | 0.006666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | di-n-Butyl phthalate | µg/L | 10 | 90 | 0.111111111 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | di-n-Octyl phthalate | µg/L | 10 | 20 | 0.5 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Hexachlorobenzene | µg/L | 10 | 0.0098 | 1020.408163 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Hexachlorobutadiene | µg/L | 10 | 0.14 | 71.42857143 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Hexachlorocyclopentadiene | µg/L | 10 | 0.041 | 243.902439 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Hexachloroethane | µg/L | 10 | 0.33 | 30.3030303 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Isophorone | µg/L | 10 | 78 | 0.128205128 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Nitrobenzene | µg/L | 10 | 0.14 | 71.42857143 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | N-Nitrosodi-n-propylamine | µg/L | 10 | 0.011 | 909.0909091 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | N-Nitrosodiphenylamine | µg/L | 10 | 12 | 0.833333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Pentachlorophenol | µg/L | 52 | 0.041 | 1268.292683 |
| AOC 5 | Possible_Dump | NYOW-05-WL004-A | Phenol | µg/L | 10 | 580 | 0.017241379 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 1-Methylnaphthalene | µg/L | 0.1 | 1.1 | 0.090909091 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Acenaphthene | µg/L | 0.1 | 53 | 0.001886792 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Acenaphthylene | µg/L | 0.1 | 53 | 0.001886792 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Anthracene | µg/L | 0.1 | 180 | 0.000555556 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Benzo(a)anthracene | µg/L | 0.1 | 0.03 | 3.333333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Benzo(a)pyrene | µg/L | 0.1 | 0.025 | 4 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Benzo(g,h,i)perylene | µg/L | 0.1 | 12 | 0.008333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Dibenz(a,h)anthracene | µg/L | 0.1 | 0.025 | 4 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Fluorene | µg/L | 0.1 | 29 | 0.003448276 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Indeno(1,2,3-c,d)pyrene | µg/L | 0.1 | 0.25 | 0.4 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Copper | µg/L | 15 | 80 | 0.1875 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Selenium | µg/L | 22 | 10 | 2.2 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Vanadium | µg/L | 15 | 8.6 | 1.744186047 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Zinc | µg/L | 150 | 600 | 0.25 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Chromium | µg/L | 10 | 2200 | 0.004545455 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Lead | µg/L | 3 | 15 | 0.2 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Thallium | µg/L | 1 | 0.02 | 50 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | PCB-1016 (Aroclor 1016) | µg/L | 1 | 0.14 | 7.142857143 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | PCB-1221 (Aroclor 1221) | µg/L | 1 | 0.0047 | 212.7659574 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | PCB-1232 (Aroclor 1232) | µg/L | 1 | 0.0047 | 212.7659574 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | PCB-1242 (Aroclor 1242) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | PCB-1248 (Aroclor 1248) | µg/L | 1 | 0.0078 | 128.2051282 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | PCB-1254 (Aroclor 1254) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | PCB-1260 (Aroclor 1260) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | PCB-1262 (Aroclor 1262) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | PCB-1268 (Aroclor 1268) | µg/L | 1 | 0.0078 | 128.2051282 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 1,1,1-Trichloroethane | µg/L | 1 | 800 | 0.00125 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 1,1,2,2-Tetrachloroethane | µg/L | 1 | 0.076 | 13.15789474 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 1,1,2-Trichloro-1,2,2-trifluoroethane | µg/L | 3 | 1000 | 0.003 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 1,1,2-Trichloroethane | µg/L | 1 | 0.041 | 24.3902439 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 1,1-Dichloroethane | µg/L | 1 | 2.8 | 0.357142857 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 1,1-Dichloroethene | µg/L | 1 | 28 | 0.035714286 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 1,2,4-Trichlorobenzene | µg/L | 1 | 0.4 | 2.5 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 1,2-Dibromo-3-chloropropane | µg/L | 5 | 0.00033 | 15151.51515 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 1,2-Dibromoethane (EDB) | µg/L | 1 | 0.0075 | 133.3333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 1,2-Dichlorobenzene | µg/L | 1 | 30 | 0.033333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 1,2-Dichloroethane | µg/L | 1 | 0.17 | 5.882352941 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 1,2-Dichloropropane | µg/L | 1 | 0.82 | 1.219512195 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 1,3-Dichlorobenzene | µg/L | 1 | 3 | 0.333333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 1,3-Dichloropropane | µg/L | 1 | 37 | 0.027027027 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 1,4-Dichlorobenzene | µg/L | 1 | 0.48 | 2.083333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 2-Butanone (MEK) | µg/L | 6 | 560 | 0.010714286 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 2-Hexanone | µg/L | 5 | 3.8 | 1.315789474 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 4-Methyl-2-pentanone (MIBK) | µg/L | 5 | 630 | 0.007936508 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Acetone | µg/L | 10 | 1800 | 0.005555556 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Benzene | µg/L | 1 | 0.46 | 2.173913043 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Bromochloromethane | µg/L | 1 | 8.3 | 0.120481928 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Bromodichloromethane | µg/L | 1 | 0.13 | 7.692307692 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Bromoform | µg/L | 1 | 3.3 | 0.303030303 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Bromomethane | µg/L | 2 | 0.75 | 2.666666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Carbon disulfide | µg/L | 2 | 81 | 0.024691358 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Carbon Tetrachloride | µg/L | 2 | 0.46 | 4.347826087 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Chlorobenzene | µg/L | 1 | 7.8 | 0.128205128 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Chloroethane | µg/L | 2 | 830 | 0.002409639 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Chloroform | µg/L | 1 | 0.22 | 4.545454545 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Chloromethane | µg/L | 2 | 19 | 0.105263158 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | cis-1,2-Dichloroethene | µg/L | 1 | 2.5 | 0.4 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | cis-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Cumene | µg/L | 1 | 45 | 0.022222222 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Cyclohexane | µg/L | 2 | 1300 | 0.001538462 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Dibromochloromethane | µg/L | 1 | 0.87 | 1.149425287 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Dichlorodifluoromethane | µg/L | 2 | 20 | 0.1 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Ethylbenzene | µg/L | 1 | 1.5 | 0.666666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | m,p-Xylene | µg/L | 2 | 19 | 0.105263158 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Methyl acetate | µg/L | 5 | 2000 | 0.0025 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Methyl tert-butyl ether (MTBE) | µg/L | 5 | 14 | 0.357142857 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Methylene chloride | µg/L | 5 | 11 | 0.454545455 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | o-Xylene | µg/L | 1 | 19 | 0.052631579 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Styrene | µg/L | 1 | 120 | 0.008333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Tetrachloroethene (PCE) | µg/L | 1 | 4.1 | 0.243902439 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Toluene | µg/L | 1 | 110 | 0.009090909 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | trans-1,2-Dichloroethene | µg/L | 1 | 6.8 | 0.147058824 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | trans-1,3-Dichloropropene | µg/L | 1 | 0.47 | 2.127659574 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Trichlorofluoromethane | µg/L | 2 | 520 | 0.003846154 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Vinyl chloride | µg/L | 1.5 | 0.019 | 78.94736842 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 1,2,4,5-Tetrachlorobenzene | µg/L | 10 | 0.017 | 588.2352941 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 1,4-Dioxane | µg/L | 10 | 0.46 | 21.73913043 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 2,2'-Oxybis(1-chloropropane) | µg/L | 10 | 71 | 0.14084507 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 2,3,4,6-Tetrachlorophenol | µg/L | 10 | 24 | 0.416666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 2,4,5-Trichlorophenol | µg/L | 10 | 120 | 0.083333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 2,4,6-Trichlorophenol | µg/L | 10 | 1.2 | 8.333333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 2,4-Dichlorophenol | µg/L | 10 | 4.6 | 2.173913043 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 2,4-Dimethylphenol | µg/L | 10 | 36 | 0.277777778 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 2,4-Dinitrotoluene | µg/L | 10 | 0.24 | 41.66666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 2,6-Dinitrotoluene | µg/L | 10 | 0.049 | 204.0816327 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 2-Chloronaphthalene | µg/L | 10 | 75 | 0.133333333 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 2-Chlorophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 2-Methylphenol (o-Cresol) | µg/L | 10 | 93 | 0.107526882 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 2-Nitroaniline | µg/L | 51 | 19 | 2.684210526 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 2-Nitrophenol | µg/L | 10 | 9.1 | 1.098901099 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 3,3'-Dichlorobenzidine | µg/L | 62 | 0.13 | 476.9230769 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 3-Nitroaniline | µg/L | 51 | 5 | 10.2 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 4,6-Dinitro-2-methylphenol | µg/L | 51 | 0.15 | 340 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 4-Chloro-3-methylphenol | µg/L | 10 | 140 | 0.071428571 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 4-Chloroaniline | µg/L | 21 | 0.37 | 56.75675676 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 4-Nitroaniline | µg/L | 51 | 3.8 | 13.42105263 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | 4-Nitrophenol | µg/L | 51 | 9.1 | 5.604395604 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Acetophenone | µg/L | 10 | 190 | 0.052631579 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Atrazine | µg/L | 10 | 0.3 | 33.33333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Benzaldehyde | µg/L | 10 | 19 | 0.526315789 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Benzyl butyl phthalate | µg/L | 10 | 16 | 0.625 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Biphenyl (Diphenyl) | µg/L | 10 | 0.083 | 120.4819277 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Bis(2-chloroethoxy)methane | µg/L | 10 | 5.9 | 1.694915254 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | µg/L | 10 | 0.014 | 714.2857143 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Bis(2-ethylhexyl)phthalate | µg/L | 10 | 5.6 | 1.785714286 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Caprolactam | µg/L | 10 | 990 | 0.01010101 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Carbazole | µg/L | 10 | 29 | 0.344827586 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Cresols, m- & p- | µg/L | 10 | 37 | 0.27027027 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Dibenzofuran | µg/L | 10 | 0.79 | 12.65822785 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Diethyl phthalate | µg/L | 10 | 1500 | 0.006666667 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | di-n-Butyl phthalate | µg/L | 10 | 90 | 0.111111111 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | di-n-Octyl phthalate | µg/L | 10 | 20 | 0.5 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Hexachlorobenzene | µg/L | 10 | 0.0098 | 1020.408163 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Hexachlorobutadiene | µg/L | 10 | 0.14 | 71.42857143 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Hexachlorocyclopentadiene | µg/L | 10 | 0.041 | 243.902439 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Hexachloroethane | µg/L | 10 | 0.33 | 30.3030303 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Isophorone | µg/L | 10 | 78 | 0.128205128 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Nitrobenzene | µg/L | 10 | 0.14 | 71.42857143 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | N-Nitrosodi-n-propylamine | µg/L | 10 | 0.011 | 909.0909091 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | N-Nitrosodiphenylamine | µg/L | 10 | 12 | 0.833333333 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Pentachlorophenol | µg/L | 51 | 0.041 | 1243.902439 |
| AOC 5 | Possible_Dump | NYOW-05-WL005-A | Phenol | µg/L | 10 | 580 | 0.017241379 |
| Background | NA | NYOW-B-WL001-A | 1-Methylnaphthalene | µg/L | 0.11 | 1.1 | 0.1 |
| Background | NA | NYOW-B-WL001-A | 2-Methylnaphthalene | µg/L | 0.11 | 3.6 | 0.030555556 |
| Background | NA | NYOW-B-WL001-A | Anthracene | µg/L | 0.11 | 180 | 0.000611111 |
| Background | NA | NYOW-B-WL001-A | Fluoranthene | µg/L | 0.11 | 80 | 0.001375 |
| Background | NA | NYOW-B-WL001-A | Fluorene | µg/L | 0.11 | 29 | 0.003793103 |
| Background | NA | NYOW-B-WL001-A | Naphthalene | µg/L | 0.11 | 0.12 | 0.916666667 |
| Background | NA | NYOW-B-WL001-A | Pyrene | µg/L | 0.11 | 12 | 0.009166667 |
| Background | NA | NYOW-B-WL001-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| Background | NA | NYOW-B-WL001-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| Background | NA | NYOW-B-WL001-A | Selenium | µg/L | 22 | 10 | 2.2 |
| Background | NA | NYOW-B-WL001-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| Background | NA | NYOW-B-WL001-A | Zinc | µg/L | 150 | 600 | 0.25 |
| Background | NA | NYOW-B-WL001-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| Background | NA | NYOW-B-WL001-A | Thallium | µg/L | 1 | 0.02 | 50 |
| Background | NA | NYOW-B-WL001-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| Background | NA | NYOW-B-WL002-A | 1-Methylnaphthalene | µg/L | 0.1 | 1.1 | 0.090909091 |
| Background | NA | NYOW-B-WL002-A | 2-Methylnaphthalene | µg/L | 0.1 | 3.6 | 0.027777778 |
| Background | NA | NYOW-B-WL002-A | Anthracene | µg/L | 0.1 | 180 | 0.000555556 |
| Background | NA | NYOW-B-WL002-A | Fluoranthene | µg/L | 0.1 | 80 | 0.00125 |
| Background | NA | NYOW-B-WL002-A | Fluorene | µg/L | 0.1 | 29 | 0.003448276 |
| Background | NA | NYOW-B-WL002-A | Naphthalene | µg/L | 0.1 | 0.12 | 0.833333333 |
| Background | NA | NYOW-B-WL002-A | Pyrene | µg/L | 0.1 | 12 | 0.008333333 |
| Background | NA | NYOW-B-WL002-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| Background | NA | NYOW-B-WL002-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| Background | NA | NYOW-B-WL002-A | Selenium | µg/L | 22 | 10 | 2.2 |
| Background | NA | NYOW-B-WL002-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| Background | NA | NYOW-B-WL002-A | Zinc | µg/L | 150 | 600 | 0.25 |
| Background | NA | NYOW-B-WL002-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| Background | NA | NYOW-B-WL002-A | Thallium | µg/L | 1 | 0.02 | 50 |
| Background | NA | NYOW-B-WL002-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| Background | NA | NYOW-B-WL003-A | 1-Methylnaphthalene | µg/L | 0.1 | 1.1 | 0.090909091 |
| Background | NA | NYOW-B-WL003-A | 2-Methylnaphthalene | µg/L | 0.1 | 3.6 | 0.027777778 |
| Background | NA | NYOW-B-WL003-A | Anthracene | µg/L | 0.1 | 180 | 0.000555556 |
| Background | NA | NYOW-B-WL003-A | Fluoranthene | µg/L | 0.1 | 80 | 0.00125 |
| Background | NA | NYOW-B-WL003-A | Fluorene | µg/L | 0.1 | 29 | 0.003448276 |
| Background | NA | NYOW-B-WL003-A | Naphthalene | µg/L | 0.1 | 0.12 | 0.833333333 |
| Background | NA | NYOW-B-WL003-A | Pyrene | µg/L | 0.1 | 12 | 0.008333333 |
| Background | NA | NYOW-B-WL003-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| Background | NA | NYOW-B-WL003-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| Background | NA | NYOW-B-WL003-A | Selenium | µg/L | 22 | 10 | 2.2 |
| Background | NA | NYOW-B-WL003-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| Background | NA | NYOW-B-WL003-A | Zinc | µg/L | 150 | 600 | 0.25 |
| Background | NA | NYOW-B-WL003-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| Background | NA | NYOW-B-WL003-A | Thallium | µg/L | 1 | 0.02 | 50 |
| Background | NA | NYOW-B-WL003-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| Background | NA | NYOW-B-WL004-A | 1-Methylnaphthalene | µg/L | 0.11 | 1.1 | 0.1 |
| Background | NA | NYOW-B-WL004-A | 2-Methylnaphthalene | µg/L | 0.11 | 3.6 | 0.030555556 |
| Background | NA | NYOW-B-WL004-A | Anthracene | µg/L | 0.11 | 180 | 0.000611111 |
| Background | NA | NYOW-B-WL004-A | Fluoranthene | µg/L | 0.11 | 80 | 0.001375 |
| Background | NA | NYOW-B-WL004-A | Fluorene | µg/L | 0.11 | 29 | 0.003793103 |
| Background | NA | NYOW-B-WL004-A | Naphthalene | µg/L | 0.11 | 0.12 | 0.916666667 |
| Background | NA | NYOW-B-WL004-A | Pyrene | µg/L | 0.11 | 12 | 0.009166667 |
| Background | NA | NYOW-B-WL004-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| Background | NA | NYOW-B-WL004-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| Background | NA | NYOW-B-WL004-A | Selenium | µg/L | 22 | 10 | 2.2 |
| Background | NA | NYOW-B-WL004-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| Background | NA | NYOW-B-WL004-A | Zinc | µg/L | 150 | 600 | 0.25 |
| Background | NA | NYOW-B-WL004-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| Background | NA | NYOW-B-WL004-A | Thallium | µg/L | 1 | 0.02 | 50 |
| Background | NA | NYOW-B-WL004-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| Background | NA | NYOW-B-WL005-A | 1-Methylnaphthalene | µg/L | 0.11 | 1.1 | 0.1 |
| Background | NA | NYOW-B-WL005-A | 2-Methylnaphthalene | µg/L | 0.11 | 3.6 | 0.030555556 |
| Background | NA | NYOW-B-WL005-A | Anthracene | µg/L | 0.11 | 180 | 0.000611111 |
| Background | NA | NYOW-B-WL005-A | Fluoranthene | µg/L | 0.11 | 80 | 0.001375 |
| Background | NA | NYOW-B-WL005-A | Fluorene | µg/L | 0.11 | 29 | 0.003793103 |
| Background | NA | NYOW-B-WL005-A | Naphthalene | µg/L | 0.11 | 0.12 | 0.916666667 |
| Background | NA | NYOW-B-WL005-A | Pyrene | µg/L | 0.11 | 12 | 0.009166667 |
| Background | NA | NYOW-B-WL005-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| Background | NA | NYOW-B-WL005-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| Background | NA | NYOW-B-WL005-A | Selenium | µg/L | 22 | 10 | 2.2 |
| Background | NA | NYOW-B-WL005-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| Background | NA | NYOW-B-WL005-A | Zinc | µg/L | 150 | 600 | 0.25 |
| Background | NA | NYOW-B-WL005-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| Background | NA | NYOW-B-WL005-A | Thallium | µg/L | 1 | 0.02 | 50 |
| Background | NA | NYOW-B-WL005-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| Background | NA | NYOW-B-WL010-A | 1-Methylnaphthalene | µg/L | 0.13 | 1.1 | 0.118181818 |
| Background | NA | NYOW-B-WL010-A | 2-Methylnaphthalene | µg/L | 0.13 | 3.6 | 0.036111111 |
| Background | NA | NYOW-B-WL010-A | Anthracene | µg/L | 0.13 | 180 | 0.000722222 |
| Background | NA | NYOW-B-WL010-A | Fluoranthene | µg/L | 0.13 | 80 | 0.001625 |
| Background | NA | NYOW-B-WL010-A | Fluorene | µg/L | 0.13 | 29 | 0.004482759 |
| Background | NA | NYOW-B-WL010-A | Naphthalene | µg/L | 0.13 | 0.12 | 1.083333333 |
| Background | NA | NYOW-B-WL010-A | Pyrene | µg/L | 0.13 | 12 | 0.010833333 |
| Background | NA | NYOW-B-WL010-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| Background | NA | NYOW-B-WL010-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| Background | NA | NYOW-B-WL010-A | Selenium | µg/L | 22 | 10 | 2.2 |
| Background | NA | NYOW-B-WL010-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| Background | NA | NYOW-B-WL010-A | Zinc | µg/L | 150 | 600 | 0.25 |
| Background | NA | NYOW-B-WL010-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| Background | NA | NYOW-B-WL010-A | Thallium | µg/L | 1 | 0.02 | 50 |
| Background | NA | NYOW-B-WL010-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| Background | NA | NYOW-B-WL031-A | 1-Methylnaphthalene | µg/L | 0.12 | 1.1 | 0.109090909 |
| Background | NA | NYOW-B-WL031-A | 2-Methylnaphthalene | µg/L | 0.12 | 3.6 | 0.033333333 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| Background | NA | NYOW-B-WL031-A | Anthracene | µg/L | 0.12 | 180 | 0.000666667 |
| Background | NA | NYOW-B-WL031-A | Fluoranthene | µg/L | 0.12 | 80 | 0.0015 |
| Background | NA | NYOW-B-WL031-A | Fluorene | µg/L | 0.12 | 29 | 0.004137931 |
| Background | NA | NYOW-B-WL031-A | Naphthalene | µg/L | 0.12 | 0.12 | 1 |
| Background | NA | NYOW-B-WL031-A | Pyrene | µg/L | 0.12 | 12 | 0.01 |
| Background | NA | NYOW-B-WL031-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| Background | NA | NYOW-B-WL031-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| Background | NA | NYOW-B-WL031-A | Selenium | µg/L | 22 | 10 | 2.2 |
| Background | NA | NYOW-B-WL031-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| Background | NA | NYOW-B-WL031-A | Zinc | µg/L | 150 | 600 | 0.25 |
| Background | NA | NYOW-B-WL031-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| Background | NA | NYOW-B-WL031-A | Thallium | µg/L | 1 | 0.02 | 50 |
| Background | NA | NYOW-B-WL031-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| Background | NA | NYOW-B-WL047-A | 1-Methylnaphthalene | µg/L | 0.1 | 1.1 | 0.090909091 |
| Background | NA | NYOW-B-WL047-A | 2-Methylnaphthalene | µg/L | 0.1 | 3.6 | 0.027777778 |
| Background | NA | NYOW-B-WL047-A | Anthracene | µg/L | 0.1 | 180 | 0.000555556 |
| Background | NA | NYOW-B-WL047-A | Fluoranthene | µg/L | 0.1 | 80 | 0.00125 |
| Background | NA | NYOW-B-WL047-A | Fluorene | µg/L | 0.1 | 29 | 0.003448276 |
| Background | NA | NYOW-B-WL047-A | Naphthalene | µg/L | 0.1 | 0.12 | 0.833333333 |
| Background | NA | NYOW-B-WL047-A | Pyrene | µg/L | 0.1 | 12 | 0.008333333 |
| Background | NA | NYOW-B-WL047-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| Background | NA | NYOW-B-WL047-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| Background | NA | NYOW-B-WL047-A | Selenium | µg/L | 22 | 10 | 2.2 |
| Background | NA | NYOW-B-WL047-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| Background | NA | NYOW-B-WL047-A | Zinc | µg/L | 150 | 600 | 0.25 |
| Background | NA | NYOW-B-WL047-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| Background | NA | NYOW-B-WL047-A | Thallium | µg/L | 1 | 0.02 | 50 |
| Background | NA | NYOW-B-WL047-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |
| Background | NA | NYOW-B-WL050-A | 1-Methylnaphthalene | µg/L | 0.1 | 1.1 | 0.090909091 |
| Background | NA | NYOW-B-WL050-A | 2-Methylnaphthalene | µg/L | 0.1 | 3.6 | 0.027777778 |
| Background | NA | NYOW-B-WL050-A | Anthracene | µg/L | 0.1 | 180 | 0.000555556 |
| Background | NA | NYOW-B-WL050-A | Fluoranthene | µg/L | 0.1 | 80 | 0.00125 |

Table E.1-1
Non-detected Analyte LOQs Compared with Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| Background | NA | NYOW-B-WL050-A | Fluorene | µg/L | 0.1 | 29 | 0.003448276 |
| Background | NA | NYOW-B-WL050-A | Naphthalene | µg/L | 0.1 | 0.12 | 0.833333333 |
| Background | NA | NYOW-B-WL050-A | Pyrene | µg/L | 0.1 | 12 | 0.008333333 |
| Background | NA | NYOW-B-WL050-A | Beryllium | µg/L | 1.5 | 2.5 | 0.6 |
| Background | NA | NYOW-B-WL050-A | Cadmium | µg/L | 5 | 0.18 | 27.77777778 |
| Background | NA | NYOW-B-WL050-A | Selenium | µg/L | 22 | 10 | 2.2 |
| Background | NA | NYOW-B-WL050-A | Silver | µg/L | 15 | 9.4 | 1.595744681 |
| Background | NA | NYOW-B-WL050-A | Zinc | µg/L | 150 | 600 | 0.25 |
| Background | NA | NYOW-B-WL050-A | Antimony | µg/L | 6 | 0.78 | 7.692307692 |
| Background | NA | NYOW-B-WL050-A | Thallium | µg/L | 1 | 0.02 | 50 |
| Background | NA | NYOW-B-WL050-A | Mercury | µg/L | 0.2 | 0.063 | 3.174603175 |

Notes:
AOC = area of concern
LOQ = limit of quantitation
NA = not applicable
µg/L = micrograms per liter

1) EPA Tapwater Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 1 | NA | NYOW-01-PH002-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.7 | 0.452941176 |
| AOC 1 | NA | NYOW-01-PH002-B | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 1 | NA | NYOW-01-PH002-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 1 | NA | NYOW-01-PH002-C | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 1 | NA | NYOW-01-PH005-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.7 | 0.417647059 |
| AOC 1 | NA | NYOW-01-PH005-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 1 | NA | NYOW-01-PH005-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.7 | 0.452941176 |
| AOC 1 | NA | NYOW-01-PH005-C | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 1 | NA | NYOW-01-PH015-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.7 | 0.411764706 |
| AOC 1 | NA | NYOW-01-PH015-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 1 | NA | NYOW-01-PH015-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.69 | 1.7 | 0.405882353 |
| AOC 1 | NA | NYOW-01-PH015-C | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 1 | NA | NYOW-01-PH016-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.69 | 1.7 | 0.405882353 |
| AOC 1 | NA | NYOW-01-PH016-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 1 | NA | NYOW-01-PH016-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.67 | 1.7 | 0.394117647 |
| AOC 1 | NA | NYOW-01-PH016-C | 2,4-Dinitrophenol | mg/kg | 1.7 | 13 | 0.130769231 |
| AOC 1 | NA | NYOW-01-PH018-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 1 | NA | NYOW-01-PH018-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 1 | NA | NYOW-01-PH018-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 1 | NA | NYOW-01-PH018-C | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 1 | NA | NYOW-01-PH019-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 1 | NA | NYOW-01-PH019-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 1 | NA | NYOW-01-PH019-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 1 | NA | NYOW-01-PH019-C | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 1 | NA | NYOW-01-PH020-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.7 | 0.452941176 |
| AOC 1 | NA | NYOW-01-PH020-B | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 1 | NA | NYOW-01-PH020-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 1 | NA | NYOW-01-PH020-C | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 1 | NA | NYOW-01-PH021-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 1 | NA | NYOW-01-PH021-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 1 | NA | NYOW-01-PH021-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.69 | 1.7 | 0.405882353 |
| AOC 1 | NA | NYOW-01-PH021-C | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 1 | NA | NYOW-01-PH022-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.7 | 0.458823529 |
| AOC 1 | NA | NYOW-01-PH022-B | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 1 | NA | NYOW-01-PH022-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 1 | NA | NYOW-01-PH022-C | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 1 | NA | NYOW-01-PH023-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 1 | NA | NYOW-01-PH023-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 1 | NA | NYOW-01-PH023-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.7 | 0.411764706 |
| AOC 1 | NA | NYOW-01-PH023-C | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 1 | NA | NYOW-01-PH024-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 1 | NA | NYOW-01-PH024-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 1 | NA | NYOW-01-PH024-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 1.7 | 0.464705882 |
| AOC 1 | NA | NYOW-01-PH024-C | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 1 | NA | NYOW-01-SL002-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.7 | 0.452941176 |
| AOC 1 | NA | NYOW-01-SL002-A | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 1 | NA | NYOW-01-SL005-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.7 | 0.452941176 |
| AOC 1 | NA | NYOW-01-SL005-A | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 1 | NA | NYOW-01-SL007-A | 2,4-Dinitrochlorobenzene | mg/kg | 1.1 | 1.7 | 0.647058824 |
| AOC 1 | NA | NYOW-01-SL007-A | 2,4-Dinitrophenol | mg/kg | 2.7 | 13 | 0.207692308 |
| AOC 1 | NA | NYOW-01-SL009-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.94 | 1.7 | 0.552941176 |
| AOC 1 | NA | NYOW-01-SL009-A | 2,4-Dinitrophenol | mg/kg | 2.4 | 13 | 0.184615385 |
| AOC 1 | NA | NYOW-01-SL011-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.87 | 1.7 | 0.511764706 |
| AOC 1 | NA | NYOW-01-SL011-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 13 | 0.169230769 |
| AOC 1 | NA | NYOW-01-SL013-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.7 | 0.452941176 |
| AOC 1 | NA | NYOW-01-SL013-A | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 1 | NA | NYOW-01-SL015-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.7 | 0.458823529 |
| AOC 1 | NA | NYOW-01-SL015-A | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 1 | NA | NYOW-01-SL016-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.7 | 0.452941176 |
| AOC 1 | NA | NYOW-01-SL016-A | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 1 | NA | NYOW-01-SL018-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.7 | 0.417647059 |
| AOC 1 | NA | NYOW-01-SL018-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 1 | NA | NYOW-01-SL019-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 1 | NA | NYOW-01-SL019-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 1 | NA | NYOW-01-SL020-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.83 | 1.7 | 0.488235294 |
| AOC 1 | NA | NYOW-01-SL020-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 1 | NA | NYOW-01-SL021-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 1.7 | 0.464705882 |
| AOC 1 | NA | NYOW-01-SL021-A | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 1 | NA | NYOW-01-SL022-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 1.7 | 0.482352941 |
| AOC 1 | NA | NYOW-01-SL022-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 1 | NA | NYOW-01-SL023-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 1.7 | 0.476470588 |
| AOC 1 | NA | NYOW-01-SL023-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 1 | NA | NYOW-01-SL024-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.86 | 1.7 | 0.505882353 |
| AOC 1 | NA | NYOW-01-SL024-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 13 | 0.169230769 |
| AOC 1 | NA | NYOW-01-SL025-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.7 | 0.447058824 |
| AOC 1 | NA | NYOW-01-SL025-A | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 1 | NA | NYOW-01-SL026-A | 2,4-Dinitrochlorobenzene | mg/kg | 6.4 | 1.7 | 3.764705882 |
| AOC 1 | NA | NYOW-01-SL026-A | 2,4-Dinitrophenol | mg/kg | 16 | 13 | 1.230769231 |
| AOC 1 | NA | NYOW-01-SL027-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 1.7 | 0.482352941 |
| AOC 1 | NA | NYOW-01-SL027-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 1 | NA | NYOW-01-SL028-A | 2,4-Dinitrochlorobenzene | mg/kg | 5.5 | 1.7 | 3.235294118 |
| AOC 1 | NA | NYOW-01-SL028-A | 2,4-Dinitrophenol | mg/kg | 14 | 13 | 1.076923077 |
| AOC 1 | NA | NYOW-01-SL029-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.88 | 1.7 | 0.517647059 |
| AOC 1 | NA | NYOW-01-SL029-A | 2,4-Dinitrophenol | mg/kg | 2.3 | 13 | 0.176923077 |
| AOC 1 | NA | NYOW-01-SL030-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 1.7 | 0.482352941 |
| AOC 1 | NA | NYOW-01-SL030-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 1 | NA | NYOW-01-SL031-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 1.7 | 0.476470588 |
| AOC 1 | NA | NYOW-01-SL031-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 1 | NA | NYOW-01-SL032-A | 2,4-Dinitrochlorobenzene | mg/kg | 4.2 | 1.7 | 2.470588235 |
| AOC 1 | NA | NYOW-01-SL032-A | 2,4-Dinitrophenol | mg/kg | 11 | 13 | 0.846153846 |
| AOC 1 | NA | NYOW-01-SL033-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.7 | 0.458823529 |
| AOC 1 | NA | NYOW-01-SL033-A | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 1 | NA | NYOW-01-SL034-A | 2,4-Dinitrochlorobenzene | mg/kg | 1 | 1.7 | 0.588235294 |
| AOC 1 | NA | NYOW-01-SL034-A | 2,4-Dinitrophenol | mg/kg | 2.6 | 13 | 0.2 |
| AOC 1 | NA | NYOW-01-SL035-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.88 | 1.7 | 0.517647059 |
| AOC 1 | NA | NYOW-01-SL035-A | 2,4-Dinitrophenol | mg/kg | 2.3 | 13 | 0.176923077 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 1 | NA | NYOW-01-SL036-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.93 | 1.7 | 0.547058824 |
| AOC 1 | NA | NYOW-01-SL037-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.96 | 1.7 | 0.564705882 |
| AOC 1 | NA | NYOW-01-SL037-A | 2,4-Dinitrophenol | mg/kg | 2.5 | 13 | 0.192307692 |
| AOC 1 | NA | NYOW-01-SL038-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 1.7 | 0.476470588 |
| AOC 1 | NA | NYOW-01-SL038-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 1 | NA | NYOW-01-SL039-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 1.7 | 0.464705882 |
| AOC 1 | NA | NYOW-01-SL039-A | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,1,1-Trichloroethane | mg/kg | 0.0045 | 810 | 5.55556E-06 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0045 | 0.6 | 0.0075 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.018 | 670 | 2.68657E-05 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,1,2-Trichloroethane | mg/kg | 0.0045 | 0.15 | 0.03 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,1-Dichloroethane | mg/kg | 0.0045 | 3.6 | 0.00125 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,1-Dichloroethene | mg/kg | 0.0045 | 23 | 0.000195652 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0045 | 6.3 | 0.000714286 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0045 | 5.8 | 0.000775862 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.009 | 0.0053 | 1.698113208 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.0045 | 0.036 | 0.125 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,2-Dichlorobenzene | mg/kg | 0.0045 | 180 | 0.000025 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,2-Dichloroethane | mg/kg | 0.0045 | 0.46 | 0.009782609 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,2-Dichloropropane | mg/kg | 0.0045 | 1.6 | 0.0028125 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,3-Dichloropropane | mg/kg | 0.0045 | 160 | 0.000028125 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,4-Dichlorobenzene | mg/kg | 0.0045 | 2.6 | 0.001730769 |
| AOC 3 | NA | NYOW-03-PH001-B | 2-Hexanone | mg/kg | 0.018 | 20 | 0.0009 |
| AOC 3 | NA | NYOW-03-PH001-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.018 | 3300 | 5.45455E-06 |
| AOC 3 | NA | NYOW-03-PH001-B | Benzene | mg/kg | 0.0045 | 1.2 | 0.00375 |
| AOC 3 | NA | NYOW-03-PH001-B | Bromochloromethane | mg/kg | 0.0045 | 15 | 0.0003 |
| AOC 3 | NA | NYOW-03-PH001-B | Bromodichloromethane | mg/kg | 0.0045 | 0.29 | 0.015517241 |
| AOC 3 | NA | NYOW-03-PH001-B | Bromoform | mg/kg | 0.0046 | 19 | 0.000242105 |
| AOC 3 | NA | NYOW-03-PH001-B | Bromomethane | mg/kg | 0.009 | 0.68 | 0.013235294 |
| AOC 3 | NA | NYOW-03-PH001-B | Carbon disulfide | mg/kg | 0.0045 | 77 | 5.84416E-05 |
| AOC 3 | NA | NYOW-03-PH001-B | Carbon Tetrachloride | mg/kg | 0.0045 | 0.65 | 0.006923077 |
| AOC 3 | NA | NYOW-03-PH001-B | Chlorobenzene | mg/kg | 0.0045 | 28 | 0.000160714 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH001-B | Chloroethane | mg/kg | 0.009 | 540 | 1.66667E-05 |
| AOC 3 | NA | NYOW-03-PH001-B | Chloroform | mg/kg | 0.009 | 0.32 | 0.028125 |
| AOC 3 | NA | NYOW-03-PH001-B | Chloromethane | mg/kg | 0.009 | 11 | 0.000818182 |
| AOC 3 | NA | NYOW-03-PH001-B | cis-1,2-Dichloroethene | mg/kg | 0.0045 | 16 | 0.00028125 |
| AOC 3 | NA | NYOW-03-PH001-B | cis-1,3-Dichloropropene | mg/kg | 0.0045 | 1.8 | 0.0025 |
| AOC 3 | NA | NYOW-03-PH001-B | Cyclohexane | mg/kg | 0.0045 | 650 | 6.92308E-06 |
| AOC 3 | NA | NYOW-03-PH001-B | Dibromochloromethane | mg/kg | 0.0045 | 8.3 | 0.000542169 |
| AOC 3 | NA | NYOW-03-PH001-B | Dichlorodifluoromethane | mg/kg | 0.009 | 8.7 | 0.001034483 |
| AOC 3 | NA | NYOW-03-PH001-B | Ethylbenzene | mg/kg | 0.0045 | 5.8 | 0.000775862 |
| AOC 3 | NA | NYOW-03-PH001-B | m,p-Xylene | mg/kg | 0.0029 | 55 | 5.27273E-05 |
| AOC 3 | NA | NYOW-03-PH001-B | Methyl acetate | mg/kg | 0.0077 | 7800 | 9.87179E-07 |
| AOC 3 | NA | NYOW-03-PH001-B | Methyl tert-butyl ether (MTBE) | mg/kg | 0.018 | 47 | 0.000382979 |
| AOC 3 | NA | NYOW-03-PH001-B | Methylene chloride | mg/kg | 0.0045 | 35 | 0.000128571 |
| AOC 3 | NA | NYOW-03-PH001-B | o-Xylene | mg/kg | 0.0045 | 64 | 7.03125E-05 |
| AOC 3 | NA | NYOW-03-PH001-B | Styrene | mg/kg | 0.0045 | 600 | 0.0000075 |
| AOC 3 | NA | NYOW-03-PH001-B | Tetrachloroethene (PCE) | mg/kg | 0.0045 | 8.1 | 0.000555556 |
| AOC 3 | NA | NYOW-03-PH001-B | trans-1,2-Dichloroethene | mg/kg | 0.0045 | 7 | 0.000642857 |
| AOC 3 | NA | NYOW-03-PH001-B | trans-1,3-Dichloropropene | mg/kg | 0.0045 | 1.8 | 0.0025 |
| AOC 3 | NA | NYOW-03-PH001-B | Trichlorofluoromethane | mg/kg | 0.009 | 2300 | 3.91304E-06 |
| AOC 3 | NA | NYOW-03-PH001-B | Vinyl chloride | mg/kg | 0.0045 | 0.059 | 0.076271186 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.41 | 0.23 | 1.782608696 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,4-Dioxane | mg/kg | 0.41 | 5.3 | 0.077358491 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.41 | 310 | 0.001322581 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.41 | 190 | 0.002157895 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4,6-Trichlorophenol | mg/kg | 0.41 | 6.3 | 0.065079365 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4-Dichlorophenol | mg/kg | 0.41 | 19 | 0.021578947 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4-Dimethylphenol | mg/kg | 0.41 | 130 | 0.003153846 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 1.7 | 0.476470588 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4-Dinitrotoluene | mg/kg | 0.41 | 1.7 | 0.241176471 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,6-Dinitrotoluene | mg/kg | 0.41 | 0.36 | 1.138888889 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH001-B | 2-Chloronaphthalene | mg/kg | 0.41 | 480 | 0.000854167 |
| AOC 3 | NA | NYOW-03-PH001-B | 2-Chlorophenol | mg/kg | 0.41 | 39 | 0.010512821 |
| AOC 3 | NA | NYOW-03-PH001-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 320 | 0.00128125 |
| AOC 3 | NA | NYOW-03-PH001-B | 2-Nitroaniline | mg/kg | 2.1 | 63 | 0.033333333 |
| AOC 3 | NA | NYOW-03-PH001-B | 2-Nitrophenol | mg/kg | 0.41 | 39 | 0.010512821 |
| AOC 3 | NA | NYOW-03-PH001-B | 3,3'-Dichlorobenzidine | mg/kg | 0.81 | 1.2 | 0.675 |
| AOC 3 | NA | NYOW-03-PH001-B | 3-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-PH001-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2.1 | 0.51 | 4.117647059 |
| AOC 3 | NA | NYOW-03-PH001-B | 4-Chloro-3-methylphenol | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 3 | NA | NYOW-03-PH001-B | 4-Chloroaniline | mg/kg | 0.81 | 2.7 | 0.3 |
| AOC 3 | NA | NYOW-03-PH001-B | 4-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-PH001-B | 4-Nitrophenol | mg/kg | 2.1 | 39 | 0.053846154 |
| AOC 3 | NA | NYOW-03-PH001-B | Acetophenone | mg/kg | 0.41 | 780 | 0.000525641 |
| AOC 3 | NA | NYOW-03-PH001-B | Atrazine | mg/kg | 0.41 | 2.4 | 0.170833333 |
| AOC 3 | NA | NYOW-03-PH001-B | Benzyl butyl phthalate | mg/kg | 0.41 | 290 | 0.001413793 |
| AOC 3 | NA | NYOW-03-PH001-B | Biphenyl (Diphenyl) | mg/kg | 2.1 | 4.7 | 0.446808511 |
| AOC 3 | NA | NYOW-03-PH001-B | Bis(2-chloroethoxy)methane | mg/kg | 0.41 | 19 | 0.021578947 |
| AOC 3 | NA | NYOW-03-PH001-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.41 | 0.23 | 1.782608696 |
| AOC 3 | NA | NYOW-03-PH001-B | Caprolactam | mg/kg | 0.41 | 3100 | 0.000132258 |
| AOC 3 | NA | NYOW-03-PH001-B | Diethyl phthalate | mg/kg | 0.41 | 5100 | 8.03922E-05 |
| AOC 3 | NA | NYOW-03-PH001-B | di-n-Butyl phthalate | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 3 | NA | NYOW-03-PH001-B | di-n-Octyl phthalate | mg/kg | 0.41 | 63 | 0.006507937 |
| AOC 3 | NA | NYOW-03-PH001-B | Hexachlorobenzene | mg/kg | 0.41 | 0.078 | 5.256410256 |
| AOC 3 | NA | NYOW-03-PH001-B | Hexachlorobutadiene | mg/kg | 0.41 | 1.2 | 0.341666667 |
| AOC 3 | NA | NYOW-03-PH001-B | Hexachlorocyclopentadiene | mg/kg | 0.41 | 0.18 | 2.277777778 |
| AOC 3 | NA | NYOW-03-PH001-B | Hexachloroethane | mg/kg | 0.41 | 1.8 | 0.227777778 |
| AOC 3 | NA | NYOW-03-PH001-B | Isophorone | mg/kg | 0.41 | 570 | 0.000719298 |
| AOC 3 | NA | NYOW-03-PH001-B | Nitrobenzene | mg/kg | 0.41 | 5.1 | 0.080392157 |
| AOC 3 | NA | NYOW-03-PH001-B | N-Nitrosodi-n-propylamine | mg/kg | 0.41 | 0.078 | 5.256410256 |
| AOC 3 | NA | NYOW-03-PH001-B | N-Nitrosodiphenylamine | mg/kg | 0.41 | 110 | 0.003727273 |
| AOC 3 | NA | NYOW-03-PH001-B | Pentachlorophenol | mg/kg | 2.1 | 1 | 2.1 |
| AOC 3 | NA | NYOW-03-PH001-B | Phenol | mg/kg | 0.41 | 1900 | 0.000215789 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH001-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,1,1-Trichloroethane | mg/kg | 0.0048 | 810 | 5.92593E-06 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0048 | 0.6 | 0.008 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.019 | 670 | 2.83582E-05 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,1,2-Trichloroethane | mg/kg | 0.0048 | 0.15 | 0.032 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,1-Dichloroethane | mg/kg | 0.0048 | 3.6 | 0.001333333 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,1-Dichloroethene | mg/kg | 0.0048 | 23 | 0.000208696 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0048 | 6.3 | 0.000761905 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0048 | 5.8 | 0.000827586 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0096 | 0.0053 | 1.811320755 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.0048 | 0.036 | 0.133333333 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,2-Dichlorobenzene | mg/kg | 0.0048 | 180 | 2.66667E-05 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,2-Dichloroethane | mg/kg | 0.0048 | 0.46 | 0.010434783 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,2-Dichloropropane | mg/kg | 0.0048 | 1.6 | 0.003 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,3-Dichloropropane | mg/kg | 0.0048 | 160 | 0.00003 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,4-Dichlorobenzene | mg/kg | 0.0048 | 2.6 | 0.001846154 |
| AOC 3 | NA | NYOW-03-PH002-B | 2-Hexanone | mg/kg | 0.019 | 20 | 0.00095 |
| AOC 3 | NA | NYOW-03-PH002-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.019 | 3300 | 5.75758E-06 |
| AOC 3 | NA | NYOW-03-PH002-B | Benzene | mg/kg | 0.0048 | 1.2 | 0.004 |
| AOC 3 | NA | NYOW-03-PH002-B | Bromochloromethane | mg/kg | 0.0048 | 15 | 0.00032 |
| AOC 3 | NA | NYOW-03-PH002-B | Bromodichloromethane | mg/kg | 0.0048 | 0.29 | 0.016551724 |
| AOC 3 | NA | NYOW-03-PH002-B | Bromoform | mg/kg | 0.0049 | 19 | 0.000257895 |
| AOC 3 | NA | NYOW-03-PH002-B | Bromomethane | mg/kg | 0.0096 | 0.68 | 0.014117647 |
| AOC 3 | NA | NYOW-03-PH002-B | Carbon disulfide | mg/kg | 0.0048 | 77 | 6.23377E-05 |
| AOC 3 | NA | NYOW-03-PH002-B | Carbon Tetrachloride | mg/kg | 0.0048 | 0.65 | 0.007384615 |
| AOC 3 | NA | NYOW-03-PH002-B | Chlorobenzene | mg/kg | 0.0048 | 28 | 0.000171429 |
| AOC 3 | NA | NYOW-03-PH002-B | Chloroethane | mg/kg | 0.0096 | 540 | 1.77778E-05 |
| AOC 3 | NA | NYOW-03-PH002-B | Chloroform | mg/kg | 0.0096 | 0.32 | 0.03 |
| AOC 3 | NA | NYOW-03-PH002-B | Chloromethane | mg/kg | 0.0096 | 11 | 0.000872727 |
| AOC 3 | NA | NYOW-03-PH002-B | cis-1,2-Dichloroethene | mg/kg | 0.0048 | 16 | 0.0003 |
| AOC 3 | NA | NYOW-03-PH002-B | cis-1,3-Dichloropropene | mg/kg | 0.0048 | 1.8 | 0.002666667 |
| AOC 3 | NA | NYOW-03-PH002-B | Cyclohexane | mg/kg | 0.0048 | 650 | 7.38462E-06 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH002-B | Dibromochloromethane | mg/kg | 0.0048 | 8.3 | 0.000578313 |
| AOC 3 | NA | NYOW-03-PH002-B | Dichlorodifluoromethane | mg/kg | 0.0096 | 8.7 | 0.001103448 |
| AOC 3 | NA | NYOW-03-PH002-B | Ethylbenzene | mg/kg | 0.0048 | 5.8 | 0.000827586 |
| AOC 3 | NA | NYOW-03-PH002-B | m,p-Xylene | mg/kg | 0.0031 | 55 | 5.63636E-05 |
| AOC 3 | NA | NYOW-03-PH002-B | Methyl acetate | mg/kg | 0.0081 | 7800 | 1.03846E-06 |
| AOC 3 | NA | NYOW-03-PH002-B | Methyl tert-butyl ether (MTBE) | mg/kg | 0.019 | 47 | 0.000404255 |
| AOC 3 | NA | NYOW-03-PH002-B | Methylene chloride | mg/kg | 0.0048 | 35 | 0.000137143 |
| AOC 3 | NA | NYOW-03-PH002-B | o-Xylene | mg/kg | 0.0048 | 64 | 0.000075 |
| AOC 3 | NA | NYOW-03-PH002-B | Styrene | mg/kg | 0.0048 | 600 | 0.000008 |
| AOC 3 | NA | NYOW-03-PH002-B | Tetrachloroethene (PCE) | mg/kg | 0.0048 | 8.1 | 0.000592593 |
| AOC 3 | NA | NYOW-03-PH002-B | trans-1,2-Dichloroethene | mg/kg | 0.0048 | 7 | 0.000685714 |
| AOC 3 | NA | NYOW-03-PH002-B | trans-1,3-Dichloropropene | mg/kg | 0.0048 | 1.8 | 0.002666667 |
| AOC 3 | NA | NYOW-03-PH002-B | Trichlorofluoromethane | mg/kg | 0.0096 | 2300 | 4.17391E-06 |
| AOC 3 | NA | NYOW-03-PH002-B | Vinyl chloride | mg/kg | 0.0048 | 0.059 | 0.081355932 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 1.7 | 0.464705882 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 3 | NA | NYOW-03-PH002-B | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 3 | NA | NYOW-03-PH002-B | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 3 | NA | NYOW-03-PH002-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 3 | NA | NYOW-03-PH002-B | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 3 | NA | NYOW-03-PH002-B | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 3 | NA | NYOW-03-PH002-B | 3,3'-Dichlorobenzidine | mg/kg | 0.79 | 1.2 | 0.658333333 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH002-B | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-PH002-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 3 | NA | NYOW-03-PH002-B | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-PH002-B | 4-Chloroaniline | mg/kg | 0.79 | 2.7 | 0.292592593 |
| AOC 3 | NA | NYOW-03-PH002-B | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-PH002-B | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 3 | NA | NYOW-03-PH002-B | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 3 | NA | NYOW-03-PH002-B | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 3 | NA | NYOW-03-PH002-B | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 3 | NA | NYOW-03-PH002-B | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 3 | NA | NYOW-03-PH002-B | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 3 | NA | NYOW-03-PH002-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 3 | NA | NYOW-03-PH002-B | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 3 | NA | NYOW-03-PH002-B | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 3 | NA | NYOW-03-PH002-B | di-n-Butyl phthalate | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-PH002-B | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 3 | NA | NYOW-03-PH002-B | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 3 | NA | NYOW-03-PH002-B | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 3 | NA | NYOW-03-PH002-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 3 | NA | NYOW-03-PH002-B | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 3 | NA | NYOW-03-PH002-B | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 3 | NA | NYOW-03-PH002-B | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 3 | NA | NYOW-03-PH002-B | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 3 | NA | NYOW-03-PH002-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 3 | NA | NYOW-03-PH002-B | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 3 | NA | NYOW-03-PH002-B | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 3 | NA | NYOW-03-PH002-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,1,1-Trichloroethane | mg/kg | 0.0052 | 810 | 6.41975E-06 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0052 | 0.6 | 0.008666667 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.021 | 670 | 3.13433E-05 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,1,2-Trichloroethane | mg/kg | 0.0052 | 0.15 | 0.034666667 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,1-Dichloroethane | mg/kg | 0.0052 | 3.6 | 0.001444444 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH003-B | 1,1-Dichloroethene | mg/kg | 0.0052 | 23 | 0.000226087 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0052 | 6.3 | 0.000825397 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0052 | 5.8 | 0.000896552 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.01 | 0.0053 | 1.886792453 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.0052 | 0.036 | 0.144444444 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,2-Dichlorobenzene | mg/kg | 0.0052 | 180 | 2.88889E-05 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,2-Dichloroethane | mg/kg | 0.0052 | 0.46 | 0.011304348 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,2-Dichloropropane | mg/kg | 0.0052 | 1.6 | 0.00325 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,3-Dichloropropane | mg/kg | 0.0052 | 160 | 0.0000325 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,4-Dichlorobenzene | mg/kg | 0.0052 | 2.6 | 0.002 |
| AOC 3 | NA | NYOW-03-PH003-B | 2-Hexanone | mg/kg | 0.021 | 20 | 0.00105 |
| AOC 3 | NA | NYOW-03-PH003-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.021 | 3300 | 6.36364E-06 |
| AOC 3 | NA | NYOW-03-PH003-B | Benzene | mg/kg | 0.0052 | 1.2 | 0.004333333 |
| AOC 3 | NA | NYOW-03-PH003-B | Bromochloromethane | mg/kg | 0.0052 | 15 | 0.000346667 |
| AOC 3 | NA | NYOW-03-PH003-B | Bromodichloromethane | mg/kg | 0.0052 | 0.29 | 0.017931034 |
| AOC 3 | NA | NYOW-03-PH003-B | Bromoform | mg/kg | 0.0053 | 19 | 0.000278947 |
| AOC 3 | NA | NYOW-03-PH003-B | Bromomethane | mg/kg | 0.01 | 0.68 | 0.014705882 |
| AOC 3 | NA | NYOW-03-PH003-B | Carbon disulfide | mg/kg | 0.0052 | 77 | 6.75325E-05 |
| AOC 3 | NA | NYOW-03-PH003-B | Carbon Tetrachloride | mg/kg | 0.0052 | 0.65 | 0.008 |
| AOC 3 | NA | NYOW-03-PH003-B | Chlorobenzene | mg/kg | 0.0052 | 28 | 0.000185714 |
| AOC 3 | NA | NYOW-03-PH003-B | Chloroethane | mg/kg | 0.01 | 540 | 1.85185E-05 |
| AOC 3 | NA | NYOW-03-PH003-B | Chloroform | mg/kg | 0.01 | 0.32 | 0.03125 |
| AOC 3 | NA | NYOW-03-PH003-B | Chloromethane | mg/kg | 0.01 | 11 | 0.000909091 |
| AOC 3 | NA | NYOW-03-PH003-B | cis-1,2-Dichloroethene | mg/kg | 0.0052 | 16 | 0.000325 |
| AOC 3 | NA | NYOW-03-PH003-B | cis-1,3-Dichloropropene | mg/kg | 0.0052 | 1.8 | 0.002888889 |
| AOC 3 | NA | NYOW-03-PH003-B | Cyclohexane | mg/kg | 0.0052 | 650 | 0.000008 |
| AOC 3 | NA | NYOW-03-PH003-B | Dibromochloromethane | mg/kg | 0.0052 | 8.3 | 0.000626506 |
| AOC 3 | NA | NYOW-03-PH003-B | Dichlorodifluoromethane | mg/kg | 0.01 | 8.7 | 0.001149425 |
| AOC 3 | NA | NYOW-03-PH003-B | Ethylbenzene | mg/kg | 0.0052 | 5.8 | 0.000896552 |
| AOC 3 | NA | NYOW-03-PH003-B | m,p-Xylene | mg/kg | 0.0033 | 55 | 0.00006 |
| AOC 3 | NA | NYOW-03-PH003-B | Methyl acetate | mg/kg | 0.0088 | 7800 | 1.12821E-06 |
| AOC 3 | NA | NYOW-03-PH003-B | Methyl tert-butyl ether (MTBE) | mg/kg | 0.021 | 47 | 0.000446809 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH003-B | Methylene chloride | mg/kg | 0.0052 | 35 | 0.000148571 |
| AOC 3 | NA | NYOW-03-PH003-B | o-Xylene | mg/kg | 0.0052 | 64 | 0.00008125 |
| AOC 3 | NA | NYOW-03-PH003-B | Styrene | mg/kg | 0.0052 | 600 | 8.66667E-06 |
| AOC 3 | NA | NYOW-03-PH003-B | Tetrachloroethene (PCE) | mg/kg | 0.0052 | 8.1 | 0.000641975 |
| AOC 3 | NA | NYOW-03-PH003-B | trans-1,2-Dichloroethene | mg/kg | 0.0052 | 7 | 0.000742857 |
| AOC 3 | NA | NYOW-03-PH003-B | trans-1,3-Dichloropropene | mg/kg | 0.0052 | 1.8 | 0.002888889 |
| AOC 3 | NA | NYOW-03-PH003-B | Trichlorofluoromethane | mg/kg | 0.01 | 2300 | 4.34783E-06 |
| AOC 3 | NA | NYOW-03-PH003-B | Vinyl chloride | mg/kg | 0.0052 | 0.059 | 0.088135593 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.41 | 0.23 | 1.782608696 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,4-Dioxane | mg/kg | 0.41 | 5.3 | 0.077358491 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.41 | 310 | 0.001322581 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.41 | 190 | 0.002157895 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4,6-Trichlorophenol | mg/kg | 0.41 | 6.3 | 0.065079365 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4-Dichlorophenol | mg/kg | 0.41 | 19 | 0.021578947 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4-Dimethylphenol | mg/kg | 0.41 | 130 | 0.003153846 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 1.7 | 0.482352941 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4-Dinitrotoluene | mg/kg | 0.41 | 1.7 | 0.241176471 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,6-Dinitrotoluene | mg/kg | 0.41 | 0.36 | 1.138888889 |
| AOC 3 | NA | NYOW-03-PH003-B | 2-Chloronaphthalene | mg/kg | 0.41 | 480 | 0.000854167 |
| AOC 3 | NA | NYOW-03-PH003-B | 2-Chlorophenol | mg/kg | 0.41 | 39 | 0.010512821 |
| AOC 3 | NA | NYOW-03-PH003-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 320 | 0.00128125 |
| AOC 3 | NA | NYOW-03-PH003-B | 2-Nitroaniline | mg/kg | 2.1 | 63 | 0.033333333 |
| AOC 3 | NA | NYOW-03-PH003-B | 2-Nitrophenol | mg/kg | 0.41 | 39 | 0.010512821 |
| AOC 3 | NA | NYOW-03-PH003-B | 3,3'-Dichlorobenzidine | mg/kg | 0.82 | 1.2 | 0.683333333 |
| AOC 3 | NA | NYOW-03-PH003-B | 3-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-PH003-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2.1 | 0.51 | 4.117647059 |
| AOC 3 | NA | NYOW-03-PH003-B | 4-Chloro-3-methylphenol | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 3 | NA | NYOW-03-PH003-B | 4-Chloroaniline | mg/kg | 0.82 | 2.7 | 0.303703704 |
| AOC 3 | NA | NYOW-03-PH003-B | 4-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-PH003-B | 4-Nitrophenol | mg/kg | 2.1 | 39 | 0.053846154 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH003-B | Acetophenone | mg/kg | 0.41 | 780 | 0.000525641 |
| AOC 3 | NA | NYOW-03-PH003-B | Atrazine | mg/kg | 0.41 | 2.4 | 0.170833333 |
| AOC 3 | NA | NYOW-03-PH003-B | Benzyl butyl phthalate | mg/kg | 0.41 | 290 | 0.001413793 |
| AOC 3 | NA | NYOW-03-PH003-B | Biphenyl (Diphenyl) | mg/kg | 2.1 | 4.7 | 0.446808511 |
| AOC 3 | NA | NYOW-03-PH003-B | Bis(2-chloroethoxy)methane | mg/kg | 0.41 | 19 | 0.021578947 |
| AOC 3 | NA | NYOW-03-PH003-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.41 | 0.23 | 1.782608696 |
| AOC 3 | NA | NYOW-03-PH003-B | Caprolactam | mg/kg | 0.41 | 3100 | 0.000132258 |
| AOC 3 | NA | NYOW-03-PH003-B | Diethyl phthalate | mg/kg | 0.41 | 5100 | 8.03922E-05 |
| AOC 3 | NA | NYOW-03-PH003-B | di-n-Butyl phthalate | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 3 | NA | NYOW-03-PH003-B | di-n-Octyl phthalate | mg/kg | 0.41 | 63 | 0.006507937 |
| AOC 3 | NA | NYOW-03-PH003-B | Hexachlorobenzene | mg/kg | 0.41 | 0.078 | 5.256410256 |
| AOC 3 | NA | NYOW-03-PH003-B | Hexachlorobutadiene | mg/kg | 0.41 | 1.2 | 0.341666667 |
| AOC 3 | NA | NYOW-03-PH003-B | Hexachlorocyclopentadiene | mg/kg | 0.41 | 0.18 | 2.277777778 |
| AOC 3 | NA | NYOW-03-PH003-B | Hexachloroethane | mg/kg | 0.41 | 1.8 | 0.227777778 |
| AOC 3 | NA | NYOW-03-PH003-B | Isophorone | mg/kg | 0.41 | 570 | 0.000719298 |
| AOC 3 | NA | NYOW-03-PH003-B | Nitrobenzene | mg/kg | 0.41 | 5.1 | 0.080392157 |
| AOC 3 | NA | NYOW-03-PH003-B | N-Nitrosodi-n-propylamine | mg/kg | 0.41 | 0.078 | 5.256410256 |
| AOC 3 | NA | NYOW-03-PH003-B | N-Nitrosodiphenylamine | mg/kg | 0.41 | 110 | 0.003727273 |
| AOC 3 | NA | NYOW-03-PH003-B | Pentachlorophenol | mg/kg | 2.1 | 1 | 2.1 |
| AOC 3 | NA | NYOW-03-PH003-B | Phenol | mg/kg | 0.41 | 1900 | 0.000215789 |
| AOC 3 | NA | NYOW-03-PH003-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,1,1-Trichloroethane | mg/kg | 0.005 | 810 | 6.17284E-06 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.005 | 0.6 | 0.008333333 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.02 | 670 | 2.98507E-05 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,1,2-Trichloroethane | mg/kg | 0.005 | 0.15 | 0.033333333 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,1-Dichloroethane | mg/kg | 0.005 | 3.6 | 0.001388889 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,1-Dichloroethene | mg/kg | 0.005 | 23 | 0.000217391 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,2,3-Trichlorobenzene | mg/kg | 0.005 | 6.3 | 0.000793651 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,2,4-Trichlorobenzene | mg/kg | 0.005 | 5.8 | 0.000862069 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0099 | 0.0053 | 1.867924528 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.005 | 0.036 | 0.138888889 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,2-Dichlorobenzene | mg/kg | 0.005 | 180 | 2.77778E-05 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH004-B | 1,2-Dichloroethane | mg/kg | 0.005 | 0.46 | 0.010869565 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,2-Dichloropropane | mg/kg | 0.005 | 1.6 | 0.003125 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,3-Dichloropropane | mg/kg | 0.005 | 160 | 0.00003125 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,4-Dichlorobenzene | mg/kg | 0.005 | 2.6 | 0.001923077 |
| AOC 3 | NA | NYOW-03-PH004-B | 2-Hexanone | mg/kg | 0.02 | 20 | 0.001 |
| AOC 3 | NA | NYOW-03-PH004-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.02 | 3300 | 6.06061E-06 |
| AOC 3 | NA | NYOW-03-PH004-B | Benzene | mg/kg | 0.005 | 1.2 | 0.004166667 |
| AOC 3 | NA | NYOW-03-PH004-B | Bromochloromethane | mg/kg | 0.005 | 15 | 0.000333333 |
| AOC 3 | NA | NYOW-03-PH004-B | Bromodichloromethane | mg/kg | 0.005 | 0.29 | 0.017241379 |
| AOC 3 | NA | NYOW-03-PH004-B | Bromoform | mg/kg | 0.0051 | 19 | 0.000268421 |
| AOC 3 | NA | NYOW-03-PH004-B | Bromomethane | mg/kg | 0.0099 | 0.68 | 0.014558824 |
| AOC 3 | NA | NYOW-03-PH004-B | Carbon disulfide | mg/kg | 0.005 | 77 | 6.49351E-05 |
| AOC 3 | NA | NYOW-03-PH004-B | Carbon Tetrachloride | mg/kg | 0.005 | 0.65 | 0.007692308 |
| AOC 3 | NA | NYOW-03-PH004-B | Chlorobenzene | mg/kg | 0.005 | 28 | 0.000178571 |
| AOC 3 | NA | NYOW-03-PH004-B | Chloroethane | mg/kg | 0.0099 | 540 | 1.83333E-05 |
| AOC 3 | NA | NYOW-03-PH004-B | Chloroform | mg/kg | 0.0099 | 0.32 | 0.0309375 |
| AOC 3 | NA | NYOW-03-PH004-B | Chloromethane | mg/kg | 0.0099 | 11 | 0.0009 |
| AOC 3 | NA | NYOW-03-PH004-B | cis-1,2-Dichloroethene | mg/kg | 0.005 | 16 | 0.0003125 |
| AOC 3 | NA | NYOW-03-PH004-B | cis-1,3-Dichloropropene | mg/kg | 0.005 | 1.8 | 0.002777778 |
| AOC 3 | NA | NYOW-03-PH004-B | Cyclohexane | mg/kg | 0.005 | 650 | 7.69231E-06 |
| AOC 3 | NA | NYOW-03-PH004-B | Dibromochloromethane | mg/kg | 0.005 | 8.3 | 0.00060241 |
| AOC 3 | NA | NYOW-03-PH004-B | Dichlorodifluoromethane | mg/kg | 0.0099 | 8.7 | 0.001137931 |
| AOC 3 | NA | NYOW-03-PH004-B | Ethylbenzene | mg/kg | 0.005 | 5.8 | 0.000862069 |
| AOC 3 | NA | NYOW-03-PH004-B | m,p-Xylene | mg/kg | 0.0032 | 55 | 5.81818E-05 |
| AOC 3 | NA | NYOW-03-PH004-B | Methyl acetate | mg/kg | 0.0085 | 7800 | 1.08974E-06 |
| AOC 3 | NA | NYOW-03-PH004-B | Methyl tert-butyl ether (MTBE) | mg/kg | 0.02 | 47 | 0.000425532 |
| AOC 3 | NA | NYOW-03-PH004-B | Methylene chloride | mg/kg | 0.005 | 35 | 0.000142857 |
| AOC 3 | NA | NYOW-03-PH004-B | o-Xylene | mg/kg | 0.005 | 64 | 0.000078125 |
| AOC 3 | NA | NYOW-03-PH004-B | Styrene | mg/kg | 0.005 | 600 | 8.33333E-06 |
| AOC 3 | NA | NYOW-03-PH004-B | Tetrachloroethene (PCE) | mg/kg | 0.005 | 8.1 | 0.000617284 |
| AOC 3 | NA | NYOW-03-PH004-B | trans-1,2-Dichloroethene | mg/kg | 0.005 | 7 | 0.000714286 |
| AOC 3 | NA | NYOW-03-PH004-B | trans-1,3-Dichloropropene | mg/kg | 0.005 | 1.8 | 0.002777778 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH004-B | Trichlorofluoromethane | mg/kg | 0.0099 | 2300 | 4.30435E-06 |
| AOC 3 | NA | NYOW-03-PH004-B | Vinyl chloride | mg/kg | 0.005 | 0.059 | 0.084745763 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.42 | 0.23 | 1.826086957 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,4-Dioxane | mg/kg | 0.42 | 5.3 | 0.079245283 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.42 | 310 | 0.001354839 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.42 | 190 | 0.002210526 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 630 | 0.000666667 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4,6-Trichlorophenol | mg/kg | 0.42 | 6.3 | 0.066666667 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4-Dichlorophenol | mg/kg | 0.42 | 19 | 0.022105263 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4-Dimethylphenol | mg/kg | 0.42 | 130 | 0.003230769 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.84 | 1.7 | 0.494117647 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4-Dinitrophenol | mg/kg | 2.2 | 13 | 0.169230769 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4-Dinitrotoluene | mg/kg | 0.42 | 1.7 | 0.247058824 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,6-Dinitrotoluene | mg/kg | 0.42 | 0.36 | 1.166666667 |
| AOC 3 | NA | NYOW-03-PH004-B | 2-Chloronaphthalene | mg/kg | 0.42 | 480 | 0.000875 |
| AOC 3 | NA | NYOW-03-PH004-B | 2-Chlorophenol | mg/kg | 0.42 | 39 | 0.010769231 |
| AOC 3 | NA | NYOW-03-PH004-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 320 | 0.0013125 |
| AOC 3 | NA | NYOW-03-PH004-B | 2-Nitroaniline | mg/kg | 2.2 | 63 | 0.034920635 |
| AOC 3 | NA | NYOW-03-PH004-B | 2-Nitrophenol | mg/kg | 0.42 | 39 | 0.010769231 |
| AOC 3 | NA | NYOW-03-PH004-B | 3,3'-Dichlorobenzidine | mg/kg | 0.84 | 1.2 | 0.7 |
| AOC 3 | NA | NYOW-03-PH004-B | 3-Nitroaniline | mg/kg | 2.2 | 25 | 0.088 |
| AOC 3 | NA | NYOW-03-PH004-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2.2 | 0.51 | 4.31372549 |
| AOC 3 | NA | NYOW-03-PH004-B | 4-Chloro-3-methylphenol | mg/kg | 0.42 | 630 | 0.000666667 |
| AOC 3 | NA | NYOW-03-PH004-B | 4-Chloroaniline | mg/kg | 0.84 | 2.7 | 0.311111111 |
| AOC 3 | NA | NYOW-03-PH004-B | 4-Nitroaniline | mg/kg | 2.2 | 25 | 0.088 |
| AOC 3 | NA | NYOW-03-PH004-B | 4-Nitrophenol | mg/kg | 2.2 | 39 | 0.056410256 |
| AOC 3 | NA | NYOW-03-PH004-B | Acetophenone | mg/kg | 0.42 | 780 | 0.000538462 |
| AOC 3 | NA | NYOW-03-PH004-B | Atrazine | mg/kg | 0.42 | 2.4 | 0.175 |
| AOC 3 | NA | NYOW-03-PH004-B | Benzyl butyl phthalate | mg/kg | 0.42 | 290 | 0.001448276 |
| AOC 3 | NA | NYOW-03-PH004-B | Biphenyl (Diphenyl) | mg/kg | 2.2 | 4.7 | 0.468085106 |
| AOC 3 | NA | NYOW-03-PH004-B | Bis(2-chloroethoxy)methane | mg/kg | 0.42 | 19 | 0.022105263 |
| AOC 3 | NA | NYOW-03-PH004-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.42 | 0.23 | 1.826086957 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH004-B | Caprolactam | mg/kg | 0.42 | 3100 | 0.000135484 |
| AOC 3 | NA | NYOW-03-PH004-B | Diethyl phthalate | mg/kg | 0.42 | 5100 | 8.23529E-05 |
| AOC 3 | NA | NYOW-03-PH004-B | di-n-Butyl phthalate | mg/kg | 0.42 | 630 | 0.000666667 |
| AOC 3 | NA | NYOW-03-PH004-B | di-n-Octyl phthalate | mg/kg | 0.42 | 63 | 0.006666667 |
| AOC 3 | NA | NYOW-03-PH004-B | Hexachlorobenzene | mg/kg | 0.42 | 0.078 | 5.384615385 |
| AOC 3 | NA | NYOW-03-PH004-B | Hexachlorobutadiene | mg/kg | 0.42 | 1.2 | 0.35 |
| AOC 3 | NA | NYOW-03-PH004-B | Hexachlorocyclopentadiene | mg/kg | 0.42 | 0.18 | 2.333333333 |
| AOC 3 | NA | NYOW-03-PH004-B | Hexachloroethane | mg/kg | 0.42 | 1.8 | 0.233333333 |
| AOC 3 | NA | NYOW-03-PH004-B | Isophorone | mg/kg | 0.42 | 570 | 0.000736842 |
| AOC 3 | NA | NYOW-03-PH004-B | Nitrobenzene | mg/kg | 0.42 | 5.1 | 0.082352941 |
| AOC 3 | NA | NYOW-03-PH004-B | N-Nitrosodi-n-propylamine | mg/kg | 0.42 | 0.078 | 5.384615385 |
| AOC 3 | NA | NYOW-03-PH004-B | N-Nitrosodiphenylamine | mg/kg | 0.42 | 110 | 0.003818182 |
| AOC 3 | NA | NYOW-03-PH004-B | Pentachlorophenol | mg/kg | 2.2 | 1 | 2.2 |
| AOC 3 | NA | NYOW-03-PH004-B | Phenol | mg/kg | 0.42 | 1900 | 0.000221053 |
| AOC 3 | NA | NYOW-03-PH004-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.079 | 0.41 | 0.192682927 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.079 | 0.17 | 0.464705882 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.079 | 0.23 | 0.343478261 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.079 | 0.23 | 0.343478261 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.079 | 0.12 | 0.658333333 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.079 | 0.24 | 0.329166667 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.079 | 0.24 | 0.329166667 |
| AOC 3 | NA | NYOW-03-PH005-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.42 | 0.23 | 1.826086957 |
| AOC 3 | NA | NYOW-03-PH005-B | 1,4-Dioxane | mg/kg | 0.42 | 5.3 | 0.079245283 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.42 | 310 | 0.001354839 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.42 | 190 | 0.002210526 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 630 | 0.000666667 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,4,6-Trichlorophenol | mg/kg | 0.42 | 6.3 | 0.066666667 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,4-Dichlorophenol | mg/kg | 0.42 | 19 | 0.022105263 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,4-Dimethylphenol | mg/kg | 0.42 | 130 | 0.003230769 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.85 | 1.7 | 0.5 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH005-B | 2,4-Dinitrophenol | mg/kg | 2.2 | 13 | 0.169230769 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,4-Dinitrotoluene | mg/kg | 0.42 | 1.7 | 0.247058824 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,6-Dinitrotoluene | mg/kg | 0.42 | 0.36 | 1.166666667 |
| AOC 3 | NA | NYOW-03-PH005-B | 2-Chloronaphthalene | mg/kg | 0.42 | 480 | 0.000875 |
| AOC 3 | NA | NYOW-03-PH005-B | 2-Chlorophenol | mg/kg | 0.42 | 39 | 0.010769231 |
| AOC 3 | NA | NYOW-03-PH005-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 320 | 0.0013125 |
| AOC 3 | NA | NYOW-03-PH005-B | 2-Nitroaniline | mg/kg | 2.2 | 63 | 0.034920635 |
| AOC 3 | NA | NYOW-03-PH005-B | 2-Nitrophenol | mg/kg | 0.42 | 39 | 0.010769231 |
| AOC 3 | NA | NYOW-03-PH005-B | 3,3'-Dichlorobenzidine | mg/kg | 0.85 | 1.2 | 0.708333333 |
| AOC 3 | NA | NYOW-03-PH005-B | 3-Nitroaniline | mg/kg | 2.2 | 25 | 0.088 |
| AOC 3 | NA | NYOW-03-PH005-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2.2 | 0.51 | 4.31372549 |
| AOC 3 | NA | NYOW-03-PH005-B | 4-Chloro-3-methylphenol | mg/kg | 0.42 | 630 | 0.000666667 |
| AOC 3 | NA | NYOW-03-PH005-B | 4-Chloroaniline | mg/kg | 0.85 | 2.7 | 0.314814815 |
| AOC 3 | NA | NYOW-03-PH005-B | 4-Nitroaniline | mg/kg | 2.2 | 25 | 0.088 |
| AOC 3 | NA | NYOW-03-PH005-B | 4-Nitrophenol | mg/kg | 2.2 | 39 | 0.056410256 |
| AOC 3 | NA | NYOW-03-PH005-B | Acetophenone | mg/kg | 0.42 | 780 | 0.000538462 |
| AOC 3 | NA | NYOW-03-PH005-B | Atrazine | mg/kg | 0.42 | 2.4 | 0.175 |
| AOC 3 | NA | NYOW-03-PH005-B | Benzyl butyl phthalate | mg/kg | 0.42 | 290 | 0.001448276 |
| AOC 3 | NA | NYOW-03-PH005-B | Biphenyl (Diphenyl) | mg/kg | 2.2 | 4.7 | 0.468085106 |
| AOC 3 | NA | NYOW-03-PH005-B | Bis(2-chloroethoxy)methane | mg/kg | 0.42 | 19 | 0.022105263 |
| AOC 3 | NA | NYOW-03-PH005-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.42 | 0.23 | 1.826086957 |
| AOC 3 | NA | NYOW-03-PH005-B | Caprolactam | mg/kg | 0.42 | 3100 | 0.000135484 |
| AOC 3 | NA | NYOW-03-PH005-B | Diethyl phthalate | mg/kg | 0.42 | 5100 | 8.23529E-05 |
| AOC 3 | NA | NYOW-03-PH005-B | di-n-Butyl phthalate | mg/kg | 0.42 | 630 | 0.000666667 |
| AOC 3 | NA | NYOW-03-PH005-B | di-n-Octyl phthalate | mg/kg | 0.42 | 63 | 0.006666667 |
| AOC 3 | NA | NYOW-03-PH005-B | Hexachlorobenzene | mg/kg | 0.42 | 0.078 | 5.384615385 |
| AOC 3 | NA | NYOW-03-PH005-B | Hexachlorobutadiene | mg/kg | 0.42 | 1.2 | 0.35 |
| AOC 3 | NA | NYOW-03-PH005-B | Hexachlorocyclopentadiene | mg/kg | 0.42 | 0.18 | 2.333333333 |
| AOC 3 | NA | NYOW-03-PH005-B | Hexachloroethane | mg/kg | 0.42 | 1.8 | 0.233333333 |
| AOC 3 | NA | NYOW-03-PH005-B | Isophorone | mg/kg | 0.42 | 570 | 0.000736842 |
| AOC 3 | NA | NYOW-03-PH005-B | Nitrobenzene | mg/kg | 0.42 | 5.1 | 0.082352941 |
| AOC 3 | NA | NYOW-03-PH005-B | N-Nitrosodi-n-propylamine | mg/kg | 0.42 | 0.078 | 5.384615385 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH005-B | N-Nitrosodiphenylamine | mg/kg | 0.42 | 110 | 0.003818182 |
| AOC 3 | NA | NYOW-03-PH005-B | Pentachlorophenol | mg/kg | 2.2 | 1 | 2.2 |
| AOC 3 | NA | NYOW-03-PH005-B | Phenol | mg/kg | 0.42 | 1900 | 0.000221053 |
| AOC 3 | NA | NYOW-03-PH005-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,1,1-Trichloroethane | mg/kg | 0.0048 | 810 | 5.92593E-06 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0048 | 0.6 | 0.008 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.019 | 670 | 2.83582E-05 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,1,2-Trichloroethane | mg/kg | 0.0048 | 0.15 | 0.032 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,1-Dichloroethane | mg/kg | 0.0048 | 3.6 | 0.001333333 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,1-Dichloroethene | mg/kg | 0.0048 | 23 | 0.000208696 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,2,3-Trichlorobenzene | mg/kg | 0.0048 | 6.3 | 0.000761905 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,2,4-Trichlorobenzene | mg/kg | 0.0048 | 5.8 | 0.000827586 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0096 | 0.0053 | 1.811320755 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,2-Dibromoethane (EDB) | mg/kg | 0.0048 | 0.036 | 0.133333333 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,2-Dichlorobenzene | mg/kg | 0.0048 | 180 | 2.66667E-05 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,2-Dichloroethane | mg/kg | 0.0048 | 0.46 | 0.010434783 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,2-Dichloropropane | mg/kg | 0.0048 | 1.6 | 0.003 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,3-Dichloropropane | mg/kg | 0.0048 | 160 | 0.00003 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,4-Dichlorobenzene | mg/kg | 0.0048 | 2.6 | 0.001846154 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2-Hexanone | mg/kg | 0.019 | 20 | 0.00095 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.019 | 3300 | 5.75758E-06 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Benzene | mg/kg | 0.0048 | 1.2 | 0.004 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Bromochloromethane | mg/kg | 0.0048 | 15 | 0.00032 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Bromodichloromethane | mg/kg | 0.0048 | 0.29 | 0.016551724 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Bromoform | mg/kg | 0.0049 | 19 | 0.000257895 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Bromomethane | mg/kg | 0.0096 | 0.68 | 0.014117647 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Carbon disulfide | mg/kg | 0.0048 | 77 | 6.23377E-05 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Carbon Tetrachloride | mg/kg | 0.0048 | 0.65 | 0.007384615 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Chlorobenzene | mg/kg | 0.0048 | 28 | 0.000171429 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Chloroethane | mg/kg | 0.0096 | 540 | 1.77778E-05 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Chloroform | mg/kg | 0.0096 | 0.32 | 0.03 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Chloromethane | mg/kg | 0.0096 | 11 | 0.000872727 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH005-B_R | cis-1,2-Dichloroethene | mg/kg | 0.0048 | 16 | 0.0003 |
| AOC 3 | NA | NYOW-03-PH005-B_R | cis-1,3-Dichloropropene | mg/kg | 0.0048 | 1.8 | 0.002666667 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Cyclohexane | mg/kg | 0.0048 | 650 | 7.38462E-06 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Dibromochloromethane | mg/kg | 0.0048 | 8.3 | 0.000578313 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Dichlorodifluoromethane | mg/kg | 0.0096 | 8.7 | 0.001103448 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Ethylbenzene | mg/kg | 0.0048 | 5.8 | 0.000827586 |
| AOC 3 | NA | NYOW-03-PH005-B_R | m,p-Xylene | mg/kg | 0.0031 | 55 | 5.63636E-05 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Methyl acetate | mg/kg | 0.0081 | 7800 | 1.03846E-06 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Methyl tert-butyl ether (MTBE) | mg/kg | 0.019 | 47 | 0.000404255 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Methylene chloride | mg/kg | 0.0048 | 35 | 0.000137143 |
| AOC 3 | NA | NYOW-03-PH005-B_R | o-Xylene | mg/kg | 0.0048 | 64 | 0.000075 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Styrene | mg/kg | 0.0048 | 600 | 0.000008 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Tetrachloroethene (PCE) | mg/kg | 0.0048 | 8.1 | 0.000592593 |
| AOC 3 | NA | NYOW-03-PH005-B_R | trans-1,2-Dichloroethene | mg/kg | 0.0048 | 7 | 0.000685714 |
| AOC 3 | NA | NYOW-03-PH005-B_R | trans-1,3-Dichloropropene | mg/kg | 0.0048 | 1.8 | 0.002666667 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Trichlorofluoromethane | mg/kg | 0.0096 | 2300 | 4.17391E-06 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Vinyl chloride | mg/kg | 0.0048 | 0.059 | 0.081355932 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,4-Dioxane | mg/kg | 0.38 | 5.3 | 0.071698113 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 310 | 0.001225806 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 190 | 0.002 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 6.3 | 0.06031746 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4-Dichlorophenol | mg/kg | 0.38 | 19 | 0.02 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4-Dimethylphenol | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.7 | 0.452941176 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4-Dinitrotoluene | mg/kg | 0.38 | 1.7 | 0.223529412 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,6-Dinitrotoluene | mg/kg | 0.38 | 0.36 | 1.055555556 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2-Chloronaphthalene | mg/kg | 0.38 | 480 | 0.000791667 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2-Chlorophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 320 | 0.0011875 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH005-B_R | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2-Nitrophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 1.2 | 0.641666667 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 4-Chloroaniline | mg/kg | 0.77 | 2.7 | 0.285185185 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Acetophenone | mg/kg | 0.38 | 780 | 0.000487179 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Atrazine | mg/kg | 0.38 | 2.4 | 0.158333333 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Benzyl butyl phthalate | mg/kg | 0.38 | 290 | 0.001310345 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 19 | 0.02 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Caprolactam | mg/kg | 0.38 | 3100 | 0.000122581 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Diethyl phthalate | mg/kg | 0.38 | 5100 | 7.45098E-05 |
| AOC 3 | NA | NYOW-03-PH005-B_R | di-n-Butyl phthalate | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 3 | NA | NYOW-03-PH005-B_R | di-n-Octyl phthalate | mg/kg | 0.38 | 63 | 0.006031746 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Hexachlorobenzene | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Hexachlorobutadiene | mg/kg | 0.38 | 1.2 | 0.316666667 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Hexachloroethane | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Isophorone | mg/kg | 0.38 | 570 | 0.000666667 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Nitrobenzene | mg/kg | 0.38 | 5.1 | 0.074509804 |
| AOC 3 | NA | NYOW-03-PH005-B_R | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 3 | NA | NYOW-03-PH005-B_R | N-Nitrosodiphenylamine | mg/kg | 0.38 | 110 | 0.003454545 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Phenol | mg/kg | 0.38 | 1900 | 0.0002 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.085 | 0.41 | 0.207317073 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.12 | 0.2 | 0.6 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.085 | 0.17 | 0.5 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.085 | 0.23 | 0.369565217 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.085 | 0.23 | 0.369565217 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.085 | 0.12 | 0.708333333 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.085 | 0.24 | 0.354166667 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.085 | 0.24 | 0.354166667 |
| AOC 3 | NA | NYOW-03-PH006-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.41 | 0.23 | 1.782608696 |
| AOC 3 | NA | NYOW-03-PH006-B | 1,4-Dioxane | mg/kg | 0.41 | 5.3 | 0.077358491 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.41 | 310 | 0.001322581 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.41 | 190 | 0.002157895 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4,6-Trichlorophenol | mg/kg | 0.41 | 6.3 | 0.065079365 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4-Dichlorophenol | mg/kg | 0.41 | 19 | 0.021578947 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4-Dimethylphenol | mg/kg | 0.41 | 130 | 0.003153846 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 1.7 | 0.482352941 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4-Dinitrotoluene | mg/kg | 0.41 | 1.7 | 0.241176471 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,6-Dinitrotoluene | mg/kg | 0.41 | 0.36 | 1.138888889 |
| AOC 3 | NA | NYOW-03-PH006-B | 2-Chloronaphthalene | mg/kg | 0.41 | 480 | 0.000854167 |
| AOC 3 | NA | NYOW-03-PH006-B | 2-Chlorophenol | mg/kg | 0.41 | 39 | 0.010512821 |
| AOC 3 | NA | NYOW-03-PH006-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 320 | 0.00128125 |
| AOC 3 | NA | NYOW-03-PH006-B | 2-Nitroaniline | mg/kg | 2.1 | 63 | 0.033333333 |
| AOC 3 | NA | NYOW-03-PH006-B | 2-Nitrophenol | mg/kg | 0.41 | 39 | 0.010512821 |
| AOC 3 | NA | NYOW-03-PH006-B | 3,3'-Dichlorobenzidine | mg/kg | 0.82 | 1.2 | 0.683333333 |
| AOC 3 | NA | NYOW-03-PH006-B | 3-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-PH006-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2.1 | 0.51 | 4.117647059 |
| AOC 3 | NA | NYOW-03-PH006-B | 4-Chloro-3-methylphenol | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 3 | NA | NYOW-03-PH006-B | 4-Chloroaniline | mg/kg | 0.82 | 2.7 | 0.303703704 |
| AOC 3 | NA | NYOW-03-PH006-B | 4-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-PH006-B | 4-Nitrophenol | mg/kg | 2.1 | 39 | 0.053846154 |
| AOC 3 | NA | NYOW-03-PH006-B | Acetophenone | mg/kg | 0.41 | 780 | 0.000525641 |
| AOC 3 | NA | NYOW-03-PH006-B | Atrazine | mg/kg | 0.41 | 2.4 | 0.170833333 |
| AOC 3 | NA | NYOW-03-PH006-B | Benzyl butyl phthalate | mg/kg | 0.41 | 290 | 0.001413793 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH006-B | Biphenyl (Diphenyl) | mg/kg | 2.1 | 4.7 | 0.446808511 |
| AOC 3 | NA | NYOW-03-PH006-B | Bis(2-chloroethoxy)methane | mg/kg | 0.41 | 19 | 0.021578947 |
| AOC 3 | NA | NYOW-03-PH006-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.41 | 0.23 | 1.782608696 |
| AOC 3 | NA | NYOW-03-PH006-B | Caprolactam | mg/kg | 0.41 | 3100 | 0.000132258 |
| AOC 3 | NA | NYOW-03-PH006-B | Diethyl phthalate | mg/kg | 0.41 | 5100 | 8.03922E-05 |
| AOC 3 | NA | NYOW-03-PH006-B | di-n-Butyl phthalate | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 3 | NA | NYOW-03-PH006-B | di-n-Octyl phthalate | mg/kg | 0.41 | 63 | 0.006507937 |
| AOC 3 | NA | NYOW-03-PH006-B | Hexachlorobenzene | mg/kg | 0.41 | 0.078 | 5.256410256 |
| AOC 3 | NA | NYOW-03-PH006-B | Hexachlorobutadiene | mg/kg | 0.41 | 1.2 | 0.341666667 |
| AOC 3 | NA | NYOW-03-PH006-B | Hexachlorocyclopentadiene | mg/kg | 0.41 | 0.18 | 2.277777778 |
| AOC 3 | NA | NYOW-03-PH006-B | Hexachloroethane | mg/kg | 0.41 | 1.8 | 0.227777778 |
| AOC 3 | NA | NYOW-03-PH006-B | Isophorone | mg/kg | 0.41 | 570 | 0.000719298 |
| AOC 3 | NA | NYOW-03-PH006-B | Nitrobenzene | mg/kg | 0.41 | 5.1 | 0.080392157 |
| AOC 3 | NA | NYOW-03-PH006-B | N-Nitrosodi-n-propylamine | mg/kg | 0.41 | 0.078 | 5.256410256 |
| AOC 3 | NA | NYOW-03-PH006-B | N-Nitrosodiphenylamine | mg/kg | 0.41 | 110 | 0.003727273 |
| AOC 3 | NA | NYOW-03-PH006-B | Pentachlorophenol | mg/kg | 2.1 | 1 | 2.1 |
| AOC 3 | NA | NYOW-03-PH006-B | Phenol | mg/kg | 0.41 | 1900 | 0.000215789 |
| AOC 3 | NA | NYOW-03-PH006-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,1,1-Trichloroethane | mg/kg | 0.0051 | 810 | 6.2963E-06 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0051 | 0.6 | 0.0085 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.02 | 670 | 2.98507E-05 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,1,2-Trichloroethane | mg/kg | 0.0051 | 0.15 | 0.034 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,1-Dichloroethane | mg/kg | 0.0051 | 3.6 | 0.001416667 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,1-Dichloroethene | mg/kg | 0.0051 | 23 | 0.000221739 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,2,3-Trichlorobenzene | mg/kg | 0.0051 | 6.3 | 0.000809524 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,2,4-Trichlorobenzene | mg/kg | 0.0051 | 5.8 | 0.00087931 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,2-Dibromo-3-chloropropane | mg/kg | 0.01 | 0.0053 | 1.886792453 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,2-Dibromoethane (EDB) | mg/kg | 0.0051 | 0.036 | 0.141666667 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,2-Dichlorobenzene | mg/kg | 0.0051 | 180 | 2.83333E-05 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,2-Dichloroethane | mg/kg | 0.0051 | 0.46 | 0.011086957 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,2-Dichloropropane | mg/kg | 0.0051 | 1.6 | 0.0031875 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,3-Dichloropropane | mg/kg | 0.0051 | 160 | 0.000031875 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,4-Dichlorobenzene | mg/kg | 0.0051 | 2.6 | 0.001961538 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2-Hexanone | mg/kg | 0.02 | 20 | 0.001 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.02 | 3300 | 6.06061E-06 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Benzene | mg/kg | 0.0051 | 1.2 | 0.00425 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Bromochloromethane | mg/kg | 0.0051 | 15 | 0.00034 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Bromodichloromethane | mg/kg | 0.0051 | 0.29 | 0.017586207 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Bromoform | mg/kg | 0.0052 | 19 | 0.000273684 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Bromomethane | mg/kg | 0.01 | 0.68 | 0.014705882 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Carbon disulfide | mg/kg | 0.0051 | 77 | 6.62338E-05 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Carbon Tetrachloride | mg/kg | 0.0051 | 0.65 | 0.007846154 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Chlorobenzene | mg/kg | 0.0051 | 28 | 0.000182143 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Chloroethane | mg/kg | 0.01 | 540 | 1.85185E-05 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Chloroform | mg/kg | 0.01 | 0.32 | 0.03125 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Chloromethane | mg/kg | 0.01 | 11 | 0.000909091 |
| AOC 3 | NA | NYOW-03-PH006-B_R | cis-1,2-Dichloroethene | mg/kg | 0.0051 | 16 | 0.00031875 |
| AOC 3 | NA | NYOW-03-PH006-B_R | cis-1,3-Dichloropropene | mg/kg | 0.0051 | 1.8 | 0.002833333 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Cyclohexane | mg/kg | 0.0051 | 650 | 7.84615E-06 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Dibromochloromethane | mg/kg | 0.0051 | 8.3 | 0.000614458 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Dichlorodifluoromethane | mg/kg | 0.01 | 8.7 | 0.001149425 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Ethylbenzene | mg/kg | 0.0051 | 5.8 | 0.00087931 |
| AOC 3 | NA | NYOW-03-PH006-B_R | m,p-Xylene | mg/kg | 0.0032 | 55 | 5.81818E-05 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Methyl acetate | mg/kg | 0.0086 | 7800 | 1.10256E-06 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Methyl tert-butyl ether (MTBE) | mg/kg | 0.02 | 47 | 0.000425532 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Methylene chloride | mg/kg | 0.0051 | 35 | 0.000145714 |
| AOC 3 | NA | NYOW-03-PH006-B_R | o-Xylene | mg/kg | 0.0051 | 64 | 7.96875E-05 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Styrene | mg/kg | 0.0051 | 600 | 0.0000085 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Tetrachloroethene (PCE) | mg/kg | 0.0051 | 8.1 | 0.00062963 |
| AOC 3 | NA | NYOW-03-PH006-B_R | trans-1,2-Dichloroethene | mg/kg | 0.0051 | 7 | 0.000728571 |
| AOC 3 | NA | NYOW-03-PH006-B_R | trans-1,3-Dichloropropene | mg/kg | 0.0051 | 1.8 | 0.002833333 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Trichlorofluoromethane | mg/kg | 0.01 | 2300 | 4.34783E-06 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Vinyl chloride | mg/kg | 0.0051 | 0.059 | 0.086440678 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.42 | 0.23 | 1.826086957 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,4-Dioxane | mg/kg | 0.42 | 5.3 | 0.079245283 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.42 | 310 | 0.001354839 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.42 | 190 | 0.002210526 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 630 | 0.000666667 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4,6-Trichlorophenol | mg/kg | 0.42 | 6.3 | 0.066666667 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4-Dichlorophenol | mg/kg | 0.42 | 19 | 0.022105263 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4-Dimethylphenol | mg/kg | 0.42 | 130 | 0.003230769 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.84 | 1.7 | 0.494117647 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4-Dinitrophenol | mg/kg | 2.2 | 13 | 0.169230769 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4-Dinitrotoluene | mg/kg | 0.42 | 1.7 | 0.247058824 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,6-Dinitrotoluene | mg/kg | 0.42 | 0.36 | 1.166666667 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2-Chloronaphthalene | mg/kg | 0.42 | 480 | 0.000875 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2-Chlorophenol | mg/kg | 0.42 | 39 | 0.010769231 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 320 | 0.0013125 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2-Nitroaniline | mg/kg | 2.2 | 63 | 0.034920635 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2-Nitrophenol | mg/kg | 0.42 | 39 | 0.010769231 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 3,3'-Dichlorobenzidine | mg/kg | 0.84 | 1.2 | 0.7 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 3-Nitroaniline | mg/kg | 2.2 | 25 | 0.088 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 4,6-Dinitro-2-methylphenol | mg/kg | 2.2 | 0.51 | 4.31372549 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 4-Chloro-3-methylphenol | mg/kg | 0.42 | 630 | 0.000666667 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 4-Chloroaniline | mg/kg | 0.84 | 2.7 | 0.311111111 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 4-Nitroaniline | mg/kg | 2.2 | 25 | 0.088 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 4-Nitrophenol | mg/kg | 2.2 | 39 | 0.056410256 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Acetophenone | mg/kg | 0.42 | 780 | 0.000538462 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Atrazine | mg/kg | 0.42 | 2.4 | 0.175 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Benzyl butyl phthalate | mg/kg | 0.42 | 290 | 0.001448276 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Biphenyl (Diphenyl) | mg/kg | 2.2 | 4.7 | 0.468085106 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Bis(2-chloroethoxy)methane | mg/kg | 0.42 | 19 | 0.022105263 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.42 | 0.23 | 1.826086957 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Caprolactam | mg/kg | 0.42 | 3100 | 0.000135484 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Diethyl phthalate | mg/kg | 0.42 | 5100 | 8.23529E-05 |
| AOC 3 | NA | NYOW-03-PH006-B_R | di-n-Butyl phthalate | mg/kg | 0.42 | 630 | 0.000666667 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH006-B_R | di-n-Octyl phthalate | mg/kg | 0.42 | 63 | 0.006666667 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Hexachlorobenzene | mg/kg | 0.42 | 0.078 | 5.384615385 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Hexachlorobutadiene | mg/kg | 0.42 | 1.2 | 0.35 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Hexachlorocyclopentadiene | mg/kg | 0.42 | 0.18 | 2.333333333 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Hexachloroethane | mg/kg | 0.42 | 1.8 | 0.233333333 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Isophorone | mg/kg | 0.42 | 570 | 0.000736842 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Nitrobenzene | mg/kg | 0.42 | 5.1 | 0.082352941 |
| AOC 3 | NA | NYOW-03-PH006-B_R | N-Nitrosodi-n-propylamine | mg/kg | 0.42 | 0.078 | 5.384615385 |
| AOC 3 | NA | NYOW-03-PH006-B_R | N-Nitrosodiphenylamine | mg/kg | 0.42 | 110 | 0.003818182 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Pentachlorophenol | mg/kg | 2.2 | 1 | 2.2 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Phenol | mg/kg | 0.42 | 1900 | 0.000221053 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.082 | 0.41 | 0.2 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.12 | 0.2 | 0.6 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.082 | 0.17 | 0.482352941 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.082 | 0.23 | 0.356521739 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.082 | 0.23 | 0.356521739 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.082 | 0.12 | 0.683333333 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.082 | 0.24 | 0.341666667 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.082 | 0.24 | 0.341666667 |
| AOC 3 | NA | NYOW-03-PH007-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.41 | 0.23 | 1.782608696 |
| AOC 3 | NA | NYOW-03-PH007-B | 1,4-Dioxane | mg/kg | 0.41 | 5.3 | 0.077358491 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.41 | 310 | 0.001322581 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.41 | 190 | 0.002157895 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,4,6-Trichlorophenol | mg/kg | 0.41 | 6.3 | 0.065079365 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,4-Dichlorophenol | mg/kg | 0.41 | 19 | 0.021578947 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,4-Dimethylphenol | mg/kg | 0.41 | 130 | 0.003153846 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 1.7 | 0.482352941 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,4-Dinitrotoluene | mg/kg | 0.41 | 1.7 | 0.241176471 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,6-Dinitrotoluene | mg/kg | 0.41 | 0.36 | 1.138888889 |
| AOC 3 | NA | NYOW-03-PH007-B | 2-Chloronaphthalene | mg/kg | 0.41 | 480 | 0.000854167 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH007-B | 2-Chlorophenol | mg/kg | 0.41 | 39 | 0.010512821 |
| AOC 3 | NA | NYOW-03-PH007-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 320 | 0.00128125 |
| AOC 3 | NA | NYOW-03-PH007-B | 2-Nitroaniline | mg/kg | 2.1 | 63 | 0.033333333 |
| AOC 3 | NA | NYOW-03-PH007-B | 2-Nitrophenol | mg/kg | 0.41 | 39 | 0.010512821 |
| AOC 3 | NA | NYOW-03-PH007-B | 3,3'-Dichlorobenzidine | mg/kg | 0.82 | 1.2 | 0.683333333 |
| AOC 3 | NA | NYOW-03-PH007-B | 3-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-PH007-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2.1 | 0.51 | 4.117647059 |
| AOC 3 | NA | NYOW-03-PH007-B | 4-Chloro-3-methylphenol | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 3 | NA | NYOW-03-PH007-B | 4-Chloroaniline | mg/kg | 0.82 | 2.7 | 0.303703704 |
| AOC 3 | NA | NYOW-03-PH007-B | 4-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-PH007-B | 4-Nitrophenol | mg/kg | 2.1 | 39 | 0.053846154 |
| AOC 3 | NA | NYOW-03-PH007-B | Acetophenone | mg/kg | 0.41 | 780 | 0.000525641 |
| AOC 3 | NA | NYOW-03-PH007-B | Atrazine | mg/kg | 0.41 | 2.4 | 0.170833333 |
| AOC 3 | NA | NYOW-03-PH007-B | Benzyl butyl phthalate | mg/kg | 0.41 | 290 | 0.001413793 |
| AOC 3 | NA | NYOW-03-PH007-B | Biphenyl (Diphenyl) | mg/kg | 2.1 | 4.7 | 0.446808511 |
| AOC 3 | NA | NYOW-03-PH007-B | Bis(2-chloroethoxy)methane | mg/kg | 0.41 | 19 | 0.021578947 |
| AOC 3 | NA | NYOW-03-PH007-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.41 | 0.23 | 1.782608696 |
| AOC 3 | NA | NYOW-03-PH007-B | Caprolactam | mg/kg | 0.41 | 3100 | 0.000132258 |
| AOC 3 | NA | NYOW-03-PH007-B | Diethyl phthalate | mg/kg | 0.41 | 5100 | 8.03922E-05 |
| AOC 3 | NA | NYOW-03-PH007-B | di-n-Butyl phthalate | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 3 | NA | NYOW-03-PH007-B | di-n-Octyl phthalate | mg/kg | 0.41 | 63 | 0.006507937 |
| AOC 3 | NA | NYOW-03-PH007-B | Hexachlorobenzene | mg/kg | 0.41 | 0.078 | 5.256410256 |
| AOC 3 | NA | NYOW-03-PH007-B | Hexachlorobutadiene | mg/kg | 0.41 | 1.2 | 0.341666667 |
| AOC 3 | NA | NYOW-03-PH007-B | Hexachlorocyclopentadiene | mg/kg | 0.41 | 0.18 | 2.277777778 |
| AOC 3 | NA | NYOW-03-PH007-B | Hexachloroethane | mg/kg | 0.41 | 1.8 | 0.227777778 |
| AOC 3 | NA | NYOW-03-PH007-B | Isophorone | mg/kg | 0.41 | 570 | 0.000719298 |
| AOC 3 | NA | NYOW-03-PH007-B | Nitrobenzene | mg/kg | 0.41 | 5.1 | 0.080392157 |
| AOC 3 | NA | NYOW-03-PH007-B | N-Nitrosodi-n-propylamine | mg/kg | 0.41 | 0.078 | 5.256410256 |
| AOC 3 | NA | NYOW-03-PH007-B | N-Nitrosodiphenylamine | mg/kg | 0.41 | 110 | 0.003727273 |
| AOC 3 | NA | NYOW-03-PH007-B | Pentachlorophenol | mg/kg | 2.1 | 1 | 2.1 |
| AOC 3 | NA | NYOW-03-PH007-B | Phenol | mg/kg | 0.41 | 1900 | 0.000215789 |
| AOC 3 | NA | NYOW-03-PH007-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,1,1-Trichloroethane | mg/kg | 0.0045 | 810 | 5.55556E-06 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0045 | 0.6 | 0.0075 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.018 | 670 | 2.68657E-05 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,1,2-Trichloroethane | mg/kg | 0.0045 | 0.15 | 0.03 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,1-Dichloroethane | mg/kg | 0.0045 | 3.6 | 0.00125 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,1-Dichloroethene | mg/kg | 0.0045 | 23 | 0.000195652 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,2,3-Trichlorobenzene | mg/kg | 0.0045 | 6.3 | 0.000714286 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,2,4-Trichlorobenzene | mg/kg | 0.0045 | 5.8 | 0.000775862 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0089 | 0.0053 | 1.679245283 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,2-Dibromoethane (EDB) | mg/kg | 0.0045 | 0.036 | 0.125 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,2-Dichlorobenzene | mg/kg | 0.0045 | 180 | 0.000025 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,2-Dichloroethane | mg/kg | 0.0045 | 0.46 | 0.009782609 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,2-Dichloropropane | mg/kg | 0.0045 | 1.6 | 0.0028125 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,3-Dichloropropane | mg/kg | 0.0045 | 160 | 0.000028125 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,4-Dichlorobenzene | mg/kg | 0.0045 | 2.6 | 0.001730769 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2-Hexanone | mg/kg | 0.018 | 20 | 0.0009 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.018 | 3300 | 5.45455E-06 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Benzene | mg/kg | 0.0045 | 1.2 | 0.00375 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Bromochloromethane | mg/kg | 0.0045 | 15 | 0.0003 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Bromodichloromethane | mg/kg | 0.0045 | 0.29 | 0.015517241 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Bromoform | mg/kg | 0.0046 | 19 | 0.000242105 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Bromomethane | mg/kg | 0.0089 | 0.68 | 0.013088235 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Carbon disulfide | mg/kg | 0.0045 | 77 | 5.84416E-05 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Carbon Tetrachloride | mg/kg | 0.0045 | 0.65 | 0.006923077 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Chlorobenzene | mg/kg | 0.0045 | 28 | 0.000160714 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Chloroethane | mg/kg | 0.0089 | 540 | 1.64815E-05 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Chloroform | mg/kg | 0.0089 | 0.32 | 0.0278125 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Chloromethane | mg/kg | 0.0089 | 11 | 0.000809091 |
| AOC 3 | NA | NYOW-03-PH007-B_R | cis-1,2-Dichloroethene | mg/kg | 0.0045 | 16 | 0.00028125 |
| AOC 3 | NA | NYOW-03-PH007-B_R | cis-1,3-Dichloropropene | mg/kg | 0.0045 | 1.8 | 0.0025 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Cyclohexane | mg/kg | 0.0045 | 650 | 6.92308E-06 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Dibromochloromethane | mg/kg | 0.0045 | 8.3 | 0.000542169 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH007-B_R | Dichlorodifluoromethane | mg/kg | 0.0089 | 8.7 | 0.001022989 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Ethylbenzene | mg/kg | 0.0045 | 5.8 | 0.000775862 |
| AOC 3 | NA | NYOW-03-PH007-B_R | m,p-Xylene | mg/kg | 0.0029 | 55 | 5.27273E-05 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Methyl acetate | mg/kg | 0.0076 | 7800 | 9.74359E-07 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Methyl tert-butyl ether (MTBE) | mg/kg | 0.018 | 47 | 0.000382979 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Methylene chloride | mg/kg | 0.0045 | 35 | 0.000128571 |
| AOC 3 | NA | NYOW-03-PH007-B_R | o-Xylene | mg/kg | 0.0045 | 64 | 7.03125E-05 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Styrene | mg/kg | 0.0045 | 600 | 0.0000075 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Tetrachloroethene (PCE) | mg/kg | 0.0045 | 8.1 | 0.000555556 |
| AOC 3 | NA | NYOW-03-PH007-B_R | trans-1,2-Dichloroethene | mg/kg | 0.0045 | 7 | 0.000642857 |
| AOC 3 | NA | NYOW-03-PH007-B_R | trans-1,3-Dichloropropene | mg/kg | 0.0045 | 1.8 | 0.0025 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Trichlorofluoromethane | mg/kg | 0.0089 | 2300 | 3.86957E-06 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Vinyl chloride | mg/kg | 0.0045 | 0.059 | 0.076271186 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,4-Dioxane | mg/kg | 0.38 | 5.3 | 0.071698113 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 310 | 0.001225806 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 190 | 0.002 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 6.3 | 0.06031746 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4-Dichlorophenol | mg/kg | 0.38 | 19 | 0.02 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4-Dimethylphenol | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.7 | 0.452941176 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4-Dinitrotoluene | mg/kg | 0.38 | 1.7 | 0.223529412 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,6-Dinitrotoluene | mg/kg | 0.38 | 0.36 | 1.055555556 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2-Chloronaphthalene | mg/kg | 0.38 | 480 | 0.000791667 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2-Chlorophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 320 | 0.0011875 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2-Nitrophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 1.2 | 0.641666667 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH007-B_R | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 4-Chloroaniline | mg/kg | 0.77 | 2.7 | 0.285185185 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Acetophenone | mg/kg | 0.38 | 780 | 0.000487179 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Atrazine | mg/kg | 0.38 | 2.4 | 0.158333333 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Benzyl butyl phthalate | mg/kg | 0.38 | 290 | 0.001310345 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 19 | 0.02 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Caprolactam | mg/kg | 0.38 | 3100 | 0.000122581 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Diethyl phthalate | mg/kg | 0.38 | 5100 | 7.45098E-05 |
| AOC 3 | NA | NYOW-03-PH007-B_R | di-n-Butyl phthalate | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 3 | NA | NYOW-03-PH007-B_R | di-n-Octyl phthalate | mg/kg | 0.38 | 63 | 0.006031746 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Hexachlorobenzene | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Hexachlorobutadiene | mg/kg | 0.38 | 1.2 | 0.316666667 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Hexachloroethane | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Isophorone | mg/kg | 0.38 | 570 | 0.000666667 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Nitrobenzene | mg/kg | 0.38 | 5.1 | 0.074509804 |
| AOC 3 | NA | NYOW-03-PH007-B_R | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 3 | NA | NYOW-03-PH007-B_R | N-Nitrosodiphenylamine | mg/kg | 0.38 | 110 | 0.003454545 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Phenol | mg/kg | 0.38 | 1900 | 0.0002 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.073 | 0.41 | 0.17804878 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.2 | 0.5 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.073 | 0.17 | 0.429411765 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.073 | 0.23 | 0.317391304 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.073 | 0.23 | 0.317391304 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.073 | 0.12 | 0.608333333 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.073 | 0.24 | 0.304166667 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.073 | 0.24 | 0.304166667 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,1,1-Trichloroethane | mg/kg | 0.0052 | 810 | 6.41975E-06 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0052 | 0.6 | 0.008666667 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.021 | 670 | 3.13433E-05 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,1,2-Trichloroethane | mg/kg | 0.0052 | 0.15 | 0.034666667 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,1-Dichloroethane | mg/kg | 0.0052 | 3.6 | 0.001444444 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,1-Dichloroethene | mg/kg | 0.0052 | 23 | 0.000226087 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0052 | 6.3 | 0.000825397 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0052 | 5.8 | 0.000896552 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.01 | 0.0053 | 1.886792453 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.0052 | 0.036 | 0.144444444 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,2-Dichlorobenzene | mg/kg | 0.0052 | 180 | 2.88889E-05 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,2-Dichloroethane | mg/kg | 0.0052 | 0.46 | 0.011304348 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,2-Dichloropropane | mg/kg | 0.0052 | 1.6 | 0.00325 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,3-Dichloropropane | mg/kg | 0.0052 | 160 | 0.0000325 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,4-Dichlorobenzene | mg/kg | 0.0052 | 2.6 | 0.002 |
| AOC 3 | NA | NYOW-03-PH008-B | 2-Hexanone | mg/kg | 0.021 | 20 | 0.00105 |
| AOC 3 | NA | NYOW-03-PH008-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.021 | 3300 | 6.36364E-06 |
| AOC 3 | NA | NYOW-03-PH008-B | Benzene | mg/kg | 0.0052 | 1.2 | 0.004333333 |
| AOC 3 | NA | NYOW-03-PH008-B | Bromochloromethane | mg/kg | 0.0052 | 15 | 0.000346667 |
| AOC 3 | NA | NYOW-03-PH008-B | Bromodichloromethane | mg/kg | 0.0052 | 0.29 | 0.017931034 |
| AOC 3 | NA | NYOW-03-PH008-B | Bromoform | mg/kg | 0.0053 | 19 | 0.000278947 |
| AOC 3 | NA | NYOW-03-PH008-B | Bromomethane | mg/kg | 0.01 | 0.68 | 0.014705882 |
| AOC 3 | NA | NYOW-03-PH008-B | Carbon disulfide | mg/kg | 0.0052 | 77 | 6.75325E-05 |
| AOC 3 | NA | NYOW-03-PH008-B | Carbon Tetrachloride | mg/kg | 0.0052 | 0.65 | 0.008 |
| AOC 3 | NA | NYOW-03-PH008-B | Chlorobenzene | mg/kg | 0.0052 | 28 | 0.000185714 |
| AOC 3 | NA | NYOW-03-PH008-B | Chloroethane | mg/kg | 0.01 | 540 | 1.85185E-05 |
| AOC 3 | NA | NYOW-03-PH008-B | Chloroform | mg/kg | 0.01 | 0.32 | 0.03125 |
| AOC 3 | NA | NYOW-03-PH008-B | Chloromethane | mg/kg | 0.01 | 11 | 0.000909091 |
| AOC 3 | NA | NYOW-03-PH008-B | cis-1,2-Dichloroethene | mg/kg | 0.0052 | 16 | 0.000325 |
| AOC 3 | NA | NYOW-03-PH008-B | cis-1,3-Dichloropropene | mg/kg | 0.0052 | 1.8 | 0.002888889 |
| AOC 3 | NA | NYOW-03-PH008-B | Cyclohexane | mg/kg | 0.0052 | 650 | 0.000008 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH008-B | Dibromochloromethane | mg/kg | 0.0052 | 8.3 | 0.000626506 |
| AOC 3 | NA | NYOW-03-PH008-B | Dichlorodifluoromethane | mg/kg | 0.01 | 8.7 | 0.001149425 |
| AOC 3 | NA | NYOW-03-PH008-B | Ethylbenzene | mg/kg | 0.0052 | 5.8 | 0.000896552 |
| AOC 3 | NA | NYOW-03-PH008-B | m,p-Xylene | mg/kg | 0.0034 | 55 | 6.18182E-05 |
| AOC 3 | NA | NYOW-03-PH008-B | Methyl acetate | mg/kg | 0.0089 | 7800 | 1.14103E-06 |
| AOC 3 | NA | NYOW-03-PH008-B | Methyl tert-butyl ether (MTBE) | mg/kg | 0.021 | 47 | 0.000446809 |
| AOC 3 | NA | NYOW-03-PH008-B | Methylene chloride | mg/kg | 0.0052 | 35 | 0.000148571 |
| AOC 3 | NA | NYOW-03-PH008-B | o-Xylene | mg/kg | 0.0052 | 64 | 0.00008125 |
| AOC 3 | NA | NYOW-03-PH008-B | Styrene | mg/kg | 0.0052 | 600 | 8.66667E-06 |
| AOC 3 | NA | NYOW-03-PH008-B | Tetrachloroethene (PCE) | mg/kg | 0.0052 | 8.1 | 0.000641975 |
| AOC 3 | NA | NYOW-03-PH008-B | trans-1,2-Dichloroethene | mg/kg | 0.0052 | 7 | 0.000742857 |
| AOC 3 | NA | NYOW-03-PH008-B | trans-1,3-Dichloropropene | mg/kg | 0.0052 | 1.8 | 0.002888889 |
| AOC 3 | NA | NYOW-03-PH008-B | Trichlorofluoromethane | mg/kg | 0.01 | 2300 | 4.34783E-06 |
| AOC 3 | NA | NYOW-03-PH008-B | Vinyl chloride | mg/kg | 0.0052 | 0.059 | 0.088135593 |
| AOC 3 | NA | NYOW-03-PH008-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 1.7 | 0.464705882 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH008-B_R | 3,3'-Dichlorobenzidine | mg/kg | 0.79 | 1.2 | 0.658333333 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 4-Chloroaniline | mg/kg | 0.79 | 2.7 | 0.292592593 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 3 | NA | NYOW-03-PH008-B_R | di-n-Butyl phthalate | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-PH008-B_R | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 3 | NA | NYOW-03-PH008-B_R | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 3 | NA | NYOW-03-PH008-B_R | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.078 | 0.41 | 0.190243902 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.078 | 0.17 | 0.458823529 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.078 | 0.23 | 0.339130435 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.078 | 0.23 | 0.339130435 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.078 | 0.12 | 0.65 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.078 | 0.24 | 0.325 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.078 | 0.24 | 0.325 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,1,1-Trichloroethane | mg/kg | 0.0049 | 810 | 6.04938E-06 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0049 | 0.6 | 0.008166667 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.02 | 670 | 2.98507E-05 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,1,2-Trichloroethane | mg/kg | 0.0049 | 0.15 | 0.032666667 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,1-Dichloroethane | mg/kg | 0.0049 | 3.6 | 0.001361111 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,1-Dichloroethene | mg/kg | 0.0049 | 23 | 0.000213043 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0049 | 6.3 | 0.000777778 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0049 | 5.8 | 0.000844828 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0099 | 0.0053 | 1.867924528 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.0049 | 0.036 | 0.136111111 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,2-Dichlorobenzene | mg/kg | 0.0049 | 180 | 2.72222E-05 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,2-Dichloroethane | mg/kg | 0.0049 | 0.46 | 0.010652174 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,2-Dichloropropane | mg/kg | 0.0049 | 1.6 | 0.0030625 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,3-Dichloropropane | mg/kg | 0.0049 | 160 | 0.000030625 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,4-Dichlorobenzene | mg/kg | 0.0049 | 2.6 | 0.001884615 |
| AOC 3 | NA | NYOW-03-PH009-B | 2-Hexanone | mg/kg | 0.02 | 20 | 0.001 |
| AOC 3 | NA | NYOW-03-PH009-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.02 | 3300 | 6.06061E-06 |
| AOC 3 | NA | NYOW-03-PH009-B | Benzene | mg/kg | 0.0049 | 1.2 | 0.004083333 |
| AOC 3 | NA | NYOW-03-PH009-B | Bromochloromethane | mg/kg | 0.0049 | 15 | 0.000326667 |
| AOC 3 | NA | NYOW-03-PH009-B | Bromodichloromethane | mg/kg | 0.0049 | 0.29 | 0.016896552 |
| AOC 3 | NA | NYOW-03-PH009-B | Bromoform | mg/kg | 0.005 | 19 | 0.000263158 |
| AOC 3 | NA | NYOW-03-PH009-B | Bromomethane | mg/kg | 0.0099 | 0.68 | 0.014558824 |
| AOC 3 | NA | NYOW-03-PH009-B | Carbon disulfide | mg/kg | 0.0049 | 77 | 6.36364E-05 |
| AOC 3 | NA | NYOW-03-PH009-B | Carbon Tetrachloride | mg/kg | 0.0049 | 0.65 | 0.007538462 |
| AOC 3 | NA | NYOW-03-PH009-B | Chlorobenzene | mg/kg | 0.0049 | 28 | 0.000175 |
| AOC 3 | NA | NYOW-03-PH009-B | Chloroethane | mg/kg | 0.0099 | 540 | 1.83333E-05 |
| AOC 3 | NA | NYOW-03-PH009-B | Chloroform | mg/kg | 0.0099 | 0.32 | 0.0309375 |
| AOC 3 | NA | NYOW-03-PH009-B | Chloromethane | mg/kg | 0.0099 | 11 | 0.0009 |
| AOC 3 | NA | NYOW-03-PH009-B | cis-1,2-Dichloroethene | mg/kg | 0.0049 | 16 | 0.00030625 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH009-B | cis-1,3-Dichloropropene | mg/kg | 0.0049 | 1.8 | 0.002722222 |
| AOC 3 | NA | NYOW-03-PH009-B | Cyclohexane | mg/kg | 0.0049 | 650 | 7.53846E-06 |
| AOC 3 | NA | NYOW-03-PH009-B | Dibromochloromethane | mg/kg | 0.0049 | 8.3 | 0.000590361 |
| AOC 3 | NA | NYOW-03-PH009-B | Dichlorodifluoromethane | mg/kg | 0.0099 | 8.7 | 0.001137931 |
| AOC 3 | NA | NYOW-03-PH009-B | Ethylbenzene | mg/kg | 0.0049 | 5.8 | 0.000844828 |
| AOC 3 | NA | NYOW-03-PH009-B | m,p-Xylene | mg/kg | 0.0032 | 55 | 5.81818E-05 |
| AOC 3 | NA | NYOW-03-PH009-B | Methyl acetate | mg/kg | 0.0084 | 7800 | 1.07692E-06 |
| AOC 3 | NA | NYOW-03-PH009-B | Methyl tert-butyl ether (MTBE) | mg/kg | 0.02 | 47 | 0.000425532 |
| AOC 3 | NA | NYOW-03-PH009-B | Methylene chloride | mg/kg | 0.0049 | 35 | 0.00014 |
| AOC 3 | NA | NYOW-03-PH009-B | o-Xylene | mg/kg | 0.0049 | 64 | 7.65625E-05 |
| AOC 3 | NA | NYOW-03-PH009-B | Styrene | mg/kg | 0.0049 | 600 | 8.16667E-06 |
| AOC 3 | NA | NYOW-03-PH009-B | Tetrachloroethene (PCE) | mg/kg | 0.0049 | 8.1 | 0.000604938 |
| AOC 3 | NA | NYOW-03-PH009-B | trans-1,2-Dichloroethene | mg/kg | 0.0049 | 7 | 0.0007 |
| AOC 3 | NA | NYOW-03-PH009-B | trans-1,3-Dichloropropene | mg/kg | 0.0049 | 1.8 | 0.002722222 |
| AOC 3 | NA | NYOW-03-PH009-B | Trichlorofluoromethane | mg/kg | 0.0099 | 2300 | 4.30435E-06 |
| AOC 3 | NA | NYOW-03-PH009-B | Vinyl chloride | mg/kg | 0.0049 | 0.059 | 0.083050847 |
| AOC 3 | NA | NYOW-03-PH009-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 1.7 | 0.464705882 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH009-B_R | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 3,3'-Dichlorobenzidine | mg/kg | 0.79 | 1.2 | 0.658333333 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 4-Chloroaniline | mg/kg | 0.79 | 2.7 | 0.292592593 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 3 | NA | NYOW-03-PH009-B_R | di-n-Butyl phthalate | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-PH009-B_R | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 3 | NA | NYOW-03-PH009-B_R | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 3 | NA | NYOW-03-PH009-B_R | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.074 | 0.41 | 0.180487805 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.074 | 0.17 | 0.435294118 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.074 | 0.23 | 0.32173913 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.074 | 0.23 | 0.32173913 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.074 | 0.12 | 0.616666667 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.074 | 0.24 | 0.308333333 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.074 | 0.24 | 0.308333333 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,1,1-Trichloroethane | mg/kg | 0.0048 | 810 | 5.92593E-06 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0048 | 0.6 | 0.008 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.019 | 670 | 2.83582E-05 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,1,2-Trichloroethane | mg/kg | 0.0048 | 0.15 | 0.032 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,1-Dichloroethane | mg/kg | 0.0048 | 3.6 | 0.001333333 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,1-Dichloroethene | mg/kg | 0.0048 | 23 | 0.000208696 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0048 | 6.3 | 0.000761905 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0048 | 5.8 | 0.000827586 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0097 | 0.0053 | 1.830188679 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.0048 | 0.036 | 0.133333333 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,2-Dichlorobenzene | mg/kg | 0.0048 | 180 | 2.66667E-05 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,2-Dichloroethane | mg/kg | 0.0048 | 0.46 | 0.010434783 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,2-Dichloropropane | mg/kg | 0.0048 | 1.6 | 0.003 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,3-Dichloropropane | mg/kg | 0.0048 | 160 | 0.00003 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,4-Dichlorobenzene | mg/kg | 0.0048 | 2.6 | 0.001846154 |
| AOC 3 | NA | NYOW-03-PH010-B | 2-Hexanone | mg/kg | 0.019 | 20 | 0.00095 |
| AOC 3 | NA | NYOW-03-PH010-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.019 | 3300 | 5.75758E-06 |
| AOC 3 | NA | NYOW-03-PH010-B | Benzene | mg/kg | 0.0048 | 1.2 | 0.004 |
| AOC 3 | NA | NYOW-03-PH010-B | Bromochloromethane | mg/kg | 0.0048 | 15 | 0.00032 |
| AOC 3 | NA | NYOW-03-PH010-B | Bromodichloromethane | mg/kg | 0.0048 | 0.29 | 0.016551724 |
| AOC 3 | NA | NYOW-03-PH010-B | Bromoform | mg/kg | 0.0049 | 19 | 0.000257895 |
| AOC 3 | NA | NYOW-03-PH010-B | Bromomethane | mg/kg | 0.0097 | 0.68 | 0.014264706 |
| AOC 3 | NA | NYOW-03-PH010-B | Carbon disulfide | mg/kg | 0.0048 | 77 | 6.23377E-05 |
| AOC 3 | NA | NYOW-03-PH010-B | Carbon Tetrachloride | mg/kg | 0.0048 | 0.65 | 0.007384615 |
| AOC 3 | NA | NYOW-03-PH010-B | Chlorobenzene | mg/kg | 0.0048 | 28 | 0.000171429 |
| AOC 3 | NA | NYOW-03-PH010-B | Chloroethane | mg/kg | 0.0097 | 540 | 1.7963E-05 |
| AOC 3 | NA | NYOW-03-PH010-B | Chloroform | mg/kg | 0.0097 | 0.32 | 0.0303125 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH010-B | Chloromethane | mg/kg | 0.0097 | 11 | 0.000881818 |
| AOC 3 | NA | NYOW-03-PH010-B | cis-1,2-Dichloroethene | mg/kg | 0.0048 | 16 | 0.0003 |
| AOC 3 | NA | NYOW-03-PH010-B | cis-1,3-Dichloropropene | mg/kg | 0.0048 | 1.8 | 0.002666667 |
| AOC 3 | NA | NYOW-03-PH010-B | Cyclohexane | mg/kg | 0.0048 | 650 | 7.38462E-06 |
| AOC 3 | NA | NYOW-03-PH010-B | Dibromochloromethane | mg/kg | 0.0048 | 8.3 | 0.000578313 |
| AOC 3 | NA | NYOW-03-PH010-B | Dichlorodifluoromethane | mg/kg | 0.0097 | 8.7 | 0.001114943 |
| AOC 3 | NA | NYOW-03-PH010-B | Ethylbenzene | mg/kg | 0.0048 | 5.8 | 0.000827586 |
| AOC 3 | NA | NYOW-03-PH010-B | m,p-Xylene | mg/kg | 0.0031 | 55 | 5.63636E-05 |
| AOC 3 | NA | NYOW-03-PH010-B | Methyl acetate | mg/kg | 0.0082 | 7800 | 1.05128E-06 |
| AOC 3 | NA | NYOW-03-PH010-B | Methyl tert-butyl ether (MTBE) | mg/kg | 0.019 | 47 | 0.000404255 |
| AOC 3 | NA | NYOW-03-PH010-B | Methylene chloride | mg/kg | 0.0048 | 35 | 0.000137143 |
| AOC 3 | NA | NYOW-03-PH010-B | o-Xylene | mg/kg | 0.0048 | 64 | 0.000075 |
| AOC 3 | NA | NYOW-03-PH010-B | Styrene | mg/kg | 0.0048 | 600 | 0.000008 |
| AOC 3 | NA | NYOW-03-PH010-B | Tetrachloroethene (PCE) | mg/kg | 0.0048 | 8.1 | 0.000592593 |
| AOC 3 | NA | NYOW-03-PH010-B | trans-1,2-Dichloroethene | mg/kg | 0.0048 | 7 | 0.000685714 |
| AOC 3 | NA | NYOW-03-PH010-B | trans-1,3-Dichloropropene | mg/kg | 0.0048 | 1.8 | 0.002666667 |
| AOC 3 | NA | NYOW-03-PH010-B | Trichlorofluoromethane | mg/kg | 0.0097 | 2300 | 4.21739E-06 |
| AOC 3 | NA | NYOW-03-PH010-B | Vinyl chloride | mg/kg | 0.0048 | 0.059 | 0.081355932 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 3 | NA | NYOW-03-PH010-B | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 3 | NA | NYOW-03-PH010-B | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH010-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 3 | NA | NYOW-03-PH010-B | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 3 | NA | NYOW-03-PH010-B | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 3 | NA | NYOW-03-PH010-B | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 1.2 | 0.616666667 |
| AOC 3 | NA | NYOW-03-PH010-B | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 3 | NA | NYOW-03-PH010-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 3 | NA | NYOW-03-PH010-B | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 3 | NA | NYOW-03-PH010-B | 4-Chloroaniline | mg/kg | 0.74 | 2.7 | 0.274074074 |
| AOC 3 | NA | NYOW-03-PH010-B | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 3 | NA | NYOW-03-PH010-B | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 3 | NA | NYOW-03-PH010-B | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 3 | NA | NYOW-03-PH010-B | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 3 | NA | NYOW-03-PH010-B | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 3 | NA | NYOW-03-PH010-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 3 | NA | NYOW-03-PH010-B | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 3 | NA | NYOW-03-PH010-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 3 | NA | NYOW-03-PH010-B | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 3 | NA | NYOW-03-PH010-B | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 3 | NA | NYOW-03-PH010-B | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 3 | NA | NYOW-03-PH010-B | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 3 | NA | NYOW-03-PH010-B | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 3 | NA | NYOW-03-PH010-B | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 3 | NA | NYOW-03-PH010-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 3 | NA | NYOW-03-PH010-B | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 3 | NA | NYOW-03-PH010-B | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 3 | NA | NYOW-03-PH010-B | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 3 | NA | NYOW-03-PH010-B | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 3 | NA | NYOW-03-PH010-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 3 | NA | NYOW-03-PH010-B | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 3 | NA | NYOW-03-PH010-B | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 3 | NA | NYOW-03-PH010-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.074 | 0.41 | 0.180487805 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.074 | 0.17 | 0.435294118 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.074 | 0.23 | 0.32173913 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.074 | 0.23 | 0.32173913 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.074 | 0.12 | 0.616666667 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.074 | 0.24 | 0.308333333 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.074 | 0.24 | 0.308333333 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,1,1-Trichloroethane | mg/kg | 0.0058 | 810 | 7.16049E-06 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0058 | 0.6 | 0.009666667 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.023 | 670 | 3.43284E-05 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,1,2-Trichloroethane | mg/kg | 0.0058 | 0.15 | 0.038666667 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,1-Dichloroethane | mg/kg | 0.0058 | 3.6 | 0.001611111 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,1-Dichloroethene | mg/kg | 0.0058 | 23 | 0.000252174 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0058 | 6.3 | 0.000920635 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0058 | 5.8 | 0.001 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.012 | 0.0053 | 2.264150943 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.0058 | 0.036 | 0.161111111 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,2-Dichlorobenzene | mg/kg | 0.0058 | 180 | 3.22222E-05 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,2-Dichloroethane | mg/kg | 0.0058 | 0.46 | 0.012608696 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,2-Dichloropropane | mg/kg | 0.0058 | 1.6 | 0.003625 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,3-Dichloropropane | mg/kg | 0.0058 | 160 | 0.00003625 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,4-Dichlorobenzene | mg/kg | 0.0058 | 2.6 | 0.002230769 |
| AOC 3 | NA | NYOW-03-PH011-B | 2-Hexanone | mg/kg | 0.023 | 20 | 0.00115 |
| AOC 3 | NA | NYOW-03-PH011-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.023 | 3300 | 6.9697E-06 |
| AOC 3 | NA | NYOW-03-PH011-B | Benzene | mg/kg | 0.0058 | 1.2 | 0.004833333 |
| AOC 3 | NA | NYOW-03-PH011-B | Bromochloromethane | mg/kg | 0.0058 | 15 | 0.000386667 |
| AOC 3 | NA | NYOW-03-PH011-B | Bromodichloromethane | mg/kg | 0.0058 | 0.29 | 0.02 |
| AOC 3 | NA | NYOW-03-PH011-B | Bromoform | mg/kg | 0.0059 | 19 | 0.000310526 |
| AOC 3 | NA | NYOW-03-PH011-B | Bromomethane | mg/kg | 0.012 | 0.68 | 0.017647059 |
| AOC 3 | NA | NYOW-03-PH011-B | Carbon disulfide | mg/kg | 0.0058 | 77 | 7.53247E-05 |
| AOC 3 | NA | NYOW-03-PH011-B | Carbon Tetrachloride | mg/kg | 0.0058 | 0.65 | 0.008923077 |
| AOC 3 | NA | NYOW-03-PH011-B | Chlorobenzene | mg/kg | 0.0058 | 28 | 0.000207143 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH011-B | Chloroethane | mg/kg | 0.012 | 540 | 2.22222E-05 |
| AOC 3 | NA | NYOW-03-PH011-B | Chloroform | mg/kg | 0.012 | 0.32 | 0.0375 |
| AOC 3 | NA | NYOW-03-PH011-B | Chloromethane | mg/kg | 0.012 | 11 | 0.001090909 |
| AOC 3 | NA | NYOW-03-PH011-B | cis-1,2-Dichloroethene | mg/kg | 0.0058 | 16 | 0.0003625 |
| AOC 3 | NA | NYOW-03-PH011-B | cis-1,3-Dichloropropene | mg/kg | 0.0058 | 1.8 | 0.003222222 |
| AOC 3 | NA | NYOW-03-PH011-B | Cyclohexane | mg/kg | 0.0058 | 650 | 8.92308E-06 |
| AOC 3 | NA | NYOW-03-PH011-B | Dibromochloromethane | mg/kg | 0.0058 | 8.3 | 0.000698795 |
| AOC 3 | NA | NYOW-03-PH011-B | Dichlorodifluoromethane | mg/kg | 0.012 | 8.7 | 0.00137931 |
| AOC 3 | NA | NYOW-03-PH011-B | Ethylbenzene | mg/kg | 0.0058 | 5.8 | 0.001 |
| AOC 3 | NA | NYOW-03-PH011-B | m,p-Xylene | mg/kg | 0.0037 | 55 | 6.72727E-05 |
| AOC 3 | NA | NYOW-03-PH011-B | Methyl acetate | mg/kg | 0.0098 | 7800 | 1.25641E-06 |
| AOC 3 | NA | NYOW-03-PH011-B | Methyl tert-butyl ether (MTBE) | mg/kg | 0.023 | 47 | 0.000489362 |
| AOC 3 | NA | NYOW-03-PH011-B | Methylene chloride | mg/kg | 0.0058 | 35 | 0.000165714 |
| AOC 3 | NA | NYOW-03-PH011-B | o-Xylene | mg/kg | 0.0058 | 64 | 0.000090625 |
| AOC 3 | NA | NYOW-03-PH011-B | Styrene | mg/kg | 0.0058 | 600 | 9.66667E-06 |
| AOC 3 | NA | NYOW-03-PH011-B | Tetrachloroethene (PCE) | mg/kg | 0.0058 | 8.1 | 0.000716049 |
| AOC 3 | NA | NYOW-03-PH011-B | trans-1,2-Dichloroethene | mg/kg | 0.0058 | 7 | 0.000828571 |
| AOC 3 | NA | NYOW-03-PH011-B | trans-1,3-Dichloropropene | mg/kg | 0.0058 | 1.8 | 0.003222222 |
| AOC 3 | NA | NYOW-03-PH011-B | Trichlorofluoromethane | mg/kg | 0.012 | 2300 | 5.21739E-06 |
| AOC 3 | NA | NYOW-03-PH011-B | Vinyl chloride | mg/kg | 0.0058 | 0.059 | 0.098305085 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.7 | 0.458823529 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH011-B | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 3 | NA | NYOW-03-PH011-B | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 3 | NA | NYOW-03-PH011-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 3 | NA | NYOW-03-PH011-B | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 3 | NA | NYOW-03-PH011-B | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 3 | NA | NYOW-03-PH011-B | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 1.2 | 0.65 |
| AOC 3 | NA | NYOW-03-PH011-B | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-PH011-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 3 | NA | NYOW-03-PH011-B | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-PH011-B | 4-Chloroaniline | mg/kg | 0.78 | 2.7 | 0.288888889 |
| AOC 3 | NA | NYOW-03-PH011-B | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-PH011-B | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 3 | NA | NYOW-03-PH011-B | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 3 | NA | NYOW-03-PH011-B | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 3 | NA | NYOW-03-PH011-B | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 3 | NA | NYOW-03-PH011-B | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 3 | NA | NYOW-03-PH011-B | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 3 | NA | NYOW-03-PH011-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 3 | NA | NYOW-03-PH011-B | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 3 | NA | NYOW-03-PH011-B | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 3 | NA | NYOW-03-PH011-B | di-n-Butyl phthalate | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-PH011-B | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 3 | NA | NYOW-03-PH011-B | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 3 | NA | NYOW-03-PH011-B | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 3 | NA | NYOW-03-PH011-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 3 | NA | NYOW-03-PH011-B | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 3 | NA | NYOW-03-PH011-B | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 3 | NA | NYOW-03-PH011-B | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 3 | NA | NYOW-03-PH011-B | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 3 | NA | NYOW-03-PH011-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 3 | NA | NYOW-03-PH011-B | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 3 | NA | NYOW-03-PH011-B | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH011-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.071 | 0.41 | 0.173170732 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.2 | 0.5 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.071 | 0.17 | 0.417647059 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.071 | 0.23 | 0.308695652 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.071 | 0.23 | 0.308695652 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.071 | 0.12 | 0.591666667 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.071 | 0.24 | 0.295833333 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.071 | 0.24 | 0.295833333 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,1,1-Trichloroethane | mg/kg | 0.0052 | 810 | 6.41975E-06 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0052 | 0.6 | 0.008666667 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.021 | 670 | 3.13433E-05 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,1,2-Trichloroethane | mg/kg | 0.0052 | 0.15 | 0.034666667 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,1-Dichloroethane | mg/kg | 0.0052 | 3.6 | 0.001444444 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,1-Dichloroethene | mg/kg | 0.0052 | 23 | 0.000226087 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0052 | 6.3 | 0.000825397 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0052 | 5.8 | 0.000896552 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.01 | 0.0053 | 1.886792453 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.0052 | 0.036 | 0.144444444 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,2-Dichlorobenzene | mg/kg | 0.0052 | 180 | 2.88889E-05 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,2-Dichloroethane | mg/kg | 0.0052 | 0.46 | 0.011304348 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,2-Dichloropropane | mg/kg | 0.0052 | 1.6 | 0.00325 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,3-Dichloropropane | mg/kg | 0.0052 | 160 | 0.0000325 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,4-Dichlorobenzene | mg/kg | 0.0052 | 2.6 | 0.002 |
| AOC 3 | NA | NYOW-03-PH012-B | 2-Hexanone | mg/kg | 0.021 | 20 | 0.00105 |
| AOC 3 | NA | NYOW-03-PH012-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.021 | 3300 | 6.36364E-06 |
| AOC 3 | NA | NYOW-03-PH012-B | Benzene | mg/kg | 0.0052 | 1.2 | 0.004333333 |
| AOC 3 | NA | NYOW-03-PH012-B | Bromochloromethane | mg/kg | 0.0052 | 15 | 0.000346667 |
| AOC 3 | NA | NYOW-03-PH012-B | Bromodichloromethane | mg/kg | 0.0052 | 0.29 | 0.017931034 |
| AOC 3 | NA | NYOW-03-PH012-B | Bromoform | mg/kg | 0.0053 | 19 | 0.000278947 |
| AOC 3 | NA | NYOW-03-PH012-B | Bromomethane | mg/kg | 0.01 | 0.68 | 0.014705882 |
| AOC 3 | NA | NYOW-03-PH012-B | Carbon disulfide | mg/kg | 0.0052 | 77 | 6.75325E-05 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH012-B | Carbon Tetrachloride | mg/kg | 0.0052 | 0.65 | 0.008 |
| AOC 3 | NA | NYOW-03-PH012-B | Chlorobenzene | mg/kg | 0.0052 | 28 | 0.000185714 |
| AOC 3 | NA | NYOW-03-PH012-B | Chloroethane | mg/kg | 0.01 | 540 | 1.85185E-05 |
| AOC 3 | NA | NYOW-03-PH012-B | Chloroform | mg/kg | 0.01 | 0.32 | 0.03125 |
| AOC 3 | NA | NYOW-03-PH012-B | Chloromethane | mg/kg | 0.01 | 11 | 0.000909091 |
| AOC 3 | NA | NYOW-03-PH012-B | cis-1,2-Dichloroethene | mg/kg | 0.0052 | 16 | 0.000325 |
| AOC 3 | NA | NYOW-03-PH012-B | cis-1,3-Dichloropropene | mg/kg | 0.0052 | 1.8 | 0.002888889 |
| AOC 3 | NA | NYOW-03-PH012-B | Cyclohexane | mg/kg | 0.0052 | 650 | 0.000008 |
| AOC 3 | NA | NYOW-03-PH012-B | Dibromochloromethane | mg/kg | 0.0052 | 8.3 | 0.000626506 |
| AOC 3 | NA | NYOW-03-PH012-B | Dichlorodifluoromethane | mg/kg | 0.01 | 8.7 | 0.001149425 |
| AOC 3 | NA | NYOW-03-PH012-B | Ethylbenzene | mg/kg | 0.0052 | 5.8 | 0.000896552 |
| AOC 3 | NA | NYOW-03-PH012-B | m,p-Xylene | mg/kg | 0.0034 | 55 | 6.18182E-05 |
| AOC 3 | NA | NYOW-03-PH012-B | Methyl acetate | mg/kg | 0.0089 | 7800 | 1.14103E-06 |
| AOC 3 | NA | NYOW-03-PH012-B | Methyl tert-butyl ether (MTBE) | mg/kg | 0.021 | 47 | 0.000446809 |
| AOC 3 | NA | NYOW-03-PH012-B | Methylene chloride | mg/kg | 0.0052 | 35 | 0.000148571 |
| AOC 3 | NA | NYOW-03-PH012-B | o-Xylene | mg/kg | 0.0052 | 64 | 0.00008125 |
| AOC 3 | NA | NYOW-03-PH012-B | Styrene | mg/kg | 0.0052 | 600 | 8.66667E-06 |
| AOC 3 | NA | NYOW-03-PH012-B | Tetrachloroethene (PCE) | mg/kg | 0.0052 | 8.1 | 0.000641975 |
| AOC 3 | NA | NYOW-03-PH012-B | trans-1,2-Dichloroethene | mg/kg | 0.0052 | 7 | 0.000742857 |
| AOC 3 | NA | NYOW-03-PH012-B | trans-1,3-Dichloropropene | mg/kg | 0.0052 | 1.8 | 0.002888889 |
| AOC 3 | NA | NYOW-03-PH012-B | Trichlorofluoromethane | mg/kg | 0.01 | 2300 | 4.34783E-06 |
| AOC 3 | NA | NYOW-03-PH012-B | Vinyl chloride | mg/kg | 0.0052 | 0.059 | 0.088135593 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.35 | 0.23 | 1.52173913 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,4-Dioxane | mg/kg | 0.35 | 5.3 | 0.066037736 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.35 | 310 | 0.001129032 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.35 | 190 | 0.001842105 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 630 | 0.000555556 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,4,6-Trichlorophenol | mg/kg | 0.35 | 6.3 | 0.055555556 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,4-Dichlorophenol | mg/kg | 0.35 | 19 | 0.018421053 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,4-Dimethylphenol | mg/kg | 0.35 | 130 | 0.002692308 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.7 | 0.411764706 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH012-B | 2,4-Dinitrotoluene | mg/kg | 0.35 | 1.7 | 0.205882353 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,6-Dinitrotoluene | mg/kg | 0.35 | 0.36 | 0.972222222 |
| AOC 3 | NA | NYOW-03-PH012-B | 2-Chloronaphthalene | mg/kg | 0.35 | 480 | 0.000729167 |
| AOC 3 | NA | NYOW-03-PH012-B | 2-Chlorophenol | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 3 | NA | NYOW-03-PH012-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 320 | 0.00109375 |
| AOC 3 | NA | NYOW-03-PH012-B | 2-Nitroaniline | mg/kg | 1.8 | 63 | 0.028571429 |
| AOC 3 | NA | NYOW-03-PH012-B | 2-Nitrophenol | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 3 | NA | NYOW-03-PH012-B | 3,3'-Dichlorobenzidine | mg/kg | 0.7 | 1.2 | 0.583333333 |
| AOC 3 | NA | NYOW-03-PH012-B | 3-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 3 | NA | NYOW-03-PH012-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.51 | 3.529411765 |
| AOC 3 | NA | NYOW-03-PH012-B | 4-Chloro-3-methylphenol | mg/kg | 0.35 | 630 | 0.000555556 |
| AOC 3 | NA | NYOW-03-PH012-B | 4-Chloroaniline | mg/kg | 0.7 | 2.7 | 0.259259259 |
| AOC 3 | NA | NYOW-03-PH012-B | 4-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 3 | NA | NYOW-03-PH012-B | 4-Nitrophenol | mg/kg | 1.8 | 39 | 0.046153846 |
| AOC 3 | NA | NYOW-03-PH012-B | Acetophenone | mg/kg | 0.35 | 780 | 0.000448718 |
| AOC 3 | NA | NYOW-03-PH012-B | Atrazine | mg/kg | 0.35 | 2.4 | 0.145833333 |
| AOC 3 | NA | NYOW-03-PH012-B | Benzyl butyl phthalate | mg/kg | 0.35 | 290 | 0.001206897 |
| AOC 3 | NA | NYOW-03-PH012-B | Biphenyl (Diphenyl) | mg/kg | 1.8 | 4.7 | 0.382978723 |
| AOC 3 | NA | NYOW-03-PH012-B | Bis(2-chloroethoxy)methane | mg/kg | 0.35 | 19 | 0.018421053 |
| AOC 3 | NA | NYOW-03-PH012-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.35 | 0.23 | 1.52173913 |
| AOC 3 | NA | NYOW-03-PH012-B | Caprolactam | mg/kg | 0.35 | 3100 | 0.000112903 |
| AOC 3 | NA | NYOW-03-PH012-B | Diethyl phthalate | mg/kg | 0.35 | 5100 | 6.86275E-05 |
| AOC 3 | NA | NYOW-03-PH012-B | di-n-Butyl phthalate | mg/kg | 0.35 | 630 | 0.000555556 |
| AOC 3 | NA | NYOW-03-PH012-B | di-n-Octyl phthalate | mg/kg | 0.35 | 63 | 0.005555556 |
| AOC 3 | NA | NYOW-03-PH012-B | Hexachlorobenzene | mg/kg | 0.35 | 0.078 | 4.487179487 |
| AOC 3 | NA | NYOW-03-PH012-B | Hexachlorobutadiene | mg/kg | 0.35 | 1.2 | 0.291666667 |
| AOC 3 | NA | NYOW-03-PH012-B | Hexachlorocyclopentadiene | mg/kg | 0.35 | 0.18 | 1.944444444 |
| AOC 3 | NA | NYOW-03-PH012-B | Hexachloroethane | mg/kg | 0.35 | 1.8 | 0.194444444 |
| AOC 3 | NA | NYOW-03-PH012-B | Isophorone | mg/kg | 0.35 | 570 | 0.000614035 |
| AOC 3 | NA | NYOW-03-PH012-B | Nitrobenzene | mg/kg | 0.35 | 5.1 | 0.068627451 |
| AOC 3 | NA | NYOW-03-PH012-B | N-Nitrosodi-n-propylamine | mg/kg | 0.35 | 0.078 | 4.487179487 |
| AOC 3 | NA | NYOW-03-PH012-B | N-Nitrosodiphenylamine | mg/kg | 0.35 | 110 | 0.003181818 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH012-B | Pentachlorophenol | mg/kg | 1.8 | 1 | 1.8 |
| AOC 3 | NA | NYOW-03-PH012-B | Phenol | mg/kg | 0.35 | 1900 | 0.000184211 |
| AOC 3 | NA | NYOW-03-PH012-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.077 | 0.41 | 0.187804878 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.077 | 0.17 | 0.452941176 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.077 | 0.23 | 0.334782609 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.077 | 0.23 | 0.334782609 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.077 | 0.12 | 0.641666667 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.077 | 0.24 | 0.320833333 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.077 | 0.24 | 0.320833333 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,1,1-Trichloroethane | mg/kg | 0.0051 | 810 | 6.2963E-06 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0051 | 0.6 | 0.0085 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.02 | 670 | 2.98507E-05 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,1,2-Trichloroethane | mg/kg | 0.0051 | 0.15 | 0.034 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,1-Dichloroethane | mg/kg | 0.0051 | 3.6 | 0.001416667 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,1-Dichloroethene | mg/kg | 0.0051 | 23 | 0.000221739 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0051 | 6.3 | 0.000809524 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0051 | 5.8 | 0.00087931 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.01 | 0.0053 | 1.886792453 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.0051 | 0.036 | 0.141666667 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,2-Dichlorobenzene | mg/kg | 0.0051 | 180 | 2.83333E-05 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,2-Dichloroethane | mg/kg | 0.0051 | 0.46 | 0.011086957 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,2-Dichloropropane | mg/kg | 0.0051 | 1.6 | 0.0031875 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,3-Dichloropropane | mg/kg | 0.0051 | 160 | 0.000031875 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,4-Dichlorobenzene | mg/kg | 0.0051 | 2.6 | 0.001961538 |
| AOC 3 | NA | NYOW-03-PH013-B | 2-Hexanone | mg/kg | 0.02 | 20 | 0.001 |
| AOC 3 | NA | NYOW-03-PH013-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.02 | 3300 | 6.06061E-06 |
| AOC 3 | NA | NYOW-03-PH013-B | Benzene | mg/kg | 0.0051 | 1.2 | 0.00425 |
| AOC 3 | NA | NYOW-03-PH013-B | Bromochloromethane | mg/kg | 0.0051 | 15 | 0.00034 |
| AOC 3 | NA | NYOW-03-PH013-B | Bromodichloromethane | mg/kg | 0.0051 | 0.29 | 0.017586207 |
| AOC 3 | NA | NYOW-03-PH013-B | Bromoform | mg/kg | 0.0052 | 19 | 0.000273684 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH013-B | Bromomethane | mg/kg | 0.01 | 0.68 | 0.014705882 |
| AOC 3 | NA | NYOW-03-PH013-B | Carbon disulfide | mg/kg | 0.0051 | 77 | 6.62338E-05 |
| AOC 3 | NA | NYOW-03-PH013-B | Carbon Tetrachloride | mg/kg | 0.0051 | 0.65 | 0.007846154 |
| AOC 3 | NA | NYOW-03-PH013-B | Chlorobenzene | mg/kg | 0.0051 | 28 | 0.000182143 |
| AOC 3 | NA | NYOW-03-PH013-B | Chloroethane | mg/kg | 0.01 | 540 | 1.85185E-05 |
| AOC 3 | NA | NYOW-03-PH013-B | Chloroform | mg/kg | 0.01 | 0.32 | 0.03125 |
| AOC 3 | NA | NYOW-03-PH013-B | Chloromethane | mg/kg | 0.01 | 11 | 0.000909091 |
| AOC 3 | NA | NYOW-03-PH013-B | cis-1,2-Dichloroethene | mg/kg | 0.0051 | 16 | 0.00031875 |
| AOC 3 | NA | NYOW-03-PH013-B | cis-1,3-Dichloropropene | mg/kg | 0.0051 | 1.8 | 0.002833333 |
| AOC 3 | NA | NYOW-03-PH013-B | Cyclohexane | mg/kg | 0.0051 | 650 | 7.84615E-06 |
| AOC 3 | NA | NYOW-03-PH013-B | Dibromochloromethane | mg/kg | 0.0051 | 8.3 | 0.000614458 |
| AOC 3 | NA | NYOW-03-PH013-B | Dichlorodifluoromethane | mg/kg | 0.01 | 8.7 | 0.001149425 |
| AOC 3 | NA | NYOW-03-PH013-B | Ethylbenzene | mg/kg | 0.0051 | 5.8 | 0.00087931 |
| AOC 3 | NA | NYOW-03-PH013-B | m,p-Xylene | mg/kg | 0.0033 | 55 | 0.00006 |
| AOC 3 | NA | NYOW-03-PH013-B | Methyl acetate | mg/kg | 0.0086 | 7800 | 1.10256E-06 |
| AOC 3 | NA | NYOW-03-PH013-B | Methyl tert-butyl ether (MTBE) | mg/kg | 0.02 | 47 | 0.000425532 |
| AOC 3 | NA | NYOW-03-PH013-B | Methylene chloride | mg/kg | 0.0051 | 35 | 0.000145714 |
| AOC 3 | NA | NYOW-03-PH013-B | o-Xylene | mg/kg | 0.0051 | 64 | 7.96875E-05 |
| AOC 3 | NA | NYOW-03-PH013-B | Styrene | mg/kg | 0.0051 | 600 | 0.0000085 |
| AOC 3 | NA | NYOW-03-PH013-B | Tetrachloroethene (PCE) | mg/kg | 0.0051 | 8.1 | 0.00062963 |
| AOC 3 | NA | NYOW-03-PH013-B | trans-1,2-Dichloroethene | mg/kg | 0.0051 | 7 | 0.000728571 |
| AOC 3 | NA | NYOW-03-PH013-B | trans-1,3-Dichloropropene | mg/kg | 0.0051 | 1.8 | 0.002833333 |
| AOC 3 | NA | NYOW-03-PH013-B | Trichlorofluoromethane | mg/kg | 0.01 | 2300 | 4.34783E-06 |
| AOC 3 | NA | NYOW-03-PH013-B | Vinyl chloride | mg/kg | 0.0051 | 0.059 | 0.086440678 |
| AOC 3 | NA | NYOW-03-PH013-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.7 | 0.458823529 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 1.2 | 0.65 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 4-Chloroaniline | mg/kg | 0.78 | 2.7 | 0.288888889 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 3 | NA | NYOW-03-PH013-B_R | di-n-Butyl phthalate | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-PH013-B_R | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH013-B_R | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 3 | NA | NYOW-03-PH013-B_R | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 3 | NA | NYOW-03-PH013-B_R | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.074 | 0.41 | 0.180487805 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.074 | 0.17 | 0.435294118 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.074 | 0.23 | 0.32173913 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.074 | 0.23 | 0.32173913 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.074 | 0.12 | 0.616666667 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.074 | 0.24 | 0.308333333 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.074 | 0.24 | 0.308333333 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,1,1-Trichloroethane | mg/kg | 0.0051 | 810 | 6.2963E-06 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0051 | 0.6 | 0.0085 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.02 | 670 | 2.98507E-05 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,1,2-Trichloroethane | mg/kg | 0.0051 | 0.15 | 0.034 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,1-Dichloroethane | mg/kg | 0.0051 | 3.6 | 0.001416667 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,1-Dichloroethene | mg/kg | 0.0051 | 23 | 0.000221739 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0051 | 6.3 | 0.000809524 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0051 | 5.8 | 0.00087931 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.01 | 0.0053 | 1.886792453 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.0051 | 0.036 | 0.141666667 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,2-Dichlorobenzene | mg/kg | 0.0051 | 180 | 2.83333E-05 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,2-Dichloroethane | mg/kg | 0.0051 | 0.46 | 0.011086957 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,2-Dichloropropane | mg/kg | 0.0051 | 1.6 | 0.0031875 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,3-Dichloropropane | mg/kg | 0.0051 | 160 | 0.000031875 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,4-Dichlorobenzene | mg/kg | 0.0051 | 2.6 | 0.001961538 |
| AOC 3 | NA | NYOW-03-PH014-B | 2-Hexanone | mg/kg | 0.02 | 20 | 0.001 |
| AOC 3 | NA | NYOW-03-PH014-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.02 | 3300 | 6.06061E-06 |
| AOC 3 | NA | NYOW-03-PH014-B | Benzene | mg/kg | 0.0051 | 1.2 | 0.00425 |
| AOC 3 | NA | NYOW-03-PH014-B | Bromochloromethane | mg/kg | 0.0051 | 15 | 0.00034 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH014-B | Bromodichloromethane | mg/kg | 0.0051 | 0.29 | 0.017586207 |
| AOC 3 | NA | NYOW-03-PH014-B | Bromoform | mg/kg | 0.0052 | 19 | 0.000273684 |
| AOC 3 | NA | NYOW-03-PH014-B | Bromomethane | mg/kg | 0.01 | 0.68 | 0.014705882 |
| AOC 3 | NA | NYOW-03-PH014-B | Carbon disulfide | mg/kg | 0.0051 | 77 | 6.62338E-05 |
| AOC 3 | NA | NYOW-03-PH014-B | Carbon Tetrachloride | mg/kg | 0.0051 | 0.65 | 0.007846154 |
| AOC 3 | NA | NYOW-03-PH014-B | Chlorobenzene | mg/kg | 0.0051 | 28 | 0.000182143 |
| AOC 3 | NA | NYOW-03-PH014-B | Chloroethane | mg/kg | 0.01 | 540 | 1.85185E-05 |
| AOC 3 | NA | NYOW-03-PH014-B | Chloroform | mg/kg | 0.01 | 0.32 | 0.03125 |
| AOC 3 | NA | NYOW-03-PH014-B | Chloromethane | mg/kg | 0.01 | 11 | 0.000909091 |
| AOC 3 | NA | NYOW-03-PH014-B | cis-1,2-Dichloroethene | mg/kg | 0.0051 | 16 | 0.00031875 |
| AOC 3 | NA | NYOW-03-PH014-B | cis-1,3-Dichloropropene | mg/kg | 0.0051 | 1.8 | 0.002833333 |
| AOC 3 | NA | NYOW-03-PH014-B | Cyclohexane | mg/kg | 0.0051 | 650 | 7.84615E-06 |
| AOC 3 | NA | NYOW-03-PH014-B | Dibromochloromethane | mg/kg | 0.0051 | 8.3 | 0.000614458 |
| AOC 3 | NA | NYOW-03-PH014-B | Dichlorodifluoromethane | mg/kg | 0.01 | 8.7 | 0.001149425 |
| AOC 3 | NA | NYOW-03-PH014-B | Ethylbenzene | mg/kg | 0.0051 | 5.8 | 0.00087931 |
| AOC 3 | NA | NYOW-03-PH014-B | m,p-Xylene | mg/kg | 0.0033 | 55 | 0.00006 |
| AOC 3 | NA | NYOW-03-PH014-B | Methyl acetate | mg/kg | 0.0087 | 7800 | 1.11538E-06 |
| AOC 3 | NA | NYOW-03-PH014-B | Methyl tert-butyl ether (MTBE) | mg/kg | 0.02 | 47 | 0.000425532 |
| AOC 3 | NA | NYOW-03-PH014-B | Methylene chloride | mg/kg | 0.0051 | 35 | 0.000145714 |
| AOC 3 | NA | NYOW-03-PH014-B | o-Xylene | mg/kg | 0.0051 | 64 | 7.96875E-05 |
| AOC 3 | NA | NYOW-03-PH014-B | Styrene | mg/kg | 0.0051 | 600 | 0.0000085 |
| AOC 3 | NA | NYOW-03-PH014-B | Tetrachloroethene (PCE) | mg/kg | 0.0051 | 8.1 | 0.00062963 |
| AOC 3 | NA | NYOW-03-PH014-B | trans-1,2-Dichloroethene | mg/kg | 0.0051 | 7 | 0.000728571 |
| AOC 3 | NA | NYOW-03-PH014-B | trans-1,3-Dichloropropene | mg/kg | 0.0051 | 1.8 | 0.002833333 |
| AOC 3 | NA | NYOW-03-PH014-B | Trichlorofluoromethane | mg/kg | 0.01 | 2300 | 4.34783E-06 |
| AOC 3 | NA | NYOW-03-PH014-B | Vinyl chloride | mg/kg | 0.0051 | 0.059 | 0.086440678 |
| AOC 3 | NA | NYOW-03-PH014-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.4 | 0.23 | 1.739130435 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 1,4-Dioxane | mg/kg | 0.4 | 5.3 | 0.075471698 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.4 | 310 | 0.001290323 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.4 | 190 | 0.002105263 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.4 | 630 | 0.000634921 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4,6-Trichlorophenol | mg/kg | 0.4 | 6.3 | 0.063492063 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4-Dichlorophenol | mg/kg | 0.4 | 19 | 0.021052632 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4-Dimethylphenol | mg/kg | 0.4 | 130 | 0.003076923 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 1.7 | 0.476470588 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4-Dinitrotoluene | mg/kg | 0.4 | 1.7 | 0.235294118 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,6-Dinitrotoluene | mg/kg | 0.4 | 0.36 | 1.111111111 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2-Chloronaphthalene | mg/kg | 0.4 | 480 | 0.000833333 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2-Chlorophenol | mg/kg | 0.4 | 39 | 0.01025641 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.4 | 320 | 0.00125 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2-Nitroaniline | mg/kg | 2.1 | 63 | 0.033333333 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2-Nitrophenol | mg/kg | 0.4 | 39 | 0.01025641 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 3,3'-Dichlorobenzidine | mg/kg | 0.81 | 1.2 | 0.675 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 3-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 4,6-Dinitro-2-methylphenol | mg/kg | 2.1 | 0.51 | 4.117647059 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 4-Chloro-3-methylphenol | mg/kg | 0.4 | 630 | 0.000634921 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 4-Chloroaniline | mg/kg | 0.81 | 2.7 | 0.3 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 4-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 4-Nitrophenol | mg/kg | 2.1 | 39 | 0.053846154 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Acetophenone | mg/kg | 0.4 | 780 | 0.000512821 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Atrazine | mg/kg | 0.4 | 2.4 | 0.166666667 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Benzyl butyl phthalate | mg/kg | 0.4 | 290 | 0.00137931 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Biphenyl (Diphenyl) | mg/kg | 2.1 | 4.7 | 0.446808511 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Bis(2-chloroethoxy)methane | mg/kg | 0.4 | 19 | 0.021052632 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.4 | 0.23 | 1.739130435 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Caprolactam | mg/kg | 0.4 | 3100 | 0.000129032 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Diethyl phthalate | mg/kg | 0.4 | 5100 | 7.84314E-05 |
| AOC 3 | NA | NYOW-03-PH014-B_R | di-n-Butyl phthalate | mg/kg | 0.4 | 630 | 0.000634921 |
| AOC 3 | NA | NYOW-03-PH014-B_R | di-n-Octyl phthalate | mg/kg | 0.4 | 63 | 0.006349206 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Hexachlorobenzene | mg/kg | 0.4 | 0.078 | 5.128205128 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Hexachlorobutadiene | mg/kg | 0.4 | 1.2 | 0.333333333 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Hexachlorocyclopentadiene | mg/kg | 0.4 | 0.18 | 2.222222222 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH014-B_R | Hexachloroethane | mg/kg | 0.4 | 1.8 | 0.222222222 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Isophorone | mg/kg | 0.4 | 570 | 0.000701754 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Nitrobenzene | mg/kg | 0.4 | 5.1 | 0.078431373 |
| AOC 3 | NA | NYOW-03-PH014-B_R | N-Nitrosodi-n-propylamine | mg/kg | 0.4 | 0.078 | 5.128205128 |
| AOC 3 | NA | NYOW-03-PH014-B_R | N-Nitrosodiphenylamine | mg/kg | 0.4 | 110 | 0.003636364 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Pentachlorophenol | mg/kg | 2.1 | 1 | 2.1 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Phenol | mg/kg | 0.4 | 1900 | 0.000210526 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.081 | 0.41 | 0.197560976 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.081 | 0.17 | 0.476470588 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.081 | 0.23 | 0.352173913 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.081 | 0.23 | 0.352173913 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.081 | 0.12 | 0.675 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.081 | 0.24 | 0.3375 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.081 | 0.24 | 0.3375 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,1,1-Trichloroethane | mg/kg | 0.005 | 810 | 6.17284E-06 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.005 | 0.6 | 0.008333333 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.02 | 670 | 2.98507E-05 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,1,2-Trichloroethane | mg/kg | 0.005 | 0.15 | 0.033333333 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,1-Dichloroethane | mg/kg | 0.005 | 3.6 | 0.001388889 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,1-Dichloroethene | mg/kg | 0.005 | 23 | 0.000217391 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,2,3-Trichlorobenzene | mg/kg | 0.005 | 6.3 | 0.000793651 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,2,4-Trichlorobenzene | mg/kg | 0.005 | 5.8 | 0.000862069 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.01 | 0.0053 | 1.886792453 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.005 | 0.036 | 0.138888889 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,2-Dichlorobenzene | mg/kg | 0.005 | 180 | 2.77778E-05 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,2-Dichloroethane | mg/kg | 0.005 | 0.46 | 0.010869565 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,2-Dichloropropane | mg/kg | 0.005 | 1.6 | 0.003125 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,3-Dichloropropane | mg/kg | 0.005 | 160 | 0.00003125 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,4-Dichlorobenzene | mg/kg | 0.005 | 2.6 | 0.001923077 |
| AOC 3 | NA | NYOW-03-PH015-B | 2-Hexanone | mg/kg | 0.02 | 20 | 0.001 |
| AOC 3 | NA | NYOW-03-PH015-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.02 | 3300 | 6.06061E-06 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH015-B | Benzene | mg/kg | 0.005 | 1.2 | 0.004166667 |
| AOC 3 | NA | NYOW-03-PH015-B | Bromochloromethane | mg/kg | 0.005 | 15 | 0.000333333 |
| AOC 3 | NA | NYOW-03-PH015-B | Bromodichloromethane | mg/kg | 0.005 | 0.29 | 0.017241379 |
| AOC 3 | NA | NYOW-03-PH015-B | Bromoform | mg/kg | 0.0051 | 19 | 0.000268421 |
| AOC 3 | NA | NYOW-03-PH015-B | Bromomethane | mg/kg | 0.01 | 0.68 | 0.014705882 |
| AOC 3 | NA | NYOW-03-PH015-B | Carbon disulfide | mg/kg | 0.005 | 77 | 6.49351E-05 |
| AOC 3 | NA | NYOW-03-PH015-B | Carbon Tetrachloride | mg/kg | 0.005 | 0.65 | 0.007692308 |
| AOC 3 | NA | NYOW-03-PH015-B | Chlorobenzene | mg/kg | 0.005 | 28 | 0.000178571 |
| AOC 3 | NA | NYOW-03-PH015-B | Chloroethane | mg/kg | 0.01 | 540 | 1.85185E-05 |
| AOC 3 | NA | NYOW-03-PH015-B | Chloroform | mg/kg | 0.01 | 0.32 | 0.03125 |
| AOC 3 | NA | NYOW-03-PH015-B | Chloromethane | mg/kg | 0.01 | 11 | 0.000909091 |
| AOC 3 | NA | NYOW-03-PH015-B | cis-1,2-Dichloroethene | mg/kg | 0.005 | 16 | 0.0003125 |
| AOC 3 | NA | NYOW-03-PH015-B | cis-1,3-Dichloropropene | mg/kg | 0.005 | 1.8 | 0.002777778 |
| AOC 3 | NA | NYOW-03-PH015-B | Cyclohexane | mg/kg | 0.005 | 650 | 7.69231E-06 |
| AOC 3 | NA | NYOW-03-PH015-B | Dibromochloromethane | mg/kg | 0.005 | 8.3 | 0.00060241 |
| AOC 3 | NA | NYOW-03-PH015-B | Dichlorodifluoromethane | mg/kg | 0.01 | 8.7 | 0.001149425 |
| AOC 3 | NA | NYOW-03-PH015-B | Ethylbenzene | mg/kg | 0.005 | 5.8 | 0.000862069 |
| AOC 3 | NA | NYOW-03-PH015-B | m,p-Xylene | mg/kg | 0.0032 | 55 | 5.81818E-05 |
| AOC 3 | NA | NYOW-03-PH015-B | Methyl acetate | mg/kg | 0.0085 | 7800 | 1.08974E-06 |
| AOC 3 | NA | NYOW-03-PH015-B | Methyl tert-butyl ether (MTBE) | mg/kg | 0.02 | 47 | 0.000425532 |
| AOC 3 | NA | NYOW-03-PH015-B | Methylene chloride | mg/kg | 0.005 | 35 | 0.000142857 |
| AOC 3 | NA | NYOW-03-PH015-B | o-Xylene | mg/kg | 0.005 | 64 | 0.000078125 |
| AOC 3 | NA | NYOW-03-PH015-B | Styrene | mg/kg | 0.005 | 600 | 8.33333E-06 |
| AOC 3 | NA | NYOW-03-PH015-B | Tetrachloroethene (PCE) | mg/kg | 0.005 | 8.1 | 0.000617284 |
| AOC 3 | NA | NYOW-03-PH015-B | trans-1,2-Dichloroethene | mg/kg | 0.005 | 7 | 0.000714286 |
| AOC 3 | NA | NYOW-03-PH015-B | trans-1,3-Dichloropropene | mg/kg | 0.005 | 1.8 | 0.002777778 |
| AOC 3 | NA | NYOW-03-PH015-B | Trichlorofluoromethane | mg/kg | 0.01 | 2300 | 4.34783E-06 |
| AOC 3 | NA | NYOW-03-PH015-B | Vinyl chloride | mg/kg | 0.005 | 0.059 | 0.084745763 |
| AOC 3 | NA | NYOW-03-PH015-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.4 | 0.23 | 1.739130435 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 1,4-Dioxane | mg/kg | 0.4 | 5.3 | 0.075471698 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.4 | 310 | 0.001290323 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.4 | 190 | 0.002105263 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.4 | 630 | 0.000634921 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4,6-Trichlorophenol | mg/kg | 0.4 | 6.3 | 0.063492063 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4-Dichlorophenol | mg/kg | 0.4 | 19 | 0.021052632 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4-Dimethylphenol | mg/kg | 0.4 | 130 | 0.003076923 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 1.7 | 0.470588235 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4-Dinitrotoluene | mg/kg | 0.4 | 1.7 | 0.235294118 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,6-Dinitrotoluene | mg/kg | 0.4 | 0.36 | 1.111111111 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2-Chloronaphthalene | mg/kg | 0.4 | 480 | 0.000833333 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2-Chlorophenol | mg/kg | 0.4 | 39 | 0.01025641 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.4 | 320 | 0.00125 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2-Nitroaniline | mg/kg | 2.1 | 63 | 0.033333333 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2-Nitrophenol | mg/kg | 0.4 | 39 | 0.01025641 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 3,3'-Dichlorobenzidine | mg/kg | 0.8 | 1.2 | 0.666666667 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 3-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 4,6-Dinitro-2-methylphenol | mg/kg | 2.1 | 0.51 | 4.117647059 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 4-Chloro-3-methylphenol | mg/kg | 0.4 | 630 | 0.000634921 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 4-Chloroaniline | mg/kg | 0.8 | 2.7 | 0.296296296 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 4-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 4-Nitrophenol | mg/kg | 2.1 | 39 | 0.053846154 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Acetophenone | mg/kg | 0.4 | 780 | 0.000512821 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Atrazine | mg/kg | 0.4 | 2.4 | 0.166666667 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Benzyl butyl phthalate | mg/kg | 0.4 | 290 | 0.00137931 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Biphenyl (Diphenyl) | mg/kg | 2.1 | 4.7 | 0.446808511 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Bis(2-chloroethoxy)methane | mg/kg | 0.4 | 19 | 0.021052632 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.4 | 0.23 | 1.739130435 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Caprolactam | mg/kg | 0.4 | 3100 | 0.000129032 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Diethyl phthalate | mg/kg | 0.4 | 5100 | 7.84314E-05 |
| AOC 3 | NA | NYOW-03-PH015-B_R | di-n-Butyl phthalate | mg/kg | 0.4 | 630 | 0.000634921 |
| AOC 3 | NA | NYOW-03-PH015-B_R | di-n-Octyl phthalate | mg/kg | 0.4 | 63 | 0.006349206 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Hexachlorobenzene | mg/kg | 0.4 | 0.078 | 5.128205128 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH015-B_R | Hexachlorobutadiene | mg/kg | 0.4 | 1.2 | 0.333333333 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Hexachlorocyclopentadiene | mg/kg | 0.4 | 0.18 | 2.222222222 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Hexachloroethane | mg/kg | 0.4 | 1.8 | 0.222222222 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Isophorone | mg/kg | 0.4 | 570 | 0.000701754 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Nitrobenzene | mg/kg | 0.4 | 5.1 | 0.078431373 |
| AOC 3 | NA | NYOW-03-PH015-B_R | N-Nitrosodi-n-propylamine | mg/kg | 0.4 | 0.078 | 5.128205128 |
| AOC 3 | NA | NYOW-03-PH015-B_R | N-Nitrosodiphenylamine | mg/kg | 0.4 | 110 | 0.003636364 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Pentachlorophenol | mg/kg | 2.1 | 1 | 2.1 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Phenol | mg/kg | 0.4 | 1900 | 0.000210526 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.08 | 0.41 | 0.195121951 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.08 | 0.17 | 0.470588235 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.08 | 0.23 | 0.347826087 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.08 | 0.23 | 0.347826087 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.08 | 0.12 | 0.666666667 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.08 | 0.24 | 0.333333333 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.08 | 0.24 | 0.333333333 |
| AOC 3 | NA | NYOW-03-PH016-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.4 | 0.23 | 1.739130435 |
| AOC 3 | NA | NYOW-03-PH016-B | 1,4-Dioxane | mg/kg | 0.4 | 5.3 | 0.075471698 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.4 | 310 | 0.001290323 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.4 | 190 | 0.002105263 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4,5-Trichlorophenol | mg/kg | 0.4 | 630 | 0.000634921 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4,6-Trichlorophenol | mg/kg | 0.4 | 6.3 | 0.063492063 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4-Dichlorophenol | mg/kg | 0.4 | 19 | 0.021052632 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4-Dimethylphenol | mg/kg | 0.4 | 130 | 0.003076923 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 1.7 | 0.470588235 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4-Dinitrotoluene | mg/kg | 0.4 | 1.7 | 0.235294118 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,6-Dinitrotoluene | mg/kg | 0.4 | 0.36 | 1.111111111 |
| AOC 3 | NA | NYOW-03-PH016-B | 2-Chloronaphthalene | mg/kg | 0.4 | 480 | 0.000833333 |
| AOC 3 | NA | NYOW-03-PH016-B | 2-Chlorophenol | mg/kg | 0.4 | 39 | 0.01025641 |
| AOC 3 | NA | NYOW-03-PH016-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.4 | 320 | 0.00125 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH016-B | 2-Nitroaniline | mg/kg | 2.1 | 63 | 0.033333333 |
| AOC 3 | NA | NYOW-03-PH016-B | 2-Nitrophenol | mg/kg | 0.4 | 39 | 0.01025641 |
| AOC 3 | NA | NYOW-03-PH016-B | 3,3'-Dichlorobenzidine | mg/kg | 0.8 | 1.2 | 0.666666667 |
| AOC 3 | NA | NYOW-03-PH016-B | 3-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-PH016-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2.1 | 0.51 | 4.117647059 |
| AOC 3 | NA | NYOW-03-PH016-B | 4-Chloro-3-methylphenol | mg/kg | 0.4 | 630 | 0.000634921 |
| AOC 3 | NA | NYOW-03-PH016-B | 4-Chloroaniline | mg/kg | 0.8 | 2.7 | 0.296296296 |
| AOC 3 | NA | NYOW-03-PH016-B | 4-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-PH016-B | 4-Nitrophenol | mg/kg | 2.1 | 39 | 0.053846154 |
| AOC 3 | NA | NYOW-03-PH016-B | Acetophenone | mg/kg | 0.4 | 780 | 0.000512821 |
| AOC 3 | NA | NYOW-03-PH016-B | Atrazine | mg/kg | 0.4 | 2.4 | 0.166666667 |
| AOC 3 | NA | NYOW-03-PH016-B | Benzyl butyl phthalate | mg/kg | 0.4 | 290 | 0.00137931 |
| AOC 3 | NA | NYOW-03-PH016-B | Biphenyl (Diphenyl) | mg/kg | 2.1 | 4.7 | 0.446808511 |
| AOC 3 | NA | NYOW-03-PH016-B | Bis(2-chloroethoxy)methane | mg/kg | 0.4 | 19 | 0.021052632 |
| AOC 3 | NA | NYOW-03-PH016-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.4 | 0.23 | 1.739130435 |
| AOC 3 | NA | NYOW-03-PH016-B | Caprolactam | mg/kg | 0.4 | 3100 | 0.000129032 |
| AOC 3 | NA | NYOW-03-PH016-B | Diethyl phthalate | mg/kg | 0.4 | 5100 | 7.84314E-05 |
| AOC 3 | NA | NYOW-03-PH016-B | di-n-Butyl phthalate | mg/kg | 0.4 | 630 | 0.000634921 |
| AOC 3 | NA | NYOW-03-PH016-B | di-n-Octyl phthalate | mg/kg | 0.4 | 63 | 0.006349206 |
| AOC 3 | NA | NYOW-03-PH016-B | Hexachlorobenzene | mg/kg | 0.4 | 0.078 | 5.128205128 |
| AOC 3 | NA | NYOW-03-PH016-B | Hexachlorobutadiene | mg/kg | 0.4 | 1.2 | 0.333333333 |
| AOC 3 | NA | NYOW-03-PH016-B | Hexachlorocyclopentadiene | mg/kg | 0.4 | 0.18 | 2.222222222 |
| AOC 3 | NA | NYOW-03-PH016-B | Hexachloroethane | mg/kg | 0.4 | 1.8 | 0.222222222 |
| AOC 3 | NA | NYOW-03-PH016-B | Isophorone | mg/kg | 0.4 | 570 | 0.000701754 |
| AOC 3 | NA | NYOW-03-PH016-B | Nitrobenzene | mg/kg | 0.4 | 5.1 | 0.078431373 |
| AOC 3 | NA | NYOW-03-PH016-B | N-Nitrosodi-n-propylamine | mg/kg | 0.4 | 0.078 | 5.128205128 |
| AOC 3 | NA | NYOW-03-PH016-B | N-Nitrosodiphenylamine | mg/kg | 0.4 | 110 | 0.003636364 |
| AOC 3 | NA | NYOW-03-PH016-B | Pentachlorophenol | mg/kg | 2.1 | 1 | 2.1 |
| AOC 3 | NA | NYOW-03-PH016-B | Phenol | mg/kg | 0.4 | 1900 | 0.000210526 |
| AOC 3 | NA | NYOW-03-PH016-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,1,1-Trichloroethane | mg/kg | 0.0048 | 810 | 5.92593E-06 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0048 | 0.6 | 0.008 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.019 | 670 | 2.83582E-05 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,1,2-Trichloroethane | mg/kg | 0.0048 | 0.15 | 0.032 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,1-Dichloroethane | mg/kg | 0.0048 | 3.6 | 0.001333333 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,1-Dichloroethene | mg/kg | 0.0048 | 23 | 0.000208696 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,2,3-Trichlorobenzene | mg/kg | 0.0048 | 6.3 | 0.000761905 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,2,4-Trichlorobenzene | mg/kg | 0.0048 | 5.8 | 0.000827586 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0096 | 0.0053 | 1.811320755 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,2-Dibromoethane (EDB) | mg/kg | 0.0048 | 0.036 | 0.133333333 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,2-Dichlorobenzene | mg/kg | 0.0048 | 180 | 2.66667E-05 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,2-Dichloroethane | mg/kg | 0.0048 | 0.46 | 0.010434783 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,2-Dichloropropane | mg/kg | 0.0048 | 1.6 | 0.003 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,3-Dichloropropane | mg/kg | 0.0048 | 160 | 0.00003 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,4-Dichlorobenzene | mg/kg | 0.0048 | 2.6 | 0.001846154 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2-Hexanone | mg/kg | 0.019 | 20 | 0.00095 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.019 | 3300 | 5.75758E-06 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Benzene | mg/kg | 0.0048 | 1.2 | 0.004 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Bromochloromethane | mg/kg | 0.0048 | 15 | 0.00032 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Bromodichloromethane | mg/kg | 0.0048 | 0.29 | 0.016551724 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Bromoform | mg/kg | 0.0049 | 19 | 0.000257895 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Bromomethane | mg/kg | 0.0096 | 0.68 | 0.014117647 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Carbon disulfide | mg/kg | 0.0048 | 77 | 6.23377E-05 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Carbon Tetrachloride | mg/kg | 0.0048 | 0.65 | 0.007384615 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Chlorobenzene | mg/kg | 0.0048 | 28 | 0.000171429 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Chloroethane | mg/kg | 0.0096 | 540 | 1.77778E-05 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Chloroform | mg/kg | 0.0096 | 0.32 | 0.03 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Chloromethane | mg/kg | 0.0096 | 11 | 0.000872727 |
| AOC 3 | NA | NYOW-03-PH016-B_R | cis-1,2-Dichloroethene | mg/kg | 0.0048 | 16 | 0.0003 |
| AOC 3 | NA | NYOW-03-PH016-B_R | cis-1,3-Dichloropropene | mg/kg | 0.0048 | 1.8 | 0.002666667 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Cyclohexane | mg/kg | 0.0048 | 650 | 7.38462E-06 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Dibromochloromethane | mg/kg | 0.0048 | 8.3 | 0.000578313 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Dichlorodifluoromethane | mg/kg | 0.0096 | 8.7 | 0.001103448 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Ethylbenzene | mg/kg | 0.0048 | 5.8 | 0.000827586 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH016-B_R | m,p-Xylene | mg/kg | 0.0031 | 55 | 5.63636E-05 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Methyl acetate | mg/kg | 0.0081 | 7800 | 1.03846E-06 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Methyl tert-butyl ether (MTBE) | mg/kg | 0.019 | 47 | 0.000404255 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Methylene chloride | mg/kg | 0.0048 | 35 | 0.000137143 |
| AOC 3 | NA | NYOW-03-PH016-B_R | o-Xylene | mg/kg | 0.0048 | 64 | 0.000075 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Styrene | mg/kg | 0.0048 | 600 | 0.000008 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Tetrachloroethene (PCE) | mg/kg | 0.0048 | 8.1 | 0.000592593 |
| AOC 3 | NA | NYOW-03-PH016-B_R | trans-1,2-Dichloroethene | mg/kg | 0.0048 | 7 | 0.000685714 |
| AOC 3 | NA | NYOW-03-PH016-B_R | trans-1,3-Dichloropropene | mg/kg | 0.0048 | 1.8 | 0.002666667 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Trichlorofluoromethane | mg/kg | 0.0096 | 2300 | 4.17391E-06 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Vinyl chloride | mg/kg | 0.0048 | 0.059 | 0.081355932 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.7 | 0.458823529 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 1.2 | 0.65 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH016-B_R | 4-Chloroaniline | mg/kg | 0.78 | 2.7 | 0.288888889 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 3 | NA | NYOW-03-PH016-B_R | di-n-Butyl phthalate | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-PH016-B_R | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 3 | NA | NYOW-03-PH016-B_R | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 3 | NA | NYOW-03-PH016-B_R | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,1,1-Trichloroethane | mg/kg | 0.0046 | 810 | 5.67901E-06 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0046 | 0.6 | 0.007666667 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.018 | 670 | 2.68657E-05 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,1,2-Trichloroethane | mg/kg | 0.0046 | 0.15 | 0.030666667 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,1-Dichloroethane | mg/kg | 0.0046 | 3.6 | 0.001277778 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,1-Dichloroethene | mg/kg | 0.0046 | 23 | 0.0002 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,2,3-Trichlorobenzene | mg/kg | 0.0046 | 6.3 | 0.000730159 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,2,4-Trichlorobenzene | mg/kg | 0.0046 | 5.8 | 0.000793103 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0091 | 0.0053 | 1.716981132 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,2-Dibromoethane (EDB) | mg/kg | 0.0046 | 0.036 | 0.127777778 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,2-Dichlorobenzene | mg/kg | 0.0046 | 180 | 2.55556E-05 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,2-Dichloroethane | mg/kg | 0.0046 | 0.46 | 0.01 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,2-Dichloropropane | mg/kg | 0.0046 | 1.6 | 0.002875 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,3-Dichloropropane | mg/kg | 0.0046 | 160 | 0.00002875 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,4-Dichlorobenzene | mg/kg | 0.0046 | 2.6 | 0.001769231 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 2-Hexanone | mg/kg | 0.018 | 20 | 0.0009 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.018 | 3300 | 5.45455E-06 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Benzene | mg/kg | 0.0046 | 1.2 | 0.003833333 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Bromochloromethane | mg/kg | 0.0046 | 15 | 0.000306667 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Bromodichloromethane | mg/kg | 0.0046 | 0.29 | 0.015862069 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Bromoform | mg/kg | 0.0047 | 19 | 0.000247368 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Bromomethane | mg/kg | 0.0091 | 0.68 | 0.013382353 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Carbon disulfide | mg/kg | 0.0046 | 77 | 5.97403E-05 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Carbon Tetrachloride | mg/kg | 0.0046 | 0.65 | 0.007076923 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Chlorobenzene | mg/kg | 0.0046 | 28 | 0.000164286 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Chloroethane | mg/kg | 0.0091 | 540 | 1.68519E-05 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Chloroform | mg/kg | 0.0091 | 0.32 | 0.0284375 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Chloromethane | mg/kg | 0.0091 | 11 | 0.000827273 |
| AOC 3 | NA | NYOW-03-PH017-B_R | cis-1,2-Dichloroethene | mg/kg | 0.0046 | 16 | 0.0002875 |
| AOC 3 | NA | NYOW-03-PH017-B_R | cis-1,3-Dichloropropene | mg/kg | 0.0046 | 1.8 | 0.002555556 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Cyclohexane | mg/kg | 0.0046 | 650 | 7.07692E-06 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Dibromochloromethane | mg/kg | 0.0046 | 8.3 | 0.000554217 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Dichlorodifluoromethane | mg/kg | 0.0091 | 8.7 | 0.001045977 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Ethylbenzene | mg/kg | 0.0046 | 5.8 | 0.000793103 |
| AOC 3 | NA | NYOW-03-PH017-B_R | m,p-Xylene | mg/kg | 0.0029 | 55 | 5.27273E-05 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Methyl acetate | mg/kg | 0.0078 | 7800 | 0.000001 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Methyl tert-butyl ether (MTBE) | mg/kg | 0.018 | 47 | 0.000382979 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Methylene chloride | mg/kg | 0.0046 | 35 | 0.000131429 |
| AOC 3 | NA | NYOW-03-PH017-B_R | o-Xylene | mg/kg | 0.0046 | 64 | 0.000071875 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Styrene | mg/kg | 0.0046 | 600 | 7.66667E-06 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Tetrachloroethene (PCE) | mg/kg | 0.0046 | 8.1 | 0.000567901 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH017-B_R | trans-1,2-Dichloroethene | mg/kg | 0.0046 | 7 | 0.000657143 |
| AOC 3 | NA | NYOW-03-PH017-B_R | trans-1,3-Dichloropropene | mg/kg | 0.0046 | 1.8 | 0.002555556 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Trichlorofluoromethane | mg/kg | 0.0091 | 2300 | 3.95652E-06 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Vinyl chloride | mg/kg | 0.0046 | 0.059 | 0.077966102 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,1,1-Trichloroethane | mg/kg | 0.0058 | 810 | 7.16049E-06 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0058 | 0.6 | 0.009666667 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.023 | 670 | 3.43284E-05 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,1,2-Trichloroethane | mg/kg | 0.0058 | 0.15 | 0.038666667 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,1-Dichloroethane | mg/kg | 0.0058 | 3.6 | 0.001611111 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,1-Dichloroethene | mg/kg | 0.0058 | 23 | 0.000252174 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,2,3-Trichlorobenzene | mg/kg | 0.0058 | 6.3 | 0.000920635 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,2,4-Trichlorobenzene | mg/kg | 0.0058 | 5.8 | 0.001 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,2-Dibromo-3-chloropropane | mg/kg | 0.012 | 0.0053 | 2.264150943 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,2-Dibromoethane (EDB) | mg/kg | 0.0058 | 0.036 | 0.161111111 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,2-Dichlorobenzene | mg/kg | 0.0058 | 180 | 3.22222E-05 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,2-Dichloroethane | mg/kg | 0.0058 | 0.46 | 0.012608696 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,2-Dichloropropane | mg/kg | 0.0058 | 1.6 | 0.003625 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,3-Dichloropropane | mg/kg | 0.0058 | 160 | 0.00003625 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,4-Dichlorobenzene | mg/kg | 0.0058 | 2.6 | 0.002230769 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 2-Hexanone | mg/kg | 0.023 | 20 | 0.00115 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.023 | 3300 | 6.9697E-06 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Benzene | mg/kg | 0.0058 | 1.2 | 0.004833333 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Bromochloromethane | mg/kg | 0.0058 | 15 | 0.000386667 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Bromodichloromethane | mg/kg | 0.0058 | 0.29 | 0.02 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Bromoform | mg/kg | 0.0059 | 19 | 0.000310526 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Bromomethane | mg/kg | 0.012 | 0.68 | 0.017647059 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Carbon disulfide | mg/kg | 0.0058 | 77 | 7.53247E-05 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Carbon Tetrachloride | mg/kg | 0.0058 | 0.65 | 0.008923077 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Chlorobenzene | mg/kg | 0.0058 | 28 | 0.000207143 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Chloroethane | mg/kg | 0.012 | 540 | 2.22222E-05 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Chloroform | mg/kg | 0.012 | 0.32 | 0.0375 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Chloromethane | mg/kg | 0.012 | 11 | 0.001090909 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH018-B_R | cis-1,2-Dichloroethene | mg/kg | 0.0058 | 16 | 0.0003625 |
| AOC 3 | NA | NYOW-03-PH018-B_R | cis-1,3-Dichloropropene | mg/kg | 0.0058 | 1.8 | 0.003222222 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Cyclohexane | mg/kg | 0.0058 | 650 | 8.92308E-06 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Dibromochloromethane | mg/kg | 0.0058 | 8.3 | 0.000698795 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Dichlorodifluoromethane | mg/kg | 0.012 | 8.7 | 0.00137931 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Ethylbenzene | mg/kg | 0.0058 | 5.8 | 0.001 |
| AOC 3 | NA | NYOW-03-PH018-B_R | m,p-Xylene | mg/kg | 0.0037 | 55 | 6.72727E-05 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Methyl acetate | mg/kg | 0.0098 | 7800 | 1.25641E-06 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Methyl tert-butyl ether (MTBE) | mg/kg | 0.023 | 47 | 0.000489362 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Methylene chloride | mg/kg | 0.0058 | 35 | 0.000165714 |
| AOC 3 | NA | NYOW-03-PH018-B_R | o-Xylene | mg/kg | 0.0058 | 64 | 0.000090625 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Styrene | mg/kg | 0.0058 | 600 | 9.66667E-06 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Tetrachloroethene (PCE) | mg/kg | 0.0058 | 8.1 | 0.000716049 |
| AOC 3 | NA | NYOW-03-PH018-B_R | trans-1,2-Dichloroethene | mg/kg | 0.0058 | 7 | 0.000828571 |
| AOC 3 | NA | NYOW-03-PH018-B_R | trans-1,3-Dichloropropene | mg/kg | 0.0058 | 1.8 | 0.003222222 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Trichlorofluoromethane | mg/kg | 0.012 | 2300 | 5.21739E-06 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Vinyl chloride | mg/kg | 0.0058 | 0.059 | 0.098305085 |
| AOC 3 | NA | NYOW-03-SL001-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.45 | 0.23 | 1.956521739 |
| AOC 3 | NA | NYOW-03-SL001-A | 1,4-Dioxane | mg/kg | 0.45 | 5.3 | 0.08490566 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.45 | 310 | 0.001451613 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.45 | 190 | 0.002368421 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4,5-Trichlorophenol | mg/kg | 0.45 | 630 | 0.000714286 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4,6-Trichlorophenol | mg/kg | 0.45 | 6.3 | 0.071428571 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4-Dichlorophenol | mg/kg | 0.45 | 19 | 0.023684211 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4-Dimethylphenol | mg/kg | 0.45 | 130 | 0.003461538 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.89 | 1.7 | 0.523529412 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4-Dinitrophenol | mg/kg | 2.3 | 13 | 0.176923077 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4-Dinitrotoluene | mg/kg | 0.45 | 1.7 | 0.264705882 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,6-Dinitrotoluene | mg/kg | 0.45 | 0.36 | 1.25 |
| AOC 3 | NA | NYOW-03-SL001-A | 2-Chloronaphthalene | mg/kg | 0.45 | 480 | 0.0009375 |
| AOC 3 | NA | NYOW-03-SL001-A | 2-Chlorophenol | mg/kg | 0.45 | 39 | 0.011538462 |
| AOC 3 | NA | NYOW-03-SL001-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.45 | 320 | 0.00140625 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL001-A | 2-Nitroaniline | mg/kg | 2.3 | 63 | 0.036507937 |
| AOC 3 | NA | NYOW-03-SL001-A | 2-Nitrophenol | mg/kg | 0.45 | 39 | 0.011538462 |
| AOC 3 | NA | NYOW-03-SL001-A | 3,3'-Dichlorobenzidine | mg/kg | 0.89 | 1.2 | 0.741666667 |
| AOC 3 | NA | NYOW-03-SL001-A | 3-Nitroaniline | mg/kg | 2.3 | 25 | 0.092 |
| AOC 3 | NA | NYOW-03-SL001-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2.3 | 0.51 | 4.509803922 |
| AOC 3 | NA | NYOW-03-SL001-A | 4-Chloro-3-methylphenol | mg/kg | 0.45 | 630 | 0.000714286 |
| AOC 3 | NA | NYOW-03-SL001-A | 4-Chloroaniline | mg/kg | 0.89 | 2.7 | 0.32962963 |
| AOC 3 | NA | NYOW-03-SL001-A | 4-Nitroaniline | mg/kg | 2.3 | 25 | 0.092 |
| AOC 3 | NA | NYOW-03-SL001-A | 4-Nitrophenol | mg/kg | 2.3 | 39 | 0.058974359 |
| AOC 3 | NA | NYOW-03-SL001-A | Acetophenone | mg/kg | 0.45 | 780 | 0.000576923 |
| AOC 3 | NA | NYOW-03-SL001-A | Atrazine | mg/kg | 0.45 | 2.4 | 0.1875 |
| AOC 3 | NA | NYOW-03-SL001-A | Benzyl butyl phthalate | mg/kg | 0.45 | 290 | 0.001551724 |
| AOC 3 | NA | NYOW-03-SL001-A | Biphenyl (Diphenyl) | mg/kg | 2.3 | 4.7 | 0.489361702 |
| AOC 3 | NA | NYOW-03-SL001-A | Bis(2-chloroethoxy)methane | mg/kg | 0.45 | 19 | 0.023684211 |
| AOC 3 | NA | NYOW-03-SL001-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.45 | 0.23 | 1.956521739 |
| AOC 3 | NA | NYOW-03-SL001-A | Caprolactam | mg/kg | 0.45 | 3100 | 0.000145161 |
| AOC 3 | NA | NYOW-03-SL001-A | Diethyl phthalate | mg/kg | 0.45 | 5100 | 8.82353E-05 |
| AOC 3 | NA | NYOW-03-SL001-A | di-n-Butyl phthalate | mg/kg | 0.45 | 630 | 0.000714286 |
| AOC 3 | NA | NYOW-03-SL001-A | di-n-Octyl phthalate | mg/kg | 0.45 | 63 | 0.007142857 |
| AOC 3 | NA | NYOW-03-SL001-A | Hexachlorobenzene | mg/kg | 0.45 | 0.078 | 5.769230769 |
| AOC 3 | NA | NYOW-03-SL001-A | Hexachlorobutadiene | mg/kg | 0.45 | 1.2 | 0.375 |
| AOC 3 | NA | NYOW-03-SL001-A | Hexachlorocyclopentadiene | mg/kg | 0.45 | 0.18 | 2.5 |
| AOC 3 | NA | NYOW-03-SL001-A | Hexachloroethane | mg/kg | 0.45 | 1.8 | 0.25 |
| AOC 3 | NA | NYOW-03-SL001-A | Isophorone | mg/kg | 0.45 | 570 | 0.000789474 |
| AOC 3 | NA | NYOW-03-SL001-A | Nitrobenzene | mg/kg | 0.45 | 5.1 | 0.088235294 |
| AOC 3 | NA | NYOW-03-SL001-A | N-Nitrosodi-n-propylamine | mg/kg | 0.45 | 0.078 | 5.769230769 |
| AOC 3 | NA | NYOW-03-SL001-A | N-Nitrosodiphenylamine | mg/kg | 0.45 | 110 | 0.004090909 |
| AOC 3 | NA | NYOW-03-SL001-A | Pentachlorophenol | mg/kg | 2.3 | 1 | 2.3 |
| AOC 3 | NA | NYOW-03-SL001-A | Phenol | mg/kg | 0.45 | 1900 | 0.000236842 |
| AOC 3 | NA | NYOW-03-SL001-A | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 3 | NA | NYOW-03-SL002-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.43 | 0.23 | 1.869565217 |
| AOC 3 | NA | NYOW-03-SL002-A | 1,4-Dioxane | mg/kg | 0.43 | 5.3 | 0.081132075 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL002-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.43 | 310 | 0.001387097 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.43 | 190 | 0.002263158 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,4,5-Trichlorophenol | mg/kg | 0.43 | 630 | 0.00068254 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,4,6-Trichlorophenol | mg/kg | 0.43 | 6.3 | 0.068253968 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,4-Dichlorophenol | mg/kg | 0.43 | 19 | 0.022631579 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,4-Dimethylphenol | mg/kg | 0.43 | 130 | 0.003307692 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.86 | 1.7 | 0.505882353 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 13 | 0.169230769 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,4-Dinitrotoluene | mg/kg | 0.43 | 1.7 | 0.252941176 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,6-Dinitrotoluene | mg/kg | 0.43 | 0.36 | 1.194444444 |
| AOC 3 | NA | NYOW-03-SL002-A | 2-Chloronaphthalene | mg/kg | 0.43 | 480 | 0.000895833 |
| AOC 3 | NA | NYOW-03-SL002-A | 2-Chlorophenol | mg/kg | 0.43 | 39 | 0.011025641 |
| AOC 3 | NA | NYOW-03-SL002-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.43 | 320 | 0.00134375 |
| AOC 3 | NA | NYOW-03-SL002-A | 2-Nitroaniline | mg/kg | 2.2 | 63 | 0.034920635 |
| AOC 3 | NA | NYOW-03-SL002-A | 2-Nitrophenol | mg/kg | 0.43 | 39 | 0.011025641 |
| AOC 3 | NA | NYOW-03-SL002-A | 3,3'-Dichlorobenzidine | mg/kg | 0.86 | 1.2 | 0.716666667 |
| AOC 3 | NA | NYOW-03-SL002-A | 3-Nitroaniline | mg/kg | 2.2 | 25 | 0.088 |
| AOC 3 | NA | NYOW-03-SL002-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2.2 | 0.51 | 4.31372549 |
| AOC 3 | NA | NYOW-03-SL002-A | 4-Chloro-3-methylphenol | mg/kg | 0.43 | 630 | 0.00068254 |
| AOC 3 | NA | NYOW-03-SL002-A | 4-Chloroaniline | mg/kg | 0.86 | 2.7 | 0.318518519 |
| AOC 3 | NA | NYOW-03-SL002-A | 4-Nitroaniline | mg/kg | 2.2 | 25 | 0.088 |
| AOC 3 | NA | NYOW-03-SL002-A | 4-Nitrophenol | mg/kg | 2.2 | 39 | 0.056410256 |
| AOC 3 | NA | NYOW-03-SL002-A | Acetophenone | mg/kg | 0.43 | 780 | 0.000551282 |
| AOC 3 | NA | NYOW-03-SL002-A | Atrazine | mg/kg | 0.43 | 2.4 | 0.179166667 |
| AOC 3 | NA | NYOW-03-SL002-A | Benzyl butyl phthalate | mg/kg | 0.43 | 290 | 0.001482759 |
| AOC 3 | NA | NYOW-03-SL002-A | Biphenyl (Diphenyl) | mg/kg | 2.2 | 4.7 | 0.468085106 |
| AOC 3 | NA | NYOW-03-SL002-A | Bis(2-chloroethoxy)methane | mg/kg | 0.43 | 19 | 0.022631579 |
| AOC 3 | NA | NYOW-03-SL002-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.43 | 0.23 | 1.869565217 |
| AOC 3 | NA | NYOW-03-SL002-A | Caprolactam | mg/kg | 0.43 | 3100 | 0.00013871 |
| AOC 3 | NA | NYOW-03-SL002-A | Diethyl phthalate | mg/kg | 0.43 | 5100 | 8.43137E-05 |
| AOC 3 | NA | NYOW-03-SL002-A | di-n-Butyl phthalate | mg/kg | 0.43 | 630 | 0.00068254 |
| AOC 3 | NA | NYOW-03-SL002-A | di-n-Octyl phthalate | mg/kg | 0.43 | 63 | 0.006825397 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL002-A | Hexachlorobenzene | mg/kg | 0.43 | 0.078 | 5.512820513 |
| AOC 3 | NA | NYOW-03-SL002-A | Hexachlorobutadiene | mg/kg | 0.43 | 1.2 | 0.358333333 |
| AOC 3 | NA | NYOW-03-SL002-A | Hexachlorocyclopentadiene | mg/kg | 0.43 | 0.18 | 2.388888889 |
| AOC 3 | NA | NYOW-03-SL002-A | Hexachloroethane | mg/kg | 0.43 | 1.8 | 0.238888889 |
| AOC 3 | NA | NYOW-03-SL002-A | Isophorone | mg/kg | 0.43 | 570 | 0.000754386 |
| AOC 3 | NA | NYOW-03-SL002-A | Nitrobenzene | mg/kg | 0.43 | 5.1 | 0.084313725 |
| AOC 3 | NA | NYOW-03-SL002-A | N-Nitrosodi-n-propylamine | mg/kg | 0.43 | 0.078 | 5.512820513 |
| AOC 3 | NA | NYOW-03-SL002-A | N-Nitrosodiphenylamine | mg/kg | 0.43 | 110 | 0.003909091 |
| AOC 3 | NA | NYOW-03-SL002-A | Pentachlorophenol | mg/kg | 2.2 | 1 | 2.2 |
| AOC 3 | NA | NYOW-03-SL002-A | Phenol | mg/kg | 0.43 | 1900 | 0.000226316 |
| AOC 3 | NA | NYOW-03-SL002-A | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 3 | NA | NYOW-03-SL003-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.42 | 0.23 | 1.826086957 |
| AOC 3 | NA | NYOW-03-SL003-A | 1,4-Dioxane | mg/kg | 0.42 | 5.3 | 0.079245283 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.42 | 310 | 0.001354839 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.42 | 190 | 0.002210526 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 630 | 0.000666667 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,4,6-Trichlorophenol | mg/kg | 0.42 | 6.3 | 0.066666667 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,4-Dichlorophenol | mg/kg | 0.42 | 19 | 0.022105263 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,4-Dimethylphenol | mg/kg | 0.42 | 130 | 0.003230769 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.84 | 1.7 | 0.494117647 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 13 | 0.169230769 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,4-Dinitrotoluene | mg/kg | 0.42 | 1.7 | 0.247058824 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,6-Dinitrotoluene | mg/kg | 0.42 | 0.36 | 1.166666667 |
| AOC 3 | NA | NYOW-03-SL003-A | 2-Chloronaphthalene | mg/kg | 0.42 | 480 | 0.000875 |
| AOC 3 | NA | NYOW-03-SL003-A | 2-Chlorophenol | mg/kg | 0.42 | 39 | 0.010769231 |
| AOC 3 | NA | NYOW-03-SL003-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 320 | 0.0013125 |
| AOC 3 | NA | NYOW-03-SL003-A | 2-Nitroaniline | mg/kg | 2.2 | 63 | 0.034920635 |
| AOC 3 | NA | NYOW-03-SL003-A | 2-Nitrophenol | mg/kg | 0.42 | 39 | 0.010769231 |
| AOC 3 | NA | NYOW-03-SL003-A | 3,3'-Dichlorobenzidine | mg/kg | 0.84 | 1.2 | 0.7 |
| AOC 3 | NA | NYOW-03-SL003-A | 3-Nitroaniline | mg/kg | 2.2 | 25 | 0.088 |
| AOC 3 | NA | NYOW-03-SL003-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2.2 | 0.51 | 4.31372549 |
| AOC 3 | NA | NYOW-03-SL003-A | 4-Chloro-3-methylphenol | mg/kg | 0.42 | 630 | 0.000666667 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL003-A | 4-Chloroaniline | mg/kg | 0.84 | 2.7 | 0.311111111 |
| AOC 3 | NA | NYOW-03-SL003-A | 4-Nitroaniline | mg/kg | 2.2 | 25 | 0.088 |
| AOC 3 | NA | NYOW-03-SL003-A | 4-Nitrophenol | mg/kg | 2.2 | 39 | 0.056410256 |
| AOC 3 | NA | NYOW-03-SL003-A | Acetophenone | mg/kg | 0.42 | 780 | 0.000538462 |
| AOC 3 | NA | NYOW-03-SL003-A | Atrazine | mg/kg | 0.42 | 2.4 | 0.175 |
| AOC 3 | NA | NYOW-03-SL003-A | Benzyl butyl phthalate | mg/kg | 0.42 | 290 | 0.001448276 |
| AOC 3 | NA | NYOW-03-SL003-A | Biphenyl (Diphenyl) | mg/kg | 2.2 | 4.7 | 0.468085106 |
| AOC 3 | NA | NYOW-03-SL003-A | Bis(2-chloroethoxy)methane | mg/kg | 0.42 | 19 | 0.022105263 |
| AOC 3 | NA | NYOW-03-SL003-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.42 | 0.23 | 1.826086957 |
| AOC 3 | NA | NYOW-03-SL003-A | Caprolactam | mg/kg | 0.42 | 3100 | 0.000135484 |
| AOC 3 | NA | NYOW-03-SL003-A | Diethyl phthalate | mg/kg | 0.42 | 5100 | 8.23529E-05 |
| AOC 3 | NA | NYOW-03-SL003-A | di-n-Butyl phthalate | mg/kg | 0.42 | 630 | 0.000666667 |
| AOC 3 | NA | NYOW-03-SL003-A | di-n-Octyl phthalate | mg/kg | 0.42 | 63 | 0.006666667 |
| AOC 3 | NA | NYOW-03-SL003-A | Hexachlorobenzene | mg/kg | 0.42 | 0.078 | 5.384615385 |
| AOC 3 | NA | NYOW-03-SL003-A | Hexachlorobutadiene | mg/kg | 0.42 | 1.2 | 0.35 |
| AOC 3 | NA | NYOW-03-SL003-A | Hexachlorocyclopentadiene | mg/kg | 0.42 | 0.18 | 2.333333333 |
| AOC 3 | NA | NYOW-03-SL003-A | Hexachloroethane | mg/kg | 0.42 | 1.8 | 0.233333333 |
| AOC 3 | NA | NYOW-03-SL003-A | Isophorone | mg/kg | 0.42 | 570 | 0.000736842 |
| AOC 3 | NA | NYOW-03-SL003-A | Nitrobenzene | mg/kg | 0.42 | 5.1 | 0.082352941 |
| AOC 3 | NA | NYOW-03-SL003-A | N-Nitrosodi-n-propylamine | mg/kg | 0.42 | 0.078 | 5.384615385 |
| AOC 3 | NA | NYOW-03-SL003-A | N-Nitrosodiphenylamine | mg/kg | 0.42 | 110 | 0.003818182 |
| AOC 3 | NA | NYOW-03-SL003-A | Pentachlorophenol | mg/kg | 2.2 | 1 | 2.2 |
| AOC 3 | NA | NYOW-03-SL003-A | Phenol | mg/kg | 0.42 | 1900 | 0.000221053 |
| AOC 3 | NA | NYOW-03-SL003-A | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 3 | NA | NYOW-03-SL004-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.49 | 0.23 | 2.130434783 |
| AOC 3 | NA | NYOW-03-SL004-A | 1,4-Dioxane | mg/kg | 0.49 | 5.3 | 0.09245283 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.49 | 310 | 0.001580645 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.49 | 190 | 0.002578947 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,4,5-Trichlorophenol | mg/kg | 0.49 | 630 | 0.000777778 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,4,6-Trichlorophenol | mg/kg | 0.49 | 6.3 | 0.077777778 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,4-Dichlorophenol | mg/kg | 0.49 | 19 | 0.025789474 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,4-Dimethylphenol | mg/kg | 0.49 | 130 | 0.003769231 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL004-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.98 | 1.7 | 0.576470588 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,4-Dinitrophenol | mg/kg | 2.5 | 13 | 0.192307692 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,4-Dinitrotoluene | mg/kg | 0.49 | 1.7 | 0.288235294 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,6-Dinitrotoluene | mg/kg | 0.49 | 0.36 | 1.361111111 |
| AOC 3 | NA | NYOW-03-SL004-A | 2-Chloronaphthalene | mg/kg | 0.49 | 480 | 0.001020833 |
| AOC 3 | NA | NYOW-03-SL004-A | 2-Chlorophenol | mg/kg | 0.49 | 39 | 0.012564103 |
| AOC 3 | NA | NYOW-03-SL004-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.49 | 320 | 0.00153125 |
| AOC 3 | NA | NYOW-03-SL004-A | 2-Nitroaniline | mg/kg | 2.5 | 63 | 0.03968254 |
| AOC 3 | NA | NYOW-03-SL004-A | 2-Nitrophenol | mg/kg | 0.49 | 39 | 0.012564103 |
| AOC 3 | NA | NYOW-03-SL004-A | 3-Nitroaniline | mg/kg | 2.5 | 25 | 0.1 |
| AOC 3 | NA | NYOW-03-SL004-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2.5 | 0.51 | 4.901960784 |
| AOC 3 | NA | NYOW-03-SL004-A | 4-Chloro-3-methylphenol | mg/kg | 0.49 | 630 | 0.000777778 |
| AOC 3 | NA | NYOW-03-SL004-A | 4-Chloroaniline | mg/kg | 0.98 | 2.7 | 0.362962963 |
| AOC 3 | NA | NYOW-03-SL004-A | 4-Nitroaniline | mg/kg | 2.5 | 25 | 0.1 |
| AOC 3 | NA | NYOW-03-SL004-A | 4-Nitrophenol | mg/kg | 2.5 | 39 | 0.064102564 |
| AOC 3 | NA | NYOW-03-SL004-A | Acetophenone | mg/kg | 0.49 | 780 | 0.000628205 |
| AOC 3 | NA | NYOW-03-SL004-A | Atrazine | mg/kg | 0.49 | 2.4 | 0.204166667 |
| AOC 3 | NA | NYOW-03-SL004-A | Benzyl butyl phthalate | mg/kg | 0.49 | 290 | 0.001689655 |
| AOC 3 | NA | NYOW-03-SL004-A | Biphenyl (Diphenyl) | mg/kg | 2.5 | 4.7 | 0.531914894 |
| AOC 3 | NA | NYOW-03-SL004-A | Bis(2-chloroethoxy)methane | mg/kg | 0.49 | 19 | 0.025789474 |
| AOC 3 | NA | NYOW-03-SL004-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.49 | 0.23 | 2.130434783 |
| AOC 3 | NA | NYOW-03-SL004-A | Caprolactam | mg/kg | 0.49 | 3100 | 0.000158065 |
| AOC 3 | NA | NYOW-03-SL004-A | Diethyl phthalate | mg/kg | 0.49 | 5100 | 9.60784E-05 |
| AOC 3 | NA | NYOW-03-SL004-A | di-n-Butyl phthalate | mg/kg | 0.49 | 630 | 0.000777778 |
| AOC 3 | NA | NYOW-03-SL004-A | di-n-Octyl phthalate | mg/kg | 0.49 | 63 | 0.007777778 |
| AOC 3 | NA | NYOW-03-SL004-A | Hexachlorobenzene | mg/kg | 0.49 | 0.078 | 6.282051282 |
| AOC 3 | NA | NYOW-03-SL004-A | Hexachlorobutadiene | mg/kg | 0.49 | 1.2 | 0.408333333 |
| AOC 3 | NA | NYOW-03-SL004-A | Hexachlorocyclopentadiene | mg/kg | 0.49 | 0.18 | 2.722222222 |
| AOC 3 | NA | NYOW-03-SL004-A | Hexachloroethane | mg/kg | 0.49 | 1.8 | 0.272222222 |
| AOC 3 | NA | NYOW-03-SL004-A | Isophorone | mg/kg | 0.49 | 570 | 0.000859649 |
| AOC 3 | NA | NYOW-03-SL004-A | Nitrobenzene | mg/kg | 0.49 | 5.1 | 0.096078431 |
| AOC 3 | NA | NYOW-03-SL004-A | N-Nitrosodi-n-propylamine | mg/kg | 0.49 | 0.078 | 6.282051282 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL004-A | N-Nitrosodiphenylamine | mg/kg | 0.49 | 110 | 0.004454545 |
| AOC 3 | NA | NYOW-03-SL004-A | Pentachlorophenol | mg/kg | 2.5 | 1 | 2.5 |
| AOC 3 | NA | NYOW-03-SL004-A | Phenol | mg/kg | 0.49 | 1900 | 0.000257895 |
| AOC 3 | NA | NYOW-03-SL004-A | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.081 | 0.41 | 0.197560976 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.12 | 0.2 | 0.6 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.081 | 0.17 | 0.476470588 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.081 | 0.23 | 0.352173913 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.081 | 0.23 | 0.352173913 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.081 | 0.12 | 0.675 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.081 | 0.24 | 0.3375 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.081 | 0.24 | 0.3375 |
| AOC 3 | NA | NYOW-03-SL005-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.41 | 0.23 | 1.782608696 |
| AOC 3 | NA | NYOW-03-SL005-A | 1,4-Dioxane | mg/kg | 0.41 | 5.3 | 0.077358491 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.41 | 310 | 0.001322581 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.41 | 190 | 0.002157895 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4,6-Trichlorophenol | mg/kg | 0.41 | 6.3 | 0.065079365 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4-Dichlorophenol | mg/kg | 0.41 | 19 | 0.021578947 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4-Dimethylphenol | mg/kg | 0.41 | 130 | 0.003153846 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 1.7 | 0.476470588 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4-Dinitrotoluene | mg/kg | 0.41 | 1.7 | 0.241176471 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,6-Dinitrotoluene | mg/kg | 0.41 | 0.36 | 1.138888889 |
| AOC 3 | NA | NYOW-03-SL005-A | 2-Chloronaphthalene | mg/kg | 0.41 | 480 | 0.000854167 |
| AOC 3 | NA | NYOW-03-SL005-A | 2-Chlorophenol | mg/kg | 0.41 | 39 | 0.010512821 |
| AOC 3 | NA | NYOW-03-SL005-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 320 | 0.00128125 |
| AOC 3 | NA | NYOW-03-SL005-A | 2-Nitroaniline | mg/kg | 2.1 | 63 | 0.033333333 |
| AOC 3 | NA | NYOW-03-SL005-A | 2-Nitrophenol | mg/kg | 0.41 | 39 | 0.010512821 |
| AOC 3 | NA | NYOW-03-SL005-A | 3,3'-Dichlorobenzidine | mg/kg | 0.81 | 1.2 | 0.675 |
| AOC 3 | NA | NYOW-03-SL005-A | 3-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-SL005-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2.1 | 0.51 | 4.117647059 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL005-A | 4-Chloro-3-methylphenol | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 3 | NA | NYOW-03-SL005-A | 4-Chloroaniline | mg/kg | 0.81 | 2.7 | 0.3 |
| AOC 3 | NA | NYOW-03-SL005-A | 4-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-SL005-A | 4-Nitrophenol | mg/kg | 2.1 | 39 | 0.053846154 |
| AOC 3 | NA | NYOW-03-SL005-A | Acetophenone | mg/kg | 0.41 | 780 | 0.000525641 |
| AOC 3 | NA | NYOW-03-SL005-A | Atrazine | mg/kg | 0.41 | 2.4 | 0.170833333 |
| AOC 3 | NA | NYOW-03-SL005-A | Benzyl butyl phthalate | mg/kg | 0.41 | 290 | 0.001413793 |
| AOC 3 | NA | NYOW-03-SL005-A | Biphenyl (Diphenyl) | mg/kg | 2.1 | 4.7 | 0.446808511 |
| AOC 3 | NA | NYOW-03-SL005-A | Bis(2-chloroethoxy)methane | mg/kg | 0.41 | 19 | 0.021578947 |
| AOC 3 | NA | NYOW-03-SL005-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.41 | 0.23 | 1.782608696 |
| AOC 3 | NA | NYOW-03-SL005-A | Caprolactam | mg/kg | 0.41 | 3100 | 0.000132258 |
| AOC 3 | NA | NYOW-03-SL005-A | Diethyl phthalate | mg/kg | 0.41 | 5100 | 8.03922E-05 |
| AOC 3 | NA | NYOW-03-SL005-A | di-n-Butyl phthalate | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 3 | NA | NYOW-03-SL005-A | di-n-Octyl phthalate | mg/kg | 0.41 | 63 | 0.006507937 |
| AOC 3 | NA | NYOW-03-SL005-A | Hexachlorobenzene | mg/kg | 0.41 | 0.078 | 5.256410256 |
| AOC 3 | NA | NYOW-03-SL005-A | Hexachlorobutadiene | mg/kg | 0.41 | 1.2 | 0.341666667 |
| AOC 3 | NA | NYOW-03-SL005-A | Hexachlorocyclopentadiene | mg/kg | 0.41 | 0.18 | 2.277777778 |
| AOC 3 | NA | NYOW-03-SL005-A | Hexachloroethane | mg/kg | 0.41 | 1.8 | 0.227777778 |
| AOC 3 | NA | NYOW-03-SL005-A | Isophorone | mg/kg | 0.41 | 570 | 0.000719298 |
| AOC 3 | NA | NYOW-03-SL005-A | Nitrobenzene | mg/kg | 0.41 | 5.1 | 0.080392157 |
| AOC 3 | NA | NYOW-03-SL005-A | N-Nitrosodi-n-propylamine | mg/kg | 0.41 | 0.078 | 5.256410256 |
| AOC 3 | NA | NYOW-03-SL005-A | N-Nitrosodiphenylamine | mg/kg | 0.41 | 110 | 0.003727273 |
| AOC 3 | NA | NYOW-03-SL005-A | Pentachlorophenol | mg/kg | 2.1 | 1 | 2.1 |
| AOC 3 | NA | NYOW-03-SL005-A | Phenol | mg/kg | 0.41 | 1900 | 0.000215789 |
| AOC 3 | NA | NYOW-03-SL005-A | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.078 | 0.41 | 0.190243902 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.078 | 0.17 | 0.458823529 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.078 | 0.23 | 0.339130435 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.078 | 0.23 | 0.339130435 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.078 | 0.12 | 0.65 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.078 | 0.24 | 0.325 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.078 | 0.24 | 0.325 |
| AOC 3 | NA | NYOW-03-SL006-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.4 | 0.23 | 1.739130435 |
| AOC 3 | NA | NYOW-03-SL006-A | 1,4-Dioxane | mg/kg | 0.4 | 5.3 | 0.075471698 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.4 | 310 | 0.001290323 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.4 | 190 | 0.002105263 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,4,5-Trichlorophenol | mg/kg | 0.4 | 630 | 0.000634921 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,4,6-Trichlorophenol | mg/kg | 0.4 | 6.3 | 0.063492063 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,4-Dichlorophenol | mg/kg | 0.4 | 19 | 0.021052632 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,4-Dimethylphenol | mg/kg | 0.4 | 130 | 0.003076923 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 1.7 | 0.476470588 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,4-Dinitrotoluene | mg/kg | 0.4 | 1.7 | 0.235294118 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,6-Dinitrotoluene | mg/kg | 0.4 | 0.36 | 1.111111111 |
| AOC 3 | NA | NYOW-03-SL006-A | 2-Chloronaphthalene | mg/kg | 0.4 | 480 | 0.000833333 |
| AOC 3 | NA | NYOW-03-SL006-A | 2-Chlorophenol | mg/kg | 0.4 | 39 | 0.01025641 |
| AOC 3 | NA | NYOW-03-SL006-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.4 | 320 | 0.00125 |
| AOC 3 | NA | NYOW-03-SL006-A | 2-Nitroaniline | mg/kg | 2.1 | 63 | 0.033333333 |
| AOC 3 | NA | NYOW-03-SL006-A | 2-Nitrophenol | mg/kg | 0.4 | 39 | 0.01025641 |
| AOC 3 | NA | NYOW-03-SL006-A | 3,3'-Dichlorobenzidine | mg/kg | 0.81 | 1.2 | 0.675 |
| AOC 3 | NA | NYOW-03-SL006-A | 3-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-SL006-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2.1 | 0.51 | 4.117647059 |
| AOC 3 | NA | NYOW-03-SL006-A | 4-Chloro-3-methylphenol | mg/kg | 0.4 | 630 | 0.000634921 |
| AOC 3 | NA | NYOW-03-SL006-A | 4-Chloroaniline | mg/kg | 0.81 | 2.7 | 0.3 |
| AOC 3 | NA | NYOW-03-SL006-A | 4-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-SL006-A | 4-Nitrophenol | mg/kg | 2.1 | 39 | 0.053846154 |
| AOC 3 | NA | NYOW-03-SL006-A | Acetophenone | mg/kg | 0.4 | 780 | 0.000512821 |
| AOC 3 | NA | NYOW-03-SL006-A | Atrazine | mg/kg | 0.4 | 2.4 | 0.166666667 |
| AOC 3 | NA | NYOW-03-SL006-A | Benzyl butyl phthalate | mg/kg | 0.4 | 290 | 0.00137931 |
| AOC 3 | NA | NYOW-03-SL006-A | Biphenyl (Diphenyl) | mg/kg | 2.1 | 4.7 | 0.446808511 |
| AOC 3 | NA | NYOW-03-SL006-A | Bis(2-chloroethoxy)methane | mg/kg | 0.4 | 19 | 0.021052632 |
| AOC 3 | NA | NYOW-03-SL006-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.4 | 0.23 | 1.739130435 |
| AOC 3 | NA | NYOW-03-SL006-A | Caprolactam | mg/kg | 0.4 | 3100 | 0.000129032 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL006-A | Diethyl phthalate | mg/kg | 0.4 | 5100 | 7.84314E-05 |
| AOC 3 | NA | NYOW-03-SL006-A | di-n-Butyl phthalate | mg/kg | 0.4 | 630 | 0.000634921 |
| AOC 3 | NA | NYOW-03-SL006-A | di-n-Octyl phthalate | mg/kg | 0.4 | 63 | 0.006349206 |
| AOC 3 | NA | NYOW-03-SL006-A | Hexachlorobenzene | mg/kg | 0.4 | 0.078 | 5.128205128 |
| AOC 3 | NA | NYOW-03-SL006-A | Hexachlorobutadiene | mg/kg | 0.4 | 1.2 | 0.333333333 |
| AOC 3 | NA | NYOW-03-SL006-A | Hexachlorocyclopentadiene | mg/kg | 0.4 | 0.18 | 2.222222222 |
| AOC 3 | NA | NYOW-03-SL006-A | Hexachloroethane | mg/kg | 0.4 | 1.8 | 0.222222222 |
| AOC 3 | NA | NYOW-03-SL006-A | Isophorone | mg/kg | 0.4 | 570 | 0.000701754 |
| AOC 3 | NA | NYOW-03-SL006-A | Nitrobenzene | mg/kg | 0.4 | 5.1 | 0.078431373 |
| AOC 3 | NA | NYOW-03-SL006-A | N-Nitrosodi-n-propylamine | mg/kg | 0.4 | 0.078 | 5.128205128 |
| AOC 3 | NA | NYOW-03-SL006-A | N-Nitrosodiphenylamine | mg/kg | 0.4 | 110 | 0.003636364 |
| AOC 3 | NA | NYOW-03-SL006-A | Pentachlorophenol | mg/kg | 2.1 | 1 | 2.1 |
| AOC 3 | NA | NYOW-03-SL006-A | Phenol | mg/kg | 0.4 | 1900 | 0.000210526 |
| AOC 3 | NA | NYOW-03-SL006-A | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.077 | 0.41 | 0.187804878 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.077 | 0.17 | 0.452941176 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.077 | 0.23 | 0.334782609 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.077 | 0.23 | 0.334782609 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.077 | 0.12 | 0.641666667 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.077 | 0.24 | 0.320833333 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.077 | 0.24 | 0.320833333 |
| AOC 3 | NA | NYOW-03-SL007-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 3 | NA | NYOW-03-SL007-A | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.7 | 0.452941176 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL007-A | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 3 | NA | NYOW-03-SL007-A | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 3 | NA | NYOW-03-SL007-A | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 3 | NA | NYOW-03-SL007-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 3 | NA | NYOW-03-SL007-A | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 3 | NA | NYOW-03-SL007-A | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 3 | NA | NYOW-03-SL007-A | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 1.2 | 0.641666667 |
| AOC 3 | NA | NYOW-03-SL007-A | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-SL007-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 3 | NA | NYOW-03-SL007-A | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-SL007-A | 4-Chloroaniline | mg/kg | 0.77 | 2.7 | 0.285185185 |
| AOC 3 | NA | NYOW-03-SL007-A | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-SL007-A | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 3 | NA | NYOW-03-SL007-A | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 3 | NA | NYOW-03-SL007-A | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 3 | NA | NYOW-03-SL007-A | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 3 | NA | NYOW-03-SL007-A | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 3 | NA | NYOW-03-SL007-A | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 3 | NA | NYOW-03-SL007-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 3 | NA | NYOW-03-SL007-A | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 3 | NA | NYOW-03-SL007-A | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 3 | NA | NYOW-03-SL007-A | di-n-Butyl phthalate | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-SL007-A | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 3 | NA | NYOW-03-SL007-A | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 3 | NA | NYOW-03-SL007-A | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 3 | NA | NYOW-03-SL007-A | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 3 | NA | NYOW-03-SL007-A | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 3 | NA | NYOW-03-SL007-A | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 3 | NA | NYOW-03-SL007-A | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 3 | NA | NYOW-03-SL007-A | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 3 | NA | NYOW-03-SL007-A | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL007-A | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 3 | NA | NYOW-03-SL007-A | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 3 | NA | NYOW-03-SL007-A | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.069 | 0.41 | 0.168292683 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.098 | 0.2 | 0.49 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.069 | 0.17 | 0.405882353 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.069 | 0.23 | 0.3 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.069 | 0.23 | 0.3 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.069 | 0.12 | 0.575 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.069 | 0.24 | 0.2875 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.069 | 0.24 | 0.2875 |
| AOC 3 | NA | NYOW-03-SL008-A | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 1,4-Dioxane | mg/kg | 0.38 | 5.3 | 0.071698113 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 310 | 0.001225806 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 190 | 0.002 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 6.3 | 0.06031746 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4-Dichlorophenol | mg/kg | 0.38 | 19 | 0.02 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4-Dimethylphenol | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.7 | 0.447058824 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4-Dinitrotoluene | mg/kg | 0.38 | 1.7 | 0.223529412 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,6-Dinitrotoluene | mg/kg | 0.38 | 0.36 | 1.055555556 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2-Chloronaphthalene | mg/kg | 0.38 | 480 | 0.000791667 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2-Chlorophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 320 | 0.0011875 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2-Nitrophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 1.2 | 0.633333333 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL008-A_R | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 4-Chloroaniline | mg/kg | 0.76 | 2.7 | 0.281481481 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Acetophenone | mg/kg | 0.38 | 780 | 0.000487179 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Atrazine | mg/kg | 0.38 | 2.4 | 0.158333333 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Benzyl butyl phthalate | mg/kg | 0.38 | 290 | 0.001310345 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 19 | 0.02 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Caprolactam | mg/kg | 0.38 | 3100 | 0.000122581 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Diethyl phthalate | mg/kg | 0.38 | 5100 | 7.45098E-05 |
| AOC 3 | NA | NYOW-03-SL008-A_R | di-n-Butyl phthalate | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 3 | NA | NYOW-03-SL008-A_R | di-n-Octyl phthalate | mg/kg | 0.38 | 63 | 0.006031746 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Hexachlorobenzene | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Hexachlorobutadiene | mg/kg | 0.38 | 1.2 | 0.316666667 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Hexachloroethane | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Isophorone | mg/kg | 0.38 | 570 | 0.000666667 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Nitrobenzene | mg/kg | 0.38 | 5.1 | 0.074509804 |
| AOC 3 | NA | NYOW-03-SL008-A_R | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 3 | NA | NYOW-03-SL008-A_R | N-Nitrosodiphenylamine | mg/kg | 0.38 | 110 | 0.003454545 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Phenol | mg/kg | 0.38 | 1900 | 0.0002 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.083 | 0.41 | 0.202439024 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.12 | 0.2 | 0.6 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.083 | 0.17 | 0.488235294 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.083 | 0.23 | 0.360869565 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.083 | 0.23 | 0.360869565 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.083 | 0.12 | 0.691666667 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.083 | 0.24 | 0.345833333 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.083 | 0.24 | 0.345833333 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL009-A | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.46 | 0.23 | 2 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 1,4-Dioxane | mg/kg | 0.46 | 5.3 | 0.086792453 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.46 | 310 | 0.001483871 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.46 | 190 | 0.002421053 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4,5-Trichlorophenol | mg/kg | 0.46 | 630 | 0.000730159 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4,6-Trichlorophenol | mg/kg | 0.46 | 6.3 | 0.073015873 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4-Dichlorophenol | mg/kg | 0.46 | 19 | 0.024210526 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4-Dimethylphenol | mg/kg | 0.46 | 130 | 0.003538462 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.92 | 1.7 | 0.541176471 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4-Dinitrophenol | mg/kg | 2.4 | 13 | 0.184615385 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4-Dinitrotoluene | mg/kg | 0.46 | 1.7 | 0.270588235 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,6-Dinitrotoluene | mg/kg | 0.46 | 0.36 | 1.277777778 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2-Chloronaphthalene | mg/kg | 0.46 | 480 | 0.000958333 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2-Chlorophenol | mg/kg | 0.46 | 39 | 0.011794872 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.46 | 320 | 0.0014375 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2-Nitroaniline | mg/kg | 2.4 | 63 | 0.038095238 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2-Nitrophenol | mg/kg | 0.46 | 39 | 0.011794872 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 3,3'-Dichlorobenzidine | mg/kg | 0.92 | 1.2 | 0.766666667 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 3-Nitroaniline | mg/kg | 2.4 | 25 | 0.096 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 4,6-Dinitro-2-methylphenol | mg/kg | 2.4 | 0.51 | 4.705882353 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 4-Chloro-3-methylphenol | mg/kg | 0.46 | 630 | 0.000730159 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 4-Chloroaniline | mg/kg | 0.92 | 2.7 | 0.340740741 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 4-Nitroaniline | mg/kg | 2.4 | 25 | 0.096 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 4-Nitrophenol | mg/kg | 2.4 | 39 | 0.061538462 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Acetophenone | mg/kg | 0.46 | 780 | 0.000589744 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Atrazine | mg/kg | 0.46 | 2.4 | 0.191666667 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Benzyl butyl phthalate | mg/kg | 0.46 | 290 | 0.001586207 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Biphenyl (Diphenyl) | mg/kg | 2.4 | 4.7 | 0.510638298 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Bis(2-chloroethoxy)methane | mg/kg | 0.46 | 19 | 0.024210526 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.46 | 0.23 | 2 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Caprolactam | mg/kg | 0.46 | 3100 | 0.000148387 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL009-A_R | Diethyl phthalate | mg/kg | 0.46 | 5100 | 9.01961E-05 |
| AOC 3 | NA | NYOW-03-SL009-A_R | di-n-Butyl phthalate | mg/kg | 0.46 | 630 | 0.000730159 |
| AOC 3 | NA | NYOW-03-SL009-A_R | di-n-Octyl phthalate | mg/kg | 0.46 | 63 | 0.007301587 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Hexachlorobenzene | mg/kg | 0.46 | 0.078 | 5.897435897 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Hexachlorobutadiene | mg/kg | 0.46 | 1.2 | 0.383333333 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Hexachlorocyclopentadiene | mg/kg | 0.46 | 0.18 | 2.555555556 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Hexachloroethane | mg/kg | 0.46 | 1.8 | 0.255555556 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Isophorone | mg/kg | 0.46 | 570 | 0.000807018 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Nitrobenzene | mg/kg | 0.46 | 5.1 | 0.090196078 |
| AOC 3 | NA | NYOW-03-SL009-A_R | N-Nitrosodi-n-propylamine | mg/kg | 0.46 | 0.078 | 5.897435897 |
| AOC 3 | NA | NYOW-03-SL009-A_R | N-Nitrosodiphenylamine | mg/kg | 0.46 | 110 | 0.004181818 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Pentachlorophenol | mg/kg | 2.4 | 1 | 2.4 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Phenol | mg/kg | 0.46 | 1900 | 0.000242105 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.079 | 0.41 | 0.192682927 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.079 | 0.17 | 0.464705882 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.079 | 0.23 | 0.343478261 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.079 | 0.23 | 0.343478261 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.079 | 0.12 | 0.658333333 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.079 | 0.24 | 0.329166667 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.079 | 0.24 | 0.329166667 |
| AOC 3 | NA | NYOW-03-SL010-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.41 | 0.23 | 1.782608696 |
| AOC 3 | NA | NYOW-03-SL010-A | 1,4-Dioxane | mg/kg | 0.41 | 5.3 | 0.077358491 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.41 | 310 | 0.001322581 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.41 | 190 | 0.002157895 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,4,6-Trichlorophenol | mg/kg | 0.41 | 6.3 | 0.065079365 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,4-Dichlorophenol | mg/kg | 0.41 | 19 | 0.021578947 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,4-Dimethylphenol | mg/kg | 0.41 | 130 | 0.003153846 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 1.7 | 0.482352941 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,4-Dinitrotoluene | mg/kg | 0.41 | 1.7 | 0.241176471 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL010-A | 2,6-Dinitrotoluene | mg/kg | 0.41 | 0.36 | 1.138888889 |
| AOC 3 | NA | NYOW-03-SL010-A | 2-Chloronaphthalene | mg/kg | 0.41 | 480 | 0.000854167 |
| AOC 3 | NA | NYOW-03-SL010-A | 2-Chlorophenol | mg/kg | 0.41 | 39 | 0.010512821 |
| AOC 3 | NA | NYOW-03-SL010-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 320 | 0.00128125 |
| AOC 3 | NA | NYOW-03-SL010-A | 2-Nitroaniline | mg/kg | 2.1 | 63 | 0.033333333 |
| AOC 3 | NA | NYOW-03-SL010-A | 2-Nitrophenol | mg/kg | 0.41 | 39 | 0.010512821 |
| AOC 3 | NA | NYOW-03-SL010-A | 3,3'-Dichlorobenzidine | mg/kg | 0.82 | 1.2 | 0.683333333 |
| AOC 3 | NA | NYOW-03-SL010-A | 3-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-SL010-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2.1 | 0.51 | 4.117647059 |
| AOC 3 | NA | NYOW-03-SL010-A | 4-Chloro-3-methylphenol | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 3 | NA | NYOW-03-SL010-A | 4-Chloroaniline | mg/kg | 0.82 | 2.7 | 0.303703704 |
| AOC 3 | NA | NYOW-03-SL010-A | 4-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-SL010-A | 4-Nitrophenol | mg/kg | 2.1 | 39 | 0.053846154 |
| AOC 3 | NA | NYOW-03-SL010-A | Acetophenone | mg/kg | 0.41 | 780 | 0.000525641 |
| AOC 3 | NA | NYOW-03-SL010-A | Atrazine | mg/kg | 0.41 | 2.4 | 0.170833333 |
| AOC 3 | NA | NYOW-03-SL010-A | Benzyl butyl phthalate | mg/kg | 0.41 | 290 | 0.001413793 |
| AOC 3 | NA | NYOW-03-SL010-A | Biphenyl (Diphenyl) | mg/kg | 2.1 | 4.7 | 0.446808511 |
| AOC 3 | NA | NYOW-03-SL010-A | Bis(2-chloroethoxy)methane | mg/kg | 0.41 | 19 | 0.021578947 |
| AOC 3 | NA | NYOW-03-SL010-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.41 | 0.23 | 1.782608696 |
| AOC 3 | NA | NYOW-03-SL010-A | Caprolactam | mg/kg | 0.41 | 3100 | 0.000132258 |
| AOC 3 | NA | NYOW-03-SL010-A | Diethyl phthalate | mg/kg | 0.41 | 5100 | 8.03922E-05 |
| AOC 3 | NA | NYOW-03-SL010-A | di-n-Butyl phthalate | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 3 | NA | NYOW-03-SL010-A | di-n-Octyl phthalate | mg/kg | 0.41 | 63 | 0.006507937 |
| AOC 3 | NA | NYOW-03-SL010-A | Hexachlorobenzene | mg/kg | 0.41 | 0.078 | 5.256410256 |
| AOC 3 | NA | NYOW-03-SL010-A | Hexachlorobutadiene | mg/kg | 0.41 | 1.2 | 0.341666667 |
| AOC 3 | NA | NYOW-03-SL010-A | Hexachlorocyclopentadiene | mg/kg | 0.41 | 0.18 | 2.277777778 |
| AOC 3 | NA | NYOW-03-SL010-A | Hexachloroethane | mg/kg | 0.41 | 1.8 | 0.227777778 |
| AOC 3 | NA | NYOW-03-SL010-A | Isophorone | mg/kg | 0.41 | 570 | 0.000719298 |
| AOC 3 | NA | NYOW-03-SL010-A | Nitrobenzene | mg/kg | 0.41 | 5.1 | 0.080392157 |
| AOC 3 | NA | NYOW-03-SL010-A | N-Nitrosodi-n-propylamine | mg/kg | 0.41 | 0.078 | 5.256410256 |
| AOC 3 | NA | NYOW-03-SL010-A | N-Nitrosodiphenylamine | mg/kg | 0.41 | 110 | 0.003727273 |
| AOC 3 | NA | NYOW-03-SL010-A | Pentachlorophenol | mg/kg | 2.1 | 1 | 2.1 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL010-A | Phenol | mg/kg | 0.41 | 1900 | 0.000215789 |
| AOC 3 | NA | NYOW-03-SL010-A | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.088 | 0.41 | 0.214634146 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.13 | 0.2 | 0.65 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.088 | 0.17 | 0.517647059 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.088 | 0.23 | 0.382608696 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.088 | 0.23 | 0.382608696 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.088 | 0.12 | 0.733333333 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.088 | 0.24 | 0.366666667 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.088 | 0.24 | 0.366666667 |
| AOC 3 | NA | NYOW-03-SL011-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.42 | 0.23 | 1.826086957 |
| AOC 3 | NA | NYOW-03-SL011-A | 1,4-Dioxane | mg/kg | 0.42 | 5.3 | 0.079245283 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.42 | 310 | 0.001354839 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.42 | 190 | 0.002210526 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 630 | 0.000666667 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4,6-Trichlorophenol | mg/kg | 0.42 | 6.3 | 0.066666667 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4-Dichlorophenol | mg/kg | 0.42 | 19 | 0.022105263 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4-Dimethylphenol | mg/kg | 0.42 | 130 | 0.003230769 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.85 | 1.7 | 0.5 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 13 | 0.169230769 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4-Dinitrotoluene | mg/kg | 0.42 | 1.7 | 0.247058824 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,6-Dinitrotoluene | mg/kg | 0.42 | 0.36 | 1.166666667 |
| AOC 3 | NA | NYOW-03-SL011-A | 2-Chloronaphthalene | mg/kg | 0.42 | 480 | 0.000875 |
| AOC 3 | NA | NYOW-03-SL011-A | 2-Chlorophenol | mg/kg | 0.42 | 39 | 0.010769231 |
| AOC 3 | NA | NYOW-03-SL011-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 320 | 0.0013125 |
| AOC 3 | NA | NYOW-03-SL011-A | 2-Nitroaniline | mg/kg | 2.2 | 63 | 0.034920635 |
| AOC 3 | NA | NYOW-03-SL011-A | 2-Nitrophenol | mg/kg | 0.42 | 39 | 0.010769231 |
| AOC 3 | NA | NYOW-03-SL011-A | 3,3'-Dichlorobenzidine | mg/kg | 0.85 | 1.2 | 0.708333333 |
| AOC 3 | NA | NYOW-03-SL011-A | 3-Nitroaniline | mg/kg | 2.2 | 25 | 0.088 |
| AOC 3 | NA | NYOW-03-SL011-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2.2 | 0.51 | 4.31372549 |
| AOC 3 | NA | NYOW-03-SL011-A | 4-Chloro-3-methylphenol | mg/kg | 0.42 | 630 | 0.000666667 |
| AOC 3 | NA | NYOW-03-SL011-A | 4-Chloroaniline | mg/kg | 0.85 | 2.7 | 0.314814815 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL011-A | 4-Nitroaniline | mg/kg | 2.2 | 25 | 0.088 |
| AOC 3 | NA | NYOW-03-SL011-A | 4-Nitrophenol | mg/kg | 2.2 | 39 | 0.056410256 |
| AOC 3 | NA | NYOW-03-SL011-A | Acetophenone | mg/kg | 0.42 | 780 | 0.000538462 |
| AOC 3 | NA | NYOW-03-SL011-A | Atrazine | mg/kg | 0.42 | 2.4 | 0.175 |
| AOC 3 | NA | NYOW-03-SL011-A | Benzyl butyl phthalate | mg/kg | 0.42 | 290 | 0.001448276 |
| AOC 3 | NA | NYOW-03-SL011-A | Biphenyl (Diphenyl) | mg/kg | 2.2 | 4.7 | 0.468085106 |
| AOC 3 | NA | NYOW-03-SL011-A | Bis(2-chloroethoxy)methane | mg/kg | 0.42 | 19 | 0.022105263 |
| AOC 3 | NA | NYOW-03-SL011-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.42 | 0.23 | 1.826086957 |
| AOC 3 | NA | NYOW-03-SL011-A | Caprolactam | mg/kg | 0.42 | 3100 | 0.000135484 |
| AOC 3 | NA | NYOW-03-SL011-A | Diethyl phthalate | mg/kg | 0.42 | 5100 | 8.23529E-05 |
| AOC 3 | NA | NYOW-03-SL011-A | di-n-Butyl phthalate | mg/kg | 0.42 | 630 | 0.000666667 |
| AOC 3 | NA | NYOW-03-SL011-A | di-n-Octyl phthalate | mg/kg | 0.42 | 63 | 0.006666667 |
| AOC 3 | NA | NYOW-03-SL011-A | Hexachlorobenzene | mg/kg | 0.42 | 0.078 | 5.384615385 |
| AOC 3 | NA | NYOW-03-SL011-A | Hexachlorobutadiene | mg/kg | 0.42 | 1.2 | 0.35 |
| AOC 3 | NA | NYOW-03-SL011-A | Hexachlorocyclopentadiene | mg/kg | 0.42 | 0.18 | 2.333333333 |
| AOC 3 | NA | NYOW-03-SL011-A | Hexachloroethane | mg/kg | 0.42 | 1.8 | 0.233333333 |
| AOC 3 | NA | NYOW-03-SL011-A | Isophorone | mg/kg | 0.42 | 570 | 0.000736842 |
| AOC 3 | NA | NYOW-03-SL011-A | Nitrobenzene | mg/kg | 0.42 | 5.1 | 0.082352941 |
| AOC 3 | NA | NYOW-03-SL011-A | N-Nitrosodi-n-propylamine | mg/kg | 0.42 | 0.078 | 5.384615385 |
| AOC 3 | NA | NYOW-03-SL011-A | N-Nitrosodiphenylamine | mg/kg | 0.42 | 110 | 0.003818182 |
| AOC 3 | NA | NYOW-03-SL011-A | Pentachlorophenol | mg/kg | 2.2 | 1 | 2.2 |
| AOC 3 | NA | NYOW-03-SL011-A | Phenol | mg/kg | 0.42 | 1900 | 0.000221053 |
| AOC 3 | NA | NYOW-03-SL011-A | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.076 | 0.41 | 0.185365854 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.076 | 0.17 | 0.447058824 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.076 | 0.23 | 0.330434783 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.076 | 0.23 | 0.330434783 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.076 | 0.12 | 0.633333333 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.076 | 0.24 | 0.316666667 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.076 | 0.24 | 0.316666667 |
| AOC 3 | NA | NYOW-03-SL012-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL012-A | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.7 | 0.452941176 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 3 | NA | NYOW-03-SL012-A | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 3 | NA | NYOW-03-SL012-A | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 3 | NA | NYOW-03-SL012-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 3 | NA | NYOW-03-SL012-A | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 3 | NA | NYOW-03-SL012-A | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 3 | NA | NYOW-03-SL012-A | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 1.2 | 0.641666667 |
| AOC 3 | NA | NYOW-03-SL012-A | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-SL012-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 3 | NA | NYOW-03-SL012-A | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 3 | NA | NYOW-03-SL012-A | 4-Chloroaniline | mg/kg | 0.77 | 2.7 | 0.285185185 |
| AOC 3 | NA | NYOW-03-SL012-A | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-SL012-A | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 3 | NA | NYOW-03-SL012-A | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 3 | NA | NYOW-03-SL012-A | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 3 | NA | NYOW-03-SL012-A | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 3 | NA | NYOW-03-SL012-A | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 3 | NA | NYOW-03-SL012-A | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 3 | NA | NYOW-03-SL012-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 3 | NA | NYOW-03-SL012-A | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 3 | NA | NYOW-03-SL012-A | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 3 | NA | NYOW-03-SL012-A | di-n-Butyl phthalate | mg/kg | 0.39 | 630 | 0.000619048 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL012-A | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 3 | NA | NYOW-03-SL012-A | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 3 | NA | NYOW-03-SL012-A | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 3 | NA | NYOW-03-SL012-A | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 3 | NA | NYOW-03-SL012-A | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 3 | NA | NYOW-03-SL012-A | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 3 | NA | NYOW-03-SL012-A | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 3 | NA | NYOW-03-SL012-A | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 3 | NA | NYOW-03-SL012-A | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 3 | NA | NYOW-03-SL012-A | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 3 | NA | NYOW-03-SL012-A | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 3 | NA | NYOW-03-SL012-A | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.078 | 0.41 | 0.190243902 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.078 | 0.17 | 0.458823529 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.078 | 0.23 | 0.339130435 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.078 | 0.23 | 0.339130435 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.078 | 0.12 | 0.65 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.078 | 0.24 | 0.325 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.078 | 0.24 | 0.325 |
| AOC 3 | NA | NYOW-03-SL013-A | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.4 | 0.23 | 1.739130435 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 1,4-Dioxane | mg/kg | 0.4 | 5.3 | 0.075471698 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.4 | 310 | 0.001290323 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.4 | 190 | 0.002105263 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4,5-Trichlorophenol | mg/kg | 0.4 | 630 | 0.000634921 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4,6-Trichlorophenol | mg/kg | 0.4 | 6.3 | 0.063492063 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4-Dichlorophenol | mg/kg | 0.4 | 19 | 0.021052632 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4-Dimethylphenol | mg/kg | 0.4 | 130 | 0.003076923 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 1.7 | 0.470588235 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4-Dinitrotoluene | mg/kg | 0.4 | 1.7 | 0.235294118 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,6-Dinitrotoluene | mg/kg | 0.4 | 0.36 | 1.111111111 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2-Chloronaphthalene | mg/kg | 0.4 | 480 | 0.000833333 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2-Chlorophenol | mg/kg | 0.4 | 39 | 0.01025641 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.4 | 320 | 0.00125 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2-Nitroaniline | mg/kg | 2.1 | 63 | 0.033333333 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2-Nitrophenol | mg/kg | 0.4 | 39 | 0.01025641 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 3,3'-Dichlorobenzidine | mg/kg | 0.8 | 1.2 | 0.666666667 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 3-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 4,6-Dinitro-2-methylphenol | mg/kg | 2.1 | 0.51 | 4.117647059 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 4-Chloro-3-methylphenol | mg/kg | 0.4 | 630 | 0.000634921 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 4-Chloroaniline | mg/kg | 0.8 | 2.7 | 0.296296296 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 4-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 4-Nitrophenol | mg/kg | 2.1 | 39 | 0.053846154 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Acetophenone | mg/kg | 0.4 | 780 | 0.000512821 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Atrazine | mg/kg | 0.4 | 2.4 | 0.166666667 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Benzyl butyl phthalate | mg/kg | 0.4 | 290 | 0.00137931 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Biphenyl (Diphenyl) | mg/kg | 2.1 | 4.7 | 0.446808511 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Bis(2-chloroethoxy)methane | mg/kg | 0.4 | 19 | 0.021052632 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.4 | 0.23 | 1.739130435 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Caprolactam | mg/kg | 0.4 | 3100 | 0.000129032 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Diethyl phthalate | mg/kg | 0.4 | 5100 | 7.84314E-05 |
| AOC 3 | NA | NYOW-03-SL013-A_R | di-n-Butyl phthalate | mg/kg | 0.4 | 630 | 0.000634921 |
| AOC 3 | NA | NYOW-03-SL013-A_R | di-n-Octyl phthalate | mg/kg | 0.4 | 63 | 0.006349206 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Hexachlorobenzene | mg/kg | 0.4 | 0.078 | 5.128205128 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Hexachlorobutadiene | mg/kg | 0.4 | 1.2 | 0.333333333 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Hexachlorocyclopentadiene | mg/kg | 0.4 | 0.18 | 2.222222222 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Hexachloroethane | mg/kg | 0.4 | 1.8 | 0.222222222 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Isophorone | mg/kg | 0.4 | 570 | 0.000701754 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Nitrobenzene | mg/kg | 0.4 | 5.1 | 0.078431373 |
| AOC 3 | NA | NYOW-03-SL013-A_R | N-Nitrosodi-n-propylamine | mg/kg | 0.4 | 0.078 | 5.128205128 |
| AOC 3 | NA | NYOW-03-SL013-A_R | N-Nitrosodiphenylamine | mg/kg | 0.4 | 110 | 0.003636364 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Pentachlorophenol | mg/kg | 2.1 | 1 | 2.1 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL013-A_R | Phenol | mg/kg | 0.4 | 1900 | 0.000210526 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.07 | 0.41 | 0.170731707 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.099 | 0.2 | 0.495 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.07 | 0.17 | 0.411764706 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.07 | 0.23 | 0.304347826 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.07 | 0.23 | 0.304347826 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.07 | 0.12 | 0.583333333 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.07 | 0.24 | 0.291666667 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.07 | 0.24 | 0.291666667 |
| AOC 3 | NA | NYOW-03-SL014-A | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 1,4-Dioxane | mg/kg | 0.38 | 5.3 | 0.071698113 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 310 | 0.001225806 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 190 | 0.002 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 6.3 | 0.06031746 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4-Dichlorophenol | mg/kg | 0.38 | 19 | 0.02 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4-Dimethylphenol | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.7 | 0.447058824 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4-Dinitrotoluene | mg/kg | 0.38 | 1.7 | 0.223529412 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,6-Dinitrotoluene | mg/kg | 0.38 | 0.36 | 1.055555556 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2-Chloronaphthalene | mg/kg | 0.38 | 480 | 0.000791667 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2-Chlorophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 320 | 0.0011875 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2-Nitrophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 1.2 | 0.633333333 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 4-Chloroaniline | mg/kg | 0.76 | 2.7 | 0.281481481 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL014-A_R | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Acetophenone | mg/kg | 0.38 | 780 | 0.000487179 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Atrazine | mg/kg | 0.38 | 2.4 | 0.158333333 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Benzyl butyl phthalate | mg/kg | 0.38 | 290 | 0.001310345 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 19 | 0.02 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Caprolactam | mg/kg | 0.38 | 3100 | 0.000122581 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Diethyl phthalate | mg/kg | 0.38 | 5100 | 7.45098E-05 |
| AOC 3 | NA | NYOW-03-SL014-A_R | di-n-Butyl phthalate | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 3 | NA | NYOW-03-SL014-A_R | di-n-Octyl phthalate | mg/kg | 0.38 | 63 | 0.006031746 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Hexachlorobenzene | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Hexachlorobutadiene | mg/kg | 0.38 | 1.2 | 0.316666667 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Hexachloroethane | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Isophorone | mg/kg | 0.38 | 570 | 0.000666667 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Nitrobenzene | mg/kg | 0.38 | 5.1 | 0.074509804 |
| AOC 3 | NA | NYOW-03-SL014-A_R | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 3 | NA | NYOW-03-SL014-A_R | N-Nitrosodiphenylamine | mg/kg | 0.38 | 110 | 0.003454545 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Phenol | mg/kg | 0.38 | 1900 | 0.0002 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.1 | 0.41 | 0.243902439 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.15 | 0.2 | 0.75 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.1 | 0.17 | 0.588235294 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.1 | 0.23 | 0.434782609 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.1 | 0.23 | 0.434782609 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.1 | 0.12 | 0.833333333 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.1 | 0.24 | 0.416666667 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.1 | 0.24 | 0.416666667 |
| AOC 3 | NA | NYOW-03-SL015-A | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.47 | 0.23 | 2.043478261 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL015-A_R | 1,4-Dioxane | mg/kg | 0.47 | 5.3 | 0.088679245 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.47 | 310 | 0.001516129 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.47 | 190 | 0.002473684 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4,5-Trichlorophenol | mg/kg | 0.47 | 630 | 0.000746032 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4,6-Trichlorophenol | mg/kg | 0.47 | 6.3 | 0.074603175 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4-Dichlorophenol | mg/kg | 0.47 | 19 | 0.024736842 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4-Dimethylphenol | mg/kg | 0.47 | 130 | 0.003615385 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.94 | 1.7 | 0.552941176 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4-Dinitrophenol | mg/kg | 2.4 | 13 | 0.184615385 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4-Dinitrotoluene | mg/kg | 0.47 | 1.7 | 0.276470588 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,6-Dinitrotoluene | mg/kg | 0.47 | 0.36 | 1.305555556 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2-Chloronaphthalene | mg/kg | 0.47 | 480 | 0.000979167 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2-Chlorophenol | mg/kg | 0.47 | 39 | 0.012051282 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.47 | 320 | 0.00146875 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2-Nitroaniline | mg/kg | 2.4 | 63 | 0.038095238 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2-Nitrophenol | mg/kg | 0.47 | 39 | 0.012051282 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 3,3'-Dichlorobenzidine | mg/kg | 0.94 | 1.2 | 0.783333333 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 3-Nitroaniline | mg/kg | 2.4 | 25 | 0.096 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 4,6-Dinitro-2-methylphenol | mg/kg | 2.4 | 0.51 | 4.705882353 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 4-Chloro-3-methylphenol | mg/kg | 0.47 | 630 | 0.000746032 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 4-Chloroaniline | mg/kg | 0.94 | 2.7 | 0.348148148 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 4-Nitroaniline | mg/kg | 2.4 | 25 | 0.096 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 4-Nitrophenol | mg/kg | 2.4 | 39 | 0.061538462 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Acetophenone | mg/kg | 0.47 | 780 | 0.000602564 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Atrazine | mg/kg | 0.47 | 2.4 | 0.195833333 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Benzyl butyl phthalate | mg/kg | 0.47 | 290 | 0.00162069 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Biphenyl (Diphenyl) | mg/kg | 2.4 | 4.7 | 0.510638298 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Bis(2-chloroethoxy)methane | mg/kg | 0.47 | 19 | 0.024736842 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.47 | 0.23 | 2.043478261 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Caprolactam | mg/kg | 0.47 | 3100 | 0.000151613 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Diethyl phthalate | mg/kg | 0.47 | 5100 | 9.21569E-05 |
| AOC 3 | NA | NYOW-03-SL015-A_R | di-n-Butyl phthalate | mg/kg | 0.47 | 630 | 0.000746032 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL015-A_R | di-n-Octyl phthalate | mg/kg | 0.47 | 63 | 0.007460317 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Hexachlorobenzene | mg/kg | 0.47 | 0.078 | 6.025641026 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Hexachlorobutadiene | mg/kg | 0.47 | 1.2 | 0.391666667 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Hexachlorocyclopentadiene | mg/kg | 0.47 | 0.18 | 2.611111111 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Hexachloroethane | mg/kg | 0.47 | 1.8 | 0.261111111 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Isophorone | mg/kg | 0.47 | 570 | 0.000824561 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Nitrobenzene | mg/kg | 0.47 | 5.1 | 0.092156863 |
| AOC 3 | NA | NYOW-03-SL015-A_R | N-Nitrosodi-n-propylamine | mg/kg | 0.47 | 0.078 | 6.025641026 |
| AOC 3 | NA | NYOW-03-SL015-A_R | N-Nitrosodiphenylamine | mg/kg | 0.47 | 110 | 0.004272727 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Pentachlorophenol | mg/kg | 2.4 | 1 | 2.4 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Phenol | mg/kg | 0.47 | 1900 | 0.000247368 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.076 | 0.41 | 0.185365854 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.076 | 0.17 | 0.447058824 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.076 | 0.23 | 0.330434783 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.076 | 0.23 | 0.330434783 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.076 | 0.12 | 0.633333333 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.076 | 0.24 | 0.316666667 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.076 | 0.24 | 0.316666667 |
| AOC 3 | NA | NYOW-03-SL016-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 3 | NA | NYOW-03-SL016-A | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.7 | 0.441176471 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 3 | NA | NYOW-03-SL016-A | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL016-A | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 3 | NA | NYOW-03-SL016-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 3 | NA | NYOW-03-SL016-A | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 3 | NA | NYOW-03-SL016-A | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 3 | NA | NYOW-03-SL016-A | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 1.2 | 0.625 |
| AOC 3 | NA | NYOW-03-SL016-A | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 3 | NA | NYOW-03-SL016-A | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 3 | NA | NYOW-03-SL016-A | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 3 | NA | NYOW-03-SL016-A | 4-Chloroaniline | mg/kg | 0.75 | 2.7 | 0.277777778 |
| AOC 3 | NA | NYOW-03-SL016-A | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 3 | NA | NYOW-03-SL016-A | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 3 | NA | NYOW-03-SL016-A | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 3 | NA | NYOW-03-SL016-A | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 3 | NA | NYOW-03-SL016-A | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 3 | NA | NYOW-03-SL016-A | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 3 | NA | NYOW-03-SL016-A | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 3 | NA | NYOW-03-SL016-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 3 | NA | NYOW-03-SL016-A | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 3 | NA | NYOW-03-SL016-A | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 3 | NA | NYOW-03-SL016-A | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 3 | NA | NYOW-03-SL016-A | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 3 | NA | NYOW-03-SL016-A | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 3 | NA | NYOW-03-SL016-A | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 3 | NA | NYOW-03-SL016-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 3 | NA | NYOW-03-SL016-A | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 3 | NA | NYOW-03-SL016-A | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 3 | NA | NYOW-03-SL016-A | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 3 | NA | NYOW-03-SL016-A | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 3 | NA | NYOW-03-SL016-A | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 3 | NA | NYOW-03-SL016-A | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 3 | NA | NYOW-03-SL016-A | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 3 | NA | NYOW-03-SL016-A | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH001-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.7 | 0.447058824 |
| AOC 4 - Discrete | NA | NYOW-04-PH001-B | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 4 - Discrete | NA | NYOW-04-PH001-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH001-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 4 - Discrete | NA | NYOW-04-PH001-C | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH001-C | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH002-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.7 | 0.447058824 |
| AOC 4 - Discrete | NA | NYOW-04-PH002-B | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 4 - Discrete | NA | NYOW-04-PH002-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 4 - Discrete | NA | NYOW-04-PH002-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH002-C | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH002-C | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH003-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 4 - Discrete | NA | NYOW-04-PH003-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH003-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH003-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 4 - Discrete | NA | NYOW-04-PH003-C | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH003-C | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH004-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.87 | 1.7 | 0.511764706 |
| AOC 4 - Discrete | NA | NYOW-04-PH004-B | 2,4-Dinitrophenol | mg/kg | 2.2 | 13 | 0.169230769 |
| AOC 4 - Discrete | NA | NYOW-04-PH004-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH004-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 1.7 | 0.464705882 |
| AOC 4 - Discrete | NA | NYOW-04-PH004-C | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 4 - Discrete | NA | NYOW-04-PH004-C | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH005-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.7 | 0.452941176 |
| AOC 4 - Discrete | NA | NYOW-04-PH005-B | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 4 - Discrete | NA | NYOW-04-PH005-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH005-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.7 | 0.447058824 |
| AOC 4 - Discrete | NA | NYOW-04-PH005-C | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 4 - Discrete | NA | NYOW-04-PH005-C | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH006-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 4 - Discrete | NA | NYOW-04-PH006-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH006-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH006-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 4 - Discrete | NA | NYOW-04-PH006-C | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH006-C | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH007-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 4 - Discrete | NA | NYOW-04-PH007-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH007-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH008-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 4 - Discrete | NA | NYOW-04-PH008-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH008-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH009-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.7 | 0.417647059 |
| AOC 4 - Discrete | NA | NYOW-04-PH009-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH009-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 4 - Discrete | NA | NYOW-04-PH010-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH010-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH010-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH011-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH011-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH011-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH012-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.7 | 0.417647059 |
| AOC 4 - Discrete | NA | NYOW-04-PH012-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH012-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH013-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.7 | 0.417647059 |
| AOC 4 - Discrete | NA | NYOW-04-PH013-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH013-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 4 - Discrete | NA | NYOW-04-PH014-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH014-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH014-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH015-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 4 - Discrete | NA | NYOW-04-PH015-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH015-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 4 - Discrete | NA | NYOW-04-PH016-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.7 | 0.411764706 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH016-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH016-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 4 - Discrete | NA | NYOW-04-PH017-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH017-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH017-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH018-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 4 - Discrete | NA | NYOW-04-PH018-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH018-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH019-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH019-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH019-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH020-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.67 | 1.7 | 0.394117647 |
| AOC 4 - Discrete | NA | NYOW-04-PH020-B | 2,4-Dinitrophenol | mg/kg | 1.7 | 13 | 0.130769231 |
| AOC 4 - Discrete | NA | NYOW-04-PH020-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH021-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.69 | 1.7 | 0.405882353 |
| AOC 4 - Discrete | NA | NYOW-04-PH021-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH021-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH022-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.69 | 1.7 | 0.405882353 |
| AOC 4 - Discrete | NA | NYOW-04-PH022-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH022-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH023-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH023-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH023-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 4 - Discrete | NA | NYOW-04-PH024-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 4 - Discrete | NA | NYOW-04-PH024-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH024-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH025-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.7 | 0.411764706 |
| AOC 4 - Discrete | NA | NYOW-04-PH025-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH025-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 4 - Discrete | NA | NYOW-04-PH026-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.7 | 0.417647059 |
| AOC 4 - Discrete | NA | NYOW-04-PH026-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH026-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH027-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH027-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH027-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH028-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.7 | 0.411764706 |
| AOC 4 - Discrete | NA | NYOW-04-PH028-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH028-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH029-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH029-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH029-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH030-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.7 | 0.411764706 |
| AOC 4 - Discrete | NA | NYOW-04-PH030-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH030-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH031-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.7 | 0.417647059 |
| AOC 4 - Discrete | NA | NYOW-04-PH031-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH031-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH032-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH032-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH032-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH033-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.7 | 0.411764706 |
| AOC 4 - Discrete | NA | NYOW-04-PH033-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH033-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH034-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 4 - Discrete | NA | NYOW-04-PH034-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH034-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH035-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 1.7 | 0.464705882 |
| AOC 4 - Discrete | NA | NYOW-04-PH035-B | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 4 - Discrete | NA | NYOW-04-PH035-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 4 - Discrete | NA | NYOW-04-PH036-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH036-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH036-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH036-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH036-C | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH036-C | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH037-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 4 - Discrete | NA | NYOW-04-PH037-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH037-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH037-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.7 | 0.417647059 |
| AOC 4 - Discrete | NA | NYOW-04-PH037-C | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH037-C | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH038-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH038-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH038-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH038-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.7 | 0.458823529 |
| AOC 4 - Discrete | NA | NYOW-04-PH038-C | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 4 - Discrete | NA | NYOW-04-PH038-C | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH039-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.7 | 0.417647059 |
| AOC 4 - Discrete | NA | NYOW-04-PH039-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH039-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH040-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.7 | 0.411764706 |
| AOC 4 - Discrete | NA | NYOW-04-PH040-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH040-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH041-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 1.7 | 0.470588235 |
| AOC 4 - Discrete | NA | NYOW-04-PH041-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 4 - Discrete | NA | NYOW-04-PH041-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH042-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.7 | 0.447058824 |
| AOC 4 - Discrete | NA | NYOW-04-PH042-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH042-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH043-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.7 | 0.452941176 |
| AOC 4 - Discrete | NA | NYOW-04-PH043-B | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 4 - Discrete | NA | NYOW-04-PH043-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH044-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.7 | 0.458823529 |
| AOC 4 - Discrete | NA | NYOW-04-PH044-B | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 4 - Discrete | NA | NYOW-04-PH044-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 4 - Discrete | NA | NYOW-04-PH045-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH045-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH045-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH046-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 4 - Discrete | NA | NYOW-04-PH046-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH046-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH047-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.7 | 0.447058824 |
| AOC 4 - Discrete | NA | NYOW-04-PH047-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH047-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH048-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 4 - Discrete | NA | NYOW-04-PH048-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH048-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH049-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.7 | 0.411764706 |
| AOC 4 - Discrete | NA | NYOW-04-PH049-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH049-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH050-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 4 - Discrete | NA | NYOW-04-PH050-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH050-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH051-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.7 | 0.441176471 |
| AOC 4 - Discrete | NA | NYOW-04-PH051-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH051-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH052-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH052-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH052-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH053-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 4 - Discrete | NA | NYOW-04-PH053-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH053-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH054-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.7 | 0.447058824 |
| AOC 4 - Discrete | NA | NYOW-04-PH054-B | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 4 - Discrete | NA | NYOW-04-PH054-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH055-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 4 - Discrete | NA | NYOW-04-PH055-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH055-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH056-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 4 - Discrete | NA | NYOW-04-PH056-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH056-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 4 - Discrete | NA | NYOW-04-PH057-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 4 - Discrete | NA | NYOW-04-PH057-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH057-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH058-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.7 | 0.447058824 |
| AOC 4 - Discrete | NA | NYOW-04-PH058-B | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 4 - Discrete | NA | NYOW-04-PH058-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 4 - Discrete | NA | NYOW-04-PH059-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.7 | 0.411764706 |
| AOC 4 - Discrete | NA | NYOW-04-PH059-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH059-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH060-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 4 - Discrete | NA | NYOW-04-PH060-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH060-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH061-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.7 | 0.447058824 |
| AOC 4 - Discrete | NA | NYOW-04-PH061-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH061-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH062-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.7 | 0.441176471 |
| AOC 4 - Discrete | NA | NYOW-04-PH062-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH062-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH063-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.7 | 0.441176471 |
| AOC 4 - Discrete | NA | NYOW-04-PH063-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH063-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 4 - Discrete | NA | NYOW-04-PH064-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.7 | 0.441176471 |
| AOC 4 - Discrete | NA | NYOW-04-PH064-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH064-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH065-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 4 - Discrete | NA | NYOW-04-PH065-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH065-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH066-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.7 | 0.441176471 |
| AOC 4 - Discrete | NA | NYOW-04-PH066-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH066-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH067-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH067-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH067-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH068-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.7 | 0.417647059 |
| AOC 4 - Discrete | NA | NYOW-04-PH068-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH068-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH069-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH069-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH069-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH070-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.7 | 0.441176471 |
| AOC 4 - Discrete | NA | NYOW-04-PH070-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH070-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH071-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH071-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH071-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH072-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.7 | 0.417647059 |
| AOC 4 - Discrete | NA | NYOW-04-PH072-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH072-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH073-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 4 - Discrete | NA | NYOW-04-PH073-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH073-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 4 - Discrete | NA | NYOW-04-PH074-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH074-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH074-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH075-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 4 - Discrete | NA | NYOW-04-PH075-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH075-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH076-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 4 - Discrete | NA | NYOW-04-PH076-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH076-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH077-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH077-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH077-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH078-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.7 | 0.458823529 |
| AOC 4 - Discrete | NA | NYOW-04-PH078-B | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 4 - Discrete | NA | NYOW-04-PH078-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH079-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 1.7 | 0.470588235 |
| AOC 4 - Discrete | NA | NYOW-04-PH079-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 4 - Discrete | NA | NYOW-04-PH079-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH079-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH079-C | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH079-C | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH080-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.7 | 0.452941176 |
| AOC 4 - Discrete | NA | NYOW-04-PH080-B | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 4 - Discrete | NA | NYOW-04-PH080-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH080-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.7 | 0.417647059 |
| AOC 4 - Discrete | NA | NYOW-04-PH080-C | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH080-C | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH081-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH081-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH081-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH081-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.7 | 0.417647059 |
| AOC 4 - Discrete | NA | NYOW-04-PH081-C | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH081-C | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH082-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.86 | 1.7 | 0.505882353 |
| AOC 4 - Discrete | NA | NYOW-04-PH082-B | 2,4-Dinitrophenol | mg/kg | 2.2 | 13 | 0.169230769 |
| AOC 4 - Discrete | NA | NYOW-04-PH082-B | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH082-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.7 | 0.417647059 |
| AOC 4 - Discrete | NA | NYOW-04-PH082-C | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH082-C | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH083-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 4 - Discrete | NA | NYOW-04-PH083-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH083-B | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH083-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.7 | 0.417647059 |
| AOC 4 - Discrete | NA | NYOW-04-PH083-C | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH083-C | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH084-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-PH084-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH084-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH084-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 4 - Discrete | NA | NYOW-04-PH084-C | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH084-C | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-PH085-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 4 - Discrete | NA | NYOW-04-PH085-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH085-B | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-PH085-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 4 - Discrete | NA | NYOW-04-PH085-C | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-PH085-C | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-SL001-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.7 | 0.458823529 |
| AOC 4 - Discrete | NA | NYOW-04-SL001-A | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 4 - Discrete | NA | NYOW-04-SL001-A | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-SL002-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.7 | 0.452941176 |
| AOC 4 - Discrete | NA | NYOW-04-SL002-A | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 4 - Discrete | NA | NYOW-04-SL002-A | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-SL003-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 4 - Discrete | NA | NYOW-04-SL003-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-SL003-A | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-SL004-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.7 | 0.417647059 |
| AOC 4 - Discrete | NA | NYOW-04-SL004-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-SL004-A | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-SL005-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 4 - Discrete | NA | NYOW-04-SL005-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-SL005-A | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-SL006-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.7 | 0.441176471 |
| AOC 4 - Discrete | NA | NYOW-04-SL006-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-SL006-A | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-SL036-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.7 | 0.441176471 |
| AOC 4 - Discrete | NA | NYOW-04-SL036-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-SL036-A | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-SL037-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.7 | 0.429411765 |
| AOC 4 - Discrete | NA | NYOW-04-SL037-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-SL037-A | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-SL038-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.7 | 0.452941176 |
| AOC 4 - Discrete | NA | NYOW-04-SL038-A | 2,4-Dinitrophenol | mg/kg | 2 | 13 | 0.153846154 |
| AOC 4 - Discrete | NA | NYOW-04-SL038-A | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-SL079-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 1.7 | 0.470588235 |
| AOC 4 - Discrete | NA | NYOW-04-SL079-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 13 | 0.161538462 |
| AOC 4 - Discrete | NA | NYOW-04-SL079-A | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-SL080-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.83 | 1.7 | 0.488235294 |
| AOC 4 - Discrete | NA | NYOW-04-SL080-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 13 | 0.169230769 |
| AOC 4 - Discrete | NA | NYOW-04-SL080-A | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-SL081-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.7 | 0.435294118 |
| AOC 4 - Discrete | NA | NYOW-04-SL081-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-SL081-A | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-SL082-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.7 | 0.417647059 |
| AOC 4 - Discrete | NA | NYOW-04-SL082-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-SL082-A | Picric acid | mg/kg | 0.25 | 13 | 0.019230769 |
| AOC 4 - Discrete | NA | NYOW-04-SL083-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.7 | 0.423529412 |
| AOC 4 - Discrete | NA | NYOW-04-SL083-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-SL083-A | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - Discrete | NA | NYOW-04-SL084-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.7 | 0.411764706 |
| AOC 4 - Discrete | NA | NYOW-04-SL084-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 13 | 0.138461538 |
| AOC 4 - Discrete | NA | NYOW-04-SL084-A | Picric acid | mg/kg | 0.23 | 13 | 0.017692308 |
| AOC 4 - Discrete | NA | NYOW-04-SL085-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.7 | 0.441176471 |
| AOC 4 - Discrete | NA | NYOW-04-SL085-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 13 | 0.146153846 |
| AOC 4 - Discrete | NA | NYOW-04-SL085-A | Picric acid | mg/kg | 0.24 | 13 | 0.018461538 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.7 | 0.188235294 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-A | Picric acid | mg/kg | 0.097 | 13 | 0.007461538 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.7 | 0.194117647 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-B | Picric acid | mg/kg | 0.096 | 13 | 0.007384615 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.7 | 0.194117647 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-C | Picric acid | mg/kg | 0.095 | 13 | 0.007307692 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 1.7 | 0.2 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-A | 2,4-Dinitrophenol | mg/kg | 0.87 | 13 | 0.066923077 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-A | Picric acid | mg/kg | 0.093 | 13 | 0.007153846 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.7 | 0.194117647 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-B | 2,4-Dinitrophenol | mg/kg | 0.84 | 13 | 0.064615385 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-B | Picric acid | mg/kg | 0.1 | 13 | 0.007692308 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.7 | 0.194117647 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-C | 2,4-Dinitrophenol | mg/kg | 0.84 | 13 | 0.064615385 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-C | Picric acid | mg/kg | 0.095 | 13 | 0.007307692 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 1.7 | 0.2 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-A | 2,4-Dinitrophenol | mg/kg | 0.87 | 13 | 0.066923077 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-A | Picric acid | mg/kg | 0.092 | 13 | 0.007076923 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 1.7 | 0.2 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-B | 2,4-Dinitrophenol | mg/kg | 0.87 | 13 | 0.066923077 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-B | Picric acid | mg/kg | 0.097 | 13 | 0.007461538 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.35 | 1.7 | 0.205882353 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-C | 2,4-Dinitrophenol | mg/kg | 0.91 | 13 | 0.07 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-C | Picric acid | mg/kg | 0.099 | 13 | 0.007615385 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.63 | 1.7 | 0.370588235 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-A | 2,4-Dinitrophenol | mg/kg | 1.6 | 13 | 0.123076923 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-A | Picric acid | mg/kg | 0.093 | 13 | 0.007153846 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 1.9 | 1.7 | 1.117647059 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-B | 2,4-Dinitrophenol | mg/kg | 5 | 13 | 0.384615385 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-B | Picric acid | mg/kg | 0.095 | 13 | 0.007307692 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-C | Picric acid | mg/kg | 0.099 | 13 | 0.007615385 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.7 | 0.194117647 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-A | 2,4-Dinitrophenol | mg/kg | 0.85 | 13 | 0.065384615 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-A | Picric acid | mg/kg | 0.099 | 13 | 0.007615385 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.7 | 0.194117647 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-B | 2,4-Dinitrophenol | mg/kg | 0.86 | 13 | 0.066153846 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-B | Picric acid | mg/kg | 0.1 | 13 | 0.007692308 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.31 | 1.7 | 0.182352941 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-C | 2,4-Dinitrophenol | mg/kg | 0.79 | 13 | 0.060769231 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-C | Picric acid | mg/kg | 0.099 | 13 | 0.007615385 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.35 | 1.7 | 0.205882353 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-A | 2,4-Dinitrophenol | mg/kg | 0.9 | 13 | 0.069230769 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-A | Picric acid | mg/kg | 0.097 | 13 | 0.007461538 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.31 | 1.7 | 0.182352941 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-B | 2,4-Dinitrophenol | mg/kg | 0.81 | 13 | 0.062307692 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-B | Picric acid | mg/kg | 0.1 | 13 | 0.007692308 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.7 | 0.194117647 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-C | 2,4-Dinitrophenol | mg/kg | 0.85 | 13 | 0.065384615 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-C | Picric acid | mg/kg | 0.096 | 13 | 0.007384615 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.7 | 0.188235294 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-A | Picric acid | mg/kg | 0.099 | 13 | 0.007615385 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.7 | 0.188235294 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-B | Picric acid | mg/kg | 0.099 | 13 | 0.007615385 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.7 | 0.194117647 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-C | Picric acid | mg/kg | 0.096 | 13 | 0.007384615 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.7 | 0.188235294 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-A | 2,4-Dinitrophenol | mg/kg | 0.84 | 13 | 0.064615385 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-A | Picric acid | mg/kg | 0.095 | 13 | 0.007307692 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.7 | 0.194117647 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-B | 2,4-Dinitrophenol | mg/kg | 0.85 | 13 | 0.065384615 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-B | Picric acid | mg/kg | 0.1 | 13 | 0.007692308 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-C | 2,4-Dinitrophenol | mg/kg | 0.82 | 13 | 0.063076923 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-C | Picric acid | mg/kg | 0.099 | 13 | 0.007615385 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.7 | 0.188235294 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-A | 2,4-Dinitrophenol | mg/kg | 0.82 | 13 | 0.063076923 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-A | Picric acid | mg/kg | 0.098 | 13 | 0.007538462 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.7 | 0.194117647 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-B | 2,4-Dinitrophenol | mg/kg | 0.86 | 13 | 0.066153846 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-B | Picric acid | mg/kg | 0.098 | 13 | 0.007538462 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.7 | 0.188235294 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-C | 2,4-Dinitrophenol | mg/kg | 0.83 | 13 | 0.063846154 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-C | Picric acid | mg/kg | 0.099 | 13 | 0.007615385 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.7 | 0.194117647 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-A | 2,4-Dinitrophenol | mg/kg | 0.86 | 13 | 0.066153846 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-A | Picric acid | mg/kg | 0.096 | 13 | 0.007384615 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.7 | 0.194117647 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-B | 2,4-Dinitrophenol | mg/kg | 0.84 | 13 | 0.064615385 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-B | Picric acid | mg/kg | 0.099 | 13 | 0.007615385 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.7 | 0.188235294 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-C | 2,4-Dinitrophenol | mg/kg | 0.82 | 13 | 0.063076923 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-C | Picric acid | mg/kg | 0.093 | 13 | 0.007153846 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.31 | 1.7 | 0.182352941 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-A | 2,4-Dinitrophenol | mg/kg | 0.8 | 13 | 0.061538462 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-A | Picric acid | mg/kg | 0.1 | 13 | 0.007692308 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.7 | 0.188235294 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-B | 2,4-Dinitrophenol | mg/kg | 0.84 | 13 | 0.064615385 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-B | Picric acid | mg/kg | 0.098 | 13 | 0.007538462 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 1.7 | 0.2 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-C | 2,4-Dinitrophenol | mg/kg | 0.87 | 13 | 0.066923077 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-C | Picric acid | mg/kg | 0.096 | 13 | 0.007384615 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.7 | 0.188235294 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-A | 2,4-Dinitrophenol | mg/kg | 0.82 | 13 | 0.063076923 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-A | Picric acid | mg/kg | 0.1 | 13 | 0.007692308 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.7 | 0.194117647 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-B | 2,4-Dinitrophenol | mg/kg | 0.85 | 13 | 0.065384615 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-B | Picric acid | mg/kg | 0.098 | 13 | 0.007538462 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.7 | 0.188235294 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-C | 2,4-Dinitrophenol | mg/kg | 0.83 | 13 | 0.063846154 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-C | Picric acid | mg/kg | 0.1 | 13 | 0.007692308 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Silver | mg/kg | 1.4 | 39 | 0.035897436 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 0.23 | 1.565217391 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.36 | 310 | 0.00116129 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 190 | 0.001894737 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 6.3 | 0.057142857 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 2,4-Dichlorophenol | mg/kg | 0.36 | 19 | 0.018947368 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 2,4-Dimethylphenol | mg/kg | 0.36 | 130 | 0.002769231 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 1.7 | 0.211764706 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 2,6-Dinitrotoluene | mg/kg | 0.36 | 0.36 | 1 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 2-Chloronaphthalene | mg/kg | 0.36 | 480 | 0.00075 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 2-Chlorophenol | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 320 | 0.001125 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 2-Nitrophenol | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 1.2 | 0.6 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 4-Chloro-3-methylphenol | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 4-Chloroaniline | mg/kg | 0.72 | 2.7 | 0.266666667 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Acetophenone | mg/kg | 0.36 | 780 | 0.000461538 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Atrazine | mg/kg | 0.36 | 2.4 | 0.15 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Benzyl butyl phthalate | mg/kg | 0.36 | 290 | 0.001241379 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Bis(2-chloroethoxy)methane | mg/kg | 0.36 | 19 | 0.018947368 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.36 | 0.23 | 1.565217391 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Caprolactam | mg/kg | 0.36 | 3100 | 0.000116129 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Carbazole | mg/kg | 0.36 | 240 | 0.0015 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Cresols, m- & p- | mg/kg | 0.36 | 130 | 0.002769231 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Dibenzofuran | mg/kg | 0.36 | 7.8 | 0.046153846 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Diethyl phthalate | mg/kg | 0.36 | 5100 | 7.05882E-05 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | di-n-Butyl phthalate | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | di-n-Octyl phthalate | mg/kg | 0.36 | 63 | 0.005714286 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Hexachlorobenzene | mg/kg | 0.36 | 0.078 | 4.615384615 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Hexachlorobutadiene | mg/kg | 0.36 | 1.2 | 0.3 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.18 | 2 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Isophorone | mg/kg | 0.36 | 570 | 0.000631579 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Nitrobenzene | mg/kg | 0.36 | 5.1 | 0.070588235 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | N-Nitrosodi-n-propylamine | mg/kg | 0.36 | 0.078 | 4.615384615 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | N-Nitrosodiphenylamine | mg/kg | 0.36 | 110 | 0.003272727 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Boiler_House | NYOW-05-PH016-B | Phenol | mg/kg | 0.36 | 1900 | 0.000189474 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Silver | mg/kg | 1.3 | 39 | 0.033333333 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 1,4-Dioxane | mg/kg | 0.38 | 5.3 | 0.071698113 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 310 | 0.001225806 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 190 | 0.002 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 6.3 | 0.06031746 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 2,4-Dichlorophenol | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 2,4-Dimethylphenol | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 2,4-Dinitrotoluene | mg/kg | 0.38 | 1.7 | 0.223529412 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 2,6-Dinitrotoluene | mg/kg | 0.38 | 0.36 | 1.055555556 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 2-Chloronaphthalene | mg/kg | 0.38 | 480 | 0.000791667 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 2-Chlorophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 320 | 0.0011875 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 2-Nitrophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 1.2 | 0.641666667 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 4-Chloroaniline | mg/kg | 0.77 | 2.7 | 0.285185185 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Acetophenone | mg/kg | 0.38 | 780 | 0.000487179 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Atrazine | mg/kg | 0.38 | 2.4 | 0.158333333 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Benzaldehyde | mg/kg | 0.38 | 170 | 0.002235294 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Benzyl butyl phthalate | mg/kg | 0.38 | 290 | 0.001310345 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Caprolactam | mg/kg | 0.38 | 3100 | 0.000122581 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Carbazole | mg/kg | 0.38 | 240 | 0.001583333 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Cresols, m- & p- | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Dibenzofuran | mg/kg | 0.38 | 7.8 | 0.048717949 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Diethyl phthalate | mg/kg | 0.38 | 5100 | 7.45098E-05 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | di-n-Butyl phthalate | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | di-n-Octyl phthalate | mg/kg | 0.38 | 63 | 0.006031746 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Hexachlorobenzene | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Hexachlorobutadiene | mg/kg | 0.38 | 1.2 | 0.316666667 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Hexachloroethane | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Isophorone | mg/kg | 0.38 | 570 | 0.000666667 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Nitrobenzene | mg/kg | 0.38 | 5.1 | 0.074509804 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | N-Nitrosodiphenylamine | mg/kg | 0.38 | 110 | 0.003454545 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Boiler_House | NYOW-05-PH016-C | Phenol | mg/kg | 0.38 | 1900 | 0.0002 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Silver | mg/kg | 1.3 | 39 | 0.033333333 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 1.2 | 0.616666667 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 4-Chloroaniline | mg/kg | 0.74 | 2.7 | 0.274074074 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Benzaldehyde | mg/kg | 0.37 | 170 | 0.002176471 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Dibenzofuran | mg/kg | 0.37 | 7.8 | 0.047435897 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-B | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Silver | mg/kg | 1.3 | 39 | 0.033333333 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 1.2 | 0.641666667 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 4-Chloroaniline | mg/kg | 0.77 | 2.7 | 0.285185185 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Benzaldehyde | mg/kg | 0.39 | 170 | 0.002294118 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Carbazole | mg/kg | 0.39 | 240 | 0.001625 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Cresols, m- & p- | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Dibenzofuran | mg/kg | 0.39 | 7.8 | 0.05 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | di-n-Butyl phthalate | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Boiler_House | NYOW-05-PH017-1-C | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Silver | mg/kg | 1.4 | 39 | 0.035897436 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 0.23 | 1.565217391 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 1,4-Dioxane | mg/kg | 0.36 | 5.3 | 0.067924528 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.36 | 310 | 0.00116129 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 190 | 0.001894737 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 6.3 | 0.057142857 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 2,4-Dichlorophenol | mg/kg | 0.36 | 19 | 0.018947368 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 2,4-Dimethylphenol | mg/kg | 0.36 | 130 | 0.002769231 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 1.7 | 0.211764706 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 2,6-Dinitrotoluene | mg/kg | 0.36 | 0.36 | 1 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 2-Chloronaphthalene | mg/kg | 0.36 | 480 | 0.00075 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 2-Chlorophenol | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 320 | 0.001125 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 2-Nitrophenol | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 1.2 | 0.6 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 4-Chloro-3-methylphenol | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 4-Chloroaniline | mg/kg | 0.72 | 2.7 | 0.266666667 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Acetophenone | mg/kg | 0.36 | 780 | 0.000461538 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Atrazine | mg/kg | 0.36 | 2.4 | 0.15 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Benzaldehyde | mg/kg | 0.36 | 170 | 0.002117647 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Benzyl butyl phthalate | mg/kg | 0.36 | 290 | 0.001241379 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Bis(2-chloroethoxy)methane | mg/kg | 0.36 | 19 | 0.018947368 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.36 | 0.23 | 1.565217391 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Caprolactam | mg/kg | 0.36 | 3100 | 0.000116129 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Carbazole | mg/kg | 0.36 | 240 | 0.0015 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Cresols, m- & p- | mg/kg | 0.36 | 130 | 0.002769231 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Dibenzofuran | mg/kg | 0.36 | 7.8 | 0.046153846 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Diethyl phthalate | mg/kg | 0.36 | 5100 | 7.05882E-05 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | di-n-Butyl phthalate | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | di-n-Octyl phthalate | mg/kg | 0.36 | 63 | 0.005714286 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Hexachlorobenzene | mg/kg | 0.36 | 0.078 | 4.615384615 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Hexachlorobutadiene | mg/kg | 0.36 | 1.2 | 0.3 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.18 | 2 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Hexachloroethane | mg/kg | 0.36 | 1.8 | 0.2 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Isophorone | mg/kg | 0.36 | 570 | 0.000631579 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Nitrobenzene | mg/kg | 0.36 | 5.1 | 0.070588235 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | N-Nitrosodi-n-propylamine | mg/kg | 0.36 | 0.078 | 4.615384615 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | N-Nitrosodiphenylamine | mg/kg | 0.36 | 110 | 0.003272727 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Boiler_House | NYOW-05-PH018-B | Phenol | mg/kg | 0.36 | 1900 | 0.000189474 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Silver | mg/kg | 1.4 | 39 | 0.035897436 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 1,4-Dioxane | mg/kg | 0.38 | 5.3 | 0.071698113 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 310 | 0.001225806 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 190 | 0.002 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 6.3 | 0.06031746 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 2,4-Dichlorophenol | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 2,4-Dimethylphenol | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 2,4-Dinitrotoluene | mg/kg | 0.38 | 1.7 | 0.223529412 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 2,6-Dinitrotoluene | mg/kg | 0.38 | 0.36 | 1.055555556 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 2-Chloronaphthalene | mg/kg | 0.38 | 480 | 0.000791667 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 2-Chlorophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 320 | 0.0011875 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 2-Nitrophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 1.2 | 0.633333333 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 4-Chloroaniline | mg/kg | 0.76 | 2.7 | 0.281481481 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Acetophenone | mg/kg | 0.38 | 780 | 0.000487179 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Atrazine | mg/kg | 0.38 | 2.4 | 0.158333333 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Benzaldehyde | mg/kg | 0.38 | 170 | 0.002235294 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Benzyl butyl phthalate | mg/kg | 0.38 | 290 | 0.001310345 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Caprolactam | mg/kg | 0.38 | 3100 | 0.000122581 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Carbazole | mg/kg | 0.38 | 240 | 0.001583333 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Cresols, m- & p- | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Dibenzofuran | mg/kg | 0.38 | 7.8 | 0.048717949 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Diethyl phthalate | mg/kg | 0.38 | 5100 | 7.45098E-05 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | di-n-Butyl phthalate | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | di-n-Octyl phthalate | mg/kg | 0.38 | 63 | 0.006031746 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Hexachlorobenzene | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Hexachlorobutadiene | mg/kg | 0.38 | 1.2 | 0.316666667 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Hexachloroethane | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Isophorone | mg/kg | 0.38 | 570 | 0.000666667 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Nitrobenzene | mg/kg | 0.38 | 5.1 | 0.074509804 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | N-Nitrosodiphenylamine | mg/kg | 0.38 | 110 | 0.003454545 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Boiler_House | NYOW-05-PH018-C | Phenol | mg/kg | 0.38 | 1900 | 0.0002 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Silver | mg/kg | 1.2 | 39 | 0.030769231 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 0.23 | 1.565217391 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 1,4-Dioxane | mg/kg | 0.36 | 5.3 | 0.067924528 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.36 | 310 | 0.00116129 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 190 | 0.001894737 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 6.3 | 0.057142857 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 2,4-Dichlorophenol | mg/kg | 0.36 | 19 | 0.018947368 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 2,4-Dimethylphenol | mg/kg | 0.36 | 130 | 0.002769231 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 1.7 | 0.211764706 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 2,6-Dinitrotoluene | mg/kg | 0.36 | 0.36 | 1 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 2-Chloronaphthalene | mg/kg | 0.36 | 480 | 0.00075 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 2-Chlorophenol | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 320 | 0.001125 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 2-Nitroaniline | mg/kg | 1.8 | 63 | 0.028571429 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 2-Nitrophenol | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 1.2 | 0.6 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 3-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.51 | 3.529411765 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 4-Chloro-3-methylphenol | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 4-Chloroaniline | mg/kg | 0.72 | 2.7 | 0.266666667 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 4-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | 4-Nitrophenol | mg/kg | 1.8 | 39 | 0.046153846 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Acetophenone | mg/kg | 0.36 | 780 | 0.000461538 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Atrazine | mg/kg | 0.36 | 2.4 | 0.15 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Benzaldehyde | mg/kg | 0.36 | 170 | 0.002117647 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Benzyl butyl phthalate | mg/kg | 0.36 | 290 | 0.001241379 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Biphenyl (Diphenyl) | mg/kg | 1.8 | 4.7 | 0.382978723 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Bis(2-chloroethoxy)methane | mg/kg | 0.36 | 19 | 0.018947368 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.36 | 0.23 | 1.565217391 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Caprolactam | mg/kg | 0.36 | 3100 | 0.000116129 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Carbazole | mg/kg | 0.36 | 240 | 0.0015 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Cresols, m- & p- | mg/kg | 0.36 | 130 | 0.002769231 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Dibenzofuran | mg/kg | 0.36 | 7.8 | 0.046153846 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Diethyl phthalate | mg/kg | 0.36 | 5100 | 7.05882E-05 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | di-n-Butyl phthalate | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | di-n-Octyl phthalate | mg/kg | 0.36 | 63 | 0.005714286 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Hexachlorobenzene | mg/kg | 0.36 | 0.078 | 4.615384615 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Hexachlorobutadiene | mg/kg | 0.36 | 1.2 | 0.3 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.18 | 2 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Hexachloroethane | mg/kg | 0.36 | 1.8 | 0.2 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Isophorone | mg/kg | 0.36 | 570 | 0.000631579 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Nitrobenzene | mg/kg | 0.36 | 5.1 | 0.070588235 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | N-Nitrosodi-n-propylamine | mg/kg | 0.36 | 0.078 | 4.615384615 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | N-Nitrosodiphenylamine | mg/kg | 0.36 | 110 | 0.003272727 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Pentachlorophenol | mg/kg | 1.8 | 1 | 1.8 |
| AOC 5 | Boiler_House | NYOW-05-PH019-B | Phenol | mg/kg | 0.36 | 1900 | 0.000189474 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Silver | mg/kg | 1.2 | 39 | 0.030769231 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 1.2 | 0.616666667 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 4-Chloroaniline | mg/kg | 0.74 | 2.7 | 0.274074074 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Benzaldehyde | mg/kg | 0.37 | 170 | 0.002176471 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Dibenzofuran | mg/kg | 0.37 | 7.8 | 0.047435897 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Boiler_House | NYOW-05-PH019-C | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Silver | mg/kg | 1.3 | 39 | 0.033333333 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 1.2 | 0.65 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 4-Chloroaniline | mg/kg | 0.78 | 2.7 | 0.288888889 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Benzaldehyde | mg/kg | 0.39 | 170 | 0.002294118 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Carbazole | mg/kg | 0.39 | 240 | 0.001625 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Cresols, m- & p- | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Dibenzofuran | mg/kg | 0.39 | 7.8 | 0.05 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | di-n-Butyl phthalate | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Boiler_House | NYOW-05-PH020-B | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Silver | mg/kg | 1.4 | 39 | 0.035897436 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 1,4-Dioxane | mg/kg | 0.38 | 5.3 | 0.071698113 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 310 | 0.001225806 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 190 | 0.002 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 6.3 | 0.06031746 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 2,4-Dichlorophenol | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 2,4-Dimethylphenol | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 2,4-Dinitrotoluene | mg/kg | 0.38 | 1.7 | 0.223529412 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 2,6-Dinitrotoluene | mg/kg | 0.38 | 0.36 | 1.055555556 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 2-Chloronaphthalene | mg/kg | 0.38 | 480 | 0.000791667 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 2-Chlorophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 320 | 0.0011875 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 2-Nitrophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 1.2 | 0.633333333 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 4-Chloroaniline | mg/kg | 0.76 | 2.7 | 0.281481481 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Acetophenone | mg/kg | 0.38 | 780 | 0.000487179 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Atrazine | mg/kg | 0.38 | 2.4 | 0.158333333 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Benzaldehyde | mg/kg | 0.38 | 170 | 0.002235294 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Benzyl butyl phthalate | mg/kg | 0.38 | 290 | 0.001310345 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Caprolactam | mg/kg | 0.38 | 3100 | 0.000122581 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Carbazole | mg/kg | 0.38 | 240 | 0.001583333 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Cresols, m- & p- | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Dibenzofuran | mg/kg | 0.38 | 7.8 | 0.048717949 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Diethyl phthalate | mg/kg | 0.38 | 5100 | 7.45098E-05 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | di-n-Butyl phthalate | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | di-n-Octyl phthalate | mg/kg | 0.38 | 63 | 0.006031746 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Hexachlorobenzene | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Hexachlorobutadiene | mg/kg | 0.38 | 1.2 | 0.316666667 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Hexachloroethane | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Isophorone | mg/kg | 0.38 | 570 | 0.000666667 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Nitrobenzene | mg/kg | 0.38 | 5.1 | 0.074509804 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | N-Nitrosodiphenylamine | mg/kg | 0.38 | 110 | 0.003454545 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Boiler_House | NYOW-05-PH020-C | Phenol | mg/kg | 0.38 | 1900 | 0.0002 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Silver | mg/kg | 1.4 | 39 | 0.035897436 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 3,3'-Dichlorobenzidine | mg/kg | 0.79 | 1.2 | 0.658333333 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 4-Chloroaniline | mg/kg | 0.79 | 2.7 | 0.292592593 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Benzaldehyde | mg/kg | 0.39 | 170 | 0.002294118 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Carbazole | mg/kg | 0.39 | 240 | 0.001625 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Cresols, m- & p- | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Dibenzofuran | mg/kg | 0.39 | 7.8 | 0.05 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | di-n-Butyl phthalate | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Boiler_House | NYOW-05-SL016-A | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Silver | mg/kg | 1.4 | 39 | 0.035897436 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 0.23 | 1.565217391 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 1,4-Dioxane | mg/kg | 0.36 | 5.3 | 0.067924528 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.36 | 310 | 0.00116129 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 190 | 0.001894737 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 6.3 | 0.057142857 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 2,4-Dichlorophenol | mg/kg | 0.36 | 19 | 0.018947368 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 2,4-Dimethylphenol | mg/kg | 0.36 | 130 | 0.002769231 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 2,4-Dinitrotoluene | mg/kg | 0.36 | 1.7 | 0.211764706 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 2,6-Dinitrotoluene | mg/kg | 0.36 | 0.36 | 1 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 2-Chloronaphthalene | mg/kg | 0.36 | 480 | 0.00075 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 2-Chlorophenol | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 320 | 0.001125 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 2-Nitrophenol | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 1.2 | 0.6 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 4-Chloro-3-methylphenol | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 4-Chloroaniline | mg/kg | 0.72 | 2.7 | 0.266666667 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Acetophenone | mg/kg | 0.36 | 780 | 0.000461538 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Atrazine | mg/kg | 0.36 | 2.4 | 0.15 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Benzaldehyde | mg/kg | 0.36 | 170 | 0.002117647 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Benzyl butyl phthalate | mg/kg | 0.36 | 290 | 0.001241379 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Bis(2-chloroethoxy)methane | mg/kg | 0.36 | 19 | 0.018947368 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.36 | 0.23 | 1.565217391 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Caprolactam | mg/kg | 0.36 | 3100 | 0.000116129 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Carbazole | mg/kg | 0.36 | 240 | 0.0015 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Cresols, m- & p- | mg/kg | 0.36 | 130 | 0.002769231 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Dibenzofuran | mg/kg | 0.36 | 7.8 | 0.046153846 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Diethyl phthalate | mg/kg | 0.36 | 5100 | 7.05882E-05 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | di-n-Butyl phthalate | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | di-n-Octyl phthalate | mg/kg | 0.36 | 63 | 0.005714286 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Hexachlorobenzene | mg/kg | 0.36 | 0.078 | 4.615384615 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Hexachlorobutadiene | mg/kg | 0.36 | 1.2 | 0.3 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.18 | 2 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Hexachloroethane | mg/kg | 0.36 | 1.8 | 0.2 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Isophorone | mg/kg | 0.36 | 570 | 0.000631579 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Nitrobenzene | mg/kg | 0.36 | 5.1 | 0.070588235 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | N-Nitrosodi-n-propylamine | mg/kg | 0.36 | 0.078 | 4.615384615 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | N-Nitrosodiphenylamine | mg/kg | 0.36 | 110 | 0.003272727 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Boiler_House | NYOW-05-SL017-1-A | Phenol | mg/kg | 0.36 | 1900 | 0.000189474 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Silver | mg/kg | 1.2 | 39 | 0.030769231 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 3,3'-Dichlorobenzidine | mg/kg | 0.73 | 1.2 | 0.608333333 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 4-Chloroaniline | mg/kg | 0.73 | 2.7 | 0.27037037 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Benzaldehyde | mg/kg | 0.37 | 170 | 0.002176471 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Dibenzofuran | mg/kg | 0.37 | 7.8 | 0.047435897 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Boiler_House | NYOW-05-SL018-A | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Silver | mg/kg | 1.3 | 39 | 0.033333333 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.35 | 0.23 | 1.52173913 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 1,4-Dioxane | mg/kg | 0.35 | 5.3 | 0.066037736 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.35 | 310 | 0.001129032 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.35 | 190 | 0.001842105 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 630 | 0.000555556 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 2,4,6-Trichlorophenol | mg/kg | 0.35 | 6.3 | 0.055555556 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 2,4-Dichlorophenol | mg/kg | 0.35 | 19 | 0.018421053 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 2,4-Dimethylphenol | mg/kg | 0.35 | 130 | 0.002692308 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 2,4-Dinitrotoluene | mg/kg | 0.35 | 1.7 | 0.205882353 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 2,6-Dinitrotoluene | mg/kg | 0.35 | 0.36 | 0.972222222 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 2-Chloronaphthalene | mg/kg | 0.35 | 480 | 0.000729167 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 2-Chlorophenol | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 320 | 0.00109375 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 2-Nitroaniline | mg/kg | 1.8 | 63 | 0.028571429 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 2-Nitrophenol | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 3,3'-Dichlorobenzidine | mg/kg | 0.69 | 1.2 | 0.575 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 3-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.51 | 3.529411765 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 4-Chloro-3-methylphenol | mg/kg | 0.35 | 630 | 0.000555556 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 4-Chloroaniline | mg/kg | 0.69 | 2.7 | 0.255555556 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 4-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | 4-Nitrophenol | mg/kg | 1.8 | 39 | 0.046153846 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Acetophenone | mg/kg | 0.35 | 780 | 0.000448718 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Atrazine | mg/kg | 0.35 | 2.4 | 0.145833333 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Benzaldehyde | mg/kg | 0.35 | 170 | 0.002058824 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Benzyl butyl phthalate | mg/kg | 0.35 | 290 | 0.001206897 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Biphenyl (Diphenyl) | mg/kg | 1.8 | 4.7 | 0.382978723 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Bis(2-chloroethoxy)methane | mg/kg | 0.35 | 19 | 0.018421053 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.35 | 0.23 | 1.52173913 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Caprolactam | mg/kg | 0.35 | 3100 | 0.000112903 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Carbazole | mg/kg | 0.35 | 240 | 0.001458333 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Cresols, m- & p- | mg/kg | 0.35 | 130 | 0.002692308 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Dibenzofuran | mg/kg | 0.35 | 7.8 | 0.044871795 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Diethyl phthalate | mg/kg | 0.35 | 5100 | 6.86275E-05 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | di-n-Butyl phthalate | mg/kg | 0.35 | 630 | 0.000555556 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | di-n-Octyl phthalate | mg/kg | 0.35 | 63 | 0.005555556 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Hexachlorobenzene | mg/kg | 0.35 | 0.078 | 4.487179487 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Hexachlorobutadiene | mg/kg | 0.35 | 1.2 | 0.291666667 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Hexachlorocyclopentadiene | mg/kg | 0.35 | 0.18 | 1.944444444 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Hexachloroethane | mg/kg | 0.35 | 1.8 | 0.194444444 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Isophorone | mg/kg | 0.35 | 570 | 0.000614035 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Nitrobenzene | mg/kg | 0.35 | 5.1 | 0.068627451 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | N-Nitrosodi-n-propylamine | mg/kg | 0.35 | 0.078 | 4.487179487 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | N-Nitrosodiphenylamine | mg/kg | 0.35 | 110 | 0.003181818 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Pentachlorophenol | mg/kg | 1.8 | 1 | 1.8 |
| AOC 5 | Boiler_House | NYOW-05-SL019-A | Phenol | mg/kg | 0.35 | 1900 | 0.000184211 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Silver | mg/kg | 1.2 | 39 | 0.030769231 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 3,3'-Dichlorobenzidine | mg/kg | 0.73 | 1.2 | 0.608333333 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 4-Chloroaniline | mg/kg | 0.73 | 2.7 | 0.27037037 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Benzaldehyde | mg/kg | 0.37 | 170 | 0.002176471 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Dibenzofuran | mg/kg | 0.37 | 7.8 | 0.047435897 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Boiler_House | NYOW-05-SL020-A | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Silver | mg/kg | 1.3 | 39 | 0.033333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 1.2 | 0.65 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 4-Chloroaniline | mg/kg | 0.78 | 2.7 | 0.288888889 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Benzaldehyde | mg/kg | 0.39 | 170 | 0.002294118 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Carbazole | mg/kg | 0.39 | 240 | 0.001625 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Cresols, m- & p- | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | di-n-Butyl phthalate | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-B | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Silver | mg/kg | 1.8 | 39 | 0.046153846 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 1.2 | 0.65 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 4-Chloroaniline | mg/kg | 0.78 | 2.7 | 0.288888889 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Benzaldehyde | mg/kg | 0.39 | 170 | 0.002294118 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Carbazole | mg/kg | 0.39 | 240 | 0.001625 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Cresols, m- & p- | mg/kg | 0.39 | 130 | 0.003 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | di-n-Butyl phthalate | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH021-C | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Silver | mg/kg | 1.2 | 39 | 0.030769231 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 0.23 | 1.565217391 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 1,4-Dioxane | mg/kg | 0.36 | 5.3 | 0.067924528 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.36 | 310 | 0.00116129 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 190 | 0.001894737 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 6.3 | 0.057142857 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 2,4-Dichlorophenol | mg/kg | 0.36 | 19 | 0.018947368 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 2,4-Dimethylphenol | mg/kg | 0.36 | 130 | 0.002769231 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 1.7 | 0.211764706 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 2,6-Dinitrotoluene | mg/kg | 0.36 | 0.36 | 1 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 2-Chloronaphthalene | mg/kg | 0.36 | 480 | 0.00075 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 2-Chlorophenol | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 320 | 0.001125 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 2-Nitroaniline | mg/kg | 1.8 | 63 | 0.028571429 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 2-Nitrophenol | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 3,3'-Dichlorobenzidine | mg/kg | 0.71 | 1.2 | 0.591666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 3-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.51 | 3.529411765 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 4-Chloro-3-methylphenol | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 4-Chloroaniline | mg/kg | 0.71 | 2.7 | 0.262962963 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 4-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | 4-Nitrophenol | mg/kg | 1.8 | 39 | 0.046153846 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Acetophenone | mg/kg | 0.36 | 780 | 0.000461538 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Atrazine | mg/kg | 0.36 | 2.4 | 0.15 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Benzaldehyde | mg/kg | 0.36 | 170 | 0.002117647 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Benzyl butyl phthalate | mg/kg | 0.36 | 290 | 0.001241379 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Biphenyl (Diphenyl) | mg/kg | 1.8 | 4.7 | 0.382978723 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Bis(2-chloroethoxy)methane | mg/kg | 0.36 | 19 | 0.018947368 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.36 | 0.23 | 1.565217391 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Caprolactam | mg/kg | 0.36 | 3100 | 0.000116129 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Carbazole | mg/kg | 0.36 | 240 | 0.0015 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Cresols, m- & p- | mg/kg | 0.36 | 130 | 0.002769231 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Diethyl phthalate | mg/kg | 0.36 | 5100 | 7.05882E-05 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | di-n-Butyl phthalate | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | di-n-Octyl phthalate | mg/kg | 0.36 | 63 | 0.005714286 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Hexachlorobenzene | mg/kg | 0.36 | 0.078 | 4.615384615 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Hexachlorobutadiene | mg/kg | 0.36 | 1.2 | 0.3 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.18 | 2 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Hexachloroethane | mg/kg | 0.36 | 1.8 | 0.2 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Isophorone | mg/kg | 0.36 | 570 | 0.000631579 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Nitrobenzene | mg/kg | 0.36 | 5.1 | 0.070588235 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | N-Nitrosodi-n-propylamine | mg/kg | 0.36 | 0.078 | 4.615384615 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | N-Nitrosodiphenylamine | mg/kg | 0.36 | 110 | 0.003272727 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Pentachlorophenol | mg/kg | 1.8 | 1 | 1.8 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-B | Phenol | mg/kg | 0.36 | 1900 | 0.000189474 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Silver | mg/kg | 1.4 | 39 | 0.035897436 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 1,4-Dioxane | mg/kg | 0.38 | 5.3 | 0.071698113 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 310 | 0.001225806 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 190 | 0.002 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 6.3 | 0.06031746 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 2,4-Dichlorophenol | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 2,4-Dimethylphenol | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 2,4-Dinitrotoluene | mg/kg | 0.38 | 1.7 | 0.223529412 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 2,6-Dinitrotoluene | mg/kg | 0.38 | 0.36 | 1.055555556 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 2-Chloronaphthalene | mg/kg | 0.38 | 480 | 0.000791667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 2-Chlorophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 320 | 0.0011875 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 2-Nitrophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 1.2 | 0.633333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 4-Chloroaniline | mg/kg | 0.76 | 2.7 | 0.281481481 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Acetophenone | mg/kg | 0.38 | 780 | 0.000487179 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Atrazine | mg/kg | 0.38 | 2.4 | 0.158333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Benzaldehyde | mg/kg | 0.38 | 170 | 0.002235294 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Benzyl butyl phthalate | mg/kg | 0.38 | 290 | 0.001310345 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Caprolactam | mg/kg | 0.38 | 3100 | 0.000122581 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Carbazole | mg/kg | 0.38 | 240 | 0.001583333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Cresols, m- & p- | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Diethyl phthalate | mg/kg | 0.38 | 5100 | 7.45098E-05 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | di-n-Butyl phthalate | mg/kg | 0.38 | 630 | 0.000603175 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | di-n-Octyl phthalate | mg/kg | 0.38 | 63 | 0.006031746 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Hexachlorobenzene | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Hexachlorobutadiene | mg/kg | 0.38 | 1.2 | 0.316666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Hexachloroethane | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Isophorone | mg/kg | 0.38 | 570 | 0.000666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Nitrobenzene | mg/kg | 0.38 | 5.1 | 0.074509804 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | N-Nitrosodiphenylamine | mg/kg | 0.38 | 110 | 0.003454545 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH022-C | Phenol | mg/kg | 0.38 | 1900 | 0.0002 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Silver | mg/kg | 1.4 | 39 | 0.035897436 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 1.2 | 0.616666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 4-Chloroaniline | mg/kg | 0.74 | 2.7 | 0.274074074 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Benzaldehyde | mg/kg | 0.37 | 170 | 0.002176471 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-B | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Silver | mg/kg | 1.5 | 39 | 0.038461538 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 3,3'-Dichlorobenzidine | mg/kg | 0.73 | 1.2 | 0.608333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 4-Chloroaniline | mg/kg | 0.73 | 2.7 | 0.27037037 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Benzaldehyde | mg/kg | 0.37 | 170 | 0.002176471 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH023-C | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Silver | mg/kg | 1.6 | 39 | 0.041025641 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 1,4-Dioxane | mg/kg | 0.38 | 5.3 | 0.071698113 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 310 | 0.001225806 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 190 | 0.002 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 6.3 | 0.06031746 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 2,4-Dichlorophenol | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 2,4-Dimethylphenol | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 2,4-Dinitrotoluene | mg/kg | 0.38 | 1.7 | 0.223529412 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 2,6-Dinitrotoluene | mg/kg | 0.38 | 0.36 | 1.055555556 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 2-Chloronaphthalene | mg/kg | 0.38 | 480 | 0.000791667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 2-Chlorophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 320 | 0.0011875 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 2-Nitrophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 1.2 | 0.641666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 4-Chloroaniline | mg/kg | 0.77 | 2.7 | 0.285185185 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Acetophenone | mg/kg | 0.38 | 780 | 0.000487179 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Atrazine | mg/kg | 0.38 | 2.4 | 0.158333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Benzaldehyde | mg/kg | 0.38 | 170 | 0.002235294 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Benzyl butyl phthalate | mg/kg | 0.38 | 290 | 0.001310345 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Caprolactam | mg/kg | 0.38 | 3100 | 0.000122581 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Carbazole | mg/kg | 0.38 | 240 | 0.001583333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Cresols, m- & p- | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Diethyl phthalate | mg/kg | 0.38 | 5100 | 7.45098E-05 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | di-n-Butyl phthalate | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | di-n-Octyl phthalate | mg/kg | 0.38 | 63 | 0.006031746 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Hexachlorobenzene | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Hexachlorobutadiene | mg/kg | 0.38 | 1.2 | 0.316666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Hexachloroethane | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Isophorone | mg/kg | 0.38 | 570 | 0.000666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Nitrobenzene | mg/kg | 0.38 | 5.1 | 0.074509804 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | N-Nitrosodiphenylamine | mg/kg | 0.38 | 110 | 0.003454545 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-B | Phenol | mg/kg | 0.38 | 1900 | 0.0002 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Silver | mg/kg | 1.2 | 39 | 0.030769231 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 0.23 | 1.565217391 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 1,4-Dioxane | mg/kg | 0.36 | 5.3 | 0.067924528 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.36 | 310 | 0.00116129 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 190 | 0.001894737 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 6.3 | 0.057142857 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 2,4-Dichlorophenol | mg/kg | 0.36 | 19 | 0.018947368 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 2,4-Dimethylphenol | mg/kg | 0.36 | 130 | 0.002769231 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 2,4-Dinitrotoluene | mg/kg | 0.36 | 1.7 | 0.211764706 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 2,6-Dinitrotoluene | mg/kg | 0.36 | 0.36 | 1 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 2-Chloronaphthalene | mg/kg | 0.36 | 480 | 0.00075 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 2-Chlorophenol | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 320 | 0.001125 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 2-Nitroaniline | mg/kg | 1.8 | 63 | 0.028571429 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 2-Nitrophenol | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 1.2 | 0.6 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 3-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.51 | 3.529411765 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 4-Chloro-3-methylphenol | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 4-Chloroaniline | mg/kg | 0.72 | 2.7 | 0.266666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 4-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | 4-Nitrophenol | mg/kg | 1.8 | 39 | 0.046153846 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Acetophenone | mg/kg | 0.36 | 780 | 0.000461538 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Atrazine | mg/kg | 0.36 | 2.4 | 0.15 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Benzaldehyde | mg/kg | 0.36 | 170 | 0.002117647 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Benzyl butyl phthalate | mg/kg | 0.36 | 290 | 0.001241379 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Biphenyl (Diphenyl) | mg/kg | 1.8 | 4.7 | 0.382978723 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Bis(2-chloroethoxy)methane | mg/kg | 0.36 | 19 | 0.018947368 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.36 | 0.23 | 1.565217391 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Caprolactam | mg/kg | 0.36 | 3100 | 0.000116129 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Carbazole | mg/kg | 0.36 | 240 | 0.0015 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Cresols, m- & p- | mg/kg | 0.36 | 130 | 0.002769231 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Diethyl phthalate | mg/kg | 0.36 | 5100 | 7.05882E-05 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | di-n-Butyl phthalate | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | di-n-Octyl phthalate | mg/kg | 0.36 | 63 | 0.005714286 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Hexachlorobenzene | mg/kg | 0.36 | 0.078 | 4.615384615 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Hexachlorobutadiene | mg/kg | 0.36 | 1.2 | 0.3 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.18 | 2 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Hexachloroethane | mg/kg | 0.36 | 1.8 | 0.2 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Isophorone | mg/kg | 0.36 | 570 | 0.000631579 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Nitrobenzene | mg/kg | 0.36 | 5.1 | 0.070588235 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | N-Nitrosodi-n-propylamine | mg/kg | 0.36 | 0.078 | 4.615384615 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | N-Nitrosodiphenylamine | mg/kg | 0.36 | 110 | 0.003272727 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Pentachlorophenol | mg/kg | 1.8 | 1 | 1.8 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH024-C | Phenol | mg/kg | 0.36 | 1900 | 0.000189474 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Silver | mg/kg | 1.4 | 39 | 0.035897436 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 1,4-Dioxane | mg/kg | 0.38 | 5.3 | 0.071698113 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 310 | 0.001225806 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 190 | 0.002 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 6.3 | 0.06031746 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 2,4-Dichlorophenol | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 2,4-Dimethylphenol | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 2,4-Dinitrotoluene | mg/kg | 0.38 | 1.7 | 0.223529412 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 2,6-Dinitrotoluene | mg/kg | 0.38 | 0.36 | 1.055555556 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 2-Chloronaphthalene | mg/kg | 0.38 | 480 | 0.000791667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 2-Chlorophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 320 | 0.0011875 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 2-Nitrophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 1.2 | 0.625 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 4-Chloroaniline | mg/kg | 0.75 | 2.7 | 0.277777778 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Acetophenone | mg/kg | 0.38 | 780 | 0.000487179 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Atrazine | mg/kg | 0.38 | 2.4 | 0.158333333 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Benzaldehyde | mg/kg | 0.38 | 170 | 0.002235294 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Benzyl butyl phthalate | mg/kg | 0.38 | 290 | 0.001310345 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Caprolactam | mg/kg | 0.38 | 3100 | 0.000122581 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Carbazole | mg/kg | 0.38 | 240 | 0.001583333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Cresols, m- & p- | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Diethyl phthalate | mg/kg | 0.38 | 5100 | 7.45098E-05 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | di-n-Butyl phthalate | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | di-n-Octyl phthalate | mg/kg | 0.38 | 63 | 0.006031746 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Hexachlorobenzene | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Hexachlorobutadiene | mg/kg | 0.38 | 1.2 | 0.316666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Hexachloroethane | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Isophorone | mg/kg | 0.38 | 570 | 0.000666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Nitrobenzene | mg/kg | 0.38 | 5.1 | 0.074509804 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | N-Nitrosodiphenylamine | mg/kg | 0.38 | 110 | 0.003454545 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-B | Phenol | mg/kg | 0.38 | 1900 | 0.0002 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Silver | mg/kg | 1.2 | 39 | 0.030769231 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 1.2 | 0.65 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 4-Chloroaniline | mg/kg | 0.78 | 2.7 | 0.288888889 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Benzaldehyde | mg/kg | 0.39 | 170 | 0.002294118 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Carbazole | mg/kg | 0.39 | 240 | 0.001625 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Cresols, m- & p- | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | di-n-Butyl phthalate | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-PH025-C | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-SL021-A | Silver | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-SL022-A | Silver | mg/kg | 1.5 | 39 | 0.038461538 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-SL023-A | Silver | mg/kg | 1.6 | 39 | 0.041025641 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-SL024-A | Silver | mg/kg | 1.8 | 39 | 0.046153846 |
| AOC 5 | Coal_Aggregate_Bins | NYOW-05-SL025-A | Silver | mg/kg | 1.7 | 39 | 0.043589744 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Silver | mg/kg | 1.3 | 39 | 0.033333333 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 3,3'-Dichlorobenzidine | mg/kg | 0.79 | 1.2 | 0.658333333 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 4-Chloroaniline | mg/kg | 0.79 | 2.7 | 0.292592593 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Benzaldehyde | mg/kg | 0.39 | 170 | 0.002294118 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Carbazole | mg/kg | 0.39 | 240 | 0.001625 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Cresols, m- & p- | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Dibenzofuran | mg/kg | 0.39 | 7.8 | 0.05 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | di-n-Butyl phthalate | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-B | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Silver | mg/kg | 1.5 | 39 | 0.038461538 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 1.2 | 0.616666667 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 4-Chloroaniline | mg/kg | 0.74 | 2.7 | 0.274074074 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Benzaldehyde | mg/kg | 0.37 | 170 | 0.002176471 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Dibenzofuran | mg/kg | 0.37 | 7.8 | 0.047435897 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Coal_Storage | NYOW-05-PH006-C | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Silver | mg/kg | 1.4 | 39 | 0.035897436 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 0.23 | 1.565217391 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 1,4-Dioxane | mg/kg | 0.36 | 5.3 | 0.067924528 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.36 | 310 | 0.00116129 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 190 | 0.001894737 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 6.3 | 0.057142857 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 2,4-Dichlorophenol | mg/kg | 0.36 | 19 | 0.018947368 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 2,4-Dimethylphenol | mg/kg | 0.36 | 130 | 0.002769231 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 1.7 | 0.211764706 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 2,6-Dinitrotoluene | mg/kg | 0.36 | 0.36 | 1 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 2-Chloronaphthalene | mg/kg | 0.36 | 480 | 0.00075 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 2-Chlorophenol | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 320 | 0.001125 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 2-Nitroaniline | mg/kg | 1.8 | 63 | 0.028571429 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 2-Nitrophenol | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 1.2 | 0.6 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 3-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.51 | 3.529411765 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 4-Chloro-3-methylphenol | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 4-Chloroaniline | mg/kg | 0.72 | 2.7 | 0.266666667 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 4-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | 4-Nitrophenol | mg/kg | 1.8 | 39 | 0.046153846 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Acetophenone | mg/kg | 0.36 | 780 | 0.000461538 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Atrazine | mg/kg | 0.36 | 2.4 | 0.15 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Benzaldehyde | mg/kg | 0.36 | 170 | 0.002117647 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Benzyl butyl phthalate | mg/kg | 0.36 | 290 | 0.001241379 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Biphenyl (Diphenyl) | mg/kg | 1.8 | 4.7 | 0.382978723 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Bis(2-chloroethoxy)methane | mg/kg | 0.36 | 19 | 0.018947368 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.36 | 0.23 | 1.565217391 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Caprolactam | mg/kg | 0.36 | 3100 | 0.000116129 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Carbazole | mg/kg | 0.36 | 240 | 0.0015 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Cresols, m- & p- | mg/kg | 0.36 | 130 | 0.002769231 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Dibenzofuran | mg/kg | 0.36 | 7.8 | 0.046153846 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Diethyl phthalate | mg/kg | 0.36 | 5100 | 7.05882E-05 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | di-n-Butyl phthalate | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | di-n-Octyl phthalate | mg/kg | 0.36 | 63 | 0.005714286 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Hexachlorobenzene | mg/kg | 0.36 | 0.078 | 4.615384615 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Hexachlorobutadiene | mg/kg | 0.36 | 1.2 | 0.3 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.18 | 2 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Hexachloroethane | mg/kg | 0.36 | 1.8 | 0.2 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Isophorone | mg/kg | 0.36 | 570 | 0.000631579 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Nitrobenzene | mg/kg | 0.36 | 5.1 | 0.070588235 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | N-Nitrosodi-n-propylamine | mg/kg | 0.36 | 0.078 | 4.615384615 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | N-Nitrosodiphenylamine | mg/kg | 0.36 | 110 | 0.003272727 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Pentachlorophenol | mg/kg | 1.8 | 1 | 1.8 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-B | Phenol | mg/kg | 0.36 | 1900 | 0.000189474 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Silver | mg/kg | 1.6 | 39 | 0.041025641 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 1.2 | 0.616666667 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 4-Chloroaniline | mg/kg | 0.74 | 2.7 | 0.274074074 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Benzaldehyde | mg/kg | 0.37 | 170 | 0.002176471 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Dibenzofuran | mg/kg | 0.37 | 7.8 | 0.047435897 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Coal_Storage | NYOW-05-PH007-C | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Silver | mg/kg | 1.2 | 39 | 0.030769231 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 1.2 | 0.616666667 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 4-Chloroaniline | mg/kg | 0.74 | 2.7 | 0.274074074 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Benzaldehyde | mg/kg | 0.37 | 170 | 0.002176471 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Dibenzofuran | mg/kg | 0.37 | 7.8 | 0.047435897 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-B | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Silver | mg/kg | 1.3 | 39 | 0.033333333 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 3,3'-Dichlorobenzidine | mg/kg | 0.73 | 1.2 | 0.608333333 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 4-Chloroaniline | mg/kg | 0.73 | 2.7 | 0.27037037 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Benzaldehyde | mg/kg | 0.37 | 170 | 0.002176471 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Dibenzofuran | mg/kg | 0.37 | 7.8 | 0.047435897 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Coal_Storage | NYOW-05-PH008-C | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Silver | mg/kg | 1.5 | 39 | 0.038461538 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 0.23 | 1.565217391 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 1,4-Dioxane | mg/kg | 0.36 | 5.3 | 0.067924528 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.36 | 310 | 0.00116129 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 190 | 0.001894737 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 6.3 | 0.057142857 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 2,4-Dichlorophenol | mg/kg | 0.36 | 19 | 0.018947368 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 2,4-Dimethylphenol | mg/kg | 0.36 | 130 | 0.002769231 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 1.7 | 0.211764706 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 2,6-Dinitrotoluene | mg/kg | 0.36 | 0.36 | 1 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 2-Chloronaphthalene | mg/kg | 0.36 | 480 | 0.00075 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 2-Chlorophenol | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 320 | 0.001125 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 2-Nitrophenol | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 1.2 | 0.6 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 4-Chloro-3-methylphenol | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 4-Chloroaniline | mg/kg | 0.72 | 2.7 | 0.266666667 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Acetophenone | mg/kg | 0.36 | 780 | 0.000461538 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Atrazine | mg/kg | 0.36 | 2.4 | 0.15 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Benzaldehyde | mg/kg | 0.36 | 170 | 0.002117647 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Benzyl butyl phthalate | mg/kg | 0.36 | 290 | 0.001241379 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Bis(2-chloroethoxy)methane | mg/kg | 0.36 | 19 | 0.018947368 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.36 | 0.23 | 1.565217391 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Caprolactam | mg/kg | 0.36 | 3100 | 0.000116129 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Carbazole | mg/kg | 0.36 | 240 | 0.0015 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Cresols, m- & p- | mg/kg | 0.36 | 130 | 0.002769231 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Dibenzofuran | mg/kg | 0.36 | 7.8 | 0.046153846 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Diethyl phthalate | mg/kg | 0.36 | 5100 | 7.05882E-05 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | di-n-Butyl phthalate | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | di-n-Octyl phthalate | mg/kg | 0.36 | 63 | 0.005714286 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Hexachlorobenzene | mg/kg | 0.36 | 0.078 | 4.615384615 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Hexachlorobutadiene | mg/kg | 0.36 | 1.2 | 0.3 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.18 | 2 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Hexachloroethane | mg/kg | 0.36 | 1.8 | 0.2 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Isophorone | mg/kg | 0.36 | 570 | 0.000631579 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Nitrobenzene | mg/kg | 0.36 | 5.1 | 0.070588235 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | N-Nitrosodi-n-propylamine | mg/kg | 0.36 | 0.078 | 4.615384615 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | N-Nitrosodiphenylamine | mg/kg | 0.36 | 110 | 0.003272727 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-B | Phenol | mg/kg | 0.36 | 1900 | 0.000189474 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Silver | mg/kg | 1.3 | 39 | 0.033333333 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 1.2 | 0.625 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 4-Chloroaniline | mg/kg | 0.75 | 2.7 | 0.277777778 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Benzaldehyde | mg/kg | 0.37 | 170 | 0.002176471 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Dibenzofuran | mg/kg | 0.37 | 7.8 | 0.047435897 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Coal_Storage | NYOW-05-PH009-C | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Silver | mg/kg | 1.6 | 39 | 0.041025641 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 1.2 | 0.625 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 4-Chloroaniline | mg/kg | 0.75 | 2.7 | 0.277777778 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Benzaldehyde | mg/kg | 0.37 | 170 | 0.002176471 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Dibenzofuran | mg/kg | 0.37 | 7.8 | 0.047435897 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-B | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Silver | mg/kg | 1.4 | 39 | 0.035897436 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.35 | 0.23 | 1.52173913 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 1,4-Dioxane | mg/kg | 0.35 | 5.3 | 0.066037736 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.35 | 310 | 0.001129032 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.35 | 190 | 0.001842105 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 630 | 0.000555556 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 2,4,6-Trichlorophenol | mg/kg | 0.35 | 6.3 | 0.055555556 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 2,4-Dichlorophenol | mg/kg | 0.35 | 19 | 0.018421053 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 2,4-Dimethylphenol | mg/kg | 0.35 | 130 | 0.002692308 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 2,4-Dinitrotoluene | mg/kg | 0.35 | 1.7 | 0.205882353 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 2,6-Dinitrotoluene | mg/kg | 0.35 | 0.36 | 0.972222222 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 2-Chloronaphthalene | mg/kg | 0.35 | 480 | 0.000729167 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 2-Chlorophenol | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 320 | 0.00109375 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 2-Nitroaniline | mg/kg | 1.8 | 63 | 0.028571429 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 2-Nitrophenol | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 3,3'-Dichlorobenzidine | mg/kg | 0.7 | 1.2 | 0.583333333 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 3-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.51 | 3.529411765 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 4-Chloro-3-methylphenol | mg/kg | 0.35 | 630 | 0.000555556 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 4-Chloroaniline | mg/kg | 0.7 | 2.7 | 0.259259259 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 4-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | 4-Nitrophenol | mg/kg | 1.8 | 39 | 0.046153846 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Acetophenone | mg/kg | 0.35 | 780 | 0.000448718 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Atrazine | mg/kg | 0.35 | 2.4 | 0.145833333 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Benzaldehyde | mg/kg | 0.35 | 170 | 0.002058824 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Benzyl butyl phthalate | mg/kg | 0.35 | 290 | 0.001206897 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Biphenyl (Diphenyl) | mg/kg | 1.8 | 4.7 | 0.382978723 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Bis(2-chloroethoxy)methane | mg/kg | 0.35 | 19 | 0.018421053 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.35 | 0.23 | 1.52173913 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Caprolactam | mg/kg | 0.35 | 3100 | 0.000112903 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Carbazole | mg/kg | 0.35 | 240 | 0.001458333 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Cresols, m- & p- | mg/kg | 0.35 | 130 | 0.002692308 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Dibenzofuran | mg/kg | 0.35 | 7.8 | 0.044871795 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Diethyl phthalate | mg/kg | 0.35 | 5100 | 6.86275E-05 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | di-n-Butyl phthalate | mg/kg | 0.35 | 630 | 0.000555556 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | di-n-Octyl phthalate | mg/kg | 0.35 | 63 | 0.005555556 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Hexachlorobenzene | mg/kg | 0.35 | 0.078 | 4.487179487 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Hexachlorobutadiene | mg/kg | 0.35 | 1.2 | 0.291666667 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Hexachlorocyclopentadiene | mg/kg | 0.35 | 0.18 | 1.944444444 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Hexachloroethane | mg/kg | 0.35 | 1.8 | 0.194444444 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Isophorone | mg/kg | 0.35 | 570 | 0.000614035 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Nitrobenzene | mg/kg | 0.35 | 5.1 | 0.068627451 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | N-Nitrosodi-n-propylamine | mg/kg | 0.35 | 0.078 | 4.487179487 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | N-Nitrosodiphenylamine | mg/kg | 0.35 | 110 | 0.003181818 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Pentachlorophenol | mg/kg | 1.8 | 1 | 1.8 |
| AOC 5 | Coal_Storage | NYOW-05-PH010-C | Phenol | mg/kg | 0.35 | 1900 | 0.000184211 |
| AOC 5 | Coal_Storage | NYOW-05-SL006-A | Silver | mg/kg | 2.1 | 39 | 0.053846154 |
| AOC 5 | Coal_Storage | NYOW-05-SL007-A | Silver | mg/kg | 2.2 | 39 | 0.056410256 |
| AOC 5 | Coal_Storage | NYOW-05-SL008-A | Silver | mg/kg | 1.8 | 39 | 0.046153846 |
| AOC 5 | Coal_Storage | NYOW-05-SL009-A | Silver | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Coal_Storage | NYOW-05-SL010-A | Silver | mg/kg | 1.4 | 39 | 0.035897436 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Silver | mg/kg | 1.5 | 39 | 0.038461538 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 1.2 | 0.641666667 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 4-Chloroaniline | mg/kg | 0.77 | 2.7 | 0.285185185 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Benzaldehyde | mg/kg | 0.39 | 170 | 0.002294118 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Carbazole | mg/kg | 0.39 | 240 | 0.001625 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Cresols, m- & p- | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Dibenzofuran | mg/kg | 0.39 | 7.8 | 0.05 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | di-n-Butyl phthalate | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-B | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Silver | mg/kg | 1.8 | 39 | 0.046153846 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 1.2 | 0.616666667 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 4-Chloroaniline | mg/kg | 0.74 | 2.7 | 0.274074074 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Benzaldehyde | mg/kg | 0.37 | 170 | 0.002176471 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Dibenzofuran | mg/kg | 0.37 | 7.8 | 0.047435897 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Electric_Substation | NYOW-05-PH011-C | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Silver | mg/kg | 1.5 | 39 | 0.038461538 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 1.2 | 0.641666667 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 4-Chloroaniline | mg/kg | 0.77 | 2.7 | 0.285185185 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Benzaldehyde | mg/kg | 0.39 | 170 | 0.002294118 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Carbazole | mg/kg | 0.39 | 240 | 0.001625 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Cresols, m- & p- | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Dibenzofuran | mg/kg | 0.39 | 7.8 | 0.05 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | di-n-Butyl phthalate | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-B | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Silver | mg/kg | 1.7 | 39 | 0.043589744 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 1,4-Dioxane | mg/kg | 0.38 | 5.3 | 0.071698113 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 310 | 0.001225806 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 190 | 0.002 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 6.3 | 0.06031746 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 2,4-Dichlorophenol | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 2,4-Dimethylphenol | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 2,4-Dinitrotoluene | mg/kg | 0.38 | 1.7 | 0.223529412 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 2,6-Dinitrotoluene | mg/kg | 0.38 | 0.36 | 1.055555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 2-Chloronaphthalene | mg/kg | 0.38 | 480 | 0.000791667 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 2-Chlorophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 320 | 0.0011875 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 2-Nitrophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 1.2 | 0.625 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 4-Chloroaniline | mg/kg | 0.75 | 2.7 | 0.277777778 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Acetophenone | mg/kg | 0.38 | 780 | 0.000487179 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Atrazine | mg/kg | 0.38 | 2.4 | 0.158333333 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Benzaldehyde | mg/kg | 0.38 | 170 | 0.002235294 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Benzyl butyl phthalate | mg/kg | 0.38 | 290 | 0.001310345 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Caprolactam | mg/kg | 0.38 | 3100 | 0.000122581 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Carbazole | mg/kg | 0.38 | 240 | 0.001583333 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Cresols, m- & p- | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Dibenzofuran | mg/kg | 0.38 | 7.8 | 0.048717949 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Diethyl phthalate | mg/kg | 0.38 | 5100 | 7.45098E-05 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | di-n-Butyl phthalate | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | di-n-Octyl phthalate | mg/kg | 0.38 | 63 | 0.006031746 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Hexachlorobenzene | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Hexachlorobutadiene | mg/kg | 0.38 | 1.2 | 0.316666667 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Hexachloroethane | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Isophorone | mg/kg | 0.38 | 570 | 0.000666667 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Nitrobenzene | mg/kg | 0.38 | 5.1 | 0.074509804 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | N-Nitrosodiphenylamine | mg/kg | 0.38 | 110 | 0.003454545 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Electric_Substation | NYOW-05-PH012-C | Phenol | mg/kg | 0.38 | 1900 | 0.0002 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Silver | mg/kg | 1.3 | 39 | 0.033333333 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.35 | 0.23 | 1.52173913 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 1,4-Dioxane | mg/kg | 0.35 | 5.3 | 0.066037736 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.35 | 310 | 0.001129032 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.35 | 190 | 0.001842105 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 630 | 0.000555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 2,4,6-Trichlorophenol | mg/kg | 0.35 | 6.3 | 0.055555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 2,4-Dichlorophenol | mg/kg | 0.35 | 19 | 0.018421053 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 2,4-Dimethylphenol | mg/kg | 0.35 | 130 | 0.002692308 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 2,4-Dinitrotoluene | mg/kg | 0.35 | 1.7 | 0.205882353 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 2,6-Dinitrotoluene | mg/kg | 0.35 | 0.36 | 0.972222222 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 2-Chloronaphthalene | mg/kg | 0.35 | 480 | 0.000729167 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 2-Chlorophenol | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 320 | 0.00109375 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 2-Nitroaniline | mg/kg | 1.8 | 63 | 0.028571429 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 2-Nitrophenol | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 3,3'-Dichlorobenzidine | mg/kg | 0.7 | 1.2 | 0.583333333 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 3-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.51 | 3.529411765 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 4-Chloro-3-methylphenol | mg/kg | 0.35 | 630 | 0.000555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 4-Chloroaniline | mg/kg | 0.7 | 2.7 | 0.259259259 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 4-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | 4-Nitrophenol | mg/kg | 1.8 | 39 | 0.046153846 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Acetophenone | mg/kg | 0.35 | 780 | 0.000448718 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Atrazine | mg/kg | 0.35 | 2.4 | 0.145833333 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Benzaldehyde | mg/kg | 0.35 | 170 | 0.002058824 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Benzyl butyl phthalate | mg/kg | 0.35 | 290 | 0.001206897 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Biphenyl (Diphenyl) | mg/kg | 1.8 | 4.7 | 0.382978723 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Bis(2-chloroethoxy)methane | mg/kg | 0.35 | 19 | 0.018421053 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.35 | 0.23 | 1.52173913 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Caprolactam | mg/kg | 0.35 | 3100 | 0.000112903 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Carbazole | mg/kg | 0.35 | 240 | 0.001458333 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Cresols, m- & p- | mg/kg | 0.35 | 130 | 0.002692308 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Dibenzofuran | mg/kg | 0.35 | 7.8 | 0.044871795 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Diethyl phthalate | mg/kg | 0.35 | 5100 | 6.86275E-05 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | di-n-Butyl phthalate | mg/kg | 0.35 | 630 | 0.000555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | di-n-Octyl phthalate | mg/kg | 0.35 | 63 | 0.005555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Hexachlorobenzene | mg/kg | 0.35 | 0.078 | 4.487179487 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Hexachlorobutadiene | mg/kg | 0.35 | 1.2 | 0.291666667 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Hexachlorocyclopentadiene | mg/kg | 0.35 | 0.18 | 1.944444444 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Hexachloroethane | mg/kg | 0.35 | 1.8 | 0.194444444 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Isophorone | mg/kg | 0.35 | 570 | 0.000614035 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Nitrobenzene | mg/kg | 0.35 | 5.1 | 0.068627451 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | N-Nitrosodi-n-propylamine | mg/kg | 0.35 | 0.078 | 4.487179487 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | N-Nitrosodiphenylamine | mg/kg | 0.35 | 110 | 0.003181818 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Pentachlorophenol | mg/kg | 1.8 | 1 | 1.8 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-B | Phenol | mg/kg | 0.35 | 1900 | 0.000184211 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Silver | mg/kg | 1.3 | 39 | 0.033333333 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 1.2 | 0.625 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 4-Chloroaniline | mg/kg | 0.75 | 2.7 | 0.277777778 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Benzaldehyde | mg/kg | 0.37 | 170 | 0.002176471 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Dibenzofuran | mg/kg | 0.37 | 7.8 | 0.047435897 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Electric_Substation | NYOW-05-PH013-C | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Silver | mg/kg | 1.4 | 39 | 0.035897436 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 1.2 | 0.625 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 4-Chloroaniline | mg/kg | 0.75 | 2.7 | 0.277777778 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Benzaldehyde | mg/kg | 0.37 | 170 | 0.002176471 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Dibenzofuran | mg/kg | 0.37 | 7.8 | 0.047435897 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-B | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Silver | mg/kg | 1.6 | 39 | 0.041025641 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 0.23 | 1.565217391 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 1,4-Dioxane | mg/kg | 0.36 | 5.3 | 0.067924528 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.36 | 310 | 0.00116129 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 190 | 0.001894737 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 6.3 | 0.057142857 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 2,4-Dichlorophenol | mg/kg | 0.36 | 19 | 0.018947368 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 2,4-Dimethylphenol | mg/kg | 0.36 | 130 | 0.002769231 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 2,4-Dinitrotoluene | mg/kg | 0.36 | 1.7 | 0.211764706 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 2,6-Dinitrotoluene | mg/kg | 0.36 | 0.36 | 1 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 2-Chloronaphthalene | mg/kg | 0.36 | 480 | 0.00075 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 2-Chlorophenol | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 320 | 0.001125 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 2-Nitrophenol | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 1.2 | 0.6 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 4-Chloro-3-methylphenol | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 4-Chloroaniline | mg/kg | 0.72 | 2.7 | 0.266666667 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Acetophenone | mg/kg | 0.36 | 780 | 0.000461538 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Atrazine | mg/kg | 0.36 | 2.4 | 0.15 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Benzaldehyde | mg/kg | 0.36 | 170 | 0.002117647 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Benzyl butyl phthalate | mg/kg | 0.36 | 290 | 0.001241379 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Bis(2-chloroethoxy)methane | mg/kg | 0.36 | 19 | 0.018947368 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.36 | 0.23 | 1.565217391 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 39 | 0.009230769 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Caprolactam | mg/kg | 0.36 | 3100 | 0.000116129 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Carbazole | mg/kg | 0.36 | 240 | 0.0015 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Cresols, m- & p- | mg/kg | 0.36 | 130 | 0.002769231 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Dibenzofuran | mg/kg | 0.36 | 7.8 | 0.046153846 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Diethyl phthalate | mg/kg | 0.36 | 5100 | 7.05882E-05 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | di-n-Butyl phthalate | mg/kg | 0.36 | 630 | 0.000571429 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | di-n-Octyl phthalate | mg/kg | 0.36 | 63 | 0.005714286 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Hexachlorobenzene | mg/kg | 0.36 | 0.078 | 4.615384615 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Hexachlorobutadiene | mg/kg | 0.36 | 1.2 | 0.3 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.18 | 2 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Hexachloroethane | mg/kg | 0.36 | 1.8 | 0.2 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Isophorone | mg/kg | 0.36 | 570 | 0.000631579 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Nitrobenzene | mg/kg | 0.36 | 5.1 | 0.070588235 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | N-Nitrosodi-n-propylamine | mg/kg | 0.36 | 0.078 | 4.615384615 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | N-Nitrosodiphenylamine | mg/kg | 0.36 | 110 | 0.003272727 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Electric_Substation | NYOW-05-PH014-C | Phenol | mg/kg | 0.36 | 1900 | 0.000189474 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Silver | mg/kg | 1.4 | 39 | 0.035897436 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.35 | 0.23 | 1.52173913 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 1,4-Dioxane | mg/kg | 0.35 | 5.3 | 0.066037736 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.35 | 310 | 0.001129032 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.35 | 190 | 0.001842105 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 630 | 0.000555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 2,4,6-Trichlorophenol | mg/kg | 0.35 | 6.3 | 0.055555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 2,4-Dichlorophenol | mg/kg | 0.35 | 19 | 0.018421053 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 2,4-Dimethylphenol | mg/kg | 0.35 | 130 | 0.002692308 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 2,4-Dinitrotoluene | mg/kg | 0.35 | 1.7 | 0.205882353 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 2,6-Dinitrotoluene | mg/kg | 0.35 | 0.36 | 0.972222222 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 2-Chloronaphthalene | mg/kg | 0.35 | 480 | 0.000729167 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 2-Chlorophenol | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 320 | 0.00109375 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 2-Nitroaniline | mg/kg | 1.8 | 63 | 0.028571429 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 2-Nitrophenol | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 3,3'-Dichlorobenzidine | mg/kg | 0.7 | 1.2 | 0.583333333 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 3-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.51 | 3.529411765 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 4-Chloro-3-methylphenol | mg/kg | 0.35 | 630 | 0.000555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 4-Chloroaniline | mg/kg | 0.7 | 2.7 | 0.259259259 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 4-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | 4-Nitrophenol | mg/kg | 1.8 | 39 | 0.046153846 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Acetophenone | mg/kg | 0.35 | 780 | 0.000448718 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Atrazine | mg/kg | 0.35 | 2.4 | 0.145833333 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Benzaldehyde | mg/kg | 0.35 | 170 | 0.002058824 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Benzyl butyl phthalate | mg/kg | 0.35 | 290 | 0.001206897 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Biphenyl (Diphenyl) | mg/kg | 1.8 | 4.7 | 0.382978723 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Bis(2-chloroethoxy)methane | mg/kg | 0.35 | 19 | 0.018421053 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.35 | 0.23 | 1.52173913 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Caprolactam | mg/kg | 0.35 | 3100 | 0.000112903 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Carbazole | mg/kg | 0.35 | 240 | 0.001458333 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Cresols, m- & p- | mg/kg | 0.35 | 130 | 0.002692308 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Dibenzofuran | mg/kg | 0.35 | 7.8 | 0.044871795 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Diethyl phthalate | mg/kg | 0.35 | 5100 | 6.86275E-05 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | di-n-Butyl phthalate | mg/kg | 0.35 | 630 | 0.000555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | di-n-Octyl phthalate | mg/kg | 0.35 | 63 | 0.005555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Hexachlorobenzene | mg/kg | 0.35 | 0.078 | 4.487179487 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Hexachlorobutadiene | mg/kg | 0.35 | 1.2 | 0.291666667 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Hexachlorocyclopentadiene | mg/kg | 0.35 | 0.18 | 1.944444444 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Hexachloroethane | mg/kg | 0.35 | 1.8 | 0.194444444 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Isophorone | mg/kg | 0.35 | 570 | 0.000614035 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Nitrobenzene | mg/kg | 0.35 | 5.1 | 0.068627451 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | N-Nitrosodi-n-propylamine | mg/kg | 0.35 | 0.078 | 4.487179487 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | N-Nitrosodiphenylamine | mg/kg | 0.35 | 110 | 0.003181818 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Pentachlorophenol | mg/kg | 1.8 | 1 | 1.8 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-B | Phenol | mg/kg | 0.35 | 1900 | 0.000184211 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Silver | mg/kg | 1.7 | 39 | 0.043589744 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 1.2 | 0.625 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 4-Chloroaniline | mg/kg | 0.75 | 2.7 | 0.277777778 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Benzaldehyde | mg/kg | 0.37 | 170 | 0.002176471 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Dibenzofuran | mg/kg | 0.37 | 7.8 | 0.047435897 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Electric_Substation | NYOW-05-PH015-C | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Silver | mg/kg | 1.7 | 39 | 0.043589744 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.068 | 0.41 | 0.165853659 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.096 | 0.2 | 0.48 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.068 | 0.17 | 0.4 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.068 | 0.23 | 0.295652174 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.068 | 0.23 | 0.295652174 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.068 | 0.12 | 0.566666667 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.068 | 0.24 | 0.283333333 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.068 | 0.24 | 0.283333333 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 1.2 | 0.616666667 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 4-Chloroaniline | mg/kg | 0.74 | 2.7 | 0.274074074 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Benzaldehyde | mg/kg | 0.37 | 170 | 0.002176471 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Dibenzofuran | mg/kg | 0.37 | 7.8 | 0.047435897 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | di-n-Butyl phthalate | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Electric_Substation | NYOW-05-SL011-A | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Silver | mg/kg | 1.5 | 39 | 0.038461538 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 0.41 | 0.175609756 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.2 | 0.5 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 0.17 | 0.423529412 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 0.23 | 0.313043478 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 0.23 | 0.313043478 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 0.12 | 0.6 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 0.24 | 0.3 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 0.24 | 0.3 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 1,4-Dioxane | mg/kg | 0.38 | 5.3 | 0.071698113 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 310 | 0.001225806 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 190 | 0.002 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 6.3 | 0.06031746 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 2,4-Dichlorophenol | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 2,4-Dimethylphenol | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 2,4-Dinitrotoluene | mg/kg | 0.38 | 1.7 | 0.223529412 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 2,6-Dinitrotoluene | mg/kg | 0.38 | 0.36 | 1.055555556 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 2-Chloronaphthalene | mg/kg | 0.38 | 480 | 0.000791667 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 2-Chlorophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 320 | 0.0011875 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 2-Nitrophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 1.2 | 0.633333333 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 4-Chloroaniline | mg/kg | 0.76 | 2.7 | 0.281481481 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Acetophenone | mg/kg | 0.38 | 780 | 0.000487179 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Atrazine | mg/kg | 0.38 | 2.4 | 0.158333333 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Benzaldehyde | mg/kg | 0.38 | 170 | 0.002235294 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Benzyl butyl phthalate | mg/kg | 0.38 | 290 | 0.001310345 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Caprolactam | mg/kg | 0.38 | 3100 | 0.000122581 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Carbazole | mg/kg | 0.38 | 240 | 0.001583333 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Cresols, m- & p- | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Dibenzofuran | mg/kg | 0.38 | 7.8 | 0.048717949 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Diethyl phthalate | mg/kg | 0.38 | 5100 | 7.45098E-05 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | di-n-Butyl phthalate | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | di-n-Octyl phthalate | mg/kg | 0.38 | 63 | 0.006031746 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Hexachlorobenzene | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Hexachlorobutadiene | mg/kg | 0.38 | 1.2 | 0.316666667 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Hexachloroethane | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Isophorone | mg/kg | 0.38 | 570 | 0.000666667 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Nitrobenzene | mg/kg | 0.38 | 5.1 | 0.074509804 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | N-Nitrosodiphenylamine | mg/kg | 0.38 | 110 | 0.003454545 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Electric_Substation | NYOW-05-SL012-A | Phenol | mg/kg | 0.38 | 1900 | 0.0002 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Silver | mg/kg | 1.4 | 39 | 0.035897436 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.076 | 0.41 | 0.185365854 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.076 | 0.17 | 0.447058824 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.076 | 0.23 | 0.330434783 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.076 | 0.23 | 0.330434783 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.076 | 0.12 | 0.633333333 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.076 | 0.24 | 0.316666667 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.076 | 0.24 | 0.316666667 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 1.2 | 0.65 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 4-Chloroaniline | mg/kg | 0.78 | 2.7 | 0.288888889 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Benzaldehyde | mg/kg | 0.39 | 170 | 0.002294118 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Carbazole | mg/kg | 0.39 | 240 | 0.001625 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Cresols, m- & p- | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Dibenzofuran | mg/kg | 0.39 | 7.8 | 0.05 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | di-n-Butyl phthalate | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Electric_Substation | NYOW-05-SL013-A | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Silver | mg/kg | 1.7 | 39 | 0.043589744 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.078 | 0.41 | 0.190243902 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.078 | 0.17 | 0.458823529 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.078 | 0.23 | 0.339130435 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.078 | 0.23 | 0.339130435 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.078 | 0.12 | 0.65 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.078 | 0.24 | 0.325 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.078 | 0.24 | 0.325 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 1,4-Dioxane | mg/kg | 0.38 | 5.3 | 0.071698113 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 310 | 0.001225806 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 190 | 0.002 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 6.3 | 0.06031746 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 2,4-Dichlorophenol | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 2,4-Dimethylphenol | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 2,4-Dinitrotoluene | mg/kg | 0.38 | 1.7 | 0.223529412 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 2,6-Dinitrotoluene | mg/kg | 0.38 | 0.36 | 1.055555556 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 2-Chloronaphthalene | mg/kg | 0.38 | 480 | 0.000791667 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 2-Chlorophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 320 | 0.0011875 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 2-Nitrophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 1.2 | 0.633333333 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 4-Chloroaniline | mg/kg | 0.76 | 2.7 | 0.281481481 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Acetophenone | mg/kg | 0.38 | 780 | 0.000487179 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Atrazine | mg/kg | 0.38 | 2.4 | 0.158333333 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Benzaldehyde | mg/kg | 0.38 | 170 | 0.002235294 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Benzyl butyl phthalate | mg/kg | 0.38 | 290 | 0.001310345 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Caprolactam | mg/kg | 0.38 | 3100 | 0.000122581 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Carbazole | mg/kg | 0.38 | 240 | 0.001583333 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Cresols, m- & p- | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Dibenzofuran | mg/kg | 0.38 | 7.8 | 0.048717949 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Diethyl phthalate | mg/kg | 0.38 | 5100 | 7.45098E-05 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | di-n-Butyl phthalate | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | di-n-Octyl phthalate | mg/kg | 0.38 | 63 | 0.006031746 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Hexachlorobenzene | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Hexachlorobutadiene | mg/kg | 0.38 | 1.2 | 0.316666667 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Hexachloroethane | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Isophorone | mg/kg | 0.38 | 570 | 0.000666667 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Nitrobenzene | mg/kg | 0.38 | 5.1 | 0.074509804 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | N-Nitrosodiphenylamine | mg/kg | 0.38 | 110 | 0.003454545 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Electric_Substation | NYOW-05-SL014-A | Phenol | mg/kg | 0.38 | 1900 | 0.0002 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Silver | mg/kg | 1.7 | 39 | 0.043589744 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.077 | 0.41 | 0.187804878 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.077 | 0.17 | 0.452941176 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.077 | 0.23 | 0.334782609 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.077 | 0.23 | 0.334782609 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.077 | 0.12 | 0.641666667 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.077 | 0.24 | 0.320833333 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.077 | 0.24 | 0.320833333 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 1,4-Dioxane | mg/kg | 0.38 | 5.3 | 0.071698113 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 310 | 0.001225806 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 190 | 0.002 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 6.3 | 0.06031746 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 2,4-Dichlorophenol | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 2,4-Dimethylphenol | mg/kg | 0.38 | 130 | 0.002923077 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 2,4-Dinitrotoluene | mg/kg | 0.38 | 1.7 | 0.223529412 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 2,6-Dinitrotoluene | mg/kg | 0.38 | 0.36 | 1.055555556 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 2-Chloronaphthalene | mg/kg | 0.38 | 480 | 0.000791667 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 2-Chlorophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 320 | 0.0011875 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 2-Nitrophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 1.2 | 0.633333333 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 4-Chloroaniline | mg/kg | 0.76 | 2.7 | 0.281481481 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Acetophenone | mg/kg | 0.38 | 780 | 0.000487179 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Atrazine | mg/kg | 0.38 | 2.4 | 0.158333333 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Benzaldehyde | mg/kg | 0.38 | 170 | 0.002235294 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Benzyl butyl phthalate | mg/kg | 0.38 | 290 | 0.001310345 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Caprolactam | mg/kg | 0.38 | 3100 | 0.000122581 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Carbazole | mg/kg | 0.38 | 240 | 0.001583333 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Cresols, m- & p- | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Dibenzofuran | mg/kg | 0.38 | 7.8 | 0.048717949 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Diethyl phthalate | mg/kg | 0.38 | 5100 | 7.45098E-05 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | di-n-Butyl phthalate | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | di-n-Octyl phthalate | mg/kg | 0.38 | 63 | 0.006031746 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Hexachlorobenzene | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Hexachlorobutadiene | mg/kg | 0.38 | 1.2 | 0.316666667 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.18 | 2.111111111 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Hexachloroethane | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Isophorone | mg/kg | 0.38 | 570 | 0.000666667 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Nitrobenzene | mg/kg | 0.38 | 5.1 | 0.074509804 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | N-Nitrosodiphenylamine | mg/kg | 0.38 | 110 | 0.003454545 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Electric_Substation | NYOW-05-SL015-A | Phenol | mg/kg | 0.38 | 1900 | 0.0002 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Dibenz(a,h)anthracene | mg/kg | 0.012 | 0.11 | 0.109090909 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.07 | 0.41 | 0.170731707 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.2 | 0.5 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.07 | 0.17 | 0.411764706 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.07 | 0.23 | 0.304347826 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.07 | 0.23 | 0.304347826 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.07 | 0.12 | 0.583333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.07 | 0.24 | 0.291666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.07 | 0.24 | 0.291666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.07 | 0.24 | 0.291666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 1,1,1-Trichloroethane | mg/kg | 0.0041 | 810 | 5.06173E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0041 | 0.6 | 0.006833333 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.016 | 670 | 2.38806E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 1,1,2-Trichloroethane | mg/kg | 0.0041 | 0.15 | 0.027333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 1,1-Dichloroethane | mg/kg | 0.0041 | 3.6 | 0.001138889 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 1,1-Dichloroethene | mg/kg | 0.0041 | 23 | 0.000178261 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0041 | 6.3 | 0.000650794 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0041 | 5.8 | 0.000706897 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0082 | 0.0053 | 1.547169811 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.0041 | 0.036 | 0.113888889 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 1,2-Dichlorobenzene | mg/kg | 0.0041 | 180 | 2.27778E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 1,2-Dichloroethane | mg/kg | 0.0041 | 0.46 | 0.008913043 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 1,2-Dichloropropane | mg/kg | 0.0041 | 1.6 | 0.0025625 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 1,3-Dichloropropane | mg/kg | 0.0041 | 160 | 0.000025625 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 1,4-Dichlorobenzene | mg/kg | 0.0041 | 2.6 | 0.001576923 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 2-Hexanone | mg/kg | 0.016 | 20 | 0.0008 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.016 | 3300 | 4.84848E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Bromochloromethane | mg/kg | 0.0041 | 15 | 0.000273333 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Bromodichloromethane | mg/kg | 0.0041 | 0.29 | 0.014137931 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Bromoform | mg/kg | 0.0042 | 19 | 0.000221053 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Bromomethane | mg/kg | 0.0082 | 0.68 | 0.012058824 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Carbon disulfide | mg/kg | 0.0041 | 77 | 5.32468E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Carbon Tetrachloride | mg/kg | 0.0041 | 0.65 | 0.006307692 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Chlorobenzene | mg/kg | 0.0041 | 28 | 0.000146429 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Chloroethane | mg/kg | 0.0082 | 540 | 1.51852E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Chloroform | mg/kg | 0.0082 | 0.32 | 0.025625 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Chloromethane | mg/kg | 0.0082 | 11 | 0.000745455 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | cis-1,2-Dichloroethene | mg/kg | 0.0041 | 16 | 0.00025625 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | cis-1,3-Dichloropropene | mg/kg | 0.0041 | 1.8 | 0.002277778 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Cumene | mg/kg | 0.0041 | 190 | 2.15789E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Cyclohexane | mg/kg | 0.0041 | 650 | 6.30769E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Dibromochloromethane | mg/kg | 0.0041 | 8.3 | 0.000493976 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Dichlorodifluoromethane | mg/kg | 0.0082 | 8.7 | 0.000942529 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Ethylbenzene | mg/kg | 0.0041 | 5.8 | 0.000706897 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | m,p-Xylene | mg/kg | 0.0026 | 55 | 4.72727E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Methyl acetate | mg/kg | 0.007 | 7800 | 8.97436E-07 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Methyl tert-butyl ether (MTBE) | mg/kg | 0.016 | 47 | 0.000340426 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Methylene chloride | mg/kg | 0.0041 | 35 | 0.000117143 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | o-Xylene | mg/kg | 0.0041 | 64 | 6.40625E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Styrene | mg/kg | 0.0041 | 600 | 6.83333E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Tetrachloroethene (PCE) | mg/kg | 0.0041 | 8.1 | 0.000506173 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | trans-1,2-Dichloroethene | mg/kg | 0.0041 | 7 | 0.000585714 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | trans-1,3-Dichloropropene | mg/kg | 0.0041 | 1.8 | 0.002277778 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Trichlorofluoromethane | mg/kg | 0.0082 | 2300 | 3.56522E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Vinyl chloride | mg/kg | 0.0041 | 0.059 | 0.069491525 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 1.2 | 0.625 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 4-Chloroaniline | mg/kg | 0.75 | 2.7 | 0.277777778 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-B | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Dibenz(a,h)anthracene | mg/kg | 0.01 | 0.11 | 0.090909091 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | PCB-1016 (Aroclor 1016) | mg/kg | 0.069 | 0.41 | 0.168292683 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | PCB-1221 (Aroclor 1221) | mg/kg | 0.099 | 0.2 | 0.495 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | PCB-1232 (Aroclor 1232) | mg/kg | 0.069 | 0.17 | 0.405882353 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | PCB-1242 (Aroclor 1242) | mg/kg | 0.069 | 0.23 | 0.3 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | PCB-1248 (Aroclor 1248) | mg/kg | 0.069 | 0.23 | 0.3 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | PCB-1254 (Aroclor 1254) | mg/kg | 0.069 | 0.12 | 0.575 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | PCB-1260 (Aroclor 1260) | mg/kg | 0.069 | 0.24 | 0.2875 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | PCB-1262 (Aroclor 1262) | mg/kg | 0.069 | 0.24 | 0.2875 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | PCB-1268 (Aroclor 1268) | mg/kg | 0.069 | 0.24 | 0.2875 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 1,1,1-Trichloroethane | mg/kg | 0.004 | 810 | 4.93827E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 1,1,2,2-Tetrachloroethane | mg/kg | 0.004 | 0.6 | 0.006666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.016 | 670 | 2.38806E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 1,1,2-Trichloroethane | mg/kg | 0.004 | 0.15 | 0.026666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 1,1-Dichloroethane | mg/kg | 0.004 | 3.6 | 0.001111111 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 1,1-Dichloroethene | mg/kg | 0.004 | 23 | 0.000173913 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 1,2,3-Trichlorobenzene | mg/kg | 0.004 | 6.3 | 0.000634921 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 1,2,4-Trichlorobenzene | mg/kg | 0.004 | 5.8 | 0.000689655 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 1,2-Dibromo-3-chloropropane | mg/kg | 0.008 | 0.0053 | 1.509433962 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 1,2-Dibromoethane (EDB) | mg/kg | 0.004 | 0.036 | 0.111111111 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 1,2-Dichlorobenzene | mg/kg | 0.004 | 180 | 2.22222E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 1,2-Dichloroethane | mg/kg | 0.004 | 0.46 | 0.008695652 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 1,2-Dichloropropane | mg/kg | 0.004 | 1.6 | 0.0025 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 1,3-Dichloropropane | mg/kg | 0.004 | 160 | 0.000025 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 1,4-Dichlorobenzene | mg/kg | 0.004 | 2.6 | 0.001538462 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 2-Hexanone | mg/kg | 0.016 | 20 | 0.0008 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.016 | 3300 | 4.84848E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Bromochloromethane | mg/kg | 0.004 | 15 | 0.000266667 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Bromodichloromethane | mg/kg | 0.004 | 0.29 | 0.013793103 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Bromoform | mg/kg | 0.0041 | 19 | 0.000215789 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Bromomethane | mg/kg | 0.008 | 0.68 | 0.011764706 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Carbon disulfide | mg/kg | 0.004 | 77 | 5.19481E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Carbon Tetrachloride | mg/kg | 0.004 | 0.65 | 0.006153846 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Chlorobenzene | mg/kg | 0.004 | 28 | 0.000142857 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Chloroethane | mg/kg | 0.008 | 540 | 1.48148E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Chloroform | mg/kg | 0.008 | 0.32 | 0.025 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Chloromethane | mg/kg | 0.008 | 11 | 0.000727273 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | cis-1,2-Dichloroethene | mg/kg | 0.004 | 16 | 0.00025 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | cis-1,3-Dichloropropene | mg/kg | 0.004 | 1.8 | 0.002222222 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Cumene | mg/kg | 0.004 | 190 | 2.10526E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Cyclohexane | mg/kg | 0.004 | 650 | 6.15385E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Dibromochloromethane | mg/kg | 0.004 | 8.3 | 0.000481928 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Dichlorodifluoromethane | mg/kg | 0.008 | 8.7 | 0.00091954 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Ethylbenzene | mg/kg | 0.004 | 5.8 | 0.000689655 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | m,p-Xylene | mg/kg | 0.0026 | 55 | 4.72727E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Methyl acetate | mg/kg | 0.0068 | 7800 | 8.71795E-07 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Methyl tert-butyl ether (MTBE) | mg/kg | 0.016 | 47 | 0.000340426 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Methylene chloride | mg/kg | 0.004 | 35 | 0.000114286 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | o-Xylene | mg/kg | 0.004 | 64 | 0.0000625 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Styrene | mg/kg | 0.004 | 600 | 6.66667E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Tetrachloroethene (PCE) | mg/kg | 0.004 | 8.1 | 0.000493827 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | trans-1,2-Dichloroethene | mg/kg | 0.004 | 7 | 0.000571429 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | trans-1,3-Dichloropropene | mg/kg | 0.004 | 1.8 | 0.002222222 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Trichlorofluoromethane | mg/kg | 0.008 | 2300 | 3.47826E-06 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Vinyl chloride | mg/kg | 0.004 | 0.059 | 0.06779661 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 1.2 | 0.616666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 4-Chloroaniline | mg/kg | 0.74 | 2.7 | 0.274074074 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Possible_Dump | NYOW-05-PH001-C | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Dibenz(a,h)anthracene | mg/kg | 0.01 | 0.11 | 0.090909091 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.073 | 0.41 | 0.17804878 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.2 | 0.5 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.073 | 0.17 | 0.429411765 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.073 | 0.23 | 0.317391304 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.073 | 0.23 | 0.317391304 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.073 | 0.12 | 0.608333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.073 | 0.24 | 0.304166667 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.073 | 0.24 | 0.304166667 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.073 | 0.24 | 0.304166667 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 1,1,1-Trichloroethane | mg/kg | 0.004 | 810 | 4.93827E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.004 | 0.6 | 0.006666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.016 | 670 | 2.38806E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 1,1,2-Trichloroethane | mg/kg | 0.004 | 0.15 | 0.026666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 1,1-Dichloroethane | mg/kg | 0.004 | 3.6 | 0.001111111 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 1,1-Dichloroethene | mg/kg | 0.004 | 23 | 0.000173913 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 1,2,3-Trichlorobenzene | mg/kg | 0.004 | 6.3 | 0.000634921 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 1,2,4-Trichlorobenzene | mg/kg | 0.004 | 5.8 | 0.000689655 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.008 | 0.0053 | 1.509433962 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.004 | 0.036 | 0.111111111 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 1,2-Dichlorobenzene | mg/kg | 0.004 | 180 | 2.22222E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 1,2-Dichloroethane | mg/kg | 0.004 | 0.46 | 0.008695652 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 1,2-Dichloropropane | mg/kg | 0.004 | 1.6 | 0.0025 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 1,3-Dichloropropane | mg/kg | 0.004 | 160 | 0.000025 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 1,4-Dichlorobenzene | mg/kg | 0.004 | 2.6 | 0.001538462 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 2-Hexanone | mg/kg | 0.016 | 20 | 0.0008 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.016 | 3300 | 4.84848E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Bromochloromethane | mg/kg | 0.004 | 15 | 0.000266667 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Bromodichloromethane | mg/kg | 0.004 | 0.29 | 0.013793103 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Bromoform | mg/kg | 0.0041 | 19 | 0.000215789 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Bromomethane | mg/kg | 0.008 | 0.68 | 0.011764706 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Carbon disulfide | mg/kg | 0.004 | 77 | 5.19481E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Carbon Tetrachloride | mg/kg | 0.004 | 0.65 | 0.006153846 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Chlorobenzene | mg/kg | 0.004 | 28 | 0.000142857 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Chloroethane | mg/kg | 0.008 | 540 | 1.48148E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Chloroform | mg/kg | 0.008 | 0.32 | 0.025 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Chloromethane | mg/kg | 0.008 | 11 | 0.000727273 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | cis-1,2-Dichloroethene | mg/kg | 0.004 | 16 | 0.00025 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | cis-1,3-Dichloropropene | mg/kg | 0.004 | 1.8 | 0.002222222 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Cumene | mg/kg | 0.004 | 190 | 2.10526E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Cyclohexane | mg/kg | 0.004 | 650 | 6.15385E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Dibromochloromethane | mg/kg | 0.004 | 8.3 | 0.000481928 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Dichlorodifluoromethane | mg/kg | 0.008 | 8.7 | 0.00091954 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Ethylbenzene | mg/kg | 0.004 | 5.8 | 0.000689655 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | m,p-Xylene | mg/kg | 0.0025 | 55 | 4.54545E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Methyl acetate | mg/kg | 0.0068 | 7800 | 8.71795E-07 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Methyl tert-butyl ether (MTBE) | mg/kg | 0.016 | 47 | 0.000340426 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Methylene chloride | mg/kg | 0.004 | 35 | 0.000114286 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | o-Xylene | mg/kg | 0.004 | 64 | 0.0000625 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Styrene | mg/kg | 0.004 | 600 | 6.66667E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Tetrachloroethene (PCE) | mg/kg | 0.004 | 8.1 | 0.000493827 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | trans-1,2-Dichloroethene | mg/kg | 0.004 | 7 | 0.000571429 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | trans-1,3-Dichloropropene | mg/kg | 0.004 | 1.8 | 0.002222222 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Trichlorofluoromethane | mg/kg | 0.008 | 2300 | 3.47826E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Vinyl chloride | mg/kg | 0.004 | 0.059 | 0.06779661 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 1.2 | 0.616666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 4-Chloroaniline | mg/kg | 0.74 | 2.7 | 0.274074074 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-B | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Dibenz(a,h)anthracene | mg/kg | 0.01 | 0.11 | 0.090909091 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | PCB-1016 (Aroclor 1016) | mg/kg | 0.074 | 0.41 | 0.180487805 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | PCB-1232 (Aroclor 1232) | mg/kg | 0.074 | 0.17 | 0.435294118 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | PCB-1242 (Aroclor 1242) | mg/kg | 0.074 | 0.23 | 0.32173913 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | PCB-1248 (Aroclor 1248) | mg/kg | 0.074 | 0.23 | 0.32173913 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | PCB-1254 (Aroclor 1254) | mg/kg | 0.074 | 0.12 | 0.616666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | PCB-1260 (Aroclor 1260) | mg/kg | 0.074 | 0.24 | 0.308333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | PCB-1262 (Aroclor 1262) | mg/kg | 0.074 | 0.24 | 0.308333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | PCB-1268 (Aroclor 1268) | mg/kg | 0.074 | 0.24 | 0.308333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 1,1,1-Trichloroethane | mg/kg | 0.0042 | 810 | 5.18519E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0042 | 0.6 | 0.007 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.017 | 670 | 2.53731E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 1,1,2-Trichloroethane | mg/kg | 0.0042 | 0.15 | 0.028 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 1,1-Dichloroethane | mg/kg | 0.0042 | 3.6 | 0.001166667 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 1,1-Dichloroethene | mg/kg | 0.0042 | 23 | 0.000182609 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 1,2,3-Trichlorobenzene | mg/kg | 0.0042 | 6.3 | 0.000666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 1,2,4-Trichlorobenzene | mg/kg | 0.0042 | 5.8 | 0.000724138 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0083 | 0.0053 | 1.566037736 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 1,2-Dibromoethane (EDB) | mg/kg | 0.0042 | 0.036 | 0.116666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 1,2-Dichlorobenzene | mg/kg | 0.0042 | 180 | 2.33333E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 1,2-Dichloroethane | mg/kg | 0.0042 | 0.46 | 0.009130435 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 1,2-Dichloropropane | mg/kg | 0.0042 | 1.6 | 0.002625 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 1,3-Dichloropropane | mg/kg | 0.0042 | 160 | 0.00002625 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 1,4-Dichlorobenzene | mg/kg | 0.0042 | 2.6 | 0.001615385 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 2-Hexanone | mg/kg | 0.017 | 20 | 0.00085 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.017 | 3300 | 5.15152E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Bromochloromethane | mg/kg | 0.0042 | 15 | 0.00028 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Bromodichloromethane | mg/kg | 0.0042 | 0.29 | 0.014482759 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Bromoform | mg/kg | 0.0042 | 19 | 0.000221053 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Bromomethane | mg/kg | 0.0083 | 0.68 | 0.012205882 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Carbon disulfide | mg/kg | 0.0042 | 77 | 5.45455E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Carbon Tetrachloride | mg/kg | 0.0042 | 0.65 | 0.006461538 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Chlorobenzene | mg/kg | 0.0042 | 28 | 0.00015 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Chloroethane | mg/kg | 0.0083 | 540 | 1.53704E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Chloroform | mg/kg | 0.0083 | 0.32 | 0.0259375 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Chloromethane | mg/kg | 0.0083 | 11 | 0.000754545 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | cis-1,2-Dichloroethene | mg/kg | 0.0042 | 16 | 0.0002625 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | cis-1,3-Dichloropropene | mg/kg | 0.0042 | 1.8 | 0.002333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Cumene | mg/kg | 0.0042 | 190 | 2.21053E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Cyclohexane | mg/kg | 0.0042 | 650 | 6.46154E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Dibromochloromethane | mg/kg | 0.0042 | 8.3 | 0.000506024 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Dichlorodifluoromethane | mg/kg | 0.0083 | 8.7 | 0.000954023 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Ethylbenzene | mg/kg | 0.0042 | 5.8 | 0.000724138 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | m,p-Xylene | mg/kg | 0.0027 | 55 | 4.90909E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Methyl acetate | mg/kg | 0.0071 | 7800 | 9.10256E-07 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Methyl tert-butyl ether (MTBE) | mg/kg | 0.017 | 47 | 0.000361702 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Methylene chloride | mg/kg | 0.0042 | 35 | 0.00012 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | o-Xylene | mg/kg | 0.0042 | 64 | 0.000065625 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Styrene | mg/kg | 0.0042 | 600 | 0.000007 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Tetrachloroethene (PCE) | mg/kg | 0.0042 | 8.1 | 0.000518519 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | trans-1,2-Dichloroethene | mg/kg | 0.0042 | 7 | 0.0006 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | trans-1,3-Dichloropropene | mg/kg | 0.0042 | 1.8 | 0.002333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Trichlorofluoromethane | mg/kg | 0.0083 | 2300 | 3.6087E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Vinyl chloride | mg/kg | 0.0042 | 0.059 | 0.071186441 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 1.2 | 0.616666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 4-Chloroaniline | mg/kg | 0.74 | 2.7 | 0.274074074 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Possible_Dump | NYOW-05-PH002-C | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Dibenz(a,h)anthracene | mg/kg | 0.012 | 0.11 | 0.109090909 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.085 | 0.41 | 0.207317073 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.12 | 0.2 | 0.6 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.085 | 0.17 | 0.5 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.085 | 0.23 | 0.369565217 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.085 | 0.23 | 0.369565217 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.085 | 0.12 | 0.708333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.085 | 0.24 | 0.354166667 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.085 | 0.24 | 0.354166667 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.085 | 0.24 | 0.354166667 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 1,1,1-Trichloroethane | mg/kg | 0.0048 | 810 | 5.92593E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0048 | 0.6 | 0.008 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.019 | 670 | 2.83582E-05 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 1,1,2-Trichloroethane | mg/kg | 0.0048 | 0.15 | 0.032 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 1,1-Dichloroethane | mg/kg | 0.0048 | 3.6 | 0.001333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 1,1-Dichloroethene | mg/kg | 0.0048 | 23 | 0.000208696 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0048 | 6.3 | 0.000761905 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0048 | 5.8 | 0.000827586 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0095 | 0.0053 | 1.79245283 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.0048 | 0.036 | 0.133333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 1,2-Dichlorobenzene | mg/kg | 0.0048 | 180 | 2.66667E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 1,2-Dichloroethane | mg/kg | 0.0048 | 0.46 | 0.010434783 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 1,2-Dichloropropane | mg/kg | 0.0048 | 1.6 | 0.003 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 1,3-Dichloropropane | mg/kg | 0.0048 | 160 | 0.00003 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 1,4-Dichlorobenzene | mg/kg | 0.0048 | 2.6 | 0.001846154 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 2-Hexanone | mg/kg | 0.019 | 20 | 0.00095 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.019 | 3300 | 5.75758E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Bromochloromethane | mg/kg | 0.0048 | 15 | 0.00032 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Bromodichloromethane | mg/kg | 0.0048 | 0.29 | 0.016551724 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Bromoform | mg/kg | 0.0049 | 19 | 0.000257895 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Bromomethane | mg/kg | 0.0095 | 0.68 | 0.013970588 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Carbon disulfide | mg/kg | 0.0048 | 77 | 6.23377E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Carbon Tetrachloride | mg/kg | 0.0048 | 0.65 | 0.007384615 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Chlorobenzene | mg/kg | 0.0048 | 28 | 0.000171429 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Chloroethane | mg/kg | 0.0095 | 540 | 1.75926E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Chloroform | mg/kg | 0.0095 | 0.32 | 0.0296875 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Chloromethane | mg/kg | 0.0095 | 11 | 0.000863636 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | cis-1,2-Dichloroethene | mg/kg | 0.0048 | 16 | 0.0003 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | cis-1,3-Dichloropropene | mg/kg | 0.0048 | 1.8 | 0.002666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Cumene | mg/kg | 0.0048 | 190 | 2.52632E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Cyclohexane | mg/kg | 0.0048 | 650 | 7.38462E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Dibromochloromethane | mg/kg | 0.0048 | 8.3 | 0.000578313 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Dichlorodifluoromethane | mg/kg | 0.0095 | 8.7 | 0.001091954 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Ethylbenzene | mg/kg | 0.0048 | 5.8 | 0.000827586 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | m,p-Xylene | mg/kg | 0.0031 | 55 | 5.63636E-05 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Methyl acetate | mg/kg | 0.0081 | 7800 | 1.03846E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Methyl tert-butyl ether (MTBE) | mg/kg | 0.019 | 47 | 0.000404255 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Methylene chloride | mg/kg | 0.0048 | 35 | 0.000137143 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | o-Xylene | mg/kg | 0.0048 | 64 | 0.000075 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Styrene | mg/kg | 0.0048 | 600 | 0.000008 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Tetrachloroethene (PCE) | mg/kg | 0.0048 | 8.1 | 0.000592593 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | trans-1,2-Dichloroethene | mg/kg | 0.0048 | 7 | 0.000685714 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | trans-1,3-Dichloropropene | mg/kg | 0.0048 | 1.8 | 0.002666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Trichlorofluoromethane | mg/kg | 0.0095 | 2300 | 4.13043E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Vinyl chloride | mg/kg | 0.0048 | 0.059 | 0.081355932 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.42 | 0.23 | 1.826086957 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 1,4-Dioxane | mg/kg | 0.42 | 5.3 | 0.079245283 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.42 | 190 | 0.002210526 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 630 | 0.000666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 2,4,6-Trichlorophenol | mg/kg | 0.42 | 6.3 | 0.066666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 2,4-Dichlorophenol | mg/kg | 0.42 | 19 | 0.022105263 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 2,4-Dimethylphenol | mg/kg | 0.42 | 130 | 0.003230769 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 2,4-Dinitrotoluene | mg/kg | 0.42 | 1.7 | 0.247058824 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 2,6-Dinitrotoluene | mg/kg | 0.42 | 0.36 | 1.166666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 2-Chloronaphthalene | mg/kg | 0.42 | 480 | 0.000875 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 2-Chlorophenol | mg/kg | 0.42 | 39 | 0.010769231 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 320 | 0.0013125 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 2-Nitroaniline | mg/kg | 2.1 | 63 | 0.033333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 2-Nitrophenol | mg/kg | 0.42 | 39 | 0.010769231 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 3,3'-Dichlorobenzidine | mg/kg | 0.83 | 1.2 | 0.691666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 3-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2.1 | 0.51 | 4.117647059 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 4-Chloro-3-methylphenol | mg/kg | 0.42 | 630 | 0.000666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 4-Chloroaniline | mg/kg | 0.83 | 2.7 | 0.307407407 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 4-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | 4-Nitrophenol | mg/kg | 2.1 | 39 | 0.053846154 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Acetophenone | mg/kg | 0.42 | 780 | 0.000538462 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Atrazine | mg/kg | 0.42 | 2.4 | 0.175 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Benzyl butyl phthalate | mg/kg | 0.42 | 290 | 0.001448276 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Biphenyl (Diphenyl) | mg/kg | 2.1 | 4.7 | 0.446808511 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Bis(2-chloroethoxy)methane | mg/kg | 0.42 | 19 | 0.022105263 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.42 | 0.23 | 1.826086957 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.42 | 39 | 0.010769231 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Caprolactam | mg/kg | 0.42 | 3100 | 0.000135484 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Carbazole | mg/kg | 0.42 | 240 | 0.00175 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Cresols, m- & p- | mg/kg | 0.42 | 130 | 0.003230769 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Diethyl phthalate | mg/kg | 0.42 | 5100 | 8.23529E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | di-n-Octyl phthalate | mg/kg | 0.42 | 63 | 0.006666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Hexachlorobenzene | mg/kg | 0.42 | 0.078 | 5.384615385 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Hexachlorobutadiene | mg/kg | 0.42 | 1.2 | 0.35 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Hexachlorocyclopentadiene | mg/kg | 0.42 | 0.18 | 2.333333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Hexachloroethane | mg/kg | 0.42 | 1.8 | 0.233333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Isophorone | mg/kg | 0.42 | 570 | 0.000736842 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Nitrobenzene | mg/kg | 0.42 | 5.1 | 0.082352941 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | N-Nitrosodi-n-propylamine | mg/kg | 0.42 | 0.078 | 5.384615385 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | N-Nitrosodiphenylamine | mg/kg | 0.42 | 110 | 0.003818182 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Pentachlorophenol | mg/kg | 2.1 | 1 | 2.1 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-B | Phenol | mg/kg | 0.42 | 1900 | 0.000221053 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Dibenz(a,h)anthracene | mg/kg | 0.012 | 0.11 | 0.109090909 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | PCB-1016 (Aroclor 1016) | mg/kg | 0.078 | 0.41 | 0.190243902 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | PCB-1232 (Aroclor 1232) | mg/kg | 0.078 | 0.17 | 0.458823529 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | PCB-1242 (Aroclor 1242) | mg/kg | 0.078 | 0.23 | 0.339130435 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | PCB-1248 (Aroclor 1248) | mg/kg | 0.078 | 0.23 | 0.339130435 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | PCB-1254 (Aroclor 1254) | mg/kg | 0.078 | 0.12 | 0.65 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | PCB-1260 (Aroclor 1260) | mg/kg | 0.078 | 0.24 | 0.325 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | PCB-1262 (Aroclor 1262) | mg/kg | 0.078 | 0.24 | 0.325 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | PCB-1268 (Aroclor 1268) | mg/kg | 0.078 | 0.24 | 0.325 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 1,1,1-Trichloroethane | mg/kg | 0.0047 | 810 | 5.80247E-06 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0047 | 0.6 | 0.007833333 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.019 | 670 | 2.83582E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 1,1,2-Trichloroethane | mg/kg | 0.0047 | 0.15 | 0.031333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 1,1-Dichloroethane | mg/kg | 0.0047 | 3.6 | 0.001305556 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 1,1-Dichloroethene | mg/kg | 0.0047 | 23 | 0.000204348 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 1,2,3-Trichlorobenzene | mg/kg | 0.0047 | 6.3 | 0.000746032 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 1,2,4-Trichlorobenzene | mg/kg | 0.0047 | 5.8 | 0.000810345 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0094 | 0.0053 | 1.773584906 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 1,2-Dibromoethane (EDB) | mg/kg | 0.0047 | 0.036 | 0.130555556 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 1,2-Dichlorobenzene | mg/kg | 0.0047 | 180 | 2.61111E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 1,2-Dichloroethane | mg/kg | 0.0047 | 0.46 | 0.010217391 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 1,2-Dichloropropane | mg/kg | 0.0047 | 1.6 | 0.0029375 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 1,3-Dichloropropane | mg/kg | 0.0047 | 160 | 0.000029375 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 1,4-Dichlorobenzene | mg/kg | 0.0047 | 2.6 | 0.001807692 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 2-Hexanone | mg/kg | 0.019 | 20 | 0.00095 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.019 | 3300 | 5.75758E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Bromochloromethane | mg/kg | 0.0047 | 15 | 0.000313333 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Bromodichloromethane | mg/kg | 0.0047 | 0.29 | 0.016206897 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Bromoform | mg/kg | 0.0048 | 19 | 0.000252632 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Bromomethane | mg/kg | 0.0094 | 0.68 | 0.013823529 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Carbon disulfide | mg/kg | 0.0047 | 77 | 6.1039E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Carbon Tetrachloride | mg/kg | 0.0047 | 0.65 | 0.007230769 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Chlorobenzene | mg/kg | 0.0047 | 28 | 0.000167857 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Chloroethane | mg/kg | 0.0094 | 540 | 1.74074E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Chloroform | mg/kg | 0.0094 | 0.32 | 0.029375 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Chloromethane | mg/kg | 0.0094 | 11 | 0.000854545 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | cis-1,2-Dichloroethene | mg/kg | 0.0047 | 16 | 0.00029375 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | cis-1,3-Dichloropropene | mg/kg | 0.0047 | 1.8 | 0.002611111 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Cumene | mg/kg | 0.0047 | 190 | 2.47368E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Cyclohexane | mg/kg | 0.0047 | 650 | 7.23077E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Dibromochloromethane | mg/kg | 0.0047 | 8.3 | 0.000566265 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Dichlorodifluoromethane | mg/kg | 0.0094 | 8.7 | 0.00108046 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Ethylbenzene | mg/kg | 0.0047 | 5.8 | 0.000810345 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | m,p-Xylene | mg/kg | 0.003 | 55 | 5.45455E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Methyl acetate | mg/kg | 0.008 | 7800 | 1.02564E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Methyl tert-butyl ether (MTBE) | mg/kg | 0.019 | 47 | 0.000404255 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Methylene chloride | mg/kg | 0.0047 | 35 | 0.000134286 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | o-Xylene | mg/kg | 0.0047 | 64 | 7.34375E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Styrene | mg/kg | 0.0047 | 600 | 7.83333E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Tetrachloroethene (PCE) | mg/kg | 0.0047 | 8.1 | 0.000580247 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | trans-1,2-Dichloroethene | mg/kg | 0.0047 | 7 | 0.000671429 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | trans-1,3-Dichloropropene | mg/kg | 0.0047 | 1.8 | 0.002611111 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Trichlorofluoromethane | mg/kg | 0.0094 | 2300 | 4.08696E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Vinyl chloride | mg/kg | 0.0047 | 0.059 | 0.079661017 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.41 | 0.23 | 1.782608696 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 1,4-Dioxane | mg/kg | 0.41 | 5.3 | 0.077358491 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.41 | 310 | 0.001322581 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.41 | 190 | 0.002157895 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 2,4,6-Trichlorophenol | mg/kg | 0.41 | 6.3 | 0.065079365 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 2,4-Dichlorophenol | mg/kg | 0.41 | 19 | 0.021578947 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 2,4-Dimethylphenol | mg/kg | 0.41 | 130 | 0.003153846 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 2,4-Dinitrotoluene | mg/kg | 0.41 | 1.7 | 0.241176471 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 2,6-Dinitrotoluene | mg/kg | 0.41 | 0.36 | 1.138888889 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 2-Chloronaphthalene | mg/kg | 0.41 | 480 | 0.000854167 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 2-Chlorophenol | mg/kg | 0.41 | 39 | 0.010512821 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 320 | 0.00128125 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 2-Nitroaniline | mg/kg | 2.1 | 63 | 0.033333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 2-Nitrophenol | mg/kg | 0.41 | 39 | 0.010512821 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 3,3'-Dichlorobenzidine | mg/kg | 0.83 | 1.2 | 0.691666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 3-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 4,6-Dinitro-2-methylphenol | mg/kg | 2.1 | 0.51 | 4.117647059 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 4-Chloro-3-methylphenol | mg/kg | 0.41 | 630 | 0.000650794 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 4-Chloroaniline | mg/kg | 0.83 | 2.7 | 0.307407407 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 4-Nitroaniline | mg/kg | 2.1 | 25 | 0.084 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | 4-Nitrophenol | mg/kg | 2.1 | 39 | 0.053846154 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Acetophenone | mg/kg | 0.41 | 780 | 0.000525641 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Atrazine | mg/kg | 0.41 | 2.4 | 0.170833333 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Benzyl butyl phthalate | mg/kg | 0.41 | 290 | 0.001413793 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Biphenyl (Diphenyl) | mg/kg | 2.1 | 4.7 | 0.446808511 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Bis(2-chloroethoxy)methane | mg/kg | 0.41 | 19 | 0.021578947 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.41 | 0.23 | 1.782608696 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.41 | 39 | 0.010512821 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Caprolactam | mg/kg | 0.41 | 3100 | 0.000132258 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Carbazole | mg/kg | 0.41 | 240 | 0.001708333 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Cresols, m- & p- | mg/kg | 0.41 | 130 | 0.003153846 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Diethyl phthalate | mg/kg | 0.41 | 5100 | 8.03922E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | di-n-Octyl phthalate | mg/kg | 0.41 | 63 | 0.006507937 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Hexachlorobenzene | mg/kg | 0.41 | 0.078 | 5.256410256 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Hexachlorobutadiene | mg/kg | 0.41 | 1.2 | 0.341666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Hexachlorocyclopentadiene | mg/kg | 0.41 | 0.18 | 2.277777778 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Hexachloroethane | mg/kg | 0.41 | 1.8 | 0.227777778 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Isophorone | mg/kg | 0.41 | 570 | 0.000719298 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Nitrobenzene | mg/kg | 0.41 | 5.1 | 0.080392157 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | N-Nitrosodi-n-propylamine | mg/kg | 0.41 | 0.078 | 5.256410256 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | N-Nitrosodiphenylamine | mg/kg | 0.41 | 110 | 0.003727273 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Pentachlorophenol | mg/kg | 2.1 | 1 | 2.1 |
| AOC 5 | Possible_Dump | NYOW-05-PH003-C | Phenol | mg/kg | 0.41 | 1900 | 0.000215789 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Dibenz(a,h)anthracene | mg/kg | 0.011 | 0.11 | 0.1 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 0.41 | 0.175609756 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.2 | 0.5 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 0.17 | 0.423529412 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 0.23 | 0.313043478 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 0.23 | 0.313043478 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 0.12 | 0.6 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.072 | 0.24 | 0.3 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 0.24 | 0.3 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 0.24 | 0.3 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 1,1,1-Trichloroethane | mg/kg | 0.004 | 810 | 4.93827E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.004 | 0.6 | 0.006666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.016 | 670 | 2.38806E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 1,1,2-Trichloroethane | mg/kg | 0.004 | 0.15 | 0.026666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 1,1-Dichloroethane | mg/kg | 0.004 | 3.6 | 0.001111111 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 1,1-Dichloroethene | mg/kg | 0.004 | 23 | 0.000173913 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 1,2,3-Trichlorobenzene | mg/kg | 0.004 | 6.3 | 0.000634921 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 1,2,4-Trichlorobenzene | mg/kg | 0.004 | 5.8 | 0.000689655 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0081 | 0.0053 | 1.528301887 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.004 | 0.036 | 0.111111111 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 1,2-Dichlorobenzene | mg/kg | 0.004 | 180 | 2.22222E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 1,2-Dichloroethane | mg/kg | 0.004 | 0.46 | 0.008695652 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 1,2-Dichloropropane | mg/kg | 0.004 | 1.6 | 0.0025 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 1,3-Dichloropropane | mg/kg | 0.004 | 160 | 0.000025 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 1,4-Dichlorobenzene | mg/kg | 0.004 | 2.6 | 0.001538462 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 2-Hexanone | mg/kg | 0.016 | 20 | 0.0008 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.016 | 3300 | 4.84848E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Bromochloromethane | mg/kg | 0.004 | 15 | 0.000266667 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Bromodichloromethane | mg/kg | 0.004 | 0.29 | 0.013793103 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Bromoform | mg/kg | 0.0041 | 19 | 0.000215789 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Bromomethane | mg/kg | 0.0081 | 0.68 | 0.011911765 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Carbon disulfide | mg/kg | 0.004 | 77 | 5.19481E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Carbon Tetrachloride | mg/kg | 0.004 | 0.65 | 0.006153846 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Chlorobenzene | mg/kg | 0.004 | 28 | 0.000142857 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Chloroethane | mg/kg | 0.0081 | 540 | 0.000015 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Chloroform | mg/kg | 0.0081 | 0.32 | 0.0253125 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Chloromethane | mg/kg | 0.0081 | 11 | 0.000736364 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | cis-1,2-Dichloroethene | mg/kg | 0.004 | 16 | 0.00025 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | cis-1,3-Dichloropropene | mg/kg | 0.004 | 1.8 | 0.002222222 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Cumene | mg/kg | 0.004 | 190 | 2.10526E-05 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Cyclohexane | mg/kg | 0.004 | 650 | 6.15385E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Dibromochloromethane | mg/kg | 0.004 | 8.3 | 0.000481928 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Dichlorodifluoromethane | mg/kg | 0.0081 | 8.7 | 0.000931034 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Ethylbenzene | mg/kg | 0.004 | 5.8 | 0.000689655 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | m,p-Xylene | mg/kg | 0.0026 | 55 | 4.72727E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Methyl acetate | mg/kg | 0.0069 | 7800 | 8.84615E-07 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Methyl tert-butyl ether (MTBE) | mg/kg | 0.016 | 47 | 0.000340426 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Methylene chloride | mg/kg | 0.004 | 35 | 0.000114286 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | o-Xylene | mg/kg | 0.004 | 64 | 0.0000625 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Styrene | mg/kg | 0.004 | 600 | 6.66667E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Tetrachloroethene (PCE) | mg/kg | 0.004 | 8.1 | 0.000493827 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | trans-1,2-Dichloroethene | mg/kg | 0.004 | 7 | 0.000571429 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | trans-1,3-Dichloropropene | mg/kg | 0.004 | 1.8 | 0.002222222 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Trichlorofluoromethane | mg/kg | 0.0081 | 2300 | 3.52174E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Vinyl chloride | mg/kg | 0.004 | 0.059 | 0.06779661 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 310 | 0.001193548 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 1.2 | 0.625 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 4-Chloroaniline | mg/kg | 0.75 | 2.7 | 0.277777778 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-B | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Dibenz(a,h)anthracene | mg/kg | 0.012 | 0.11 | 0.109090909 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | PCB-1016 (Aroclor 1016) | mg/kg | 0.079 | 0.41 | 0.192682927 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | PCB-1232 (Aroclor 1232) | mg/kg | 0.079 | 0.17 | 0.464705882 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | PCB-1242 (Aroclor 1242) | mg/kg | 0.079 | 0.23 | 0.343478261 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | PCB-1248 (Aroclor 1248) | mg/kg | 0.079 | 0.23 | 0.343478261 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | PCB-1254 (Aroclor 1254) | mg/kg | 0.079 | 0.12 | 0.658333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | PCB-1260 (Aroclor 1260) | mg/kg | 0.079 | 0.24 | 0.329166667 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | PCB-1262 (Aroclor 1262) | mg/kg | 0.079 | 0.24 | 0.329166667 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | PCB-1268 (Aroclor 1268) | mg/kg | 0.079 | 0.24 | 0.329166667 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 1,1,1-Trichloroethane | mg/kg | 0.0044 | 810 | 5.4321E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0044 | 0.6 | 0.007333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.017 | 670 | 2.53731E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 1,1,2-Trichloroethane | mg/kg | 0.0044 | 0.15 | 0.029333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 1,1-Dichloroethane | mg/kg | 0.0044 | 3.6 | 0.001222222 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 1,1-Dichloroethene | mg/kg | 0.0044 | 23 | 0.000191304 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 1,2,3-Trichlorobenzene | mg/kg | 0.0044 | 6.3 | 0.000698413 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 1,2,4-Trichlorobenzene | mg/kg | 0.0044 | 5.8 | 0.000758621 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0087 | 0.0053 | 1.641509434 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 1,2-Dibromoethane (EDB) | mg/kg | 0.0044 | 0.036 | 0.122222222 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 1,2-Dichlorobenzene | mg/kg | 0.0044 | 180 | 2.44444E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 1,2-Dichloroethane | mg/kg | 0.0044 | 0.46 | 0.009565217 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 1,2-Dichloropropane | mg/kg | 0.0044 | 1.6 | 0.00275 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 1,3-Dichloropropane | mg/kg | 0.0044 | 160 | 0.0000275 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 1,4-Dichlorobenzene | mg/kg | 0.0044 | 2.6 | 0.001692308 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 2-Hexanone | mg/kg | 0.017 | 20 | 0.00085 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.017 | 3300 | 5.15152E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Bromochloromethane | mg/kg | 0.0044 | 15 | 0.000293333 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Bromodichloromethane | mg/kg | 0.0044 | 0.29 | 0.015172414 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Bromoform | mg/kg | 0.0044 | 19 | 0.000231579 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Bromomethane | mg/kg | 0.0087 | 0.68 | 0.012794118 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Carbon disulfide | mg/kg | 0.0044 | 77 | 5.71429E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Carbon Tetrachloride | mg/kg | 0.0044 | 0.65 | 0.006769231 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Chlorobenzene | mg/kg | 0.0044 | 28 | 0.000157143 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Chloroethane | mg/kg | 0.0087 | 540 | 1.61111E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Chloroform | mg/kg | 0.0087 | 0.32 | 0.0271875 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Chloromethane | mg/kg | 0.0087 | 11 | 0.000790909 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | cis-1,2-Dichloroethene | mg/kg | 0.0044 | 16 | 0.000275 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | cis-1,3-Dichloropropene | mg/kg | 0.0044 | 1.8 | 0.002444444 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Cumene | mg/kg | 0.0044 | 190 | 2.31579E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Cyclohexane | mg/kg | 0.0044 | 650 | 6.76923E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Dibromochloromethane | mg/kg | 0.0044 | 8.3 | 0.00053012 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Dichlorodifluoromethane | mg/kg | 0.0087 | 8.7 | 0.001 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Ethylbenzene | mg/kg | 0.0044 | 5.8 | 0.000758621 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | m,p-Xylene | mg/kg | 0.0028 | 55 | 5.09091E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Methyl acetate | mg/kg | 0.0074 | 7800 | 9.48718E-07 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Methyl tert-butyl ether (MTBE) | mg/kg | 0.017 | 47 | 0.000361702 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Methylene chloride | mg/kg | 0.0044 | 35 | 0.000125714 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | o-Xylene | mg/kg | 0.0044 | 64 | 0.00006875 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Styrene | mg/kg | 0.0044 | 600 | 7.33333E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Tetrachloroethene (PCE) | mg/kg | 0.0044 | 8.1 | 0.00054321 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | trans-1,2-Dichloroethene | mg/kg | 0.0044 | 7 | 0.000628571 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | trans-1,3-Dichloropropene | mg/kg | 0.0044 | 1.8 | 0.002444444 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Trichlorofluoromethane | mg/kg | 0.0087 | 2300 | 3.78261E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Vinyl chloride | mg/kg | 0.0044 | 0.059 | 0.074576271 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 1.2 | 0.65 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 4-Chloroaniline | mg/kg | 0.78 | 2.7 | 0.288888889 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Carbazole | mg/kg | 0.39 | 240 | 0.001625 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Cresols, m- & p- | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Possible_Dump | NYOW-05-PH004-C | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Dibenz(a,h)anthracene | mg/kg | 0.012 | 0.11 | 0.109090909 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.077 | 0.41 | 0.187804878 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.077 | 0.17 | 0.452941176 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.077 | 0.23 | 0.334782609 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.077 | 0.23 | 0.334782609 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.077 | 0.12 | 0.641666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.077 | 0.24 | 0.320833333 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.077 | 0.24 | 0.320833333 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.077 | 0.24 | 0.320833333 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 1,1,1-Trichloroethane | mg/kg | 0.0044 | 810 | 5.4321E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0044 | 0.6 | 0.007333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.018 | 670 | 2.68657E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 1,1,2-Trichloroethane | mg/kg | 0.0044 | 0.15 | 0.029333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 1,1-Dichloroethane | mg/kg | 0.0044 | 3.6 | 0.001222222 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 1,1-Dichloroethene | mg/kg | 0.0044 | 23 | 0.000191304 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0044 | 6.3 | 0.000698413 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0044 | 5.8 | 0.000758621 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0088 | 0.0053 | 1.660377358 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.0044 | 0.036 | 0.122222222 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 1,2-Dichlorobenzene | mg/kg | 0.0044 | 180 | 2.44444E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 1,2-Dichloroethane | mg/kg | 0.0044 | 0.46 | 0.009565217 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 1,2-Dichloropropane | mg/kg | 0.0044 | 1.6 | 0.00275 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 1,3-Dichloropropane | mg/kg | 0.0044 | 160 | 0.0000275 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 1,4-Dichlorobenzene | mg/kg | 0.0044 | 2.6 | 0.001692308 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 2-Hexanone | mg/kg | 0.018 | 20 | 0.0009 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.018 | 3300 | 5.45455E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Bromochloromethane | mg/kg | 0.0044 | 15 | 0.000293333 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Bromodichloromethane | mg/kg | 0.0044 | 0.29 | 0.015172414 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Bromoform | mg/kg | 0.0045 | 19 | 0.000236842 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Bromomethane | mg/kg | 0.0088 | 0.68 | 0.012941176 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Carbon disulfide | mg/kg | 0.0044 | 77 | 5.71429E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Carbon Tetrachloride | mg/kg | 0.0044 | 0.65 | 0.006769231 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Chlorobenzene | mg/kg | 0.0044 | 28 | 0.000157143 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Chloroethane | mg/kg | 0.0088 | 540 | 1.62963E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Chloroform | mg/kg | 0.0088 | 0.32 | 0.0275 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Chloromethane | mg/kg | 0.0088 | 11 | 0.0008 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | cis-1,2-Dichloroethene | mg/kg | 0.0044 | 16 | 0.000275 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | cis-1,3-Dichloropropene | mg/kg | 0.0044 | 1.8 | 0.002444444 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Cumene | mg/kg | 0.0044 | 190 | 2.31579E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Cyclohexane | mg/kg | 0.0044 | 650 | 6.76923E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Dibromochloromethane | mg/kg | 0.0044 | 8.3 | 0.00053012 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Dichlorodifluoromethane | mg/kg | 0.0088 | 8.7 | 0.001011494 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Ethylbenzene | mg/kg | 0.0044 | 5.8 | 0.000758621 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | m,p-Xylene | mg/kg | 0.0028 | 55 | 5.09091E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Methyl acetate | mg/kg | 0.0074 | 7800 | 9.48718E-07 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Methyl tert-butyl ether (MTBE) | mg/kg | 0.018 | 47 | 0.000382979 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Methylene chloride | mg/kg | 0.0044 | 35 | 0.000125714 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | o-Xylene | mg/kg | 0.0044 | 64 | 0.00006875 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Styrene | mg/kg | 0.0044 | 600 | 7.33333E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Tetrachloroethene (PCE) | mg/kg | 0.0044 | 8.1 | 0.00054321 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | trans-1,2-Dichloroethene | mg/kg | 0.0044 | 7 | 0.000628571 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | trans-1,3-Dichloropropene | mg/kg | 0.0044 | 1.8 | 0.002444444 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Trichlorofluoromethane | mg/kg | 0.0088 | 2300 | 3.82609E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Vinyl chloride | mg/kg | 0.0044 | 0.059 | 0.074576271 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 1.2 | 0.65 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 4-Chloroaniline | mg/kg | 0.78 | 2.7 | 0.288888889 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Carbazole | mg/kg | 0.39 | 240 | 0.001625 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Cresols, m- & p- | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Pentachlorophenol | mg/kg | 2 | 1 | 2 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH005-B | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Dibenz(a,h)anthracene | mg/kg | 0.011 | 0.11 | 0.1 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | PCB-1016 (Aroclor 1016) | mg/kg | 0.074 | 0.41 | 0.180487805 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | PCB-1232 (Aroclor 1232) | mg/kg | 0.074 | 0.17 | 0.435294118 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | PCB-1242 (Aroclor 1242) | mg/kg | 0.074 | 0.23 | 0.32173913 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | PCB-1248 (Aroclor 1248) | mg/kg | 0.074 | 0.23 | 0.32173913 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | PCB-1254 (Aroclor 1254) | mg/kg | 0.074 | 0.12 | 0.616666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | PCB-1260 (Aroclor 1260) | mg/kg | 0.074 | 0.24 | 0.308333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | PCB-1262 (Aroclor 1262) | mg/kg | 0.074 | 0.24 | 0.308333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | PCB-1268 (Aroclor 1268) | mg/kg | 0.074 | 0.24 | 0.308333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 1,1,1-Trichloroethane | mg/kg | 0.0044 | 810 | 5.4321E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0044 | 0.6 | 0.007333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 1,1,2-Trichloro-1,2,2-trifluoroethane | mg/kg | 0.017 | 670 | 2.53731E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 1,1,2-Trichloroethane | mg/kg | 0.0044 | 0.15 | 0.029333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 1,1-Dichloroethane | mg/kg | 0.0044 | 3.6 | 0.001222222 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 1,1-Dichloroethene | mg/kg | 0.0044 | 23 | 0.000191304 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 1,2,3-Trichlorobenzene | mg/kg | 0.0044 | 6.3 | 0.000698413 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 1,2,4-Trichlorobenzene | mg/kg | 0.0044 | 5.8 | 0.000758621 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0087 | 0.0053 | 1.641509434 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 1,2-Dibromoethane (EDB) | mg/kg | 0.0044 | 0.036 | 0.122222222 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 1,2-Dichlorobenzene | mg/kg | 0.0044 | 180 | 2.44444E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 1,2-Dichloroethane | mg/kg | 0.0044 | 0.46 | 0.009565217 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 1,2-Dichloropropane | mg/kg | 0.0044 | 1.6 | 0.00275 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 1,3-Dichloropropane | mg/kg | 0.0044 | 160 | 0.0000275 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 1,4-Dichlorobenzene | mg/kg | 0.0044 | 2.6 | 0.001692308 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 2-Hexanone | mg/kg | 0.017 | 20 | 0.00085 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.017 | 3300 | 5.15152E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Bromochloromethane | mg/kg | 0.0044 | 15 | 0.000293333 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Bromodichloromethane | mg/kg | 0.0044 | 0.29 | 0.015172414 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Bromoform | mg/kg | 0.0045 | 19 | 0.000236842 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Bromomethane | mg/kg | 0.0087 | 0.68 | 0.012794118 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Carbon disulfide | mg/kg | 0.0044 | 77 | 5.71429E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Carbon Tetrachloride | mg/kg | 0.0044 | 0.65 | 0.006769231 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Chlorobenzene | mg/kg | 0.0044 | 28 | 0.000157143 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Chloroethane | mg/kg | 0.0087 | 540 | 1.61111E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Chloroform | mg/kg | 0.0087 | 0.32 | 0.0271875 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Chloromethane | mg/kg | 0.0087 | 11 | 0.000790909 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | cis-1,2-Dichloroethene | mg/kg | 0.0044 | 16 | 0.000275 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | cis-1,3-Dichloropropene | mg/kg | 0.0044 | 1.8 | 0.002444444 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Cumene | mg/kg | 0.0044 | 190 | 2.31579E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Cyclohexane | mg/kg | 0.0044 | 650 | 6.76923E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Dibromochloromethane | mg/kg | 0.0044 | 8.3 | 0.00053012 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Dichlorodifluoromethane | mg/kg | 0.0087 | 8.7 | 0.001 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Ethylbenzene | mg/kg | 0.0044 | 5.8 | 0.000758621 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | m,p-Xylene | mg/kg | 0.0028 | 55 | 5.09091E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Methyl acetate | mg/kg | 0.0074 | 7800 | 9.48718E-07 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Methyl tert-butyl ether (MTBE) | mg/kg | 0.017 | 47 | 0.000361702 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Methylene chloride | mg/kg | 0.0044 | 35 | 0.000125714 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | o-Xylene | mg/kg | 0.0044 | 64 | 0.00006875 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Styrene | mg/kg | 0.0044 | 600 | 7.33333E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Tetrachloroethene (PCE) | mg/kg | 0.0044 | 8.1 | 0.00054321 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | trans-1,2-Dichloroethene | mg/kg | 0.0044 | 7 | 0.000628571 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | trans-1,3-Dichloropropene | mg/kg | 0.0044 | 1.8 | 0.002444444 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Trichlorofluoromethane | mg/kg | 0.0087 | 2300 | 3.78261E-06 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Vinyl chloride | mg/kg | 0.0044 | 0.059 | 0.074576271 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 1,4-Dioxane | mg/kg | 0.38 | 5.3 | 0.071698113 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 310 | 0.001225806 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 190 | 0.002 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 6.3 | 0.06031746 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 2,4-Dichlorophenol | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 2,4-Dimethylphenol | mg/kg | 0.38 | 130 | 0.002923077 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 2,4-Dinitrotoluene | mg/kg | 0.38 | 1.7 | 0.223529412 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 2,6-Dinitrotoluene | mg/kg | 0.38 | 0.36 | 1.055555556 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 2-Chloronaphthalene | mg/kg | 0.38 | 480 | 0.000791667 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 2-Chlorophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 320 | 0.0011875 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 2-Nitrophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 1.2 | 0.625 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 4-Chloroaniline | mg/kg | 0.75 | 2.7 | 0.277777778 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Acetophenone | mg/kg | 0.38 | 780 | 0.000487179 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Atrazine | mg/kg | 0.38 | 2.4 | 0.158333333 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Benzyl butyl phthalate | mg/kg | 0.38 | 290 | 0.001310345 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Caprolactam | mg/kg | 0.38 | 3100 | 0.000122581 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Carbazole | mg/kg | 0.38 | 240 | 0.001583333 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Cresols, m- & p- | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Diethyl phthalate | mg/kg | 0.38 | 5100 | 7.45098E-05 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | di-n-Octyl phthalate | mg/kg | 0.38 | 63 | 0.006031746 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Hexachlorobenzene | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Hexachlorobutadiene | mg/kg | 0.38 | 1.2 | 0.316666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Hexachloroethane | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Isophorone | mg/kg | 0.38 | 570 | 0.000666667 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Nitrobenzene | mg/kg | 0.38 | 5.1 | 0.074509804 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | N-Nitrosodiphenylamine | mg/kg | 0.38 | 110 | 0.003454545 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Possible_Dump | NYOW-05-PH005-C | Phenol | mg/kg | 0.38 | 1900 | 0.0002 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Dibenz(a,h)anthracene | mg/kg | 0.01 | 0.11 | 0.090909091 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.068 | 0.41 | 0.165853659 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.097 | 0.2 | 0.485 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.068 | 0.17 | 0.4 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.068 | 0.23 | 0.295652174 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.068 | 0.23 | 0.295652174 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.068 | 0.12 | 0.566666667 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.068 | 0.24 | 0.283333333 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.068 | 0.24 | 0.283333333 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.068 | 0.24 | 0.283333333 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.35 | 0.23 | 1.52173913 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 1,4-Dioxane | mg/kg | 0.35 | 5.3 | 0.066037736 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.35 | 310 | 0.001129032 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.35 | 190 | 0.001842105 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 630 | 0.000555556 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 2,4,6-Trichlorophenol | mg/kg | 0.35 | 6.3 | 0.055555556 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 2,4-Dichlorophenol | mg/kg | 0.35 | 19 | 0.018421053 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 2,4-Dimethylphenol | mg/kg | 0.35 | 130 | 0.002692308 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 2,4-Dinitrotoluene | mg/kg | 0.35 | 1.7 | 0.205882353 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 2,6-Dinitrotoluene | mg/kg | 0.35 | 0.36 | 0.972222222 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 2-Chloronaphthalene | mg/kg | 0.35 | 480 | 0.000729167 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 2-Chlorophenol | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 320 | 0.00109375 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 2-Nitroaniline | mg/kg | 1.8 | 63 | 0.028571429 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 2-Nitrophenol | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 3,3'-Dichlorobenzidine | mg/kg | 0.7 | 1.2 | 0.583333333 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 3-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.51 | 3.529411765 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 4-Chloro-3-methylphenol | mg/kg | 0.35 | 630 | 0.000555556 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 4-Chloroaniline | mg/kg | 0.7 | 2.7 | 0.259259259 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 4-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | 4-Nitrophenol | mg/kg | 1.8 | 39 | 0.046153846 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Acetophenone | mg/kg | 0.35 | 780 | 0.000448718 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Atrazine | mg/kg | 0.35 | 2.4 | 0.145833333 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Benzyl butyl phthalate | mg/kg | 0.35 | 290 | 0.001206897 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Biphenyl (Diphenyl) | mg/kg | 1.8 | 4.7 | 0.382978723 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Bis(2-chloroethoxy)methane | mg/kg | 0.35 | 19 | 0.018421053 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.35 | 0.23 | 1.52173913 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Caprolactam | mg/kg | 0.35 | 3100 | 0.000112903 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Carbazole | mg/kg | 0.35 | 240 | 0.001458333 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Cresols, m- & p- | mg/kg | 0.35 | 130 | 0.002692308 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Diethyl phthalate | mg/kg | 0.35 | 5100 | 6.86275E-05 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | di-n-Octyl phthalate | mg/kg | 0.35 | 63 | 0.005555556 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Hexachlorobenzene | mg/kg | 0.35 | 0.078 | 4.487179487 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Hexachlorobutadiene | mg/kg | 0.35 | 1.2 | 0.291666667 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Hexachlorocyclopentadiene | mg/kg | 0.35 | 0.18 | 1.944444444 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Hexachloroethane | mg/kg | 0.35 | 1.8 | 0.194444444 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Isophorone | mg/kg | 0.35 | 570 | 0.000614035 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Nitrobenzene | mg/kg | 0.35 | 5.1 | 0.068627451 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | N-Nitrosodi-n-propylamine | mg/kg | 0.35 | 0.078 | 4.487179487 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | N-Nitrosodiphenylamine | mg/kg | 0.35 | 110 | 0.003181818 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Pentachlorophenol | mg/kg | 1.8 | 1 | 1.8 |
| AOC 5 | Possible_Dump | NYOW-05-SL001-A | Phenol | mg/kg | 0.35 | 1900 | 0.000184211 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Dibenz(a,h)anthracene | mg/kg | 0.011 | 0.11 | 0.1 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.071 | 0.41 | 0.173170732 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.2 | 0.5 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.071 | 0.17 | 0.417647059 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.071 | 0.23 | 0.308695652 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.071 | 0.23 | 0.308695652 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.071 | 0.12 | 0.591666667 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.071 | 0.24 | 0.295833333 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.071 | 0.24 | 0.295833333 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.071 | 0.24 | 0.295833333 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.23 | 1.652173913 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 1,4-Dioxane | mg/kg | 0.38 | 5.3 | 0.071698113 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 310 | 0.001225806 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 190 | 0.002 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 6.3 | 0.06031746 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 2,4-Dichlorophenol | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 2,4-Dimethylphenol | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 2,4-Dinitrotoluene | mg/kg | 0.38 | 1.7 | 0.223529412 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 2,6-Dinitrotoluene | mg/kg | 0.38 | 0.36 | 1.055555556 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 2-Chloronaphthalene | mg/kg | 0.38 | 480 | 0.000791667 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 2-Chlorophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 320 | 0.0011875 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 2-Nitrophenol | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 1.2 | 0.633333333 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 630 | 0.000603175 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 4-Chloroaniline | mg/kg | 0.76 | 2.7 | 0.281481481 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Acetophenone | mg/kg | 0.38 | 780 | 0.000487179 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Atrazine | mg/kg | 0.38 | 2.4 | 0.158333333 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Benzyl butyl phthalate | mg/kg | 0.38 | 290 | 0.001310345 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 19 | 0.02 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 0.23 | 1.652173913 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 39 | 0.00974359 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Caprolactam | mg/kg | 0.38 | 3100 | 0.000122581 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Carbazole | mg/kg | 0.38 | 240 | 0.001583333 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Cresols, m- & p- | mg/kg | 0.38 | 130 | 0.002923077 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Diethyl phthalate | mg/kg | 0.38 | 5100 | 7.45098E-05 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | di-n-Octyl phthalate | mg/kg | 0.38 | 63 | 0.006031746 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Hexachlorobenzene | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Hexachlorobutadiene | mg/kg | 0.38 | 1.2 | 0.316666667 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Hexachloroethane | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Isophorone | mg/kg | 0.38 | 570 | 0.000666667 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Nitrobenzene | mg/kg | 0.38 | 5.1 | 0.074509804 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.078 | 4.871794872 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | N-Nitrosodiphenylamine | mg/kg | 0.38 | 110 | 0.003454545 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Possible_Dump | NYOW-05-SL002-A | Phenol | mg/kg | 0.38 | 1900 | 0.0002 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Dibenz(a,h)anthracene | mg/kg | 0.012 | 0.11 | 0.109090909 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.075 | 0.41 | 0.182926829 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.2 | 0.55 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.075 | 0.17 | 0.441176471 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.075 | 0.23 | 0.326086957 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.075 | 0.23 | 0.326086957 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.075 | 0.12 | 0.625 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.075 | 0.24 | 0.3125 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.075 | 0.24 | 0.3125 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.075 | 0.24 | 0.3125 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 1,4-Dioxane | mg/kg | 0.37 | 5.3 | 0.069811321 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 190 | 0.001947368 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 6.3 | 0.058730159 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 2,4-Dichlorophenol | mg/kg | 0.37 | 19 | 0.019473684 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 2,4-Dimethylphenol | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 1.7 | 0.217647059 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 2,6-Dinitrotoluene | mg/kg | 0.37 | 0.36 | 1.027777778 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 2-Chloronaphthalene | mg/kg | 0.37 | 480 | 0.000770833 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 2-Chlorophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 320 | 0.00115625 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 2-Nitroaniline | mg/kg | 1.9 | 63 | 0.03015873 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 2-Nitrophenol | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 1.2 | 0.616666667 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 3-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.51 | 3.725490196 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 630 | 0.000587302 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 4-Chloroaniline | mg/kg | 0.74 | 2.7 | 0.274074074 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 4-Nitroaniline | mg/kg | 1.9 | 25 | 0.076 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | 4-Nitrophenol | mg/kg | 1.9 | 39 | 0.048717949 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Acetophenone | mg/kg | 0.37 | 780 | 0.000474359 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Atrazine | mg/kg | 0.37 | 2.4 | 0.154166667 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Benzyl butyl phthalate | mg/kg | 0.37 | 290 | 0.001275862 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Biphenyl (Diphenyl) | mg/kg | 1.9 | 4.7 | 0.404255319 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 19 | 0.019473684 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 0.23 | 1.608695652 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 39 | 0.009487179 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Caprolactam | mg/kg | 0.37 | 3100 | 0.000119355 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Carbazole | mg/kg | 0.37 | 240 | 0.001541667 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Cresols, m- & p- | mg/kg | 0.37 | 130 | 0.002846154 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Diethyl phthalate | mg/kg | 0.37 | 5100 | 7.2549E-05 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | di-n-Octyl phthalate | mg/kg | 0.37 | 63 | 0.005873016 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Hexachlorobenzene | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Hexachlorobutadiene | mg/kg | 0.37 | 1.2 | 0.308333333 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Hexachloroethane | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Isophorone | mg/kg | 0.37 | 570 | 0.000649123 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Nitrobenzene | mg/kg | 0.37 | 5.1 | 0.07254902 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.078 | 4.743589744 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | N-Nitrosodiphenylamine | mg/kg | 0.37 | 110 | 0.003363636 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Pentachlorophenol | mg/kg | 1.9 | 1 | 1.9 |
| AOC 5 | Possible_Dump | NYOW-05-SL003-A | Phenol | mg/kg | 0.37 | 1900 | 0.000194737 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Dibenz(a,h)anthracene | mg/kg | 0.0099 | 0.11 | 0.09 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 0.41 | 0.175609756 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.2 | 0.5 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 0.17 | 0.423529412 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 0.23 | 0.313043478 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 0.23 | 0.313043478 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 0.12 | 0.6 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.072 | 0.24 | 0.3 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 0.24 | 0.3 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 0.24 | 0.3 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.35 | 0.23 | 1.52173913 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 1,4-Dioxane | mg/kg | 0.35 | 5.3 | 0.066037736 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.35 | 310 | 0.001129032 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.35 | 190 | 0.001842105 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 630 | 0.000555556 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 2,4,6-Trichlorophenol | mg/kg | 0.35 | 6.3 | 0.055555556 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 2,4-Dichlorophenol | mg/kg | 0.35 | 19 | 0.018421053 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 2,4-Dimethylphenol | mg/kg | 0.35 | 130 | 0.002692308 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 2,4-Dinitrotoluene | mg/kg | 0.35 | 1.7 | 0.205882353 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 2,6-Dinitrotoluene | mg/kg | 0.35 | 0.36 | 0.972222222 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 2-Chloronaphthalene | mg/kg | 0.35 | 480 | 0.000729167 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 2-Chlorophenol | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 320 | 0.00109375 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 2-Nitroaniline | mg/kg | 1.8 | 63 | 0.028571429 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 2-Nitrophenol | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 3,3'-Dichlorobenzidine | mg/kg | 0.71 | 1.2 | 0.591666667 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 3-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.51 | 3.529411765 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 4-Chloro-3-methylphenol | mg/kg | 0.35 | 630 | 0.000555556 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 4-Chloroaniline | mg/kg | 0.71 | 2.7 | 0.262962963 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 4-Nitroaniline | mg/kg | 1.8 | 25 | 0.072 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | 4-Nitrophenol | mg/kg | 1.8 | 39 | 0.046153846 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Acetophenone | mg/kg | 0.35 | 780 | 0.000448718 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Atrazine | mg/kg | 0.35 | 2.4 | 0.145833333 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Benzyl butyl phthalate | mg/kg | 0.35 | 290 | 0.001206897 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Biphenyl (Diphenyl) | mg/kg | 1.8 | 4.7 | 0.382978723 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Bis(2-chloroethoxy)methane | mg/kg | 0.35 | 19 | 0.018421053 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.35 | 0.23 | 1.52173913 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 39 | 0.008974359 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Caprolactam | mg/kg | 0.35 | 3100 | 0.000112903 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Carbazole | mg/kg | 0.35 | 240 | 0.001458333 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Cresols, m- & p- | mg/kg | 0.35 | 130 | 0.002692308 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Diethyl phthalate | mg/kg | 0.35 | 5100 | 6.86275E-05 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | di-n-Octyl phthalate | mg/kg | 0.35 | 63 | 0.005555556 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Hexachlorobenzene | mg/kg | 0.35 | 0.078 | 4.487179487 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Hexachlorobutadiene | mg/kg | 0.35 | 1.2 | 0.291666667 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Hexachlorocyclopentadiene | mg/kg | 0.35 | 0.18 | 1.944444444 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Hexachloroethane | mg/kg | 0.35 | 1.8 | 0.194444444 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Isophorone | mg/kg | 0.35 | 570 | 0.000614035 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Nitrobenzene | mg/kg | 0.35 | 5.1 | 0.068627451 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | N-Nitrosodi-n-propylamine | mg/kg | 0.35 | 0.078 | 4.487179487 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | N-Nitrosodiphenylamine | mg/kg | 0.35 | 110 | 0.003181818 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Pentachlorophenol | mg/kg | 1.8 | 1 | 1.8 |
| AOC 5 | Possible_Dump | NYOW-05-SL004-A | Phenol | mg/kg | 0.35 | 1900 | 0.000184211 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Dibenz(a,h)anthracene | mg/kg | 0.11 | 0.11 | 1 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 0.41 | 0.175609756 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.2 | 0.5 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 0.17 | 0.423529412 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 0.23 | 0.313043478 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 0.23 | 0.313043478 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 0.12 | 0.6 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.072 | 0.24 | 0.3 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 0.24 | 0.3 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 0.24 | 0.3 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 1,4-Dioxane | mg/kg | 0.39 | 5.3 | 0.073584906 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 310 | 0.001258065 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 190 | 0.002052632 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 6.3 | 0.061904762 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 2,4-Dichlorophenol | mg/kg | 0.39 | 19 | 0.020526316 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 2,4-Dimethylphenol | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 2,4-Dinitrotoluene | mg/kg | 0.39 | 1.7 | 0.229411765 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 2,6-Dinitrotoluene | mg/kg | 0.39 | 0.36 | 1.083333333 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 2-Chloronaphthalene | mg/kg | 0.39 | 480 | 0.0008125 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 2-Chlorophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 320 | 0.00121875 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 2-Nitroaniline | mg/kg | 2 | 63 | 0.031746032 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 2-Nitrophenol | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 1.2 | 0.65 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 3-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.51 | 3.921568627 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 630 | 0.000619048 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 4-Chloroaniline | mg/kg | 0.78 | 2.7 | 0.288888889 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 4-Nitroaniline | mg/kg | 2 | 25 | 0.08 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | 4-Nitrophenol | mg/kg | 2 | 39 | 0.051282051 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Acetophenone | mg/kg | 0.39 | 780 | 0.0005 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Atrazine | mg/kg | 0.39 | 2.4 | 0.1625 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Benzyl butyl phthalate | mg/kg | 0.39 | 290 | 0.001344828 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Biphenyl (Diphenyl) | mg/kg | 2 | 4.7 | 0.425531915 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 19 | 0.020526316 |

Table E.1-2
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 0.23 | 1.695652174 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 39 | 0.01 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Caprolactam | mg/kg | 0.39 | 3100 | 0.000125806 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Carbazole | mg/kg | 0.39 | 240 | 0.001625 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Cresols, m- & p- | mg/kg | 0.39 | 130 | 0.003 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Diethyl phthalate | mg/kg | 0.39 | 5100 | 7.64706E-05 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | di-n-Octyl phthalate | mg/kg | 0.39 | 63 | 0.006190476 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Hexachlorobenzene | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Hexachlorobutadiene | mg/kg | 0.39 | 1.2 | 0.325 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Hexachloroethane | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Isophorone | mg/kg | 0.39 | 570 | 0.000684211 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Nitrobenzene | mg/kg | 0.39 | 5.1 | 0.076470588 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.078 | 5 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | N-Nitrosodiphenylamine | mg/kg | 0.39 | 110 | 0.003545455 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Pentachlorophenol | mg/kg | 2 | 1 | 2 |
| AOC 5 | Possible_Dump | NYOW-05-SL005-A | Phenol | mg/kg | 0.39 | 1900 | 0.000205263 |

Notes:
AOC = area of concern
LOQ = limit of quantitation
mg/kg = micrograms per kilogram
NA = not applicable

1) EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 1 | NA | NYOW-01-PH002-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 0.6 | 1.283333333 |
| AOC 1 | NA | NYOW-01-PH002-B | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 1 | NA | NYOW-01-PH005-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 0.6 | 1.183333333 |
| AOC 1 | NA | NYOW-01-PH005-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 1 | NA | NYOW-01-PH015-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 0.6 | 1.166666667 |
| AOC 1 | NA | NYOW-01-PH015-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 1 | NA | NYOW-01-PH016-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.69 | 0.6 | 1.15 |
| AOC 1 | NA | NYOW-01-PH016-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 1 | NA | NYOW-01-PH018-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 1 | NA | NYOW-01-PH018-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 1 | NA | NYOW-01-PH019-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 1 | NA | NYOW-01-PH019-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 1 | NA | NYOW-01-PH020-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 0.6 | 1.283333333 |
| AOC 1 | NA | NYOW-01-PH020-B | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 1 | NA | NYOW-01-PH021-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 0.6 | 1.2 |
| AOC 1 | NA | NYOW-01-PH021-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 1 | NA | NYOW-01-PH022-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 0.6 | 1.3 |
| AOC 1 | NA | NYOW-01-PH022-B | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 1 | NA | NYOW-01-PH023-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 0.6 | 1.2 |
| AOC 1 | NA | NYOW-01-PH023-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 1 | NA | NYOW-01-PH024-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 0.6 | 1.233333333 |
| AOC 1 | NA | NYOW-01-PH024-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 1 | NA | NYOW-01-SL002-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 0.6 | 1.283333333 |
| AOC 1 | NA | NYOW-01-SL002-A | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 1 | NA | NYOW-01-SL005-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 0.6 | 1.283333333 |
| AOC 1 | NA | NYOW-01-SL005-A | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 1 | NA | NYOW-01-SL007-A | 2,4-Dinitrochlorobenzene | mg/kg | 1.1 | 0.6 | 1.833333333 |
| AOC 1 | NA | NYOW-01-SL007-A | 2,4-Dinitrophenol | mg/kg | 2.7 | 20 | 0.135 |
| AOC 1 | NA | NYOW-01-SL009-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.94 | 0.6 | 1.566666667 |
| AOC 1 | NA | NYOW-01-SL009-A | 2,4-Dinitrophenol | mg/kg | 2.4 | 20 | 0.12 |
| AOC 1 | NA | NYOW-01-SL011-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.87 | 0.6 | 1.45 |
| AOC 1 | NA | NYOW-01-SL011-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 20 | 0.11 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 1 | NA | NYOW-01-SL013-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 0.6 | 1.283333333 |
| AOC 1 | NA | NYOW-01-SL013-A | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 1 | NA | NYOW-01-SL015-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 0.6 | 1.3 |
| AOC 1 | NA | NYOW-01-SL015-A | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 1 | NA | NYOW-01-SL016-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 0.6 | 1.283333333 |
| AOC 1 | NA | NYOW-01-SL016-A | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 1 | NA | NYOW-01-SL018-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 0.6 | 1.183333333 |
| AOC 1 | NA | NYOW-01-SL018-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 1 | NA | NYOW-01-SL019-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 1 | NA | NYOW-01-SL019-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 1 | NA | NYOW-01-SL020-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.83 | 0.6 | 1.383333333 |
| AOC 1 | NA | NYOW-01-SL020-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 1 | NA | NYOW-01-SL021-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 0.6 | 1.316666667 |
| AOC 1 | NA | NYOW-01-SL021-A | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 1 | NA | NYOW-01-SL022-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 0.6 | 1.366666667 |
| AOC 1 | NA | NYOW-01-SL022-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 1 | NA | NYOW-01-SL023-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 0.6 | 1.35 |
| AOC 1 | NA | NYOW-01-SL023-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 1 | NA | NYOW-01-SL024-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.86 | 0.6 | 1.433333333 |
| AOC 1 | NA | NYOW-01-SL024-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 20 | 0.11 |
| AOC 1 | NA | NYOW-01-SL025-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 0.6 | 1.266666667 |
| AOC 1 | NA | NYOW-01-SL025-A | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 1 | NA | NYOW-01-SL026-A | 2,4-Dinitrochlorobenzene | mg/kg | 6.4 | 0.6 | 10.66666667 |
| AOC 1 | NA | NYOW-01-SL026-A | 2,4-Dinitrophenol | mg/kg | 16 | 20 | 0.8 |
| AOC 1 | NA | NYOW-01-SL027-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 0.6 | 1.366666667 |
| AOC 1 | NA | NYOW-01-SL027-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 1 | NA | NYOW-01-SL028-A | 2,4-Dinitrochlorobenzene | mg/kg | 5.5 | 0.6 | 9.166666667 |
| AOC 1 | NA | NYOW-01-SL028-A | 2,4-Dinitrophenol | mg/kg | 14 | 20 | 0.7 |
| AOC 1 | NA | NYOW-01-SL029-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.88 | 0.6 | 1.466666667 |
| AOC 1 | NA | NYOW-01-SL029-A | 2,4-Dinitrophenol | mg/kg | 2.3 | 20 | 0.115 |
| AOC 1 | NA | NYOW-01-SL030-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 0.6 | 1.366666667 |
| AOC 1 | NA | NYOW-01-SL030-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 1 | NA | NYOW-01-SL031-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 0.6 | 1.35 |
| AOC 1 | NA | NYOW-01-SL031-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 1 | NA | NYOW-01-SL032-A | 2,4-Dinitrochlorobenzene | mg/kg | 4.2 | 0.6 | 7 |
| AOC 1 | NA | NYOW-01-SL032-A | 2,4-Dinitrophenol | mg/kg | 11 | 20 | 0.55 |
| AOC 1 | NA | NYOW-01-SL033-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 0.6 | 1.3 |
| AOC 1 | NA | NYOW-01-SL033-A | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 1 | NA | NYOW-01-SL034-A | 2,4-Dinitrochlorobenzene | mg/kg | 1 | 0.6 | 1.666666667 |
| AOC 1 | NA | NYOW-01-SL034-A | 2,4-Dinitrophenol | mg/kg | 2.6 | 20 | 0.13 |
| AOC 1 | NA | NYOW-01-SL035-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.88 | 0.6 | 1.466666667 |
| AOC 1 | NA | NYOW-01-SL035-A | 2,4-Dinitrophenol | mg/kg | 2.3 | 20 | 0.115 |
| AOC 1 | NA | NYOW-01-SL036-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.93 | 0.6 | 1.55 |
| AOC 1 | NA | NYOW-01-SL037-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.96 | 0.6 | 1.6 |
| AOC 1 | NA | NYOW-01-SL037-A | 2,4-Dinitrophenol | mg/kg | 2.5 | 20 | 0.125 |
| AOC 1 | NA | NYOW-01-SL038-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 0.6 | 1.35 |
| AOC 1 | NA | NYOW-01-SL038-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 1 | NA | NYOW-01-SL039-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 0.6 | 1.316666667 |
| AOC 1 | NA | NYOW-01-SL039-A | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-PH001-B | Benzene | mg/kg | 0.0045 | 200 | 0.0000225 |
| AOC 3 | NA | NYOW-03-PH001-B | m,p-Xylene | mg/kg | 0.0029 | 100 | 0.000029 |
| AOC 3 | NA | NYOW-03-PH001-B | Methylene chloride | mg/kg | 0.0045 | 1600 | 2.8125E-06 |
| AOC 3 | NA | NYOW-03-PH001-B | o-Xylene | mg/kg | 0.0045 | 100 | 0.000045 |
| AOC 3 | NA | NYOW-03-PH001-B | Styrene | mg/kg | 0.0045 | 3.2 | 0.00140625 |
| AOC 3 | NA | NYOW-03-PH001-B | Tetrachloroethene (PCE) | mg/kg | 0.0045 | 10 | 0.00045 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 4 | 0.1025 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4-Dimethylphenol | mg/kg | 0.41 | 0.01 | 41 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 0.6 | 1.35 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4-Dinitrotoluene | mg/kg | 0.41 | 6 | 0.068333333 |
| AOC 3 | NA | NYOW-03-PH001-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 0.67 | 0.611940299 |
| AOC 3 | NA | NYOW-03-PH001-B | 4-Chloroaniline | mg/kg | 0.81 | 1 | 0.81 |
| AOC 3 | NA | NYOW-03-PH001-B | Biphenyl (Diphenyl) | mg/kg | 2.1 | 60 | 0.035 |
| AOC 3 | NA | NYOW-03-PH001-B | Diethyl phthalate | mg/kg | 0.41 | 100 | 0.0041 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH001-B | di-n-Butyl phthalate | mg/kg | 0.41 | 160 | 0.0025625 |
| AOC 3 | NA | NYOW-03-PH001-B | Hexachlorobenzene | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH001-B | Hexachlorocyclopentadiene | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH001-B | Pentachlorophenol | mg/kg | 2.1 | 5 | 0.42 |
| AOC 3 | NA | NYOW-03-PH001-B | Phenol | mg/kg | 0.41 | 0.79 | 0.518987342 |
| AOC 3 | NA | NYOW-03-PH001-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 3 | NA | NYOW-03-PH002-B | Benzene | mg/kg | 0.0048 | 200 | 0.000024 |
| AOC 3 | NA | NYOW-03-PH002-B | m,p-Xylene | mg/kg | 0.0031 | 100 | 0.000031 |
| AOC 3 | NA | NYOW-03-PH002-B | Methylene chloride | mg/kg | 0.0048 | 1600 | 0.000003 |
| AOC 3 | NA | NYOW-03-PH002-B | o-Xylene | mg/kg | 0.0048 | 100 | 0.000048 |
| AOC 3 | NA | NYOW-03-PH002-B | Styrene | mg/kg | 0.0048 | 3.2 | 0.0015 |
| AOC 3 | NA | NYOW-03-PH002-B | Tetrachloroethene (PCE) | mg/kg | 0.0048 | 10 | 0.00048 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.01 | 39 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 0.6 | 1.316666667 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 6 | 0.065 |
| AOC 3 | NA | NYOW-03-PH002-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.67 | 0.582089552 |
| AOC 3 | NA | NYOW-03-PH002-B | 4-Chloroaniline | mg/kg | 0.79 | 1 | 0.79 |
| AOC 3 | NA | NYOW-03-PH002-B | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 3 | NA | NYOW-03-PH002-B | Diethyl phthalate | mg/kg | 0.39 | 100 | 0.0039 |
| AOC 3 | NA | NYOW-03-PH002-B | di-n-Butyl phthalate | mg/kg | 0.39 | 160 | 0.0024375 |
| AOC 3 | NA | NYOW-03-PH002-B | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH002-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH002-B | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 3 | NA | NYOW-03-PH002-B | Phenol | mg/kg | 0.39 | 0.79 | 0.493670886 |
| AOC 3 | NA | NYOW-03-PH002-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 3 | NA | NYOW-03-PH003-B | Benzene | mg/kg | 0.0052 | 200 | 0.000026 |
| AOC 3 | NA | NYOW-03-PH003-B | m,p-Xylene | mg/kg | 0.0033 | 100 | 0.000033 |
| AOC 3 | NA | NYOW-03-PH003-B | Methylene chloride | mg/kg | 0.0052 | 1600 | 0.00000325 |
| AOC 3 | NA | NYOW-03-PH003-B | o-Xylene | mg/kg | 0.0052 | 100 | 0.000052 |
| AOC 3 | NA | NYOW-03-PH003-B | Styrene | mg/kg | 0.0052 | 3.2 | 0.001625 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH003-B | Tetrachloroethene (PCE) | mg/kg | 0.0052 | 10 | 0.00052 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 4 | 0.1025 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4-Dimethylphenol | mg/kg | 0.41 | 0.01 | 41 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 0.6 | 1.366666667 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4-Dinitrotoluene | mg/kg | 0.41 | 6 | 0.068333333 |
| AOC 3 | NA | NYOW-03-PH003-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 0.67 | 0.611940299 |
| AOC 3 | NA | NYOW-03-PH003-B | 4-Chloroaniline | mg/kg | 0.82 | 1 | 0.82 |
| AOC 3 | NA | NYOW-03-PH003-B | Biphenyl (Diphenyl) | mg/kg | 2.1 | 60 | 0.035 |
| AOC 3 | NA | NYOW-03-PH003-B | Diethyl phthalate | mg/kg | 0.41 | 100 | 0.0041 |
| AOC 3 | NA | NYOW-03-PH003-B | di-n-Butyl phthalate | mg/kg | 0.41 | 160 | 0.0025625 |
| AOC 3 | NA | NYOW-03-PH003-B | Hexachlorobenzene | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH003-B | Hexachlorocyclopentadiene | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH003-B | Pentachlorophenol | mg/kg | 2.1 | 5 | 0.42 |
| AOC 3 | NA | NYOW-03-PH003-B | Phenol | mg/kg | 0.41 | 0.79 | 0.518987342 |
| AOC 3 | NA | NYOW-03-PH003-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 3 | NA | NYOW-03-PH004-B | Benzene | mg/kg | 0.005 | 200 | 0.000025 |
| AOC 3 | NA | NYOW-03-PH004-B | m,p-Xylene | mg/kg | 0.0032 | 100 | 0.000032 |
| AOC 3 | NA | NYOW-03-PH004-B | Methylene chloride | mg/kg | 0.005 | 1600 | 0.000003125 |
| AOC 3 | NA | NYOW-03-PH004-B | o-Xylene | mg/kg | 0.005 | 100 | 0.00005 |
| AOC 3 | NA | NYOW-03-PH004-B | Styrene | mg/kg | 0.005 | 3.2 | 0.0015625 |
| AOC 3 | NA | NYOW-03-PH004-B | Tetrachloroethene (PCE) | mg/kg | 0.005 | 10 | 0.0005 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 4 | 0.105 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4-Dimethylphenol | mg/kg | 0.42 | 0.01 | 42 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.84 | 0.6 | 1.4 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4-Dinitrophenol | mg/kg | 2.2 | 20 | 0.11 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4-Dinitrotoluene | mg/kg | 0.42 | 6 | 0.07 |
| AOC 3 | NA | NYOW-03-PH004-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 0.67 | 0.626865672 |
| AOC 3 | NA | NYOW-03-PH004-B | 4-Chloroaniline | mg/kg | 0.84 | 1 | 0.84 |
| AOC 3 | NA | NYOW-03-PH004-B | Biphenyl (Diphenyl) | mg/kg | 2.2 | 60 | 0.036666667 |
| AOC 3 | NA | NYOW-03-PH004-B | Diethyl phthalate | mg/kg | 0.42 | 100 | 0.0042 |
| AOC 3 | NA | NYOW-03-PH004-B | di-n-Butyl phthalate | mg/kg | 0.42 | 160 | 0.002625 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH004-B | Hexachlorobenzene | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-PH004-B | Hexachlorocyclopentadiene | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-PH004-B | Pentachlorophenol | mg/kg | 2.2 | 5 | 0.44 |
| AOC 3 | NA | NYOW-03-PH004-B | Phenol | mg/kg | 0.42 | 0.79 | 0.53164557 |
| AOC 3 | NA | NYOW-03-PH004-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.079 | 40 | 0.001975 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.079 | 40 | 0.001975 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.079 | 40 | 0.001975 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.079 | 40 | 0.001975 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.079 | 40 | 0.001975 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.079 | 40 | 0.001975 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.079 | 40 | 0.001975 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 4 | 0.105 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,4-Dimethylphenol | mg/kg | 0.42 | 0.01 | 42 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.85 | 0.6 | 1.416666667 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,4-Dinitrophenol | mg/kg | 2.2 | 20 | 0.11 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,4-Dinitrotoluene | mg/kg | 0.42 | 6 | 0.07 |
| AOC 3 | NA | NYOW-03-PH005-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 0.67 | 0.626865672 |
| AOC 3 | NA | NYOW-03-PH005-B | 4-Chloroaniline | mg/kg | 0.85 | 1 | 0.85 |
| AOC 3 | NA | NYOW-03-PH005-B | Biphenyl (Diphenyl) | mg/kg | 2.2 | 60 | 0.036666667 |
| AOC 3 | NA | NYOW-03-PH005-B | Diethyl phthalate | mg/kg | 0.42 | 100 | 0.0042 |
| AOC 3 | NA | NYOW-03-PH005-B | di-n-Butyl phthalate | mg/kg | 0.42 | 160 | 0.002625 |
| AOC 3 | NA | NYOW-03-PH005-B | Hexachlorobenzene | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-PH005-B | Hexachlorocyclopentadiene | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-PH005-B | Pentachlorophenol | mg/kg | 2.2 | 5 | 0.44 |
| AOC 3 | NA | NYOW-03-PH005-B | Phenol | mg/kg | 0.42 | 0.79 | 0.53164557 |
| AOC 3 | NA | NYOW-03-PH005-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Benzene | mg/kg | 0.0048 | 200 | 0.000024 |
| AOC 3 | NA | NYOW-03-PH005-B_R | m,p-Xylene | mg/kg | 0.0031 | 100 | 0.000031 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Methylene chloride | mg/kg | 0.0048 | 1600 | 0.000003 |
| AOC 3 | NA | NYOW-03-PH005-B_R | o-Xylene | mg/kg | 0.0048 | 100 | 0.000048 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH005-B_R | Styrene | mg/kg | 0.0048 | 3.2 | 0.0015 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Tetrachloroethene (PCE) | mg/kg | 0.0048 | 10 | 0.00048 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 4 | 0.095 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.01 | 38 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 0.6 | 1.283333333 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4-Dinitrotoluene | mg/kg | 0.38 | 6 | 0.063333333 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.67 | 0.567164179 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 4-Chloroaniline | mg/kg | 0.77 | 1 | 0.77 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Diethyl phthalate | mg/kg | 0.38 | 100 | 0.0038 |
| AOC 3 | NA | NYOW-03-PH005-B_R | di-n-Butyl phthalate | mg/kg | 0.38 | 160 | 0.002375 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Hexachlorocyclopentadiene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Phenol | mg/kg | 0.38 | 0.79 | 0.481012658 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.085 | 40 | 0.002125 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.12 | 40 | 0.003 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.085 | 40 | 0.002125 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.085 | 40 | 0.002125 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.085 | 40 | 0.002125 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.085 | 40 | 0.002125 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.085 | 40 | 0.002125 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.085 | 40 | 0.002125 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 4 | 0.1025 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4-Dimethylphenol | mg/kg | 0.41 | 0.01 | 41 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 0.6 | 1.366666667 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4-Dinitrotoluene | mg/kg | 0.41 | 6 | 0.068333333 |
| AOC 3 | NA | NYOW-03-PH006-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 0.67 | 0.611940299 |
| AOC 3 | NA | NYOW-03-PH006-B | 4-Chloroaniline | mg/kg | 0.82 | 1 | 0.82 |
| AOC 3 | NA | NYOW-03-PH006-B | Biphenyl (Diphenyl) | mg/kg | 2.1 | 60 | 0.035 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH006-B | Diethyl phthalate | mg/kg | 0.41 | 100 | 0.0041 |
| AOC 3 | NA | NYOW-03-PH006-B | di-n-Butyl phthalate | mg/kg | 0.41 | 160 | 0.0025625 |
| AOC 3 | NA | NYOW-03-PH006-B | Hexachlorobenzene | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH006-B | Hexachlorocyclopentadiene | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH006-B | Pentachlorophenol | mg/kg | 2.1 | 5 | 0.42 |
| AOC 3 | NA | NYOW-03-PH006-B | Phenol | mg/kg | 0.41 | 0.79 | 0.518987342 |
| AOC 3 | NA | NYOW-03-PH006-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Benzene | mg/kg | 0.0051 | 200 | 0.0000255 |
| AOC 3 | NA | NYOW-03-PH006-B_R | m,p-Xylene | mg/kg | 0.0032 | 100 | 0.000032 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Methylene chloride | mg/kg | 0.0051 | 1600 | 3.1875E-06 |
| AOC 3 | NA | NYOW-03-PH006-B_R | o-Xylene | mg/kg | 0.0051 | 100 | 0.000051 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Styrene | mg/kg | 0.0051 | 3.2 | 0.00159375 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Tetrachloroethene (PCE) | mg/kg | 0.0051 | 10 | 0.00051 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 4 | 0.105 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4-Dimethylphenol | mg/kg | 0.42 | 0.01 | 42 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.84 | 0.6 | 1.4 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4-Dinitrophenol | mg/kg | 2.2 | 20 | 0.11 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4-Dinitrotoluene | mg/kg | 0.42 | 6 | 0.07 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 0.67 | 0.626865672 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 4-Chloroaniline | mg/kg | 0.84 | 1 | 0.84 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Biphenyl (Diphenyl) | mg/kg | 2.2 | 60 | 0.036666667 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Diethyl phthalate | mg/kg | 0.42 | 100 | 0.0042 |
| AOC 3 | NA | NYOW-03-PH006-B_R | di-n-Butyl phthalate | mg/kg | 0.42 | 160 | 0.002625 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Hexachlorobenzene | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Hexachlorocyclopentadiene | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Pentachlorophenol | mg/kg | 2.2 | 5 | 0.44 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Phenol | mg/kg | 0.42 | 0.79 | 0.53164557 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.082 | 40 | 0.00205 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.12 | 40 | 0.003 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.082 | 40 | 0.00205 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.082 | 40 | 0.00205 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.082 | 40 | 0.00205 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.082 | 40 | 0.00205 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.082 | 40 | 0.00205 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.082 | 40 | 0.00205 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 4 | 0.1025 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,4-Dimethylphenol | mg/kg | 0.41 | 0.01 | 41 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 0.6 | 1.366666667 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,4-Dinitrotoluene | mg/kg | 0.41 | 6 | 0.068333333 |
| AOC 3 | NA | NYOW-03-PH007-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 0.67 | 0.611940299 |
| AOC 3 | NA | NYOW-03-PH007-B | 4-Chloroaniline | mg/kg | 0.82 | 1 | 0.82 |
| AOC 3 | NA | NYOW-03-PH007-B | Biphenyl (Diphenyl) | mg/kg | 2.1 | 60 | 0.035 |
| AOC 3 | NA | NYOW-03-PH007-B | Diethyl phthalate | mg/kg | 0.41 | 100 | 0.0041 |
| AOC 3 | NA | NYOW-03-PH007-B | di-n-Butyl phthalate | mg/kg | 0.41 | 160 | 0.0025625 |
| AOC 3 | NA | NYOW-03-PH007-B | Hexachlorobenzene | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH007-B | Hexachlorocyclopentadiene | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH007-B | Pentachlorophenol | mg/kg | 2.1 | 5 | 0.42 |
| AOC 3 | NA | NYOW-03-PH007-B | Phenol | mg/kg | 0.41 | 0.79 | 0.518987342 |
| AOC 3 | NA | NYOW-03-PH007-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Benzene | mg/kg | 0.0045 | 200 | 0.0000225 |
| AOC 3 | NA | NYOW-03-PH007-B_R | m,p-Xylene | mg/kg | 0.0029 | 100 | 0.000029 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Methylene chloride | mg/kg | 0.0045 | 1600 | 2.8125E-06 |
| AOC 3 | NA | NYOW-03-PH007-B_R | o-Xylene | mg/kg | 0.0045 | 100 | 0.000045 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Styrene | mg/kg | 0.0045 | 3.2 | 0.00140625 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Tetrachloroethene (PCE) | mg/kg | 0.0045 | 10 | 0.00045 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 4 | 0.095 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.01 | 38 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 0.6 | 1.283333333 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4-Dinitrotoluene | mg/kg | 0.38 | 6 | 0.063333333 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.67 | 0.567164179 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 4-Chloroaniline | mg/kg | 0.77 | 1 | 0.77 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH007-B_R | Diethyl phthalate | mg/kg | 0.38 | 100 | 0.0038 |
| AOC 3 | NA | NYOW-03-PH007-B_R | di-n-Butyl phthalate | mg/kg | 0.38 | 160 | 0.002375 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Hexachlorocyclopentadiene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Phenol | mg/kg | 0.38 | 0.79 | 0.481012658 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.073 | 40 | 0.001825 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 40 | 0.0025 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.073 | 40 | 0.001825 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.073 | 40 | 0.001825 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.073 | 40 | 0.001825 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.073 | 40 | 0.001825 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.073 | 40 | 0.001825 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.073 | 40 | 0.001825 |
| AOC 3 | NA | NYOW-03-PH008-B | Benzene | mg/kg | 0.0052 | 200 | 0.000026 |
| AOC 3 | NA | NYOW-03-PH008-B | m,p-Xylene | mg/kg | 0.0034 | 100 | 0.000034 |
| AOC 3 | NA | NYOW-03-PH008-B | Methylene chloride | mg/kg | 0.0052 | 1600 | 0.00000325 |
| AOC 3 | NA | NYOW-03-PH008-B | o-Xylene | mg/kg | 0.0052 | 100 | 0.000052 |
| AOC 3 | NA | NYOW-03-PH008-B | Styrene | mg/kg | 0.0052 | 3.2 | 0.001625 |
| AOC 3 | NA | NYOW-03-PH008-B | Tetrachloroethene (PCE) | mg/kg | 0.0052 | 10 | 0.00052 |
| AOC 3 | NA | NYOW-03-PH008-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.01 | 39 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 0.6 | 1.316666667 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4-Dinitrotoluene | mg/kg | 0.39 | 6 | 0.065 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.67 | 0.582089552 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 4-Chloroaniline | mg/kg | 0.79 | 1 | 0.79 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Diethyl phthalate | mg/kg | 0.39 | 100 | 0.0039 |
| AOC 3 | NA | NYOW-03-PH008-B_R | di-n-Butyl phthalate | mg/kg | 0.39 | 160 | 0.0024375 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH008-B_R | Hexachlorocyclopentadiene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Phenol | mg/kg | 0.39 | 0.79 | 0.493670886 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-PH009-B | Benzene | mg/kg | 0.0049 | 200 | 0.0000245 |
| AOC 3 | NA | NYOW-03-PH009-B | m,p-Xylene | mg/kg | 0.0032 | 100 | 0.000032 |
| AOC 3 | NA | NYOW-03-PH009-B | Methylene chloride | mg/kg | 0.0049 | 1600 | 3.0625E-06 |
| AOC 3 | NA | NYOW-03-PH009-B | o-Xylene | mg/kg | 0.0049 | 100 | 0.000049 |
| AOC 3 | NA | NYOW-03-PH009-B | Styrene | mg/kg | 0.0049 | 3.2 | 0.00153125 |
| AOC 3 | NA | NYOW-03-PH009-B | Tetrachloroethene (PCE) | mg/kg | 0.0049 | 10 | 0.00049 |
| AOC 3 | NA | NYOW-03-PH009-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.01 | 39 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 0.6 | 1.316666667 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4-Dinitrotoluene | mg/kg | 0.39 | 6 | 0.065 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.67 | 0.582089552 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 4-Chloroaniline | mg/kg | 0.79 | 1 | 0.79 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Diethyl phthalate | mg/kg | 0.39 | 100 | 0.0039 |
| AOC 3 | NA | NYOW-03-PH009-B_R | di-n-Butyl phthalate | mg/kg | 0.39 | 160 | 0.0024375 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Hexachlorocyclopentadiene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Phenol | mg/kg | 0.39 | 0.79 | 0.493670886 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH010-B | Benzene | mg/kg | 0.0048 | 200 | 0.000024 |
| AOC 3 | NA | NYOW-03-PH010-B | m,p-Xylene | mg/kg | 0.0031 | 100 | 0.000031 |
| AOC 3 | NA | NYOW-03-PH010-B | Methylene chloride | mg/kg | 0.0048 | 1600 | 0.000003 |
| AOC 3 | NA | NYOW-03-PH010-B | o-Xylene | mg/kg | 0.0048 | 100 | 0.000048 |
| AOC 3 | NA | NYOW-03-PH010-B | Styrene | mg/kg | 0.0048 | 3.2 | 0.0015 |
| AOC 3 | NA | NYOW-03-PH010-B | Tetrachloroethene (PCE) | mg/kg | 0.0048 | 10 | 0.00048 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.01 | 37 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 0.6 | 1.233333333 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 6 | 0.061666667 |
| AOC 3 | NA | NYOW-03-PH010-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.67 | 0.552238806 |
| AOC 3 | NA | NYOW-03-PH010-B | 4-Chloroaniline | mg/kg | 0.74 | 1 | 0.74 |
| AOC 3 | NA | NYOW-03-PH010-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 3 | NA | NYOW-03-PH010-B | Diethyl phthalate | mg/kg | 0.37 | 100 | 0.0037 |
| AOC 3 | NA | NYOW-03-PH010-B | di-n-Butyl phthalate | mg/kg | 0.37 | 160 | 0.0023125 |
| AOC 3 | NA | NYOW-03-PH010-B | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 3 | NA | NYOW-03-PH010-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 3 | NA | NYOW-03-PH010-B | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |
| AOC 3 | NA | NYOW-03-PH010-B | Phenol | mg/kg | 0.37 | 0.79 | 0.46835443 |
| AOC 3 | NA | NYOW-03-PH010-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.074 | 40 | 0.00185 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH011-B | Benzene | mg/kg | 0.0058 | 200 | 0.000029 |
| AOC 3 | NA | NYOW-03-PH011-B | m,p-Xylene | mg/kg | 0.0037 | 100 | 0.000037 |
| AOC 3 | NA | NYOW-03-PH011-B | Methylene chloride | mg/kg | 0.0058 | 1600 | 0.000003625 |
| AOC 3 | NA | NYOW-03-PH011-B | o-Xylene | mg/kg | 0.0058 | 100 | 0.000058 |
| AOC 3 | NA | NYOW-03-PH011-B | Styrene | mg/kg | 0.0058 | 3.2 | 0.0018125 |
| AOC 3 | NA | NYOW-03-PH011-B | Tetrachloroethene (PCE) | mg/kg | 0.0058 | 10 | 0.00058 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.01 | 39 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 0.6 | 1.3 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 6 | 0.065 |
| AOC 3 | NA | NYOW-03-PH011-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.67 | 0.582089552 |
| AOC 3 | NA | NYOW-03-PH011-B | 4-Chloroaniline | mg/kg | 0.78 | 1 | 0.78 |
| AOC 3 | NA | NYOW-03-PH011-B | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 3 | NA | NYOW-03-PH011-B | Diethyl phthalate | mg/kg | 0.39 | 100 | 0.0039 |
| AOC 3 | NA | NYOW-03-PH011-B | di-n-Butyl phthalate | mg/kg | 0.39 | 160 | 0.0024375 |
| AOC 3 | NA | NYOW-03-PH011-B | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH011-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH011-B | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 3 | NA | NYOW-03-PH011-B | Phenol | mg/kg | 0.39 | 0.79 | 0.493670886 |
| AOC 3 | NA | NYOW-03-PH011-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.071 | 40 | 0.001775 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 40 | 0.0025 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.071 | 40 | 0.001775 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.071 | 40 | 0.001775 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.071 | 40 | 0.001775 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.071 | 40 | 0.001775 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.071 | 40 | 0.001775 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.071 | 40 | 0.001775 |
| AOC 3 | NA | NYOW-03-PH012-B | Benzene | mg/kg | 0.0052 | 200 | 0.000026 |
| AOC 3 | NA | NYOW-03-PH012-B | m,p-Xylene | mg/kg | 0.0034 | 100 | 0.000034 |
| AOC 3 | NA | NYOW-03-PH012-B | Methylene chloride | mg/kg | 0.0052 | 1600 | 0.00000325 |
| AOC 3 | NA | NYOW-03-PH012-B | o-Xylene | mg/kg | 0.0052 | 100 | 0.000052 |
| AOC 3 | NA | NYOW-03-PH012-B | Styrene | mg/kg | 0.0052 | 3.2 | 0.001625 |
| AOC 3 | NA | NYOW-03-PH012-B | Tetrachloroethene (PCE) | mg/kg | 0.0052 | 10 | 0.00052 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 4 | 0.0875 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,4-Dimethylphenol | mg/kg | 0.35 | 0.01 | 35 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 0.6 | 1.166666667 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,4-Dinitrotoluene | mg/kg | 0.35 | 6 | 0.058333333 |
| AOC 3 | NA | NYOW-03-PH012-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 0.67 | 0.52238806 |
| AOC 3 | NA | NYOW-03-PH012-B | 4-Chloroaniline | mg/kg | 0.7 | 1 | 0.7 |
| AOC 3 | NA | NYOW-03-PH012-B | Biphenyl (Diphenyl) | mg/kg | 1.8 | 60 | 0.03 |
| AOC 3 | NA | NYOW-03-PH012-B | Diethyl phthalate | mg/kg | 0.35 | 100 | 0.0035 |
| AOC 3 | NA | NYOW-03-PH012-B | di-n-Butyl phthalate | mg/kg | 0.35 | 160 | 0.0021875 |
| AOC 3 | NA | NYOW-03-PH012-B | Hexachlorobenzene | mg/kg | 0.35 | 10 | 0.035 |
| AOC 3 | NA | NYOW-03-PH012-B | Hexachlorocyclopentadiene | mg/kg | 0.35 | 10 | 0.035 |
| AOC 3 | NA | NYOW-03-PH012-B | Pentachlorophenol | mg/kg | 1.8 | 5 | 0.36 |
| AOC 3 | NA | NYOW-03-PH012-B | Phenol | mg/kg | 0.35 | 0.79 | 0.443037975 |
| AOC 3 | NA | NYOW-03-PH012-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 3 | NA | NYOW-03-PH013-B | Benzene | mg/kg | 0.0051 | 200 | 0.0000255 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH013-B | m,p-Xylene | mg/kg | 0.0033 | 100 | 0.000033 |
| AOC 3 | NA | NYOW-03-PH013-B | Methylene chloride | mg/kg | 0.0051 | 1600 | 3.1875E-06 |
| AOC 3 | NA | NYOW-03-PH013-B | o-Xylene | mg/kg | 0.0051 | 100 | 0.000051 |
| AOC 3 | NA | NYOW-03-PH013-B | Styrene | mg/kg | 0.0051 | 3.2 | 0.00159375 |
| AOC 3 | NA | NYOW-03-PH013-B | Tetrachloroethene (PCE) | mg/kg | 0.0051 | 10 | 0.00051 |
| AOC 3 | NA | NYOW-03-PH013-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.01 | 39 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 0.6 | 1.3 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4-Dinitrotoluene | mg/kg | 0.39 | 6 | 0.065 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.67 | 0.582089552 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 4-Chloroaniline | mg/kg | 0.78 | 1 | 0.78 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Diethyl phthalate | mg/kg | 0.39 | 100 | 0.0039 |
| AOC 3 | NA | NYOW-03-PH013-B_R | di-n-Butyl phthalate | mg/kg | 0.39 | 160 | 0.0024375 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Hexachlorocyclopentadiene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Phenol | mg/kg | 0.39 | 0.79 | 0.493670886 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.074 | 40 | 0.00185 |
| AOC 3 | NA | NYOW-03-PH014-B | Benzene | mg/kg | 0.0051 | 200 | 0.0000255 |
| AOC 3 | NA | NYOW-03-PH014-B | m,p-Xylene | mg/kg | 0.0033 | 100 | 0.000033 |
| AOC 3 | NA | NYOW-03-PH014-B | Methylene chloride | mg/kg | 0.0051 | 1600 | 3.1875E-06 |
| AOC 3 | NA | NYOW-03-PH014-B | o-Xylene | mg/kg | 0.0051 | 100 | 0.000051 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH014-B | Styrene | mg/kg | 0.0051 | 3.2 | 0.00159375 |
| AOC 3 | NA | NYOW-03-PH014-B | Tetrachloroethene (PCE) | mg/kg | 0.0051 | 10 | 0.00051 |
| AOC 3 | NA | NYOW-03-PH014-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.4 | 4 | 0.1 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4-Dimethylphenol | mg/kg | 0.4 | 0.01 | 40 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 0.6 | 1.35 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4-Dinitrotoluene | mg/kg | 0.4 | 6 | 0.066666667 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.4 | 0.67 | 0.597014925 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 4-Chloroaniline | mg/kg | 0.81 | 1 | 0.81 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Biphenyl (Diphenyl) | mg/kg | 2.1 | 60 | 0.035 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Diethyl phthalate | mg/kg | 0.4 | 100 | 0.004 |
| AOC 3 | NA | NYOW-03-PH014-B_R | di-n-Butyl phthalate | mg/kg | 0.4 | 160 | 0.0025 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Hexachlorobenzene | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Hexachlorocyclopentadiene | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Pentachlorophenol | mg/kg | 2.1 | 5 | 0.42 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Phenol | mg/kg | 0.4 | 0.79 | 0.506329114 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.081 | 40 | 0.002025 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.081 | 40 | 0.002025 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.081 | 40 | 0.002025 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.081 | 40 | 0.002025 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.081 | 40 | 0.002025 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.081 | 40 | 0.002025 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.081 | 40 | 0.002025 |
| AOC 3 | NA | NYOW-03-PH015-B | Benzene | mg/kg | 0.005 | 200 | 0.000025 |
| AOC 3 | NA | NYOW-03-PH015-B | m,p-Xylene | mg/kg | 0.0032 | 100 | 0.000032 |
| AOC 3 | NA | NYOW-03-PH015-B | Methylene chloride | mg/kg | 0.005 | 1600 | 0.000003125 |
| AOC 3 | NA | NYOW-03-PH015-B | o-Xylene | mg/kg | 0.005 | 100 | 0.00005 |
| AOC 3 | NA | NYOW-03-PH015-B | Styrene | mg/kg | 0.005 | 3.2 | 0.0015625 |
| AOC 3 | NA | NYOW-03-PH015-B | Tetrachloroethene (PCE) | mg/kg | 0.005 | 10 | 0.0005 |
| AOC 3 | NA | NYOW-03-PH015-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.4 | 4 | 0.1 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4-Dimethylphenol | mg/kg | 0.4 | 0.01 | 40 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 0.6 | 1.333333333 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4-Dinitrotoluene | mg/kg | 0.4 | 6 | 0.066666667 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.4 | 0.67 | 0.597014925 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 4-Chloroaniline | mg/kg | 0.8 | 1 | 0.8 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Biphenyl (Diphenyl) | mg/kg | 2.1 | 60 | 0.035 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Diethyl phthalate | mg/kg | 0.4 | 100 | 0.004 |
| AOC 3 | NA | NYOW-03-PH015-B_R | di-n-Butyl phthalate | mg/kg | 0.4 | 160 | 0.0025 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Hexachlorobenzene | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Hexachlorocyclopentadiene | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Pentachlorophenol | mg/kg | 2.1 | 5 | 0.42 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Phenol | mg/kg | 0.4 | 0.79 | 0.506329114 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.08 | 40 | 0.002 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.08 | 40 | 0.002 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.08 | 40 | 0.002 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.08 | 40 | 0.002 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.08 | 40 | 0.002 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.08 | 40 | 0.002 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.08 | 40 | 0.002 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4,5-Trichlorophenol | mg/kg | 0.4 | 4 | 0.1 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4-Dimethylphenol | mg/kg | 0.4 | 0.01 | 40 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 0.6 | 1.333333333 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4-Dinitrotoluene | mg/kg | 0.4 | 6 | 0.066666667 |
| AOC 3 | NA | NYOW-03-PH016-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.4 | 0.67 | 0.597014925 |
| AOC 3 | NA | NYOW-03-PH016-B | 4-Chloroaniline | mg/kg | 0.8 | 1 | 0.8 |
| AOC 3 | NA | NYOW-03-PH016-B | Biphenyl (Diphenyl) | mg/kg | 2.1 | 60 | 0.035 |
| AOC 3 | NA | NYOW-03-PH016-B | Diethyl phthalate | mg/kg | 0.4 | 100 | 0.004 |
| AOC 3 | NA | NYOW-03-PH016-B | di-n-Butyl phthalate | mg/kg | 0.4 | 160 | 0.0025 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH016-B | Hexachlorobenzene | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-PH016-B | Hexachlorocyclopentadiene | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-PH016-B | Pentachlorophenol | mg/kg | 2.1 | 5 | 0.42 |
| AOC 3 | NA | NYOW-03-PH016-B | Phenol | mg/kg | 0.4 | 0.79 | 0.506329114 |
| AOC 3 | NA | NYOW-03-PH016-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Benzene | mg/kg | 0.0048 | 200 | 0.000024 |
| AOC 3 | NA | NYOW-03-PH016-B_R | m,p-Xylene | mg/kg | 0.0031 | 100 | 0.000031 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Methylene chloride | mg/kg | 0.0048 | 1600 | 0.000003 |
| AOC 3 | NA | NYOW-03-PH016-B_R | o-Xylene | mg/kg | 0.0048 | 100 | 0.000048 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Styrene | mg/kg | 0.0048 | 3.2 | 0.0015 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Tetrachloroethene (PCE) | mg/kg | 0.0048 | 10 | 0.00048 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.01 | 39 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 0.6 | 1.3 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4-Dinitrotoluene | mg/kg | 0.39 | 6 | 0.065 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.67 | 0.582089552 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 4-Chloroaniline | mg/kg | 0.78 | 1 | 0.78 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Diethyl phthalate | mg/kg | 0.39 | 100 | 0.0039 |
| AOC 3 | NA | NYOW-03-PH016-B_R | di-n-Butyl phthalate | mg/kg | 0.39 | 160 | 0.0024375 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Hexachlorocyclopentadiene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Phenol | mg/kg | 0.39 | 0.79 | 0.493670886 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Benzene | mg/kg | 0.0046 | 200 | 0.000023 |
| AOC 3 | NA | NYOW-03-PH017-B_R | m,p-Xylene | mg/kg | 0.0029 | 100 | 0.000029 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Methylene chloride | mg/kg | 0.0046 | 1600 | 0.000002875 |
| AOC 3 | NA | NYOW-03-PH017-B_R | o-Xylene | mg/kg | 0.0046 | 100 | 0.000046 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Styrene | mg/kg | 0.0046 | 3.2 | 0.0014375 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Tetrachloroethene (PCE) | mg/kg | 0.0046 | 10 | 0.00046 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Benzene | mg/kg | 0.0058 | 200 | 0.000029 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH018-B_R | m,p-Xylene | mg/kg | 0.0037 | 100 | 0.000037 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Methylene chloride | mg/kg | 0.0058 | 1600 | 0.000003625 |
| AOC 3 | NA | NYOW-03-PH018-B_R | o-Xylene | mg/kg | 0.0058 | 100 | 0.000058 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Styrene | mg/kg | 0.0058 | 3.2 | 0.0018125 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Tetrachloroethene (PCE) | mg/kg | 0.0058 | 10 | 0.00058 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4,5-Trichlorophenol | mg/kg | 0.45 | 4 | 0.1125 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4-Dimethylphenol | mg/kg | 0.45 | 0.01 | 45 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.89 | 0.6 | 1.483333333 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4-Dinitrophenol | mg/kg | 2.3 | 20 | 0.115 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4-Dinitrotoluene | mg/kg | 0.45 | 6 | 0.075 |
| AOC 3 | NA | NYOW-03-SL001-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.45 | 0.67 | 0.671641791 |
| AOC 3 | NA | NYOW-03-SL001-A | 4-Chloroaniline | mg/kg | 0.89 | 1 | 0.89 |
| AOC 3 | NA | NYOW-03-SL001-A | Biphenyl (Diphenyl) | mg/kg | 2.3 | 60 | 0.038333333 |
| AOC 3 | NA | NYOW-03-SL001-A | Diethyl phthalate | mg/kg | 0.45 | 100 | 0.0045 |
| AOC 3 | NA | NYOW-03-SL001-A | di-n-Butyl phthalate | mg/kg | 0.45 | 160 | 0.0028125 |
| AOC 3 | NA | NYOW-03-SL001-A | Hexachlorobenzene | mg/kg | 0.45 | 10 | 0.045 |
| AOC 3 | NA | NYOW-03-SL001-A | Hexachlorocyclopentadiene | mg/kg | 0.45 | 10 | 0.045 |
| AOC 3 | NA | NYOW-03-SL001-A | Pentachlorophenol | mg/kg | 2.3 | 5 | 0.46 |
| AOC 3 | NA | NYOW-03-SL001-A | Phenol | mg/kg | 0.45 | 0.79 | 0.569620253 |
| AOC 3 | NA | NYOW-03-SL001-A | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,4,5-Trichlorophenol | mg/kg | 0.43 | 4 | 0.1075 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,4-Dimethylphenol | mg/kg | 0.43 | 0.01 | 43 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.86 | 0.6 | 1.433333333 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 20 | 0.11 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,4-Dinitrotoluene | mg/kg | 0.43 | 6 | 0.071666667 |
| AOC 3 | NA | NYOW-03-SL002-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.43 | 0.67 | 0.641791045 |
| AOC 3 | NA | NYOW-03-SL002-A | 4-Chloroaniline | mg/kg | 0.86 | 1 | 0.86 |
| AOC 3 | NA | NYOW-03-SL002-A | Biphenyl (Diphenyl) | mg/kg | 2.2 | 60 | 0.036666667 |
| AOC 3 | NA | NYOW-03-SL002-A | Diethyl phthalate | mg/kg | 0.43 | 100 | 0.0043 |
| AOC 3 | NA | NYOW-03-SL002-A | di-n-Butyl phthalate | mg/kg | 0.43 | 160 | 0.0026875 |
| AOC 3 | NA | NYOW-03-SL002-A | Hexachlorobenzene | mg/kg | 0.43 | 10 | 0.043 |
| AOC 3 | NA | NYOW-03-SL002-A | Hexachlorocyclopentadiene | mg/kg | 0.43 | 10 | 0.043 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL002-A | Pentachlorophenol | mg/kg | 2.2 | 5 | 0.44 |
| AOC 3 | NA | NYOW-03-SL002-A | Phenol | mg/kg | 0.43 | 0.79 | 0.544303797 |
| AOC 3 | NA | NYOW-03-SL002-A | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 4 | 0.105 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,4-Dimethylphenol | mg/kg | 0.42 | 0.01 | 42 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.84 | 0.6 | 1.4 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 20 | 0.11 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,4-Dinitrotoluene | mg/kg | 0.42 | 6 | 0.07 |
| AOC 3 | NA | NYOW-03-SL003-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 0.67 | 0.626865672 |
| AOC 3 | NA | NYOW-03-SL003-A | 4-Chloroaniline | mg/kg | 0.84 | 1 | 0.84 |
| AOC 3 | NA | NYOW-03-SL003-A | Biphenyl (Diphenyl) | mg/kg | 2.2 | 60 | 0.036666667 |
| AOC 3 | NA | NYOW-03-SL003-A | Diethyl phthalate | mg/kg | 0.42 | 100 | 0.0042 |
| AOC 3 | NA | NYOW-03-SL003-A | di-n-Butyl phthalate | mg/kg | 0.42 | 160 | 0.002625 |
| AOC 3 | NA | NYOW-03-SL003-A | Hexachlorobenzene | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-SL003-A | Hexachlorocyclopentadiene | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-SL003-A | Pentachlorophenol | mg/kg | 2.2 | 5 | 0.44 |
| AOC 3 | NA | NYOW-03-SL003-A | Phenol | mg/kg | 0.42 | 0.79 | 0.53164557 |
| AOC 3 | NA | NYOW-03-SL003-A | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,4,5-Trichlorophenol | mg/kg | 0.49 | 4 | 0.1225 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,4-Dimethylphenol | mg/kg | 0.49 | 0.01 | 49 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.98 | 0.6 | 1.633333333 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,4-Dinitrophenol | mg/kg | 2.5 | 20 | 0.125 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,4-Dinitrotoluene | mg/kg | 0.49 | 6 | 0.081666667 |
| AOC 3 | NA | NYOW-03-SL004-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.49 | 0.67 | 0.731343284 |
| AOC 3 | NA | NYOW-03-SL004-A | 4-Chloroaniline | mg/kg | 0.98 | 1 | 0.98 |
| AOC 3 | NA | NYOW-03-SL004-A | Biphenyl (Diphenyl) | mg/kg | 2.5 | 60 | 0.041666667 |
| AOC 3 | NA | NYOW-03-SL004-A | Diethyl phthalate | mg/kg | 0.49 | 100 | 0.0049 |
| AOC 3 | NA | NYOW-03-SL004-A | di-n-Butyl phthalate | mg/kg | 0.49 | 160 | 0.0030625 |
| AOC 3 | NA | NYOW-03-SL004-A | Hexachlorobenzene | mg/kg | 0.49 | 10 | 0.049 |
| AOC 3 | NA | NYOW-03-SL004-A | Hexachlorocyclopentadiene | mg/kg | 0.49 | 10 | 0.049 |
| AOC 3 | NA | NYOW-03-SL004-A | Pentachlorophenol | mg/kg | 2.5 | 5 | 0.5 |
| AOC 3 | NA | NYOW-03-SL004-A | Phenol | mg/kg | 0.49 | 0.79 | 0.620253165 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL004-A | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.081 | 40 | 0.002025 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.12 | 40 | 0.003 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.081 | 40 | 0.002025 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.081 | 40 | 0.002025 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.081 | 40 | 0.002025 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.081 | 40 | 0.002025 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.081 | 40 | 0.002025 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.081 | 40 | 0.002025 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 4 | 0.1025 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4-Dimethylphenol | mg/kg | 0.41 | 0.01 | 41 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 0.6 | 1.35 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4-Dinitrotoluene | mg/kg | 0.41 | 6 | 0.068333333 |
| AOC 3 | NA | NYOW-03-SL005-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 0.67 | 0.611940299 |
| AOC 3 | NA | NYOW-03-SL005-A | 4-Chloroaniline | mg/kg | 0.81 | 1 | 0.81 |
| AOC 3 | NA | NYOW-03-SL005-A | Biphenyl (Diphenyl) | mg/kg | 2.1 | 60 | 0.035 |
| AOC 3 | NA | NYOW-03-SL005-A | Diethyl phthalate | mg/kg | 0.41 | 100 | 0.0041 |
| AOC 3 | NA | NYOW-03-SL005-A | di-n-Butyl phthalate | mg/kg | 0.41 | 160 | 0.0025625 |
| AOC 3 | NA | NYOW-03-SL005-A | Hexachlorobenzene | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-SL005-A | Hexachlorocyclopentadiene | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-SL005-A | Pentachlorophenol | mg/kg | 2.1 | 5 | 0.42 |
| AOC 3 | NA | NYOW-03-SL005-A | Phenol | mg/kg | 0.41 | 0.79 | 0.518987342 |
| AOC 3 | NA | NYOW-03-SL005-A | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.078 | 40 | 0.00195 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL006-A | 2,4,5-Trichlorophenol | mg/kg | 0.4 | 4 | 0.1 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,4-Dimethylphenol | mg/kg | 0.4 | 0.01 | 40 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 0.6 | 1.35 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,4-Dinitrotoluene | mg/kg | 0.4 | 6 | 0.066666667 |
| AOC 3 | NA | NYOW-03-SL006-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.4 | 0.67 | 0.597014925 |
| AOC 3 | NA | NYOW-03-SL006-A | 4-Chloroaniline | mg/kg | 0.81 | 1 | 0.81 |
| AOC 3 | NA | NYOW-03-SL006-A | Biphenyl (Diphenyl) | mg/kg | 2.1 | 60 | 0.035 |
| AOC 3 | NA | NYOW-03-SL006-A | Diethyl phthalate | mg/kg | 0.4 | 100 | 0.004 |
| AOC 3 | NA | NYOW-03-SL006-A | di-n-Butyl phthalate | mg/kg | 0.4 | 160 | 0.0025 |
| AOC 3 | NA | NYOW-03-SL006-A | Hexachlorobenzene | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-SL006-A | Hexachlorocyclopentadiene | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-SL006-A | Pentachlorophenol | mg/kg | 2.1 | 5 | 0.42 |
| AOC 3 | NA | NYOW-03-SL006-A | Phenol | mg/kg | 0.4 | 0.79 | 0.506329114 |
| AOC 3 | NA | NYOW-03-SL006-A | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.01 | 39 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 0.6 | 1.283333333 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,4-Dinitrotoluene | mg/kg | 0.39 | 6 | 0.065 |
| AOC 3 | NA | NYOW-03-SL007-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.67 | 0.582089552 |
| AOC 3 | NA | NYOW-03-SL007-A | 4-Chloroaniline | mg/kg | 0.77 | 1 | 0.77 |
| AOC 3 | NA | NYOW-03-SL007-A | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 3 | NA | NYOW-03-SL007-A | Diethyl phthalate | mg/kg | 0.39 | 100 | 0.0039 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL007-A | di-n-Butyl phthalate | mg/kg | 0.39 | 160 | 0.0024375 |
| AOC 3 | NA | NYOW-03-SL007-A | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-SL007-A | Hexachlorocyclopentadiene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-SL007-A | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 3 | NA | NYOW-03-SL007-A | Phenol | mg/kg | 0.39 | 0.79 | 0.493670886 |
| AOC 3 | NA | NYOW-03-SL007-A | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.069 | 40 | 0.001725 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.098 | 40 | 0.00245 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.069 | 40 | 0.001725 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.069 | 40 | 0.001725 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.069 | 40 | 0.001725 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.069 | 40 | 0.001725 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.069 | 40 | 0.001725 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.069 | 40 | 0.001725 |
| AOC 3 | NA | NYOW-03-SL008-A | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 4 | 0.095 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.01 | 38 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 0.6 | 1.266666667 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4-Dinitrotoluene | mg/kg | 0.38 | 6 | 0.063333333 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.67 | 0.567164179 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 4-Chloroaniline | mg/kg | 0.76 | 1 | 0.76 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Diethyl phthalate | mg/kg | 0.38 | 100 | 0.0038 |
| AOC 3 | NA | NYOW-03-SL008-A_R | di-n-Butyl phthalate | mg/kg | 0.38 | 160 | 0.002375 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Hexachlorocyclopentadiene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Phenol | mg/kg | 0.38 | 0.79 | 0.481012658 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.083 | 40 | 0.002075 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.12 | 40 | 0.003 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.083 | 40 | 0.002075 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.083 | 40 | 0.002075 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.083 | 40 | 0.002075 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.083 | 40 | 0.002075 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.083 | 40 | 0.002075 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.083 | 40 | 0.002075 |
| AOC 3 | NA | NYOW-03-SL009-A | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4,5-Trichlorophenol | mg/kg | 0.46 | 4 | 0.115 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4-Dimethylphenol | mg/kg | 0.46 | 0.01 | 46 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.92 | 0.6 | 1.533333333 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4-Dinitrophenol | mg/kg | 2.4 | 20 | 0.12 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4-Dinitrotoluene | mg/kg | 0.46 | 6 | 0.076666667 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.46 | 0.67 | 0.686567164 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 4-Chloroaniline | mg/kg | 0.92 | 1 | 0.92 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Biphenyl (Diphenyl) | mg/kg | 2.4 | 60 | 0.04 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Diethyl phthalate | mg/kg | 0.46 | 100 | 0.0046 |
| AOC 3 | NA | NYOW-03-SL009-A_R | di-n-Butyl phthalate | mg/kg | 0.46 | 160 | 0.002875 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Hexachlorobenzene | mg/kg | 0.46 | 10 | 0.046 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Hexachlorocyclopentadiene | mg/kg | 0.46 | 10 | 0.046 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Pentachlorophenol | mg/kg | 2.4 | 5 | 0.48 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Phenol | mg/kg | 0.46 | 0.79 | 0.582278481 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.079 | 40 | 0.001975 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.079 | 40 | 0.001975 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.079 | 40 | 0.001975 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.079 | 40 | 0.001975 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.079 | 40 | 0.001975 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.079 | 40 | 0.001975 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.079 | 40 | 0.001975 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 4 | 0.1025 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,4-Dimethylphenol | mg/kg | 0.41 | 0.01 | 41 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 0.6 | 1.366666667 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL010-A | 2,4-Dinitrotoluene | mg/kg | 0.41 | 6 | 0.068333333 |
| AOC 3 | NA | NYOW-03-SL010-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 0.67 | 0.611940299 |
| AOC 3 | NA | NYOW-03-SL010-A | 4-Chloroaniline | mg/kg | 0.82 | 1 | 0.82 |
| AOC 3 | NA | NYOW-03-SL010-A | Biphenyl (Diphenyl) | mg/kg | 2.1 | 60 | 0.035 |
| AOC 3 | NA | NYOW-03-SL010-A | Diethyl phthalate | mg/kg | 0.41 | 100 | 0.0041 |
| AOC 3 | NA | NYOW-03-SL010-A | di-n-Butyl phthalate | mg/kg | 0.41 | 160 | 0.0025625 |
| AOC 3 | NA | NYOW-03-SL010-A | Hexachlorobenzene | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-SL010-A | Hexachlorocyclopentadiene | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-SL010-A | Pentachlorophenol | mg/kg | 2.1 | 5 | 0.42 |
| AOC 3 | NA | NYOW-03-SL010-A | Phenol | mg/kg | 0.41 | 0.79 | 0.518987342 |
| AOC 3 | NA | NYOW-03-SL010-A | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.088 | 40 | 0.0022 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.13 | 40 | 0.00325 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.088 | 40 | 0.0022 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.088 | 40 | 0.0022 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.088 | 40 | 0.0022 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.088 | 40 | 0.0022 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.088 | 40 | 0.0022 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.088 | 40 | 0.0022 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 4 | 0.105 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4-Dimethylphenol | mg/kg | 0.42 | 0.01 | 42 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.85 | 0.6 | 1.416666667 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 20 | 0.11 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4-Dinitrotoluene | mg/kg | 0.42 | 6 | 0.07 |
| AOC 3 | NA | NYOW-03-SL011-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 0.67 | 0.626865672 |
| AOC 3 | NA | NYOW-03-SL011-A | 4-Chloroaniline | mg/kg | 0.85 | 1 | 0.85 |
| AOC 3 | NA | NYOW-03-SL011-A | Biphenyl (Diphenyl) | mg/kg | 2.2 | 60 | 0.036666667 |
| AOC 3 | NA | NYOW-03-SL011-A | Diethyl phthalate | mg/kg | 0.42 | 100 | 0.0042 |
| AOC 3 | NA | NYOW-03-SL011-A | di-n-Butyl phthalate | mg/kg | 0.42 | 160 | 0.002625 |
| AOC 3 | NA | NYOW-03-SL011-A | Hexachlorobenzene | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-SL011-A | Hexachlorocyclopentadiene | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-SL011-A | Pentachlorophenol | mg/kg | 2.2 | 5 | 0.44 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL011-A | Phenol | mg/kg | 0.42 | 0.79 | 0.53164557 |
| AOC 3 | NA | NYOW-03-SL011-A | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.01 | 39 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 0.6 | 1.283333333 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4-Dinitrotoluene | mg/kg | 0.39 | 6 | 0.065 |
| AOC 3 | NA | NYOW-03-SL012-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.67 | 0.582089552 |
| AOC 3 | NA | NYOW-03-SL012-A | 4-Chloroaniline | mg/kg | 0.77 | 1 | 0.77 |
| AOC 3 | NA | NYOW-03-SL012-A | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 3 | NA | NYOW-03-SL012-A | Diethyl phthalate | mg/kg | 0.39 | 100 | 0.0039 |
| AOC 3 | NA | NYOW-03-SL012-A | di-n-Butyl phthalate | mg/kg | 0.39 | 160 | 0.0024375 |
| AOC 3 | NA | NYOW-03-SL012-A | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-SL012-A | Hexachlorocyclopentadiene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-SL012-A | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 3 | NA | NYOW-03-SL012-A | Phenol | mg/kg | 0.39 | 0.79 | 0.493670886 |
| AOC 3 | NA | NYOW-03-SL012-A | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.078 | 40 | 0.00195 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 3 | NA | NYOW-03-SL013-A | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4,5-Trichlorophenol | mg/kg | 0.4 | 4 | 0.1 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4-Dimethylphenol | mg/kg | 0.4 | 0.01 | 40 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 0.6 | 1.333333333 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4-Dinitrotoluene | mg/kg | 0.4 | 6 | 0.066666667 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.4 | 0.67 | 0.597014925 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 4-Chloroaniline | mg/kg | 0.8 | 1 | 0.8 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Biphenyl (Diphenyl) | mg/kg | 2.1 | 60 | 0.035 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Diethyl phthalate | mg/kg | 0.4 | 100 | 0.004 |
| AOC 3 | NA | NYOW-03-SL013-A_R | di-n-Butyl phthalate | mg/kg | 0.4 | 160 | 0.0025 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Hexachlorobenzene | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Hexachlorocyclopentadiene | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Pentachlorophenol | mg/kg | 2.1 | 5 | 0.42 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Phenol | mg/kg | 0.4 | 0.79 | 0.506329114 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.07 | 40 | 0.00175 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.099 | 40 | 0.002475 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.07 | 40 | 0.00175 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.07 | 40 | 0.00175 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.07 | 40 | 0.00175 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.07 | 40 | 0.00175 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.07 | 40 | 0.00175 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.07 | 40 | 0.00175 |
| AOC 3 | NA | NYOW-03-SL014-A | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 4 | 0.095 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.01 | 38 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 0.6 | 1.266666667 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4-Dinitrotoluene | mg/kg | 0.38 | 6 | 0.063333333 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.67 | 0.567164179 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 4-Chloroaniline | mg/kg | 0.76 | 1 | 0.76 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL014-A_R | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Diethyl phthalate | mg/kg | 0.38 | 100 | 0.0038 |
| AOC 3 | NA | NYOW-03-SL014-A_R | di-n-Butyl phthalate | mg/kg | 0.38 | 160 | 0.002375 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Hexachlorocyclopentadiene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Phenol | mg/kg | 0.38 | 0.79 | 0.481012658 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.1 | 40 | 0.0025 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.15 | 40 | 0.00375 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.1 | 40 | 0.0025 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.1 | 40 | 0.0025 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.1 | 40 | 0.0025 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.1 | 40 | 0.0025 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.1 | 40 | 0.0025 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.1 | 40 | 0.0025 |
| AOC 3 | NA | NYOW-03-SL015-A | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4,5-Trichlorophenol | mg/kg | 0.47 | 4 | 0.1175 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4-Dimethylphenol | mg/kg | 0.47 | 0.01 | 47 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.94 | 0.6 | 1.566666667 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4-Dinitrophenol | mg/kg | 2.4 | 20 | 0.12 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4-Dinitrotoluene | mg/kg | 0.47 | 6 | 0.078333333 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.47 | 0.67 | 0.701492537 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 4-Chloroaniline | mg/kg | 0.94 | 1 | 0.94 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Biphenyl (Diphenyl) | mg/kg | 2.4 | 60 | 0.04 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Diethyl phthalate | mg/kg | 0.47 | 100 | 0.0047 |
| AOC 3 | NA | NYOW-03-SL015-A_R | di-n-Butyl phthalate | mg/kg | 0.47 | 160 | 0.0029375 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Hexachlorobenzene | mg/kg | 0.47 | 10 | 0.047 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Hexachlorocyclopentadiene | mg/kg | 0.47 | 10 | 0.047 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Pentachlorophenol | mg/kg | 2.4 | 5 | 0.48 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Phenol | mg/kg | 0.47 | 0.79 | 0.594936709 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.01 | 37 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 0.6 | 1.25 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 6 | 0.061666667 |
| AOC 3 | NA | NYOW-03-SL016-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.67 | 0.552238806 |
| AOC 3 | NA | NYOW-03-SL016-A | 4-Chloroaniline | mg/kg | 0.75 | 1 | 0.75 |
| AOC 3 | NA | NYOW-03-SL016-A | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 3 | NA | NYOW-03-SL016-A | Diethyl phthalate | mg/kg | 0.37 | 100 | 0.0037 |
| AOC 3 | NA | NYOW-03-SL016-A | di-n-Butyl phthalate | mg/kg | 0.37 | 160 | 0.0023125 |
| AOC 3 | NA | NYOW-03-SL016-A | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 3 | NA | NYOW-03-SL016-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 3 | NA | NYOW-03-SL016-A | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |
| AOC 3 | NA | NYOW-03-SL016-A | Phenol | mg/kg | 0.37 | 0.79 | 0.46835443 |
| AOC 3 | NA | NYOW-03-SL016-A | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH001-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 0.6 | 1.266666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH001-B | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 4 - Discrete | NA | NYOW-04-PH001-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH002-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 0.6 | 1.266666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH002-B | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 4 - Discrete | NA | NYOW-04-PH002-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 4 - Discrete | NA | NYOW-04-PH003-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 0.6 | 1.233333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH003-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH003-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH004-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.87 | 0.6 | 1.45 |
| AOC 4 - Discrete | NA | NYOW-04-PH004-B | 2,4-Dinitrophenol | mg/kg | 2.2 | 20 | 0.11 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH004-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH005-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 0.6 | 1.283333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH005-B | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 4 - Discrete | NA | NYOW-04-PH005-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH006-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 0.6 | 1.233333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH006-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH006-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH007-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 0.6 | 1.233333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH007-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH007-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH008-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 0.6 | 1.2 |
| AOC 4 - Discrete | NA | NYOW-04-PH008-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH008-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH009-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 0.6 | 1.183333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH009-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH009-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 4 - Discrete | NA | NYOW-04-PH010-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH010-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH010-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH011-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH011-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH011-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH012-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 0.6 | 1.183333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH012-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH012-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH013-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 0.6 | 1.183333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH013-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH013-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 4 - Discrete | NA | NYOW-04-PH014-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH014-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH014-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH015-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 0.6 | 1.2 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH015-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH015-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 4 - Discrete | NA | NYOW-04-PH016-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 0.6 | 1.166666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH016-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH016-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 4 - Discrete | NA | NYOW-04-PH017-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH017-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH017-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH018-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 0.6 | 1.2 |
| AOC 4 - Discrete | NA | NYOW-04-PH018-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH018-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH019-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH019-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH019-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH020-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.67 | 0.6 | 1.116666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH020-B | 2,4-Dinitrophenol | mg/kg | 1.7 | 20 | 0.085 |
| AOC 4 - Discrete | NA | NYOW-04-PH020-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH021-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.69 | 0.6 | 1.15 |
| AOC 4 - Discrete | NA | NYOW-04-PH021-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH021-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH022-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.69 | 0.6 | 1.15 |
| AOC 4 - Discrete | NA | NYOW-04-PH022-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH022-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH023-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH023-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH023-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 4 - Discrete | NA | NYOW-04-PH024-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 0.6 | 1.2 |
| AOC 4 - Discrete | NA | NYOW-04-PH024-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH024-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH025-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 0.6 | 1.166666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH025-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH025-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH026-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 0.6 | 1.183333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH026-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH026-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH027-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH027-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH027-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH028-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 0.6 | 1.166666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH028-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH028-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH029-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH029-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH029-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH030-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 0.6 | 1.166666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH030-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH030-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH031-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 0.6 | 1.183333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH031-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH031-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH032-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH032-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH032-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH033-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 0.6 | 1.166666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH033-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH033-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH034-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 0.6 | 1.233333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH034-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH034-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH035-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 0.6 | 1.316666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH035-B | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 4 - Discrete | NA | NYOW-04-PH035-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 4 - Discrete | NA | NYOW-04-PH036-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH036-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH036-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH037-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 0.6 | 1.233333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH037-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH037-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH038-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH038-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH038-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH039-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 0.6 | 1.183333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH039-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH039-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH040-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 0.6 | 1.166666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH040-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH040-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH041-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 0.6 | 1.333333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH041-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 4 - Discrete | NA | NYOW-04-PH041-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH042-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 0.6 | 1.266666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH042-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH042-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH043-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 0.6 | 1.283333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH043-B | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 4 - Discrete | NA | NYOW-04-PH043-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH044-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 0.6 | 1.3 |
| AOC 4 - Discrete | NA | NYOW-04-PH044-B | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 4 - Discrete | NA | NYOW-04-PH044-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 4 - Discrete | NA | NYOW-04-PH045-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH045-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH045-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH046-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 0.6 | 1.233333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH046-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH046-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH047-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 0.6 | 1.266666667 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH047-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH047-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH048-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 0.6 | 1.233333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH048-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH048-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH049-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 0.6 | 1.166666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH049-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH049-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH050-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 0.6 | 1.2 |
| AOC 4 - Discrete | NA | NYOW-04-PH050-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH050-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH051-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 0.6 | 1.25 |
| AOC 4 - Discrete | NA | NYOW-04-PH051-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH051-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH052-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH052-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH052-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH053-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 0.6 | 1.2 |
| AOC 4 - Discrete | NA | NYOW-04-PH053-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH053-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH054-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 0.6 | 1.266666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH054-B | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 4 - Discrete | NA | NYOW-04-PH054-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH055-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 0.6 | 1.2 |
| AOC 4 - Discrete | NA | NYOW-04-PH055-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH055-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH056-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 0.6 | 1.233333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH056-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH056-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 4 - Discrete | NA | NYOW-04-PH057-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 0.6 | 1.2 |
| AOC 4 - Discrete | NA | NYOW-04-PH057-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH057-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH058-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 0.6 | 1.266666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH058-B | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 4 - Discrete | NA | NYOW-04-PH058-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 4 - Discrete | NA | NYOW-04-PH059-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 0.6 | 1.166666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH059-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH059-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH060-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 0.6 | 1.233333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH060-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH060-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH061-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 0.6 | 1.266666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH061-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH061-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH062-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 0.6 | 1.25 |
| AOC 4 - Discrete | NA | NYOW-04-PH062-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH062-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH063-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 0.6 | 1.25 |
| AOC 4 - Discrete | NA | NYOW-04-PH063-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH063-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 4 - Discrete | NA | NYOW-04-PH064-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 0.6 | 1.25 |
| AOC 4 - Discrete | NA | NYOW-04-PH064-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH064-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH065-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 0.6 | 1.233333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH065-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH065-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH066-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 0.6 | 1.25 |
| AOC 4 - Discrete | NA | NYOW-04-PH066-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH066-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH067-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH067-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH067-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH068-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 0.6 | 1.183333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH068-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH068-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH069-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH069-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH069-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH070-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 0.6 | 1.25 |
| AOC 4 - Discrete | NA | NYOW-04-PH070-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH070-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH071-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH071-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH071-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH072-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 0.6 | 1.183333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH072-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-PH072-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH073-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 0.6 | 1.233333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH073-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH073-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 4 - Discrete | NA | NYOW-04-PH074-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH074-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH074-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH075-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 0.6 | 1.2 |
| AOC 4 - Discrete | NA | NYOW-04-PH075-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH075-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH076-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 0.6 | 1.2 |
| AOC 4 - Discrete | NA | NYOW-04-PH076-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH076-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH077-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 0.6 | 1.233333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH077-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH077-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH078-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 0.6 | 1.3 |
| AOC 4 - Discrete | NA | NYOW-04-PH078-B | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 4 - Discrete | NA | NYOW-04-PH078-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH079-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 0.6 | 1.333333333 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH079-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 4 - Discrete | NA | NYOW-04-PH079-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH080-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 0.6 | 1.283333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH080-B | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 4 - Discrete | NA | NYOW-04-PH080-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH081-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH081-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH081-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH082-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.86 | 0.6 | 1.433333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH082-B | 2,4-Dinitrophenol | mg/kg | 2.2 | 20 | 0.11 |
| AOC 4 - Discrete | NA | NYOW-04-PH082-B | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-PH083-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 0.6 | 1.233333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH083-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH083-B | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 4 - Discrete | NA | NYOW-04-PH084-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH084-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH084-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-PH085-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 0.6 | 1.2 |
| AOC 4 - Discrete | NA | NYOW-04-PH085-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-PH085-B | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-SL001-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 0.6 | 1.3 |
| AOC 4 - Discrete | NA | NYOW-04-SL001-A | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 4 - Discrete | NA | NYOW-04-SL001-A | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-SL002-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 0.6 | 1.283333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL002-A | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 4 - Discrete | NA | NYOW-04-SL002-A | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-SL003-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 0.6 | 1.233333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL003-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-SL003-A | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-SL004-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 0.6 | 1.183333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL004-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-SL004-A | Picric acid | mg/kg | 0.24 | 2 | 0.12 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-SL005-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 0.6 | 1.2 |
| AOC 4 - Discrete | NA | NYOW-04-SL005-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-SL005-A | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-SL006-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 0.6 | 1.25 |
| AOC 4 - Discrete | NA | NYOW-04-SL006-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-SL006-A | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-SL036-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 0.6 | 1.25 |
| AOC 4 - Discrete | NA | NYOW-04-SL036-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-SL036-A | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-SL037-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 0.6 | 1.216666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL037-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-SL037-A | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-SL038-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 0.6 | 1.283333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL038-A | 2,4-Dinitrophenol | mg/kg | 2 | 20 | 0.1 |
| AOC 4 - Discrete | NA | NYOW-04-SL038-A | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-SL079-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 0.6 | 1.333333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL079-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 20 | 0.105 |
| AOC 4 - Discrete | NA | NYOW-04-SL079-A | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-SL080-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.83 | 0.6 | 1.383333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL080-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 20 | 0.11 |
| AOC 4 - Discrete | NA | NYOW-04-SL080-A | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-SL081-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 0.6 | 1.233333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL081-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-SL081-A | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-SL082-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 0.6 | 1.183333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL082-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |
| AOC 4 - Discrete | NA | NYOW-04-SL082-A | Picric acid | mg/kg | 0.25 | 2 | 0.125 |
| AOC 4 - Discrete | NA | NYOW-04-SL083-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 0.6 | 1.2 |
| AOC 4 - Discrete | NA | NYOW-04-SL083-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-SL083-A | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - Discrete | NA | NYOW-04-SL084-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 0.6 | 1.166666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL084-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 20 | 0.09 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-SL084-A | Picric acid | mg/kg | 0.23 | 2 | 0.115 |
| AOC 4 - Discrete | NA | NYOW-04-SL085-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 0.6 | 1.25 |
| AOC 4 - Discrete | NA | NYOW-04-SL085-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 20 | 0.095 |
| AOC 4 - Discrete | NA | NYOW-04-SL085-A | Picric acid | mg/kg | 0.24 | 2 | 0.12 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 0.6 | 0.533333333 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-A | Picric acid | mg/kg | 0.097 | 2 | 0.0485 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 0.6 | 0.55 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-B | Picric acid | mg/kg | 0.096 | 2 | 0.048 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 0.6 | 0.55 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-C | Picric acid | mg/kg | 0.095 | 2 | 0.0475 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 0.6 | 0.566666667 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-A | 2,4-Dinitrophenol | mg/kg | 0.87 | 20 | 0.0435 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-A | Picric acid | mg/kg | 0.093 | 2 | 0.0465 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 0.6 | 0.55 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-B | 2,4-Dinitrophenol | mg/kg | 0.84 | 20 | 0.042 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-B | Picric acid | mg/kg | 0.1 | 2 | 0.05 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 0.6 | 0.55 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-C | 2,4-Dinitrophenol | mg/kg | 0.84 | 20 | 0.042 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-C | Picric acid | mg/kg | 0.095 | 2 | 0.0475 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 0.6 | 0.566666667 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-A | 2,4-Dinitrophenol | mg/kg | 0.87 | 20 | 0.0435 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-A | Picric acid | mg/kg | 0.092 | 2 | 0.046 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 0.6 | 0.566666667 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-B | 2,4-Dinitrophenol | mg/kg | 0.87 | 20 | 0.0435 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-B | Picric acid | mg/kg | 0.097 | 2 | 0.0485 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.35 | 0.6 | 0.583333333 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-C | 2,4-Dinitrophenol | mg/kg | 0.91 | 20 | 0.0455 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-C | Picric acid | mg/kg | 0.099 | 2 | 0.0495 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.63 | 0.6 | 1.05 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-A | 2,4-Dinitrophenol | mg/kg | 1.6 | 20 | 0.08 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-A | Picric acid | mg/kg | 0.093 | 2 | 0.0465 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 1.9 | 0.6 | 3.166666667 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-B | 2,4-Dinitrophenol | mg/kg | 5 | 20 | 0.25 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-B | Picric acid | mg/kg | 0.095 | 2 | 0.0475 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-C | Picric acid | mg/kg | 0.099 | 2 | 0.0495 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 0.6 | 0.55 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-A | 2,4-Dinitrophenol | mg/kg | 0.85 | 20 | 0.0425 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-A | Picric acid | mg/kg | 0.099 | 2 | 0.0495 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 0.6 | 0.55 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-B | 2,4-Dinitrophenol | mg/kg | 0.86 | 20 | 0.043 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-B | Picric acid | mg/kg | 0.1 | 2 | 0.05 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.31 | 0.6 | 0.516666667 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-C | 2,4-Dinitrophenol | mg/kg | 0.79 | 20 | 0.0395 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-C | Picric acid | mg/kg | 0.099 | 2 | 0.0495 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.35 | 0.6 | 0.583333333 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-A | 2,4-Dinitrophenol | mg/kg | 0.9 | 20 | 0.045 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-A | Picric acid | mg/kg | 0.097 | 2 | 0.0485 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.31 | 0.6 | 0.516666667 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-B | 2,4-Dinitrophenol | mg/kg | 0.81 | 20 | 0.0405 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-B | Picric acid | mg/kg | 0.1 | 2 | 0.05 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 0.6 | 0.55 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-C | 2,4-Dinitrophenol | mg/kg | 0.85 | 20 | 0.0425 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-C | Picric acid | mg/kg | 0.096 | 2 | 0.048 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 0.6 | 0.533333333 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-A | Picric acid | mg/kg | 0.099 | 2 | 0.0495 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 0.6 | 0.533333333 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-B | Picric acid | mg/kg | 0.099 | 2 | 0.0495 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 0.6 | 0.55 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-C | Picric acid | mg/kg | 0.096 | 2 | 0.048 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 0.6 | 0.533333333 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-A | 2,4-Dinitrophenol | mg/kg | 0.84 | 20 | 0.042 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-A | Picric acid | mg/kg | 0.095 | 2 | 0.0475 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 0.6 | 0.55 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-B | 2,4-Dinitrophenol | mg/kg | 0.85 | 20 | 0.0425 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-B | Picric acid | mg/kg | 0.1 | 2 | 0.05 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-C | 2,4-Dinitrophenol | mg/kg | 0.82 | 20 | 0.041 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-C | Picric acid | mg/kg | 0.099 | 2 | 0.0495 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 0.6 | 0.533333333 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-A | 2,4-Dinitrophenol | mg/kg | 0.82 | 20 | 0.041 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-A | Picric acid | mg/kg | 0.098 | 2 | 0.049 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 0.6 | 0.55 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-B | 2,4-Dinitrophenol | mg/kg | 0.86 | 20 | 0.043 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-B | Picric acid | mg/kg | 0.098 | 2 | 0.049 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 0.6 | 0.533333333 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-C | 2,4-Dinitrophenol | mg/kg | 0.83 | 20 | 0.0415 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-C | Picric acid | mg/kg | 0.099 | 2 | 0.0495 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 0.6 | 0.55 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-A | 2,4-Dinitrophenol | mg/kg | 0.86 | 20 | 0.043 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-A | Picric acid | mg/kg | 0.096 | 2 | 0.048 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 0.6 | 0.55 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-B | 2,4-Dinitrophenol | mg/kg | 0.84 | 20 | 0.042 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-B | Picric acid | mg/kg | 0.099 | 2 | 0.0495 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 0.6 | 0.533333333 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-C | 2,4-Dinitrophenol | mg/kg | 0.82 | 20 | 0.041 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-C | Picric acid | mg/kg | 0.093 | 2 | 0.0465 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.31 | 0.6 | 0.516666667 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-A | 2,4-Dinitrophenol | mg/kg | 0.8 | 20 | 0.04 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-A | Picric acid | mg/kg | 0.1 | 2 | 0.05 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 0.6 | 0.533333333 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-B | 2,4-Dinitrophenol | mg/kg | 0.84 | 20 | 0.042 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-B | Picric acid | mg/kg | 0.098 | 2 | 0.049 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 0.6 | 0.566666667 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-C | 2,4-Dinitrophenol | mg/kg | 0.87 | 20 | 0.0435 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-C | Picric acid | mg/kg | 0.096 | 2 | 0.048 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 0.6 | 0.533333333 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-A | 2,4-Dinitrophenol | mg/kg | 0.82 | 20 | 0.041 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-A | Picric acid | mg/kg | 0.1 | 2 | 0.05 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 0.6 | 0.55 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-B | 2,4-Dinitrophenol | mg/kg | 0.85 | 20 | 0.0425 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-B | Picric acid | mg/kg | 0.098 | 2 | 0.049 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 0.6 | 0.533333333 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-C | 2,4-Dinitrophenol | mg/kg | 0.83 | 20 | 0.0415 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-C | Picric acid | mg/kg | 0.1 | 2 | 0.05 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Acenaphthene | ug/kg | 11 | 0.25 | 0.044 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Silver | mg/kg | 1.4 | 560 | 0.0025 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 4 | 0.09 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2,4-Dimethylphenol | mg/kg | 0.36 | 0.01 | 36 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 6 | 0.06 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 0.67 | 0.537313433 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 4-Chloroaniline | mg/kg | 0.72 | 1 | 0.72 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Cresols, m- & p- | mg/kg | 0.36 | 0.69 | 0.52173913 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Dibenzofuran | mg/kg | 0.36 | 6.1 | 0.059016393 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Diethyl phthalate | mg/kg | 0.36 | 100 | 0.0036 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | di-n-Butyl phthalate | mg/kg | 0.36 | 160 | 0.00225 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Hexachlorobenzene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Phenol | mg/kg | 0.36 | 0.79 | 0.455696203 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Acenaphthene | mg/kg | 0.011 | 0.25 | 0.044 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Silver | mg/kg | 1.3 | 560 | 0.002321429 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.01 | 37 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 6 | 0.061666667 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.67 | 0.552238806 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 4-Chloroaniline | mg/kg | 0.74 | 1 | 0.74 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Cresols, m- & p- | mg/kg | 0.37 | 0.69 | 0.536231884 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Dibenzofuran | mg/kg | 0.37 | 6.1 | 0.060655738 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Diethyl phthalate | mg/kg | 0.37 | 100 | 0.0037 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | di-n-Butyl phthalate | mg/kg | 0.37 | 160 | 0.0023125 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Phenol | mg/kg | 0.37 | 0.79 | 0.46835443 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Acenaphthene | mg/kg | 0.011 | 0.25 | 0.044 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Silver | mg/kg | 1.4 | 560 | 0.0025 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 4 | 0.09 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2,4-Dimethylphenol | mg/kg | 0.36 | 0.01 | 36 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 6 | 0.06 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 0.67 | 0.537313433 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 4-Chloroaniline | mg/kg | 0.72 | 1 | 0.72 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Cresols, m- & p- | mg/kg | 0.36 | 0.69 | 0.52173913 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Dibenzofuran | mg/kg | 0.36 | 6.1 | 0.059016393 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Diethyl phthalate | mg/kg | 0.36 | 100 | 0.0036 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | di-n-Butyl phthalate | mg/kg | 0.36 | 160 | 0.00225 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Hexachlorobenzene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Phenol | mg/kg | 0.36 | 0.79 | 0.455696203 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Acenaphthene | mg/kg | 0.011 | 0.25 | 0.044 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Silver | mg/kg | 1.2 | 560 | 0.002142857 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 4 | 0.09 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2,4-Dimethylphenol | mg/kg | 0.36 | 0.01 | 36 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 6 | 0.06 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 0.67 | 0.537313433 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 4-Chloroaniline | mg/kg | 0.72 | 1 | 0.72 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Biphenyl (Diphenyl) | mg/kg | 1.8 | 60 | 0.03 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Cresols, m- & p- | mg/kg | 0.36 | 0.69 | 0.52173913 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-PH019-B | Dibenzofuran | mg/kg | 0.36 | 6.1 | 0.059016393 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Diethyl phthalate | mg/kg | 0.36 | 100 | 0.0036 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | di-n-Butyl phthalate | mg/kg | 0.36 | 160 | 0.00225 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Hexachlorobenzene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Pentachlorophenol | mg/kg | 1.8 | 5 | 0.36 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Phenol | mg/kg | 0.36 | 0.79 | 0.455696203 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Acenaphthene | mg/kg | 0.012 | 0.25 | 0.048 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Silver | mg/kg | 1.3 | 560 | 0.002321429 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.01 | 39 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 6 | 0.065 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.67 | 0.582089552 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 4-Chloroaniline | mg/kg | 0.78 | 1 | 0.78 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Cresols, m- & p- | mg/kg | 0.39 | 0.69 | 0.565217391 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Dibenzofuran | mg/kg | 0.39 | 6.1 | 0.063934426 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Diethyl phthalate | mg/kg | 0.39 | 100 | 0.0039 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | di-n-Butyl phthalate | mg/kg | 0.39 | 160 | 0.0024375 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Phenol | mg/kg | 0.39 | 0.79 | 0.493670886 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Acenaphthene | mg/kg | 0.012 | 0.25 | 0.048 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Silver | mg/kg | 1.4 | 560 | 0.0025 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.01 | 39 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2,4-Dinitrotoluene | mg/kg | 0.39 | 6 | 0.065 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.67 | 0.582089552 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 4-Chloroaniline | mg/kg | 0.79 | 1 | 0.79 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Cresols, m- & p- | mg/kg | 0.39 | 0.69 | 0.565217391 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-SL016-A | Dibenzofuran | mg/kg | 0.39 | 6.1 | 0.063934426 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Diethyl phthalate | mg/kg | 0.39 | 100 | 0.0039 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | di-n-Butyl phthalate | mg/kg | 0.39 | 160 | 0.0024375 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Hexachlorocyclopentadiene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Phenol | mg/kg | 0.39 | 0.79 | 0.493670886 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Acenaphthene | mg/kg | 0.01 | 0.25 | 0.04 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Silver | mg/kg | 1.4 | 560 | 0.0025 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 4 | 0.09 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2,4-Dimethylphenol | mg/kg | 0.36 | 0.01 | 36 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2,4-Dinitrotoluene | mg/kg | 0.36 | 6 | 0.06 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 0.67 | 0.537313433 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 4-Chloroaniline | mg/kg | 0.72 | 1 | 0.72 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Cresols, m- & p- | mg/kg | 0.36 | 0.69 | 0.52173913 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Dibenzofuran | mg/kg | 0.36 | 6.1 | 0.059016393 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Diethyl phthalate | mg/kg | 0.36 | 100 | 0.0036 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | di-n-Butyl phthalate | mg/kg | 0.36 | 160 | 0.00225 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Hexachlorobenzene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Hexachlorocyclopentadiene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Phenol | mg/kg | 0.36 | 0.79 | 0.455696203 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Acenaphthene | mg/kg | 0.011 | 0.25 | 0.044 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Silver | mg/kg | 1.2 | 560 | 0.002142857 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.01 | 37 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 6 | 0.061666667 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.67 | 0.552238806 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 4-Chloroaniline | mg/kg | 0.73 | 1 | 0.73 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Cresols, m- & p- | mg/kg | 0.37 | 0.69 | 0.536231884 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-SL018-A | Dibenzofuran | mg/kg | 0.37 | 6.1 | 0.060655738 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Diethyl phthalate | mg/kg | 0.37 | 100 | 0.0037 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | di-n-Butyl phthalate | mg/kg | 0.37 | 160 | 0.0023125 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Phenol | mg/kg | 0.37 | 0.79 | 0.46835443 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Acenaphthene | mg/kg | 0.01 | 0.25 | 0.04 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Silver | mg/kg | 1.3 | 560 | 0.002321429 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 4 | 0.0875 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2,4-Dimethylphenol | mg/kg | 0.35 | 0.01 | 35 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2,4-Dinitrotoluene | mg/kg | 0.35 | 6 | 0.058333333 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 0.67 | 0.52238806 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 4-Chloroaniline | mg/kg | 0.69 | 1 | 0.69 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Biphenyl (Diphenyl) | mg/kg | 1.8 | 60 | 0.03 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Cresols, m- & p- | mg/kg | 0.35 | 0.69 | 0.507246377 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Dibenzofuran | mg/kg | 0.35 | 6.1 | 0.057377049 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Diethyl phthalate | mg/kg | 0.35 | 100 | 0.0035 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | di-n-Butyl phthalate | mg/kg | 0.35 | 160 | 0.0021875 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Hexachlorobenzene | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Hexachlorocyclopentadiene | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Pentachlorophenol | mg/kg | 1.8 | 5 | 0.36 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Phenol | mg/kg | 0.35 | 0.79 | 0.443037975 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Acenaphthene | mg/kg | 0.011 | 0.25 | 0.044 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Silver | mg/kg | 1.2 | 560 | 0.002142857 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.01 | 37 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 6 | 0.061666667 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.67 | 0.552238806 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 4-Chloroaniline | mg/kg | 0.73 | 1 | 0.73 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Cresols, m- & p- | mg/kg | 0.37 | 0.69 | 0.536231884 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-SL020-A | Dibenzofuran | mg/kg | 0.37 | 6.1 | 0.060655738 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Diethyl phthalate | mg/kg | 0.37 | 100 | 0.0037 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | di-n-Butyl phthalate | mg/kg | 0.37 | 160 | 0.0023125 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Phenol | mg/kg | 0.37 | 0.79 | 0.46835443 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Silver | mg/kg | 1.3 | 560 | 0.002321429 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.01 | 39 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 6 | 0.065 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.67 | 0.582089552 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 4-Chloroaniline | mg/kg | 0.78 | 1 | 0.78 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Cresols, m- & p- | mg/kg | 0.39 | 0.69 | 0.565217391 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Diethyl phthalate | mg/kg | 0.39 | 100 | 0.0039 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | di-n-Butyl phthalate | mg/kg | 0.39 | 160 | 0.0024375 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Phenol | mg/kg | 0.39 | 0.79 | 0.493670886 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Silver | mg/kg | 1.2 | 560 | 0.002142857 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 4 | 0.09 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2,4-Dimethylphenol | mg/kg | 0.36 | 0.01 | 36 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 6 | 0.06 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 0.67 | 0.537313433 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 4-Chloroaniline | mg/kg | 0.71 | 1 | 0.71 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Biphenyl (Diphenyl) | mg/kg | 1.8 | 60 | 0.03 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Cresols, m- & p- | mg/kg | 0.36 | 0.69 | 0.52173913 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Diethyl phthalate | mg/kg | 0.36 | 100 | 0.0036 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | di-n-Butyl phthalate | mg/kg | 0.36 | 160 | 0.00225 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Hexachlorobenzene | mg/kg | 0.36 | 10 | 0.036 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Pentachlorophenol | mg/kg | 1.8 | 5 | 0.36 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Phenol | mg/kg | 0.36 | 0.79 | 0.455696203 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Silver | mg/kg | 1.4 | 560 | 0.0025 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.01 | 37 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 6 | 0.061666667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.67 | 0.552238806 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 4-Chloroaniline | mg/kg | 0.74 | 1 | 0.74 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Cresols, m- & p- | mg/kg | 0.37 | 0.69 | 0.536231884 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Diethyl phthalate | mg/kg | 0.37 | 100 | 0.0037 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | di-n-Butyl phthalate | mg/kg | 0.37 | 160 | 0.0023125 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Phenol | mg/kg | 0.37 | 0.79 | 0.46835443 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Silver | mg/kg | 1.6 | 560 | 0.002857143 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 4 | 0.095 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.01 | 38 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2,4-Dinitrotoluene | mg/kg | 0.38 | 6 | 0.063333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.67 | 0.567164179 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 4-Chloroaniline | mg/kg | 0.77 | 1 | 0.77 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Cresols, m- & p- | mg/kg | 0.38 | 0.69 | 0.550724638 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Diethyl phthalate | mg/kg | 0.38 | 100 | 0.0038 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | di-n-Butyl phthalate | mg/kg | 0.38 | 160 | 0.002375 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Hexachlorocyclopentadiene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Phenol | mg/kg | 0.38 | 0.79 | 0.481012658 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Silver | mg/kg | 1.4 | 560 | 0.0025 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 4 | 0.095 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.01 | 38 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2,4-Dinitrotoluene | mg/kg | 0.38 | 6 | 0.063333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.67 | 0.567164179 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 4-Chloroaniline | mg/kg | 0.75 | 1 | 0.75 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Cresols, m- & p- | mg/kg | 0.38 | 0.69 | 0.550724638 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Diethyl phthalate | mg/kg | 0.38 | 100 | 0.0038 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | di-n-Butyl phthalate | mg/kg | 0.38 | 160 | 0.002375 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Hexachlorocyclopentadiene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Phenol | mg/kg | 0.38 | 0.79 | 0.481012658 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-SL021-A | Silver | mg/kg | 1.9 | 560 | 0.003392857 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-SL022-A | Silver | mg/kg | 1.5 | 560 | 0.002678571 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-SL023-A | Silver | mg/kg | 1.6 | 560 | 0.002857143 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-SL024-A | Silver | mg/kg | 1.8 | 560 | 0.003214286 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-SL025-A | Silver | mg/kg | 1.7 | 560 | 0.003035714 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Silver | mg/kg | 1.3 | 560 | 0.002321429 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.01 | 39 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 6 | 0.065 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.67 | 0.582089552 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 4-Chloroaniline | mg/kg | 0.79 | 1 | 0.79 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Cresols, m- & p- | mg/kg | 0.39 | 0.69 | 0.565217391 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Dibenzofuran | mg/kg | 0.39 | 6.1 | 0.063934426 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Diethyl phthalate | mg/kg | 0.39 | 100 | 0.0039 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | di-n-Butyl phthalate | mg/kg | 0.39 | 160 | 0.0024375 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Phenol | mg/kg | 0.39 | 0.79 | 0.493670886 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Silver | mg/kg | 1.4 | 560 | 0.0025 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 4 | 0.09 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2,4-Dimethylphenol | mg/kg | 0.36 | 0.01 | 36 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 6 | 0.06 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 0.67 | 0.537313433 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 4-Chloroaniline | mg/kg | 0.72 | 1 | 0.72 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Biphenyl (Diphenyl) | mg/kg | 1.8 | 60 | 0.03 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Cresols, m- & p- | mg/kg | 0.36 | 0.69 | 0.52173913 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Dibenzofuran | mg/kg | 0.36 | 6.1 | 0.059016393 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Diethyl phthalate | mg/kg | 0.36 | 100 | 0.0036 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | di-n-Butyl phthalate | mg/kg | 0.36 | 160 | 0.00225 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Hexachlorobenzene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Pentachlorophenol | mg/kg | 1.8 | 5 | 0.36 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Phenol | mg/kg | 0.36 | 0.79 | 0.455696203 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Silver | mg/kg | 1.2 | 560 | 0.002142857 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.01 | 37 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 6 | 0.061666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.67 | 0.552238806 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 4-Chloroaniline | mg/kg | 0.74 | 1 | 0.74 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Cresols, m- & p- | mg/kg | 0.37 | 0.69 | 0.536231884 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Dibenzofuran | mg/kg | 0.37 | 6.1 | 0.060655738 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Diethyl phthalate | mg/kg | 0.37 | 100 | 0.0037 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | di-n-Butyl phthalate | mg/kg | 0.37 | 160 | 0.0023125 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Phenol | mg/kg | 0.37 | 0.79 | 0.46835443 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Silver | mg/kg | 1.5 | 560 | 0.002678571 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 4 | 0.09 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2,4-Dimethylphenol | mg/kg | 0.36 | 0.01 | 36 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 6 | 0.06 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 0.67 | 0.537313433 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 4-Chloroaniline | mg/kg | 0.72 | 1 | 0.72 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Cresols, m- & p- | mg/kg | 0.36 | 0.69 | 0.52173913 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Dibenzofuran | mg/kg | 0.36 | 6.1 | 0.059016393 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Diethyl phthalate | mg/kg | 0.36 | 100 | 0.0036 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | di-n-Butyl phthalate | mg/kg | 0.36 | 160 | 0.00225 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Hexachlorobenzene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Phenol | mg/kg | 0.36 | 0.79 | 0.455696203 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Silver | mg/kg | 1.6 | 560 | 0.002857143 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.01 | 37 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 6 | 0.061666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.67 | 0.552238806 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 4-Chloroaniline | mg/kg | 0.75 | 1 | 0.75 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Cresols, m- & p- | mg/kg | 0.37 | 0.69 | 0.536231884 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Dibenzofuran | mg/kg | 0.37 | 6.1 | 0.060655738 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Diethyl phthalate | mg/kg | 0.37 | 100 | 0.0037 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | di-n-Butyl phthalate | mg/kg | 0.37 | 160 | 0.0023125 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Phenol | mg/kg | 0.37 | 0.79 | 0.46835443 |
| AOC 5 | Coal Storage Area | NYOW-05-SL006-A | Silver | mg/kg | 2.1 | 560 | 0.00375 |
| AOC 5 | Coal Storage Area | NYOW-05-SL007-A | Silver | mg/kg | 2.2 | 560 | 0.003928571 |
| AOC 5 | Coal Storage Area | NYOW-05-SL008-A | Silver | mg/kg | 1.8 | 560 | 0.003214286 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Storage Area | NYOW-05-SL009-A | Silver | mg/kg | 2 | 560 | 0.003571429 |
| AOC 5 | Coal Storage Area | NYOW-05-SL010-A | Silver | mg/kg | 1.4 | 560 | 0.0025 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Silver | mg/kg | 1.5 | 560 | 0.002678571 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.01 | 39 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 6 | 0.065 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.67 | 0.582089552 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 4-Chloroaniline | mg/kg | 0.77 | 1 | 0.77 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Cresols, m- & p- | mg/kg | 0.39 | 0.69 | 0.565217391 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Dibenzofuran | mg/kg | 0.39 | 6.1 | 0.063934426 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Diethyl phthalate | mg/kg | 0.39 | 100 | 0.0039 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | di-n-Butyl phthalate | mg/kg | 0.39 | 160 | 0.0024375 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Phenol | mg/kg | 0.39 | 0.79 | 0.493670886 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Silver | mg/kg | 1.5 | 560 | 0.002678571 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.01 | 39 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 6 | 0.065 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.67 | 0.582089552 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 4-Chloroaniline | mg/kg | 0.77 | 1 | 0.77 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Cresols, m- & p- | mg/kg | 0.39 | 0.69 | 0.565217391 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Dibenzofuran | mg/kg | 0.39 | 6.1 | 0.063934426 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Diethyl phthalate | mg/kg | 0.39 | 100 | 0.0039 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | di-n-Butyl phthalate | mg/kg | 0.39 | 160 | 0.0024375 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Phenol | mg/kg | 0.39 | 0.79 | 0.493670886 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Silver | mg/kg | 1.3 | 560 | 0.002321429 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 4 | 0.0875 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2,4-Dimethylphenol | mg/kg | 0.35 | 0.01 | 35 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2,4-Dinitrotoluene | mg/kg | 0.35 | 6 | 0.058333333 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 0.67 | 0.52238806 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 4-Chloroaniline | mg/kg | 0.7 | 1 | 0.7 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Biphenyl (Diphenyl) | mg/kg | 1.8 | 60 | 0.03 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Cresols, m- & p- | mg/kg | 0.35 | 0.69 | 0.507246377 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Dibenzofuran | mg/kg | 0.35 | 6.1 | 0.057377049 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Diethyl phthalate | mg/kg | 0.35 | 100 | 0.0035 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | di-n-Butyl phthalate | mg/kg | 0.35 | 160 | 0.0021875 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Hexachlorobenzene | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Hexachlorocyclopentadiene | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Pentachlorophenol | mg/kg | 1.8 | 5 | 0.36 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Phenol | mg/kg | 0.35 | 0.79 | 0.443037975 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Silver | mg/kg | 1.4 | 560 | 0.0025 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.01 | 37 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 6 | 0.061666667 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.67 | 0.552238806 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 4-Chloroaniline | mg/kg | 0.75 | 1 | 0.75 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Cresols, m- & p- | mg/kg | 0.37 | 0.69 | 0.536231884 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Dibenzofuran | mg/kg | 0.37 | 6.1 | 0.060655738 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Diethyl phthalate | mg/kg | 0.37 | 100 | 0.0037 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | di-n-Butyl phthalate | mg/kg | 0.37 | 160 | 0.0023125 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Phenol | mg/kg | 0.37 | 0.79 | 0.46835443 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Silver | mg/kg | 1.4 | 560 | 0.0025 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 4 | 0.0875 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2,4-Dimethylphenol | mg/kg | 0.35 | 0.01 | 35 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2,4-Dinitrotoluene | mg/kg | 0.35 | 6 | 0.058333333 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 0.67 | 0.52238806 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 4-Chloroaniline | mg/kg | 0.7 | 1 | 0.7 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Biphenyl (Diphenyl) | mg/kg | 1.8 | 60 | 0.03 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Cresols, m- & p- | mg/kg | 0.35 | 0.69 | 0.507246377 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Dibenzofuran | mg/kg | 0.35 | 6.1 | 0.057377049 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Diethyl phthalate | mg/kg | 0.35 | 100 | 0.0035 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | di-n-Butyl phthalate | mg/kg | 0.35 | 160 | 0.0021875 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Hexachlorobenzene | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Hexachlorocyclopentadiene | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Pentachlorophenol | mg/kg | 1.8 | 5 | 0.36 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Phenol | mg/kg | 0.35 | 0.79 | 0.443037975 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Silver | mg/kg | 1.7 | 560 | 0.003035714 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.068 | 40 | 0.0017 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.096 | 40 | 0.0024 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.068 | 40 | 0.0017 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.068 | 40 | 0.0017 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.068 | 40 | 0.0017 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.068 | 40 | 0.0017 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.068 | 40 | 0.0017 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.068 | 40 | 0.0017 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.01 | 37 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 6 | 0.061666667 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.67 | 0.552238806 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 4-Chloroaniline | mg/kg | 0.74 | 1 | 0.74 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Cresols, m- & p- | mg/kg | 0.37 | 0.69 | 0.536231884 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Dibenzofuran | mg/kg | 0.37 | 6.1 | 0.060655738 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Diethyl phthalate | mg/kg | 0.37 | 100 | 0.0037 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | di-n-Butyl phthalate | mg/kg | 0.37 | 160 | 0.0023125 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Phenol | mg/kg | 0.37 | 0.79 | 0.46835443 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Silver | mg/kg | 1.5 | 560 | 0.002678571 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 40 | 0.0025 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 4 | 0.095 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.01 | 38 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2,4-Dinitrotoluene | mg/kg | 0.38 | 6 | 0.063333333 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.67 | 0.567164179 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 4-Chloroaniline | mg/kg | 0.76 | 1 | 0.76 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Cresols, m- & p- | mg/kg | 0.38 | 0.69 | 0.550724638 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Dibenzofuran | mg/kg | 0.38 | 6.1 | 0.062295082 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Diethyl phthalate | mg/kg | 0.38 | 100 | 0.0038 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | di-n-Butyl phthalate | mg/kg | 0.38 | 160 | 0.002375 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Hexachlorocyclopentadiene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Phenol | mg/kg | 0.38 | 0.79 | 0.481012658 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Silver | mg/kg | 1.4 | 560 | 0.0025 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.076 | 40 | 0.0019 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.076 | 40 | 0.0019 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.01 | 39 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2,4-Dinitrotoluene | mg/kg | 0.39 | 6 | 0.065 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.67 | 0.582089552 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 4-Chloroaniline | mg/kg | 0.78 | 1 | 0.78 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Cresols, m- & p- | mg/kg | 0.39 | 0.69 | 0.565217391 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Dibenzofuran | mg/kg | 0.39 | 6.1 | 0.063934426 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Diethyl phthalate | mg/kg | 0.39 | 100 | 0.0039 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | di-n-Butyl phthalate | mg/kg | 0.39 | 160 | 0.0024375 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Hexachlorocyclopentadiene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Phenol | mg/kg | 0.39 | 0.79 | 0.493670886 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Silver | mg/kg | 1.7 | 560 | 0.003035714 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.078 | 40 | 0.00195 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 4 | 0.095 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.01 | 38 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2,4-Dinitrotoluene | mg/kg | 0.38 | 6 | 0.063333333 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.67 | 0.567164179 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 4-Chloroaniline | mg/kg | 0.76 | 1 | 0.76 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Cresols, m- & p- | mg/kg | 0.38 | 0.69 | 0.550724638 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Dibenzofuran | mg/kg | 0.38 | 6.1 | 0.062295082 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Diethyl phthalate | mg/kg | 0.38 | 100 | 0.0038 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | di-n-Butyl phthalate | mg/kg | 0.38 | 160 | 0.002375 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Hexachlorocyclopentadiene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Phenol | mg/kg | 0.38 | 0.79 | 0.481012658 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Silver | mg/kg | 1.7 | 560 | 0.003035714 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 4 | 0.095 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.01 | 38 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2,4-Dinitrotoluene | mg/kg | 0.38 | 6 | 0.063333333 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.67 | 0.567164179 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 4-Chloroaniline | mg/kg | 0.76 | 1 | 0.76 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Cresols, m- & p- | mg/kg | 0.38 | 0.69 | 0.550724638 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Dibenzofuran | mg/kg | 0.38 | 6.1 | 0.062295082 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Diethyl phthalate | mg/kg | 0.38 | 100 | 0.0038 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | di-n-Butyl phthalate | mg/kg | 0.38 | 160 | 0.002375 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Hexachlorocyclopentadiene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Phenol | mg/kg | 0.38 | 0.79 | 0.481012658 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.07 | 40 | 0.00175 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 40 | 0.0025 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.07 | 40 | 0.00175 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.07 | 40 | 0.00175 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.07 | 40 | 0.00175 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.07 | 40 | 0.00175 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.07 | 40 | 0.00175 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.07 | 40 | 0.00175 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.07 | 40 | 0.00175 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | m,p-Xylene | mg/kg | 0.0026 | 100 | 0.000026 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Methylene chloride | mg/kg | 0.0041 | 1600 | 2.5625E-06 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | o-Xylene | mg/kg | 0.0041 | 100 | 0.000041 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Styrene | mg/kg | 0.0041 | 3.2 | 0.00128125 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Tetrachloroethene (PCE) | mg/kg | 0.0041 | 10 | 0.00041 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.01 | 37 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 6 | 0.061666667 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.67 | 0.552238806 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 4-Chloroaniline | mg/kg | 0.75 | 1 | 0.75 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Cresols, m- & p- | mg/kg | 0.37 | 0.69 | 0.536231884 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Diethyl phthalate | mg/kg | 0.37 | 100 | 0.0037 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Phenol | mg/kg | 0.37 | 0.79 | 0.46835443 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.073 | 40 | 0.001825 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 40 | 0.0025 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.073 | 40 | 0.001825 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.073 | 40 | 0.001825 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.073 | 40 | 0.001825 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.073 | 40 | 0.001825 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.073 | 40 | 0.001825 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.073 | 40 | 0.001825 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.073 | 40 | 0.001825 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | m,p-Xylene | mg/kg | 0.0025 | 100 | 0.000025 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Methylene chloride | mg/kg | 0.004 | 1600 | 0.0000025 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | o-Xylene | mg/kg | 0.004 | 100 | 0.00004 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Styrene | mg/kg | 0.004 | 3.2 | 0.00125 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Tetrachloroethene (PCE) | mg/kg | 0.004 | 10 | 0.0004 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.01 | 37 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 6 | 0.061666667 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.67 | 0.552238806 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 4-Chloroaniline | mg/kg | 0.74 | 1 | 0.74 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Cresols, m- & p- | mg/kg | 0.37 | 0.69 | 0.536231884 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Diethyl phthalate | mg/kg | 0.37 | 100 | 0.0037 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Phenol | mg/kg | 0.37 | 0.79 | 0.46835443 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.085 | 40 | 0.002125 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.12 | 40 | 0.003 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.085 | 40 | 0.002125 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.085 | 40 | 0.002125 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.085 | 40 | 0.002125 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.085 | 40 | 0.002125 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.085 | 40 | 0.002125 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.085 | 40 | 0.002125 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.085 | 40 | 0.002125 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | m,p-Xylene | mg/kg | 0.0031 | 100 | 0.000031 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Methylene chloride | mg/kg | 0.0048 | 1600 | 0.000003 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | o-Xylene | mg/kg | 0.0048 | 100 | 0.000048 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Styrene | mg/kg | 0.0048 | 3.2 | 0.0015 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Tetrachloroethene (PCE) | mg/kg | 0.0048 | 10 | 0.00048 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 4 | 0.105 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2,4-Dimethylphenol | mg/kg | 0.42 | 0.01 | 42 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2,4-Dinitrotoluene | mg/kg | 0.42 | 6 | 0.07 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 0.67 | 0.626865672 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 4-Chloroaniline | mg/kg | 0.83 | 1 | 0.83 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Biphenyl (Diphenyl) | mg/kg | 2.1 | 60 | 0.035 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Cresols, m- & p- | mg/kg | 0.42 | 0.69 | 0.608695652 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Diethyl phthalate | mg/kg | 0.42 | 100 | 0.0042 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Hexachlorobenzene | mg/kg | 0.42 | 10 | 0.042 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Hexachlorocyclopentadiene | mg/kg | 0.42 | 10 | 0.042 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Pentachlorophenol | mg/kg | 2.1 | 5 | 0.42 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Phenol | mg/kg | 0.42 | 0.79 | 0.53164557 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 40 | 0.0025 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | m,p-Xylene | mg/kg | 0.0026 | 100 | 0.000026 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Methylene chloride | mg/kg | 0.004 | 1600 | 0.0000025 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | o-Xylene | mg/kg | 0.004 | 100 | 0.00004 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Styrene | mg/kg | 0.004 | 3.2 | 0.00125 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Tetrachloroethene (PCE) | mg/kg | 0.004 | 10 | 0.0004 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.01 | 37 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 6 | 0.061666667 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.67 | 0.552238806 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 4-Chloroaniline | mg/kg | 0.75 | 1 | 0.75 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Cresols, m- & p- | mg/kg | 0.37 | 0.69 | 0.536231884 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Diethyl phthalate | mg/kg | 0.37 | 100 | 0.0037 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Phenol | mg/kg | 0.37 | 0.79 | 0.46835443 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.077 | 40 | 0.001925 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | m,p-Xylene | mg/kg | 0.0028 | 100 | 0.000028 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Methylene chloride | mg/kg | 0.0044 | 1600 | 0.00000275 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | o-Xylene | mg/kg | 0.0044 | 100 | 0.000044 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Styrene | mg/kg | 0.0044 | 3.2 | 0.001375 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Tetrachloroethene (PCE) | mg/kg | 0.0044 | 10 | 0.00044 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.01 | 39 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 6 | 0.065 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.67 | 0.582089552 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 4-Chloroaniline | mg/kg | 0.78 | 1 | 0.78 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Cresols, m- & p- | mg/kg | 0.39 | 0.69 | 0.565217391 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Diethyl phthalate | mg/kg | 0.39 | 100 | 0.0039 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 10 | 0.039 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Phenol | mg/kg | 0.39 | 0.79 | 0.493670886 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.068 | 40 | 0.0017 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.097 | 40 | 0.002425 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.068 | 40 | 0.0017 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.068 | 40 | 0.0017 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.068 | 40 | 0.0017 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.068 | 40 | 0.0017 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.068 | 40 | 0.0017 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.068 | 40 | 0.0017 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.068 | 40 | 0.0017 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 4 | 0.0875 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2,4-Dimethylphenol | mg/kg | 0.35 | 0.01 | 35 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2,4-Dinitrotoluene | mg/kg | 0.35 | 6 | 0.058333333 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 0.67 | 0.52238806 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 4-Chloroaniline | mg/kg | 0.7 | 1 | 0.7 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Biphenyl (Diphenyl) | mg/kg | 1.8 | 60 | 0.03 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Cresols, m- & p- | mg/kg | 0.35 | 0.69 | 0.507246377 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Diethyl phthalate | mg/kg | 0.35 | 100 | 0.0035 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Hexachlorobenzene | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Hexachlorocyclopentadiene | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Pentachlorophenol | mg/kg | 1.8 | 5 | 0.36 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Phenol | mg/kg | 0.35 | 0.79 | 0.443037975 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.071 | 40 | 0.001775 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 40 | 0.0025 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.071 | 40 | 0.001775 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.071 | 40 | 0.001775 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.071 | 40 | 0.001775 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.071 | 40 | 0.001775 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.071 | 40 | 0.001775 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.071 | 40 | 0.001775 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.071 | 40 | 0.001775 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 4 | 0.095 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.01 | 38 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2,4-Dinitrotoluene | mg/kg | 0.38 | 6 | 0.063333333 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.67 | 0.567164179 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 4-Chloroaniline | mg/kg | 0.76 | 1 | 0.76 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Cresols, m- & p- | mg/kg | 0.38 | 0.69 | 0.550724638 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Diethyl phthalate | mg/kg | 0.38 | 100 | 0.0038 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Hexachlorocyclopentadiene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Phenol | mg/kg | 0.38 | 0.79 | 0.481012658 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.075 | 40 | 0.001875 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 40 | 0.00275 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.075 | 40 | 0.001875 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.075 | 40 | 0.001875 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.075 | 40 | 0.001875 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.075 | 40 | 0.001875 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.075 | 40 | 0.001875 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.075 | 40 | 0.001875 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.075 | 40 | 0.001875 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.01 | 37 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 6 | 0.061666667 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.67 | 0.552238806 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 4-Chloroaniline | mg/kg | 0.74 | 1 | 0.74 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Biphenyl (Diphenyl) | mg/kg | 1.9 | 60 | 0.031666667 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Cresols, m- & p- | mg/kg | 0.37 | 0.69 | 0.536231884 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Diethyl phthalate | mg/kg | 0.37 | 100 | 0.0037 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Pentachlorophenol | mg/kg | 1.9 | 5 | 0.38 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Phenol | mg/kg | 0.37 | 0.79 | 0.46835443 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 40 | 0.0025 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 4 | 0.0875 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2,4-Dimethylphenol | mg/kg | 0.35 | 0.01 | 35 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2,4-Dinitrotoluene | mg/kg | 0.35 | 6 | 0.058333333 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 0.67 | 0.52238806 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 4-Chloroaniline | mg/kg | 0.71 | 1 | 0.71 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Biphenyl (Diphenyl) | mg/kg | 1.8 | 60 | 0.03 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Cresols, m- & p- | mg/kg | 0.35 | 0.69 | 0.507246377 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Diethyl phthalate | mg/kg | 0.35 | 100 | 0.0035 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Hexachlorobenzene | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Hexachlorocyclopentadiene | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Pentachlorophenol | mg/kg | 1.8 | 5 | 0.36 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Phenol | mg/kg | 0.35 | 0.79 | 0.443037975 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 40 | 0.0025 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 40 | 0.0018 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 4 | 0.0975 |

Table E.1-3
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.01 | 39 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2,4-Dinitrotoluene | mg/kg | 0.39 | 6 | 0.065 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.67 | 0.582089552 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 4-Chloroaniline | mg/kg | 0.78 | 1 | 0.78 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Biphenyl (Diphenyl) | mg/kg | 2 | 60 | 0.033333333 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Cresols, m- & p- | mg/kg | 0.39 | 0.69 | 0.565217391 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Diethyl phthalate | mg/kg | 0.39 | 100 | 0.0039 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Hexachlorocyclopentadiene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Pentachlorophenol | mg/kg | 2 | 5 | 0.4 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Phenol | mg/kg | 0.39 | 0.79 | 0.493670886 |

Notes:
AOC = area of concern
LOQ = limit of quantitation
mg/kg = micrograms per kilogram
NA = not applicable

1) See Appendix L.

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 1 | NA | NYOW-01-PH002-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 1 | NA | NYOW-01-PH002-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 1 | NA | NYOW-01-PH005-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.8 | 0.394444444 |
| AOC 1 | NA | NYOW-01-PH005-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 1 | NA | NYOW-01-PH015-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.8 | 0.388888889 |
| AOC 1 | NA | NYOW-01-PH015-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 1 | NA | NYOW-01-PH016-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.69 | 1.8 | 0.383333333 |
| AOC 1 | NA | NYOW-01-PH016-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 1 | NA | NYOW-01-PH018-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 1 | NA | NYOW-01-PH018-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 1 | NA | NYOW-01-PH019-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 1 | NA | NYOW-01-PH019-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 1 | NA | NYOW-01-PH020-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 1 | NA | NYOW-01-PH020-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 1 | NA | NYOW-01-PH021-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 1 | NA | NYOW-01-PH021-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 1 | NA | NYOW-01-PH022-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.8 | 0.433333333 |
| AOC 1 | NA | NYOW-01-PH022-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 1 | NA | NYOW-01-PH023-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 1 | NA | NYOW-01-PH023-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 1 | NA | NYOW-01-PH024-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 1 | NA | NYOW-01-PH024-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 1 | NA | NYOW-01-SL002-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 1 | NA | NYOW-01-SL002-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 1 | NA | NYOW-01-SL005-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 1 | NA | NYOW-01-SL005-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 1 | NA | NYOW-01-SL007-A | 2,4-Dinitrochlorobenzene | mg/kg | 1.1 | 1.8 | 0.611111111 |
| AOC 1 | NA | NYOW-01-SL007-A | 2,4-Dinitrophenol | mg/kg | 2.7 | 0.15 | 18 |
| AOC 1 | NA | NYOW-01-SL009-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.94 | 1.8 | 0.522222222 |
| AOC 1 | NA | NYOW-01-SL009-A | 2,4-Dinitrophenol | mg/kg | 2.4 | 0.15 | 16 |
| AOC 1 | NA | NYOW-01-SL011-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.87 | 1.8 | 0.483333333 |
| AOC 1 | NA | NYOW-01-SL011-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 0.15 | 14.66666667 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 1 | NA | NYOW-01-SL013-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 1 | NA | NYOW-01-SL013-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 1 | NA | NYOW-01-SL015-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.8 | 0.433333333 |
| AOC 1 | NA | NYOW-01-SL015-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 1 | NA | NYOW-01-SL016-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 1 | NA | NYOW-01-SL016-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 1 | NA | NYOW-01-SL018-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.8 | 0.394444444 |
| AOC 1 | NA | NYOW-01-SL018-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 1 | NA | NYOW-01-SL019-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 1 | NA | NYOW-01-SL019-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 1 | NA | NYOW-01-SL020-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.83 | 1.8 | 0.461111111 |
| AOC 1 | NA | NYOW-01-SL020-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 1 | NA | NYOW-01-SL021-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 1.8 | 0.438888889 |
| AOC 1 | NA | NYOW-01-SL021-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 1 | NA | NYOW-01-SL022-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 1.8 | 0.455555556 |
| AOC 1 | NA | NYOW-01-SL022-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 1 | NA | NYOW-01-SL023-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 1.8 | 0.45 |
| AOC 1 | NA | NYOW-01-SL023-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 1 | NA | NYOW-01-SL024-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.86 | 1.8 | 0.477777778 |
| AOC 1 | NA | NYOW-01-SL024-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 0.15 | 14.66666667 |
| AOC 1 | NA | NYOW-01-SL025-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.8 | 0.422222222 |
| AOC 1 | NA | NYOW-01-SL025-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 1 | NA | NYOW-01-SL026-A | 2,4-Dinitrochlorobenzene | mg/kg | 6.4 | 1.8 | 3.555555556 |
| AOC 1 | NA | NYOW-01-SL026-A | 2,4-Dinitrophenol | mg/kg | 16 | 0.15 | 106.6666667 |
| AOC 1 | NA | NYOW-01-SL027-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 1.8 | 0.455555556 |
| AOC 1 | NA | NYOW-01-SL027-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 1 | NA | NYOW-01-SL028-A | 2,4-Dinitrochlorobenzene | mg/kg | 5.5 | 1.8 | 3.055555556 |
| AOC 1 | NA | NYOW-01-SL028-A | 2,4-Dinitrophenol | mg/kg | 14 | 0.15 | 93.33333333 |
| AOC 1 | NA | NYOW-01-SL029-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.88 | 1.8 | 0.488888889 |
| AOC 1 | NA | NYOW-01-SL029-A | 2,4-Dinitrophenol | mg/kg | 2.3 | 0.15 | 15.33333333 |
| AOC 1 | NA | NYOW-01-SL030-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 1.8 | 0.455555556 |
| AOC 1 | NA | NYOW-01-SL030-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 1 | NA | NYOW-01-SL031-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 1.8 | 0.45 |
| AOC 1 | NA | NYOW-01-SL031-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 1 | NA | NYOW-01-SL032-A | 2,4-Dinitrochlorobenzene | mg/kg | 4.2 | 1.8 | 2.333333333 |
| AOC 1 | NA | NYOW-01-SL032-A | 2,4-Dinitrophenol | mg/kg | 11 | 0.15 | 73.33333333 |
| AOC 1 | NA | NYOW-01-SL033-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.8 | 0.433333333 |
| AOC 1 | NA | NYOW-01-SL033-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 1 | NA | NYOW-01-SL034-A | 2,4-Dinitrochlorobenzene | mg/kg | 1 | 1.8 | 0.555555556 |
| AOC 1 | NA | NYOW-01-SL034-A | 2,4-Dinitrophenol | mg/kg | 2.6 | 0.15 | 17.33333333 |
| AOC 1 | NA | NYOW-01-SL035-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.88 | 1.8 | 0.488888889 |
| AOC 1 | NA | NYOW-01-SL035-A | 2,4-Dinitrophenol | mg/kg | 2.3 | 0.15 | 15.33333333 |
| AOC 1 | NA | NYOW-01-SL036-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.93 | 1.8 | 0.516666667 |
| AOC 1 | NA | NYOW-01-SL037-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.96 | 1.8 | 0.533333333 |
| AOC 1 | NA | NYOW-01-SL037-A | 2,4-Dinitrophenol | mg/kg | 2.5 | 0.15 | 16.66666667 |
| AOC 1 | NA | NYOW-01-SL038-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 1.8 | 0.45 |
| AOC 1 | NA | NYOW-01-SL038-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 1 | NA | NYOW-01-SL039-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 1.8 | 0.438888889 |
| AOC 1 | NA | NYOW-01-SL039-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,1,1-Trichloroethane | mg/kg | 0.0045 | 0.04 | 0.1125 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0045 | 0.19 | 0.023684211 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,1,2-Trichloroethane | mg/kg | 0.0045 | 0.32 | 0.0140625 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,1-Dichloroethane | mg/kg | 0.0045 | 0.14 | 0.032142857 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,1-Dichloroethene | mg/kg | 0.0045 | 0.04 | 0.1125 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0045 | 20 | 0.000225 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0045 | 1.2 | 0.00375 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,2-Dichlorobenzene | mg/kg | 0.0045 | 0.09 | 0.05 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,2-Dichloroethane | mg/kg | 0.0045 | 0.4 | 0.01125 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,2-Dichloropropane | mg/kg | 0.0045 | 0.28 | 0.016071429 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,3-Dichlorobenzene | mg/kg | 0.0045 | 0.08 | 0.05625 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,4-Dichlorobenzene | mg/kg | 0.0045 | 1.2 | 0.00375 |
| AOC 3 | NA | NYOW-03-PH001-B | 2-Hexanone | mg/kg | 0.018 | 2.5 | 0.0072 |
| AOC 3 | NA | NYOW-03-PH001-B | Benzene | mg/kg | 0.0045 | 0.12 | 0.0375 |
| AOC 3 | NA | NYOW-03-PH001-B | Bromoform | mg/kg | 0.0046 | 0.07 | 0.065714286 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH001-B | Bromomethane | mg/kg | 0.009 | 0.002 | 4.5 |
| AOC 3 | NA | NYOW-03-PH001-B | Carbon disulfide | mg/kg | 0.0045 | 0.005 | 0.9 |
| AOC 3 | NA | NYOW-03-PH001-B | Carbon Tetrachloride | mg/kg | 0.0045 | 0.05 | 0.09 |
| AOC 3 | NA | NYOW-03-PH001-B | Chlorobenzene | mg/kg | 0.0045 | 2.4 | 0.001875 |
| AOC 3 | NA | NYOW-03-PH001-B | Chloroform | mg/kg | 0.009 | 0.05 | 0.18 |
| AOC 3 | NA | NYOW-03-PH001-B | cis-1,2-Dichloroethene | mg/kg | 0.0045 | 0.04 | 0.1125 |
| AOC 3 | NA | NYOW-03-PH001-B | cis-1,3-Dichloropropene | mg/kg | 0.0045 | 0.001 | 4.5 |
| AOC 3 | NA | NYOW-03-PH001-B | Ethylbenzene | mg/kg | 0.0045 | 0.27 | 0.016666667 |
| AOC 3 | NA | NYOW-03-PH001-B | m,p-Xylene | mg/kg | 0.0029 | 0.1 | 0.029 |
| AOC 3 | NA | NYOW-03-PH001-B | Methylene chloride | mg/kg | 0.0045 | 0.21 | 0.021428571 |
| AOC 3 | NA | NYOW-03-PH001-B | o-Xylene | mg/kg | 0.0045 | 0.1 | 0.045 |
| AOC 3 | NA | NYOW-03-PH001-B | Styrene | mg/kg | 0.0045 | 1.2 | 0.00375 |
| AOC 3 | NA | NYOW-03-PH001-B | Tetrachloroethene (PCE) | mg/kg | 0.0045 | 0.06 | 0.075 |
| AOC 3 | NA | NYOW-03-PH001-B | trans-1,2-Dichloroethene | mg/kg | 0.0045 | 0.04 | 0.1125 |
| AOC 3 | NA | NYOW-03-PH001-B | trans-1,3-Dichloropropene | mg/kg | 0.0045 | 0.001 | 4.5 |
| AOC 3 | NA | NYOW-03-PH001-B | Vinyl chloride | mg/kg | 0.0045 | 0.03 | 0.15 |
| AOC 3 | NA | NYOW-03-PH001-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.41 | 0.18 | 2.277777778 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.41 | 0.04 | 10.25 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 9 | 0.045555556 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4,6-Trichlorophenol | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4-Dichlorophenol | mg/kg | 0.41 | 0.05 | 8.2 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4-Dimethylphenol | mg/kg | 0.41 | 0.04 | 10.25 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 1.8 | 0.45 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,4-Dinitrotoluene | mg/kg | 0.41 | 18 | 0.022777778 |
| AOC 3 | NA | NYOW-03-PH001-B | 2,6-Dinitrotoluene | mg/kg | 0.41 | 30 | 0.013666667 |
| AOC 3 | NA | NYOW-03-PH001-B | 2-Chlorophenol | mg/kg | 0.41 | 0.06 | 6.833333333 |
| AOC 3 | NA | NYOW-03-PH001-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 0.1 | 4.1 |
| AOC 3 | NA | NYOW-03-PH001-B | 2-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH001-B | 2-Nitrophenol | mg/kg | 0.41 | 0.06 | 6.833333333 |
| AOC 3 | NA | NYOW-03-PH001-B | 3,3'-Dichlorobenzidine | mg/kg | 0.81 | 0.03 | 27 |
| AOC 3 | NA | NYOW-03-PH001-B | 3-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH001-B | 4-Chloroaniline | mg/kg | 0.81 | 1.8 | 0.45 |
| AOC 3 | NA | NYOW-03-PH001-B | 4-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH001-B | 4-Nitrophenol | mg/kg | 2.1 | 7 | 0.3 |
| AOC 3 | NA | NYOW-03-PH001-B | Atrazine | mg/kg | 0.41 | 0.00005 | 8200 |
| AOC 3 | NA | NYOW-03-PH001-B | Benzyl butyl phthalate | mg/kg | 0.41 | 0.59 | 0.694915254 |
| AOC 3 | NA | NYOW-03-PH001-B | Biphenyl (Diphenyl) | mg/kg | 2.1 | 0.2 | 10.5 |
| AOC 3 | NA | NYOW-03-PH001-B | Diethyl phthalate | mg/kg | 0.41 | 0.25 | 1.64 |
| AOC 3 | NA | NYOW-03-PH001-B | Dimethyl phthalate | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH001-B | di-n-Butyl phthalate | mg/kg | 0.41 | 0.22 | 1.863636364 |
| AOC 3 | NA | NYOW-03-PH001-B | di-n-Octyl phthalate | mg/kg | 0.41 | 303 | 0.001353135 |
| AOC 3 | NA | NYOW-03-PH001-B | Hexachlorobenzene | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH001-B | Hexachlorobutadiene | mg/kg | 0.41 | 0.009 | 45.55555556 |
| AOC 3 | NA | NYOW-03-PH001-B | Hexachlorocyclopentadiene | mg/kg | 0.41 | 0.001 | 410 |
| AOC 3 | NA | NYOW-03-PH001-B | Hexachloroethane | mg/kg | 0.41 | 0.024 | 17.08333333 |
| AOC 3 | NA | NYOW-03-PH001-B | Nitrobenzene | mg/kg | 0.41 | 2.2 | 0.186363636 |
| AOC 3 | NA | NYOW-03-PH001-B | N-Nitrosodiphenylamine | mg/kg | 0.41 | 20 | 0.0205 |
| AOC 3 | NA | NYOW-03-PH001-B | Pentachlorophenol | mg/kg | 2.1 | 31 | 0.067741935 |
| AOC 3 | NA | NYOW-03-PH001-B | Phenol | mg/kg | 0.41 | 1.8 | 0.227777778 |
| AOC 3 | NA | NYOW-03-PH001-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,1,1-Trichloroethane | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0048 | 0.19 | 0.025263158 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,1,2-Trichloroethane | mg/kg | 0.0048 | 0.32 | 0.015 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,1-Dichloroethane | mg/kg | 0.0048 | 0.14 | 0.034285714 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,1-Dichloroethene | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0048 | 20 | 0.00024 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0048 | 1.2 | 0.004 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,2-Dichlorobenzene | mg/kg | 0.0048 | 0.09 | 0.053333333 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,2-Dichloroethane | mg/kg | 0.0048 | 0.4 | 0.012 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,2-Dichloropropane | mg/kg | 0.0048 | 0.28 | 0.017142857 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,3-Dichlorobenzene | mg/kg | 0.0048 | 0.08 | 0.06 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,4-Dichlorobenzene | mg/kg | 0.0048 | 1.2 | 0.004 |
| AOC 3 | NA | NYOW-03-PH002-B | 2-Hexanone | mg/kg | 0.019 | 2.5 | 0.0076 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH002-B | Benzene | mg/kg | 0.0048 | 0.12 | 0.04 |
| AOC 3 | NA | NYOW-03-PH002-B | Bromoform | mg/kg | 0.0049 | 0.07 | 0.07 |
| AOC 3 | NA | NYOW-03-PH002-B | Bromomethane | mg/kg | 0.0096 | 0.002 | 4.8 |
| AOC 3 | NA | NYOW-03-PH002-B | Carbon disulfide | mg/kg | 0.0048 | 0.005 | 0.96 |
| AOC 3 | NA | NYOW-03-PH002-B | Carbon Tetrachloride | mg/kg | 0.0048 | 0.05 | 0.096 |
| AOC 3 | NA | NYOW-03-PH002-B | Chlorobenzene | mg/kg | 0.0048 | 2.4 | 0.002 |
| AOC 3 | NA | NYOW-03-PH002-B | Chloroform | mg/kg | 0.0096 | 0.05 | 0.192 |
| AOC 3 | NA | NYOW-03-PH002-B | cis-1,2-Dichloroethene | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 3 | NA | NYOW-03-PH002-B | cis-1,3-Dichloropropene | mg/kg | 0.0048 | 0.001 | 4.8 |
| AOC 3 | NA | NYOW-03-PH002-B | Ethylbenzene | mg/kg | 0.0048 | 0.27 | 0.017777778 |
| AOC 3 | NA | NYOW-03-PH002-B | m,p-Xylene | mg/kg | 0.0031 | 0.1 | 0.031 |
| AOC 3 | NA | NYOW-03-PH002-B | Methylene chloride | mg/kg | 0.0048 | 0.21 | 0.022857143 |
| AOC 3 | NA | NYOW-03-PH002-B | o-Xylene | mg/kg | 0.0048 | 0.1 | 0.048 |
| AOC 3 | NA | NYOW-03-PH002-B | Styrene | mg/kg | 0.0048 | 1.2 | 0.004 |
| AOC 3 | NA | NYOW-03-PH002-B | Tetrachloroethene (PCE) | mg/kg | 0.0048 | 0.06 | 0.08 |
| AOC 3 | NA | NYOW-03-PH002-B | trans-1,2-Dichloroethene | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 3 | NA | NYOW-03-PH002-B | trans-1,3-Dichloropropene | mg/kg | 0.0048 | 0.001 | 4.8 |
| AOC 3 | NA | NYOW-03-PH002-B | Vinyl chloride | mg/kg | 0.0048 | 0.03 | 0.16 |
| AOC 3 | NA | NYOW-03-PH002-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 9 | 0.043333333 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 0.05 | 7.8 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 1.8 | 0.438888889 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 18 | 0.021666667 |
| AOC 3 | NA | NYOW-03-PH002-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 30 | 0.013 |
| AOC 3 | NA | NYOW-03-PH002-B | 2-Chlorophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 3 | NA | NYOW-03-PH002-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.1 | 3.9 |
| AOC 3 | NA | NYOW-03-PH002-B | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH002-B | 2-Nitrophenol | mg/kg | 0.39 | 0.06 | 6.5 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH002-B | 3,3'-Dichlorobenzidine | mg/kg | 0.79 | 0.03 | 26.33333333 |
| AOC 3 | NA | NYOW-03-PH002-B | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH002-B | 4-Chloroaniline | mg/kg | 0.79 | 1.8 | 0.438888889 |
| AOC 3 | NA | NYOW-03-PH002-B | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH002-B | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 3 | NA | NYOW-03-PH002-B | Atrazine | mg/kg | 0.39 | 0.00005 | 7800 |
| AOC 3 | NA | NYOW-03-PH002-B | Benzyl butyl phthalate | mg/kg | 0.39 | 0.59 | 0.661016949 |
| AOC 3 | NA | NYOW-03-PH002-B | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 3 | NA | NYOW-03-PH002-B | Diethyl phthalate | mg/kg | 0.39 | 0.25 | 1.56 |
| AOC 3 | NA | NYOW-03-PH002-B | Dimethyl phthalate | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH002-B | di-n-Butyl phthalate | mg/kg | 0.39 | 0.22 | 1.772727273 |
| AOC 3 | NA | NYOW-03-PH002-B | di-n-Octyl phthalate | mg/kg | 0.39 | 303 | 0.001287129 |
| AOC 3 | NA | NYOW-03-PH002-B | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH002-B | Hexachlorobutadiene | mg/kg | 0.39 | 0.009 | 43.33333333 |
| AOC 3 | NA | NYOW-03-PH002-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.001 | 390 |
| AOC 3 | NA | NYOW-03-PH002-B | Hexachloroethane | mg/kg | 0.39 | 0.024 | 16.25 |
| AOC 3 | NA | NYOW-03-PH002-B | Nitrobenzene | mg/kg | 0.39 | 2.2 | 0.177272727 |
| AOC 3 | NA | NYOW-03-PH002-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 20 | 0.0195 |
| AOC 3 | NA | NYOW-03-PH002-B | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 3 | NA | NYOW-03-PH002-B | Phenol | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 3 | NA | NYOW-03-PH002-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,1,1-Trichloroethane | mg/kg | 0.0052 | 0.04 | 0.13 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0052 | 0.19 | 0.027368421 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,1,2-Trichloroethane | mg/kg | 0.0052 | 0.32 | 0.01625 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,1-Dichloroethane | mg/kg | 0.0052 | 0.14 | 0.037142857 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,1-Dichloroethene | mg/kg | 0.0052 | 0.04 | 0.13 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0052 | 20 | 0.00026 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0052 | 1.2 | 0.004333333 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,2-Dichlorobenzene | mg/kg | 0.0052 | 0.09 | 0.057777778 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,2-Dichloroethane | mg/kg | 0.0052 | 0.4 | 0.013 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,2-Dichloropropane | mg/kg | 0.0052 | 0.28 | 0.018571429 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,3-Dichlorobenzene | mg/kg | 0.0052 | 0.08 | 0.065 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH003-B | 1,4-Dichlorobenzene | mg/kg | 0.0052 | 1.2 | 0.004333333 |
| AOC 3 | NA | NYOW-03-PH003-B | 2-Hexanone | mg/kg | 0.021 | 2.5 | 0.0084 |
| AOC 3 | NA | NYOW-03-PH003-B | Benzene | mg/kg | 0.0052 | 0.12 | 0.043333333 |
| AOC 3 | NA | NYOW-03-PH003-B | Bromoform | mg/kg | 0.0053 | 0.07 | 0.075714286 |
| AOC 3 | NA | NYOW-03-PH003-B | Bromomethane | mg/kg | 0.01 | 0.002 | 5 |
| AOC 3 | NA | NYOW-03-PH003-B | Carbon disulfide | mg/kg | 0.0052 | 0.005 | 1.04 |
| AOC 3 | NA | NYOW-03-PH003-B | Carbon Tetrachloride | mg/kg | 0.0052 | 0.05 | 0.104 |
| AOC 3 | NA | NYOW-03-PH003-B | Chlorobenzene | mg/kg | 0.0052 | 2.4 | 0.002166667 |
| AOC 3 | NA | NYOW-03-PH003-B | Chloroform | mg/kg | 0.01 | 0.05 | 0.2 |
| AOC 3 | NA | NYOW-03-PH003-B | cis-1,2-Dichloroethene | mg/kg | 0.0052 | 0.04 | 0.13 |
| AOC 3 | NA | NYOW-03-PH003-B | cis-1,3-Dichloropropene | mg/kg | 0.0052 | 0.001 | 5.2 |
| AOC 3 | NA | NYOW-03-PH003-B | Ethylbenzene | mg/kg | 0.0052 | 0.27 | 0.019259259 |
| AOC 3 | NA | NYOW-03-PH003-B | m,p-Xylene | mg/kg | 0.0033 | 0.1 | 0.033 |
| AOC 3 | NA | NYOW-03-PH003-B | Methylene chloride | mg/kg | 0.0052 | 0.21 | 0.024761905 |
| AOC 3 | NA | NYOW-03-PH003-B | o-Xylene | mg/kg | 0.0052 | 0.1 | 0.052 |
| AOC 3 | NA | NYOW-03-PH003-B | Styrene | mg/kg | 0.0052 | 1.2 | 0.004333333 |
| AOC 3 | NA | NYOW-03-PH003-B | Tetrachloroethene (PCE) | mg/kg | 0.0052 | 0.06 | 0.086666667 |
| AOC 3 | NA | NYOW-03-PH003-B | trans-1,2-Dichloroethene | mg/kg | 0.0052 | 0.04 | 0.13 |
| AOC 3 | NA | NYOW-03-PH003-B | trans-1,3-Dichloropropene | mg/kg | 0.0052 | 0.001 | 5.2 |
| AOC 3 | NA | NYOW-03-PH003-B | Vinyl chloride | mg/kg | 0.0052 | 0.03 | 0.173333333 |
| AOC 3 | NA | NYOW-03-PH003-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.41 | 0.18 | 2.277777778 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.41 | 0.04 | 10.25 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 9 | 0.045555556 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4,6-Trichlorophenol | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4-Dichlorophenol | mg/kg | 0.41 | 0.05 | 8.2 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4-Dimethylphenol | mg/kg | 0.41 | 0.04 | 10.25 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 1.8 | 0.455555556 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,4-Dinitrotoluene | mg/kg | 0.41 | 18 | 0.022777778 |
| AOC 3 | NA | NYOW-03-PH003-B | 2,6-Dinitrotoluene | mg/kg | 0.41 | 30 | 0.013666667 |
| AOC 3 | NA | NYOW-03-PH003-B | 2-Chlorophenol | mg/kg | 0.41 | 0.06 | 6.833333333 |
| AOC 3 | NA | NYOW-03-PH003-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 0.1 | 4.1 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH003-B | 2-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH003-B | 2-Nitrophenol | mg/kg | 0.41 | 0.06 | 6.833333333 |
| AOC 3 | NA | NYOW-03-PH003-B | 3,3'-Dichlorobenzidine | mg/kg | 0.82 | 0.03 | 27.33333333 |
| AOC 3 | NA | NYOW-03-PH003-B | 3-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH003-B | 4-Chloroaniline | mg/kg | 0.82 | 1.8 | 0.455555556 |
| AOC 3 | NA | NYOW-03-PH003-B | 4-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH003-B | 4-Nitrophenol | mg/kg | 2.1 | 7 | 0.3 |
| AOC 3 | NA | NYOW-03-PH003-B | Atrazine | mg/kg | 0.41 | 0.00005 | 8200 |
| AOC 3 | NA | NYOW-03-PH003-B | Benzyl butyl phthalate | mg/kg | 0.41 | 0.59 | 0.694915254 |
| AOC 3 | NA | NYOW-03-PH003-B | Biphenyl (Diphenyl) | mg/kg | 2.1 | 0.2 | 10.5 |
| AOC 3 | NA | NYOW-03-PH003-B | Diethyl phthalate | mg/kg | 0.41 | 0.25 | 1.64 |
| AOC 3 | NA | NYOW-03-PH003-B | Dimethyl phthalate | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH003-B | di-n-Butyl phthalate | mg/kg | 0.41 | 0.22 | 1.863636364 |
| AOC 3 | NA | NYOW-03-PH003-B | di-n-Octyl phthalate | mg/kg | 0.41 | 303 | 0.001353135 |
| AOC 3 | NA | NYOW-03-PH003-B | Hexachlorobenzene | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH003-B | Hexachlorobutadiene | mg/kg | 0.41 | 0.009 | 45.55555556 |
| AOC 3 | NA | NYOW-03-PH003-B | Hexachlorocyclopentadiene | mg/kg | 0.41 | 0.001 | 410 |
| AOC 3 | NA | NYOW-03-PH003-B | Hexachloroethane | mg/kg | 0.41 | 0.024 | 17.08333333 |
| AOC 3 | NA | NYOW-03-PH003-B | Nitrobenzene | mg/kg | 0.41 | 2.2 | 0.186363636 |
| AOC 3 | NA | NYOW-03-PH003-B | N-Nitrosodiphenylamine | mg/kg | 0.41 | 20 | 0.0205 |
| AOC 3 | NA | NYOW-03-PH003-B | Pentachlorophenol | mg/kg | 2.1 | 31 | 0.067741935 |
| AOC 3 | NA | NYOW-03-PH003-B | Phenol | mg/kg | 0.41 | 1.8 | 0.227777778 |
| AOC 3 | NA | NYOW-03-PH003-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,1,1-Trichloroethane | mg/kg | 0.005 | 0.04 | 0.125 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.005 | 0.19 | 0.026315789 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,1,2-Trichloroethane | mg/kg | 0.005 | 0.32 | 0.015625 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,1-Dichloroethane | mg/kg | 0.005 | 0.14 | 0.035714286 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,1-Dichloroethene | mg/kg | 0.005 | 0.04 | 0.125 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,2,3-Trichlorobenzene | mg/kg | 0.005 | 20 | 0.00025 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,2,4-Trichlorobenzene | mg/kg | 0.005 | 1.2 | 0.004166667 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,2-Dichlorobenzene | mg/kg | 0.005 | 0.09 | 0.055555556 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,2-Dichloroethane | mg/kg | 0.005 | 0.4 | 0.0125 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH004-B | 1,2-Dichloropropane | mg/kg | 0.005 | 0.28 | 0.017857143 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,3-Dichlorobenzene | mg/kg | 0.005 | 0.08 | 0.0625 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,4-Dichlorobenzene | mg/kg | 0.005 | 1.2 | 0.004166667 |
| AOC 3 | NA | NYOW-03-PH004-B | 2-Hexanone | mg/kg | 0.02 | 2.5 | 0.008 |
| AOC 3 | NA | NYOW-03-PH004-B | Benzene | mg/kg | 0.005 | 0.12 | 0.041666667 |
| AOC 3 | NA | NYOW-03-PH004-B | Bromoform | mg/kg | 0.0051 | 0.07 | 0.072857143 |
| AOC 3 | NA | NYOW-03-PH004-B | Bromomethane | mg/kg | 0.0099 | 0.002 | 4.95 |
| AOC 3 | NA | NYOW-03-PH004-B | Carbon disulfide | mg/kg | 0.005 | 0.005 | 1 |
| AOC 3 | NA | NYOW-03-PH004-B | Carbon Tetrachloride | mg/kg | 0.005 | 0.05 | 0.1 |
| AOC 3 | NA | NYOW-03-PH004-B | Chlorobenzene | mg/kg | 0.005 | 2.4 | 0.002083333 |
| AOC 3 | NA | NYOW-03-PH004-B | Chloroform | mg/kg | 0.0099 | 0.05 | 0.198 |
| AOC 3 | NA | NYOW-03-PH004-B | cis-1,2-Dichloroethene | mg/kg | 0.005 | 0.04 | 0.125 |
| AOC 3 | NA | NYOW-03-PH004-B | cis-1,3-Dichloropropene | mg/kg | 0.005 | 0.001 | 5 |
| AOC 3 | NA | NYOW-03-PH004-B | Ethylbenzene | mg/kg | 0.005 | 0.27 | 0.018518519 |
| AOC 3 | NA | NYOW-03-PH004-B | m,p-Xylene | mg/kg | 0.0032 | 0.1 | 0.032 |
| AOC 3 | NA | NYOW-03-PH004-B | Methylene chloride | mg/kg | 0.005 | 0.21 | 0.023809524 |
| AOC 3 | NA | NYOW-03-PH004-B | o-Xylene | mg/kg | 0.005 | 0.1 | 0.05 |
| AOC 3 | NA | NYOW-03-PH004-B | Styrene | mg/kg | 0.005 | 1.2 | 0.004166667 |
| AOC 3 | NA | NYOW-03-PH004-B | Tetrachloroethene (PCE) | mg/kg | 0.005 | 0.06 | 0.083333333 |
| AOC 3 | NA | NYOW-03-PH004-B | trans-1,2-Dichloroethene | mg/kg | 0.005 | 0.04 | 0.125 |
| AOC 3 | NA | NYOW-03-PH004-B | trans-1,3-Dichloropropene | mg/kg | 0.005 | 0.001 | 5 |
| AOC 3 | NA | NYOW-03-PH004-B | Vinyl chloride | mg/kg | 0.005 | 0.03 | 0.166666667 |
| AOC 3 | NA | NYOW-03-PH004-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.42 | 0.18 | 2.333333333 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.42 | 0.04 | 10.5 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 9 | 0.046666667 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4,6-Trichlorophenol | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4-Dichlorophenol | mg/kg | 0.42 | 0.05 | 8.4 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4-Dimethylphenol | mg/kg | 0.42 | 0.04 | 10.5 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.84 | 1.8 | 0.466666667 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4-Dinitrophenol | mg/kg | 2.2 | 0.15 | 14.66666667 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,4-Dinitrotoluene | mg/kg | 0.42 | 18 | 0.023333333 |
| AOC 3 | NA | NYOW-03-PH004-B | 2,6-Dinitrotoluene | mg/kg | 0.42 | 30 | 0.014 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH004-B | 2-Chlorophenol | mg/kg | 0.42 | 0.06 | 7 |
| AOC 3 | NA | NYOW-03-PH004-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 0.1 | 4.2 |
| AOC 3 | NA | NYOW-03-PH004-B | 2-Nitroaniline | mg/kg | 2.2 | 0.02 | 110 |
| AOC 3 | NA | NYOW-03-PH004-B | 2-Nitrophenol | mg/kg | 0.42 | 0.06 | 7 |
| AOC 3 | NA | NYOW-03-PH004-B | 3,3'-Dichlorobenzidine | mg/kg | 0.84 | 0.03 | 28 |
| AOC 3 | NA | NYOW-03-PH004-B | 3-Nitroaniline | mg/kg | 2.2 | 0.02 | 110 |
| AOC 3 | NA | NYOW-03-PH004-B | 4-Chloroaniline | mg/kg | 0.84 | 1.8 | 0.466666667 |
| AOC 3 | NA | NYOW-03-PH004-B | 4-Nitroaniline | mg/kg | 2.2 | 0.02 | 110 |
| AOC 3 | NA | NYOW-03-PH004-B | 4-Nitrophenol | mg/kg | 2.2 | 7 | 0.314285714 |
| AOC 3 | NA | NYOW-03-PH004-B | Atrazine | mg/kg | 0.42 | 0.00005 | 8400 |
| AOC 3 | NA | NYOW-03-PH004-B | Benzyl butyl phthalate | mg/kg | 0.42 | 0.59 | 0.711864407 |
| AOC 3 | NA | NYOW-03-PH004-B | Biphenyl (Diphenyl) | mg/kg | 2.2 | 0.2 | 11 |
| AOC 3 | NA | NYOW-03-PH004-B | Diethyl phthalate | mg/kg | 0.42 | 0.25 | 1.68 |
| AOC 3 | NA | NYOW-03-PH004-B | Dimethyl phthalate | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-PH004-B | di-n-Butyl phthalate | mg/kg | 0.42 | 0.22 | 1.909090909 |
| AOC 3 | NA | NYOW-03-PH004-B | di-n-Octyl phthalate | mg/kg | 0.42 | 303 | 0.001386139 |
| AOC 3 | NA | NYOW-03-PH004-B | Hexachlorobenzene | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-PH004-B | Hexachlorobutadiene | mg/kg | 0.42 | 0.009 | 46.66666667 |
| AOC 3 | NA | NYOW-03-PH004-B | Hexachlorocyclopentadiene | mg/kg | 0.42 | 0.001 | 420 |
| AOC 3 | NA | NYOW-03-PH004-B | Hexachloroethane | mg/kg | 0.42 | 0.024 | 17.5 |
| AOC 3 | NA | NYOW-03-PH004-B | Nitrobenzene | mg/kg | 0.42 | 2.2 | 0.190909091 |
| AOC 3 | NA | NYOW-03-PH004-B | N-Nitrosodiphenylamine | mg/kg | 0.42 | 20 | 0.021 |
| AOC 3 | NA | NYOW-03-PH004-B | Pentachlorophenol | mg/kg | 2.2 | 31 | 0.070967742 |
| AOC 3 | NA | NYOW-03-PH004-B | Phenol | mg/kg | 0.42 | 1.8 | 0.233333333 |
| AOC 3 | NA | NYOW-03-PH004-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.079 | 0.33 | 0.239393939 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.079 | 0.33 | 0.239393939 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.079 | 0.33 | 0.239393939 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.079 | 0.33 | 0.239393939 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.079 | 0.33 | 0.239393939 |
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.079 | 0.33 | 0.239393939 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH005-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.079 | 0.33 | 0.239393939 |
| AOC 3 | NA | NYOW-03-PH005-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.42 | 0.18 | 2.333333333 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.42 | 0.04 | 10.5 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 9 | 0.046666667 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,4,6-Trichlorophenol | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,4-Dichlorophenol | mg/kg | 0.42 | 0.05 | 8.4 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,4-Dimethylphenol | mg/kg | 0.42 | 0.04 | 10.5 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.85 | 1.8 | 0.472222222 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,4-Dinitrophenol | mg/kg | 2.2 | 0.15 | 14.66666667 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,4-Dinitrotoluene | mg/kg | 0.42 | 18 | 0.023333333 |
| AOC 3 | NA | NYOW-03-PH005-B | 2,6-Dinitrotoluene | mg/kg | 0.42 | 30 | 0.014 |
| AOC 3 | NA | NYOW-03-PH005-B | 2-Chlorophenol | mg/kg | 0.42 | 0.06 | 7 |
| AOC 3 | NA | NYOW-03-PH005-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 0.1 | 4.2 |
| AOC 3 | NA | NYOW-03-PH005-B | 2-Nitroaniline | mg/kg | 2.2 | 0.02 | 110 |
| AOC 3 | NA | NYOW-03-PH005-B | 2-Nitrophenol | mg/kg | 0.42 | 0.06 | 7 |
| AOC 3 | NA | NYOW-03-PH005-B | 3,3'-Dichlorobenzidine | mg/kg | 0.85 | 0.03 | 28.33333333 |
| AOC 3 | NA | NYOW-03-PH005-B | 3-Nitroaniline | mg/kg | 2.2 | 0.02 | 110 |
| AOC 3 | NA | NYOW-03-PH005-B | 4-Chloroaniline | mg/kg | 0.85 | 1.8 | 0.472222222 |
| AOC 3 | NA | NYOW-03-PH005-B | 4-Nitroaniline | mg/kg | 2.2 | 0.02 | 110 |
| AOC 3 | NA | NYOW-03-PH005-B | 4-Nitrophenol | mg/kg | 2.2 | 7 | 0.314285714 |
| AOC 3 | NA | NYOW-03-PH005-B | Atrazine | mg/kg | 0.42 | 0.00005 | 8400 |
| AOC 3 | NA | NYOW-03-PH005-B | Benzyl butyl phthalate | mg/kg | 0.42 | 0.59 | 0.711864407 |
| AOC 3 | NA | NYOW-03-PH005-B | Biphenyl (Diphenyl) | mg/kg | 2.2 | 0.2 | 11 |
| AOC 3 | NA | NYOW-03-PH005-B | Diethyl phthalate | mg/kg | 0.42 | 0.25 | 1.68 |
| AOC 3 | NA | NYOW-03-PH005-B | Dimethyl phthalate | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-PH005-B | di-n-Butyl phthalate | mg/kg | 0.42 | 0.22 | 1.909090909 |
| AOC 3 | NA | NYOW-03-PH005-B | di-n-Octyl phthalate | mg/kg | 0.42 | 303 | 0.001386139 |
| AOC 3 | NA | NYOW-03-PH005-B | Hexachlorobenzene | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-PH005-B | Hexachlorobutadiene | mg/kg | 0.42 | 0.009 | 46.66666667 |
| AOC 3 | NA | NYOW-03-PH005-B | Hexachlorocyclopentadiene | mg/kg | 0.42 | 0.001 | 420 |
| AOC 3 | NA | NYOW-03-PH005-B | Hexachloroethane | mg/kg | 0.42 | 0.024 | 17.5 |
| AOC 3 | NA | NYOW-03-PH005-B | Nitrobenzene | mg/kg | 0.42 | 2.2 | 0.190909091 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH005-B | N-Nitrosodiphenylamine | mg/kg | 0.42 | 20 | 0.021 |
| AOC 3 | NA | NYOW-03-PH005-B | Pentachlorophenol | mg/kg | 2.2 | 31 | 0.070967742 |
| AOC 3 | NA | NYOW-03-PH005-B | Phenol | mg/kg | 0.42 | 1.8 | 0.233333333 |
| AOC 3 | NA | NYOW-03-PH005-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,1,1-Trichloroethane | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0048 | 0.19 | 0.025263158 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,1,2-Trichloroethane | mg/kg | 0.0048 | 0.32 | 0.015 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,1-Dichloroethane | mg/kg | 0.0048 | 0.14 | 0.034285714 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,1-Dichloroethene | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,2,3-Trichlorobenzene | mg/kg | 0.0048 | 20 | 0.00024 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,2,4-Trichlorobenzene | mg/kg | 0.0048 | 1.2 | 0.004 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,2-Dichlorobenzene | mg/kg | 0.0048 | 0.09 | 0.053333333 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,2-Dichloroethane | mg/kg | 0.0048 | 0.4 | 0.012 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,2-Dichloropropane | mg/kg | 0.0048 | 0.28 | 0.017142857 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,3-Dichlorobenzene | mg/kg | 0.0048 | 0.08 | 0.06 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,4-Dichlorobenzene | mg/kg | 0.0048 | 1.2 | 0.004 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2-Hexanone | mg/kg | 0.019 | 2.5 | 0.0076 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Benzene | mg/kg | 0.0048 | 0.12 | 0.04 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Bromoform | mg/kg | 0.0049 | 0.07 | 0.07 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Bromomethane | mg/kg | 0.0096 | 0.002 | 4.8 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Carbon disulfide | mg/kg | 0.0048 | 0.005 | 0.96 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Carbon Tetrachloride | mg/kg | 0.0048 | 0.05 | 0.096 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Chlorobenzene | mg/kg | 0.0048 | 2.4 | 0.002 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Chloroform | mg/kg | 0.0096 | 0.05 | 0.192 |
| AOC 3 | NA | NYOW-03-PH005-B_R | cis-1,2-Dichloroethene | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 3 | NA | NYOW-03-PH005-B_R | cis-1,3-Dichloropropene | mg/kg | 0.0048 | 0.001 | 4.8 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Ethylbenzene | mg/kg | 0.0048 | 0.27 | 0.017777778 |
| AOC 3 | NA | NYOW-03-PH005-B_R | m,p-Xylene | mg/kg | 0.0031 | 0.1 | 0.031 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Methylene chloride | mg/kg | 0.0048 | 0.21 | 0.022857143 |
| AOC 3 | NA | NYOW-03-PH005-B_R | o-Xylene | mg/kg | 0.0048 | 0.1 | 0.048 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Styrene | mg/kg | 0.0048 | 1.2 | 0.004 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Tetrachloroethene (PCE) | mg/kg | 0.0048 | 0.06 | 0.08 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH005-B_R | trans-1,2-Dichloroethene | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 3 | NA | NYOW-03-PH005-B_R | trans-1,3-Dichloropropene | mg/kg | 0.0048 | 0.001 | 4.8 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Vinyl chloride | mg/kg | 0.0048 | 0.03 | 0.16 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 9 | 0.042222222 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4-Dichlorophenol | mg/kg | 0.38 | 0.05 | 7.6 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,4-Dinitrotoluene | mg/kg | 0.38 | 18 | 0.021111111 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2,6-Dinitrotoluene | mg/kg | 0.38 | 30 | 0.012666667 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2-Chlorophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.1 | 3.8 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 2-Nitrophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 0.03 | 25.66666667 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 4-Chloroaniline | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH005-B_R | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Atrazine | mg/kg | 0.38 | 0.00005 | 7600 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Benzyl butyl phthalate | mg/kg | 0.38 | 0.59 | 0.644067797 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Diethyl phthalate | mg/kg | 0.38 | 0.25 | 1.52 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Dimethyl phthalate | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-PH005-B_R | di-n-Butyl phthalate | mg/kg | 0.38 | 0.22 | 1.727272727 |
| AOC 3 | NA | NYOW-03-PH005-B_R | di-n-Octyl phthalate | mg/kg | 0.38 | 303 | 0.001254125 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Hexachlorobutadiene | mg/kg | 0.38 | 0.009 | 42.22222222 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.001 | 380 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH005-B_R | Hexachloroethane | mg/kg | 0.38 | 0.024 | 15.83333333 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Nitrobenzene | mg/kg | 0.38 | 2.2 | 0.172727273 |
| AOC 3 | NA | NYOW-03-PH005-B_R | N-Nitrosodiphenylamine | mg/kg | 0.38 | 20 | 0.019 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 3 | NA | NYOW-03-PH005-B_R | Phenol | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.085 | 0.33 | 0.257575758 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.12 | 0.33 | 0.363636364 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.085 | 0.33 | 0.257575758 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.085 | 0.33 | 0.257575758 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.085 | 0.33 | 0.257575758 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.085 | 0.33 | 0.257575758 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.085 | 0.33 | 0.257575758 |
| AOC 3 | NA | NYOW-03-PH006-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.085 | 0.33 | 0.257575758 |
| AOC 3 | NA | NYOW-03-PH006-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.41 | 0.18 | 2.277777778 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.41 | 0.04 | 10.25 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 9 | 0.045555556 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4,6-Trichlorophenol | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4-Dichlorophenol | mg/kg | 0.41 | 0.05 | 8.2 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4-Dimethylphenol | mg/kg | 0.41 | 0.04 | 10.25 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 1.8 | 0.455555556 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,4-Dinitrotoluene | mg/kg | 0.41 | 18 | 0.022777778 |
| AOC 3 | NA | NYOW-03-PH006-B | 2,6-Dinitrotoluene | mg/kg | 0.41 | 30 | 0.013666667 |
| AOC 3 | NA | NYOW-03-PH006-B | 2-Chlorophenol | mg/kg | 0.41 | 0.06 | 6.833333333 |
| AOC 3 | NA | NYOW-03-PH006-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 0.1 | 4.1 |
| AOC 3 | NA | NYOW-03-PH006-B | 2-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH006-B | 2-Nitrophenol | mg/kg | 0.41 | 0.06 | 6.833333333 |
| AOC 3 | NA | NYOW-03-PH006-B | 3,3'-Dichlorobenzidine | mg/kg | 0.82 | 0.03 | 27.33333333 |
| AOC 3 | NA | NYOW-03-PH006-B | 3-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH006-B | 4-Chloroaniline | mg/kg | 0.82 | 1.8 | 0.455555556 |
| AOC 3 | NA | NYOW-03-PH006-B | 4-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH006-B | 4-Nitrophenol | mg/kg | 2.1 | 7 | 0.3 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH006-B | Atrazine | mg/kg | 0.41 | 0.00005 | 8200 |
| AOC 3 | NA | NYOW-03-PH006-B | Benzyl butyl phthalate | mg/kg | 0.41 | 0.59 | 0.694915254 |
| AOC 3 | NA | NYOW-03-PH006-B | Biphenyl (Diphenyl) | mg/kg | 2.1 | 0.2 | 10.5 |
| AOC 3 | NA | NYOW-03-PH006-B | Diethyl phthalate | mg/kg | 0.41 | 0.25 | 1.64 |
| AOC 3 | NA | NYOW-03-PH006-B | Dimethyl phthalate | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH006-B | di-n-Butyl phthalate | mg/kg | 0.41 | 0.22 | 1.863636364 |
| AOC 3 | NA | NYOW-03-PH006-B | di-n-Octyl phthalate | mg/kg | 0.41 | 303 | 0.001353135 |
| AOC 3 | NA | NYOW-03-PH006-B | Hexachlorobenzene | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH006-B | Hexachlorobutadiene | mg/kg | 0.41 | 0.009 | 45.55555556 |
| AOC 3 | NA | NYOW-03-PH006-B | Hexachlorocyclopentadiene | mg/kg | 0.41 | 0.001 | 410 |
| AOC 3 | NA | NYOW-03-PH006-B | Hexachloroethane | mg/kg | 0.41 | 0.024 | 17.08333333 |
| AOC 3 | NA | NYOW-03-PH006-B | Nitrobenzene | mg/kg | 0.41 | 2.2 | 0.186363636 |
| AOC 3 | NA | NYOW-03-PH006-B | N-Nitrosodiphenylamine | mg/kg | 0.41 | 20 | 0.0205 |
| AOC 3 | NA | NYOW-03-PH006-B | Pentachlorophenol | mg/kg | 2.1 | 31 | 0.067741935 |
| AOC 3 | NA | NYOW-03-PH006-B | Phenol | mg/kg | 0.41 | 1.8 | 0.227777778 |
| AOC 3 | NA | NYOW-03-PH006-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,1,1-Trichloroethane | mg/kg | 0.0051 | 0.04 | 0.1275 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0051 | 0.19 | 0.026842105 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,1,2-Trichloroethane | mg/kg | 0.0051 | 0.32 | 0.0159375 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,1-Dichloroethane | mg/kg | 0.0051 | 0.14 | 0.036428571 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,1-Dichloroethene | mg/kg | 0.0051 | 0.04 | 0.1275 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,2,3-Trichlorobenzene | mg/kg | 0.0051 | 20 | 0.000255 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,2,4-Trichlorobenzene | mg/kg | 0.0051 | 1.2 | 0.00425 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,2-Dichlorobenzene | mg/kg | 0.0051 | 0.09 | 0.056666667 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,2-Dichloroethane | mg/kg | 0.0051 | 0.4 | 0.01275 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,2-Dichloropropane | mg/kg | 0.0051 | 0.28 | 0.018214286 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,3-Dichlorobenzene | mg/kg | 0.0051 | 0.08 | 0.06375 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,4-Dichlorobenzene | mg/kg | 0.0051 | 1.2 | 0.00425 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2-Hexanone | mg/kg | 0.02 | 2.5 | 0.008 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Benzene | mg/kg | 0.0051 | 0.12 | 0.0425 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Bromoform | mg/kg | 0.0052 | 0.07 | 0.074285714 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Bromomethane | mg/kg | 0.01 | 0.002 | 5 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH006-B_R | Carbon disulfide | mg/kg | 0.0051 | 0.005 | 1.02 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Carbon Tetrachloride | mg/kg | 0.0051 | 0.05 | 0.102 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Chlorobenzene | mg/kg | 0.0051 | 2.4 | 0.002125 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Chloroform | mg/kg | 0.01 | 0.05 | 0.2 |
| AOC 3 | NA | NYOW-03-PH006-B_R | cis-1,2-Dichloroethene | mg/kg | 0.0051 | 0.04 | 0.1275 |
| AOC 3 | NA | NYOW-03-PH006-B_R | cis-1,3-Dichloropropene | mg/kg | 0.0051 | 0.001 | 5.1 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Ethylbenzene | mg/kg | 0.0051 | 0.27 | 0.018888889 |
| AOC 3 | NA | NYOW-03-PH006-B_R | m,p-Xylene | mg/kg | 0.0032 | 0.1 | 0.032 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Methylene chloride | mg/kg | 0.0051 | 0.21 | 0.024285714 |
| AOC 3 | NA | NYOW-03-PH006-B_R | o-Xylene | mg/kg | 0.0051 | 0.1 | 0.051 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Styrene | mg/kg | 0.0051 | 1.2 | 0.00425 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Tetrachloroethene (PCE) | mg/kg | 0.0051 | 0.06 | 0.085 |
| AOC 3 | NA | NYOW-03-PH006-B_R | trans-1,2-Dichloroethene | mg/kg | 0.0051 | 0.04 | 0.1275 |
| AOC 3 | NA | NYOW-03-PH006-B_R | trans-1,3-Dichloropropene | mg/kg | 0.0051 | 0.001 | 5.1 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Vinyl chloride | mg/kg | 0.0051 | 0.03 | 0.17 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.42 | 0.18 | 2.333333333 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.42 | 0.04 | 10.5 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 9 | 0.046666667 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4,6-Trichlorophenol | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4-Dichlorophenol | mg/kg | 0.42 | 0.05 | 8.4 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4-Dimethylphenol | mg/kg | 0.42 | 0.04 | 10.5 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.84 | 1.8 | 0.466666667 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4-Dinitrophenol | mg/kg | 2.2 | 0.15 | 14.66666667 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,4-Dinitrotoluene | mg/kg | 0.42 | 18 | 0.023333333 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2,6-Dinitrotoluene | mg/kg | 0.42 | 30 | 0.014 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2-Chlorophenol | mg/kg | 0.42 | 0.06 | 7 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 0.1 | 4.2 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2-Nitroaniline | mg/kg | 2.2 | 0.02 | 110 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 2-Nitrophenol | mg/kg | 0.42 | 0.06 | 7 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 3,3'-Dichlorobenzidine | mg/kg | 0.84 | 0.03 | 28 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 3-Nitroaniline | mg/kg | 2.2 | 0.02 | 110 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 4-Chloroaniline | mg/kg | 0.84 | 1.8 | 0.466666667 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH006-B_R | 4-Nitroaniline | mg/kg | 2.2 | 0.02 | 110 |
| AOC 3 | NA | NYOW-03-PH006-B_R | 4-Nitrophenol | mg/kg | 2.2 | 7 | 0.314285714 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Atrazine | mg/kg | 0.42 | 0.00005 | 8400 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Benzyl butyl phthalate | mg/kg | 0.42 | 0.59 | 0.711864407 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Biphenyl (Diphenyl) | mg/kg | 2.2 | 0.2 | 11 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Diethyl phthalate | mg/kg | 0.42 | 0.25 | 1.68 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Dimethyl phthalate | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-PH006-B_R | di-n-Butyl phthalate | mg/kg | 0.42 | 0.22 | 1.909090909 |
| AOC 3 | NA | NYOW-03-PH006-B_R | di-n-Octyl phthalate | mg/kg | 0.42 | 303 | 0.001386139 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Hexachlorobenzene | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Hexachlorobutadiene | mg/kg | 0.42 | 0.009 | 46.66666667 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Hexachlorocyclopentadiene | mg/kg | 0.42 | 0.001 | 420 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Hexachloroethane | mg/kg | 0.42 | 0.024 | 17.5 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Nitrobenzene | mg/kg | 0.42 | 2.2 | 0.190909091 |
| AOC 3 | NA | NYOW-03-PH006-B_R | N-Nitrosodiphenylamine | mg/kg | 0.42 | 20 | 0.021 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Pentachlorophenol | mg/kg | 2.2 | 31 | 0.070967742 |
| AOC 3 | NA | NYOW-03-PH006-B_R | Phenol | mg/kg | 0.42 | 1.8 | 0.233333333 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.082 | 0.33 | 0.248484848 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.12 | 0.33 | 0.363636364 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.082 | 0.33 | 0.248484848 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.082 | 0.33 | 0.248484848 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.082 | 0.33 | 0.248484848 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.082 | 0.33 | 0.248484848 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.082 | 0.33 | 0.248484848 |
| AOC 3 | NA | NYOW-03-PH007-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.082 | 0.33 | 0.248484848 |
| AOC 3 | NA | NYOW-03-PH007-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.41 | 0.18 | 2.277777778 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.41 | 0.04 | 10.25 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 9 | 0.045555556 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,4,6-Trichlorophenol | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,4-Dichlorophenol | mg/kg | 0.41 | 0.05 | 8.2 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,4-Dimethylphenol | mg/kg | 0.41 | 0.04 | 10.25 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 1.8 | 0.455555556 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH007-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,4-Dinitrotoluene | mg/kg | 0.41 | 18 | 0.022777778 |
| AOC 3 | NA | NYOW-03-PH007-B | 2,6-Dinitrotoluene | mg/kg | 0.41 | 30 | 0.013666667 |
| AOC 3 | NA | NYOW-03-PH007-B | 2-Chlorophenol | mg/kg | 0.41 | 0.06 | 6.833333333 |
| AOC 3 | NA | NYOW-03-PH007-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 0.1 | 4.1 |
| AOC 3 | NA | NYOW-03-PH007-B | 2-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH007-B | 2-Nitrophenol | mg/kg | 0.41 | 0.06 | 6.833333333 |
| AOC 3 | NA | NYOW-03-PH007-B | 3,3'-Dichlorobenzidine | mg/kg | 0.82 | 0.03 | 27.33333333 |
| AOC 3 | NA | NYOW-03-PH007-B | 3-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH007-B | 4-Chloroaniline | mg/kg | 0.82 | 1.8 | 0.455555556 |
| AOC 3 | NA | NYOW-03-PH007-B | 4-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH007-B | 4-Nitrophenol | mg/kg | 2.1 | 7 | 0.3 |
| AOC 3 | NA | NYOW-03-PH007-B | Atrazine | mg/kg | 0.41 | 0.00005 | 8200 |
| AOC 3 | NA | NYOW-03-PH007-B | Benzyl butyl phthalate | mg/kg | 0.41 | 0.59 | 0.694915254 |
| AOC 3 | NA | NYOW-03-PH007-B | Biphenyl (Diphenyl) | mg/kg | 2.1 | 0.2 | 10.5 |
| AOC 3 | NA | NYOW-03-PH007-B | Diethyl phthalate | mg/kg | 0.41 | 0.25 | 1.64 |
| AOC 3 | NA | NYOW-03-PH007-B | Dimethyl phthalate | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH007-B | di-n-Butyl phthalate | mg/kg | 0.41 | 0.22 | 1.863636364 |
| AOC 3 | NA | NYOW-03-PH007-B | di-n-Octyl phthalate | mg/kg | 0.41 | 303 | 0.001353135 |
| AOC 3 | NA | NYOW-03-PH007-B | Hexachlorobenzene | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-PH007-B | Hexachlorobutadiene | mg/kg | 0.41 | 0.009 | 45.55555556 |
| AOC 3 | NA | NYOW-03-PH007-B | Hexachlorocyclopentadiene | mg/kg | 0.41 | 0.001 | 410 |
| AOC 3 | NA | NYOW-03-PH007-B | Hexachloroethane | mg/kg | 0.41 | 0.024 | 17.08333333 |
| AOC 3 | NA | NYOW-03-PH007-B | Nitrobenzene | mg/kg | 0.41 | 2.2 | 0.186363636 |
| AOC 3 | NA | NYOW-03-PH007-B | N-Nitrosodiphenylamine | mg/kg | 0.41 | 20 | 0.0205 |
| AOC 3 | NA | NYOW-03-PH007-B | Pentachlorophenol | mg/kg | 2.1 | 31 | 0.067741935 |
| AOC 3 | NA | NYOW-03-PH007-B | Phenol | mg/kg | 0.41 | 1.8 | 0.227777778 |
| AOC 3 | NA | NYOW-03-PH007-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,1,1-Trichloroethane | mg/kg | 0.0045 | 0.04 | 0.1125 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0045 | 0.19 | 0.023684211 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,1,2-Trichloroethane | mg/kg | 0.0045 | 0.32 | 0.0140625 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,1-Dichloroethane | mg/kg | 0.0045 | 0.14 | 0.032142857 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,1-Dichloroethene | mg/kg | 0.0045 | 0.04 | 0.1125 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,2,3-Trichlorobenzene | mg/kg | 0.0045 | 20 | 0.000225 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,2,4-Trichlorobenzene | mg/kg | 0.0045 | 1.2 | 0.00375 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,2-Dichlorobenzene | mg/kg | 0.0045 | 0.09 | 0.05 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,2-Dichloroethane | mg/kg | 0.0045 | 0.4 | 0.01125 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,2-Dichloropropane | mg/kg | 0.0045 | 0.28 | 0.016071429 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,3-Dichlorobenzene | mg/kg | 0.0045 | 0.08 | 0.05625 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,4-Dichlorobenzene | mg/kg | 0.0045 | 1.2 | 0.00375 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2-Hexanone | mg/kg | 0.018 | 2.5 | 0.0072 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Benzene | mg/kg | 0.0045 | 0.12 | 0.0375 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Bromoform | mg/kg | 0.0046 | 0.07 | 0.065714286 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Bromomethane | mg/kg | 0.0089 | 0.002 | 4.45 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Carbon disulfide | mg/kg | 0.0045 | 0.005 | 0.9 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Carbon Tetrachloride | mg/kg | 0.0045 | 0.05 | 0.09 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Chlorobenzene | mg/kg | 0.0045 | 2.4 | 0.001875 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Chloroform | mg/kg | 0.0089 | 0.05 | 0.178 |
| AOC 3 | NA | NYOW-03-PH007-B_R | cis-1,2-Dichloroethene | mg/kg | 0.0045 | 0.04 | 0.1125 |
| AOC 3 | NA | NYOW-03-PH007-B_R | cis-1,3-Dichloropropene | mg/kg | 0.0045 | 0.001 | 4.5 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Ethylbenzene | mg/kg | 0.0045 | 0.27 | 0.016666667 |
| AOC 3 | NA | NYOW-03-PH007-B_R | m,p-Xylene | mg/kg | 0.0029 | 0.1 | 0.029 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Methylene chloride | mg/kg | 0.0045 | 0.21 | 0.021428571 |
| AOC 3 | NA | NYOW-03-PH007-B_R | o-Xylene | mg/kg | 0.0045 | 0.1 | 0.045 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Styrene | mg/kg | 0.0045 | 1.2 | 0.00375 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Tetrachloroethene (PCE) | mg/kg | 0.0045 | 0.06 | 0.075 |
| AOC 3 | NA | NYOW-03-PH007-B_R | trans-1,2-Dichloroethene | mg/kg | 0.0045 | 0.04 | 0.1125 |
| AOC 3 | NA | NYOW-03-PH007-B_R | trans-1,3-Dichloropropene | mg/kg | 0.0045 | 0.001 | 4.5 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Vinyl chloride | mg/kg | 0.0045 | 0.03 | 0.15 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 9 | 0.042222222 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4-Dichlorophenol | mg/kg | 0.38 | 0.05 | 7.6 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,4-Dinitrotoluene | mg/kg | 0.38 | 18 | 0.021111111 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2,6-Dinitrotoluene | mg/kg | 0.38 | 30 | 0.012666667 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2-Chlorophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.1 | 3.8 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 2-Nitrophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 0.03 | 25.66666667 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 4-Chloroaniline | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH007-B_R | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Atrazine | mg/kg | 0.38 | 0.00005 | 7600 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Benzyl butyl phthalate | mg/kg | 0.38 | 0.59 | 0.644067797 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Diethyl phthalate | mg/kg | 0.38 | 0.25 | 1.52 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Dimethyl phthalate | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-PH007-B_R | di-n-Butyl phthalate | mg/kg | 0.38 | 0.22 | 1.727272727 |
| AOC 3 | NA | NYOW-03-PH007-B_R | di-n-Octyl phthalate | mg/kg | 0.38 | 303 | 0.001254125 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Hexachlorobutadiene | mg/kg | 0.38 | 0.009 | 42.22222222 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.001 | 380 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Hexachloroethane | mg/kg | 0.38 | 0.024 | 15.83333333 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Nitrobenzene | mg/kg | 0.38 | 2.2 | 0.172727273 |
| AOC 3 | NA | NYOW-03-PH007-B_R | N-Nitrosodiphenylamine | mg/kg | 0.38 | 20 | 0.019 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 3 | NA | NYOW-03-PH007-B_R | Phenol | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.073 | 0.33 | 0.221212121 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.33 | 0.303030303 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.073 | 0.33 | 0.221212121 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.073 | 0.33 | 0.221212121 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.073 | 0.33 | 0.221212121 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.073 | 0.33 | 0.221212121 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.073 | 0.33 | 0.221212121 |
| AOC 3 | NA | NYOW-03-PH008-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.073 | 0.33 | 0.221212121 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,1,1-Trichloroethane | mg/kg | 0.0052 | 0.04 | 0.13 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0052 | 0.19 | 0.027368421 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,1,2-Trichloroethane | mg/kg | 0.0052 | 0.32 | 0.01625 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,1-Dichloroethane | mg/kg | 0.0052 | 0.14 | 0.037142857 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,1-Dichloroethene | mg/kg | 0.0052 | 0.04 | 0.13 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0052 | 20 | 0.00026 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0052 | 1.2 | 0.004333333 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,2-Dichlorobenzene | mg/kg | 0.0052 | 0.09 | 0.057777778 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,2-Dichloroethane | mg/kg | 0.0052 | 0.4 | 0.013 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,2-Dichloropropane | mg/kg | 0.0052 | 0.28 | 0.018571429 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,3-Dichlorobenzene | mg/kg | 0.0052 | 0.08 | 0.065 |
| AOC 3 | NA | NYOW-03-PH008-B | 1,4-Dichlorobenzene | mg/kg | 0.0052 | 1.2 | 0.004333333 |
| AOC 3 | NA | NYOW-03-PH008-B | 2-Hexanone | mg/kg | 0.021 | 2.5 | 0.0084 |
| AOC 3 | NA | NYOW-03-PH008-B | Benzene | mg/kg | 0.0052 | 0.12 | 0.043333333 |
| AOC 3 | NA | NYOW-03-PH008-B | Bromoform | mg/kg | 0.0053 | 0.07 | 0.075714286 |
| AOC 3 | NA | NYOW-03-PH008-B | Bromomethane | mg/kg | 0.01 | 0.002 | 5 |
| AOC 3 | NA | NYOW-03-PH008-B | Carbon disulfide | mg/kg | 0.0052 | 0.005 | 1.04 |
| AOC 3 | NA | NYOW-03-PH008-B | Carbon Tetrachloride | mg/kg | 0.0052 | 0.05 | 0.104 |
| AOC 3 | NA | NYOW-03-PH008-B | Chlorobenzene | mg/kg | 0.0052 | 2.4 | 0.002166667 |
| AOC 3 | NA | NYOW-03-PH008-B | Chloroform | mg/kg | 0.01 | 0.05 | 0.2 |
| AOC 3 | NA | NYOW-03-PH008-B | cis-1,2-Dichloroethene | mg/kg | 0.0052 | 0.04 | 0.13 |
| AOC 3 | NA | NYOW-03-PH008-B | cis-1,3-Dichloropropene | mg/kg | 0.0052 | 0.001 | 5.2 |
| AOC 3 | NA | NYOW-03-PH008-B | Ethylbenzene | mg/kg | 0.0052 | 0.27 | 0.019259259 |
| AOC 3 | NA | NYOW-03-PH008-B | m,p-Xylene | mg/kg | 0.0034 | 0.1 | 0.034 |
| AOC 3 | NA | NYOW-03-PH008-B | Methylene chloride | mg/kg | 0.0052 | 0.21 | 0.024761905 |
| AOC 3 | NA | NYOW-03-PH008-B | o-Xylene | mg/kg | 0.0052 | 0.1 | 0.052 |
| AOC 3 | NA | NYOW-03-PH008-B | Styrene | mg/kg | 0.0052 | 1.2 | 0.004333333 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH008-B | Tetrachloroethene (PCE) | mg/kg | 0.0052 | 0.06 | 0.086666667 |
| AOC 3 | NA | NYOW-03-PH008-B | trans-1,2-Dichloroethene | mg/kg | 0.0052 | 0.04 | 0.13 |
| AOC 3 | NA | NYOW-03-PH008-B | trans-1,3-Dichloropropene | mg/kg | 0.0052 | 0.001 | 5.2 |
| AOC 3 | NA | NYOW-03-PH008-B | Vinyl chloride | mg/kg | 0.0052 | 0.03 | 0.173333333 |
| AOC 3 | NA | NYOW-03-PH008-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 9 | 0.043333333 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4-Dichlorophenol | mg/kg | 0.39 | 0.05 | 7.8 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 1.8 | 0.438888889 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,4-Dinitrotoluene | mg/kg | 0.39 | 18 | 0.021666667 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2,6-Dinitrotoluene | mg/kg | 0.39 | 30 | 0.013 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2-Chlorophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.1 | 3.9 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 2-Nitrophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 3,3'-Dichlorobenzidine | mg/kg | 0.79 | 0.03 | 26.33333333 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 4-Chloroaniline | mg/kg | 0.79 | 1.8 | 0.438888889 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH008-B_R | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Atrazine | mg/kg | 0.39 | 0.00005 | 7800 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Benzyl butyl phthalate | mg/kg | 0.39 | 0.59 | 0.661016949 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Diethyl phthalate | mg/kg | 0.39 | 0.25 | 1.56 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Dimethyl phthalate | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH008-B_R | di-n-Butyl phthalate | mg/kg | 0.39 | 0.22 | 1.772727273 |
| AOC 3 | NA | NYOW-03-PH008-B_R | di-n-Octyl phthalate | mg/kg | 0.39 | 303 | 0.001287129 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH008-B_R | Hexachlorobutadiene | mg/kg | 0.39 | 0.009 | 43.33333333 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.001 | 390 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Hexachloroethane | mg/kg | 0.39 | 0.024 | 16.25 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Nitrobenzene | mg/kg | 0.39 | 2.2 | 0.177272727 |
| AOC 3 | NA | NYOW-03-PH008-B_R | N-Nitrosodiphenylamine | mg/kg | 0.39 | 20 | 0.0195 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 3 | NA | NYOW-03-PH008-B_R | Phenol | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-PH009-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,1,1-Trichloroethane | mg/kg | 0.0049 | 0.04 | 0.1225 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0049 | 0.19 | 0.025789474 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,1,2-Trichloroethane | mg/kg | 0.0049 | 0.32 | 0.0153125 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,1-Dichloroethane | mg/kg | 0.0049 | 0.14 | 0.035 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,1-Dichloroethene | mg/kg | 0.0049 | 0.04 | 0.1225 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0049 | 20 | 0.000245 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0049 | 1.2 | 0.004083333 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,2-Dichlorobenzene | mg/kg | 0.0049 | 0.09 | 0.054444444 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,2-Dichloroethane | mg/kg | 0.0049 | 0.4 | 0.01225 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,2-Dichloropropane | mg/kg | 0.0049 | 0.28 | 0.0175 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,3-Dichlorobenzene | mg/kg | 0.0049 | 0.08 | 0.06125 |
| AOC 3 | NA | NYOW-03-PH009-B | 1,4-Dichlorobenzene | mg/kg | 0.0049 | 1.2 | 0.004083333 |
| AOC 3 | NA | NYOW-03-PH009-B | 2-Hexanone | mg/kg | 0.02 | 2.5 | 0.008 |
| AOC 3 | NA | NYOW-03-PH009-B | Benzene | mg/kg | 0.0049 | 0.12 | 0.040833333 |
| AOC 3 | NA | NYOW-03-PH009-B | Bromoform | mg/kg | 0.005 | 0.07 | 0.071428571 |
| AOC 3 | NA | NYOW-03-PH009-B | Bromomethane | mg/kg | 0.0099 | 0.002 | 4.95 |
| AOC 3 | NA | NYOW-03-PH009-B | Carbon disulfide | mg/kg | 0.0049 | 0.005 | 0.98 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH009-B | Carbon Tetrachloride | mg/kg | 0.0049 | 0.05 | 0.098 |
| AOC 3 | NA | NYOW-03-PH009-B | Chlorobenzene | mg/kg | 0.0049 | 2.4 | 0.002041667 |
| AOC 3 | NA | NYOW-03-PH009-B | Chloroform | mg/kg | 0.0099 | 0.05 | 0.198 |
| AOC 3 | NA | NYOW-03-PH009-B | cis-1,2-Dichloroethene | mg/kg | 0.0049 | 0.04 | 0.1225 |
| AOC 3 | NA | NYOW-03-PH009-B | cis-1,3-Dichloropropene | mg/kg | 0.0049 | 0.001 | 4.9 |
| AOC 3 | NA | NYOW-03-PH009-B | Ethylbenzene | mg/kg | 0.0049 | 0.27 | 0.018148148 |
| AOC 3 | NA | NYOW-03-PH009-B | m,p-Xylene | mg/kg | 0.0032 | 0.1 | 0.032 |
| AOC 3 | NA | NYOW-03-PH009-B | Methylene chloride | mg/kg | 0.0049 | 0.21 | 0.023333333 |
| AOC 3 | NA | NYOW-03-PH009-B | o-Xylene | mg/kg | 0.0049 | 0.1 | 0.049 |
| AOC 3 | NA | NYOW-03-PH009-B | Styrene | mg/kg | 0.0049 | 1.2 | 0.004083333 |
| AOC 3 | NA | NYOW-03-PH009-B | Tetrachloroethene (PCE) | mg/kg | 0.0049 | 0.06 | 0.081666667 |
| AOC 3 | NA | NYOW-03-PH009-B | trans-1,2-Dichloroethene | mg/kg | 0.0049 | 0.04 | 0.1225 |
| AOC 3 | NA | NYOW-03-PH009-B | trans-1,3-Dichloropropene | mg/kg | 0.0049 | 0.001 | 4.9 |
| AOC 3 | NA | NYOW-03-PH009-B | Vinyl chloride | mg/kg | 0.0049 | 0.03 | 0.163333333 |
| AOC 3 | NA | NYOW-03-PH009-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 9 | 0.043333333 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4-Dichlorophenol | mg/kg | 0.39 | 0.05 | 7.8 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 1.8 | 0.438888889 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,4-Dinitrotoluene | mg/kg | 0.39 | 18 | 0.021666667 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2,6-Dinitrotoluene | mg/kg | 0.39 | 30 | 0.013 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2-Chlorophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.1 | 3.9 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 2-Nitrophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 3,3'-Dichlorobenzidine | mg/kg | 0.79 | 0.03 | 26.33333333 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 4-Chloroaniline | mg/kg | 0.79 | 1.8 | 0.438888889 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH009-B_R | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH009-B_R | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Atrazine | mg/kg | 0.39 | 0.00005 | 7800 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Benzyl butyl phthalate | mg/kg | 0.39 | 0.59 | 0.661016949 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Diethyl phthalate | mg/kg | 0.39 | 0.25 | 1.56 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Dimethyl phthalate | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH009-B_R | di-n-Butyl phthalate | mg/kg | 0.39 | 0.22 | 1.772727273 |
| AOC 3 | NA | NYOW-03-PH009-B_R | di-n-Octyl phthalate | mg/kg | 0.39 | 303 | 0.001287129 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Hexachlorobutadiene | mg/kg | 0.39 | 0.009 | 43.33333333 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.001 | 390 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Hexachloroethane | mg/kg | 0.39 | 0.024 | 16.25 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Nitrobenzene | mg/kg | 0.39 | 2.2 | 0.177272727 |
| AOC 3 | NA | NYOW-03-PH009-B_R | N-Nitrosodiphenylamine | mg/kg | 0.39 | 20 | 0.0195 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 3 | NA | NYOW-03-PH009-B_R | Phenol | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH010-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,1,1-Trichloroethane | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0048 | 0.19 | 0.025263158 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,1,2-Trichloroethane | mg/kg | 0.0048 | 0.32 | 0.015 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,1-Dichloroethane | mg/kg | 0.0048 | 0.14 | 0.034285714 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,1-Dichloroethene | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0048 | 20 | 0.00024 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0048 | 1.2 | 0.004 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH010-B | 1,2-Dichlorobenzene | mg/kg | 0.0048 | 0.09 | 0.053333333 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,2-Dichloroethane | mg/kg | 0.0048 | 0.4 | 0.012 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,2-Dichloropropane | mg/kg | 0.0048 | 0.28 | 0.017142857 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,3-Dichlorobenzene | mg/kg | 0.0048 | 0.08 | 0.06 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,4-Dichlorobenzene | mg/kg | 0.0048 | 1.2 | 0.004 |
| AOC 3 | NA | NYOW-03-PH010-B | 2-Hexanone | mg/kg | 0.019 | 2.5 | 0.0076 |
| AOC 3 | NA | NYOW-03-PH010-B | Benzene | mg/kg | 0.0048 | 0.12 | 0.04 |
| AOC 3 | NA | NYOW-03-PH010-B | Bromoform | mg/kg | 0.0049 | 0.07 | 0.07 |
| AOC 3 | NA | NYOW-03-PH010-B | Bromomethane | mg/kg | 0.0097 | 0.002 | 4.85 |
| AOC 3 | NA | NYOW-03-PH010-B | Carbon disulfide | mg/kg | 0.0048 | 0.005 | 0.96 |
| AOC 3 | NA | NYOW-03-PH010-B | Carbon Tetrachloride | mg/kg | 0.0048 | 0.05 | 0.096 |
| AOC 3 | NA | NYOW-03-PH010-B | Chlorobenzene | mg/kg | 0.0048 | 2.4 | 0.002 |
| AOC 3 | NA | NYOW-03-PH010-B | Chloroform | mg/kg | 0.0097 | 0.05 | 0.194 |
| AOC 3 | NA | NYOW-03-PH010-B | cis-1,2-Dichloroethene | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 3 | NA | NYOW-03-PH010-B | cis-1,3-Dichloropropene | mg/kg | 0.0048 | 0.001 | 4.8 |
| AOC 3 | NA | NYOW-03-PH010-B | Ethylbenzene | mg/kg | 0.0048 | 0.27 | 0.017777778 |
| AOC 3 | NA | NYOW-03-PH010-B | m,p-Xylene | mg/kg | 0.0031 | 0.1 | 0.031 |
| AOC 3 | NA | NYOW-03-PH010-B | Methylene chloride | mg/kg | 0.0048 | 0.21 | 0.022857143 |
| AOC 3 | NA | NYOW-03-PH010-B | o-Xylene | mg/kg | 0.0048 | 0.1 | 0.048 |
| AOC 3 | NA | NYOW-03-PH010-B | Styrene | mg/kg | 0.0048 | 1.2 | 0.004 |
| AOC 3 | NA | NYOW-03-PH010-B | Tetrachloroethene (PCE) | mg/kg | 0.0048 | 0.06 | 0.08 |
| AOC 3 | NA | NYOW-03-PH010-B | trans-1,2-Dichloroethene | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 3 | NA | NYOW-03-PH010-B | trans-1,3-Dichloropropene | mg/kg | 0.0048 | 0.001 | 4.8 |
| AOC 3 | NA | NYOW-03-PH010-B | Vinyl chloride | mg/kg | 0.0048 | 0.03 | 0.16 |
| AOC 3 | NA | NYOW-03-PH010-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 9 | 0.041111111 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 10 | 0.037 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 0.05 | 7.4 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH010-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 18 | 0.020555556 |
| AOC 3 | NA | NYOW-03-PH010-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 30 | 0.012333333 |
| AOC 3 | NA | NYOW-03-PH010-B | 2-Chlorophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 3 | NA | NYOW-03-PH010-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.1 | 3.7 |
| AOC 3 | NA | NYOW-03-PH010-B | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 3 | NA | NYOW-03-PH010-B | 2-Nitrophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 3 | NA | NYOW-03-PH010-B | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 0.03 | 24.66666667 |
| AOC 3 | NA | NYOW-03-PH010-B | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 3 | NA | NYOW-03-PH010-B | 4-Chloroaniline | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 3 | NA | NYOW-03-PH010-B | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 3 | NA | NYOW-03-PH010-B | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 3 | NA | NYOW-03-PH010-B | Atrazine | mg/kg | 0.37 | 0.00005 | 7400 |
| AOC 3 | NA | NYOW-03-PH010-B | Benzyl butyl phthalate | mg/kg | 0.37 | 0.59 | 0.627118644 |
| AOC 3 | NA | NYOW-03-PH010-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 3 | NA | NYOW-03-PH010-B | Diethyl phthalate | mg/kg | 0.37 | 0.25 | 1.48 |
| AOC 3 | NA | NYOW-03-PH010-B | Dimethyl phthalate | mg/kg | 0.37 | 10 | 0.037 |
| AOC 3 | NA | NYOW-03-PH010-B | di-n-Butyl phthalate | mg/kg | 0.37 | 0.22 | 1.681818182 |
| AOC 3 | NA | NYOW-03-PH010-B | di-n-Octyl phthalate | mg/kg | 0.37 | 303 | 0.001221122 |
| AOC 3 | NA | NYOW-03-PH010-B | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 3 | NA | NYOW-03-PH010-B | Hexachlorobutadiene | mg/kg | 0.37 | 0.009 | 41.11111111 |
| AOC 3 | NA | NYOW-03-PH010-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.001 | 370 |
| AOC 3 | NA | NYOW-03-PH010-B | Hexachloroethane | mg/kg | 0.37 | 0.024 | 15.41666667 |
| AOC 3 | NA | NYOW-03-PH010-B | Nitrobenzene | mg/kg | 0.37 | 2.2 | 0.168181818 |
| AOC 3 | NA | NYOW-03-PH010-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 20 | 0.0185 |
| AOC 3 | NA | NYOW-03-PH010-B | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 3 | NA | NYOW-03-PH010-B | Phenol | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 3 | NA | NYOW-03-PH010-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.074 | 0.33 | 0.224242424 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH011-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,1,1-Trichloroethane | mg/kg | 0.0058 | 0.04 | 0.145 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0058 | 0.19 | 0.030526316 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,1,2-Trichloroethane | mg/kg | 0.0058 | 0.32 | 0.018125 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,1-Dichloroethane | mg/kg | 0.0058 | 0.14 | 0.041428571 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,1-Dichloroethene | mg/kg | 0.0058 | 0.04 | 0.145 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0058 | 20 | 0.00029 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0058 | 1.2 | 0.004833333 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,2-Dichlorobenzene | mg/kg | 0.0058 | 0.09 | 0.064444444 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,2-Dichloroethane | mg/kg | 0.0058 | 0.4 | 0.0145 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,2-Dichloropropane | mg/kg | 0.0058 | 0.28 | 0.020714286 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,3-Dichlorobenzene | mg/kg | 0.0058 | 0.08 | 0.0725 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,4-Dichlorobenzene | mg/kg | 0.0058 | 1.2 | 0.004833333 |
| AOC 3 | NA | NYOW-03-PH011-B | 2-Hexanone | mg/kg | 0.023 | 2.5 | 0.0092 |
| AOC 3 | NA | NYOW-03-PH011-B | Benzene | mg/kg | 0.0058 | 0.12 | 0.048333333 |
| AOC 3 | NA | NYOW-03-PH011-B | Bromoform | mg/kg | 0.0059 | 0.07 | 0.084285714 |
| AOC 3 | NA | NYOW-03-PH011-B | Bromomethane | mg/kg | 0.012 | 0.002 | 6 |
| AOC 3 | NA | NYOW-03-PH011-B | Carbon disulfide | mg/kg | 0.0058 | 0.005 | 1.16 |
| AOC 3 | NA | NYOW-03-PH011-B | Carbon Tetrachloride | mg/kg | 0.0058 | 0.05 | 0.116 |
| AOC 3 | NA | NYOW-03-PH011-B | Chlorobenzene | mg/kg | 0.0058 | 2.4 | 0.002416667 |
| AOC 3 | NA | NYOW-03-PH011-B | Chloroform | mg/kg | 0.012 | 0.05 | 0.24 |
| AOC 3 | NA | NYOW-03-PH011-B | cis-1,2-Dichloroethene | mg/kg | 0.0058 | 0.04 | 0.145 |
| AOC 3 | NA | NYOW-03-PH011-B | cis-1,3-Dichloropropene | mg/kg | 0.0058 | 0.001 | 5.8 |
| AOC 3 | NA | NYOW-03-PH011-B | Ethylbenzene | mg/kg | 0.0058 | 0.27 | 0.021481481 |
| AOC 3 | NA | NYOW-03-PH011-B | m,p-Xylene | mg/kg | 0.0037 | 0.1 | 0.037 |
| AOC 3 | NA | NYOW-03-PH011-B | Methylene chloride | mg/kg | 0.0058 | 0.21 | 0.027619048 |
| AOC 3 | NA | NYOW-03-PH011-B | o-Xylene | mg/kg | 0.0058 | 0.1 | 0.058 |
| AOC 3 | NA | NYOW-03-PH011-B | Styrene | mg/kg | 0.0058 | 1.2 | 0.004833333 |
| AOC 3 | NA | NYOW-03-PH011-B | Tetrachloroethene (PCE) | mg/kg | 0.0058 | 0.06 | 0.096666667 |
| AOC 3 | NA | NYOW-03-PH011-B | trans-1,2-Dichloroethene | mg/kg | 0.0058 | 0.04 | 0.145 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH011-B | trans-1,3-Dichloropropene | mg/kg | 0.0058 | 0.001 | 5.8 |
| AOC 3 | NA | NYOW-03-PH011-B | Vinyl chloride | mg/kg | 0.0058 | 0.03 | 0.193333333 |
| AOC 3 | NA | NYOW-03-PH011-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 9 | 0.043333333 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 0.05 | 7.8 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.8 | 0.433333333 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 18 | 0.021666667 |
| AOC 3 | NA | NYOW-03-PH011-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 30 | 0.013 |
| AOC 3 | NA | NYOW-03-PH011-B | 2-Chlorophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 3 | NA | NYOW-03-PH011-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.1 | 3.9 |
| AOC 3 | NA | NYOW-03-PH011-B | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH011-B | 2-Nitrophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 3 | NA | NYOW-03-PH011-B | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 0.03 | 26 |
| AOC 3 | NA | NYOW-03-PH011-B | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH011-B | 4-Chloroaniline | mg/kg | 0.78 | 1.8 | 0.433333333 |
| AOC 3 | NA | NYOW-03-PH011-B | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH011-B | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 3 | NA | NYOW-03-PH011-B | Atrazine | mg/kg | 0.39 | 0.00005 | 7800 |
| AOC 3 | NA | NYOW-03-PH011-B | Benzyl butyl phthalate | mg/kg | 0.39 | 0.59 | 0.661016949 |
| AOC 3 | NA | NYOW-03-PH011-B | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 3 | NA | NYOW-03-PH011-B | Diethyl phthalate | mg/kg | 0.39 | 0.25 | 1.56 |
| AOC 3 | NA | NYOW-03-PH011-B | Dimethyl phthalate | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH011-B | di-n-Butyl phthalate | mg/kg | 0.39 | 0.22 | 1.772727273 |
| AOC 3 | NA | NYOW-03-PH011-B | di-n-Octyl phthalate | mg/kg | 0.39 | 303 | 0.001287129 |
| AOC 3 | NA | NYOW-03-PH011-B | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH011-B | Hexachlorobutadiene | mg/kg | 0.39 | 0.009 | 43.33333333 |
| AOC 3 | NA | NYOW-03-PH011-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.001 | 390 |
| AOC 3 | NA | NYOW-03-PH011-B | Hexachloroethane | mg/kg | 0.39 | 0.024 | 16.25 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH011-B | Nitrobenzene | mg/kg | 0.39 | 2.2 | 0.177272727 |
| AOC 3 | NA | NYOW-03-PH011-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 20 | 0.0195 |
| AOC 3 | NA | NYOW-03-PH011-B | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 3 | NA | NYOW-03-PH011-B | Phenol | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 3 | NA | NYOW-03-PH011-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.071 | 0.33 | 0.215151515 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.33 | 0.303030303 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.071 | 0.33 | 0.215151515 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.071 | 0.33 | 0.215151515 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.071 | 0.33 | 0.215151515 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.071 | 0.33 | 0.215151515 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.071 | 0.33 | 0.215151515 |
| AOC 3 | NA | NYOW-03-PH012-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.071 | 0.33 | 0.215151515 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,1,1-Trichloroethane | mg/kg | 0.0052 | 0.04 | 0.13 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0052 | 0.19 | 0.027368421 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,1,2-Trichloroethane | mg/kg | 0.0052 | 0.32 | 0.01625 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,1-Dichloroethane | mg/kg | 0.0052 | 0.14 | 0.037142857 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,1-Dichloroethene | mg/kg | 0.0052 | 0.04 | 0.13 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0052 | 20 | 0.00026 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0052 | 1.2 | 0.004333333 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,2-Dichlorobenzene | mg/kg | 0.0052 | 0.09 | 0.057777778 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,2-Dichloroethane | mg/kg | 0.0052 | 0.4 | 0.013 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,2-Dichloropropane | mg/kg | 0.0052 | 0.28 | 0.018571429 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,3-Dichlorobenzene | mg/kg | 0.0052 | 0.08 | 0.065 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,4-Dichlorobenzene | mg/kg | 0.0052 | 1.2 | 0.004333333 |
| AOC 3 | NA | NYOW-03-PH012-B | 2-Hexanone | mg/kg | 0.021 | 2.5 | 0.0084 |
| AOC 3 | NA | NYOW-03-PH012-B | Benzene | mg/kg | 0.0052 | 0.12 | 0.043333333 |
| AOC 3 | NA | NYOW-03-PH012-B | Bromoform | mg/kg | 0.0053 | 0.07 | 0.075714286 |
| AOC 3 | NA | NYOW-03-PH012-B | Bromomethane | mg/kg | 0.01 | 0.002 | 5 |
| AOC 3 | NA | NYOW-03-PH012-B | Carbon disulfide | mg/kg | 0.0052 | 0.005 | 1.04 |
| AOC 3 | NA | NYOW-03-PH012-B | Carbon Tetrachloride | mg/kg | 0.0052 | 0.05 | 0.104 |
| AOC 3 | NA | NYOW-03-PH012-B | Chlorobenzene | mg/kg | 0.0052 | 2.4 | 0.002166667 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH012-B | Chloroform | mg/kg | 0.01 | 0.05 | 0.2 |
| AOC 3 | NA | NYOW-03-PH012-B | cis-1,2-Dichloroethene | mg/kg | 0.0052 | 0.04 | 0.13 |
| AOC 3 | NA | NYOW-03-PH012-B | cis-1,3-Dichloropropene | mg/kg | 0.0052 | 0.001 | 5.2 |
| AOC 3 | NA | NYOW-03-PH012-B | Ethylbenzene | mg/kg | 0.0052 | 0.27 | 0.019259259 |
| AOC 3 | NA | NYOW-03-PH012-B | m,p-Xylene | mg/kg | 0.0034 | 0.1 | 0.034 |
| AOC 3 | NA | NYOW-03-PH012-B | Methylene chloride | mg/kg | 0.0052 | 0.21 | 0.024761905 |
| AOC 3 | NA | NYOW-03-PH012-B | o-Xylene | mg/kg | 0.0052 | 0.1 | 0.052 |
| AOC 3 | NA | NYOW-03-PH012-B | Styrene | mg/kg | 0.0052 | 1.2 | 0.004333333 |
| AOC 3 | NA | NYOW-03-PH012-B | Tetrachloroethene (PCE) | mg/kg | 0.0052 | 0.06 | 0.086666667 |
| AOC 3 | NA | NYOW-03-PH012-B | trans-1,2-Dichloroethene | mg/kg | 0.0052 | 0.04 | 0.13 |
| AOC 3 | NA | NYOW-03-PH012-B | trans-1,3-Dichloropropene | mg/kg | 0.0052 | 0.001 | 5.2 |
| AOC 3 | NA | NYOW-03-PH012-B | Vinyl chloride | mg/kg | 0.0052 | 0.03 | 0.173333333 |
| AOC 3 | NA | NYOW-03-PH012-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.35 | 0.18 | 1.944444444 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.35 | 0.04 | 8.75 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 9 | 0.038888889 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,4,6-Trichlorophenol | mg/kg | 0.35 | 10 | 0.035 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,4-Dichlorophenol | mg/kg | 0.35 | 0.05 | 7 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,4-Dimethylphenol | mg/kg | 0.35 | 0.04 | 8.75 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.8 | 0.388888889 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,4-Dinitrotoluene | mg/kg | 0.35 | 18 | 0.019444444 |
| AOC 3 | NA | NYOW-03-PH012-B | 2,6-Dinitrotoluene | mg/kg | 0.35 | 30 | 0.011666667 |
| AOC 3 | NA | NYOW-03-PH012-B | 2-Chlorophenol | mg/kg | 0.35 | 0.06 | 5.833333333 |
| AOC 3 | NA | NYOW-03-PH012-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 0.1 | 3.5 |
| AOC 3 | NA | NYOW-03-PH012-B | 2-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 3 | NA | NYOW-03-PH012-B | 2-Nitrophenol | mg/kg | 0.35 | 0.06 | 5.833333333 |
| AOC 3 | NA | NYOW-03-PH012-B | 3,3'-Dichlorobenzidine | mg/kg | 0.7 | 0.03 | 23.33333333 |
| AOC 3 | NA | NYOW-03-PH012-B | 3-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 3 | NA | NYOW-03-PH012-B | 4-Chloroaniline | mg/kg | 0.7 | 1.8 | 0.388888889 |
| AOC 3 | NA | NYOW-03-PH012-B | 4-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 3 | NA | NYOW-03-PH012-B | 4-Nitrophenol | mg/kg | 1.8 | 7 | 0.257142857 |
| AOC 3 | NA | NYOW-03-PH012-B | Atrazine | mg/kg | 0.35 | 0.00005 | 7000 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH012-B | Benzyl butyl phthalate | mg/kg | 0.35 | 0.59 | 0.593220339 |
| AOC 3 | NA | NYOW-03-PH012-B | Biphenyl (Diphenyl) | mg/kg | 1.8 | 0.2 | 9 |
| AOC 3 | NA | NYOW-03-PH012-B | Diethyl phthalate | mg/kg | 0.35 | 0.25 | 1.4 |
| AOC 3 | NA | NYOW-03-PH012-B | Dimethyl phthalate | mg/kg | 0.35 | 10 | 0.035 |
| AOC 3 | NA | NYOW-03-PH012-B | di-n-Butyl phthalate | mg/kg | 0.35 | 0.22 | 1.590909091 |
| AOC 3 | NA | NYOW-03-PH012-B | di-n-Octyl phthalate | mg/kg | 0.35 | 303 | 0.001155116 |
| AOC 3 | NA | NYOW-03-PH012-B | Hexachlorobenzene | mg/kg | 0.35 | 10 | 0.035 |
| AOC 3 | NA | NYOW-03-PH012-B | Hexachlorobutadiene | mg/kg | 0.35 | 0.009 | 38.88888889 |
| AOC 3 | NA | NYOW-03-PH012-B | Hexachlorocyclopentadiene | mg/kg | 0.35 | 0.001 | 350 |
| AOC 3 | NA | NYOW-03-PH012-B | Hexachloroethane | mg/kg | 0.35 | 0.024 | 14.58333333 |
| AOC 3 | NA | NYOW-03-PH012-B | Nitrobenzene | mg/kg | 0.35 | 2.2 | 0.159090909 |
| AOC 3 | NA | NYOW-03-PH012-B | N-Nitrosodiphenylamine | mg/kg | 0.35 | 20 | 0.0175 |
| AOC 3 | NA | NYOW-03-PH012-B | Pentachlorophenol | mg/kg | 1.8 | 31 | 0.058064516 |
| AOC 3 | NA | NYOW-03-PH012-B | Phenol | mg/kg | 0.35 | 1.8 | 0.194444444 |
| AOC 3 | NA | NYOW-03-PH012-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 3 | NA | NYOW-03-PH013-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,1,1-Trichloroethane | mg/kg | 0.0051 | 0.04 | 0.1275 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0051 | 0.19 | 0.026842105 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,1,2-Trichloroethane | mg/kg | 0.0051 | 0.32 | 0.0159375 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,1-Dichloroethane | mg/kg | 0.0051 | 0.14 | 0.036428571 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,1-Dichloroethene | mg/kg | 0.0051 | 0.04 | 0.1275 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0051 | 20 | 0.000255 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0051 | 1.2 | 0.00425 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,2-Dichlorobenzene | mg/kg | 0.0051 | 0.09 | 0.056666667 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,2-Dichloroethane | mg/kg | 0.0051 | 0.4 | 0.01275 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH013-B | 1,2-Dichloropropane | mg/kg | 0.0051 | 0.28 | 0.018214286 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,3-Dichlorobenzene | mg/kg | 0.0051 | 0.08 | 0.06375 |
| AOC 3 | NA | NYOW-03-PH013-B | 1,4-Dichlorobenzene | mg/kg | 0.0051 | 1.2 | 0.00425 |
| AOC 3 | NA | NYOW-03-PH013-B | 2-Hexanone | mg/kg | 0.02 | 2.5 | 0.008 |
| AOC 3 | NA | NYOW-03-PH013-B | Benzene | mg/kg | 0.0051 | 0.12 | 0.0425 |
| AOC 3 | NA | NYOW-03-PH013-B | Bromoform | mg/kg | 0.0052 | 0.07 | 0.074285714 |
| AOC 3 | NA | NYOW-03-PH013-B | Bromomethane | mg/kg | 0.01 | 0.002 | 5 |
| AOC 3 | NA | NYOW-03-PH013-B | Carbon disulfide | mg/kg | 0.0051 | 0.005 | 1.02 |
| AOC 3 | NA | NYOW-03-PH013-B | Carbon Tetrachloride | mg/kg | 0.0051 | 0.05 | 0.102 |
| AOC 3 | NA | NYOW-03-PH013-B | Chlorobenzene | mg/kg | 0.0051 | 2.4 | 0.002125 |
| AOC 3 | NA | NYOW-03-PH013-B | Chloroform | mg/kg | 0.01 | 0.05 | 0.2 |
| AOC 3 | NA | NYOW-03-PH013-B | cis-1,2-Dichloroethene | mg/kg | 0.0051 | 0.04 | 0.1275 |
| AOC 3 | NA | NYOW-03-PH013-B | cis-1,3-Dichloropropene | mg/kg | 0.0051 | 0.001 | 5.1 |
| AOC 3 | NA | NYOW-03-PH013-B | Ethylbenzene | mg/kg | 0.0051 | 0.27 | 0.018888889 |
| AOC 3 | NA | NYOW-03-PH013-B | m,p-Xylene | mg/kg | 0.0033 | 0.1 | 0.033 |
| AOC 3 | NA | NYOW-03-PH013-B | Methylene chloride | mg/kg | 0.0051 | 0.21 | 0.024285714 |
| AOC 3 | NA | NYOW-03-PH013-B | o-Xylene | mg/kg | 0.0051 | 0.1 | 0.051 |
| AOC 3 | NA | NYOW-03-PH013-B | Styrene | mg/kg | 0.0051 | 1.2 | 0.00425 |
| AOC 3 | NA | NYOW-03-PH013-B | Tetrachloroethene (PCE) | mg/kg | 0.0051 | 0.06 | 0.085 |
| AOC 3 | NA | NYOW-03-PH013-B | trans-1,2-Dichloroethene | mg/kg | 0.0051 | 0.04 | 0.1275 |
| AOC 3 | NA | NYOW-03-PH013-B | trans-1,3-Dichloropropene | mg/kg | 0.0051 | 0.001 | 5.1 |
| AOC 3 | NA | NYOW-03-PH013-B | Vinyl chloride | mg/kg | 0.0051 | 0.03 | 0.17 |
| AOC 3 | NA | NYOW-03-PH013-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 9 | 0.043333333 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4-Dichlorophenol | mg/kg | 0.39 | 0.05 | 7.8 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.8 | 0.433333333 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,4-Dinitrotoluene | mg/kg | 0.39 | 18 | 0.021666667 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH013-B_R | 2,6-Dinitrotoluene | mg/kg | 0.39 | 30 | 0.013 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2-Chlorophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.1 | 3.9 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 2-Nitrophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 0.03 | 26 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 4-Chloroaniline | mg/kg | 0.78 | 1.8 | 0.433333333 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH013-B_R | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Atrazine | mg/kg | 0.39 | 0.00005 | 7800 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Benzyl butyl phthalate | mg/kg | 0.39 | 0.59 | 0.661016949 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Diethyl phthalate | mg/kg | 0.39 | 0.25 | 1.56 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Dimethyl phthalate | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH013-B_R | di-n-Butyl phthalate | mg/kg | 0.39 | 0.22 | 1.772727273 |
| AOC 3 | NA | NYOW-03-PH013-B_R | di-n-Octyl phthalate | mg/kg | 0.39 | 303 | 0.001287129 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Hexachlorobutadiene | mg/kg | 0.39 | 0.009 | 43.33333333 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.001 | 390 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Hexachloroethane | mg/kg | 0.39 | 0.024 | 16.25 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Nitrobenzene | mg/kg | 0.39 | 2.2 | 0.177272727 |
| AOC 3 | NA | NYOW-03-PH013-B_R | N-Nitrosodiphenylamine | mg/kg | 0.39 | 20 | 0.0195 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 3 | NA | NYOW-03-PH013-B_R | Phenol | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.074 | 0.33 | 0.224242424 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH014-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.074 | 0.33 | 0.224242424 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,1,1-Trichloroethane | mg/kg | 0.0051 | 0.04 | 0.1275 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0051 | 0.19 | 0.026842105 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,1,2-Trichloroethane | mg/kg | 0.0051 | 0.32 | 0.0159375 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,1-Dichloroethane | mg/kg | 0.0051 | 0.14 | 0.036428571 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,1-Dichloroethene | mg/kg | 0.0051 | 0.04 | 0.1275 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0051 | 20 | 0.000255 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0051 | 1.2 | 0.00425 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,2-Dichlorobenzene | mg/kg | 0.0051 | 0.09 | 0.056666667 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,2-Dichloroethane | mg/kg | 0.0051 | 0.4 | 0.01275 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,2-Dichloropropane | mg/kg | 0.0051 | 0.28 | 0.018214286 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,3-Dichlorobenzene | mg/kg | 0.0051 | 0.08 | 0.06375 |
| AOC 3 | NA | NYOW-03-PH014-B | 1,4-Dichlorobenzene | mg/kg | 0.0051 | 1.2 | 0.00425 |
| AOC 3 | NA | NYOW-03-PH014-B | 2-Hexanone | mg/kg | 0.02 | 2.5 | 0.008 |
| AOC 3 | NA | NYOW-03-PH014-B | Benzene | mg/kg | 0.0051 | 0.12 | 0.0425 |
| AOC 3 | NA | NYOW-03-PH014-B | Bromoform | mg/kg | 0.0052 | 0.07 | 0.074285714 |
| AOC 3 | NA | NYOW-03-PH014-B | Bromomethane | mg/kg | 0.01 | 0.002 | 5 |
| AOC 3 | NA | NYOW-03-PH014-B | Carbon disulfide | mg/kg | 0.0051 | 0.005 | 1.02 |
| AOC 3 | NA | NYOW-03-PH014-B | Carbon Tetrachloride | mg/kg | 0.0051 | 0.05 | 0.102 |
| AOC 3 | NA | NYOW-03-PH014-B | Chlorobenzene | mg/kg | 0.0051 | 2.4 | 0.002125 |
| AOC 3 | NA | NYOW-03-PH014-B | Chloroform | mg/kg | 0.01 | 0.05 | 0.2 |
| AOC 3 | NA | NYOW-03-PH014-B | cis-1,2-Dichloroethene | mg/kg | 0.0051 | 0.04 | 0.1275 |
| AOC 3 | NA | NYOW-03-PH014-B | cis-1,3-Dichloropropene | mg/kg | 0.0051 | 0.001 | 5.1 |
| AOC 3 | NA | NYOW-03-PH014-B | Ethylbenzene | mg/kg | 0.0051 | 0.27 | 0.018888889 |
| AOC 3 | NA | NYOW-03-PH014-B | m,p-Xylene | mg/kg | 0.0033 | 0.1 | 0.033 |
| AOC 3 | NA | NYOW-03-PH014-B | Methylene chloride | mg/kg | 0.0051 | 0.21 | 0.024285714 |
| AOC 3 | NA | NYOW-03-PH014-B | o-Xylene | mg/kg | 0.0051 | 0.1 | 0.051 |
| AOC 3 | NA | NYOW-03-PH014-B | Styrene | mg/kg | 0.0051 | 1.2 | 0.00425 |
| AOC 3 | NA | NYOW-03-PH014-B | Tetrachloroethene (PCE) | mg/kg | 0.0051 | 0.06 | 0.085 |
| AOC 3 | NA | NYOW-03-PH014-B | trans-1,2-Dichloroethene | mg/kg | 0.0051 | 0.04 | 0.1275 |
| AOC 3 | NA | NYOW-03-PH014-B | trans-1,3-Dichloropropene | mg/kg | 0.0051 | 0.001 | 5.1 |
| AOC 3 | NA | NYOW-03-PH014-B | Vinyl chloride | mg/kg | 0.0051 | 0.03 | 0.17 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH014-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.4 | 0.18 | 2.222222222 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.4 | 0.04 | 10 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.4 | 9 | 0.044444444 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4,6-Trichlorophenol | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4-Dichlorophenol | mg/kg | 0.4 | 0.05 | 8 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4-Dimethylphenol | mg/kg | 0.4 | 0.04 | 10 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 1.8 | 0.45 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,4-Dinitrotoluene | mg/kg | 0.4 | 18 | 0.022222222 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2,6-Dinitrotoluene | mg/kg | 0.4 | 30 | 0.013333333 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2-Chlorophenol | mg/kg | 0.4 | 0.06 | 6.666666667 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.4 | 0.1 | 4 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 2-Nitrophenol | mg/kg | 0.4 | 0.06 | 6.666666667 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 3,3'-Dichlorobenzidine | mg/kg | 0.81 | 0.03 | 27 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 3-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 4-Chloroaniline | mg/kg | 0.81 | 1.8 | 0.45 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 4-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH014-B_R | 4-Nitrophenol | mg/kg | 2.1 | 7 | 0.3 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Atrazine | mg/kg | 0.4 | 0.00005 | 8000 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Benzyl butyl phthalate | mg/kg | 0.4 | 0.59 | 0.677966102 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Biphenyl (Diphenyl) | mg/kg | 2.1 | 0.2 | 10.5 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Diethyl phthalate | mg/kg | 0.4 | 0.25 | 1.6 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Dimethyl phthalate | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-PH014-B_R | di-n-Butyl phthalate | mg/kg | 0.4 | 0.22 | 1.818181818 |
| AOC 3 | NA | NYOW-03-PH014-B_R | di-n-Octyl phthalate | mg/kg | 0.4 | 303 | 0.001320132 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Hexachlorobenzene | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Hexachlorobutadiene | mg/kg | 0.4 | 0.009 | 44.44444444 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Hexachlorocyclopentadiene | mg/kg | 0.4 | 0.001 | 400 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Hexachloroethane | mg/kg | 0.4 | 0.024 | 16.66666667 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Nitrobenzene | mg/kg | 0.4 | 2.2 | 0.181818182 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH014-B_R | N-Nitrosodiphenylamine | mg/kg | 0.4 | 20 | 0.02 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Pentachlorophenol | mg/kg | 2.1 | 31 | 0.067741935 |
| AOC 3 | NA | NYOW-03-PH014-B_R | Phenol | mg/kg | 0.4 | 1.8 | 0.222222222 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.081 | 0.33 | 0.245454545 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.081 | 0.33 | 0.245454545 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.081 | 0.33 | 0.245454545 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.081 | 0.33 | 0.245454545 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.081 | 0.33 | 0.245454545 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.081 | 0.33 | 0.245454545 |
| AOC 3 | NA | NYOW-03-PH015-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.081 | 0.33 | 0.245454545 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,1,1-Trichloroethane | mg/kg | 0.005 | 0.04 | 0.125 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.005 | 0.19 | 0.026315789 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,1,2-Trichloroethane | mg/kg | 0.005 | 0.32 | 0.015625 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,1-Dichloroethane | mg/kg | 0.005 | 0.14 | 0.035714286 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,1-Dichloroethene | mg/kg | 0.005 | 0.04 | 0.125 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,2,3-Trichlorobenzene | mg/kg | 0.005 | 20 | 0.00025 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,2,4-Trichlorobenzene | mg/kg | 0.005 | 1.2 | 0.004166667 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,2-Dichlorobenzene | mg/kg | 0.005 | 0.09 | 0.055555556 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,2-Dichloroethane | mg/kg | 0.005 | 0.4 | 0.0125 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,2-Dichloropropane | mg/kg | 0.005 | 0.28 | 0.017857143 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,3-Dichlorobenzene | mg/kg | 0.005 | 0.08 | 0.0625 |
| AOC 3 | NA | NYOW-03-PH015-B | 1,4-Dichlorobenzene | mg/kg | 0.005 | 1.2 | 0.004166667 |
| AOC 3 | NA | NYOW-03-PH015-B | 2-Hexanone | mg/kg | 0.02 | 2.5 | 0.008 |
| AOC 3 | NA | NYOW-03-PH015-B | Benzene | mg/kg | 0.005 | 0.12 | 0.041666667 |
| AOC 3 | NA | NYOW-03-PH015-B | Bromoform | mg/kg | 0.0051 | 0.07 | 0.072857143 |
| AOC 3 | NA | NYOW-03-PH015-B | Bromomethane | mg/kg | 0.01 | 0.002 | 5 |
| AOC 3 | NA | NYOW-03-PH015-B | Carbon disulfide | mg/kg | 0.005 | 0.005 | 1 |
| AOC 3 | NA | NYOW-03-PH015-B | Carbon Tetrachloride | mg/kg | 0.005 | 0.05 | 0.1 |
| AOC 3 | NA | NYOW-03-PH015-B | Chlorobenzene | mg/kg | 0.005 | 2.4 | 0.002083333 |
| AOC 3 | NA | NYOW-03-PH015-B | Chloroform | mg/kg | 0.01 | 0.05 | 0.2 |
| AOC 3 | NA | NYOW-03-PH015-B | cis-1,2-Dichloroethene | mg/kg | 0.005 | 0.04 | 0.125 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH015-B | cis-1,3-Dichloropropene | mg/kg | 0.005 | 0.001 | 5 |
| AOC 3 | NA | NYOW-03-PH015-B | Ethylbenzene | mg/kg | 0.005 | 0.27 | 0.018518519 |
| AOC 3 | NA | NYOW-03-PH015-B | m,p-Xylene | mg/kg | 0.0032 | 0.1 | 0.032 |
| AOC 3 | NA | NYOW-03-PH015-B | Methylene chloride | mg/kg | 0.005 | 0.21 | 0.023809524 |
| AOC 3 | NA | NYOW-03-PH015-B | o-Xylene | mg/kg | 0.005 | 0.1 | 0.05 |
| AOC 3 | NA | NYOW-03-PH015-B | Styrene | mg/kg | 0.005 | 1.2 | 0.004166667 |
| AOC 3 | NA | NYOW-03-PH015-B | Tetrachloroethene (PCE) | mg/kg | 0.005 | 0.06 | 0.083333333 |
| AOC 3 | NA | NYOW-03-PH015-B | trans-1,2-Dichloroethene | mg/kg | 0.005 | 0.04 | 0.125 |
| AOC 3 | NA | NYOW-03-PH015-B | trans-1,3-Dichloropropene | mg/kg | 0.005 | 0.001 | 5 |
| AOC 3 | NA | NYOW-03-PH015-B | Vinyl chloride | mg/kg | 0.005 | 0.03 | 0.166666667 |
| AOC 3 | NA | NYOW-03-PH015-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.4 | 0.18 | 2.222222222 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.4 | 0.04 | 10 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.4 | 9 | 0.044444444 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4,6-Trichlorophenol | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4-Dichlorophenol | mg/kg | 0.4 | 0.05 | 8 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4-Dimethylphenol | mg/kg | 0.4 | 0.04 | 10 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 1.8 | 0.444444444 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,4-Dinitrotoluene | mg/kg | 0.4 | 18 | 0.022222222 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2,6-Dinitrotoluene | mg/kg | 0.4 | 30 | 0.013333333 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2-Chlorophenol | mg/kg | 0.4 | 0.06 | 6.666666667 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.4 | 0.1 | 4 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 2-Nitrophenol | mg/kg | 0.4 | 0.06 | 6.666666667 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 3,3'-Dichlorobenzidine | mg/kg | 0.8 | 0.03 | 26.66666667 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 3-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 4-Chloroaniline | mg/kg | 0.8 | 1.8 | 0.444444444 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 4-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH015-B_R | 4-Nitrophenol | mg/kg | 2.1 | 7 | 0.3 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Atrazine | mg/kg | 0.4 | 0.00005 | 8000 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Benzyl butyl phthalate | mg/kg | 0.4 | 0.59 | 0.677966102 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH015-B_R | Biphenyl (Diphenyl) | mg/kg | 2.1 | 0.2 | 10.5 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Diethyl phthalate | mg/kg | 0.4 | 0.25 | 1.6 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Dimethyl phthalate | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-PH015-B_R | di-n-Butyl phthalate | mg/kg | 0.4 | 0.22 | 1.818181818 |
| AOC 3 | NA | NYOW-03-PH015-B_R | di-n-Octyl phthalate | mg/kg | 0.4 | 303 | 0.001320132 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Hexachlorobenzene | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Hexachlorobutadiene | mg/kg | 0.4 | 0.009 | 44.44444444 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Hexachlorocyclopentadiene | mg/kg | 0.4 | 0.001 | 400 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Hexachloroethane | mg/kg | 0.4 | 0.024 | 16.66666667 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Nitrobenzene | mg/kg | 0.4 | 2.2 | 0.181818182 |
| AOC 3 | NA | NYOW-03-PH015-B_R | N-Nitrosodiphenylamine | mg/kg | 0.4 | 20 | 0.02 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Pentachlorophenol | mg/kg | 2.1 | 31 | 0.067741935 |
| AOC 3 | NA | NYOW-03-PH015-B_R | Phenol | mg/kg | 0.4 | 1.8 | 0.222222222 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.08 | 0.33 | 0.242424242 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.08 | 0.33 | 0.242424242 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.08 | 0.33 | 0.242424242 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.08 | 0.33 | 0.242424242 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.08 | 0.33 | 0.242424242 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.08 | 0.33 | 0.242424242 |
| AOC 3 | NA | NYOW-03-PH016-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.08 | 0.33 | 0.242424242 |
| AOC 3 | NA | NYOW-03-PH016-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.4 | 0.18 | 2.222222222 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.4 | 0.04 | 10 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4,5-Trichlorophenol | mg/kg | 0.4 | 9 | 0.044444444 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4,6-Trichlorophenol | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4-Dichlorophenol | mg/kg | 0.4 | 0.05 | 8 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4-Dimethylphenol | mg/kg | 0.4 | 0.04 | 10 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 1.8 | 0.444444444 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,4-Dinitrotoluene | mg/kg | 0.4 | 18 | 0.022222222 |
| AOC 3 | NA | NYOW-03-PH016-B | 2,6-Dinitrotoluene | mg/kg | 0.4 | 30 | 0.013333333 |
| AOC 3 | NA | NYOW-03-PH016-B | 2-Chlorophenol | mg/kg | 0.4 | 0.06 | 6.666666667 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH016-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.4 | 0.1 | 4 |
| AOC 3 | NA | NYOW-03-PH016-B | 2-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH016-B | 2-Nitrophenol | mg/kg | 0.4 | 0.06 | 6.666666667 |
| AOC 3 | NA | NYOW-03-PH016-B | 3,3'-Dichlorobenzidine | mg/kg | 0.8 | 0.03 | 26.66666667 |
| AOC 3 | NA | NYOW-03-PH016-B | 3-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH016-B | 4-Chloroaniline | mg/kg | 0.8 | 1.8 | 0.444444444 |
| AOC 3 | NA | NYOW-03-PH016-B | 4-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-PH016-B | 4-Nitrophenol | mg/kg | 2.1 | 7 | 0.3 |
| AOC 3 | NA | NYOW-03-PH016-B | Atrazine | mg/kg | 0.4 | 0.00005 | 8000 |
| AOC 3 | NA | NYOW-03-PH016-B | Benzyl butyl phthalate | mg/kg | 0.4 | 0.59 | 0.677966102 |
| AOC 3 | NA | NYOW-03-PH016-B | Biphenyl (Diphenyl) | mg/kg | 2.1 | 0.2 | 10.5 |
| AOC 3 | NA | NYOW-03-PH016-B | Diethyl phthalate | mg/kg | 0.4 | 0.25 | 1.6 |
| AOC 3 | NA | NYOW-03-PH016-B | Dimethyl phthalate | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-PH016-B | di-n-Butyl phthalate | mg/kg | 0.4 | 0.22 | 1.818181818 |
| AOC 3 | NA | NYOW-03-PH016-B | di-n-Octyl phthalate | mg/kg | 0.4 | 303 | 0.001320132 |
| AOC 3 | NA | NYOW-03-PH016-B | Hexachlorobenzene | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-PH016-B | Hexachlorobutadiene | mg/kg | 0.4 | 0.009 | 44.44444444 |
| AOC 3 | NA | NYOW-03-PH016-B | Hexachlorocyclopentadiene | mg/kg | 0.4 | 0.001 | 400 |
| AOC 3 | NA | NYOW-03-PH016-B | Hexachloroethane | mg/kg | 0.4 | 0.024 | 16.66666667 |
| AOC 3 | NA | NYOW-03-PH016-B | Nitrobenzene | mg/kg | 0.4 | 2.2 | 0.181818182 |
| AOC 3 | NA | NYOW-03-PH016-B | N-Nitrosodiphenylamine | mg/kg | 0.4 | 20 | 0.02 |
| AOC 3 | NA | NYOW-03-PH016-B | Pentachlorophenol | mg/kg | 2.1 | 31 | 0.067741935 |
| AOC 3 | NA | NYOW-03-PH016-B | Phenol | mg/kg | 0.4 | 1.8 | 0.222222222 |
| AOC 3 | NA | NYOW-03-PH016-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,1,1-Trichloroethane | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0048 | 0.19 | 0.025263158 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,1,2-Trichloroethane | mg/kg | 0.0048 | 0.32 | 0.015 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,1-Dichloroethane | mg/kg | 0.0048 | 0.14 | 0.034285714 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,1-Dichloroethene | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,2,3-Trichlorobenzene | mg/kg | 0.0048 | 20 | 0.00024 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,2,4-Trichlorobenzene | mg/kg | 0.0048 | 1.2 | 0.004 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,2-Dichlorobenzene | mg/kg | 0.0048 | 0.09 | 0.053333333 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,2-Dichloroethane | mg/kg | 0.0048 | 0.4 | 0.012 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,2-Dichloropropane | mg/kg | 0.0048 | 0.28 | 0.017142857 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,3-Dichlorobenzene | mg/kg | 0.0048 | 0.08 | 0.06 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,4-Dichlorobenzene | mg/kg | 0.0048 | 1.2 | 0.004 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2-Hexanone | mg/kg | 0.019 | 2.5 | 0.0076 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Benzene | mg/kg | 0.0048 | 0.12 | 0.04 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Bromoform | mg/kg | 0.0049 | 0.07 | 0.07 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Bromomethane | mg/kg | 0.0096 | 0.002 | 4.8 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Carbon disulfide | mg/kg | 0.0048 | 0.005 | 0.96 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Carbon Tetrachloride | mg/kg | 0.0048 | 0.05 | 0.096 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Chlorobenzene | mg/kg | 0.0048 | 2.4 | 0.002 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Chloroform | mg/kg | 0.0096 | 0.05 | 0.192 |
| AOC 3 | NA | NYOW-03-PH016-B_R | cis-1,2-Dichloroethene | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 3 | NA | NYOW-03-PH016-B_R | cis-1,3-Dichloropropene | mg/kg | 0.0048 | 0.001 | 4.8 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Ethylbenzene | mg/kg | 0.0048 | 0.27 | 0.017777778 |
| AOC 3 | NA | NYOW-03-PH016-B_R | m,p-Xylene | mg/kg | 0.0031 | 0.1 | 0.031 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Methylene chloride | mg/kg | 0.0048 | 0.21 | 0.022857143 |
| AOC 3 | NA | NYOW-03-PH016-B_R | o-Xylene | mg/kg | 0.0048 | 0.1 | 0.048 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Styrene | mg/kg | 0.0048 | 1.2 | 0.004 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Tetrachloroethene (PCE) | mg/kg | 0.0048 | 0.06 | 0.08 |
| AOC 3 | NA | NYOW-03-PH016-B_R | trans-1,2-Dichloroethene | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 3 | NA | NYOW-03-PH016-B_R | trans-1,3-Dichloropropene | mg/kg | 0.0048 | 0.001 | 4.8 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Vinyl chloride | mg/kg | 0.0048 | 0.03 | 0.16 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 9 | 0.043333333 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4-Dichlorophenol | mg/kg | 0.39 | 0.05 | 7.8 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.8 | 0.433333333 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,4-Dinitrotoluene | mg/kg | 0.39 | 18 | 0.021666667 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH016-B_R | 2,6-Dinitrotoluene | mg/kg | 0.39 | 30 | 0.013 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2-Chlorophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.1 | 3.9 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 2-Nitrophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 0.03 | 26 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 4-Chloroaniline | mg/kg | 0.78 | 1.8 | 0.433333333 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-PH016-B_R | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Atrazine | mg/kg | 0.39 | 0.00005 | 7800 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Benzyl butyl phthalate | mg/kg | 0.39 | 0.59 | 0.661016949 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Diethyl phthalate | mg/kg | 0.39 | 0.25 | 1.56 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Dimethyl phthalate | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH016-B_R | di-n-Butyl phthalate | mg/kg | 0.39 | 0.22 | 1.772727273 |
| AOC 3 | NA | NYOW-03-PH016-B_R | di-n-Octyl phthalate | mg/kg | 0.39 | 303 | 0.001287129 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Hexachlorobutadiene | mg/kg | 0.39 | 0.009 | 43.33333333 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.001 | 390 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Hexachloroethane | mg/kg | 0.39 | 0.024 | 16.25 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Nitrobenzene | mg/kg | 0.39 | 2.2 | 0.177272727 |
| AOC 3 | NA | NYOW-03-PH016-B_R | N-Nitrosodiphenylamine | mg/kg | 0.39 | 20 | 0.0195 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 3 | NA | NYOW-03-PH016-B_R | Phenol | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,1,1-Trichloroethane | mg/kg | 0.0046 | 0.04 | 0.115 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0046 | 0.19 | 0.024210526 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,1,2-Trichloroethane | mg/kg | 0.0046 | 0.32 | 0.014375 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,1-Dichloroethane | mg/kg | 0.0046 | 0.14 | 0.032857143 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,1-Dichloroethene | mg/kg | 0.0046 | 0.04 | 0.115 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,2,3-Trichlorobenzene | mg/kg | 0.0046 | 20 | 0.00023 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,2,4-Trichlorobenzene | mg/kg | 0.0046 | 1.2 | 0.003833333 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,2-Dichlorobenzene | mg/kg | 0.0046 | 0.09 | 0.051111111 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,2-Dichloroethane | mg/kg | 0.0046 | 0.4 | 0.0115 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,2-Dichloropropane | mg/kg | 0.0046 | 0.28 | 0.016428571 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,3-Dichlorobenzene | mg/kg | 0.0046 | 0.08 | 0.0575 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 1,4-Dichlorobenzene | mg/kg | 0.0046 | 1.2 | 0.003833333 |
| AOC 3 | NA | NYOW-03-PH017-B_R | 2-Hexanone | mg/kg | 0.018 | 2.5 | 0.0072 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Benzene | mg/kg | 0.0046 | 0.12 | 0.038333333 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Bromoform | mg/kg | 0.0047 | 0.07 | 0.067142857 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Bromomethane | mg/kg | 0.0091 | 0.002 | 4.55 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Carbon disulfide | mg/kg | 0.0046 | 0.005 | 0.92 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Carbon Tetrachloride | mg/kg | 0.0046 | 0.05 | 0.092 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Chlorobenzene | mg/kg | 0.0046 | 2.4 | 0.001916667 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Chloroform | mg/kg | 0.0091 | 0.05 | 0.182 |
| AOC 3 | NA | NYOW-03-PH017-B_R | cis-1,2-Dichloroethene | mg/kg | 0.0046 | 0.04 | 0.115 |
| AOC 3 | NA | NYOW-03-PH017-B_R | cis-1,3-Dichloropropene | mg/kg | 0.0046 | 0.001 | 4.6 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Ethylbenzene | mg/kg | 0.0046 | 0.27 | 0.017037037 |
| AOC 3 | NA | NYOW-03-PH017-B_R | m,p-Xylene | mg/kg | 0.0029 | 0.1 | 0.029 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Methylene chloride | mg/kg | 0.0046 | 0.21 | 0.021904762 |
| AOC 3 | NA | NYOW-03-PH017-B_R | o-Xylene | mg/kg | 0.0046 | 0.1 | 0.046 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Styrene | mg/kg | 0.0046 | 1.2 | 0.003833333 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Tetrachloroethene (PCE) | mg/kg | 0.0046 | 0.06 | 0.076666667 |
| AOC 3 | NA | NYOW-03-PH017-B_R | trans-1,2-Dichloroethene | mg/kg | 0.0046 | 0.04 | 0.115 |
| AOC 3 | NA | NYOW-03-PH017-B_R | trans-1,3-Dichloropropene | mg/kg | 0.0046 | 0.001 | 4.6 |
| AOC 3 | NA | NYOW-03-PH017-B_R | Vinyl chloride | mg/kg | 0.0046 | 0.03 | 0.153333333 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,1,1-Trichloroethane | mg/kg | 0.0058 | 0.04 | 0.145 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0058 | 0.19 | 0.030526316 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,1,2-Trichloroethane | mg/kg | 0.0058 | 0.32 | 0.018125 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,1-Dichloroethane | mg/kg | 0.0058 | 0.14 | 0.041428571 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,1-Dichloroethene | mg/kg | 0.0058 | 0.04 | 0.145 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,2,3-Trichlorobenzene | mg/kg | 0.0058 | 20 | 0.00029 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,2,4-Trichlorobenzene | mg/kg | 0.0058 | 1.2 | 0.004833333 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,2-Dichlorobenzene | mg/kg | 0.0058 | 0.09 | 0.064444444 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,2-Dichloroethane | mg/kg | 0.0058 | 0.4 | 0.0145 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,2-Dichloropropane | mg/kg | 0.0058 | 0.28 | 0.020714286 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,3-Dichlorobenzene | mg/kg | 0.0058 | 0.08 | 0.0725 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 1,4-Dichlorobenzene | mg/kg | 0.0058 | 1.2 | 0.004833333 |
| AOC 3 | NA | NYOW-03-PH018-B_R | 2-Hexanone | mg/kg | 0.023 | 2.5 | 0.0092 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Benzene | mg/kg | 0.0058 | 0.12 | 0.048333333 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Bromoform | mg/kg | 0.0059 | 0.07 | 0.084285714 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Bromomethane | mg/kg | 0.012 | 0.002 | 6 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Carbon disulfide | mg/kg | 0.0058 | 0.005 | 1.16 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Carbon Tetrachloride | mg/kg | 0.0058 | 0.05 | 0.116 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Chlorobenzene | mg/kg | 0.0058 | 2.4 | 0.002416667 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Chloroform | mg/kg | 0.012 | 0.05 | 0.24 |
| AOC 3 | NA | NYOW-03-PH018-B_R | cis-1,2-Dichloroethene | mg/kg | 0.0058 | 0.04 | 0.145 |
| AOC 3 | NA | NYOW-03-PH018-B_R | cis-1,3-Dichloropropene | mg/kg | 0.0058 | 0.001 | 5.8 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Ethylbenzene | mg/kg | 0.0058 | 0.27 | 0.021481481 |
| AOC 3 | NA | NYOW-03-PH018-B_R | m,p-Xylene | mg/kg | 0.0037 | 0.1 | 0.037 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Methylene chloride | mg/kg | 0.0058 | 0.21 | 0.027619048 |
| AOC 3 | NA | NYOW-03-PH018-B_R | o-Xylene | mg/kg | 0.0058 | 0.1 | 0.058 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Styrene | mg/kg | 0.0058 | 1.2 | 0.004833333 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Tetrachloroethene (PCE) | mg/kg | 0.0058 | 0.06 | 0.096666667 |
| AOC 3 | NA | NYOW-03-PH018-B_R | trans-1,2-Dichloroethene | mg/kg | 0.0058 | 0.04 | 0.145 |
| AOC 3 | NA | NYOW-03-PH018-B_R | trans-1,3-Dichloropropene | mg/kg | 0.0058 | 0.001 | 5.8 |
| AOC 3 | NA | NYOW-03-PH018-B_R | Vinyl chloride | mg/kg | 0.0058 | 0.03 | 0.193333333 |
| AOC 3 | NA | NYOW-03-SL001-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.45 | 0.18 | 2.5 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.45 | 0.04 | 11.25 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4,5-Trichlorophenol | mg/kg | 0.45 | 9 | 0.05 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4,6-Trichlorophenol | mg/kg | 0.45 | 10 | 0.045 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4-Dichlorophenol | mg/kg | 0.45 | 0.05 | 9 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4-Dimethylphenol | mg/kg | 0.45 | 0.04 | 11.25 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.89 | 1.8 | 0.494444444 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4-Dinitrophenol | mg/kg | 2.3 | 0.15 | 15.33333333 |
| AOC 3 | NA | NYOW-03-SL001-A | 2,4-Dinitrotoluene | mg/kg | 0.45 | 18 | 0.025 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL001-A | 2,6-Dinitrotoluene | mg/kg | 0.45 | 30 | 0.015 |
| AOC 3 | NA | NYOW-03-SL001-A | 2-Chlorophenol | mg/kg | 0.45 | 0.06 | 7.5 |
| AOC 3 | NA | NYOW-03-SL001-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.45 | 0.1 | 4.5 |
| AOC 3 | NA | NYOW-03-SL001-A | 2-Nitroaniline | mg/kg | 2.3 | 0.02 | 115 |
| AOC 3 | NA | NYOW-03-SL001-A | 2-Nitrophenol | mg/kg | 0.45 | 0.06 | 7.5 |
| AOC 3 | NA | NYOW-03-SL001-A | 3,3'-Dichlorobenzidine | mg/kg | 0.89 | 0.03 | 29.66666667 |
| AOC 3 | NA | NYOW-03-SL001-A | 3-Nitroaniline | mg/kg | 2.3 | 0.02 | 115 |
| AOC 3 | NA | NYOW-03-SL001-A | 4-Chloroaniline | mg/kg | 0.89 | 1.8 | 0.494444444 |
| AOC 3 | NA | NYOW-03-SL001-A | 4-Nitroaniline | mg/kg | 2.3 | 0.02 | 115 |
| AOC 3 | NA | NYOW-03-SL001-A | 4-Nitrophenol | mg/kg | 2.3 | 7 | 0.328571429 |
| AOC 3 | NA | NYOW-03-SL001-A | Atrazine | mg/kg | 0.45 | 0.00005 | 9000 |
| AOC 3 | NA | NYOW-03-SL001-A | Benzyl butyl phthalate | mg/kg | 0.45 | 0.59 | 0.762711864 |
| AOC 3 | NA | NYOW-03-SL001-A | Biphenyl (Diphenyl) | mg/kg | 2.3 | 0.2 | 11.5 |
| AOC 3 | NA | NYOW-03-SL001-A | Diethyl phthalate | mg/kg | 0.45 | 0.25 | 1.8 |
| AOC 3 | NA | NYOW-03-SL001-A | Dimethyl phthalate | mg/kg | 0.45 | 10 | 0.045 |
| AOC 3 | NA | NYOW-03-SL001-A | di-n-Butyl phthalate | mg/kg | 0.45 | 0.22 | 2.045454545 |
| AOC 3 | NA | NYOW-03-SL001-A | di-n-Octyl phthalate | mg/kg | 0.45 | 303 | 0.001485149 |
| AOC 3 | NA | NYOW-03-SL001-A | Hexachlorobenzene | mg/kg | 0.45 | 10 | 0.045 |
| AOC 3 | NA | NYOW-03-SL001-A | Hexachlorobutadiene | mg/kg | 0.45 | 0.009 | 50 |
| AOC 3 | NA | NYOW-03-SL001-A | Hexachlorocyclopentadiene | mg/kg | 0.45 | 0.001 | 450 |
| AOC 3 | NA | NYOW-03-SL001-A | Hexachloroethane | mg/kg | 0.45 | 0.024 | 18.75 |
| AOC 3 | NA | NYOW-03-SL001-A | Nitrobenzene | mg/kg | 0.45 | 2.2 | 0.204545455 |
| AOC 3 | NA | NYOW-03-SL001-A | N-Nitrosodiphenylamine | mg/kg | 0.45 | 20 | 0.0225 |
| AOC 3 | NA | NYOW-03-SL001-A | Pentachlorophenol | mg/kg | 2.3 | 31 | 0.074193548 |
| AOC 3 | NA | NYOW-03-SL001-A | Phenol | mg/kg | 0.45 | 1.8 | 0.25 |
| AOC 3 | NA | NYOW-03-SL001-A | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 3 | NA | NYOW-03-SL002-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.43 | 0.18 | 2.388888889 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.43 | 0.04 | 10.75 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,4,5-Trichlorophenol | mg/kg | 0.43 | 9 | 0.047777778 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,4,6-Trichlorophenol | mg/kg | 0.43 | 10 | 0.043 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,4-Dichlorophenol | mg/kg | 0.43 | 0.05 | 8.6 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,4-Dimethylphenol | mg/kg | 0.43 | 0.04 | 10.75 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL002-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.86 | 1.8 | 0.477777778 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 0.15 | 14.66666667 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,4-Dinitrotoluene | mg/kg | 0.43 | 18 | 0.023888889 |
| AOC 3 | NA | NYOW-03-SL002-A | 2,6-Dinitrotoluene | mg/kg | 0.43 | 30 | 0.014333333 |
| AOC 3 | NA | NYOW-03-SL002-A | 2-Chlorophenol | mg/kg | 0.43 | 0.06 | 7.166666667 |
| AOC 3 | NA | NYOW-03-SL002-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.43 | 0.1 | 4.3 |
| AOC 3 | NA | NYOW-03-SL002-A | 2-Nitroaniline | mg/kg | 2.2 | 0.02 | 110 |
| AOC 3 | NA | NYOW-03-SL002-A | 2-Nitrophenol | mg/kg | 0.43 | 0.06 | 7.166666667 |
| AOC 3 | NA | NYOW-03-SL002-A | 3,3'-Dichlorobenzidine | mg/kg | 0.86 | 0.03 | 28.66666667 |
| AOC 3 | NA | NYOW-03-SL002-A | 3-Nitroaniline | mg/kg | 2.2 | 0.02 | 110 |
| AOC 3 | NA | NYOW-03-SL002-A | 4-Chloroaniline | mg/kg | 0.86 | 1.8 | 0.477777778 |
| AOC 3 | NA | NYOW-03-SL002-A | 4-Nitroaniline | mg/kg | 2.2 | 0.02 | 110 |
| AOC 3 | NA | NYOW-03-SL002-A | 4-Nitrophenol | mg/kg | 2.2 | 7 | 0.314285714 |
| AOC 3 | NA | NYOW-03-SL002-A | Atrazine | mg/kg | 0.43 | 0.00005 | 8600 |
| AOC 3 | NA | NYOW-03-SL002-A | Benzyl butyl phthalate | mg/kg | 0.43 | 0.59 | 0.728813559 |
| AOC 3 | NA | NYOW-03-SL002-A | Biphenyl (Diphenyl) | mg/kg | 2.2 | 0.2 | 11 |
| AOC 3 | NA | NYOW-03-SL002-A | Diethyl phthalate | mg/kg | 0.43 | 0.25 | 1.72 |
| AOC 3 | NA | NYOW-03-SL002-A | Dimethyl phthalate | mg/kg | 0.43 | 10 | 0.043 |
| AOC 3 | NA | NYOW-03-SL002-A | di-n-Butyl phthalate | mg/kg | 0.43 | 0.22 | 1.954545455 |
| AOC 3 | NA | NYOW-03-SL002-A | di-n-Octyl phthalate | mg/kg | 0.43 | 303 | 0.001419142 |
| AOC 3 | NA | NYOW-03-SL002-A | Hexachlorobenzene | mg/kg | 0.43 | 10 | 0.043 |
| AOC 3 | NA | NYOW-03-SL002-A | Hexachlorobutadiene | mg/kg | 0.43 | 0.009 | 47.77777778 |
| AOC 3 | NA | NYOW-03-SL002-A | Hexachlorocyclopentadiene | mg/kg | 0.43 | 0.001 | 430 |
| AOC 3 | NA | NYOW-03-SL002-A | Hexachloroethane | mg/kg | 0.43 | 0.024 | 17.91666667 |
| AOC 3 | NA | NYOW-03-SL002-A | Nitrobenzene | mg/kg | 0.43 | 2.2 | 0.195454545 |
| AOC 3 | NA | NYOW-03-SL002-A | N-Nitrosodiphenylamine | mg/kg | 0.43 | 20 | 0.0215 |
| AOC 3 | NA | NYOW-03-SL002-A | Pentachlorophenol | mg/kg | 2.2 | 31 | 0.070967742 |
| AOC 3 | NA | NYOW-03-SL002-A | Phenol | mg/kg | 0.43 | 1.8 | 0.238888889 |
| AOC 3 | NA | NYOW-03-SL002-A | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 3 | NA | NYOW-03-SL003-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.42 | 0.18 | 2.333333333 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.42 | 0.04 | 10.5 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 9 | 0.046666667 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL003-A | 2,4,6-Trichlorophenol | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,4-Dichlorophenol | mg/kg | 0.42 | 0.05 | 8.4 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,4-Dimethylphenol | mg/kg | 0.42 | 0.04 | 10.5 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.84 | 1.8 | 0.466666667 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 0.15 | 14.66666667 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,4-Dinitrotoluene | mg/kg | 0.42 | 18 | 0.023333333 |
| AOC 3 | NA | NYOW-03-SL003-A | 2,6-Dinitrotoluene | mg/kg | 0.42 | 30 | 0.014 |
| AOC 3 | NA | NYOW-03-SL003-A | 2-Chlorophenol | mg/kg | 0.42 | 0.06 | 7 |
| AOC 3 | NA | NYOW-03-SL003-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 0.1 | 4.2 |
| AOC 3 | NA | NYOW-03-SL003-A | 2-Nitroaniline | mg/kg | 2.2 | 0.02 | 110 |
| AOC 3 | NA | NYOW-03-SL003-A | 2-Nitrophenol | mg/kg | 0.42 | 0.06 | 7 |
| AOC 3 | NA | NYOW-03-SL003-A | 3,3'-Dichlorobenzidine | mg/kg | 0.84 | 0.03 | 28 |
| AOC 3 | NA | NYOW-03-SL003-A | 3-Nitroaniline | mg/kg | 2.2 | 0.02 | 110 |
| AOC 3 | NA | NYOW-03-SL003-A | 4-Chloroaniline | mg/kg | 0.84 | 1.8 | 0.466666667 |
| AOC 3 | NA | NYOW-03-SL003-A | 4-Nitroaniline | mg/kg | 2.2 | 0.02 | 110 |
| AOC 3 | NA | NYOW-03-SL003-A | 4-Nitrophenol | mg/kg | 2.2 | 7 | 0.314285714 |
| AOC 3 | NA | NYOW-03-SL003-A | Atrazine | mg/kg | 0.42 | 0.00005 | 8400 |
| AOC 3 | NA | NYOW-03-SL003-A | Benzyl butyl phthalate | mg/kg | 0.42 | 0.59 | 0.711864407 |
| AOC 3 | NA | NYOW-03-SL003-A | Biphenyl (Diphenyl) | mg/kg | 2.2 | 0.2 | 11 |
| AOC 3 | NA | NYOW-03-SL003-A | Diethyl phthalate | mg/kg | 0.42 | 0.25 | 1.68 |
| AOC 3 | NA | NYOW-03-SL003-A | Dimethyl phthalate | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-SL003-A | di-n-Butyl phthalate | mg/kg | 0.42 | 0.22 | 1.909090909 |
| AOC 3 | NA | NYOW-03-SL003-A | di-n-Octyl phthalate | mg/kg | 0.42 | 303 | 0.001386139 |
| AOC 3 | NA | NYOW-03-SL003-A | Hexachlorobenzene | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-SL003-A | Hexachlorobutadiene | mg/kg | 0.42 | 0.009 | 46.66666667 |
| AOC 3 | NA | NYOW-03-SL003-A | Hexachlorocyclopentadiene | mg/kg | 0.42 | 0.001 | 420 |
| AOC 3 | NA | NYOW-03-SL003-A | Hexachloroethane | mg/kg | 0.42 | 0.024 | 17.5 |
| AOC 3 | NA | NYOW-03-SL003-A | Nitrobenzene | mg/kg | 0.42 | 2.2 | 0.190909091 |
| AOC 3 | NA | NYOW-03-SL003-A | N-Nitrosodiphenylamine | mg/kg | 0.42 | 20 | 0.021 |
| AOC 3 | NA | NYOW-03-SL003-A | Pentachlorophenol | mg/kg | 2.2 | 31 | 0.070967742 |
| AOC 3 | NA | NYOW-03-SL003-A | Phenol | mg/kg | 0.42 | 1.8 | 0.233333333 |
| AOC 3 | NA | NYOW-03-SL003-A | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL004-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.49 | 0.18 | 2.722222222 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.49 | 0.04 | 12.25 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,4,5-Trichlorophenol | mg/kg | 0.49 | 9 | 0.054444444 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,4,6-Trichlorophenol | mg/kg | 0.49 | 10 | 0.049 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,4-Dichlorophenol | mg/kg | 0.49 | 0.05 | 9.8 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,4-Dimethylphenol | mg/kg | 0.49 | 0.04 | 12.25 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.98 | 1.8 | 0.544444444 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,4-Dinitrophenol | mg/kg | 2.5 | 0.15 | 16.66666667 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,4-Dinitrotoluene | mg/kg | 0.49 | 18 | 0.027222222 |
| AOC 3 | NA | NYOW-03-SL004-A | 2,6-Dinitrotoluene | mg/kg | 0.49 | 30 | 0.016333333 |
| AOC 3 | NA | NYOW-03-SL004-A | 2-Chlorophenol | mg/kg | 0.49 | 0.06 | 8.166666667 |
| AOC 3 | NA | NYOW-03-SL004-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.49 | 0.1 | 4.9 |
| AOC 3 | NA | NYOW-03-SL004-A | 2-Nitroaniline | mg/kg | 2.5 | 0.02 | 125 |
| AOC 3 | NA | NYOW-03-SL004-A | 2-Nitrophenol | mg/kg | 0.49 | 0.06 | 8.166666667 |
| AOC 3 | NA | NYOW-03-SL004-A | 3-Nitroaniline | mg/kg | 2.5 | 0.02 | 125 |
| AOC 3 | NA | NYOW-03-SL004-A | 4-Chloroaniline | mg/kg | 0.98 | 1.8 | 0.544444444 |
| AOC 3 | NA | NYOW-03-SL004-A | 4-Nitroaniline | mg/kg | 2.5 | 0.02 | 125 |
| AOC 3 | NA | NYOW-03-SL004-A | 4-Nitrophenol | mg/kg | 2.5 | 7 | 0.357142857 |
| AOC 3 | NA | NYOW-03-SL004-A | Atrazine | mg/kg | 0.49 | 0.00005 | 9800 |
| AOC 3 | NA | NYOW-03-SL004-A | Benzyl butyl phthalate | mg/kg | 0.49 | 0.59 | 0.830508475 |
| AOC 3 | NA | NYOW-03-SL004-A | Biphenyl (Diphenyl) | mg/kg | 2.5 | 0.2 | 12.5 |
| AOC 3 | NA | NYOW-03-SL004-A | Diethyl phthalate | mg/kg | 0.49 | 0.25 | 1.96 |
| AOC 3 | NA | NYOW-03-SL004-A | Dimethyl phthalate | mg/kg | 0.49 | 10 | 0.049 |
| AOC 3 | NA | NYOW-03-SL004-A | di-n-Butyl phthalate | mg/kg | 0.49 | 0.22 | 2.227272727 |
| AOC 3 | NA | NYOW-03-SL004-A | di-n-Octyl phthalate | mg/kg | 0.49 | 303 | 0.001617162 |
| AOC 3 | NA | NYOW-03-SL004-A | Hexachlorobenzene | mg/kg | 0.49 | 10 | 0.049 |
| AOC 3 | NA | NYOW-03-SL004-A | Hexachlorobutadiene | mg/kg | 0.49 | 0.009 | 54.44444444 |
| AOC 3 | NA | NYOW-03-SL004-A | Hexachlorocyclopentadiene | mg/kg | 0.49 | 0.001 | 490 |
| AOC 3 | NA | NYOW-03-SL004-A | Hexachloroethane | mg/kg | 0.49 | 0.024 | 20.41666667 |
| AOC 3 | NA | NYOW-03-SL004-A | Nitrobenzene | mg/kg | 0.49 | 2.2 | 0.222727273 |
| AOC 3 | NA | NYOW-03-SL004-A | N-Nitrosodiphenylamine | mg/kg | 0.49 | 20 | 0.0245 |
| AOC 3 | NA | NYOW-03-SL004-A | Pentachlorophenol | mg/kg | 2.5 | 31 | 0.080645161 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL004-A | Phenol | mg/kg | 0.49 | 1.8 | 0.272222222 |
| AOC 3 | NA | NYOW-03-SL004-A | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.081 | 0.33 | 0.245454545 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.12 | 0.33 | 0.363636364 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.081 | 0.33 | 0.245454545 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.081 | 0.33 | 0.245454545 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.081 | 0.33 | 0.245454545 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.081 | 0.33 | 0.245454545 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.081 | 0.33 | 0.245454545 |
| AOC 3 | NA | NYOW-03-SL005-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.081 | 0.33 | 0.245454545 |
| AOC 3 | NA | NYOW-03-SL005-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.41 | 0.18 | 2.277777778 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.41 | 0.04 | 10.25 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 9 | 0.045555556 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4,6-Trichlorophenol | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4-Dichlorophenol | mg/kg | 0.41 | 0.05 | 8.2 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4-Dimethylphenol | mg/kg | 0.41 | 0.04 | 10.25 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 1.8 | 0.45 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,4-Dinitrotoluene | mg/kg | 0.41 | 18 | 0.022777778 |
| AOC 3 | NA | NYOW-03-SL005-A | 2,6-Dinitrotoluene | mg/kg | 0.41 | 30 | 0.013666667 |
| AOC 3 | NA | NYOW-03-SL005-A | 2-Chlorophenol | mg/kg | 0.41 | 0.06 | 6.833333333 |
| AOC 3 | NA | NYOW-03-SL005-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 0.1 | 4.1 |
| AOC 3 | NA | NYOW-03-SL005-A | 2-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-SL005-A | 2-Nitrophenol | mg/kg | 0.41 | 0.06 | 6.833333333 |
| AOC 3 | NA | NYOW-03-SL005-A | 3,3'-Dichlorobenzidine | mg/kg | 0.81 | 0.03 | 27 |
| AOC 3 | NA | NYOW-03-SL005-A | 3-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-SL005-A | 4-Chloroaniline | mg/kg | 0.81 | 1.8 | 0.45 |
| AOC 3 | NA | NYOW-03-SL005-A | 4-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-SL005-A | 4-Nitrophenol | mg/kg | 2.1 | 7 | 0.3 |
| AOC 3 | NA | NYOW-03-SL005-A | Atrazine | mg/kg | 0.41 | 0.00005 | 8200 |
| AOC 3 | NA | NYOW-03-SL005-A | Benzyl butyl phthalate | mg/kg | 0.41 | 0.59 | 0.694915254 |
| AOC 3 | NA | NYOW-03-SL005-A | Biphenyl (Diphenyl) | mg/kg | 2.1 | 0.2 | 10.5 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL005-A | Diethyl phthalate | mg/kg | 0.41 | 0.25 | 1.64 |
| AOC 3 | NA | NYOW-03-SL005-A | Dimethyl phthalate | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-SL005-A | di-n-Butyl phthalate | mg/kg | 0.41 | 0.22 | 1.863636364 |
| AOC 3 | NA | NYOW-03-SL005-A | di-n-Octyl phthalate | mg/kg | 0.41 | 303 | 0.001353135 |
| AOC 3 | NA | NYOW-03-SL005-A | Hexachlorobenzene | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-SL005-A | Hexachlorobutadiene | mg/kg | 0.41 | 0.009 | 45.55555556 |
| AOC 3 | NA | NYOW-03-SL005-A | Hexachlorocyclopentadiene | mg/kg | 0.41 | 0.001 | 410 |
| AOC 3 | NA | NYOW-03-SL005-A | Hexachloroethane | mg/kg | 0.41 | 0.024 | 17.08333333 |
| AOC 3 | NA | NYOW-03-SL005-A | Nitrobenzene | mg/kg | 0.41 | 2.2 | 0.186363636 |
| AOC 3 | NA | NYOW-03-SL005-A | N-Nitrosodiphenylamine | mg/kg | 0.41 | 20 | 0.0205 |
| AOC 3 | NA | NYOW-03-SL005-A | Pentachlorophenol | mg/kg | 2.1 | 31 | 0.067741935 |
| AOC 3 | NA | NYOW-03-SL005-A | Phenol | mg/kg | 0.41 | 1.8 | 0.227777778 |
| AOC 3 | NA | NYOW-03-SL005-A | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-SL006-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-SL006-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.4 | 0.18 | 2.222222222 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.4 | 0.04 | 10 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,4,5-Trichlorophenol | mg/kg | 0.4 | 9 | 0.044444444 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,4,6-Trichlorophenol | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,4-Dichlorophenol | mg/kg | 0.4 | 0.05 | 8 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,4-Dimethylphenol | mg/kg | 0.4 | 0.04 | 10 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 1.8 | 0.45 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,4-Dinitrotoluene | mg/kg | 0.4 | 18 | 0.022222222 |
| AOC 3 | NA | NYOW-03-SL006-A | 2,6-Dinitrotoluene | mg/kg | 0.4 | 30 | 0.013333333 |
| AOC 3 | NA | NYOW-03-SL006-A | 2-Chlorophenol | mg/kg | 0.4 | 0.06 | 6.666666667 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL006-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.4 | 0.1 | 4 |
| AOC 3 | NA | NYOW-03-SL006-A | 2-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-SL006-A | 2-Nitrophenol | mg/kg | 0.4 | 0.06 | 6.666666667 |
| AOC 3 | NA | NYOW-03-SL006-A | 3,3'-Dichlorobenzidine | mg/kg | 0.81 | 0.03 | 27 |
| AOC 3 | NA | NYOW-03-SL006-A | 3-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-SL006-A | 4-Chloroaniline | mg/kg | 0.81 | 1.8 | 0.45 |
| AOC 3 | NA | NYOW-03-SL006-A | 4-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-SL006-A | 4-Nitrophenol | mg/kg | 2.1 | 7 | 0.3 |
| AOC 3 | NA | NYOW-03-SL006-A | Atrazine | mg/kg | 0.4 | 0.00005 | 8000 |
| AOC 3 | NA | NYOW-03-SL006-A | Benzyl butyl phthalate | mg/kg | 0.4 | 0.59 | 0.677966102 |
| AOC 3 | NA | NYOW-03-SL006-A | Biphenyl (Diphenyl) | mg/kg | 2.1 | 0.2 | 10.5 |
| AOC 3 | NA | NYOW-03-SL006-A | Diethyl phthalate | mg/kg | 0.4 | 0.25 | 1.6 |
| AOC 3 | NA | NYOW-03-SL006-A | Dimethyl phthalate | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-SL006-A | di-n-Butyl phthalate | mg/kg | 0.4 | 0.22 | 1.818181818 |
| AOC 3 | NA | NYOW-03-SL006-A | di-n-Octyl phthalate | mg/kg | 0.4 | 303 | 0.001320132 |
| AOC 3 | NA | NYOW-03-SL006-A | Hexachlorobenzene | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-SL006-A | Hexachlorobutadiene | mg/kg | 0.4 | 0.009 | 44.44444444 |
| AOC 3 | NA | NYOW-03-SL006-A | Hexachlorocyclopentadiene | mg/kg | 0.4 | 0.001 | 400 |
| AOC 3 | NA | NYOW-03-SL006-A | Hexachloroethane | mg/kg | 0.4 | 0.024 | 16.66666667 |
| AOC 3 | NA | NYOW-03-SL006-A | Nitrobenzene | mg/kg | 0.4 | 2.2 | 0.181818182 |
| AOC 3 | NA | NYOW-03-SL006-A | N-Nitrosodiphenylamine | mg/kg | 0.4 | 20 | 0.02 |
| AOC 3 | NA | NYOW-03-SL006-A | Pentachlorophenol | mg/kg | 2.1 | 31 | 0.067741935 |
| AOC 3 | NA | NYOW-03-SL006-A | Phenol | mg/kg | 0.4 | 1.8 | 0.222222222 |
| AOC 3 | NA | NYOW-03-SL006-A | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 3 | NA | NYOW-03-SL007-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.077 | 0.33 | 0.233333333 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL007-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 9 | 0.043333333 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,4-Dichlorophenol | mg/kg | 0.39 | 0.05 | 7.8 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,4-Dinitrotoluene | mg/kg | 0.39 | 18 | 0.021666667 |
| AOC 3 | NA | NYOW-03-SL007-A | 2,6-Dinitrotoluene | mg/kg | 0.39 | 30 | 0.013 |
| AOC 3 | NA | NYOW-03-SL007-A | 2-Chlorophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 3 | NA | NYOW-03-SL007-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.1 | 3.9 |
| AOC 3 | NA | NYOW-03-SL007-A | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-SL007-A | 2-Nitrophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 3 | NA | NYOW-03-SL007-A | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 0.03 | 25.66666667 |
| AOC 3 | NA | NYOW-03-SL007-A | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-SL007-A | 4-Chloroaniline | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 3 | NA | NYOW-03-SL007-A | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-SL007-A | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 3 | NA | NYOW-03-SL007-A | Atrazine | mg/kg | 0.39 | 0.00005 | 7800 |
| AOC 3 | NA | NYOW-03-SL007-A | Benzyl butyl phthalate | mg/kg | 0.39 | 0.59 | 0.661016949 |
| AOC 3 | NA | NYOW-03-SL007-A | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 3 | NA | NYOW-03-SL007-A | Diethyl phthalate | mg/kg | 0.39 | 0.25 | 1.56 |
| AOC 3 | NA | NYOW-03-SL007-A | Dimethyl phthalate | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-SL007-A | di-n-Butyl phthalate | mg/kg | 0.39 | 0.22 | 1.772727273 |
| AOC 3 | NA | NYOW-03-SL007-A | di-n-Octyl phthalate | mg/kg | 0.39 | 303 | 0.001287129 |
| AOC 3 | NA | NYOW-03-SL007-A | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-SL007-A | Hexachlorobutadiene | mg/kg | 0.39 | 0.009 | 43.33333333 |
| AOC 3 | NA | NYOW-03-SL007-A | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.001 | 390 |
| AOC 3 | NA | NYOW-03-SL007-A | Hexachloroethane | mg/kg | 0.39 | 0.024 | 16.25 |
| AOC 3 | NA | NYOW-03-SL007-A | Nitrobenzene | mg/kg | 0.39 | 2.2 | 0.177272727 |
| AOC 3 | NA | NYOW-03-SL007-A | N-Nitrosodiphenylamine | mg/kg | 0.39 | 20 | 0.0195 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL007-A | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 3 | NA | NYOW-03-SL007-A | Phenol | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 3 | NA | NYOW-03-SL007-A | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.069 | 0.33 | 0.209090909 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.098 | 0.33 | 0.296969697 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.069 | 0.33 | 0.209090909 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.069 | 0.33 | 0.209090909 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.069 | 0.33 | 0.209090909 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.069 | 0.33 | 0.209090909 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.069 | 0.33 | 0.209090909 |
| AOC 3 | NA | NYOW-03-SL008-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.069 | 0.33 | 0.209090909 |
| AOC 3 | NA | NYOW-03-SL008-A | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 9 | 0.042222222 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4-Dichlorophenol | mg/kg | 0.38 | 0.05 | 7.6 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.8 | 0.422222222 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,4-Dinitrotoluene | mg/kg | 0.38 | 18 | 0.021111111 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2,6-Dinitrotoluene | mg/kg | 0.38 | 30 | 0.012666667 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2-Chlorophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.1 | 3.8 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 2-Nitrophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 0.03 | 25.33333333 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 4-Chloroaniline | mg/kg | 0.76 | 1.8 | 0.422222222 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-SL008-A_R | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Atrazine | mg/kg | 0.38 | 0.00005 | 7600 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL008-A_R | Benzyl butyl phthalate | mg/kg | 0.38 | 0.59 | 0.644067797 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Diethyl phthalate | mg/kg | 0.38 | 0.25 | 1.52 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Dimethyl phthalate | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-SL008-A_R | di-n-Butyl phthalate | mg/kg | 0.38 | 0.22 | 1.727272727 |
| AOC 3 | NA | NYOW-03-SL008-A_R | di-n-Octyl phthalate | mg/kg | 0.38 | 303 | 0.001254125 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Hexachlorobutadiene | mg/kg | 0.38 | 0.009 | 42.22222222 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.001 | 380 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Hexachloroethane | mg/kg | 0.38 | 0.024 | 15.83333333 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Nitrobenzene | mg/kg | 0.38 | 2.2 | 0.172727273 |
| AOC 3 | NA | NYOW-03-SL008-A_R | N-Nitrosodiphenylamine | mg/kg | 0.38 | 20 | 0.019 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 3 | NA | NYOW-03-SL008-A_R | Phenol | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.083 | 0.33 | 0.251515152 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.12 | 0.33 | 0.363636364 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.083 | 0.33 | 0.251515152 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.083 | 0.33 | 0.251515152 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.083 | 0.33 | 0.251515152 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.083 | 0.33 | 0.251515152 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.083 | 0.33 | 0.251515152 |
| AOC 3 | NA | NYOW-03-SL009-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.083 | 0.33 | 0.251515152 |
| AOC 3 | NA | NYOW-03-SL009-A | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.46 | 0.18 | 2.555555556 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.46 | 0.04 | 11.5 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4,5-Trichlorophenol | mg/kg | 0.46 | 9 | 0.051111111 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4,6-Trichlorophenol | mg/kg | 0.46 | 10 | 0.046 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4-Dichlorophenol | mg/kg | 0.46 | 0.05 | 9.2 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4-Dimethylphenol | mg/kg | 0.46 | 0.04 | 11.5 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.92 | 1.8 | 0.511111111 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4-Dinitrophenol | mg/kg | 2.4 | 0.15 | 16 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,4-Dinitrotoluene | mg/kg | 0.46 | 18 | 0.025555556 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL009-A_R | 2,6-Dinitrotoluene | mg/kg | 0.46 | 30 | 0.015333333 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2-Chlorophenol | mg/kg | 0.46 | 0.06 | 7.666666667 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.46 | 0.1 | 4.6 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2-Nitroaniline | mg/kg | 2.4 | 0.02 | 120 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 2-Nitrophenol | mg/kg | 0.46 | 0.06 | 7.666666667 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 3,3'-Dichlorobenzidine | mg/kg | 0.92 | 0.03 | 30.66666667 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 3-Nitroaniline | mg/kg | 2.4 | 0.02 | 120 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 4-Chloroaniline | mg/kg | 0.92 | 1.8 | 0.511111111 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 4-Nitroaniline | mg/kg | 2.4 | 0.02 | 120 |
| AOC 3 | NA | NYOW-03-SL009-A_R | 4-Nitrophenol | mg/kg | 2.4 | 7 | 0.342857143 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Atrazine | mg/kg | 0.46 | 0.00005 | 9200 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Benzyl butyl phthalate | mg/kg | 0.46 | 0.59 | 0.779661017 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Biphenyl (Diphenyl) | mg/kg | 2.4 | 0.2 | 12 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Diethyl phthalate | mg/kg | 0.46 | 0.25 | 1.84 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Dimethyl phthalate | mg/kg | 0.46 | 10 | 0.046 |
| AOC 3 | NA | NYOW-03-SL009-A_R | di-n-Butyl phthalate | mg/kg | 0.46 | 0.22 | 2.090909091 |
| AOC 3 | NA | NYOW-03-SL009-A_R | di-n-Octyl phthalate | mg/kg | 0.46 | 303 | 0.001518152 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Hexachlorobenzene | mg/kg | 0.46 | 10 | 0.046 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Hexachlorobutadiene | mg/kg | 0.46 | 0.009 | 51.11111111 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Hexachlorocyclopentadiene | mg/kg | 0.46 | 0.001 | 460 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Hexachloroethane | mg/kg | 0.46 | 0.024 | 19.16666667 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Nitrobenzene | mg/kg | 0.46 | 2.2 | 0.209090909 |
| AOC 3 | NA | NYOW-03-SL009-A_R | N-Nitrosodiphenylamine | mg/kg | 0.46 | 20 | 0.023 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Pentachlorophenol | mg/kg | 2.4 | 31 | 0.077419355 |
| AOC 3 | NA | NYOW-03-SL009-A_R | Phenol | mg/kg | 0.46 | 1.8 | 0.255555556 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.079 | 0.33 | 0.239393939 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.079 | 0.33 | 0.239393939 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.079 | 0.33 | 0.239393939 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.079 | 0.33 | 0.239393939 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.079 | 0.33 | 0.239393939 |
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.079 | 0.33 | 0.239393939 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL010-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.079 | 0.33 | 0.239393939 |
| AOC 3 | NA | NYOW-03-SL010-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.41 | 0.18 | 2.277777778 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.41 | 0.04 | 10.25 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,4,5-Trichlorophenol | mg/kg | 0.41 | 9 | 0.045555556 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,4,6-Trichlorophenol | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,4-Dichlorophenol | mg/kg | 0.41 | 0.05 | 8.2 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,4-Dimethylphenol | mg/kg | 0.41 | 0.04 | 10.25 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 1.8 | 0.455555556 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,4-Dinitrotoluene | mg/kg | 0.41 | 18 | 0.022777778 |
| AOC 3 | NA | NYOW-03-SL010-A | 2,6-Dinitrotoluene | mg/kg | 0.41 | 30 | 0.013666667 |
| AOC 3 | NA | NYOW-03-SL010-A | 2-Chlorophenol | mg/kg | 0.41 | 0.06 | 6.833333333 |
| AOC 3 | NA | NYOW-03-SL010-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.41 | 0.1 | 4.1 |
| AOC 3 | NA | NYOW-03-SL010-A | 2-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-SL010-A | 2-Nitrophenol | mg/kg | 0.41 | 0.06 | 6.833333333 |
| AOC 3 | NA | NYOW-03-SL010-A | 3,3'-Dichlorobenzidine | mg/kg | 0.82 | 0.03 | 27.33333333 |
| AOC 3 | NA | NYOW-03-SL010-A | 3-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-SL010-A | 4-Chloroaniline | mg/kg | 0.82 | 1.8 | 0.455555556 |
| AOC 3 | NA | NYOW-03-SL010-A | 4-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-SL010-A | 4-Nitrophenol | mg/kg | 2.1 | 7 | 0.3 |
| AOC 3 | NA | NYOW-03-SL010-A | Atrazine | mg/kg | 0.41 | 0.00005 | 8200 |
| AOC 3 | NA | NYOW-03-SL010-A | Benzyl butyl phthalate | mg/kg | 0.41 | 0.59 | 0.694915254 |
| AOC 3 | NA | NYOW-03-SL010-A | Biphenyl (Diphenyl) | mg/kg | 2.1 | 0.2 | 10.5 |
| AOC 3 | NA | NYOW-03-SL010-A | Diethyl phthalate | mg/kg | 0.41 | 0.25 | 1.64 |
| AOC 3 | NA | NYOW-03-SL010-A | Dimethyl phthalate | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-SL010-A | di-n-Butyl phthalate | mg/kg | 0.41 | 0.22 | 1.863636364 |
| AOC 3 | NA | NYOW-03-SL010-A | di-n-Octyl phthalate | mg/kg | 0.41 | 303 | 0.001353135 |
| AOC 3 | NA | NYOW-03-SL010-A | Hexachlorobenzene | mg/kg | 0.41 | 10 | 0.041 |
| AOC 3 | NA | NYOW-03-SL010-A | Hexachlorobutadiene | mg/kg | 0.41 | 0.009 | 45.55555556 |
| AOC 3 | NA | NYOW-03-SL010-A | Hexachlorocyclopentadiene | mg/kg | 0.41 | 0.001 | 410 |
| AOC 3 | NA | NYOW-03-SL010-A | Hexachloroethane | mg/kg | 0.41 | 0.024 | 17.08333333 |
| AOC 3 | NA | NYOW-03-SL010-A | Nitrobenzene | mg/kg | 0.41 | 2.2 | 0.186363636 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL010-A | N-Nitrosodiphenylamine | mg/kg | 0.41 | 20 | 0.0205 |
| AOC 3 | NA | NYOW-03-SL010-A | Pentachlorophenol | mg/kg | 2.1 | 31 | 0.067741935 |
| AOC 3 | NA | NYOW-03-SL010-A | Phenol | mg/kg | 0.41 | 1.8 | 0.227777778 |
| AOC 3 | NA | NYOW-03-SL010-A | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.088 | 0.33 | 0.266666667 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.13 | 0.33 | 0.393939394 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.088 | 0.33 | 0.266666667 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.088 | 0.33 | 0.266666667 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.088 | 0.33 | 0.266666667 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.088 | 0.33 | 0.266666667 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.088 | 0.33 | 0.266666667 |
| AOC 3 | NA | NYOW-03-SL011-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.088 | 0.33 | 0.266666667 |
| AOC 3 | NA | NYOW-03-SL011-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.42 | 0.18 | 2.333333333 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.42 | 0.04 | 10.5 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 9 | 0.046666667 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4,6-Trichlorophenol | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4-Dichlorophenol | mg/kg | 0.42 | 0.05 | 8.4 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4-Dimethylphenol | mg/kg | 0.42 | 0.04 | 10.5 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.85 | 1.8 | 0.472222222 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 0.15 | 14.66666667 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,4-Dinitrotoluene | mg/kg | 0.42 | 18 | 0.023333333 |
| AOC 3 | NA | NYOW-03-SL011-A | 2,6-Dinitrotoluene | mg/kg | 0.42 | 30 | 0.014 |
| AOC 3 | NA | NYOW-03-SL011-A | 2-Chlorophenol | mg/kg | 0.42 | 0.06 | 7 |
| AOC 3 | NA | NYOW-03-SL011-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 0.1 | 4.2 |
| AOC 3 | NA | NYOW-03-SL011-A | 2-Nitroaniline | mg/kg | 2.2 | 0.02 | 110 |
| AOC 3 | NA | NYOW-03-SL011-A | 2-Nitrophenol | mg/kg | 0.42 | 0.06 | 7 |
| AOC 3 | NA | NYOW-03-SL011-A | 3,3'-Dichlorobenzidine | mg/kg | 0.85 | 0.03 | 28.33333333 |
| AOC 3 | NA | NYOW-03-SL011-A | 3-Nitroaniline | mg/kg | 2.2 | 0.02 | 110 |
| AOC 3 | NA | NYOW-03-SL011-A | 4-Chloroaniline | mg/kg | 0.85 | 1.8 | 0.472222222 |
| AOC 3 | NA | NYOW-03-SL011-A | 4-Nitroaniline | mg/kg | 2.2 | 0.02 | 110 |
| AOC 3 | NA | NYOW-03-SL011-A | 4-Nitrophenol | mg/kg | 2.2 | 7 | 0.314285714 |
| AOC 3 | NA | NYOW-03-SL011-A | Atrazine | mg/kg | 0.42 | 0.00005 | 8400 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL011-A | Benzyl butyl phthalate | mg/kg | 0.42 | 0.59 | 0.711864407 |
| AOC 3 | NA | NYOW-03-SL011-A | Biphenyl (Diphenyl) | mg/kg | 2.2 | 0.2 | 11 |
| AOC 3 | NA | NYOW-03-SL011-A | Diethyl phthalate | mg/kg | 0.42 | 0.25 | 1.68 |
| AOC 3 | NA | NYOW-03-SL011-A | Dimethyl phthalate | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-SL011-A | di-n-Butyl phthalate | mg/kg | 0.42 | 0.22 | 1.909090909 |
| AOC 3 | NA | NYOW-03-SL011-A | di-n-Octyl phthalate | mg/kg | 0.42 | 303 | 0.001386139 |
| AOC 3 | NA | NYOW-03-SL011-A | Hexachlorobenzene | mg/kg | 0.42 | 10 | 0.042 |
| AOC 3 | NA | NYOW-03-SL011-A | Hexachlorobutadiene | mg/kg | 0.42 | 0.009 | 46.66666667 |
| AOC 3 | NA | NYOW-03-SL011-A | Hexachlorocyclopentadiene | mg/kg | 0.42 | 0.001 | 420 |
| AOC 3 | NA | NYOW-03-SL011-A | Hexachloroethane | mg/kg | 0.42 | 0.024 | 17.5 |
| AOC 3 | NA | NYOW-03-SL011-A | Nitrobenzene | mg/kg | 0.42 | 2.2 | 0.190909091 |
| AOC 3 | NA | NYOW-03-SL011-A | N-Nitrosodiphenylamine | mg/kg | 0.42 | 20 | 0.021 |
| AOC 3 | NA | NYOW-03-SL011-A | Pentachlorophenol | mg/kg | 2.2 | 31 | 0.070967742 |
| AOC 3 | NA | NYOW-03-SL011-A | Phenol | mg/kg | 0.42 | 1.8 | 0.233333333 |
| AOC 3 | NA | NYOW-03-SL011-A | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 3 | NA | NYOW-03-SL012-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 3 | NA | NYOW-03-SL012-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 9 | 0.043333333 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4-Dichlorophenol | mg/kg | 0.39 | 0.05 | 7.8 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 3 | NA | NYOW-03-SL012-A | 2,4-Dinitrotoluene | mg/kg | 0.39 | 18 | 0.021666667 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL012-A | 2,6-Dinitrotoluene | mg/kg | 0.39 | 30 | 0.013 |
| AOC 3 | NA | NYOW-03-SL012-A | 2-Chlorophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 3 | NA | NYOW-03-SL012-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.1 | 3.9 |
| AOC 3 | NA | NYOW-03-SL012-A | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-SL012-A | 2-Nitrophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 3 | NA | NYOW-03-SL012-A | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 0.03 | 25.66666667 |
| AOC 3 | NA | NYOW-03-SL012-A | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-SL012-A | 4-Chloroaniline | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 3 | NA | NYOW-03-SL012-A | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-SL012-A | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 3 | NA | NYOW-03-SL012-A | Atrazine | mg/kg | 0.39 | 0.00005 | 7800 |
| AOC 3 | NA | NYOW-03-SL012-A | Benzyl butyl phthalate | mg/kg | 0.39 | 0.59 | 0.661016949 |
| AOC 3 | NA | NYOW-03-SL012-A | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 3 | NA | NYOW-03-SL012-A | Diethyl phthalate | mg/kg | 0.39 | 0.25 | 1.56 |
| AOC 3 | NA | NYOW-03-SL012-A | Dimethyl phthalate | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-SL012-A | di-n-Butyl phthalate | mg/kg | 0.39 | 0.22 | 1.772727273 |
| AOC 3 | NA | NYOW-03-SL012-A | di-n-Octyl phthalate | mg/kg | 0.39 | 303 | 0.001287129 |
| AOC 3 | NA | NYOW-03-SL012-A | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 3 | NA | NYOW-03-SL012-A | Hexachlorobutadiene | mg/kg | 0.39 | 0.009 | 43.33333333 |
| AOC 3 | NA | NYOW-03-SL012-A | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.001 | 390 |
| AOC 3 | NA | NYOW-03-SL012-A | Hexachloroethane | mg/kg | 0.39 | 0.024 | 16.25 |
| AOC 3 | NA | NYOW-03-SL012-A | Nitrobenzene | mg/kg | 0.39 | 2.2 | 0.177272727 |
| AOC 3 | NA | NYOW-03-SL012-A | N-Nitrosodiphenylamine | mg/kg | 0.39 | 20 | 0.0195 |
| AOC 3 | NA | NYOW-03-SL012-A | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 3 | NA | NYOW-03-SL012-A | Phenol | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 3 | NA | NYOW-03-SL012-A | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.078 | 0.33 | 0.236363636 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-SL013-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 3 | NA | NYOW-03-SL013-A | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.4 | 0.18 | 2.222222222 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.4 | 0.04 | 10 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4,5-Trichlorophenol | mg/kg | 0.4 | 9 | 0.044444444 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4,6-Trichlorophenol | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4-Dichlorophenol | mg/kg | 0.4 | 0.05 | 8 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4-Dimethylphenol | mg/kg | 0.4 | 0.04 | 10 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 1.8 | 0.444444444 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,4-Dinitrotoluene | mg/kg | 0.4 | 18 | 0.022222222 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2,6-Dinitrotoluene | mg/kg | 0.4 | 30 | 0.013333333 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2-Chlorophenol | mg/kg | 0.4 | 0.06 | 6.666666667 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.4 | 0.1 | 4 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 2-Nitrophenol | mg/kg | 0.4 | 0.06 | 6.666666667 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 3,3'-Dichlorobenzidine | mg/kg | 0.8 | 0.03 | 26.66666667 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 3-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 4-Chloroaniline | mg/kg | 0.8 | 1.8 | 0.444444444 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 4-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 3 | NA | NYOW-03-SL013-A_R | 4-Nitrophenol | mg/kg | 2.1 | 7 | 0.3 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Atrazine | mg/kg | 0.4 | 0.00005 | 8000 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Benzyl butyl phthalate | mg/kg | 0.4 | 0.59 | 0.677966102 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Biphenyl (Diphenyl) | mg/kg | 2.1 | 0.2 | 10.5 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Diethyl phthalate | mg/kg | 0.4 | 0.25 | 1.6 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Dimethyl phthalate | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-SL013-A_R | di-n-Butyl phthalate | mg/kg | 0.4 | 0.22 | 1.818181818 |
| AOC 3 | NA | NYOW-03-SL013-A_R | di-n-Octyl phthalate | mg/kg | 0.4 | 303 | 0.001320132 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Hexachlorobenzene | mg/kg | 0.4 | 10 | 0.04 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Hexachlorobutadiene | mg/kg | 0.4 | 0.009 | 44.44444444 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Hexachlorocyclopentadiene | mg/kg | 0.4 | 0.001 | 400 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL013-A_R | Hexachloroethane | mg/kg | 0.4 | 0.024 | 16.66666667 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Nitrobenzene | mg/kg | 0.4 | 2.2 | 0.181818182 |
| AOC 3 | NA | NYOW-03-SL013-A_R | N-Nitrosodiphenylamine | mg/kg | 0.4 | 20 | 0.02 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Pentachlorophenol | mg/kg | 2.1 | 31 | 0.067741935 |
| AOC 3 | NA | NYOW-03-SL013-A_R | Phenol | mg/kg | 0.4 | 1.8 | 0.222222222 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.07 | 0.33 | 0.212121212 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.099 | 0.33 | 0.3 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.07 | 0.33 | 0.212121212 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.07 | 0.33 | 0.212121212 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.07 | 0.33 | 0.212121212 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.07 | 0.33 | 0.212121212 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.07 | 0.33 | 0.212121212 |
| AOC 3 | NA | NYOW-03-SL014-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.07 | 0.33 | 0.212121212 |
| AOC 3 | NA | NYOW-03-SL014-A | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 9 | 0.042222222 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4-Dichlorophenol | mg/kg | 0.38 | 0.05 | 7.6 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.8 | 0.422222222 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,4-Dinitrotoluene | mg/kg | 0.38 | 18 | 0.021111111 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2,6-Dinitrotoluene | mg/kg | 0.38 | 30 | 0.012666667 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2-Chlorophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.1 | 3.8 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 2-Nitrophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 0.03 | 25.33333333 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 4-Chloroaniline | mg/kg | 0.76 | 1.8 | 0.422222222 |
| AOC 3 | NA | NYOW-03-SL014-A_R | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL014-A_R | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Atrazine | mg/kg | 0.38 | 0.00005 | 7600 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Benzyl butyl phthalate | mg/kg | 0.38 | 0.59 | 0.644067797 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Diethyl phthalate | mg/kg | 0.38 | 0.25 | 1.52 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Dimethyl phthalate | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-SL014-A_R | di-n-Butyl phthalate | mg/kg | 0.38 | 0.22 | 1.727272727 |
| AOC 3 | NA | NYOW-03-SL014-A_R | di-n-Octyl phthalate | mg/kg | 0.38 | 303 | 0.001254125 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Hexachlorobutadiene | mg/kg | 0.38 | 0.009 | 42.22222222 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.001 | 380 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Hexachloroethane | mg/kg | 0.38 | 0.024 | 15.83333333 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Nitrobenzene | mg/kg | 0.38 | 2.2 | 0.172727273 |
| AOC 3 | NA | NYOW-03-SL014-A_R | N-Nitrosodiphenylamine | mg/kg | 0.38 | 20 | 0.019 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 3 | NA | NYOW-03-SL014-A_R | Phenol | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.1 | 0.33 | 0.303030303 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.15 | 0.33 | 0.454545455 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.1 | 0.33 | 0.303030303 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.1 | 0.33 | 0.303030303 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.1 | 0.33 | 0.303030303 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.1 | 0.33 | 0.303030303 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.1 | 0.33 | 0.303030303 |
| AOC 3 | NA | NYOW-03-SL015-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.1 | 0.33 | 0.303030303 |
| AOC 3 | NA | NYOW-03-SL015-A | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.47 | 0.18 | 2.611111111 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.47 | 0.04 | 11.75 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4,5-Trichlorophenol | mg/kg | 0.47 | 9 | 0.052222222 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4,6-Trichlorophenol | mg/kg | 0.47 | 10 | 0.047 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4-Dichlorophenol | mg/kg | 0.47 | 0.05 | 9.4 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4-Dimethylphenol | mg/kg | 0.47 | 0.04 | 11.75 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4-Dinitrochlorobenzene | mg/kg | 0.94 | 1.8 | 0.522222222 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4-Dinitrophenol | mg/kg | 2.4 | 0.15 | 16 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,4-Dinitrotoluene | mg/kg | 0.47 | 18 | 0.026111111 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2,6-Dinitrotoluene | mg/kg | 0.47 | 30 | 0.015666667 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2-Chlorophenol | mg/kg | 0.47 | 0.06 | 7.833333333 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2-Methylphenol (o-Cresol) | mg/kg | 0.47 | 0.1 | 4.7 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2-Nitroaniline | mg/kg | 2.4 | 0.02 | 120 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 2-Nitrophenol | mg/kg | 0.47 | 0.06 | 7.833333333 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 3,3'-Dichlorobenzidine | mg/kg | 0.94 | 0.03 | 31.33333333 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 3-Nitroaniline | mg/kg | 2.4 | 0.02 | 120 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 4-Chloroaniline | mg/kg | 0.94 | 1.8 | 0.522222222 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 4-Nitroaniline | mg/kg | 2.4 | 0.02 | 120 |
| AOC 3 | NA | NYOW-03-SL015-A_R | 4-Nitrophenol | mg/kg | 2.4 | 7 | 0.342857143 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Atrazine | mg/kg | 0.47 | 0.00005 | 9400 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Benzyl butyl phthalate | mg/kg | 0.47 | 0.59 | 0.796610169 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Biphenyl (Diphenyl) | mg/kg | 2.4 | 0.2 | 12 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Diethyl phthalate | mg/kg | 0.47 | 0.25 | 1.88 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Dimethyl phthalate | mg/kg | 0.47 | 10 | 0.047 |
| AOC 3 | NA | NYOW-03-SL015-A_R | di-n-Butyl phthalate | mg/kg | 0.47 | 0.22 | 2.136363636 |
| AOC 3 | NA | NYOW-03-SL015-A_R | di-n-Octyl phthalate | mg/kg | 0.47 | 303 | 0.001551155 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Hexachlorobenzene | mg/kg | 0.47 | 10 | 0.047 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Hexachlorobutadiene | mg/kg | 0.47 | 0.009 | 52.22222222 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Hexachlorocyclopentadiene | mg/kg | 0.47 | 0.001 | 470 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Hexachloroethane | mg/kg | 0.47 | 0.024 | 19.58333333 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Nitrobenzene | mg/kg | 0.47 | 2.2 | 0.213636364 |
| AOC 3 | NA | NYOW-03-SL015-A_R | N-Nitrosodiphenylamine | mg/kg | 0.47 | 20 | 0.0235 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Pentachlorophenol | mg/kg | 2.4 | 31 | 0.077419355 |
| AOC 3 | NA | NYOW-03-SL015-A_R | Phenol | mg/kg | 0.47 | 1.8 | 0.261111111 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.076 | 0.33 | 0.23030303 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 3 | NA | NYOW-03-SL016-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 3 | NA | NYOW-03-SL016-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 9 | 0.041111111 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 10 | 0.037 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4-Dichlorophenol | mg/kg | 0.37 | 0.05 | 7.4 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.8 | 0.416666667 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 18 | 0.020555556 |
| AOC 3 | NA | NYOW-03-SL016-A | 2,6-Dinitrotoluene | mg/kg | 0.37 | 30 | 0.012333333 |
| AOC 3 | NA | NYOW-03-SL016-A | 2-Chlorophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 3 | NA | NYOW-03-SL016-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.1 | 3.7 |
| AOC 3 | NA | NYOW-03-SL016-A | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 3 | NA | NYOW-03-SL016-A | 2-Nitrophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 3 | NA | NYOW-03-SL016-A | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 0.03 | 25 |
| AOC 3 | NA | NYOW-03-SL016-A | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 3 | NA | NYOW-03-SL016-A | 4-Chloroaniline | mg/kg | 0.75 | 1.8 | 0.416666667 |
| AOC 3 | NA | NYOW-03-SL016-A | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 3 | NA | NYOW-03-SL016-A | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 3 | NA | NYOW-03-SL016-A | Atrazine | mg/kg | 0.37 | 0.00005 | 7400 |
| AOC 3 | NA | NYOW-03-SL016-A | Benzyl butyl phthalate | mg/kg | 0.37 | 0.59 | 0.627118644 |
| AOC 3 | NA | NYOW-03-SL016-A | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 3 | NA | NYOW-03-SL016-A | Diethyl phthalate | mg/kg | 0.37 | 0.25 | 1.48 |
| AOC 3 | NA | NYOW-03-SL016-A | Dimethyl phthalate | mg/kg | 0.37 | 10 | 0.037 |
| AOC 3 | NA | NYOW-03-SL016-A | di-n-Butyl phthalate | mg/kg | 0.37 | 0.22 | 1.681818182 |
| AOC 3 | NA | NYOW-03-SL016-A | di-n-Octyl phthalate | mg/kg | 0.37 | 303 | 0.001221122 |
| AOC 3 | NA | NYOW-03-SL016-A | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 3 | NA | NYOW-03-SL016-A | Hexachlorobutadiene | mg/kg | 0.37 | 0.009 | 41.11111111 |
| AOC 3 | NA | NYOW-03-SL016-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.001 | 370 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 3 | NA | NYOW-03-SL016-A | Hexachloroethane | mg/kg | 0.37 | 0.024 | 15.41666667 |
| AOC 3 | NA | NYOW-03-SL016-A | Nitrobenzene | mg/kg | 0.37 | 2.2 | 0.168181818 |
| AOC 3 | NA | NYOW-03-SL016-A | N-Nitrosodiphenylamine | mg/kg | 0.37 | 20 | 0.0185 |
| AOC 3 | NA | NYOW-03-SL016-A | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 3 | NA | NYOW-03-SL016-A | Phenol | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 3 | NA | NYOW-03-SL016-A | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH001-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.8 | 0.422222222 |
| AOC 4 - Discrete | NA | NYOW-04-PH001-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH001-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH002-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.8 | 0.422222222 |
| AOC 4 - Discrete | NA | NYOW-04-PH002-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH002-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH003-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 4 - Discrete | NA | NYOW-04-PH003-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH003-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH004-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.87 | 1.8 | 0.483333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH004-B | 2,4-Dinitrophenol | mg/kg | 2.2 | 0.15 | 14.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH004-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH005-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 4 - Discrete | NA | NYOW-04-PH005-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH005-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH006-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 4 - Discrete | NA | NYOW-04-PH006-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH006-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH007-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 4 - Discrete | NA | NYOW-04-PH007-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH007-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH008-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 4 - Discrete | NA | NYOW-04-PH008-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH008-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH009-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.8 | 0.394444444 |
| AOC 4 - Discrete | NA | NYOW-04-PH009-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH009-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH010-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 4 - Discrete | NA | NYOW-04-PH010-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH010-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH011-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 4 - Discrete | NA | NYOW-04-PH011-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH011-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH012-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.8 | 0.394444444 |
| AOC 4 - Discrete | NA | NYOW-04-PH012-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH012-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH013-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.8 | 0.394444444 |
| AOC 4 - Discrete | NA | NYOW-04-PH013-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH013-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH014-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 4 - Discrete | NA | NYOW-04-PH014-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH014-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH015-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 4 - Discrete | NA | NYOW-04-PH015-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH015-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH016-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.8 | 0.388888889 |
| AOC 4 - Discrete | NA | NYOW-04-PH016-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH016-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH017-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 4 - Discrete | NA | NYOW-04-PH017-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH017-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH018-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 4 - Discrete | NA | NYOW-04-PH018-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH018-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH019-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 4 - Discrete | NA | NYOW-04-PH019-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH019-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH020-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.67 | 1.8 | 0.372222222 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH020-B | 2,4-Dinitrophenol | mg/kg | 1.7 | 0.15 | 11.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH020-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH021-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.69 | 1.8 | 0.383333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH021-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH021-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH022-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.69 | 1.8 | 0.383333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH022-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH022-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH023-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 4 - Discrete | NA | NYOW-04-PH023-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH023-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH024-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 4 - Discrete | NA | NYOW-04-PH024-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH024-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH025-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.8 | 0.388888889 |
| AOC 4 - Discrete | NA | NYOW-04-PH025-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH025-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH026-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.8 | 0.394444444 |
| AOC 4 - Discrete | NA | NYOW-04-PH026-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH026-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH027-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 4 - Discrete | NA | NYOW-04-PH027-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH027-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH028-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.8 | 0.388888889 |
| AOC 4 - Discrete | NA | NYOW-04-PH028-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH028-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH029-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 4 - Discrete | NA | NYOW-04-PH029-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH029-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH030-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.8 | 0.388888889 |
| AOC 4 - Discrete | NA | NYOW-04-PH030-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH030-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH031-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.8 | 0.394444444 |
| AOC 4 - Discrete | NA | NYOW-04-PH031-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH031-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH032-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 4 - Discrete | NA | NYOW-04-PH032-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH032-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH033-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.8 | 0.388888889 |
| AOC 4 - Discrete | NA | NYOW-04-PH033-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH033-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH034-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 4 - Discrete | NA | NYOW-04-PH034-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH034-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH035-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 1.8 | 0.438888889 |
| AOC 4 - Discrete | NA | NYOW-04-PH035-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH035-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH036-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 4 - Discrete | NA | NYOW-04-PH036-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH036-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH037-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 4 - Discrete | NA | NYOW-04-PH037-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH037-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH038-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 4 - Discrete | NA | NYOW-04-PH038-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH038-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH039-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.8 | 0.394444444 |
| AOC 4 - Discrete | NA | NYOW-04-PH039-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH039-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH040-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.8 | 0.388888889 |
| AOC 4 - Discrete | NA | NYOW-04-PH040-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH040-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH041-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 1.8 | 0.444444444 |
| AOC 4 - Discrete | NA | NYOW-04-PH041-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH041-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH042-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.8 | 0.422222222 |
| AOC 4 - Discrete | NA | NYOW-04-PH042-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH042-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH043-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 4 - Discrete | NA | NYOW-04-PH043-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH043-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH044-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.8 | 0.433333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH044-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH044-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH045-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 4 - Discrete | NA | NYOW-04-PH045-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH045-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH046-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 4 - Discrete | NA | NYOW-04-PH046-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH046-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH047-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.8 | 0.422222222 |
| AOC 4 - Discrete | NA | NYOW-04-PH047-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH047-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH048-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 4 - Discrete | NA | NYOW-04-PH048-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH048-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH049-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.8 | 0.388888889 |
| AOC 4 - Discrete | NA | NYOW-04-PH049-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH049-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH050-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 4 - Discrete | NA | NYOW-04-PH050-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH050-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH051-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.8 | 0.416666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH051-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH051-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH052-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH052-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH052-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH053-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 4 - Discrete | NA | NYOW-04-PH053-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH053-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH054-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.8 | 0.422222222 |
| AOC 4 - Discrete | NA | NYOW-04-PH054-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH054-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH055-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 4 - Discrete | NA | NYOW-04-PH055-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH055-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH056-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 4 - Discrete | NA | NYOW-04-PH056-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH056-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH057-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 4 - Discrete | NA | NYOW-04-PH057-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH057-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH058-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.8 | 0.422222222 |
| AOC 4 - Discrete | NA | NYOW-04-PH058-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH058-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH059-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.8 | 0.388888889 |
| AOC 4 - Discrete | NA | NYOW-04-PH059-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH059-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH060-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 4 - Discrete | NA | NYOW-04-PH060-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH060-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH061-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.8 | 0.422222222 |
| AOC 4 - Discrete | NA | NYOW-04-PH061-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH061-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH062-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.8 | 0.416666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH062-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH062-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH063-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.8 | 0.416666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH063-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH063-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH064-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.8 | 0.416666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH064-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH064-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH065-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 4 - Discrete | NA | NYOW-04-PH065-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH065-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH066-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.8 | 0.416666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH066-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH066-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH067-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 4 - Discrete | NA | NYOW-04-PH067-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH067-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH068-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.8 | 0.394444444 |
| AOC 4 - Discrete | NA | NYOW-04-PH068-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH068-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH069-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 4 - Discrete | NA | NYOW-04-PH069-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH069-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH070-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.8 | 0.416666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH070-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH070-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH071-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 4 - Discrete | NA | NYOW-04-PH071-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH071-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH072-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.8 | 0.394444444 |
| AOC 4 - Discrete | NA | NYOW-04-PH072-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-PH072-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH073-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 4 - Discrete | NA | NYOW-04-PH073-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH073-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH074-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 4 - Discrete | NA | NYOW-04-PH074-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH074-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH075-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 4 - Discrete | NA | NYOW-04-PH075-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH075-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH076-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 4 - Discrete | NA | NYOW-04-PH076-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH076-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH077-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 4 - Discrete | NA | NYOW-04-PH077-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH077-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH078-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.8 | 0.433333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH078-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH078-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH079-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 1.8 | 0.444444444 |
| AOC 4 - Discrete | NA | NYOW-04-PH079-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 4 - Discrete | NA | NYOW-04-PH079-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH080-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 4 - Discrete | NA | NYOW-04-PH080-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH080-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH081-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 4 - Discrete | NA | NYOW-04-PH081-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH081-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH082-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.86 | 1.8 | 0.477777778 |
| AOC 4 - Discrete | NA | NYOW-04-PH082-B | 2,4-Dinitrophenol | mg/kg | 2.2 | 0.15 | 14.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH082-B | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-PH083-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 4 - Discrete | NA | NYOW-04-PH083-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH083-B | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH084-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH084-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH084-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-PH085-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 4 - Discrete | NA | NYOW-04-PH085-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-PH085-B | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL001-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.8 | 0.433333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL001-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL001-A | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL002-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 4 - Discrete | NA | NYOW-04-SL002-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL002-A | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-SL003-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 4 - Discrete | NA | NYOW-04-SL003-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL003-A | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-SL004-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.8 | 0.394444444 |
| AOC 4 - Discrete | NA | NYOW-04-SL004-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-SL004-A | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-SL005-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 4 - Discrete | NA | NYOW-04-SL005-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-SL005-A | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-SL006-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.8 | 0.416666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL006-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL006-A | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-SL036-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.8 | 0.416666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL036-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL036-A | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL037-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 4 - Discrete | NA | NYOW-04-SL037-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL037-A | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL038-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 4 - Discrete | NA | NYOW-04-SL038-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.15 | 13.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL038-A | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-SL079-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 1.8 | 0.444444444 |
| AOC 4 - Discrete | NA | NYOW-04-SL079-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.15 | 14 |
| AOC 4 - Discrete | NA | NYOW-04-SL079-A | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-SL080-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.83 | 1.8 | 0.461111111 |
| AOC 4 - Discrete | NA | NYOW-04-SL080-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 0.15 | 14.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL080-A | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL081-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 4 - Discrete | NA | NYOW-04-SL081-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL081-A | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-SL082-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.8 | 0.394444444 |
| AOC 4 - Discrete | NA | NYOW-04-SL082-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-SL082-A | Picric acid | mg/kg | 0.25 | 0.015 | 16.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL083-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 4 - Discrete | NA | NYOW-04-SL083-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL083-A | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - Discrete | NA | NYOW-04-SL084-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.8 | 0.388888889 |
| AOC 4 - Discrete | NA | NYOW-04-SL084-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.15 | 12 |
| AOC 4 - Discrete | NA | NYOW-04-SL084-A | Picric acid | mg/kg | 0.23 | 0.015 | 15.33333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL085-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.8 | 0.416666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL085-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.15 | 12.66666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL085-A | Picric acid | mg/kg | 0.24 | 0.015 | 16 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.8 | 0.177777778 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-A | Picric acid | mg/kg | 0.097 | 0.015 | 6.466666667 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.8 | 0.183333333 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-B | Picric acid | mg/kg | 0.096 | 0.015 | 6.4 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.8 | 0.183333333 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-C | Picric acid | mg/kg | 0.095 | 0.015 | 6.333333333 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 1.8 | 0.188888889 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-A | 2,4-Dinitrophenol | mg/kg | 0.87 | 0.15 | 5.8 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-A | Picric acid | mg/kg | 0.093 | 0.015 | 6.2 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.8 | 0.183333333 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-B | 2,4-Dinitrophenol | mg/kg | 0.84 | 0.15 | 5.6 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-B | Picric acid | mg/kg | 0.1 | 0.015 | 6.666666667 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.8 | 0.183333333 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-C | 2,4-Dinitrophenol | mg/kg | 0.84 | 0.15 | 5.6 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-C | Picric acid | mg/kg | 0.095 | 0.015 | 6.333333333 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 1.8 | 0.188888889 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-A | 2,4-Dinitrophenol | mg/kg | 0.87 | 0.15 | 5.8 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-A | Picric acid | mg/kg | 0.092 | 0.015 | 6.133333333 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 1.8 | 0.188888889 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-B | 2,4-Dinitrophenol | mg/kg | 0.87 | 0.15 | 5.8 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-B | Picric acid | mg/kg | 0.097 | 0.015 | 6.466666667 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.35 | 1.8 | 0.194444444 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-C | 2,4-Dinitrophenol | mg/kg | 0.91 | 0.15 | 6.066666667 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-C | Picric acid | mg/kg | 0.099 | 0.015 | 6.6 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.63 | 1.8 | 0.35 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-A | 2,4-Dinitrophenol | mg/kg | 1.6 | 0.15 | 10.66666667 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-A | Picric acid | mg/kg | 0.093 | 0.015 | 6.2 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 1.9 | 1.8 | 1.055555556 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-B | 2,4-Dinitrophenol | mg/kg | 5 | 0.15 | 33.33333333 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-B | Picric acid | mg/kg | 0.095 | 0.015 | 6.333333333 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-C | Picric acid | mg/kg | 0.099 | 0.015 | 6.6 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.8 | 0.183333333 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-A | 2,4-Dinitrophenol | mg/kg | 0.85 | 0.15 | 5.666666667 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-A | Picric acid | mg/kg | 0.099 | 0.015 | 6.6 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.8 | 0.183333333 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-B | 2,4-Dinitrophenol | mg/kg | 0.86 | 0.15 | 5.733333333 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-B | Picric acid | mg/kg | 0.1 | 0.015 | 6.666666667 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.31 | 1.8 | 0.172222222 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-C | 2,4-Dinitrophenol | mg/kg | 0.79 | 0.15 | 5.266666667 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-C | Picric acid | mg/kg | 0.099 | 0.015 | 6.6 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.35 | 1.8 | 0.194444444 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-A | 2,4-Dinitrophenol | mg/kg | 0.9 | 0.15 | 6 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-A | Picric acid | mg/kg | 0.097 | 0.015 | 6.466666667 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.31 | 1.8 | 0.172222222 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-B | 2,4-Dinitrophenol | mg/kg | 0.81 | 0.15 | 5.4 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-B | Picric acid | mg/kg | 0.1 | 0.015 | 6.666666667 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.8 | 0.183333333 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-C | 2,4-Dinitrophenol | mg/kg | 0.85 | 0.15 | 5.666666667 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-C | Picric acid | mg/kg | 0.096 | 0.015 | 6.4 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.8 | 0.177777778 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-A | Picric acid | mg/kg | 0.099 | 0.015 | 6.6 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.8 | 0.177777778 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-B | Picric acid | mg/kg | 0.099 | 0.015 | 6.6 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.8 | 0.183333333 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-C | Picric acid | mg/kg | 0.096 | 0.015 | 6.4 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.8 | 0.177777778 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-A | 2,4-Dinitrophenol | mg/kg | 0.84 | 0.15 | 5.6 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-A | Picric acid | mg/kg | 0.095 | 0.015 | 6.333333333 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.8 | 0.183333333 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-B | 2,4-Dinitrophenol | mg/kg | 0.85 | 0.15 | 5.666666667 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-B | Picric acid | mg/kg | 0.1 | 0.015 | 6.666666667 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-C | 2,4-Dinitrophenol | mg/kg | 0.82 | 0.15 | 5.466666667 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-C | Picric acid | mg/kg | 0.099 | 0.015 | 6.6 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.8 | 0.177777778 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-A | 2,4-Dinitrophenol | mg/kg | 0.82 | 0.15 | 5.466666667 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-A | Picric acid | mg/kg | 0.098 | 0.015 | 6.533333333 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.8 | 0.183333333 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-B | 2,4-Dinitrophenol | mg/kg | 0.86 | 0.15 | 5.733333333 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-B | Picric acid | mg/kg | 0.098 | 0.015 | 6.533333333 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.8 | 0.177777778 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-C | 2,4-Dinitrophenol | mg/kg | 0.83 | 0.15 | 5.533333333 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-C | Picric acid | mg/kg | 0.099 | 0.015 | 6.6 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.8 | 0.183333333 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-A | 2,4-Dinitrophenol | mg/kg | 0.86 | 0.15 | 5.733333333 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-A | Picric acid | mg/kg | 0.096 | 0.015 | 6.4 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.8 | 0.183333333 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-B | 2,4-Dinitrophenol | mg/kg | 0.84 | 0.15 | 5.6 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-B | Picric acid | mg/kg | 0.099 | 0.015 | 6.6 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.8 | 0.177777778 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-C | 2,4-Dinitrophenol | mg/kg | 0.82 | 0.15 | 5.466666667 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-C | Picric acid | mg/kg | 0.093 | 0.015 | 6.2 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.31 | 1.8 | 0.172222222 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-A | 2,4-Dinitrophenol | mg/kg | 0.8 | 0.15 | 5.333333333 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-A | Picric acid | mg/kg | 0.1 | 0.015 | 6.666666667 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.8 | 0.177777778 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-B | 2,4-Dinitrophenol | mg/kg | 0.84 | 0.15 | 5.6 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-B | Picric acid | mg/kg | 0.098 | 0.015 | 6.533333333 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 1.8 | 0.188888889 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-C | 2,4-Dinitrophenol | mg/kg | 0.87 | 0.15 | 5.8 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-C | Picric acid | mg/kg | 0.096 | 0.015 | 6.4 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.8 | 0.177777778 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-A | 2,4-Dinitrophenol | mg/kg | 0.82 | 0.15 | 5.466666667 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-A | Picric acid | mg/kg | 0.1 | 0.015 | 6.666666667 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.8 | 0.183333333 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-B | 2,4-Dinitrophenol | mg/kg | 0.85 | 0.15 | 5.666666667 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-B | Picric acid | mg/kg | 0.098 | 0.015 | 6.533333333 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.8 | 0.177777778 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-C | 2,4-Dinitrophenol | mg/kg | 0.83 | 0.15 | 5.533333333 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-C | Picric acid | mg/kg | 0.1 | 0.015 | 6.666666667 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Acenaphthene | mg/kg | 0.011 | 29 | 0.00037931 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 0.18 | 2 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 9 | 0.04 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2,4-Dichlorophenol | mg/kg | 0.36 | 0.05 | 7.2 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2,4-Dimethylphenol | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 18 | 0.02 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2,6-Dinitrotoluene | mg/kg | 0.36 | 30 | 0.012 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2-Chlorophenol | mg/kg | 0.36 | 0.06 | 6 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 0.1 | 3.6 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2-Nitrophenol | mg/kg | 0.36 | 0.06 | 6 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 0.03 | 24 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 4-Chloroaniline | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Atrazine | mg/kg | 0.36 | 0.00005 | 7200 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Benzyl butyl phthalate | mg/kg | 0.36 | 0.59 | 0.610169492 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 8.4 | 0.042857143 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Carbazole | mg/kg | 0.36 | 0.07 | 5.142857143 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Cresols, m- & p- | mg/kg | 0.36 | 0.08 | 4.5 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Dibenzofuran | mg/kg | 0.36 | 0.15 | 2.4 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Diethyl phthalate | mg/kg | 0.36 | 0.25 | 1.44 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Dimethyl phthalate | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | di-n-Butyl phthalate | mg/kg | 0.36 | 0.22 | 1.636363636 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | di-n-Octyl phthalate | mg/kg | 0.36 | 303 | 0.001188119 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Hexachlorobenzene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Hexachlorobutadiene | mg/kg | 0.36 | 0.009 | 40 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.001 | 360 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Nitrobenzene | mg/kg | 0.36 | 2.2 | 0.163636364 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | N-Nitrosodiphenylamine | mg/kg | 0.36 | 20 | 0.018 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Phenol | mg/kg | 0.36 | 1.8 | 0.2 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Acenaphthene | mg/kg | 0.011 | 29 | 0.00037931 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 9 | 0.041111111 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 0.05 | 7.4 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 18 | 0.020555556 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 30 | 0.012333333 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2-Chlorophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.1 | 3.7 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2-Nitrophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 0.03 | 24.66666667 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 4-Chloroaniline | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Atrazine | mg/kg | 0.37 | 0.00005 | 7400 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Benzaldehyde | mg/kg | 0.37 | 0.002 | 185 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Benzyl butyl phthalate | mg/kg | 0.37 | 0.59 | 0.627118644 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 8.4 | 0.044047619 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Carbazole | mg/kg | 0.37 | 0.07 | 5.285714286 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Cresols, m- & p- | mg/kg | 0.37 | 0.08 | 4.625 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Dibenzofuran | mg/kg | 0.37 | 0.15 | 2.466666667 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Diethyl phthalate | mg/kg | 0.37 | 0.25 | 1.48 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Dimethyl phthalate | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | di-n-Butyl phthalate | mg/kg | 0.37 | 0.22 | 1.681818182 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | di-n-Octyl phthalate | mg/kg | 0.37 | 303 | 0.001221122 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Hexachlorobutadiene | mg/kg | 0.37 | 0.009 | 41.11111111 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.001 | 370 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Hexachloroethane | mg/kg | 0.37 | 0.024 | 15.41666667 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Nitrobenzene | mg/kg | 0.37 | 2.2 | 0.168181818 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 20 | 0.0185 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Phenol | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Acenaphthene | mg/kg | 0.011 | 29 | 0.00037931 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 0.18 | 2 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 9 | 0.04 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2,4-Dichlorophenol | mg/kg | 0.36 | 0.05 | 7.2 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2,4-Dimethylphenol | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 18 | 0.02 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2,6-Dinitrotoluene | mg/kg | 0.36 | 30 | 0.012 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2-Chlorophenol | mg/kg | 0.36 | 0.06 | 6 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 0.1 | 3.6 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2-Nitrophenol | mg/kg | 0.36 | 0.06 | 6 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 0.03 | 24 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 4-Chloroaniline | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Atrazine | mg/kg | 0.36 | 0.00005 | 7200 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Benzaldehyde | mg/kg | 0.36 | 0.002 | 180 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Benzyl butyl phthalate | mg/kg | 0.36 | 0.59 | 0.610169492 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 8.4 | 0.042857143 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Carbazole | mg/kg | 0.36 | 0.07 | 5.142857143 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Cresols, m- & p- | mg/kg | 0.36 | 0.08 | 4.5 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Dibenzofuran | mg/kg | 0.36 | 0.15 | 2.4 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Diethyl phthalate | mg/kg | 0.36 | 0.25 | 1.44 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Dimethyl phthalate | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | di-n-Butyl phthalate | mg/kg | 0.36 | 0.22 | 1.636363636 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | di-n-Octyl phthalate | mg/kg | 0.36 | 303 | 0.001188119 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-PH018-B | Hexachlorobenzene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Hexachlorobutadiene | mg/kg | 0.36 | 0.009 | 40 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.001 | 360 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Hexachloroethane | mg/kg | 0.36 | 0.024 | 15 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Nitrobenzene | mg/kg | 0.36 | 2.2 | 0.163636364 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | N-Nitrosodiphenylamine | mg/kg | 0.36 | 20 | 0.018 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Phenol | mg/kg | 0.36 | 1.8 | 0.2 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Acenaphthene | mg/kg | 0.011 | 29 | 0.00037931 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 0.18 | 2 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 9 | 0.04 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2,4-Dichlorophenol | mg/kg | 0.36 | 0.05 | 7.2 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2,4-Dimethylphenol | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 18 | 0.02 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2,6-Dinitrotoluene | mg/kg | 0.36 | 30 | 0.012 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2-Chlorophenol | mg/kg | 0.36 | 0.06 | 6 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 0.1 | 3.6 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2-Nitrophenol | mg/kg | 0.36 | 0.06 | 6 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 0.03 | 24 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 3-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 4-Chloroaniline | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 4-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 4-Nitrophenol | mg/kg | 1.8 | 7 | 0.257142857 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Atrazine | mg/kg | 0.36 | 0.00005 | 7200 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Benzaldehyde | mg/kg | 0.36 | 0.002 | 180 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Benzyl butyl phthalate | mg/kg | 0.36 | 0.59 | 0.610169492 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Biphenyl (Diphenyl) | mg/kg | 1.8 | 0.2 | 9 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 8.4 | 0.042857143 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Carbazole | mg/kg | 0.36 | 0.07 | 5.142857143 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-PH019-B | Cresols, m- & p- | mg/kg | 0.36 | 0.08 | 4.5 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Dibenzofuran | mg/kg | 0.36 | 0.15 | 2.4 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Diethyl phthalate | mg/kg | 0.36 | 0.25 | 1.44 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Dimethyl phthalate | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | di-n-Butyl phthalate | mg/kg | 0.36 | 0.22 | 1.636363636 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | di-n-Octyl phthalate | mg/kg | 0.36 | 303 | 0.001188119 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Hexachlorobenzene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Hexachlorobutadiene | mg/kg | 0.36 | 0.009 | 40 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.001 | 360 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Hexachloroethane | mg/kg | 0.36 | 0.024 | 15 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Nitrobenzene | mg/kg | 0.36 | 2.2 | 0.163636364 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | N-Nitrosodiphenylamine | mg/kg | 0.36 | 20 | 0.018 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Pentachlorophenol | mg/kg | 1.8 | 31 | 0.058064516 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Phenol | mg/kg | 0.36 | 1.8 | 0.2 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Acenaphthene | mg/kg | 0.012 | 29 | 0.000413793 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 9 | 0.043333333 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 0.05 | 7.8 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 18 | 0.021666667 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 30 | 0.013 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2-Chlorophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.1 | 3.9 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2-Nitrophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 0.03 | 26 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 4-Chloroaniline | mg/kg | 0.78 | 1.8 | 0.433333333 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-PH020-B | Atrazine | mg/kg | 0.39 | 0.00005 | 7800 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Benzaldehyde | mg/kg | 0.39 | 0.002 | 195 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Benzyl butyl phthalate | mg/kg | 0.39 | 0.59 | 0.661016949 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 8.4 | 0.046428571 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Carbazole | mg/kg | 0.39 | 0.07 | 5.571428571 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Cresols, m- & p- | mg/kg | 0.39 | 0.08 | 4.875 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Dibenzofuran | mg/kg | 0.39 | 0.15 | 2.6 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Diethyl phthalate | mg/kg | 0.39 | 0.25 | 1.56 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Dimethyl phthalate | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | di-n-Butyl phthalate | mg/kg | 0.39 | 0.22 | 1.772727273 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | di-n-Octyl phthalate | mg/kg | 0.39 | 303 | 0.001287129 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Hexachlorobutadiene | mg/kg | 0.39 | 0.009 | 43.33333333 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.001 | 390 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Hexachloroethane | mg/kg | 0.39 | 0.024 | 16.25 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Nitrobenzene | mg/kg | 0.39 | 2.2 | 0.177272727 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 20 | 0.0195 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Phenol | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Acenaphthene | mg/kg | 0.012 | 29 | 0.000413793 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 9 | 0.043333333 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2,4-Dichlorophenol | mg/kg | 0.39 | 0.05 | 7.8 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2,4-Dinitrotoluene | mg/kg | 0.39 | 18 | 0.021666667 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2,6-Dinitrotoluene | mg/kg | 0.39 | 30 | 0.013 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2-Chlorophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.1 | 3.9 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2-Nitrophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 3,3'-Dichlorobenzidine | mg/kg | 0.79 | 0.03 | 26.33333333 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 4-Chloroaniline | mg/kg | 0.79 | 1.8 | 0.438888889 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Atrazine | mg/kg | 0.39 | 0.00005 | 7800 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Benzaldehyde | mg/kg | 0.39 | 0.002 | 195 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Benzyl butyl phthalate | mg/kg | 0.39 | 0.59 | 0.661016949 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 8.4 | 0.046428571 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Carbazole | mg/kg | 0.39 | 0.07 | 5.571428571 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Cresols, m- & p- | mg/kg | 0.39 | 0.08 | 4.875 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Dibenzofuran | mg/kg | 0.39 | 0.15 | 2.6 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Diethyl phthalate | mg/kg | 0.39 | 0.25 | 1.56 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Dimethyl phthalate | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | di-n-Butyl phthalate | mg/kg | 0.39 | 0.22 | 1.772727273 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | di-n-Octyl phthalate | mg/kg | 0.39 | 303 | 0.001287129 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Hexachlorobutadiene | mg/kg | 0.39 | 0.009 | 43.33333333 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.001 | 390 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Hexachloroethane | mg/kg | 0.39 | 0.024 | 16.25 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Nitrobenzene | mg/kg | 0.39 | 2.2 | 0.177272727 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | N-Nitrosodiphenylamine | mg/kg | 0.39 | 20 | 0.0195 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Phenol | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Acenaphthene | mg/kg | 0.01 | 29 | 0.000344828 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 0.18 | 2 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 9 | 0.04 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2,4-Dichlorophenol | mg/kg | 0.36 | 0.05 | 7.2 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2,4-Dimethylphenol | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2,4-Dinitrotoluene | mg/kg | 0.36 | 18 | 0.02 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2,6-Dinitrotoluene | mg/kg | 0.36 | 30 | 0.012 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2-Chlorophenol | mg/kg | 0.36 | 0.06 | 6 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 0.1 | 3.6 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2-Nitrophenol | mg/kg | 0.36 | 0.06 | 6 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 0.03 | 24 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 4-Chloroaniline | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Atrazine | mg/kg | 0.36 | 0.00005 | 7200 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Benzaldehyde | mg/kg | 0.36 | 0.002 | 180 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Benzyl butyl phthalate | mg/kg | 0.36 | 0.59 | 0.610169492 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 8.4 | 0.042857143 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Carbazole | mg/kg | 0.36 | 0.07 | 5.142857143 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Cresols, m- & p- | mg/kg | 0.36 | 0.08 | 4.5 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Dibenzofuran | mg/kg | 0.36 | 0.15 | 2.4 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Diethyl phthalate | mg/kg | 0.36 | 0.25 | 1.44 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Dimethyl phthalate | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | di-n-Butyl phthalate | mg/kg | 0.36 | 0.22 | 1.636363636 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | di-n-Octyl phthalate | mg/kg | 0.36 | 303 | 0.001188119 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Hexachlorobenzene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Hexachlorobutadiene | mg/kg | 0.36 | 0.009 | 40 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.001 | 360 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Hexachloroethane | mg/kg | 0.36 | 0.024 | 15 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Nitrobenzene | mg/kg | 0.36 | 2.2 | 0.163636364 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | N-Nitrosodiphenylamine | mg/kg | 0.36 | 20 | 0.018 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Phenol | mg/kg | 0.36 | 1.8 | 0.2 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-SL018-A | Acenaphthene | mg/kg | 0.011 | 29 | 0.00037931 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 9 | 0.041111111 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2,4-Dichlorophenol | mg/kg | 0.37 | 0.05 | 7.4 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 18 | 0.020555556 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2,6-Dinitrotoluene | mg/kg | 0.37 | 30 | 0.012333333 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2-Chlorophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.1 | 3.7 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2-Nitrophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 3,3'-Dichlorobenzidine | mg/kg | 0.73 | 0.03 | 24.33333333 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 4-Chloroaniline | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Atrazine | mg/kg | 0.37 | 0.00005 | 7400 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Benzaldehyde | mg/kg | 0.37 | 0.002 | 185 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Benzyl butyl phthalate | mg/kg | 0.37 | 0.59 | 0.627118644 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 8.4 | 0.044047619 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Carbazole | mg/kg | 0.37 | 0.07 | 5.285714286 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Cresols, m- & p- | mg/kg | 0.37 | 0.08 | 4.625 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Dibenzofuran | mg/kg | 0.37 | 0.15 | 2.466666667 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Diethyl phthalate | mg/kg | 0.37 | 0.25 | 1.48 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Dimethyl phthalate | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | di-n-Butyl phthalate | mg/kg | 0.37 | 0.22 | 1.681818182 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | di-n-Octyl phthalate | mg/kg | 0.37 | 303 | 0.001221122 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Hexachlorobutadiene | mg/kg | 0.37 | 0.009 | 41.11111111 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-SL018-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.001 | 370 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Hexachloroethane | mg/kg | 0.37 | 0.024 | 15.41666667 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Nitrobenzene | mg/kg | 0.37 | 2.2 | 0.168181818 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | N-Nitrosodiphenylamine | mg/kg | 0.37 | 20 | 0.0185 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Phenol | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Acenaphthene | mg/kg | 0.01 | 29 | 0.000344828 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.35 | 0.18 | 1.944444444 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.35 | 0.04 | 8.75 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 9 | 0.038888889 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2,4,6-Trichlorophenol | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2,4-Dichlorophenol | mg/kg | 0.35 | 0.05 | 7 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2,4-Dimethylphenol | mg/kg | 0.35 | 0.04 | 8.75 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2,4-Dinitrotoluene | mg/kg | 0.35 | 18 | 0.019444444 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2,6-Dinitrotoluene | mg/kg | 0.35 | 30 | 0.011666667 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2-Chlorophenol | mg/kg | 0.35 | 0.06 | 5.833333333 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 0.1 | 3.5 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2-Nitrophenol | mg/kg | 0.35 | 0.06 | 5.833333333 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 3,3'-Dichlorobenzidine | mg/kg | 0.69 | 0.03 | 23 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 3-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 4-Chloroaniline | mg/kg | 0.69 | 1.8 | 0.383333333 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 4-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 4-Nitrophenol | mg/kg | 1.8 | 7 | 0.257142857 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Atrazine | mg/kg | 0.35 | 0.00005 | 7000 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Benzaldehyde | mg/kg | 0.35 | 0.002 | 175 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Benzyl butyl phthalate | mg/kg | 0.35 | 0.59 | 0.593220339 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Biphenyl (Diphenyl) | mg/kg | 1.8 | 0.2 | 9 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 8.4 | 0.041666667 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Carbazole | mg/kg | 0.35 | 0.07 | 5 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Cresols, m- & p- | mg/kg | 0.35 | 0.08 | 4.375 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Dibenzofuran | mg/kg | 0.35 | 0.15 | 2.333333333 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-SL019-A | Diethyl phthalate | mg/kg | 0.35 | 0.25 | 1.4 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Dimethyl phthalate | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | di-n-Butyl phthalate | mg/kg | 0.35 | 0.22 | 1.590909091 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | di-n-Octyl phthalate | mg/kg | 0.35 | 303 | 0.001155116 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Hexachlorobenzene | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Hexachlorobutadiene | mg/kg | 0.35 | 0.009 | 38.88888889 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Hexachlorocyclopentadiene | mg/kg | 0.35 | 0.001 | 350 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Hexachloroethane | mg/kg | 0.35 | 0.024 | 14.58333333 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Nitrobenzene | mg/kg | 0.35 | 2.2 | 0.159090909 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | N-Nitrosodiphenylamine | mg/kg | 0.35 | 20 | 0.0175 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Pentachlorophenol | mg/kg | 1.8 | 31 | 0.058064516 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Phenol | mg/kg | 0.35 | 1.8 | 0.194444444 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Acenaphthene | mg/kg | 0.011 | 29 | 0.00037931 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 9 | 0.041111111 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2,4-Dichlorophenol | mg/kg | 0.37 | 0.05 | 7.4 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 18 | 0.020555556 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2,6-Dinitrotoluene | mg/kg | 0.37 | 30 | 0.012333333 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2-Chlorophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.1 | 3.7 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2-Nitrophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 3,3'-Dichlorobenzidine | mg/kg | 0.73 | 0.03 | 24.33333333 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 4-Chloroaniline | mg/kg | 0.73 | 1.8 | 0.405555556 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Atrazine | mg/kg | 0.37 | 0.00005 | 7400 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Benzaldehyde | mg/kg | 0.37 | 0.002 | 185 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-SL020-A | Benzyl butyl phthalate | mg/kg | 0.37 | 0.59 | 0.627118644 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 8.4 | 0.044047619 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Carbazole | mg/kg | 0.37 | 0.07 | 5.285714286 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Cresols, m- & p- | mg/kg | 0.37 | 0.08 | 4.625 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Dibenzofuran | mg/kg | 0.37 | 0.15 | 2.466666667 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Diethyl phthalate | mg/kg | 0.37 | 0.25 | 1.48 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Dimethyl phthalate | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | di-n-Butyl phthalate | mg/kg | 0.37 | 0.22 | 1.681818182 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | di-n-Octyl phthalate | mg/kg | 0.37 | 303 | 0.001221122 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Hexachlorobutadiene | mg/kg | 0.37 | 0.009 | 41.11111111 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.001 | 370 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Hexachloroethane | mg/kg | 0.37 | 0.024 | 15.41666667 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Nitrobenzene | mg/kg | 0.37 | 2.2 | 0.168181818 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | N-Nitrosodiphenylamine | mg/kg | 0.37 | 20 | 0.0185 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Phenol | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 9 | 0.043333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 0.05 | 7.8 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 18 | 0.021666667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 30 | 0.013 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2-Chlorophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.1 | 3.9 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2-Nitrophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 0.03 | 26 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 4-Chloroaniline | mg/kg | 0.78 | 1.8 | 0.433333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Atrazine | mg/kg | 0.39 | 0.00005 | 7800 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Benzaldehyde | mg/kg | 0.39 | 0.002 | 195 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Benzyl butyl phthalate | mg/kg | 0.39 | 0.59 | 0.661016949 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 8.4 | 0.046428571 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Carbazole | mg/kg | 0.39 | 0.07 | 5.571428571 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Cresols, m- & p- | mg/kg | 0.39 | 0.08 | 4.875 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Diethyl phthalate | mg/kg | 0.39 | 0.25 | 1.56 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Dimethyl phthalate | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | di-n-Butyl phthalate | mg/kg | 0.39 | 0.22 | 1.772727273 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | di-n-Octyl phthalate | mg/kg | 0.39 | 303 | 0.001287129 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Hexachlorobutadiene | mg/kg | 0.39 | 0.009 | 43.33333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.001 | 390 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Hexachloroethane | mg/kg | 0.39 | 0.024 | 16.25 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Nitrobenzene | mg/kg | 0.39 | 2.2 | 0.177272727 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 20 | 0.0195 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Phenol | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 0.18 | 2 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 9 | 0.04 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2,4-Dichlorophenol | mg/kg | 0.36 | 0.05 | 7.2 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2,4-Dimethylphenol | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 18 | 0.02 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2,6-Dinitrotoluene | mg/kg | 0.36 | 30 | 0.012 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2-Chlorophenol | mg/kg | 0.36 | 0.06 | 6 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 0.1 | 3.6 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2-Nitrophenol | mg/kg | 0.36 | 0.06 | 6 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 3,3'-Dichlorobenzidine | mg/kg | 0.71 | 0.03 | 23.66666667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 3-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 4-Chloroaniline | mg/kg | 0.71 | 1.8 | 0.394444444 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 4-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 4-Nitrophenol | mg/kg | 1.8 | 7 | 0.257142857 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Atrazine | mg/kg | 0.36 | 0.00005 | 7200 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Benzaldehyde | mg/kg | 0.36 | 0.002 | 180 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Benzyl butyl phthalate | mg/kg | 0.36 | 0.59 | 0.610169492 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Biphenyl (Diphenyl) | mg/kg | 1.8 | 0.2 | 9 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 8.4 | 0.042857143 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Carbazole | mg/kg | 0.36 | 0.07 | 5.142857143 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Cresols, m- & p- | mg/kg | 0.36 | 0.08 | 4.5 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Diethyl phthalate | mg/kg | 0.36 | 0.25 | 1.44 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Dimethyl phthalate | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | di-n-Butyl phthalate | mg/kg | 0.36 | 0.22 | 1.636363636 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | di-n-Octyl phthalate | mg/kg | 0.36 | 303 | 0.001188119 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Hexachlorobenzene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Hexachlorobutadiene | mg/kg | 0.36 | 0.009 | 40 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.001 | 360 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Hexachloroethane | mg/kg | 0.36 | 0.024 | 15 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Nitrobenzene | mg/kg | 0.36 | 2.2 | 0.163636364 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | N-Nitrosodiphenylamine | mg/kg | 0.36 | 20 | 0.018 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Pentachlorophenol | mg/kg | 1.8 | 31 | 0.058064516 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Phenol | mg/kg | 0.36 | 1.8 | 0.2 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 9 | 0.041111111 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 0.05 | 7.4 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.04 | 9.25 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 18 | 0.020555556 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 30 | 0.012333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2-Chlorophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.1 | 3.7 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2-Nitrophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 0.03 | 24.66666667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 4-Chloroaniline | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Atrazine | mg/kg | 0.37 | 0.00005 | 7400 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Benzaldehyde | mg/kg | 0.37 | 0.002 | 185 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Benzyl butyl phthalate | mg/kg | 0.37 | 0.59 | 0.627118644 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 8.4 | 0.044047619 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Carbazole | mg/kg | 0.37 | 0.07 | 5.285714286 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Cresols, m- & p- | mg/kg | 0.37 | 0.08 | 4.625 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Diethyl phthalate | mg/kg | 0.37 | 0.25 | 1.48 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Dimethyl phthalate | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | di-n-Butyl phthalate | mg/kg | 0.37 | 0.22 | 1.681818182 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | di-n-Octyl phthalate | mg/kg | 0.37 | 303 | 0.001221122 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Hexachlorobutadiene | mg/kg | 0.37 | 0.009 | 41.11111111 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.001 | 370 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Hexachloroethane | mg/kg | 0.37 | 0.024 | 15.41666667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Nitrobenzene | mg/kg | 0.37 | 2.2 | 0.168181818 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 20 | 0.0185 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Phenol | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 0.04 | 9.5 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 9 | 0.042222222 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2,4-Dichlorophenol | mg/kg | 0.38 | 0.05 | 7.6 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2,4-Dinitrotoluene | mg/kg | 0.38 | 18 | 0.021111111 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2,6-Dinitrotoluene | mg/kg | 0.38 | 30 | 0.012666667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2-Chlorophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.1 | 3.8 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2-Nitrophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 0.03 | 25.66666667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 4-Chloroaniline | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Atrazine | mg/kg | 0.38 | 0.00005 | 7600 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Benzaldehyde | mg/kg | 0.38 | 0.002 | 190 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Benzyl butyl phthalate | mg/kg | 0.38 | 0.59 | 0.644067797 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 8.4 | 0.045238095 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Carbazole | mg/kg | 0.38 | 0.07 | 5.428571429 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Cresols, m- & p- | mg/kg | 0.38 | 0.08 | 4.75 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Diethyl phthalate | mg/kg | 0.38 | 0.25 | 1.52 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Dimethyl phthalate | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | di-n-Butyl phthalate | mg/kg | 0.38 | 0.22 | 1.727272727 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | di-n-Octyl phthalate | mg/kg | 0.38 | 303 | 0.001254125 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Hexachlorobutadiene | mg/kg | 0.38 | 0.009 | 42.22222222 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.001 | 380 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Hexachloroethane | mg/kg | 0.38 | 0.024 | 15.83333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Nitrobenzene | mg/kg | 0.38 | 2.2 | 0.172727273 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | N-Nitrosodiphenylamine | mg/kg | 0.38 | 20 | 0.019 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Phenol | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 9 | 0.042222222 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2,4-Dichlorophenol | mg/kg | 0.38 | 0.05 | 7.6 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2,4-Dinitrotoluene | mg/kg | 0.38 | 18 | 0.021111111 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2,6-Dinitrotoluene | mg/kg | 0.38 | 30 | 0.012666667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2-Chlorophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.1 | 3.8 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2-Nitrophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 0.03 | 25 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 4-Chloroaniline | mg/kg | 0.75 | 1.8 | 0.416666667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Atrazine | mg/kg | 0.38 | 0.00005 | 7600 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Benzaldehyde | mg/kg | 0.38 | 0.002 | 190 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Benzyl butyl phthalate | mg/kg | 0.38 | 0.59 | 0.644067797 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 8.4 | 0.045238095 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Carbazole | mg/kg | 0.38 | 0.07 | 5.428571429 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Cresols, m- & p- | mg/kg | 0.38 | 0.08 | 4.75 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Diethyl phthalate | mg/kg | 0.38 | 0.25 | 1.52 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Dimethyl phthalate | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | di-n-Butyl phthalate | mg/kg | 0.38 | 0.22 | 1.727272727 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | di-n-Octyl phthalate | mg/kg | 0.38 | 303 | 0.001254125 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Hexachlorobutadiene | mg/kg | 0.38 | 0.009 | 42.22222222 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.001 | 380 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Hexachloroethane | mg/kg | 0.38 | 0.024 | 15.83333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Nitrobenzene | mg/kg | 0.38 | 2.2 | 0.172727273 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | N-Nitrosodiphenylamine | mg/kg | 0.38 | 20 | 0.019 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Phenol | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 9 | 0.043333333 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 0.05 | 7.8 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 18 | 0.021666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 30 | 0.013 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2-Chlorophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.1 | 3.9 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2-Nitrophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 3,3'-Dichlorobenzidine | mg/kg | 0.79 | 0.03 | 26.33333333 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 4-Chloroaniline | mg/kg | 0.79 | 1.8 | 0.438888889 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Atrazine | mg/kg | 0.39 | 0.00005 | 7800 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Benzaldehyde | mg/kg | 0.39 | 0.002 | 195 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Benzyl butyl phthalate | mg/kg | 0.39 | 0.59 | 0.661016949 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 8.4 | 0.046428571 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Carbazole | mg/kg | 0.39 | 0.07 | 5.571428571 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Cresols, m- & p- | mg/kg | 0.39 | 0.08 | 4.875 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Dibenzofuran | mg/kg | 0.39 | 0.15 | 2.6 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Diethyl phthalate | mg/kg | 0.39 | 0.25 | 1.56 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Dimethyl phthalate | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | di-n-Butyl phthalate | mg/kg | 0.39 | 0.22 | 1.772727273 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | di-n-Octyl phthalate | mg/kg | 0.39 | 303 | 0.001287129 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Hexachlorobutadiene | mg/kg | 0.39 | 0.009 | 43.33333333 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.001 | 390 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Hexachloroethane | mg/kg | 0.39 | 0.024 | 16.25 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Nitrobenzene | mg/kg | 0.39 | 2.2 | 0.177272727 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 20 | 0.0195 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Phenol | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 0.18 | 2 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 9 | 0.04 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2,4-Dichlorophenol | mg/kg | 0.36 | 0.05 | 7.2 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2,4-Dimethylphenol | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 18 | 0.02 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2,6-Dinitrotoluene | mg/kg | 0.36 | 30 | 0.012 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2-Chlorophenol | mg/kg | 0.36 | 0.06 | 6 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 0.1 | 3.6 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2-Nitrophenol | mg/kg | 0.36 | 0.06 | 6 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 0.03 | 24 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 3-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 4-Chloroaniline | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 4-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 4-Nitrophenol | mg/kg | 1.8 | 7 | 0.257142857 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Atrazine | mg/kg | 0.36 | 0.00005 | 7200 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Benzaldehyde | mg/kg | 0.36 | 0.002 | 180 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Benzyl butyl phthalate | mg/kg | 0.36 | 0.59 | 0.610169492 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Biphenyl (Diphenyl) | mg/kg | 1.8 | 0.2 | 9 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 8.4 | 0.042857143 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Carbazole | mg/kg | 0.36 | 0.07 | 5.142857143 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Cresols, m- & p- | mg/kg | 0.36 | 0.08 | 4.5 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Dibenzofuran | mg/kg | 0.36 | 0.15 | 2.4 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Diethyl phthalate | mg/kg | 0.36 | 0.25 | 1.44 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Dimethyl phthalate | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | di-n-Butyl phthalate | mg/kg | 0.36 | 0.22 | 1.636363636 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | di-n-Octyl phthalate | mg/kg | 0.36 | 303 | 0.001188119 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Hexachlorobenzene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Hexachlorobutadiene | mg/kg | 0.36 | 0.009 | 40 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.001 | 360 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Hexachloroethane | mg/kg | 0.36 | 0.024 | 15 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Nitrobenzene | mg/kg | 0.36 | 2.2 | 0.163636364 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | N-Nitrosodiphenylamine | mg/kg | 0.36 | 20 | 0.018 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Pentachlorophenol | mg/kg | 1.8 | 31 | 0.058064516 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Phenol | mg/kg | 0.36 | 1.8 | 0.2 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 9 | 0.041111111 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 0.05 | 7.4 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 18 | 0.020555556 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 30 | 0.012333333 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2-Chlorophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.1 | 3.7 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2-Nitrophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 0.03 | 24.66666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 4-Chloroaniline | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Atrazine | mg/kg | 0.37 | 0.00005 | 7400 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Benzaldehyde | mg/kg | 0.37 | 0.002 | 185 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Benzyl butyl phthalate | mg/kg | 0.37 | 0.59 | 0.627118644 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 8.4 | 0.044047619 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Carbazole | mg/kg | 0.37 | 0.07 | 5.285714286 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Cresols, m- & p- | mg/kg | 0.37 | 0.08 | 4.625 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Dibenzofuran | mg/kg | 0.37 | 0.15 | 2.466666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Diethyl phthalate | mg/kg | 0.37 | 0.25 | 1.48 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Dimethyl phthalate | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | di-n-Butyl phthalate | mg/kg | 0.37 | 0.22 | 1.681818182 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | di-n-Octyl phthalate | mg/kg | 0.37 | 303 | 0.001221122 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Hexachlorobutadiene | mg/kg | 0.37 | 0.009 | 41.11111111 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.001 | 370 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Hexachloroethane | mg/kg | 0.37 | 0.024 | 15.41666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Nitrobenzene | mg/kg | 0.37 | 2.2 | 0.168181818 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 20 | 0.0185 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Phenol | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 0.18 | 2 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 9 | 0.04 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2,4-Dichlorophenol | mg/kg | 0.36 | 0.05 | 7.2 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2,4-Dimethylphenol | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 18 | 0.02 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2,6-Dinitrotoluene | mg/kg | 0.36 | 30 | 0.012 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2-Chlorophenol | mg/kg | 0.36 | 0.06 | 6 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 0.1 | 3.6 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2-Nitrophenol | mg/kg | 0.36 | 0.06 | 6 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 0.03 | 24 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 4-Chloroaniline | mg/kg | 0.72 | 1.8 | 0.4 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Atrazine | mg/kg | 0.36 | 0.00005 | 7200 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Benzaldehyde | mg/kg | 0.36 | 0.002 | 180 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Benzyl butyl phthalate | mg/kg | 0.36 | 0.59 | 0.610169492 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 8.4 | 0.042857143 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Carbazole | mg/kg | 0.36 | 0.07 | 5.142857143 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Cresols, m- & p- | mg/kg | 0.36 | 0.08 | 4.5 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Dibenzofuran | mg/kg | 0.36 | 0.15 | 2.4 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Diethyl phthalate | mg/kg | 0.36 | 0.25 | 1.44 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Dimethyl phthalate | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | di-n-Butyl phthalate | mg/kg | 0.36 | 0.22 | 1.636363636 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | di-n-Octyl phthalate | mg/kg | 0.36 | 303 | 0.001188119 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Hexachlorobenzene | mg/kg | 0.36 | 10 | 0.036 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Hexachlorobutadiene | mg/kg | 0.36 | 0.009 | 40 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.001 | 360 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Hexachloroethane | mg/kg | 0.36 | 0.024 | 15 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Nitrobenzene | mg/kg | 0.36 | 2.2 | 0.163636364 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | N-Nitrosodiphenylamine | mg/kg | 0.36 | 20 | 0.018 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Phenol | mg/kg | 0.36 | 1.8 | 0.2 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 9 | 0.041111111 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 0.05 | 7.4 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.04 | 9.25 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 18 | 0.020555556 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 30 | 0.012333333 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2-Chlorophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.1 | 3.7 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2-Nitrophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 0.03 | 25 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 4-Chloroaniline | mg/kg | 0.75 | 1.8 | 0.416666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Atrazine | mg/kg | 0.37 | 0.00005 | 7400 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Benzaldehyde | mg/kg | 0.37 | 0.002 | 185 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Benzyl butyl phthalate | mg/kg | 0.37 | 0.59 | 0.627118644 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 8.4 | 0.044047619 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Carbazole | mg/kg | 0.37 | 0.07 | 5.285714286 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Cresols, m- & p- | mg/kg | 0.37 | 0.08 | 4.625 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Dibenzofuran | mg/kg | 0.37 | 0.15 | 2.466666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Diethyl phthalate | mg/kg | 0.37 | 0.25 | 1.48 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Dimethyl phthalate | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | di-n-Butyl phthalate | mg/kg | 0.37 | 0.22 | 1.681818182 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | di-n-Octyl phthalate | mg/kg | 0.37 | 303 | 0.001221122 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Hexachlorobutadiene | mg/kg | 0.37 | 0.009 | 41.11111111 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.001 | 370 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Hexachloroethane | mg/kg | 0.37 | 0.024 | 15.41666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Nitrobenzene | mg/kg | 0.37 | 2.2 | 0.168181818 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 20 | 0.0185 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Phenol | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.18 | 2.166666667 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 9 | 0.043333333 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 0.05 | 7.8 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 18 | 0.021666667 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 30 | 0.013 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2-Chlorophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.1 | 3.9 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2-Nitrophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 0.03 | 25.66666667 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 4-Chloroaniline | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Atrazine | mg/kg | 0.39 | 0.00005 | 7800 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Benzaldehyde | mg/kg | 0.39 | 0.002 | 195 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Benzyl butyl phthalate | mg/kg | 0.39 | 0.59 | 0.661016949 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 8.4 | 0.046428571 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Carbazole | mg/kg | 0.39 | 0.07 | 5.571428571 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Cresols, m- & p- | mg/kg | 0.39 | 0.08 | 4.875 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Dibenzofuran | mg/kg | 0.39 | 0.15 | 2.6 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Diethyl phthalate | mg/kg | 0.39 | 0.25 | 1.56 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Dimethyl phthalate | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | di-n-Butyl phthalate | mg/kg | 0.39 | 0.22 | 1.772727273 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | di-n-Octyl phthalate | mg/kg | 0.39 | 303 | 0.001287129 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Hexachlorobutadiene | mg/kg | 0.39 | 0.009 | 43.33333333 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.001 | 390 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Hexachloroethane | mg/kg | 0.39 | 0.024 | 16.25 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Nitrobenzene | mg/kg | 0.39 | 2.2 | 0.177272727 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 20 | 0.0195 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Phenol | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 9 | 0.043333333 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 0.05 | 7.8 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 18 | 0.021666667 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 30 | 0.013 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2-Chlorophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.1 | 3.9 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2-Nitrophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 0.03 | 25.66666667 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 4-Chloroaniline | mg/kg | 0.77 | 1.8 | 0.427777778 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Atrazine | mg/kg | 0.39 | 0.00005 | 7800 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Benzaldehyde | mg/kg | 0.39 | 0.002 | 195 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Benzyl butyl phthalate | mg/kg | 0.39 | 0.59 | 0.661016949 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 8.4 | 0.046428571 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Carbazole | mg/kg | 0.39 | 0.07 | 5.571428571 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Cresols, m- & p- | mg/kg | 0.39 | 0.08 | 4.875 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Dibenzofuran | mg/kg | 0.39 | 0.15 | 2.6 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Diethyl phthalate | mg/kg | 0.39 | 0.25 | 1.56 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Dimethyl phthalate | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | di-n-Butyl phthalate | mg/kg | 0.39 | 0.22 | 1.772727273 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-PH012-B | di-n-Octyl phthalate | mg/kg | 0.39 | 303 | 0.001287129 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Hexachlorobutadiene | mg/kg | 0.39 | 0.009 | 43.33333333 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.001 | 390 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Hexachloroethane | mg/kg | 0.39 | 0.024 | 16.25 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Nitrobenzene | mg/kg | 0.39 | 2.2 | 0.177272727 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 20 | 0.0195 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Phenol | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.35 | 0.18 | 1.944444444 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.35 | 0.04 | 8.75 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 9 | 0.038888889 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2,4,6-Trichlorophenol | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2,4-Dichlorophenol | mg/kg | 0.35 | 0.05 | 7 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2,4-Dimethylphenol | mg/kg | 0.35 | 0.04 | 8.75 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2,4-Dinitrotoluene | mg/kg | 0.35 | 18 | 0.019444444 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2,6-Dinitrotoluene | mg/kg | 0.35 | 30 | 0.011666667 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2-Chlorophenol | mg/kg | 0.35 | 0.06 | 5.833333333 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 0.1 | 3.5 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2-Nitrophenol | mg/kg | 0.35 | 0.06 | 5.833333333 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 3,3'-Dichlorobenzidine | mg/kg | 0.7 | 0.03 | 23.33333333 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 3-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 4-Chloroaniline | mg/kg | 0.7 | 1.8 | 0.388888889 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 4-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 4-Nitrophenol | mg/kg | 1.8 | 7 | 0.257142857 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Atrazine | mg/kg | 0.35 | 0.00005 | 7000 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Benzaldehyde | mg/kg | 0.35 | 0.002 | 175 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Benzyl butyl phthalate | mg/kg | 0.35 | 0.59 | 0.593220339 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Biphenyl (Diphenyl) | mg/kg | 1.8 | 0.2 | 9 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 8.4 | 0.041666667 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Carbazole | mg/kg | 0.35 | 0.07 | 5 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Cresols, m- & p- | mg/kg | 0.35 | 0.08 | 4.375 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Dibenzofuran | mg/kg | 0.35 | 0.15 | 2.333333333 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Diethyl phthalate | mg/kg | 0.35 | 0.25 | 1.4 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Dimethyl phthalate | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | di-n-Butyl phthalate | mg/kg | 0.35 | 0.22 | 1.590909091 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | di-n-Octyl phthalate | mg/kg | 0.35 | 303 | 0.001155116 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Hexachlorobenzene | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Hexachlorobutadiene | mg/kg | 0.35 | 0.009 | 38.88888889 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Hexachlorocyclopentadiene | mg/kg | 0.35 | 0.001 | 350 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Hexachloroethane | mg/kg | 0.35 | 0.024 | 14.58333333 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Nitrobenzene | mg/kg | 0.35 | 2.2 | 0.159090909 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | N-Nitrosodiphenylamine | mg/kg | 0.35 | 20 | 0.0175 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Pentachlorophenol | mg/kg | 1.8 | 31 | 0.058064516 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Phenol | mg/kg | 0.35 | 1.8 | 0.194444444 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 9 | 0.041111111 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 0.05 | 7.4 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 18 | 0.020555556 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 30 | 0.012333333 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2-Chlorophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.1 | 3.7 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2-Nitrophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 0.03 | 25 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 4-Chloroaniline | mg/kg | 0.75 | 1.8 | 0.416666667 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Atrazine | mg/kg | 0.37 | 0.00005 | 7400 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Benzaldehyde | mg/kg | 0.37 | 0.002 | 185 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Benzyl butyl phthalate | mg/kg | 0.37 | 0.59 | 0.627118644 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 8.4 | 0.044047619 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Carbazole | mg/kg | 0.37 | 0.07 | 5.285714286 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Cresols, m- & p- | mg/kg | 0.37 | 0.08 | 4.625 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Dibenzofuran | mg/kg | 0.37 | 0.15 | 2.466666667 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Diethyl phthalate | mg/kg | 0.37 | 0.25 | 1.48 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Dimethyl phthalate | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | di-n-Butyl phthalate | mg/kg | 0.37 | 0.22 | 1.681818182 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | di-n-Octyl phthalate | mg/kg | 0.37 | 303 | 0.001221122 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Hexachlorobutadiene | mg/kg | 0.37 | 0.009 | 41.11111111 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.001 | 370 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Hexachloroethane | mg/kg | 0.37 | 0.024 | 15.41666667 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Nitrobenzene | mg/kg | 0.37 | 2.2 | 0.168181818 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 20 | 0.0185 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Phenol | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.35 | 0.18 | 1.944444444 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.35 | 0.04 | 8.75 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 9 | 0.038888889 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2,4,6-Trichlorophenol | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2,4-Dichlorophenol | mg/kg | 0.35 | 0.05 | 7 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2,4-Dimethylphenol | mg/kg | 0.35 | 0.04 | 8.75 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2,4-Dinitrotoluene | mg/kg | 0.35 | 18 | 0.019444444 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2,6-Dinitrotoluene | mg/kg | 0.35 | 30 | 0.011666667 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2-Chlorophenol | mg/kg | 0.35 | 0.06 | 5.833333333 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 0.1 | 3.5 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2-Nitrophenol | mg/kg | 0.35 | 0.06 | 5.833333333 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 3,3'-Dichlorobenzidine | mg/kg | 0.7 | 0.03 | 23.33333333 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 3-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 4-Chloroaniline | mg/kg | 0.7 | 1.8 | 0.388888889 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 4-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 4-Nitrophenol | mg/kg | 1.8 | 7 | 0.257142857 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Atrazine | mg/kg | 0.35 | 0.00005 | 7000 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Benzaldehyde | mg/kg | 0.35 | 0.002 | 175 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Benzyl butyl phthalate | mg/kg | 0.35 | 0.59 | 0.593220339 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Biphenyl (Diphenyl) | mg/kg | 1.8 | 0.2 | 9 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 8.4 | 0.041666667 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Carbazole | mg/kg | 0.35 | 0.07 | 5 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Cresols, m- & p- | mg/kg | 0.35 | 0.08 | 4.375 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Dibenzofuran | mg/kg | 0.35 | 0.15 | 2.333333333 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Diethyl phthalate | mg/kg | 0.35 | 0.25 | 1.4 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Dimethyl phthalate | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | di-n-Butyl phthalate | mg/kg | 0.35 | 0.22 | 1.590909091 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | di-n-Octyl phthalate | mg/kg | 0.35 | 303 | 0.001155116 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Hexachlorobenzene | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Hexachlorobutadiene | mg/kg | 0.35 | 0.009 | 38.88888889 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Hexachlorocyclopentadiene | mg/kg | 0.35 | 0.001 | 350 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Hexachloroethane | mg/kg | 0.35 | 0.024 | 14.58333333 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Nitrobenzene | mg/kg | 0.35 | 2.2 | 0.159090909 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | N-Nitrosodiphenylamine | mg/kg | 0.35 | 20 | 0.0175 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Pentachlorophenol | mg/kg | 1.8 | 31 | 0.058064516 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Phenol | mg/kg | 0.35 | 1.8 | 0.194444444 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.068 | 0.33 | 0.206060606 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.096 | 0.33 | 0.290909091 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.068 | 0.33 | 0.206060606 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.068 | 0.33 | 0.206060606 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.068 | 0.33 | 0.206060606 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.068 | 0.33 | 0.206060606 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.068 | 0.33 | 0.206060606 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.068 | 0.33 | 0.206060606 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 9 | 0.041111111 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2,4-Dichlorophenol | mg/kg | 0.37 | 0.05 | 7.4 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 18 | 0.020555556 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2,6-Dinitrotoluene | mg/kg | 0.37 | 30 | 0.012333333 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2-Chlorophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.1 | 3.7 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2-Nitrophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 0.03 | 24.66666667 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 4-Chloroaniline | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Atrazine | mg/kg | 0.37 | 0.00005 | 7400 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Benzaldehyde | mg/kg | 0.37 | 0.002 | 185 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Benzyl butyl phthalate | mg/kg | 0.37 | 0.59 | 0.627118644 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 8.4 | 0.044047619 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Carbazole | mg/kg | 0.37 | 0.07 | 5.285714286 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Cresols, m- & p- | mg/kg | 0.37 | 0.08 | 4.625 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Dibenzofuran | mg/kg | 0.37 | 0.15 | 2.466666667 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Diethyl phthalate | mg/kg | 0.37 | 0.25 | 1.48 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Dimethyl phthalate | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | di-n-Butyl phthalate | mg/kg | 0.37 | 0.22 | 1.681818182 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | di-n-Octyl phthalate | mg/kg | 0.37 | 303 | 0.001221122 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Hexachlorobutadiene | mg/kg | 0.37 | 0.009 | 41.11111111 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.001 | 370 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Hexachloroethane | mg/kg | 0.37 | 0.024 | 15.41666667 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Nitrobenzene | mg/kg | 0.37 | 2.2 | 0.168181818 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | N-Nitrosodiphenylamine | mg/kg | 0.37 | 20 | 0.0185 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Phenol | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.33 | 0.303030303 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 9 | 0.042222222 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2,4-Dichlorophenol | mg/kg | 0.38 | 0.05 | 7.6 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2,4-Dinitrotoluene | mg/kg | 0.38 | 18 | 0.021111111 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2,6-Dinitrotoluene | mg/kg | 0.38 | 30 | 0.012666667 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2-Chlorophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.1 | 3.8 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2-Nitrophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 0.03 | 25.33333333 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 4-Chloroaniline | mg/kg | 0.76 | 1.8 | 0.422222222 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Atrazine | mg/kg | 0.38 | 0.00005 | 7600 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Benzaldehyde | mg/kg | 0.38 | 0.002 | 190 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Benzyl butyl phthalate | mg/kg | 0.38 | 0.59 | 0.644067797 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 8.4 | 0.045238095 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Carbazole | mg/kg | 0.38 | 0.07 | 5.428571429 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Cresols, m- & p- | mg/kg | 0.38 | 0.08 | 4.75 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Dibenzofuran | mg/kg | 0.38 | 0.15 | 2.533333333 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Diethyl phthalate | mg/kg | 0.38 | 0.25 | 1.52 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Dimethyl phthalate | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | di-n-Butyl phthalate | mg/kg | 0.38 | 0.22 | 1.727272727 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | di-n-Octyl phthalate | mg/kg | 0.38 | 303 | 0.001254125 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Hexachlorobutadiene | mg/kg | 0.38 | 0.009 | 42.22222222 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.001 | 380 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Hexachloroethane | mg/kg | 0.38 | 0.024 | 15.83333333 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Nitrobenzene | mg/kg | 0.38 | 2.2 | 0.172727273 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | N-Nitrosodiphenylamine | mg/kg | 0.38 | 20 | 0.019 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Phenol | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.076 | 0.33 | 0.23030303 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 9 | 0.043333333 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2,4-Dichlorophenol | mg/kg | 0.39 | 0.05 | 7.8 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.04 | 9.75 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2,4-Dinitrotoluene | mg/kg | 0.39 | 18 | 0.021666667 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2,6-Dinitrotoluene | mg/kg | 0.39 | 30 | 0.013 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2-Chlorophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.1 | 3.9 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2-Nitrophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 0.03 | 26 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 4-Chloroaniline | mg/kg | 0.78 | 1.8 | 0.433333333 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Atrazine | mg/kg | 0.39 | 0.00005 | 7800 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Benzaldehyde | mg/kg | 0.39 | 0.002 | 195 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Benzyl butyl phthalate | mg/kg | 0.39 | 0.59 | 0.661016949 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 8.4 | 0.046428571 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Carbazole | mg/kg | 0.39 | 0.07 | 5.571428571 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Cresols, m- & p- | mg/kg | 0.39 | 0.08 | 4.875 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Dibenzofuran | mg/kg | 0.39 | 0.15 | 2.6 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Diethyl phthalate | mg/kg | 0.39 | 0.25 | 1.56 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Dimethyl phthalate | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | di-n-Butyl phthalate | mg/kg | 0.39 | 0.22 | 1.772727273 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | di-n-Octyl phthalate | mg/kg | 0.39 | 303 | 0.001287129 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Hexachlorobutadiene | mg/kg | 0.39 | 0.009 | 43.33333333 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.001 | 390 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Hexachloroethane | mg/kg | 0.39 | 0.024 | 16.25 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Nitrobenzene | mg/kg | 0.39 | 2.2 | 0.177272727 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | N-Nitrosodiphenylamine | mg/kg | 0.39 | 20 | 0.0195 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Phenol | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.078 | 0.33 | 0.236363636 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.078 | 0.33 | 0.236363636 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 9 | 0.042222222 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2,4-Dichlorophenol | mg/kg | 0.38 | 0.05 | 7.6 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2,4-Dinitrotoluene | mg/kg | 0.38 | 18 | 0.021111111 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2,6-Dinitrotoluene | mg/kg | 0.38 | 30 | 0.012666667 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2-Chlorophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.1 | 3.8 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2-Nitrophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 0.03 | 25.33333333 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 4-Chloroaniline | mg/kg | 0.76 | 1.8 | 0.422222222 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Atrazine | mg/kg | 0.38 | 0.00005 | 7600 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Benzaldehyde | mg/kg | 0.38 | 0.002 | 190 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Benzyl butyl phthalate | mg/kg | 0.38 | 0.59 | 0.644067797 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 8.4 | 0.045238095 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Carbazole | mg/kg | 0.38 | 0.07 | 5.428571429 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Cresols, m- & p- | mg/kg | 0.38 | 0.08 | 4.75 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Dibenzofuran | mg/kg | 0.38 | 0.15 | 2.533333333 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Diethyl phthalate | mg/kg | 0.38 | 0.25 | 1.52 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Dimethyl phthalate | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | di-n-Butyl phthalate | mg/kg | 0.38 | 0.22 | 1.727272727 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | di-n-Octyl phthalate | mg/kg | 0.38 | 303 | 0.001254125 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Hexachlorobutadiene | mg/kg | 0.38 | 0.009 | 42.22222222 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.001 | 380 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Hexachloroethane | mg/kg | 0.38 | 0.024 | 15.83333333 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Nitrobenzene | mg/kg | 0.38 | 2.2 | 0.172727273 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | N-Nitrosodiphenylamine | mg/kg | 0.38 | 20 | 0.019 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Phenol | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 9 | 0.042222222 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2,4-Dichlorophenol | mg/kg | 0.38 | 0.05 | 7.6 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2,4-Dinitrotoluene | mg/kg | 0.38 | 18 | 0.021111111 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2,6-Dinitrotoluene | mg/kg | 0.38 | 30 | 0.012666667 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2-Chlorophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.1 | 3.8 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2-Nitrophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 0.03 | 25.33333333 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 4-Chloroaniline | mg/kg | 0.76 | 1.8 | 0.422222222 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Atrazine | mg/kg | 0.38 | 0.00005 | 7600 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Benzaldehyde | mg/kg | 0.38 | 0.002 | 190 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Benzyl butyl phthalate | mg/kg | 0.38 | 0.59 | 0.644067797 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 8.4 | 0.045238095 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Carbazole | mg/kg | 0.38 | 0.07 | 5.428571429 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Cresols, m- & p- | mg/kg | 0.38 | 0.08 | 4.75 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Dibenzofuran | mg/kg | 0.38 | 0.15 | 2.533333333 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Diethyl phthalate | mg/kg | 0.38 | 0.25 | 1.52 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Dimethyl phthalate | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | di-n-Butyl phthalate | mg/kg | 0.38 | 0.22 | 1.727272727 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | di-n-Octyl phthalate | mg/kg | 0.38 | 303 | 0.001254125 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Hexachlorobutadiene | mg/kg | 0.38 | 0.009 | 42.22222222 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.001 | 380 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Hexachloroethane | mg/kg | 0.38 | 0.024 | 15.83333333 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Nitrobenzene | mg/kg | 0.38 | 2.2 | 0.172727273 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | N-Nitrosodiphenylamine | mg/kg | 0.38 | 20 | 0.019 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Phenol | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Dibenz(a,h)anthracene | mg/kg | 0.012 | 18 | 0.000666667 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.07 | 0.33 | 0.212121212 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.33 | 0.303030303 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.07 | 0.33 | 0.212121212 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.07 | 0.33 | 0.212121212 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.07 | 0.33 | 0.212121212 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.07 | 0.33 | 0.212121212 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.07 | 0.33 | 0.212121212 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.07 | 0.33 | 0.212121212 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.07 | 0.33 | 0.212121212 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,1,1-Trichloroethane | mg/kg | 0.0041 | 0.04 | 0.1025 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0041 | 0.19 | 0.021578947 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,1,2-Trichloroethane | mg/kg | 0.0041 | 0.32 | 0.0128125 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,1-Dichloroethane | mg/kg | 0.0041 | 0.14 | 0.029285714 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,1-Dichloroethene | mg/kg | 0.0041 | 0.04 | 0.1025 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0041 | 20 | 0.000205 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0041 | 1.2 | 0.003416667 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,2-Dichlorobenzene | mg/kg | 0.0041 | 0.09 | 0.045555556 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,2-Dichloroethane | mg/kg | 0.0041 | 0.4 | 0.01025 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,2-Dichloropropane | mg/kg | 0.0041 | 0.28 | 0.014642857 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,3-Dichlorobenzene | mg/kg | 0.0041 | 0.08 | 0.05125 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,4-Dichlorobenzene | mg/kg | 0.0041 | 1.2 | 0.003416667 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2-Hexanone | mg/kg | 0.016 | 2.5 | 0.0064 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Bromoform | mg/kg | 0.0042 | 0.07 | 0.06 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Bromomethane | mg/kg | 0.0082 | 0.002 | 4.1 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Carbon disulfide | mg/kg | 0.0041 | 0.005 | 0.82 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Carbon Tetrachloride | mg/kg | 0.0041 | 0.05 | 0.082 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Chlorobenzene | mg/kg | 0.0041 | 2.4 | 0.001708333 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Chloroform | mg/kg | 0.0082 | 0.05 | 0.164 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | cis-1,2-Dichloroethene | mg/kg | 0.0041 | 0.04 | 0.1025 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | cis-1,3-Dichloropropene | mg/kg | 0.0041 | 0.001 | 4.1 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Cumene | mg/kg | 0.0041 | 0.04 | 0.1025 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Ethylbenzene | mg/kg | 0.0041 | 0.27 | 0.015185185 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | m,p-Xylene | mg/kg | 0.0026 | 0.1 | 0.026 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Methylene chloride | mg/kg | 0.0041 | 0.21 | 0.01952381 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | o-Xylene | mg/kg | 0.0041 | 0.1 | 0.041 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Styrene | mg/kg | 0.0041 | 1.2 | 0.003416667 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Tetrachloroethene (PCE) | mg/kg | 0.0041 | 0.06 | 0.068333333 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | trans-1,2-Dichloroethene | mg/kg | 0.0041 | 0.04 | 0.1025 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH001-B | trans-1,3-Dichloropropene | mg/kg | 0.0041 | 0.001 | 4.1 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Vinyl chloride | mg/kg | 0.0041 | 0.03 | 0.136666667 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 9 | 0.041111111 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 0.05 | 7.4 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 18 | 0.020555556 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 30 | 0.012333333 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2-Chlorophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.1 | 3.7 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2-Nitrophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 0.03 | 25 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 4-Chloroaniline | mg/kg | 0.75 | 1.8 | 0.416666667 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Atrazine | mg/kg | 0.37 | 0.00005 | 7400 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Benzyl butyl phthalate | mg/kg | 0.37 | 0.59 | 0.627118644 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 8.4 | 0.044047619 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Carbazole | mg/kg | 0.37 | 0.07 | 5.285714286 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Cresols, m- & p- | mg/kg | 0.37 | 0.08 | 4.625 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Diethyl phthalate | mg/kg | 0.37 | 0.25 | 1.48 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Dimethyl phthalate | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | di-n-Octyl phthalate | mg/kg | 0.37 | 303 | 0.001221122 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Hexachlorobutadiene | mg/kg | 0.37 | 0.009 | 41.11111111 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.001 | 370 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Hexachloroethane | mg/kg | 0.37 | 0.024 | 15.41666667 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Nitrobenzene | mg/kg | 0.37 | 2.2 | 0.168181818 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 20 | 0.0185 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Phenol | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Dibenz(a,h)anthracene | mg/kg | 0.01 | 18 | 0.000555556 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.073 | 0.33 | 0.221212121 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.33 | 0.303030303 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.073 | 0.33 | 0.221212121 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.073 | 0.33 | 0.221212121 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.073 | 0.33 | 0.221212121 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.073 | 0.33 | 0.221212121 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.073 | 0.33 | 0.221212121 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.073 | 0.33 | 0.221212121 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.073 | 0.33 | 0.221212121 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,1,1-Trichloroethane | mg/kg | 0.004 | 0.04 | 0.1 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.004 | 0.19 | 0.021052632 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,1,2-Trichloroethane | mg/kg | 0.004 | 0.32 | 0.0125 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,1-Dichloroethane | mg/kg | 0.004 | 0.14 | 0.028571429 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,1-Dichloroethene | mg/kg | 0.004 | 0.04 | 0.1 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,2,3-Trichlorobenzene | mg/kg | 0.004 | 20 | 0.0002 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,2,4-Trichlorobenzene | mg/kg | 0.004 | 1.2 | 0.003333333 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,2-Dichlorobenzene | mg/kg | 0.004 | 0.09 | 0.044444444 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,2-Dichloroethane | mg/kg | 0.004 | 0.4 | 0.01 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,2-Dichloropropane | mg/kg | 0.004 | 0.28 | 0.014285714 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,3-Dichlorobenzene | mg/kg | 0.004 | 0.08 | 0.05 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,4-Dichlorobenzene | mg/kg | 0.004 | 1.2 | 0.003333333 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2-Hexanone | mg/kg | 0.016 | 2.5 | 0.0064 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Bromoform | mg/kg | 0.0041 | 0.07 | 0.058571429 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Bromomethane | mg/kg | 0.008 | 0.002 | 4 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Carbon disulfide | mg/kg | 0.004 | 0.005 | 0.8 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Carbon Tetrachloride | mg/kg | 0.004 | 0.05 | 0.08 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Chlorobenzene | mg/kg | 0.004 | 2.4 | 0.001666667 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Chloroform | mg/kg | 0.008 | 0.05 | 0.16 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | cis-1,2-Dichloroethene | mg/kg | 0.004 | 0.04 | 0.1 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | cis-1,3-Dichloropropene | mg/kg | 0.004 | 0.001 | 4 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Cumene | mg/kg | 0.004 | 0.04 | 0.1 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Ethylbenzene | mg/kg | 0.004 | 0.27 | 0.014814815 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | m,p-Xylene | mg/kg | 0.0025 | 0.1 | 0.025 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Methylene chloride | mg/kg | 0.004 | 0.21 | 0.019047619 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | o-Xylene | mg/kg | 0.004 | 0.1 | 0.04 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Styrene | mg/kg | 0.004 | 1.2 | 0.003333333 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Tetrachloroethene (PCE) | mg/kg | 0.004 | 0.06 | 0.066666667 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | trans-1,2-Dichloroethene | mg/kg | 0.004 | 0.04 | 0.1 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | trans-1,3-Dichloropropene | mg/kg | 0.004 | 0.001 | 4 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Vinyl chloride | mg/kg | 0.004 | 0.03 | 0.133333333 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 9 | 0.041111111 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 0.05 | 7.4 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 18 | 0.020555556 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 30 | 0.012333333 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2-Chlorophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.1 | 3.7 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2-Nitrophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 0.03 | 24.66666667 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 4-Chloroaniline | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Atrazine | mg/kg | 0.37 | 0.00005 | 7400 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Benzyl butyl phthalate | mg/kg | 0.37 | 0.59 | 0.627118644 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 8.4 | 0.044047619 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Carbazole | mg/kg | 0.37 | 0.07 | 5.285714286 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Cresols, m- & p- | mg/kg | 0.37 | 0.08 | 4.625 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Diethyl phthalate | mg/kg | 0.37 | 0.25 | 1.48 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Dimethyl phthalate | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | di-n-Octyl phthalate | mg/kg | 0.37 | 303 | 0.001221122 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Hexachlorobutadiene | mg/kg | 0.37 | 0.009 | 41.11111111 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.001 | 370 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Hexachloroethane | mg/kg | 0.37 | 0.024 | 15.41666667 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Nitrobenzene | mg/kg | 0.37 | 2.2 | 0.168181818 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 20 | 0.0185 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Phenol | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Dibenz(a,h)anthracene | mg/kg | 0.012 | 18 | 0.000666667 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.085 | 0.33 | 0.257575758 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.12 | 0.33 | 0.363636364 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.085 | 0.33 | 0.257575758 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.085 | 0.33 | 0.257575758 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.085 | 0.33 | 0.257575758 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.085 | 0.33 | 0.257575758 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.085 | 0.33 | 0.257575758 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.085 | 0.33 | 0.257575758 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.085 | 0.33 | 0.257575758 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,1,1-Trichloroethane | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0048 | 0.19 | 0.025263158 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,1,2-Trichloroethane | mg/kg | 0.0048 | 0.32 | 0.015 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,1-Dichloroethane | mg/kg | 0.0048 | 0.14 | 0.034285714 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,1-Dichloroethene | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0048 | 20 | 0.00024 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0048 | 1.2 | 0.004 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,2-Dichlorobenzene | mg/kg | 0.0048 | 0.09 | 0.053333333 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,2-Dichloroethane | mg/kg | 0.0048 | 0.4 | 0.012 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,2-Dichloropropane | mg/kg | 0.0048 | 0.28 | 0.017142857 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,3-Dichlorobenzene | mg/kg | 0.0048 | 0.08 | 0.06 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,4-Dichlorobenzene | mg/kg | 0.0048 | 1.2 | 0.004 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2-Hexanone | mg/kg | 0.019 | 2.5 | 0.0076 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Bromoform | mg/kg | 0.0049 | 0.07 | 0.07 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Bromomethane | mg/kg | 0.0095 | 0.002 | 4.75 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Carbon disulfide | mg/kg | 0.0048 | 0.005 | 0.96 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Carbon Tetrachloride | mg/kg | 0.0048 | 0.05 | 0.096 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Chlorobenzene | mg/kg | 0.0048 | 2.4 | 0.002 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Chloroform | mg/kg | 0.0095 | 0.05 | 0.19 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | cis-1,2-Dichloroethene | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | cis-1,3-Dichloropropene | mg/kg | 0.0048 | 0.001 | 4.8 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Cumene | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Ethylbenzene | mg/kg | 0.0048 | 0.27 | 0.017777778 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | m,p-Xylene | mg/kg | 0.0031 | 0.1 | 0.031 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Methylene chloride | mg/kg | 0.0048 | 0.21 | 0.022857143 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | o-Xylene | mg/kg | 0.0048 | 0.1 | 0.048 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Styrene | mg/kg | 0.0048 | 1.2 | 0.004 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Tetrachloroethene (PCE) | mg/kg | 0.0048 | 0.06 | 0.08 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | trans-1,2-Dichloroethene | mg/kg | 0.0048 | 0.04 | 0.12 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | trans-1,3-Dichloropropene | mg/kg | 0.0048 | 0.001 | 4.8 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Vinyl chloride | mg/kg | 0.0048 | 0.03 | 0.16 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.42 | 0.18 | 2.333333333 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.42 | 0.04 | 10.5 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 9 | 0.046666667 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2,4,6-Trichlorophenol | mg/kg | 0.42 | 10 | 0.042 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2,4-Dichlorophenol | mg/kg | 0.42 | 0.05 | 8.4 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2,4-Dimethylphenol | mg/kg | 0.42 | 0.04 | 10.5 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2,4-Dinitrotoluene | mg/kg | 0.42 | 18 | 0.023333333 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2,6-Dinitrotoluene | mg/kg | 0.42 | 30 | 0.014 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2-Chlorophenol | mg/kg | 0.42 | 0.06 | 7 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 0.1 | 4.2 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2-Nitrophenol | mg/kg | 0.42 | 0.06 | 7 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 3,3'-Dichlorobenzidine | mg/kg | 0.83 | 0.03 | 27.66666667 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 3-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 4-Chloroaniline | mg/kg | 0.83 | 1.8 | 0.461111111 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 4-Nitroaniline | mg/kg | 2.1 | 0.02 | 105 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 4-Nitrophenol | mg/kg | 2.1 | 7 | 0.3 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Atrazine | mg/kg | 0.42 | 0.00005 | 8400 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Benzyl butyl phthalate | mg/kg | 0.42 | 0.59 | 0.711864407 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Biphenyl (Diphenyl) | mg/kg | 2.1 | 0.2 | 10.5 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.42 | 8.4 | 0.05 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Carbazole | mg/kg | 0.42 | 0.07 | 6 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Cresols, m- & p- | mg/kg | 0.42 | 0.08 | 5.25 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Diethyl phthalate | mg/kg | 0.42 | 0.25 | 1.68 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Dimethyl phthalate | mg/kg | 0.42 | 10 | 0.042 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | di-n-Octyl phthalate | mg/kg | 0.42 | 303 | 0.001386139 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Hexachlorobenzene | mg/kg | 0.42 | 10 | 0.042 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Hexachlorobutadiene | mg/kg | 0.42 | 0.009 | 46.66666667 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Hexachlorocyclopentadiene | mg/kg | 0.42 | 0.001 | 420 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Hexachloroethane | mg/kg | 0.42 | 0.024 | 17.5 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Nitrobenzene | mg/kg | 0.42 | 2.2 | 0.190909091 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | N-Nitrosodiphenylamine | mg/kg | 0.42 | 20 | 0.021 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Pentachlorophenol | mg/kg | 2.1 | 31 | 0.067741935 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Phenol | mg/kg | 0.42 | 1.8 | 0.233333333 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Dibenz(a,h)anthracene | mg/kg | 0.011 | 18 | 0.000611111 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.33 | 0.303030303 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 0.33 | 0.218181818 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,1,1-Trichloroethane | mg/kg | 0.004 | 0.04 | 0.1 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.004 | 0.19 | 0.021052632 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,1,2-Trichloroethane | mg/kg | 0.004 | 0.32 | 0.0125 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,1-Dichloroethane | mg/kg | 0.004 | 0.14 | 0.028571429 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,1-Dichloroethene | mg/kg | 0.004 | 0.04 | 0.1 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,2,3-Trichlorobenzene | mg/kg | 0.004 | 20 | 0.0002 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,2,4-Trichlorobenzene | mg/kg | 0.004 | 1.2 | 0.003333333 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,2-Dichlorobenzene | mg/kg | 0.004 | 0.09 | 0.044444444 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,2-Dichloroethane | mg/kg | 0.004 | 0.4 | 0.01 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,2-Dichloropropane | mg/kg | 0.004 | 0.28 | 0.014285714 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,3-Dichlorobenzene | mg/kg | 0.004 | 0.08 | 0.05 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,4-Dichlorobenzene | mg/kg | 0.004 | 1.2 | 0.003333333 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2-Hexanone | mg/kg | 0.016 | 2.5 | 0.0064 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Bromoform | mg/kg | 0.0041 | 0.07 | 0.058571429 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Bromomethane | mg/kg | 0.0081 | 0.002 | 4.05 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Carbon disulfide | mg/kg | 0.004 | 0.005 | 0.8 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Carbon Tetrachloride | mg/kg | 0.004 | 0.05 | 0.08 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Chlorobenzene | mg/kg | 0.004 | 2.4 | 0.001666667 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Chloroform | mg/kg | 0.0081 | 0.05 | 0.162 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | cis-1,2-Dichloroethene | mg/kg | 0.004 | 0.04 | 0.1 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | cis-1,3-Dichloropropene | mg/kg | 0.004 | 0.001 | 4 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Cumene | mg/kg | 0.004 | 0.04 | 0.1 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Ethylbenzene | mg/kg | 0.004 | 0.27 | 0.014814815 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | m,p-Xylene | mg/kg | 0.0026 | 0.1 | 0.026 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Methylene chloride | mg/kg | 0.004 | 0.21 | 0.019047619 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | o-Xylene | mg/kg | 0.004 | 0.1 | 0.04 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Styrene | mg/kg | 0.004 | 1.2 | 0.003333333 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Tetrachloroethene (PCE) | mg/kg | 0.004 | 0.06 | 0.066666667 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH004-B | trans-1,2-Dichloroethene | mg/kg | 0.004 | 0.04 | 0.1 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | trans-1,3-Dichloropropene | mg/kg | 0.004 | 0.001 | 4 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Vinyl chloride | mg/kg | 0.004 | 0.03 | 0.133333333 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 9 | 0.041111111 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 0.05 | 7.4 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 18 | 0.020555556 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 30 | 0.012333333 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2-Chlorophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.1 | 3.7 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2-Nitrophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 0.03 | 25 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 4-Chloroaniline | mg/kg | 0.75 | 1.8 | 0.416666667 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Atrazine | mg/kg | 0.37 | 0.00005 | 7400 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Benzyl butyl phthalate | mg/kg | 0.37 | 0.59 | 0.627118644 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 8.4 | 0.044047619 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Carbazole | mg/kg | 0.37 | 0.07 | 5.285714286 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Cresols, m- & p- | mg/kg | 0.37 | 0.08 | 4.625 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Diethyl phthalate | mg/kg | 0.37 | 0.25 | 1.48 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Dimethyl phthalate | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | di-n-Octyl phthalate | mg/kg | 0.37 | 303 | 0.001221122 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Hexachlorobutadiene | mg/kg | 0.37 | 0.009 | 41.11111111 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.001 | 370 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Hexachloroethane | mg/kg | 0.37 | 0.024 | 15.41666667 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Nitrobenzene | mg/kg | 0.37 | 2.2 | 0.168181818 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 20 | 0.0185 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Phenol | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Dibenz(a,h)anthracene | mg/kg | 0.012 | 18 | 0.000666667 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.077 | 0.33 | 0.233333333 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,1,1-Trichloroethane | mg/kg | 0.0044 | 0.04 | 0.11 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0044 | 0.19 | 0.023157895 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,1,2-Trichloroethane | mg/kg | 0.0044 | 0.32 | 0.01375 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,1-Dichloroethane | mg/kg | 0.0044 | 0.14 | 0.031428571 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,1-Dichloroethene | mg/kg | 0.0044 | 0.04 | 0.11 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0044 | 20 | 0.00022 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0044 | 1.2 | 0.003666667 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,2-Dichlorobenzene | mg/kg | 0.0044 | 0.09 | 0.048888889 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,2-Dichloroethane | mg/kg | 0.0044 | 0.4 | 0.011 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,2-Dichloropropane | mg/kg | 0.0044 | 0.28 | 0.015714286 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,3-Dichlorobenzene | mg/kg | 0.0044 | 0.08 | 0.055 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,4-Dichlorobenzene | mg/kg | 0.0044 | 1.2 | 0.003666667 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2-Hexanone | mg/kg | 0.018 | 2.5 | 0.0072 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Bromoform | mg/kg | 0.0045 | 0.07 | 0.064285714 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Bromomethane | mg/kg | 0.0088 | 0.002 | 4.4 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Carbon disulfide | mg/kg | 0.0044 | 0.005 | 0.88 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Carbon Tetrachloride | mg/kg | 0.0044 | 0.05 | 0.088 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Chlorobenzene | mg/kg | 0.0044 | 2.4 | 0.001833333 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Chloroform | mg/kg | 0.0088 | 0.05 | 0.176 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | cis-1,2-Dichloroethene | mg/kg | 0.0044 | 0.04 | 0.11 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | cis-1,3-Dichloropropene | mg/kg | 0.0044 | 0.001 | 4.4 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Cumene | mg/kg | 0.0044 | 0.04 | 0.11 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Ethylbenzene | mg/kg | 0.0044 | 0.27 | 0.016296296 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | m,p-Xylene | mg/kg | 0.0028 | 0.1 | 0.028 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Methylene chloride | mg/kg | 0.0044 | 0.21 | 0.020952381 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | o-Xylene | mg/kg | 0.0044 | 0.1 | 0.044 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Styrene | mg/kg | 0.0044 | 1.2 | 0.003666667 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Tetrachloroethene (PCE) | mg/kg | 0.0044 | 0.06 | 0.073333333 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | trans-1,2-Dichloroethene | mg/kg | 0.0044 | 0.04 | 0.11 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | trans-1,3-Dichloropropene | mg/kg | 0.0044 | 0.001 | 4.4 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Vinyl chloride | mg/kg | 0.0044 | 0.03 | 0.146666667 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 9 | 0.043333333 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 0.05 | 7.8 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 18 | 0.021666667 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 30 | 0.013 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2-Chlorophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.1 | 3.9 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2-Nitrophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 0.03 | 26 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 4-Chloroaniline | mg/kg | 0.78 | 1.8 | 0.433333333 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Atrazine | mg/kg | 0.39 | 0.00005 | 7800 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Benzyl butyl phthalate | mg/kg | 0.39 | 0.59 | 0.661016949 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 8.4 | 0.046428571 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Carbazole | mg/kg | 0.39 | 0.07 | 5.571428571 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Cresols, m- & p- | mg/kg | 0.39 | 0.08 | 4.875 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Diethyl phthalate | mg/kg | 0.39 | 0.25 | 1.56 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Dimethyl phthalate | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | di-n-Octyl phthalate | mg/kg | 0.39 | 303 | 0.001287129 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Hexachlorobutadiene | mg/kg | 0.39 | 0.009 | 43.33333333 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.001 | 390 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Hexachloroethane | mg/kg | 0.39 | 0.024 | 16.25 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Nitrobenzene | mg/kg | 0.39 | 2.2 | 0.177272727 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 20 | 0.0195 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Phenol | mg/kg | 0.39 | 1.8 | 0.216666667 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Dibenz(a,h)anthracene | mg/kg | 0.01 | 18 | 0.000555556 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.068 | 0.33 | 0.206060606 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.097 | 0.33 | 0.293939394 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.068 | 0.33 | 0.206060606 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.068 | 0.33 | 0.206060606 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.068 | 0.33 | 0.206060606 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.068 | 0.33 | 0.206060606 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.068 | 0.33 | 0.206060606 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.068 | 0.33 | 0.206060606 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.068 | 0.33 | 0.206060606 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.35 | 0.18 | 1.944444444 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.35 | 0.04 | 8.75 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 9 | 0.038888889 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2,4,6-Trichlorophenol | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2,4-Dichlorophenol | mg/kg | 0.35 | 0.05 | 7 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2,4-Dimethylphenol | mg/kg | 0.35 | 0.04 | 8.75 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2,4-Dinitrotoluene | mg/kg | 0.35 | 18 | 0.019444444 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2,6-Dinitrotoluene | mg/kg | 0.35 | 30 | 0.011666667 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2-Chlorophenol | mg/kg | 0.35 | 0.06 | 5.833333333 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 0.1 | 3.5 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2-Nitrophenol | mg/kg | 0.35 | 0.06 | 5.833333333 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 3,3'-Dichlorobenzidine | mg/kg | 0.7 | 0.03 | 23.33333333 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 3-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 4-Chloroaniline | mg/kg | 0.7 | 1.8 | 0.388888889 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 4-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 4-Nitrophenol | mg/kg | 1.8 | 7 | 0.257142857 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Atrazine | mg/kg | 0.35 | 0.00005 | 7000 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Benzyl butyl phthalate | mg/kg | 0.35 | 0.59 | 0.593220339 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Biphenyl (Diphenyl) | mg/kg | 1.8 | 0.2 | 9 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 8.4 | 0.041666667 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Carbazole | mg/kg | 0.35 | 0.07 | 5 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Cresols, m- & p- | mg/kg | 0.35 | 0.08 | 4.375 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Diethyl phthalate | mg/kg | 0.35 | 0.25 | 1.4 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Dimethyl phthalate | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | di-n-Octyl phthalate | mg/kg | 0.35 | 303 | 0.001155116 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Hexachlorobenzene | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Hexachlorobutadiene | mg/kg | 0.35 | 0.009 | 38.88888889 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Hexachlorocyclopentadiene | mg/kg | 0.35 | 0.001 | 350 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Hexachloroethane | mg/kg | 0.35 | 0.024 | 14.58333333 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Nitrobenzene | mg/kg | 0.35 | 2.2 | 0.159090909 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | N-Nitrosodiphenylamine | mg/kg | 0.35 | 20 | 0.0175 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Pentachlorophenol | mg/kg | 1.8 | 31 | 0.058064516 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Phenol | mg/kg | 0.35 | 1.8 | 0.194444444 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Dibenz(a,h)anthracene | mg/kg | 0.011 | 18 | 0.000611111 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.071 | 0.33 | 0.215151515 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.33 | 0.303030303 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.071 | 0.33 | 0.215151515 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.071 | 0.33 | 0.215151515 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.071 | 0.33 | 0.215151515 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.071 | 0.33 | 0.215151515 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.071 | 0.33 | 0.215151515 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.071 | 0.33 | 0.215151515 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.071 | 0.33 | 0.215151515 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 0.18 | 2.111111111 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 9 | 0.042222222 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2,4-Dichlorophenol | mg/kg | 0.38 | 0.05 | 7.6 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2,4-Dimethylphenol | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2,4-Dinitrotoluene | mg/kg | 0.38 | 18 | 0.021111111 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2,6-Dinitrotoluene | mg/kg | 0.38 | 30 | 0.012666667 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2-Chlorophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 0.1 | 3.8 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2-Nitrophenol | mg/kg | 0.38 | 0.06 | 6.333333333 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 0.03 | 25.33333333 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 4-Chloroaniline | mg/kg | 0.76 | 1.8 | 0.422222222 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Atrazine | mg/kg | 0.38 | 0.00005 | 7600 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Benzyl butyl phthalate | mg/kg | 0.38 | 0.59 | 0.644067797 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 8.4 | 0.045238095 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Carbazole | mg/kg | 0.38 | 0.07 | 5.428571429 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Cresols, m- & p- | mg/kg | 0.38 | 0.08 | 4.75 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Diethyl phthalate | mg/kg | 0.38 | 0.25 | 1.52 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Dimethyl phthalate | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | di-n-Octyl phthalate | mg/kg | 0.38 | 303 | 0.001254125 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Hexachlorobenzene | mg/kg | 0.38 | 10 | 0.038 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Hexachlorobutadiene | mg/kg | 0.38 | 0.009 | 42.22222222 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.001 | 380 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Hexachloroethane | mg/kg | 0.38 | 0.024 | 15.83333333 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Nitrobenzene | mg/kg | 0.38 | 2.2 | 0.172727273 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | N-Nitrosodiphenylamine | mg/kg | 0.38 | 20 | 0.019 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Phenol | mg/kg | 0.38 | 1.8 | 0.211111111 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Dibenz(a,h)anthracene | mg/kg | 0.012 | 18 | 0.000666667 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.075 | 0.33 | 0.227272727 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.33 | 0.333333333 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.075 | 0.33 | 0.227272727 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.075 | 0.33 | 0.227272727 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.075 | 0.33 | 0.227272727 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.075 | 0.33 | 0.227272727 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.075 | 0.33 | 0.227272727 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.075 | 0.33 | 0.227272727 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.075 | 0.33 | 0.227272727 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 0.18 | 2.055555556 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 9 | 0.041111111 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2,4-Dichlorophenol | mg/kg | 0.37 | 0.05 | 7.4 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2,4-Dimethylphenol | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 18 | 0.020555556 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2,6-Dinitrotoluene | mg/kg | 0.37 | 30 | 0.012333333 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2-Chlorophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 0.1 | 3.7 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2-Nitrophenol | mg/kg | 0.37 | 0.06 | 6.166666667 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 0.03 | 24.66666667 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 3-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 4-Chloroaniline | mg/kg | 0.74 | 1.8 | 0.411111111 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 4-Nitroaniline | mg/kg | 1.9 | 0.02 | 95 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 4-Nitrophenol | mg/kg | 1.9 | 7 | 0.271428571 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Atrazine | mg/kg | 0.37 | 0.00005 | 7400 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Benzyl butyl phthalate | mg/kg | 0.37 | 0.59 | 0.627118644 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Biphenyl (Diphenyl) | mg/kg | 1.9 | 0.2 | 9.5 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 8.4 | 0.044047619 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Carbazole | mg/kg | 0.37 | 0.07 | 5.285714286 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Cresols, m- & p- | mg/kg | 0.37 | 0.08 | 4.625 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Diethyl phthalate | mg/kg | 0.37 | 0.25 | 1.48 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Dimethyl phthalate | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | di-n-Octyl phthalate | mg/kg | 0.37 | 303 | 0.001221122 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Hexachlorobenzene | mg/kg | 0.37 | 10 | 0.037 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Hexachlorobutadiene | mg/kg | 0.37 | 0.009 | 41.11111111 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.001 | 370 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Hexachloroethane | mg/kg | 0.37 | 0.024 | 15.41666667 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Nitrobenzene | mg/kg | 0.37 | 2.2 | 0.168181818 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | N-Nitrosodiphenylamine | mg/kg | 0.37 | 20 | 0.0185 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Pentachlorophenol | mg/kg | 1.9 | 31 | 0.061290323 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Phenol | mg/kg | 0.37 | 1.8 | 0.205555556 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Dibenz(a,h)anthracene | mg/kg | 0.0099 | 18 | 0.00055 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.33 | 0.303030303 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.35 | 0.18 | 1.944444444 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.35 | 0.04 | 8.75 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 9 | 0.038888889 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2,4,6-Trichlorophenol | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2,4-Dichlorophenol | mg/kg | 0.35 | 0.05 | 7 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2,4-Dimethylphenol | mg/kg | 0.35 | 0.04 | 8.75 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2,4-Dinitrotoluene | mg/kg | 0.35 | 18 | 0.019444444 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2,6-Dinitrotoluene | mg/kg | 0.35 | 30 | 0.011666667 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2-Chlorophenol | mg/kg | 0.35 | 0.06 | 5.833333333 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 0.1 | 3.5 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2-Nitrophenol | mg/kg | 0.35 | 0.06 | 5.833333333 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 3,3'-Dichlorobenzidine | mg/kg | 0.71 | 0.03 | 23.66666667 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 3-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 4-Chloroaniline | mg/kg | 0.71 | 1.8 | 0.394444444 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 4-Nitroaniline | mg/kg | 1.8 | 0.02 | 90 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 4-Nitrophenol | mg/kg | 1.8 | 7 | 0.257142857 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Atrazine | mg/kg | 0.35 | 0.00005 | 7000 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Benzyl butyl phthalate | mg/kg | 0.35 | 0.59 | 0.593220339 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Biphenyl (Diphenyl) | mg/kg | 1.8 | 0.2 | 9 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 8.4 | 0.041666667 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Carbazole | mg/kg | 0.35 | 0.07 | 5 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Cresols, m- & p- | mg/kg | 0.35 | 0.08 | 4.375 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Diethyl phthalate | mg/kg | 0.35 | 0.25 | 1.4 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Dimethyl phthalate | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | di-n-Octyl phthalate | mg/kg | 0.35 | 303 | 0.001155116 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Hexachlorobenzene | mg/kg | 0.35 | 10 | 0.035 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Hexachlorobutadiene | mg/kg | 0.35 | 0.009 | 38.88888889 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Hexachlorocyclopentadiene | mg/kg | 0.35 | 0.001 | 350 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Hexachloroethane | mg/kg | 0.35 | 0.024 | 14.58333333 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Nitrobenzene | mg/kg | 0.35 | 2.2 | 0.159090909 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | N-Nitrosodiphenylamine | mg/kg | 0.35 | 20 | 0.0175 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Pentachlorophenol | mg/kg | 1.8 | 31 | 0.058064516 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Phenol | mg/kg | 0.35 | 1.8 | 0.194444444 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Dibenz(a,h)anthracene | mg/kg | 0.11 | 18 | 0.006111111 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.33 | 0.303030303 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 0.33 | 0.218181818 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 0.18 | 2.166666667 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 9 | 0.043333333 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2,4-Dichlorophenol | mg/kg | 0.39 | 0.05 | 7.8 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2,4-Dimethylphenol | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2,4-Dinitrotoluene | mg/kg | 0.39 | 18 | 0.021666667 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2,6-Dinitrotoluene | mg/kg | 0.39 | 30 | 0.013 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2-Chlorophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 0.1 | 3.9 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2-Nitrophenol | mg/kg | 0.39 | 0.06 | 6.5 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 0.03 | 26 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 3-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 4-Chloroaniline | mg/kg | 0.78 | 1.8 | 0.433333333 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 4-Nitroaniline | mg/kg | 2 | 0.02 | 100 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 4-Nitrophenol | mg/kg | 2 | 7 | 0.285714286 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Atrazine | mg/kg | 0.39 | 0.00005 | 7800 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Benzyl butyl phthalate | mg/kg | 0.39 | 0.59 | 0.661016949 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Biphenyl (Diphenyl) | mg/kg | 2 | 0.2 | 10 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 8.4 | 0.046428571 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Carbazole | mg/kg | 0.39 | 0.07 | 5.571428571 |

Table E.1-4
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Cresols, m- & p- | mg/kg | 0.39 | 0.08 | 4.875 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Diethyl phthalate | mg/kg | 0.39 | 0.25 | 1.56 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Dimethyl phthalate | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | di-n-Octyl phthalate | mg/kg | 0.39 | 303 | 0.001287129 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Hexachlorobenzene | mg/kg | 0.39 | 10 | 0.039 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Hexachlorobutadiene | mg/kg | 0.39 | 0.009 | 43.33333333 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.001 | 390 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Hexachloroethane | mg/kg | 0.39 | 0.024 | 16.25 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Nitrobenzene | mg/kg | 0.39 | 2.2 | 0.177272727 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | N-Nitrosodiphenylamine | mg/kg | 0.39 | 20 | 0.0195 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Pentachlorophenol | mg/kg | 2 | 31 | 0.064516129 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Phenol | mg/kg | 0.39 | 1.8 | 0.216666667 |

Notes:
AOC = area of concern
LOQ = limit of quantitation
mg/kg = micrograms per kilogram
NA = not applicable

1) See Appendix L.

Table E.1-5
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 1 | NA | NYOW-01-SL002-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 52 | 0.014807692 |
| AOC 1 | NA | NYOW-01-SL002-A | 2,4-Dinitrophenol | mg/kg | 2 | 52 | 0.038461538 |
| AOC 1 | NA | NYOW-01-SL005-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 52 | 0.014807692 |
| AOC 1 | NA | NYOW-01-SL005-A | 2,4-Dinitrophenol | mg/kg | 2 | 52 | 0.038461538 |
| AOC 1 | NA | NYOW-01-SL007-A | 2,4-Dinitrochlorobenzene | mg/kg | 1.1 | 52 | 0.021153846 |
| AOC 1 | NA | NYOW-01-SL007-A | 2,4-Dinitrophenol | mg/kg | 2.7 | 52 | 0.051923077 |
| AOC 1 | NA | NYOW-01-SL009-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.94 | 52 | 0.018076923 |
| AOC 1 | NA | NYOW-01-SL009-A | 2,4-Dinitrophenol | mg/kg | 2.4 | 52 | 0.046153846 |
| AOC 1 | NA | NYOW-01-SL011-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.87 | 52 | 0.016730769 |
| AOC 1 | NA | NYOW-01-SL011-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 52 | 0.042307692 |
| AOC 1 | NA | NYOW-01-SL013-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 52 | 0.014807692 |
| AOC 1 | NA | NYOW-01-SL013-A | 2,4-Dinitrophenol | mg/kg | 2 | 52 | 0.038461538 |
| AOC 1 | NA | NYOW-01-SL015-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 52 | 0.015 |
| AOC 1 | NA | NYOW-01-SL015-A | 2,4-Dinitrophenol | mg/kg | 2 | 52 | 0.038461538 |
| AOC 1 | NA | NYOW-01-SL016-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 52 | 0.014807692 |
| AOC 1 | NA | NYOW-01-SL016-A | 2,4-Dinitrophenol | mg/kg | 2 | 52 | 0.038461538 |
| AOC 1 | NA | NYOW-01-SL018-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 52 | 0.013653846 |
| AOC 1 | NA | NYOW-01-SL018-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 52 | 0.034615385 |
| AOC 1 | NA | NYOW-01-SL019-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 52 | 0.014038462 |
| AOC 1 | NA | NYOW-01-SL019-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 52 | 0.036538462 |
| AOC 1 | NA | NYOW-01-SL020-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.83 | 52 | 0.015961538 |
| AOC 1 | NA | NYOW-01-SL020-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 52 | 0.040384615 |
| AOC 1 | NA | NYOW-01-SL021-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 52 | 0.015192308 |
| AOC 1 | NA | NYOW-01-SL021-A | 2,4-Dinitrophenol | mg/kg | 2 | 52 | 0.038461538 |
| AOC 1 | NA | NYOW-01-SL022-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 52 | 0.015769231 |
| AOC 1 | NA | NYOW-01-SL022-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 52 | 0.040384615 |
| AOC 1 | NA | NYOW-01-SL023-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 52 | 0.015576923 |
| AOC 1 | NA | NYOW-01-SL023-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 52 | 0.040384615 |
| AOC 1 | NA | NYOW-01-SL024-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.86 | 52 | 0.016538462 |
| AOC 1 | NA | NYOW-01-SL024-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 52 | 0.042307692 |
| AOC 1 | NA | NYOW-01-SL025-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 52 | 0.014615385 |
| AOC 1 | NA | NYOW-01-SL025-A | 2,4-Dinitrophenol | mg/kg | 2 | 52 | 0.038461538 |

Table E.1-5
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 1 | NA | NYOW-01-SL026-A | 2,4-Dinitrochlorobenzene | mg/kg | 6.4 | 52 | 0.123076923 |
| AOC 1 | NA | NYOW-01-SL026-A | 2,4-Dinitrophenol | mg/kg | 16 | 52 | 0.307692308 |
| AOC 1 | NA | NYOW-01-SL027-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 52 | 0.015769231 |
| AOC 1 | NA | NYOW-01-SL027-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 52 | 0.040384615 |
| AOC 1 | NA | NYOW-01-SL028-A | 2,4-Dinitrochlorobenzene | mg/kg | 5.5 | 52 | 0.105769231 |
| AOC 1 | NA | NYOW-01-SL028-A | 2,4-Dinitrophenol | mg/kg | 14 | 52 | 0.269230769 |
| AOC 1 | NA | NYOW-01-SL029-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.88 | 52 | 0.016923077 |
| AOC 1 | NA | NYOW-01-SL029-A | 2,4-Dinitrophenol | mg/kg | 2.3 | 52 | 0.044230769 |
| AOC 1 | NA | NYOW-01-SL030-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 52 | 0.015769231 |
| AOC 1 | NA | NYOW-01-SL030-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 52 | 0.040384615 |
| AOC 1 | NA | NYOW-01-SL031-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 52 | 0.015576923 |
| AOC 1 | NA | NYOW-01-SL031-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 52 | 0.040384615 |
| AOC 1 | NA | NYOW-01-SL032-A | 2,4-Dinitrochlorobenzene | mg/kg | 4.2 | 52 | 0.080769231 |
| AOC 1 | NA | NYOW-01-SL032-A | 2,4-Dinitrophenol | mg/kg | 11 | 52 | 0.211538462 |
| AOC 1 | NA | NYOW-01-SL033-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 52 | 0.015 |
| AOC 1 | NA | NYOW-01-SL033-A | 2,4-Dinitrophenol | mg/kg | 2 | 52 | 0.038461538 |
| AOC 1 | NA | NYOW-01-SL034-A | 2,4-Dinitrochlorobenzene | mg/kg | 1 | 52 | 0.019230769 |
| AOC 1 | NA | NYOW-01-SL034-A | 2,4-Dinitrophenol | mg/kg | 2.6 | 52 | 0.05 |
| AOC 1 | NA | NYOW-01-SL035-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.88 | 52 | 0.016923077 |
| AOC 1 | NA | NYOW-01-SL035-A | 2,4-Dinitrophenol | mg/kg | 2.3 | 52 | 0.044230769 |
| AOC 1 | NA | NYOW-01-SL036-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.93 | 52 | 0.017884615 |
| AOC 1 | NA | NYOW-01-SL037-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.96 | 52 | 0.018461538 |
| AOC 1 | NA | NYOW-01-SL037-A | 2,4-Dinitrophenol | mg/kg | 2.5 | 52 | 0.048076923 |
| AOC 1 | NA | NYOW-01-SL038-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 52 | 0.015576923 |
| AOC 1 | NA | NYOW-01-SL038-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 52 | 0.040384615 |
| AOC 1 | NA | NYOW-01-SL039-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 52 | 0.015192308 |
| AOC 1 | NA | NYOW-01-SL039-A | 2,4-Dinitrophenol | mg/kg | 2 | 52 | 0.038461538 |
| AOC 4 - Discrete | NA | NYOW-04-SL001-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 52 | 0.015 |
| AOC 4 - Discrete | NA | NYOW-04-SL001-A | 2,4-Dinitrophenol | mg/kg | 2 | 52 | 0.038461538 |
| AOC 4 - Discrete | NA | NYOW-04-SL001-A | Picric acid | mg/kg | 0.23 | 7.5 | 0.030666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL002-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 52 | 0.014807692 |
| AOC 4 - Discrete | NA | NYOW-04-SL002-A | 2,4-Dinitrophenol | mg/kg | 2 | 52 | 0.038461538 |

Table E.1-5
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-SL002-A | Picric acid | mg/kg | 0.24 | 7.5 | 0.032 |
| AOC 4 - Discrete | NA | NYOW-04-SL003-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 52 | 0.014230769 |
| AOC 4 - Discrete | NA | NYOW-04-SL003-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 52 | 0.036538462 |
| AOC 4 - Discrete | NA | NYOW-04-SL003-A | Picric acid | mg/kg | 0.24 | 7.5 | 0.032 |
| AOC 4 - Discrete | NA | NYOW-04-SL004-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 52 | 0.013653846 |
| AOC 4 - Discrete | NA | NYOW-04-SL004-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 52 | 0.034615385 |
| AOC 4 - Discrete | NA | NYOW-04-SL004-A | Picric acid | mg/kg | 0.24 | 7.5 | 0.032 |
| AOC 4 - Discrete | NA | NYOW-04-SL005-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 52 | 0.013846154 |
| AOC 4 - Discrete | NA | NYOW-04-SL005-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 52 | 0.034615385 |
| AOC 4 - Discrete | NA | NYOW-04-SL005-A | Picric acid | mg/kg | 0.24 | 7.5 | 0.032 |
| AOC 4 - Discrete | NA | NYOW-04-SL006-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 52 | 0.014423077 |
| AOC 4 - Discrete | NA | NYOW-04-SL006-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 52 | 0.036538462 |
| AOC 4 - Discrete | NA | NYOW-04-SL006-A | Picric acid | mg/kg | 0.24 | 7.5 | 0.032 |
| AOC 4 - Discrete | NA | NYOW-04-SL036-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 52 | 0.014423077 |
| AOC 4 - Discrete | NA | NYOW-04-SL036-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 52 | 0.036538462 |
| AOC 4 - Discrete | NA | NYOW-04-SL036-A | Picric acid | mg/kg | 0.23 | 7.5 | 0.030666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL037-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 52 | 0.014038462 |
| AOC 4 - Discrete | NA | NYOW-04-SL037-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 52 | 0.036538462 |
| AOC 4 - Discrete | NA | NYOW-04-SL037-A | Picric acid | mg/kg | 0.23 | 7.5 | 0.030666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL038-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 52 | 0.014807692 |
| AOC 4 - Discrete | NA | NYOW-04-SL038-A | 2,4-Dinitrophenol | mg/kg | 2 | 52 | 0.038461538 |
| AOC 4 - Discrete | NA | NYOW-04-SL038-A | Picric acid | mg/kg | 0.23 | 7.5 | 0.030666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL079-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 52 | 0.015384615 |
| AOC 4 - Discrete | NA | NYOW-04-SL079-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 52 | 0.040384615 |
| AOC 4 - Discrete | NA | NYOW-04-SL079-A | Picric acid | mg/kg | 0.24 | 7.5 | 0.032 |
| AOC 4 - Discrete | NA | NYOW-04-SL080-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.83 | 52 | 0.015961538 |
| AOC 4 - Discrete | NA | NYOW-04-SL080-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 52 | 0.042307692 |
| AOC 4 - Discrete | NA | NYOW-04-SL080-A | Picric acid | mg/kg | 0.23 | 7.5 | 0.030666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL081-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 52 | 0.014230769 |
| AOC 4 - Discrete | NA | NYOW-04-SL081-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 52 | 0.036538462 |
| AOC 4 - Discrete | NA | NYOW-04-SL081-A | Picric acid | mg/kg | 0.24 | 7.5 | 0.032 |
| AOC 4 - Discrete | NA | NYOW-04-SL082-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 52 | 0.013653846 |

Table E.1-5
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-SL082-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 52 | 0.034615385 |
| AOC 4 - Discrete | NA | NYOW-04-SL082-A | Picric acid | mg/kg | 0.25 | 7.5 | 0.033333333 |
| AOC 4 - Discrete | NA | NYOW-04-SL083-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 52 | 0.013846154 |
| AOC 4 - Discrete | NA | NYOW-04-SL083-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 52 | 0.036538462 |
| AOC 4 - Discrete | NA | NYOW-04-SL083-A | Picric acid | mg/kg | 0.24 | 7.5 | 0.032 |
| AOC 4 - Discrete | NA | NYOW-04-SL084-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 52 | 0.013461538 |
| AOC 4 - Discrete | NA | NYOW-04-SL084-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 52 | 0.034615385 |
| AOC 4 - Discrete | NA | NYOW-04-SL084-A | Picric acid | mg/kg | 0.23 | 7.5 | 0.030666667 |
| AOC 4 - Discrete | NA | NYOW-04-SL085-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 52 | 0.014423077 |
| AOC 4 - Discrete | NA | NYOW-04-SL085-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 52 | 0.036538462 |
| AOC 4 - Discrete | NA | NYOW-04-SL085-A | Picric acid | mg/kg | 0.24 | 7.5 | 0.032 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 52 | 0.006153846 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-A | Picric acid | mg/kg | 0.097 | 7.5 | 0.012933333 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 52 | 0.006346154 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-B | Picric acid | mg/kg | 0.096 | 7.5 | 0.0128 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 52 | 0.006346154 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-C | Picric acid | mg/kg | 0.095 | 7.5 | 0.012666667 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 52 | 0.006538462 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-A | 2,4-Dinitrophenol | mg/kg | 0.87 | 52 | 0.016730769 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-A | Picric acid | mg/kg | 0.093 | 7.5 | 0.0124 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 52 | 0.006346154 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-B | 2,4-Dinitrophenol | mg/kg | 0.84 | 52 | 0.016153846 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-B | Picric acid | mg/kg | 0.1 | 7.5 | 0.013333333 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 52 | 0.006346154 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-C | 2,4-Dinitrophenol | mg/kg | 0.84 | 52 | 0.016153846 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-C | Picric acid | mg/kg | 0.095 | 7.5 | 0.012666667 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 52 | 0.006538462 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-A | 2,4-Dinitrophenol | mg/kg | 0.87 | 52 | 0.016730769 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-A | Picric acid | mg/kg | 0.092 | 7.5 | 0.012266667 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 52 | 0.006538462 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-B | 2,4-Dinitrophenol | mg/kg | 0.87 | 52 | 0.016730769 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-B | Picric acid | mg/kg | 0.097 | 7.5 | 0.012933333 |

Table E.1-5
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.35 | 52 | 0.006730769 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-C | 2,4-Dinitrophenol | mg/kg | 0.91 | 52 | 0.0175 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-C | Picric acid | mg/kg | 0.099 | 7.5 | 0.0132 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.63 | 52 | 0.012115385 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-A | 2,4-Dinitrophenol | mg/kg | 1.6 | 52 | 0.030769231 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-A | Picric acid | mg/kg | 0.093 | 7.5 | 0.0124 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 1.9 | 52 | 0.036538462 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-B | 2,4-Dinitrophenol | mg/kg | 5 | 52 | 0.096153846 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-B | Picric acid | mg/kg | 0.095 | 7.5 | 0.012666667 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-C | Picric acid | mg/kg | 0.099 | 7.5 | 0.0132 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 52 | 0.006346154 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-A | 2,4-Dinitrophenol | mg/kg | 0.85 | 52 | 0.016346154 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-A | Picric acid | mg/kg | 0.099 | 7.5 | 0.0132 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 52 | 0.006346154 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-B | 2,4-Dinitrophenol | mg/kg | 0.86 | 52 | 0.016538462 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-B | Picric acid | mg/kg | 0.1 | 7.5 | 0.013333333 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.31 | 52 | 0.005961538 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-C | 2,4-Dinitrophenol | mg/kg | 0.79 | 52 | 0.015192308 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-C | Picric acid | mg/kg | 0.099 | 7.5 | 0.0132 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.35 | 52 | 0.006730769 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-A | 2,4-Dinitrophenol | mg/kg | 0.9 | 52 | 0.017307692 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-A | Picric acid | mg/kg | 0.097 | 7.5 | 0.012933333 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.31 | 52 | 0.005961538 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-B | 2,4-Dinitrophenol | mg/kg | 0.81 | 52 | 0.015576923 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-B | Picric acid | mg/kg | 0.1 | 7.5 | 0.013333333 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 52 | 0.006346154 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-C | 2,4-Dinitrophenol | mg/kg | 0.85 | 52 | 0.016346154 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-C | Picric acid | mg/kg | 0.096 | 7.5 | 0.0128 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 52 | 0.006153846 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-A | Picric acid | mg/kg | 0.099 | 7.5 | 0.0132 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 52 | 0.006153846 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-B | Picric acid | mg/kg | 0.099 | 7.5 | 0.0132 |

Table E.1-5
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 52 | 0.006346154 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-C | Picric acid | mg/kg | 0.096 | 7.5 | 0.0128 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 52 | 0.006153846 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-A | 2,4-Dinitrophenol | mg/kg | 0.84 | 52 | 0.016153846 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-A | Picric acid | mg/kg | 0.095 | 7.5 | 0.012666667 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 52 | 0.006346154 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-B | 2,4-Dinitrophenol | mg/kg | 0.85 | 52 | 0.016346154 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-B | Picric acid | mg/kg | 0.1 | 7.5 | 0.013333333 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-C | 2,4-Dinitrophenol | mg/kg | 0.82 | 52 | 0.015769231 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-C | Picric acid | mg/kg | 0.099 | 7.5 | 0.0132 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 52 | 0.006153846 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-A | 2,4-Dinitrophenol | mg/kg | 0.82 | 52 | 0.015769231 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-A | Picric acid | mg/kg | 0.098 | 7.5 | 0.013066667 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 52 | 0.006346154 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-B | 2,4-Dinitrophenol | mg/kg | 0.86 | 52 | 0.016538462 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-B | Picric acid | mg/kg | 0.098 | 7.5 | 0.013066667 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 52 | 0.006153846 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-C | 2,4-Dinitrophenol | mg/kg | 0.83 | 52 | 0.015961538 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-C | Picric acid | mg/kg | 0.099 | 7.5 | 0.0132 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 52 | 0.006346154 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-A | 2,4-Dinitrophenol | mg/kg | 0.86 | 52 | 0.016538462 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-A | Picric acid | mg/kg | 0.096 | 7.5 | 0.0128 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 52 | 0.006346154 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-B | 2,4-Dinitrophenol | mg/kg | 0.84 | 52 | 0.016153846 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-B | Picric acid | mg/kg | 0.099 | 7.5 | 0.0132 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 52 | 0.006153846 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-C | 2,4-Dinitrophenol | mg/kg | 0.82 | 52 | 0.015769231 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-C | Picric acid | mg/kg | 0.093 | 7.5 | 0.0124 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.31 | 52 | 0.005961538 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-A | 2,4-Dinitrophenol | mg/kg | 0.8 | 52 | 0.015384615 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-A | Picric acid | mg/kg | 0.1 | 7.5 | 0.013333333 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 52 | 0.006153846 |

Table E.1-5
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-B | 2,4-Dinitrophenol | mg/kg | 0.84 | 52 | 0.016153846 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-B | Picric acid | mg/kg | 0.098 | 7.5 | 0.013066667 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 52 | 0.006538462 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-C | 2,4-Dinitrophenol | mg/kg | 0.87 | 52 | 0.016730769 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-C | Picric acid | mg/kg | 0.096 | 7.5 | 0.0128 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 52 | 0.006153846 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-A | 2,4-Dinitrophenol | mg/kg | 0.82 | 52 | 0.015769231 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-A | Picric acid | mg/kg | 0.1 | 7.5 | 0.013333333 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 52 | 0.006346154 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-B | 2,4-Dinitrophenol | mg/kg | 0.85 | 52 | 0.016346154 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-B | Picric acid | mg/kg | 0.098 | 7.5 | 0.013066667 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 52 | 0.006153846 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-C | 2,4-Dinitrophenol | mg/kg | 0.83 | 52 | 0.015961538 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-C | Picric acid | mg/kg | 0.1 | 7.5 | 0.013333333 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Silver | mg/kg | 1.4 | 4.2 | 0.333333333 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2,6-Dinitrotoluene | mg/kg | 0.39 | 52 | 0.0075 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2-Chlorophenol | mg/kg | 0.39 | 0.39 | 1 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 0.02 | 19.5 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | di-n-Butyl phthalate | mg/kg | 0.39 | 0.011 | 35.45454545 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Hexachlorobenzene | mg/kg | 0.39 | 0.079 | 4.936708861 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Pentachlorophenol | mg/kg | 2 | 2.1 | 0.952380952 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Silver | mg/kg | 1.4 | 4.2 | 0.333333333 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2,6-Dinitrotoluene | mg/kg | 0.36 | 52 | 0.006923077 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2-Chlorophenol | mg/kg | 0.36 | 0.39 | 0.923076923 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 0.02 | 18 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | di-n-Butyl phthalate | mg/kg | 0.36 | 0.011 | 32.72727273 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Hexachlorobenzene | mg/kg | 0.36 | 0.079 | 4.556962025 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Pentachlorophenol | mg/kg | 1.9 | 2.1 | 0.904761905 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Silver | mg/kg | 1.2 | 4.2 | 0.285714286 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2,6-Dinitrotoluene | mg/kg | 0.37 | 52 | 0.007115385 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2-Chlorophenol | mg/kg | 0.37 | 0.39 | 0.948717949 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 0.02 | 18.5 |

Table E.1-5
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-SL018-A | di-n-Butyl phthalate | mg/kg | 0.37 | 0.011 | 33.63636364 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Hexachlorobenzene | mg/kg | 0.37 | 0.079 | 4.683544304 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Pentachlorophenol | mg/kg | 1.9 | 2.1 | 0.904761905 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Silver | mg/kg | 1.3 | 4.2 | 0.30952381 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2,6-Dinitrotoluene | mg/kg | 0.35 | 52 | 0.006730769 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2-Chlorophenol | mg/kg | 0.35 | 0.39 | 0.897435897 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 0.02 | 17.5 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | di-n-Butyl phthalate | mg/kg | 0.35 | 0.011 | 31.81818182 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Hexachlorobenzene | mg/kg | 0.35 | 0.079 | 4.430379747 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Pentachlorophenol | mg/kg | 1.8 | 2.1 | 0.857142857 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Silver | mg/kg | 1.2 | 4.2 | 0.285714286 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2,6-Dinitrotoluene | mg/kg | 0.37 | 52 | 0.007115385 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2-Chlorophenol | mg/kg | 0.37 | 0.39 | 0.948717949 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 0.02 | 18.5 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | di-n-Butyl phthalate | mg/kg | 0.37 | 0.011 | 33.63636364 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Hexachlorobenzene | mg/kg | 0.37 | 0.079 | 4.683544304 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Pentachlorophenol | mg/kg | 1.9 | 2.1 | 0.904761905 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-SL021-A | Silver | mg/kg | 1.9 | 4.2 | 0.452380952 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-SL022-A | Silver | mg/kg | 1.5 | 4.2 | 0.357142857 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-SL023-A | Silver | mg/kg | 1.6 | 4.2 | 0.380952381 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-SL024-A | Silver | mg/kg | 1.8 | 4.2 | 0.428571429 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-SL025-A | Silver | mg/kg | 1.7 | 4.2 | 0.404761905 |
| AOC 5 | Coal Storage Area | NYOW-05-SL006-A | Silver | mg/kg | 2.1 | 4.2 | 0.5 |
| AOC 5 | Coal Storage Area | NYOW-05-SL007-A | Silver | mg/kg | 2.2 | 4.2 | 0.523809524 |
| AOC 5 | Coal Storage Area | NYOW-05-SL008-A | Silver | mg/kg | 1.8 | 4.2 | 0.428571429 |
| AOC 5 | Coal Storage Area | NYOW-05-SL009-A | Silver | mg/kg | 2 | 4.2 | 0.476190476 |
| AOC 5 | Coal Storage Area | NYOW-05-SL010-A | Silver | mg/kg | 1.4 | 4.2 | 0.333333333 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Silver | mg/kg | 1.7 | 4.2 | 0.404761905 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.068 | 0.041 | 1.658536585 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.096 | 0.041 | 2.341463415 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.068 | 0.041 | 1.658536585 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.068 | 0.041 | 1.658536585 |

Table E.1-5
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.068 | 0.041 | 1.658536585 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.068 | 0.041 | 1.658536585 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.068 | 0.041 | 1.658536585 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.068 | 0.041 | 1.658536585 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2,6-Dinitrotoluene | mg/kg | 0.37 | 52 | 0.007115385 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2-Chlorophenol | mg/kg | 0.37 | 0.39 | 0.948717949 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 0.02 | 18.5 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | di-n-Butyl phthalate | mg/kg | 0.37 | 0.011 | 33.63636364 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Hexachlorobenzene | mg/kg | 0.37 | 0.079 | 4.683544304 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Pentachlorophenol | mg/kg | 1.9 | 2.1 | 0.904761905 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Silver | mg/kg | 1.5 | 4.2 | 0.357142857 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.041 | 2.43902439 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2,6-Dinitrotoluene | mg/kg | 0.38 | 52 | 0.007307692 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2-Chlorophenol | mg/kg | 0.38 | 0.39 | 0.974358974 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 0.02 | 19 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | di-n-Butyl phthalate | mg/kg | 0.38 | 0.011 | 34.54545455 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Hexachlorobenzene | mg/kg | 0.38 | 0.079 | 4.810126582 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Pentachlorophenol | mg/kg | 2 | 2.1 | 0.952380952 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Silver | mg/kg | 1.4 | 4.2 | 0.333333333 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.076 | 0.041 | 1.853658537 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.041 | 2.682926829 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.076 | 0.041 | 1.853658537 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.076 | 0.041 | 1.853658537 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.076 | 0.041 | 1.853658537 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.076 | 0.041 | 1.853658537 |

Table E.1-5
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.076 | 0.041 | 1.853658537 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.076 | 0.041 | 1.853658537 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2,6-Dinitrotoluene | mg/kg | 0.39 | 52 | 0.0075 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2-Chlorophenol | mg/kg | 0.39 | 0.39 | 1 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 0.02 | 19.5 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | di-n-Butyl phthalate | mg/kg | 0.39 | 0.011 | 35.45454545 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Hexachlorobenzene | mg/kg | 0.39 | 0.079 | 4.936708861 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Pentachlorophenol | mg/kg | 2 | 2.1 | 0.952380952 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Silver | mg/kg | 1.7 | 4.2 | 0.404761905 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.078 | 0.041 | 1.902439024 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.041 | 2.682926829 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.078 | 0.041 | 1.902439024 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.078 | 0.041 | 1.902439024 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.078 | 0.041 | 1.902439024 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.078 | 0.041 | 1.902439024 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.078 | 0.041 | 1.902439024 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.078 | 0.041 | 1.902439024 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2,6-Dinitrotoluene | mg/kg | 0.38 | 52 | 0.007307692 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2-Chlorophenol | mg/kg | 0.38 | 0.39 | 0.974358974 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 0.02 | 19 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | di-n-Butyl phthalate | mg/kg | 0.38 | 0.011 | 34.54545455 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Hexachlorobenzene | mg/kg | 0.38 | 0.079 | 4.810126582 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Pentachlorophenol | mg/kg | 2 | 2.1 | 0.952380952 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Silver | mg/kg | 1.7 | 4.2 | 0.404761905 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.077 | 0.041 | 1.87804878 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.041 | 2.682926829 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.077 | 0.041 | 1.87804878 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.077 | 0.041 | 1.87804878 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.077 | 0.041 | 1.87804878 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.077 | 0.041 | 1.87804878 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.077 | 0.041 | 1.87804878 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.077 | 0.041 | 1.87804878 |

Table E.1-5
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2,6-Dinitrotoluene | mg/kg | 0.38 | 52 | 0.007307692 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2-Chlorophenol | mg/kg | 0.38 | 0.39 | 0.974358974 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 0.02 | 19 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | di-n-Butyl phthalate | mg/kg | 0.38 | 0.011 | 34.54545455 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Hexachlorobenzene | mg/kg | 0.38 | 0.079 | 4.810126582 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Pentachlorophenol | mg/kg | 2 | 2.1 | 0.952380952 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.068 | 0.041 | 1.658536585 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.097 | 0.041 | 2.365853659 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.068 | 0.041 | 1.658536585 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.068 | 0.041 | 1.658536585 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.068 | 0.041 | 1.658536585 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.068 | 0.041 | 1.658536585 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.068 | 0.041 | 1.658536585 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.068 | 0.041 | 1.658536585 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.068 | 0.041 | 1.658536585 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2,6-Dinitrotoluene | mg/kg | 0.35 | 52 | 0.006730769 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2-Chlorophenol | mg/kg | 0.35 | 0.39 | 0.897435897 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 0.02 | 17.5 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Hexachlorobenzene | mg/kg | 0.35 | 0.079 | 4.430379747 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Pentachlorophenol | mg/kg | 1.8 | 2.1 | 0.857142857 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.071 | 0.041 | 1.731707317 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.041 | 2.43902439 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.071 | 0.041 | 1.731707317 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.071 | 0.041 | 1.731707317 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.071 | 0.041 | 1.731707317 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.071 | 0.041 | 1.731707317 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.071 | 0.041 | 1.731707317 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.071 | 0.041 | 1.731707317 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.071 | 0.041 | 1.731707317 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2,6-Dinitrotoluene | mg/kg | 0.38 | 52 | 0.007307692 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2-Chlorophenol | mg/kg | 0.38 | 0.39 | 0.974358974 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 0.02 | 19 |

Table E.1-5
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Hexachlorobenzene | mg/kg | 0.38 | 0.079 | 4.810126582 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Pentachlorophenol | mg/kg | 2 | 2.1 | 0.952380952 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.075 | 0.041 | 1.829268293 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.041 | 2.682926829 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.075 | 0.041 | 1.829268293 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.075 | 0.041 | 1.829268293 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.075 | 0.041 | 1.829268293 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.075 | 0.041 | 1.829268293 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.075 | 0.041 | 1.829268293 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.075 | 0.041 | 1.829268293 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.075 | 0.041 | 1.829268293 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2,6-Dinitrotoluene | mg/kg | 0.37 | 52 | 0.007115385 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2-Chlorophenol | mg/kg | 0.37 | 0.39 | 0.948717949 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 0.02 | 18.5 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Hexachlorobenzene | mg/kg | 0.37 | 0.079 | 4.683544304 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Pentachlorophenol | mg/kg | 1.9 | 2.1 | 0.904761905 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.041 | 2.43902439 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2,6-Dinitrotoluene | mg/kg | 0.35 | 52 | 0.006730769 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2-Chlorophenol | mg/kg | 0.35 | 0.39 | 0.897435897 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 0.02 | 17.5 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Hexachlorobenzene | mg/kg | 0.35 | 0.079 | 4.430379747 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Pentachlorophenol | mg/kg | 1.8 | 2.1 | 0.857142857 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.041 | 2.43902439 |

Table E.1-5
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 0.041 | 1.756097561 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2,6-Dinitrotoluene | mg/kg | 0.39 | 52 | 0.0075 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2-Chlorophenol | mg/kg | 0.39 | 0.39 | 1 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 0.02 | 19.5 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Hexachlorobenzene | mg/kg | 0.39 | 0.079 | 4.936708861 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Pentachlorophenol | mg/kg | 2 | 2.1 | 0.952380952 |

Notes:
AOC = area of concern
LOQ = limit of quantitation
mg/kg = micrograms per kilogram
NA = not applicable

1) See Appendix L.

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 1 | NA | NYOW-01-PH002-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.4 | 0.55 |
| AOC 1 | NA | NYOW-01-PH002-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 1 | NA | NYOW-01-PH005-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.4 | 0.507142857 |
| AOC 1 | NA | NYOW-01-PH005-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 1 | NA | NYOW-01-PH015-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.4 | 0.5 |
| AOC 1 | NA | NYOW-01-PH015-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 1 | NA | NYOW-01-PH016-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.69 | 1.4 | 0.492857143 |
| AOC 1 | NA | NYOW-01-PH016-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 1 | NA | NYOW-01-PH018-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 1 | NA | NYOW-01-PH018-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 1 | NA | NYOW-01-PH019-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 1 | NA | NYOW-01-PH019-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 1 | NA | NYOW-01-PH020-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.4 | 0.55 |
| AOC 1 | NA | NYOW-01-PH020-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 1 | NA | NYOW-01-PH021-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.4 | 0.514285714 |
| AOC 1 | NA | NYOW-01-PH021-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 1 | NA | NYOW-01-PH022-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.4 | 0.557142857 |
| AOC 1 | NA | NYOW-01-PH022-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 1 | NA | NYOW-01-PH023-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.4 | 0.514285714 |
| AOC 1 | NA | NYOW-01-PH023-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 1 | NA | NYOW-01-PH024-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.4 | 0.528571429 |
| AOC 1 | NA | NYOW-01-PH024-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 1 | NA | NYOW-01-SL002-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.4 | 0.55 |
| AOC 1 | NA | NYOW-01-SL002-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 1 | NA | NYOW-01-SL005-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.4 | 0.55 |
| AOC 1 | NA | NYOW-01-SL005-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 1 | NA | NYOW-01-SL007-A | 2,4-Dinitrochlorobenzene | mg/kg | 1.1 | 1.4 | 0.785714286 |
| AOC 1 | NA | NYOW-01-SL007-A | 2,4-Dinitrophenol | mg/kg | 2.7 | 0.061 | 44.26229508 |
| AOC 1 | NA | NYOW-01-SL009-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.94 | 1.4 | 0.671428571 |
| AOC 1 | NA | NYOW-01-SL009-A | 2,4-Dinitrophenol | mg/kg | 2.4 | 0.061 | 39.3442623 |
| AOC 1 | NA | NYOW-01-SL011-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.87 | 1.4 | 0.621428571 |
| AOC 1 | NA | NYOW-01-SL011-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 0.061 | 36.06557377 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 1 | NA | NYOW-01-SL013-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.4 | 0.55 |
| AOC 1 | NA | NYOW-01-SL013-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 1 | NA | NYOW-01-SL015-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.4 | 0.557142857 |
| AOC 1 | NA | NYOW-01-SL015-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 1 | NA | NYOW-01-SL016-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.4 | 0.55 |
| AOC 1 | NA | NYOW-01-SL016-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 1 | NA | NYOW-01-SL018-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.4 | 0.507142857 |
| AOC 1 | NA | NYOW-01-SL018-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 1 | NA | NYOW-01-SL019-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 1 | NA | NYOW-01-SL019-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 1 | NA | NYOW-01-SL020-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.83 | 1.4 | 0.592857143 |
| AOC 1 | NA | NYOW-01-SL020-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.061 | 34.42622951 |
| AOC 1 | NA | NYOW-01-SL021-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 1.4 | 0.564285714 |
| AOC 1 | NA | NYOW-01-SL021-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 1 | NA | NYOW-01-SL022-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 1.4 | 0.585714286 |
| AOC 1 | NA | NYOW-01-SL022-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.061 | 34.42622951 |
| AOC 1 | NA | NYOW-01-SL023-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 1.4 | 0.578571429 |
| AOC 1 | NA | NYOW-01-SL023-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.061 | 34.42622951 |
| AOC 1 | NA | NYOW-01-SL024-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.86 | 1.4 | 0.614285714 |
| AOC 1 | NA | NYOW-01-SL024-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 0.061 | 36.06557377 |
| AOC 1 | NA | NYOW-01-SL025-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.4 | 0.542857143 |
| AOC 1 | NA | NYOW-01-SL025-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 1 | NA | NYOW-01-SL026-A | 2,4-Dinitrochlorobenzene | mg/kg | 6.4 | 1.4 | 4.571428571 |
| AOC 1 | NA | NYOW-01-SL026-A | 2,4-Dinitrophenol | mg/kg | 16 | 0.061 | 262.295082 |
| AOC 1 | NA | NYOW-01-SL027-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 1.4 | 0.585714286 |
| AOC 1 | NA | NYOW-01-SL027-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.061 | 34.42622951 |
| AOC 1 | NA | NYOW-01-SL028-A | 2,4-Dinitrochlorobenzene | mg/kg | 5.5 | 1.4 | 3.928571429 |
| AOC 1 | NA | NYOW-01-SL028-A | 2,4-Dinitrophenol | mg/kg | 14 | 0.061 | 229.5081967 |
| AOC 1 | NA | NYOW-01-SL029-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.88 | 1.4 | 0.628571429 |
| AOC 1 | NA | NYOW-01-SL029-A | 2,4-Dinitrophenol | mg/kg | 2.3 | 0.061 | 37.70491803 |
| AOC 1 | NA | NYOW-01-SL030-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.82 | 1.4 | 0.585714286 |
| AOC 1 | NA | NYOW-01-SL030-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.061 | 34.42622951 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 1 | NA | NYOW-01-SL031-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 1.4 | 0.578571429 |
| AOC 1 | NA | NYOW-01-SL031-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.061 | 34.42622951 |
| AOC 1 | NA | NYOW-01-SL032-A | 2,4-Dinitrochlorobenzene | mg/kg | 4.2 | 1.4 | 3 |
| AOC 1 | NA | NYOW-01-SL032-A | 2,4-Dinitrophenol | mg/kg | 11 | 0.061 | 180.3278689 |
| AOC 1 | NA | NYOW-01-SL033-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.4 | 0.557142857 |
| AOC 1 | NA | NYOW-01-SL033-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 1 | NA | NYOW-01-SL034-A | 2,4-Dinitrochlorobenzene | mg/kg | 1 | 1.4 | 0.714285714 |
| AOC 1 | NA | NYOW-01-SL034-A | 2,4-Dinitrophenol | mg/kg | 2.6 | 0.061 | 42.62295082 |
| AOC 1 | NA | NYOW-01-SL035-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.88 | 1.4 | 0.628571429 |
| AOC 1 | NA | NYOW-01-SL035-A | 2,4-Dinitrophenol | mg/kg | 2.3 | 0.061 | 37.70491803 |
| AOC 1 | NA | NYOW-01-SL036-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.93 | 1.4 | 0.664285714 |
| AOC 1 | NA | NYOW-01-SL037-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.96 | 1.4 | 0.685714286 |
| AOC 1 | NA | NYOW-01-SL037-A | 2,4-Dinitrophenol | mg/kg | 2.5 | 0.061 | 40.98360656 |
| AOC 1 | NA | NYOW-01-SL038-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.81 | 1.4 | 0.578571429 |
| AOC 1 | NA | NYOW-01-SL038-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.061 | 34.42622951 |
| AOC 1 | NA | NYOW-01-SL039-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 1.4 | 0.564285714 |
| AOC 1 | NA | NYOW-01-SL039-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 4 - Discrete | NA | NYOW-04-PH001-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.4 | 0.542857143 |
| AOC 4 - Discrete | NA | NYOW-04-PH001-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 4 - Discrete | NA | NYOW-04-PH001-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH002-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.4 | 0.542857143 |
| AOC 4 - Discrete | NA | NYOW-04-PH002-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 4 - Discrete | NA | NYOW-04-PH002-B | Picric acid | mg/kg | 0.25 | 0.0061 | 40.98360656 |
| AOC 4 - Discrete | NA | NYOW-04-PH003-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.4 | 0.528571429 |
| AOC 4 - Discrete | NA | NYOW-04-PH003-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH003-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH004-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.87 | 1.4 | 0.621428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH004-B | 2,4-Dinitrophenol | mg/kg | 2.2 | 0.061 | 36.06557377 |
| AOC 4 - Discrete | NA | NYOW-04-PH004-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH005-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.4 | 0.55 |
| AOC 4 - Discrete | NA | NYOW-04-PH005-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 4 - Discrete | NA | NYOW-04-PH005-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH006-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.4 | 0.528571429 |
| AOC 4 - Discrete | NA | NYOW-04-PH006-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH006-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH007-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.4 | 0.528571429 |
| AOC 4 - Discrete | NA | NYOW-04-PH007-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH007-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH008-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.4 | 0.514285714 |
| AOC 4 - Discrete | NA | NYOW-04-PH008-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH008-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH009-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.4 | 0.507142857 |
| AOC 4 - Discrete | NA | NYOW-04-PH009-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH009-B | Picric acid | mg/kg | 0.25 | 0.0061 | 40.98360656 |
| AOC 4 - Discrete | NA | NYOW-04-PH010-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH010-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH010-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH011-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH011-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH011-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH012-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.4 | 0.507142857 |
| AOC 4 - Discrete | NA | NYOW-04-PH012-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH012-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH013-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.4 | 0.507142857 |
| AOC 4 - Discrete | NA | NYOW-04-PH013-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH013-B | Picric acid | mg/kg | 0.25 | 0.0061 | 40.98360656 |
| AOC 4 - Discrete | NA | NYOW-04-PH014-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH014-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH014-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH015-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.4 | 0.514285714 |
| AOC 4 - Discrete | NA | NYOW-04-PH015-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH015-B | Picric acid | mg/kg | 0.25 | 0.0061 | 40.98360656 |
| AOC 4 - Discrete | NA | NYOW-04-PH016-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.4 | 0.5 |
| AOC 4 - Discrete | NA | NYOW-04-PH016-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH016-B | Picric acid | mg/kg | 0.25 | 0.0061 | 40.98360656 |
| AOC 4 - Discrete | NA | NYOW-04-PH017-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH017-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH017-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH018-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.4 | 0.514285714 |
| AOC 4 - Discrete | NA | NYOW-04-PH018-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH018-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH019-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH019-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH019-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH020-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.67 | 1.4 | 0.478571429 |
| AOC 4 - Discrete | NA | NYOW-04-PH020-B | 2,4-Dinitrophenol | mg/kg | 1.7 | 0.061 | 27.86885246 |
| AOC 4 - Discrete | NA | NYOW-04-PH020-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH021-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.69 | 1.4 | 0.492857143 |
| AOC 4 - Discrete | NA | NYOW-04-PH021-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH021-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH022-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.69 | 1.4 | 0.492857143 |
| AOC 4 - Discrete | NA | NYOW-04-PH022-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH022-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH023-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH023-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH023-B | Picric acid | mg/kg | 0.25 | 0.0061 | 40.98360656 |
| AOC 4 - Discrete | NA | NYOW-04-PH024-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.4 | 0.514285714 |
| AOC 4 - Discrete | NA | NYOW-04-PH024-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH024-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH025-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.4 | 0.5 |
| AOC 4 - Discrete | NA | NYOW-04-PH025-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH025-B | Picric acid | mg/kg | 0.25 | 0.0061 | 40.98360656 |
| AOC 4 - Discrete | NA | NYOW-04-PH026-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.4 | 0.507142857 |
| AOC 4 - Discrete | NA | NYOW-04-PH026-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH026-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH027-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH027-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH027-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH028-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.4 | 0.5 |
| AOC 4 - Discrete | NA | NYOW-04-PH028-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH028-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH029-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH029-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH029-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH030-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.4 | 0.5 |
| AOC 4 - Discrete | NA | NYOW-04-PH030-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH030-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH031-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.4 | 0.507142857 |
| AOC 4 - Discrete | NA | NYOW-04-PH031-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH031-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH032-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH032-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH032-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH033-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.4 | 0.5 |
| AOC 4 - Discrete | NA | NYOW-04-PH033-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH033-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH034-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.4 | 0.528571429 |
| AOC 4 - Discrete | NA | NYOW-04-PH034-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH034-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH035-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.79 | 1.4 | 0.564285714 |
| AOC 4 - Discrete | NA | NYOW-04-PH035-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 4 - Discrete | NA | NYOW-04-PH035-B | Picric acid | mg/kg | 0.25 | 0.0061 | 40.98360656 |
| AOC 4 - Discrete | NA | NYOW-04-PH036-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH036-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH036-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH037-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.4 | 0.528571429 |
| AOC 4 - Discrete | NA | NYOW-04-PH037-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH037-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH038-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH038-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH038-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH039-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.4 | 0.507142857 |
| AOC 4 - Discrete | NA | NYOW-04-PH039-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH039-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH040-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.4 | 0.5 |
| AOC 4 - Discrete | NA | NYOW-04-PH040-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH040-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH041-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 1.4 | 0.571428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH041-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.061 | 34.42622951 |
| AOC 4 - Discrete | NA | NYOW-04-PH041-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH042-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.4 | 0.542857143 |
| AOC 4 - Discrete | NA | NYOW-04-PH042-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH042-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH043-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.4 | 0.55 |
| AOC 4 - Discrete | NA | NYOW-04-PH043-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 4 - Discrete | NA | NYOW-04-PH043-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH044-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.4 | 0.557142857 |
| AOC 4 - Discrete | NA | NYOW-04-PH044-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 4 - Discrete | NA | NYOW-04-PH044-B | Picric acid | mg/kg | 0.25 | 0.0061 | 40.98360656 |
| AOC 4 - Discrete | NA | NYOW-04-PH045-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH045-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH045-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH046-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.4 | 0.528571429 |
| AOC 4 - Discrete | NA | NYOW-04-PH046-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH046-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH047-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.4 | 0.542857143 |
| AOC 4 - Discrete | NA | NYOW-04-PH047-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH047-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH048-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.4 | 0.528571429 |
| AOC 4 - Discrete | NA | NYOW-04-PH048-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH048-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH049-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.4 | 0.5 |
| AOC 4 - Discrete | NA | NYOW-04-PH049-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH049-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH050-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.4 | 0.514285714 |
| AOC 4 - Discrete | NA | NYOW-04-PH050-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH050-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH051-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.4 | 0.535714286 |
| AOC 4 - Discrete | NA | NYOW-04-PH051-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH051-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH052-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH052-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH052-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH053-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.4 | 0.514285714 |
| AOC 4 - Discrete | NA | NYOW-04-PH053-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH053-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH054-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.4 | 0.542857143 |
| AOC 4 - Discrete | NA | NYOW-04-PH054-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 4 - Discrete | NA | NYOW-04-PH054-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH055-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.4 | 0.514285714 |
| AOC 4 - Discrete | NA | NYOW-04-PH055-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH055-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH056-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.4 | 0.528571429 |
| AOC 4 - Discrete | NA | NYOW-04-PH056-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH056-B | Picric acid | mg/kg | 0.25 | 0.0061 | 40.98360656 |
| AOC 4 - Discrete | NA | NYOW-04-PH057-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.4 | 0.514285714 |
| AOC 4 - Discrete | NA | NYOW-04-PH057-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH057-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH058-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.4 | 0.542857143 |
| AOC 4 - Discrete | NA | NYOW-04-PH058-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 4 - Discrete | NA | NYOW-04-PH058-B | Picric acid | mg/kg | 0.25 | 0.0061 | 40.98360656 |
| AOC 4 - Discrete | NA | NYOW-04-PH059-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.4 | 0.5 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH059-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH059-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH060-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.4 | 0.528571429 |
| AOC 4 - Discrete | NA | NYOW-04-PH060-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH060-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH061-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.76 | 1.4 | 0.542857143 |
| AOC 4 - Discrete | NA | NYOW-04-PH061-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH061-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH062-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.4 | 0.535714286 |
| AOC 4 - Discrete | NA | NYOW-04-PH062-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH062-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH063-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.4 | 0.535714286 |
| AOC 4 - Discrete | NA | NYOW-04-PH063-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH063-B | Picric acid | mg/kg | 0.25 | 0.0061 | 40.98360656 |
| AOC 4 - Discrete | NA | NYOW-04-PH064-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.4 | 0.535714286 |
| AOC 4 - Discrete | NA | NYOW-04-PH064-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH064-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH065-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.4 | 0.528571429 |
| AOC 4 - Discrete | NA | NYOW-04-PH065-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH065-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH066-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.4 | 0.535714286 |
| AOC 4 - Discrete | NA | NYOW-04-PH066-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH066-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH067-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH067-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH067-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH068-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.4 | 0.507142857 |
| AOC 4 - Discrete | NA | NYOW-04-PH068-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH068-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH069-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH069-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH069-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH070-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.4 | 0.535714286 |
| AOC 4 - Discrete | NA | NYOW-04-PH070-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH070-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH071-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH071-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH071-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH072-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.4 | 0.507142857 |
| AOC 4 - Discrete | NA | NYOW-04-PH072-B | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-PH072-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH073-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.4 | 0.528571429 |
| AOC 4 - Discrete | NA | NYOW-04-PH073-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH073-B | Picric acid | mg/kg | 0.25 | 0.0061 | 40.98360656 |
| AOC 4 - Discrete | NA | NYOW-04-PH074-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH074-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH074-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH075-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.4 | 0.514285714 |
| AOC 4 - Discrete | NA | NYOW-04-PH075-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH075-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH076-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.4 | 0.514285714 |
| AOC 4 - Discrete | NA | NYOW-04-PH076-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH076-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH077-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.4 | 0.528571429 |
| AOC 4 - Discrete | NA | NYOW-04-PH077-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH077-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH078-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.4 | 0.557142857 |
| AOC 4 - Discrete | NA | NYOW-04-PH078-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 4 - Discrete | NA | NYOW-04-PH078-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH079-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 1.4 | 0.571428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH079-B | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.061 | 34.42622951 |
| AOC 4 - Discrete | NA | NYOW-04-PH079-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH080-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.4 | 0.55 |
| AOC 4 - Discrete | NA | NYOW-04-PH080-B | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-PH080-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH081-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH081-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH081-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH082-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.86 | 1.4 | 0.614285714 |
| AOC 4 - Discrete | NA | NYOW-04-PH082-B | 2,4-Dinitrophenol | mg/kg | 2.2 | 0.061 | 36.06557377 |
| AOC 4 - Discrete | NA | NYOW-04-PH082-B | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-PH083-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.4 | 0.528571429 |
| AOC 4 - Discrete | NA | NYOW-04-PH083-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH083-B | Picric acid | mg/kg | 0.25 | 0.0061 | 40.98360656 |
| AOC 4 - Discrete | NA | NYOW-04-PH084-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-PH084-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH084-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-PH085-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.4 | 0.514285714 |
| AOC 4 - Discrete | NA | NYOW-04-PH085-B | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-PH085-B | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-SL001-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.78 | 1.4 | 0.557142857 |
| AOC 4 - Discrete | NA | NYOW-04-SL001-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 4 - Discrete | NA | NYOW-04-SL001-A | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-SL002-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.4 | 0.55 |
| AOC 4 - Discrete | NA | NYOW-04-SL002-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 4 - Discrete | NA | NYOW-04-SL002-A | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-SL003-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.4 | 0.528571429 |
| AOC 4 - Discrete | NA | NYOW-04-SL003-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-SL003-A | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-SL004-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.4 | 0.507142857 |
| AOC 4 - Discrete | NA | NYOW-04-SL004-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-SL004-A | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-SL005-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.4 | 0.514285714 |
| AOC 4 - Discrete | NA | NYOW-04-SL005-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-SL005-A | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-SL006-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.4 | 0.535714286 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - Discrete | NA | NYOW-04-SL006-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-SL006-A | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-SL036-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.4 | 0.535714286 |
| AOC 4 - Discrete | NA | NYOW-04-SL036-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-SL036-A | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-SL037-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.73 | 1.4 | 0.521428571 |
| AOC 4 - Discrete | NA | NYOW-04-SL037-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-SL037-A | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-SL038-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.77 | 1.4 | 0.55 |
| AOC 4 - Discrete | NA | NYOW-04-SL038-A | 2,4-Dinitrophenol | mg/kg | 2 | 0.061 | 32.78688525 |
| AOC 4 - Discrete | NA | NYOW-04-SL038-A | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-SL079-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.8 | 1.4 | 0.571428571 |
| AOC 4 - Discrete | NA | NYOW-04-SL079-A | 2,4-Dinitrophenol | mg/kg | 2.1 | 0.061 | 34.42622951 |
| AOC 4 - Discrete | NA | NYOW-04-SL079-A | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-SL080-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.83 | 1.4 | 0.592857143 |
| AOC 4 - Discrete | NA | NYOW-04-SL080-A | 2,4-Dinitrophenol | mg/kg | 2.2 | 0.061 | 36.06557377 |
| AOC 4 - Discrete | NA | NYOW-04-SL080-A | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-SL081-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.74 | 1.4 | 0.528571429 |
| AOC 4 - Discrete | NA | NYOW-04-SL081-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-SL081-A | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-SL082-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.71 | 1.4 | 0.507142857 |
| AOC 4 - Discrete | NA | NYOW-04-SL082-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-SL082-A | Picric acid | mg/kg | 0.25 | 0.0061 | 40.98360656 |
| AOC 4 - Discrete | NA | NYOW-04-SL083-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.72 | 1.4 | 0.514285714 |
| AOC 4 - Discrete | NA | NYOW-04-SL083-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-SL083-A | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |
| AOC 4 - Discrete | NA | NYOW-04-SL084-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.7 | 1.4 | 0.5 |
| AOC 4 - Discrete | NA | NYOW-04-SL084-A | 2,4-Dinitrophenol | mg/kg | 1.8 | 0.061 | 29.50819672 |
| AOC 4 - Discrete | NA | NYOW-04-SL084-A | Picric acid | mg/kg | 0.23 | 0.0061 | 37.70491803 |
| AOC 4 - Discrete | NA | NYOW-04-SL085-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.75 | 1.4 | 0.535714286 |
| AOC 4 - Discrete | NA | NYOW-04-SL085-A | 2,4-Dinitrophenol | mg/kg | 1.9 | 0.061 | 31.14754098 |
| AOC 4 - Discrete | NA | NYOW-04-SL085-A | Picric acid | mg/kg | 0.24 | 0.0061 | 39.3442623 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.4 | 0.228571429 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-A | Picric acid | mg/kg | 0.097 | 0.0061 | 15.90163934 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.4 | 0.235714286 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-B | Picric acid | mg/kg | 0.096 | 0.0061 | 15.73770492 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.4 | 0.235714286 |
| AOC 4 - ISM | NA | NYOW-04-DU001-SL-C | Picric acid | mg/kg | 0.095 | 0.0061 | 15.57377049 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 1.4 | 0.242857143 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-A | 2,4-Dinitrophenol | mg/kg | 0.87 | 0.061 | 14.26229508 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-A | Picric acid | mg/kg | 0.093 | 0.0061 | 15.24590164 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.4 | 0.235714286 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-B | 2,4-Dinitrophenol | mg/kg | 0.84 | 0.061 | 13.7704918 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-B | Picric acid | mg/kg | 0.1 | 0.0061 | 16.39344262 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.4 | 0.235714286 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-C | 2,4-Dinitrophenol | mg/kg | 0.84 | 0.061 | 13.7704918 |
| AOC 4 - ISM | NA | NYOW-04-DU002-SL-C | Picric acid | mg/kg | 0.095 | 0.0061 | 15.57377049 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 1.4 | 0.242857143 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-A | 2,4-Dinitrophenol | mg/kg | 0.87 | 0.061 | 14.26229508 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-A | Picric acid | mg/kg | 0.092 | 0.0061 | 15.08196721 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 1.4 | 0.242857143 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-B | 2,4-Dinitrophenol | mg/kg | 0.87 | 0.061 | 14.26229508 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-B | Picric acid | mg/kg | 0.097 | 0.0061 | 15.90163934 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.35 | 1.4 | 0.25 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-C | 2,4-Dinitrophenol | mg/kg | 0.91 | 0.061 | 14.91803279 |
| AOC 4 - ISM | NA | NYOW-04-DU004-SL-C | Picric acid | mg/kg | 0.099 | 0.0061 | 16.2295082 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.63 | 1.4 | 0.45 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-A | 2,4-Dinitrophenol | mg/kg | 1.6 | 0.061 | 26.2295082 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-A | Picric acid | mg/kg | 0.093 | 0.0061 | 15.24590164 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 1.9 | 1.4 | 1.357142857 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-B | 2,4-Dinitrophenol | mg/kg | 5 | 0.061 | 81.96721311 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-B | Picric acid | mg/kg | 0.095 | 0.0061 | 15.57377049 |
| AOC 4 - ISM | NA | NYOW-04-DU005-SL-C | Picric acid | mg/kg | 0.099 | 0.0061 | 16.2295082 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.4 | 0.235714286 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-A | 2,4-Dinitrophenol | mg/kg | 0.85 | 0.061 | 13.93442623 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-A | Picric acid | mg/kg | 0.099 | 0.0061 | 16.2295082 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.4 | 0.235714286 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-B | 2,4-Dinitrophenol | mg/kg | 0.86 | 0.061 | 14.09836066 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-B | Picric acid | mg/kg | 0.1 | 0.0061 | 16.39344262 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.31 | 1.4 | 0.221428571 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-C | 2,4-Dinitrophenol | mg/kg | 0.79 | 0.061 | 12.95081967 |
| AOC 4 - ISM | NA | NYOW-04-DU006-SL-C | Picric acid | mg/kg | 0.099 | 0.0061 | 16.2295082 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.35 | 1.4 | 0.25 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-A | 2,4-Dinitrophenol | mg/kg | 0.9 | 0.061 | 14.75409836 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-A | Picric acid | mg/kg | 0.097 | 0.0061 | 15.90163934 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.31 | 1.4 | 0.221428571 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-B | 2,4-Dinitrophenol | mg/kg | 0.81 | 0.061 | 13.27868852 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-B | Picric acid | mg/kg | 0.1 | 0.0061 | 16.39344262 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.4 | 0.235714286 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-C | 2,4-Dinitrophenol | mg/kg | 0.85 | 0.061 | 13.93442623 |
| AOC 4 - ISM | NA | NYOW-04-DU007-SL-C | Picric acid | mg/kg | 0.096 | 0.0061 | 15.73770492 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.4 | 0.228571429 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-A | Picric acid | mg/kg | 0.099 | 0.0061 | 16.2295082 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.4 | 0.228571429 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-B | Picric acid | mg/kg | 0.099 | 0.0061 | 16.2295082 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.4 | 0.235714286 |
| AOC 4 - ISM | NA | NYOW-04-DU009-SL-C | Picric acid | mg/kg | 0.096 | 0.0061 | 15.73770492 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.4 | 0.228571429 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-A | 2,4-Dinitrophenol | mg/kg | 0.84 | 0.061 | 13.7704918 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-A | Picric acid | mg/kg | 0.095 | 0.0061 | 15.57377049 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.4 | 0.235714286 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-B | 2,4-Dinitrophenol | mg/kg | 0.85 | 0.061 | 13.93442623 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-B | Picric acid | mg/kg | 0.1 | 0.0061 | 16.39344262 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-C | 2,4-Dinitrophenol | mg/kg | 0.82 | 0.061 | 13.44262295 |
| AOC 4 - ISM | NA | NYOW-04-DU010-SL-C | Picric acid | mg/kg | 0.099 | 0.0061 | 16.2295082 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.4 | 0.228571429 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-A | 2,4-Dinitrophenol | mg/kg | 0.82 | 0.061 | 13.44262295 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-A | Picric acid | mg/kg | 0.098 | 0.0061 | 16.06557377 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.4 | 0.235714286 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-B | 2,4-Dinitrophenol | mg/kg | 0.86 | 0.061 | 14.09836066 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-B | Picric acid | mg/kg | 0.098 | 0.0061 | 16.06557377 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.4 | 0.228571429 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-C | 2,4-Dinitrophenol | mg/kg | 0.83 | 0.061 | 13.60655738 |
| AOC 4 - ISM | NA | NYOW-04-DU011-SL-C | Picric acid | mg/kg | 0.099 | 0.0061 | 16.2295082 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.4 | 0.235714286 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-A | 2,4-Dinitrophenol | mg/kg | 0.86 | 0.061 | 14.09836066 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-A | Picric acid | mg/kg | 0.096 | 0.0061 | 15.73770492 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.4 | 0.235714286 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-B | 2,4-Dinitrophenol | mg/kg | 0.84 | 0.061 | 13.7704918 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-B | Picric acid | mg/kg | 0.099 | 0.0061 | 16.2295082 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.4 | 0.228571429 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-C | 2,4-Dinitrophenol | mg/kg | 0.82 | 0.061 | 13.44262295 |
| AOC 4 - ISM | NA | NYOW-04-DU012-SL-C | Picric acid | mg/kg | 0.093 | 0.0061 | 15.24590164 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.31 | 1.4 | 0.221428571 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-A | 2,4-Dinitrophenol | mg/kg | 0.8 | 0.061 | 13.1147541 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-A | Picric acid | mg/kg | 0.1 | 0.0061 | 16.39344262 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.4 | 0.228571429 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-B | 2,4-Dinitrophenol | mg/kg | 0.84 | 0.061 | 13.7704918 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-B | Picric acid | mg/kg | 0.098 | 0.0061 | 16.06557377 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.34 | 1.4 | 0.242857143 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-C | 2,4-Dinitrophenol | mg/kg | 0.87 | 0.061 | 14.26229508 |
| AOC 4 - ISM | NA | NYOW-04-DU013-SL-C | Picric acid | mg/kg | 0.096 | 0.0061 | 15.73770492 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-A | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.4 | 0.228571429 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-A | 2,4-Dinitrophenol | mg/kg | 0.82 | 0.061 | 13.44262295 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-A | Picric acid | mg/kg | 0.1 | 0.0061 | 16.39344262 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-B | 2,4-Dinitrochlorobenzene | mg/kg | 0.33 | 1.4 | 0.235714286 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-B | 2,4-Dinitrophenol | mg/kg | 0.85 | 0.061 | 13.93442623 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-B | Picric acid | mg/kg | 0.098 | 0.0061 | 16.06557377 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-C | 2,4-Dinitrochlorobenzene | mg/kg | 0.32 | 1.4 | 0.228571429 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-C | 2,4-Dinitrophenol | mg/kg | 0.83 | 0.061 | 13.60655738 |
| AOC 4 - ISM | NA | NYOW-04-DU014-SL-C | Picric acid | mg/kg | 0.1 | 0.0061 | 16.39344262 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Silver | mg/kg | 1.4 | 14 | 0.1 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 2.02 | 0.178217822 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.36 | 19.9 | 0.018090452 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 0.2 | 1.8 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 14.1 | 0.025531915 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 9.94 | 0.036217304 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2,4-Dichlorophenol | mg/kg | 0.36 | 87.5 | 0.004114286 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 14 | 0.025714286 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2,6-Dinitrotoluene | mg/kg | 0.36 | 4 | 0.09 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2-Chloronaphthalene | mg/kg | 0.36 | 0.0122 | 29.50819672 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2-Chlorophenol | mg/kg | 0.36 | 0.54 | 0.666666667 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 580 | 0.00062069 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2-Nitroaniline | mg/kg | 1.9 | 5.3 | 0.358490566 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 2-Nitrophenol | mg/kg | 0.36 | 1.6 | 0.225 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 0.646 | 1.114551084 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 3-Nitroaniline | mg/kg | 1.9 | 3.16 | 0.601265823 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.144 | 13.19444444 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 4-Chloro-3-methylphenol | mg/kg | 0.36 | 7.95 | 0.045283019 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 4-Chloroaniline | mg/kg | 0.72 | 1.1 | 0.654545455 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 4-Nitroaniline | mg/kg | 1.9 | 21.9 | 0.086757991 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | 4-Nitrophenol | mg/kg | 1.9 | 5.12 | 0.37109375 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Acetophenone | mg/kg | 0.36 | 300 | 0.0012 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Benzyl butyl phthalate | mg/kg | 0.36 | 90 | 0.004 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Bis(2-chloroethoxy)methane | mg/kg | 0.36 | 0.302 | 1.19205298 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.36 | 23.7 | 0.015189873 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 0.6 | 0.6 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Carbazole | mg/kg | 0.36 | 79 | 0.004556962 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Cresols, m- & p- | mg/kg | 0.36 | 3.49 | 0.103151862 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Diethyl phthalate | mg/kg | 0.36 | 3600 | 0.0001 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-PH016-B | Dimethyl phthalate | mg/kg | 0.36 | 38 | 0.009473684 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | di-n-Butyl phthalate | mg/kg | 0.36 | 180 | 0.002 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | di-n-Octyl phthalate | mg/kg | 0.36 | 0.91 | 0.395604396 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Hexachlorobenzene | mg/kg | 0.36 | 0.2 | 1.8 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Hexachlorobutadiene | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.755 | 0.476821192 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Isophorone | mg/kg | 0.36 | 139 | 0.002589928 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Nitrobenzene | mg/kg | 0.36 | 4.8 | 0.075 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | N-Nitrosodi-n-propylamine | mg/kg | 0.36 | 0.544 | 0.661764706 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | N-Nitrosodiphenylamine | mg/kg | 0.36 | 0.545 | 0.660550459 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Pentachlorophenol | mg/kg | 1.9 | 2.8 | 0.678571429 |
| AOC 5 | Boiler House | NYOW-05-PH016-B | Phenol | mg/kg | 0.36 | 37 | 0.00972973 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Silver | mg/kg | 1.3 | 14 | 0.092857143 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 2.02 | 0.183168317 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 1,4-Dioxane | mg/kg | 0.37 | 2.05 | 0.180487805 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 19.9 | 0.018592965 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 14.1 | 0.026241135 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 9.94 | 0.03722334 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 87.5 | 0.004228571 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 14 | 0.026428571 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2-Chloronaphthalene | mg/kg | 0.37 | 0.0122 | 30.32786885 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2-Chlorophenol | mg/kg | 0.37 | 0.54 | 0.685185185 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 580 | 0.000637931 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2-Nitroaniline | mg/kg | 1.9 | 5.3 | 0.358490566 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 2-Nitrophenol | mg/kg | 0.37 | 1.6 | 0.23125 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 0.646 | 1.145510836 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 3-Nitroaniline | mg/kg | 1.9 | 3.16 | 0.601265823 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.144 | 13.19444444 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 7.95 | 0.046540881 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 4-Chloroaniline | mg/kg | 0.74 | 1.1 | 0.672727273 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 4-Nitroaniline | mg/kg | 1.9 | 21.9 | 0.086757991 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | 4-Nitrophenol | mg/kg | 1.9 | 5.12 | 0.37109375 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Acetophenone | mg/kg | 0.37 | 300 | 0.001233333 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Benzaldehyde | mg/kg | 0.37 | 120 | 0.003083333 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Benzyl butyl phthalate | mg/kg | 0.37 | 90 | 0.004111111 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 0.302 | 1.225165563 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 23.7 | 0.015611814 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Carbazole | mg/kg | 0.37 | 79 | 0.004683544 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Cresols, m- & p- | mg/kg | 0.37 | 3.49 | 0.106017192 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Diethyl phthalate | mg/kg | 0.37 | 3600 | 0.000102778 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Dimethyl phthalate | mg/kg | 0.37 | 38 | 0.009736842 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | di-n-Butyl phthalate | mg/kg | 0.37 | 180 | 0.002055556 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | di-n-Octyl phthalate | mg/kg | 0.37 | 0.91 | 0.406593407 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Hexachlorobenzene | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Hexachlorobutadiene | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.755 | 0.490066225 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Hexachloroethane | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Isophorone | mg/kg | 0.37 | 139 | 0.002661871 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Nitrobenzene | mg/kg | 0.37 | 4.8 | 0.077083333 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.544 | 0.680147059 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 0.545 | 0.678899083 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Pentachlorophenol | mg/kg | 1.9 | 2.8 | 0.678571429 |
| AOC 5 | Boiler House | NYOW-05-PH017-1-B | Phenol | mg/kg | 0.37 | 37 | 0.01 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Silver | mg/kg | 1.4 | 14 | 0.1 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 2.02 | 0.178217822 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 1,4-Dioxane | mg/kg | 0.36 | 2.05 | 0.175609756 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.36 | 19.9 | 0.018090452 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 0.2 | 1.8 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 14.1 | 0.025531915 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 9.94 | 0.036217304 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2,4-Dichlorophenol | mg/kg | 0.36 | 87.5 | 0.004114286 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 14 | 0.025714286 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2,6-Dinitrotoluene | mg/kg | 0.36 | 4 | 0.09 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2-Chloronaphthalene | mg/kg | 0.36 | 0.0122 | 29.50819672 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2-Chlorophenol | mg/kg | 0.36 | 0.54 | 0.666666667 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 580 | 0.00062069 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2-Nitroaniline | mg/kg | 1.9 | 5.3 | 0.358490566 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 2-Nitrophenol | mg/kg | 0.36 | 1.6 | 0.225 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 0.646 | 1.114551084 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 3-Nitroaniline | mg/kg | 1.9 | 3.16 | 0.601265823 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.144 | 13.19444444 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 4-Chloro-3-methylphenol | mg/kg | 0.36 | 7.95 | 0.045283019 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 4-Chloroaniline | mg/kg | 0.72 | 1.1 | 0.654545455 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 4-Nitroaniline | mg/kg | 1.9 | 21.9 | 0.086757991 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | 4-Nitrophenol | mg/kg | 1.9 | 5.12 | 0.37109375 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Acetophenone | mg/kg | 0.36 | 300 | 0.0012 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Benzaldehyde | mg/kg | 0.36 | 120 | 0.003 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Benzyl butyl phthalate | mg/kg | 0.36 | 90 | 0.004 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Bis(2-chloroethoxy)methane | mg/kg | 0.36 | 0.302 | 1.19205298 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.36 | 23.7 | 0.015189873 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 0.6 | 0.6 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Carbazole | mg/kg | 0.36 | 79 | 0.004556962 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Cresols, m- & p- | mg/kg | 0.36 | 3.49 | 0.103151862 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Diethyl phthalate | mg/kg | 0.36 | 3600 | 0.0001 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Dimethyl phthalate | mg/kg | 0.36 | 38 | 0.009473684 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | di-n-Butyl phthalate | mg/kg | 0.36 | 180 | 0.002 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | di-n-Octyl phthalate | mg/kg | 0.36 | 0.91 | 0.395604396 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Hexachlorobenzene | mg/kg | 0.36 | 0.2 | 1.8 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Hexachlorobutadiene | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.755 | 0.476821192 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Hexachloroethane | mg/kg | 0.36 | 0.6 | 0.6 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Isophorone | mg/kg | 0.36 | 139 | 0.002589928 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Nitrobenzene | mg/kg | 0.36 | 4.8 | 0.075 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-PH018-B | N-Nitrosodi-n-propylamine | mg/kg | 0.36 | 0.544 | 0.661764706 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | N-Nitrosodiphenylamine | mg/kg | 0.36 | 0.545 | 0.660550459 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Pentachlorophenol | mg/kg | 1.9 | 2.8 | 0.678571429 |
| AOC 5 | Boiler House | NYOW-05-PH018-B | Phenol | mg/kg | 0.36 | 37 | 0.00972973 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Silver | mg/kg | 1.2 | 14 | 0.085714286 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 2.02 | 0.178217822 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 1,4-Dioxane | mg/kg | 0.36 | 2.05 | 0.175609756 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.36 | 19.9 | 0.018090452 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 0.2 | 1.8 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 14.1 | 0.025531915 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 9.94 | 0.036217304 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2,4-Dichlorophenol | mg/kg | 0.36 | 87.5 | 0.004114286 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 14 | 0.025714286 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2,6-Dinitrotoluene | mg/kg | 0.36 | 4 | 0.09 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2-Chloronaphthalene | mg/kg | 0.36 | 0.0122 | 29.50819672 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2-Chlorophenol | mg/kg | 0.36 | 0.54 | 0.666666667 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 580 | 0.00062069 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2-Nitroaniline | mg/kg | 1.8 | 5.3 | 0.339622642 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 2-Nitrophenol | mg/kg | 0.36 | 1.6 | 0.225 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 0.646 | 1.114551084 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 3-Nitroaniline | mg/kg | 1.8 | 3.16 | 0.569620253 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.144 | 12.5 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 4-Chloro-3-methylphenol | mg/kg | 0.36 | 7.95 | 0.045283019 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 4-Chloroaniline | mg/kg | 0.72 | 1.1 | 0.654545455 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 4-Nitroaniline | mg/kg | 1.8 | 21.9 | 0.082191781 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | 4-Nitrophenol | mg/kg | 1.8 | 5.12 | 0.3515625 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Acetophenone | mg/kg | 0.36 | 300 | 0.0012 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Benzaldehyde | mg/kg | 0.36 | 120 | 0.003 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Benzyl butyl phthalate | mg/kg | 0.36 | 90 | 0.004 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Bis(2-chloroethoxy)methane | mg/kg | 0.36 | 0.302 | 1.19205298 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.36 | 23.7 | 0.015189873 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 0.6 | 0.6 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-PH019-B | Carbazole | mg/kg | 0.36 | 79 | 0.004556962 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Cresols, m- & p- | mg/kg | 0.36 | 3.49 | 0.103151862 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Diethyl phthalate | mg/kg | 0.36 | 3600 | 0.0001 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Dimethyl phthalate | mg/kg | 0.36 | 38 | 0.009473684 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | di-n-Butyl phthalate | mg/kg | 0.36 | 180 | 0.002 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | di-n-Octyl phthalate | mg/kg | 0.36 | 0.91 | 0.395604396 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Hexachlorobenzene | mg/kg | 0.36 | 0.2 | 1.8 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Hexachlorobutadiene | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.755 | 0.476821192 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Hexachloroethane | mg/kg | 0.36 | 0.6 | 0.6 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Isophorone | mg/kg | 0.36 | 139 | 0.002589928 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Nitrobenzene | mg/kg | 0.36 | 4.8 | 0.075 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | N-Nitrosodi-n-propylamine | mg/kg | 0.36 | 0.544 | 0.661764706 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | N-Nitrosodiphenylamine | mg/kg | 0.36 | 0.545 | 0.660550459 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Pentachlorophenol | mg/kg | 1.8 | 2.8 | 0.642857143 |
| AOC 5 | Boiler House | NYOW-05-PH019-B | Phenol | mg/kg | 0.36 | 37 | 0.00972973 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Silver | mg/kg | 1.3 | 14 | 0.092857143 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 2.02 | 0.193069307 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 1,4-Dioxane | mg/kg | 0.39 | 2.05 | 0.190243902 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 19.9 | 0.01959799 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.2 | 1.95 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 14.1 | 0.027659574 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 9.94 | 0.039235412 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 87.5 | 0.004457143 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 14 | 0.027857143 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2-Chloronaphthalene | mg/kg | 0.39 | 0.0122 | 31.96721311 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2-Chlorophenol | mg/kg | 0.39 | 0.54 | 0.722222222 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 580 | 0.000672414 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2-Nitroaniline | mg/kg | 2 | 5.3 | 0.377358491 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 2-Nitrophenol | mg/kg | 0.39 | 1.6 | 0.24375 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 0.646 | 1.207430341 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-PH020-B | 3-Nitroaniline | mg/kg | 2 | 3.16 | 0.632911392 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.144 | 13.88888889 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 7.95 | 0.049056604 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 4-Chloroaniline | mg/kg | 0.78 | 1.1 | 0.709090909 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 4-Nitroaniline | mg/kg | 2 | 21.9 | 0.091324201 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | 4-Nitrophenol | mg/kg | 2 | 5.12 | 0.390625 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Acetophenone | mg/kg | 0.39 | 300 | 0.0013 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Benzaldehyde | mg/kg | 0.39 | 120 | 0.00325 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Benzyl butyl phthalate | mg/kg | 0.39 | 90 | 0.004333333 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 0.302 | 1.291390728 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 23.7 | 0.016455696 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 0.6 | 0.65 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Carbazole | mg/kg | 0.39 | 79 | 0.004936709 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Cresols, m- & p- | mg/kg | 0.39 | 3.49 | 0.111747851 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Diethyl phthalate | mg/kg | 0.39 | 3600 | 0.000108333 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Dimethyl phthalate | mg/kg | 0.39 | 38 | 0.010263158 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | di-n-Butyl phthalate | mg/kg | 0.39 | 180 | 0.002166667 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | di-n-Octyl phthalate | mg/kg | 0.39 | 0.91 | 0.428571429 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Hexachlorobenzene | mg/kg | 0.39 | 0.2 | 1.95 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Hexachlorobutadiene | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.755 | 0.516556291 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Hexachloroethane | mg/kg | 0.39 | 0.6 | 0.65 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Isophorone | mg/kg | 0.39 | 139 | 0.002805755 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Nitrobenzene | mg/kg | 0.39 | 4.8 | 0.08125 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.544 | 0.716911765 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 0.545 | 0.71559633 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Pentachlorophenol | mg/kg | 2 | 2.8 | 0.714285714 |
| AOC 5 | Boiler House | NYOW-05-PH020-B | Phenol | mg/kg | 0.39 | 37 | 0.010540541 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Silver | mg/kg | 1.4 | 14 | 0.1 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 2.02 | 0.193069307 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 1,4-Dioxane | mg/kg | 0.39 | 2.05 | 0.190243902 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 19.9 | 0.01959799 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.2 | 1.95 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 14.1 | 0.027659574 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 9.94 | 0.039235412 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2,4-Dichlorophenol | mg/kg | 0.39 | 87.5 | 0.004457143 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2,4-Dinitrotoluene | mg/kg | 0.39 | 14 | 0.027857143 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2,6-Dinitrotoluene | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2-Chloronaphthalene | mg/kg | 0.39 | 0.0122 | 31.96721311 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2-Chlorophenol | mg/kg | 0.39 | 0.54 | 0.722222222 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 580 | 0.000672414 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2-Nitroaniline | mg/kg | 2 | 5.3 | 0.377358491 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 2-Nitrophenol | mg/kg | 0.39 | 1.6 | 0.24375 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 3,3'-Dichlorobenzidine | mg/kg | 0.79 | 0.646 | 1.222910217 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 3-Nitroaniline | mg/kg | 2 | 3.16 | 0.632911392 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.144 | 13.88888889 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 7.95 | 0.049056604 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 4-Chloroaniline | mg/kg | 0.79 | 1.1 | 0.718181818 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 4-Nitroaniline | mg/kg | 2 | 21.9 | 0.091324201 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | 4-Nitrophenol | mg/kg | 2 | 5.12 | 0.390625 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Acetophenone | mg/kg | 0.39 | 300 | 0.0013 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Benzaldehyde | mg/kg | 0.39 | 120 | 0.00325 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Benzyl butyl phthalate | mg/kg | 0.39 | 90 | 0.004333333 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 0.302 | 1.291390728 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 23.7 | 0.016455696 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 0.6 | 0.65 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Carbazole | mg/kg | 0.39 | 79 | 0.004936709 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Cresols, m- & p- | mg/kg | 0.39 | 3.49 | 0.111747851 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Diethyl phthalate | mg/kg | 0.39 | 3600 | 0.000108333 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Dimethyl phthalate | mg/kg | 0.39 | 38 | 0.010263158 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | di-n-Butyl phthalate | mg/kg | 0.39 | 180 | 0.002166667 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | di-n-Octyl phthalate | mg/kg | 0.39 | 0.91 | 0.428571429 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Hexachlorobenzene | mg/kg | 0.39 | 0.2 | 1.95 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Hexachlorobutadiene | mg/kg | 0.39 | 0.04 | 9.75 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-SL016-A | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.755 | 0.516556291 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Hexachloroethane | mg/kg | 0.39 | 0.6 | 0.65 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Isophorone | mg/kg | 0.39 | 139 | 0.002805755 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Nitrobenzene | mg/kg | 0.39 | 4.8 | 0.08125 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.544 | 0.716911765 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | N-Nitrosodiphenylamine | mg/kg | 0.39 | 0.545 | 0.71559633 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Pentachlorophenol | mg/kg | 2 | 2.8 | 0.714285714 |
| AOC 5 | Boiler House | NYOW-05-SL016-A | Phenol | mg/kg | 0.39 | 37 | 0.010540541 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Silver | mg/kg | 1.4 | 14 | 0.1 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 2.02 | 0.178217822 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 1,4-Dioxane | mg/kg | 0.36 | 2.05 | 0.175609756 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.36 | 19.9 | 0.018090452 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 0.2 | 1.8 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 14.1 | 0.025531915 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 9.94 | 0.036217304 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2,4-Dichlorophenol | mg/kg | 0.36 | 87.5 | 0.004114286 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2,4-Dinitrotoluene | mg/kg | 0.36 | 14 | 0.025714286 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2,6-Dinitrotoluene | mg/kg | 0.36 | 4 | 0.09 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2-Chloronaphthalene | mg/kg | 0.36 | 0.0122 | 29.50819672 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2-Chlorophenol | mg/kg | 0.36 | 0.54 | 0.666666667 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 580 | 0.00062069 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2-Nitroaniline | mg/kg | 1.9 | 5.3 | 0.358490566 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 2-Nitrophenol | mg/kg | 0.36 | 1.6 | 0.225 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 0.646 | 1.114551084 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 3-Nitroaniline | mg/kg | 1.9 | 3.16 | 0.601265823 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.144 | 13.19444444 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 4-Chloro-3-methylphenol | mg/kg | 0.36 | 7.95 | 0.045283019 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 4-Chloroaniline | mg/kg | 0.72 | 1.1 | 0.654545455 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 4-Nitroaniline | mg/kg | 1.9 | 21.9 | 0.086757991 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | 4-Nitrophenol | mg/kg | 1.9 | 5.12 | 0.37109375 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Acetophenone | mg/kg | 0.36 | 300 | 0.0012 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Benzaldehyde | mg/kg | 0.36 | 120 | 0.003 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Benzyl butyl phthalate | mg/kg | 0.36 | 90 | 0.004 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Bis(2-chloroethoxy)methane | mg/kg | 0.36 | 0.302 | 1.19205298 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.36 | 23.7 | 0.015189873 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 0.6 | 0.6 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Carbazole | mg/kg | 0.36 | 79 | 0.004556962 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Cresols, m- & p- | mg/kg | 0.36 | 3.49 | 0.103151862 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Diethyl phthalate | mg/kg | 0.36 | 3600 | 0.0001 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Dimethyl phthalate | mg/kg | 0.36 | 38 | 0.009473684 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | di-n-Butyl phthalate | mg/kg | 0.36 | 180 | 0.002 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | di-n-Octyl phthalate | mg/kg | 0.36 | 0.91 | 0.395604396 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Hexachlorobenzene | mg/kg | 0.36 | 0.2 | 1.8 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Hexachlorobutadiene | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.755 | 0.476821192 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Hexachloroethane | mg/kg | 0.36 | 0.6 | 0.6 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Isophorone | mg/kg | 0.36 | 139 | 0.002589928 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Nitrobenzene | mg/kg | 0.36 | 4.8 | 0.075 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | N-Nitrosodi-n-propylamine | mg/kg | 0.36 | 0.544 | 0.661764706 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | N-Nitrosodiphenylamine | mg/kg | 0.36 | 0.545 | 0.660550459 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Pentachlorophenol | mg/kg | 1.9 | 2.8 | 0.678571429 |
| AOC 5 | Boiler House | NYOW-05-SL017-1-A | Phenol | mg/kg | 0.36 | 37 | 0.00972973 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Silver | mg/kg | 1.2 | 14 | 0.085714286 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 2.02 | 0.183168317 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 1,4-Dioxane | mg/kg | 0.37 | 2.05 | 0.180487805 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 19.9 | 0.018592965 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 14.1 | 0.026241135 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 9.94 | 0.03722334 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2,4-Dichlorophenol | mg/kg | 0.37 | 87.5 | 0.004228571 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 14 | 0.026428571 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2,6-Dinitrotoluene | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2-Chloronaphthalene | mg/kg | 0.37 | 0.0122 | 30.32786885 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2-Chlorophenol | mg/kg | 0.37 | 0.54 | 0.685185185 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 580 | 0.000637931 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2-Nitroaniline | mg/kg | 1.9 | 5.3 | 0.358490566 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 2-Nitrophenol | mg/kg | 0.37 | 1.6 | 0.23125 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 3,3'-Dichlorobenzidine | mg/kg | 0.73 | 0.646 | 1.13003096 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 3-Nitroaniline | mg/kg | 1.9 | 3.16 | 0.601265823 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.144 | 13.19444444 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 7.95 | 0.046540881 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 4-Chloroaniline | mg/kg | 0.73 | 1.1 | 0.663636364 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 4-Nitroaniline | mg/kg | 1.9 | 21.9 | 0.086757991 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | 4-Nitrophenol | mg/kg | 1.9 | 5.12 | 0.37109375 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Acetophenone | mg/kg | 0.37 | 300 | 0.001233333 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Benzaldehyde | mg/kg | 0.37 | 120 | 0.003083333 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Benzyl butyl phthalate | mg/kg | 0.37 | 90 | 0.004111111 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 0.302 | 1.225165563 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 23.7 | 0.015611814 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Carbazole | mg/kg | 0.37 | 79 | 0.004683544 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Cresols, m- & p- | mg/kg | 0.37 | 3.49 | 0.106017192 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Diethyl phthalate | mg/kg | 0.37 | 3600 | 0.000102778 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Dimethyl phthalate | mg/kg | 0.37 | 38 | 0.009736842 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | di-n-Butyl phthalate | mg/kg | 0.37 | 180 | 0.002055556 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | di-n-Octyl phthalate | mg/kg | 0.37 | 0.91 | 0.406593407 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Hexachlorobenzene | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Hexachlorobutadiene | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.755 | 0.490066225 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Hexachloroethane | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Isophorone | mg/kg | 0.37 | 139 | 0.002661871 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Nitrobenzene | mg/kg | 0.37 | 4.8 | 0.077083333 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.544 | 0.680147059 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | N-Nitrosodiphenylamine | mg/kg | 0.37 | 0.545 | 0.678899083 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Pentachlorophenol | mg/kg | 1.9 | 2.8 | 0.678571429 |
| AOC 5 | Boiler House | NYOW-05-SL018-A | Phenol | mg/kg | 0.37 | 37 | 0.01 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-SL019-A | Silver | mg/kg | 1.3 | 14 | 0.092857143 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.35 | 2.02 | 0.173267327 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 1,4-Dioxane | mg/kg | 0.35 | 2.05 | 0.170731707 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.35 | 19.9 | 0.01758794 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.35 | 0.2 | 1.75 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 14.1 | 0.024822695 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2,4,6-Trichlorophenol | mg/kg | 0.35 | 9.94 | 0.035211268 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2,4-Dichlorophenol | mg/kg | 0.35 | 87.5 | 0.004 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2,4-Dinitrotoluene | mg/kg | 0.35 | 14 | 0.025 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2,6-Dinitrotoluene | mg/kg | 0.35 | 4 | 0.0875 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2-Chloronaphthalene | mg/kg | 0.35 | 0.0122 | 28.68852459 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2-Chlorophenol | mg/kg | 0.35 | 0.54 | 0.648148148 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 580 | 0.000603448 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2-Nitroaniline | mg/kg | 1.8 | 5.3 | 0.339622642 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 2-Nitrophenol | mg/kg | 0.35 | 1.6 | 0.21875 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 3,3'-Dichlorobenzidine | mg/kg | 0.69 | 0.646 | 1.068111455 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 3-Nitroaniline | mg/kg | 1.8 | 3.16 | 0.569620253 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.144 | 12.5 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 4-Chloro-3-methylphenol | mg/kg | 0.35 | 7.95 | 0.044025157 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 4-Chloroaniline | mg/kg | 0.69 | 1.1 | 0.627272727 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 4-Nitroaniline | mg/kg | 1.8 | 21.9 | 0.082191781 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | 4-Nitrophenol | mg/kg | 1.8 | 5.12 | 0.3515625 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Acetophenone | mg/kg | 0.35 | 300 | 0.001166667 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Benzaldehyde | mg/kg | 0.35 | 120 | 0.002916667 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Benzyl butyl phthalate | mg/kg | 0.35 | 90 | 0.003888889 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Bis(2-chloroethoxy)methane | mg/kg | 0.35 | 0.302 | 1.158940397 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.35 | 23.7 | 0.014767932 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 0.6 | 0.583333333 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Carbazole | mg/kg | 0.35 | 79 | 0.00443038 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Cresols, m- & p- | mg/kg | 0.35 | 3.49 | 0.100286533 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Diethyl phthalate | mg/kg | 0.35 | 3600 | 9.72222E-05 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Dimethyl phthalate | mg/kg | 0.35 | 38 | 0.009210526 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-SL019-A | di-n-Butyl phthalate | mg/kg | 0.35 | 180 | 0.001944444 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | di-n-Octyl phthalate | mg/kg | 0.35 | 0.91 | 0.384615385 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Hexachlorobenzene | mg/kg | 0.35 | 0.2 | 1.75 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Hexachlorobutadiene | mg/kg | 0.35 | 0.04 | 8.75 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Hexachlorocyclopentadiene | mg/kg | 0.35 | 0.755 | 0.463576159 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Hexachloroethane | mg/kg | 0.35 | 0.6 | 0.583333333 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Isophorone | mg/kg | 0.35 | 139 | 0.002517986 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Nitrobenzene | mg/kg | 0.35 | 4.8 | 0.072916667 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | N-Nitrosodi-n-propylamine | mg/kg | 0.35 | 0.544 | 0.643382353 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | N-Nitrosodiphenylamine | mg/kg | 0.35 | 0.545 | 0.642201835 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Pentachlorophenol | mg/kg | 1.8 | 2.8 | 0.642857143 |
| AOC 5 | Boiler House | NYOW-05-SL019-A | Phenol | mg/kg | 0.35 | 37 | 0.009459459 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Silver | mg/kg | 1.2 | 14 | 0.085714286 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 2.02 | 0.183168317 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 1,4-Dioxane | mg/kg | 0.37 | 2.05 | 0.180487805 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 19.9 | 0.018592965 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 14.1 | 0.026241135 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 9.94 | 0.03722334 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2,4-Dichlorophenol | mg/kg | 0.37 | 87.5 | 0.004228571 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 14 | 0.026428571 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2,6-Dinitrotoluene | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2-Chloronaphthalene | mg/kg | 0.37 | 0.0122 | 30.32786885 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2-Chlorophenol | mg/kg | 0.37 | 0.54 | 0.685185185 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 580 | 0.000637931 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2-Nitroaniline | mg/kg | 1.9 | 5.3 | 0.358490566 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 2-Nitrophenol | mg/kg | 0.37 | 1.6 | 0.23125 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 3,3'-Dichlorobenzidine | mg/kg | 0.73 | 0.646 | 1.13003096 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 3-Nitroaniline | mg/kg | 1.9 | 3.16 | 0.601265823 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.144 | 13.19444444 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 7.95 | 0.046540881 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 4-Chloroaniline | mg/kg | 0.73 | 1.1 | 0.663636364 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Boiler House | NYOW-05-SL020-A | 4-Nitroaniline | mg/kg | 1.9 | 21.9 | 0.086757991 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | 4-Nitrophenol | mg/kg | 1.9 | 5.12 | 0.37109375 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Acetophenone | mg/kg | 0.37 | 300 | 0.001233333 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Benzaldehyde | mg/kg | 0.37 | 120 | 0.003083333 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Benzyl butyl phthalate | mg/kg | 0.37 | 90 | 0.004111111 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 0.302 | 1.225165563 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 23.7 | 0.015611814 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Carbazole | mg/kg | 0.37 | 79 | 0.004683544 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Cresols, m- & p- | mg/kg | 0.37 | 3.49 | 0.106017192 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Diethyl phthalate | mg/kg | 0.37 | 3600 | 0.000102778 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Dimethyl phthalate | mg/kg | 0.37 | 38 | 0.009736842 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | di-n-Butyl phthalate | mg/kg | 0.37 | 180 | 0.002055556 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | di-n-Octyl phthalate | mg/kg | 0.37 | 0.91 | 0.406593407 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Hexachlorobenzene | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Hexachlorobutadiene | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.755 | 0.490066225 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Hexachloroethane | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Isophorone | mg/kg | 0.37 | 139 | 0.002661871 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Nitrobenzene | mg/kg | 0.37 | 4.8 | 0.077083333 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.544 | 0.680147059 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | N-Nitrosodiphenylamine | mg/kg | 0.37 | 0.545 | 0.678899083 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Pentachlorophenol | mg/kg | 1.9 | 2.8 | 0.678571429 |
| AOC 5 | Boiler House | NYOW-05-SL020-A | Phenol | mg/kg | 0.37 | 37 | 0.01 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Silver | mg/kg | 1.3 | 14 | 0.092857143 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 2.02 | 0.193069307 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 1,4-Dioxane | mg/kg | 0.39 | 2.05 | 0.190243902 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 19.9 | 0.01959799 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.2 | 1.95 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 14.1 | 0.027659574 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 9.94 | 0.039235412 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 87.5 | 0.004457143 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 14 | 0.027857143 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2-Chloronaphthalene | mg/kg | 0.39 | 0.0122 | 31.96721311 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2-Chlorophenol | mg/kg | 0.39 | 0.54 | 0.722222222 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 580 | 0.000672414 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2-Nitroaniline | mg/kg | 2 | 5.3 | 0.377358491 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 2-Nitrophenol | mg/kg | 0.39 | 1.6 | 0.24375 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 0.646 | 1.207430341 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 3-Nitroaniline | mg/kg | 2 | 3.16 | 0.632911392 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.144 | 13.88888889 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 7.95 | 0.049056604 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 4-Chloroaniline | mg/kg | 0.78 | 1.1 | 0.709090909 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 4-Nitroaniline | mg/kg | 2 | 21.9 | 0.091324201 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | 4-Nitrophenol | mg/kg | 2 | 5.12 | 0.390625 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Acetophenone | mg/kg | 0.39 | 300 | 0.0013 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Benzaldehyde | mg/kg | 0.39 | 120 | 0.00325 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Benzyl butyl phthalate | mg/kg | 0.39 | 90 | 0.004333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 0.302 | 1.291390728 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 23.7 | 0.016455696 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 0.6 | 0.65 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Carbazole | mg/kg | 0.39 | 79 | 0.004936709 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Cresols, m- & p- | mg/kg | 0.39 | 3.49 | 0.111747851 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Diethyl phthalate | mg/kg | 0.39 | 3600 | 0.000108333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Dimethyl phthalate | mg/kg | 0.39 | 38 | 0.010263158 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | di-n-Butyl phthalate | mg/kg | 0.39 | 180 | 0.002166667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | di-n-Octyl phthalate | mg/kg | 0.39 | 0.91 | 0.428571429 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Hexachlorobenzene | mg/kg | 0.39 | 0.2 | 1.95 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Hexachlorobutadiene | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.755 | 0.516556291 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Hexachloroethane | mg/kg | 0.39 | 0.6 | 0.65 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Isophorone | mg/kg | 0.39 | 139 | 0.002805755 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Nitrobenzene | mg/kg | 0.39 | 4.8 | 0.08125 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.544 | 0.716911765 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 0.545 | 0.71559633 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Pentachlorophenol | mg/kg | 2 | 2.8 | 0.714285714 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH021-B | Phenol | mg/kg | 0.39 | 37 | 0.010540541 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Silver | mg/kg | 1.2 | 14 | 0.085714286 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 2.02 | 0.178217822 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 1,4-Dioxane | mg/kg | 0.36 | 2.05 | 0.175609756 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.36 | 19.9 | 0.018090452 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 0.2 | 1.8 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 14.1 | 0.025531915 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 9.94 | 0.036217304 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2,4-Dichlorophenol | mg/kg | 0.36 | 87.5 | 0.004114286 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 14 | 0.025714286 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2,6-Dinitrotoluene | mg/kg | 0.36 | 4 | 0.09 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2-Chloronaphthalene | mg/kg | 0.36 | 0.0122 | 29.50819672 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2-Chlorophenol | mg/kg | 0.36 | 0.54 | 0.666666667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 580 | 0.00062069 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2-Nitroaniline | mg/kg | 1.8 | 5.3 | 0.339622642 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 2-Nitrophenol | mg/kg | 0.36 | 1.6 | 0.225 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 3,3'-Dichlorobenzidine | mg/kg | 0.71 | 0.646 | 1.099071207 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 3-Nitroaniline | mg/kg | 1.8 | 3.16 | 0.569620253 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.144 | 12.5 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 4-Chloro-3-methylphenol | mg/kg | 0.36 | 7.95 | 0.045283019 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 4-Chloroaniline | mg/kg | 0.71 | 1.1 | 0.645454545 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 4-Nitroaniline | mg/kg | 1.8 | 21.9 | 0.082191781 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | 4-Nitrophenol | mg/kg | 1.8 | 5.12 | 0.3515625 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Acetophenone | mg/kg | 0.36 | 300 | 0.0012 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Benzaldehyde | mg/kg | 0.36 | 120 | 0.003 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Benzyl butyl phthalate | mg/kg | 0.36 | 90 | 0.004 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Bis(2-chloroethoxy)methane | mg/kg | 0.36 | 0.302 | 1.19205298 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.36 | 23.7 | 0.015189873 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 0.6 | 0.6 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Carbazole | mg/kg | 0.36 | 79 | 0.004556962 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Cresols, m- & p- | mg/kg | 0.36 | 3.49 | 0.103151862 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Diethyl phthalate | mg/kg | 0.36 | 3600 | 0.0001 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Dimethyl phthalate | mg/kg | 0.36 | 38 | 0.009473684 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | di-n-Butyl phthalate | mg/kg | 0.36 | 180 | 0.002 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | di-n-Octyl phthalate | mg/kg | 0.36 | 0.91 | 0.395604396 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Hexachlorobenzene | mg/kg | 0.36 | 0.2 | 1.8 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Hexachlorobutadiene | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.755 | 0.476821192 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Hexachloroethane | mg/kg | 0.36 | 0.6 | 0.6 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Isophorone | mg/kg | 0.36 | 139 | 0.002589928 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Nitrobenzene | mg/kg | 0.36 | 4.8 | 0.075 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | N-Nitrosodi-n-propylamine | mg/kg | 0.36 | 0.544 | 0.661764706 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | N-Nitrosodiphenylamine | mg/kg | 0.36 | 0.545 | 0.660550459 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Pentachlorophenol | mg/kg | 1.8 | 2.8 | 0.642857143 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH022-B | Phenol | mg/kg | 0.36 | 37 | 0.00972973 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Silver | mg/kg | 1.4 | 14 | 0.1 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 2.02 | 0.183168317 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 1,4-Dioxane | mg/kg | 0.37 | 2.05 | 0.180487805 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 19.9 | 0.018592965 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 14.1 | 0.026241135 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 9.94 | 0.03722334 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 87.5 | 0.004228571 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 14 | 0.026428571 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2-Chloronaphthalene | mg/kg | 0.37 | 0.0122 | 30.32786885 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2-Chlorophenol | mg/kg | 0.37 | 0.54 | 0.685185185 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 580 | 0.000637931 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2-Nitroaniline | mg/kg | 1.9 | 5.3 | 0.358490566 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 2-Nitrophenol | mg/kg | 0.37 | 1.6 | 0.23125 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 0.646 | 1.145510836 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 3-Nitroaniline | mg/kg | 1.9 | 3.16 | 0.601265823 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.144 | 13.19444444 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 7.95 | 0.046540881 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 4-Chloroaniline | mg/kg | 0.74 | 1.1 | 0.672727273 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 4-Nitroaniline | mg/kg | 1.9 | 21.9 | 0.086757991 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | 4-Nitrophenol | mg/kg | 1.9 | 5.12 | 0.37109375 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Acetophenone | mg/kg | 0.37 | 300 | 0.001233333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Benzaldehyde | mg/kg | 0.37 | 120 | 0.003083333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Benzyl butyl phthalate | mg/kg | 0.37 | 90 | 0.004111111 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 0.302 | 1.225165563 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 23.7 | 0.015611814 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Carbazole | mg/kg | 0.37 | 79 | 0.004683544 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Cresols, m- & p- | mg/kg | 0.37 | 3.49 | 0.106017192 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Diethyl phthalate | mg/kg | 0.37 | 3600 | 0.000102778 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Dimethyl phthalate | mg/kg | 0.37 | 38 | 0.009736842 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | di-n-Butyl phthalate | mg/kg | 0.37 | 180 | 0.002055556 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | di-n-Octyl phthalate | mg/kg | 0.37 | 0.91 | 0.406593407 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Hexachlorobenzene | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Hexachlorobutadiene | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.755 | 0.490066225 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Hexachloroethane | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Isophorone | mg/kg | 0.37 | 139 | 0.002661871 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Nitrobenzene | mg/kg | 0.37 | 4.8 | 0.077083333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.544 | 0.680147059 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 0.545 | 0.678899083 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Pentachlorophenol | mg/kg | 1.9 | 2.8 | 0.678571429 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH023-B | Phenol | mg/kg | 0.37 | 37 | 0.01 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Silver | mg/kg | 1.6 | 14 | 0.114285714 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 2.02 | 0.188118812 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 1,4-Dioxane | mg/kg | 0.38 | 2.05 | 0.185365854 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 19.9 | 0.019095477 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 0.2 | 1.9 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 14.1 | 0.026950355 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 9.94 | 0.038229376 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2,4-Dichlorophenol | mg/kg | 0.38 | 87.5 | 0.004342857 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2,4-Dinitrotoluene | mg/kg | 0.38 | 14 | 0.027142857 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2,6-Dinitrotoluene | mg/kg | 0.38 | 4 | 0.095 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2-Chloronaphthalene | mg/kg | 0.38 | 0.0122 | 31.14754098 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2-Chlorophenol | mg/kg | 0.38 | 0.54 | 0.703703704 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 580 | 0.000655172 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2-Nitroaniline | mg/kg | 2 | 5.3 | 0.377358491 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 2-Nitrophenol | mg/kg | 0.38 | 1.6 | 0.2375 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 0.646 | 1.191950464 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 3-Nitroaniline | mg/kg | 2 | 3.16 | 0.632911392 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.144 | 13.88888889 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 7.95 | 0.047798742 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 4-Chloroaniline | mg/kg | 0.77 | 1.1 | 0.7 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 4-Nitroaniline | mg/kg | 2 | 21.9 | 0.091324201 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | 4-Nitrophenol | mg/kg | 2 | 5.12 | 0.390625 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Acetophenone | mg/kg | 0.38 | 300 | 0.001266667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Benzaldehyde | mg/kg | 0.38 | 120 | 0.003166667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Benzyl butyl phthalate | mg/kg | 0.38 | 90 | 0.004222222 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 0.302 | 1.258278146 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 23.7 | 0.016033755 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 0.6 | 0.633333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Carbazole | mg/kg | 0.38 | 79 | 0.004810127 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Cresols, m- & p- | mg/kg | 0.38 | 3.49 | 0.108882521 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Diethyl phthalate | mg/kg | 0.38 | 3600 | 0.000105556 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Dimethyl phthalate | mg/kg | 0.38 | 38 | 0.01 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | di-n-Butyl phthalate | mg/kg | 0.38 | 180 | 0.002111111 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | di-n-Octyl phthalate | mg/kg | 0.38 | 0.91 | 0.417582418 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Hexachlorobenzene | mg/kg | 0.38 | 0.2 | 1.9 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Hexachlorobutadiene | mg/kg | 0.38 | 0.04 | 9.5 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.755 | 0.503311258 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Hexachloroethane | mg/kg | 0.38 | 0.6 | 0.633333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Isophorone | mg/kg | 0.38 | 139 | 0.002733813 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Nitrobenzene | mg/kg | 0.38 | 4.8 | 0.079166667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.544 | 0.698529412 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | N-Nitrosodiphenylamine | mg/kg | 0.38 | 0.545 | 0.697247706 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Pentachlorophenol | mg/kg | 2 | 2.8 | 0.714285714 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH024-B | Phenol | mg/kg | 0.38 | 37 | 0.01027027 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Silver | mg/kg | 1.4 | 14 | 0.1 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 2.02 | 0.188118812 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 1,4-Dioxane | mg/kg | 0.38 | 2.05 | 0.185365854 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 19.9 | 0.019095477 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 0.2 | 1.9 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 14.1 | 0.026950355 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 9.94 | 0.038229376 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2,4-Dichlorophenol | mg/kg | 0.38 | 87.5 | 0.004342857 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2,4-Dinitrotoluene | mg/kg | 0.38 | 14 | 0.027142857 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2,6-Dinitrotoluene | mg/kg | 0.38 | 4 | 0.095 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2-Chloronaphthalene | mg/kg | 0.38 | 0.0122 | 31.14754098 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2-Chlorophenol | mg/kg | 0.38 | 0.54 | 0.703703704 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 580 | 0.000655172 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2-Nitroaniline | mg/kg | 1.9 | 5.3 | 0.358490566 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 2-Nitrophenol | mg/kg | 0.38 | 1.6 | 0.2375 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 0.646 | 1.160990712 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 3-Nitroaniline | mg/kg | 1.9 | 3.16 | 0.601265823 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.144 | 13.19444444 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 7.95 | 0.047798742 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 4-Chloroaniline | mg/kg | 0.75 | 1.1 | 0.681818182 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 4-Nitroaniline | mg/kg | 1.9 | 21.9 | 0.086757991 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | 4-Nitrophenol | mg/kg | 1.9 | 5.12 | 0.37109375 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Acetophenone | mg/kg | 0.38 | 300 | 0.001266667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Benzaldehyde | mg/kg | 0.38 | 120 | 0.003166667 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Benzyl butyl phthalate | mg/kg | 0.38 | 90 | 0.004222222 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 0.302 | 1.258278146 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 23.7 | 0.016033755 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 0.6 | 0.633333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Carbazole | mg/kg | 0.38 | 79 | 0.004810127 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Cresols, m- & p- | mg/kg | 0.38 | 3.49 | 0.108882521 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Diethyl phthalate | mg/kg | 0.38 | 3600 | 0.000105556 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Dimethyl phthalate | mg/kg | 0.38 | 38 | 0.01 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | di-n-Butyl phthalate | mg/kg | 0.38 | 180 | 0.002111111 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | di-n-Octyl phthalate | mg/kg | 0.38 | 0.91 | 0.417582418 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Hexachlorobenzene | mg/kg | 0.38 | 0.2 | 1.9 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Hexachlorobutadiene | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.755 | 0.503311258 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Hexachloroethane | mg/kg | 0.38 | 0.6 | 0.633333333 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Isophorone | mg/kg | 0.38 | 139 | 0.002733813 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Nitrobenzene | mg/kg | 0.38 | 4.8 | 0.079166667 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.544 | 0.698529412 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | N-Nitrosodiphenylamine | mg/kg | 0.38 | 0.545 | 0.697247706 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Pentachlorophenol | mg/kg | 1.9 | 2.8 | 0.678571429 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-PH025-B | Phenol | mg/kg | 0.38 | 37 | 0.01027027 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-SL021-A | Silver | mg/kg | 1.9 | 14 | 0.135714286 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-SL022-A | Silver | mg/kg | 1.5 | 14 | 0.107142857 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-SL023-A | Silver | mg/kg | 1.6 | 14 | 0.114285714 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-SL024-A | Silver | mg/kg | 1.8 | 14 | 0.128571429 |
| AOC 5 | Coal Aggregate Bins | NYOW-05-SL025-A | Silver | mg/kg | 1.7 | 14 | 0.121428571 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Silver | mg/kg | 1.3 | 14 | 0.092857143 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 2.02 | 0.193069307 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 1,4-Dioxane | mg/kg | 0.39 | 2.05 | 0.190243902 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 19.9 | 0.01959799 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.2 | 1.95 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 14.1 | 0.027659574 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 9.94 | 0.039235412 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 87.5 | 0.004457143 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 14 | 0.027857143 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2-Chloronaphthalene | mg/kg | 0.39 | 0.0122 | 31.96721311 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2-Chlorophenol | mg/kg | 0.39 | 0.54 | 0.722222222 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 580 | 0.000672414 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2-Nitroaniline | mg/kg | 2 | 5.3 | 0.377358491 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 2-Nitrophenol | mg/kg | 0.39 | 1.6 | 0.24375 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 3,3'-Dichlorobenzidine | mg/kg | 0.79 | 0.646 | 1.222910217 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 3-Nitroaniline | mg/kg | 2 | 3.16 | 0.632911392 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.144 | 13.88888889 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 7.95 | 0.049056604 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 4-Chloroaniline | mg/kg | 0.79 | 1.1 | 0.718181818 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 4-Nitroaniline | mg/kg | 2 | 21.9 | 0.091324201 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | 4-Nitrophenol | mg/kg | 2 | 5.12 | 0.390625 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Acetophenone | mg/kg | 0.39 | 300 | 0.0013 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Benzaldehyde | mg/kg | 0.39 | 120 | 0.00325 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Benzyl butyl phthalate | mg/kg | 0.39 | 90 | 0.004333333 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 0.302 | 1.291390728 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 23.7 | 0.016455696 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 0.6 | 0.65 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Carbazole | mg/kg | 0.39 | 79 | 0.004936709 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Cresols, m- & p- | mg/kg | 0.39 | 3.49 | 0.111747851 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Diethyl phthalate | mg/kg | 0.39 | 3600 | 0.000108333 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Dimethyl phthalate | mg/kg | 0.39 | 38 | 0.010263158 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | di-n-Butyl phthalate | mg/kg | 0.39 | 180 | 0.002166667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | di-n-Octyl phthalate | mg/kg | 0.39 | 0.91 | 0.428571429 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Hexachlorobenzene | mg/kg | 0.39 | 0.2 | 1.95 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Hexachlorobutadiene | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.755 | 0.516556291 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Hexachloroethane | mg/kg | 0.39 | 0.6 | 0.65 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Isophorone | mg/kg | 0.39 | 139 | 0.002805755 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Nitrobenzene | mg/kg | 0.39 | 4.8 | 0.08125 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.544 | 0.716911765 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 0.545 | 0.71559633 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Pentachlorophenol | mg/kg | 2 | 2.8 | 0.714285714 |
| AOC 5 | Coal Storage Area | NYOW-05-PH006-B | Phenol | mg/kg | 0.39 | 37 | 0.010540541 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Silver | mg/kg | 1.4 | 14 | 0.1 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 2.02 | 0.178217822 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 1,4-Dioxane | mg/kg | 0.36 | 2.05 | 0.175609756 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.36 | 19.9 | 0.018090452 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 0.2 | 1.8 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 14.1 | 0.025531915 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 9.94 | 0.036217304 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2,4-Dichlorophenol | mg/kg | 0.36 | 87.5 | 0.004114286 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 14 | 0.025714286 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2,6-Dinitrotoluene | mg/kg | 0.36 | 4 | 0.09 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2-Chloronaphthalene | mg/kg | 0.36 | 0.0122 | 29.50819672 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2-Chlorophenol | mg/kg | 0.36 | 0.54 | 0.666666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 580 | 0.00062069 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2-Nitroaniline | mg/kg | 1.8 | 5.3 | 0.339622642 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 2-Nitrophenol | mg/kg | 0.36 | 1.6 | 0.225 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 0.646 | 1.114551084 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 3-Nitroaniline | mg/kg | 1.8 | 3.16 | 0.569620253 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.144 | 12.5 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 4-Chloro-3-methylphenol | mg/kg | 0.36 | 7.95 | 0.045283019 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 4-Chloroaniline | mg/kg | 0.72 | 1.1 | 0.654545455 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 4-Nitroaniline | mg/kg | 1.8 | 21.9 | 0.082191781 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | 4-Nitrophenol | mg/kg | 1.8 | 5.12 | 0.3515625 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Acetophenone | mg/kg | 0.36 | 300 | 0.0012 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Benzaldehyde | mg/kg | 0.36 | 120 | 0.003 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Benzyl butyl phthalate | mg/kg | 0.36 | 90 | 0.004 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Bis(2-chloroethoxy)methane | mg/kg | 0.36 | 0.302 | 1.19205298 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.36 | 23.7 | 0.015189873 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 0.6 | 0.6 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Carbazole | mg/kg | 0.36 | 79 | 0.004556962 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Cresols, m- & p- | mg/kg | 0.36 | 3.49 | 0.103151862 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Diethyl phthalate | mg/kg | 0.36 | 3600 | 0.0001 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Dimethyl phthalate | mg/kg | 0.36 | 38 | 0.009473684 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | di-n-Butyl phthalate | mg/kg | 0.36 | 180 | 0.002 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | di-n-Octyl phthalate | mg/kg | 0.36 | 0.91 | 0.395604396 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Hexachlorobenzene | mg/kg | 0.36 | 0.2 | 1.8 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Hexachlorobutadiene | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.755 | 0.476821192 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Hexachloroethane | mg/kg | 0.36 | 0.6 | 0.6 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Isophorone | mg/kg | 0.36 | 139 | 0.002589928 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Nitrobenzene | mg/kg | 0.36 | 4.8 | 0.075 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | N-Nitrosodi-n-propylamine | mg/kg | 0.36 | 0.544 | 0.661764706 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | N-Nitrosodiphenylamine | mg/kg | 0.36 | 0.545 | 0.660550459 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Pentachlorophenol | mg/kg | 1.8 | 2.8 | 0.642857143 |
| AOC 5 | Coal Storage Area | NYOW-05-PH007-B | Phenol | mg/kg | 0.36 | 37 | 0.00972973 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Silver | mg/kg | 1.2 | 14 | 0.085714286 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 2.02 | 0.183168317 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 1,4-Dioxane | mg/kg | 0.37 | 2.05 | 0.180487805 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 19.9 | 0.018592965 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 14.1 | 0.026241135 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 9.94 | 0.03722334 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 87.5 | 0.004228571 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 14 | 0.026428571 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2-Chloronaphthalene | mg/kg | 0.37 | 0.0122 | 30.32786885 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2-Chlorophenol | mg/kg | 0.37 | 0.54 | 0.685185185 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 580 | 0.000637931 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2-Nitroaniline | mg/kg | 1.9 | 5.3 | 0.358490566 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 2-Nitrophenol | mg/kg | 0.37 | 1.6 | 0.23125 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 0.646 | 1.145510836 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 3-Nitroaniline | mg/kg | 1.9 | 3.16 | 0.601265823 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.144 | 13.19444444 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 7.95 | 0.046540881 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 4-Chloroaniline | mg/kg | 0.74 | 1.1 | 0.672727273 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 4-Nitroaniline | mg/kg | 1.9 | 21.9 | 0.086757991 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | 4-Nitrophenol | mg/kg | 1.9 | 5.12 | 0.37109375 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Acetophenone | mg/kg | 0.37 | 300 | 0.001233333 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Benzaldehyde | mg/kg | 0.37 | 120 | 0.003083333 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Benzyl butyl phthalate | mg/kg | 0.37 | 90 | 0.004111111 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 0.302 | 1.225165563 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 23.7 | 0.015611814 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Carbazole | mg/kg | 0.37 | 79 | 0.004683544 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Cresols, m- & p- | mg/kg | 0.37 | 3.49 | 0.106017192 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Diethyl phthalate | mg/kg | 0.37 | 3600 | 0.000102778 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Dimethyl phthalate | mg/kg | 0.37 | 38 | 0.009736842 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | di-n-Butyl phthalate | mg/kg | 0.37 | 180 | 0.002055556 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | di-n-Octyl phthalate | mg/kg | 0.37 | 0.91 | 0.406593407 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Hexachlorobenzene | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Hexachlorobutadiene | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.755 | 0.490066225 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Hexachloroethane | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Isophorone | mg/kg | 0.37 | 139 | 0.002661871 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Nitrobenzene | mg/kg | 0.37 | 4.8 | 0.077083333 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.544 | 0.680147059 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 0.545 | 0.678899083 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Pentachlorophenol | mg/kg | 1.9 | 2.8 | 0.678571429 |
| AOC 5 | Coal Storage Area | NYOW-05-PH008-B | Phenol | mg/kg | 0.37 | 37 | 0.01 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Silver | mg/kg | 1.5 | 14 | 0.107142857 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.36 | 2.02 | 0.178217822 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 1,4-Dioxane | mg/kg | 0.36 | 2.05 | 0.175609756 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.36 | 19.9 | 0.018090452 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.36 | 0.2 | 1.8 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2,4,5-Trichlorophenol | mg/kg | 0.36 | 14.1 | 0.025531915 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2,4,6-Trichlorophenol | mg/kg | 0.36 | 9.94 | 0.036217304 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2,4-Dichlorophenol | mg/kg | 0.36 | 87.5 | 0.004114286 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2,4-Dinitrotoluene | mg/kg | 0.36 | 14 | 0.025714286 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2,6-Dinitrotoluene | mg/kg | 0.36 | 4 | 0.09 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2-Chloronaphthalene | mg/kg | 0.36 | 0.0122 | 29.50819672 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2-Chlorophenol | mg/kg | 0.36 | 0.54 | 0.666666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.36 | 580 | 0.00062069 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2-Nitroaniline | mg/kg | 1.9 | 5.3 | 0.358490566 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 2-Nitrophenol | mg/kg | 0.36 | 1.6 | 0.225 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 3,3'-Dichlorobenzidine | mg/kg | 0.72 | 0.646 | 1.114551084 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 3-Nitroaniline | mg/kg | 1.9 | 3.16 | 0.601265823 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.144 | 13.19444444 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 4-Chloro-3-methylphenol | mg/kg | 0.36 | 7.95 | 0.045283019 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 4-Chloroaniline | mg/kg | 0.72 | 1.1 | 0.654545455 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 4-Nitroaniline | mg/kg | 1.9 | 21.9 | 0.086757991 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | 4-Nitrophenol | mg/kg | 1.9 | 5.12 | 0.37109375 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Acetophenone | mg/kg | 0.36 | 300 | 0.0012 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Benzaldehyde | mg/kg | 0.36 | 120 | 0.003 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Benzyl butyl phthalate | mg/kg | 0.36 | 90 | 0.004 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Bis(2-chloroethoxy)methane | mg/kg | 0.36 | 0.302 | 1.19205298 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.36 | 23.7 | 0.015189873 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.36 | 0.6 | 0.6 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Carbazole | mg/kg | 0.36 | 79 | 0.004556962 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Cresols, m- & p- | mg/kg | 0.36 | 3.49 | 0.103151862 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Diethyl phthalate | mg/kg | 0.36 | 3600 | 0.0001 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Dimethyl phthalate | mg/kg | 0.36 | 38 | 0.009473684 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | di-n-Butyl phthalate | mg/kg | 0.36 | 180 | 0.002 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | di-n-Octyl phthalate | mg/kg | 0.36 | 0.91 | 0.395604396 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Hexachlorobenzene | mg/kg | 0.36 | 0.2 | 1.8 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Hexachlorobutadiene | mg/kg | 0.36 | 0.04 | 9 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Hexachlorocyclopentadiene | mg/kg | 0.36 | 0.755 | 0.476821192 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Hexachloroethane | mg/kg | 0.36 | 0.6 | 0.6 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Isophorone | mg/kg | 0.36 | 139 | 0.002589928 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Nitrobenzene | mg/kg | 0.36 | 4.8 | 0.075 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | N-Nitrosodi-n-propylamine | mg/kg | 0.36 | 0.544 | 0.661764706 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | N-Nitrosodiphenylamine | mg/kg | 0.36 | 0.545 | 0.660550459 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Pentachlorophenol | mg/kg | 1.9 | 2.8 | 0.678571429 |
| AOC 5 | Coal Storage Area | NYOW-05-PH009-B | Phenol | mg/kg | 0.36 | 37 | 0.00972973 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Silver | mg/kg | 1.6 | 14 | 0.114285714 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 2.02 | 0.183168317 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 1,4-Dioxane | mg/kg | 0.37 | 2.05 | 0.180487805 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 19.9 | 0.018592965 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 14.1 | 0.026241135 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 9.94 | 0.03722334 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 87.5 | 0.004228571 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 14 | 0.026428571 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2-Chloronaphthalene | mg/kg | 0.37 | 0.0122 | 30.32786885 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2-Chlorophenol | mg/kg | 0.37 | 0.54 | 0.685185185 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 580 | 0.000637931 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2-Nitroaniline | mg/kg | 1.9 | 5.3 | 0.358490566 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 2-Nitrophenol | mg/kg | 0.37 | 1.6 | 0.23125 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 0.646 | 1.160990712 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 3-Nitroaniline | mg/kg | 1.9 | 3.16 | 0.601265823 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.144 | 13.19444444 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 7.95 | 0.046540881 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 4-Chloroaniline | mg/kg | 0.75 | 1.1 | 0.681818182 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 4-Nitroaniline | mg/kg | 1.9 | 21.9 | 0.086757991 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | 4-Nitrophenol | mg/kg | 1.9 | 5.12 | 0.37109375 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Acetophenone | mg/kg | 0.37 | 300 | 0.001233333 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Benzaldehyde | mg/kg | 0.37 | 120 | 0.003083333 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Benzyl butyl phthalate | mg/kg | 0.37 | 90 | 0.004111111 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 0.302 | 1.225165563 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 23.7 | 0.015611814 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Carbazole | mg/kg | 0.37 | 79 | 0.004683544 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Cresols, m- & p- | mg/kg | 0.37 | 3.49 | 0.106017192 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Diethyl phthalate | mg/kg | 0.37 | 3600 | 0.000102778 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Dimethyl phthalate | mg/kg | 0.37 | 38 | 0.009736842 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | di-n-Butyl phthalate | mg/kg | 0.37 | 180 | 0.002055556 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | di-n-Octyl phthalate | mg/kg | 0.37 | 0.91 | 0.406593407 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Hexachlorobenzene | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Hexachlorobutadiene | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.755 | 0.490066225 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Hexachloroethane | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Isophorone | mg/kg | 0.37 | 139 | 0.002661871 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Nitrobenzene | mg/kg | 0.37 | 4.8 | 0.077083333 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.544 | 0.680147059 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 0.545 | 0.678899083 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Pentachlorophenol | mg/kg | 1.9 | 2.8 | 0.678571429 |
| AOC 5 | Coal Storage Area | NYOW-05-PH010-B | Phenol | mg/kg | 0.37 | 37 | 0.01 |
| AOC 5 | Coal Storage Area | NYOW-05-SL006-A | Silver | mg/kg | 2.1 | 14 | 0.15 |
| AOC 5 | Coal Storage Area | NYOW-05-SL007-A | Silver | mg/kg | 2.2 | 14 | 0.157142857 |
| AOC 5 | Coal Storage Area | NYOW-05-SL008-A | Silver | mg/kg | 1.8 | 14 | 0.128571429 |
| AOC 5 | Coal Storage Area | NYOW-05-SL009-A | Silver | mg/kg | 2 | 14 | 0.142857143 |
| AOC 5 | Coal Storage Area | NYOW-05-SL010-A | Silver | mg/kg | 1.4 | 14 | 0.1 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Silver | mg/kg | 1.5 | 14 | 0.107142857 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 2.02 | 0.193069307 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 1,4-Dioxane | mg/kg | 0.39 | 2.05 | 0.190243902 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 19.9 | 0.01959799 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.2 | 1.95 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 14.1 | 0.027659574 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 9.94 | 0.039235412 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 87.5 | 0.004457143 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 14 | 0.027857143 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2-Chloronaphthalene | mg/kg | 0.39 | 0.0122 | 31.96721311 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2-Chlorophenol | mg/kg | 0.39 | 0.54 | 0.722222222 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 580 | 0.000672414 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2-Nitroaniline | mg/kg | 2 | 5.3 | 0.377358491 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 2-Nitrophenol | mg/kg | 0.39 | 1.6 | 0.24375 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 0.646 | 1.191950464 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 3-Nitroaniline | mg/kg | 2 | 3.16 | 0.632911392 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.144 | 13.88888889 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 7.95 | 0.049056604 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 4-Chloroaniline | mg/kg | 0.77 | 1.1 | 0.7 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 4-Nitroaniline | mg/kg | 2 | 21.9 | 0.091324201 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | 4-Nitrophenol | mg/kg | 2 | 5.12 | 0.390625 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Acetophenone | mg/kg | 0.39 | 300 | 0.0013 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Benzaldehyde | mg/kg | 0.39 | 120 | 0.00325 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Benzyl butyl phthalate | mg/kg | 0.39 | 90 | 0.004333333 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 0.302 | 1.291390728 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 23.7 | 0.016455696 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 0.6 | 0.65 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Carbazole | mg/kg | 0.39 | 79 | 0.004936709 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Cresols, m- & p- | mg/kg | 0.39 | 3.49 | 0.111747851 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Diethyl phthalate | mg/kg | 0.39 | 3600 | 0.000108333 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Dimethyl phthalate | mg/kg | 0.39 | 38 | 0.010263158 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | di-n-Butyl phthalate | mg/kg | 0.39 | 180 | 0.002166667 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | di-n-Octyl phthalate | mg/kg | 0.39 | 0.91 | 0.428571429 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Hexachlorobenzene | mg/kg | 0.39 | 0.2 | 1.95 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Hexachlorobutadiene | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.755 | 0.516556291 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Hexachloroethane | mg/kg | 0.39 | 0.6 | 0.65 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Isophorone | mg/kg | 0.39 | 139 | 0.002805755 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Nitrobenzene | mg/kg | 0.39 | 4.8 | 0.08125 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.544 | 0.716911765 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 0.545 | 0.71559633 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Pentachlorophenol | mg/kg | 2 | 2.8 | 0.714285714 |
| AOC 5 | Electric Substation | NYOW-05-PH011-B | Phenol | mg/kg | 0.39 | 37 | 0.010540541 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Silver | mg/kg | 1.5 | 14 | 0.107142857 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 2.02 | 0.193069307 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 1,4-Dioxane | mg/kg | 0.39 | 2.05 | 0.190243902 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 19.9 | 0.01959799 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.2 | 1.95 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 14.1 | 0.027659574 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 9.94 | 0.039235412 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 87.5 | 0.004457143 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 14 | 0.027857143 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2-Chloronaphthalene | mg/kg | 0.39 | 0.0122 | 31.96721311 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2-Chlorophenol | mg/kg | 0.39 | 0.54 | 0.722222222 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 580 | 0.000672414 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2-Nitroaniline | mg/kg | 2 | 5.3 | 0.377358491 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 2-Nitrophenol | mg/kg | 0.39 | 1.6 | 0.24375 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 3,3'-Dichlorobenzidine | mg/kg | 0.77 | 0.646 | 1.191950464 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 3-Nitroaniline | mg/kg | 2 | 3.16 | 0.632911392 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.144 | 13.88888889 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 7.95 | 0.049056604 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 4-Chloroaniline | mg/kg | 0.77 | 1.1 | 0.7 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 4-Nitroaniline | mg/kg | 2 | 21.9 | 0.091324201 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | 4-Nitrophenol | mg/kg | 2 | 5.12 | 0.390625 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Acetophenone | mg/kg | 0.39 | 300 | 0.0013 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Benzaldehyde | mg/kg | 0.39 | 120 | 0.00325 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Benzyl butyl phthalate | mg/kg | 0.39 | 90 | 0.004333333 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 0.302 | 1.291390728 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 23.7 | 0.016455696 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 0.6 | 0.65 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Carbazole | mg/kg | 0.39 | 79 | 0.004936709 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Cresols, m- & p- | mg/kg | 0.39 | 3.49 | 0.111747851 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Diethyl phthalate | mg/kg | 0.39 | 3600 | 0.000108333 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Dimethyl phthalate | mg/kg | 0.39 | 38 | 0.010263158 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | di-n-Butyl phthalate | mg/kg | 0.39 | 180 | 0.002166667 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | di-n-Octyl phthalate | mg/kg | 0.39 | 0.91 | 0.428571429 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Hexachlorobenzene | mg/kg | 0.39 | 0.2 | 1.95 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Hexachlorobutadiene | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.755 | 0.516556291 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Hexachloroethane | mg/kg | 0.39 | 0.6 | 0.65 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Isophorone | mg/kg | 0.39 | 139 | 0.002805755 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Nitrobenzene | mg/kg | 0.39 | 4.8 | 0.08125 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.544 | 0.716911765 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 0.545 | 0.71559633 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Pentachlorophenol | mg/kg | 2 | 2.8 | 0.714285714 |
| AOC 5 | Electric Substation | NYOW-05-PH012-B | Phenol | mg/kg | 0.39 | 37 | 0.010540541 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Silver | mg/kg | 1.3 | 14 | 0.092857143 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.35 | 2.02 | 0.173267327 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 1,4-Dioxane | mg/kg | 0.35 | 2.05 | 0.170731707 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.35 | 19.9 | 0.01758794 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.35 | 0.2 | 1.75 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 14.1 | 0.024822695 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2,4,6-Trichlorophenol | mg/kg | 0.35 | 9.94 | 0.035211268 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2,4-Dichlorophenol | mg/kg | 0.35 | 87.5 | 0.004 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2,4-Dinitrotoluene | mg/kg | 0.35 | 14 | 0.025 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2,6-Dinitrotoluene | mg/kg | 0.35 | 4 | 0.0875 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2-Chloronaphthalene | mg/kg | 0.35 | 0.0122 | 28.68852459 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2-Chlorophenol | mg/kg | 0.35 | 0.54 | 0.648148148 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 580 | 0.000603448 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2-Nitroaniline | mg/kg | 1.8 | 5.3 | 0.339622642 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 2-Nitrophenol | mg/kg | 0.35 | 1.6 | 0.21875 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 3,3'-Dichlorobenzidine | mg/kg | 0.7 | 0.646 | 1.083591331 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 3-Nitroaniline | mg/kg | 1.8 | 3.16 | 0.569620253 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.144 | 12.5 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 4-Chloro-3-methylphenol | mg/kg | 0.35 | 7.95 | 0.044025157 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 4-Chloroaniline | mg/kg | 0.7 | 1.1 | 0.636363636 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 4-Nitroaniline | mg/kg | 1.8 | 21.9 | 0.082191781 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | 4-Nitrophenol | mg/kg | 1.8 | 5.12 | 0.3515625 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Acetophenone | mg/kg | 0.35 | 300 | 0.001166667 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Benzaldehyde | mg/kg | 0.35 | 120 | 0.002916667 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Benzyl butyl phthalate | mg/kg | 0.35 | 90 | 0.003888889 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Bis(2-chloroethoxy)methane | mg/kg | 0.35 | 0.302 | 1.158940397 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.35 | 23.7 | 0.014767932 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 0.6 | 0.583333333 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Carbazole | mg/kg | 0.35 | 79 | 0.00443038 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Cresols, m- & p- | mg/kg | 0.35 | 3.49 | 0.100286533 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Diethyl phthalate | mg/kg | 0.35 | 3600 | 9.72222E-05 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Dimethyl phthalate | mg/kg | 0.35 | 38 | 0.009210526 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | di-n-Butyl phthalate | mg/kg | 0.35 | 180 | 0.001944444 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | di-n-Octyl phthalate | mg/kg | 0.35 | 0.91 | 0.384615385 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Hexachlorobenzene | mg/kg | 0.35 | 0.2 | 1.75 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Hexachlorobutadiene | mg/kg | 0.35 | 0.04 | 8.75 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Hexachlorocyclopentadiene | mg/kg | 0.35 | 0.755 | 0.463576159 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Hexachloroethane | mg/kg | 0.35 | 0.6 | 0.583333333 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Isophorone | mg/kg | 0.35 | 139 | 0.002517986 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Nitrobenzene | mg/kg | 0.35 | 4.8 | 0.072916667 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | N-Nitrosodi-n-propylamine | mg/kg | 0.35 | 0.544 | 0.643382353 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | N-Nitrosodiphenylamine | mg/kg | 0.35 | 0.545 | 0.642201835 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Pentachlorophenol | mg/kg | 1.8 | 2.8 | 0.642857143 |
| AOC 5 | Electric Substation | NYOW-05-PH013-B | Phenol | mg/kg | 0.35 | 37 | 0.009459459 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Silver | mg/kg | 1.4 | 14 | 0.1 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 2.02 | 0.183168317 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 1,4-Dioxane | mg/kg | 0.37 | 2.05 | 0.180487805 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 19.9 | 0.018592965 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 14.1 | 0.026241135 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 9.94 | 0.03722334 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 87.5 | 0.004228571 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 14 | 0.026428571 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2-Chloronaphthalene | mg/kg | 0.37 | 0.0122 | 30.32786885 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2-Chlorophenol | mg/kg | 0.37 | 0.54 | 0.685185185 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 580 | 0.000637931 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2-Nitroaniline | mg/kg | 1.9 | 5.3 | 0.358490566 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 2-Nitrophenol | mg/kg | 0.37 | 1.6 | 0.23125 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 0.646 | 1.160990712 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 3-Nitroaniline | mg/kg | 1.9 | 3.16 | 0.601265823 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.144 | 13.19444444 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 7.95 | 0.046540881 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 4-Chloroaniline | mg/kg | 0.75 | 1.1 | 0.681818182 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 4-Nitroaniline | mg/kg | 1.9 | 21.9 | 0.086757991 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | 4-Nitrophenol | mg/kg | 1.9 | 5.12 | 0.37109375 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Acetophenone | mg/kg | 0.37 | 300 | 0.001233333 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Benzaldehyde | mg/kg | 0.37 | 120 | 0.003083333 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Benzyl butyl phthalate | mg/kg | 0.37 | 90 | 0.004111111 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 0.302 | 1.225165563 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 23.7 | 0.015611814 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Carbazole | mg/kg | 0.37 | 79 | 0.004683544 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Cresols, m- & p- | mg/kg | 0.37 | 3.49 | 0.106017192 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Diethyl phthalate | mg/kg | 0.37 | 3600 | 0.000102778 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Dimethyl phthalate | mg/kg | 0.37 | 38 | 0.009736842 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | di-n-Butyl phthalate | mg/kg | 0.37 | 180 | 0.002055556 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | di-n-Octyl phthalate | mg/kg | 0.37 | 0.91 | 0.406593407 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Hexachlorobenzene | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Hexachlorobutadiene | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.755 | 0.490066225 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Hexachloroethane | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Isophorone | mg/kg | 0.37 | 139 | 0.002661871 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Nitrobenzene | mg/kg | 0.37 | 4.8 | 0.077083333 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.544 | 0.680147059 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 0.545 | 0.678899083 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Pentachlorophenol | mg/kg | 1.9 | 2.8 | 0.678571429 |
| AOC 5 | Electric Substation | NYOW-05-PH014-B | Phenol | mg/kg | 0.37 | 37 | 0.01 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Silver | mg/kg | 1.4 | 14 | 0.1 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.35 | 2.02 | 0.173267327 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 1,4-Dioxane | mg/kg | 0.35 | 2.05 | 0.170731707 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.35 | 19.9 | 0.01758794 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.35 | 0.2 | 1.75 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 14.1 | 0.024822695 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2,4,6-Trichlorophenol | mg/kg | 0.35 | 9.94 | 0.035211268 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2,4-Dichlorophenol | mg/kg | 0.35 | 87.5 | 0.004 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2,4-Dinitrotoluene | mg/kg | 0.35 | 14 | 0.025 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2,6-Dinitrotoluene | mg/kg | 0.35 | 4 | 0.0875 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2-Chloronaphthalene | mg/kg | 0.35 | 0.0122 | 28.68852459 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2-Chlorophenol | mg/kg | 0.35 | 0.54 | 0.648148148 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 580 | 0.000603448 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2-Nitroaniline | mg/kg | 1.8 | 5.3 | 0.339622642 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 2-Nitrophenol | mg/kg | 0.35 | 1.6 | 0.21875 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 3,3'-Dichlorobenzidine | mg/kg | 0.7 | 0.646 | 1.083591331 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 3-Nitroaniline | mg/kg | 1.8 | 3.16 | 0.569620253 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.144 | 12.5 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 4-Chloro-3-methylphenol | mg/kg | 0.35 | 7.95 | 0.044025157 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 4-Chloroaniline | mg/kg | 0.7 | 1.1 | 0.636363636 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 4-Nitroaniline | mg/kg | 1.8 | 21.9 | 0.082191781 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | 4-Nitrophenol | mg/kg | 1.8 | 5.12 | 0.3515625 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Acetophenone | mg/kg | 0.35 | 300 | 0.001166667 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Benzaldehyde | mg/kg | 0.35 | 120 | 0.002916667 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Benzyl butyl phthalate | mg/kg | 0.35 | 90 | 0.003888889 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Bis(2-chloroethoxy)methane | mg/kg | 0.35 | 0.302 | 1.158940397 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.35 | 23.7 | 0.014767932 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 0.6 | 0.583333333 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Carbazole | mg/kg | 0.35 | 79 | 0.00443038 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Cresols, m- & p- | mg/kg | 0.35 | 3.49 | 0.100286533 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Diethyl phthalate | mg/kg | 0.35 | 3600 | 9.72222E-05 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Dimethyl phthalate | mg/kg | 0.35 | 38 | 0.009210526 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | di-n-Butyl phthalate | mg/kg | 0.35 | 180 | 0.001944444 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | di-n-Octyl phthalate | mg/kg | 0.35 | 0.91 | 0.384615385 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Hexachlorobenzene | mg/kg | 0.35 | 0.2 | 1.75 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Hexachlorobutadiene | mg/kg | 0.35 | 0.04 | 8.75 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Hexachlorocyclopentadiene | mg/kg | 0.35 | 0.755 | 0.463576159 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Hexachloroethane | mg/kg | 0.35 | 0.6 | 0.583333333 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Isophorone | mg/kg | 0.35 | 139 | 0.002517986 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Nitrobenzene | mg/kg | 0.35 | 4.8 | 0.072916667 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | N-Nitrosodi-n-propylamine | mg/kg | 0.35 | 0.544 | 0.643382353 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | N-Nitrosodiphenylamine | mg/kg | 0.35 | 0.545 | 0.642201835 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Pentachlorophenol | mg/kg | 1.8 | 2.8 | 0.642857143 |
| AOC 5 | Electric Substation | NYOW-05-PH015-B | Phenol | mg/kg | 0.35 | 37 | 0.009459459 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Silver | mg/kg | 1.7 | 14 | 0.121428571 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.068 | 0.371 | 0.18328841 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.096 | 0.371 | 0.258760108 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.068 | 0.371 | 0.18328841 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.068 | 0.371 | 0.18328841 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.068 | 0.371 | 0.18328841 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.068 | 0.371 | 0.18328841 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.068 | 0.371 | 0.18328841 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.068 | 0.371 | 0.18328841 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 2.02 | 0.183168317 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 1,4-Dioxane | mg/kg | 0.37 | 2.05 | 0.180487805 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 19.9 | 0.018592965 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 14.1 | 0.026241135 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 9.94 | 0.03722334 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2,4-Dichlorophenol | mg/kg | 0.37 | 87.5 | 0.004228571 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 14 | 0.026428571 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2,6-Dinitrotoluene | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2-Chloronaphthalene | mg/kg | 0.37 | 0.0122 | 30.32786885 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2-Chlorophenol | mg/kg | 0.37 | 0.54 | 0.685185185 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 580 | 0.000637931 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2-Nitroaniline | mg/kg | 1.9 | 5.3 | 0.358490566 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 2-Nitrophenol | mg/kg | 0.37 | 1.6 | 0.23125 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 0.646 | 1.145510836 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 3-Nitroaniline | mg/kg | 1.9 | 3.16 | 0.601265823 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.144 | 13.19444444 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 7.95 | 0.046540881 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 4-Chloroaniline | mg/kg | 0.74 | 1.1 | 0.672727273 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 4-Nitroaniline | mg/kg | 1.9 | 21.9 | 0.086757991 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | 4-Nitrophenol | mg/kg | 1.9 | 5.12 | 0.37109375 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Acetophenone | mg/kg | 0.37 | 300 | 0.001233333 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Benzaldehyde | mg/kg | 0.37 | 120 | 0.003083333 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Benzyl butyl phthalate | mg/kg | 0.37 | 90 | 0.004111111 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 0.302 | 1.225165563 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 23.7 | 0.015611814 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Carbazole | mg/kg | 0.37 | 79 | 0.004683544 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Cresols, m- & p- | mg/kg | 0.37 | 3.49 | 0.106017192 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Diethyl phthalate | mg/kg | 0.37 | 3600 | 0.000102778 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Dimethyl phthalate | mg/kg | 0.37 | 38 | 0.009736842 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | di-n-Butyl phthalate | mg/kg | 0.37 | 180 | 0.002055556 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | di-n-Octyl phthalate | mg/kg | 0.37 | 0.91 | 0.406593407 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Hexachlorobenzene | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Hexachlorobutadiene | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.755 | 0.490066225 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Hexachloroethane | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Isophorone | mg/kg | 0.37 | 139 | 0.002661871 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Nitrobenzene | mg/kg | 0.37 | 4.8 | 0.077083333 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.544 | 0.680147059 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | N-Nitrosodiphenylamine | mg/kg | 0.37 | 0.545 | 0.678899083 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Pentachlorophenol | mg/kg | 1.9 | 2.8 | 0.678571429 |
| AOC 5 | Electric Substation | NYOW-05-SL011-A | Phenol | mg/kg | 0.37 | 37 | 0.01 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Silver | mg/kg | 1.5 | 14 | 0.107142857 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.371 | 0.269541779 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 2.02 | 0.188118812 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 1,4-Dioxane | mg/kg | 0.38 | 2.05 | 0.185365854 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 19.9 | 0.019095477 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 0.2 | 1.9 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 14.1 | 0.026950355 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 9.94 | 0.038229376 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2,4-Dichlorophenol | mg/kg | 0.38 | 87.5 | 0.004342857 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2,4-Dinitrotoluene | mg/kg | 0.38 | 14 | 0.027142857 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2,6-Dinitrotoluene | mg/kg | 0.38 | 4 | 0.095 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2-Chloronaphthalene | mg/kg | 0.38 | 0.0122 | 31.14754098 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2-Chlorophenol | mg/kg | 0.38 | 0.54 | 0.703703704 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 580 | 0.000655172 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2-Nitroaniline | mg/kg | 2 | 5.3 | 0.377358491 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 2-Nitrophenol | mg/kg | 0.38 | 1.6 | 0.2375 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 0.646 | 1.176470588 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 3-Nitroaniline | mg/kg | 2 | 3.16 | 0.632911392 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.144 | 13.88888889 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 7.95 | 0.047798742 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 4-Chloroaniline | mg/kg | 0.76 | 1.1 | 0.690909091 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 4-Nitroaniline | mg/kg | 2 | 21.9 | 0.091324201 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | 4-Nitrophenol | mg/kg | 2 | 5.12 | 0.390625 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Acetophenone | mg/kg | 0.38 | 300 | 0.001266667 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Benzaldehyde | mg/kg | 0.38 | 120 | 0.003166667 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Benzyl butyl phthalate | mg/kg | 0.38 | 90 | 0.004222222 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 0.302 | 1.258278146 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 23.7 | 0.016033755 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 0.6 | 0.633333333 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Carbazole | mg/kg | 0.38 | 79 | 0.004810127 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Cresols, m- & p- | mg/kg | 0.38 | 3.49 | 0.108882521 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Diethyl phthalate | mg/kg | 0.38 | 3600 | 0.000105556 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Dimethyl phthalate | mg/kg | 0.38 | 38 | 0.01 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | di-n-Butyl phthalate | mg/kg | 0.38 | 180 | 0.002111111 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | di-n-Octyl phthalate | mg/kg | 0.38 | 0.91 | 0.417582418 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Hexachlorobenzene | mg/kg | 0.38 | 0.2 | 1.9 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Hexachlorobutadiene | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.755 | 0.503311258 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Hexachloroethane | mg/kg | 0.38 | 0.6 | 0.633333333 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Isophorone | mg/kg | 0.38 | 139 | 0.002733813 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Nitrobenzene | mg/kg | 0.38 | 4.8 | 0.079166667 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.544 | 0.698529412 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | N-Nitrosodiphenylamine | mg/kg | 0.38 | 0.545 | 0.697247706 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Pentachlorophenol | mg/kg | 2 | 2.8 | 0.714285714 |
| AOC 5 | Electric Substation | NYOW-05-SL012-A | Phenol | mg/kg | 0.38 | 37 | 0.01027027 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Silver | mg/kg | 1.4 | 14 | 0.1 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.076 | 0.371 | 0.204851752 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.371 | 0.296495957 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.076 | 0.371 | 0.204851752 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.076 | 0.371 | 0.204851752 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.076 | 0.371 | 0.204851752 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.076 | 0.371 | 0.204851752 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.076 | 0.371 | 0.204851752 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.076 | 0.371 | 0.204851752 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 2.02 | 0.193069307 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 1,4-Dioxane | mg/kg | 0.39 | 2.05 | 0.190243902 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 19.9 | 0.01959799 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.2 | 1.95 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 14.1 | 0.027659574 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 9.94 | 0.039235412 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2,4-Dichlorophenol | mg/kg | 0.39 | 87.5 | 0.004457143 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2,4-Dinitrotoluene | mg/kg | 0.39 | 14 | 0.027857143 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2,6-Dinitrotoluene | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2-Chloronaphthalene | mg/kg | 0.39 | 0.0122 | 31.96721311 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2-Chlorophenol | mg/kg | 0.39 | 0.54 | 0.722222222 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 580 | 0.000672414 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2-Nitroaniline | mg/kg | 2 | 5.3 | 0.377358491 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 2-Nitrophenol | mg/kg | 0.39 | 1.6 | 0.24375 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 0.646 | 1.207430341 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 3-Nitroaniline | mg/kg | 2 | 3.16 | 0.632911392 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.144 | 13.88888889 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 7.95 | 0.049056604 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 4-Chloroaniline | mg/kg | 0.78 | 1.1 | 0.709090909 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 4-Nitroaniline | mg/kg | 2 | 21.9 | 0.091324201 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | 4-Nitrophenol | mg/kg | 2 | 5.12 | 0.390625 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Acetophenone | mg/kg | 0.39 | 300 | 0.0013 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Benzaldehyde | mg/kg | 0.39 | 120 | 0.00325 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Benzyl butyl phthalate | mg/kg | 0.39 | 90 | 0.004333333 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 0.302 | 1.291390728 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 23.7 | 0.016455696 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 0.6 | 0.65 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Carbazole | mg/kg | 0.39 | 79 | 0.004936709 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Cresols, m- & p- | mg/kg | 0.39 | 3.49 | 0.111747851 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Diethyl phthalate | mg/kg | 0.39 | 3600 | 0.000108333 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Dimethyl phthalate | mg/kg | 0.39 | 38 | 0.010263158 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | di-n-Butyl phthalate | mg/kg | 0.39 | 180 | 0.002166667 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | di-n-Octyl phthalate | mg/kg | 0.39 | 0.91 | 0.428571429 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Hexachlorobenzene | mg/kg | 0.39 | 0.2 | 1.95 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Hexachlorobutadiene | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.755 | 0.516556291 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Hexachloroethane | mg/kg | 0.39 | 0.6 | 0.65 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Isophorone | mg/kg | 0.39 | 139 | 0.002805755 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Nitrobenzene | mg/kg | 0.39 | 4.8 | 0.08125 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.544 | 0.716911765 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | N-Nitrosodiphenylamine | mg/kg | 0.39 | 0.545 | 0.71559633 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Pentachlorophenol | mg/kg | 2 | 2.8 | 0.714285714 |
| AOC 5 | Electric Substation | NYOW-05-SL013-A | Phenol | mg/kg | 0.39 | 37 | 0.010540541 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Silver | mg/kg | 1.7 | 14 | 0.121428571 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.078 | 0.371 | 0.210242588 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.371 | 0.296495957 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.078 | 0.371 | 0.210242588 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.078 | 0.371 | 0.210242588 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.078 | 0.371 | 0.210242588 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.078 | 0.371 | 0.210242588 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.078 | 0.371 | 0.210242588 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.078 | 0.371 | 0.210242588 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 2.02 | 0.188118812 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 1,4-Dioxane | mg/kg | 0.38 | 2.05 | 0.185365854 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 19.9 | 0.019095477 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 0.2 | 1.9 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 14.1 | 0.026950355 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 9.94 | 0.038229376 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2,4-Dichlorophenol | mg/kg | 0.38 | 87.5 | 0.004342857 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2,4-Dinitrotoluene | mg/kg | 0.38 | 14 | 0.027142857 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2,6-Dinitrotoluene | mg/kg | 0.38 | 4 | 0.095 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2-Chloronaphthalene | mg/kg | 0.38 | 0.0122 | 31.14754098 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2-Chlorophenol | mg/kg | 0.38 | 0.54 | 0.703703704 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 580 | 0.000655172 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2-Nitroaniline | mg/kg | 2 | 5.3 | 0.377358491 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 2-Nitrophenol | mg/kg | 0.38 | 1.6 | 0.2375 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 0.646 | 1.176470588 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 3-Nitroaniline | mg/kg | 2 | 3.16 | 0.632911392 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.144 | 13.88888889 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 7.95 | 0.047798742 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 4-Chloroaniline | mg/kg | 0.76 | 1.1 | 0.690909091 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 4-Nitroaniline | mg/kg | 2 | 21.9 | 0.091324201 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | 4-Nitrophenol | mg/kg | 2 | 5.12 | 0.390625 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Acetophenone | mg/kg | 0.38 | 300 | 0.001266667 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Benzaldehyde | mg/kg | 0.38 | 120 | 0.003166667 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Benzyl butyl phthalate | mg/kg | 0.38 | 90 | 0.004222222 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 0.302 | 1.258278146 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 23.7 | 0.016033755 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 0.6 | 0.633333333 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Carbazole | mg/kg | 0.38 | 79 | 0.004810127 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Cresols, m- & p- | mg/kg | 0.38 | 3.49 | 0.108882521 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Diethyl phthalate | mg/kg | 0.38 | 3600 | 0.000105556 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Dimethyl phthalate | mg/kg | 0.38 | 38 | 0.01 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | di-n-Butyl phthalate | mg/kg | 0.38 | 180 | 0.002111111 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | di-n-Octyl phthalate | mg/kg | 0.38 | 0.91 | 0.417582418 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Hexachlorobenzene | mg/kg | 0.38 | 0.2 | 1.9 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Hexachlorobutadiene | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.755 | 0.503311258 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Hexachloroethane | mg/kg | 0.38 | 0.6 | 0.633333333 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Isophorone | mg/kg | 0.38 | 139 | 0.002733813 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Nitrobenzene | mg/kg | 0.38 | 4.8 | 0.079166667 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.544 | 0.698529412 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | N-Nitrosodiphenylamine | mg/kg | 0.38 | 0.545 | 0.697247706 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Pentachlorophenol | mg/kg | 2 | 2.8 | 0.714285714 |
| AOC 5 | Electric Substation | NYOW-05-SL014-A | Phenol | mg/kg | 0.38 | 37 | 0.01027027 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Silver | mg/kg | 1.7 | 14 | 0.121428571 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.077 | 0.371 | 0.20754717 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.371 | 0.296495957 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.077 | 0.371 | 0.20754717 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.077 | 0.371 | 0.20754717 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.077 | 0.371 | 0.20754717 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.077 | 0.371 | 0.20754717 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.077 | 0.371 | 0.20754717 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.077 | 0.371 | 0.20754717 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 2.02 | 0.188118812 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 1,4-Dioxane | mg/kg | 0.38 | 2.05 | 0.185365854 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 19.9 | 0.019095477 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 0.2 | 1.9 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 14.1 | 0.026950355 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 9.94 | 0.038229376 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2,4-Dichlorophenol | mg/kg | 0.38 | 87.5 | 0.004342857 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2,4-Dinitrotoluene | mg/kg | 0.38 | 14 | 0.027142857 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2,6-Dinitrotoluene | mg/kg | 0.38 | 4 | 0.095 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2-Chloronaphthalene | mg/kg | 0.38 | 0.0122 | 31.14754098 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2-Chlorophenol | mg/kg | 0.38 | 0.54 | 0.703703704 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 580 | 0.000655172 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2-Nitroaniline | mg/kg | 2 | 5.3 | 0.377358491 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 2-Nitrophenol | mg/kg | 0.38 | 1.6 | 0.2375 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 0.646 | 1.176470588 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 3-Nitroaniline | mg/kg | 2 | 3.16 | 0.632911392 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.144 | 13.88888889 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 7.95 | 0.047798742 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 4-Chloroaniline | mg/kg | 0.76 | 1.1 | 0.690909091 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 4-Nitroaniline | mg/kg | 2 | 21.9 | 0.091324201 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | 4-Nitrophenol | mg/kg | 2 | 5.12 | 0.390625 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Acetophenone | mg/kg | 0.38 | 300 | 0.001266667 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Benzaldehyde | mg/kg | 0.38 | 120 | 0.003166667 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Benzyl butyl phthalate | mg/kg | 0.38 | 90 | 0.004222222 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 0.302 | 1.258278146 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 23.7 | 0.016033755 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 0.6 | 0.633333333 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Carbazole | mg/kg | 0.38 | 79 | 0.004810127 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Cresols, m- & p- | mg/kg | 0.38 | 3.49 | 0.108882521 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Diethyl phthalate | mg/kg | 0.38 | 3600 | 0.000105556 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Dimethyl phthalate | mg/kg | 0.38 | 38 | 0.01 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | di-n-Butyl phthalate | mg/kg | 0.38 | 180 | 0.002111111 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | di-n-Octyl phthalate | mg/kg | 0.38 | 0.91 | 0.417582418 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Hexachlorobenzene | mg/kg | 0.38 | 0.2 | 1.9 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Hexachlorobutadiene | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.755 | 0.503311258 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Hexachloroethane | mg/kg | 0.38 | 0.6 | 0.633333333 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Isophorone | mg/kg | 0.38 | 139 | 0.002733813 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Nitrobenzene | mg/kg | 0.38 | 4.8 | 0.079166667 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.544 | 0.698529412 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | N-Nitrosodiphenylamine | mg/kg | 0.38 | 0.545 | 0.697247706 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Pentachlorophenol | mg/kg | 2 | 2.8 | 0.714285714 |
| AOC 5 | Electric Substation | NYOW-05-SL015-A | Phenol | mg/kg | 0.38 | 37 | 0.01027027 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Dibenz(a,h)anthracene | mg/kg | 0.012 | 1.1 | 0.010909091 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.07 | 0.371 | 0.188679245 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.371 | 0.269541779 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.07 | 0.371 | 0.188679245 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.07 | 0.371 | 0.188679245 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.07 | 0.371 | 0.188679245 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.07 | 0.371 | 0.188679245 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.07 | 0.371 | 0.188679245 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.07 | 0.371 | 0.188679245 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.07 | 0.371 | 0.188679245 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,1,1-Trichloroethane | mg/kg | 0.0041 | 260 | 1.57692E-05 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0041 | 0.127 | 0.032283465 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,1,2-Trichloroethane | mg/kg | 0.0041 | 28.6 | 0.000143357 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,1-Dichloroethane | mg/kg | 0.0041 | 210 | 1.95238E-05 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,1-Dichloroethene | mg/kg | 0.0041 | 11 | 0.000372727 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0041 | 0.27 | 0.015185185 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0041 | 0.27 | 0.015185185 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0082 | 0.0352 | 0.232954545 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.0041 | 1.23 | 0.003333333 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,2-Dichlorobenzene | mg/kg | 0.0041 | 0.92 | 0.004456522 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,2-Dichloroethane | mg/kg | 0.0041 | 27 | 0.000151852 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,2-Dichloropropane | mg/kg | 0.0041 | 32.7 | 0.000125382 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,3-Dichlorobenzene | mg/kg | 0.0041 | 0.74 | 0.005540541 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,4-Dichlorobenzene | mg/kg | 0.0041 | 0.89 | 0.004606742 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2-Hexanone | mg/kg | 0.016 | 5.4 | 0.002962963 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.016 | 443 | 3.61174E-05 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Bromodichloromethane | mg/kg | 0.0041 | 0.54 | 0.007592593 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Bromoform | mg/kg | 0.0042 | 15.9 | 0.000264151 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Bromomethane | mg/kg | 0.0082 | 0.24 | 0.034166667 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Carbon disulfide | mg/kg | 0.0041 | 0.81 | 0.005061728 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Carbon Tetrachloride | mg/kg | 0.0041 | 2.98 | 0.001375839 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Chlorobenzene | mg/kg | 0.0041 | 43 | 9.53488E-05 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Chloroform | mg/kg | 0.0082 | 8 | 0.001025 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Chloromethane | mg/kg | 0.0082 | 10.4 | 0.000788462 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | cis-1,3-Dichloropropene | mg/kg | 0.0041 | 0.398 | 0.010301508 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Dibromochloromethane | mg/kg | 0.0041 | 2.05 | 0.002 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Dichlorodifluoromethane | mg/kg | 0.0082 | 39.5 | 0.000207595 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Ethylbenzene | mg/kg | 0.0041 | 5.16 | 0.000794574 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH001-B | m,p-Xylene | mg/kg | 0.0026 | 1.4 | 0.001857143 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Methylene chloride | mg/kg | 0.0041 | 2.6 | 0.001576923 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | o-Xylene | mg/kg | 0.0041 | 1.4 | 0.002928571 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Styrene | mg/kg | 0.0041 | 4.69 | 0.0008742 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Tetrachloroethene (PCE) | mg/kg | 0.0041 | 0.18 | 0.022777778 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | trans-1,2-Dichloroethene | mg/kg | 0.0041 | 0.784 | 0.005229592 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | trans-1,3-Dichloropropene | mg/kg | 0.0041 | 0.398 | 0.010301508 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Trichlorofluoromethane | mg/kg | 0.0082 | 16.4 | 0.0005 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Vinyl chloride | mg/kg | 0.0041 | 0.12 | 0.034166667 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 2.02 | 0.183168317 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 1,4-Dioxane | mg/kg | 0.37 | 2.05 | 0.180487805 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 19.9 | 0.018592965 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 14.1 | 0.026241135 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 9.94 | 0.03722334 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 87.5 | 0.004228571 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 14 | 0.026428571 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2-Chloronaphthalene | mg/kg | 0.37 | 0.0122 | 30.32786885 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2-Chlorophenol | mg/kg | 0.37 | 0.54 | 0.685185185 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 580 | 0.000637931 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2-Nitroaniline | mg/kg | 1.9 | 5.3 | 0.358490566 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 2-Nitrophenol | mg/kg | 0.37 | 1.6 | 0.23125 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 0.646 | 1.160990712 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 3-Nitroaniline | mg/kg | 1.9 | 3.16 | 0.601265823 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.144 | 13.19444444 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 7.95 | 0.046540881 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 4-Chloroaniline | mg/kg | 0.75 | 1.1 | 0.681818182 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 4-Nitroaniline | mg/kg | 1.9 | 21.9 | 0.086757991 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | 4-Nitrophenol | mg/kg | 1.9 | 5.12 | 0.37109375 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Acetophenone | mg/kg | 0.37 | 300 | 0.001233333 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Benzyl butyl phthalate | mg/kg | 0.37 | 90 | 0.004111111 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 0.302 | 1.225165563 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 23.7 | 0.015611814 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Carbazole | mg/kg | 0.37 | 79 | 0.004683544 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Cresols, m- & p- | mg/kg | 0.37 | 3.49 | 0.106017192 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Diethyl phthalate | mg/kg | 0.37 | 3600 | 0.000102778 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Dimethyl phthalate | mg/kg | 0.37 | 38 | 0.009736842 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | di-n-Octyl phthalate | mg/kg | 0.37 | 0.91 | 0.406593407 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Hexachlorobenzene | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Hexachlorobutadiene | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.755 | 0.490066225 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Hexachloroethane | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Isophorone | mg/kg | 0.37 | 139 | 0.002661871 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Nitrobenzene | mg/kg | 0.37 | 4.8 | 0.077083333 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.544 | 0.680147059 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 0.545 | 0.678899083 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Pentachlorophenol | mg/kg | 1.9 | 2.8 | 0.678571429 |
| AOC 5 | Possible Dump | NYOW-05-PH001-B | Phenol | mg/kg | 0.37 | 37 | 0.01 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Dibenz(a,h)anthracene | mg/kg | 0.01 | 1.1 | 0.009090909 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.073 | 0.371 | 0.196765499 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.371 | 0.269541779 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.073 | 0.371 | 0.196765499 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.073 | 0.371 | 0.196765499 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.073 | 0.371 | 0.196765499 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.073 | 0.371 | 0.196765499 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.073 | 0.371 | 0.196765499 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.073 | 0.371 | 0.196765499 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.073 | 0.371 | 0.196765499 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,1,1-Trichloroethane | mg/kg | 0.004 | 260 | 1.53846E-05 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.004 | 0.127 | 0.031496063 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,1,2-Trichloroethane | mg/kg | 0.004 | 28.6 | 0.00013986 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,1-Dichloroethane | mg/kg | 0.004 | 210 | 1.90476E-05 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,1-Dichloroethene | mg/kg | 0.004 | 11 | 0.000363636 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,2,3-Trichlorobenzene | mg/kg | 0.004 | 0.27 | 0.014814815 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,2,4-Trichlorobenzene | mg/kg | 0.004 | 0.27 | 0.014814815 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.008 | 0.0352 | 0.227272727 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.004 | 1.23 | 0.003252033 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,2-Dichlorobenzene | mg/kg | 0.004 | 0.92 | 0.004347826 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,2-Dichloroethane | mg/kg | 0.004 | 27 | 0.000148148 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,2-Dichloropropane | mg/kg | 0.004 | 32.7 | 0.000122324 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,3-Dichlorobenzene | mg/kg | 0.004 | 0.74 | 0.005405405 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,4-Dichlorobenzene | mg/kg | 0.004 | 0.89 | 0.004494382 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2-Hexanone | mg/kg | 0.016 | 5.4 | 0.002962963 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.016 | 443 | 3.61174E-05 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Bromodichloromethane | mg/kg | 0.004 | 0.54 | 0.007407407 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Bromoform | mg/kg | 0.0041 | 15.9 | 0.000257862 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Bromomethane | mg/kg | 0.008 | 0.24 | 0.033333333 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Carbon disulfide | mg/kg | 0.004 | 0.81 | 0.004938272 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Carbon Tetrachloride | mg/kg | 0.004 | 2.98 | 0.001342282 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Chlorobenzene | mg/kg | 0.004 | 43 | 9.30233E-05 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Chloroform | mg/kg | 0.008 | 8 | 0.001 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Chloromethane | mg/kg | 0.008 | 10.4 | 0.000769231 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | cis-1,3-Dichloropropene | mg/kg | 0.004 | 0.398 | 0.010050251 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Dibromochloromethane | mg/kg | 0.004 | 2.05 | 0.00195122 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Dichlorodifluoromethane | mg/kg | 0.008 | 39.5 | 0.000202532 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Ethylbenzene | mg/kg | 0.004 | 5.16 | 0.000775194 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | m,p-Xylene | mg/kg | 0.0025 | 1.4 | 0.001785714 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Methylene chloride | mg/kg | 0.004 | 2.6 | 0.001538462 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | o-Xylene | mg/kg | 0.004 | 1.4 | 0.002857143 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Styrene | mg/kg | 0.004 | 4.69 | 0.000852878 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Tetrachloroethene (PCE) | mg/kg | 0.004 | 0.18 | 0.022222222 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | trans-1,2-Dichloroethene | mg/kg | 0.004 | 0.784 | 0.005102041 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | trans-1,3-Dichloropropene | mg/kg | 0.004 | 0.398 | 0.010050251 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Trichlorofluoromethane | mg/kg | 0.008 | 16.4 | 0.000487805 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Vinyl chloride | mg/kg | 0.004 | 0.12 | 0.033333333 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 2.02 | 0.183168317 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 1,4-Dioxane | mg/kg | 0.37 | 2.05 | 0.180487805 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 19.9 | 0.018592965 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 14.1 | 0.026241135 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 9.94 | 0.03722334 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 87.5 | 0.004228571 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 14 | 0.026428571 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2-Chloronaphthalene | mg/kg | 0.37 | 0.0122 | 30.32786885 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2-Chlorophenol | mg/kg | 0.37 | 0.54 | 0.685185185 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 580 | 0.000637931 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2-Nitroaniline | mg/kg | 1.9 | 5.3 | 0.358490566 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 2-Nitrophenol | mg/kg | 0.37 | 1.6 | 0.23125 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 0.646 | 1.145510836 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 3-Nitroaniline | mg/kg | 1.9 | 3.16 | 0.601265823 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.144 | 13.19444444 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 7.95 | 0.046540881 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 4-Chloroaniline | mg/kg | 0.74 | 1.1 | 0.672727273 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 4-Nitroaniline | mg/kg | 1.9 | 21.9 | 0.086757991 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | 4-Nitrophenol | mg/kg | 1.9 | 5.12 | 0.37109375 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Acetophenone | mg/kg | 0.37 | 300 | 0.001233333 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Benzyl butyl phthalate | mg/kg | 0.37 | 90 | 0.004111111 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 0.302 | 1.225165563 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 23.7 | 0.015611814 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Carbazole | mg/kg | 0.37 | 79 | 0.004683544 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Cresols, m- & p- | mg/kg | 0.37 | 3.49 | 0.106017192 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Diethyl phthalate | mg/kg | 0.37 | 3600 | 0.000102778 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Dimethyl phthalate | mg/kg | 0.37 | 38 | 0.009736842 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | di-n-Octyl phthalate | mg/kg | 0.37 | 0.91 | 0.406593407 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Hexachlorobenzene | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Hexachlorobutadiene | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.755 | 0.490066225 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Hexachloroethane | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Isophorone | mg/kg | 0.37 | 139 | 0.002661871 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Nitrobenzene | mg/kg | 0.37 | 4.8 | 0.077083333 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.544 | 0.680147059 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 0.545 | 0.678899083 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Pentachlorophenol | mg/kg | 1.9 | 2.8 | 0.678571429 |
| AOC 5 | Possible Dump | NYOW-05-PH002-B | Phenol | mg/kg | 0.37 | 37 | 0.01 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Dibenz(a,h)anthracene | mg/kg | 0.012 | 1.1 | 0.010909091 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.085 | 0.371 | 0.229110512 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.12 | 0.371 | 0.323450135 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.085 | 0.371 | 0.229110512 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.085 | 0.371 | 0.229110512 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.085 | 0.371 | 0.229110512 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.085 | 0.371 | 0.229110512 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.085 | 0.371 | 0.229110512 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.085 | 0.371 | 0.229110512 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.085 | 0.371 | 0.229110512 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,1,1-Trichloroethane | mg/kg | 0.0048 | 260 | 1.84615E-05 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0048 | 0.127 | 0.037795276 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,1,2-Trichloroethane | mg/kg | 0.0048 | 28.6 | 0.000167832 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,1-Dichloroethane | mg/kg | 0.0048 | 210 | 2.28571E-05 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,1-Dichloroethene | mg/kg | 0.0048 | 11 | 0.000436364 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0048 | 0.27 | 0.017777778 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0048 | 0.27 | 0.017777778 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0095 | 0.0352 | 0.269886364 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.0048 | 1.23 | 0.003902439 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,2-Dichlorobenzene | mg/kg | 0.0048 | 0.92 | 0.005217391 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,2-Dichloroethane | mg/kg | 0.0048 | 27 | 0.000177778 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,2-Dichloropropane | mg/kg | 0.0048 | 32.7 | 0.000146789 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,3-Dichlorobenzene | mg/kg | 0.0048 | 0.74 | 0.006486486 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,4-Dichlorobenzene | mg/kg | 0.0048 | 0.89 | 0.005393258 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2-Hexanone | mg/kg | 0.019 | 5.4 | 0.003518519 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.019 | 443 | 4.28894E-05 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Bromodichloromethane | mg/kg | 0.0048 | 0.54 | 0.008888889 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Bromoform | mg/kg | 0.0049 | 15.9 | 0.000308176 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Bromomethane | mg/kg | 0.0095 | 0.24 | 0.039583333 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Carbon disulfide | mg/kg | 0.0048 | 0.81 | 0.005925926 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Carbon Tetrachloride | mg/kg | 0.0048 | 2.98 | 0.001610738 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Chlorobenzene | mg/kg | 0.0048 | 43 | 0.000111628 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Chloroform | mg/kg | 0.0095 | 8 | 0.0011875 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Chloromethane | mg/kg | 0.0095 | 10.4 | 0.000913462 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | cis-1,3-Dichloropropene | mg/kg | 0.0048 | 0.398 | 0.012060302 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Dibromochloromethane | mg/kg | 0.0048 | 2.05 | 0.002341463 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Dichlorodifluoromethane | mg/kg | 0.0095 | 39.5 | 0.000240506 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Ethylbenzene | mg/kg | 0.0048 | 5.16 | 0.000930233 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | m,p-Xylene | mg/kg | 0.0031 | 1.4 | 0.002214286 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Methylene chloride | mg/kg | 0.0048 | 2.6 | 0.001846154 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | o-Xylene | mg/kg | 0.0048 | 1.4 | 0.003428571 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Styrene | mg/kg | 0.0048 | 4.69 | 0.001023454 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Tetrachloroethene (PCE) | mg/kg | 0.0048 | 0.18 | 0.026666667 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | trans-1,2-Dichloroethene | mg/kg | 0.0048 | 0.784 | 0.006122449 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | trans-1,3-Dichloropropene | mg/kg | 0.0048 | 0.398 | 0.012060302 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Trichlorofluoromethane | mg/kg | 0.0095 | 16.4 | 0.000579268 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Vinyl chloride | mg/kg | 0.0048 | 0.12 | 0.04 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.42 | 2.02 | 0.207920792 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 1,4-Dioxane | mg/kg | 0.42 | 2.05 | 0.204878049 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.42 | 0.2 | 2.1 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2,4,5-Trichlorophenol | mg/kg | 0.42 | 14.1 | 0.029787234 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2,4,6-Trichlorophenol | mg/kg | 0.42 | 9.94 | 0.042253521 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2,4-Dichlorophenol | mg/kg | 0.42 | 87.5 | 0.0048 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2,4-Dinitrotoluene | mg/kg | 0.42 | 14 | 0.03 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2,6-Dinitrotoluene | mg/kg | 0.42 | 4 | 0.105 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2-Chloronaphthalene | mg/kg | 0.42 | 0.0122 | 34.42622951 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2-Chlorophenol | mg/kg | 0.42 | 0.54 | 0.777777778 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.42 | 580 | 0.000724138 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2-Nitroaniline | mg/kg | 2.1 | 5.3 | 0.396226415 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 2-Nitrophenol | mg/kg | 0.42 | 1.6 | 0.2625 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 3,3'-Dichlorobenzidine | mg/kg | 0.83 | 0.646 | 1.284829721 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 3-Nitroaniline | mg/kg | 2.1 | 3.16 | 0.664556962 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2.1 | 0.144 | 14.58333333 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 4-Chloro-3-methylphenol | mg/kg | 0.42 | 7.95 | 0.052830189 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 4-Chloroaniline | mg/kg | 0.83 | 1.1 | 0.754545455 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 4-Nitroaniline | mg/kg | 2.1 | 21.9 | 0.095890411 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | 4-Nitrophenol | mg/kg | 2.1 | 5.12 | 0.41015625 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Acetophenone | mg/kg | 0.42 | 300 | 0.0014 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Benzyl butyl phthalate | mg/kg | 0.42 | 90 | 0.004666667 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Bis(2-chloroethoxy)methane | mg/kg | 0.42 | 0.302 | 1.390728477 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.42 | 23.7 | 0.017721519 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.42 | 0.6 | 0.7 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Carbazole | mg/kg | 0.42 | 79 | 0.005316456 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Cresols, m- & p- | mg/kg | 0.42 | 3.49 | 0.12034384 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Diethyl phthalate | mg/kg | 0.42 | 3600 | 0.000116667 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Dimethyl phthalate | mg/kg | 0.42 | 38 | 0.011052632 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | di-n-Octyl phthalate | mg/kg | 0.42 | 0.91 | 0.461538462 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Hexachlorobenzene | mg/kg | 0.42 | 0.2 | 2.1 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Hexachlorobutadiene | mg/kg | 0.42 | 0.04 | 10.5 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Hexachlorocyclopentadiene | mg/kg | 0.42 | 0.755 | 0.556291391 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Hexachloroethane | mg/kg | 0.42 | 0.6 | 0.7 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Isophorone | mg/kg | 0.42 | 139 | 0.003021583 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Nitrobenzene | mg/kg | 0.42 | 4.8 | 0.0875 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | N-Nitrosodi-n-propylamine | mg/kg | 0.42 | 0.544 | 0.772058824 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | N-Nitrosodiphenylamine | mg/kg | 0.42 | 0.545 | 0.770642202 |
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Pentachlorophenol | mg/kg | 2.1 | 2.8 | 0.75 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH003-B | Phenol | mg/kg | 0.42 | 37 | 0.011351351 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Dibenz(a,h)anthracene | mg/kg | 0.011 | 1.1 | 0.01 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.371 | 0.269541779 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,1,1-Trichloroethane | mg/kg | 0.004 | 260 | 1.53846E-05 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.004 | 0.127 | 0.031496063 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,1,2-Trichloroethane | mg/kg | 0.004 | 28.6 | 0.00013986 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,1-Dichloroethane | mg/kg | 0.004 | 210 | 1.90476E-05 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,1-Dichloroethene | mg/kg | 0.004 | 11 | 0.000363636 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,2,3-Trichlorobenzene | mg/kg | 0.004 | 0.27 | 0.014814815 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,2,4-Trichlorobenzene | mg/kg | 0.004 | 0.27 | 0.014814815 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0081 | 0.0352 | 0.230113636 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.004 | 1.23 | 0.003252033 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,2-Dichlorobenzene | mg/kg | 0.004 | 0.92 | 0.004347826 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,2-Dichloroethane | mg/kg | 0.004 | 27 | 0.000148148 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,2-Dichloropropane | mg/kg | 0.004 | 32.7 | 0.000122324 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,3-Dichlorobenzene | mg/kg | 0.004 | 0.74 | 0.005405405 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,4-Dichlorobenzene | mg/kg | 0.004 | 0.89 | 0.004494382 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2-Hexanone | mg/kg | 0.016 | 5.4 | 0.002962963 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.016 | 443 | 3.61174E-05 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Bromodichloromethane | mg/kg | 0.004 | 0.54 | 0.007407407 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Bromoform | mg/kg | 0.0041 | 15.9 | 0.000257862 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Bromomethane | mg/kg | 0.0081 | 0.24 | 0.03375 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Carbon disulfide | mg/kg | 0.004 | 0.81 | 0.004938272 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Carbon Tetrachloride | mg/kg | 0.004 | 2.98 | 0.001342282 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Chlorobenzene | mg/kg | 0.004 | 43 | 9.30233E-05 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Chloroform | mg/kg | 0.0081 | 8 | 0.0010125 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Chloromethane | mg/kg | 0.0081 | 10.4 | 0.000778846 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | cis-1,3-Dichloropropene | mg/kg | 0.004 | 0.398 | 0.010050251 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Dibromochloromethane | mg/kg | 0.004 | 2.05 | 0.00195122 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Dichlorodifluoromethane | mg/kg | 0.0081 | 39.5 | 0.000205063 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Ethylbenzene | mg/kg | 0.004 | 5.16 | 0.000775194 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | m,p-Xylene | mg/kg | 0.0026 | 1.4 | 0.001857143 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Methylene chloride | mg/kg | 0.004 | 2.6 | 0.001538462 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | o-Xylene | mg/kg | 0.004 | 1.4 | 0.002857143 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Styrene | mg/kg | 0.004 | 4.69 | 0.000852878 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Tetrachloroethene (PCE) | mg/kg | 0.004 | 0.18 | 0.022222222 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | trans-1,2-Dichloroethene | mg/kg | 0.004 | 0.784 | 0.005102041 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | trans-1,3-Dichloropropene | mg/kg | 0.004 | 0.398 | 0.010050251 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Trichlorofluoromethane | mg/kg | 0.0081 | 16.4 | 0.000493902 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Vinyl chloride | mg/kg | 0.004 | 0.12 | 0.033333333 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 2.02 | 0.183168317 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 1,4-Dioxane | mg/kg | 0.37 | 2.05 | 0.180487805 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.37 | 19.9 | 0.018592965 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 14.1 | 0.026241135 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 9.94 | 0.03722334 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2,4-Dichlorophenol | mg/kg | 0.37 | 87.5 | 0.004228571 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2,4-Dinitrotoluene | mg/kg | 0.37 | 14 | 0.026428571 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2,6-Dinitrotoluene | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2-Chloronaphthalene | mg/kg | 0.37 | 0.0122 | 30.32786885 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2-Chlorophenol | mg/kg | 0.37 | 0.54 | 0.685185185 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 580 | 0.000637931 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2-Nitroaniline | mg/kg | 1.9 | 5.3 | 0.358490566 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 2-Nitrophenol | mg/kg | 0.37 | 1.6 | 0.23125 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 3,3'-Dichlorobenzidine | mg/kg | 0.75 | 0.646 | 1.160990712 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 3-Nitroaniline | mg/kg | 1.9 | 3.16 | 0.601265823 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.144 | 13.19444444 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 7.95 | 0.046540881 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 4-Chloroaniline | mg/kg | 0.75 | 1.1 | 0.681818182 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 4-Nitroaniline | mg/kg | 1.9 | 21.9 | 0.086757991 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | 4-Nitrophenol | mg/kg | 1.9 | 5.12 | 0.37109375 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Acetophenone | mg/kg | 0.37 | 300 | 0.001233333 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Benzyl butyl phthalate | mg/kg | 0.37 | 90 | 0.004111111 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 0.302 | 1.225165563 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 23.7 | 0.015611814 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Carbazole | mg/kg | 0.37 | 79 | 0.004683544 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Cresols, m- & p- | mg/kg | 0.37 | 3.49 | 0.106017192 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Diethyl phthalate | mg/kg | 0.37 | 3600 | 0.000102778 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Dimethyl phthalate | mg/kg | 0.37 | 38 | 0.009736842 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | di-n-Octyl phthalate | mg/kg | 0.37 | 0.91 | 0.406593407 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Hexachlorobenzene | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Hexachlorobutadiene | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.755 | 0.490066225 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Hexachloroethane | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Isophorone | mg/kg | 0.37 | 139 | 0.002661871 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Nitrobenzene | mg/kg | 0.37 | 4.8 | 0.077083333 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.544 | 0.680147059 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | N-Nitrosodiphenylamine | mg/kg | 0.37 | 0.545 | 0.678899083 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Pentachlorophenol | mg/kg | 1.9 | 2.8 | 0.678571429 |
| AOC 5 | Possible Dump | NYOW-05-PH004-B | Phenol | mg/kg | 0.37 | 37 | 0.01 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Dibenz(a,h)anthracene | mg/kg | 0.012 | 1.1 | 0.010909091 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1016 (Aroclor 1016) | mg/kg | 0.077 | 0.371 | 0.20754717 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.371 | 0.296495957 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1232 (Aroclor 1232) | mg/kg | 0.077 | 0.371 | 0.20754717 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1242 (Aroclor 1242) | mg/kg | 0.077 | 0.371 | 0.20754717 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1248 (Aroclor 1248) | mg/kg | 0.077 | 0.371 | 0.20754717 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1254 (Aroclor 1254) | mg/kg | 0.077 | 0.371 | 0.20754717 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1260 (Aroclor 1260) | mg/kg | 0.077 | 0.371 | 0.20754717 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1262 (Aroclor 1262) | mg/kg | 0.077 | 0.371 | 0.20754717 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | PCB-1268 (Aroclor 1268) | mg/kg | 0.077 | 0.371 | 0.20754717 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,1,1-Trichloroethane | mg/kg | 0.0044 | 260 | 1.69231E-05 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,1,2,2-Tetrachloroethane | mg/kg | 0.0044 | 0.127 | 0.034645669 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,1,2-Trichloroethane | mg/kg | 0.0044 | 28.6 | 0.000153846 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,1-Dichloroethane | mg/kg | 0.0044 | 210 | 2.09524E-05 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,1-Dichloroethene | mg/kg | 0.0044 | 11 | 0.0004 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,2,3-Trichlorobenzene | mg/kg | 0.0044 | 0.27 | 0.016296296 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,2,4-Trichlorobenzene | mg/kg | 0.0044 | 0.27 | 0.016296296 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,2-Dibromo-3-chloropropane | mg/kg | 0.0088 | 0.0352 | 0.25 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,2-Dibromoethane (EDB) | mg/kg | 0.0044 | 1.23 | 0.003577236 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,2-Dichlorobenzene | mg/kg | 0.0044 | 0.92 | 0.004782609 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,2-Dichloroethane | mg/kg | 0.0044 | 27 | 0.000162963 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,2-Dichloropropane | mg/kg | 0.0044 | 32.7 | 0.000134557 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,3-Dichlorobenzene | mg/kg | 0.0044 | 0.74 | 0.005945946 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,4-Dichlorobenzene | mg/kg | 0.0044 | 0.89 | 0.00494382 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2-Hexanone | mg/kg | 0.018 | 5.4 | 0.003333333 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 4-Methyl-2-pentanone (MIBK) | mg/kg | 0.018 | 443 | 4.06321E-05 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Bromodichloromethane | mg/kg | 0.0044 | 0.54 | 0.008148148 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Bromoform | mg/kg | 0.0045 | 15.9 | 0.000283019 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Bromomethane | mg/kg | 0.0088 | 0.24 | 0.036666667 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Carbon disulfide | mg/kg | 0.0044 | 0.81 | 0.005432099 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Carbon Tetrachloride | mg/kg | 0.0044 | 2.98 | 0.00147651 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Chlorobenzene | mg/kg | 0.0044 | 43 | 0.000102326 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Chloroform | mg/kg | 0.0088 | 8 | 0.0011 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Chloromethane | mg/kg | 0.0088 | 10.4 | 0.000846154 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | cis-1,3-Dichloropropene | mg/kg | 0.0044 | 0.398 | 0.011055276 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Dibromochloromethane | mg/kg | 0.0044 | 2.05 | 0.002146341 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Dichlorodifluoromethane | mg/kg | 0.0088 | 39.5 | 0.000222785 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Ethylbenzene | mg/kg | 0.0044 | 5.16 | 0.000852713 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | m,p-Xylene | mg/kg | 0.0028 | 1.4 | 0.002 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Methylene chloride | mg/kg | 0.0044 | 2.6 | 0.001692308 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | o-Xylene | mg/kg | 0.0044 | 1.4 | 0.003142857 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Styrene | mg/kg | 0.0044 | 4.69 | 0.000938166 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Tetrachloroethene (PCE) | mg/kg | 0.0044 | 0.18 | 0.024444444 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | trans-1,2-Dichloroethene | mg/kg | 0.0044 | 0.784 | 0.005612245 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | trans-1,3-Dichloropropene | mg/kg | 0.0044 | 0.398 | 0.011055276 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Trichlorofluoromethane | mg/kg | 0.0088 | 16.4 | 0.000536585 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Vinyl chloride | mg/kg | 0.0044 | 0.12 | 0.036666667 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 2.02 | 0.193069307 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 1,4-Dioxane | mg/kg | 0.39 | 2.05 | 0.190243902 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 19.9 | 0.01959799 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.2 | 1.95 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 14.1 | 0.027659574 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 9.94 | 0.039235412 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2,4-Dichlorophenol | mg/kg | 0.39 | 87.5 | 0.004457143 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2,4-Dinitrotoluene | mg/kg | 0.39 | 14 | 0.027857143 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2,6-Dinitrotoluene | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2-Chloronaphthalene | mg/kg | 0.39 | 0.0122 | 31.96721311 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2-Chlorophenol | mg/kg | 0.39 | 0.54 | 0.722222222 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 580 | 0.000672414 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2-Nitroaniline | mg/kg | 2 | 5.3 | 0.377358491 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 2-Nitrophenol | mg/kg | 0.39 | 1.6 | 0.24375 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 0.646 | 1.207430341 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 3-Nitroaniline | mg/kg | 2 | 3.16 | 0.632911392 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.144 | 13.88888889 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 7.95 | 0.049056604 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 4-Chloroaniline | mg/kg | 0.78 | 1.1 | 0.709090909 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 4-Nitroaniline | mg/kg | 2 | 21.9 | 0.091324201 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | 4-Nitrophenol | mg/kg | 2 | 5.12 | 0.390625 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Acetophenone | mg/kg | 0.39 | 300 | 0.0013 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Benzyl butyl phthalate | mg/kg | 0.39 | 90 | 0.004333333 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 0.302 | 1.291390728 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 23.7 | 0.016455696 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 0.6 | 0.65 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Carbazole | mg/kg | 0.39 | 79 | 0.004936709 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Cresols, m- & p- | mg/kg | 0.39 | 3.49 | 0.111747851 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Diethyl phthalate | mg/kg | 0.39 | 3600 | 0.000108333 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Dimethyl phthalate | mg/kg | 0.39 | 38 | 0.010263158 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | di-n-Octyl phthalate | mg/kg | 0.39 | 0.91 | 0.428571429 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Hexachlorobenzene | mg/kg | 0.39 | 0.2 | 1.95 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Hexachlorobutadiene | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.755 | 0.516556291 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Hexachloroethane | mg/kg | 0.39 | 0.6 | 0.65 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Isophorone | mg/kg | 0.39 | 139 | 0.002805755 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Nitrobenzene | mg/kg | 0.39 | 4.8 | 0.08125 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.544 | 0.716911765 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | N-Nitrosodiphenylamine | mg/kg | 0.39 | 0.545 | 0.71559633 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Pentachlorophenol | mg/kg | 2 | 2.8 | 0.714285714 |
| AOC 5 | Possible Dump | NYOW-05-PH005-B | Phenol | mg/kg | 0.39 | 37 | 0.010540541 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Dibenz(a,h)anthracene | mg/kg | 0.01 | 1.1 | 0.009090909 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.068 | 0.371 | 0.18328841 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.097 | 0.371 | 0.261455526 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.068 | 0.371 | 0.18328841 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.068 | 0.371 | 0.18328841 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.068 | 0.371 | 0.18328841 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.068 | 0.371 | 0.18328841 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.068 | 0.371 | 0.18328841 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.068 | 0.371 | 0.18328841 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.068 | 0.371 | 0.18328841 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.35 | 2.02 | 0.173267327 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 1,4-Dioxane | mg/kg | 0.35 | 2.05 | 0.170731707 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.35 | 19.9 | 0.01758794 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.35 | 0.2 | 1.75 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 14.1 | 0.024822695 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2,4,6-Trichlorophenol | mg/kg | 0.35 | 9.94 | 0.035211268 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2,4-Dichlorophenol | mg/kg | 0.35 | 87.5 | 0.004 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2,4-Dinitrotoluene | mg/kg | 0.35 | 14 | 0.025 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2,6-Dinitrotoluene | mg/kg | 0.35 | 4 | 0.0875 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2-Chloronaphthalene | mg/kg | 0.35 | 0.0122 | 28.68852459 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2-Chlorophenol | mg/kg | 0.35 | 0.54 | 0.648148148 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 580 | 0.000603448 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2-Nitroaniline | mg/kg | 1.8 | 5.3 | 0.339622642 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 2-Nitrophenol | mg/kg | 0.35 | 1.6 | 0.21875 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 3,3'-Dichlorobenzidine | mg/kg | 0.7 | 0.646 | 1.083591331 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 3-Nitroaniline | mg/kg | 1.8 | 3.16 | 0.569620253 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.144 | 12.5 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 4-Chloro-3-methylphenol | mg/kg | 0.35 | 7.95 | 0.044025157 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 4-Chloroaniline | mg/kg | 0.7 | 1.1 | 0.636363636 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 4-Nitroaniline | mg/kg | 1.8 | 21.9 | 0.082191781 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | 4-Nitrophenol | mg/kg | 1.8 | 5.12 | 0.3515625 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Acetophenone | mg/kg | 0.35 | 300 | 0.001166667 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Benzyl butyl phthalate | mg/kg | 0.35 | 90 | 0.003888889 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Bis(2-chloroethoxy)methane | mg/kg | 0.35 | 0.302 | 1.158940397 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.35 | 23.7 | 0.014767932 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 0.6 | 0.583333333 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Carbazole | mg/kg | 0.35 | 79 | 0.00443038 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Cresols, m- & p- | mg/kg | 0.35 | 3.49 | 0.100286533 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Diethyl phthalate | mg/kg | 0.35 | 3600 | 9.72222E-05 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Dimethyl phthalate | mg/kg | 0.35 | 38 | 0.009210526 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | di-n-Octyl phthalate | mg/kg | 0.35 | 0.91 | 0.384615385 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Hexachlorobenzene | mg/kg | 0.35 | 0.2 | 1.75 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Hexachlorobutadiene | mg/kg | 0.35 | 0.04 | 8.75 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Hexachlorocyclopentadiene | mg/kg | 0.35 | 0.755 | 0.463576159 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Hexachloroethane | mg/kg | 0.35 | 0.6 | 0.583333333 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Isophorone | mg/kg | 0.35 | 139 | 0.002517986 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Nitrobenzene | mg/kg | 0.35 | 4.8 | 0.072916667 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL001-A | N-Nitrosodi-n-propylamine | mg/kg | 0.35 | 0.544 | 0.643382353 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | N-Nitrosodiphenylamine | mg/kg | 0.35 | 0.545 | 0.642201835 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Pentachlorophenol | mg/kg | 1.8 | 2.8 | 0.642857143 |
| AOC 5 | Possible Dump | NYOW-05-SL001-A | Phenol | mg/kg | 0.35 | 37 | 0.009459459 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Dibenz(a,h)anthracene | mg/kg | 0.011 | 1.1 | 0.01 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.071 | 0.371 | 0.191374663 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.371 | 0.269541779 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.071 | 0.371 | 0.191374663 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.071 | 0.371 | 0.191374663 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.071 | 0.371 | 0.191374663 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.071 | 0.371 | 0.191374663 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.071 | 0.371 | 0.191374663 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.071 | 0.371 | 0.191374663 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.071 | 0.371 | 0.191374663 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.38 | 2.02 | 0.188118812 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 1,4-Dioxane | mg/kg | 0.38 | 2.05 | 0.185365854 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.38 | 19.9 | 0.019095477 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.38 | 0.2 | 1.9 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2,4,5-Trichlorophenol | mg/kg | 0.38 | 14.1 | 0.026950355 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2,4,6-Trichlorophenol | mg/kg | 0.38 | 9.94 | 0.038229376 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2,4-Dichlorophenol | mg/kg | 0.38 | 87.5 | 0.004342857 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2,4-Dinitrotoluene | mg/kg | 0.38 | 14 | 0.027142857 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2,6-Dinitrotoluene | mg/kg | 0.38 | 4 | 0.095 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2-Chloronaphthalene | mg/kg | 0.38 | 0.0122 | 31.14754098 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2-Chlorophenol | mg/kg | 0.38 | 0.54 | 0.703703704 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.38 | 580 | 0.000655172 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2-Nitroaniline | mg/kg | 2 | 5.3 | 0.377358491 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 2-Nitrophenol | mg/kg | 0.38 | 1.6 | 0.2375 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 3,3'-Dichlorobenzidine | mg/kg | 0.76 | 0.646 | 1.176470588 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 3-Nitroaniline | mg/kg | 2 | 3.16 | 0.632911392 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.144 | 13.88888889 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 4-Chloro-3-methylphenol | mg/kg | 0.38 | 7.95 | 0.047798742 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 4-Chloroaniline | mg/kg | 0.76 | 1.1 | 0.690909091 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 4-Nitroaniline | mg/kg | 2 | 21.9 | 0.091324201 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | 4-Nitrophenol | mg/kg | 2 | 5.12 | 0.390625 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Acetophenone | mg/kg | 0.38 | 300 | 0.001266667 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Benzyl butyl phthalate | mg/kg | 0.38 | 90 | 0.004222222 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Bis(2-chloroethoxy)methane | mg/kg | 0.38 | 0.302 | 1.258278146 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.38 | 23.7 | 0.016033755 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.38 | 0.6 | 0.633333333 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Carbazole | mg/kg | 0.38 | 79 | 0.004810127 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Cresols, m- & p- | mg/kg | 0.38 | 3.49 | 0.108882521 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Diethyl phthalate | mg/kg | 0.38 | 3600 | 0.000105556 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Dimethyl phthalate | mg/kg | 0.38 | 38 | 0.01 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | di-n-Octyl phthalate | mg/kg | 0.38 | 0.91 | 0.417582418 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Hexachlorobenzene | mg/kg | 0.38 | 0.2 | 1.9 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Hexachlorobutadiene | mg/kg | 0.38 | 0.04 | 9.5 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Hexachlorocyclopentadiene | mg/kg | 0.38 | 0.755 | 0.503311258 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Hexachloroethane | mg/kg | 0.38 | 0.6 | 0.633333333 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Isophorone | mg/kg | 0.38 | 139 | 0.002733813 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Nitrobenzene | mg/kg | 0.38 | 4.8 | 0.079166667 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | N-Nitrosodi-n-propylamine | mg/kg | 0.38 | 0.544 | 0.698529412 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | N-Nitrosodiphenylamine | mg/kg | 0.38 | 0.545 | 0.697247706 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Pentachlorophenol | mg/kg | 2 | 2.8 | 0.714285714 |
| AOC 5 | Possible Dump | NYOW-05-SL002-A | Phenol | mg/kg | 0.38 | 37 | 0.01027027 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Dibenz(a,h)anthracene | mg/kg | 0.012 | 1.1 | 0.010909091 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.075 | 0.371 | 0.202156334 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.11 | 0.371 | 0.296495957 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.075 | 0.371 | 0.202156334 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.075 | 0.371 | 0.202156334 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.075 | 0.371 | 0.202156334 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.075 | 0.371 | 0.202156334 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.075 | 0.371 | 0.202156334 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.075 | 0.371 | 0.202156334 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL003-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.075 | 0.371 | 0.202156334 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.37 | 2.02 | 0.183168317 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 1,4-Dioxane | mg/kg | 0.37 | 2.05 | 0.180487805 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.37 | 0.2 | 1.85 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2,4,5-Trichlorophenol | mg/kg | 0.37 | 14.1 | 0.026241135 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2,4,6-Trichlorophenol | mg/kg | 0.37 | 9.94 | 0.03722334 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2,4-Dichlorophenol | mg/kg | 0.37 | 87.5 | 0.004228571 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2,4-Dinitrotoluene | mg/kg | 0.37 | 14 | 0.026428571 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2,6-Dinitrotoluene | mg/kg | 0.37 | 4 | 0.0925 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2-Chloronaphthalene | mg/kg | 0.37 | 0.0122 | 30.32786885 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2-Chlorophenol | mg/kg | 0.37 | 0.54 | 0.685185185 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.37 | 580 | 0.000637931 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2-Nitroaniline | mg/kg | 1.9 | 5.3 | 0.358490566 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 2-Nitrophenol | mg/kg | 0.37 | 1.6 | 0.23125 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 3,3'-Dichlorobenzidine | mg/kg | 0.74 | 0.646 | 1.145510836 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 3-Nitroaniline | mg/kg | 1.9 | 3.16 | 0.601265823 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 4,6-Dinitro-2-methylphenol | mg/kg | 1.9 | 0.144 | 13.19444444 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 4-Chloro-3-methylphenol | mg/kg | 0.37 | 7.95 | 0.046540881 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 4-Chloroaniline | mg/kg | 0.74 | 1.1 | 0.672727273 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 4-Nitroaniline | mg/kg | 1.9 | 21.9 | 0.086757991 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | 4-Nitrophenol | mg/kg | 1.9 | 5.12 | 0.37109375 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Acetophenone | mg/kg | 0.37 | 300 | 0.001233333 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Benzyl butyl phthalate | mg/kg | 0.37 | 90 | 0.004111111 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Bis(2-chloroethoxy)methane | mg/kg | 0.37 | 0.302 | 1.225165563 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.37 | 23.7 | 0.015611814 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Carbazole | mg/kg | 0.37 | 79 | 0.004683544 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Cresols, m- & p- | mg/kg | 0.37 | 3.49 | 0.106017192 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Diethyl phthalate | mg/kg | 0.37 | 3600 | 0.000102778 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Dimethyl phthalate | mg/kg | 0.37 | 38 | 0.009736842 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | di-n-Octyl phthalate | mg/kg | 0.37 | 0.91 | 0.406593407 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Hexachlorobenzene | mg/kg | 0.37 | 0.2 | 1.85 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Hexachlorobutadiene | mg/kg | 0.37 | 0.04 | 9.25 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Hexachlorocyclopentadiene | mg/kg | 0.37 | 0.755 | 0.490066225 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Hexachloroethane | mg/kg | 0.37 | 0.6 | 0.616666667 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Isophorone | mg/kg | 0.37 | 139 | 0.002661871 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Nitrobenzene | mg/kg | 0.37 | 4.8 | 0.077083333 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | N-Nitrosodi-n-propylamine | mg/kg | 0.37 | 0.544 | 0.680147059 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | N-Nitrosodiphenylamine | mg/kg | 0.37 | 0.545 | 0.678899083 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Pentachlorophenol | mg/kg | 1.9 | 2.8 | 0.678571429 |
| AOC 5 | Possible Dump | NYOW-05-SL003-A | Phenol | mg/kg | 0.37 | 37 | 0.01 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Dibenz(a,h)anthracene | mg/kg | 0.0099 | 1.1 | 0.009 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.371 | 0.269541779 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.35 | 2.02 | 0.173267327 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 1,4-Dioxane | mg/kg | 0.35 | 2.05 | 0.170731707 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.35 | 19.9 | 0.01758794 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.35 | 0.2 | 1.75 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2,4,5-Trichlorophenol | mg/kg | 0.35 | 14.1 | 0.024822695 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2,4,6-Trichlorophenol | mg/kg | 0.35 | 9.94 | 0.035211268 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2,4-Dichlorophenol | mg/kg | 0.35 | 87.5 | 0.004 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2,4-Dinitrotoluene | mg/kg | 0.35 | 14 | 0.025 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2,6-Dinitrotoluene | mg/kg | 0.35 | 4 | 0.0875 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2-Chloronaphthalene | mg/kg | 0.35 | 0.0122 | 28.68852459 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2-Chlorophenol | mg/kg | 0.35 | 0.54 | 0.648148148 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.35 | 580 | 0.000603448 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2-Nitroaniline | mg/kg | 1.8 | 5.3 | 0.339622642 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 2-Nitrophenol | mg/kg | 0.35 | 1.6 | 0.21875 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 3,3'-Dichlorobenzidine | mg/kg | 0.71 | 0.646 | 1.099071207 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 3-Nitroaniline | mg/kg | 1.8 | 3.16 | 0.569620253 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 4,6-Dinitro-2-methylphenol | mg/kg | 1.8 | 0.144 | 12.5 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 4-Chloro-3-methylphenol | mg/kg | 0.35 | 7.95 | 0.044025157 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 4-Chloroaniline | mg/kg | 0.71 | 1.1 | 0.645454545 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 4-Nitroaniline | mg/kg | 1.8 | 21.9 | 0.082191781 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | 4-Nitrophenol | mg/kg | 1.8 | 5.12 | 0.3515625 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Acetophenone | mg/kg | 0.35 | 300 | 0.001166667 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Benzyl butyl phthalate | mg/kg | 0.35 | 90 | 0.003888889 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Bis(2-chloroethoxy)methane | mg/kg | 0.35 | 0.302 | 1.158940397 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.35 | 23.7 | 0.014767932 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.35 | 0.6 | 0.583333333 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Carbazole | mg/kg | 0.35 | 79 | 0.00443038 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Cresols, m- & p- | mg/kg | 0.35 | 3.49 | 0.100286533 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Diethyl phthalate | mg/kg | 0.35 | 3600 | 9.72222E-05 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Dimethyl phthalate | mg/kg | 0.35 | 38 | 0.009210526 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | di-n-Octyl phthalate | mg/kg | 0.35 | 0.91 | 0.384615385 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Hexachlorobenzene | mg/kg | 0.35 | 0.2 | 1.75 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Hexachlorobutadiene | mg/kg | 0.35 | 0.04 | 8.75 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Hexachlorocyclopentadiene | mg/kg | 0.35 | 0.755 | 0.463576159 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Hexachloroethane | mg/kg | 0.35 | 0.6 | 0.583333333 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Isophorone | mg/kg | 0.35 | 139 | 0.002517986 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Nitrobenzene | mg/kg | 0.35 | 4.8 | 0.072916667 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | N-Nitrosodi-n-propylamine | mg/kg | 0.35 | 0.544 | 0.643382353 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | N-Nitrosodiphenylamine | mg/kg | 0.35 | 0.545 | 0.642201835 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Pentachlorophenol | mg/kg | 1.8 | 2.8 | 0.642857143 |
| AOC 5 | Possible Dump | NYOW-05-SL004-A | Phenol | mg/kg | 0.35 | 37 | 0.009459459 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Dibenz(a,h)anthracene | mg/kg | 0.11 | 1.1 | 0.1 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1016 (Aroclor 1016) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1221 (Aroclor 1221) | mg/kg | 0.1 | 0.371 | 0.269541779 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1232 (Aroclor 1232) | mg/kg | 0.072 | 0.371 | 0.194070081 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1242 (Aroclor 1242) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1248 (Aroclor 1248) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1254 (Aroclor 1254) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1260 (Aroclor 1260) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1262 (Aroclor 1262) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | PCB-1268 (Aroclor 1268) | mg/kg | 0.072 | 0.371 | 0.194070081 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 1,2,4,5-Tetrachlorobenzene | mg/kg | 0.39 | 2.02 | 0.193069307 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 1,4-Dioxane | mg/kg | 0.39 | 2.05 | 0.190243902 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2,2'-Oxybis(1-chloropropane) | mg/kg | 0.39 | 19.9 | 0.01959799 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2,3,4,6-Tetrachlorophenol | mg/kg | 0.39 | 0.2 | 1.95 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2,4,5-Trichlorophenol | mg/kg | 0.39 | 14.1 | 0.027659574 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2,4,6-Trichlorophenol | mg/kg | 0.39 | 9.94 | 0.039235412 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2,4-Dichlorophenol | mg/kg | 0.39 | 87.5 | 0.004457143 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2,4-Dinitrotoluene | mg/kg | 0.39 | 14 | 0.027857143 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2,6-Dinitrotoluene | mg/kg | 0.39 | 4 | 0.0975 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2-Chloronaphthalene | mg/kg | 0.39 | 0.0122 | 31.96721311 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2-Chlorophenol | mg/kg | 0.39 | 0.54 | 0.722222222 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2-Methylphenol (o-Cresol) | mg/kg | 0.39 | 580 | 0.000672414 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2-Nitroaniline | mg/kg | 2 | 5.3 | 0.377358491 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 2-Nitrophenol | mg/kg | 0.39 | 1.6 | 0.24375 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 3,3'-Dichlorobenzidine | mg/kg | 0.78 | 0.646 | 1.207430341 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 3-Nitroaniline | mg/kg | 2 | 3.16 | 0.632911392 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 4,6-Dinitro-2-methylphenol | mg/kg | 2 | 0.144 | 13.88888889 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 4-Chloro-3-methylphenol | mg/kg | 0.39 | 7.95 | 0.049056604 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 4-Chloroaniline | mg/kg | 0.78 | 1.1 | 0.709090909 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 4-Nitroaniline | mg/kg | 2 | 21.9 | 0.091324201 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | 4-Nitrophenol | mg/kg | 2 | 5.12 | 0.390625 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Acetophenone | mg/kg | 0.39 | 300 | 0.0013 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Benzyl butyl phthalate | mg/kg | 0.39 | 90 | 0.004333333 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Bis(2-chloroethoxy)methane | mg/kg | 0.39 | 0.302 | 1.291390728 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | mg/kg | 0.39 | 23.7 | 0.016455696 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Bis(2-ethylhexyl)phthalate | mg/kg | 0.39 | 0.6 | 0.65 |

Table E.1-6
Non-detected Analyte LOQs Compared with Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Sample ID | Analyte | Units | LOQ | Screening Level[1] | Ratio of LOQ to Screening Level |
|---|---|---|---|---|---|---|---|
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Carbazole | mg/kg | 0.39 | 79 | 0.004936709 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Cresols, m- & p- | mg/kg | 0.39 | 3.49 | 0.111747851 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Diethyl phthalate | mg/kg | 0.39 | 3600 | 0.000108333 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Dimethyl phthalate | mg/kg | 0.39 | 38 | 0.010263158 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | di-n-Octyl phthalate | mg/kg | 0.39 | 0.91 | 0.428571429 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Hexachlorobenzene | mg/kg | 0.39 | 0.2 | 1.95 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Hexachlorobutadiene | mg/kg | 0.39 | 0.04 | 9.75 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Hexachlorocyclopentadiene | mg/kg | 0.39 | 0.755 | 0.516556291 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Hexachloroethane | mg/kg | 0.39 | 0.6 | 0.65 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Isophorone | mg/kg | 0.39 | 139 | 0.002805755 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Nitrobenzene | mg/kg | 0.39 | 4.8 | 0.08125 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | N-Nitrosodi-n-propylamine | mg/kg | 0.39 | 0.544 | 0.716911765 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | N-Nitrosodiphenylamine | mg/kg | 0.39 | 0.545 | 0.71559633 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Pentachlorophenol | mg/kg | 2 | 2.8 | 0.714285714 |
| AOC 5 | Possible Dump | NYOW-05-SL005-A | Phenol | mg/kg | 0.39 | 37 | 0.010540541 |

Notes:
AOC = area of concern
LOQ = limit of quantitation
mg/kg = micrograms per kilogram
NA = not applicable

1) See Appendix L.

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# APPENDIX E.2

# Non-detect Analytes – Frequency Exceeding Screening Levels

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Table E.2-1
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 1 | NA | 2,4-Dinitrochlorobenzene | 9/9 |
| AOC 1 | NA | 2,4-Dinitrophenol | 9/9 |
| AOC 1 | NA | Picric acid | 0/10 |
| AOC 1 | NA | Beryllium | 0/9 |
| AOC 1 | NA | Mercury | 9/9 |
| AOC 1 | NA | Selenium | 9/9 |
| AOC 1 | NA | Silver | 9/9 |
| AOC 1 | NA | Thallium | 9/9 |
| AOC 3 | NA | 1,1,1-Trichloroethane | 0/7 |
| AOC 3 | NA | 1,1,2,2-Tetrachloroethane | 7/7 |
| AOC 3 | NA | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0/7 |
| AOC 3 | NA | 1,1,2-Trichloroethane | 7/7 |
| AOC 3 | NA | 1,1-Dichloroethane | 0/7 |
| AOC 3 | NA | 1,1-Dichloroethene | 0/7 |
| AOC 3 | NA | 1,2,3-Trichlorobenzene | 7/7 |
| AOC 3 | NA | 1,2,4-Trichlorobenzene | 7/7 |
| AOC 3 | NA | 1,2-Dibromo-3-chloropropane | 7/7 |
| AOC 3 | NA | 1,2-Dibromoethane (EDB) | 7/7 |
| AOC 3 | NA | 1,2-Dichlorobenzene | 0/7 |
| AOC 3 | NA | 1,2-Dichloroethane | 7/7 |
| AOC 3 | NA | 1,2-Dichloropropane | 7/7 |
| AOC 3 | NA | 1,3-Dichlorobenzene | 0/7 |
| AOC 3 | NA | 1,3-Dichloropropane | 0/7 |
| AOC 3 | NA | 1,4-Dichlorobenzene | 7/7 |
| AOC 3 | NA | 2,2'-Oxybis(1-chloropropane) | 0/7 |
| AOC 3 | NA | 2-Butanone (MEK) | 0/7 |
| AOC 3 | NA | 2-Hexanone | 7/7 |
| AOC 3 | NA | 4-Methyl-2-pentanone (MIBK) | 0/7 |
| AOC 3 | NA | Acetophenone | 0/7 |
| AOC 3 | NA | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 7/7 |
| AOC 3 | NA | Bromochloromethane | 0/7 |
| AOC 3 | NA | Bromodichloromethane | 7/7 |
| AOC 3 | NA | Bromoform | 0/7 |
| AOC 3 | NA | Bromomethane | 7/7 |
| AOC 3 | NA | Carbon disulfide | 0/7 |
| AOC 3 | NA | Carbon Tetrachloride | 7/7 |
| AOC 3 | NA | Chlorobenzene | 0/7 |
| AOC 3 | NA | Chloroethane | 0/7 |
| AOC 3 | NA | Chloroform | 7/7 |
| AOC 3 | NA | Chloromethane | 0/7 |
| AOC 3 | NA | cis-1,2-Dichloroethene | 0/7 |
| AOC 3 | NA | cis-1,3-Dichloropropene | 7/7 |
| AOC 3 | NA | Cumene | 0/7 |
| AOC 3 | NA | Cyclohexane | 0/7 |
| AOC 3 | NA | Dibromochloromethane | 7/7 |
| AOC 3 | NA | Dichlorodifluoromethane | 0/7 |
| AOC 3 | NA | Ethylbenzene | 0/7 |
| AOC 3 | NA | Hexachlorobenzene | 7/7 |
| AOC 3 | NA | Hexachloroethane | 7/7 |
| AOC 3 | NA | Methyl acetate | 0/7 |

Table E.2-1
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 3 | NA | Methyl tert-butyl ether (MTBE) | 0/7 |
| AOC 3 | NA | Methylene chloride | 0/7 |
| AOC 3 | NA | o-Xylene | 0/7 |
| AOC 3 | NA | Styrene | 0/7 |
| AOC 3 | NA | Tetrachloroethene (PCE) | 0/7 |
| AOC 3 | NA | trans-1,2-Dichloroethene | 0/7 |
| AOC 3 | NA | trans-1,3-Dichloropropene | 7/7 |
| AOC 3 | NA | Trichlorofluoromethane | 0/7 |
| AOC 3 | NA | Vinyl chloride | 7/7 |
| AOC 3 | NA | 1,2,4,5-Tetrachlorobenzene | 7/7 |
| AOC 3 | NA | 1,4-Dioxane | 7/7 |
| AOC 3 | NA | 2,3,4,6-Tetrachlorophenol | 0/7 |
| AOC 3 | NA | 2,4,5-Trichlorophenol | 0/7 |
| AOC 3 | NA | 2,4,6-Trichlorophenol | 7/7 |
| AOC 3 | NA | 2,4-Dichlorophenol | 7/7 |
| AOC 3 | NA | 2,4-Dimethylphenol | 0/7 |
| AOC 3 | NA | 2,4-Dinitrochlorobenzene | 7/7 |
| AOC 3 | NA | 2,4-Dinitrophenol | 7/7 |
| AOC 3 | NA | 2,4-Dinitrotoluene | 7/7 |
| AOC 3 | NA | 2,6-Dinitrotoluene | 7/7 |
| AOC 3 | NA | 2-Chloronaphthalene | 0/7 |
| AOC 3 | NA | 2-Chlorophenol | 7/7 |
| AOC 3 | NA | 2-Methylphenol (o-Cresol) | 0/7 |
| AOC 3 | NA | 2-Nitroaniline | 7/7 |
| AOC 3 | NA | 2-Nitrophenol | 7/7 |
| AOC 3 | NA | 3,3'-Dichlorobenzidine | 7/7 |
| AOC 3 | NA | 3-Nitroaniline | 7/7 |
| AOC 3 | NA | 4,6-Dinitro-2-methylphenol | 7/7 |
| AOC 3 | NA | 4-Chloro-3-methylphenol | 0/7 |
| AOC 3 | NA | 4-Chloroaniline | 7/7 |
| AOC 3 | NA | 4-Nitrophenol | 7/7 |
| AOC 3 | NA | Atrazine | 7/7 |
| AOC 3 | NA | Benzyl butyl phthalate | 1/7 |
| AOC 3 | NA | Biphenyl (Diphenyl) | 7/7 |
| AOC 3 | NA | Bis(2-chloroethoxy)methane | 7/7 |
| AOC 3 | NA | Bis(2-ethylhexyl)phthalate | 7/7 |
| AOC 3 | NA | Carbazole | 0/7 |
| AOC 3 | NA | Cresols, m- & p- | 0/7 |
| AOC 3 | NA | Dibenzofuran | 7/7 |
| AOC 3 | NA | Diethyl phthalate | 0/7 |
| AOC 3 | NA | di-n-Butyl phthalate | 0/7 |
| AOC 3 | NA | di-n-Octyl phthalate | 0/7 |
| AOC 3 | NA | Hexachlorobutadiene | 7/7 |
| AOC 3 | NA | Hexachlorocyclopentadiene | 7/7 |
| AOC 3 | NA | Isophorone | 0/7 |
| AOC 3 | NA | Nitrobenzene | 7/7 |
| AOC 3 | NA | N-Nitrosodi-n-propylamine | 7/7 |
| AOC 3 | NA | N-Nitrosodiphenylamine | 1/7 |
| AOC 3 | NA | Pentachlorophenol | 7/7 |
| AOC 3 | NA | Phenol | 0/7 |

Table E.2-1
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 3 | NA | 1-Methylnaphthalene | 0/7 |
| AOC 3 | NA | 2-Methylnaphthalene | 0/7 |
| AOC 3 | NA | Acenaphthene | 0/7 |
| AOC 3 | NA | Acenaphthylene | 0/7 |
| AOC 3 | NA | Anthracene | 0/7 |
| AOC 3 | NA | Benzo(a)anthracene | 7/7 |
| AOC 3 | NA | Benzo(a)pyrene | 7/7 |
| AOC 3 | NA | Benzo(b)fluoranthene | 0/7 |
| AOC 3 | NA | Benzo(g,h,i)perylene | 0/7 |
| AOC 3 | NA | Benzo(k)fluoranthene | 0/7 |
| AOC 3 | NA | Chrysene | 0/7 |
| AOC 3 | NA | Dibenz(a,h)anthracene | 7/7 |
| AOC 3 | NA | Fluoranthene | 0/7 |
| AOC 3 | NA | Fluorene | 0/7 |
| AOC 3 | NA | Indeno(1,2,3-c,d)pyrene | 0/7 |
| AOC 3 | NA | Naphthalene | 0/7 |
| AOC 3 | NA | Phenanthrene | 0/7 |
| AOC 3 | NA | Pyrene | 0/7 |
| AOC 3 | NA | PCB-1016 (Aroclor 1016) | 6/6 |
| AOC 3 | NA | PCB-1221 (Aroclor 1221) | 6/6 |
| AOC 3 | NA | PCB-1232 (Aroclor 1232) | 6/6 |
| AOC 3 | NA | PCB-1242 (Aroclor 1242) | 6/6 |
| AOC 3 | NA | PCB-1248 (Aroclor 1248) | 6/6 |
| AOC 3 | NA | PCB-1254 (Aroclor 1254) | 6/6 |
| AOC 3 | NA | PCB-1260 (Aroclor 1260) | 6/6 |
| AOC 3 | NA | PCB-1262 (Aroclor 1262) | 6/6 |
| AOC 3 | NA | PCB-1268 (Aroclor 1268) | 6/6 |
| AOC 3 | NA | Picric acid | 0/7 |
| AOC 3 | NA | Antimony | 7/7 |
| AOC 3 | NA | Beryllium | 0/7 |
| AOC 3 | NA | Cadmium | 7/7 |
| AOC 3 | NA | Chromium | 0/7 |
| AOC 3 | NA | Copper | 0/7 |
| AOC 3 | NA | Mercury | 7/7 |
| AOC 3 | NA | Silver | 7/7 |
| AOC 3 | NA | Thallium | 7/7 |
| AOC 4 - Discrete | NA | 2,4-Dinitrochlorobenzene | 16/16 |
| AOC 4 - Discrete | NA | 2,4-Dinitrophenol | 16/16 |
| AOC 4 - Discrete | NA | Picric acid | 2/15 |
| AOC 5 | Boiler House | 2,2'-Oxybis(1-chloropropane) | 0/3 |
| AOC 5 | Boiler House | Acetophenone | 0/3 |
| AOC 5 | Boiler House | Benzaldehyde | 0/3 |
| AOC 5 | Boiler House | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 3/3 |
| AOC 5 | Boiler House | Hexachlorobenzene | 3/3 |
| AOC 5 | Boiler House | Hexachloroethane | 3/3 |
| AOC 5 | Boiler House | 1,2,4,5-Tetrachlorobenzene | 3/3 |
| AOC 5 | Boiler House | 1,4-Dioxane | 3/3 |
| AOC 5 | Boiler House | 2,3,4,6-Tetrachlorophenol | 0/3 |
| AOC 5 | Boiler House | 2,4,5-Trichlorophenol | 0/3 |
| AOC 5 | Boiler House | 2,4,6-Trichlorophenol | 3/3 |

Table E.2-1
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Boiler House | 2,4-Dichlorophenol | 3/3 |
| AOC 5 | Boiler House | 2,4-Dimethylphenol | 0/3 |
| AOC 5 | Boiler House | 2,4-Dinitrotoluene | 3/3 |
| AOC 5 | Boiler House | 2,6-Dinitrotoluene | 3/3 |
| AOC 5 | Boiler House | 2-Chloronaphthalene | 0/3 |
| AOC 5 | Boiler House | 2-Chlorophenol | 3/3 |
| AOC 5 | Boiler House | 2-Methylphenol (o-Cresol) | 0/3 |
| AOC 5 | Boiler House | 2-Nitroaniline | 3/3 |
| AOC 5 | Boiler House | 2-Nitrophenol | 3/3 |
| AOC 5 | Boiler House | 3,3'-Dichlorobenzidine | 3/3 |
| AOC 5 | Boiler House | 3-Nitroaniline | 3/3 |
| AOC 5 | Boiler House | 4,6-Dinitro-2-methylphenol | 3/3 |
| AOC 5 | Boiler House | 4-Chloro-3-methylphenol | 0/3 |
| AOC 5 | Boiler House | 4-Chloroaniline | 3/3 |
| AOC 5 | Boiler House | 4-Nitroaniline | 3/3 |
| AOC 5 | Boiler House | 4-Nitrophenol | 3/3 |
| AOC 5 | Boiler House | Atrazine | 3/3 |
| AOC 5 | Boiler House | Benzyl butyl phthalate | 0/3 |
| AOC 5 | Boiler House | Biphenyl (Diphenyl) | 3/3 |
| AOC 5 | Boiler House | Bis(2-chloroethoxy)methane | 3/3 |
| AOC 5 | Boiler House | Bis(2-ethylhexyl)phthalate | 3/3 |
| AOC 5 | Boiler House | Carbazole | 0/3 |
| AOC 5 | Boiler House | Cresols, m- & p- | 0/3 |
| AOC 5 | Boiler House | Dibenzofuran | 3/3 |
| AOC 5 | Boiler House | Diethyl phthalate | 0/3 |
| AOC 5 | Boiler House | di-n-Butyl phthalate | 0/3 |
| AOC 5 | Boiler House | di-n-Octyl phthalate | 0/3 |
| AOC 5 | Boiler House | Hexachlorobutadiene | 3/3 |
| AOC 5 | Boiler House | Hexachlorocyclopentadiene | 3/3 |
| AOC 5 | Boiler House | Isophorone | 0/3 |
| AOC 5 | Boiler House | Nitrobenzene | 3/3 |
| AOC 5 | Boiler House | N-Nitrosodi-n-propylamine | 3/3 |
| AOC 5 | Boiler House | N-Nitrosodiphenylamine | 0/3 |
| AOC 5 | Boiler House | Pentachlorophenol | 3/3 |
| AOC 5 | Boiler House | Phenol | 0/3 |
| AOC 5 | Boiler House | Acenaphthylene | 0/3 |
| AOC 5 | Boiler House | Fluorene | 0/3 |
| AOC 5 | Boiler House | Beryllium | 0/3 |
| AOC 5 | Boiler House | Cadmium | 3/3 |
| AOC 5 | Boiler House | Chromium | 0/3 |
| AOC 5 | Boiler House | Copper | 0/3 |
| AOC 5 | Boiler House | Lead | 0/3 |
| AOC 5 | Boiler House | Mercury | 3/3 |
| AOC 5 | Boiler House | Nickel | 3/3 |
| AOC 5 | Boiler House | Selenium | 3/3 |
| AOC 5 | Boiler House | Silver | 3/3 |
| AOC 5 | Boiler House | Thallium | 3/3 |
| AOC 5 | Boiler House | Zinc | 0/3 |
| AOC 5 | Coal Aggregate Bins | Acetophenone | 0/1 |
| AOC 5 | Coal Aggregate Bins | Benzaldehyde | 0/1 |

Table E.2-1
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 1/1 |
| AOC 5 | Coal Aggregate Bins | Hexachlorobenzene | 1/1 |
| AOC 5 | Coal Aggregate Bins | Hexachloroethane | 1/1 |
| AOC 5 | Coal Aggregate Bins | 1,2,4,5-Tetrachlorobenzene | 1/1 |
| AOC 5 | Coal Aggregate Bins | 1,4-Dioxane | 1/1 |
| AOC 5 | Coal Aggregate Bins | 2,3,4,6-Tetrachlorophenol | 0/2 |
| AOC 5 | Coal Aggregate Bins | 2,4,5-Trichlorophenol | 0/2 |
| AOC 5 | Coal Aggregate Bins | 2,4,6-Trichlorophenol | 2/2 |
| AOC 5 | Coal Aggregate Bins | 2,4-Dichlorophenol | 2/2 |
| AOC 5 | Coal Aggregate Bins | 2,4-Dimethylphenol | 0/2 |
| AOC 5 | Coal Aggregate Bins | 2,4-Dinitrotoluene | 1/1 |
| AOC 5 | Coal Aggregate Bins | 2,6-Dinitrotoluene | 1/1 |
| AOC 5 | Coal Aggregate Bins | 2-Chloronaphthalene | 0/1 |
| AOC 5 | Coal Aggregate Bins | 2-Chlorophenol | 2/2 |
| AOC 5 | Coal Aggregate Bins | 2-Methylphenol (o-Cresol) | 0/2 |
| AOC 5 | Coal Aggregate Bins | 2-Nitroaniline | 1/1 |
| AOC 5 | Coal Aggregate Bins | 2-Nitrophenol | 2/2 |
| AOC 5 | Coal Aggregate Bins | 3,3'-Dichlorobenzidine | 1/1 |
| AOC 5 | Coal Aggregate Bins | 3-Nitroaniline | 1/1 |
| AOC 5 | Coal Aggregate Bins | 4,6-Dinitro-2-methylphenol | 2/2 |
| AOC 5 | Coal Aggregate Bins | 4-Chloro-3-methylphenol | 0/2 |
| AOC 5 | Coal Aggregate Bins | 4-Chloroaniline | 1/1 |
| AOC 5 | Coal Aggregate Bins | 4-Nitroaniline | 1/1 |
| AOC 5 | Coal Aggregate Bins | 4-Nitrophenol | 2/2 |
| AOC 5 | Coal Aggregate Bins | Atrazine | 1/1 |
| AOC 5 | Coal Aggregate Bins | Benzyl butyl phthalate | 0/1 |
| AOC 5 | Coal Aggregate Bins | Biphenyl (Diphenyl) | 1/1 |
| AOC 5 | Coal Aggregate Bins | Bis(2-chloroethoxy)methane | 1/1 |
| AOC 5 | Coal Aggregate Bins | Bis(2-ethylhexyl)phthalate | 1/1 |
| AOC 5 | Coal Aggregate Bins | Caprolactam | 0/1 |
| AOC 5 | Coal Aggregate Bins | Carbazole | 0/1 |
| AOC 5 | Coal Aggregate Bins | Cresols, m- & p- | 0/2 |
| AOC 5 | Coal Aggregate Bins | Dibenzofuran | 1/1 |
| AOC 5 | Coal Aggregate Bins | Diethyl phthalate | 0/1 |
| AOC 5 | Coal Aggregate Bins | di-n-Butyl phthalate | 0/1 |
| AOC 5 | Coal Aggregate Bins | di-n-Octyl phthalate | 0/1 |
| AOC 5 | Coal Aggregate Bins | Hexachlorobutadiene | 1/1 |
| AOC 5 | Coal Aggregate Bins | Hexachlorocyclopentadiene | 1/1 |
| AOC 5 | Coal Aggregate Bins | Isophorone | 0/1 |
| AOC 5 | Coal Aggregate Bins | Nitrobenzene | 1/1 |
| AOC 5 | Coal Aggregate Bins | N-Nitrosodi-n-propylamine | 1/1 |
| AOC 5 | Coal Aggregate Bins | N-Nitrosodiphenylamine | 0/1 |
| AOC 5 | Coal Aggregate Bins | Pentachlorophenol | 2/2 |
| AOC 5 | Coal Aggregate Bins | Acenaphthene | 0/2 |
| AOC 5 | Coal Aggregate Bins | Acenaphthylene | 0/2 |
| AOC 5 | Coal Aggregate Bins | Anthracene | 0/2 |
| AOC 5 | Coal Aggregate Bins | Benzo(a)anthracene | 2/2 |
| AOC 5 | Coal Aggregate Bins | Benzo(a)pyrene | 2/2 |
| AOC 5 | Coal Aggregate Bins | Benzo(b)fluoranthene | 0/2 |
| AOC 5 | Coal Aggregate Bins | Benzo(g,h,i)perylene | 0/2 |

Table E.2-1
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | Benzo(k)fluoranthene | 0/2 |
| AOC 5 | Coal Aggregate Bins | Dibenz(a,h)anthracene | 2/2 |
| AOC 5 | Coal Aggregate Bins | Fluoranthene | 0/2 |
| AOC 5 | Coal Aggregate Bins | Fluorene | 0/2 |
| AOC 5 | Coal Aggregate Bins | Indeno(1,2,3-c,d)pyrene | 0/2 |
| AOC 5 | Coal Aggregate Bins | Pyrene | 0/2 |
| AOC 5 | Coal Aggregate Bins | Antimony | 2/2 |
| AOC 5 | Coal Aggregate Bins | Beryllium | 0/2 |
| AOC 5 | Coal Aggregate Bins | Cadmium | 2/2 |
| AOC 5 | Coal Aggregate Bins | Mercury | 2/2 |
| AOC 5 | Coal Aggregate Bins | Selenium | 2/2 |
| AOC 5 | Coal Aggregate Bins | Silver | 2/2 |
| AOC 5 | Coal Aggregate Bins | Thallium | 2/2 |
| AOC 5 | Coal Storage Area | Acetophenone | 0/2 |
| AOC 5 | Coal Storage Area | Benzaldehyde | 0/2 |
| AOC 5 | Coal Storage Area | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 2/2 |
| AOC 5 | Coal Storage Area | Hexachlorobenzene | 2/2 |
| AOC 5 | Coal Storage Area | Hexachloroethane | 2/2 |
| AOC 5 | Coal Storage Area | 1,2,4,5-Tetrachlorobenzene | 2/2 |
| AOC 5 | Coal Storage Area | 1,4-Dioxane | 2/2 |
| AOC 5 | Coal Storage Area | 2,3,4,6-Tetrachlorophenol | 0/3 |
| AOC 5 | Coal Storage Area | 2,4,5-Trichlorophenol | 0/3 |
| AOC 5 | Coal Storage Area | 2,4,6-Trichlorophenol | 3/3 |
| AOC 5 | Coal Storage Area | 2,4-Dichlorophenol | 3/3 |
| AOC 5 | Coal Storage Area | 2,4-Dimethylphenol | 0/3 |
| AOC 5 | Coal Storage Area | 2,4-Dinitrotoluene | 2/2 |
| AOC 5 | Coal Storage Area | 2,6-Dinitrotoluene | 2/2 |
| AOC 5 | Coal Storage Area | 2-Chloronaphthalene | 0/2 |
| AOC 5 | Coal Storage Area | 2-Chlorophenol | 3/3 |
| AOC 5 | Coal Storage Area | 2-Methylphenol (o-Cresol) | 0/3 |
| AOC 5 | Coal Storage Area | 2-Nitroaniline | 2/2 |
| AOC 5 | Coal Storage Area | 2-Nitrophenol | 3/3 |
| AOC 5 | Coal Storage Area | 3,3'-Dichlorobenzidine | 2/2 |
| AOC 5 | Coal Storage Area | 3-Nitroaniline | 2/2 |
| AOC 5 | Coal Storage Area | 4,6-Dinitro-2-methylphenol | 3/3 |
| AOC 5 | Coal Storage Area | 4-Chloro-3-methylphenol | 0/3 |
| AOC 5 | Coal Storage Area | 4-Chloroaniline | 2/2 |
| AOC 5 | Coal Storage Area | 4-Nitroaniline | 2/2 |
| AOC 5 | Coal Storage Area | 4-Nitrophenol | 3/3 |
| AOC 5 | Coal Storage Area | Atrazine | 2/2 |
| AOC 5 | Coal Storage Area | Benzyl butyl phthalate | 0/2 |
| AOC 5 | Coal Storage Area | Biphenyl (Diphenyl) | 2/2 |
| AOC 5 | Coal Storage Area | Bis(2-chloroethoxy)methane | 2/2 |
| AOC 5 | Coal Storage Area | Bis(2-ethylhexyl)phthalate | 2/2 |
| AOC 5 | Coal Storage Area | Caprolactam | 0/2 |
| AOC 5 | Coal Storage Area | Carbazole | 0/2 |
| AOC 5 | Coal Storage Area | Cresols, m- & p- | 0/3 |
| AOC 5 | Coal Storage Area | Dibenzofuran | 2/2 |
| AOC 5 | Coal Storage Area | Diethyl phthalate | 0/2 |
| AOC 5 | Coal Storage Area | di-n-Butyl phthalate | 0/2 |

Table E.2-1
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Coal Storage Area | di-n-Octyl phthalate | 0/2 |
| AOC 5 | Coal Storage Area | Hexachlorobutadiene | 2/2 |
| AOC 5 | Coal Storage Area | Hexachlorocyclopentadiene | 2/2 |
| AOC 5 | Coal Storage Area | Isophorone | 0/2 |
| AOC 5 | Coal Storage Area | Nitrobenzene | 2/2 |
| AOC 5 | Coal Storage Area | N-Nitrosodi-n-propylamine | 2/2 |
| AOC 5 | Coal Storage Area | N-Nitrosodiphenylamine | 0/2 |
| AOC 5 | Coal Storage Area | Pentachlorophenol | 3/3 |
| AOC 5 | Coal Storage Area | Phenol | 0/3 |
| AOC 5 | Coal Storage Area | Acenaphthene | 0/3 |
| AOC 5 | Coal Storage Area | Acenaphthylene | 0/3 |
| AOC 5 | Coal Storage Area | Anthracene | 0/3 |
| AOC 5 | Coal Storage Area | Benzo(a)anthracene | 3/3 |
| AOC 5 | Coal Storage Area | Benzo(a)pyrene | 3/3 |
| AOC 5 | Coal Storage Area | Benzo(b)fluoranthene | 0/3 |
| AOC 5 | Coal Storage Area | Benzo(g,h,i)perylene | 0/3 |
| AOC 5 | Coal Storage Area | Benzo(k)fluoranthene | 0/3 |
| AOC 5 | Coal Storage Area | Chrysene | 0/3 |
| AOC 5 | Coal Storage Area | Dibenz(a,h)anthracene | 3/3 |
| AOC 5 | Coal Storage Area | Fluoranthene | 0/3 |
| AOC 5 | Coal Storage Area | Fluorene | 0/3 |
| AOC 5 | Coal Storage Area | Indeno(1,2,3-c,d)pyrene | 0/3 |
| AOC 5 | Coal Storage Area | Pyrene | 0/3 |
| AOC 5 | Coal Storage Area | Aluminum | 0/3 |
| AOC 5 | Coal Storage Area | Beryllium | 0/3 |
| AOC 5 | Coal Storage Area | Cadmium | 3/3 |
| AOC 5 | Coal Storage Area | Chromium | 0/3 |
| AOC 5 | Coal Storage Area | Copper | 0/3 |
| AOC 5 | Coal Storage Area | Lead | 0/3 |
| AOC 5 | Coal Storage Area | Mercury | 3/3 |
| AOC 5 | Coal Storage Area | Selenium | 3/3 |
| AOC 5 | Coal Storage Area | Silver | 3/3 |
| AOC 5 | Coal Storage Area | Thallium | 3/3 |
| AOC 5 | Coal Storage Area | Vanadium | 3/3 |
| AOC 5 | Coal Storage Area | Zinc | 0/3 |
| AOC 5 | Electric Substation | 2,2'-Oxybis(1-chloropropane) | 0/1 |
| AOC 5 | Electric Substation | Acetophenone | 0/1 |
| AOC 5 | Electric Substation | Benzaldehyde | 0/1 |
| AOC 5 | Electric Substation | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 1/1 |
| AOC 5 | Electric Substation | Hexachlorobenzene | 1/1 |
| AOC 5 | Electric Substation | Hexachloroethane | 1/1 |
| AOC 5 | Electric Substation | 1,2,4,5-Tetrachlorobenzene | 1/1 |
| AOC 5 | Electric Substation | 1,4-Dioxane | 1/1 |
| AOC 5 | Electric Substation | 2,3,4,6-Tetrachlorophenol | 0/1 |
| AOC 5 | Electric Substation | 2,4,5-Trichlorophenol | 0/1 |
| AOC 5 | Electric Substation | 2,4,6-Trichlorophenol | 1/1 |
| AOC 5 | Electric Substation | 2,4-Dichlorophenol | 1/1 |
| AOC 5 | Electric Substation | 2,4-Dimethylphenol | 0/1 |
| AOC 5 | Electric Substation | 2,4-Dinitrotoluene | 1/1 |
| AOC 5 | Electric Substation | 2,6-Dinitrotoluene | 1/1 |

Table E.2-1
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Electric Substation | 2-Chloronaphthalene | 0/1 |
| AOC 5 | Electric Substation | 2-Chlorophenol | 1/1 |
| AOC 5 | Electric Substation | 2-Methylphenol (o-Cresol) | 0/1 |
| AOC 5 | Electric Substation | 2-Nitroaniline | 1/1 |
| AOC 5 | Electric Substation | 2-Nitrophenol | 1/1 |
| AOC 5 | Electric Substation | 3,3'-Dichlorobenzidine | 1/1 |
| AOC 5 | Electric Substation | 3-Nitroaniline | 1/1 |
| AOC 5 | Electric Substation | 4,6-Dinitro-2-methylphenol | 1/1 |
| AOC 5 | Electric Substation | 4-Chloro-3-methylphenol | 0/1 |
| AOC 5 | Electric Substation | 4-Chloroaniline | 1/1 |
| AOC 5 | Electric Substation | 4-Nitroaniline | 1/1 |
| AOC 5 | Electric Substation | 4-Nitrophenol | 1/1 |
| AOC 5 | Electric Substation | Atrazine | 1/1 |
| AOC 5 | Electric Substation | Benzyl butyl phthalate | 0/1 |
| AOC 5 | Electric Substation | Biphenyl (Diphenyl) | 1/1 |
| AOC 5 | Electric Substation | Bis(2-chloroethoxy)methane | 1/1 |
| AOC 5 | Electric Substation | Bis(2-ethylhexyl)phthalate | 1/1 |
| AOC 5 | Electric Substation | Caprolactam | 0/1 |
| AOC 5 | Electric Substation | Carbazole | 0/1 |
| AOC 5 | Electric Substation | Cresols, m- & p- | 0/1 |
| AOC 5 | Electric Substation | Dibenzofuran | 1/1 |
| AOC 5 | Electric Substation | Diethyl phthalate | 0/1 |
| AOC 5 | Electric Substation | di-n-Butyl phthalate | 0/1 |
| AOC 5 | Electric Substation | di-n-Octyl phthalate | 0/1 |
| AOC 5 | Electric Substation | Hexachlorobutadiene | 1/1 |
| AOC 5 | Electric Substation | Hexachlorocyclopentadiene | 1/1 |
| AOC 5 | Electric Substation | Isophorone | 0/1 |
| AOC 5 | Electric Substation | Nitrobenzene | 1/1 |
| AOC 5 | Electric Substation | N-Nitrosodi-n-propylamine | 1/1 |
| AOC 5 | Electric Substation | N-Nitrosodiphenylamine | 0/1 |
| AOC 5 | Electric Substation | Pentachlorophenol | 1/1 |
| AOC 5 | Electric Substation | Phenol | 0/1 |
| AOC 5 | Electric Substation | 1-Methylnaphthalene | 0/1 |
| AOC 5 | Electric Substation | 2-Methylnaphthalene | 0/1 |
| AOC 5 | Electric Substation | Acenaphthene | 0/1 |
| AOC 5 | Electric Substation | Acenaphthylene | 0/1 |
| AOC 5 | Electric Substation | Anthracene | 0/1 |
| AOC 5 | Electric Substation | Benzo(a)anthracene | 1/1 |
| AOC 5 | Electric Substation | Benzo(a)pyrene | 1/1 |
| AOC 5 | Electric Substation | Benzo(b)fluoranthene | 0/1 |
| AOC 5 | Electric Substation | Benzo(g,h,i)perylene | 0/1 |
| AOC 5 | Electric Substation | Benzo(k)fluoranthene | 0/1 |
| AOC 5 | Electric Substation | Chrysene | 0/1 |
| AOC 5 | Electric Substation | Dibenz(a,h)anthracene | 1/1 |
| AOC 5 | Electric Substation | Fluoranthene | 0/1 |
| AOC 5 | Electric Substation | Fluorene | 0/1 |
| AOC 5 | Electric Substation | Indeno(1,2,3-c,d)pyrene | 0/1 |
| AOC 5 | Electric Substation | Phenanthrene | 0/1 |
| AOC 5 | Electric Substation | Pyrene | 0/1 |
| AOC 5 | Electric Substation | Aluminum | 0/1 |

Table E.2-1
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Electric Substation | Antimony | 1/1 |
| AOC 5 | Electric Substation | Beryllium | 0/1 |
| AOC 5 | Electric Substation | Cadmium | 1/1 |
| AOC 5 | Electric Substation | Chromium | 0/1 |
| AOC 5 | Electric Substation | Copper | 0/1 |
| AOC 5 | Electric Substation | Lead | 0/1 |
| AOC 5 | Electric Substation | Mercury | 1/1 |
| AOC 5 | Electric Substation | Nickel | 1/1 |
| AOC 5 | Electric Substation | Selenium | 1/1 |
| AOC 5 | Electric Substation | Silver | 1/1 |
| AOC 5 | Electric Substation | Thallium | 1/1 |
| AOC 5 | Electric Substation | Vanadium | 1/1 |
| AOC 5 | Electric Substation | Zinc | 0/1 |
| AOC 5 | Possible Dump | 1,1,1-Trichloroethane | 0/3 |
| AOC 5 | Possible Dump | 1,1,2,2-Tetrachloroethane | 3/3 |
| AOC 5 | Possible Dump | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0/3 |
| AOC 5 | Possible Dump | 1,1,2-Trichloroethane | 3/3 |
| AOC 5 | Possible Dump | 1,1-Dichloroethane | 0/3 |
| AOC 5 | Possible Dump | 1,1-Dichloroethene | 0/3 |
| AOC 5 | Possible Dump | 1,2,4-Trichlorobenzene | 3/3 |
| AOC 5 | Possible Dump | 1,2-Dibromo-3-chloropropane | 3/3 |
| AOC 5 | Possible Dump | 1,2-Dibromoethane (EDB) | 3/3 |
| AOC 5 | Possible Dump | 1,2-Dichlorobenzene | 0/3 |
| AOC 5 | Possible Dump | 1,2-Dichloroethane | 3/3 |
| AOC 5 | Possible Dump | 1,2-Dichloropropane | 3/3 |
| AOC 5 | Possible Dump | 1,3-Dichlorobenzene | 0/3 |
| AOC 5 | Possible Dump | 1,3-Dichloropropane | 0/3 |
| AOC 5 | Possible Dump | 1,4-Dichlorobenzene | 3/3 |
| AOC 5 | Possible Dump | 2,2'-Oxybis(1-chloropropane) | 0/2 |
| AOC 5 | Possible Dump | 2-Butanone (MEK) | 0/3 |
| AOC 5 | Possible Dump | 2-Hexanone | 3/3 |
| AOC 5 | Possible Dump | 4-Methyl-2-pentanone (MIBK) | 0/3 |
| AOC 5 | Possible Dump | Acetone | 0/3 |
| AOC 5 | Possible Dump | Acetophenone | 0/3 |
| AOC 5 | Possible Dump | Benzaldehyde | 0/3 |
| AOC 5 | Possible Dump | Benzene | 3/3 |
| AOC 5 | Possible Dump | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 3/3 |
| AOC 5 | Possible Dump | Bromochloromethane | 0/3 |
| AOC 5 | Possible Dump | Bromodichloromethane | 3/3 |
| AOC 5 | Possible Dump | Bromoform | 0/3 |
| AOC 5 | Possible Dump | Bromomethane | 3/3 |
| AOC 5 | Possible Dump | Carbon disulfide | 0/3 |
| AOC 5 | Possible Dump | Carbon Tetrachloride | 3/3 |
| AOC 5 | Possible Dump | Chlorobenzene | 0/3 |
| AOC 5 | Possible Dump | Chloroethane | 0/3 |
| AOC 5 | Possible Dump | Chloroform | 3/3 |
| AOC 5 | Possible Dump | Chloromethane | 0/3 |
| AOC 5 | Possible Dump | cis-1,2-Dichloroethene | 0/3 |
| AOC 5 | Possible Dump | cis-1,3-Dichloropropene | 3/3 |
| AOC 5 | Possible Dump | Cumene | 0/3 |

Table E.2-1
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Possible Dump | Cyclohexane | 0/3 |
| AOC 5 | Possible Dump | Dibromochloromethane | 3/3 |
| AOC 5 | Possible Dump | Dichlorodifluoromethane | 0/3 |
| AOC 5 | Possible Dump | Ethylbenzene | 0/3 |
| AOC 5 | Possible Dump | Hexachlorobenzene | 3/3 |
| AOC 5 | Possible Dump | Hexachloroethane | 3/3 |
| AOC 5 | Possible Dump | m,p-Xylene | 0/3 |
| AOC 5 | Possible Dump | Methyl acetate | 0/3 |
| AOC 5 | Possible Dump | Methyl tert-butyl ether (MTBE) | 0/3 |
| AOC 5 | Possible Dump | Methylene chloride | 0/3 |
| AOC 5 | Possible Dump | o-Xylene | 0/3 |
| AOC 5 | Possible Dump | Styrene | 0/3 |
| AOC 5 | Possible Dump | Tetrachloroethene (PCE) | 0/3 |
| AOC 5 | Possible Dump | Toluene | 0/3 |
| AOC 5 | Possible Dump | trans-1,2-Dichloroethene | 0/3 |
| AOC 5 | Possible Dump | trans-1,3-Dichloropropene | 3/3 |
| AOC 5 | Possible Dump | Trichlorofluoromethane | 0/3 |
| AOC 5 | Possible Dump | Vinyl chloride | 3/3 |
| AOC 5 | Possible Dump | 1,2,4,5-Tetrachlorobenzene | 3/3 |
| AOC 5 | Possible Dump | 1,4-Dioxane | 3/3 |
| AOC 5 | Possible Dump | 2,3,4,6-Tetrachlorophenol | 0/3 |
| AOC 5 | Possible Dump | 2,4,5-Trichlorophenol | 0/3 |
| AOC 5 | Possible Dump | 2,4,6-Trichlorophenol | 3/3 |
| AOC 5 | Possible Dump | 2,4-Dichlorophenol | 3/3 |
| AOC 5 | Possible Dump | 2,4-Dimethylphenol | 0/3 |
| AOC 5 | Possible Dump | 2,4-Dinitrotoluene | 3/3 |
| AOC 5 | Possible Dump | 2,6-Dinitrotoluene | 3/3 |
| AOC 5 | Possible Dump | 2-Chloronaphthalene | 0/3 |
| AOC 5 | Possible Dump | 2-Chlorophenol | 3/3 |
| AOC 5 | Possible Dump | 2-Methylphenol (o-Cresol) | 0/3 |
| AOC 5 | Possible Dump | 2-Nitroaniline | 3/3 |
| AOC 5 | Possible Dump | 2-Nitrophenol | 3/3 |
| AOC 5 | Possible Dump | 3,3'-Dichlorobenzidine | 3/3 |
| AOC 5 | Possible Dump | 3-Nitroaniline | 3/3 |
| AOC 5 | Possible Dump | 4,6-Dinitro-2-methylphenol | 3/3 |
| AOC 5 | Possible Dump | 4-Chloro-3-methylphenol | 0/3 |
| AOC 5 | Possible Dump | 4-Chloroaniline | 3/3 |
| AOC 5 | Possible Dump | 4-Nitroaniline | 3/3 |
| AOC 5 | Possible Dump | 4-Nitrophenol | 3/3 |
| AOC 5 | Possible Dump | Atrazine | 3/3 |
| AOC 5 | Possible Dump | Benzyl butyl phthalate | 0/3 |
| AOC 5 | Possible Dump | Biphenyl (Diphenyl) | 3/3 |
| AOC 5 | Possible Dump | Bis(2-chloroethoxy)methane | 3/3 |
| AOC 5 | Possible Dump | Bis(2-ethylhexyl)phthalate | 3/3 |
| AOC 5 | Possible Dump | Caprolactam | 0/3 |
| AOC 5 | Possible Dump | Carbazole | 0/3 |
| AOC 5 | Possible Dump | Cresols, m- & p- | 0/3 |
| AOC 5 | Possible Dump | Dibenzofuran | 3/3 |
| AOC 5 | Possible Dump | Diethyl phthalate | 0/3 |
| AOC 5 | Possible Dump | di-n-Butyl phthalate | 0/3 |

Table E.2-1
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Possible Dump | di-n-Octyl phthalate | 0/3 |
| AOC 5 | Possible Dump | Hexachlorobutadiene | 3/3 |
| AOC 5 | Possible Dump | Hexachlorocyclopentadiene | 3/3 |
| AOC 5 | Possible Dump | Isophorone | 0/3 |
| AOC 5 | Possible Dump | Nitrobenzene | 3/3 |
| AOC 5 | Possible Dump | N-Nitrosodi-n-propylamine | 3/3 |
| AOC 5 | Possible Dump | N-Nitrosodiphenylamine | 0/3 |
| AOC 5 | Possible Dump | Pentachlorophenol | 3/3 |
| AOC 5 | Possible Dump | Phenol | 0/3 |
| AOC 5 | Possible Dump | 1-Methylnaphthalene | 0/3 |
| AOC 5 | Possible Dump | Acenaphthene | 0/3 |
| AOC 5 | Possible Dump | Acenaphthylene | 0/3 |
| AOC 5 | Possible Dump | Anthracene | 0/3 |
| AOC 5 | Possible Dump | Benzo(a)anthracene | 3/3 |
| AOC 5 | Possible Dump | Benzo(a)pyrene | 3/3 |
| AOC 5 | Possible Dump | Benzo(g,h,i)perylene | 0/3 |
| AOC 5 | Possible Dump | Dibenz(a,h)anthracene | 3/3 |
| AOC 5 | Possible Dump | Fluorene | 0/3 |
| AOC 5 | Possible Dump | Indeno(1,2,3-c,d)pyrene | 0/3 |
| AOC 5 | Possible Dump | PCB-1016 (Aroclor 1016) | 3/3 |
| AOC 5 | Possible Dump | PCB-1221 (Aroclor 1221) | 3/3 |
| AOC 5 | Possible Dump | PCB-1232 (Aroclor 1232) | 3/3 |
| AOC 5 | Possible Dump | PCB-1242 (Aroclor 1242) | 3/3 |
| AOC 5 | Possible Dump | PCB-1248 (Aroclor 1248) | 3/3 |
| AOC 5 | Possible Dump | PCB-1254 (Aroclor 1254) | 3/3 |
| AOC 5 | Possible Dump | PCB-1260 (Aroclor 1260) | 3/3 |
| AOC 5 | Possible Dump | PCB-1262 (Aroclor 1262) | 3/3 |
| AOC 5 | Possible Dump | PCB-1268 (Aroclor 1268) | 3/3 |
| AOC 5 | Possible Dump | Antimony | 3/3 |
| AOC 5 | Possible Dump | Beryllium | 0/3 |
| AOC 5 | Possible Dump | Cadmium | 3/3 |
| AOC 5 | Possible Dump | Chromium | 0/3 |
| AOC 5 | Possible Dump | Copper | 0/3 |
| AOC 5 | Possible Dump | Lead | 0/3 |
| AOC 5 | Possible Dump | Mercury | 3/3 |
| AOC 5 | Possible Dump | Selenium | 3/3 |
| AOC 5 | Possible Dump | Silver | 3/3 |
| AOC 5 | Possible Dump | Thallium | 3/3 |
| AOC 5 | Possible Dump | Vanadium | 3/3 |
| AOC 5 | Possible Dump | Zinc | 0/3 |

Notes:
AOC = area of concern
FOE = frequency with which the screening level was exceeded versus the number of samples in the dataset
LOQ = limit of quantitation
NA = not applicable

Table E.2-2
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 1 | NA | 2,4-Dinitrochlorobenzene | 3/52 |
| AOC 1 | NA | 2,4-Dinitrophenol | 2/51 |
| AOC 3 | NA | 1,1,1-Trichloroethane | 0/18 |
| AOC 3 | NA | 1,1,2,2-Tetrachloroethane | 0/18 |
| AOC 3 | NA | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0/18 |
| AOC 3 | NA | 1,1,2-Trichloroethane | 0/18 |
| AOC 3 | NA | 1,1-Dichloroethane | 0/18 |
| AOC 3 | NA | 1,1-Dichloroethene | 0/18 |
| AOC 3 | NA | 1,2,3-Trichlorobenzene | 0/18 |
| AOC 3 | NA | 1,2,4-Trichlorobenzene | 0/18 |
| AOC 3 | NA | 1,2-Dibromo-3-chloropropane | 18/18 |
| AOC 3 | NA | 1,2-Dibromoethane (EDB) | 0/18 |
| AOC 3 | NA | 1,2-Dichlorobenzene | 0/18 |
| AOC 3 | NA | 1,2-Dichloroethane | 0/18 |
| AOC 3 | NA | 1,2-Dichloropropane | 0/18 |
| AOC 3 | NA | 1,3-Dichloropropane | 0/18 |
| AOC 3 | NA | 1,4-Dichlorobenzene | 0/18 |
| AOC 3 | NA | 2,2'-Oxybis(1-chloropropane) | 0/36 |
| AOC 3 | NA | 2-Hexanone | 0/18 |
| AOC 3 | NA | 4-Methyl-2-pentanone (MIBK) | 0/18 |
| AOC 3 | NA | Acetophenone | 0/36 |
| AOC 3 | NA | Benzene | 0/18 |
| AOC 3 | NA | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 36/36 |
| AOC 3 | NA | Bromochloromethane | 0/18 |
| AOC 3 | NA | Bromodichloromethane | 0/18 |
| AOC 3 | NA | Bromoform | 0/18 |
| AOC 3 | NA | Bromomethane | 0/18 |
| AOC 3 | NA | Carbon disulfide | 0/18 |
| AOC 3 | NA | Carbon Tetrachloride | 0/18 |
| AOC 3 | NA | Chlorobenzene | 0/18 |
| AOC 3 | NA | Chloroethane | 0/18 |
| AOC 3 | NA | Chloroform | 0/18 |
| AOC 3 | NA | Chloromethane | 0/18 |
| AOC 3 | NA | cis-1,2-Dichloroethene | 0/18 |
| AOC 3 | NA | cis-1,3-Dichloropropene | 0/18 |
| AOC 3 | NA | Cyclohexane | 0/18 |
| AOC 3 | NA | Dibromochloromethane | 0/18 |
| AOC 3 | NA | Dichlorodifluoromethane | 0/18 |
| AOC 3 | NA | Ethylbenzene | 0/18 |
| AOC 3 | NA | Hexachlorobenzene | 36/36 |
| AOC 3 | NA | Hexachloroethane | 0/36 |
| AOC 3 | NA | m,p-Xylene | 0/18 |
| AOC 3 | NA | Methyl acetate | 0/18 |
| AOC 3 | NA | Methyl tert-butyl ether (MTBE) | 0/18 |
| AOC 3 | NA | Methylene chloride | 0/18 |
| AOC 3 | NA | o-Xylene | 0/18 |
| AOC 3 | NA | Styrene | 0/18 |
| AOC 3 | NA | Tetrachloroethene (PCE) | 0/18 |
| AOC 3 | NA | trans-1,2-Dichloroethene | 0/18 |
| AOC 3 | NA | trans-1,3-Dichloropropene | 0/18 |

Table E.2-2
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 3 | NA | Trichlorofluoromethane | 0/18 |
| AOC 3 | NA | Vinyl chloride | 0/18 |
| AOC 3 | NA | 1,2,4,5-Tetrachlorobenzene | 36/36 |
| AOC 3 | NA | 1,4-Dioxane | 0/36 |
| AOC 3 | NA | 2,3,4,6-Tetrachlorophenol | 0/36 |
| AOC 3 | NA | 2,4,5-Trichlorophenol | 0/36 |
| AOC 3 | NA | 2,4,6-Trichlorophenol | 0/36 |
| AOC 3 | NA | 2,4-Dichlorophenol | 0/36 |
| AOC 3 | NA | 2,4-Dimethylphenol | 0/36 |
| AOC 3 | NA | 2,4-Dinitrochlorobenzene | 0/36 |
| AOC 3 | NA | 2,4-Dinitrophenol | 0/36 |
| AOC 3 | NA | 2,4-Dinitrotoluene | 0/36 |
| AOC 3 | NA | 2,6-Dinitrotoluene | 35/36 |
| AOC 3 | NA | 2-Chloronaphthalene | 0/36 |
| AOC 3 | NA | 2-Chlorophenol | 0/36 |
| AOC 3 | NA | 2-Methylphenol (o-Cresol) | 0/36 |
| AOC 3 | NA | 2-Nitroaniline | 0/36 |
| AOC 3 | NA | 2-Nitrophenol | 0/36 |
| AOC 3 | NA | 3,3'-Dichlorobenzidine | 0/35 |
| AOC 3 | NA | 3-Nitroaniline | 0/36 |
| AOC 3 | NA | 4,6-Dinitro-2-methylphenol | 36/36 |
| AOC 3 | NA | 4-Chloro-3-methylphenol | 0/36 |
| AOC 3 | NA | 4-Chloroaniline | 0/36 |
| AOC 3 | NA | 4-Nitroaniline | 0/36 |
| AOC 3 | NA | 4-Nitrophenol | 0/36 |
| AOC 3 | NA | Atrazine | 0/36 |
| AOC 3 | NA | Benzyl butyl phthalate | 0/36 |
| AOC 3 | NA | Biphenyl (Diphenyl) | 0/36 |
| AOC 3 | NA | Bis(2-chloroethoxy)methane | 0/36 |
| AOC 3 | NA | Caprolactam | 0/36 |
| AOC 3 | NA | Diethyl phthalate | 0/36 |
| AOC 3 | NA | di-n-Butyl phthalate | 0/36 |
| AOC 3 | NA | di-n-Octyl phthalate | 0/36 |
| AOC 3 | NA | Hexachlorobutadiene | 0/36 |
| AOC 3 | NA | Hexachlorocyclopentadiene | 36/36 |
| AOC 3 | NA | Isophorone | 0/36 |
| AOC 3 | NA | Nitrobenzene | 0/36 |
| AOC 3 | NA | N-Nitrosodi-n-propylamine | 36/36 |
| AOC 3 | NA | N-Nitrosodiphenylamine | 0/36 |
| AOC 3 | NA | Pentachlorophenol | 36/36 |
| AOC 3 | NA | Phenol | 0/36 |
| AOC 3 | NA | PCB-1016 (Aroclor 1016) | 0/24 |
| AOC 3 | NA | PCB-1221 (Aroclor 1221) | 0/24 |
| AOC 3 | NA | PCB-1232 (Aroclor 1232) | 0/24 |
| AOC 3 | NA | PCB-1242 (Aroclor 1242) | 0/24 |
| AOC 3 | NA | PCB-1248 (Aroclor 1248) | 0/24 |
| AOC 3 | NA | PCB-1254 (Aroclor 1254) | 0/24 |
| AOC 3 | NA | PCB-1262 (Aroclor 1262) | 0/24 |
| AOC 3 | NA | PCB-1268 (Aroclor 1268) | 0/24 |
| AOC 3 | NA | Picric acid | 0/32 |

Table E.2-2
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 4 - Discrete | NA | 2,4-Dinitrochlorobenzene | 0/117 |
| AOC 4 - Discrete | NA | 2,4-Dinitrophenol | 0/117 |
| AOC 4 - Discrete | NA | Picric acid | 0/117 |
| AOC 4 - ISM | NA | 2,4-Dinitrochlorobenzene | 1/34 |
| AOC 4 - ISM | NA | 2,4-Dinitrophenol | 0/29 |
| AOC 4 - ISM | NA | Picric acid | 0/36 |
| AOC 5 | Boiler House | 2,2'-Oxybis(1-chloropropane) | 0/15 |
| AOC 5 | Boiler House | Acetophenone | 0/15 |
| AOC 5 | Boiler House | Benzaldehyde | 0/14 |
| AOC 5 | Boiler House | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 15/15 |
| AOC 5 | Boiler House | Hexachlorobenzene | 15/15 |
| AOC 5 | Boiler House | Hexachloroethane | 0/14 |
| AOC 5 | Boiler House | 1,2,4,5-Tetrachlorobenzene | 15/15 |
| AOC 5 | Boiler House | 1,4-Dioxane | 0/14 |
| AOC 5 | Boiler House | 2,3,4,6-Tetrachlorophenol | 0/15 |
| AOC 5 | Boiler House | 2,4,5-Trichlorophenol | 0/15 |
| AOC 5 | Boiler House | 2,4,6-Trichlorophenol | 0/15 |
| AOC 5 | Boiler House | 2,4-Dichlorophenol | 0/15 |
| AOC 5 | Boiler House | 2,4-Dimethylphenol | 0/15 |
| AOC 5 | Boiler House | 2,4-Dinitrotoluene | 0/15 |
| AOC 5 | Boiler House | 2,6-Dinitrotoluene | 10/15 |
| AOC 5 | Boiler House | 2-Chloronaphthalene | 0/15 |
| AOC 5 | Boiler House | 2-Chlorophenol | 0/15 |
| AOC 5 | Boiler House | 2-Methylphenol (o-Cresol) | 0/15 |
| AOC 5 | Boiler House | 2-Nitroaniline | 0/15 |
| AOC 5 | Boiler House | 2-Nitrophenol | 0/15 |
| AOC 5 | Boiler House | 3,3'-Dichlorobenzidine | 0/15 |
| AOC 5 | Boiler House | 3-Nitroaniline | 0/15 |
| AOC 5 | Boiler House | 4,6-Dinitro-2-methylphenol | 15/15 |
| AOC 5 | Boiler House | 4-Chloro-3-methylphenol | 0/15 |
| AOC 5 | Boiler House | 4-Chloroaniline | 0/15 |
| AOC 5 | Boiler House | 4-Nitroaniline | 0/15 |
| AOC 5 | Boiler House | 4-Nitrophenol | 0/15 |
| AOC 5 | Boiler House | Atrazine | 0/15 |
| AOC 5 | Boiler House | Benzyl butyl phthalate | 0/15 |
| AOC 5 | Boiler House | Biphenyl (Diphenyl) | 0/15 |
| AOC 5 | Boiler House | Bis(2-chloroethoxy)methane | 0/15 |
| AOC 5 | Boiler House | Bis(2-ethylhexyl)phthalate | 0/15 |
| AOC 5 | Boiler House | Caprolactam | 0/15 |
| AOC 5 | Boiler House | Carbazole | 0/15 |
| AOC 5 | Boiler House | Cresols, m- & p- | 0/15 |
| AOC 5 | Boiler House | Dibenzofuran | 0/15 |
| AOC 5 | Boiler House | Diethyl phthalate | 0/15 |
| AOC 5 | Boiler House | di-n-Butyl phthalate | 0/15 |
| AOC 5 | Boiler House | di-n-Octyl phthalate | 0/15 |
| AOC 5 | Boiler House | Hexachlorobutadiene | 0/15 |
| AOC 5 | Boiler House | Hexachlorocyclopentadiene | 15/15 |
| AOC 5 | Boiler House | Isophorone | 0/15 |
| AOC 5 | Boiler House | Nitrobenzene | 0/15 |
| AOC 5 | Boiler House | N-Nitrosodi-n-propylamine | 15/15 |

Table E.2-2
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Boiler House | N-Nitrosodiphenylamine | 0/15 |
| AOC 5 | Boiler House | Pentachlorophenol | 15/15 |
| AOC 5 | Boiler House | Phenol | 0/15 |
| AOC 5 | Boiler House | Silver | 0/15 |
| AOC 5 | Coal Aggregate Bins | 2,2'-Oxybis(1-chloropropane) | 0/10 |
| AOC 5 | Coal Aggregate Bins | Acetophenone | 0/10 |
| AOC 5 | Coal Aggregate Bins | Benzaldehyde | 0/10 |
| AOC 5 | Coal Aggregate Bins | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 10/10 |
| AOC 5 | Coal Aggregate Bins | Hexachlorobenzene | 10/10 |
| AOC 5 | Coal Aggregate Bins | Hexachloroethane | 0/10 |
| AOC 5 | Coal Aggregate Bins | 1,2,4,5-Tetrachlorobenzene | 10/10 |
| AOC 5 | Coal Aggregate Bins | 1,4-Dioxane | 0/10 |
| AOC 5 | Coal Aggregate Bins | 2,3,4,6-Tetrachlorophenol | 0/10 |
| AOC 5 | Coal Aggregate Bins | 2,4,5-Trichlorophenol | 0/10 |
| AOC 5 | Coal Aggregate Bins | 2,4,6-Trichlorophenol | 0/10 |
| AOC 5 | Coal Aggregate Bins | 2,4-Dichlorophenol | 0/10 |
| AOC 5 | Coal Aggregate Bins | 2,4-Dimethylphenol | 0/10 |
| AOC 5 | Coal Aggregate Bins | 2,4-Dinitrotoluene | 0/10 |
| AOC 5 | Coal Aggregate Bins | 2,6-Dinitrotoluene | 8/10 |
| AOC 5 | Coal Aggregate Bins | 2-Chloronaphthalene | 0/10 |
| AOC 5 | Coal Aggregate Bins | 2-Chlorophenol | 0/10 |
| AOC 5 | Coal Aggregate Bins | 2-Methylphenol (o-Cresol) | 0/10 |
| AOC 5 | Coal Aggregate Bins | 2-Nitroaniline | 0/10 |
| AOC 5 | Coal Aggregate Bins | 2-Nitrophenol | 0/10 |
| AOC 5 | Coal Aggregate Bins | 3,3'-Dichlorobenzidine | 0/10 |
| AOC 5 | Coal Aggregate Bins | 3-Nitroaniline | 0/10 |
| AOC 5 | Coal Aggregate Bins | 4,6-Dinitro-2-methylphenol | 10/10 |
| AOC 5 | Coal Aggregate Bins | 4-Chloro-3-methylphenol | 0/10 |
| AOC 5 | Coal Aggregate Bins | 4-Chloroaniline | 0/10 |
| AOC 5 | Coal Aggregate Bins | 4-Nitroaniline | 0/10 |
| AOC 5 | Coal Aggregate Bins | 4-Nitrophenol | 0/10 |
| AOC 5 | Coal Aggregate Bins | Atrazine | 0/10 |
| AOC 5 | Coal Aggregate Bins | Benzyl butyl phthalate | 0/10 |
| AOC 5 | Coal Aggregate Bins | Biphenyl (Diphenyl) | 0/10 |
| AOC 5 | Coal Aggregate Bins | Bis(2-chloroethoxy)methane | 0/10 |
| AOC 5 | Coal Aggregate Bins | Bis(2-ethylhexyl)phthalate | 0/10 |
| AOC 5 | Coal Aggregate Bins | Caprolactam | 0/10 |
| AOC 5 | Coal Aggregate Bins | Carbazole | 0/10 |
| AOC 5 | Coal Aggregate Bins | Cresols, m- & p- | 0/10 |
| AOC 5 | Coal Aggregate Bins | Diethyl phthalate | 0/10 |
| AOC 5 | Coal Aggregate Bins | di-n-Butyl phthalate | 0/10 |
| AOC 5 | Coal Aggregate Bins | di-n-Octyl phthalate | 0/10 |
| AOC 5 | Coal Aggregate Bins | Hexachlorobutadiene | 0/10 |
| AOC 5 | Coal Aggregate Bins | Hexachlorocyclopentadiene | 10/10 |
| AOC 5 | Coal Aggregate Bins | Isophorone | 0/10 |
| AOC 5 | Coal Aggregate Bins | Nitrobenzene | 0/10 |
| AOC 5 | Coal Aggregate Bins | N-Nitrosodi-n-propylamine | 10/10 |
| AOC 5 | Coal Aggregate Bins | N-Nitrosodiphenylamine | 0/10 |
| AOC 5 | Coal Aggregate Bins | Pentachlorophenol | 10/10 |
| AOC 5 | Coal Aggregate Bins | Phenol | 0/10 |

Table E.2-2
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | Silver | 0/15 |
| AOC 5 | Coal Storage Area | 2,2'-Oxybis(1-chloropropane) | 0/10 |
| AOC 5 | Coal Storage Area | Acetophenone | 0/10 |
| AOC 5 | Coal Storage Area | Benzaldehyde | 0/10 |
| AOC 5 | Coal Storage Area | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 10/10 |
| AOC 5 | Coal Storage Area | Hexachlorobenzene | 10/10 |
| AOC 5 | Coal Storage Area | Hexachloroethane | 0/10 |
| AOC 5 | Coal Storage Area | 1,2,4,5-Tetrachlorobenzene | 10/10 |
| AOC 5 | Coal Storage Area | 1,4-Dioxane | 0/10 |
| AOC 5 | Coal Storage Area | 2,3,4,6-Tetrachlorophenol | 0/10 |
| AOC 5 | Coal Storage Area | 2,4,5-Trichlorophenol | 0/10 |
| AOC 5 | Coal Storage Area | 2,4,6-Trichlorophenol | 0/10 |
| AOC 5 | Coal Storage Area | 2,4-Dichlorophenol | 0/10 |
| AOC 5 | Coal Storage Area | 2,4-Dimethylphenol | 0/10 |
| AOC 5 | Coal Storage Area | 2,4-Dinitrotoluene | 0/10 |
| AOC 5 | Coal Storage Area | 2,6-Dinitrotoluene | 7/10 |
| AOC 5 | Coal Storage Area | 2-Chloronaphthalene | 0/10 |
| AOC 5 | Coal Storage Area | 2-Chlorophenol | 0/10 |
| AOC 5 | Coal Storage Area | 2-Methylphenol (o-Cresol) | 0/10 |
| AOC 5 | Coal Storage Area | 2-Nitroaniline | 0/10 |
| AOC 5 | Coal Storage Area | 2-Nitrophenol | 0/10 |
| AOC 5 | Coal Storage Area | 3,3'-Dichlorobenzidine | 0/10 |
| AOC 5 | Coal Storage Area | 3-Nitroaniline | 0/10 |
| AOC 5 | Coal Storage Area | 4,6-Dinitro-2-methylphenol | 10/10 |
| AOC 5 | Coal Storage Area | 4-Chloro-3-methylphenol | 0/10 |
| AOC 5 | Coal Storage Area | 4-Chloroaniline | 0/10 |
| AOC 5 | Coal Storage Area | 4-Nitroaniline | 0/10 |
| AOC 5 | Coal Storage Area | 4-Nitrophenol | 0/10 |
| AOC 5 | Coal Storage Area | Atrazine | 0/10 |
| AOC 5 | Coal Storage Area | Benzyl butyl phthalate | 0/10 |
| AOC 5 | Coal Storage Area | Biphenyl (Diphenyl) | 0/10 |
| AOC 5 | Coal Storage Area | Bis(2-chloroethoxy)methane | 0/10 |
| AOC 5 | Coal Storage Area | Bis(2-ethylhexyl)phthalate | 0/10 |
| AOC 5 | Coal Storage Area | Caprolactam | 0/10 |
| AOC 5 | Coal Storage Area | Carbazole | 0/10 |
| AOC 5 | Coal Storage Area | Cresols, m- & p- | 0/10 |
| AOC 5 | Coal Storage Area | Dibenzofuran | 0/10 |
| AOC 5 | Coal Storage Area | Diethyl phthalate | 0/10 |
| AOC 5 | Coal Storage Area | di-n-Butyl phthalate | 0/10 |
| AOC 5 | Coal Storage Area | di-n-Octyl phthalate | 0/10 |
| AOC 5 | Coal Storage Area | Hexachlorobutadiene | 0/10 |
| AOC 5 | Coal Storage Area | Hexachlorocyclopentadiene | 10/10 |
| AOC 5 | Coal Storage Area | Isophorone | 0/10 |
| AOC 5 | Coal Storage Area | Nitrobenzene | 0/10 |
| AOC 5 | Coal Storage Area | N-Nitrosodi-n-propylamine | 10/10 |
| AOC 5 | Coal Storage Area | N-Nitrosodiphenylamine | 0/10 |
| AOC 5 | Coal Storage Area | Pentachlorophenol | 10/10 |
| AOC 5 | Coal Storage Area | Phenol | 0/10 |
| AOC 5 | Coal Storage Area | Silver | 0/15 |
| AOC 5 | Electric Substation | 2,2'-Oxybis(1-chloropropane) | 0/15 |

Table E.2-2
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Electric Substation | Acetophenone | 0/15 |
| AOC 5 | Electric Substation | Benzaldehyde | 0/15 |
| AOC 5 | Electric Substation | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 15/15 |
| AOC 5 | Electric Substation | Hexachlorobenzene | 15/15 |
| AOC 5 | Electric Substation | Hexachloroethane | 0/15 |
| AOC 5 | Electric Substation | 1,2,4,5-Tetrachlorobenzene | 15/15 |
| AOC 5 | Electric Substation | 1,4-Dioxane | 0/15 |
| AOC 5 | Electric Substation | 2,3,4,6-Tetrachlorophenol | 0/15 |
| AOC 5 | Electric Substation | 2,4,5-Trichlorophenol | 0/15 |
| AOC 5 | Electric Substation | 2,4,6-Trichlorophenol | 0/15 |
| AOC 5 | Electric Substation | 2,4-Dichlorophenol | 0/15 |
| AOC 5 | Electric Substation | 2,4-Dimethylphenol | 0/15 |
| AOC 5 | Electric Substation | 2,4-Dinitrotoluene | 0/15 |
| AOC 5 | Electric Substation | 2,6-Dinitrotoluene | 12/15 |
| AOC 5 | Electric Substation | 2-Chloronaphthalene | 0/15 |
| AOC 5 | Electric Substation | 2-Chlorophenol | 0/15 |
| AOC 5 | Electric Substation | 2-Methylphenol (o-Cresol) | 0/15 |
| AOC 5 | Electric Substation | 2-Nitroaniline | 0/15 |
| AOC 5 | Electric Substation | 2-Nitrophenol | 0/15 |
| AOC 5 | Electric Substation | 3,3'-Dichlorobenzidine | 0/15 |
| AOC 5 | Electric Substation | 3-Nitroaniline | 0/15 |
| AOC 5 | Electric Substation | 4,6-Dinitro-2-methylphenol | 15/15 |
| AOC 5 | Electric Substation | 4-Chloro-3-methylphenol | 0/15 |
| AOC 5 | Electric Substation | 4-Chloroaniline | 0/15 |
| AOC 5 | Electric Substation | 4-Nitroaniline | 0/15 |
| AOC 5 | Electric Substation | 4-Nitrophenol | 0/15 |
| AOC 5 | Electric Substation | Atrazine | 0/15 |
| AOC 5 | Electric Substation | Benzyl butyl phthalate | 0/15 |
| AOC 5 | Electric Substation | Biphenyl (Diphenyl) | 0/15 |
| AOC 5 | Electric Substation | Bis(2-chloroethoxy)methane | 0/15 |
| AOC 5 | Electric Substation | Bis(2-ethylhexyl)phthalate | 0/15 |
| AOC 5 | Electric Substation | Caprolactam | 0/15 |
| AOC 5 | Electric Substation | Carbazole | 0/15 |
| AOC 5 | Electric Substation | Cresols, m- & p- | 0/15 |
| AOC 5 | Electric Substation | Dibenzofuran | 0/15 |
| AOC 5 | Electric Substation | Diethyl phthalate | 0/15 |
| AOC 5 | Electric Substation | di-n-Butyl phthalate | 0/15 |
| AOC 5 | Electric Substation | di-n-Octyl phthalate | 0/15 |
| AOC 5 | Electric Substation | Hexachlorobutadiene | 0/15 |
| AOC 5 | Electric Substation | Hexachlorocyclopentadiene | 15/15 |
| AOC 5 | Electric Substation | Isophorone | 0/15 |
| AOC 5 | Electric Substation | Nitrobenzene | 0/15 |
| AOC 5 | Electric Substation | N-Nitrosodi-n-propylamine | 15/15 |
| AOC 5 | Electric Substation | N-Nitrosodiphenylamine | 0/15 |
| AOC 5 | Electric Substation | Pentachlorophenol | 15/15 |
| AOC 5 | Electric Substation | Phenol | 0/15 |
| AOC 5 | Electric Substation | PCB-1016 (Aroclor 1016) | 0/5 |
| AOC 5 | Electric Substation | PCB-1221 (Aroclor 1221) | 0/5 |
| AOC 5 | Electric Substation | PCB-1232 (Aroclor 1232) | 0/5 |
| AOC 5 | Electric Substation | PCB-1242 (Aroclor 1242) | 0/5 |

Table E.2-2
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Electric Substation | PCB-1248 (Aroclor 1248) | 0/5 |
| AOC 5 | Electric Substation | PCB-1254 (Aroclor 1254) | 0/5 |
| AOC 5 | Electric Substation | PCB-1262 (Aroclor 1262) | 0/5 |
| AOC 5 | Electric Substation | PCB-1268 (Aroclor 1268) | 0/5 |
| AOC 5 | Electric Substation | Silver | 0/15 |
| AOC 5 | Possible Dump | 1,1,1-Trichloroethane | 0/10 |
| AOC 5 | Possible Dump | 1,1,2,2-Tetrachloroethane | 0/10 |
| AOC 5 | Possible Dump | 1,1,2-Trichloro-1,2,2-trifluoroethane | 0/10 |
| AOC 5 | Possible Dump | 1,1,2-Trichloroethane | 0/10 |
| AOC 5 | Possible Dump | 1,1-Dichloroethane | 0/10 |
| AOC 5 | Possible Dump | 1,1-Dichloroethene | 0/10 |
| AOC 5 | Possible Dump | 1,2,3-Trichlorobenzene | 0/10 |
| AOC 5 | Possible Dump | 1,2,4-Trichlorobenzene | 0/10 |
| AOC 5 | Possible Dump | 1,2-Dibromo-3-chloropropane | 10/10 |
| AOC 5 | Possible Dump | 1,2-Dibromoethane (EDB) | 0/10 |
| AOC 5 | Possible Dump | 1,2-Dichlorobenzene | 0/10 |
| AOC 5 | Possible Dump | 1,2-Dichloroethane | 0/10 |
| AOC 5 | Possible Dump | 1,2-Dichloropropane | 0/10 |
| AOC 5 | Possible Dump | 1,3-Dichloropropane | 0/10 |
| AOC 5 | Possible Dump | 1,4-Dichlorobenzene | 0/10 |
| AOC 5 | Possible Dump | 2,2'-Oxybis(1-chloropropane) | 0/13 |
| AOC 5 | Possible Dump | 2-Hexanone | 0/10 |
| AOC 5 | Possible Dump | 4-Methyl-2-pentanone (MIBK) | 0/10 |
| AOC 5 | Possible Dump | Acetophenone | 0/15 |
| AOC 5 | Possible Dump | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 15/15 |
| AOC 5 | Possible Dump | Bromochloromethane | 0/10 |
| AOC 5 | Possible Dump | Bromodichloromethane | 0/10 |
| AOC 5 | Possible Dump | Bromoform | 0/10 |
| AOC 5 | Possible Dump | Bromomethane | 0/10 |
| AOC 5 | Possible Dump | Carbon disulfide | 0/10 |
| AOC 5 | Possible Dump | Carbon Tetrachloride | 0/10 |
| AOC 5 | Possible Dump | Chlorobenzene | 0/10 |
| AOC 5 | Possible Dump | Chloroethane | 0/10 |
| AOC 5 | Possible Dump | Chloroform | 0/10 |
| AOC 5 | Possible Dump | Chloromethane | 0/10 |
| AOC 5 | Possible Dump | cis-1,2-Dichloroethene | 0/10 |
| AOC 5 | Possible Dump | cis-1,3-Dichloropropene | 0/10 |
| AOC 5 | Possible Dump | Cumene | 0/10 |
| AOC 5 | Possible Dump | Cyclohexane | 0/10 |
| AOC 5 | Possible Dump | Dibromochloromethane | 0/10 |
| AOC 5 | Possible Dump | Dichlorodifluoromethane | 0/10 |
| AOC 5 | Possible Dump | Ethylbenzene | 0/10 |
| AOC 5 | Possible Dump | Hexachlorobenzene | 15/15 |
| AOC 5 | Possible Dump | Hexachloroethane | 0/15 |
| AOC 5 | Possible Dump | m,p-Xylene | 0/10 |
| AOC 5 | Possible Dump | Methyl acetate | 0/10 |
| AOC 5 | Possible Dump | Methyl tert-butyl ether (MTBE) | 0/10 |
| AOC 5 | Possible Dump | Methylene chloride | 0/10 |
| AOC 5 | Possible Dump | o-Xylene | 0/10 |
| AOC 5 | Possible Dump | Styrene | 0/10 |

Table E.2-2
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Possible Dump | Tetrachloroethene (PCE) | 0/10 |
| AOC 5 | Possible Dump | trans-1,2-Dichloroethene | 0/10 |
| AOC 5 | Possible Dump | trans-1,3-Dichloropropene | 0/10 |
| AOC 5 | Possible Dump | Trichlorofluoromethane | 0/10 |
| AOC 5 | Possible Dump | Vinyl chloride | 0/10 |
| AOC 5 | Possible Dump | 1,2,4,5-Tetrachlorobenzene | 15/15 |
| AOC 5 | Possible Dump | 1,4-Dioxane | 0/15 |
| AOC 5 | Possible Dump | 2,3,4,6-Tetrachlorophenol | 0/15 |
| AOC 5 | Possible Dump | 2,4,5-Trichlorophenol | 0/15 |
| AOC 5 | Possible Dump | 2,4,6-Trichlorophenol | 0/15 |
| AOC 5 | Possible Dump | 2,4-Dichlorophenol | 0/15 |
| AOC 5 | Possible Dump | 2,4-Dimethylphenol | 0/15 |
| AOC 5 | Possible Dump | 2,4-Dinitrotoluene | 0/15 |
| AOC 5 | Possible Dump | 2,6-Dinitrotoluene | 13/15 |
| AOC 5 | Possible Dump | 2-Chloronaphthalene | 0/15 |
| AOC 5 | Possible Dump | 2-Chlorophenol | 0/15 |
| AOC 5 | Possible Dump | 2-Methylphenol (o-Cresol) | 0/15 |
| AOC 5 | Possible Dump | 2-Nitroaniline | 0/15 |
| AOC 5 | Possible Dump | 2-Nitrophenol | 0/15 |
| AOC 5 | Possible Dump | 3,3'-Dichlorobenzidine | 0/15 |
| AOC 5 | Possible Dump | 3-Nitroaniline | 0/15 |
| AOC 5 | Possible Dump | 4,6-Dinitro-2-methylphenol | 15/15 |
| AOC 5 | Possible Dump | 4-Chloro-3-methylphenol | 0/15 |
| AOC 5 | Possible Dump | 4-Chloroaniline | 0/15 |
| AOC 5 | Possible Dump | 4-Nitroaniline | 0/15 |
| AOC 5 | Possible Dump | 4-Nitrophenol | 0/15 |
| AOC 5 | Possible Dump | Atrazine | 0/15 |
| AOC 5 | Possible Dump | Benzyl butyl phthalate | 0/15 |
| AOC 5 | Possible Dump | Biphenyl (Diphenyl) | 0/15 |
| AOC 5 | Possible Dump | Bis(2-chloroethoxy)methane | 0/15 |
| AOC 5 | Possible Dump | Bis(2-ethylhexyl)phthalate | 0/15 |
| AOC 5 | Possible Dump | Caprolactam | 0/15 |
| AOC 5 | Possible Dump | Carbazole | 0/15 |
| AOC 5 | Possible Dump | Cresols, m- & p- | 0/15 |
| AOC 5 | Possible Dump | Diethyl phthalate | 0/15 |
| AOC 5 | Possible Dump | di-n-Octyl phthalate | 0/15 |
| AOC 5 | Possible Dump | Hexachlorobutadiene | 0/15 |
| AOC 5 | Possible Dump | Hexachlorocyclopentadiene | 15/15 |
| AOC 5 | Possible Dump | Isophorone | 0/15 |
| AOC 5 | Possible Dump | Nitrobenzene | 0/15 |
| AOC 5 | Possible Dump | N-Nitrosodi-n-propylamine | 15/15 |
| AOC 5 | Possible Dump | N-Nitrosodiphenylamine | 0/15 |
| AOC 5 | Possible Dump | Pentachlorophenol | 15/15 |
| AOC 5 | Possible Dump | Phenol | 0/15 |
| AOC 5 | Possible Dump | Dibenz(a,h)anthracene | 0/15 |
| AOC 5 | Possible Dump | PCB-1016 (Aroclor 1016) | 0/15 |
| AOC 5 | Possible Dump | PCB-1221 (Aroclor 1221) | 0/15 |
| AOC 5 | Possible Dump | PCB-1232 (Aroclor 1232) | 0/15 |
| AOC 5 | Possible Dump | PCB-1242 (Aroclor 1242) | 0/15 |
| AOC 5 | Possible Dump | PCB-1248 (Aroclor 1248) | 0/15 |

Table E.2-2
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Human Health
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Possible Dump | PCB-1254 (Aroclor 1254) | 0/15 |
| AOC 5 | Possible Dump | PCB-1260 (Aroclor 1260) | 0/15 |
| AOC 5 | Possible Dump | PCB-1262 (Aroclor 1262) | 0/15 |
| AOC 5 | Possible Dump | PCB-1268 (Aroclor 1268) | 0/15 |

Notes:
AOC = area of concern
FOE = frequency with which the screening level was exceeded versus the number of samples in the dataset
LOQ = limit of quantitation
NA = not applicable

Table E.2-3
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 1 | NA | 2,4-Dinitrochlorobenzene | 41/41 |
| AOC 1 | NA | 2,4-Dinitrophenol | 0/40 |
| AOC 3 | NA | Benzene | 0/18 |
| AOC 3 | NA | Hexachlorobenzene | 0/36 |
| AOC 3 | NA | m,p-Xylene | 0/18 |
| AOC 3 | NA | Methylene chloride | 0/18 |
| AOC 3 | NA | o-Xylene | 0/18 |
| AOC 3 | NA | Styrene | 0/18 |
| AOC 3 | NA | Tetrachloroethene (PCE) | 0/18 |
| AOC 3 | NA | 2,4,5-Trichlorophenol | 0/36 |
| AOC 3 | NA | 2,4-Dimethylphenol | 36/36 |
| AOC 3 | NA | 2,4-Dinitrochlorobenzene | 36/36 |
| AOC 3 | NA | 2,4-Dinitrophenol | 0/36 |
| AOC 3 | NA | 2,4-Dinitrotoluene | 0/36 |
| AOC 3 | NA | 2-Methylphenol (o-Cresol) | 0/36 |
| AOC 3 | NA | 4-Chloroaniline | 0/36 |
| AOC 3 | NA | Biphenyl (Diphenyl) | 0/36 |
| AOC 3 | NA | Diethyl phthalate | 0/36 |
| AOC 3 | NA | di-n-Butyl phthalate | 0/36 |
| AOC 3 | NA | Hexachlorocyclopentadiene | 0/36 |
| AOC 3 | NA | Pentachlorophenol | 0/36 |
| AOC 3 | NA | Phenol | 0/36 |
| AOC 3 | NA | PCB-1016 (Aroclor 1016) | 0/24 |
| AOC 3 | NA | PCB-1221 (Aroclor 1221) | 0/24 |
| AOC 3 | NA | PCB-1232 (Aroclor 1232) | 0/24 |
| AOC 3 | NA | PCB-1242 (Aroclor 1242) | 0/24 |
| AOC 3 | NA | PCB-1248 (Aroclor 1248) | 0/24 |
| AOC 3 | NA | PCB-1254 (Aroclor 1254) | 0/24 |
| AOC 3 | NA | PCB-1262 (Aroclor 1262) | 0/24 |
| AOC 3 | NA | PCB-1268 (Aroclor 1268) | 0/24 |
| AOC 3 | NA | Picric acid | 0/32 |
| AOC 4 - Discrete | NA | 2,4-Dinitrochlorobenzene | 101/101 |
| AOC 4 - Discrete | NA | 2,4-Dinitrophenol | 0/101 |
| AOC 4 - Discrete | NA | Picric acid | 0/101 |
| AOC 4 - ISM | NA | 2,4-Dinitrochlorobenzene | 2/34 |
| AOC 4 - ISM | NA | 2,4-Dinitrophenol | 0/29 |
| AOC 4 - ISM | NA | Picric acid | 0/36 |
| AOC 5 | Boiler House | Hexachlorobenzene | 0/10 |
| AOC 5 | Boiler House | 2,4,5-Trichlorophenol | 0/10 |
| AOC 5 | Boiler House | 2,4-Dimethylphenol | 10/10 |
| AOC 5 | Boiler House | 2,4-Dinitrotoluene | 0/10 |
| AOC 5 | Boiler House | 2-Methylphenol (o-Cresol) | 0/10 |
| AOC 5 | Boiler House | 4-Chloroaniline | 0/10 |
| AOC 5 | Boiler House | Biphenyl (Diphenyl) | 0/10 |
| AOC 5 | Boiler House | Cresols, m- & p- | 0/10 |
| AOC 5 | Boiler House | Dibenzofuran | 0/10 |
| AOC 5 | Boiler House | Diethyl phthalate | 0/10 |
| AOC 5 | Boiler House | di-n-Butyl phthalate | 0/10 |
| AOC 5 | Boiler House | Hexachlorocyclopentadiene | 0/10 |
| AOC 5 | Boiler House | Pentachlorophenol | 0/10 |

Table E.2-3
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Boiler House | Phenol | 0/10 |
| AOC 5 | Boiler House | Acenaphthene | 0/10 |
| AOC 5 | Boiler House | Silver | 0/10 |
| AOC 5 | Coal Aggregate Bins | Hexachlorobenzene | 0/5 |
| AOC 5 | Coal Aggregate Bins | 2,4,5-Trichlorophenol | 0/5 |
| AOC 5 | Coal Aggregate Bins | 2,4-Dimethylphenol | 5/5 |
| AOC 5 | Coal Aggregate Bins | 2,4-Dinitrotoluene | 0/5 |
| AOC 5 | Coal Aggregate Bins | 2-Methylphenol (o-Cresol) | 0/5 |
| AOC 5 | Coal Aggregate Bins | 4-Chloroaniline | 0/5 |
| AOC 5 | Coal Aggregate Bins | Biphenyl (Diphenyl) | 0/5 |
| AOC 5 | Coal Aggregate Bins | Cresols, m- & p- | 0/5 |
| AOC 5 | Coal Aggregate Bins | Diethyl phthalate | 0/5 |
| AOC 5 | Coal Aggregate Bins | di-n-Butyl phthalate | 0/5 |
| AOC 5 | Coal Aggregate Bins | Hexachlorocyclopentadiene | 0/5 |
| AOC 5 | Coal Aggregate Bins | Pentachlorophenol | 0/5 |
| AOC 5 | Coal Aggregate Bins | Phenol | 0/5 |
| AOC 5 | Coal Aggregate Bins | Silver | 0/10 |
| AOC 5 | Coal Storage Area | Hexachlorobenzene | 0/5 |
| AOC 5 | Coal Storage Area | 2,4,5-Trichlorophenol | 0/5 |
| AOC 5 | Coal Storage Area | 2,4-Dimethylphenol | 5/5 |
| AOC 5 | Coal Storage Area | 2,4-Dinitrotoluene | 0/5 |
| AOC 5 | Coal Storage Area | 2-Methylphenol (o-Cresol) | 0/5 |
| AOC 5 | Coal Storage Area | 4-Chloroaniline | 0/5 |
| AOC 5 | Coal Storage Area | Biphenyl (Diphenyl) | 0/5 |
| AOC 5 | Coal Storage Area | Cresols, m- & p- | 0/5 |
| AOC 5 | Coal Storage Area | Dibenzofuran | 0/5 |
| AOC 5 | Coal Storage Area | Diethyl phthalate | 0/5 |
| AOC 5 | Coal Storage Area | di-n-Butyl phthalate | 0/5 |
| AOC 5 | Coal Storage Area | Hexachlorocyclopentadiene | 0/5 |
| AOC 5 | Coal Storage Area | Pentachlorophenol | 0/5 |
| AOC 5 | Coal Storage Area | Phenol | 0/5 |
| AOC 5 | Coal Storage Area | Silver | 0/10 |
| AOC 5 | Electric Substation | Hexachlorobenzene | 0/10 |
| AOC 5 | Electric Substation | 2,4,5-Trichlorophenol | 0/10 |
| AOC 5 | Electric Substation | 2,4-Dimethylphenol | 10/10 |
| AOC 5 | Electric Substation | 2,4-Dinitrotoluene | 0/10 |
| AOC 5 | Electric Substation | 2-Methylphenol (o-Cresol) | 0/10 |
| AOC 5 | Electric Substation | 4-Chloroaniline | 0/10 |
| AOC 5 | Electric Substation | Biphenyl (Diphenyl) | 0/10 |
| AOC 5 | Electric Substation | Cresols, m- & p- | 0/10 |
| AOC 5 | Electric Substation | Dibenzofuran | 0/10 |
| AOC 5 | Electric Substation | Diethyl phthalate | 0/10 |
| AOC 5 | Electric Substation | di-n-Butyl phthalate | 0/10 |
| AOC 5 | Electric Substation | Hexachlorocyclopentadiene | 0/10 |
| AOC 5 | Electric Substation | Pentachlorophenol | 0/10 |
| AOC 5 | Electric Substation | Phenol | 0/10 |
| AOC 5 | Electric Substation | PCB-1016 (Aroclor 1016) | 0/5 |
| AOC 5 | Electric Substation | PCB-1221 (Aroclor 1221) | 0/5 |
| AOC 5 | Electric Substation | PCB-1232 (Aroclor 1232) | 0/5 |
| AOC 5 | Electric Substation | PCB-1242 (Aroclor 1242) | 0/5 |

Table E.2-3
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Electric Substation | PCB-1248 (Aroclor 1248) | 0/5 |
| AOC 5 | Electric Substation | PCB-1254 (Aroclor 1254) | 0/5 |
| AOC 5 | Electric Substation | PCB-1262 (Aroclor 1262) | 0/5 |
| AOC 5 | Electric Substation | PCB-1268 (Aroclor 1268) | 0/5 |
| AOC 5 | Electric Substation | Silver | 0/10 |
| AOC 5 | Possible Dump | Hexachlorobenzene | 0/10 |
| AOC 5 | Possible Dump | m,p-Xylene | 0/5 |
| AOC 5 | Possible Dump | Methylene chloride | 0/5 |
| AOC 5 | Possible Dump | o-Xylene | 0/5 |
| AOC 5 | Possible Dump | Styrene | 0/5 |
| AOC 5 | Possible Dump | Tetrachloroethene (PCE) | 0/5 |
| AOC 5 | Possible Dump | 2,4,5-Trichlorophenol | 0/10 |
| AOC 5 | Possible Dump | 2,4-Dimethylphenol | 10/10 |
| AOC 5 | Possible Dump | 2,4-Dinitrotoluene | 0/10 |
| AOC 5 | Possible Dump | 2-Methylphenol (o-Cresol) | 0/10 |
| AOC 5 | Possible Dump | 4-Chloroaniline | 0/10 |
| AOC 5 | Possible Dump | Biphenyl (Diphenyl) | 0/10 |
| AOC 5 | Possible Dump | Cresols, m- & p- | 0/10 |
| AOC 5 | Possible Dump | Diethyl phthalate | 0/10 |
| AOC 5 | Possible Dump | Hexachlorocyclopentadiene | 0/10 |
| AOC 5 | Possible Dump | Pentachlorophenol | 0/10 |
| AOC 5 | Possible Dump | Phenol | 0/10 |
| AOC 5 | Possible Dump | PCB-1016 (Aroclor 1016) | 0/10 |
| AOC 5 | Possible Dump | PCB-1221 (Aroclor 1221) | 0/10 |
| AOC 5 | Possible Dump | PCB-1232 (Aroclor 1232) | 0/10 |
| AOC 5 | Possible Dump | PCB-1242 (Aroclor 1242) | 0/10 |
| AOC 5 | Possible Dump | PCB-1248 (Aroclor 1248) | 0/10 |
| AOC 5 | Possible Dump | PCB-1254 (Aroclor 1254) | 0/10 |
| AOC 5 | Possible Dump | PCB-1260 (Aroclor 1260) | 0/10 |
| AOC 5 | Possible Dump | PCB-1262 (Aroclor 1262) | 0/10 |
| AOC 5 | Possible Dump | PCB-1268 (Aroclor 1268) | 0/10 |

Notes:
AOC = area of concern
FOE = frequency with which the screening level was exceeded versus the number of samples in the dataset
LOQ = limit of quantitation
NA = not applicable

Table E.2-4
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 1 | NA | 2,4-Dinitrochlorobenzene | 3/41 |
| AOC 1 | NA | 2,4-Dinitrophenol | 40/40 |
| AOC 3 | NA | 1,1,1-Trichloroethane | 0/18 |
| AOC 3 | NA | 1,1,2,2-Tetrachloroethane | 0/18 |
| AOC 3 | NA | 1,1,2-Trichloroethane | 0/18 |
| AOC 3 | NA | 1,1-Dichloroethane | 0/18 |
| AOC 3 | NA | 1,1-Dichloroethene | 0/18 |
| AOC 3 | NA | 1,2,3-Trichlorobenzene | 0/18 |
| AOC 3 | NA | 1,2,4-Trichlorobenzene | 0/18 |
| AOC 3 | NA | 1,2-Dichlorobenzene | 0/18 |
| AOC 3 | NA | 1,2-Dichloroethane | 0/18 |
| AOC 3 | NA | 1,2-Dichloropropane | 0/18 |
| AOC 3 | NA | 1,3-Dichlorobenzene | 0/18 |
| AOC 3 | NA | 1,4-Dichlorobenzene | 0/18 |
| AOC 3 | NA | 2-Hexanone | 0/18 |
| AOC 3 | NA | Benzene | 0/18 |
| AOC 3 | NA | Bromoform | 0/18 |
| AOC 3 | NA | Bromomethane | 18/18 |
| AOC 3 | NA | Carbon disulfide | 8/18 |
| AOC 3 | NA | Carbon Tetrachloride | 0/18 |
| AOC 3 | NA | Chlorobenzene | 0/18 |
| AOC 3 | NA | Chloroform | 0/18 |
| AOC 3 | NA | cis-1,2-Dichloroethene | 0/18 |
| AOC 3 | NA | cis-1,3-Dichloropropene | 18/18 |
| AOC 3 | NA | Ethylbenzene | 0/18 |
| AOC 3 | NA | Hexachlorobenzene | 0/36 |
| AOC 3 | NA | Hexachloroethane | 36/36 |
| AOC 3 | NA | m,p-Xylene | 0/18 |
| AOC 3 | NA | Methylene chloride | 0/18 |
| AOC 3 | NA | o-Xylene | 0/18 |
| AOC 3 | NA | Styrene | 0/18 |
| AOC 3 | NA | Tetrachloroethene (PCE) | 0/18 |
| AOC 3 | NA | trans-1,2-Dichloroethene | 0/18 |
| AOC 3 | NA | trans-1,3-Dichloropropene | 18/18 |
| AOC 3 | NA | Vinyl chloride | 0/18 |
| AOC 3 | NA | 1,2,4,5-Tetrachlorobenzene | 36/36 |
| AOC 3 | NA | 2,3,4,6-Tetrachlorophenol | 36/36 |
| AOC 3 | NA | 2,4,5-Trichlorophenol | 0/36 |
| AOC 3 | NA | 2,4,6-Trichlorophenol | 0/36 |
| AOC 3 | NA | 2,4-Dichlorophenol | 36/36 |
| AOC 3 | NA | 2,4-Dimethylphenol | 36/36 |
| AOC 3 | NA | 2,4-Dinitrochlorobenzene | 0/36 |
| AOC 3 | NA | 2,4-Dinitrophenol | 36/36 |
| AOC 3 | NA | 2,4-Dinitrotoluene | 0/36 |
| AOC 3 | NA | 2,6-Dinitrotoluene | 0/36 |
| AOC 3 | NA | 2-Chlorophenol | 36/36 |
| AOC 3 | NA | 2-Methylphenol (o-Cresol) | 36/36 |
| AOC 3 | NA | 2-Nitroaniline | 36/36 |
| AOC 3 | NA | 2-Nitrophenol | 36/36 |
| AOC 3 | NA | 3,3'-Dichlorobenzidine | 35/35 |

Table E.2-4
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 3 | NA | 3-Nitroaniline | 36/36 |
| AOC 3 | NA | 4-Chloroaniline | 0/36 |
| AOC 3 | NA | 4-Nitroaniline | 36/36 |
| AOC 3 | NA | 4-Nitrophenol | 0/36 |
| AOC 3 | NA | Atrazine | 36/36 |
| AOC 3 | NA | Benzyl butyl phthalate | 0/36 |
| AOC 3 | NA | Biphenyl (Diphenyl) | 36/36 |
| AOC 3 | NA | Diethyl phthalate | 36/36 |
| AOC 3 | NA | Dimethyl phthalate | 0/36 |
| AOC 3 | NA | di-n-Butyl phthalate | 36/36 |
| AOC 3 | NA | di-n-Octyl phthalate | 0/36 |
| AOC 3 | NA | Hexachlorobutadiene | 36/36 |
| AOC 3 | NA | Hexachlorocyclopentadiene | 36/36 |
| AOC 3 | NA | Nitrobenzene | 0/36 |
| AOC 3 | NA | N-Nitrosodiphenylamine | 0/36 |
| AOC 3 | NA | Pentachlorophenol | 0/36 |
| AOC 3 | NA | Phenol | 0/36 |
| AOC 3 | NA | PCB-1016 (Aroclor 1016) | 0/24 |
| AOC 3 | NA | PCB-1221 (Aroclor 1221) | 0/24 |
| AOC 3 | NA | PCB-1232 (Aroclor 1232) | 0/24 |
| AOC 3 | NA | PCB-1242 (Aroclor 1242) | 0/24 |
| AOC 3 | NA | PCB-1248 (Aroclor 1248) | 0/24 |
| AOC 3 | NA | PCB-1254 (Aroclor 1254) | 0/24 |
| AOC 3 | NA | PCB-1262 (Aroclor 1262) | 0/24 |
| AOC 3 | NA | PCB-1268 (Aroclor 1268) | 0/24 |
| AOC 3 | NA | Picric acid | 32/32 |
| AOC 4 - Discrete | NA | 2,4-Dinitrochlorobenzene | 0/101 |
| AOC 4 - Discrete | NA | 2,4-Dinitrophenol | 101/101 |
| AOC 4 - Discrete | NA | Picric acid | 101/101 |
| AOC 4 - ISM | NA | 2,4-Dinitrochlorobenzene | 1/34 |
| AOC 4 - ISM | NA | 2,4-Dinitrophenol | 29/29 |
| AOC 4 - ISM | NA | Picric acid | 36/36 |
| AOC 5 | Boiler House | Benzaldehyde | 9/9 |
| AOC 5 | Boiler House | Hexachlorobenzene | 0/10 |
| AOC 5 | Boiler House | Hexachloroethane | 9/9 |
| AOC 5 | Boiler House | 1,2,4,5-Tetrachlorobenzene | 10/10 |
| AOC 5 | Boiler House | 2,3,4,6-Tetrachlorophenol | 10/10 |
| AOC 5 | Boiler House | 2,4,5-Trichlorophenol | 0/10 |
| AOC 5 | Boiler House | 2,4,6-Trichlorophenol | 0/10 |
| AOC 5 | Boiler House | 2,4-Dichlorophenol | 10/10 |
| AOC 5 | Boiler House | 2,4-Dimethylphenol | 10/10 |
| AOC 5 | Boiler House | 2,4-Dinitrotoluene | 0/10 |
| AOC 5 | Boiler House | 2,6-Dinitrotoluene | 0/10 |
| AOC 5 | Boiler House | 2-Chlorophenol | 10/10 |
| AOC 5 | Boiler House | 2-Methylphenol (o-Cresol) | 10/10 |
| AOC 5 | Boiler House | 2-Nitroaniline | 10/10 |
| AOC 5 | Boiler House | 2-Nitrophenol | 10/10 |
| AOC 5 | Boiler House | 3,3'-Dichlorobenzidine | 10/10 |
| AOC 5 | Boiler House | 3-Nitroaniline | 10/10 |
| AOC 5 | Boiler House | 4-Chloroaniline | 0/10 |

Table E.2-4
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Boiler House | 4-Nitroaniline | 10/10 |
| AOC 5 | Boiler House | 4-Nitrophenol | 0/10 |
| AOC 5 | Boiler House | Atrazine | 10/10 |
| AOC 5 | Boiler House | Benzyl butyl phthalate | 0/10 |
| AOC 5 | Boiler House | Biphenyl (Diphenyl) | 10/10 |
| AOC 5 | Boiler House | Bis(2-ethylhexyl)phthalate | 0/10 |
| AOC 5 | Boiler House | Carbazole | 10/10 |
| AOC 5 | Boiler House | Cresols, m- & p- | 10/10 |
| AOC 5 | Boiler House | Dibenzofuran | 10/10 |
| AOC 5 | Boiler House | Diethyl phthalate | 10/10 |
| AOC 5 | Boiler House | Dimethyl phthalate | 0/10 |
| AOC 5 | Boiler House | di-n-Butyl phthalate | 10/10 |
| AOC 5 | Boiler House | di-n-Octyl phthalate | 0/10 |
| AOC 5 | Boiler House | Hexachlorobutadiene | 10/10 |
| AOC 5 | Boiler House | Hexachlorocyclopentadiene | 10/10 |
| AOC 5 | Boiler House | Nitrobenzene | 0/10 |
| AOC 5 | Boiler House | N-Nitrosodiphenylamine | 0/10 |
| AOC 5 | Boiler House | Pentachlorophenol | 0/10 |
| AOC 5 | Boiler House | Phenol | 0/10 |
| AOC 5 | Boiler House | Acenaphthene | 0/10 |
| AOC 5 | Coal Aggregate Bins | Benzaldehyde | 5/5 |
| AOC 5 | Coal Aggregate Bins | Hexachlorobenzene | 0/5 |
| AOC 5 | Coal Aggregate Bins | Hexachloroethane | 5/5 |
| AOC 5 | Coal Aggregate Bins | 1,2,4,5-Tetrachlorobenzene | 5/5 |
| AOC 5 | Coal Aggregate Bins | 2,3,4,6-Tetrachlorophenol | 5/5 |
| AOC 5 | Coal Aggregate Bins | 2,4,5-Trichlorophenol | 0/5 |
| AOC 5 | Coal Aggregate Bins | 2,4,6-Trichlorophenol | 0/5 |
| AOC 5 | Coal Aggregate Bins | 2,4-Dichlorophenol | 5/5 |
| AOC 5 | Coal Aggregate Bins | 2,4-Dimethylphenol | 5/5 |
| AOC 5 | Coal Aggregate Bins | 2,4-Dinitrotoluene | 0/5 |
| AOC 5 | Coal Aggregate Bins | 2,6-Dinitrotoluene | 0/5 |
| AOC 5 | Coal Aggregate Bins | 2-Chlorophenol | 5/5 |
| AOC 5 | Coal Aggregate Bins | 2-Methylphenol (o-Cresol) | 5/5 |
| AOC 5 | Coal Aggregate Bins | 2-Nitroaniline | 5/5 |
| AOC 5 | Coal Aggregate Bins | 2-Nitrophenol | 5/5 |
| AOC 5 | Coal Aggregate Bins | 3,3'-Dichlorobenzidine | 5/5 |
| AOC 5 | Coal Aggregate Bins | 3-Nitroaniline | 5/5 |
| AOC 5 | Coal Aggregate Bins | 4-Chloroaniline | 0/5 |
| AOC 5 | Coal Aggregate Bins | 4-Nitroaniline | 5/5 |
| AOC 5 | Coal Aggregate Bins | 4-Nitrophenol | 0/5 |
| AOC 5 | Coal Aggregate Bins | Atrazine | 5/5 |
| AOC 5 | Coal Aggregate Bins | Benzyl butyl phthalate | 0/5 |
| AOC 5 | Coal Aggregate Bins | Biphenyl (Diphenyl) | 5/5 |
| AOC 5 | Coal Aggregate Bins | Bis(2-ethylhexyl)phthalate | 0/5 |
| AOC 5 | Coal Aggregate Bins | Carbazole | 5/5 |
| AOC 5 | Coal Aggregate Bins | Cresols, m- & p- | 5/5 |
| AOC 5 | Coal Aggregate Bins | Diethyl phthalate | 5/5 |
| AOC 5 | Coal Aggregate Bins | Dimethyl phthalate | 0/5 |
| AOC 5 | Coal Aggregate Bins | di-n-Butyl phthalate | 5/5 |
| AOC 5 | Coal Aggregate Bins | di-n-Octyl phthalate | 0/5 |

Table E.2-4
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Coal Aggregate Bins | Hexachlorobutadiene | 5/5 |
| AOC 5 | Coal Aggregate Bins | Hexachlorocyclopentadiene | 5/5 |
| AOC 5 | Coal Aggregate Bins | Nitrobenzene | 0/5 |
| AOC 5 | Coal Aggregate Bins | N-Nitrosodiphenylamine | 0/5 |
| AOC 5 | Coal Aggregate Bins | Pentachlorophenol | 0/5 |
| AOC 5 | Coal Aggregate Bins | Phenol | 0/5 |
| AOC 5 | Coal Storage Area | Benzaldehyde | 5/5 |
| AOC 5 | Coal Storage Area | Hexachlorobenzene | 0/5 |
| AOC 5 | Coal Storage Area | Hexachloroethane | 5/5 |
| AOC 5 | Coal Storage Area | 1,2,4,5-Tetrachlorobenzene | 5/5 |
| AOC 5 | Coal Storage Area | 2,3,4,6-Tetrachlorophenol | 5/5 |
| AOC 5 | Coal Storage Area | 2,4,5-Trichlorophenol | 0/5 |
| AOC 5 | Coal Storage Area | 2,4,6-Trichlorophenol | 0/5 |
| AOC 5 | Coal Storage Area | 2,4-Dichlorophenol | 5/5 |
| AOC 5 | Coal Storage Area | 2,4-Dimethylphenol | 5/5 |
| AOC 5 | Coal Storage Area | 2,4-Dinitrotoluene | 0/5 |
| AOC 5 | Coal Storage Area | 2,6-Dinitrotoluene | 0/5 |
| AOC 5 | Coal Storage Area | 2-Chlorophenol | 5/5 |
| AOC 5 | Coal Storage Area | 2-Methylphenol (o-Cresol) | 5/5 |
| AOC 5 | Coal Storage Area | 2-Nitroaniline | 5/5 |
| AOC 5 | Coal Storage Area | 2-Nitrophenol | 5/5 |
| AOC 5 | Coal Storage Area | 3,3'-Dichlorobenzidine | 5/5 |
| AOC 5 | Coal Storage Area | 3-Nitroaniline | 5/5 |
| AOC 5 | Coal Storage Area | 4-Chloroaniline | 0/5 |
| AOC 5 | Coal Storage Area | 4-Nitroaniline | 5/5 |
| AOC 5 | Coal Storage Area | 4-Nitrophenol | 0/5 |
| AOC 5 | Coal Storage Area | Atrazine | 5/5 |
| AOC 5 | Coal Storage Area | Benzyl butyl phthalate | 0/5 |
| AOC 5 | Coal Storage Area | Biphenyl (Diphenyl) | 5/5 |
| AOC 5 | Coal Storage Area | Bis(2-ethylhexyl)phthalate | 0/5 |
| AOC 5 | Coal Storage Area | Carbazole | 5/5 |
| AOC 5 | Coal Storage Area | Cresols, m- & p- | 5/5 |
| AOC 5 | Coal Storage Area | Dibenzofuran | 5/5 |
| AOC 5 | Coal Storage Area | Diethyl phthalate | 5/5 |
| AOC 5 | Coal Storage Area | Dimethyl phthalate | 0/5 |
| AOC 5 | Coal Storage Area | di-n-Butyl phthalate | 5/5 |
| AOC 5 | Coal Storage Area | di-n-Octyl phthalate | 0/5 |
| AOC 5 | Coal Storage Area | Hexachlorobutadiene | 5/5 |
| AOC 5 | Coal Storage Area | Hexachlorocyclopentadiene | 5/5 |
| AOC 5 | Coal Storage Area | Nitrobenzene | 0/5 |
| AOC 5 | Coal Storage Area | N-Nitrosodiphenylamine | 0/5 |
| AOC 5 | Coal Storage Area | Pentachlorophenol | 0/5 |
| AOC 5 | Coal Storage Area | Phenol | 0/5 |
| AOC 5 | Electric Substation | Benzaldehyde | 10/10 |
| AOC 5 | Electric Substation | Hexachlorobenzene | 0/10 |
| AOC 5 | Electric Substation | Hexachloroethane | 10/10 |
| AOC 5 | Electric Substation | 1,2,4,5-Tetrachlorobenzene | 10/10 |
| AOC 5 | Electric Substation | 2,3,4,6-Tetrachlorophenol | 10/10 |
| AOC 5 | Electric Substation | 2,4,5-Trichlorophenol | 0/10 |
| AOC 5 | Electric Substation | 2,4,6-Trichlorophenol | 0/10 |

Table E.2-4
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Electric Substation | 2,4-Dichlorophenol | 10/10 |
| AOC 5 | Electric Substation | 2,4-Dimethylphenol | 10/10 |
| AOC 5 | Electric Substation | 2,4-Dinitrotoluene | 0/10 |
| AOC 5 | Electric Substation | 2,6-Dinitrotoluene | 0/10 |
| AOC 5 | Electric Substation | 2-Chlorophenol | 10/10 |
| AOC 5 | Electric Substation | 2-Methylphenol (o-Cresol) | 10/10 |
| AOC 5 | Electric Substation | 2-Nitroaniline | 10/10 |
| AOC 5 | Electric Substation | 2-Nitrophenol | 10/10 |
| AOC 5 | Electric Substation | 3,3'-Dichlorobenzidine | 10/10 |
| AOC 5 | Electric Substation | 3-Nitroaniline | 10/10 |
| AOC 5 | Electric Substation | 4-Chloroaniline | 0/10 |
| AOC 5 | Electric Substation | 4-Nitroaniline | 10/10 |
| AOC 5 | Electric Substation | 4-Nitrophenol | 0/10 |
| AOC 5 | Electric Substation | Atrazine | 10/10 |
| AOC 5 | Electric Substation | Benzyl butyl phthalate | 0/10 |
| AOC 5 | Electric Substation | Biphenyl (Diphenyl) | 10/10 |
| AOC 5 | Electric Substation | Bis(2-ethylhexyl)phthalate | 0/10 |
| AOC 5 | Electric Substation | Carbazole | 10/10 |
| AOC 5 | Electric Substation | Cresols, m- & p- | 10/10 |
| AOC 5 | Electric Substation | Dibenzofuran | 10/10 |
| AOC 5 | Electric Substation | Diethyl phthalate | 10/10 |
| AOC 5 | Electric Substation | Dimethyl phthalate | 0/10 |
| AOC 5 | Electric Substation | di-n-Butyl phthalate | 10/10 |
| AOC 5 | Electric Substation | di-n-Octyl phthalate | 0/10 |
| AOC 5 | Electric Substation | Hexachlorobutadiene | 10/10 |
| AOC 5 | Electric Substation | Hexachlorocyclopentadiene | 10/10 |
| AOC 5 | Electric Substation | Nitrobenzene | 0/10 |
| AOC 5 | Electric Substation | N-Nitrosodiphenylamine | 0/10 |
| AOC 5 | Electric Substation | Pentachlorophenol | 0/10 |
| AOC 5 | Electric Substation | Phenol | 0/10 |
| AOC 5 | Electric Substation | PCB-1016 (Aroclor 1016) | 0/5 |
| AOC 5 | Electric Substation | PCB-1221 (Aroclor 1221) | 0/5 |
| AOC 5 | Electric Substation | PCB-1232 (Aroclor 1232) | 0/5 |
| AOC 5 | Electric Substation | PCB-1242 (Aroclor 1242) | 0/5 |
| AOC 5 | Electric Substation | PCB-1248 (Aroclor 1248) | 0/5 |
| AOC 5 | Electric Substation | PCB-1254 (Aroclor 1254) | 0/5 |
| AOC 5 | Electric Substation | PCB-1262 (Aroclor 1262) | 0/5 |
| AOC 5 | Electric Substation | PCB-1268 (Aroclor 1268) | 0/5 |
| AOC 5 | Possible Dump | 1,1,1-Trichloroethane | 0/5 |
| AOC 5 | Possible Dump | 1,1,2,2-Tetrachloroethane | 0/5 |
| AOC 5 | Possible Dump | 1,1,2-Trichloroethane | 0/5 |
| AOC 5 | Possible Dump | 1,1-Dichloroethane | 0/5 |
| AOC 5 | Possible Dump | 1,1-Dichloroethene | 0/5 |
| AOC 5 | Possible Dump | 1,2,3-Trichlorobenzene | 0/5 |
| AOC 5 | Possible Dump | 1,2,4-Trichlorobenzene | 0/5 |
| AOC 5 | Possible Dump | 1,2-Dichlorobenzene | 0/5 |
| AOC 5 | Possible Dump | 1,2-Dichloroethane | 0/5 |
| AOC 5 | Possible Dump | 1,2-Dichloropropane | 0/5 |
| AOC 5 | Possible Dump | 1,3-Dichlorobenzene | 0/5 |
| AOC 5 | Possible Dump | 1,4-Dichlorobenzene | 0/5 |

Table E.2-4
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Possible Dump | 2-Hexanone | 0/5 |
| AOC 5 | Possible Dump | Bromoform | 0/5 |
| AOC 5 | Possible Dump | Bromomethane | 5/5 |
| AOC 5 | Possible Dump | Carbon disulfide | 0/5 |
| AOC 5 | Possible Dump | Carbon Tetrachloride | 0/5 |
| AOC 5 | Possible Dump | Chlorobenzene | 0/5 |
| AOC 5 | Possible Dump | Chloroform | 0/5 |
| AOC 5 | Possible Dump | cis-1,2-Dichloroethene | 0/5 |
| AOC 5 | Possible Dump | cis-1,3-Dichloropropene | 5/5 |
| AOC 5 | Possible Dump | Cumene | 0/5 |
| AOC 5 | Possible Dump | Ethylbenzene | 0/5 |
| AOC 5 | Possible Dump | Hexachlorobenzene | 0/10 |
| AOC 5 | Possible Dump | Hexachloroethane | 10/10 |
| AOC 5 | Possible Dump | m,p-Xylene | 0/5 |
| AOC 5 | Possible Dump | Methylene chloride | 0/5 |
| AOC 5 | Possible Dump | o-Xylene | 0/5 |
| AOC 5 | Possible Dump | Styrene | 0/5 |
| AOC 5 | Possible Dump | Tetrachloroethene (PCE) | 0/5 |
| AOC 5 | Possible Dump | trans-1,2-Dichloroethene | 0/5 |
| AOC 5 | Possible Dump | trans-1,3-Dichloropropene | 5/5 |
| AOC 5 | Possible Dump | Vinyl chloride | 0/5 |
| AOC 5 | Possible Dump | 1,2,4,5-Tetrachlorobenzene | 10/10 |
| AOC 5 | Possible Dump | 2,3,4,6-Tetrachlorophenol | 10/10 |
| AOC 5 | Possible Dump | 2,4,5-Trichlorophenol | 0/10 |
| AOC 5 | Possible Dump | 2,4,6-Trichlorophenol | 0/10 |
| AOC 5 | Possible Dump | 2,4-Dichlorophenol | 10/10 |
| AOC 5 | Possible Dump | 2,4-Dimethylphenol | 10/10 |
| AOC 5 | Possible Dump | 2,4-Dinitrotoluene | 0/10 |
| AOC 5 | Possible Dump | 2,6-Dinitrotoluene | 0/10 |
| AOC 5 | Possible Dump | 2-Chlorophenol | 10/10 |
| AOC 5 | Possible Dump | 2-Methylphenol (o-Cresol) | 10/10 |
| AOC 5 | Possible Dump | 2-Nitroaniline | 10/10 |
| AOC 5 | Possible Dump | 2-Nitrophenol | 10/10 |
| AOC 5 | Possible Dump | 3,3'-Dichlorobenzidine | 10/10 |
| AOC 5 | Possible Dump | 3-Nitroaniline | 10/10 |
| AOC 5 | Possible Dump | 4-Chloroaniline | 0/10 |
| AOC 5 | Possible Dump | 4-Nitroaniline | 10/10 |
| AOC 5 | Possible Dump | 4-Nitrophenol | 0/10 |
| AOC 5 | Possible Dump | Atrazine | 10/10 |
| AOC 5 | Possible Dump | Benzyl butyl phthalate | 0/10 |
| AOC 5 | Possible Dump | Biphenyl (Diphenyl) | 10/10 |
| AOC 5 | Possible Dump | Bis(2-ethylhexyl)phthalate | 0/10 |
| AOC 5 | Possible Dump | Carbazole | 10/10 |
| AOC 5 | Possible Dump | Cresols, m- & p- | 10/10 |
| AOC 5 | Possible Dump | Diethyl phthalate | 10/10 |
| AOC 5 | Possible Dump | Dimethyl phthalate | 0/10 |
| AOC 5 | Possible Dump | di-n-Octyl phthalate | 0/10 |
| AOC 5 | Possible Dump | Hexachlorobutadiene | 10/10 |
| AOC 5 | Possible Dump | Hexachlorocyclopentadiene | 10/10 |
| AOC 5 | Possible Dump | Nitrobenzene | 0/10 |

Table E.2-4
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Possible Dump | N-Nitrosodiphenylamine | 0/10 |
| AOC 5 | Possible Dump | Pentachlorophenol | 0/10 |
| AOC 5 | Possible Dump | Phenol | 0/10 |
| AOC 5 | Possible Dump | Dibenz(a,h)anthracene | 0/10 |
| AOC 5 | Possible Dump | PCB-1016 (Aroclor 1016) | 0/10 |
| AOC 5 | Possible Dump | PCB-1221 (Aroclor 1221) | 0/10 |
| AOC 5 | Possible Dump | PCB-1232 (Aroclor 1232) | 0/10 |
| AOC 5 | Possible Dump | PCB-1242 (Aroclor 1242) | 0/10 |
| AOC 5 | Possible Dump | PCB-1248 (Aroclor 1248) | 0/10 |
| AOC 5 | Possible Dump | PCB-1254 (Aroclor 1254) | 0/10 |
| AOC 5 | Possible Dump | PCB-1260 (Aroclor 1260) | 0/10 |
| AOC 5 | Possible Dump | PCB-1262 (Aroclor 1262) | 0/10 |
| AOC 5 | Possible Dump | PCB-1268 (Aroclor 1268) | 0/10 |

Notes:
AOC = area of concern
FOE = frequency with which the screening level was exceeded versus the number of samples in the dataset
LOQ = limit of quantitation
NA = not applicable

Table E.2-5
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 1 | NA | 2,4-Dinitrochlorobenzene | 0/30 |
| AOC 1 | NA | 2,4-Dinitrophenol | 0/29 |
| AOC 4 - Discrete | NA | 2,4-Dinitrochlorobenzene | 0/16 |
| AOC 4 - Discrete | NA | 2,4-Dinitrophenol | 0/16 |
| AOC 4 - Discrete | NA | Picric acid | 0/16 |
| AOC 4 - ISM | NA | 2,4-Dinitrochlorobenzene | 0/34 |
| AOC 4 - ISM | NA | 2,4-Dinitrophenol | 0/29 |
| AOC 4 - ISM | NA | Picric acid | 0/36 |
| AOC 5 | Boiler House | Hexachlorobenzene | 5/5 |
| AOC 5 | Boiler House | 2,6-Dinitrotoluene | 0/5 |
| AOC 5 | Boiler House | 2-Chlorophenol | 0/5 |
| AOC 5 | Boiler House | Bis(2-ethylhexyl)phthalate | 5/5 |
| AOC 5 | Boiler House | di-n-Butyl phthalate | 5/5 |
| AOC 5 | Boiler House | Pentachlorophenol | 0/5 |
| AOC 5 | Boiler House | Silver | 0/5 |
| AOC 5 | Coal Aggregate Bins | Silver | 0/5 |
| AOC 5 | Coal Storage Area | Silver | 0/5 |
| AOC 5 | Electric Substation | Hexachlorobenzene | 5/5 |
| AOC 5 | Electric Substation | 2,6-Dinitrotoluene | 0/5 |
| AOC 5 | Electric Substation | 2-Chlorophenol | 0/5 |
| AOC 5 | Electric Substation | Bis(2-ethylhexyl)phthalate | 5/5 |
| AOC 5 | Electric Substation | di-n-Butyl phthalate | 5/5 |
| AOC 5 | Electric Substation | Pentachlorophenol | 0/5 |
| AOC 5 | Electric Substation | PCB-1016 (Aroclor 1016) | 5/5 |
| AOC 5 | Electric Substation | PCB-1221 (Aroclor 1221) | 5/5 |
| AOC 5 | Electric Substation | PCB-1232 (Aroclor 1232) | 5/5 |
| AOC 5 | Electric Substation | PCB-1242 (Aroclor 1242) | 5/5 |
| AOC 5 | Electric Substation | PCB-1248 (Aroclor 1248) | 5/5 |
| AOC 5 | Electric Substation | PCB-1254 (Aroclor 1254) | 5/5 |
| AOC 5 | Electric Substation | PCB-1262 (Aroclor 1262) | 5/5 |
| AOC 5 | Electric Substation | PCB-1268 (Aroclor 1268) | 5/5 |
| AOC 5 | Electric Substation | Silver | 0/5 |
| AOC 5 | Possible Dump | Hexachlorobenzene | 5/5 |
| AOC 5 | Possible Dump | 2,6-Dinitrotoluene | 0/5 |
| AOC 5 | Possible Dump | 2-Chlorophenol | 0/5 |
| AOC 5 | Possible Dump | Bis(2-ethylhexyl)phthalate | 5/5 |
| AOC 5 | Possible Dump | Pentachlorophenol | 0/5 |
| AOC 5 | Possible Dump | PCB-1016 (Aroclor 1016) | 5/5 |
| AOC 5 | Possible Dump | PCB-1221 (Aroclor 1221) | 5/5 |
| AOC 5 | Possible Dump | PCB-1232 (Aroclor 1232) | 5/5 |
| AOC 5 | Possible Dump | PCB-1242 (Aroclor 1242) | 5/5 |
| AOC 5 | Possible Dump | PCB-1248 (Aroclor 1248) | 5/5 |
| AOC 5 | Possible Dump | PCB-1254 (Aroclor 1254) | 5/5 |
| AOC 5 | Possible Dump | PCB-1260 (Aroclor 1260) | 5/5 |
| AOC 5 | Possible Dump | PCB-1262 (Aroclor 1262) | 5/5 |
| AOC 5 | Possible Dump | PCB-1268 (Aroclor 1268) | 5/5 |

Notes:
AOC = area of concern
FOE = frequency with which the screening level was exceeded versus the number of samples in the dataset
LOQ = limit of quantitation
NA = not applicable

Table E.2-6
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 1 | NA | 2,4-Dinitrochlorobenzene | 3/41 |
| AOC 1 | NA | 2,4-Dinitrophenol | 40/40 |
| AOC 4 - Discrete | NA | 2,4-Dinitrochlorobenzene | 0/101 |
| AOC 4 - Discrete | NA | 2,4-Dinitrophenol | 101/101 |
| AOC 4 - Discrete | NA | Picric acid | 101/101 |
| AOC 4 - ISM | NA | 2,4-Dinitrochlorobenzene | 1/34 |
| AOC 4 - ISM | NA | 2,4-Dinitrophenol | 29/29 |
| AOC 4 - ISM | NA | Picric acid | 36/36 |
| AOC 5 | Boiler House | 2,2'-Oxybis(1-chloropropane) | 0/10 |
| AOC 5 | Boiler House | Acetophenone | 0/10 |
| AOC 5 | Boiler House | Benzaldehyde | 0/9 |
| AOC 5 | Boiler House | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 0/10 |
| AOC 5 | Boiler House | Hexachlorobenzene | 10/10 |
| AOC 5 | Boiler House | Hexachloroethane | 0/9 |
| AOC 5 | Boiler House | 1,2,4,5-Tetrachlorobenzene | 0/10 |
| AOC 5 | Boiler House | 1,4-Dioxane | 0/9 |
| AOC 5 | Boiler House | 2,3,4,6-Tetrachlorophenol | 10/10 |
| AOC 5 | Boiler House | 2,4,5-Trichlorophenol | 0/10 |
| AOC 5 | Boiler House | 2,4,6-Trichlorophenol | 0/10 |
| AOC 5 | Boiler House | 2,4-Dichlorophenol | 0/10 |
| AOC 5 | Boiler House | 2,4-Dinitrotoluene | 0/10 |
| AOC 5 | Boiler House | 2,6-Dinitrotoluene | 0/10 |
| AOC 5 | Boiler House | 2-Chloronaphthalene | 10/10 |
| AOC 5 | Boiler House | 2-Chlorophenol | 0/10 |
| AOC 5 | Boiler House | 2-Methylphenol (o-Cresol) | 0/10 |
| AOC 5 | Boiler House | 2-Nitroaniline | 0/10 |
| AOC 5 | Boiler House | 2-Nitrophenol | 0/10 |
| AOC 5 | Boiler House | 3,3'-Dichlorobenzidine | 10/10 |
| AOC 5 | Boiler House | 3-Nitroaniline | 0/10 |
| AOC 5 | Boiler House | 4,6-Dinitro-2-methylphenol | 10/10 |
| AOC 5 | Boiler House | 4-Chloro-3-methylphenol | 0/10 |
| AOC 5 | Boiler House | 4-Chloroaniline | 0/10 |
| AOC 5 | Boiler House | 4-Nitroaniline | 0/10 |
| AOC 5 | Boiler House | 4-Nitrophenol | 0/10 |
| AOC 5 | Boiler House | Benzyl butyl phthalate | 0/10 |
| AOC 5 | Boiler House | Bis(2-chloroethoxy)methane | 10/10 |
| AOC 5 | Boiler House | Bis(2-ethylhexyl)phthalate | 0/10 |
| AOC 5 | Boiler House | Carbazole | 0/10 |
| AOC 5 | Boiler House | Cresols, m- & p- | 0/10 |
| AOC 5 | Boiler House | Diethyl phthalate | 0/10 |
| AOC 5 | Boiler House | Dimethyl phthalate | 0/10 |
| AOC 5 | Boiler House | di-n-Butyl phthalate | 0/10 |
| AOC 5 | Boiler House | di-n-Octyl phthalate | 0/10 |
| AOC 5 | Boiler House | Hexachlorobutadiene | 10/10 |
| AOC 5 | Boiler House | Hexachlorocyclopentadiene | 0/10 |
| AOC 5 | Boiler House | Isophorone | 0/10 |
| AOC 5 | Boiler House | Nitrobenzene | 0/10 |
| AOC 5 | Boiler House | N-Nitrosodi-n-propylamine | 0/10 |
| AOC 5 | Boiler House | N-Nitrosodiphenylamine | 0/10 |
| AOC 5 | Boiler House | Pentachlorophenol | 0/10 |

Table E.2-6
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Boiler House | Phenol | 0/10 |
| AOC 5 | Boiler House | Acenaphthene | 0/10 |
| AOC 5 | Boiler House | Silver | 0/10 |
| AOC 5 | Coal Aggregate Bins | 2,2'-Oxybis(1-chloropropane) | 0/5 |
| AOC 5 | Coal Aggregate Bins | Acetophenone | 0/5 |
| AOC 5 | Coal Aggregate Bins | Benzaldehyde | 0/5 |
| AOC 5 | Coal Aggregate Bins | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 0/5 |
| AOC 5 | Coal Aggregate Bins | Hexachlorobenzene | 5/5 |
| AOC 5 | Coal Aggregate Bins | Hexachloroethane | 0/5 |
| AOC 5 | Coal Aggregate Bins | 1,2,4,5-Tetrachlorobenzene | 0/5 |
| AOC 5 | Coal Aggregate Bins | 1,4-Dioxane | 0/5 |
| AOC 5 | Coal Aggregate Bins | 2,3,4,6-Tetrachlorophenol | 5/5 |
| AOC 5 | Coal Aggregate Bins | 2,4,5-Trichlorophenol | 0/5 |
| AOC 5 | Coal Aggregate Bins | 2,4,6-Trichlorophenol | 0/5 |
| AOC 5 | Coal Aggregate Bins | 2,4-Dichlorophenol | 0/5 |
| AOC 5 | Coal Aggregate Bins | 2,4-Dinitrotoluene | 0/5 |
| AOC 5 | Coal Aggregate Bins | 2,6-Dinitrotoluene | 0/5 |
| AOC 5 | Coal Aggregate Bins | 2-Chloronaphthalene | 5/5 |
| AOC 5 | Coal Aggregate Bins | 2-Chlorophenol | 0/5 |
| AOC 5 | Coal Aggregate Bins | 2-Methylphenol (o-Cresol) | 0/5 |
| AOC 5 | Coal Aggregate Bins | 2-Nitroaniline | 0/5 |
| AOC 5 | Coal Aggregate Bins | 2-Nitrophenol | 0/5 |
| AOC 5 | Coal Aggregate Bins | 3,3'-Dichlorobenzidine | 5/5 |
| AOC 5 | Coal Aggregate Bins | 3-Nitroaniline | 0/5 |
| AOC 5 | Coal Aggregate Bins | 4,6-Dinitro-2-methylphenol | 5/5 |
| AOC 5 | Coal Aggregate Bins | 4-Chloro-3-methylphenol | 0/5 |
| AOC 5 | Coal Aggregate Bins | 4-Chloroaniline | 0/5 |
| AOC 5 | Coal Aggregate Bins | 4-Nitroaniline | 0/5 |
| AOC 5 | Coal Aggregate Bins | 4-Nitrophenol | 0/5 |
| AOC 5 | Coal Aggregate Bins | Benzyl butyl phthalate | 0/5 |
| AOC 5 | Coal Aggregate Bins | Bis(2-chloroethoxy)methane | 5/5 |
| AOC 5 | Coal Aggregate Bins | Bis(2-ethylhexyl)phthalate | 0/5 |
| AOC 5 | Coal Aggregate Bins | Carbazole | 0/5 |
| AOC 5 | Coal Aggregate Bins | Cresols, m- & p- | 0/5 |
| AOC 5 | Coal Aggregate Bins | Diethyl phthalate | 0/5 |
| AOC 5 | Coal Aggregate Bins | Dimethyl phthalate | 0/5 |
| AOC 5 | Coal Aggregate Bins | di-n-Butyl phthalate | 0/5 |
| AOC 5 | Coal Aggregate Bins | di-n-Octyl phthalate | 0/5 |
| AOC 5 | Coal Aggregate Bins | Hexachlorobutadiene | 5/5 |
| AOC 5 | Coal Aggregate Bins | Hexachlorocyclopentadiene | 0/5 |
| AOC 5 | Coal Aggregate Bins | Isophorone | 0/5 |
| AOC 5 | Coal Aggregate Bins | Nitrobenzene | 0/5 |
| AOC 5 | Coal Aggregate Bins | N-Nitrosodi-n-propylamine | 0/5 |
| AOC 5 | Coal Aggregate Bins | N-Nitrosodiphenylamine | 0/5 |
| AOC 5 | Coal Aggregate Bins | Pentachlorophenol | 0/5 |
| AOC 5 | Coal Aggregate Bins | Phenol | 0/5 |
| AOC 5 | Coal Aggregate Bins | Silver | 0/10 |
| AOC 5 | Coal Storage Area | 2,2'-Oxybis(1-chloropropane) | 0/5 |
| AOC 5 | Coal Storage Area | Acetophenone | 0/5 |
| AOC 5 | Coal Storage Area | Benzaldehyde | 0/5 |

Table E.2-6
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Coal Storage Area | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 0/5 |
| AOC 5 | Coal Storage Area | Hexachlorobenzene | 5/5 |
| AOC 5 | Coal Storage Area | Hexachloroethane | 0/5 |
| AOC 5 | Coal Storage Area | 1,2,4,5-Tetrachlorobenzene | 0/5 |
| AOC 5 | Coal Storage Area | 1,4-Dioxane | 0/5 |
| AOC 5 | Coal Storage Area | 2,3,4,6-Tetrachlorophenol | 5/5 |
| AOC 5 | Coal Storage Area | 2,4,5-Trichlorophenol | 0/5 |
| AOC 5 | Coal Storage Area | 2,4,6-Trichlorophenol | 0/5 |
| AOC 5 | Coal Storage Area | 2,4-Dichlorophenol | 0/5 |
| AOC 5 | Coal Storage Area | 2,4-Dinitrotoluene | 0/5 |
| AOC 5 | Coal Storage Area | 2,6-Dinitrotoluene | 0/5 |
| AOC 5 | Coal Storage Area | 2-Chloronaphthalene | 5/5 |
| AOC 5 | Coal Storage Area | 2-Chlorophenol | 0/5 |
| AOC 5 | Coal Storage Area | 2-Methylphenol (o-Cresol) | 0/5 |
| AOC 5 | Coal Storage Area | 2-Nitroaniline | 0/5 |
| AOC 5 | Coal Storage Area | 2-Nitrophenol | 0/5 |
| AOC 5 | Coal Storage Area | 3,3'-Dichlorobenzidine | 5/5 |
| AOC 5 | Coal Storage Area | 3-Nitroaniline | 0/5 |
| AOC 5 | Coal Storage Area | 4,6-Dinitro-2-methylphenol | 5/5 |
| AOC 5 | Coal Storage Area | 4-Chloro-3-methylphenol | 0/5 |
| AOC 5 | Coal Storage Area | 4-Chloroaniline | 0/5 |
| AOC 5 | Coal Storage Area | 4-Nitroaniline | 0/5 |
| AOC 5 | Coal Storage Area | 4-Nitrophenol | 0/5 |
| AOC 5 | Coal Storage Area | Benzyl butyl phthalate | 0/5 |
| AOC 5 | Coal Storage Area | Bis(2-chloroethoxy)methane | 5/5 |
| AOC 5 | Coal Storage Area | Bis(2-ethylhexyl)phthalate | 0/5 |
| AOC 5 | Coal Storage Area | Carbazole | 0/5 |
| AOC 5 | Coal Storage Area | Cresols, m- & p- | 0/5 |
| AOC 5 | Coal Storage Area | Diethyl phthalate | 0/5 |
| AOC 5 | Coal Storage Area | Dimethyl phthalate | 0/5 |
| AOC 5 | Coal Storage Area | di-n-Butyl phthalate | 0/5 |
| AOC 5 | Coal Storage Area | di-n-Octyl phthalate | 0/5 |
| AOC 5 | Coal Storage Area | Hexachlorobutadiene | 5/5 |
| AOC 5 | Coal Storage Area | Hexachlorocyclopentadiene | 0/5 |
| AOC 5 | Coal Storage Area | Isophorone | 0/5 |
| AOC 5 | Coal Storage Area | Nitrobenzene | 0/5 |
| AOC 5 | Coal Storage Area | N-Nitrosodi-n-propylamine | 0/5 |
| AOC 5 | Coal Storage Area | N-Nitrosodiphenylamine | 0/5 |
| AOC 5 | Coal Storage Area | Pentachlorophenol | 0/5 |
| AOC 5 | Coal Storage Area | Phenol | 0/5 |
| AOC 5 | Coal Storage Area | Silver | 0/10 |
| AOC 5 | Electric Substation | 2,2'-Oxybis(1-chloropropane) | 0/10 |
| AOC 5 | Electric Substation | Acetophenone | 0/10 |
| AOC 5 | Electric Substation | Benzaldehyde | 0/10 |
| AOC 5 | Electric Substation | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 0/10 |
| AOC 5 | Electric Substation | Hexachlorobenzene | 10/10 |
| AOC 5 | Electric Substation | Hexachloroethane | 0/10 |
| AOC 5 | Electric Substation | 1,2,4,5-Tetrachlorobenzene | 0/10 |
| AOC 5 | Electric Substation | 1,4-Dioxane | 0/10 |
| AOC 5 | Electric Substation | 2,3,4,6-Tetrachlorophenol | 10/10 |

Table E.2-6
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Electric Substation | 2,4,5-Trichlorophenol | 0/10 |
| AOC 5 | Electric Substation | 2,4,6-Trichlorophenol | 0/10 |
| AOC 5 | Electric Substation | 2,4-Dichlorophenol | 0/10 |
| AOC 5 | Electric Substation | 2,4-Dinitrotoluene | 0/10 |
| AOC 5 | Electric Substation | 2,6-Dinitrotoluene | 0/10 |
| AOC 5 | Electric Substation | 2-Chloronaphthalene | 10/10 |
| AOC 5 | Electric Substation | 2-Chlorophenol | 0/10 |
| AOC 5 | Electric Substation | 2-Methylphenol (o-Cresol) | 0/10 |
| AOC 5 | Electric Substation | 2-Nitroaniline | 0/10 |
| AOC 5 | Electric Substation | 2-Nitrophenol | 0/10 |
| AOC 5 | Electric Substation | 3,3'-Dichlorobenzidine | 10/10 |
| AOC 5 | Electric Substation | 3-Nitroaniline | 0/10 |
| AOC 5 | Electric Substation | 4,6-Dinitro-2-methylphenol | 10/10 |
| AOC 5 | Electric Substation | 4-Chloro-3-methylphenol | 0/10 |
| AOC 5 | Electric Substation | 4-Chloroaniline | 0/10 |
| AOC 5 | Electric Substation | 4-Nitroaniline | 0/10 |
| AOC 5 | Electric Substation | 4-Nitrophenol | 0/10 |
| AOC 5 | Electric Substation | Benzyl butyl phthalate | 0/10 |
| AOC 5 | Electric Substation | Bis(2-chloroethoxy)methane | 10/10 |
| AOC 5 | Electric Substation | Bis(2-ethylhexyl)phthalate | 0/10 |
| AOC 5 | Electric Substation | Carbazole | 0/10 |
| AOC 5 | Electric Substation | Cresols, m- & p- | 0/10 |
| AOC 5 | Electric Substation | Diethyl phthalate | 0/10 |
| AOC 5 | Electric Substation | Dimethyl phthalate | 0/10 |
| AOC 5 | Electric Substation | di-n-Butyl phthalate | 0/10 |
| AOC 5 | Electric Substation | di-n-Octyl phthalate | 0/10 |
| AOC 5 | Electric Substation | Hexachlorobutadiene | 10/10 |
| AOC 5 | Electric Substation | Hexachlorocyclopentadiene | 0/10 |
| AOC 5 | Electric Substation | Isophorone | 0/10 |
| AOC 5 | Electric Substation | Nitrobenzene | 0/10 |
| AOC 5 | Electric Substation | N-Nitrosodi-n-propylamine | 0/10 |
| AOC 5 | Electric Substation | N-Nitrosodiphenylamine | 0/10 |
| AOC 5 | Electric Substation | Pentachlorophenol | 0/10 |
| AOC 5 | Electric Substation | Phenol | 0/10 |
| AOC 5 | Electric Substation | PCB-1016 (Aroclor 1016) | 0/5 |
| AOC 5 | Electric Substation | PCB-1221 (Aroclor 1221) | 0/5 |
| AOC 5 | Electric Substation | PCB-1232 (Aroclor 1232) | 0/5 |
| AOC 5 | Electric Substation | PCB-1242 (Aroclor 1242) | 0/5 |
| AOC 5 | Electric Substation | PCB-1248 (Aroclor 1248) | 0/5 |
| AOC 5 | Electric Substation | PCB-1254 (Aroclor 1254) | 0/5 |
| AOC 5 | Electric Substation | PCB-1262 (Aroclor 1262) | 0/5 |
| AOC 5 | Electric Substation | PCB-1268 (Aroclor 1268) | 0/5 |
| AOC 5 | Electric Substation | Silver | 0/10 |
| AOC 5 | Possible Dump | 1,1,1-Trichloroethane | 0/5 |
| AOC 5 | Possible Dump | 1,1,2,2-Tetrachloroethane | 0/5 |
| AOC 5 | Possible Dump | 1,1,2-Trichloroethane | 0/5 |
| AOC 5 | Possible Dump | 1,1-Dichloroethane | 0/5 |
| AOC 5 | Possible Dump | 1,1-Dichloroethene | 0/5 |
| AOC 5 | Possible Dump | 1,2,3-Trichlorobenzene | 0/5 |
| AOC 5 | Possible Dump | 1,2,4-Trichlorobenzene | 0/5 |

Table E.2-6
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Possible Dump | 1,2-Dibromo-3-chloropropane | 0/5 |
| AOC 5 | Possible Dump | 1,2-Dibromoethane (EDB) | 0/5 |
| AOC 5 | Possible Dump | 1,2-Dichlorobenzene | 0/5 |
| AOC 5 | Possible Dump | 1,2-Dichloroethane | 0/5 |
| AOC 5 | Possible Dump | 1,2-Dichloropropane | 0/5 |
| AOC 5 | Possible Dump | 1,3-Dichlorobenzene | 0/5 |
| AOC 5 | Possible Dump | 1,4-Dichlorobenzene | 0/5 |
| AOC 5 | Possible Dump | 2,2'-Oxybis(1-chloropropane) | 0/8 |
| AOC 5 | Possible Dump | 2-Hexanone | 0/5 |
| AOC 5 | Possible Dump | 4-Methyl-2-pentanone (MIBK) | 0/5 |
| AOC 5 | Possible Dump | Acetophenone | 0/10 |
| AOC 5 | Possible Dump | Bis(2-chloroethyl) ether (2-Chloroethyl ether) | 0/10 |
| AOC 5 | Possible Dump | Bromodichloromethane | 0/5 |
| AOC 5 | Possible Dump | Bromoform | 0/5 |
| AOC 5 | Possible Dump | Bromomethane | 0/5 |
| AOC 5 | Possible Dump | Carbon disulfide | 0/5 |
| AOC 5 | Possible Dump | Carbon Tetrachloride | 0/5 |
| AOC 5 | Possible Dump | Chlorobenzene | 0/5 |
| AOC 5 | Possible Dump | Chloroform | 0/5 |
| AOC 5 | Possible Dump | Chloromethane | 0/5 |
| AOC 5 | Possible Dump | cis-1,3-Dichloropropene | 0/5 |
| AOC 5 | Possible Dump | Dibromochloromethane | 0/5 |
| AOC 5 | Possible Dump | Dichlorodifluoromethane | 0/5 |
| AOC 5 | Possible Dump | Ethylbenzene | 0/5 |
| AOC 5 | Possible Dump | Hexachlorobenzene | 10/10 |
| AOC 5 | Possible Dump | Hexachloroethane | 0/10 |
| AOC 5 | Possible Dump | m,p-Xylene | 0/5 |
| AOC 5 | Possible Dump | Methylene chloride | 0/5 |
| AOC 5 | Possible Dump | o-Xylene | 0/5 |
| AOC 5 | Possible Dump | Styrene | 0/5 |
| AOC 5 | Possible Dump | Tetrachloroethene (PCE) | 0/5 |
| AOC 5 | Possible Dump | trans-1,2-Dichloroethene | 0/5 |
| AOC 5 | Possible Dump | trans-1,3-Dichloropropene | 0/5 |
| AOC 5 | Possible Dump | Trichlorofluoromethane | 0/5 |
| AOC 5 | Possible Dump | Vinyl chloride | 0/5 |
| AOC 5 | Possible Dump | 1,2,4,5-Tetrachlorobenzene | 0/10 |
| AOC 5 | Possible Dump | 1,4-Dioxane | 0/10 |
| AOC 5 | Possible Dump | 2,3,4,6-Tetrachlorophenol | 10/10 |
| AOC 5 | Possible Dump | 2,4,5-Trichlorophenol | 0/10 |
| AOC 5 | Possible Dump | 2,4,6-Trichlorophenol | 0/10 |
| AOC 5 | Possible Dump | 2,4-Dichlorophenol | 0/10 |
| AOC 5 | Possible Dump | 2,4-Dinitrotoluene | 0/10 |
| AOC 5 | Possible Dump | 2,6-Dinitrotoluene | 0/10 |
| AOC 5 | Possible Dump | 2-Chloronaphthalene | 10/10 |
| AOC 5 | Possible Dump | 2-Chlorophenol | 0/10 |
| AOC 5 | Possible Dump | 2-Methylphenol (o-Cresol) | 0/10 |
| AOC 5 | Possible Dump | 2-Nitroaniline | 0/10 |
| AOC 5 | Possible Dump | 2-Nitrophenol | 0/10 |
| AOC 5 | Possible Dump | 3,3'-Dichlorobenzidine | 10/10 |
| AOC 5 | Possible Dump | 3-Nitroaniline | 0/10 |

Table E.2-6
Frequency with Which LOQs for Non-detected Analytes Exceed Screening Levels - Soil - Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| AOC | Subarea | Analyte | FOE |
|---|---|---|---|
| AOC 5 | Possible Dump | 4,6-Dinitro-2-methylphenol | 10/10 |
| AOC 5 | Possible Dump | 4-Chloro-3-methylphenol | 0/10 |
| AOC 5 | Possible Dump | 4-Chloroaniline | 0/10 |
| AOC 5 | Possible Dump | 4-Nitroaniline | 0/10 |
| AOC 5 | Possible Dump | 4-Nitrophenol | 0/10 |
| AOC 5 | Possible Dump | Benzyl butyl phthalate | 0/10 |
| AOC 5 | Possible Dump | Bis(2-chloroethoxy)methane | 10/10 |
| AOC 5 | Possible Dump | Bis(2-ethylhexyl)phthalate | 0/10 |
| AOC 5 | Possible Dump | Carbazole | 0/10 |
| AOC 5 | Possible Dump | Cresols, m- & p- | 0/10 |
| AOC 5 | Possible Dump | Diethyl phthalate | 0/10 |
| AOC 5 | Possible Dump | Dimethyl phthalate | 0/10 |
| AOC 5 | Possible Dump | di-n-Octyl phthalate | 0/10 |
| AOC 5 | Possible Dump | Hexachlorobutadiene | 10/10 |
| AOC 5 | Possible Dump | Hexachlorocyclopentadiene | 0/10 |
| AOC 5 | Possible Dump | Isophorone | 0/10 |
| AOC 5 | Possible Dump | Nitrobenzene | 0/10 |
| AOC 5 | Possible Dump | N-Nitrosodi-n-propylamine | 0/10 |
| AOC 5 | Possible Dump | N-Nitrosodiphenylamine | 0/10 |
| AOC 5 | Possible Dump | Pentachlorophenol | 0/10 |
| AOC 5 | Possible Dump | Phenol | 0/10 |
| AOC 5 | Possible Dump | Dibenz(a,h)anthracene | 0/10 |
| AOC 5 | Possible Dump | PCB-1016 (Aroclor 1016) | 0/10 |
| AOC 5 | Possible Dump | PCB-1221 (Aroclor 1221) | 0/10 |
| AOC 5 | Possible Dump | PCB-1232 (Aroclor 1232) | 0/10 |
| AOC 5 | Possible Dump | PCB-1242 (Aroclor 1242) | 0/10 |
| AOC 5 | Possible Dump | PCB-1248 (Aroclor 1248) | 0/10 |
| AOC 5 | Possible Dump | PCB-1254 (Aroclor 1254) | 0/10 |
| AOC 5 | Possible Dump | PCB-1260 (Aroclor 1260) | 0/10 |
| AOC 5 | Possible Dump | PCB-1262 (Aroclor 1262) | 0/10 |
| AOC 5 | Possible Dump | PCB-1268 (Aroclor 1268) | 0/10 |

Notes:
AOC = area of concern
FOE = frequency with which the screening level was exceeded versus the number of samples in the dataset
LOQ = limit of quantitation
NA = not applicable

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# APPENDIX F

# Site Versus Background Surface Geologic Unit Comparison

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# APPENDIX F.1

# Data Summary Tables (Augmented RAGS 2)

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Table F.1-1
Summary Statistics - Background and Site Data, Surface Soil (0 - 1 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Surface Soil (0 - 1 ft bgs)

| Chemical | CASRN | Units | Range of Detected Concentrations | | Location of Maximum Detected Concentration | | Detection Frequency | | | | Mean [1] | | Median [1] | | Standard Deviation [1] | | Range of LODs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Background | Site | Background | Site | Background | | Site | | Background | Site | Background | Site | Background | Site | Background | Site |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.00061 J – 0.028 | 0.0009 J – 10 | NYOW-B-047 (2021-05-06) | NYOW-05-007 (2021-01-07) | 21/45 | 47% | 33/41 | 80% | 0.0023 | 0.85 | 0.0023 | 0.012 | 0.0045 | 2.2 | 0.002 – 0.022 | 0.002 – 0.1 |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0008 J – 0.036 | 0.0011 J – 14 | NYOW-B-047 (2021-05-06) | NYOW-05-007 (2021-01-07) | 17/45 | 38% | 37/41 | 90% | 0.0028 | 1.1 | 0.0023 | 0.012 | 0.0057 | 2.9 | 0.002 – 0.022 | 0.002 – 0.1 |
| Acenaphthene | 83-32-9 | mg/kg | 0.011 J+ – 0.013 J+ | 0.0012 J – 4.3 | Multiple Locations | NYOW-03-015 (2021-04-05) | 13/45 | 29% | 14/41 | 34% | 0.0042 | 0.13 | 0.0013 | 0.0018 | 0.0048 | 0.66 | 0.0011 – 0.012 | 0.0011 – 0.056 |
| Acenaphthylene | 208-96-8 | mg/kg | 0.00084 J – 0.12 | 0.0036 J – 1.6 | NYOW-B-047 (2021-05-06) | NYOW-03-008 (2021-04-05) | 25/45 | 56% | 28/41 | 68% | 0.0083 | 0.16 | 0.0014 | 0.012 | 0.021 | 0.32 | 0.0011 – 0.012 | 0.0011 – 0.056 |
| Anthracene | 120-12-7 | mg/kg | 0.0019 J – 0.067 | 0.0032 J – 8.2 | NYOW-B-047 (2021-05-06) | NYOW-03-015 (2021-04-05) | 14/45 | 31% | 31/41 | 76% | 0.0066 | 0.3 | 0.0051 | 0.012 | 0.012 | 1.3 | 0.0044 – 0.048 | 0.0043 – 0.75 |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0022 J – 0.35 | 0.0024 J – 5.3 | NYOW-B-047 (2021-05-06) | NYOW-03-015 (2021-04-05) | 40/45 | 89% | 41/41 | 100% | 0.034 | 0.42 | 0.0075 | 0.035 | 0.073 | 1.1 | 0.0044 – 0.048 | 0.0043 – 0.23 |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0019 J – 0.34 J | 0.0042 J – 4.4 | NYOW-B-047 (2021-05-06) | NYOW-03-008 (2021-04-05) | 39/45 | 87% | 40/41 | 98% | 0.037 | 0.37 | 0.011 | 0.033 | 0.075 | 0.88 | 0.0044 – 0.11 | 0.0043 – 0.23 |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.0031 J – 0.44 | 0.0062 J – 4.9 | NYOW-B-047 (2021-05-06) | NYOW-03-015 (2021-04-05) | 42/45 | 93% | 40/41 | 98% | 0.049 | 0.48 | 0.014 | 0.059 | 0.093 | 1.1 | 0.0068 – 0.073 | 0.0066 – 0.35 |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0027 J – 0.24 J- | 0.003 J – 4.7 | NYOW-B-047 (2021-05-06) | NYOW-05-023 (2021-01-08) | 39/45 | 87% | 36/41 | 88% | 0.026 | 0.3 | 0.0078 | 0.027 | 0.049 | 0.81 | 0.0068 – 0.073 | 0.0066 – 0.35 |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0027 J- – 0.19 J- | 0.0034 J- – 1.9 | NYOW-B-047 (2021-05-06) | NYOW-03-008 (2021-04-05) | 37/45 | 82% | 36/41 | 88% | 0.02 | 0.18 | 0.0057 | 0.016 | 0.04 | 0.41 | 0.0044 – 0.048 | 0.0043 – 0.23 |
| Chrysene | 218-01-9 | mg/kg | 0.0023 J – 0.39 | 0.0035 J – 4.9 | NYOW-B-047 (2021-05-06) | NYOW-03-015 (2021-04-05) | 42/45 | 93% | 41/41 | 100% | 0.039 | 0.44 | 0.011 | 0.04 | 0.076 | 0.95 | 0.0044 – 0.048 | 0.0043 – 0.23 |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0036 J – 0.072 J- | 0.0032 J- – 0.88 | NYOW-B-047 (2021-05-06) | NYOW-05-023 (2021-01-08) | 9/45 | 20% | 19/41 | 46% | 0.0092 | 0.075 | 0.0078 | 0.012 | 0.013 | 0.18 | 0.0068 – 0.073 | 0.0066 – 0.35 |
| Fluoranthene | 206-44-0 | mg/kg | 0.0024 J – 0.61 | 0.0049 J – 20 | NYOW-B-047 (2021-05-06) | NYOW-03-015 (2021-04-05) | 42/45 | 93% | 41/41 | 100% | 0.06 | 0.93 | 0.016 | 0.059 | 0.13 | 3.3 | 0.0044 – 0.048 | 0.0043 – 0.75 |
| Fluorene | 86-73-7 | mg/kg | 0.0011 J – 0.026 | 0.0013 J – 4.3 | NYOW-B-047 (2021-05-06) | NYOW-03-015 (2021-04-05) | 10/45 | 22% | 29/41 | 71% | 0.0032 | 0.17 | 0.0031 | 0.011 | 0.0048 | 0.69 | 0.0027 – 0.029 | 0.0026 – 0.14 |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.003 J – 0.3 J- | 0.0025 J – 3.4 | NYOW-B-047 (2021-05-06) | NYOW-05-023 (2021-01-08) | 39/45 | 87% | 36/41 | 88% | 0.03 | 0.31 | 0.0088 | 0.026 | 0.058 | 0.76 | 0.0068 – 0.073 | 0.0066 – 0.35 |
| Naphthalene | 91-20-3 | mg/kg | 0.00073 J – 0.034 | 0.0016 J – 9.2 | NYOW-B-047 (2021-05-06) | NYOW-05-007 (2021-01-07) | 25/45 | 56% | 37/41 | 90% | 0.0035 | 0.73 | 0.0022 | 0.012 | 0.0069 | 2 | 0.002 – 0.022 | 0.002 – 0.1 |
| Phenanthrene | 85-01-8 | mg/kg | 0.0027 J- – 0.31 | 0.003 J – 27 | NYOW-B-045 (2021-05-06) | NYOW-03-015 (2021-04-05) | 39/45 | 87% | 41/41 | 100% | 0.03 | 1.4 | 0.0074 | 0.044 | 0.068 | 4.4 | 0.0068 – 0.073 | 0.0066 – 1.2 |
| Pyrene | 129-00-0 | mg/kg | 0.0025 J – 0.59 | 0.0042 J – 16 | NYOW-B-047 (2021-05-06) | NYOW-03-015 (2021-04-05) | 42/45 | 93% | 41/41 | 100% | 0.058 | 0.86 | 0.014 | 0.055 | 0.12 | 2.7 | 0.0068 – 0.073 | 0.0066 – 1.2 |
| High Molecular Weight PAHs | N/A | mg/kg | 0.022 – 2.9 | 0.03 – 39 | NYOW-B-047 (2021-05-06) | NYOW-03-015 (2021-04-05) | 42/45 | 93% | 41/41 | 100% | 0.3 | 3.5 | 0.09 | 0.35 | 0.59 | 8.1 | N/A | N/A |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.0075 – 1.2 | 0.017 – 67 | NYOW-B-047 (2021-05-06) | NYOW-03-015 (2021-04-05) | 43/45 | 96% | 41/41 | 100% | 0.12 | 5.7 | 0.033 | 0.28 | 0.24 | 13 | N/A | N/A |
| Total PAHs | N/A | mg/kg | 0.015 – 4.1 | 0.042 – 110 | NYOW-B-047 (2021-05-06) | NYOW-03-015 (2021-04-05) | 43/45 | 96% | 41/41 | 100% | 0.42 | 9.3 | 0.12 | 0.55 | 0.83 | 20 | N/A | N/A |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 2300 – 8800 | 1400 J+ – 11000 | NYOW-B-037 (2021-05-10) | Multiple Locations | 45/45 | 100% | 71/71 | 100% | 6100 | 5800 | 6200 | 5700 | 1800 | 1900 | 5 – 8.1 | 4.7 – 10 |
| Antimony | 7440-36-0 | mg/kg | 0.12 J+ – 1 | 0.076 J – 1 | NYOW-B-045 (2021-05-06) | NYOW-05-005 (2021-01-12) | 13/45 | 29% | 69/71 | 97% | 0.14 | 0.2 | 0.18 | 0.17 | 0.15 | 0.14 | 0.08 – 0.17 | 0.079 – 0.16 |
| Arsenic | 7440-38-2 | mg/kg | 0.6 J – 18 | 2 – 25 | NYOW-B-030 (2021-05-12) | NYOW-05-016 (2021-01-14) | 45/45 | 100% | 71/71 | 100% | 5.1 | 5.9 | 4.6 | 4.7 | 3.7 | 4.4 | 0.16 – 0.27 | 0.15 – 0.34 |
| Barium | 7440-39-3 | mg/kg | 14 – 110 | 10 – 120 | NYOW-B-043 (2021-05-06) | NYOW-01-028 (2021-04-13) | 45/45 | 100% | 71/71 | 100% | 50 | 47 | 46 | 43 | 21 | 19 | 0.75 – 1.2 | 0.71 – 1.6 |
| Beryllium | 7440-41-7 | mg/kg | 0.42 J+ – 0.68 J+ | 0.28 J- – 0.87 J+ | NYOW-B-032 (2021-05-12) | NYOW-01-026 (2021-04-13) | 43/45 | 96% | 69/71 | 97% | 0.51 | 0.52 | 0.52 | 0.52 | 0.11 | 0.1 | 0.1 – 0.16 | 0.095 – 0.67 |
| Cadmium | 7440-43-9 | mg/kg | 0.024 J – 0.43 | 0.038 J – 4.3 | NYOW-B-025 (2021-05-11) | NYOW-05-005 (2021-01-12) | 45/45 | 100% | 71/71 | 100% | 0.17 | 0.29 | 0.15 | 0.19 | 0.1 | 0.51 | 0.027 – 0.047 | 0.026 – 0.059 |
| Calcium | 7440-70-2 | mg/kg | 240 – 100000 J | 500 – 110000 J | NYOW-B-049 (2021-05-05) | NYOW-03-005 (2021-04-01) | 45/45 | 100% | 71/71 | 100% | 9200 | 25000 | 2400 | 18000 | 18000 | 23000 | 42 – 68 | 40 – 87 |
| Chromium | 7440-47-3 | mg/kg | 2.6 J – 14 | 2.5 J – 18 | NYOW-B-032 (2021-05-12) | Multiple Locations | 45/45 | 100% | 71/71 | 100% | 7.4 | 8.3 | 7.1 | 7.9 | 2.4 | 2.6 | 0.33 – 0.54 | 0.32 – 2.2 |
| Cobalt | 7440-48-4 | mg/kg | 0.61 J- – 7.2 | 0.54 J – 9.4 | Multiple Locations | Multiple Locations | 45/45 | 100% | 71/71 | 100% | 4.4 | 5.3 | 4.6 | 5.2 | 1.9 | 2 | 0.17 – 0.27 | 0.16 – 0.35 |
| Copper | 7440-50-8 | mg/kg | 0.75 J – 30 | 3.8 J – 110 | NYOW-B-047 (2021-05-06) | NYOW-05-005 (2021-01-12) | 45/45 | 100% | 71/71 | 100% | 13 | 20 | 12 | 20 | 8.7 | 15 | 0.66 – 1.1 | 0.63 – 1.4 |
| Iron | 7439-89-6 | mg/kg | 2500 – 22000 J | 4400 – 26000 | Multiple Locations | NYOW-01-029 (2021-04-13) | 45/45 | 100% | 71/71 | 100% | 14000 | 14000 | 14000 | 14000 | 5700 | 4200 | 17 – 27 | 16 – 35 |
| Lead | 7439-92-1 | mg/kg | 2.7 J+ – 320 | 3.4 – 200 | NYOW-B-045 (2021-05-06) | Multiple Locations | 45/45 | 100% | 71/71 | 100% | 20 | 22 | 9.9 | 13 | 48 | 33 | 0.66 – 1.1 | 0.63 – 4.5 |
| Magnesium | 7439-95-4 | mg/kg | 270 – 17000 J | 310 – 28000 | NYOW-B-049 (2021-05-05) | NYOW-05-004 (2021-01-12) | 45/45 | 100% | 71/71 | 100% | 2700 | 6300 | 1600 | 5700 | 3300 | 4400 | 17 – 27 | 16 – 35 |
| Manganese | 7439-96-5 | mg/kg | 27 – 2400 J | 48 – 1400 J | NYOW-B-031 (2021-05-11) | NYOW-01-002 (2021-04-09) | 45/45 | 100% | 71/71 | 100% | 650 | 550 | 640 | 540 | 480 | 270 | 0.34 – 3.3 | 0.32 – 0.69 |
| Mercury | 7439-97-6 | mg/kg | 0.0099 J – 0.26 | 0.0075 J – 0.76 | NYOW-B-043 (2021-05-06) | NYOW-01-028 (2021-04-13) | 45/45 | 100% | 69/71 | 97% | 0.062 | 0.067 | 0.046 | 0.046 | 0.046 | 0.096 | 0.015 – 0.026 | 0.015 – 0.03 |
| Nickel | 7440-02-0 | mg/kg | 1.2 J – 13 J- | 1.4 J – 18 | NYOW-B-050 (2021-05-05) | Multiple Locations | 45/45 | 100% | 71/71 | 100% | 7 | 10 | 7.3 | 10 | 2.8 | 3.2 | 0.37 – 0.61 | 0.36 – 0.78 |
| Potassium | 7440-09-7 | mg/kg | 200 J – 990 | 170 J – 1400 J+ | NYOW-B-050 (2021-05-05) | NYOW-01-002 (2021-04-09) | 45/45 | 100% | 71/71 | 100% | 500 | 850 | 480 | 870 | 180 | 300 | 130 – 220 | 130 – 890 |
| Selenium | 7782-49-2 | mg/kg | 0.15 J – 0.87 | 0.13 J – 1.5 | NYOW-B-045 (2021-05-06) | NYOW-05-008 (2021-01-07) | 42/45 | 93% | 69/71 | 97% | 0.33 | 0.48 | 0.3 | 0.46 | 0.16 | 0.22 | 0.31 – 0.54 | 0.29 – 0.68 |
| Silver | 7440-22-4 | mg/kg | 1.2 J+ – 1.8 J+ | 1.3 J+ – 2.6 J+ | NYOW-B-043 (2021-05-06) | NYOW-01-026 (2021-04-13) | 6/45 | 13% | 14/71 | 20% | 0.64 | 0.71 | 0.64 | 0.67 | 0.34 | 0.5 | 0.5 – 0.81 | 0.47 – 1 |
| Sodium | 7440-23-5 | mg/kg | 420 J+ – 680 J+ | 400 J+ – 750 J+ | NYOW-B-032 (2021-05-12) | NYOW-05-007 (2021-01-07) | 30/45 | 67% | 47/71 | 66% | 380 | 380 | 490 | 470 | 210 | 210 | 83 – 140 | 79 – 600 |
| Thallium | 7440-28-0 | mg/kg | 0.036 J – 0.14 | 0.031 J – 0.6 | NYOW-B-047 (2021-05-06) | NYOW-05-008 (2021-01-07) | 25/45 | 56% | 53/71 | 75% | 0.075 | 0.1 | 0.099 | 0.09 | 0.025 | 0.086 | 0.0078 – 0.13 | 0.0081 – 0.12 |
| Vanadium | 7440-62-2 | mg/kg | 4.7 – 20 | 5.9 – 20 | NYOW-B-012 (2021-05-12) | NYOW-01-002 (2021-04-09) | 45/45 | 100% | 71/71 | 100% | 13 | 13 | 12 | 13 | 3.5 | 2.6 | 0.29 – 0.47 | 0.28 – 0.61 |
| Zinc | 7440-66-6 | mg/kg | 7 J – 2500 | 11 – 690 | NYOW-B-045 (2021-05-06) | NYOW-05-005 (2021-01-12) | 44/45 | 98% | 71/71 | 100% | 88 | 57 | 29 | 40 | 360 | 82 | 1.2 – 6.9 | 1.2 – 2.6 |

Notes:

% = Percent
CASRN = Chemical Abstracts Service Registry Number
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.

Table F.1-2
Summary Statistics - Background and Site Data, Subsurface Soil (1 - 5 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Subsurface Soil (1 - 5 ft bgs)

| Chemical | CASRN | Units | Range of Detected Concentrations | | Location of Maximum Detected Concentration | | Detection Frequency | | | | Mean [1] | | Median [1] | | Standard Deviation [1] | | Range of LODs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Background | Site | Background | Site | Background | | Site | | Background | Site | Background | Site | Background | Site | Background | Site |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.01 J+ – 0.011 J+ | 0.00065 J – 0.083 J- | Multiple Locations | NYOW-05-024 (2021-01-08) | 4/45 | 9% | 16/41 | 39% | 0.0028 | 0.0057 | 0.0022 | 0.0024 | 0.0024 | 0.013 | 0.002 – 0.0025 | 0.002 – 0.046 |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.01 J+ – 0.012 J+ | 0.00074 J – 0.13 J- | Multiple Locations | NYOW-05-024 (2021-01-08) | 7/45 | 16% | 18/41 | 44% | 0.0034 | 0.0077 | 0.0022 | 0.0024 | 0.0033 | 0.02 | 0.002 – 0.0025 | 0.002 – 0.046 |
| Acenaphthene | 83-32-9 | mg/kg | 0.01 J+ – 0.011 J+ | 0.01 J+ – 0.012 J+ | Multiple Locations | NYOW-03-011 (2021-03-31) | 3/45 | 7% | 3/41 | 7% | 0.0017 | 0.0019 | 0.0012 | 0.0013 | 0.0024 | 0.0026 | 0.0011 – 0.0013 | 0.0011 – 0.024 |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0042 J- – 0.016 | 0.0029 J – 0.04 J | NYOW-B-050 (2021-05-05) | NYOW-03-005 (2021-04-01) | 3/45 | 7% | 9/41 | 22% | 0.0017 | 0.0047 | 0.0012 | 0.0013 | 0.0024 | 0.0087 | 0.0011 – 0.0013 | 0.0011 – 0.024 |
| Anthracene | 120-12-7 | mg/kg | 0.0018 J – 0.012 | 0.0021 J – 0.065 J- | NYOW-B-050 (2021-05-05) | NYOW-03-005 (2021-04-01) | 4/45 | 9% | 11/41 | 27% | 0.0029 | 0.0054 | 0.0048 | 0.0051 | 0.0016 | 0.01 | 0.0043 – 0.0053 | 0.0043 – 0.099 |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0019 J – 0.089 | 0.0025 J – 0.43 J | NYOW-B-050 (2021-05-05) | NYOW-03-005 (2021-04-01) | 12/45 | 27% | 18/41 | 44% | 0.0051 | 0.018 | 0.0048 | 0.0052 | 0.013 | 0.066 | 0.0043 – 0.0053 | 0.0043 – 0.099 |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0016 J – 0.09 | 0.0027 J – 1.3 J | NYOW-B-050 (2021-05-05) | NYOW-03-005 (2021-04-01) | 9/45 | 20% | 17/41 | 41% | 0.005 | 0.039 | 0.0048 | 0.0052 | 0.013 | 0.2 | 0.0043 – 0.0053 | 0.0043 – 0.099 |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.0026 J – 0.099 | 0.003 J – 1.9 J | NYOW-B-050 (2021-05-05) | NYOW-03-005 (2021-04-01) | 14/45 | 31% | 20/41 | 49% | 0.0072 | 0.058 | 0.0073 | 0.008 | 0.014 | 0.29 | 0.0067 – 0.0082 | 0.0067 – 0.15 |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.0025 J – 0.05 | 0.0053 J- – 0.82 J | NYOW-B-050 (2021-05-05) | NYOW-03-005 (2021-04-01) | 8/45 | 18% | 15/41 | 37% | 0.005 | 0.029 | 0.0073 | 0.008 | 0.0071 | 0.13 | 0.0067 – 0.0082 | 0.0067 – 0.15 |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.0023 J – 0.046 | 0.0027 J – 0.84 J | NYOW-B-050 (2021-05-05) | NYOW-03-005 (2021-04-01) | 7/45 | 16% | 13/41 | 32% | 0.0039 | 0.026 | 0.0048 | 0.0052 | 0.0065 | 0.13 | 0.0043 – 0.0053 | 0.0043 – 0.099 |
| Chrysene | 218-01-9 | mg/kg | 0.0022 J – 0.081 | 0.0023 J- – 1.2 J | NYOW-B-050 (2021-05-05) | NYOW-03-005 (2021-04-01) | 15/45 | 33% | 23/41 | 56% | 0.0055 | 0.038 | 0.0048 | 0.0053 | 0.012 | 0.18 | 0.0043 – 0.0053 | 0.0043 – 0.099 |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.0035 J- – 0.013 | 0.0056 J – 0.29 J- | NYOW-B-050 (2021-05-05) | NYOW-03-005 (2021-04-01) | 2/45 | 4% | 5/41 | 12% | 0.0037 | 0.013 | 0.0074 | 0.0077 | 0.0014 | 0.044 | 0.0067 – 0.0082 | 0.0067 – 0.15 |
| Fluoranthene | 206-44-0 | mg/kg | 0.0022 J – 0.15 | 0.0026 J – 0.19 J- | NYOW-B-050 (2021-05-05) | NYOW-03-005 (2021-04-01) | 12/45 | 27% | 21/41 | 51% | 0.0075 | 0.017 | 0.0048 | 0.0053 | 0.022 | 0.037 | 0.0043 – 0.0053 | 0.0043 – 0.099 |
| Fluorene | 86-73-7 | mg/kg | 0.01 J+ – 0.011 J+ | 0.0013 J – 0.016 J | NYOW-B-032 (2021-05-12) | NYOW-03-012 (2021-03-31) | 3/45 | 7% | 10/41 | 24% | 0.0032 | 0.0028 | 0.003 | 0.003 | 0.0019 | 0.0035 | 0.0027 – 0.0033 | 0.0027 – 0.061 |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0026 J – 0.058 | 0.0028 J – 1 J | NYOW-B-050 (2021-05-05) | NYOW-03-005 (2021-04-01) | 8/45 | 18% | 16/41 | 39% | 0.0049 | 0.033 | 0.0073 | 0.008 | 0.0083 | 0.15 | 0.0067 – 0.0082 | 0.0067 – 0.15 |
| Naphthalene | 91-20-3 | mg/kg | 0.01 J+ – 0.012 J+ | 0.0027 J – 0.11 J- | Multiple Locations | NYOW-05-024 (2021-01-08) | 12/45 | 27% | 25/41 | 61% | 0.0044 | 0.01 | 0.0023 | 0.01 | 0.004 | 0.017 | 0.002 – 0.0025 | 0.002 – 0.046 |
| Phenanthrene | 85-01-8 | mg/kg | 0.0031 J – 0.035 | 0.0041 J – 0.11 J | NYOW-B-050 (2021-05-05) | NYOW-03-012 (2021-03-31) | 9/45 | 20% | 16/41 | 39% | 0.0055 | 0.012 | 0.0074 | 0.0079 | 0.0048 | 0.018 | 0.0067 – 0.0082 | 0.0067 – 0.15 |
| Pyrene | 129-00-0 | mg/kg | 0.0026 J – 0.14 | 0.0026 J – 0.26 J- | NYOW-B-050 (2021-05-05) | NYOW-03-005 (2021-04-01) | 11/45 | 24% | 20/41 | 49% | 0.0089 | 0.018 | 0.0074 | 0.0079 | 0.02 | 0.043 | 0.0067 – 0.0082 | 0.0067 – 0.15 |
| High Molecular Weight PAHs | N/A | mg/kg | 0.02 – 0.67 | 0.023 – 8 | NYOW-B-050 (2021-05-05) | NYOW-03-005 (2021-04-01) | 16/45 | 36% | 25/41 | 61% | 0.049 | 0.27 | 0.055 | 0.06 | 0.096 | 1.2 | N/A | N/A |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.012 – 0.26 | 0.015 – 0.4 | NYOW-B-050 (2021-05-05) | NYOW-03-005 (2021-04-01) | 19/45 | 42% | 29/41 | 71% | 0.029 | 0.067 | 0.029 | 0.034 | 0.038 | 0.094 | N/A | N/A |
| Total PAHs | N/A | mg/kg | 0.023 – 0.93 | 0.029 – 8.4 | NYOW-B-050 (2021-05-05) | NYOW-03-005 (2021-04-01) | 23/45 | 51% | 30/41 | 73% | 0.071 | 0.33 | 0.081 | 0.092 | 0.13 | 1.3 | N/A | N/A |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 2300 – 8500 J | 3200 – 19000 J | NYOW-B-046 (2021-05-06) | NYOW-05-003 (2021-01-12) | 45/45 | 100% | 52/52 | 100% | 4900 | 7100 | 4700 | 6400 | 1500 | 3000 | 4.7 – 32 | 4.4 – 29 |
| Antimony | 7440-36-0 | mg/kg | 0.074 J – 0.25 | 0.095 J – 0.26 J+ | NYOW-B-046 (2021-05-06) | NYOW-05-003 (2021-01-12) | 10/45 | 22% | 44/52 | 85% | 0.095 | 0.17 | 0.11 | 0.17 | 0.045 | 0.045 | 0.076 – 0.11 | 0.073 – 0.13 |
| Arsenic | 7440-38-2 | mg/kg | 0.36 J – 21 | 1.5 – 26 | NYOW-B-032 (2021-05-12) | NYOW-05-010 (2021-01-07) | 45/45 | 100% | 52/52 | 100% | 5 | 5.1 | 4.3 | 4.6 | 3.6 | 3.6 | 0.16 – 0.24 | 0.16 – 0.24 |
| Barium | 7440-39-3 | mg/kg | 11 – 68 | 14 – 260 | NYOW-B-026 (2021-05-10) | NYOW-01-022 (2021-04-07) | 45/45 | 100% | 52/52 | 100% | 39 | 49 | 38 | 41 | 14 | 37 | 0.71 – 1 | 0.65 – 4.1 |
| Beryllium | 7440-41-7 | mg/kg | 0.39 J+ – 2.7 J+ | 0.11 J – 2.3 J+ | NYOW-B-024 (2021-05-11) | NYOW-05-025 (2021-01-11) | 45/45 | 100% | 51/52 | 98% | 0.53 | 0.41 | 0.49 | 0.4 | 0.33 | 0.3 | 0.094 – 0.65 | 0.087 – 0.55 |
| Cadmium | 7440-43-9 | mg/kg | 0.015 J – 0.22 | 0.013 J – 0.38 | NYOW-B-050 (2021-05-05) | NYOW-05-013 (2021-01-13) | 45/45 | 100% | 52/52 | 100% | 0.062 | 0.089 | 0.044 | 0.076 | 0.05 | 0.071 | 0.027 – 0.043 | 0.027 – 0.042 |
| Calcium | 7440-70-2 | mg/kg | 500 – 120000 J | 700 – 82000 | NYOW-B-050 (2021-05-05) | NYOW-05-014 (2021-01-13) | 45/45 | 100% | 52/52 | 100% | 19000 | 29000 | 5100 | 22000 | 26000 | 25000 | 39 – 270 | 36 – 240 |
| Chromium | 7440-47-3 | mg/kg | 3.6 – 9 | 4.6 – 25 | NYOW-B-019 (2021-05-13) | Multiple Locations | 45/45 | 100% | 52/52 | 100% | 6.2 | 9 | 6.1 | 7.7 | 1.3 | 4 | 0.31 – 0.47 | 0.29 – 1.9 |
| Cobalt | 7440-48-4 | mg/kg | 1.7 J- – 9.7 | 2.8 – 13 | NYOW-B-048 (2021-05-05) | Multiple Locations | 45/45 | 100% | 52/52 | 100% | 4.7 | 6.2 | 4.7 | 5.8 | 1.8 | 2.6 | 0.16 – 0.23 | 0.15 – 0.95 |
| Copper | 7440-50-8 | mg/kg | 1.6 J – 29 J- | 5.8 – 74 | NYOW-B-036 (2021-05-10) | NYOW-05-013 (2021-01-13) | 45/45 | 100% | 52/52 | 100% | 14 | 18 | 14 | 16 | 7.5 | 11 | 0.63 – 0.93 | 0.58 – 3.8 |
| Iron | 7439-89-6 | mg/kg | 4700 – 23000 J | 8000 – 31000 | NYOW-B-027 (2021-05-11) | NYOW-05-021 (2021-01-08) | 45/45 | 100% | 52/52 | 100% | 13000 | 16000 | 13000 | 16000 | 4500 | 5300 | 16 – 110 | 15 – 95 |
| Lead | 7439-92-1 | mg/kg | 1.3 – 92 J | 2.7 J+ – 56 | NYOW-B-050 (2021-05-05) | NYOW-03-011 (2021-03-31) | 45/45 | 100% | 52/52 | 100% | 7.5 | 11 | 5.3 | 7.4 | 13 | 10 | 0.63 – 0.93 | 0.58 – 3.8 |
| Magnesium | 7439-95-4 | mg/kg | 810 – 21000 | 1100 – 26000 | NYOW-B-013 (2021-05-12) | NYOW-05-015 (2021-01-13) | 45/45 | 100% | 52/52 | 100% | 5600 | 7900 | 2800 | 5500 | 5700 | 6400 | 16 – 23 | 15 – 95 |
| Manganese | 7439-96-5 | mg/kg | 52 – 1300 J | 69 – 7000 | NYOW-B-031 (2021-05-11) | NYOW-01-022 (2021-04-07) | 45/45 | 100% | 52/52 | 100% | 540 | 670 | 520 | 470 | 300 | 960 | 0.31 – 0.47 | 0.29 – 3.9 |
| Mercury | 7439-97-6 | mg/kg | 0.0086 J – 0.1 | 0.009 J – 0.099 | NYOW-B-050 (2021-05-05) | NYOW-05-012 (2021-01-13) | 31/45 | 69% | 41/52 | 79% | 0.024 | 0.029 | 0.017 | 0.024 | 0.021 | 0.019 | 0.015 – 0.022 | 0.015 – 0.019 |
| Nickel | 7440-02-0 | mg/kg | 3.5 J – 12 J- | 4.9 – 29 | Multiple Locations | NYOW-05-012 (2021-01-13) | 45/45 | 100% | 52/52 | 100% | 7.6 | 12 | 7.1 | 11 | 2.4 | 5.1 | 0.35 – 0.52 | 0.33 – 2.1 |
| Potassium | 7440-09-7 | mg/kg | 310 – 1700 | 290 – 3700 J+ | NYOW-B-032 (2021-05-12) | NYOW-05-003 (2021-01-12) | 45/45 | 100% | 52/52 | 100% | 640 | 930 | 560 | 750 | 270 | 670 | 130 – 190 | 120 – 740 |
| Selenium | 7782-49-2 | mg/kg | 0.12 J – 0.45 | 0.39 J+ – 0.6 J+ | NYOW-B-027 (2021-05-11) | Multiple Locations | 21/45 | 47% | 37/52 | 71% | 0.21 | 0.44 | 0.35 | 0.45 | 0.097 | 0.089 | 0.31 – 0.49 | 0.31 – 0.48 |
| Silver | 7440-22-4 | mg/kg | 1.2 J+ – 1.6 J+ | 1.1 J+ – 1.5 J+ | NYOW-B-036 (2021-05-10) | NYOW-01-022 (2021-04-07) | 6/45 | 13% | 6/52 | 12% | 0.59 | 0.56 | 0.61 | 0.57 | 0.32 | 0.26 | 0.47 – 0.7 | 0.44 – 2.9 |
| Sodium | 7440-23-5 | mg/kg | 390 J+ – 570 J+ | 360 J+ – 530 J+ | NYOW-B-033 (2021-05-07) | Multiple Locations | 33/45 | 73% | 38/52 | 73% | 370 | 400 | 450 | 460 | 180 | 140 | 79 – 120 | 73 – 540 |
| Thallium | 7440-28-0 | mg/kg | 0.031 J – 0.13 | 0.037 J – 0.49 | NYOW-B-024 (2021-05-11) | NYOW-03-011 (2021-03-31) | 21/45 | 47% | 32/52 | 62% | 0.061 | 0.094 | 0.09 | 0.096 | 0.026 | 0.066 | 0.0078 – 0.12 | 0.0079 – 0.12 |
| Vanadium | 7440-62-2 | mg/kg | 6 – 16 | 7.4 – 31 | Multiple Locations | Multiple Locations | 45/45 | 100% | 52/52 | 100% | 11 | 14 | 11 | 13 | 2.5 | 4.8 | 0.28 – 0.41 | 0.25 – 1.7 |
| Zinc | 7440-66-6 | mg/kg | 7.5 – 88 | 12 – 150 | NYOW-B-050 (2021-05-05) | NYOW-05-020 (2021-01-08) | 45/45 | 100% | 52/52 | 100% | 21 | 36 | 19 | 29 | 13 | 27 | 1.2 – 1.7 | 1.1 – 7.1 |

Notes:

% = Percent
CASRN = Chemical Abstracts Service Registry Number
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.

Table F.1-3
Summary Statistics - Background and Site Data, Subsurface Soil (5 - 10 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Subsurface Soil (5 - 10 ft bgs)

| Chemical | CASRN | Units | Range of Detected Concentrations | | Location of Maximum Detected Concentration | | Detection Frequency | | | | Mean [1] | | Median [1] | | Standard Deviation [1] | | Range of LODs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Background | Site | Background | Site | Background | | Site | | Background | Site | Background | Site | Background | Site | Background | Site |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | mg/kg | 0.0098 J+ – 0.011 J+ | 0.01 J+ – 0.13 | NYOW-B-040 (2021-05-11) | NYOW-05-018 (2021-01-11) | 3/45 | 7% | 5/25 | 20% | 0.0025 | 0.0085 | 0.0022 | 0.0023 | 0.0021 | 0.025 | 0.0019 – 0.0025 | 0.002 – 0.0025 |
| 2-Methylnaphthalene | 91-57-6 | mg/kg | 0.0098 J+ – 0.011 J+ | 0.0015 J – 0.16 | Multiple Locations | NYOW-05-018 (2021-01-11) | 5/45 | 11% | 7/25 | 28% | 0.0028 | 0.0097 | 0.0022 | 0.0023 | 0.0027 | 0.031 | 0.0019 – 0.0025 | 0.002 – 0.0025 |
| Acenaphthene | 83-32-9 | mg/kg | 0.0098 J+ – 0.012 J+ | 0.012 J+ – 0.012 J+ | NYOW-B-006 (2021-05-18) | NYOW-05-018 (2021-01-11) | 5/45 | 11% | 1/25 | 4% | 0.0021 | -- | 0.0012 | -- | 0.0031 | -- | 0.001 – 0.0013 | 0.0011 – 0.0013 |
| Acenaphthylene | 208-96-8 | mg/kg | 0.0098 J+ – 0.011 J+ | 0.012 J+ – 0.012 J+ | NYOW-B-040 (2021-05-11) | NYOW-05-018 (2021-01-11) | 2/45 | 4% | 1/25 | 4% | 0.0014 | -- | 0.0011 | -- | 0.0019 | -- | 0.001 – 0.0013 | 0.0011 – 0.0013 |
| Anthracene | 120-12-7 | mg/kg | 0.011 J+ – 0.011 J+ | 0.011 J+ – 0.012 J+ | NYOW-B-040 (2021-05-11) | NYOW-05-018 (2021-01-11) | 1/45 | 2% | 2/25 | 8% | -- | 0.005 | -- | 0.0049 | -- | 0.0019 | 0.0042 – 0.0054 | 0.0044 – 0.0054 |
| Benzo(a)anthracene | 56-55-3 | mg/kg | 0.0098 J+ – 0.012 J+ | 0.0026 J- – 0.042 | NYOW-B-011 (2021-05-18) | NYOW-05-018 (2021-01-11) | 7/45 | 16% | 8/25 | 32% | 0.0052 | 0.007 | 0.0047 | 0.0049 | 0.0024 | 0.0091 | 0.0042 – 0.0054 | 0.0045 – 0.0054 |
| Benzo(a)pyrene | 50-32-8 | mg/kg | 0.0098 J+ – 0.012 J+ | 0.0019 J- – 0.033 | NYOW-B-011 (2021-05-18) | NYOW-05-018 (2021-01-11) | 7/45 | 16% | 8/25 | 32% | 0.0052 | 0.0058 | 0.0047 | 0.0049 | 0.0024 | 0.0086 | 0.0042 – 0.0054 | 0.0044 – 0.0054 |
| Benzo(b)fluoranthene | 205-99-2 | mg/kg | 0.0023 J- – 0.016 | 0.003 J – 0.05 | NYOW-B-029 (2021-05-12) | NYOW-05-011 (2021-01-13) | 13/45 | 29% | 11/25 | 44% | 0.004 | 0.011 | 0.0071 | 0.0076 | 0.0021 | 0.013 | 0.0064 – 0.0083 | 0.007 – 0.0083 |
| Benzo(g,h,i)perylene | 191-24-2 | mg/kg | 0.01 J+ – 0.012 J+ | 0.011 J+ – 0.024 | NYOW-B-011 (2021-05-18) | NYOW-05-018 (2021-01-11) | 4/45 | 9% | 5/25 | 20% | 0.0068 | 0.0087 | 0.0072 | 0.0075 | 0.0013 | 0.0046 | 0.0064 – 0.0083 | 0.0068 – 0.0083 |
| Benzo(k)fluoranthene | 207-08-9 | mg/kg | 0.01 J+ – 0.012 J+ | 0.011 J+ – 0.021 | NYOW-B-011 (2021-05-18) | NYOW-05-011 (2021-01-13) | 3/45 | 7% | 4/25 | 16% | 0.0047 | 0.0061 | 0.0047 | 0.0049 | 0.0017 | 0.0042 | 0.0042 – 0.0054 | 0.0044 – 0.0054 |
| Chrysene | 218-01-9 | mg/kg | 0.002 J- – 0.011 | 0.0032 J – 0.06 | NYOW-B-029 (2021-05-12) | NYOW-05-018 (2021-01-11) | 15/45 | 33% | 13/25 | 52% | 0.0034 | 0.01 | 0.0046 | 0.005 | 0.0019 | 0.014 | 0.0042 – 0.0054 | 0.0045 – 0.0054 |
| Dibenz(a,h)anthracene | 53-70-3 | mg/kg | 0.011 J+ – 0.011 J+ | 0.011 J+ – 0.012 J+ | NYOW-B-040 (2021-05-11) | Multiple Locations | 1/45 | 2% | 3/25 | 12% | -- | 0.0074 | -- | 0.0075 | -- | 0.0016 | 0.0064 – 0.0083 | 0.0068 – 0.0083 |
| Fluoranthene | 206-44-0 | mg/kg | 0.0098 J+ – 0.012 J+ | 0.0031 J – 0.063 | NYOW-B-011 (2021-05-18) | NYOW-05-018 (2021-01-11) | 8/45 | 18% | 10/25 | 40% | 0.0053 | 0.0098 | 0.0047 | 0.0049 | 0.0025 | 0.014 | 0.0042 – 0.0054 | 0.0045 – 0.0054 |
| Fluorene | 86-73-7 | mg/kg | 0.0098 J+ – 0.011 J+ | 0.012 J+ – 0.012 J+ | NYOW-B-040 (2021-05-11) | NYOW-05-018 (2021-01-11) | 3/45 | 7% | 1/25 | 4% | 0.0031 | -- | 0.0029 | -- | 0.0019 | -- | 0.0026 – 0.0033 | 0.0027 – 0.0033 |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | mg/kg | 0.0098 J+ – 0.011 J+ | 0.011 J+ – 0.029 J- | NYOW-B-040 (2021-05-11) | NYOW-05-011 (2021-01-13) | 3/45 | 7% | 4/25 | 16% | 0.0067 | 0.0088 | 0.0072 | 0.0075 | 0.00097 | 0.0054 | 0.0064 – 0.0083 | 0.0068 – 0.0083 |
| Naphthalene | 91-20-3 | mg/kg | 0.00071 J – 0.024 J | 0.0014 J – 0.1 | NYOW-B-048 (2021-05-05) | NYOW-05-018 (2021-01-11) | 8/45 | 18% | 18/25 | 72% | 0.0017 | 0.011 | 0.0022 | 0.011 | 0.0034 | 0.019 | 0.0019 – 0.0025 | 0.002 – 0.0025 |
| Phenanthrene | 85-01-8 | mg/kg | 0.0098 J+ – 0.012 J+ | 0.01 J+ – 0.12 | NYOW-B-011 (2021-05-18) | NYOW-05-018 (2021-01-11) | 10/45 | 22% | 8/25 | 32% | 0.0073 | 0.013 | 0.0073 | 0.0076 | 0.0018 | 0.022 | 0.0064 – 0.0083 | 0.007 – 0.0083 |
| Pyrene | 129-00-0 | mg/kg | 0.0098 J+ – 0.012 J+ | 0.0023 J – 0.067 | NYOW-B-011 (2021-05-18) | NYOW-05-018 (2021-01-11) | 7/45 | 16% | 12/25 | 48% | 0.0071 | 0.0087 | 0.0072 | 0.0074 | 0.0016 | 0.014 | 0.0064 – 0.0083 | 0.007 – 0.0083 |
| High Molecular Weight PAHs | N/A | mg/kg | 0.019 – 0.094 | 0.024 – 0.33 | NYOW-B-029 (2021-05-12) | NYOW-05-018 (2021-01-11) | 19/45 | 42% | 15/25 | 60% | 0.038 | 0.068 | 0.054 | 0.056 | 0.018 | 0.076 | N/A | N/A |
| Low Molecular Weight PAHs | N/A | mg/kg | 0.012 – 0.091 | 0.014 – 0.62 | NYOW-B-040 (2021-05-11) | NYOW-05-018 (2021-01-11) | 16/45 | 36% | 21/25 | 84% | 0.025 | 0.054 | 0.028 | 0.03 | 0.014 | 0.12 | N/A | N/A |
| Total PAHs | N/A | mg/kg | 0.023 – 0.18 | 0.03 – 0.95 | NYOW-B-040 (2021-05-11) | NYOW-05-018 (2021-01-11) | 22/45 | 49% | 22/25 | 88% | 0.047 | 0.11 | 0.082 | 0.054 | 0.031 | 0.19 | N/A | N/A |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | mg/kg | 2200 J – 13000 J | 2000 – 20000 | NYOW-B-050 (2021-05-05) | NYOW-05-004 (2021-01-12) | 45/45 | 100% | 36/36 | 100% | 4000 | 7800 | 3900 | 6600 | 1700 | 4300 | 4.6 – 7.2 | 4.6 – 25 |
| Antimony | 7440-36-0 | mg/kg | 0.076 J+ – 0.24 J | 0.12 J – 0.23 J+ | NYOW-B-036 (2021-05-10) | Multiple Locations | 8/45 | 18% | 27/36 | 75% | 0.086 | 0.16 | 0.097 | 0.17 | 0.03 | 0.052 | 0.074 – 0.12 | 0.076 – 0.13 |
| Arsenic | 7440-38-2 | mg/kg | 0.96 – 38 | 2.1 – 79 | NYOW-B-035 (2021-05-07) | NYOW-05-010 (2021-01-07) | 45/45 | 100% | 36/36 | 100% | 4.9 | 8.6 | 3.8 | 4.8 | 5.6 | 14 | 0.14 – 0.23 | 0.15 – 0.23 |
| Barium | 7440-39-3 | mg/kg | 9.6 – 320 | 17 J+ – 140 | NYOW-B-035 (2021-05-07) | NYOW-05-004 (2021-01-12) | 45/45 | 100% | 36/36 | 100% | 44 | 61 | 33 | 52 | 50 | 30 | 0.68 – 1.1 | 0.69 – 3.8 |
| Beryllium | 7440-41-7 | mg/kg | 0.068 J – 0.56 | 0.19 J – 0.81 | NYOW-B-050 (2021-05-05) | NYOW-05-012 (2021-01-13) | 45/45 | 100% | 36/36 | 100% | 0.21 | 0.47 | 0.2 | 0.45 | 0.08 | 0.13 | 0.091 – 0.14 | 0.091 – 0.51 |
| Cadmium | 7440-43-9 | mg/kg | 0.0083 J – 0.31 | 0.021 J – 0.16 | NYOW-B-045 (2021-05-06) | NYOW-05-015 (2021-01-13) | 44/45 | 98% | 36/36 | 100% | 0.031 | 0.082 | 0.022 | 0.086 | 0.045 | 0.026 | 0.024 – 0.041 | 0.027 – 0.04 |
| Calcium | 7440-70-2 | mg/kg | 3400 – 140000 J | 3800 – 92000 J | NYOW-B-047 (2021-05-06) | NYOW-01-016 (2021-04-02) | 45/45 | 100% | 36/36 | 100% | 50000 | 50000 | 44000 | 49000 | 30000 | 21000 | 38 – 60 | 38 – 210 |
| Chromium | 7440-47-3 | mg/kg | 3.5 – 18 | 3.4 – 27 | NYOW-B-050 (2021-05-05) | NYOW-05-004 (2021-01-12) | 45/45 | 100% | 36/36 | 100% | 6 | 11 | 6 | 9.8 | 2.2 | 5.7 | 0.3 – 0.48 | 0.3 – 1.7 |
| Cobalt | 7440-48-4 | mg/kg | 1.6 J- – 12 | 2.2 – 15 | NYOW-B-050 (2021-05-05) | NYOW-05-004 (2021-01-12) | 45/45 | 100% | 36/36 | 100% | 4.5 | 7.4 | 4.3 | 7.2 | 2.1 | 2.6 | 0.15 – 0.24 | 0.15 – 0.84 |
| Copper | 7440-50-8 | mg/kg | 4.7 J – 36 | 6.8 – 100 | NYOW-B-028 (2021-05-11) | NYOW-01-016 (2021-04-02) | 45/45 | 100% | 36/36 | 100% | 13 | 20 | 12 | 18 | 6.9 | 15 | 0.61 – 0.96 | 0.61 – 3.4 |
| Iron | 7439-89-6 | mg/kg | 5400 – 32000 J | 6800 – 29000 | NYOW-B-035 (2021-05-07) | NYOW-05-004 (2021-01-12) | 45/45 | 100% | 36/36 | 100% | 12000 | 17000 | 11000 | 16000 | 5300 | 5400 | 15 – 24 | 15 – 84 |
| Lead | 7439-92-1 | mg/kg | 1.2 J- – 10 | 2.4 – 14 | NYOW-B-036 (2021-05-10) | NYOW-05-021 (2021-01-08) | 45/45 | 100% | 36/36 | 100% | 4.6 | 6.5 | 4 | 6.6 | 2.4 | 2.7 | 0.61 – 0.96 | 0.61 – 3.4 |
| Magnesium | 7439-95-4 | mg/kg | 1900 – 32000 | 2800 – 31000 | NYOW-B-035 (2021-05-07) | NYOW-01-016 (2021-04-02) | 45/45 | 100% | 36/36 | 100% | 11000 | 15000 | 9700 | 15000 | 7100 | 6900 | 15 – 24 | 15 – 84 |
| Manganese | 7439-96-5 | mg/kg | 150 J+ – 1900 J | 280 – 1100 J | NYOW-B-025 (2021-05-11) | NYOW-05-021 (2021-01-08) | 45/45 | 100% | 36/36 | 100% | 490 | 500 | 400 | 480 | 340 | 140 | 0.3 – 0.48 | 0.3 – 1.7 |
| Mercury | 7439-97-6 | mg/kg | 0.019 J+ – 0.023 J+ | 0.011 J – 0.2 | NYOW-B-008 (2021-05-17) | NYOW-05-018 (2021-01-11) | 13/45 | 29% | 19/36 | 53% | 0.016 | 0.022 | 0.017 | 0.018 | 0.0034 | 0.031 | 0.014 – 0.021 | 0.015 – 0.019 |
| Nickel | 7440-02-0 | mg/kg | 3.2 J- – 23 | 3.8 – 32 | NYOW-B-050 (2021-05-05) | NYOW-05-004 (2021-01-12) | 45/45 | 100% | 36/36 | 100% | 7.8 | 15 | 7.3 | 14 | 3.3 | 6.2 | 0.34 – 0.54 | 0.34 – 1.9 |
| Potassium | 7440-09-7 | mg/kg | 430 J – 2700 | 390 – 4400 | NYOW-B-050 (2021-05-05) | NYOW-05-004 (2021-01-12) | 45/45 | 100% | 36/36 | 100% | 860 | 1600 | 780 | 1200 | 400 | 960 | 120 – 190 | 120 – 670 |
| Selenium | 7782-49-2 | mg/kg | 0.39 J+ – 0.53 J+ | 0.38 J+ – 0.51 J+ | NYOW-B-044 (2021-05-06) | NYOW-05-003 (2021-01-12) | 5/45 | 11% | 15/36 | 42% | 0.29 | 0.38 | 0.39 | 0.41 | 0.06 | 0.066 | 0.27 – 0.47 | 0.31 – 0.45 |
| Silver | 7440-22-4 | mg/kg | 1.2 J+ – 1.6 J+ | 1.1 J+ – 1.3 J+ | Multiple Locations | NYOW-01-016 (2021-04-02) | 15/45 | 33% | 3/36 | 8% | 0.8 | 0.52 | 0.62 | 0.56 | 0.48 | 0.21 | 0.46 – 0.72 | 0.46 – 2.5 |
| Sodium | 7440-23-5 | mg/kg | 380 J+ – 600 J+ | 380 J+ – 540 J+ | NYOW-B-015 (2021-05-13) | NYOW-05-007 (2021-01-07) | 44/45 | 98% | 21/36 | 58% | 470 | 410 | 480 | 460 | 75 | 100 | 76 – 120 | 76 – 610 |
| Thallium | 7440-28-0 | mg/kg | 0.01 J – 0.13 | 0.022 J – 0.71 | NYOW-B-050 (2021-05-05) | NYOW-05-019 (2021-01-11) | 23/45 | 51% | 26/36 | 72% | 0.054 | 0.11 | 0.084 | 0.092 | 0.025 | 0.11 | 0.0078 – 0.11 | 0.008 – 0.11 |
| Vanadium | 7440-62-2 | mg/kg | 6.4 – 24 | 5.9 – 37 | NYOW-B-050 (2021-05-05) | NYOW-05-004 (2021-01-12) | 45/45 | 100% | 36/36 | 100% | 9.6 | 15 | 9.5 | 13 | 2.8 | 7.5 | 0.27 – 0.42 | 0.27 – 1.5 |
| Zinc | 7440-66-6 | mg/kg | 8.9 – 45 | 11 – 83 | NYOW-B-050 (2021-05-05) | NYOW-05-018 (2021-01-11) | 45/45 | 100% | 36/36 | 100% | 18 | 32 | 18 | 29 | 6.6 | 14 | 1.1 – 1.8 | 1.1 – 6.3 |

Notes:

% = Percent
CASRN = Chemical Abstracts Service Registry Number
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.

Table F.1-4
Summary Statistics - Background and Site Data, Shallow Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Shallow Groundwater

| Chemical | CASRN | Units | Range of Detected Concentrations | | Location of Maximum Detected Concentration | | Detection Frequency | | | | Mean [1] | | Median [1] | | Standard Deviation [1] | | Range of LODs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Background | Site | Background | Site | Background | | Site | | Background | Site | Background | Site | Background | Site | Background | Site |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | µg/L | N/A | 0.042 J – 0.63 J- | N/A | NYOW-05-024 (2021-01-11) | 0/9 | 0% | 5/19 | 26% | -- | 0.089 | -- | 0.042 | -- | 0.14 | 0.04 – 0.052 | 0.039 – 0.053 |
| 2-Methylnaphthalene | 91-57-6 | µg/L | N/A | 0.11 J- – 0.89 J- | N/A | NYOW-05-024 (2021-01-11) | 0/9 | 0% | 5/19 | 26% | -- | 0.12 | -- | 0.054 | -- | 0.19 | 0.05 – 0.065 | 0.049 – 0.066 |
| Acenaphthene | 83-32-9 | µg/L | 0.1 J+ – 0.1 J+ | 0.1 J+ – 0.1 J+ | NYOW-B-002 (2021-05-14) | NYOW-05-019 (2021-01-15) | 1/9 | 11% | 1/19 | 5% | -- | -- | -- | -- | -- | -- | 0.012 – 0.016 | 0.012 – 0.016 |
| Acenaphthylene | 208-96-8 | µg/L | 0.1 J+ – 0.12 J+ | N/A | NYOW-B-031 (2021-05-13) | N/A | 3/9 | 33% | 0/19 | 0% | 0.051 | -- | 0.021 | -- | 0.042 | -- | 0.02 – 0.026 | 0.02 – 0.026 |
| Anthracene | 120-12-7 | µg/L | N/A | 0.1 J+ – 0.1 J+ | N/A | NYOW-05-019 (2021-01-15) | 0/9 | 0% | 1/19 | 5% | -- | -- | -- | -- | -- | -- | 0.1 – 0.13 | 0.098 – 0.13 |
| Benzo(a)anthracene | 56-55-3 | µg/L | 0.12 J+ – 0.12 J+ | 0.063 J – 0.31 J- | NYOW-B-031 (2021-05-13) | NYOW-05-019 (2021-01-15) | 1/9 | 11% | 2/19 | 11% | -- | 0.076 | -- | 0.1 | -- | 0.055 | 0.1 – 0.13 | 0.098 – 0.13 |
| Benzo(a)pyrene | 50-32-8 | µg/L | 0.11 J+ – 0.11 J+ | 0.056 J – 0.31 J- | NYOW-B-005 (2021-05-17) | NYOW-05-019 (2021-01-15) | 1/9 | 11% | 2/19 | 11% | -- | 0.063 | -- | 0.052 | -- | 0.058 | 0.05 – 0.065 | 0.049 – 0.066 |
| Benzo(b)fluoranthene | 205-99-2 | µg/L | 0.12 J+ – 0.12 J+ | 0.085 J – 0.44 J- | NYOW-B-031 (2021-05-13) | NYOW-05-019 (2021-01-15) | 1/9 | 11% | 3/19 | 16% | -- | 0.11 | -- | 0.1 | -- | 0.079 | 0.1 – 0.13 | 0.098 – 0.13 |
| Benzo(g,h,i)perylene | 191-24-2 | µg/L | 0.11 J+ – 0.12 J+ | 0.049 J – 0.17 J- | NYOW-B-031 (2021-05-13) | NYOW-05-019 (2021-01-15) | 3/9 | 33% | 2/19 | 11% | 0.11 | 0.055 | 0.11 | 0.1 | 0.0071 | 0.027 | 0.1 – 0.13 | 0.098 – 0.13 |
| Benzo(k)fluoranthene | 207-08-9 | µg/L | 0.12 J+ – 0.13 J+ | 0.04 J – 0.22 J- | NYOW-B-010 (2021-05-18) | NYOW-05-019 (2021-01-15) | 2/9 | 22% | 3/19 | 16% | 0.067 | 0.053 | 0.053 | 0.052 | 0.031 | 0.042 | 0.05 – 0.065 | 0.049 – 0.066 |
| Chrysene | 218-01-9 | µg/L | 0.12 J+ – 0.12 J+ | 0.092 J – 0.35 J- | NYOW-B-031 (2021-05-13) | NYOW-05-019 (2021-01-15) | 1/9 | 11% | 4/19 | 21% | -- | 0.11 | -- | 0.1 | -- | 0.057 | 0.1 – 0.13 | 0.098 – 0.13 |
| Dibenz(a,h)anthracene | 53-70-3 | µg/L | 0.11 J+ – 0.11 J+ | 0.1 J+ – 0.1 J+ | NYOW-B-005 (2021-05-17) | NYOW-05-019 (2021-01-15) | 1/9 | 11% | 1/19 | 5% | -- | -- | -- | -- | -- | -- | 0.1 – 0.13 | 0.098 – 0.13 |
| Fluoranthene | 206-44-0 | µg/L | N/A | 0.1 J+ – 0.6 J- | N/A | NYOW-05-019 (2021-01-15) | 0/9 | 0% | 3/19 | 16% | -- | 0.13 | -- | 0.1 | -- | 0.11 | 0.1 – 0.13 | 0.098 – 0.13 |
| Fluorene | 86-73-7 | µg/L | N/A | N/A | N/A | N/A | 0/9 | 0% | 0/19 | 0% | -- | -- | -- | -- | -- | -- | 0.04 – 0.052 | 0.039 – 0.053 |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | µg/L | 0.11 J+ – 0.11 J+ | 0.045 J – 0.21 J- | NYOW-B-005 (2021-05-17) | NYOW-05-019 (2021-01-15) | 1/9 | 11% | 2/19 | 11% | -- | 0.054 | -- | 0.1 | -- | 0.037 | 0.1 – 0.13 | 0.098 – 0.13 |
| Naphthalene | 91-20-3 | µg/L | N/A | 0.039 J- – 0.97 J- | N/A | NYOW-05-024 (2021-01-11) | 0/9 | 0% | 9/19 | 47% | -- | 0.13 | -- | 0.055 | -- | 0.21 | 0.05 – 0.065 | 0.049 – 0.066 |
| Phenanthrene | 85-01-8 | µg/L | 0.12 J+ – 0.12 J+ | 0.1 J+ – 0.42 J- | NYOW-B-031 (2021-05-13) | NYOW-05-019 (2021-01-15) | 1/9 | 11% | 6/19 | 32% | -- | 0.13 | -- | 0.11 | -- | 0.084 | 0.1 – 0.13 | 0.098 – 0.13 |
| Pyrene | 129-00-0 | µg/L | N/A | 0.1 J+ – 0.48 J- | N/A | NYOW-05-019 (2021-01-15) | 0/9 | 0% | 3/19 | 16% | -- | 0.12 | -- | 0.1 | -- | 0.085 | 0.1 – 0.13 | 0.098 – 0.13 |
| Metals (Dissolved) | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | µg/L | 350 – 1700 | 23 J – 2100 | NYOW-B-047 (2021-05-17) | NYOW-05-024 (2021-01-11) | 3/9 | 33% | 20/28 | 71% | 320 | 280 | 70 | 290 | 500 | 410 | 70 – 70 | 70 – 70 |
| Antimony | 7440-36-0 | µg/L | N/A | 6 J+ – 6 J+ | N/A | Multiple Locations | 0/9 | 0% | 8/28 | 29% | -- | -- | -- | -- | -- | -- | 1 – 1 | 1 – 6 |
| Arsenic | 7440-38-2 | µg/L | 5 J+ – 5 J+ | 0.53 J – 140 | Multiple Locations | NYOW-05-019 (2021-01-15) | 7/9 | 78% | 21/28 | 75% | -- | 8.4 | -- | 5 | -- | 25 | 1 – 1 | 1 – 1 |
| Barium | 7440-39-3 | µg/L | 28 J+ – 310 | 12 – 690 | NYOW-B-005 (2021-05-17) | NYOW-01-022 (2021-04-09) | 9/9 | 100% | 28/28 | 100% | 110 | 130 | 85 | 95 | 85 | 130 | 2 – 2 | 2 – 2 |
| Beryllium | 7440-41-7 | µg/L | N/A | N/A | N/A | N/A | 0/9 | 0% | 0/28 | 0% | -- | -- | -- | -- | -- | -- | 0.5 – 0.5 | 0.5 – 0.5 |
| Cadmium | 7440-43-9 | µg/L | N/A | 5 J+ – 5 J+ | N/A | NYOW-01-022 (2021-04-09) | 0/9 | 0% | 1/28 | 4% | -- | -- | -- | -- | -- | -- | 1.8 – 1.8 | 1.8 – 1.8 |
| Calcium | 7440-70-2 | µg/L | 73000 – 170000 | 25000 – 170000 | NYOW-B-005 (2021-05-17) | NYOW-03-010 (2021-04-02) | 9/9 | 100% | 28/28 | 100% | 100000 | 100000 | 95000 | 110000 | 31000 | 41000 | 160 – 160 | 160 – 160 |
| Chromium | 7440-47-3 | µg/L | 10 J+ – 10 J+ | 0.52 J – 12 | Multiple Locations | NYOW-05-024 (2021-01-11) | 3/9 | 33% | 6/28 | 21% | -- | 2.3 | -- | 1.8 | -- | 3.8 | 1.8 – 1.8 | 1.8 – 1.8 |
| Cobalt | 7440-48-4 | µg/L | 0.098 J – 4.2 | 0.17 J – 5.1 | NYOW-B-002 (2021-05-14) | NYOW-03-002 (2021-04-02) | 8/9 | 89% | 27/28 | 96% | 1.5 | 1.3 | 1.4 | 1 | 1.3 | 1.2 | 0.35 – 0.35 | 0.35 – 0.35 |
| Copper | 7440-50-8 | µg/L | 15 J+ – 15 J+ | 15 J+ – 15 J+ | NYOW-B-047 (2021-05-17) | Multiple Locations | 1/9 | 11% | 3/28 | 11% | -- | -- | -- | -- | -- | -- | 10 – 10 | 10 – 10 |
| Iron | 7439-89-6 | µg/L | 27 J – 4000 | 36 J – 15000 | NYOW-B-047 (2021-05-17) | NYOW-01-006 (2021-04-08) | 8/9 | 89% | 21/28 | 75% | 1100 | 1800 | 470 | 460 | 1500 | 3300 | 85 – 85 | 85 – 85 |
| Lead | 7439-92-1 | µg/L | 3 J+ – 3 J+ | 3 J+ – 3 J+ | Multiple Locations | Multiple Locations | 3/9 | 33% | 9/28 | 32% | -- | -- | -- | -- | -- | -- | 0.7 – 0.7 | 0.7 – 0.7 |
| Magnesium | 7439-95-4 | µg/L | 8100 – 80000 | 2400 – 72000 | NYOW-B-005 (2021-05-17) | NYOW-01-022 (2021-04-09) | 9/9 | 100% | 28/28 | 100% | 32000 | 30000 | 25000 | 30000 | 22000 | 16000 | 60 – 60 | 60 – 60 |
| Manganese | 7439-96-5 | µg/L | 9.5 J – 2800 | 3.9 J – 11000 | NYOW-B-002 (2021-05-14) | NYOW-03-002 (2021-04-02) | 9/9 | 100% | 28/28 | 100% | 1000 | 1200 | 940 | 500 | 790 | 2100 | 4 – 4 | 4 – 4 |
| Mercury | 7439-97-6 | µg/L | N/A | N/A | N/A | N/A | 0/9 | 0% | 0/28 | 0% | -- | -- | -- | -- | -- | -- | 0.08 – 0.08 | 0.08 – 0.08 |
| Nickel | 7440-02-0 | µg/L | 40 J+ – 40 J+ | 40 J+ – 40 J+ | NYOW-B-047 (2021-05-17) | Multiple Locations | 1/9 | 11% | 12/28 | 43% | -- | -- | -- | -- | -- | -- | 8 – 8 | 8 – 8 |
| Potassium | 7440-09-7 | µg/L | 700 J – 6000 | 980 J – 12000 | NYOW-B-047 (2021-05-17) | NYOW-05-012 (2021-01-14) | 6/9 | 67% | 28/28 | 100% | 1900 | 4600 | 1900 | 3800 | 1700 | 3100 | 940 – 3000 | 940 – 940 |
| Selenium | 7782-49-2 | µg/L | N/A | 22 J+ – 22 J+ | N/A | NYOW-03-002 (2021-04-02) | 0/9 | 0% | 1/28 | 4% | -- | -- | -- | -- | -- | -- | 19 – 19 | 19 – 19 |
| Silver | 7440-22-4 | µg/L | N/A | N/A | N/A | N/A | 0/9 | 0% | 0/28 | 0% | -- | -- | -- | -- | -- | -- | 5 – 5 | 5 – 5 |
| Sodium | 7440-23-5 | µg/L | 1500 J – 160000 | 760 J – 140000 J+ | NYOW-B-047 (2021-05-17) | NYOW-01-024 (2021-04-12) | 8/9 | 89% | 28/28 | 100% | 38000 | 35000 | 7600 | 19000 | 51000 | 36000 | 1000 – 5000 | 1000 – 1000 |
| Thallium | 7440-28-0 | µg/L | N/A | N/A | N/A | N/A | 0/9 | 0% | 0/28 | 0% | -- | -- | -- | -- | -- | -- | 0.2 – 0.2 | 0.2 – 1 |
| Vanadium | 7440-62-2 | µg/L | 15 J+ – 15 J+ | 15 J+ – 15 J+ | NYOW-B-047 (2021-05-17) | Multiple Locations | 1/9 | 11% | 13/28 | 46% | -- | -- | -- | -- | -- | -- | 4 – 4 | 4 – 4 |
| Zinc | 7440-66-6 | µg/L | N/A | 150 J+ – 150 J+ | N/A | Multiple Locations | 0/9 | 0% | 5/28 | 18% | -- | -- | -- | -- | -- | -- | 15 – 15 | 15 – 15 |

Notes:

% = Percent
CASRN = Chemical Abstracts Service Registry Number
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
µg/L = micrograms per liter
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.

# APPENDIX F.2

# Grain Size

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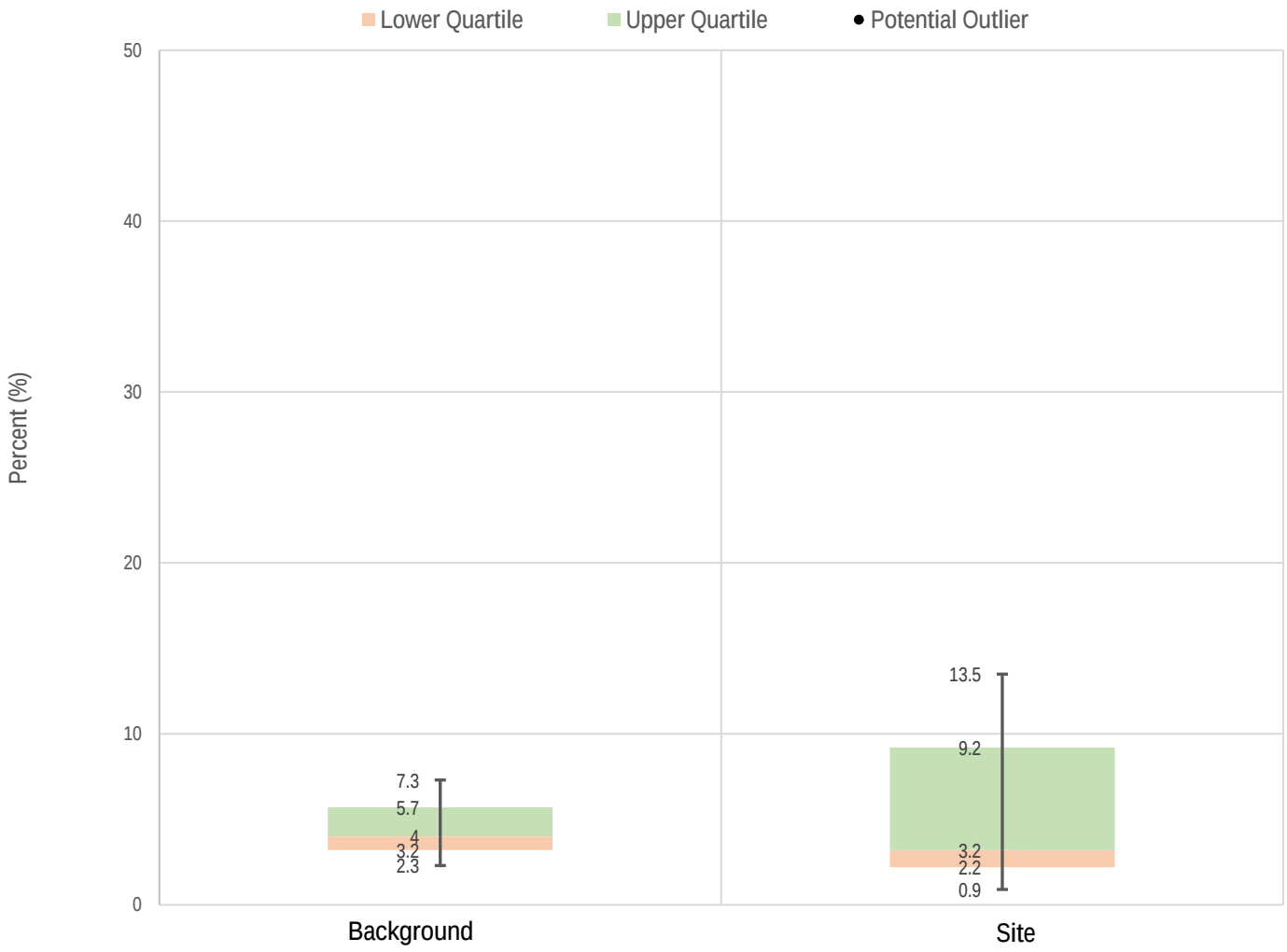
Figure F.2-1
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Clay (Psc)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Clay | |
|---|---|
| Lacustrine Silt and Clay (Psc) | |
| Surface Soil (0 - 1 ft bgs) | |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 8/8 | FOD: | 10/10 |
| Data Distribution: | Normal | Data Distribution: | Normal |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

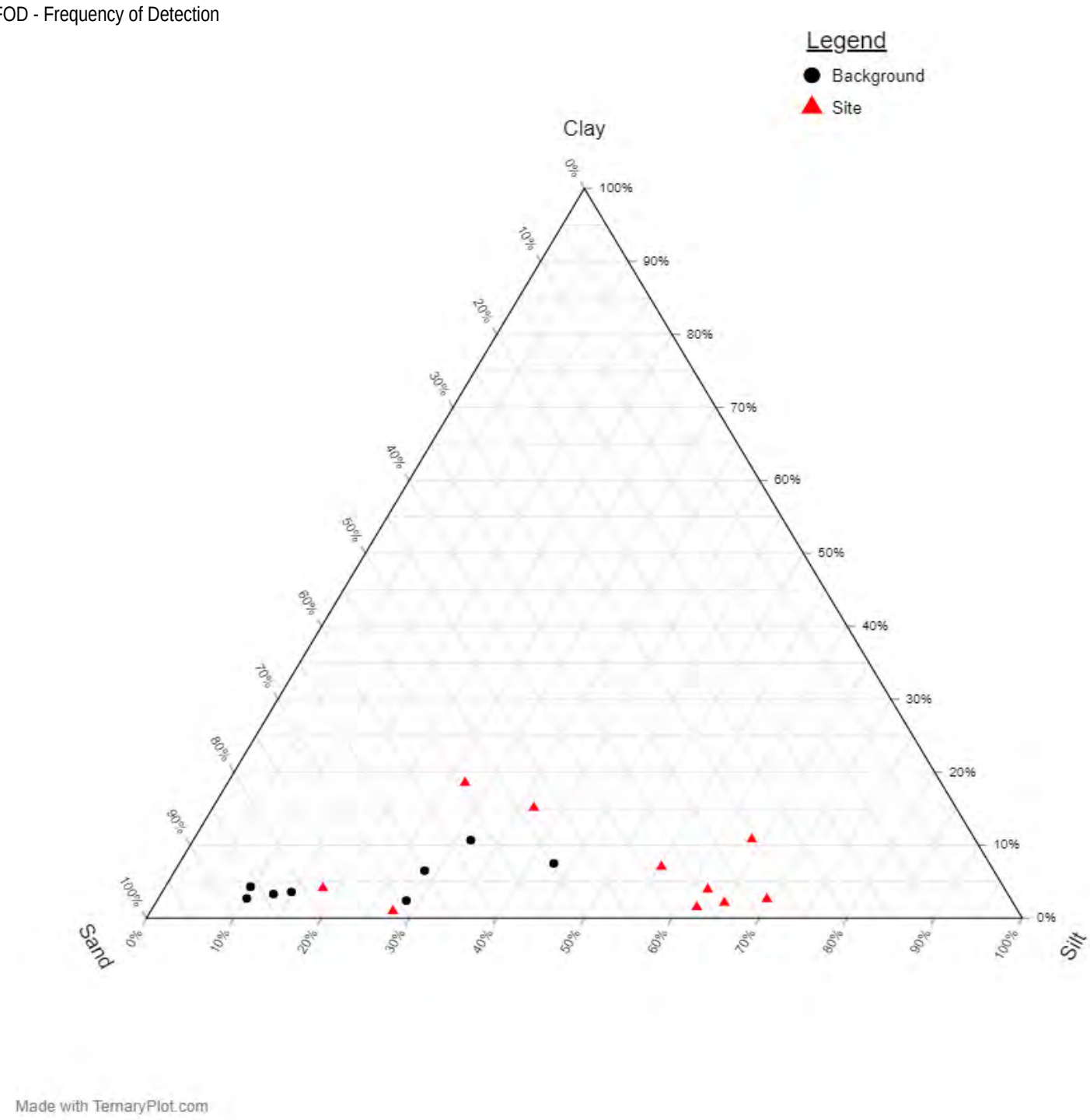
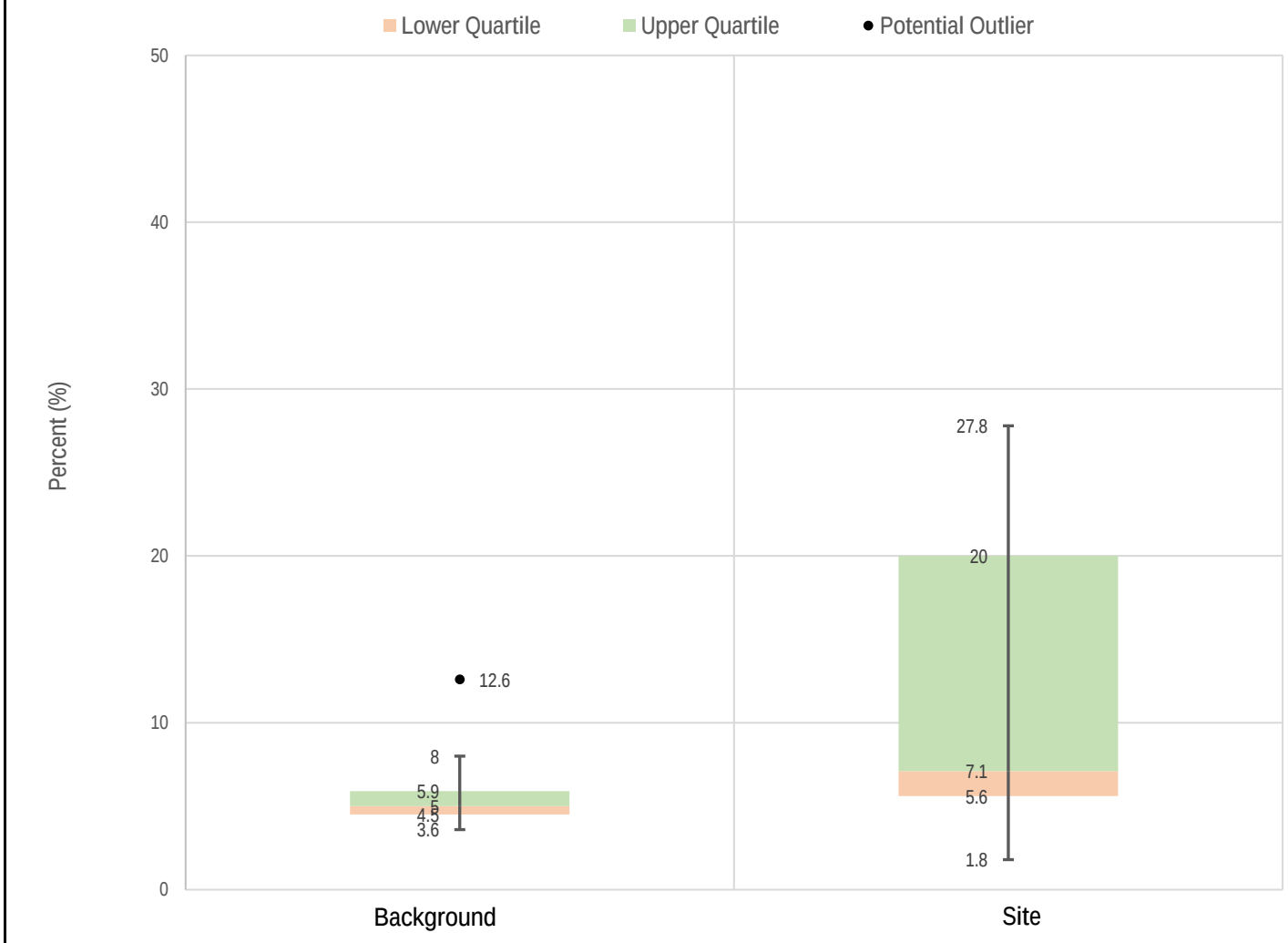


Figure F.2-1
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Clay (Psc)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Clay |
|---|
| Lacustrine Silt and Clay (Psc) |
| Subsurface Soil (1 - 5 ft bgs) |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 8/8 | FOD: | 10/10 |
| Data Distribution: | Normal | Data Distribution: | Normal |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

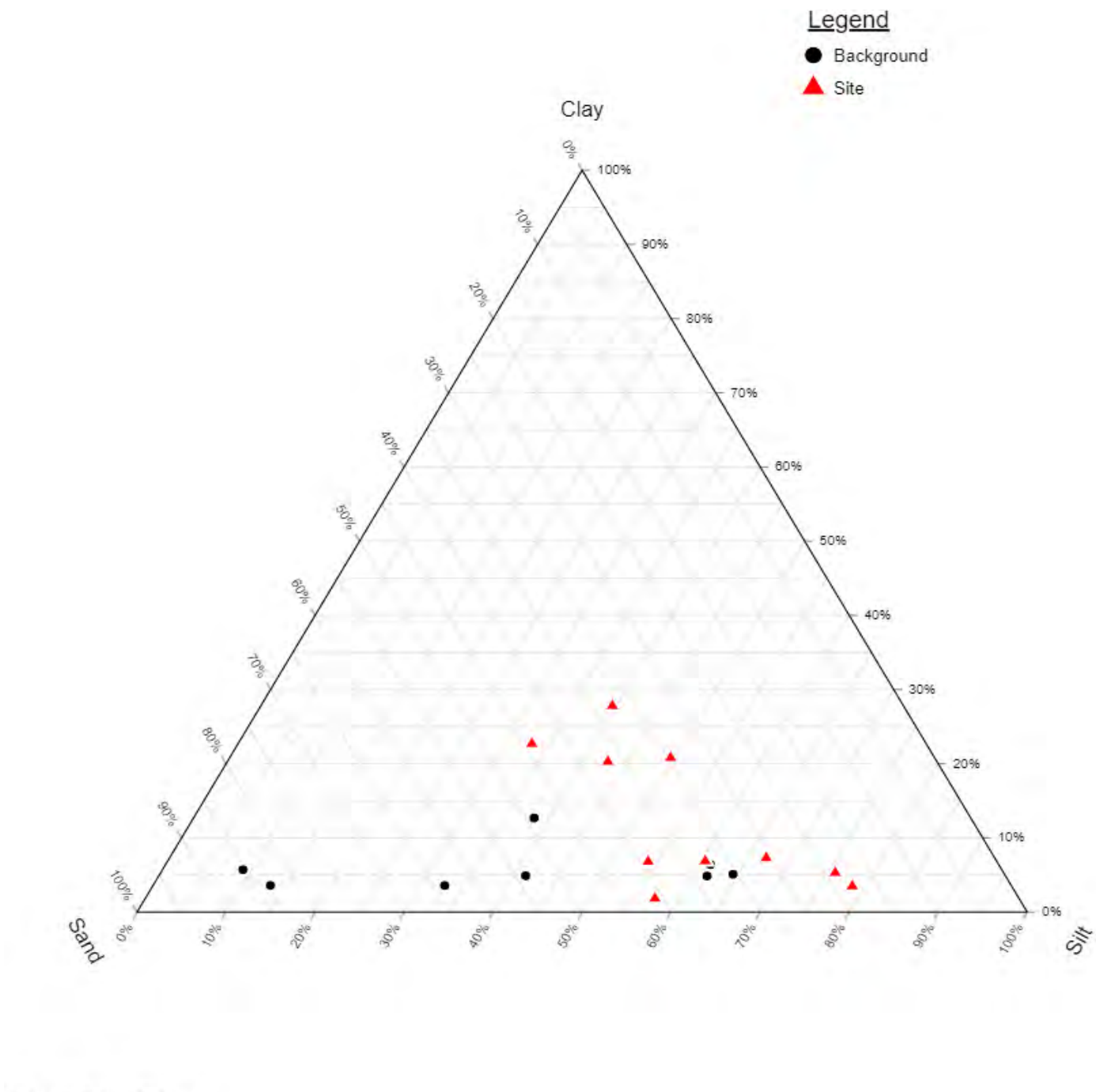
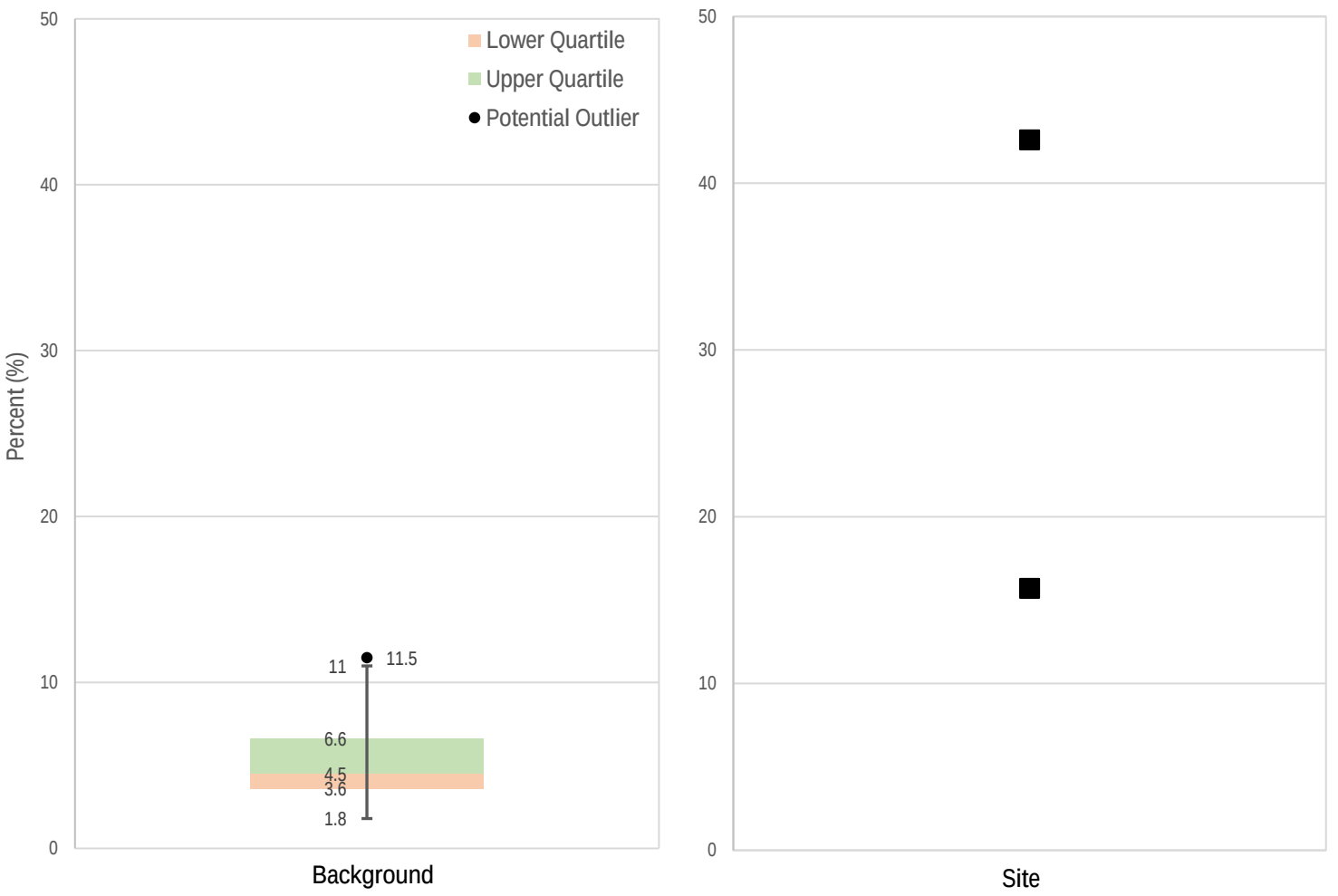


Figure F.2-1
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Clay (Psc)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Clay | |
|---|---|
| Lacustrine Silt and Clay (Psc) | |
| Subsurface Soil (5 - 10 ft bgs) | |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 8/8 | FOD: | 2/2 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

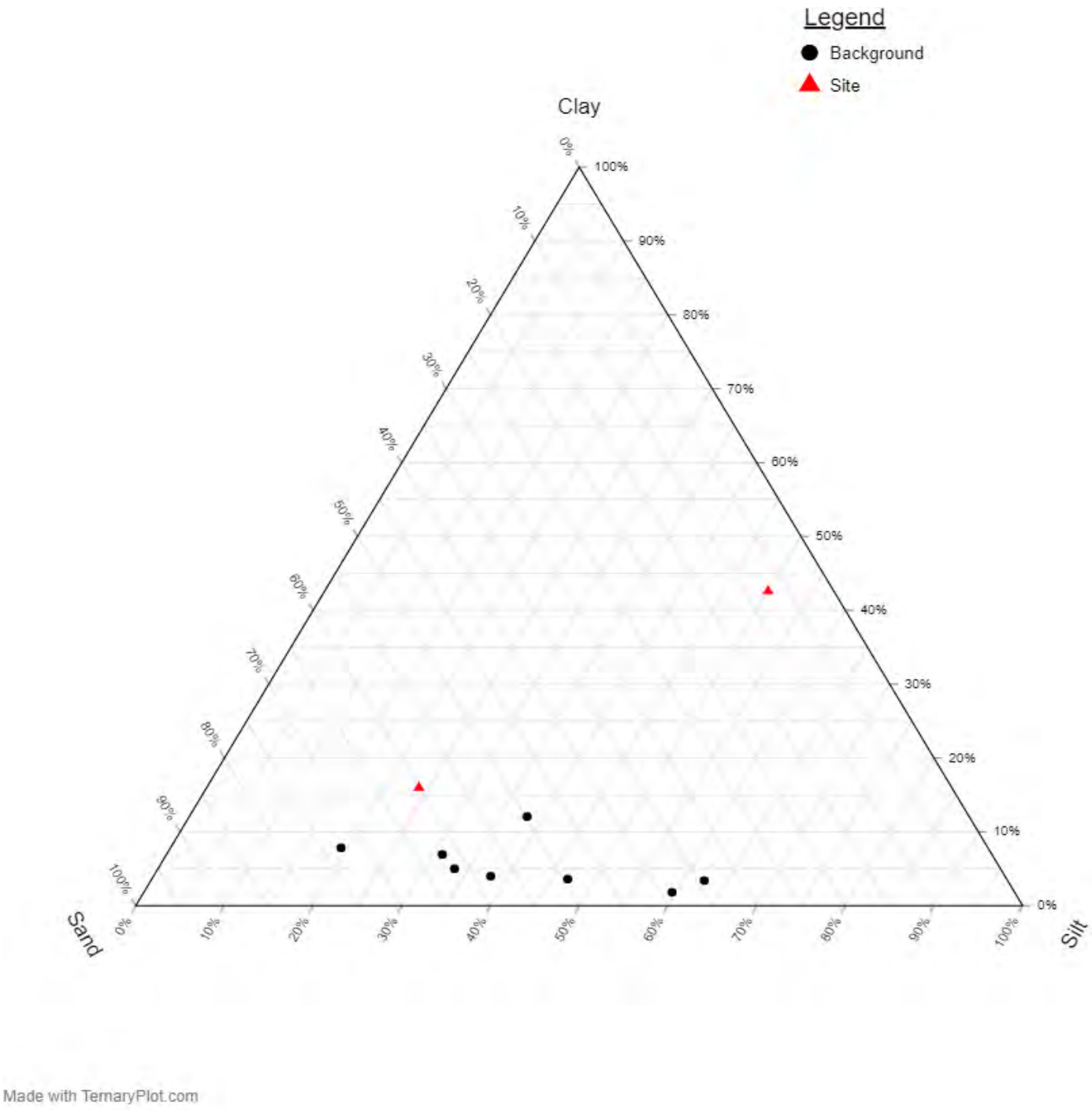
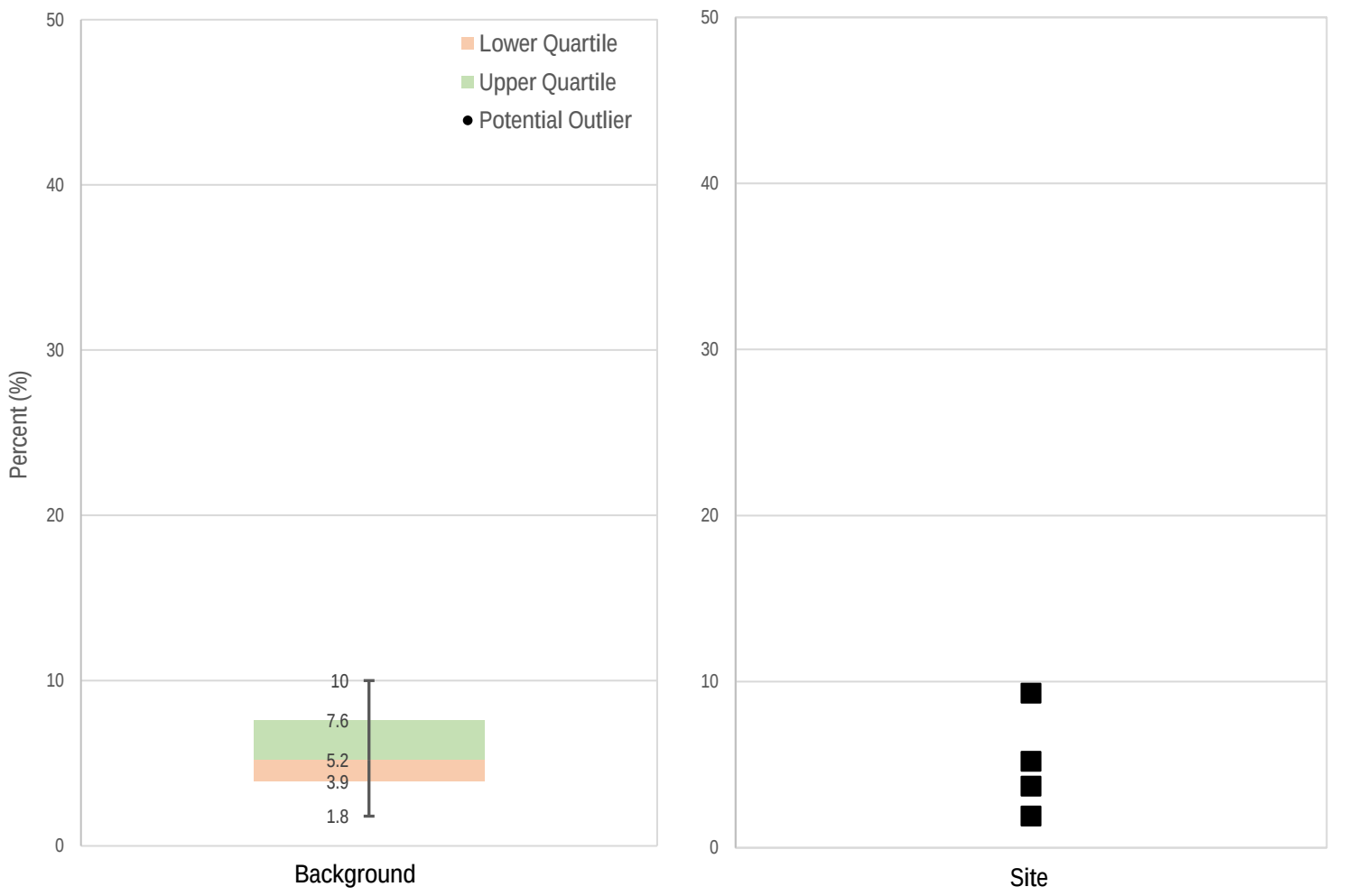


Figure F.2-2
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Clay (Ps)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Clay |
|---|
| Sorted Sand and Gravel (Ps) |
| Surface Soil (0 - 1 ft bgs) |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 24/24 | FOD: | 4/4 |
| Data Distribution: | Normal | Data Distribution: | Normal |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

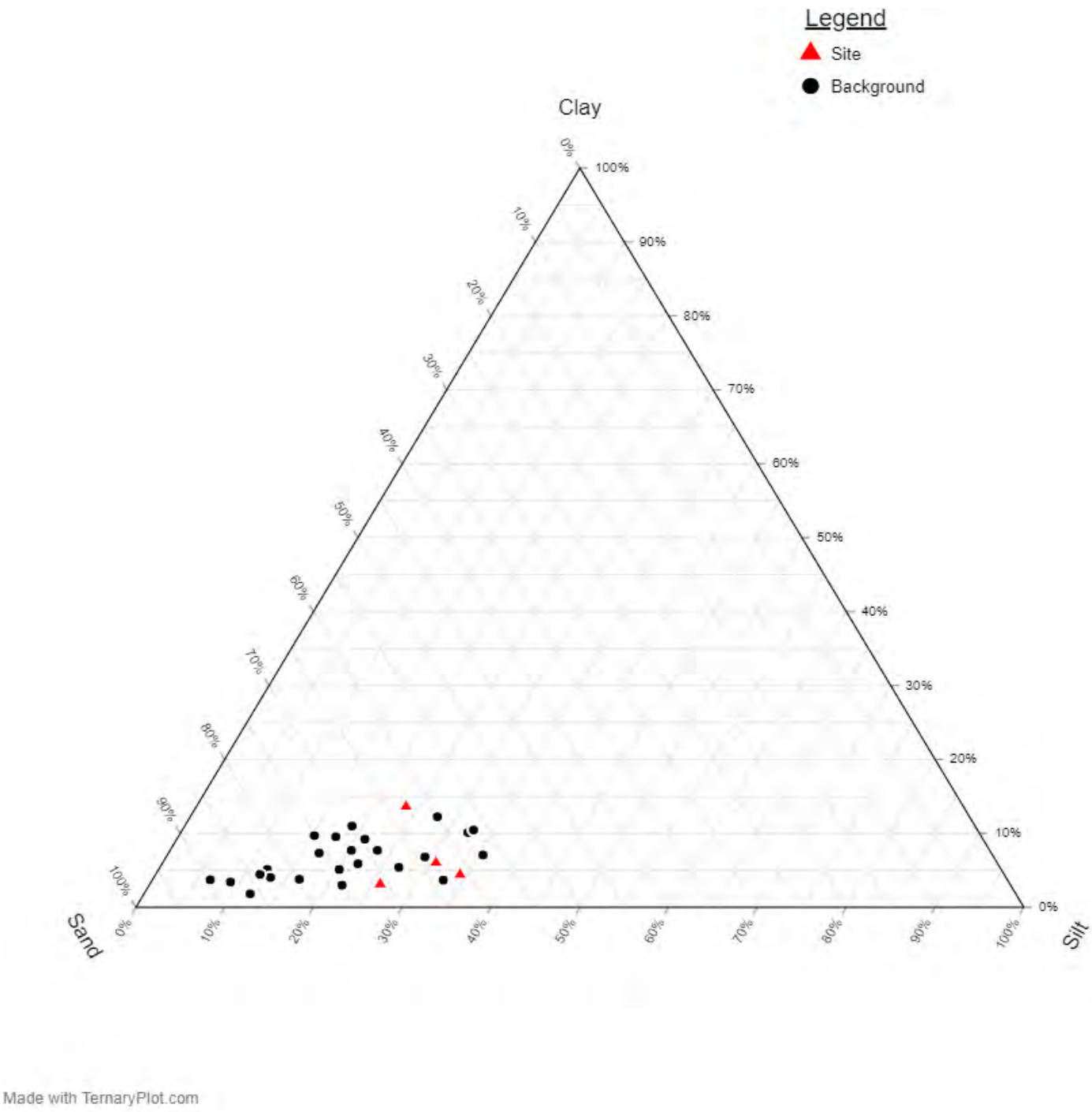
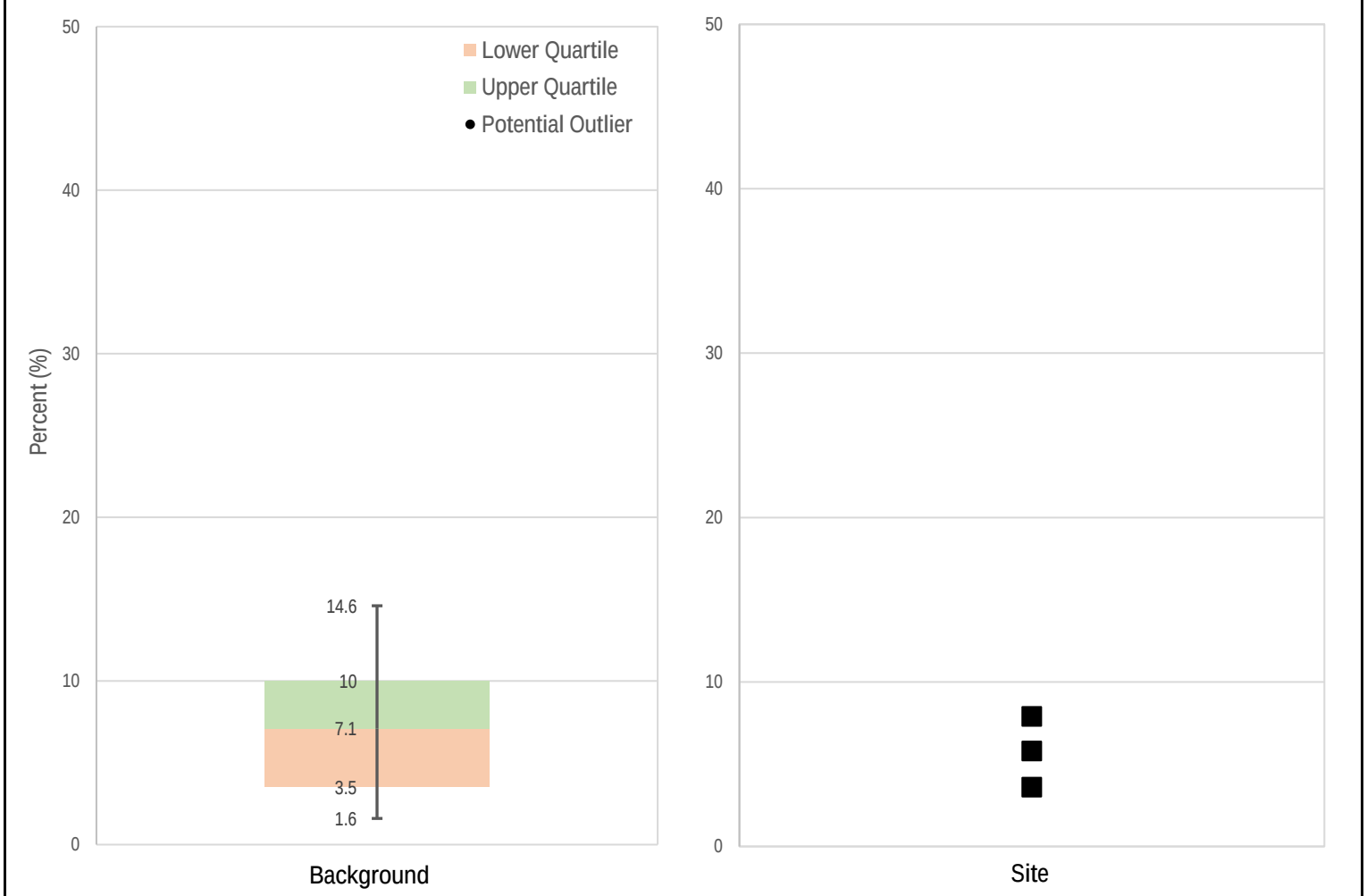


Figure F.2-2
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Clay (Ps)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Clay |
|---|
| Sorted Sand and Gravel (Ps) |
| Subsurface Soil (1 - 5 ft bgs) |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 23/23 | FOD: | 3/3 |
| Data Distribution: | Normal | Data Distribution: | Normal |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

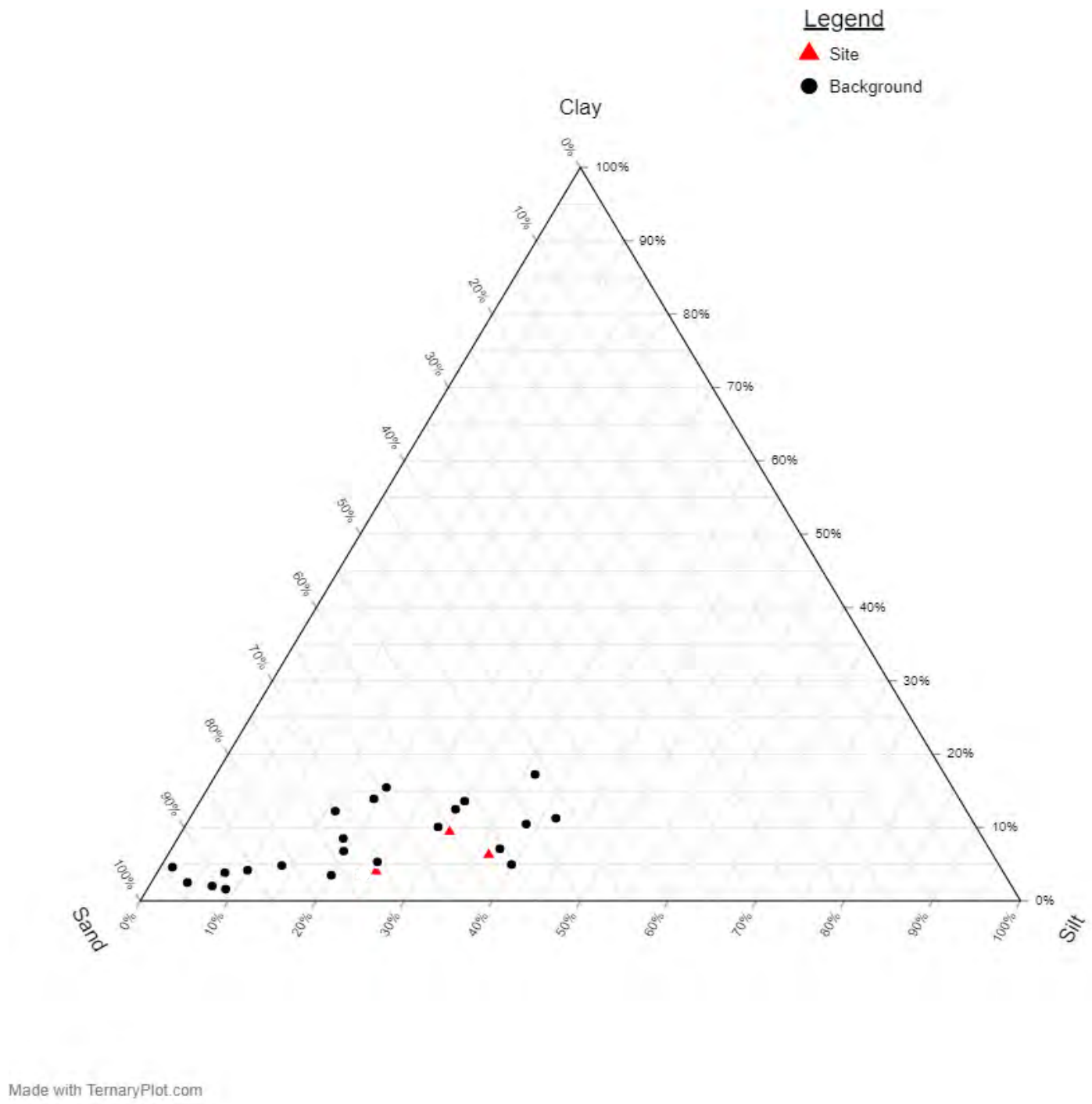
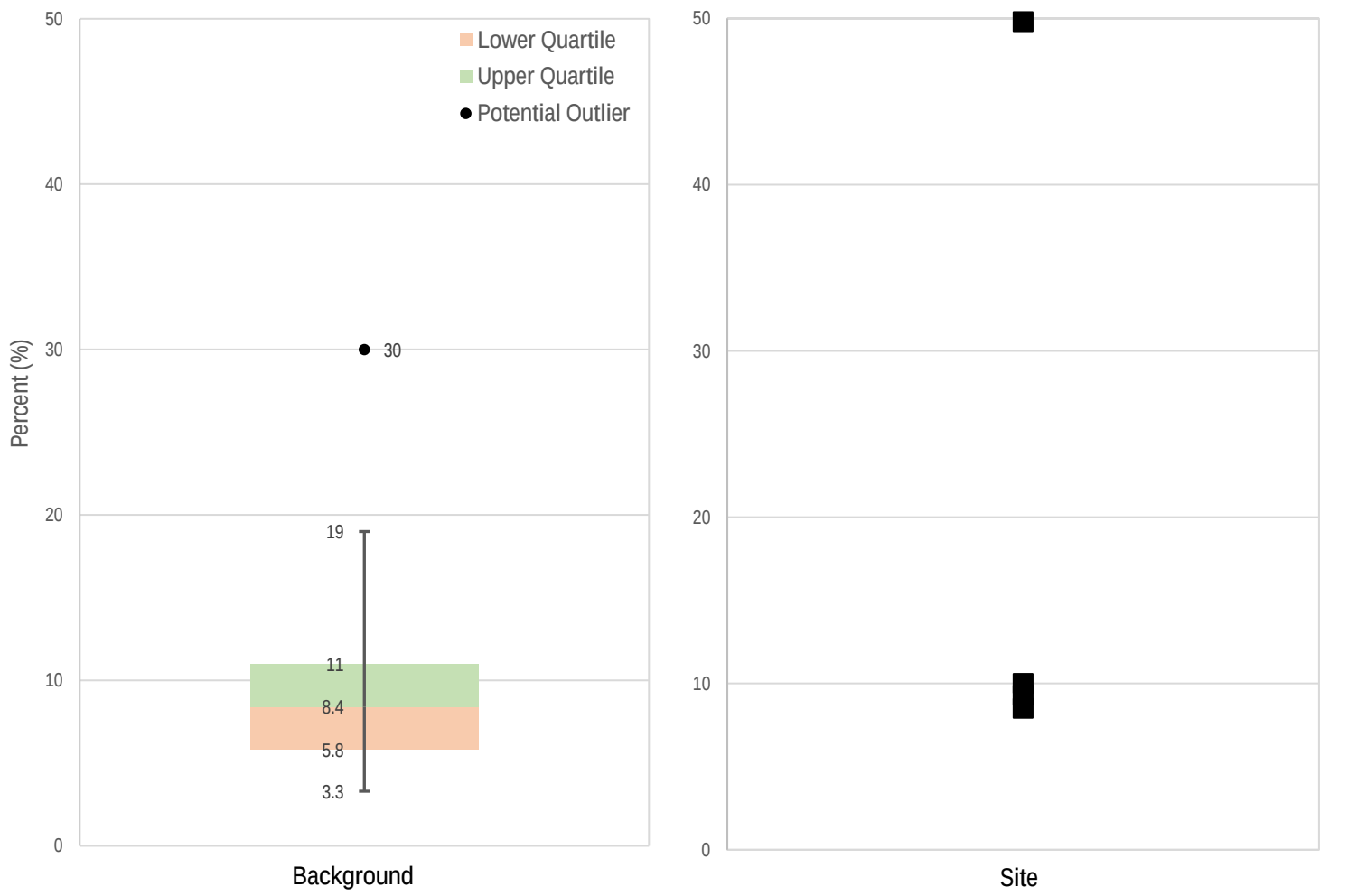


Figure F.2-2
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Clay (Ps)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Clay |
|---|
| Sorted Sand and Gravel (Ps) |
| Subsurface Soil (5 - 10 ft bgs) |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 23/23 | FOD: | 4/4 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

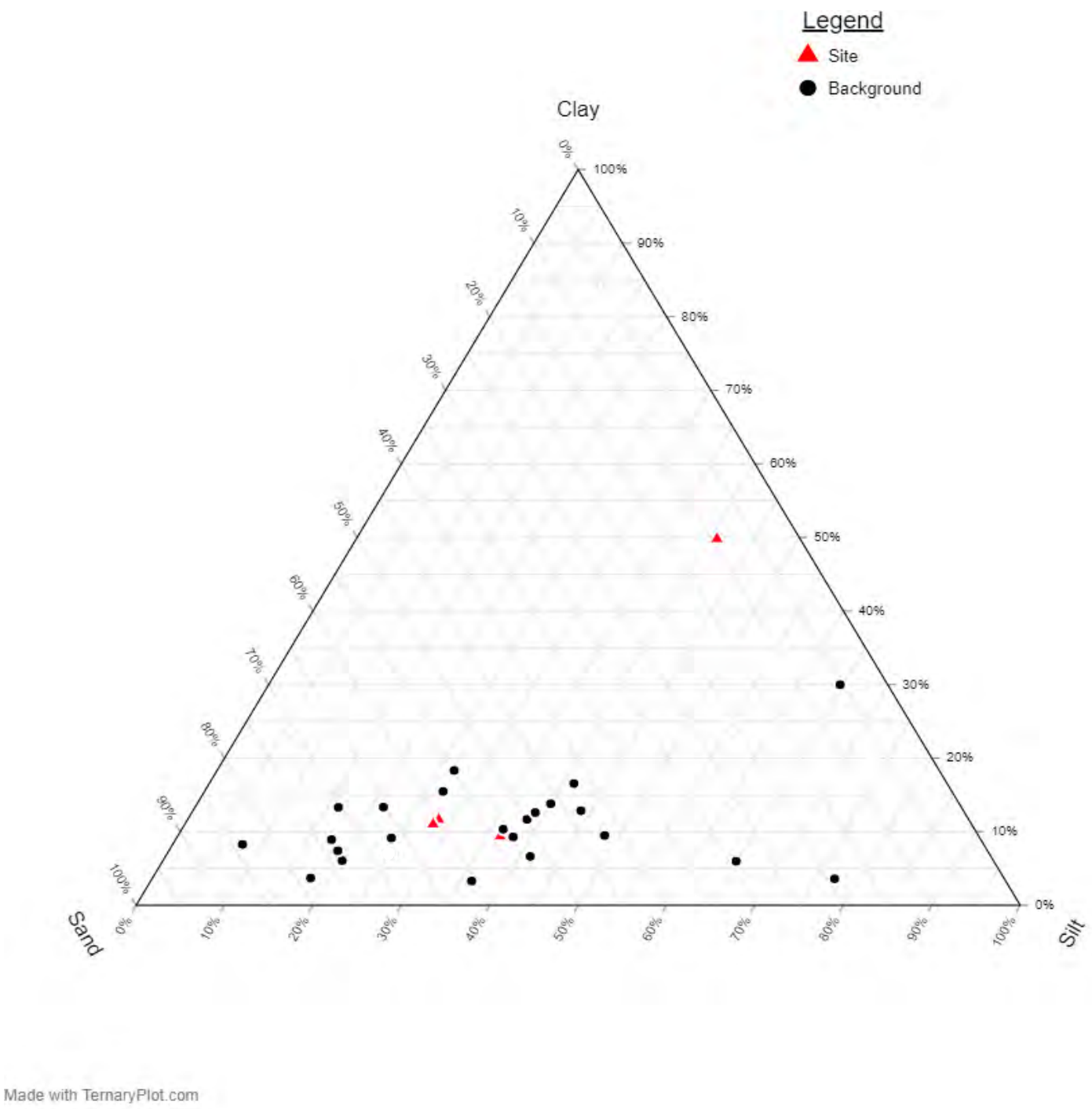
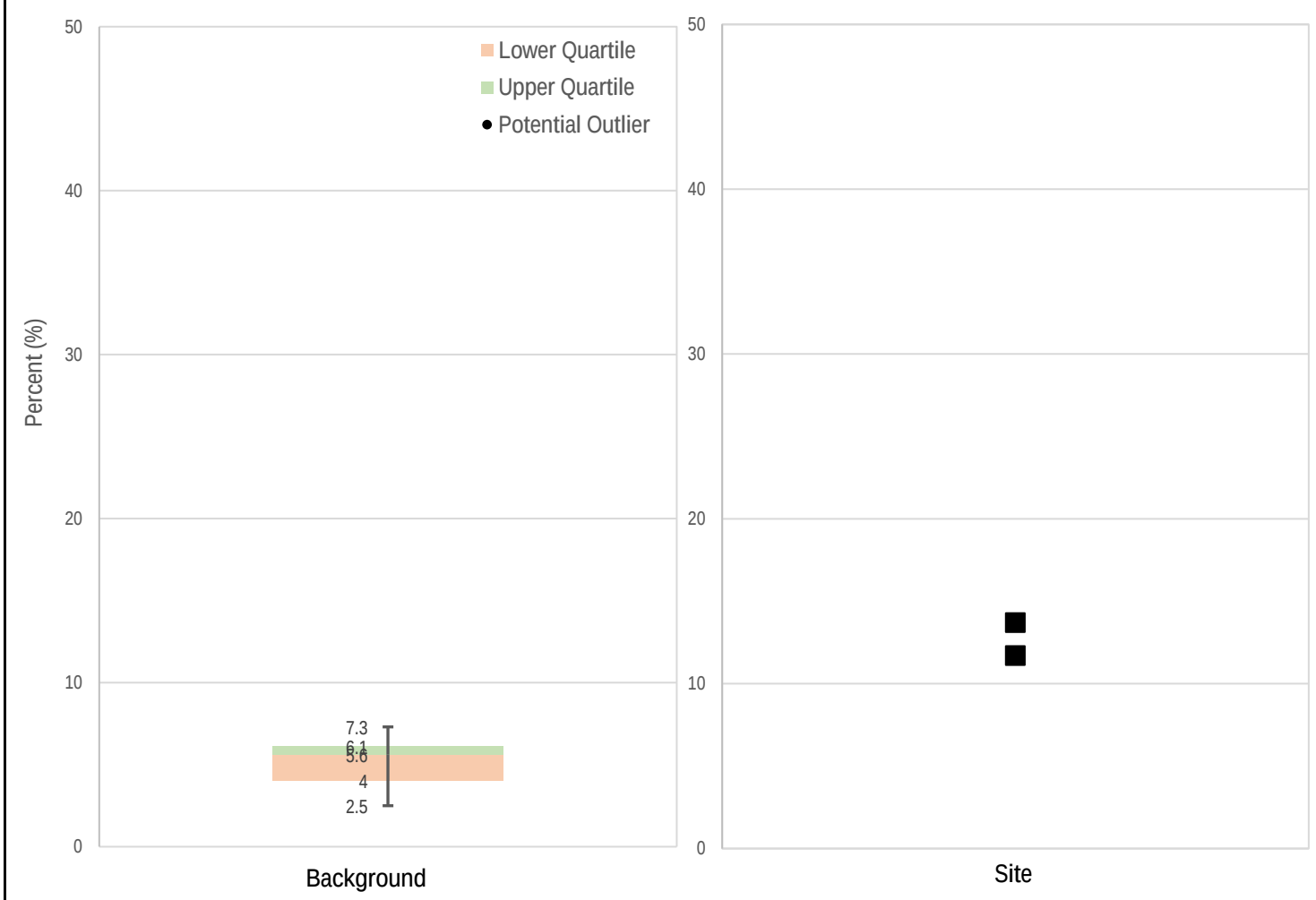


Figure F.2-3
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Clay (Pd)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Clay | |
|---|---|
| Diamicton - Till (Pd) | |
| Surface Soil (0 - 1 ft bgs) | |

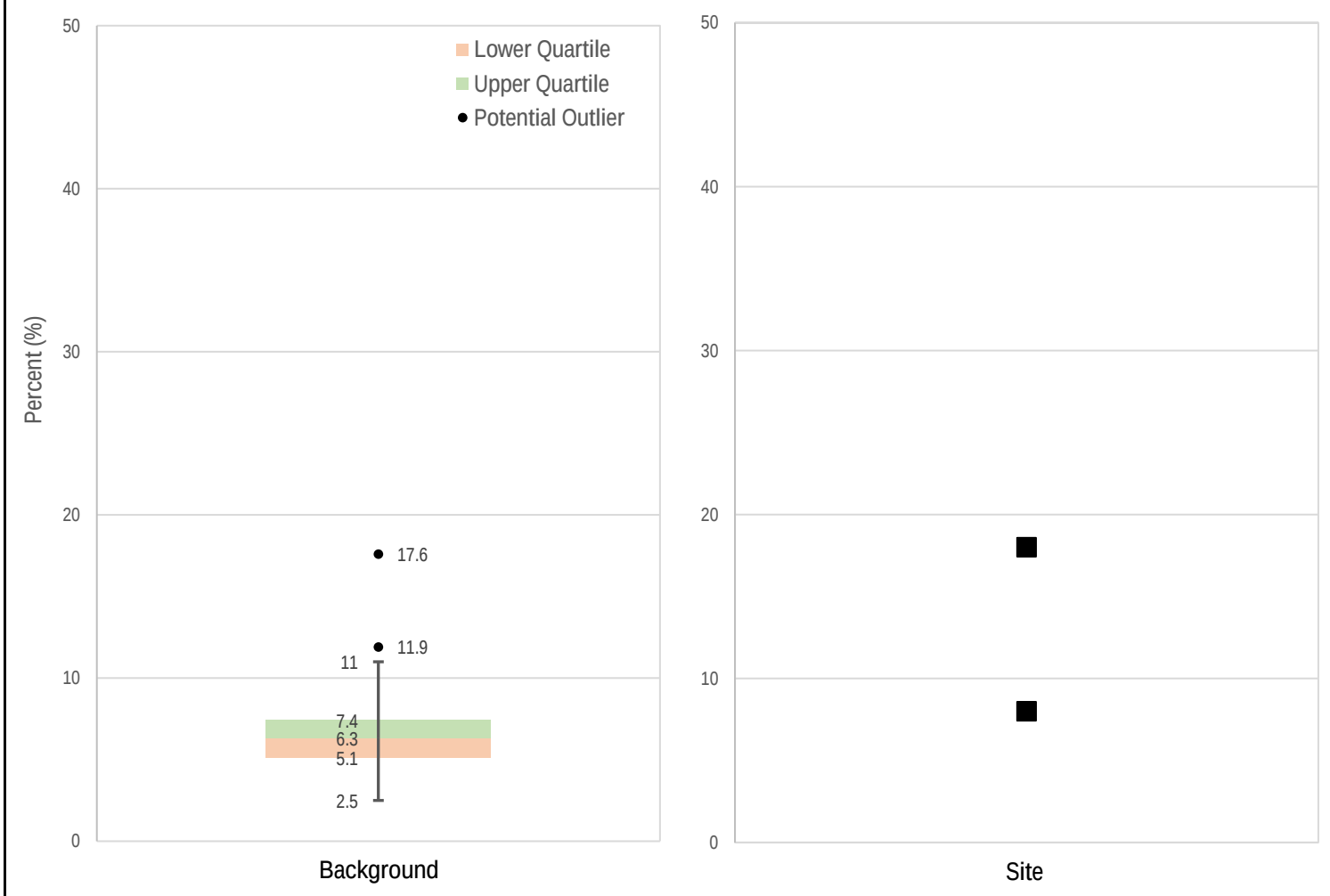



| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 11/11 | FOD: | 2/2 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

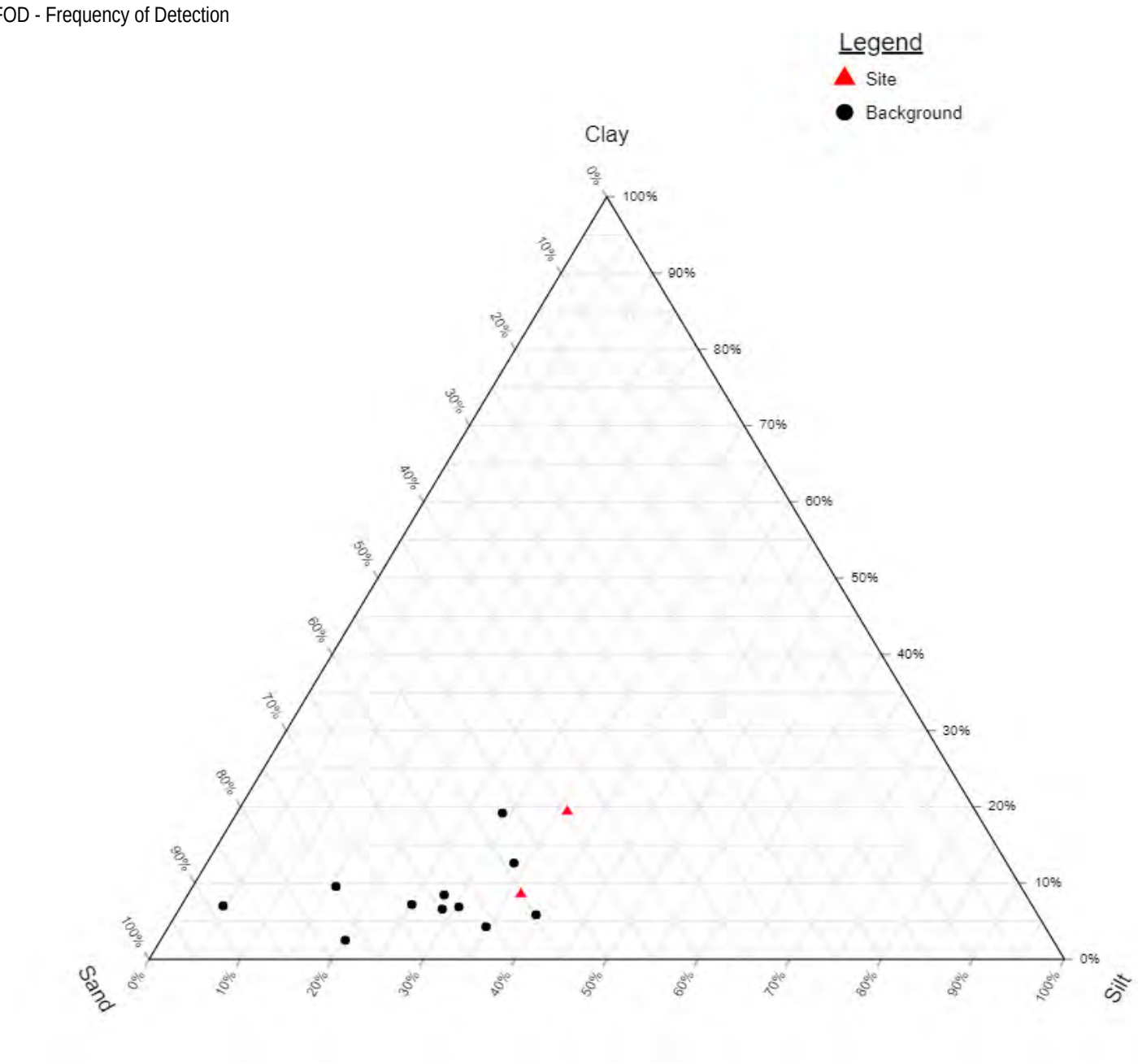
Figure F.2-3
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Clay (Pd)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Clay | |
|---|---|
| Diamicton - Till (Pd) | |
| Subsurface Soil (1 - 5 ft bgs) | |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 11/11 | FOD: | 2/2 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

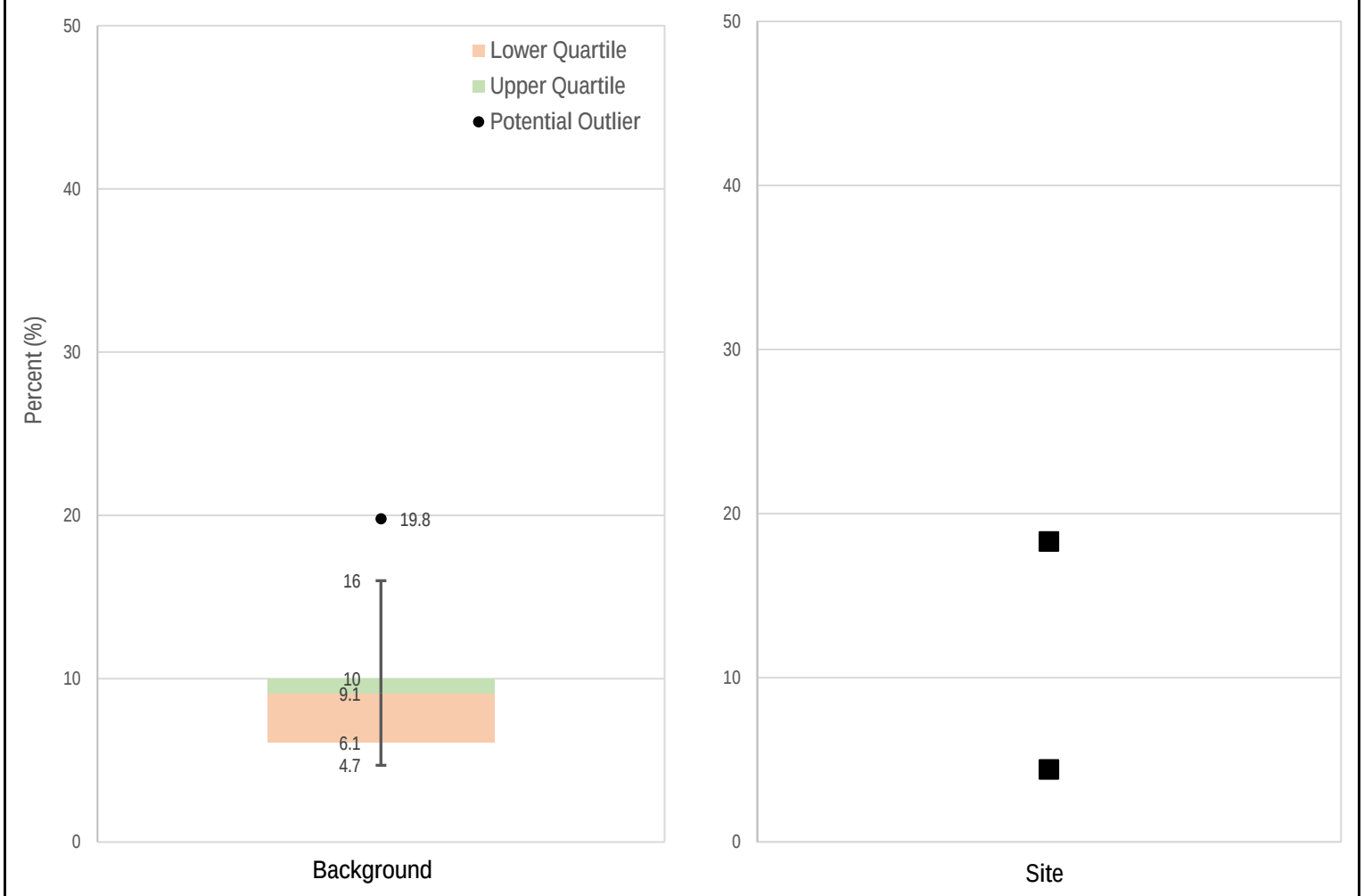
Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection




Made with TernaryPlot.com

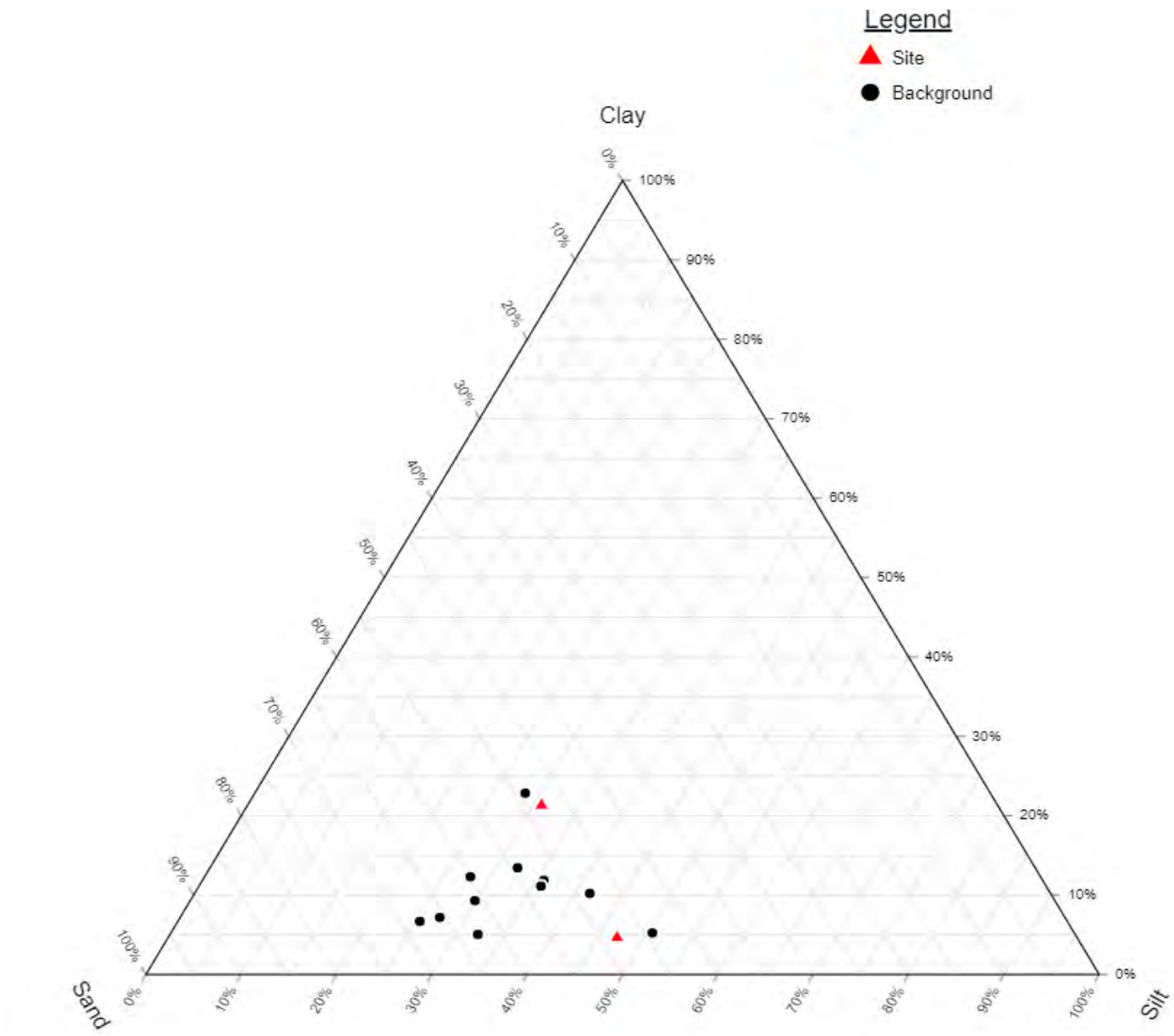
Figure F.2-3
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Clay (Pd)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Clay | |
|---|---|
| Diamicton - Till (Pd) | |
| Subsurface Soil (5 - 10 ft bgs) | |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 11/11 | FOD: | 2/2 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

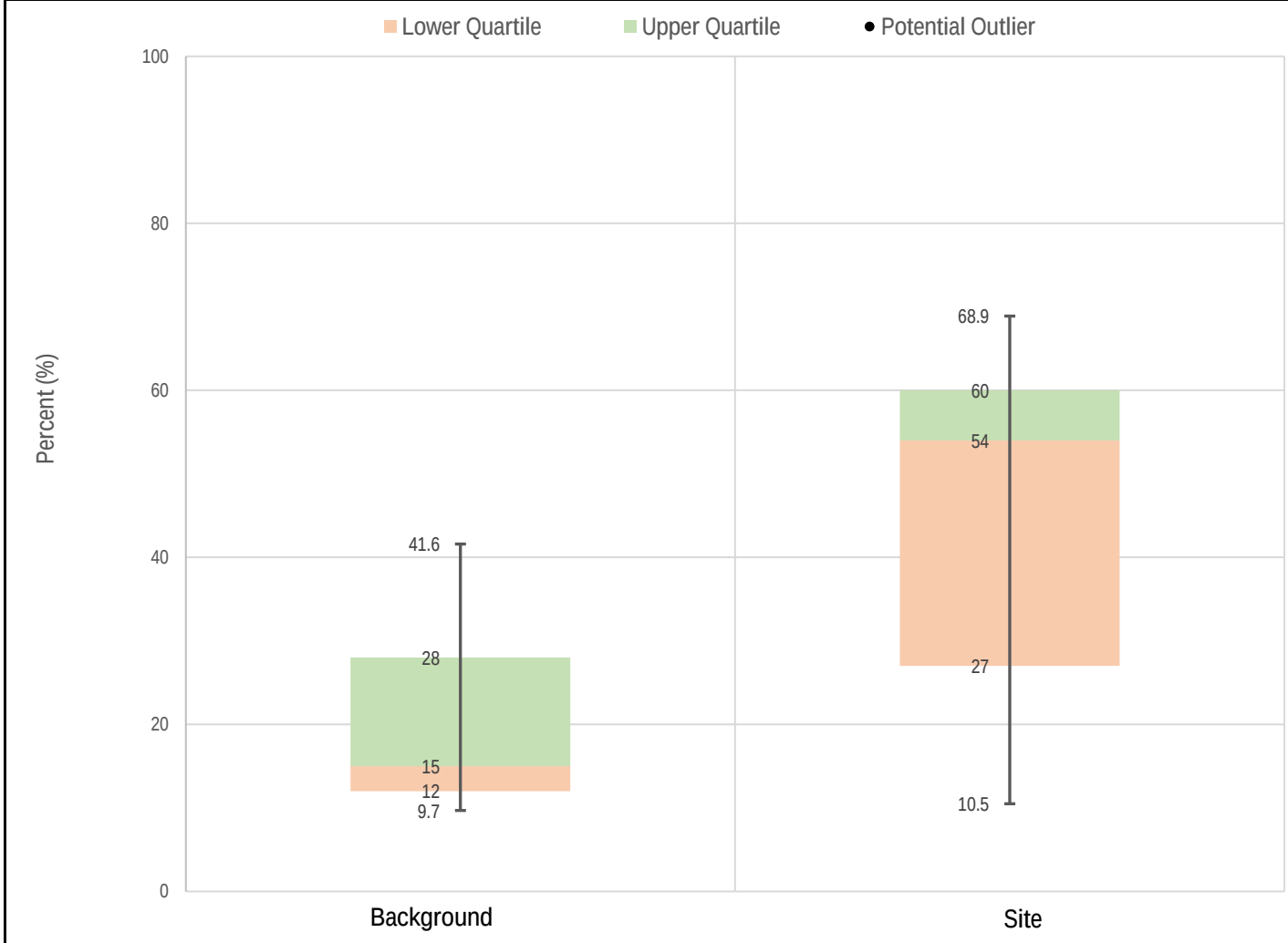
Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection




Made with TernaryPlot.com

Figure F.2-4
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Silt (Psc)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Silt | |
|---|---|
| Lacustrine Silt and Clay (Psc) | |
| Surface Soil (0 - 1 ft bgs) | |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 8/8 | FOD: | 10/10 |
| Data Distribution: | Normal | Data Distribution: | Normal |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

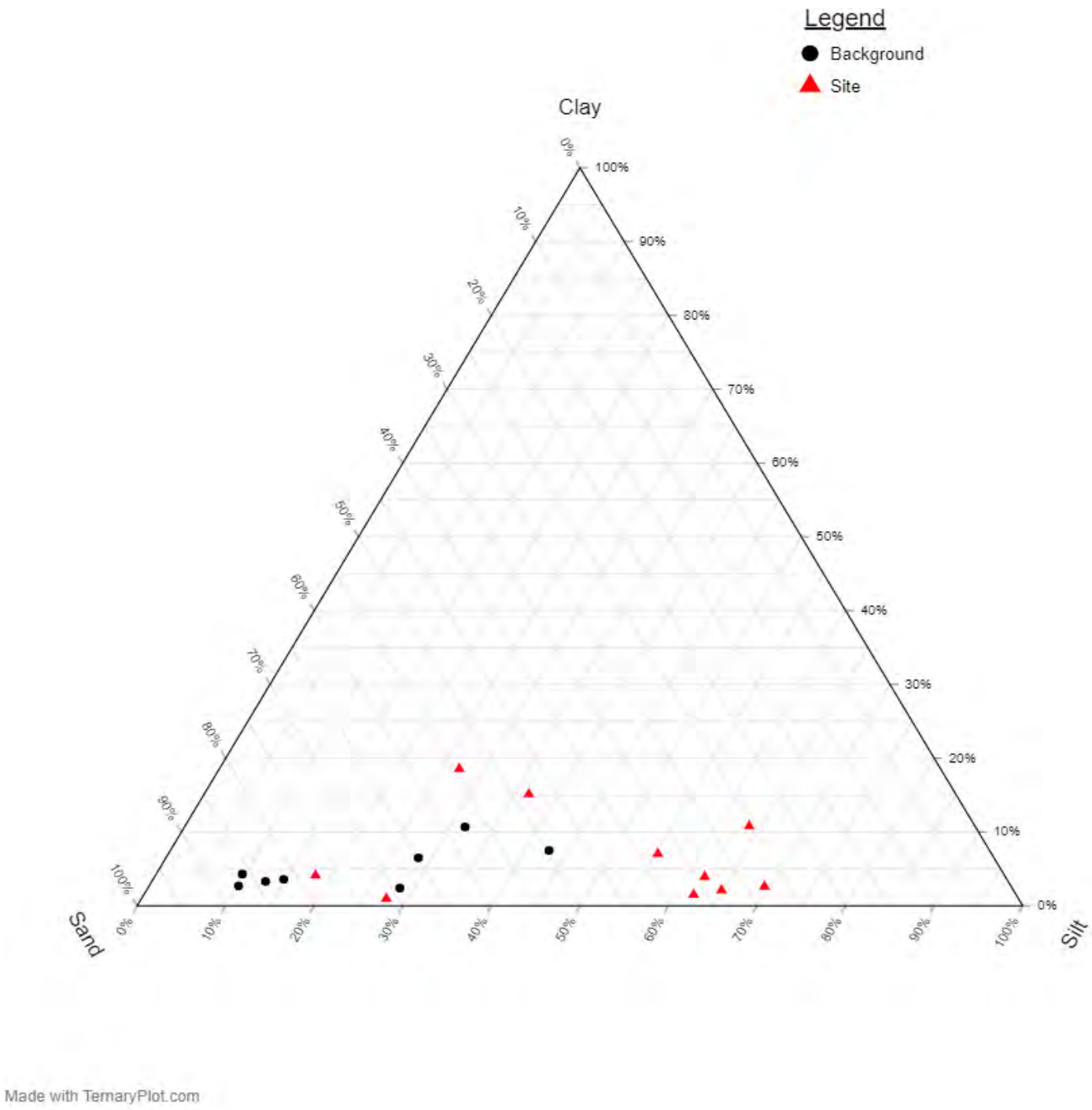
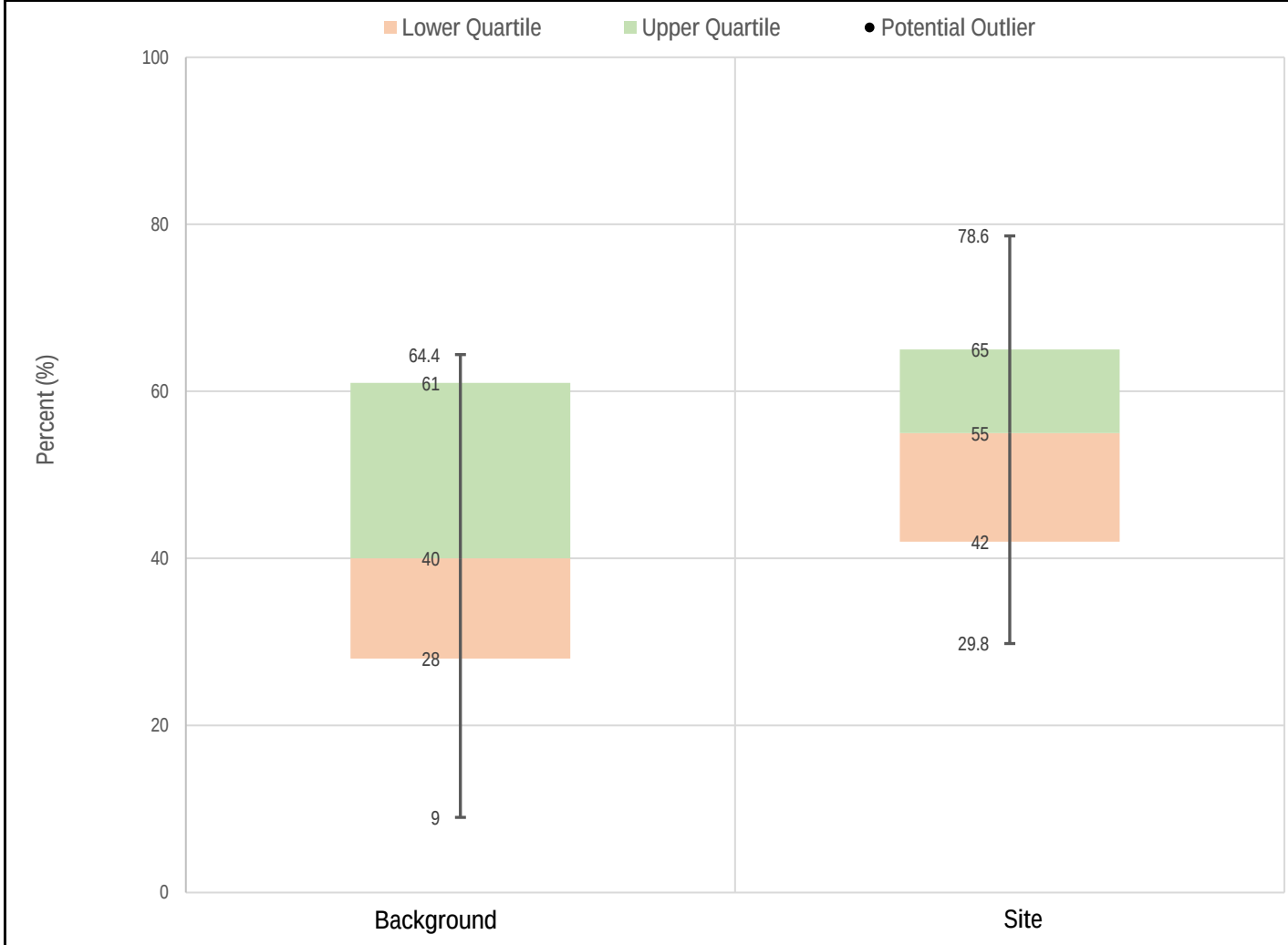


Figure F.2-4
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Silt (Psc)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Silt | |
|---|---|
| Lacustrine Silt and Clay (Psc) | |
| Subsurface Soil (1 - 5 ft bgs) | |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 8/8 | FOD: | 10/10 |
| Data Distribution: | Normal | Data Distribution: | Normal |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

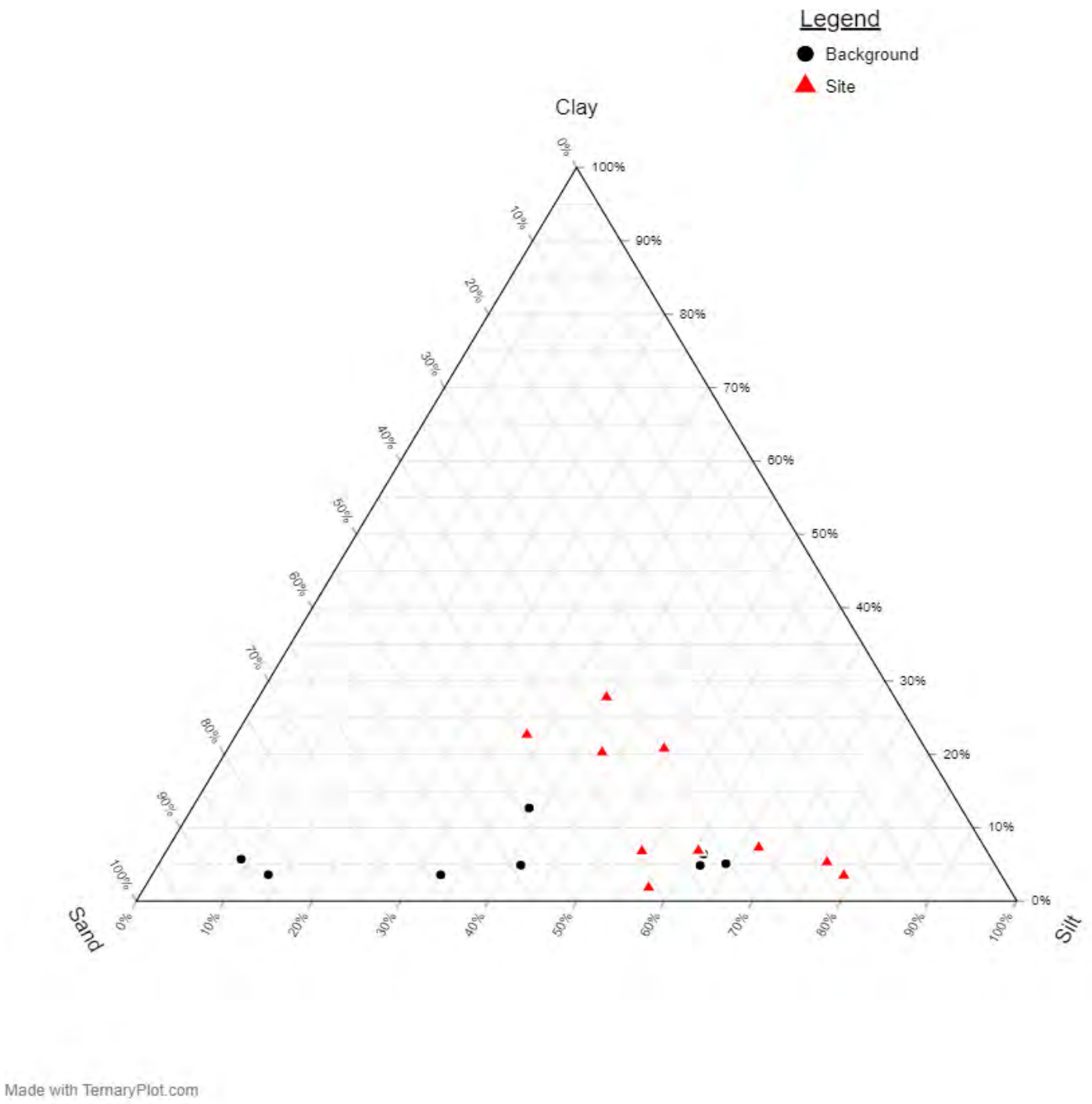
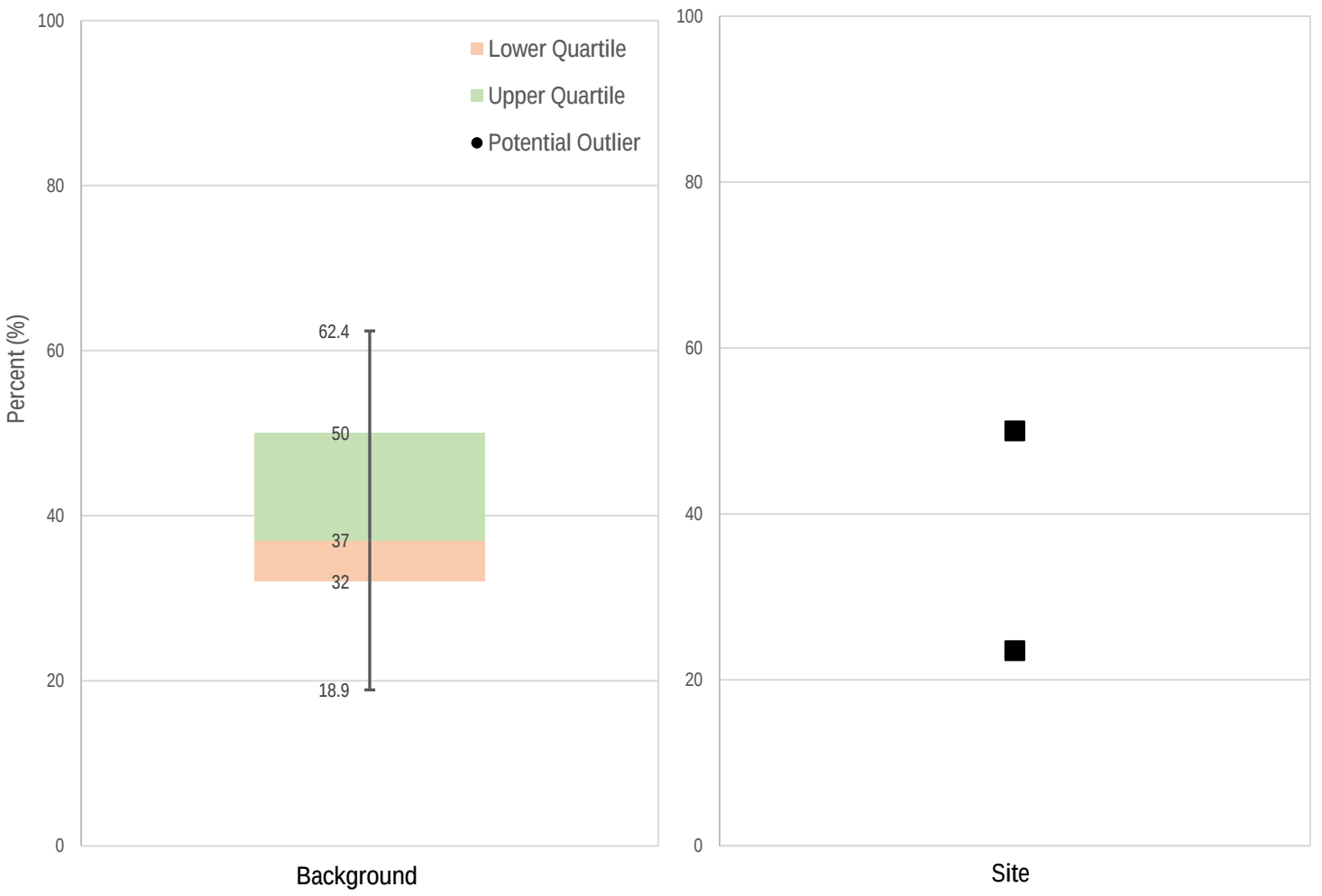


Figure F.2-4
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Silt (Psc)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Silt |
|---|
| Lacustrine Silt and Clay (Psc) |
| Subsurface Soil (5 - 10 ft bgs) |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 8/8 | FOD: | 2/2 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

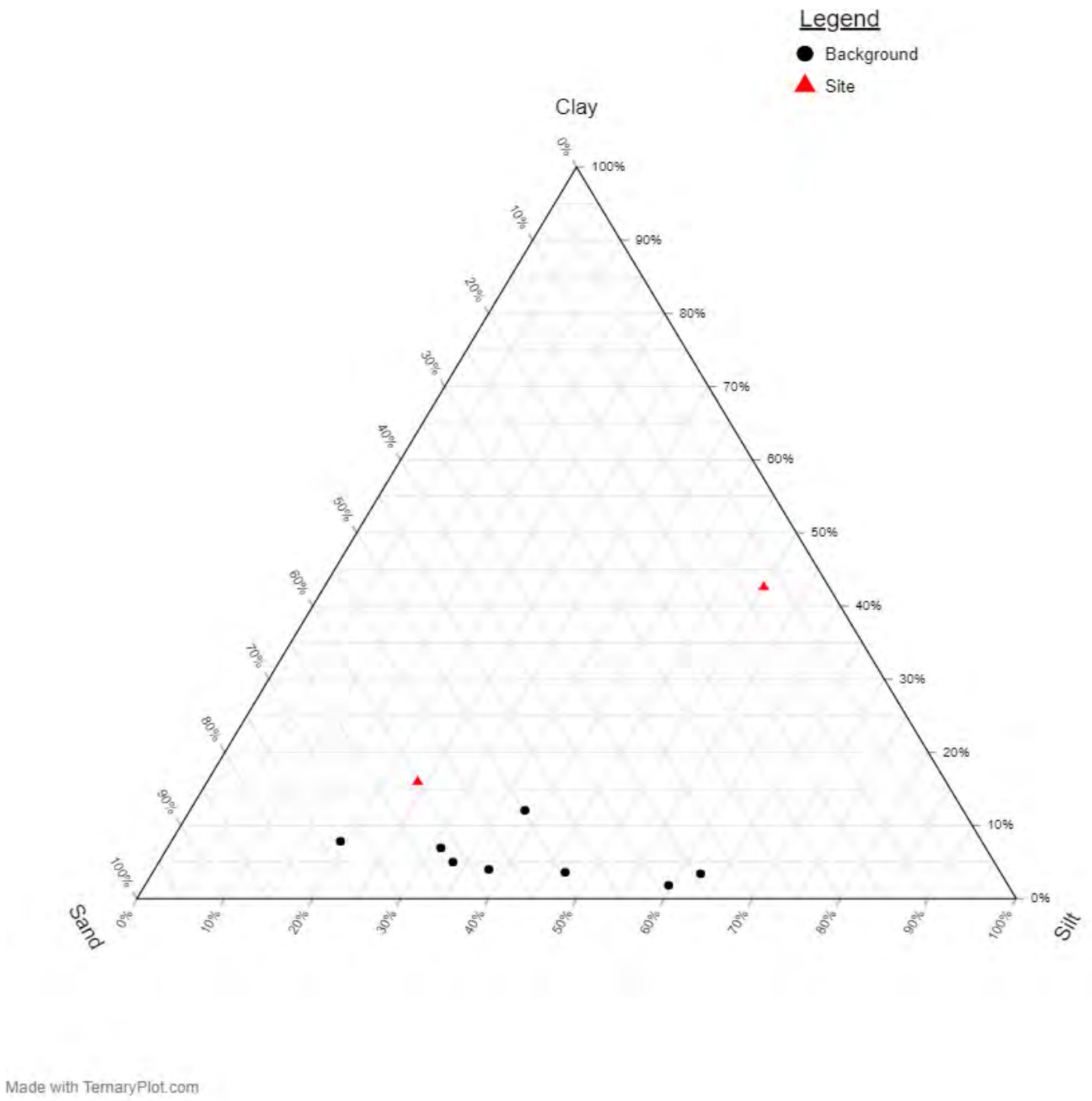
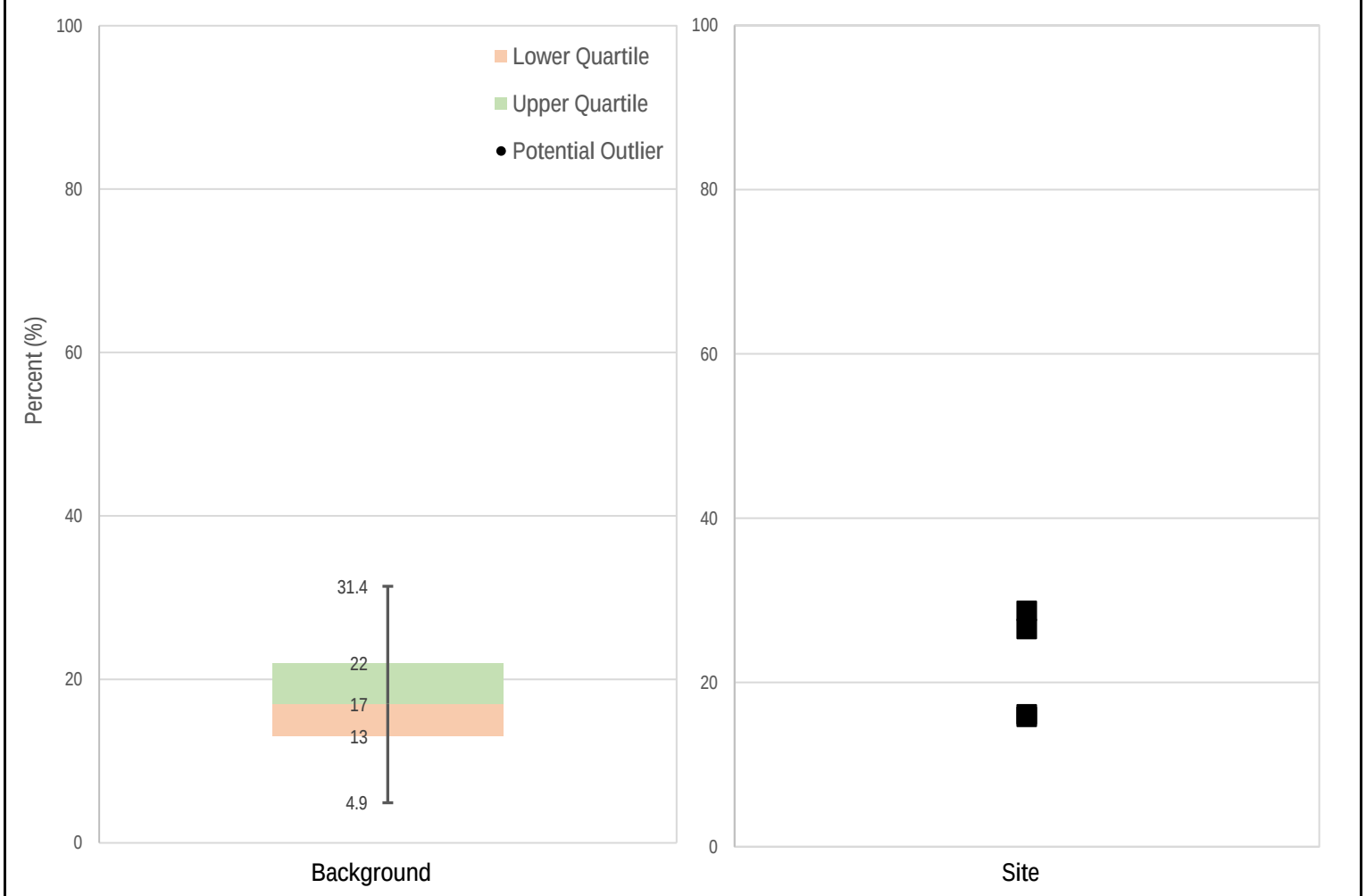


Figure F.2-5
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Silt (Ps)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Silt |
|---|
| Sorted Sand and Gravel (Ps) |
| Surface Soil (0 - 1 ft bgs) |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 24/24 | FOD: | 4/4 |
| Data Distribution: | Normal | Data Distribution: | Normal |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

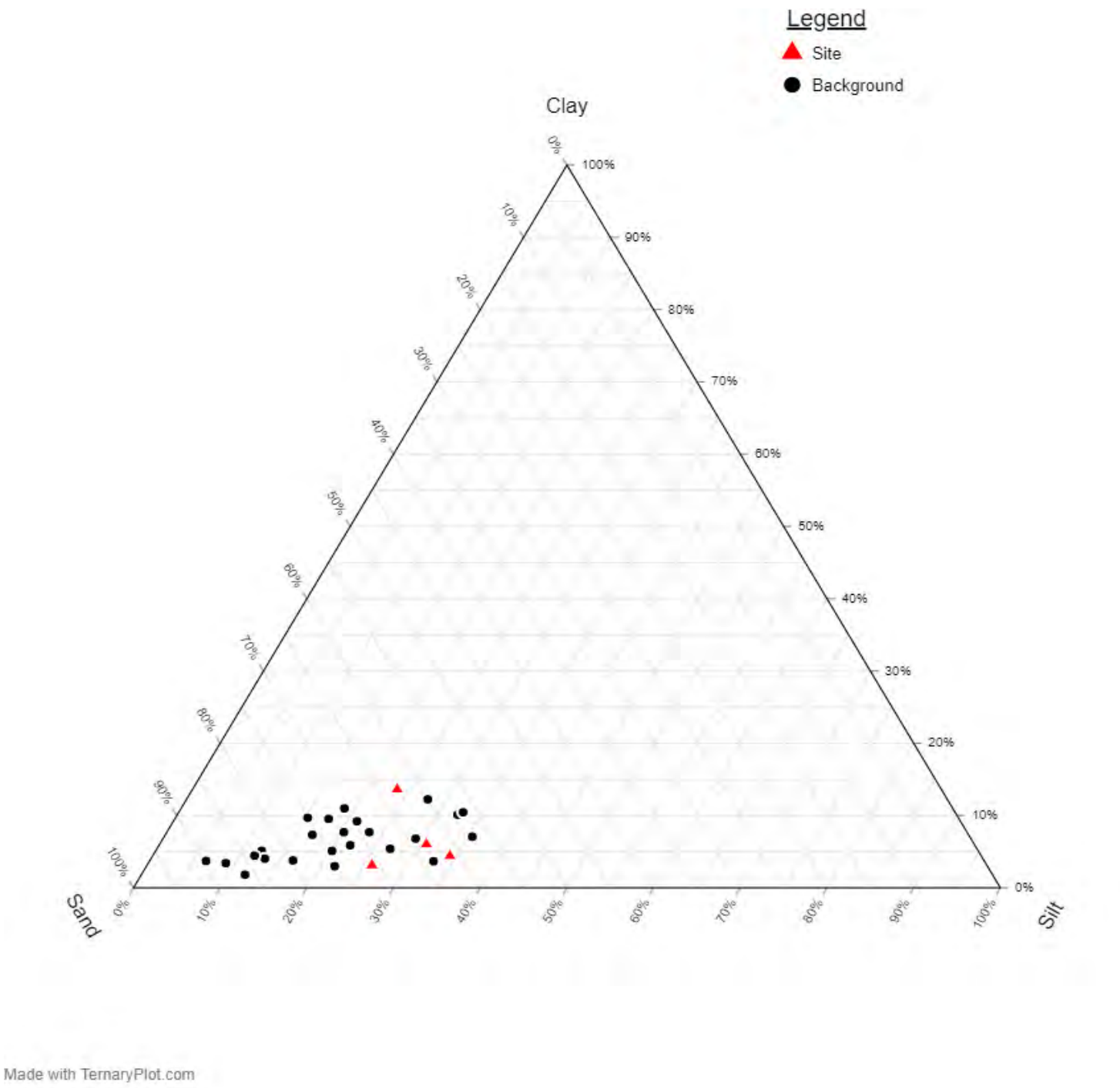
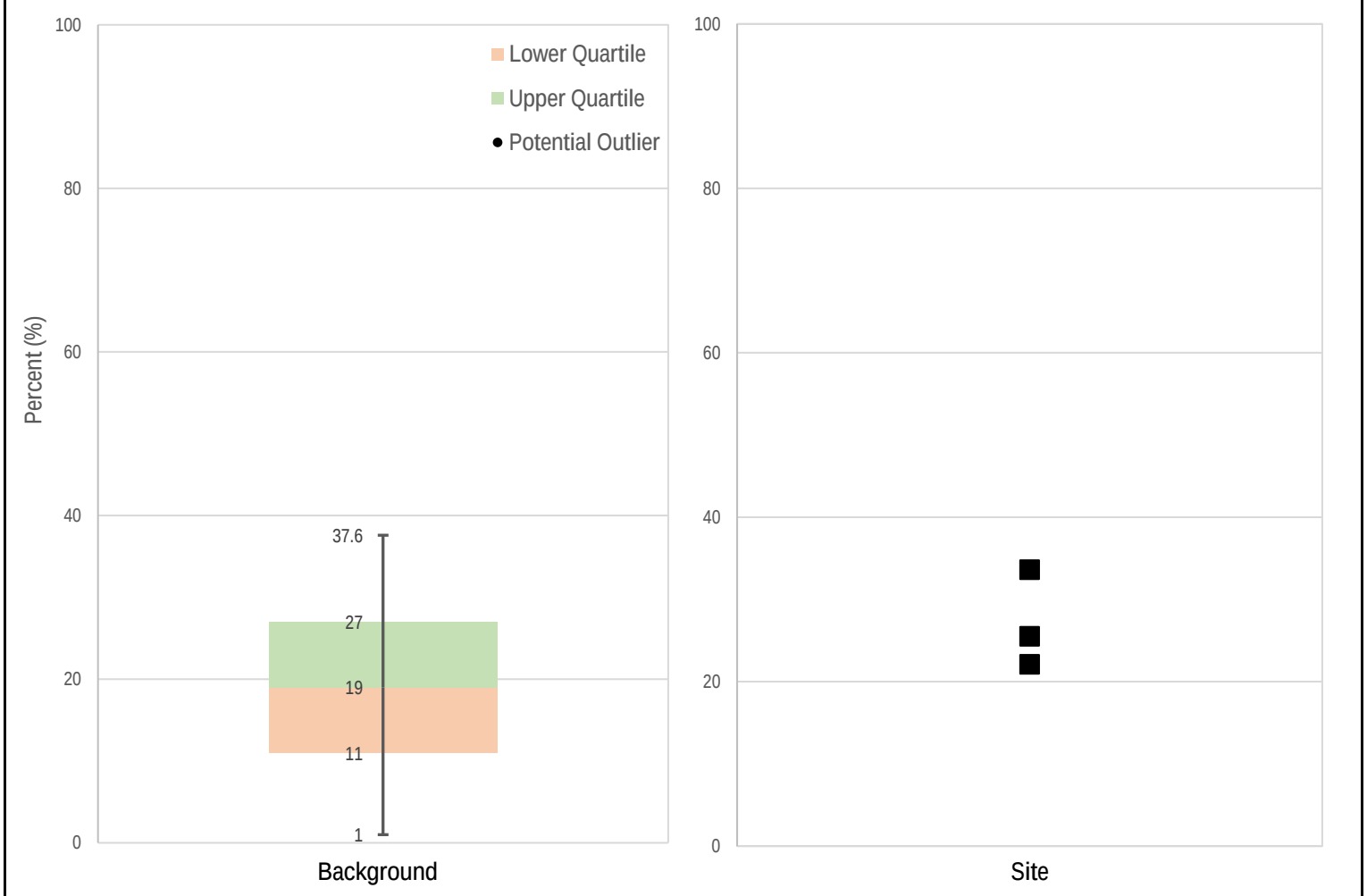


Figure F.2-5
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Silt (Ps)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Silt |
|---|
| Sorted Sand and Gravel (Ps) |
| Subsurface Soil (1 - 5 ft bgs) |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 24/24 | FOD: | 3/3 |
| Data Distribution: | Normal | Data Distribution: | Normal |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

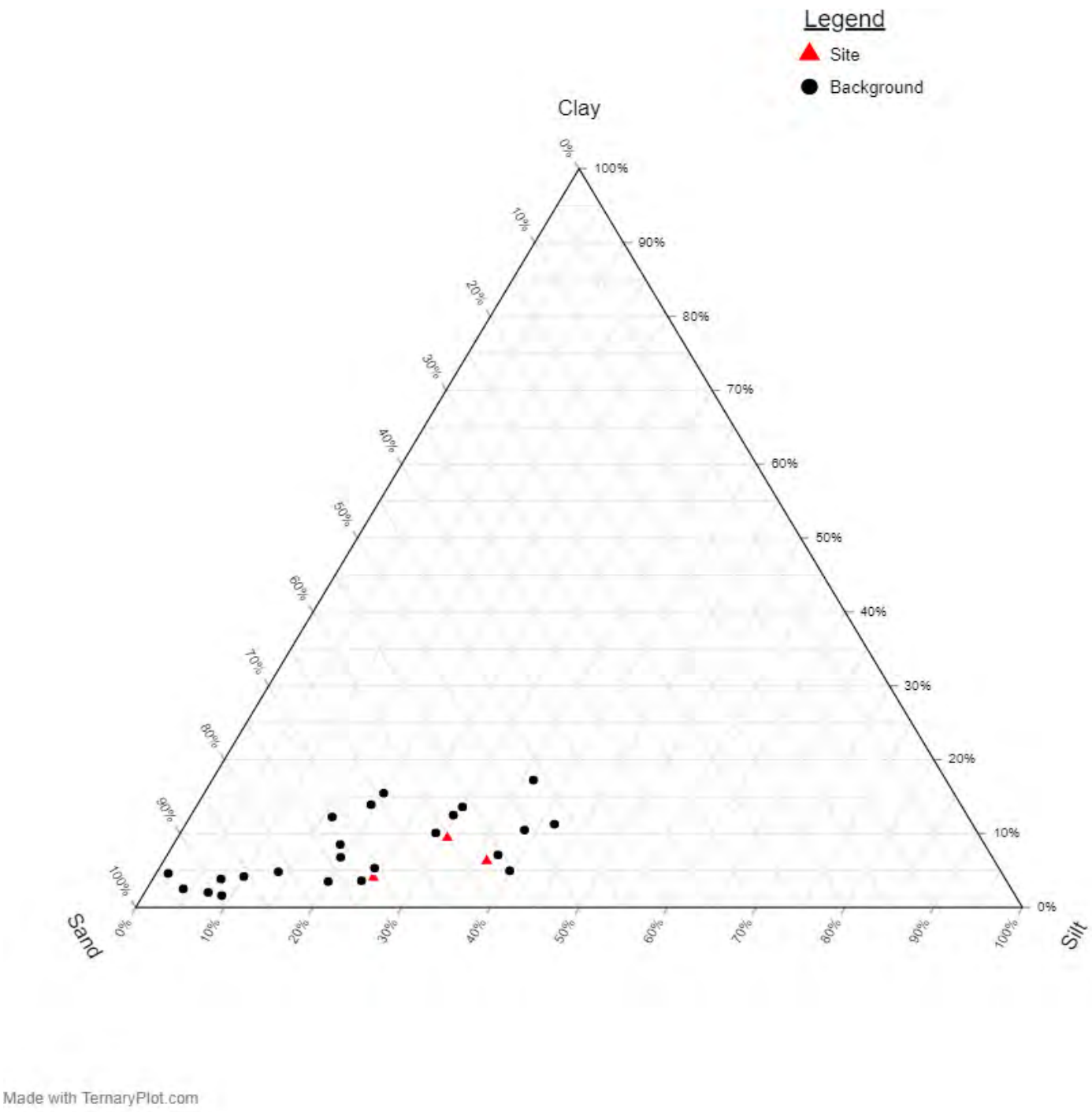
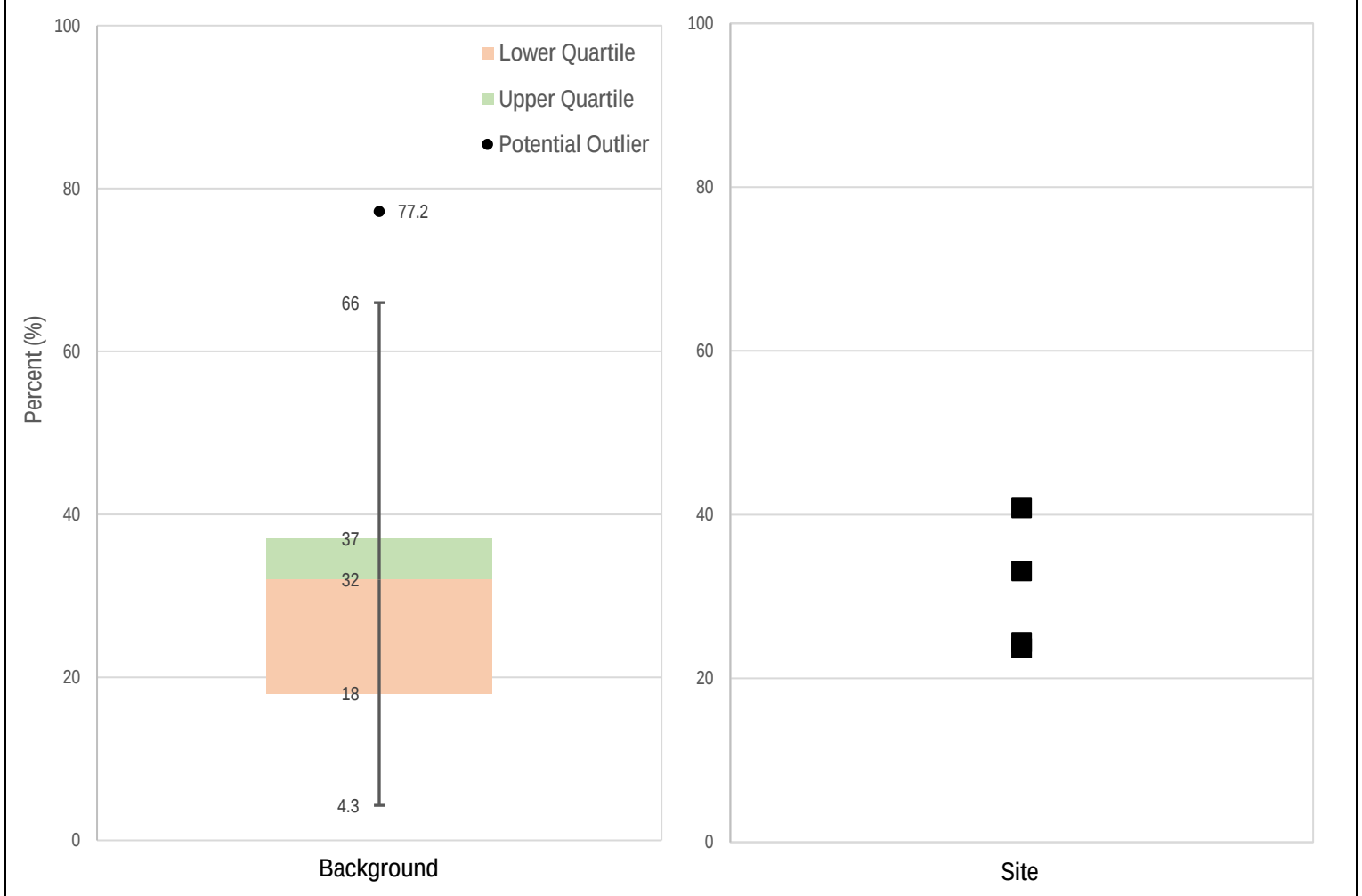


Figure F.2-5
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Silt (Ps)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Silt |
|---|
| Sorted Sand and Gravel (Ps) |
| Subsurface Soil (5 - 10 ft bgs) |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 24/24 | FOD: | 4/4 |
| Data Distribution: | Normal | Data Distribution: | Normal |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

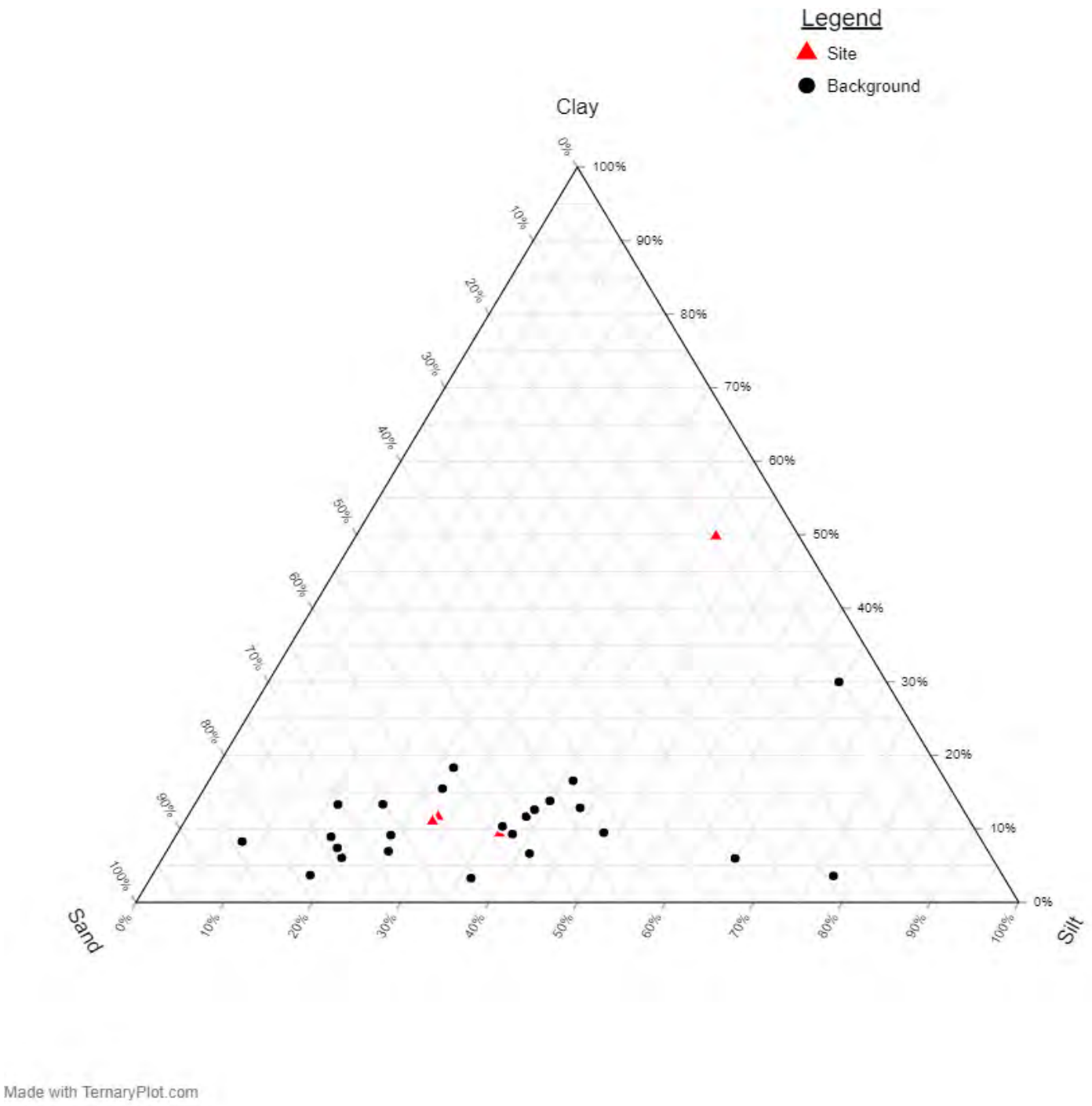
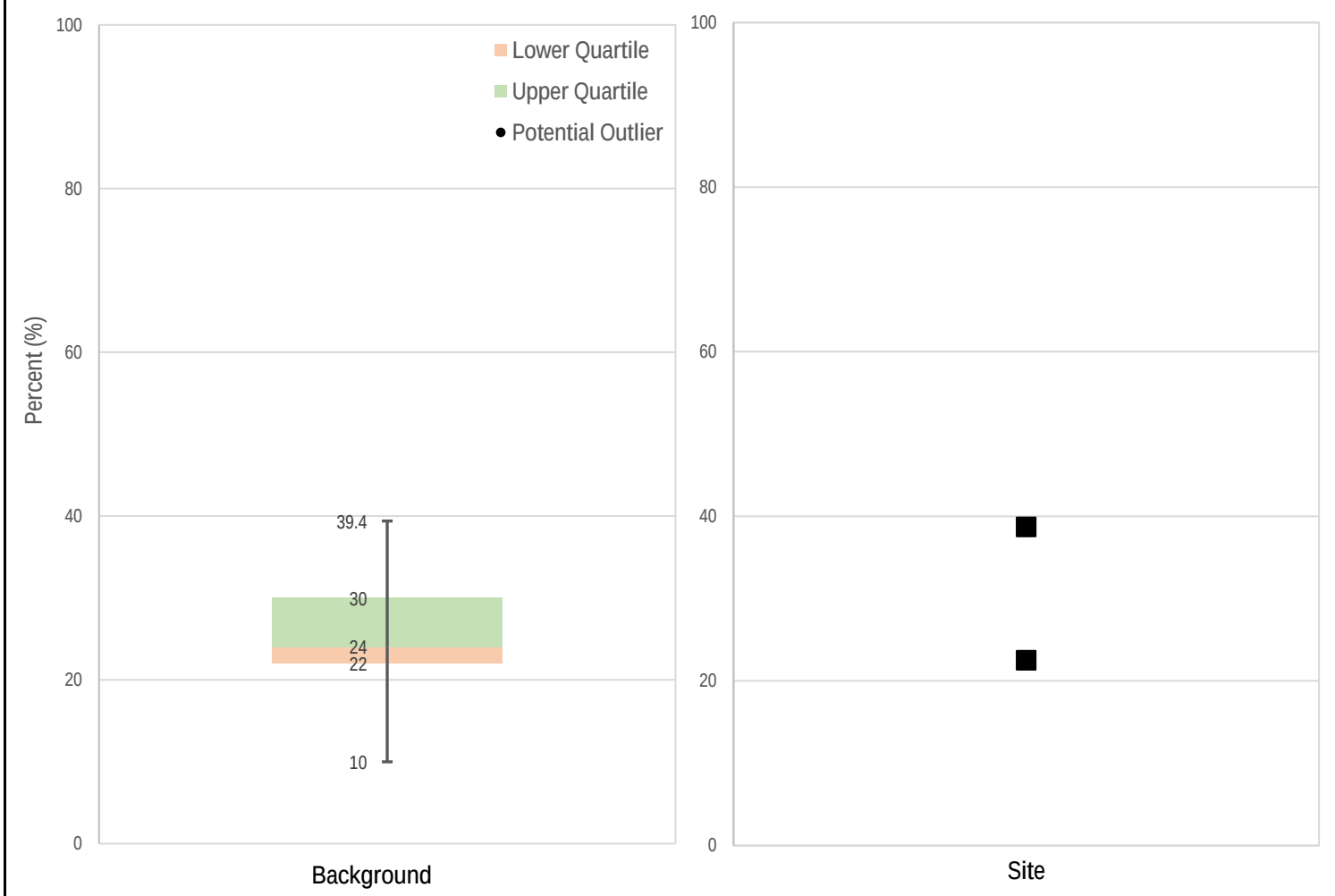


Figure F.2-6
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Silt (Pd)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Silt | |
|---|---|
| Diamicton - Till (Pd) | |
| Surface Soil (0 - 1 ft bgs) | |

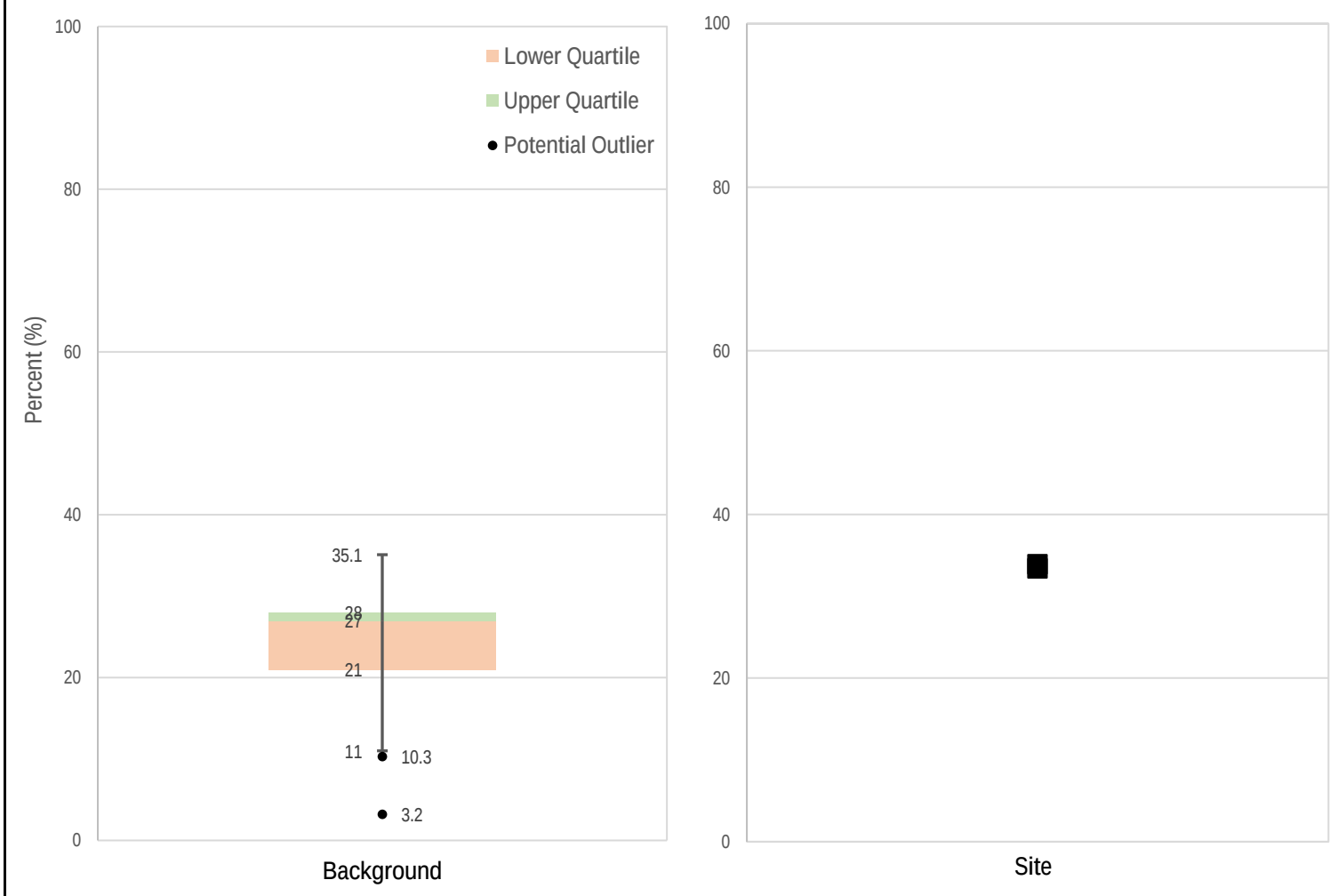



| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 10/11 | FOD: | 2/2 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

Figure F.2-6
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Silt (Pd)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Silt |
|---|
| Diamicton - Till (Pd) |
| Subsurface Soil (1 - 5 ft bgs) |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 11/11 | FOD: | 2/2 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

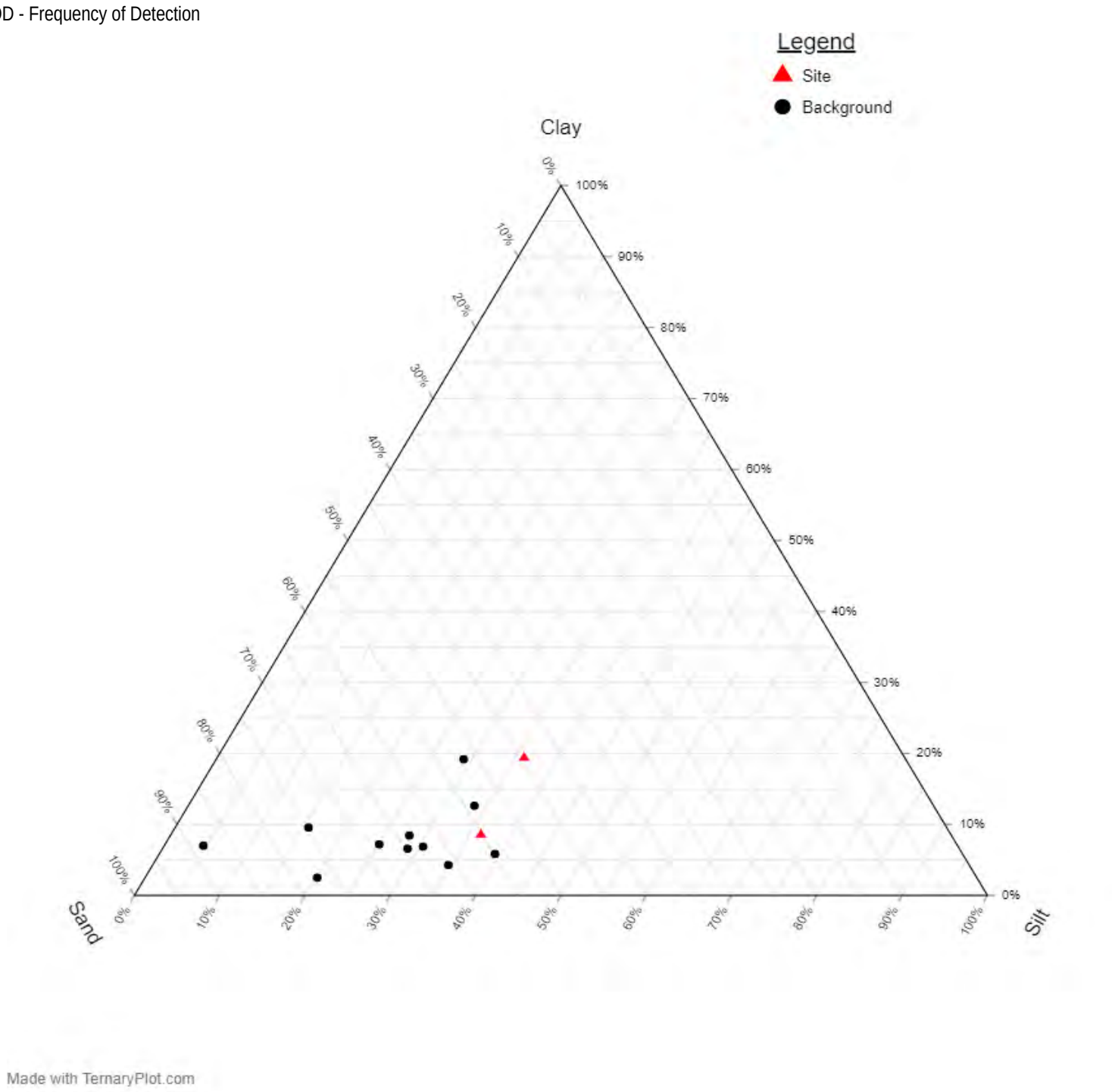
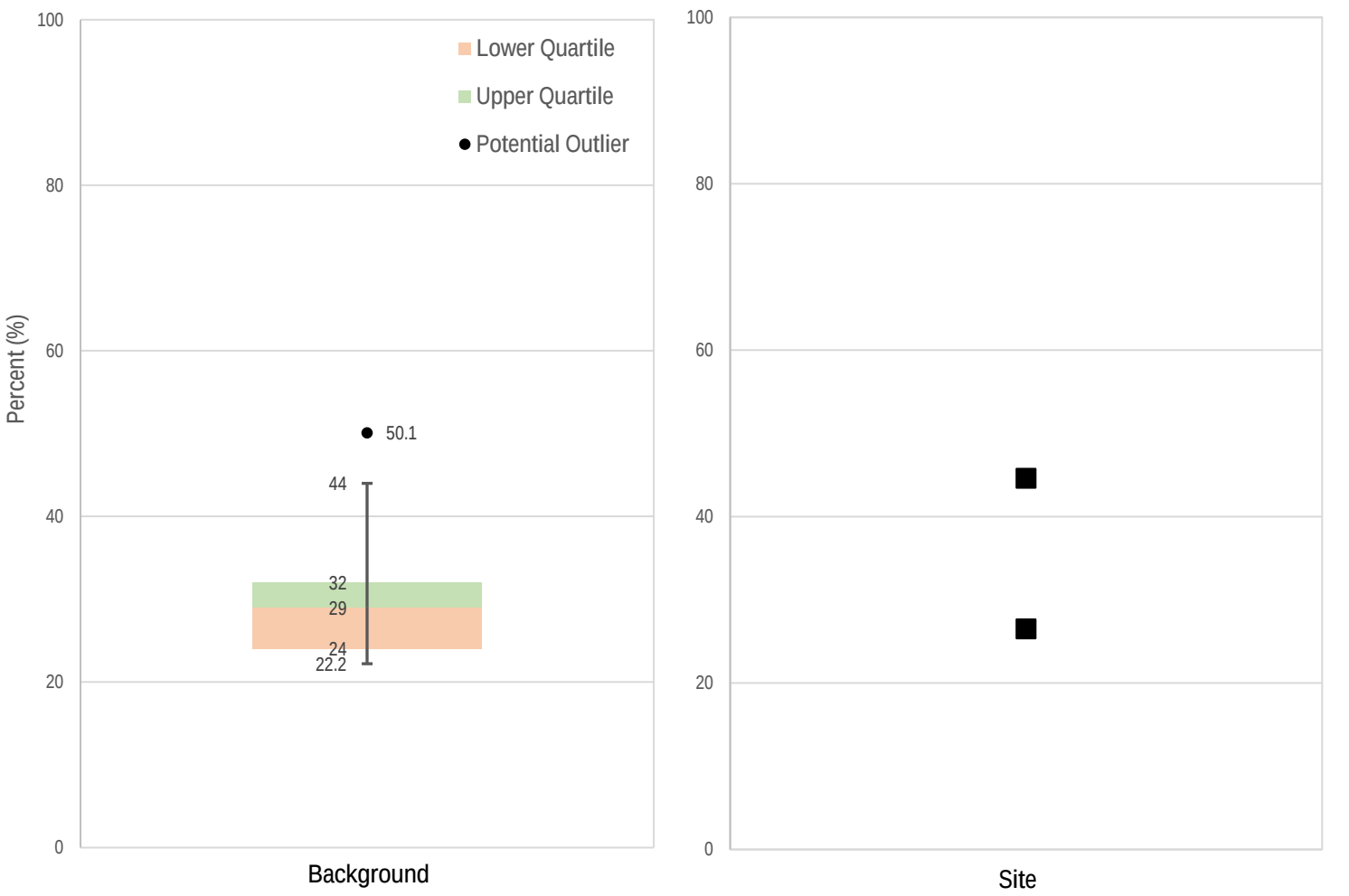


Figure F.2-6
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Silt (Pd)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Silt | |
|---|---|
| Diamicton - Till (Pd) | |
| Subsurface Soil (5 - 10 ft bgs) | |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 11/11 | FOD: | 2/2 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

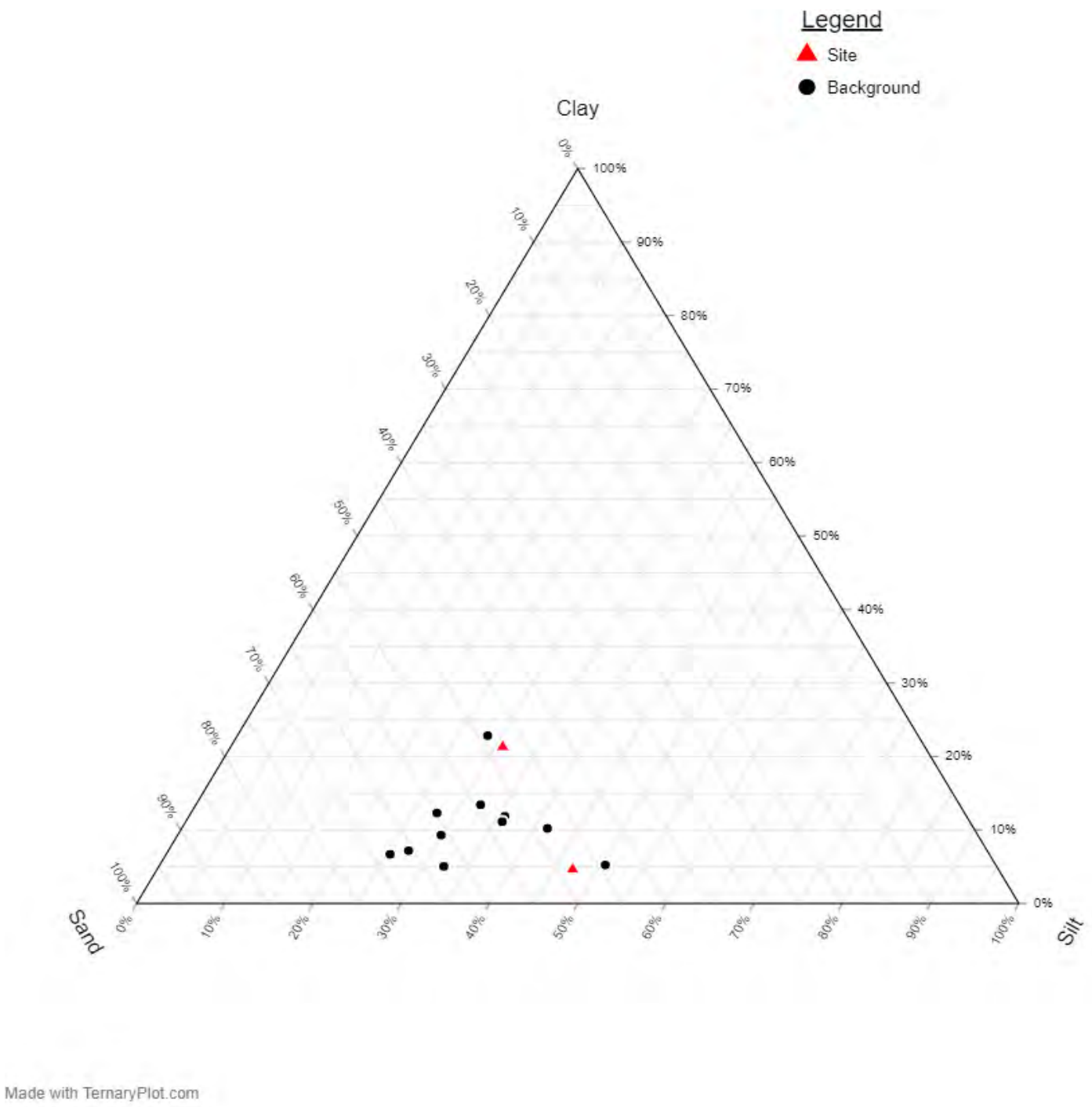
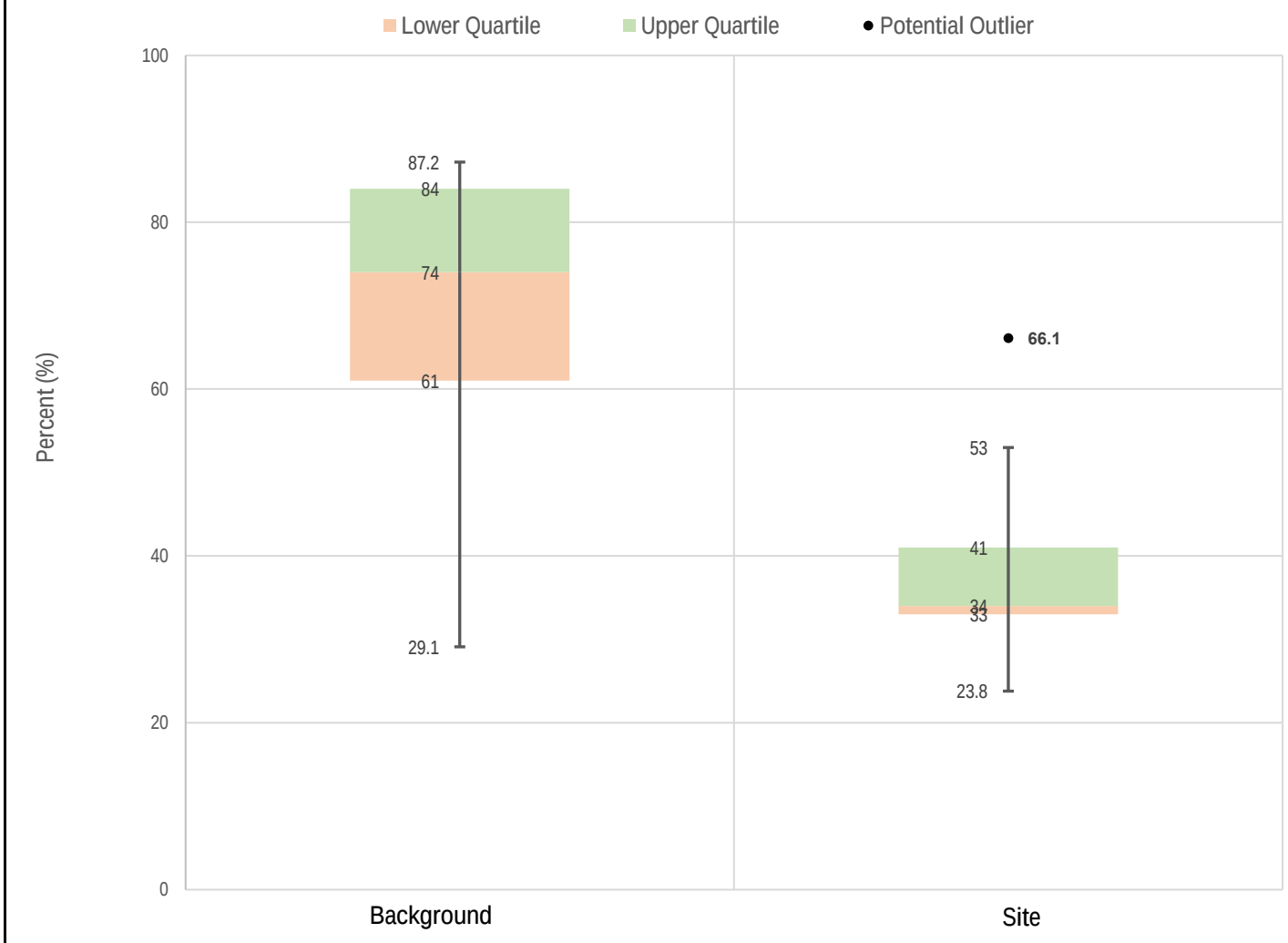


Figure F.2-7
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Sand (Psc)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sand |
|---|
| Lacustrine Silt and Clay (Psc) |
| Surface Soil (0 - 1 ft bgs) |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 8/8 | FOD: | 10/10 |
| Data Distribution: | Normal | Data Distribution: | Normal |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

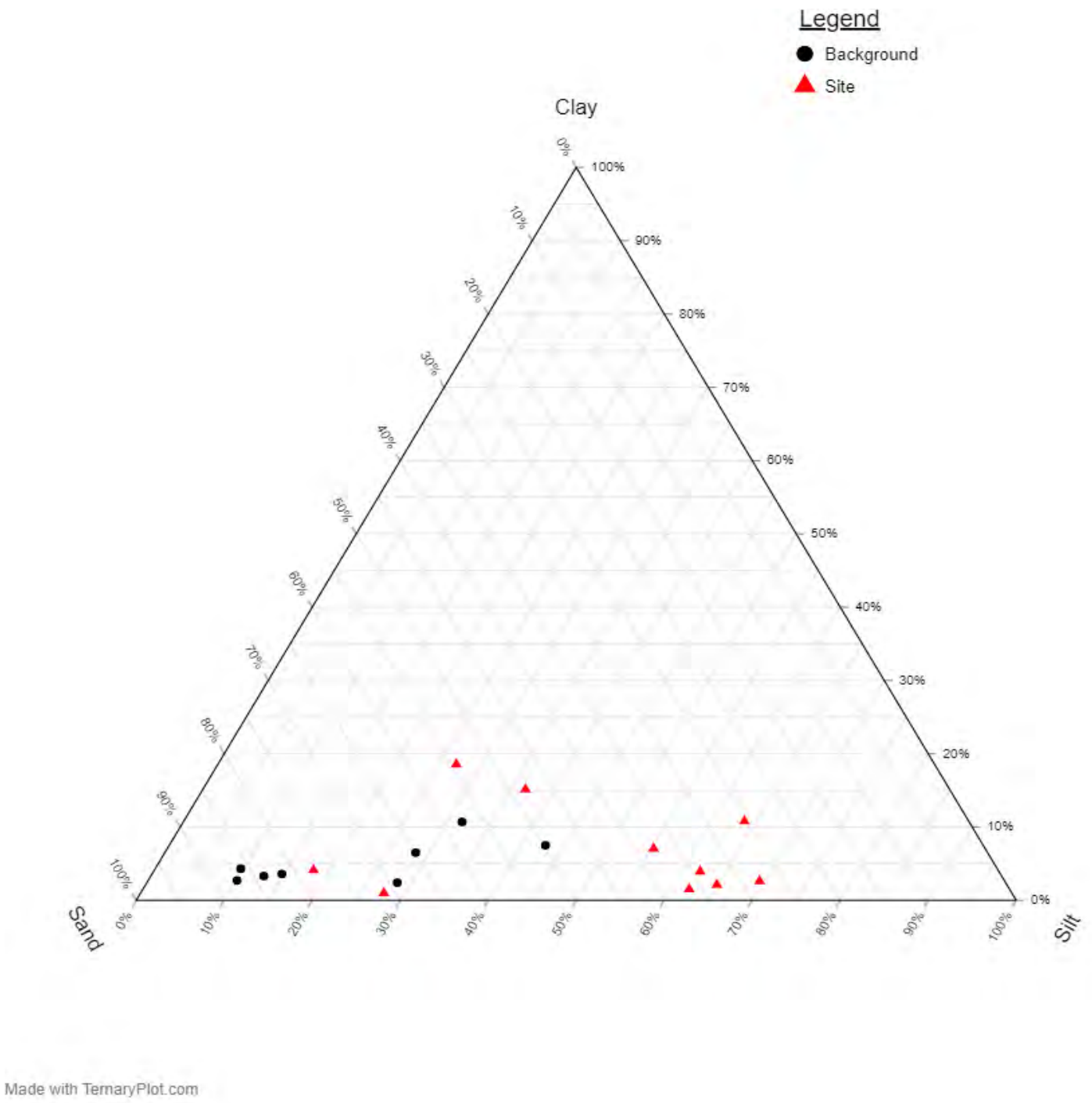
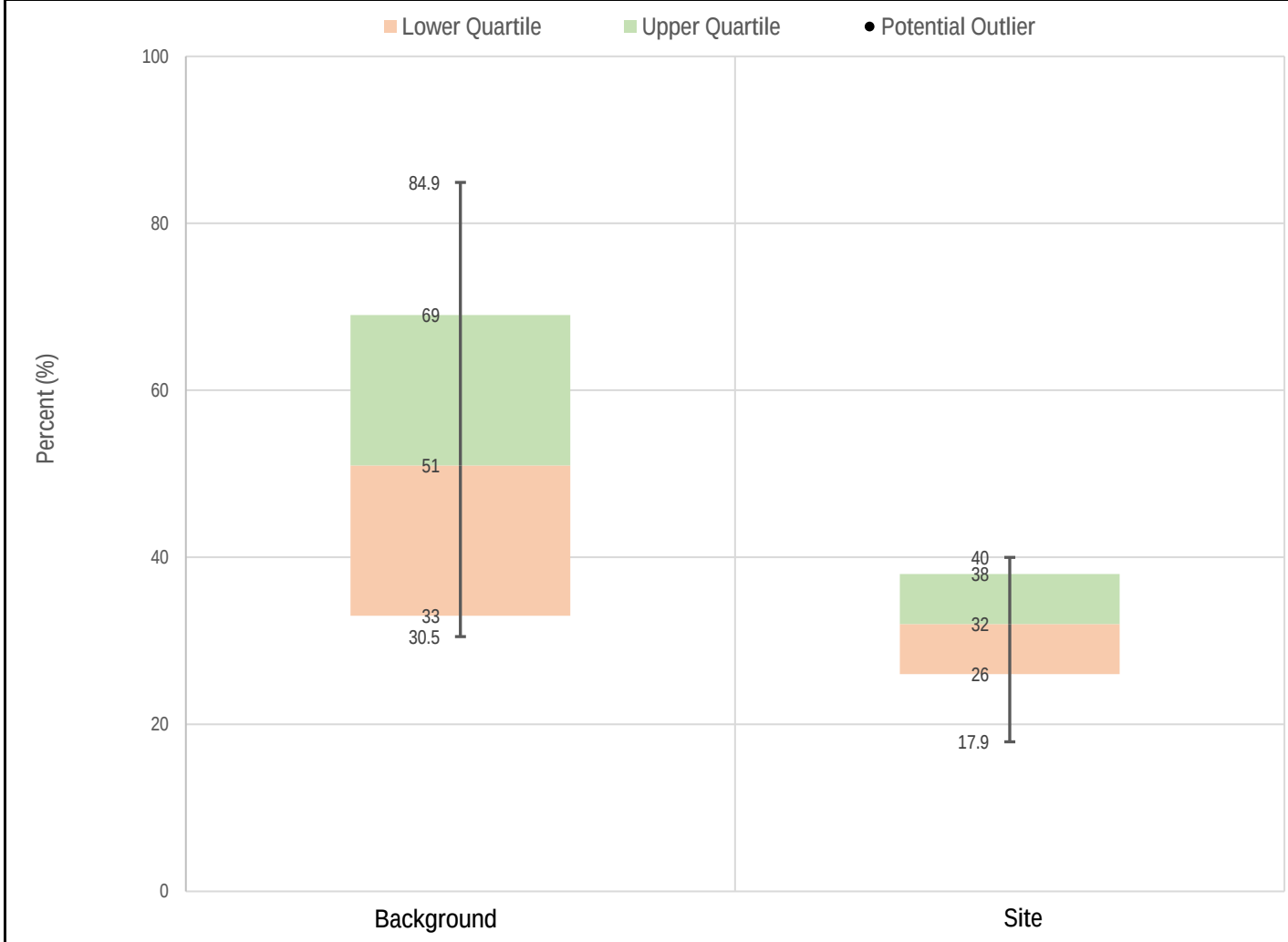


Figure F.2-7
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Sand (Psc)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sand |
|---|
| Lacustrine Silt and Clay (Psc) |
| Subsurface Soil (1 - 5 ft bgs) |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 8/8 | FOD: | 10/10 |
| Data Distribution: | Normal | Data Distribution: | Normal |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

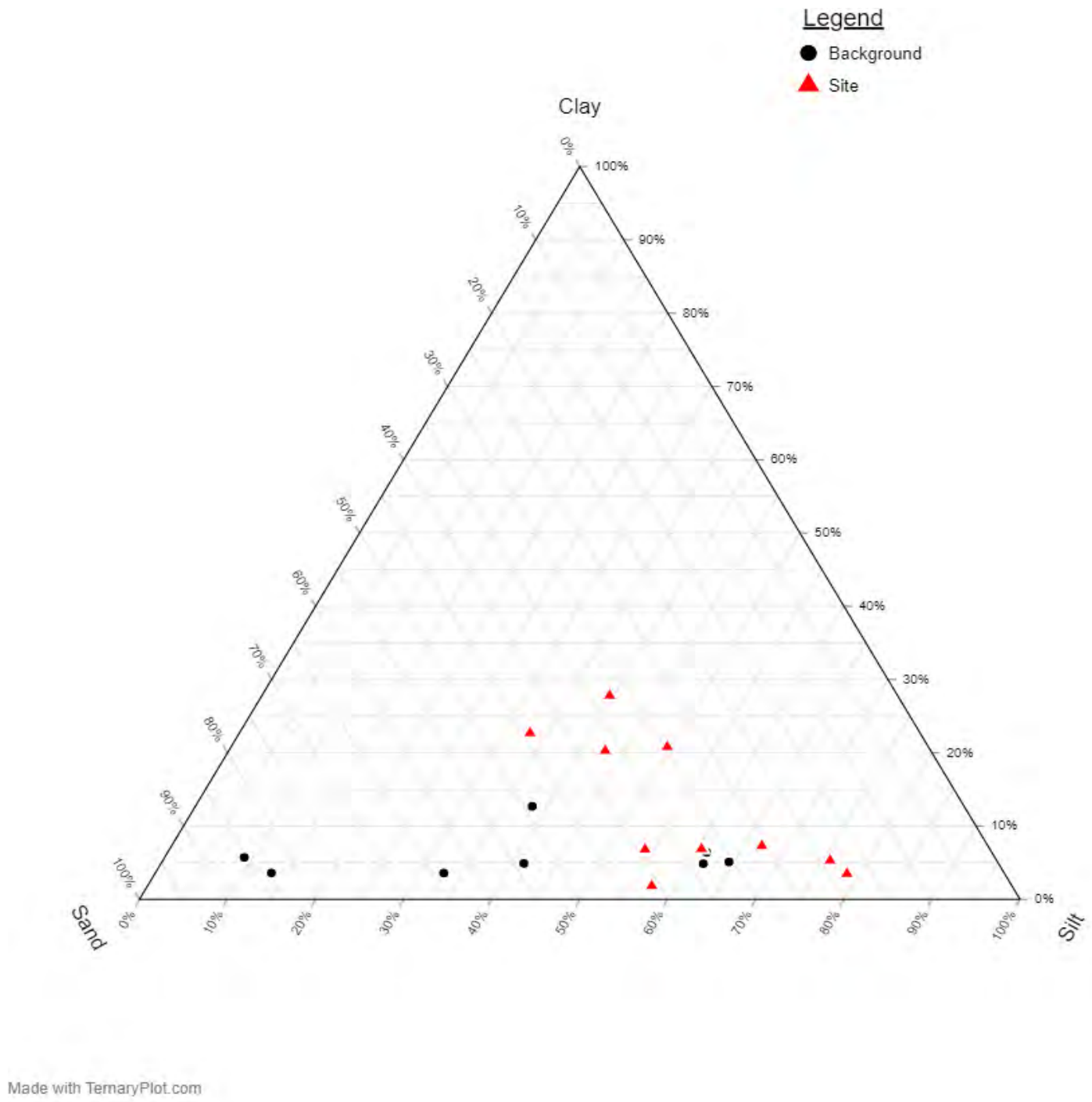
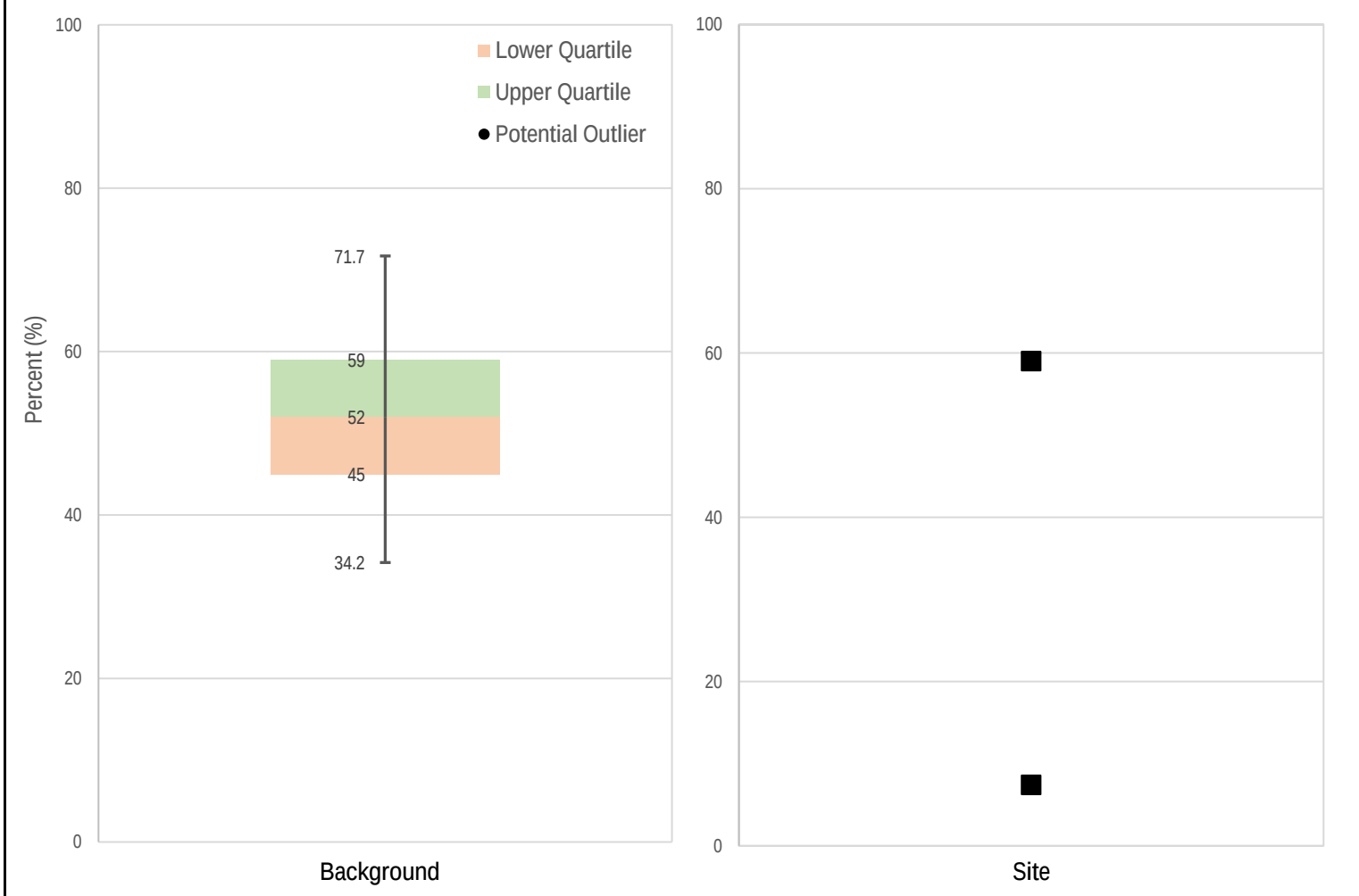


Figure F.2-7
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Sand (Psc)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sand |
|---|
| Lacustrine Silt and Clay (Psc) |
| Subsurface Soil (5 - 10 ft bgs) |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 8/8 | FOD: | 2/2 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

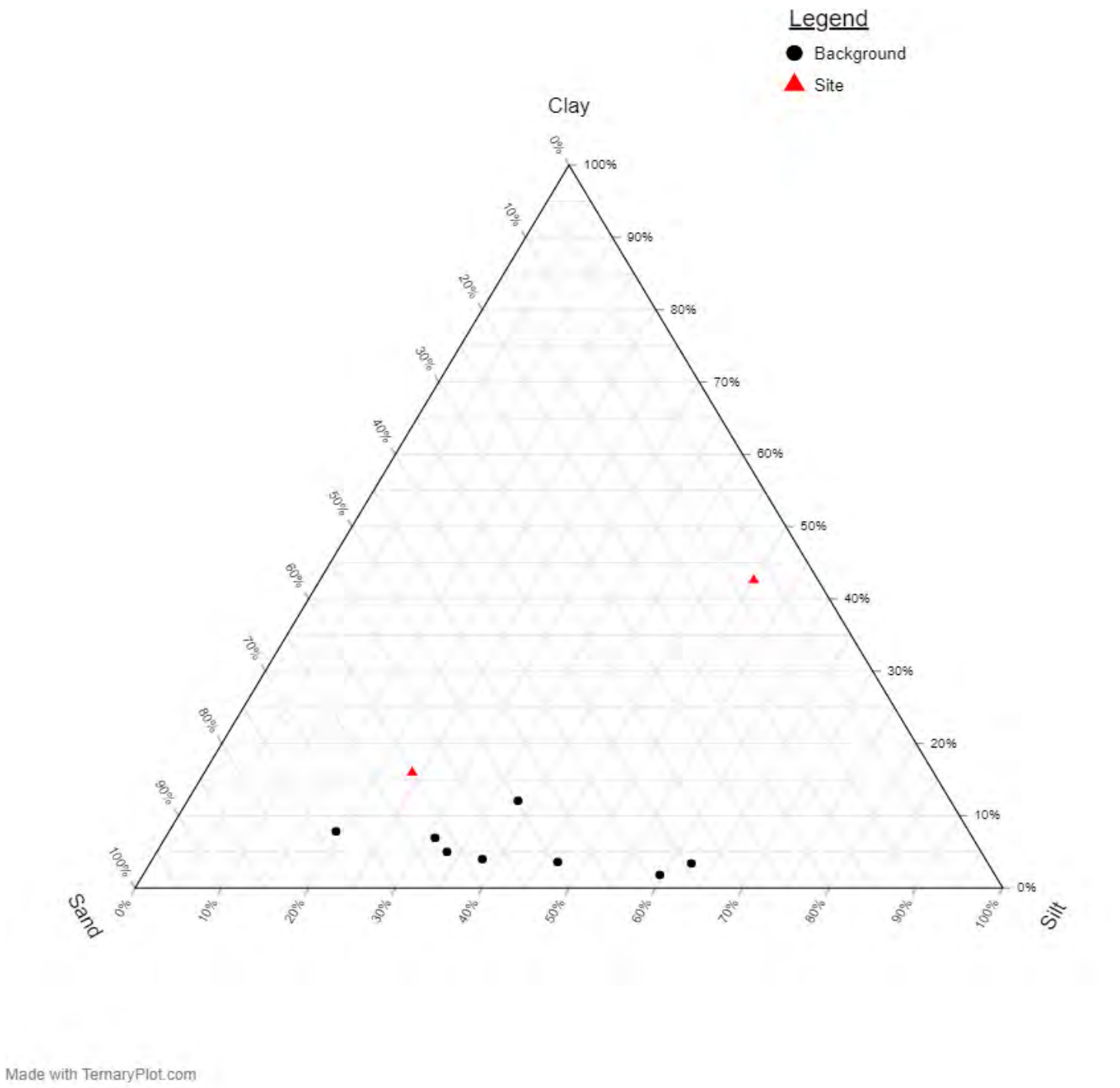
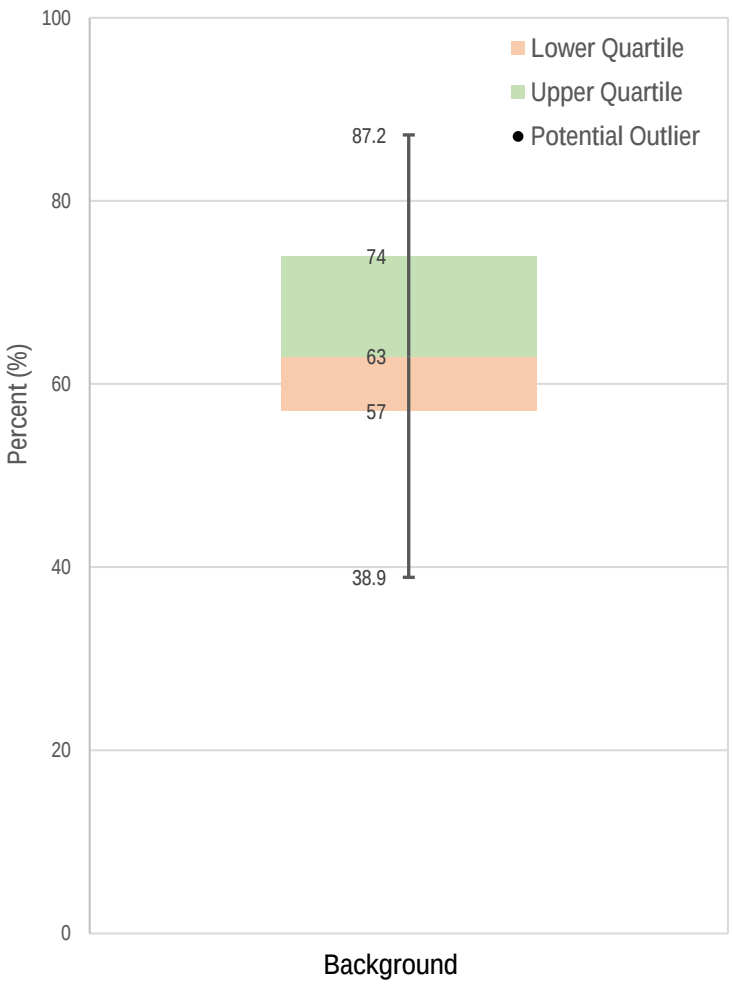
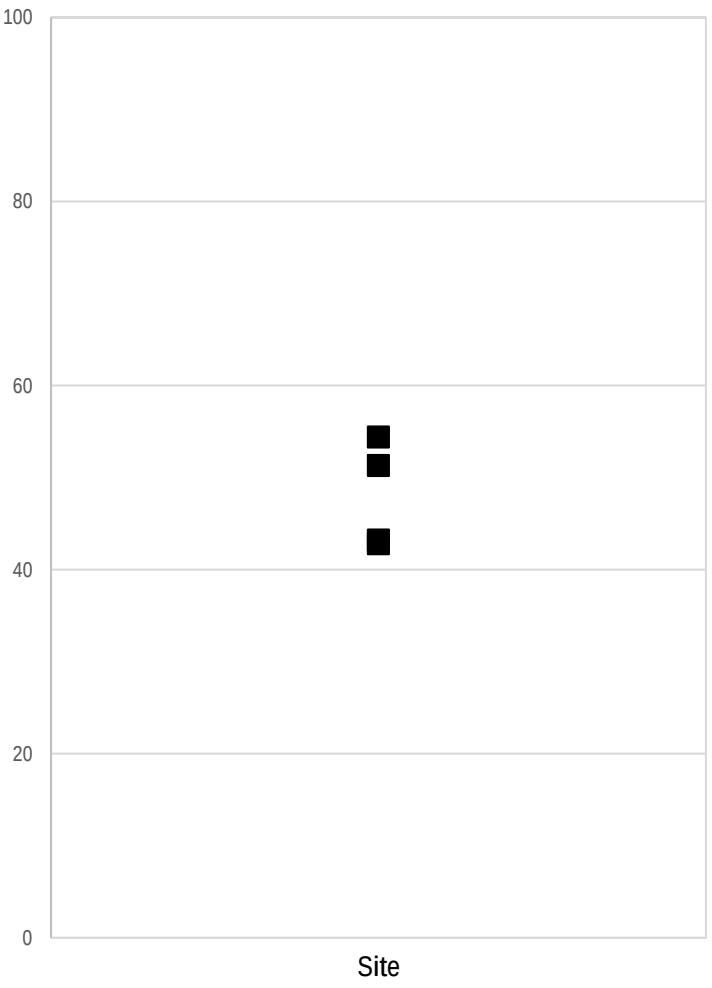


Figure F.2-8
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Sand (Ps)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sand | |
|---|---|
| Sorted Sand and Gravel (Ps) | |
| Surface Soil (0 - 1 ft bgs) | |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 24/24 | FOD: | 4/4 |
| Data Distribution: | Normal | Data Distribution: | Normal |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

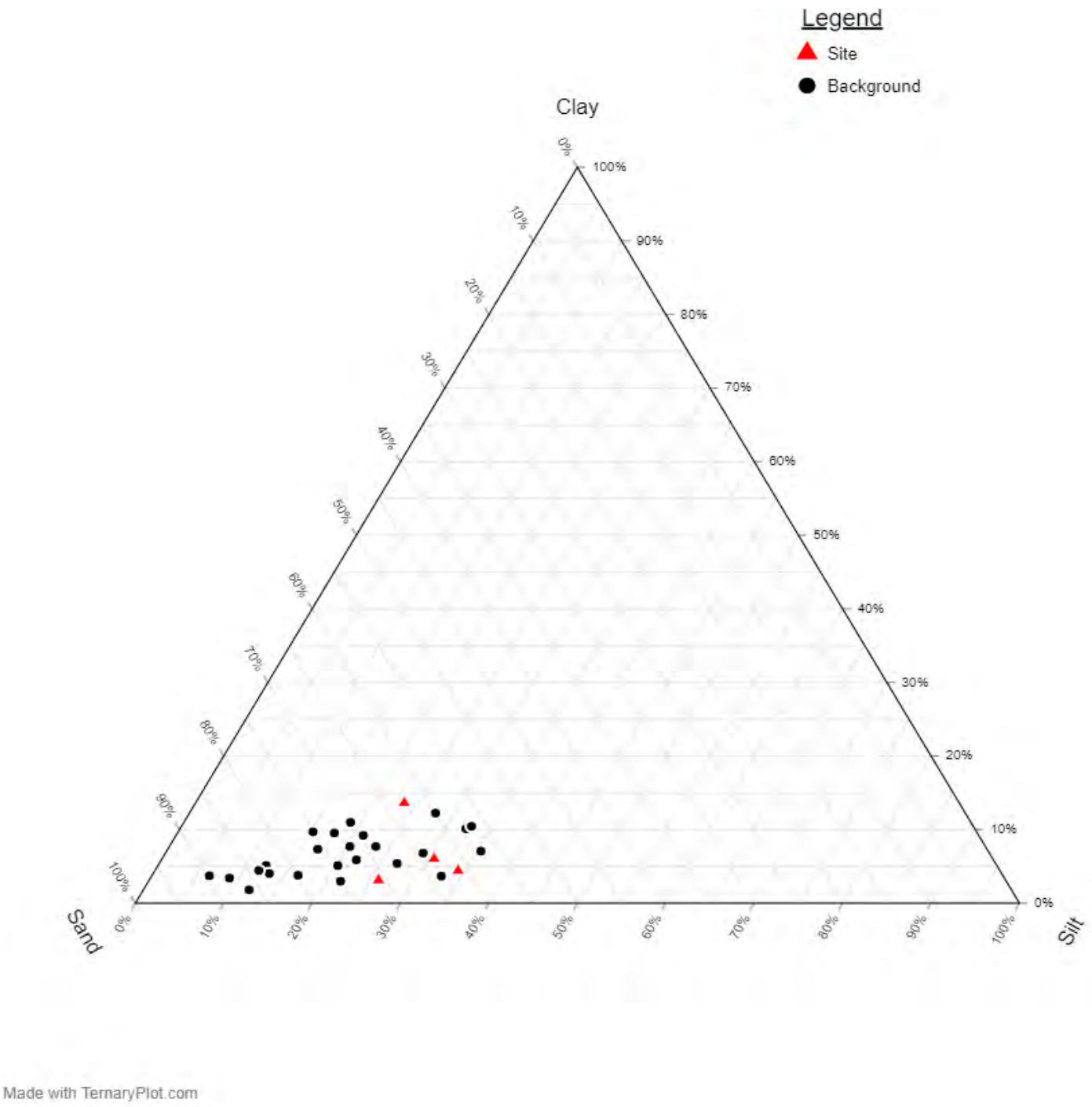
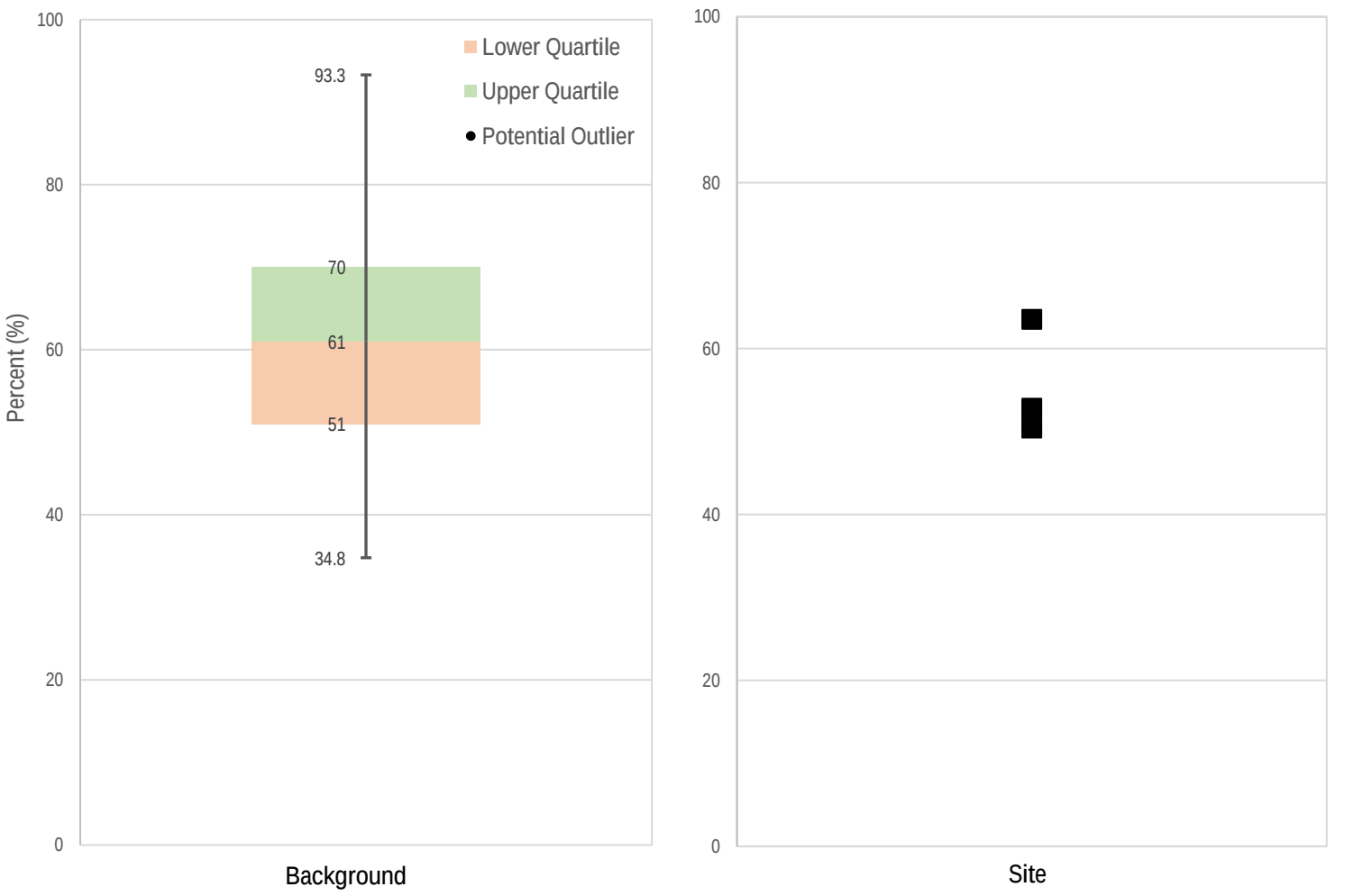


Figure F.2-8
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Sand (Ps)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sand |
|---|
| Sorted Sand and Gravel (Ps) |
| Subsurface Soil (1 - 5 ft bgs) |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 23/23 | FOD: | 3/3 |
| Data Distribution: | Normal | Data Distribution: | Normal |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

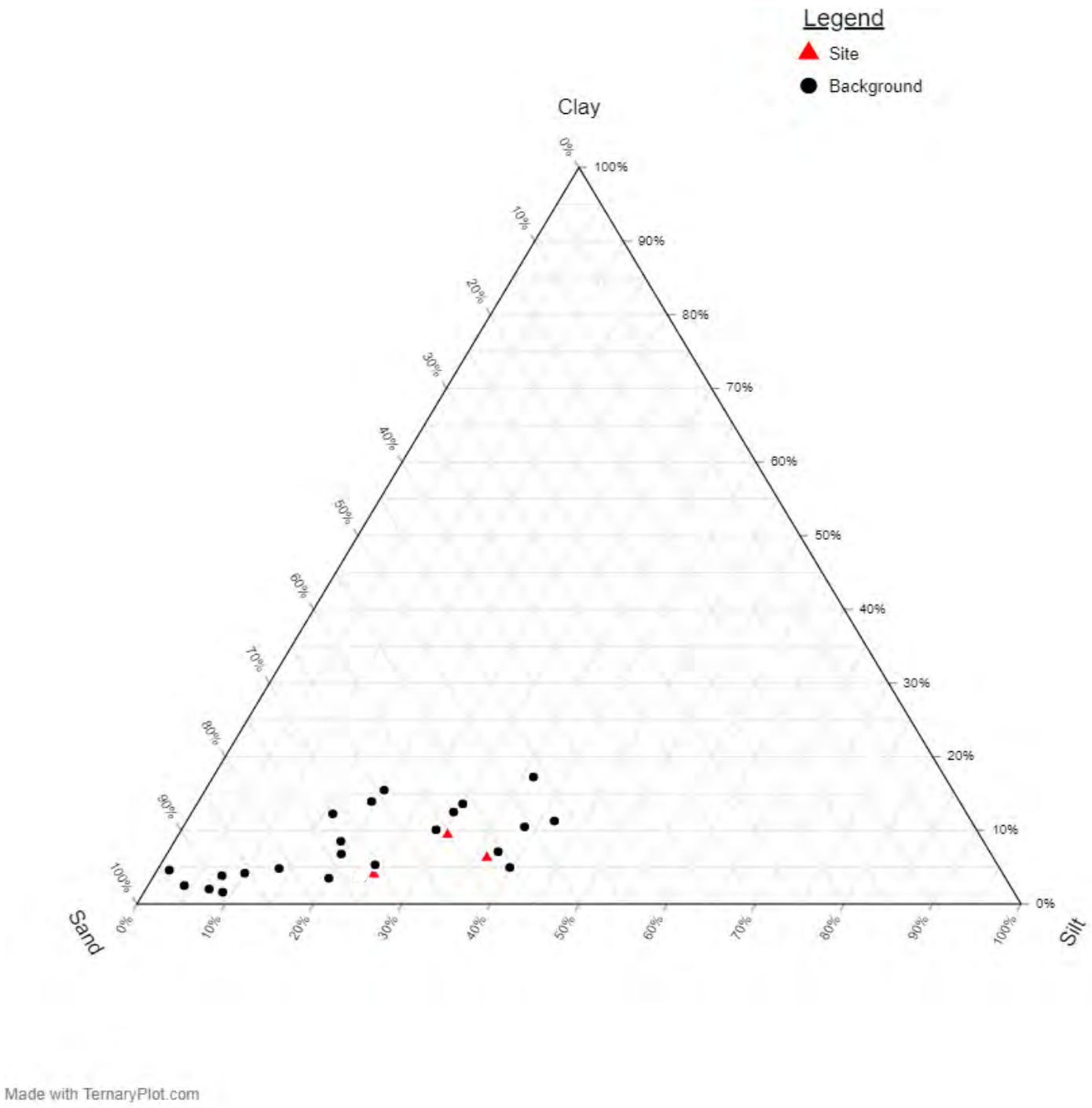
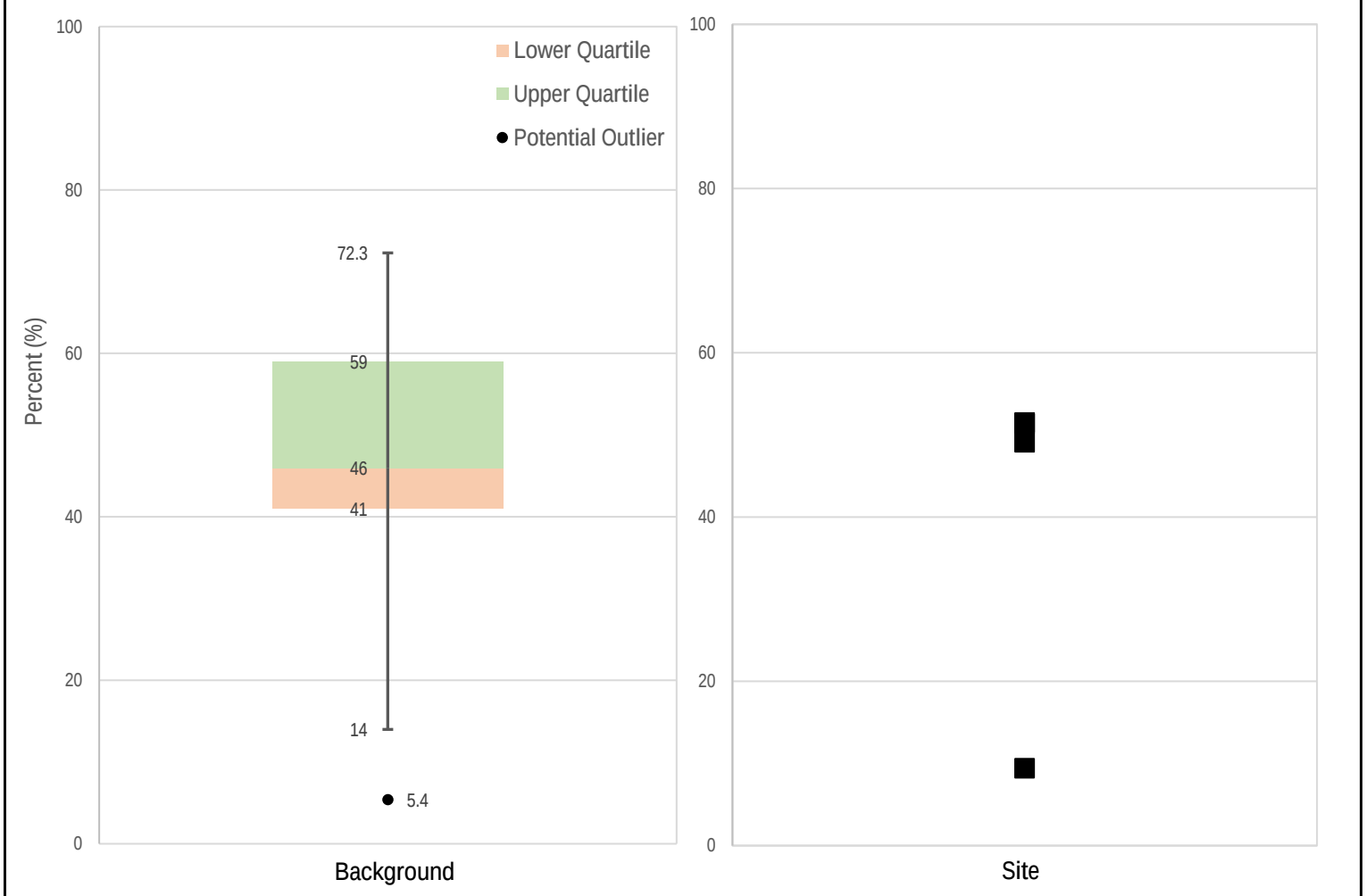


Figure F.2-8
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Sand (Ps)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sand |
|---|
| Sorted Sand and Gravel (Ps) |
| Subsurface Soil (5 - 10 ft bgs) |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 23/23 | FOD: | 4/4 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

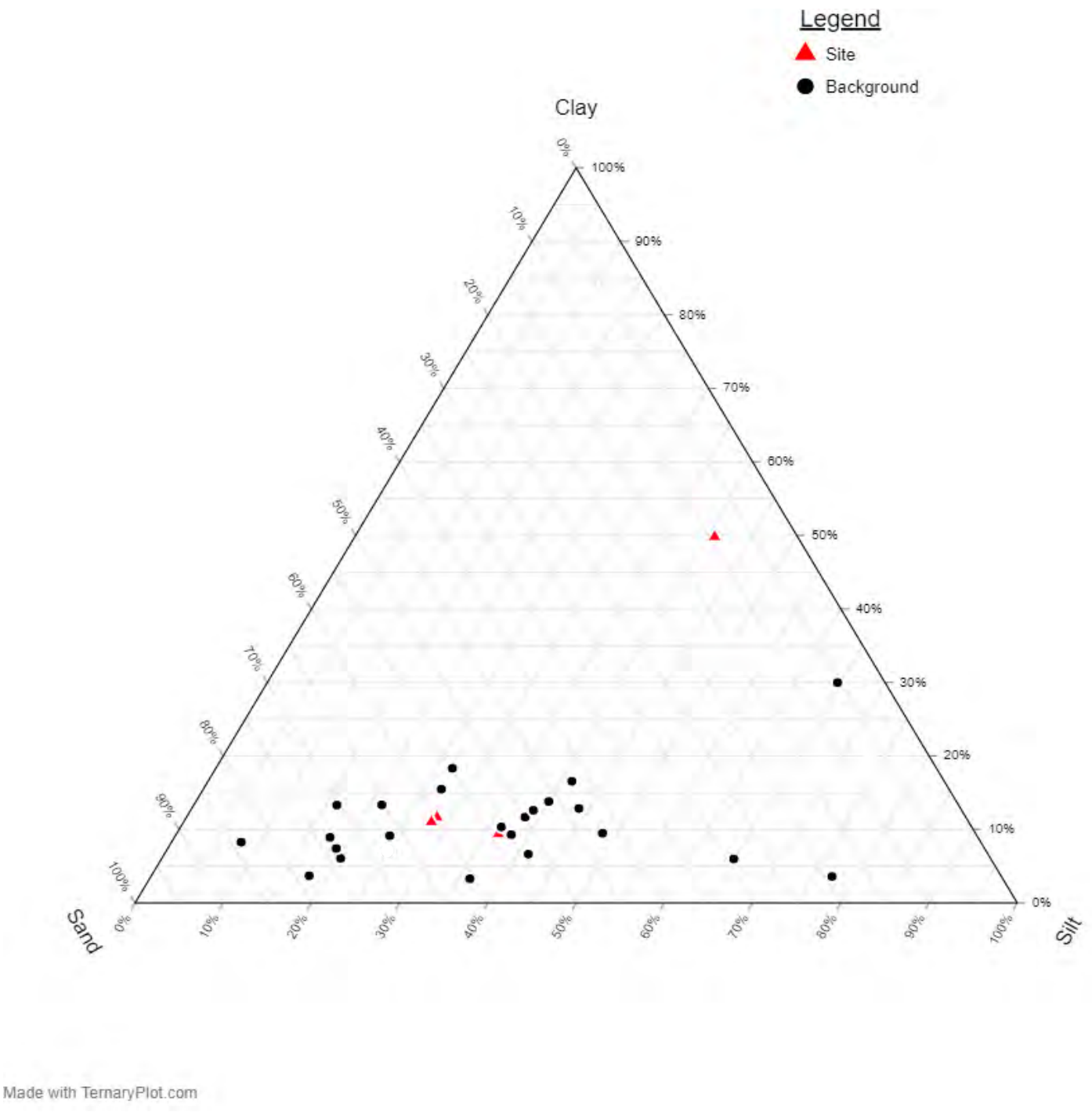
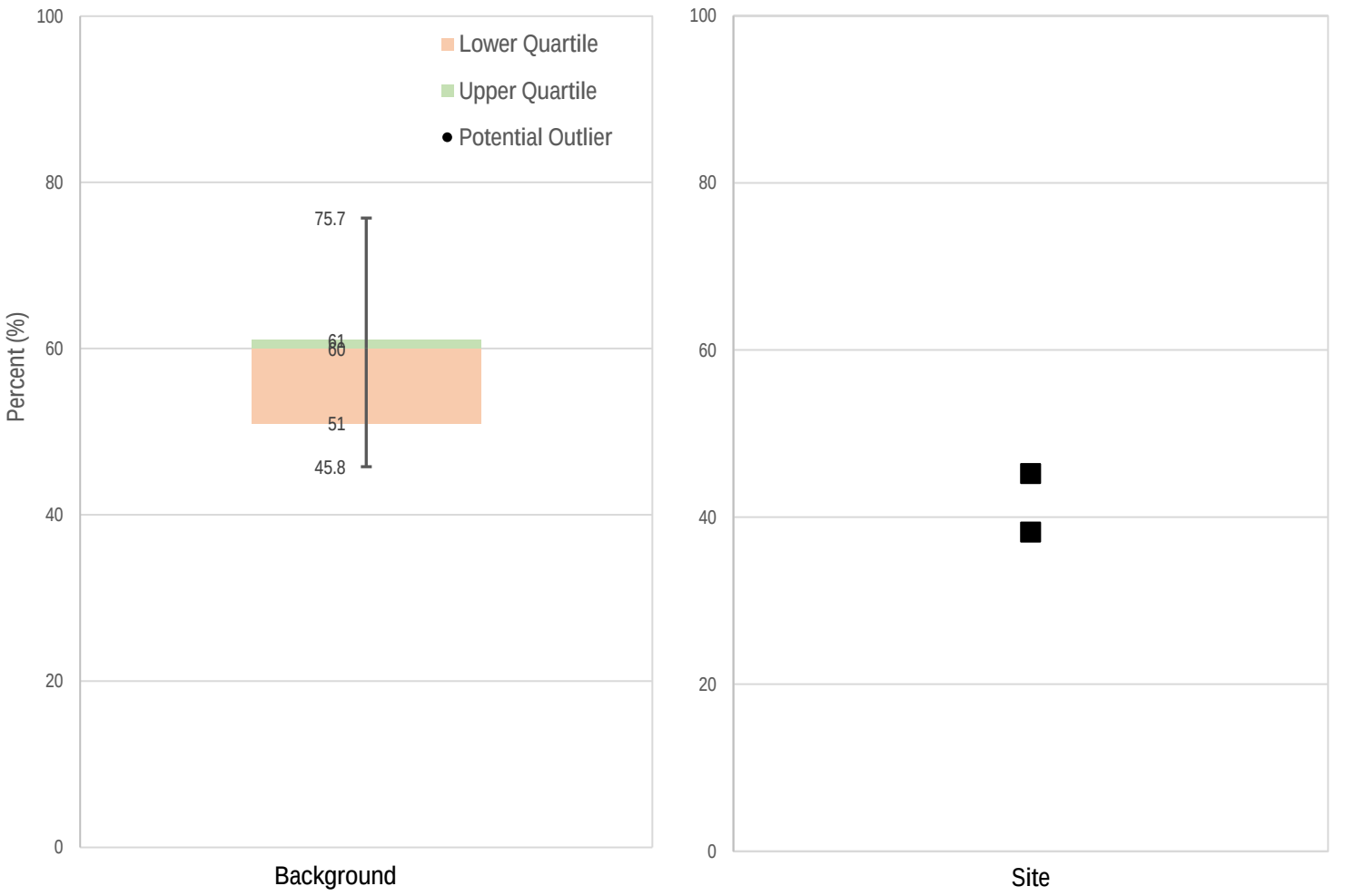


Figure F.2-9
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Sand (Pd)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sand | |
|---|---|
| Diamicton - Till (Pd) | |
| Surface Soil (0 - 1 ft bgs) | |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 11/11 | FOD: | 2/2 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

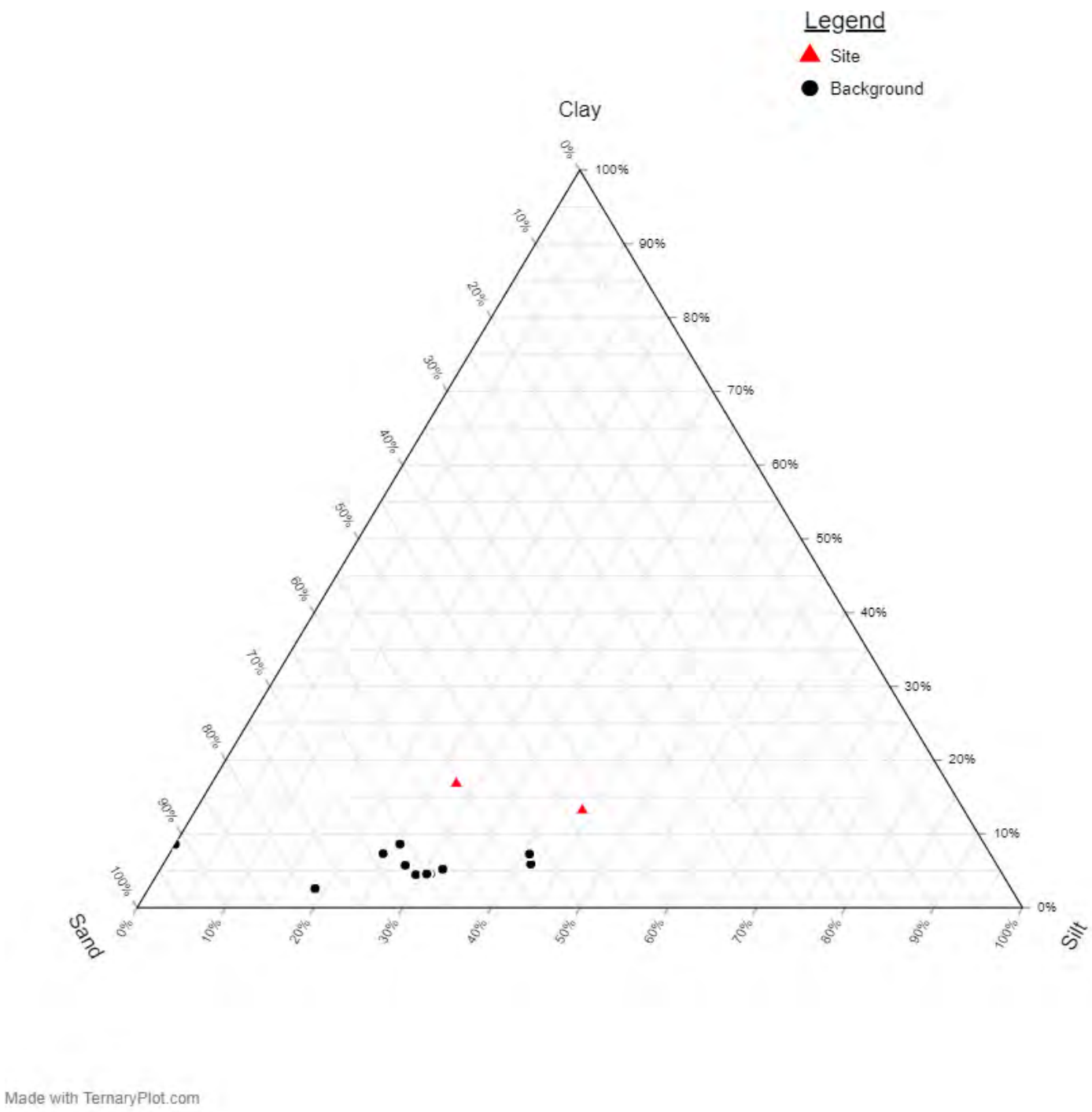
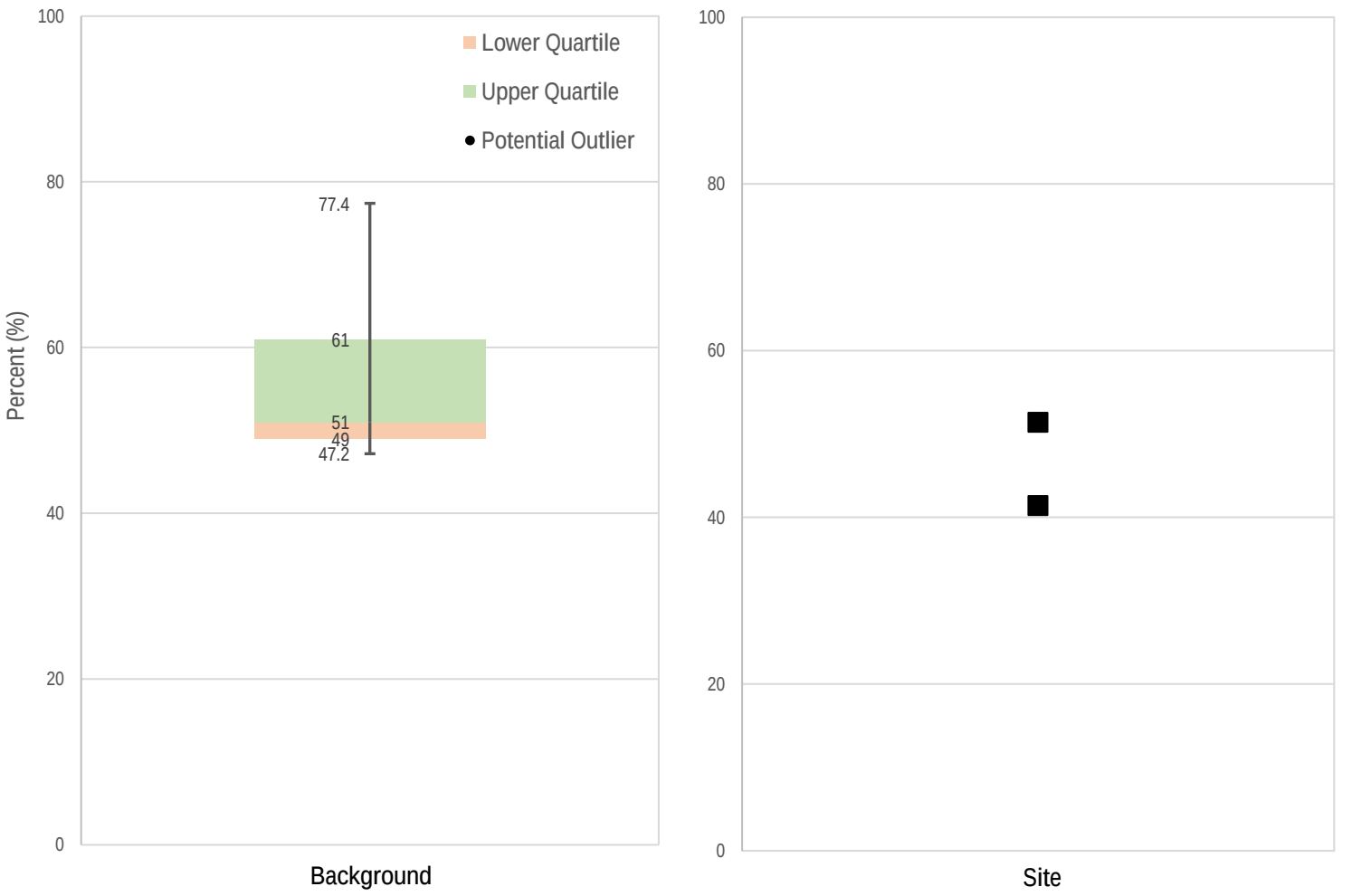


Figure F.2-9
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Sand (Pd)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sand | |
|---|---|
| Diamicton - Till (Pd) | |
| Subsurface Soil (1 - 5 ft bgs) | |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 11/11 | FOD: | 2/2 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection

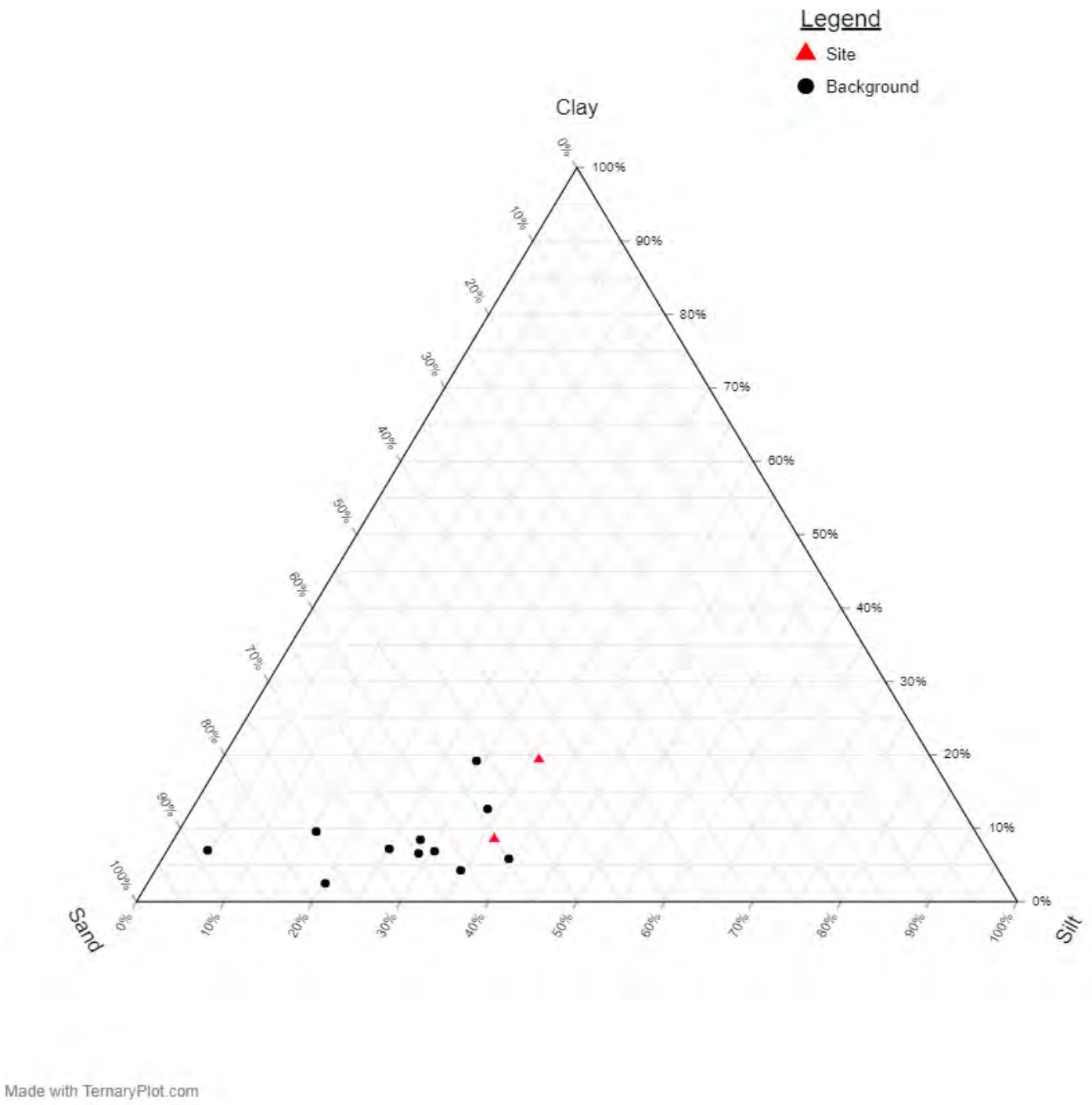
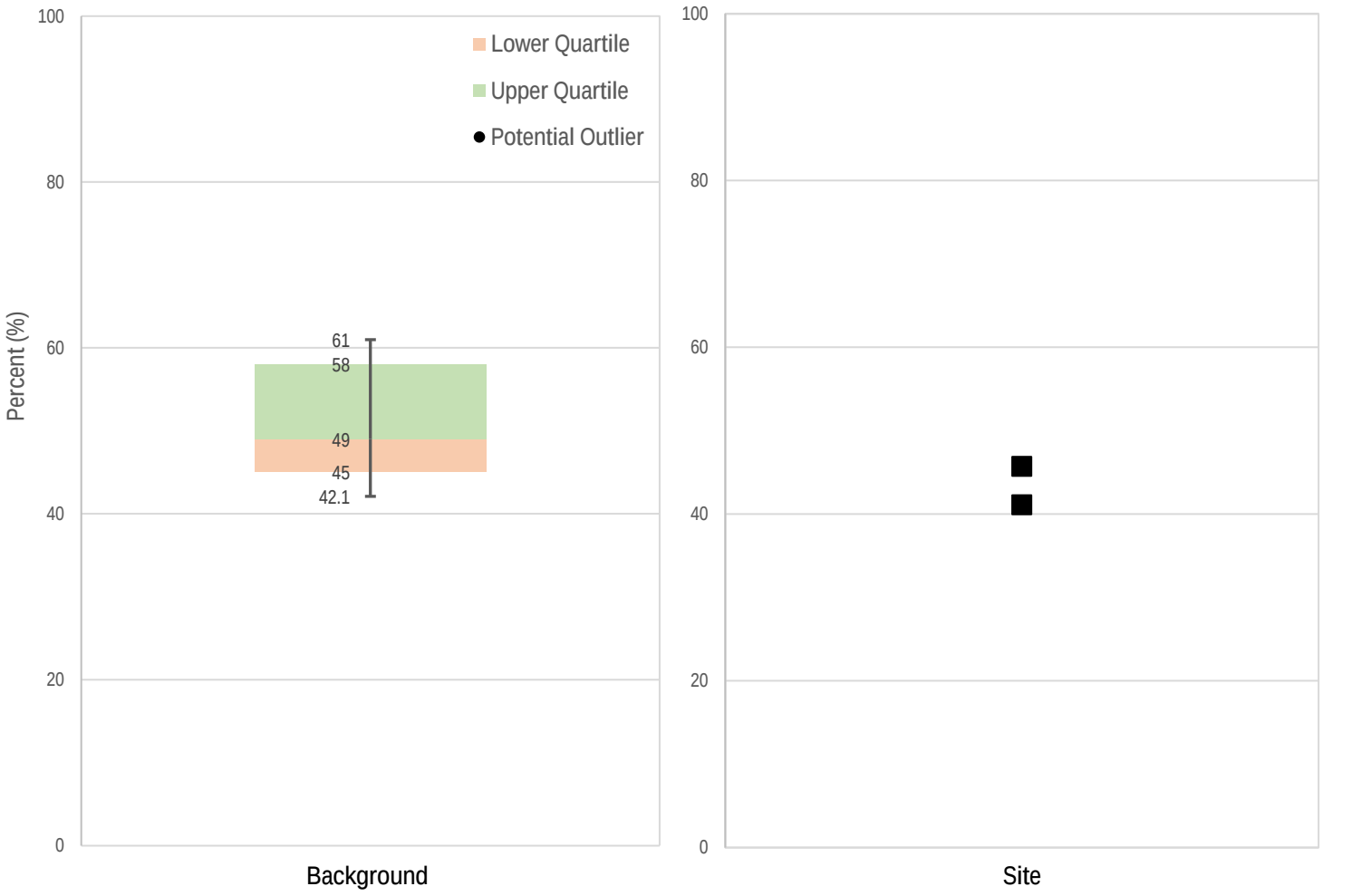


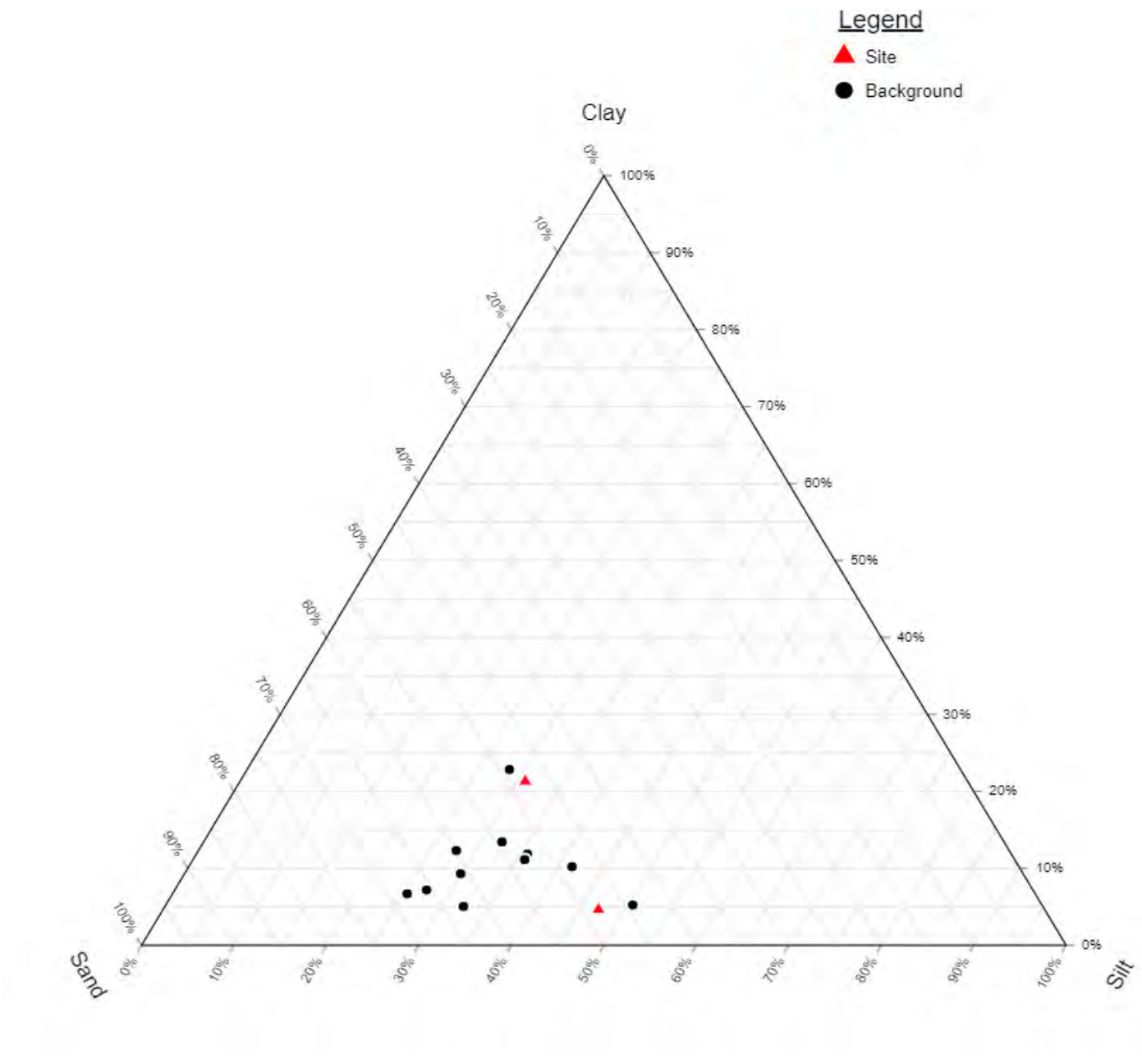
Figure F.2-9
Box Plots and Ternary Charts by Depth Interval - Backround and Site Data, Sand (Pd)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sand |
|---|
| Diamicton - Till (Pd) |
| Subsurface Soil (5 - 10 ft bgs) |




| General Statistics[1] | | | |
|---|---|---|---|
| FOD: | 11/11 | FOD: | 2/2 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

Notes:
ft bgs - feet below ground surface
FOD - Frequency of Detection



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# APPENDIX F.3
# Total Organic Carbon

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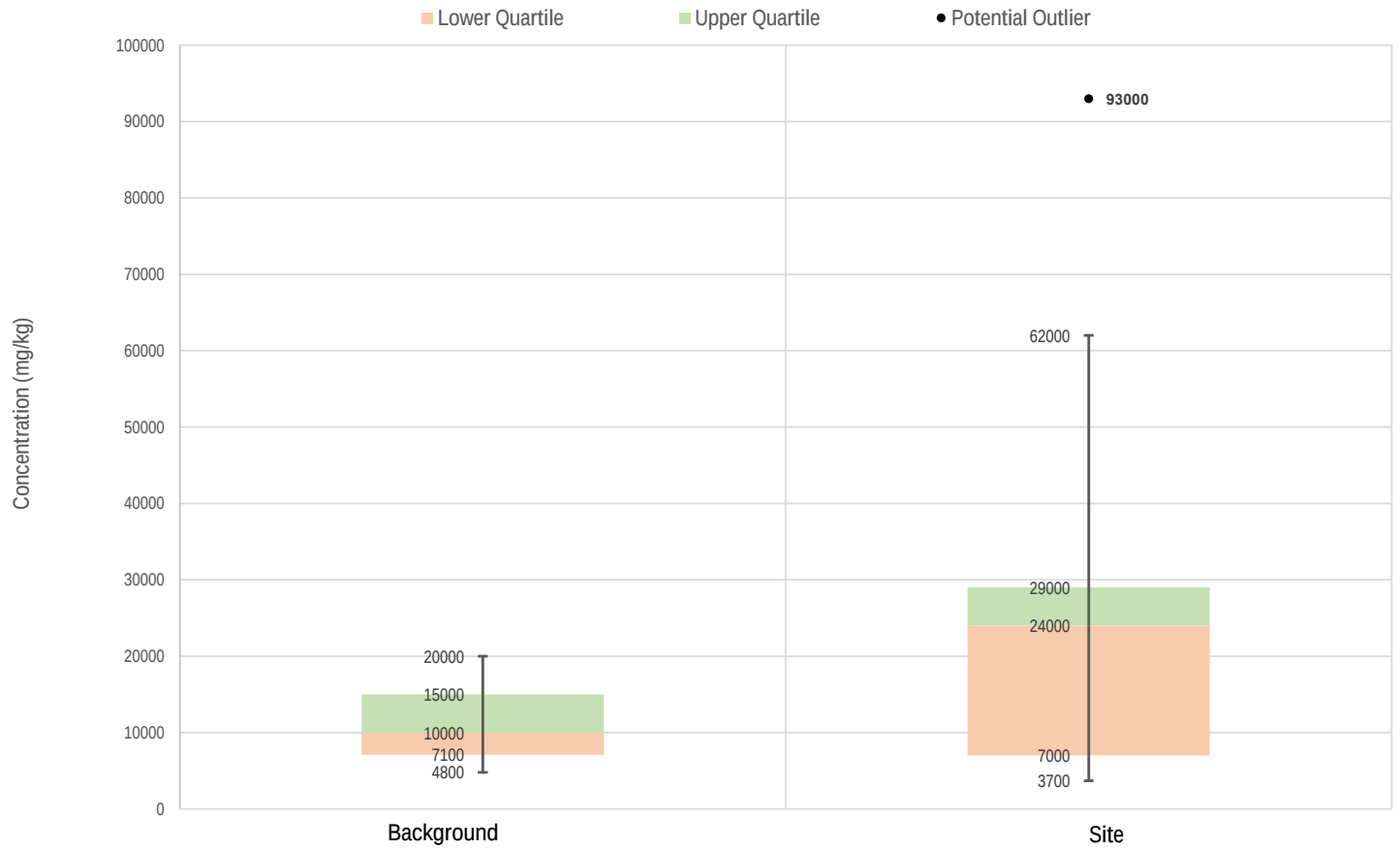
| Total Organic Carbon |
|---|
| Lacustrine Silt and Clay (Psc) |
| Surface Soil (0 - 1 ft bgs) |




| General Statistics | | | |
|---|---|---|---|
| FOD: | 8/8 | FOD: | 10/10 |
| Data Distribution: | Normal | Data Distribution: | Normal |

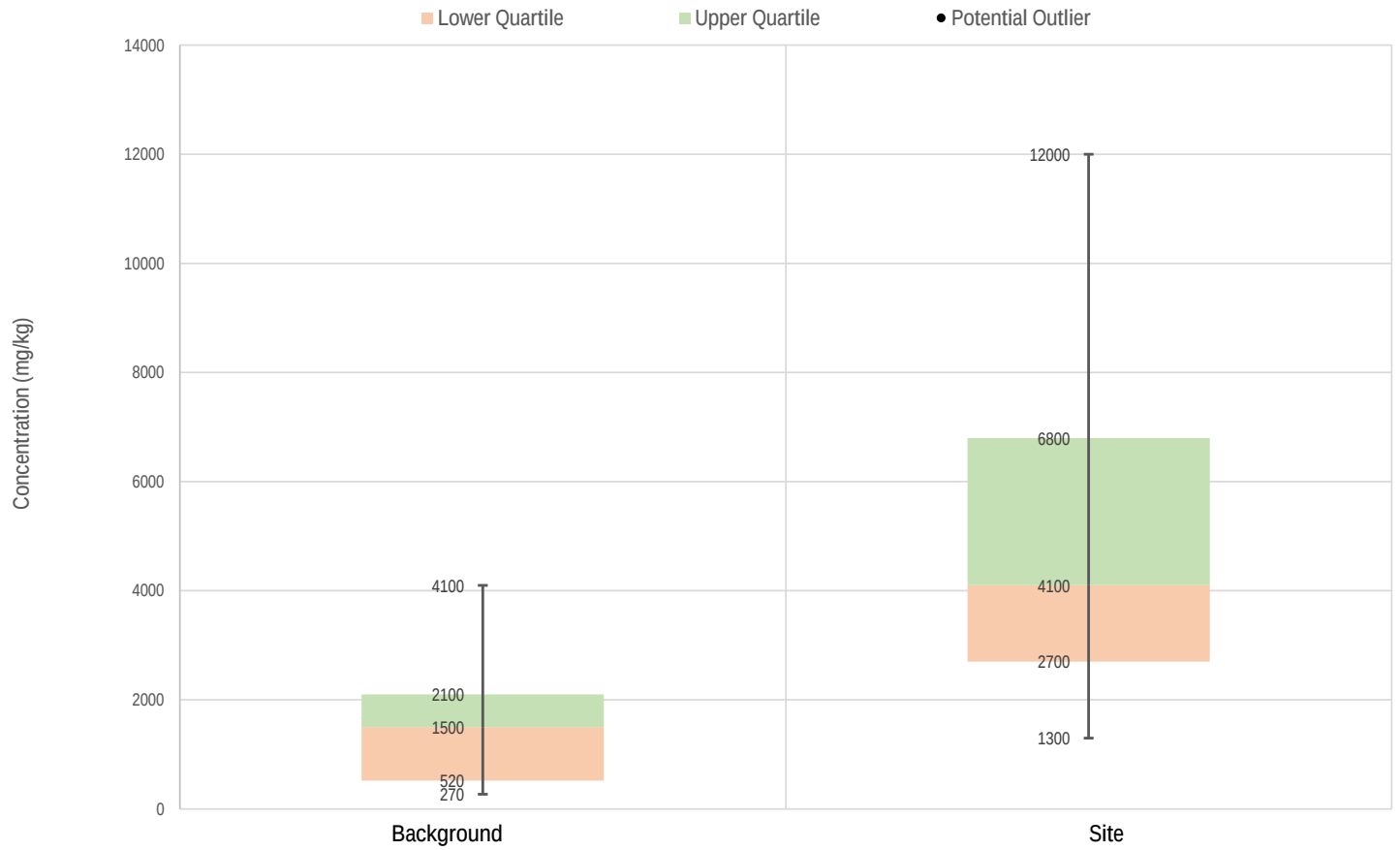
Notes:

(1) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software.

ft bgs - feet below ground surface

FOD - Frequency of Detection

| Total Organic Carbon | | | |
|---|---|---|---|
| Lacustrine Silt and Clay (Psc) | | | |
| Subsurface Soil (1 - 5 ft bgs) | | | |




| General Statistics | | | |
|---|---|---|---|
| FOD: | 6/8 | FOD: | 10/10 |
| Data Distribution: | Normal | Data Distribution: | Normal |

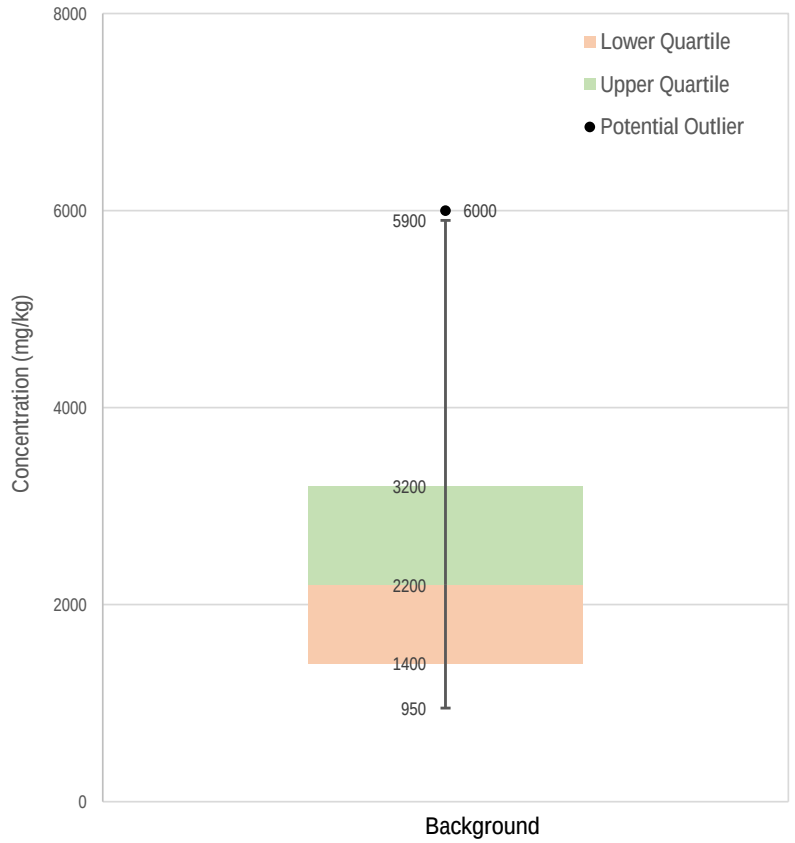
Notes:

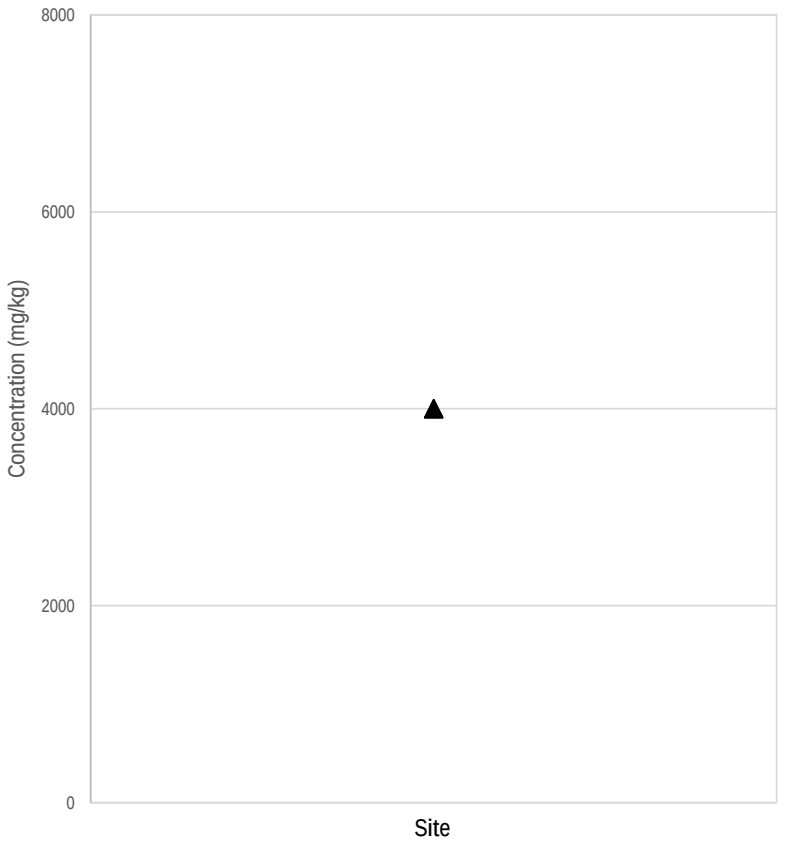
(1) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software.

ft bgs - feet below ground surface

FOD - Frequency of Detection

| Total Organic Carbon | |
|---|---|
| Lacustrine Silt and Clay (Psc) | |
| Subsurface Soil (5 - 10 ft bgs) | |



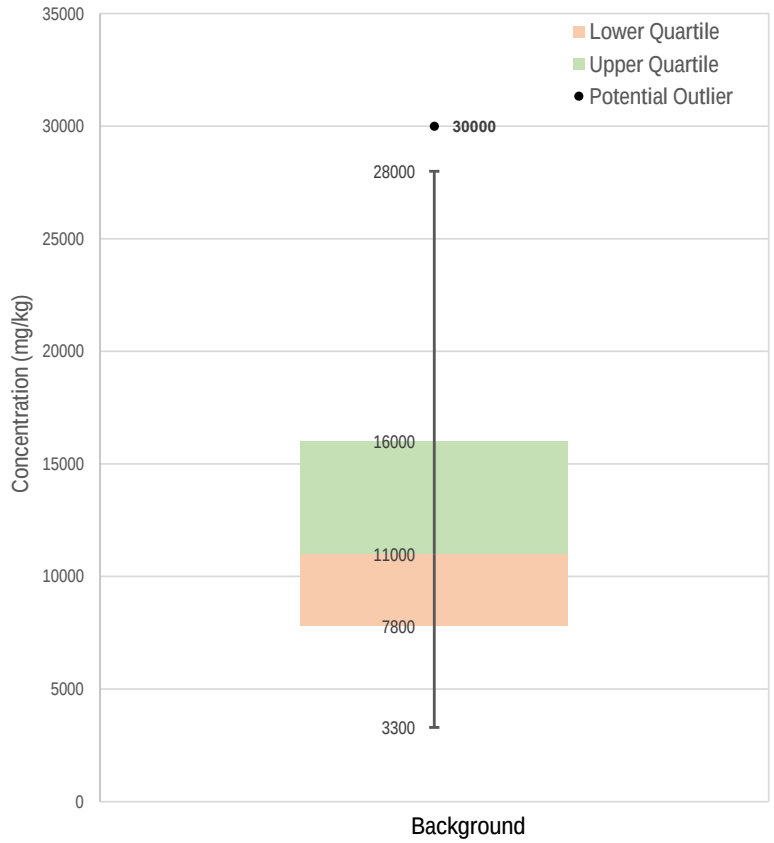
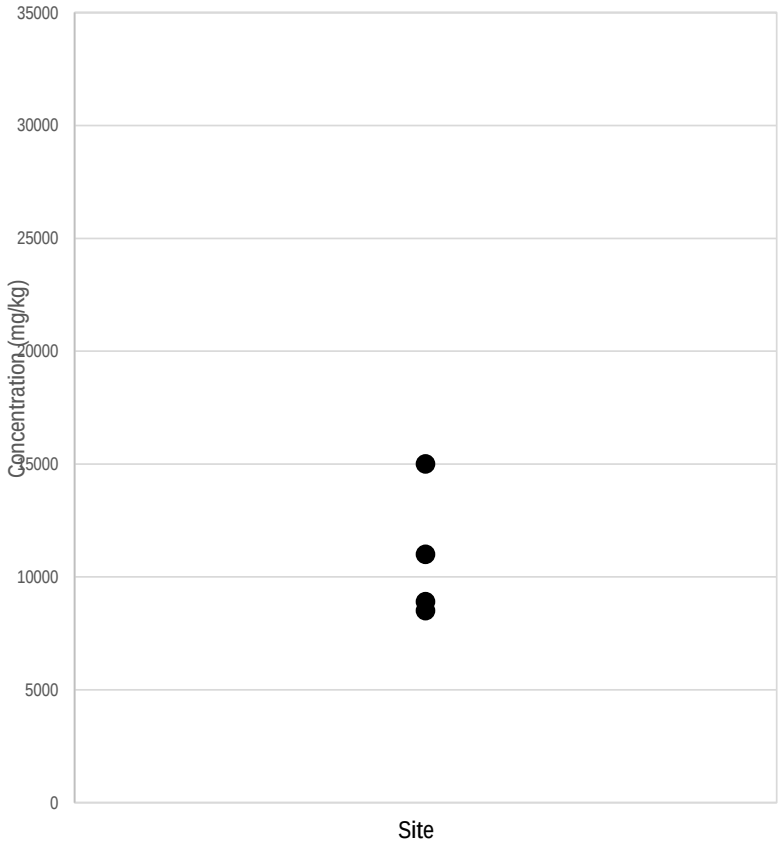

| General Statistics | | | |
|---|---|---|---|
| FOD: | 6/8 | FOD: | 2/2 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

Notes:

(1) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software.

ft bgs - feet below ground surface

FOD - Frequency of Detection

| Total Organic Carbon | | | |
|---|---|---|---|
| Sorted Sand and Gravel (Ps) | | | |
| Surface Soil (0 - 1 ft bgs) | | | |
|  | |  | |
| General Statistics | | | |
| FOD: | 24/24 | FOD: | 4/4 |
| Data Distribution: | Normal | Data Distribution: | Normal |

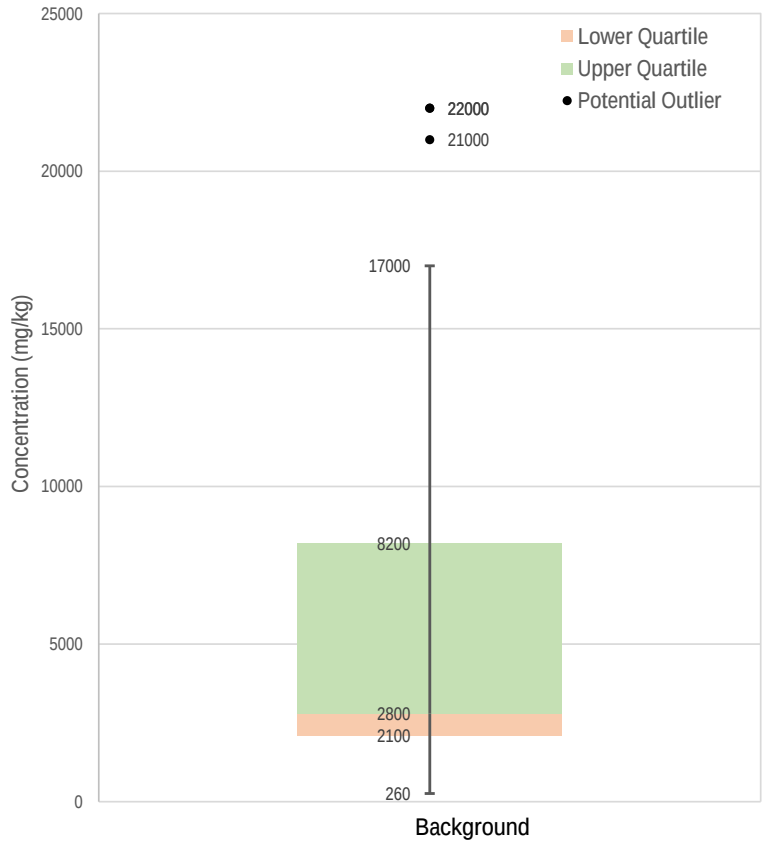
Notes:

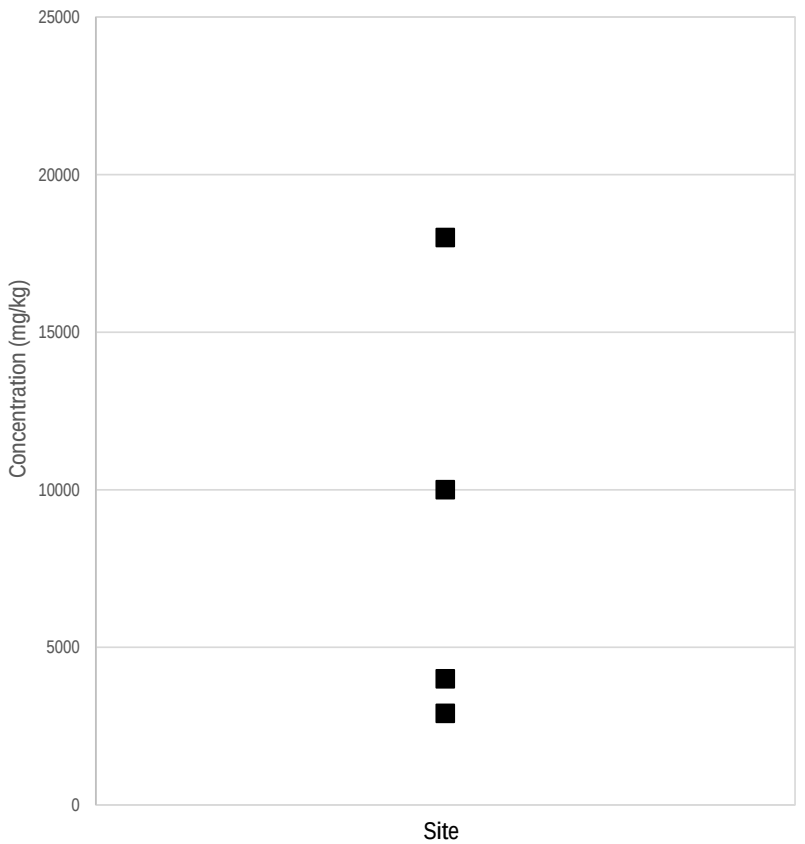
(1) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software.

ft bgs - feet below ground surface

FOD - Frequency of Detection

| Total Organic Carbon | |
|---|---|
| Sorted Sand and Gravel (Ps) | |
| Subsurface Soil (1 - 5 ft bgs) | |



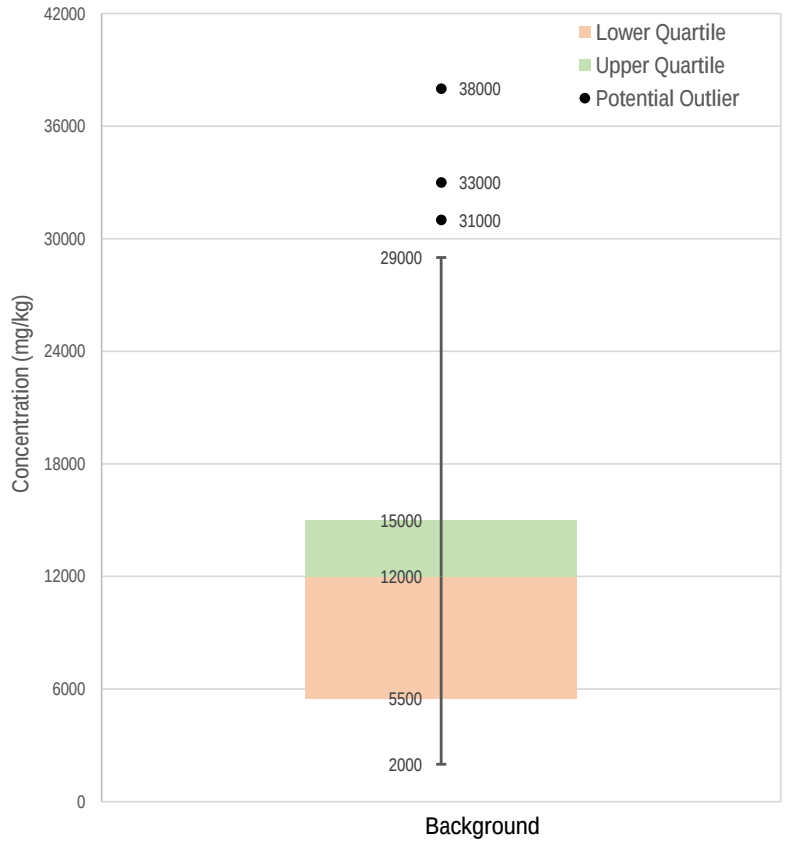
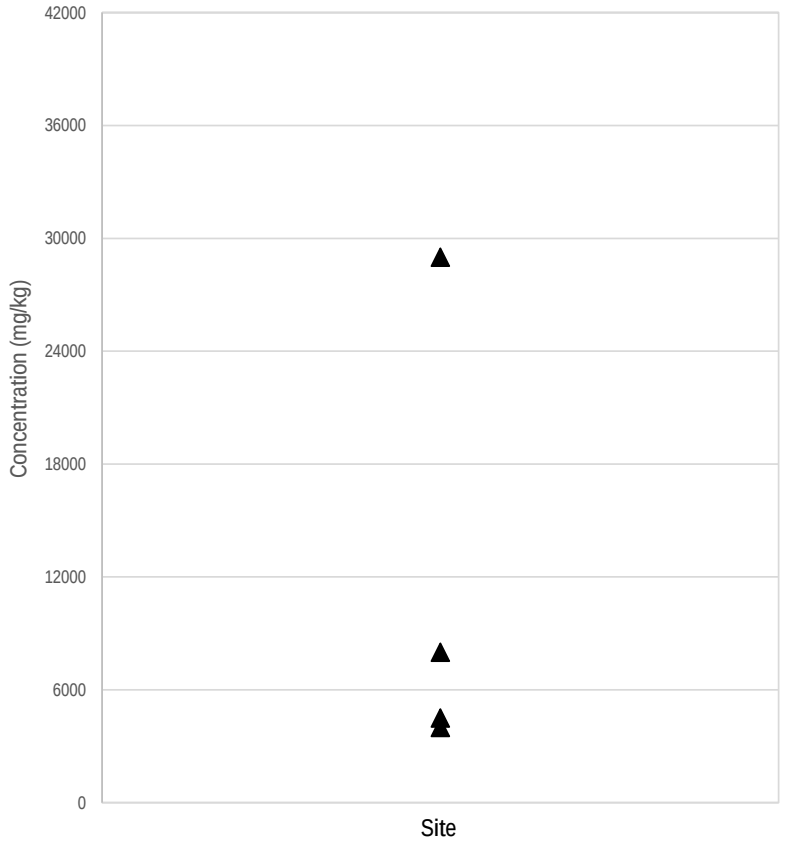

| General Statistics | | | |
|---|---|---|---|
| FOD: | 24/24 | FOD: | 4/4 |
| Data Distribution: | Gamma | Data Distribution: | Normal |

Notes:

(1) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software.

ft bgs - feet below ground surface

FOD - Frequency of Detection

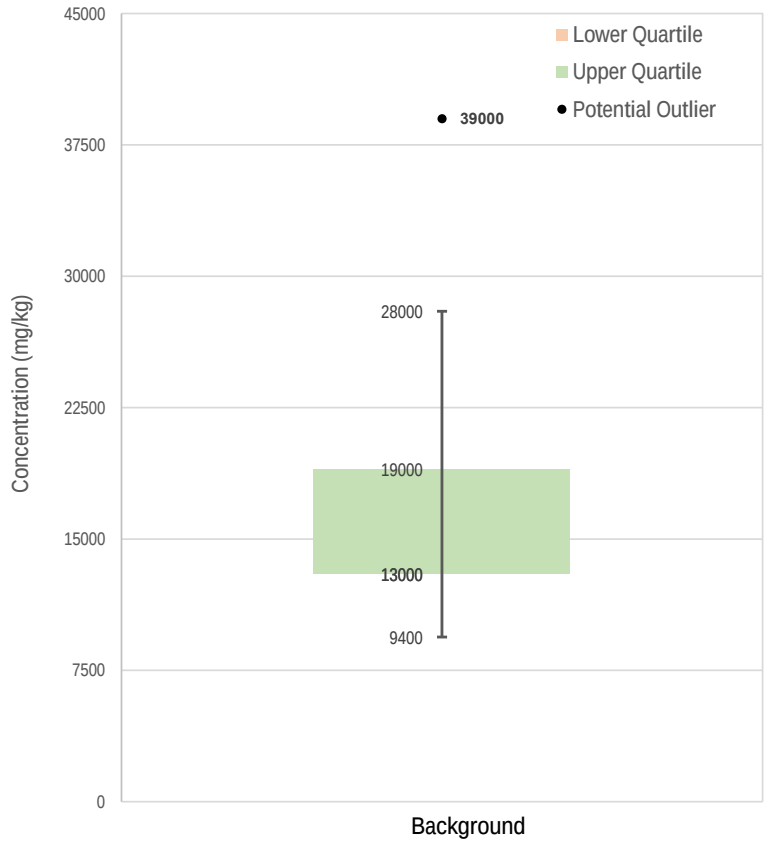
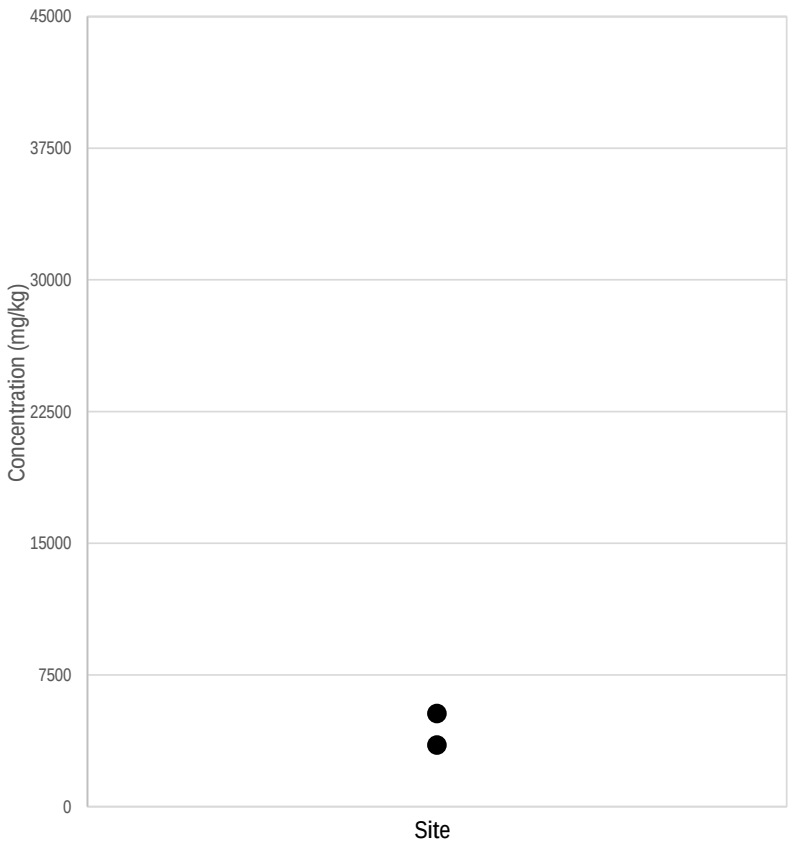
| Total Organic Carbon | | | |
|---|---|---|---|
| Sorted Sand and Gravel (Ps) | | | |
| Subsurface Soil (5 - 10 ft bgs) | | | |
|  | |  | |
| General Statistics | | | |
| FOD: | 23/24 | FOD: | 4/4 |
| Data Distribution: | Gamma | Data Distribution: | Normal |

Notes:

(1) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software.

ft bgs - feet below ground surface

FOD - Frequency of Detection

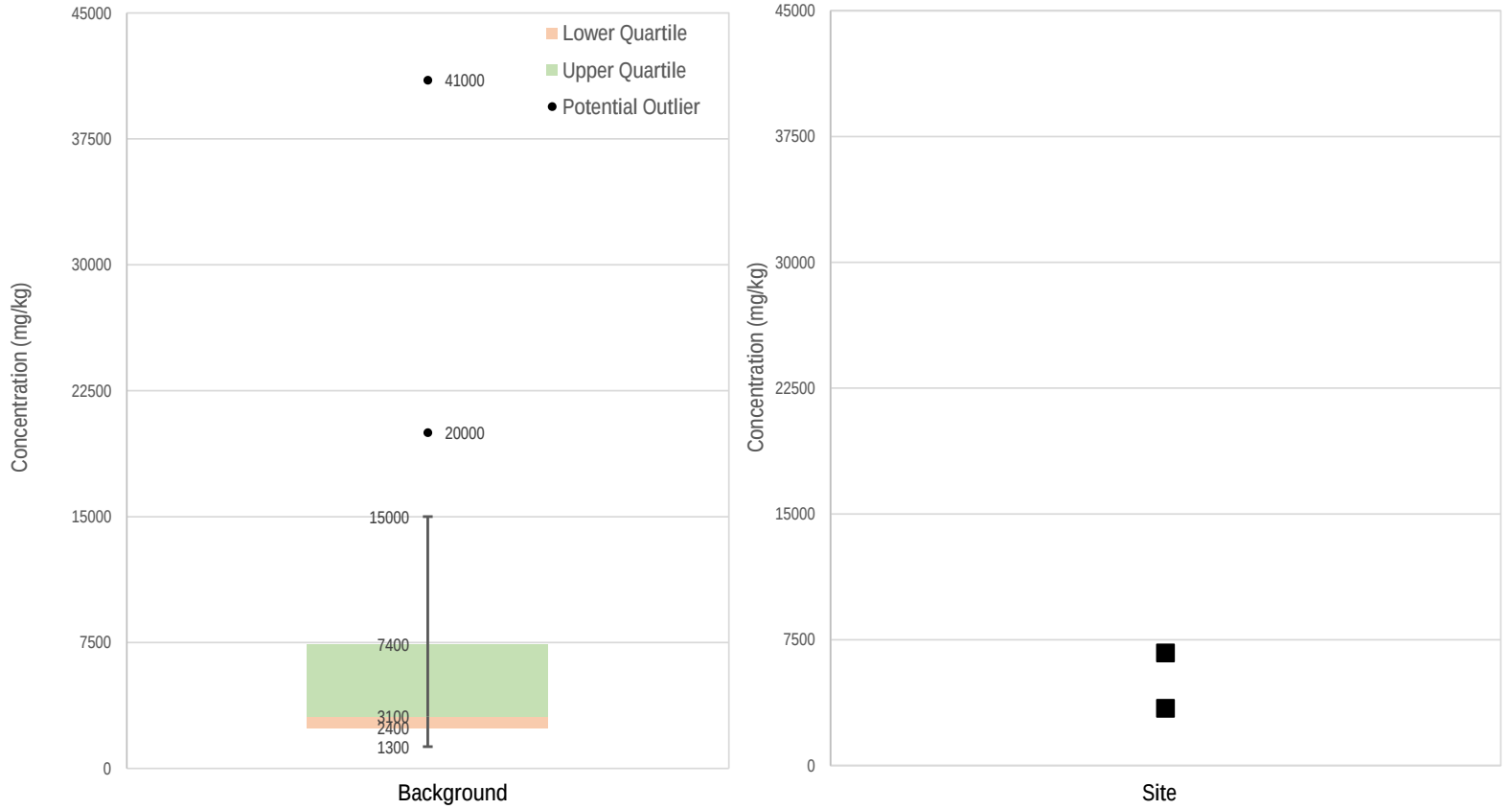
| Total Organic Carbon | | | |
|---|---|---|---|
| Diamicton - Till (Pd) | | | |
| Surface Soil (0 - 1 ft bgs) | | | |
|  | |  | |
| General Statistics | | | |
| FOD: | 11/11 | FOD: | 2/2 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

Notes:

(1) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software.

ft bgs - feet below ground surface

FOD - Frequency of Detection

| Total Organic Carbon | | | |
|---|---|---|---|
| Diamicton - Till (Pd) | | | |
| Subsurface Soil (1 - 5 ft bgs) | | | |
|  | | | |
| General Statistics | | | |
| FOD: | 10/11 | FOD: | 2/2 |
| Data Distribution: | Gamma | Data Distribution: | Not Discernible |

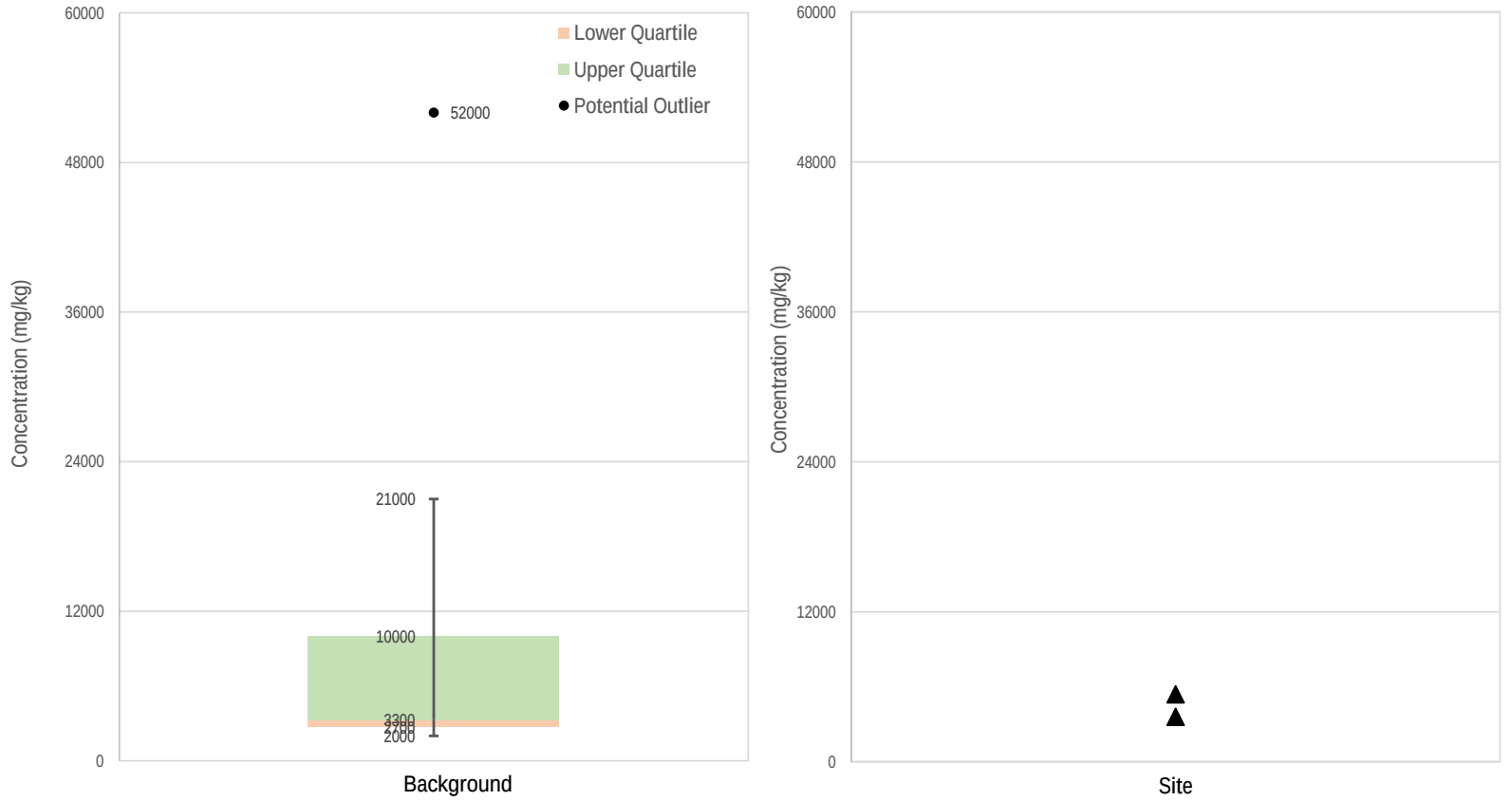
Notes:

(1) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software.

ft bgs - feet below ground surface

FOD - Frequency of Detection

| Total Organic Carbon | |
|---|---|
| Diamicton - Till (Pd) | |
| Subsurface Soil (5 - 10 ft bgs) | |




| General Statistics | | | |
|---|---|---|---|
| FOD: | 9/11 | FOD: | 2/2 |
| Data Distribution: | Not Discernible | Data Distribution: | Not Discernible |

Notes:

(1) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software.

ft bgs - feet below ground surface

FOD - Frequency of Detection

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# APPENDIX F.4

# Cation Exchange Capacity

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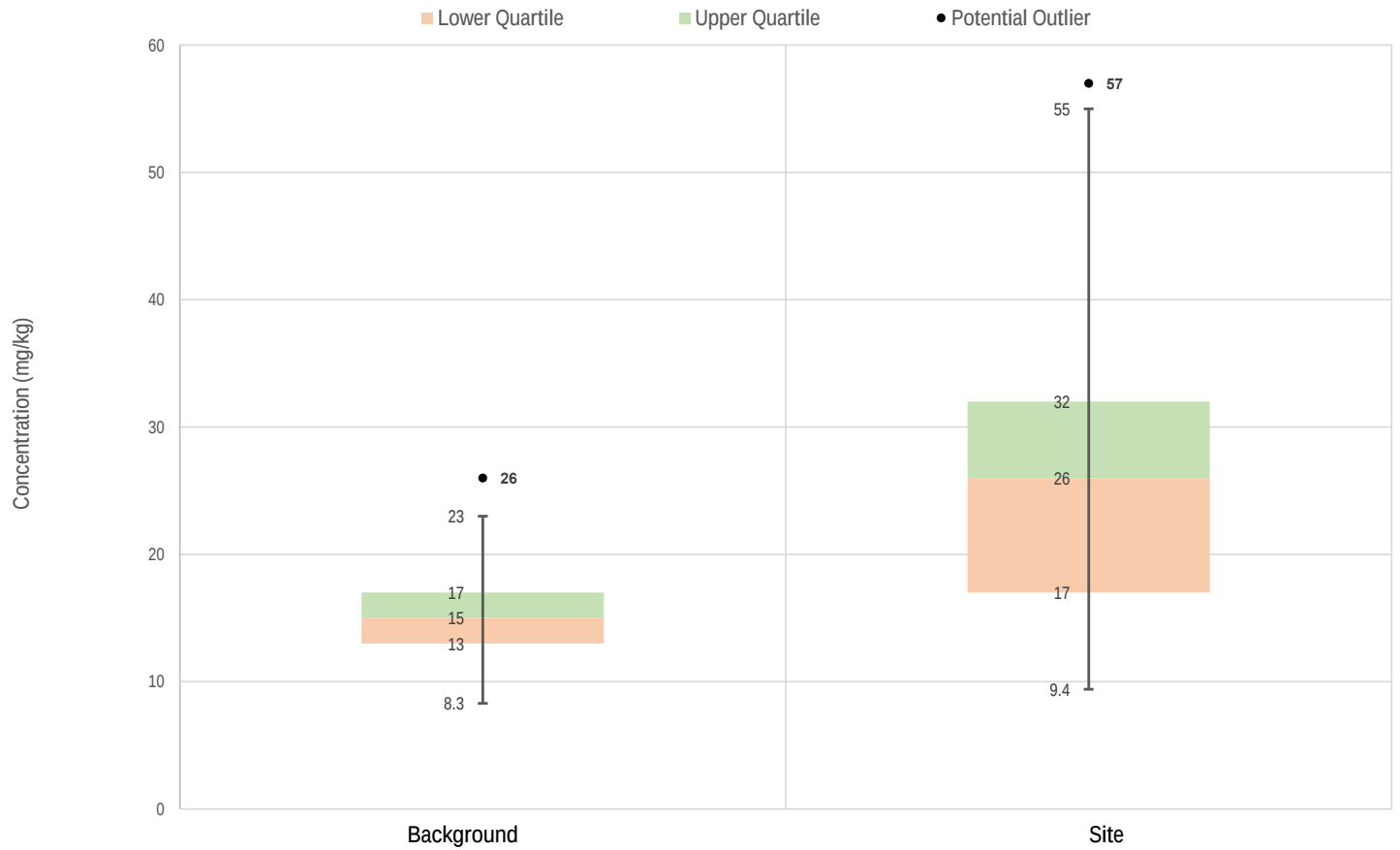
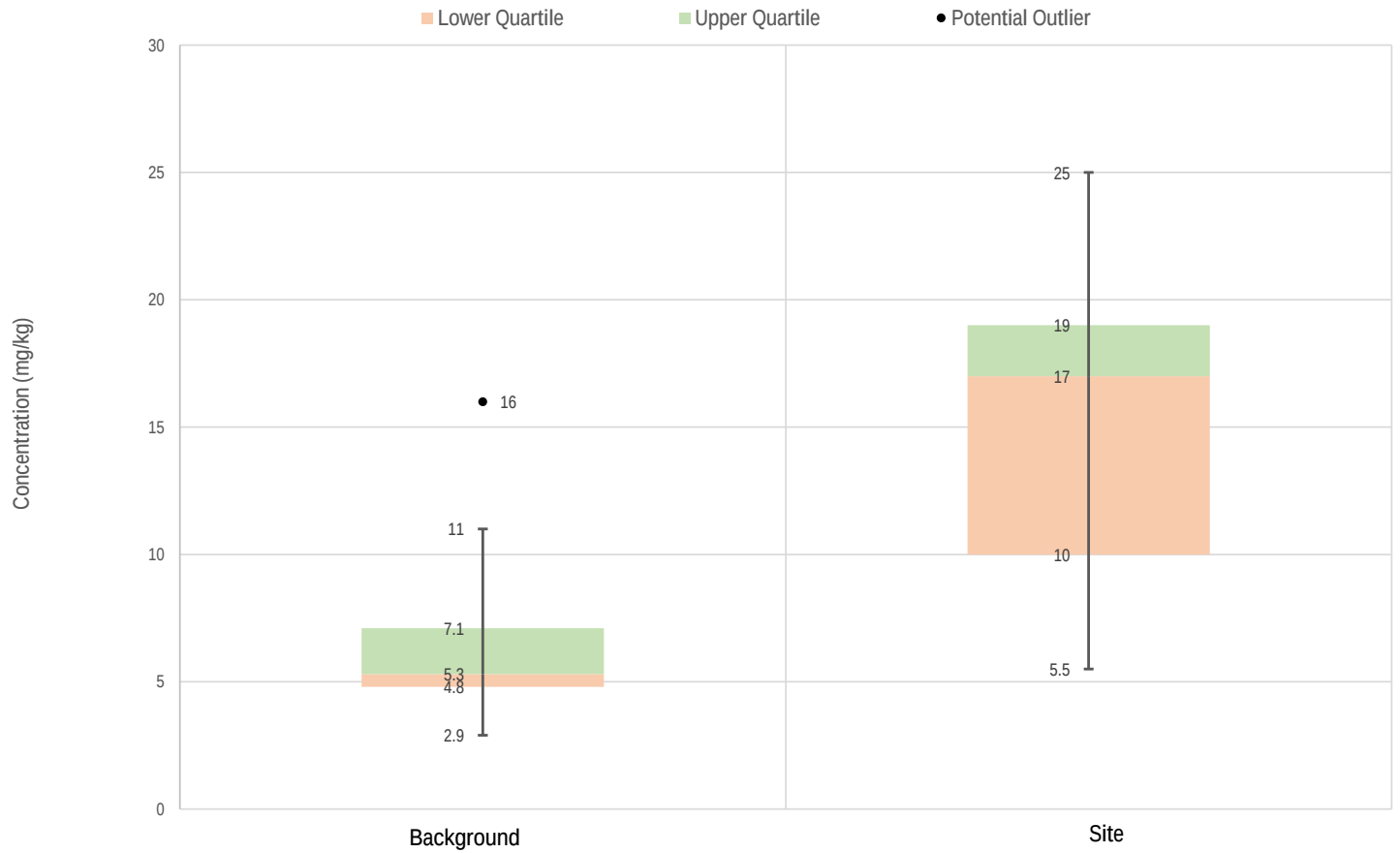
| Cation-Exchange Capacity | | | |
|---|---|---|---|
| Lacustrine Silt and Clay (Psc) | | | |
| Surface Soil (0 - 1 ft bgs) | | | |
|  | | | |
| General Statistics | | | |
| FOD: | 8/8 | FOD: | 10/10 |
| Data Distribution: | Normal | Data Distribution: | Normal |

Notes:

(1) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software.

ft bgs - feet below ground surface

FOD - Frequency of Detection

| Cation-Exchange Capacity | | | |
|---|---|---|---|
| Lacustrine Silt and Clay (Psc) | | | |
| Subsurface Soil (1 - 5 ft bgs) | | | |
|  | | | |
| General Statistics | | | |
| FOD: | 8/8 | FOD: | 10/10 |
| Data Distribution: | Normal | Data Distribution: | Normal |

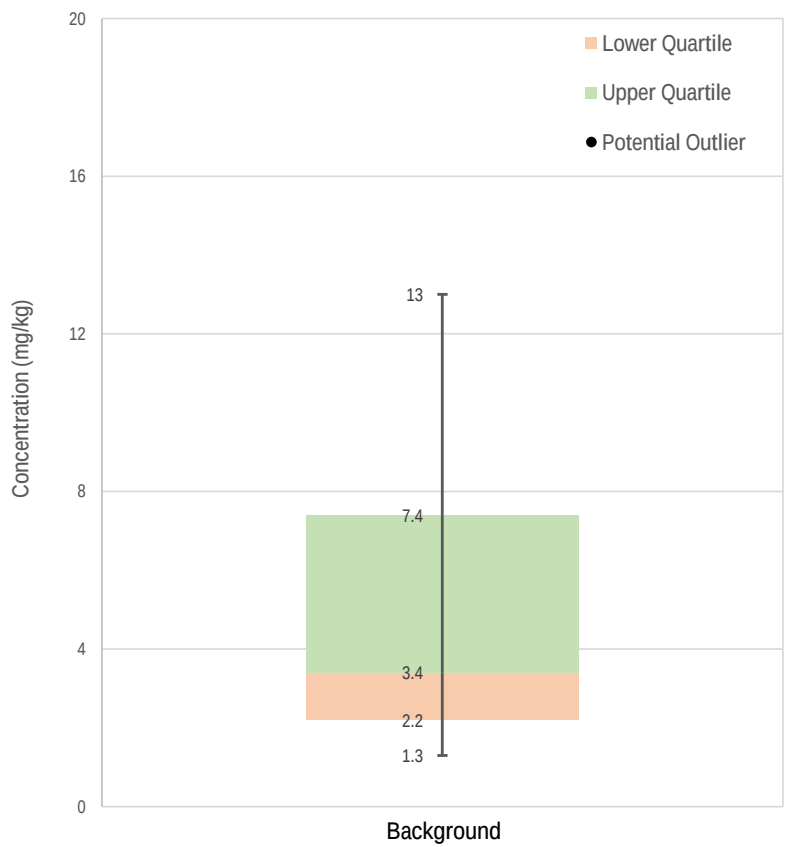
Notes:

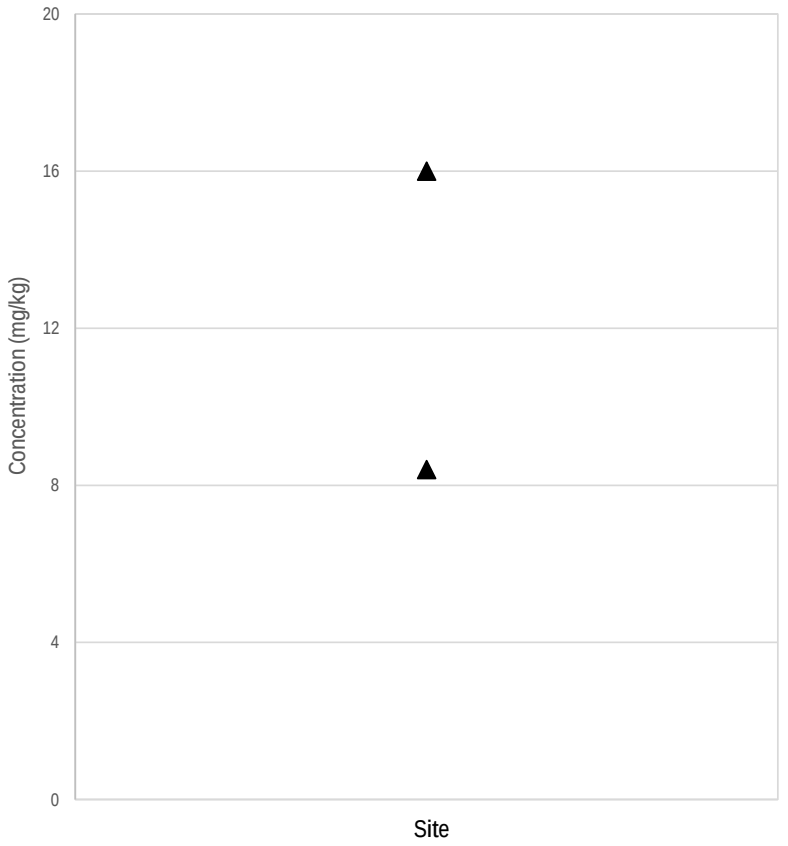
(1) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software.

ft bgs - feet below ground surface

FOD - Frequency of Detection

| Cation-Exchange Capacity | |
|---|---|
| Lacustrine Silt and Clay (Psc) | |
| Subsurface Soil (5 - 10 ft bgs) | |



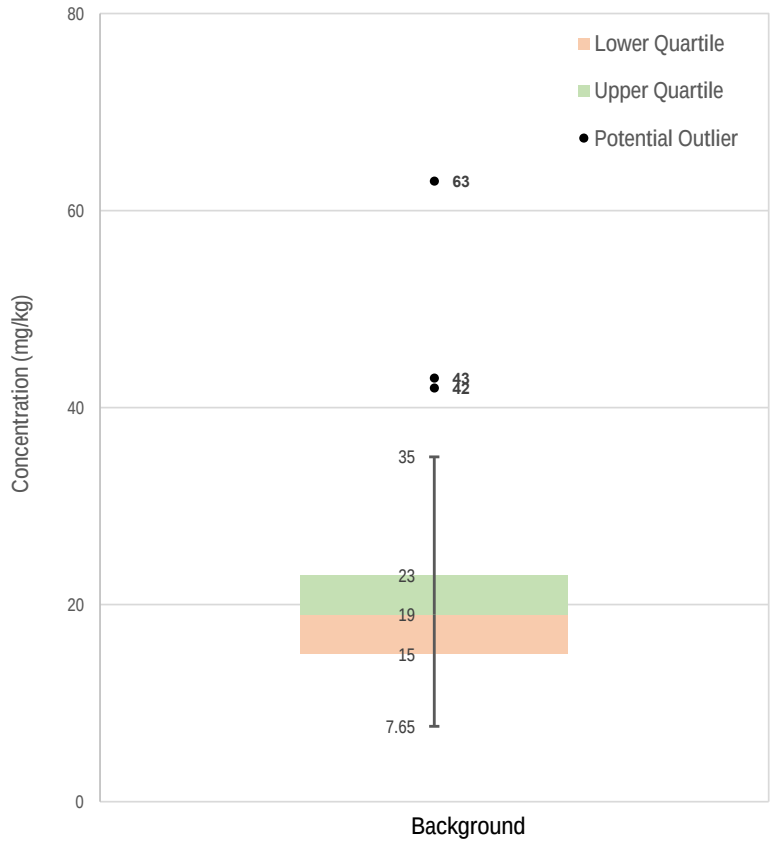
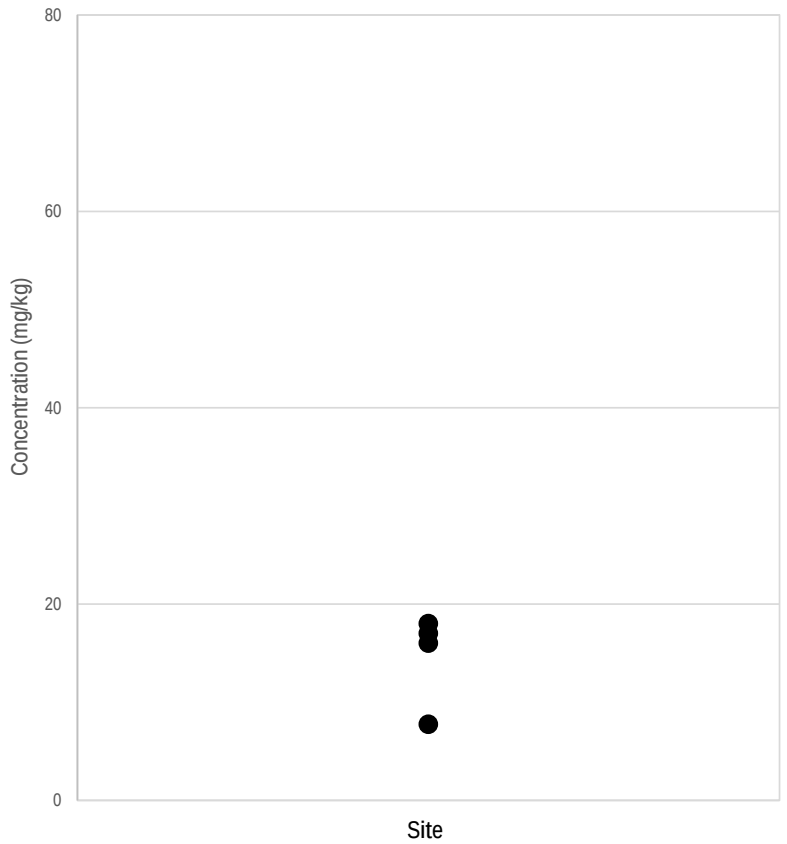

| General Statistics | | | |
|---|---|---|---|
| FOD: | 8/8 | FOD: | 2/2 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

Notes:

(1) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software.

ft bgs - feet below ground surface

FOD - Frequency of Detection

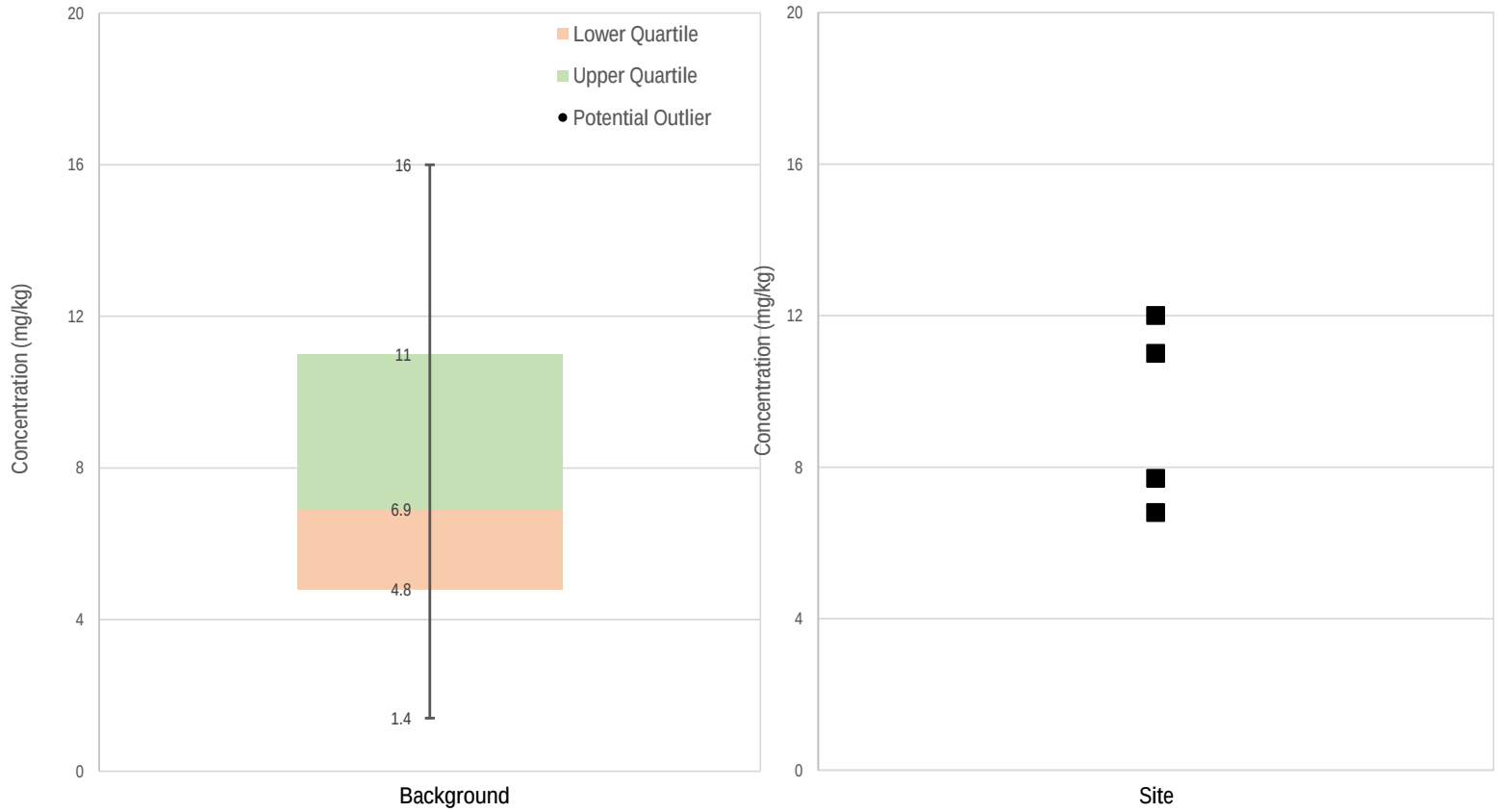
| Cation-Exchange Capacity | | | |
|---|---|---|---|
| Sorted Sand and Gravel (Ps) | | | |
| Surface Soil (0 - 1 ft bgs) | | | |
|  | |  | |
| General Statistics | | | |
| FOD: | 24/24 | FOD: | 4/4 |
| Data Distribution: | Gamma | Data Distribution: | Normal |

Notes:

(1) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software.

ft bgs - feet below ground surface

FOD - Frequency of Detection

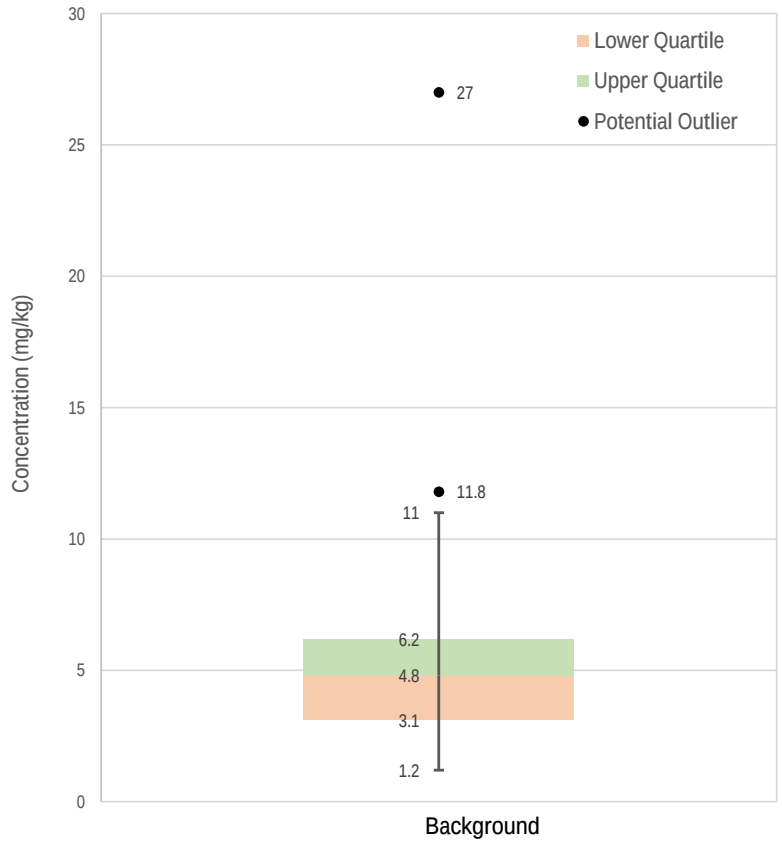
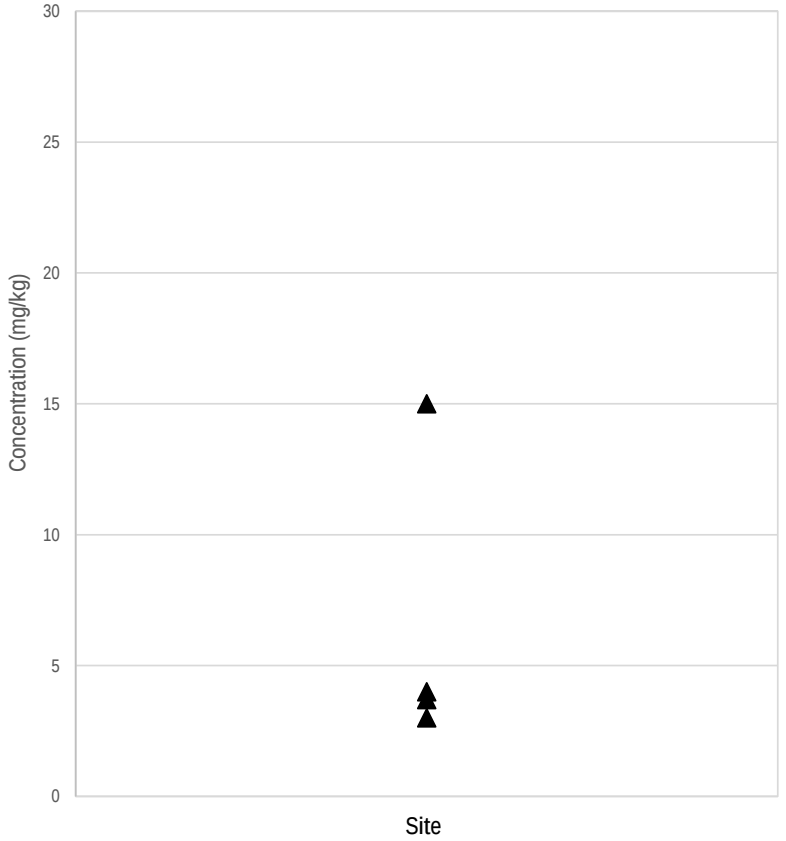
| Cation-Exchange Capacity | | | |
|---|---|---|---|
| Sorted Sand and Gravel (Ps) | | | |
| Subsurface Soil (1 - 5 ft bgs) | | | |
|  | | | |
| General Statistics | | | |
| FOD: | 24/24 | FOD: | 4/4 |
| Data Distribution: | Normal | Data Distribution: | Normal |

Notes:

(1) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software.

ft bgs - feet below ground surface

FOD - Frequency of Detection

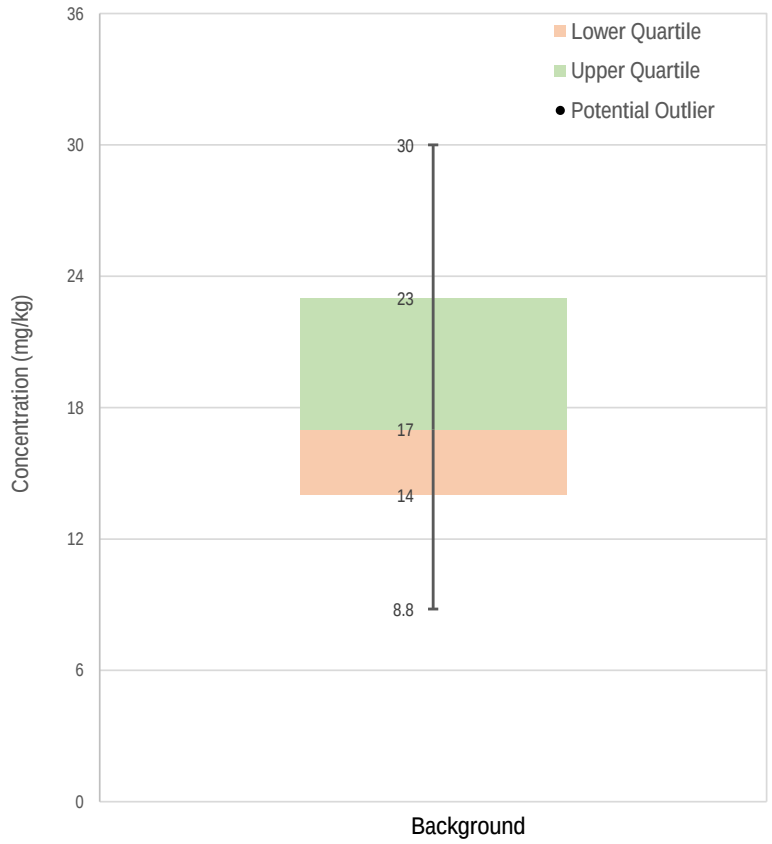
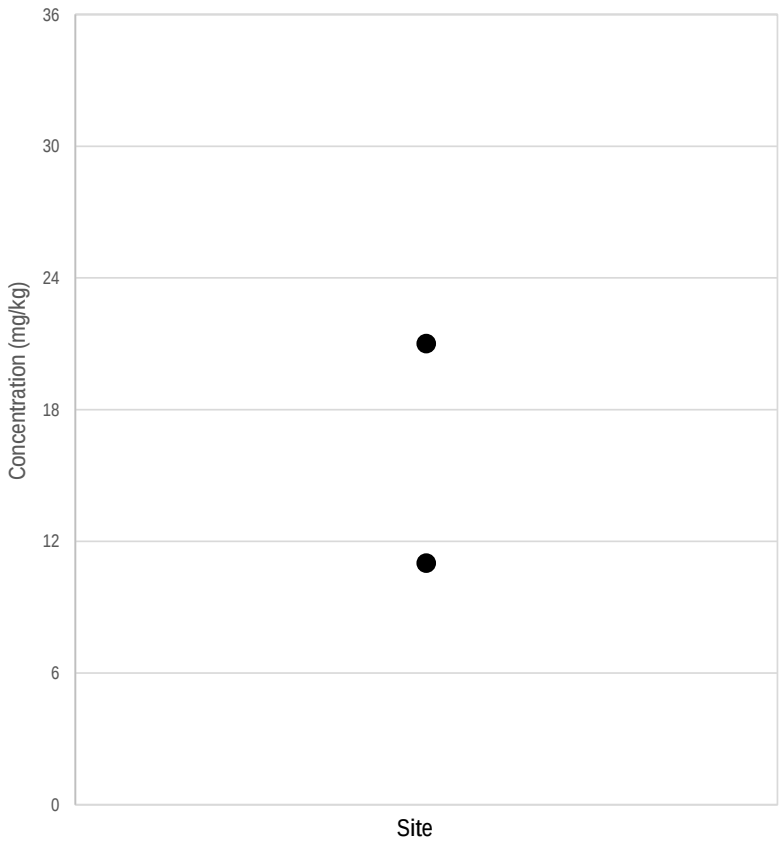
| Cation-Exchange Capacity | | | |
|---|---|---|---|
| Sorted Sand and Gravel (Ps) | | | |
| Subsurface Soil (5 - 10 ft bgs) | | | |
|  | |  | |
| General Statistics | | | |
| FOD: | 24/24 | FOD: | 4/4 |
| Data Distribution: | Gamma | Data Distribution: | Normal |

Notes:

(1) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software.

ft bgs - feet below ground surface

FOD - Frequency of Detection

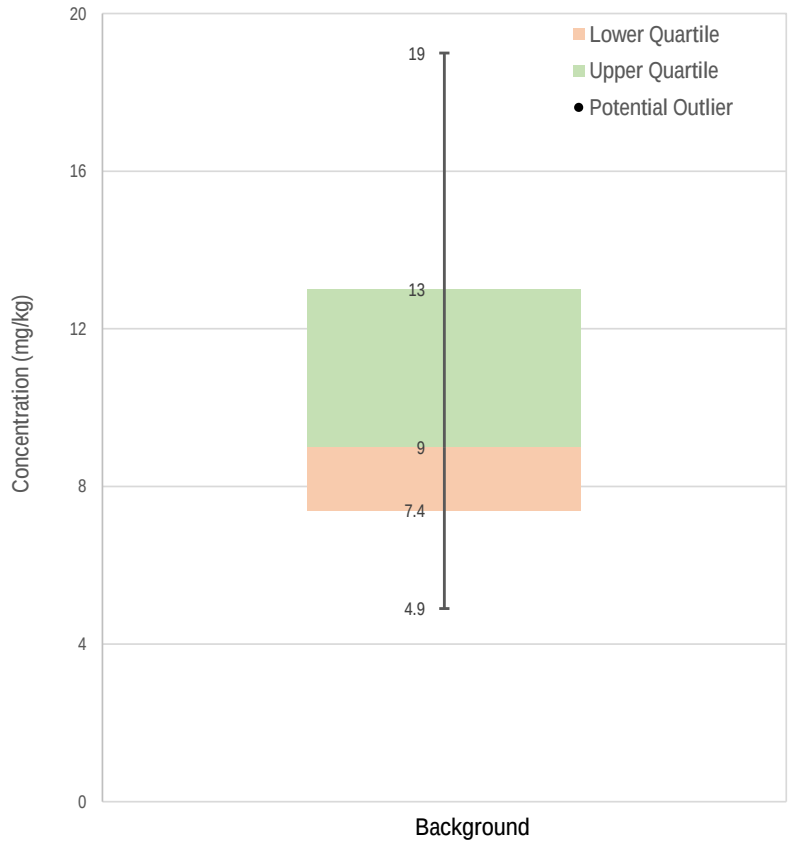
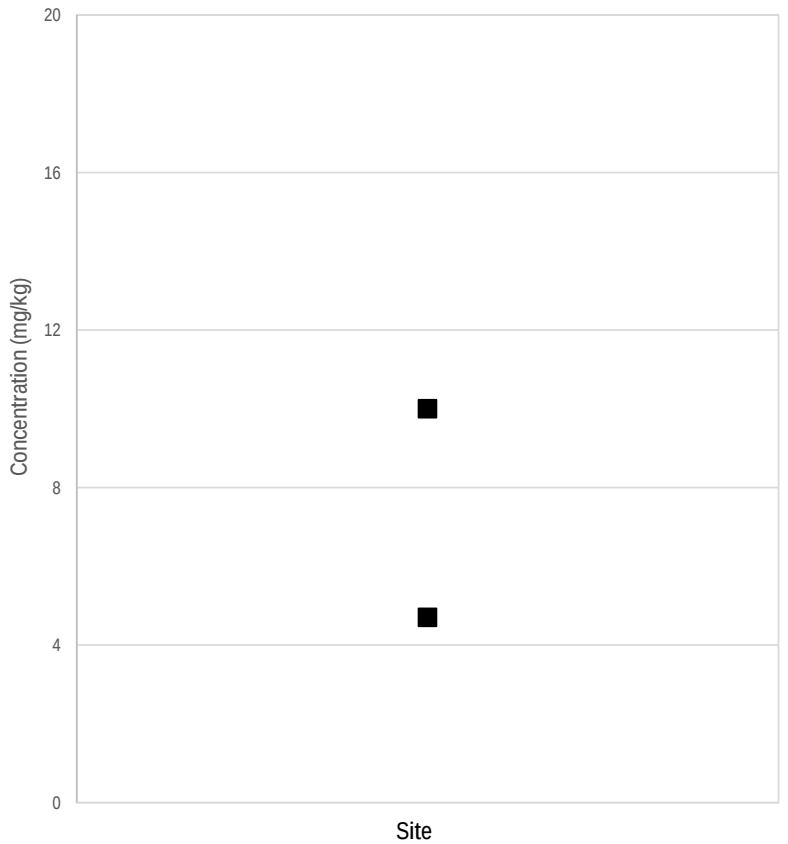
| Cation-Exchange Capacity | | | |
|---|---|---|---|
| Diamicton - Till (Pd) | | | |
| Surface Soil (0 - 1 ft bgs) | | | |
|  | |  | |
| General Statistics | | | |
| FOD: | 11/11 | FOD: | 2/2 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

Notes:

(1) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software.

ft bgs - feet below ground surface

FOD - Frequency of Detection

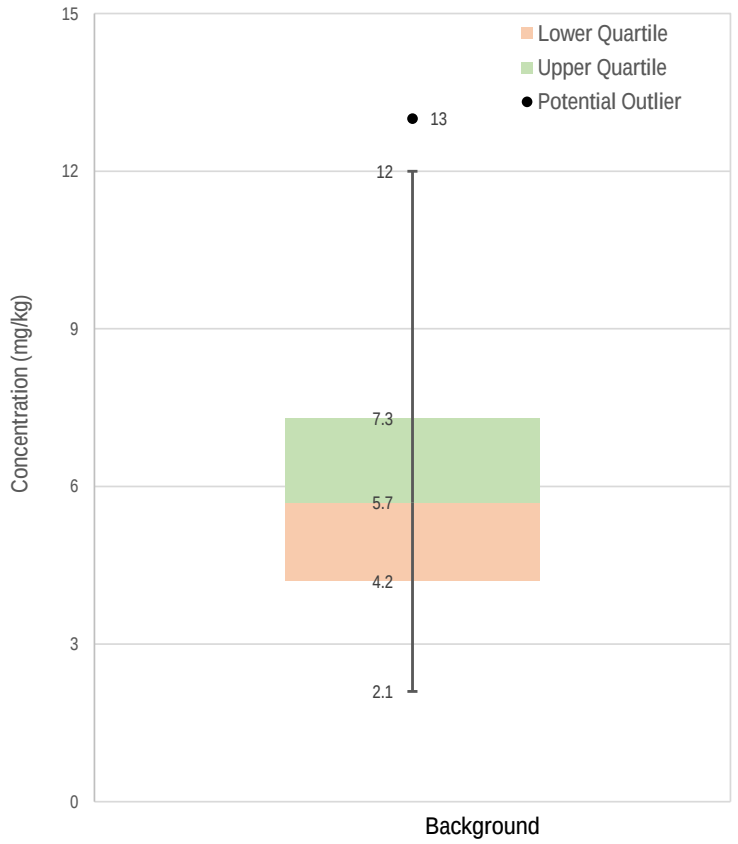
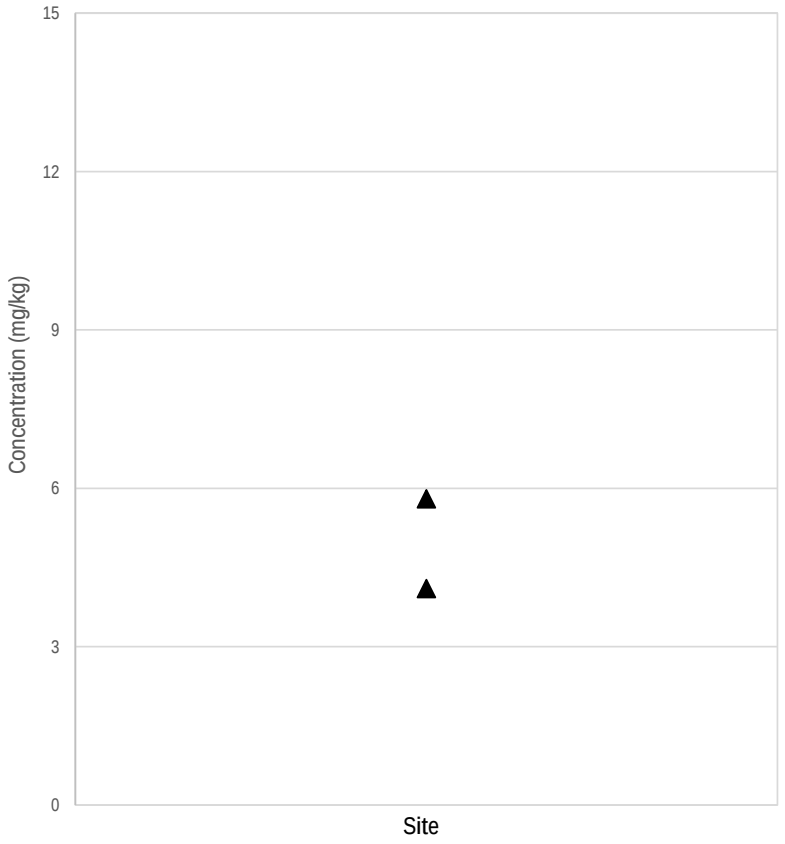
| Cation-Exchange Capacity | | | |
|---|---|---|---|
| Diamicton - Till (Pd) | | | |
| Subsurface Soil (1 - 5 ft bgs) | | | |
|  | |  | |
| General Statistics | | | |
| FOD: | 11/11 | FOD: | 2/2 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

Notes:

(1) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software.

ft bgs - feet below ground surface

FOD - Frequency of Detection

| Cation-Exchange Capacity | | | |
|---|---|---|---|
| Diamicton - Till (Pd) | | | |
| Subsurface Soil (5 - 10 ft bgs) | | | |
|  | |  | |
| General Statistics | | | |
| FOD: | 11/11 | FOD: | 2/2 |
| Data Distribution: | Normal | Data Distribution: | Not Discernible |

Notes:

(1) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software.

ft bgs - feet below ground surface

FOD - Frequency of Detection

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# APPENDIX F.5
# Geochemical Analysis

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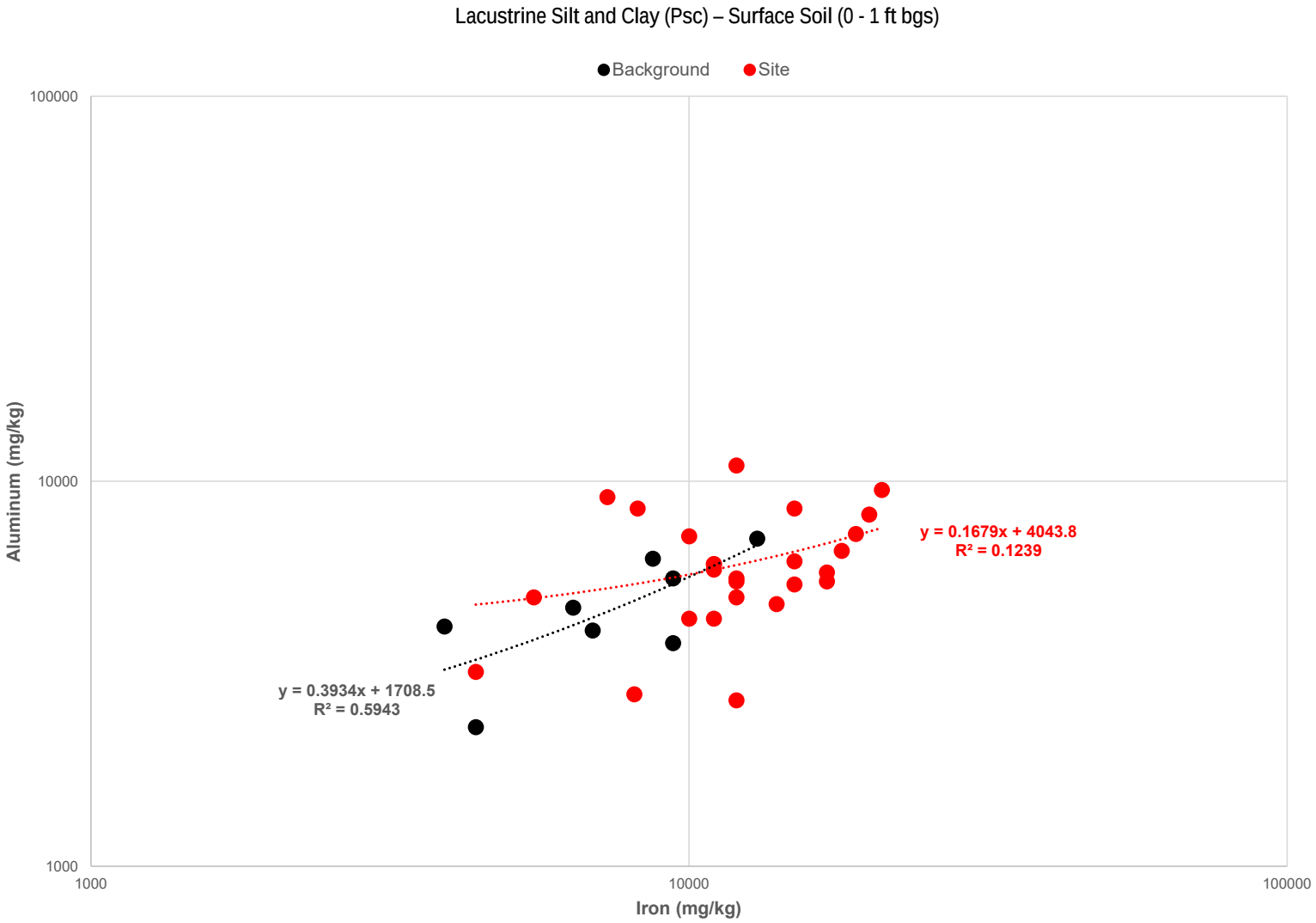
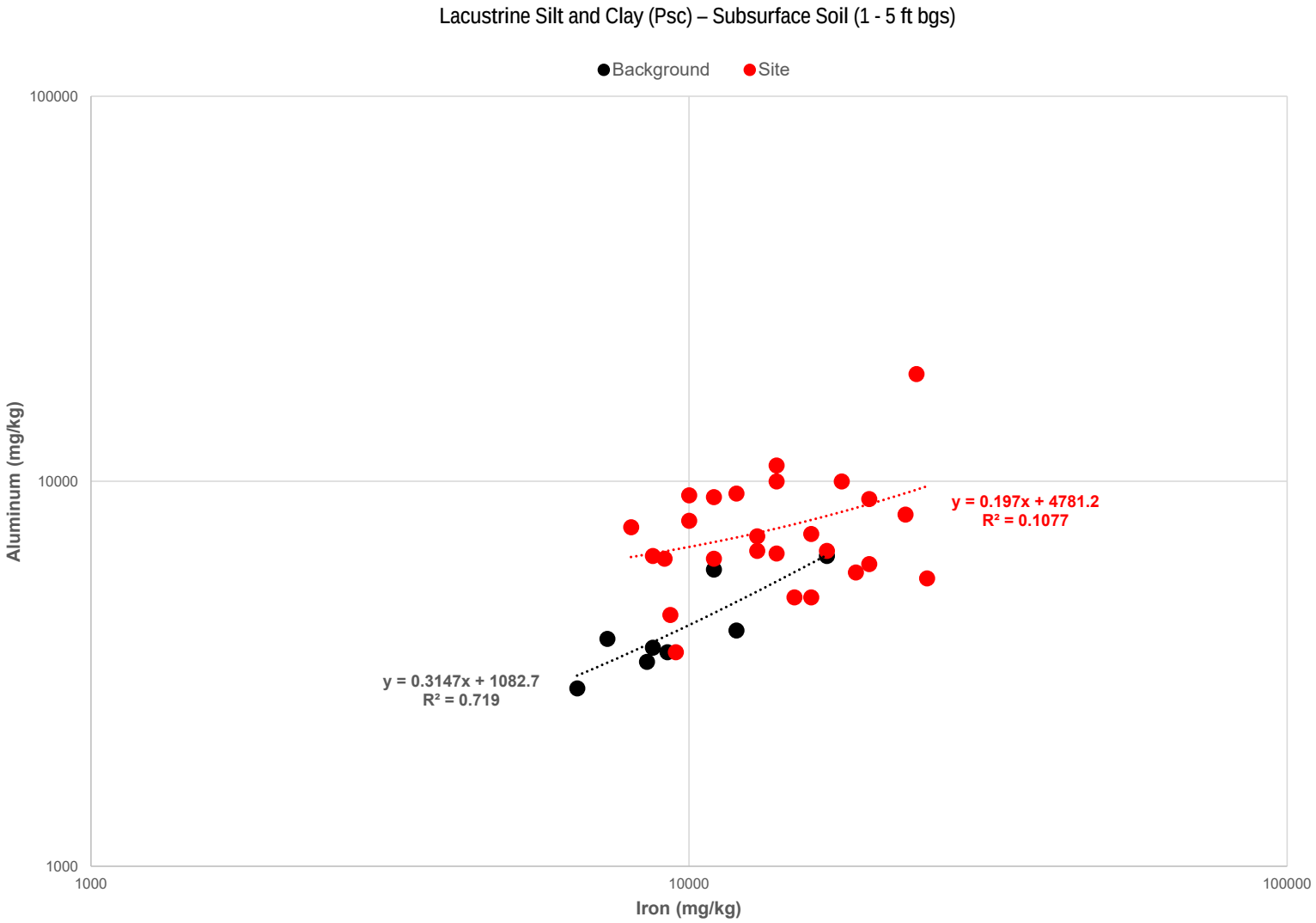
Figure F.5-1
Geochemical Analysis - Background and Site Data, Surface Soil (0 - 1 ft bgs, Psc)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY




| *ANCOVA Summary ([a] significant difference noted at p-values ≤ 0.05)* | |
|---|---|
| Are the slopes of the regression lines considered separately approximately the same? | Homogeneity of Regressions p-value [a] = 0.36 |
| Are differences in mean iron concentrations for background and site significant when excluding effect of covariate? | Adjusted Means p-value [a] = 0.59 |

(1) ANCOVA for Two Independent Samples performed using the online analytical tool available through Vassar College (http://vassarstats.net/ancova2L.html).

Figure F.5-1
Geochemical Analysis - Background and Site Data, Surface Soil (0 - 1 ft bgs, Psc)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

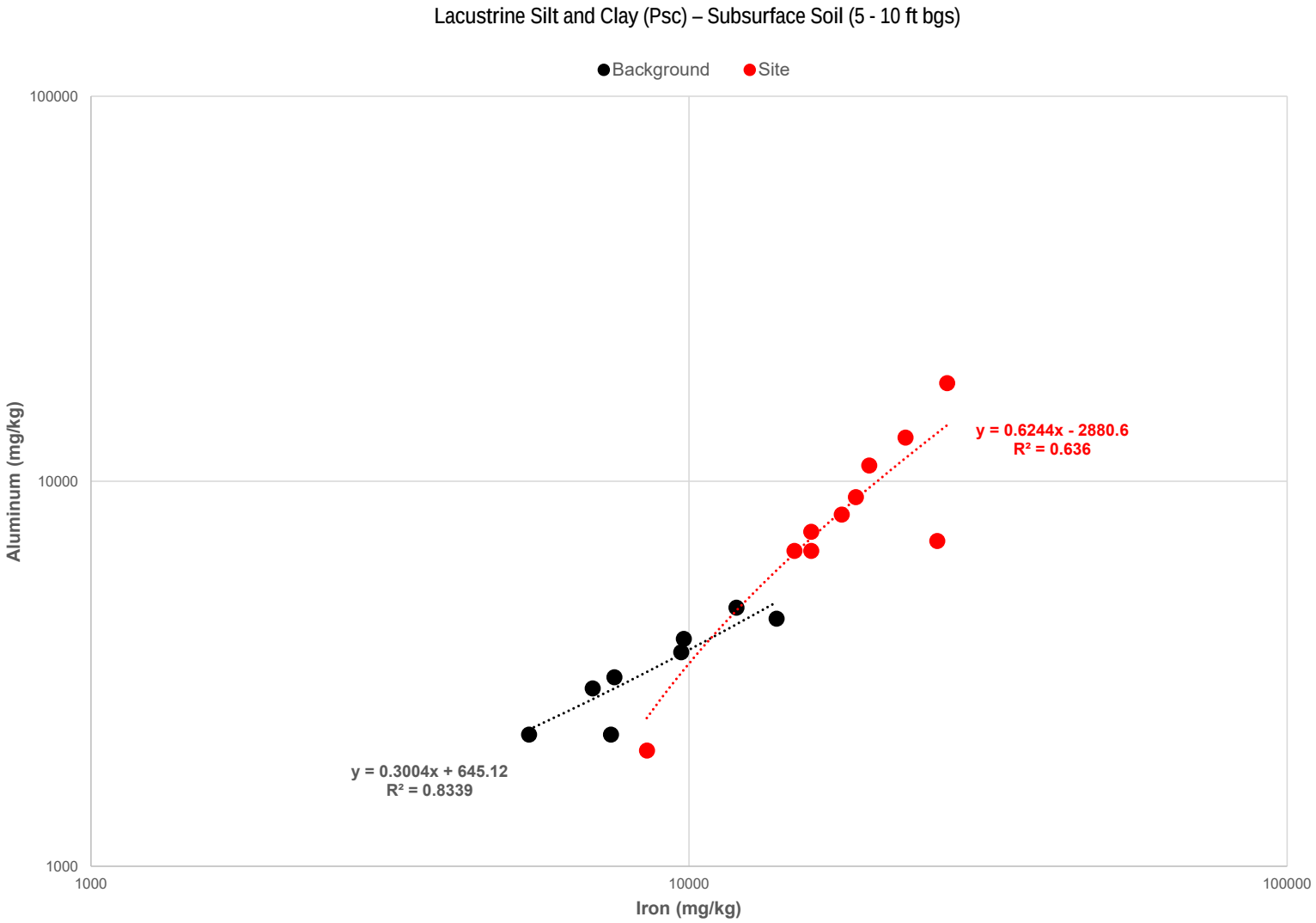



*ANCOVA Summary ([a] significant difference noted at p-values ≤ 0.05)*

| | |
|---|---|
| Are the slopes of the regression lines considered separately approximately the same? | Homogeneity of Regressions p-value [a] = 0.71 |
| Are differences in mean iron concentrations for background and site significant when excluding effect of covariate? | Adjusted Means p-value [a] = 0.036 |

(1) ANCOVA for Two Independent Samples performed using the online analytical tool available through Vassar College (http://vassarstats.net/ancova2L.html).

Figure F.5-1
Geochemical Analysis - Background and Site Data, Surface Soil (0 - 1 ft bgs, Psc)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

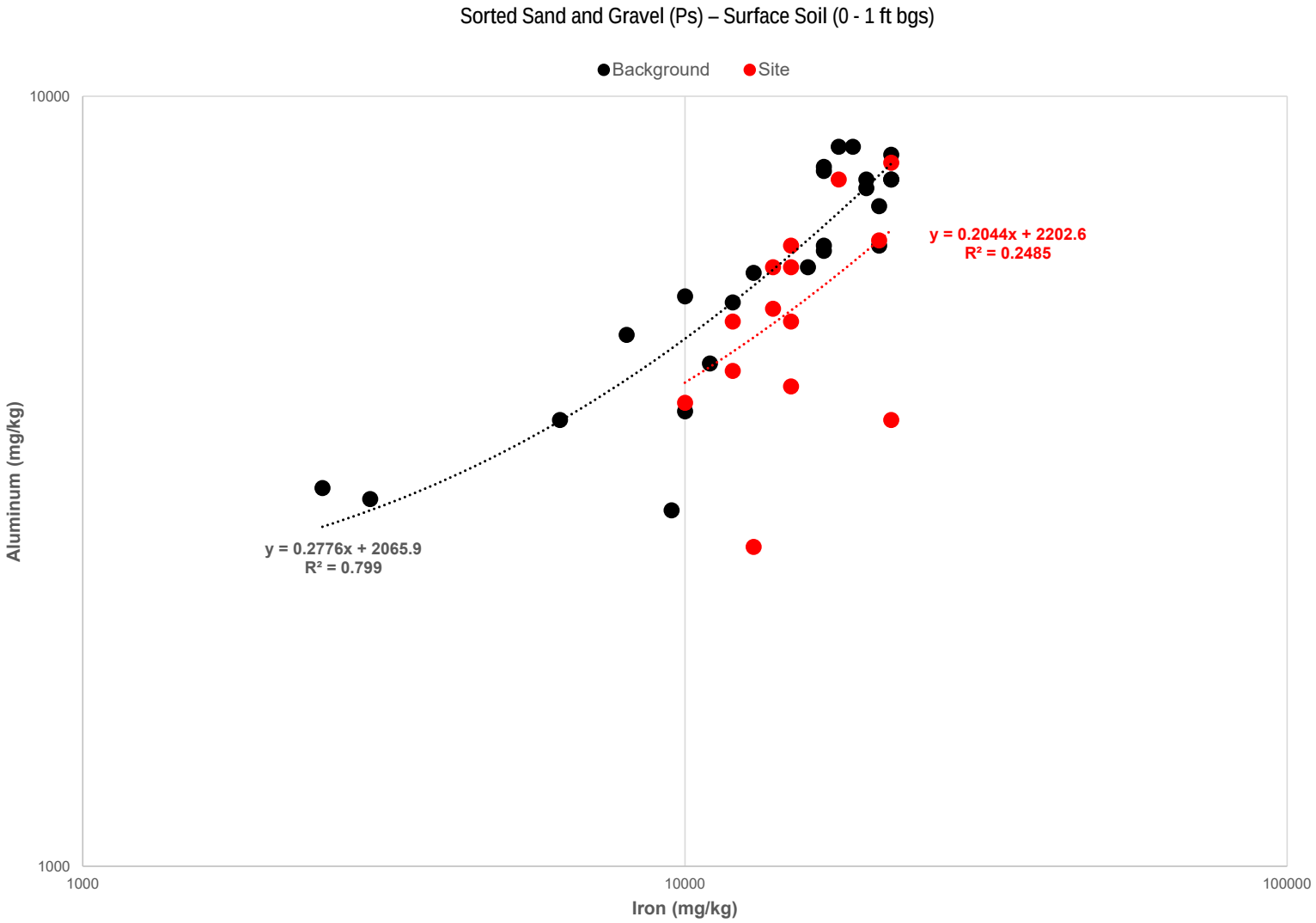



*ANCOVA Summary ([a] significant difference noted at p-values ≤ 0.05)*

| | |
|---|---|
| Are the slopes of the regression lines considered separately approximately the same? | Homogeneity of Regressions p-value [a] = 0.31 |
| Are differences in mean iron concentrations for background and site significant when excluding effect of covariate? | Adjusted Means p-value [a] = > 0.99 |

(1) ANCOVA for Two Independent Samples performed using the online analytical tool available through Vassar College (http://vassarstats.net/ancova2L.html).

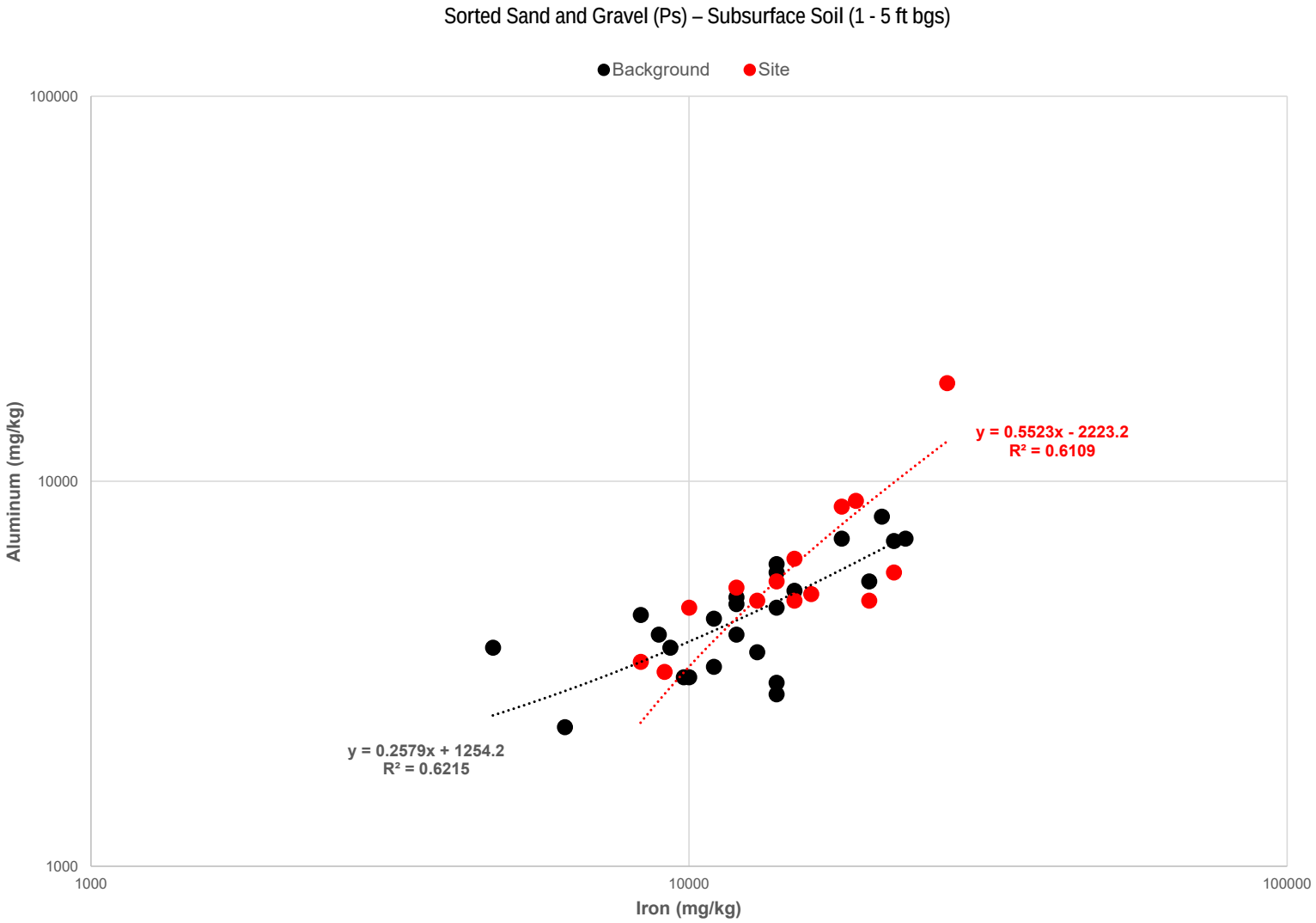
Figure F.5-1
Geochemical Analysis - Background and Site Data, Surface Soil (0 - 1 ft bgs, Psc)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY




| *ANCOVA Summary ([a] significant difference noted at p-values ≤ 0.05)* | |
|---|---|
| Are the slopes of the regression lines considered separately approximately the same? | Homogeneity of Regressions p-value [a] = 0.41 |
| Are differences in mean iron concentrations for background and site significant when excluding effect of covariate? | Adjusted Means p-value [a] = 0.01 |

(1) ANCOVA for Two Independent Samples performed using the online analytical tool available through Vassar College (http://vassarstats.net/ancova2L.html).

Figure F.5-1
Geochemical Analysis - Background and Site Data, Surface Soil (0 - 1 ft bgs, Psc)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

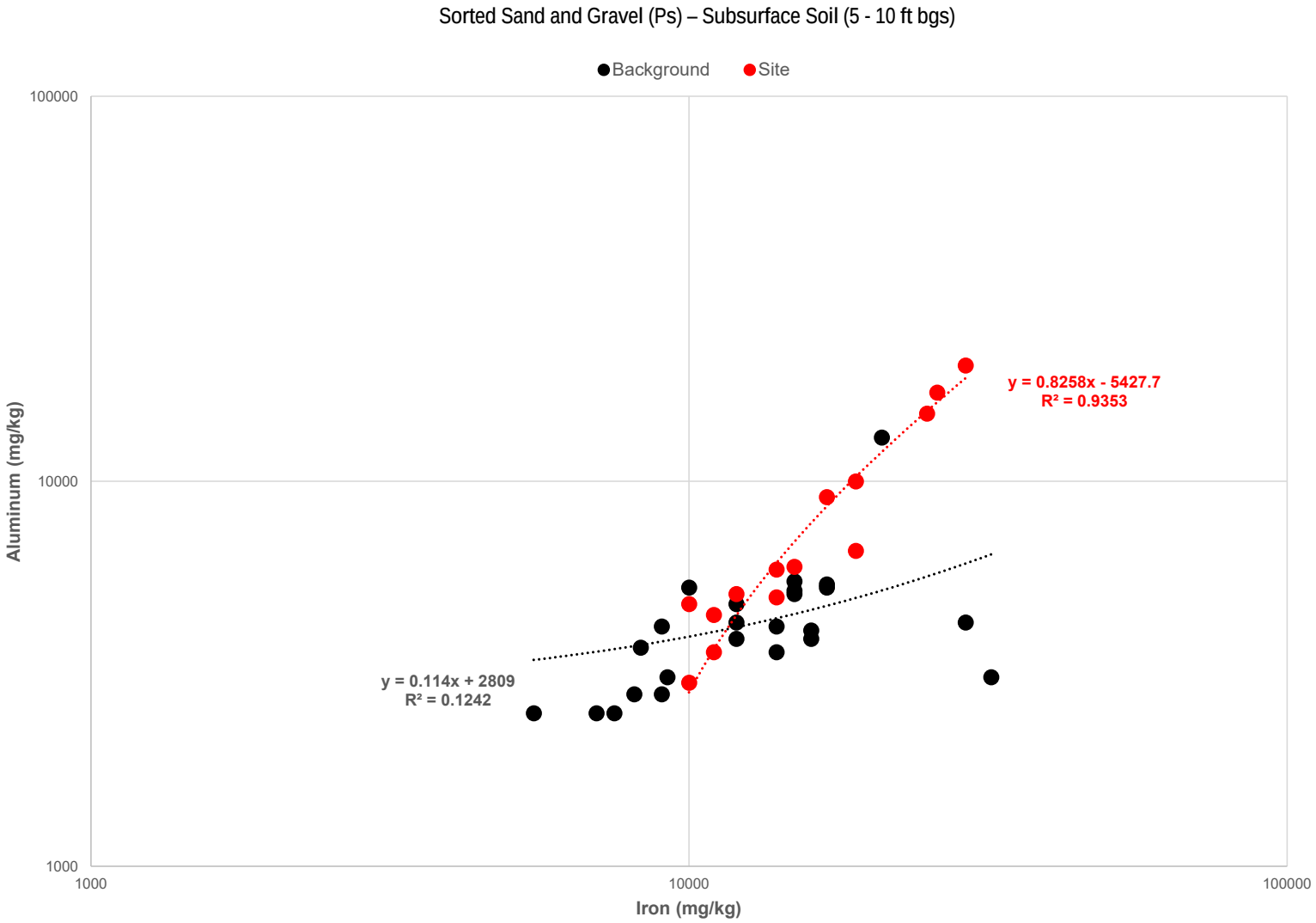



*ANCOVA Summary ([a] significant difference noted at p-values ≤ 0.05)*

| | |
|---|---|
| Are the slopes of the regression lines considered separately approximately the same? | Homogeneity of Regressions p-value [a] = 0.013 |
| Are differences in mean iron concentrations for background and site significant when excluding effect of covariate? | Adjusted Means p-value [a] = N/A |

(1) ANCOVA for Two Independent Samples performed using the online analytical tool available through Vassar College (http://vassarstats.net/ancova2L.html).

Figure F.5-1
Geochemical Analysis - Background and Site Data, Surface Soil (0 - 1 ft bgs, Psc)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

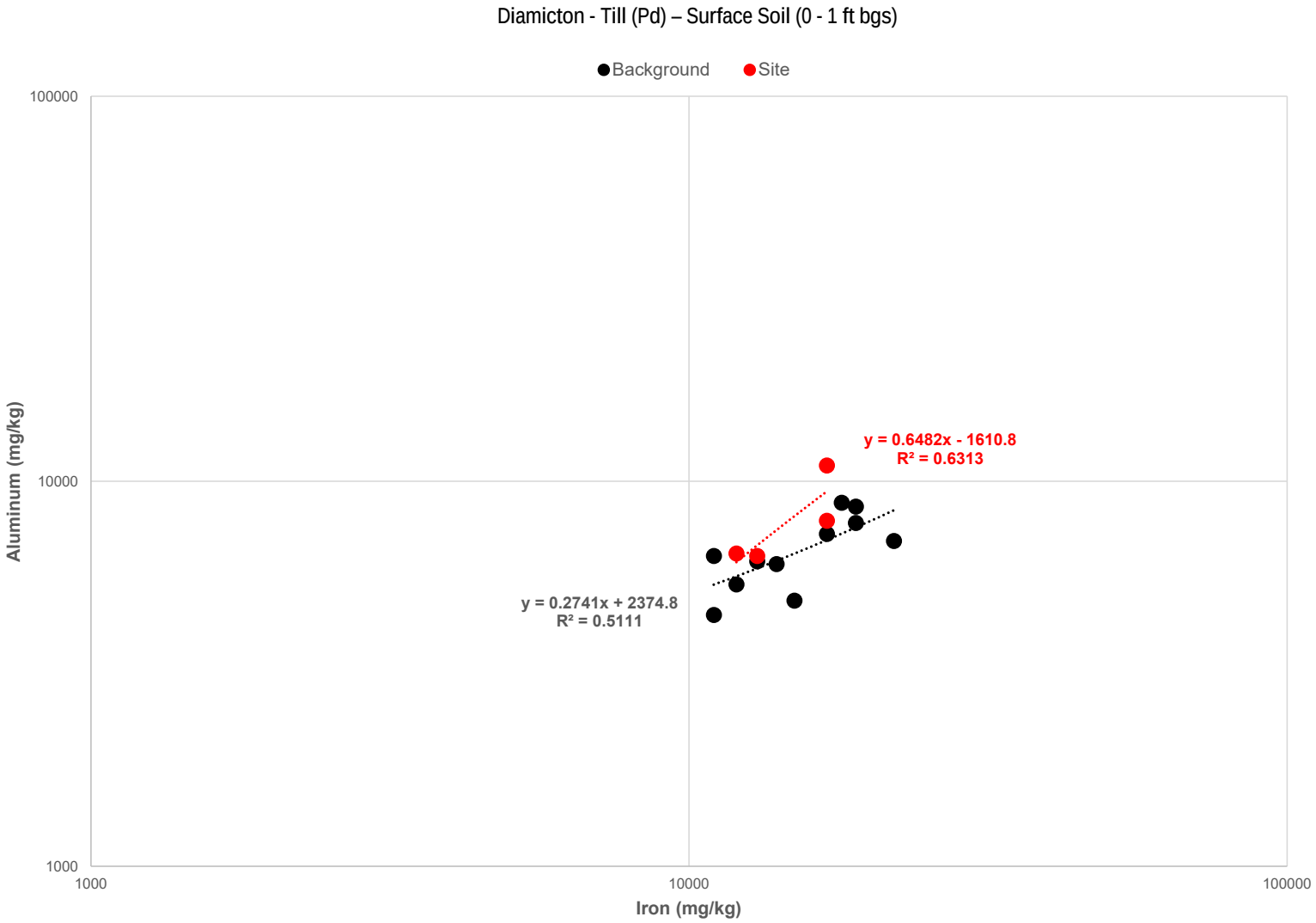



*ANCOVA Summary ([a] significant difference noted at p-values ≤ 0.05)*

| | |
|---|---|
| Are the slopes of the regression lines considered separately approximately the same? | Homogeneity of Regressions p-value [a] = > 0.99 |
| Are differences in mean iron concentrations for background and site significant when excluding effect of covariate? | Adjusted Means p-value [a] = 0.0058 |

(1) ANCOVA for Two Independent Samples performed using the online analytical tool available through Vassar College (http://vassarstats.net/ancova2L.html).

Figure F.5-1
Geochemical Analysis - Background and Site Data, Surface Soil (0 - 1 ft bgs, Psc)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

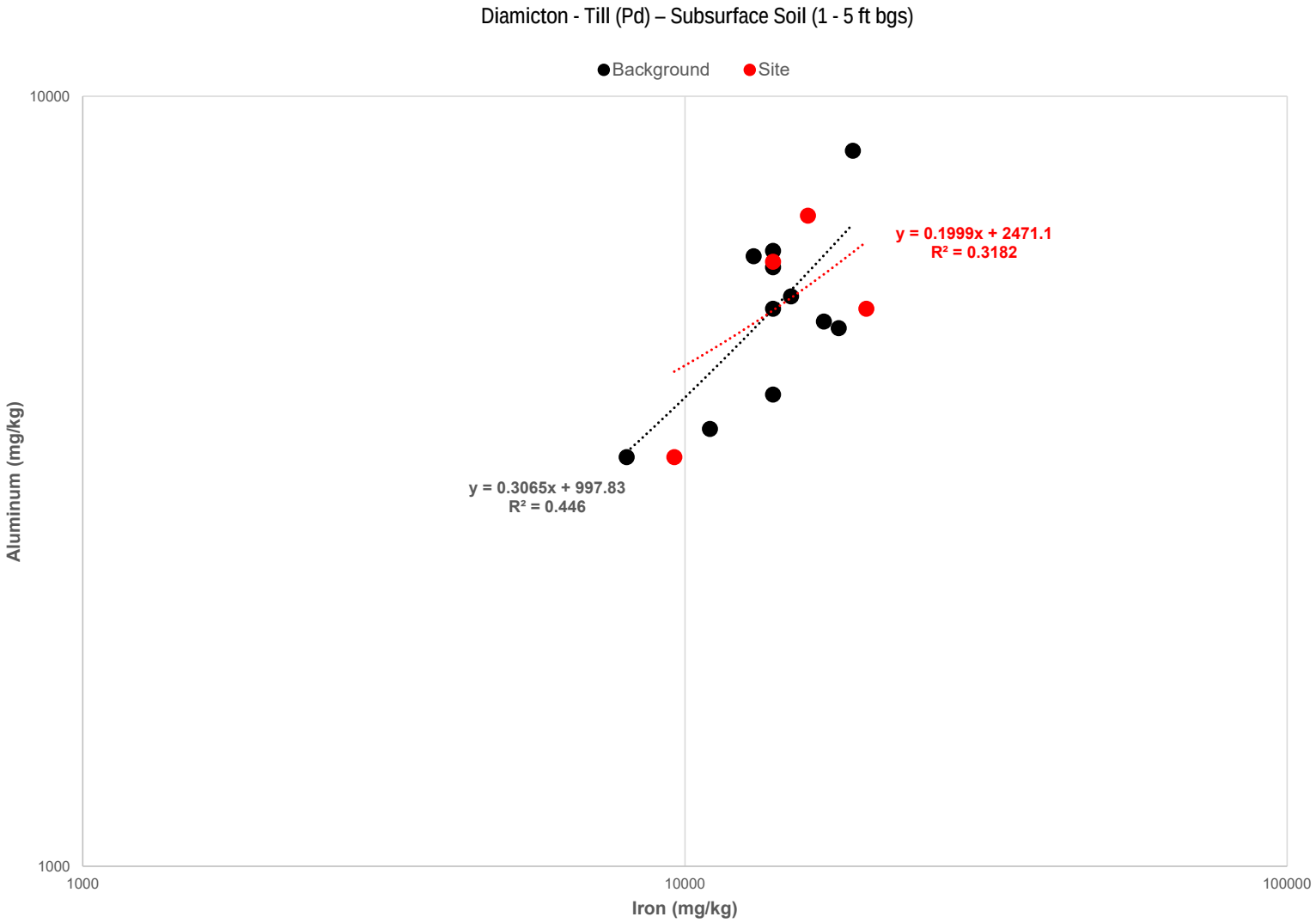



*ANCOVA Summary ([a] significant difference noted at p-values ≤ 0.05)*

| | |
|---|---|
| Are the slopes of the regression lines considered separately approximately the same? | Homogeneity of Regressions p-value [a] = 0.2 |
| Are differences in mean iron concentrations for background and site significant when excluding effect of covariate? | Adjusted Means p-value [a] = 0.047 |

(1) ANCOVA for Two Independent Samples performed using the online analytical tool available through Vassar College (http://vassarstats.net/ancova2L.html).

Figure F.5-1
Geochemical Analysis - Background and Site Data, Surface Soil (0 - 1 ft bgs, Psc)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

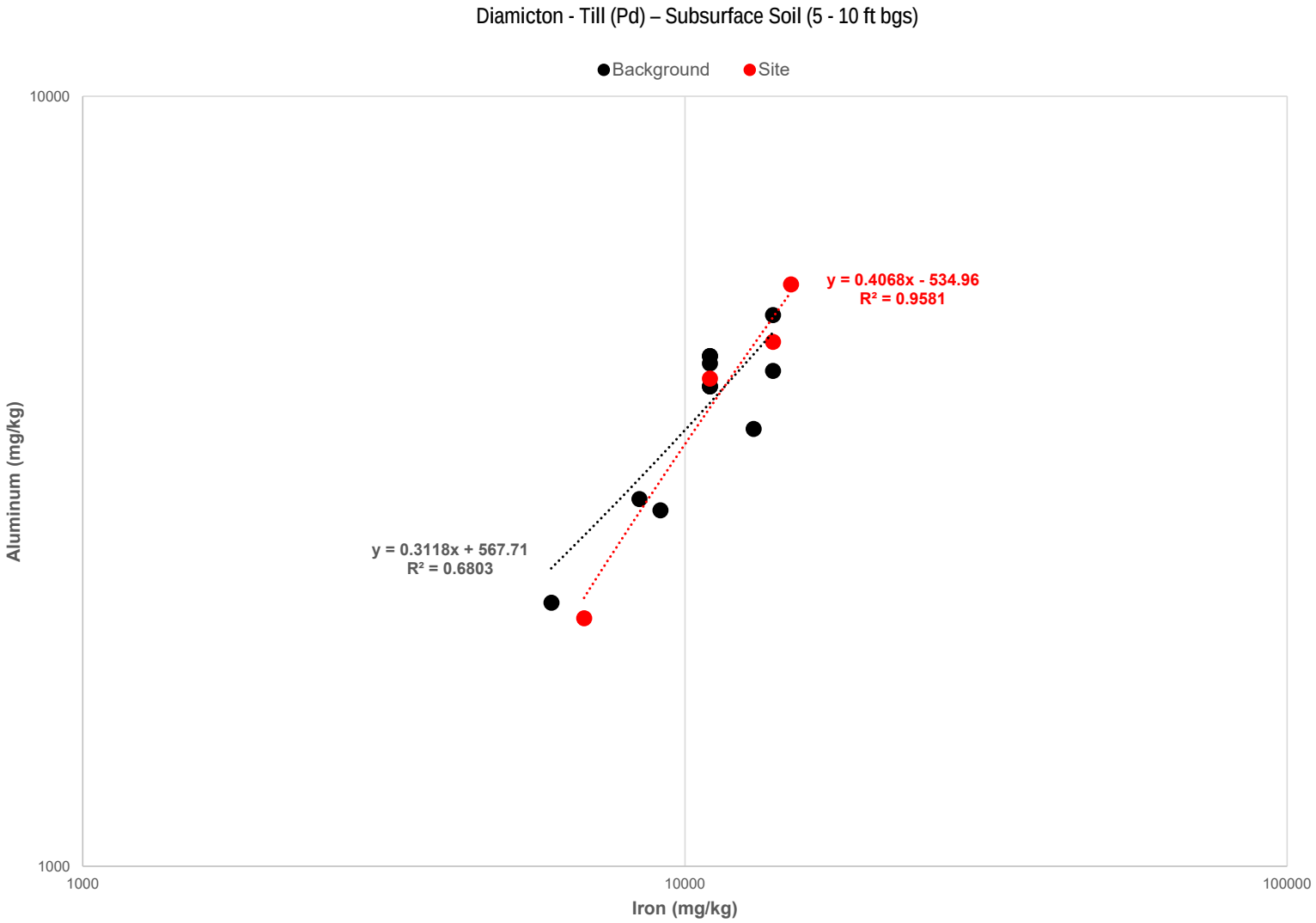



*ANCOVA Summary ([a] significant difference noted at p-values ≤ 0.05)*

| | |
|---|---|
| Are the slopes of the regression lines considered separately approximately the same? | Homogeneity of Regressions p-value [a] = 0.61 |
| Are differences in mean iron concentrations for background and site significant when excluding effect of covariate? | Adjusted Means p-value [a] = 0.89 |

(1) ANCOVA for Two Independent Samples performed using the online analytical tool available through Vassar College (http://vassarstats.net/ancova2L.html).

Figure F.5-1
Geochemical Analysis - Background and Site Data, Surface Soil (0 - 1 ft bgs, Psc)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY




*ANCOVA Summary ([a] significant difference noted at p-values ≤ 0.05)*

| | |
|---|---|
| Are the slopes of the regression lines considered separately approximately the same? | Homogeneity of Regressions p-value [a] = 0.39 |
| Are differences in mean iron concentrations for background and site significant when excluding effect of covariate? | Adjusted Means p-value [a] = 0.92 |

(1) ANCOVA for Two Independent Samples performed using the online analytical tool available through Vassar College (http://vassarstats.net/ancova2L.html).

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# APPENDIX F.6

# Low Molecular Weight and High Molecular Weight PAHs

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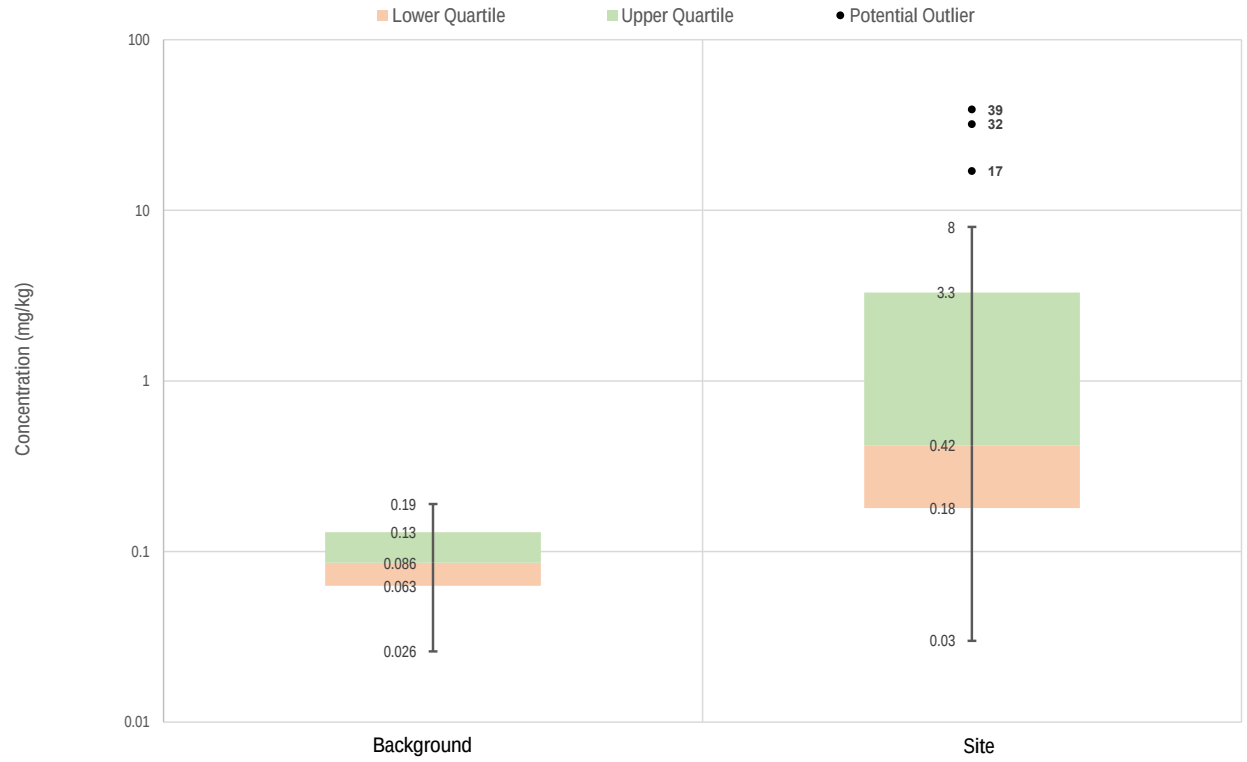
| High Molecular Weight PAHs | | | |
|---|---|---|---|
| Lacustrine Silt and Clay (Psc) | | | |
| Surface Soil (0 - 1 ft bgs) | | | |
|  | | | |
| General Statistics [1] | | | |
| FOD: | 8/8 | FOD: | 25/25 |
| Data Distribution: | Normal | Data Distribution: | Lognormal |
| Homogeneity of Variance (Levene's Test) p-value: | 0.22 | | |
| Hypothesis Testing [1] | | | |
| Type: | Dunn's Test | | |
| p-value: | 0.0025 | | |

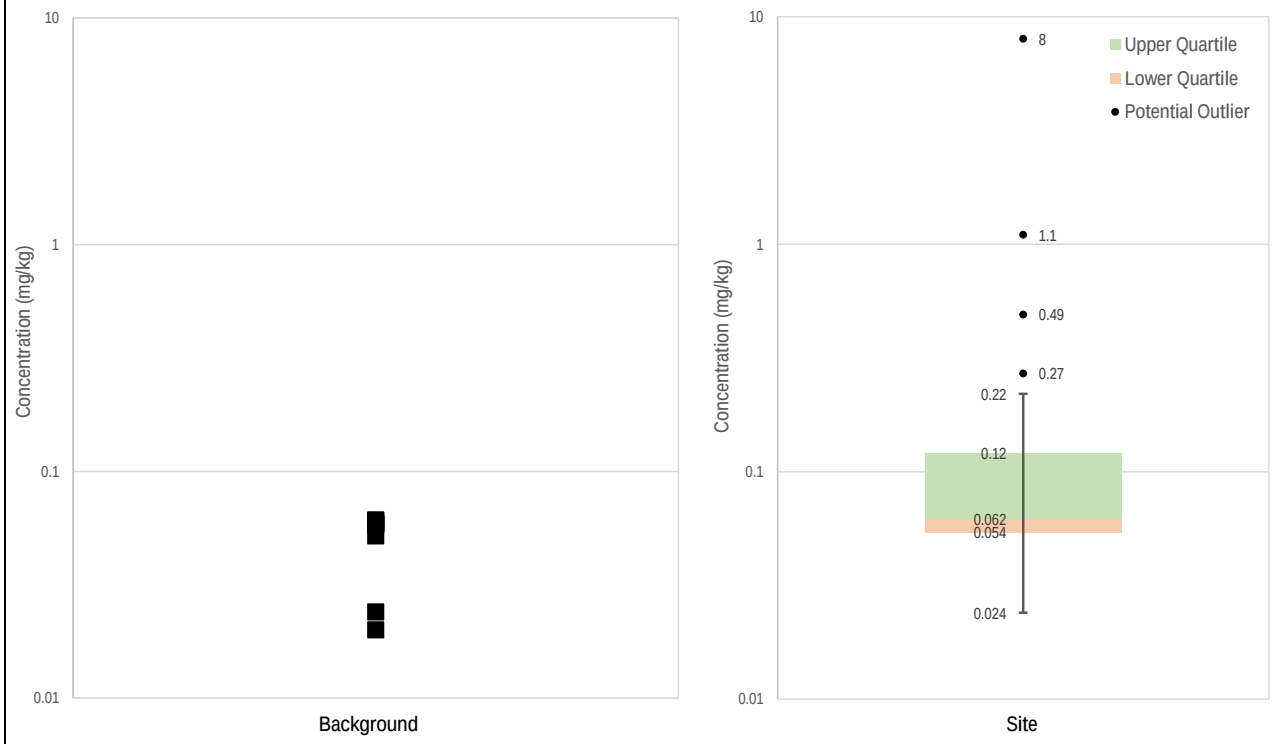
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

FOD - Frequency of Detection

| High Molecular Weight PAHs | | | |
|---|---|---|---|
| Lacustrine Silt and Clay (Psc) | | | |
| Subsurface Soil (1 - 5 ft bgs) | | | |
|  | | | |
| General Statistics [1] | | | |
| FOD: | 2/8 | FOD: | 13/25 |
| Data Distribution: | Not Discernible | Data Distribution: | Lognormal |
| Homogeneity of Variance (Levene's Test) p-value: | Not Applicable (N/A) | | |
| Hypothesis Testing [1] | | | |
| Type: | N/A | | |
| p-value: | N/A | | |

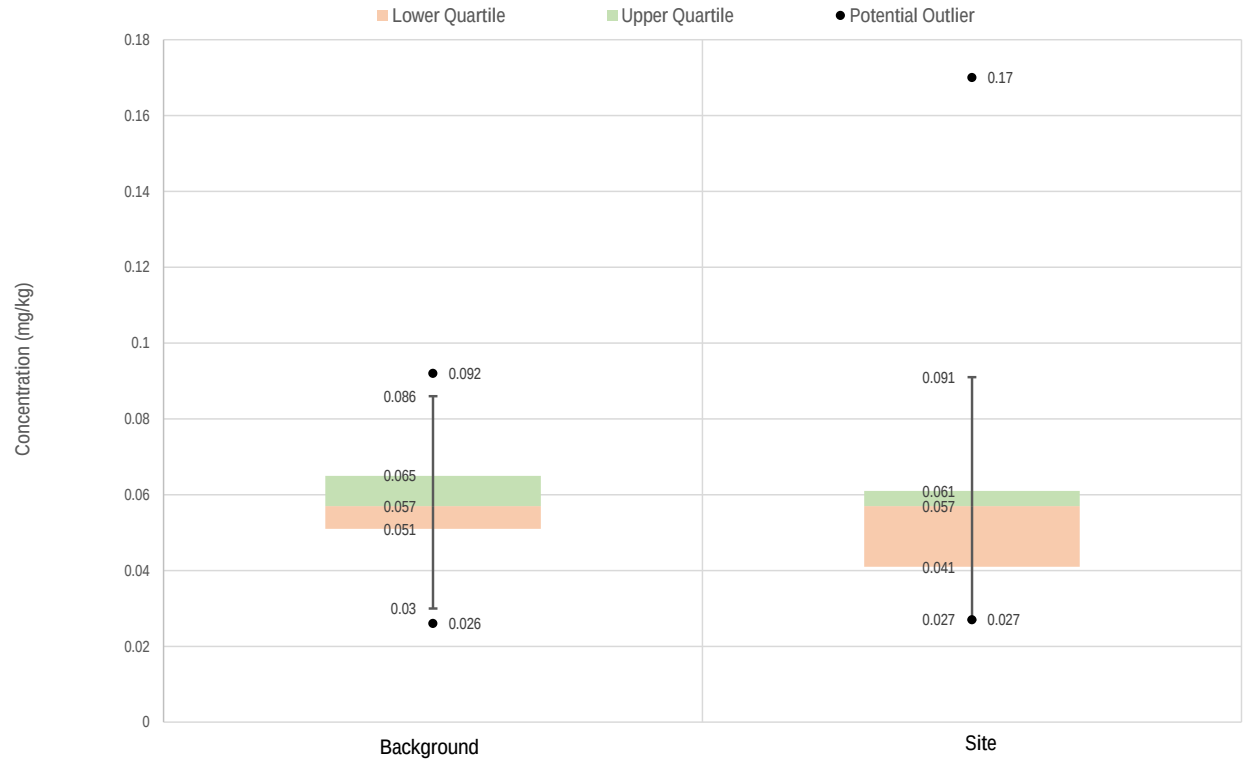
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

FOD - Frequency of Detection

| High Molecular Weight PAHs | | | |
|---|---|---|---|
| Lacustrine Silt and Clay (Psc) | | | |
| Subsurface Soil (5 - 10 ft bgs) | | | |
|  | | | |
| General Statistics [1] | | | |
| FOD: | 4/8 | FOD: | 6/9 |
| Data Distribution: | Normal | Data Distribution: | Normal |
| Homogeneity of Variance (Levene's Test) p-value: | 0.32 | | |
| Hypothesis Testing [1] | | | |
| Type: | Tukey's Test | | |
| p-value: | 0.78 | | |

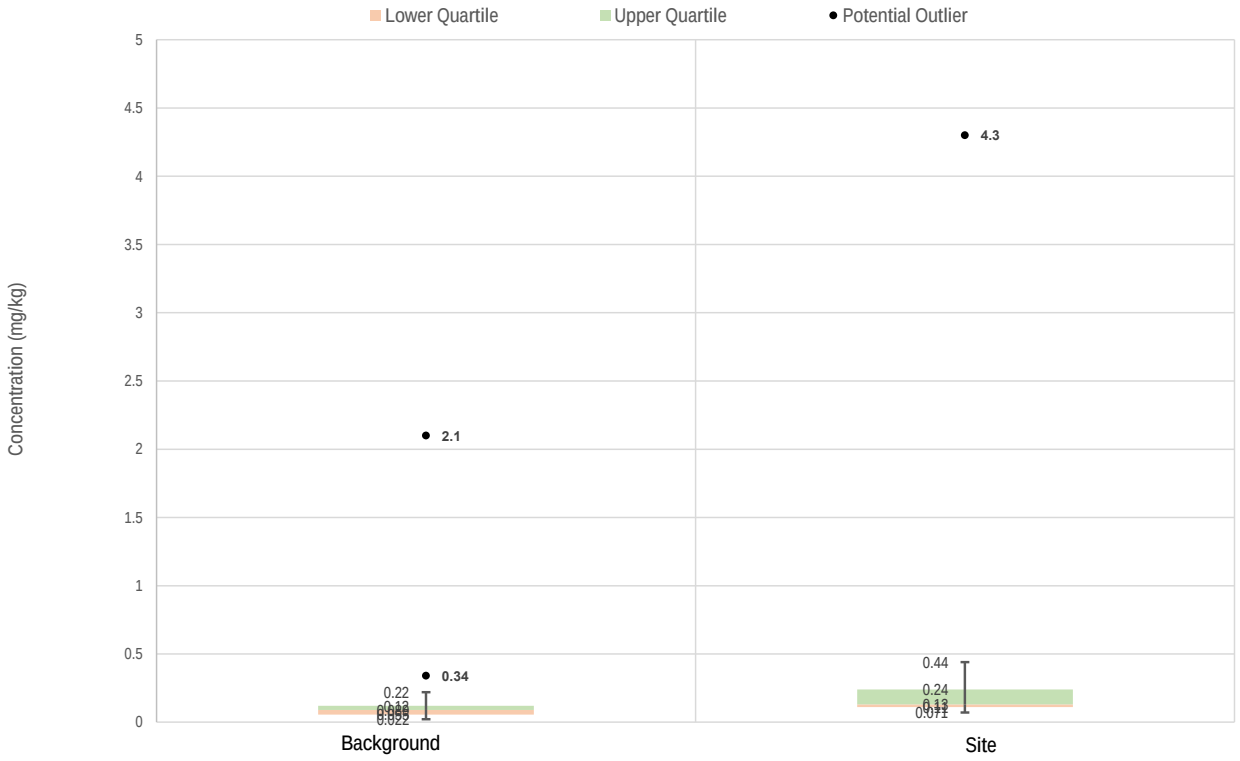
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

FOD - Frequency of Detection

| High Molecular Weight PAHs | | | |
|---|---|---|---|
| Sorted Sand and Gravel (Ps) | | | |
| Surface Soil (0 - 1 ft bgs) | | | |
|  | | | |
| General Statistics [1] | | | |
| FOD: | 21/24 | FOD: | 8/8 |
| Data Distribution: | Not Discernible | Data Distribution: | Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: | 0.17 | | |
| Hypothesis Testing [1] | | | |
| Type: | Dunn's Test | | |
| p-value: | 0.026 | | |

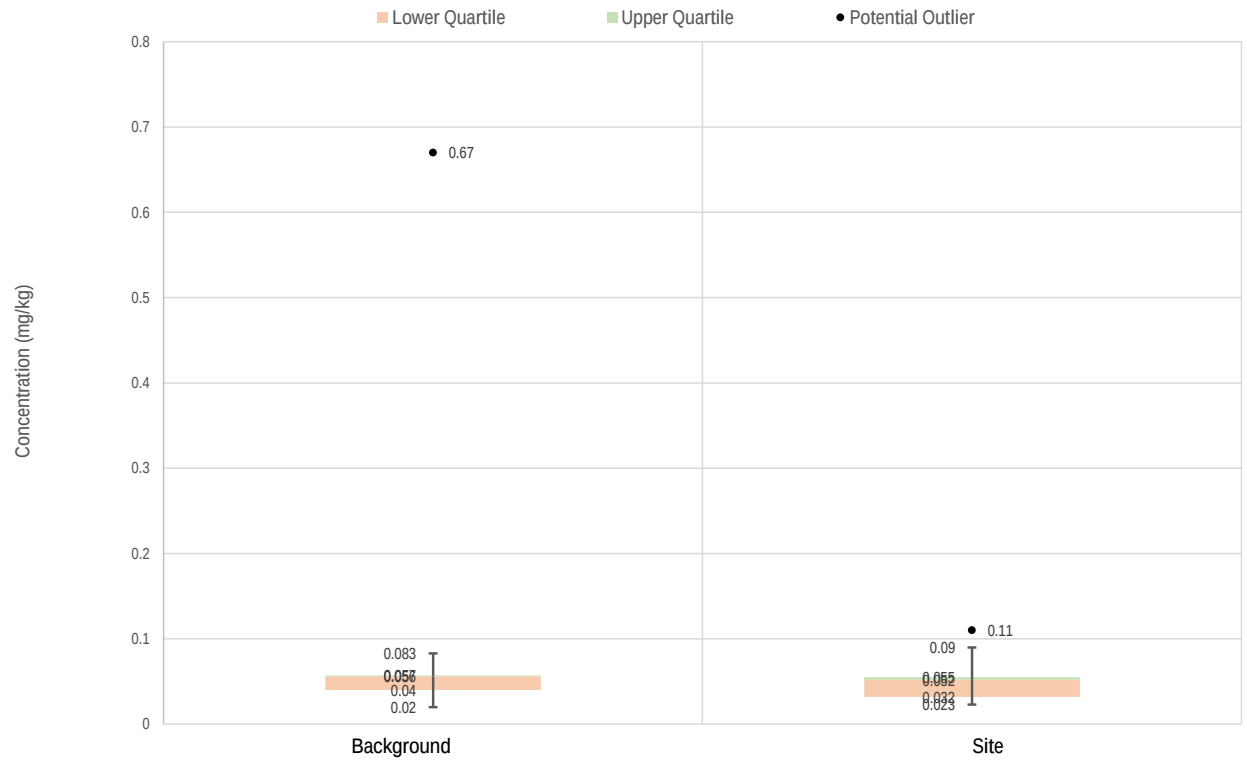
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

FOD - Frequency of Detection

| High Molecular Weight PAHs | | | |
|---|---|---|---|
| Sorted Sand and Gravel (Ps) | | | |
| Subsurface Soil (1 - 5 ft bgs) | | | |
|  | | | |
| General Statistics [1] | | | |
| FOD: | 8/24 | FOD: | 6/8 |
| Data Distribution: | Not Discernible | Data Distribution: | Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.71 | | | |
| Hypothesis Testing [1] | | | |
| Type: Dunn's Test | | | |
| p-value: 0.49 | | | |

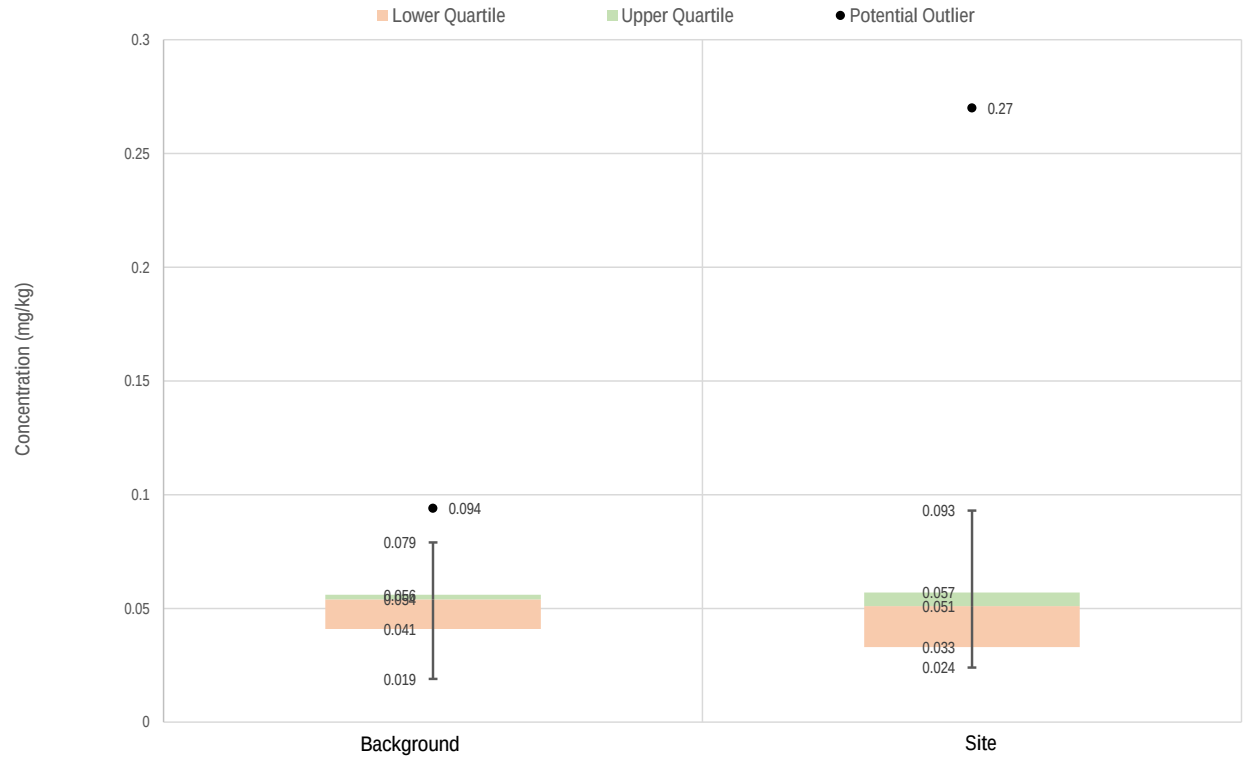
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

FOD - Frequency of Detection

| High Molecular Weight PAHs | | | |
|---|---|---|---|
| Sorted Sand and Gravel (Ps) | | | |
| Subsurface Soil (5 - 10 ft bgs) | | | |
|  | | | |
| General Statistics [1] | | | |
| FOD: | 11/24 | FOD: | 7/8 |
| Data Distribution: | Normal | Data Distribution: | Lognormal |
| Homogeneity of Variance (Levene's Test) p-value: | 0.09 | | |
| Hypothesis Testing [1] | | | |
| Type: | Dunn's Test | | |
| p-value: | 0.83 | | |

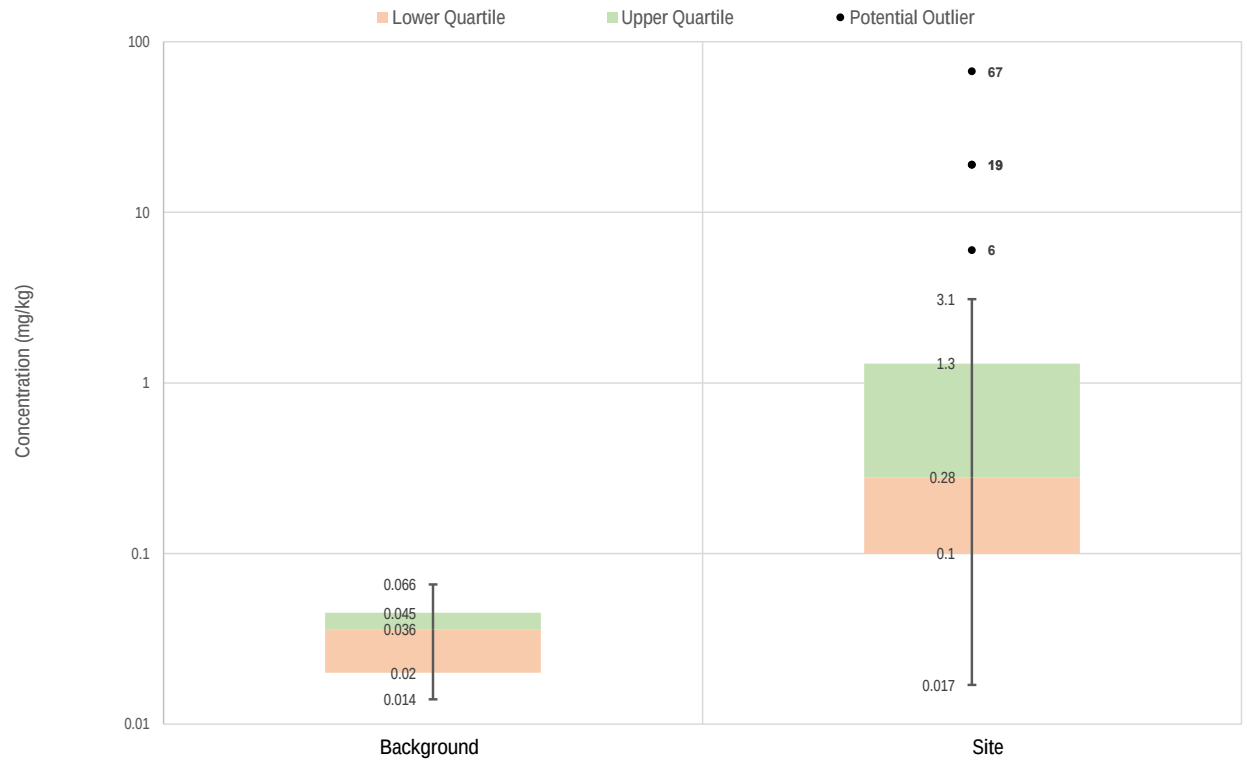
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

FOD - Frequency of Detection

| Low Molecular Weight PAHs | | | |
|---|---|---|---|
| Lacustrine Silt and Clay (Psc) | | | |
| Surface Soil (0 - 1 ft bgs) | | | |
|  | | | |
| General Statistics [1] | | | |
| FOD: | 8/8 | FOD: | 25/25 |
| Data Distribution: | Normal | Data Distribution: | Lognormal |
| Homogeneity of Variance (Levene's Test) p-value: | 0.34 | | |
| Hypothesis Testing [1] | | | |
| Type: | Dunn's Test | | |
| p-value: | 0.00026 | | |

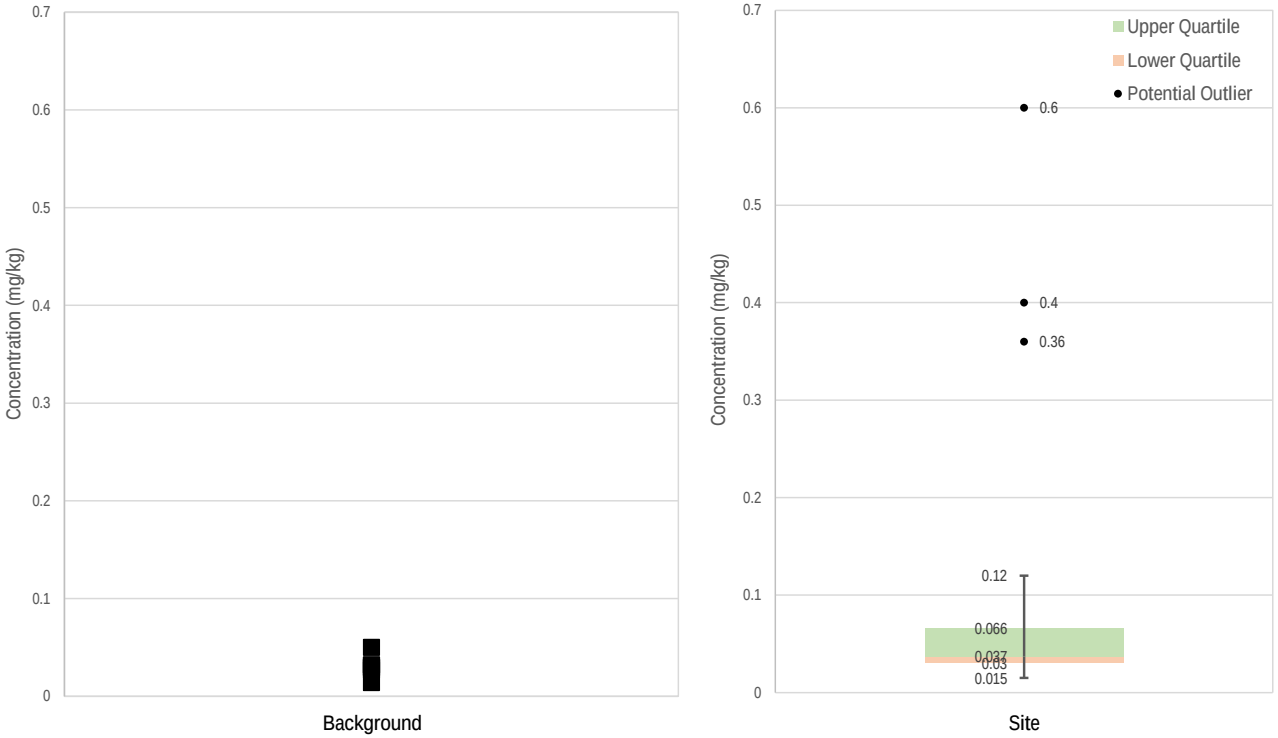
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

FOD - Frequency of Detection

| Low Molecular Weight PAHs | | | |
|---|---|---|---|
| Lacustrine Silt and Clay (Psc) | | | |
| Subsurface Soil (1 - 5 ft bgs) | | | |
|  | | | |
| General Statistics [1] | | | |
| FOD: | 2/8 | FOD: | 15/25 |
| Data Distribution: | Not Discernible | Data Distribution: | Lognormal |
| Homogeneity of Variance (Levene's Test) p-value: | Not Applicable (N/A) | | |
| Hypothesis Testing [1] | | | |
| Type: | N/A | | |
| p-value: | N/A | | |

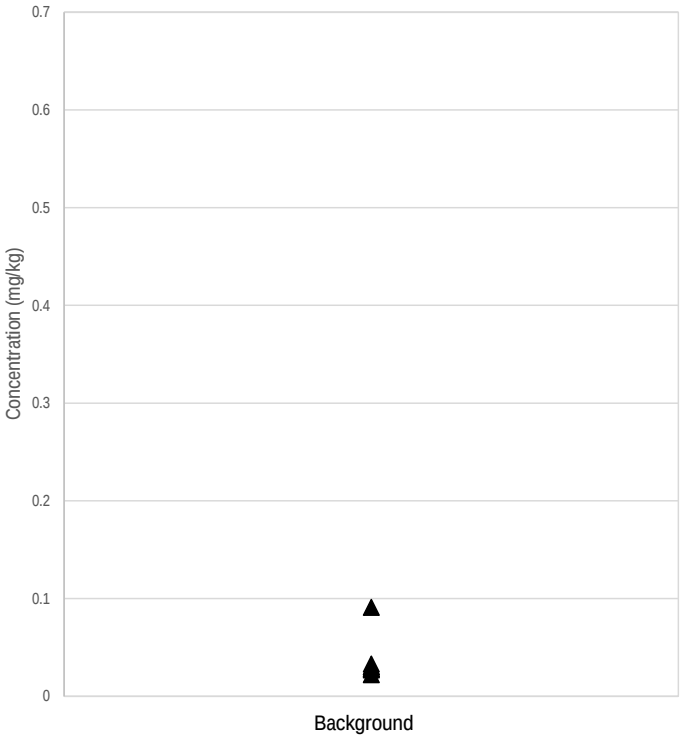
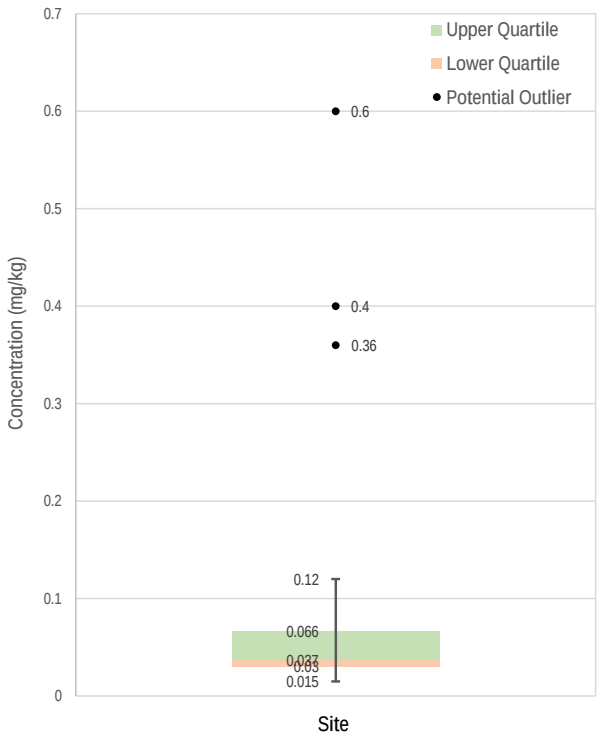
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

FOD - Frequency of Detection

| Low Molecular Weight PAHs | | | |
|---|---|---|---|
| Lacustrine Silt and Clay (Psc) | | | |
| Subsurface Soil (5 - 10 ft bgs) | | | |
|  | |  | |
| General Statistics [1] | | | |
| FOD: | 3/8 | FOD: | 7/9 |
| Data Distribution: | Normal | Data Distribution: | Normal |
| Homogeneity of Variance (Levene's Test) p-value: Not Applicable (N/A) | | | |
| Hypothesis Testing [1] | | | |
| Type: N/A | | | |
| p-value: N/A | | | |

Notes:

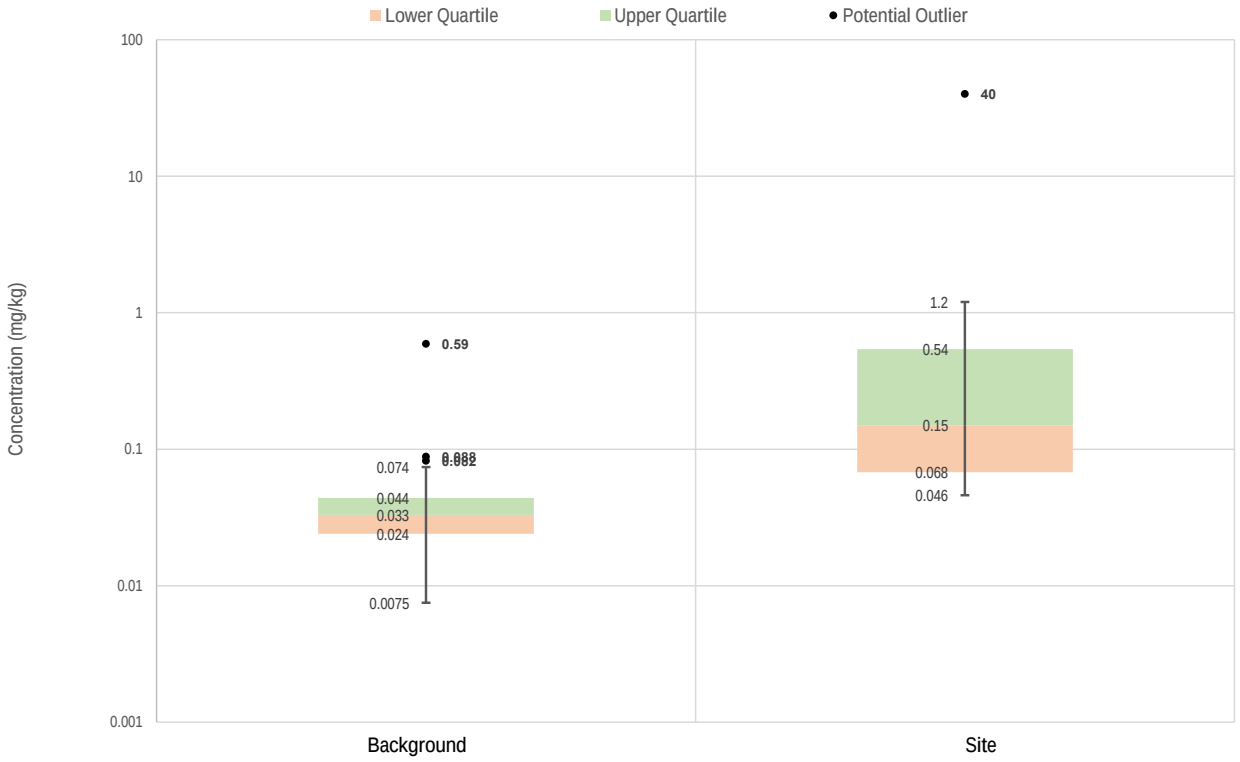
(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

FOD - Frequency of Detection

| Low Molecular Weight PAHs | | | |
|---|---|---|---|
| Sorted Sand and Gravel (Ps) | | | |
| Surface Soil (0 - 1 ft bgs) | | | |




| General Statistics [1] | | | |
|---|---|---|---|
| FOD: | 22/24 | FOD: | 8/8 |
| Data Distribution: | Lognormal | Data Distribution: | Lognormal |
| Homogeneity of Variance (Levene's Test) p-value: | 0.07 | | |
| Hypothesis Testing [1] | | | |
| Type: | Dunn's Test | | |
| p-value: | 0.00042 | | |

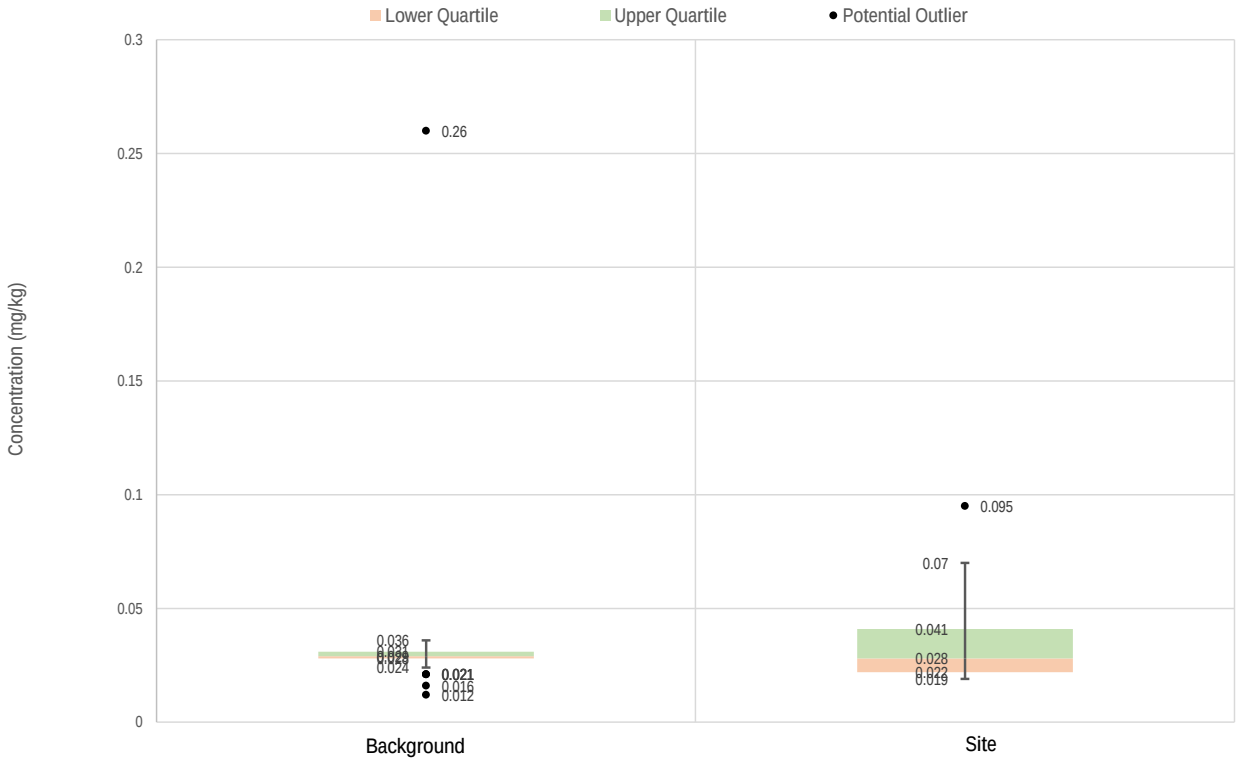
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

FOD - Frequency of Detection

| Low Molecular Weight PAHs | | | |
|---|---|---|---|
| Sorted Sand and Gravel (Ps) | | | |
| Subsurface Soil (1 - 5 ft bgs) | | | |
|  | | | |
| General Statistics [1] | | | |
| FOD: | 11/24 | FOD: | 8/8 |
| Data Distribution: | Not Discernible | Data Distribution: | Normal |
| Homogeneity of Variance (Levene's Test) p-value: | 0.87 | | |
| Hypothesis Testing [1] | | | |
| Type: | Dunn's Test | | |
| p-value: | 0.79 | | |

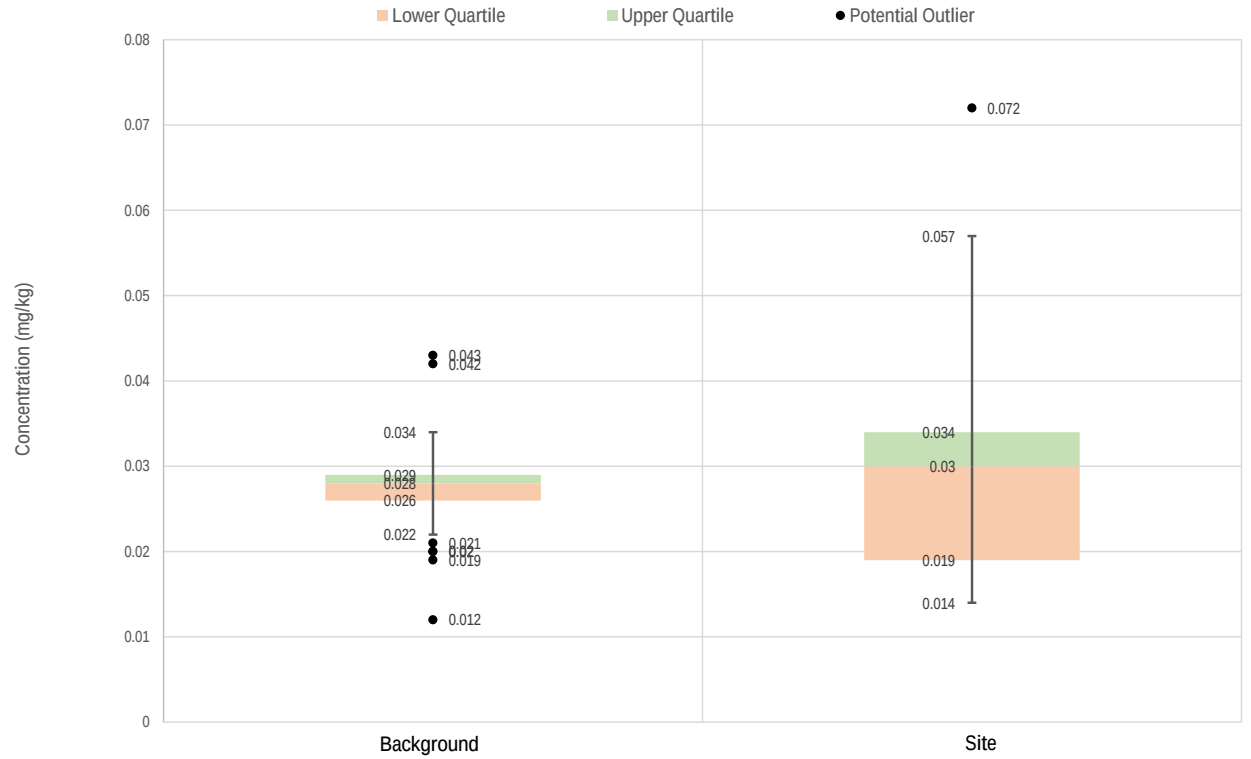
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

FOD - Frequency of Detection

| Low Molecular Weight PAHs | | | |
|---|---|---|---|
| Sorted Sand and Gravel (Ps) | | | |
| Subsurface Soil (5 - 10 ft bgs) | | | |
|  | | | |
| General Statistics [1] | | | |
| FOD: | 9/24 | FOD: | 8/8 |
| Data Distribution: | Normal | Data Distribution: | Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.02 | | | |
| Hypothesis Testing [1] | | | |
| Type: Dunn's Test | | | |
| p-value: 0.47 | | | |

Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

FOD - Frequency of Detection

# APPENDIX F.7

# Pyrogenic and Petrogenic PAH Evaluation

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Appendix F.7
Pyrogenic and Petrogenic PAH Evaluation
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sample Name | Mean[1] | | Summation[1] | | PAH Ratios | | | | Pyrogenic or Petrogenic | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LMW | HMW | LMW | HMW | An/(An+Ph) | BaA/(BaA+Chry) | FIA/(FIA+Py) | LMW/HMW | An/(An+Ph) | BaA/(BaA+Chry) | FIA/(FIA+Py) | LMW/HMW | FINAL |
| NYOW-03-PH001-B | N/A | N/A | 0.032 | 0.062 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-03-PH002-B | 0.00249 | N/A | 0.022 | 0.06 | -- | -- | -- | 0.37 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-03-PH003-B | N/A | N/A | 0.032 | 0.062 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-03-PH004-B | N/A | N/A | 0.031 | 0.06 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-03-PH005-B | 0.0441 | 0.893 | 0.4 | 8 | 0.57 | 0.26 | 0.42 | 0.05 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-PH006-B | N/A | N/A | 0.034 | 0.065 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-03-PH007-B | 0.00713 | 0.0149 | 0.064 | 0.13 | 0.44 | 0.45 | 0.46 | 0.49 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-PH008-B | 0.00874 | 0.0137 | 0.079 | 0.12 | 0.31 | 0.52 | 0.46 | 0.66 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-PH009-B | N/A | N/A | 0.041 | 0.059 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-03-PH010-B | N/A | N/A | 0.6 | 1.1 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-03-PH011-B | 0.0116 | 0.0304 | 0.1 | 0.27 | 0.1 | 0.39 | 0.56 | 0.37 | Inconclusive | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-PH012-B | 0.0401 | 0.0546 | 0.36 | 0.49 | 0.13 | 0.48 | 0.59 | 0.73 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-PH013-B | N/A | N/A | 0.044 | 0.064 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-03-PH014-B | 0.00279 | 0.00421 | 0.025 | 0.038 | 0.29 | 0.46 | 0.56 | 0.66 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-PH015-B | 0.00728 | 0.0176 | 0.066 | 0.16 | 0.35 | 0.49 | 0.5 | 0.41 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-PH016-B | 0.0017 | 0.00318 | 0.015 | 0.029 | -- | 0.47 | 0.55 | 0.52 | Not Calculated | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-SL001-A | 0.00784 | 0.0203 | 0.071 | 0.18 | 0.19 | 0.45 | 0.55 | 0.39 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-SL002-A | 0.0122 | 0.0285 | 0.11 | 0.26 | 0.15 | 0.45 | 0.53 | 0.42 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-SL003-A | 0.0023 | 0.00448 | 0.021 | 0.04 | 0.6 | 0.42 | 0.54 | 0.53 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-SL004-A | 0.0112 | 0.0192 | 0.1 | 0.17 | 0.21 | 0.45 | 0.55 | 0.59 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-SL005-A | 0.125 | 0.245 | 1.1 | 2.2 | 0.23 | 0.53 | 0.58 | 0.5 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-SL006-A | 0.0104 | 0.032 | 0.094 | 0.29 | 0.29 | 0.49 | 0.52 | 0.32 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-SL007-A | 0.664 | 1.861 | 6 | 17 | 0.2 | 0.5 | 0.47 | 0.35 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-SL008-A | 2.094 | 3.521 | 19 | 32 | 0.18 | 0.58 | 0.49 | 0.59 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-SL009-A | 0.0775 | 0.138 | 0.7 | 1.2 | 0.19 | 0.47 | 0.55 | 0.58 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-SL010-A | 0.269 | 0.66 | 2.4 | 5.9 | 0.27 | 0.44 | 0.5 | 0.41 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-SL011-A | 0.148 | 0.369 | 1.3 | 3.3 | 0.28 | 0.43 | 0.47 | 0.39 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-SL012-A | 0.329 | 0.639 | 3 | 5.8 | 0.17 | 0.47 | 0.58 | 0.52 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-SL013-A | 0.0174 | 0.0605 | 0.16 | 0.54 | 0.6 | 0.43 | 0.53 | 0.3 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-SL014-A | 0.113 | 0.239 | 1 | 2.2 | 0.22 | 0.49 | 0.51 | 0.45 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-03-SL015-A | 7.481 | 4.382 | 67 | 39 | 0.23 | 0.52 | 0.56 | 1.7 | Pyrogenic | Pyrogenic | Pyrogenic | Petrogenic | Pyrogenic |
| NYOW-03-SL016-A | 0.0154 | 0.0463 | 0.14 | 0.42 | 0.27 | 0.47 | 0.51 | 0.33 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH001-B | 0.0024 | N/A | 0.022 | 0.059 | -- | -- | 0.61 | 0.37 | Not Calculated | Not Calculated | Pyrogenic | Pyrogenic | Inconclusive |
| NYOW-05-PH001-C | 0.00308 | 0.00676 | 0.028 | 0.061 | 0.31 | 0.5 | 0.53 | 0.46 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH002-B | 0.00209 | N/A | 0.019 | 0.053 | -- | -- | -- | 0.36 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-05-PH002-C | 0.00407 | N/A | 0.037 | 0.053 | -- | -- | -- | 0.7 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-05-PH003-B | 0.00487 | 0.00596 | 0.044 | 0.054 | -- | 0.3 | -- | 0.81 | Not Calculated | Pyrogenic | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-05-PH003-C | 0.00368 | 0.00862 | 0.033 | 0.078 | -- | 0.5 | 0.73 | 0.42 | Not Calculated | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH004-B | 0.00447 | 0.00693 | 0.04 | 0.062 | 0.31 | 0.5 | 0.5 | 0.65 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH004-C | 0.00368 | 0.00671 | 0.033 | 0.06 | 0.3 | -- | 0.5 | 0.55 | Pyrogenic | Not Calculated | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH005-B | 0.00487 | 0.00587 | 0.044 | 0.053 | -- | 0.3 | -- | 0.83 | Not Calculated | Pyrogenic | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-05-PH005-C | 0.0033 | 0.00622 | 0.03 | 0.056 | -- | 0.5 | 0.82 | 0.54 | Not Calculated | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH006-B | N/A | N/A | 0.031 | 0.061 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-05-PH006-C | 0.00338 | N/A | 0.03 | 0.058 | -- | -- | -- | 0.52 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-05-PH007-B | 0.00209 | N/A | 0.019 | 0.051 | -- | -- | -- | 0.37 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |

Appendix F.7
Pyrogenic and Petrogenic PAH Evaluation
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sample Name | Mean[(1)] | | Summation[(1)] | | PAH Ratios | | | | Pyrogenic or Petrogenic | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LMW | HMW | LMW | HMW | An/(An+Ph) | BaA/(BaA+Chry) | FlA/(FlA+Py) | LMW/HMW | An/(An+Ph) | BaA/(BaA+Chry) | FlA/(FlA+Py) | LMW/HMW | FINAL |
| NYOW-05-PH007-C | 0.00229 | 0.00379 | 0.021 | 0.034 | -- | 0.31 | -- | 0.62 | Not Calculated | Pyrogenic | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-05-PH008-B | 0.00407 | N/A | 0.037 | 0.053 | -- | -- | -- | 0.7 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-05-PH008-C | 0.00447 | N/A | 0.04 | 0.058 | -- | -- | -- | 0.69 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-05-PH009-B | N/A | N/A | 0.03 | 0.058 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-05-PH009-C | 0.00229 | N/A | 0.021 | 0.057 | -- | -- | -- | 0.37 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-05-PH010-B | N/A | 0.00511 | 0.027 | 0.046 | -- | -- | -- | 0.59 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-05-PH010-C | 0.00573 | 0.0193 | 0.052 | 0.17 | 0.5 | 0.35 | 0.5 | 0.31 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH011-B | 0.00254 | 0.0026 | 0.023 | 0.023 | -- | -- | 0.5 | 1 | Not Calculated | Not Calculated | Pyrogenic | Inconclusive | Inconclusive |
| NYOW-05-PH011-C | 0.00802 | 0.03 | 0.072 | 0.27 | 0.3 | 0.38 | 0.51 | 0.27 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH012-B | 0.0036 | 0.003 | 0.032 | 0.027 | -- | 0.63 | -- | 1.2 | Not Calculated | Pyrogenic | Not Calculated | Petrogenic | Inconclusive |
| NYOW-05-PH012-C | 0.00338 | 0.00528 | 0.03 | 0.048 | 0.3 | 0.42 | -- | 0.63 | Pyrogenic | Pyrogenic | Not Calculated | Pyrogenic | Pyrogenic |
| NYOW-05-PH013-B | 0.00759 | 0.0111 | 0.068 | 0.1 | 0.5 | 0.4 | 0.54 | 0.68 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH013-C | N/A | N/A | 0.028 | 0.054 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-05-PH014-B | 0.00338 | 0.00265 | 0.03 | 0.024 | -- | 0.67 | -- | 1.3 | Not Calculated | Pyrogenic | Not Calculated | Petrogenic | Inconclusive |
| NYOW-05-PH014-C | 0.00338 | 0.0033 | 0.03 | 0.03 | 0.31 | 0.53 | 0.66 | 1 | Pyrogenic | Pyrogenic | Pyrogenic | Inconclusive | Pyrogenic |
| NYOW-05-PH015-B | 0.00627 | 0.00798 | 0.056 | 0.072 | 0.49 | 0.6 | 0.54 | 0.78 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH015-C | 0.00599 | 0.00303 | 0.054 | 0.027 | 0.3 | 0.59 | 0.55 | 2 | Pyrogenic | Pyrogenic | Pyrogenic | Petrogenic | Pyrogenic |
| NYOW-05-PH016-B | N/A | N/A | 0.028 | 0.054 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-05-PH016-C | N/A | 0.0046 | 0.03 | 0.041 | -- | 0.52 | -- | 0.73 | Not Calculated | Pyrogenic | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-05-PH017-1-B | N/A | N/A | 0.028 | 0.055 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-05-PH017-1-C | N/A | N/A | 0.029 | 0.056 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-05-PH018-B | 0.00653 | 0.0099 | 0.059 | 0.089 | 0.31 | 0.63 | 0.5 | 0.66 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH018-C | 0.069 | 0.0362 | 0.62 | 0.33 | 0.091 | 0.41 | 0.48 | 1.9 | Petrogenic | Pyrogenic | Pyrogenic | Petrogenic | Inconclusive |
| NYOW-05-PH019-B | 0.0026 | 0.00362 | 0.023 | 0.033 | -- | 0.67 | 0.52 | 0.7 | Not Calculated | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH019-C | 0.00153 | 0.0027 | 0.014 | 0.024 | -- | -- | 0.53 | 0.58 | Not Calculated | Not Calculated | Pyrogenic | Pyrogenic | Inconclusive |
| NYOW-05-PH020-B | 0.0105 | 0.0124 | 0.095 | 0.11 | 0.5 | 0.44 | 0.54 | 0.86 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH020-C | 0.00151 | 0.00315 | 0.014 | 0.028 | -- | 0.53 | 0.67 | 0.5 | Not Calculated | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH021-B | 0.012 | 0.0129 | 0.11 | 0.12 | 0.46 | 0.41 | 0.51 | 0.92 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH021-C | 0.00229 | N/A | 0.021 | 0.056 | -- | -- | -- | 0.38 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-05-PH022-B | 0.0033 | 0.00623 | 0.03 | 0.056 | -- | 0.39 | 0.52 | 0.54 | Not Calculated | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH022-C | 0.0033 | 0.0106 | 0.03 | 0.095 | -- | 0.5 | 0.5 | 0.32 | Not Calculated | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH023-B | 0.014 | 0.0238 | 0.13 | 0.21 | 0.33 | 0.39 | 0.53 | 0.62 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH023-C | 0.00229 | N/A | 0.021 | 0.056 | -- | -- | -- | 0.38 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-05-PH024-B | 0.0428 | 0.00846 | 0.39 | 0.076 | 0.13 | 0.42 | 0.5 | 5.1 | Pyrogenic | Pyrogenic | Pyrogenic | Petrogenic | Pyrogenic |
| NYOW-05-PH024-C | 0.00447 | N/A | 0.04 | 0.056 | -- | -- | -- | 0.71 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-05-PH025-B | 0.00266 | 0.0057 | 0.024 | 0.051 | 0.56 | 0.29 | 0.54 | 0.47 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-PH025-C | N/A | N/A | 0.031 | 0.059 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-05-SL001-A | 0.00194 | 0.00337 | 0.017 | 0.03 | 0.6 | 0.41 | 0.54 | 0.57 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-SL002-A | 0.019 | 0.0188 | 0.17 | 0.17 | 0.28 | 0.49 | 0.53 | 1 | Pyrogenic | Pyrogenic | Pyrogenic | Inconclusive | Pyrogenic |
| NYOW-05-SL003-A | 0.0306 | 0.00676 | 0.28 | 0.061 | 0.13 | 0.41 | 0.45 | 4.6 | Pyrogenic | Pyrogenic | Pyrogenic | Petrogenic | Pyrogenic |
| NYOW-05-SL004-A | 0.0357 | 0.0139 | 0.32 | 0.13 | 0.068 | 0.32 | 0.5 | 2.5 | Petrogenic | Pyrogenic | Pyrogenic | Petrogenic | Inconclusive |
| NYOW-05-SL005-A | 0.136 | 0.0493 | 1.2 | 0.44 | 0.23 | 0.43 | 0.5 | 2.7 | Pyrogenic | Pyrogenic | Pyrogenic | Petrogenic | Pyrogenic |
| NYOW-05-SL006-A | 2.495 | 0.214 | 22 | 1.9 | 0.13 | 0.44 | 0.42 | 12 | Pyrogenic | Pyrogenic | Pyrogenic | Petrogenic | Pyrogenic |
| NYOW-05-SL007-A | 4.477 | 0.478 | 40 | 4.3 | 0.057 | 0.45 | 0.4 | 9.3 | Petrogenic | Pyrogenic | Inconclusive | Petrogenic | Inconclusive |
| NYOW-05-SL008-A | 2.116 | 0.454 | 19 | 4.1 | 0.075 | 0.38 | 0.43 | 4.6 | Petrogenic | Pyrogenic | Pyrogenic | Petrogenic | Inconclusive |

Appendix F.7
Pyrogenic and Petrogenic PAH Evaluation
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sample Name | Mean[1] | | Summation[1] | | PAH Ratios | | | | Pyrogenic or Petrogenic | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LMW | HMW | LMW | HMW | An/(An+Ph) | BaA/(BaA+Chry) | FIA/(FIA+Py) | LMW/HMW | An/(An+Ph) | BaA/(BaA+Chry) | FIA/(FIA+Py) | LMW/HMW | FINAL |
| NYOW-05-SL009-A | 0.0815 | 0.0772 | 0.73 | 0.69 | 0.019 | 0.12 | 0.43 | 1.1 | Petrogenic | Petrogenic | Pyrogenic | Petrogenic | Petrogenic |
| NYOW-05-SL010-A | 0.0353 | 0.0451 | 0.32 | 0.41 | 0.03 | 0.17 | 0.39 | 0.78 | Petrogenic | Petrogenic | Petrogenic | Pyrogenic | Petrogenic |
| NYOW-05-SL011-A | 0.013 | 0.0118 | 0.12 | 0.11 | 0.55 | 0.41 | 0.51 | 1.1 | Pyrogenic | Pyrogenic | Pyrogenic | Petrogenic | Pyrogenic |
| NYOW-05-SL012-A | 0.00787 | 0.0146 | 0.071 | 0.13 | 0.56 | 0.41 | 0.51 | 0.55 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-SL013-A | 0.00671 | 0.0123 | 0.06 | 0.11 | 0.59 | 0.44 | 0.53 | 0.55 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-SL014-A | 0.0081 | 0.0145 | 0.073 | 0.13 | 0.53 | 0.42 | 0.52 | 0.56 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-SL015-A | 0.0134 | 0.0393 | 0.12 | 0.35 | 0.38 | 0.41 | 0.52 | 0.34 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-SL016-A | 0.0153 | 0.0289 | 0.14 | 0.26 | 0.39 | 0.48 | 0.5 | 0.54 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-SL017-1-A | 0.0129 | 0.0232 | 0.12 | 0.21 | 0.34 | 0.47 | 0.52 | 0.57 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-SL018-A | 0.00302 | 0.00703 | 0.027 | 0.063 | 0.46 | 0.44 | 0.5 | 0.43 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-SL019-A | 0.00639 | 0.0101 | 0.058 | 0.091 | 0.42 | 0.45 | 0.52 | 0.64 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-SL020-A | 0.00512 | 0.0079 | 0.046 | 0.071 | 0.48 | 0.46 | 0.52 | 0.65 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-SL021-A | 0.839 | 0.166 | 7.6 | 1.5 | 0.06 | 0.46 | 0.48 | 5.1 | Petrogenic | Pyrogenic | Pyrogenic | Petrogenic | Inconclusive |
| NYOW-05-SL022-A | 0.00881 | 0.0216 | 0.079 | 0.19 | 0.2 | 0.44 | 0.52 | 0.42 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-SL023-A | 1.13 | 1.496 | 10 | 13 | 0.17 | 0.26 | 0.44 | 0.77 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-05-SL024-A | 3.24 | 0.336 | 29 | 3 | 0.056 | 0.44 | 0.39 | 9.7 | Petrogenic | Pyrogenic | Petrogenic | Petrogenic | Petrogenic |
| NYOW-05-SL025-A | 0.0368 | 0.0346 | 0.33 | 0.31 | 0.078 | 0.32 | 0.5 | 1.1 | Petrogenic | Pyrogenic | Pyrogenic | Petrogenic | Inconclusive |
| NYOW-B-PH006-B | 0.00155 | 0.00267 | 0.014 | 0.024 | -- | 0.52 | 0.52 | 0.58 | Not Calculated | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-PH006-C | 0.0024 | N/A | 0.022 | 0.059 | -- | -- | -- | 0.37 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-B-PH007-B | N/A | N/A | 0.03 | 0.059 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH007-C | N/A | 0.0029 | 0.03 | 0.026 | -- | 0.63 | -- | 1.2 | Not Calculated | Pyrogenic | Not Calculated | Petrogenic | Inconclusive |
| NYOW-B-PH008-B | N/A | N/A | 0.032 | 0.061 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH008-C | N/A | N/A | 0.03 | 0.059 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH009-B | N/A | N/A | 0.03 | 0.059 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH009-C | N/A | 0.0054 | 0.028 | 0.049 | -- | 0.78 | -- | 0.57 | Not Calculated | Pyrogenic | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-B-PH010-B | 0.00368 | N/A | 0.033 | 0.06 | -- | -- | -- | 0.55 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-B-PH010-C | 0.00469 | 0.0067 | 0.042 | 0.06 | 0.31 | 0.53 | 0.5 | 0.7 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-PH011-B | N/A | N/A | 0.032 | 0.061 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH011-C | 0.00368 | 0.00926 | 0.033 | 0.083 | 0.31 | 0.58 | 0.5 | 0.4 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-PH012-B | 0.00229 | N/A | 0.021 | 0.057 | -- | -- | -- | 0.37 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-B-PH012-C | N/A | N/A | 0.028 | 0.054 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH013-B | N/A | N/A | 0.031 | 0.059 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH013-C | N/A | N/A | 0.029 | 0.056 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH014-B | 0.00348 | 0.00468 | 0.031 | 0.042 | 0.48 | 0.53 | 0.52 | 0.74 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-PH014-C | 0.00224 | N/A | 0.02 | 0.054 | -- | -- | -- | 0.37 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-B-PH015-B | N/A | N/A | 0.03 | 0.057 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH015-C | N/A | N/A | 0.032 | 0.062 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH016-B | N/A | N/A | 0.027 | 0.052 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH016-C | N/A | N/A | 0.028 | 0.054 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH017-B | N/A | N/A | 0.028 | 0.053 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH017-C | N/A | 0.0025 | 0.03 | 0.023 | -- | 0.67 | -- | 1.3 | Not Calculated | Pyrogenic | Not Calculated | Petrogenic | Inconclusive |
| NYOW-B-PH018-B | N/A | 0.0028 | 0.029 | 0.025 | -- | 0.42 | -- | 1.2 | Not Calculated | Pyrogenic | Not Calculated | Petrogenic | Inconclusive |
| NYOW-B-PH018-C | N/A | 0.00592 | 0.026 | 0.053 | -- | 0.66 | -- | 0.49 | Not Calculated | Pyrogenic | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-B-PH019-B | N/A | 0.0022 | 0.029 | 0.02 | -- | 0.69 | -- | 1.5 | Not Calculated | Pyrogenic | Not Calculated | Petrogenic | Inconclusive |
| NYOW-B-PH019-C | N/A | N/A | 0.027 | 0.052 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |

Appendix F.7
Pyrogenic and Petrogenic PAH Evaluation
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sample Name | Mean[1] | | Summation[1] | | PAH Ratios | | | | Pyrogenic or Petrogenic | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LMW | HMW | LMW | HMW | An/(An+Ph) | BaA/(BaA+Chry) | FIA/(FIA+Py) | LMW/HMW | An/(An+Ph) | BaA/(BaA+Chry) | FIA/(FIA+Py) | LMW/HMW | FINAL |
| NYOW-B-PH020-B | 0.00229 | N/A | 0.021 | 0.058 | -- | -- | -- | 0.36 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-B-PH020-C | N/A | N/A | 0.028 | 0.054 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH021-B | N/A | N/A | 0.029 | 0.055 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH021-C | N/A | N/A | 0.031 | 0.06 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH022-B | N/A | N/A | 0.029 | 0.056 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH022-C | N/A | N/A | 0.028 | 0.055 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH023-B | N/A | N/A | 0.028 | 0.055 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH023-C | 0.00477 | 0.00558 | 0.043 | 0.05 | 0.3 | 0.57 | 0.5 | 0.86 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-PH024-B | N/A | N/A | 0.029 | 0.056 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH024-C | N/A | 0.00265 | 0.027 | 0.024 | -- | 0.63 | -- | 1.1 | Not Calculated | Pyrogenic | Not Calculated | Petrogenic | Inconclusive |
| NYOW-B-PH025-B | N/A | N/A | 0.029 | 0.056 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH025-C | 0.00209 | 0.00366 | 0.019 | 0.033 | -- | 0.57 | 0.59 | 0.58 | Not Calculated | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-PH026-B | 0.00368 | N/A | 0.033 | 0.062 | -- | -- | -- | 0.53 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-B-PH026-C | 0.0013 | N/A | 0.012 | 0.057 | -- | -- | -- | 0.21 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-B-PH027-B | 0.00128 | N/A | 0.012 | 0.052 | -- | -- | 0.24 | 0.23 | Not Calculated | Not Calculated | Petrogenic | Pyrogenic | Inconclusive |
| NYOW-B-PH027-C | N/A | N/A | 0.026 | 0.051 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH028-B | 0.00229 | N/A | 0.021 | 0.055 | -- | -- | -- | 0.38 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-B-PH028-C | N/A | N/A | 0.03 | 0.058 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH029-B | N/A | N/A | 0.029 | 0.056 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH029-C | 0.00308 | 0.0104 | 0.028 | 0.094 | 0.31 | 0.48 | 0.5 | 0.3 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-PH030-B | N/A | 0.00292 | 0.029 | 0.026 | -- | 0.63 | -- | 1.1 | Not Calculated | Pyrogenic | Not Calculated | Petrogenic | Inconclusive |
| NYOW-B-PH030-C | N/A | N/A | 0.029 | 0.056 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH031-B | 0.00177 | 0.00363 | 0.016 | 0.033 | -- | 0.38 | 0.56 | 0.48 | Not Calculated | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-PH031-C | N/A | 0.0029 | 0.027 | 0.026 | -- | -- | -- | 1 | Not Calculated | Not Calculated | Not Calculated | Inconclusive | Inconclusive |
| NYOW-B-PH032-B | 0.00374 | 0.00322 | 0.034 | 0.029 | 0.57 | -- | 0.43 | 1.2 | Pyrogenic | Not Calculated | Pyrogenic | Petrogenic | Inconclusive |
| NYOW-B-PH032-C | 0.00273 | 0.00482 | 0.025 | 0.043 | 0.3 | 0.7 | -- | 0.58 | Pyrogenic | Pyrogenic | Not Calculated | Pyrogenic | Pyrogenic |
| NYOW-B-PH033-B | 0.00371 | 0.0027 | 0.033 | 0.024 | -- | 0.66 | 0.28 | 1.4 | Not Calculated | Pyrogenic | Petrogenic | Petrogenic | Inconclusive |
| NYOW-B-PH033-C | N/A | N/A | 0.028 | 0.054 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH034-B | N/A | N/A | 0.029 | 0.056 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH034-C | 0.0022 | 0.0021 | 0.02 | 0.019 | 0.29 | 0.69 | -- | 1.1 | Pyrogenic | Pyrogenic | Not Calculated | Petrogenic | Inconclusive |
| NYOW-B-PH035-B | N/A | 0.00223 | 0.027 | 0.02 | -- | 0.42 | -- | 1.4 | Not Calculated | Pyrogenic | Not Calculated | Petrogenic | Inconclusive |
| NYOW-B-PH035-C | N/A | N/A | 0.029 | 0.056 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH036-B | N/A | N/A | 0.028 | 0.054 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH036-C | 0.00528 | 0.00495 | 0.048 | 0.045 | 0.31 | 0.48 | -- | 1.1 | Pyrogenic | Pyrogenic | Not Calculated | Petrogenic | Inconclusive |
| NYOW-B-PH037-B | N/A | N/A | 0.032 | 0.062 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH037-C | N/A | N/A | 0.029 | 0.056 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH038-B | N/A | N/A | 0.03 | 0.059 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH038-C | N/A | N/A | 0.028 | 0.054 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH039-B | N/A | N/A | 0.028 | 0.054 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH039-C | N/A | N/A | 0.029 | 0.055 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH040-B | 0.00556 | N/A | 0.05 | 0.058 | -- | -- | -- | 0.86 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-B-PH040-C | 0.0101 | 0.0102 | 0.091 | 0.092 | 0.5 | 0.62 | 0.5 | 0.99 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-PH041-B | N/A | N/A | 0.028 | 0.053 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH041-C | N/A | N/A | 0.027 | 0.053 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH042-B | N/A | N/A | 0.027 | 0.052 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |

Appendix F.7
Pyrogenic and Petrogenic PAH Evaluation
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sample Name | Mean[1] | | Summation[1] | | PAH Ratios | | | | Pyrogenic or Petrogenic | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LMW | HMW | LMW | HMW | An/(An+Ph) | BaA/(BaA+Chry) | FlA/(FlA+Py) | LMW/HMW | An/(An+Ph) | BaA/(BaA+Chry) | FlA/(FlA+Py) | LMW/HMW | FINAL |
| NYOW-B-PH042-C | N/A | N/A | 0.027 | 0.053 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH043-B | N/A | N/A | 0.029 | 0.055 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH043-C | N/A | N/A | 0.025 | 0.049 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH044-B | 0.00215 | 0.00439 | 0.019 | 0.04 | 0.56 | 0.43 | 0.5 | 0.48 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-PH044-C | 0.00229 | 0.00389 | 0.021 | 0.035 | -- | -- | 0.5 | 0.6 | Not Calculated | Not Calculated | Pyrogenic | Pyrogenic | Inconclusive |
| NYOW-B-PH045-B | 0.00175 | 0.0036 | 0.016 | 0.032 | 0.59 | 0.39 | 0.51 | 0.5 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-PH045-C | N/A | N/A | 0.029 | 0.055 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH046-B | 0.00341 | 0.00729 | 0.031 | 0.066 | 0.22 | 0.46 | 0.54 | 0.47 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-PH046-C | N/A | N/A | 0.029 | 0.055 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH047-B | 0.00966 | 0.0162 | 0.087 | 0.15 | 0.23 | 0.45 | 0.51 | 0.58 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-PH047-C | 0.00308 | 0.00387 | 0.028 | 0.035 | 0.31 | -- | 0.5 | 0.8 | Pyrogenic | Not Calculated | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-PH048-B | 0.00772 | 0.0114 | 0.069 | 0.1 | 0.27 | 0.43 | 0.48 | 0.69 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-PH048-C | 0.00818 | 0.00215 | 0.074 | 0.019 | -- | 0.68 | -- | 3.9 | Not Calculated | Pyrogenic | Not Calculated | Petrogenic | Inconclusive |
| NYOW-B-PH049-B | 0.00297 | 0.00386 | 0.027 | 0.035 | 0.53 | 0.38 | 0.52 | 0.77 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-PH049-C | N/A | N/A | 0.029 | 0.056 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-PH050-B | 0.0292 | 0.074 | 0.26 | 0.67 | 0.26 | 0.52 | 0.52 | 0.39 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-PH050-C | 0.00229 | 0.0031 | 0.021 | 0.028 | 0.3 | 0.6 | -- | 0.75 | Pyrogenic | Pyrogenic | Not Calculated | Pyrogenic | Pyrogenic |
| NYOW-B-SL006-A | 0.0073 | 0.0212 | 0.066 | 0.19 | 0.2 | 0.46 | 0.54 | 0.35 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL007-A | 0.00458 | 0.00733 | 0.041 | 0.066 | 0.38 | 0.44 | 0.52 | 0.62 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL008-A | 0.00632 | 0.0201 | 0.057 | 0.18 | 0.17 | 0.44 | 0.55 | 0.32 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL009-A | 0.00154 | 0.0029 | 0.014 | 0.026 | -- | 0.46 | 0.54 | 0.54 | Not Calculated | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL010-A | 0.00343 | 0.00586 | 0.031 | 0.053 | 0.52 | 0.45 | 0.54 | 0.58 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL011-A | 0.00225 | 0.00584 | 0.02 | 0.053 | 0.64 | 0.51 | 0.53 | 0.38 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL012-A | 0.0038 | 0.0103 | 0.034 | 0.093 | 0.43 | 0.39 | 0.55 | 0.37 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL013-A | 0.00594 | 0.0137 | 0.053 | 0.12 | 0.34 | 0.41 | 0.44 | 0.44 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL014-A | 0.00176 | 0.00405 | 0.016 | 0.036 | 0.65 | 0.42 | 0.52 | 0.44 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL015-A | 0.00371 | 0.01 | 0.033 | 0.09 | 0.41 | 0.43 | 0.55 | 0.37 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL016-A | 0.00226 | 0.00803 | 0.02 | 0.072 | 0.63 | 0.28 | 0.51 | 0.28 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL017-A | 0.00376 | 0.00977 | 0.034 | 0.088 | 0.28 | 0.4 | 0.53 | 0.39 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL018-A | 0.00362 | 0.011 | 0.033 | 0.099 | 0.46 | 0.44 | 0.39 | 0.33 | Pyrogenic | Pyrogenic | Petrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL019-A | 0.00432 | 0.012 | 0.039 | 0.11 | 0.41 | 0.42 | 0.55 | 0.35 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL020-A | 0.00459 | 0.00712 | 0.041 | 0.064 | 0.46 | 0.41 | 0.54 | 0.64 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL021-A | 0.00532 | 0.012 | 0.048 | 0.11 | 0.2 | 0.43 | 0.53 | 0.44 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL022-A | 0.00083 | N/A | 0.0075 | 0.056 | -- | -- | -- | 0.13 | Not Calculated | Not Calculated | Not Calculated | Pyrogenic | Inconclusive |
| NYOW-B-SL023-A | 0.00193 | 0.00579 | 0.017 | 0.052 | 0.57 | 0.43 | 0.5 | 0.33 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL024-A | 0.00202 | 0.00428 | 0.018 | 0.039 | 0.66 | 0.43 | 0.5 | 0.46 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL025-A | 0.00907 | 0.0374 | 0.082 | 0.34 | 0.32 | 0.46 | 0.51 | 0.24 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL026-A | 0.0014 | 0.00245 | 0.013 | 0.022 | -- | 0.67 | 0.49 | 0.59 | Not Calculated | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL027-A | 0.00289 | 0.00822 | 0.026 | 0.074 | 0.52 | 0.42 | 0.54 | 0.35 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL028-A | N/A | N/A | 0.031 | 0.061 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-SL029-A | 0.00194 | 0.00397 | 0.017 | 0.036 | -- | 0.67 | 0.5 | 0.47 | Not Calculated | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL030-A | 0.00474 | 0.0157 | 0.043 | 0.14 | 0.42 | 0.31 | 0.53 | 0.31 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL031-A | 0.00331 | 0.012 | 0.03 | 0.11 | 0.47 | 0.36 | 0.55 | 0.27 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL032-A | 0.00976 | 0.0241 | 0.088 | 0.22 | 0.24 | 0.43 | 0.54 | 0.4 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL033-A | 0.00385 | 0.0128 | 0.035 | 0.12 | 0.42 | 0.36 | 0.55 | 0.29 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |

Appendix F.7
Pyrogenic and Petrogenic PAH Evaluation
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sample Name | Mean[(1)] | | Summation[(1)] | | PAH Ratios | | | | Pyrogenic or Petrogenic | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LMW | HMW | LMW | HMW | An/(An+Ph) | BaA/(BaA+Chry) | FlA/(FlA+Py) | LMW/HMW | An/(An+Ph) | BaA/(BaA+Chry) | FlA/(FlA+Py) | LMW/HMW | FINAL |
| NYOW-B-SL034-A | 0.0061 | 0.0138 | 0.055 | 0.12 | 0.17 | 0.41 | 0.56 | 0.46 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL035-A | N/A | N/A | 0.029 | 0.056 | -- | -- | -- | -- | Not Calculated | Not Calculated | Not Calculated | Not Calculated | Not Calculated |
| NYOW-B-SL036-A | 0.00272 | 0.00649 | 0.024 | 0.058 | 0.62 | 0.42 | 0.5 | 0.41 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL037-A | 0.00292 | 0.00785 | 0.026 | 0.071 | 0.52 | 0.42 | 0.52 | 0.37 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL038-A | 0.00403 | 0.00961 | 0.036 | 0.086 | 0.5 | 0.44 | 0.5 | 0.42 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL039-A | 0.00277 | 0.0071 | 0.025 | 0.064 | 0.52 | 0.39 | 0.55 | 0.39 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL040-A | 0.00358 | 0.0113 | 0.032 | 0.1 | 0.23 | 0.44 | 0.47 | 0.32 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL041-A | 0.00296 | 0.00594 | 0.027 | 0.053 | 0.51 | 0.35 | 0.56 | 0.51 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL042-A | 0.00287 | 0.00714 | 0.026 | 0.064 | 0.49 | 0.39 | 0.55 | 0.41 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL043-A | 0.0203 | 0.0562 | 0.18 | 0.51 | 0.093 | 0.44 | 0.34 | 0.35 | Petrogenic | Pyrogenic | Petrogenic | Pyrogenic | Inconclusive |
| NYOW-B-SL044-A | 0.019 | 0.0599 | 0.17 | 0.54 | 0.59 | 0.45 | 0.41 | 0.31 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL045-A | 0.0863 | 0.152 | 0.78 | 1.4 | 0.015 | 0.45 | 0.54 | 0.56 | Petrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL046-A | 0.0818 | 0.196 | 0.74 | 1.8 | 0.17 | 0.53 | 0.53 | 0.41 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL047-A | 0.136 | 0.324 | 1.2 | 2.9 | 0.18 | 0.47 | 0.51 | 0.41 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL048-A | 0.05 | 0.112 | 0.45 | 1 | 0.24 | 0.5 | 0.5 | 0.45 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL049-A | 0.00253 | 0.0106 | 0.023 | 0.095 | 0.48 | 0.091 | 0.52 | 0.24 | Pyrogenic | Petrogenic | Pyrogenic | Pyrogenic | Pyrogenic |
| NYOW-B-SL050-A | 0.0659 | 0.232 | 0.59 | 2.1 | 0.28 | 0.5 | 0.53 | 0.28 | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic | Pyrogenic |

Notes
(1) For data sets with non-detect results, Kaplan-Meier (KM) statistical methods were used to derive means and summations.

An/(An+Ph) = Anthracene/(Anthracene + Phenanthrene)
BaA/(BaA+Chry) = Benzo(a)anthracene/(Benzo(a)anthracene + Chrysene)
FlA/(FlA+Py) = Fluoranthene/(Fluoranthene + Pyrene)
HMW = High Molecular Weight
LMW = Low Molecular Weight
N/A = Not Applicable
PAH = Polycyclic Aromatic Hydrocarbon
-- = Not Evaluated

# APPENDIX G

# Intra-Background Soil Concentration Comparison

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# APPENDIX G.1
# Depth Interval Comparisons

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Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Aluminum | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.52 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.69 | Type: Tukey's Test<br>p-value: 0.093 | Type: Tukey's Test<br>p-value: 0.37 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Aluminum | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Lognormal |
| Homogeneity of Variance (Levene's Test) p-value: 0.53 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.023 | Type: Dunn's Test<br>p-value: 0.0011 | Type: Dunn's Test<br>p-value: > 0.99 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.035 | p-value: 0.0032 | p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Aluminum | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.41 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.067 | Type: Tukey's Test<br>p-value: 0.000079 | Type: Tukey's Test<br>p-value: 0.036 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.067 | p-value: 0.00024 | p-value: 0.054 |

Notes:

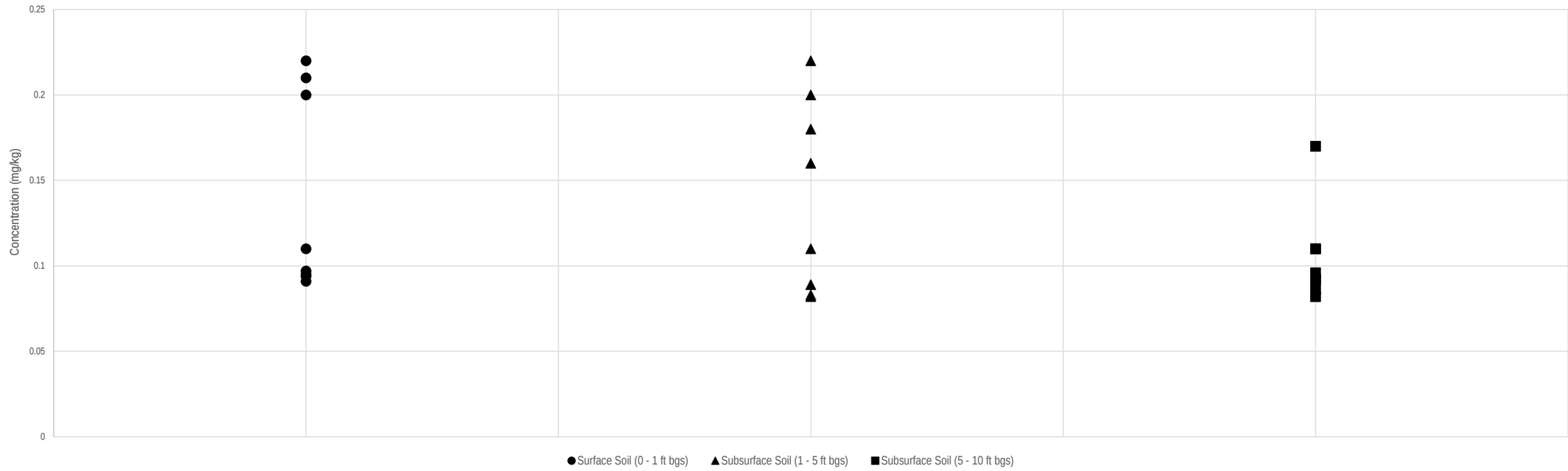
(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Antimony | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |



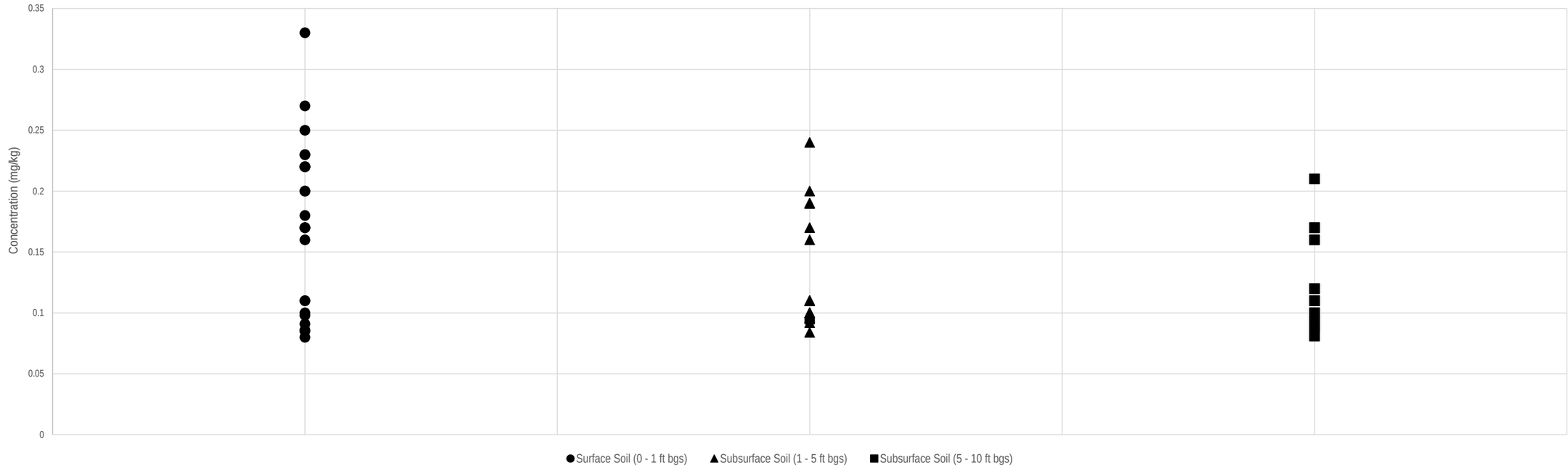

| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 0/8<br>Data Distribution: Not Discernible | Frequency of Detection: 0/8<br>Data Distribution: Not Discernible | Frequency of Detection: 0/8<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.14 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Antimony | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |

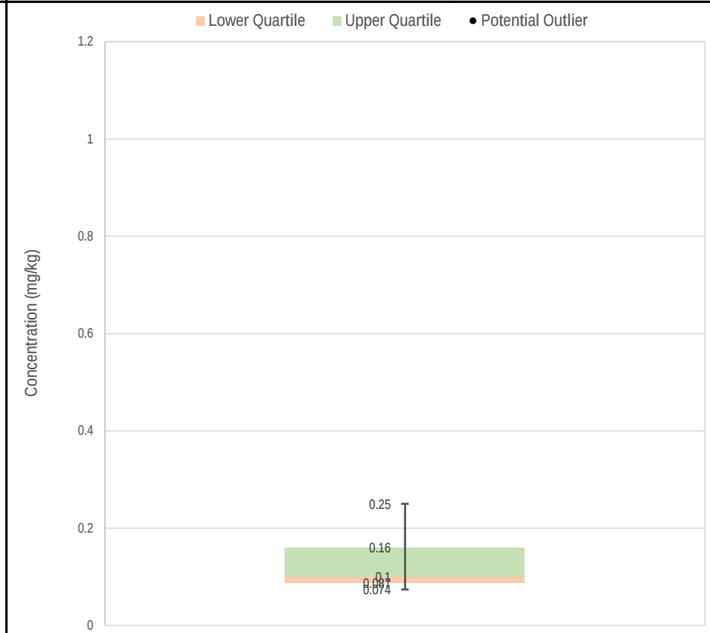
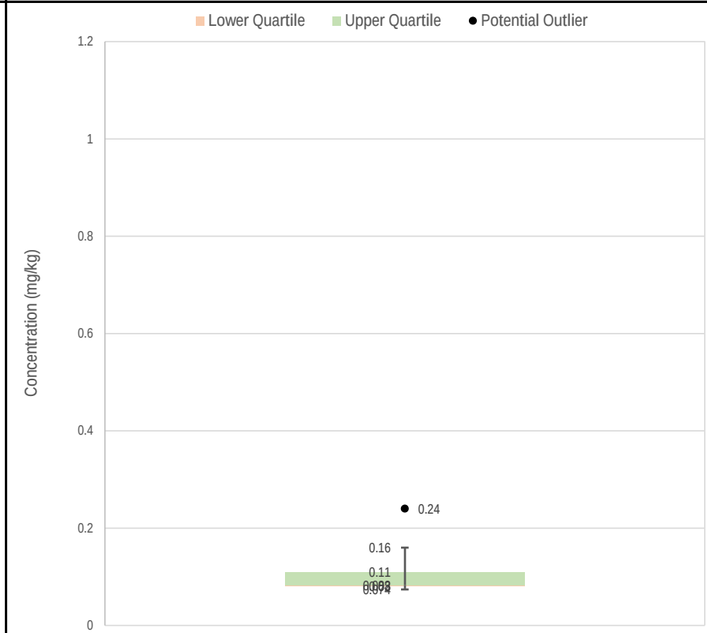



| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 3/24<br>Data Distribution: Normal | Frequency of Detection: 2/24<br>Data Distribution: Not Discernible | Frequency of Detection: 1/24<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.0029 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Antimony | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/11<br>Data Distribution: Not Discernible | Frequency of Detection: 6/11<br>Data Distribution: Normal | Frequency of Detection: 6/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.33 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.038 | Type: Dunn's Test<br>p-value: 0.0029 | Type: Dunn's Test<br>p-value: > 0.99 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.057 | p-value: 0.0087 | p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

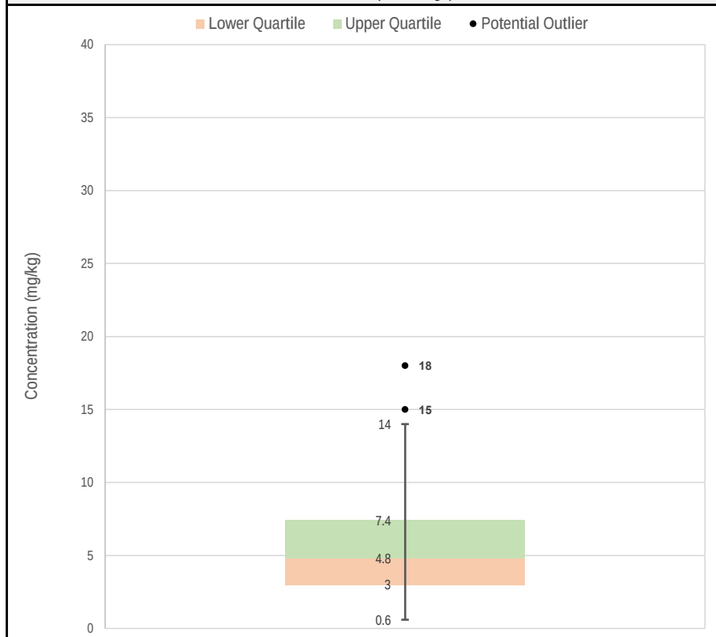
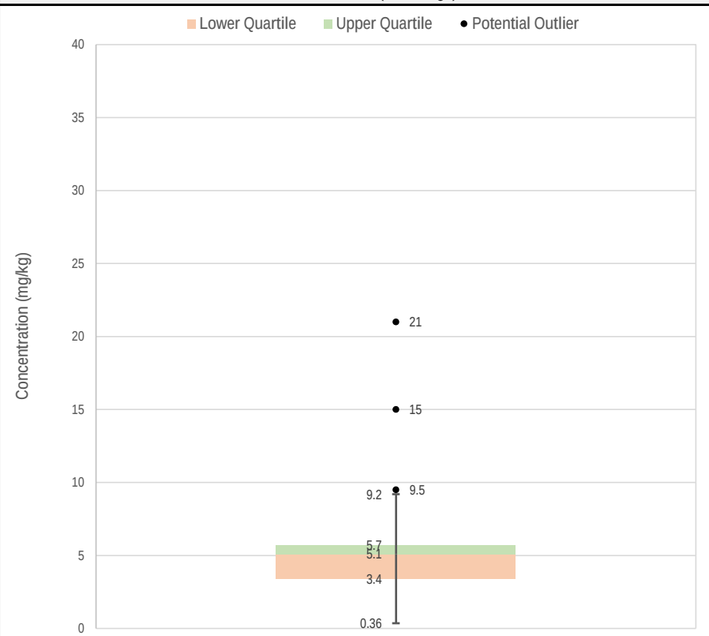
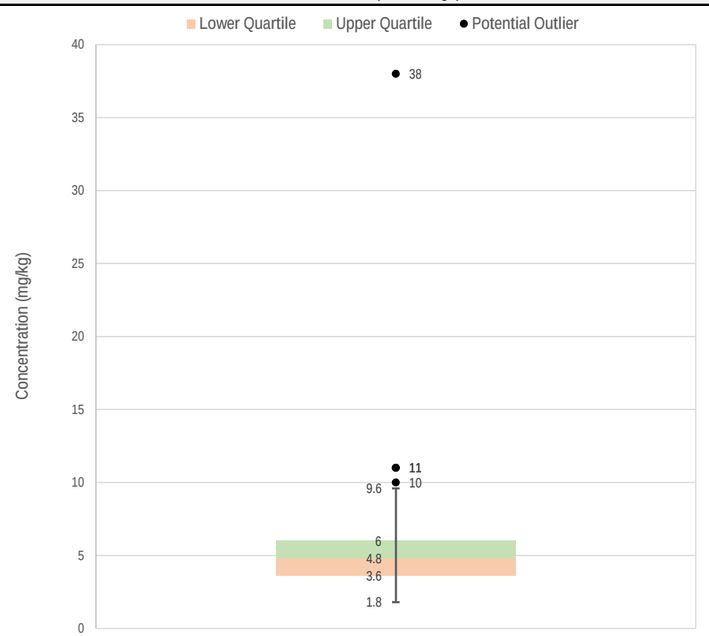
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Arsenic | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.91 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.69 | Type: Tukey's Test<br>p-value: 0.93 | Type: Tukey's Test<br>p-value: 0.89 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Arsenic | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Lognormal | Frequency of Detection: 24/24<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.87 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Arsenic | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.78 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.99 | Type: Tukey's Test<br>p-value: 0.57 | Type: Tukey's Test<br>p-value: 0.5 |

Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

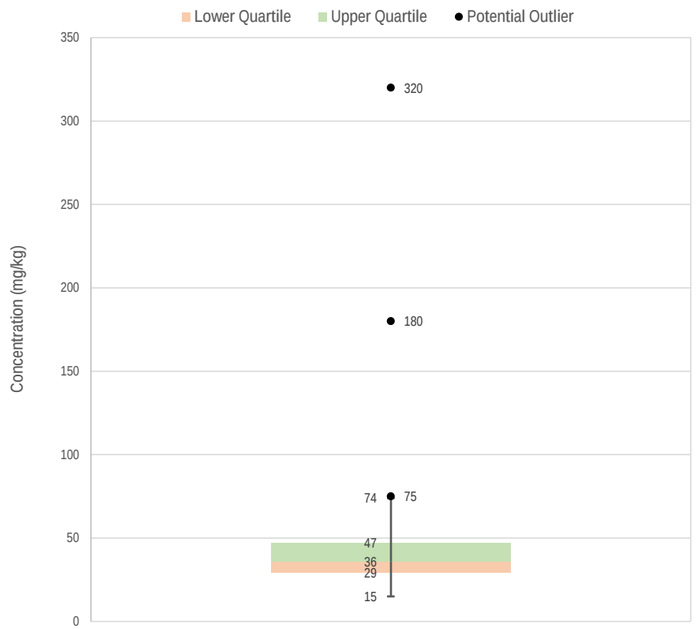
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Barium | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.58 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: > 0.99 | Type: Tukey's Test<br>p-value: > 0.99 | Type: Tukey's Test<br>p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Barium | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | |  |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.37 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.032 | Type: Dunn's Test<br>p-value: 0.041 | Type: Dunn's Test<br>p-value: > 0.99 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.095 | p-value: 0.062 | p-value: > 0.99 |

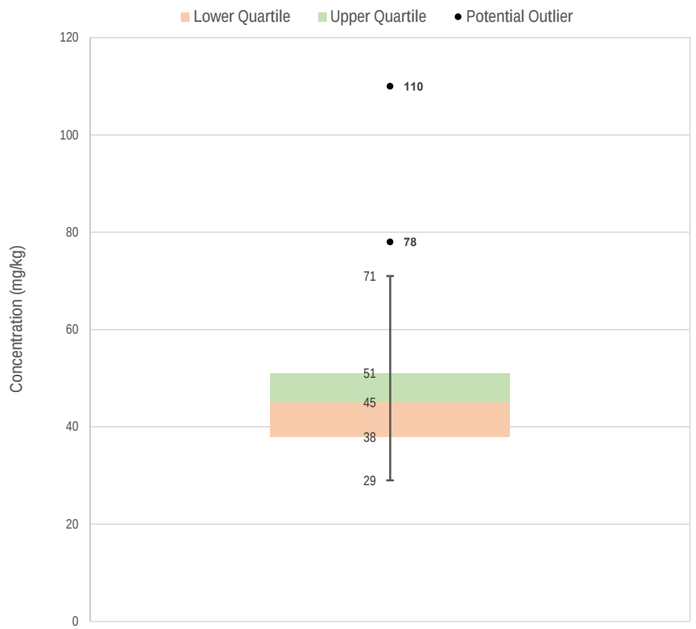
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Barium | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | | |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Gamma | Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.95 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.99 | Type: Dunn's Test<br>p-value: 0.097 | Type: Dunn's Test<br>p-value: 0.73 |

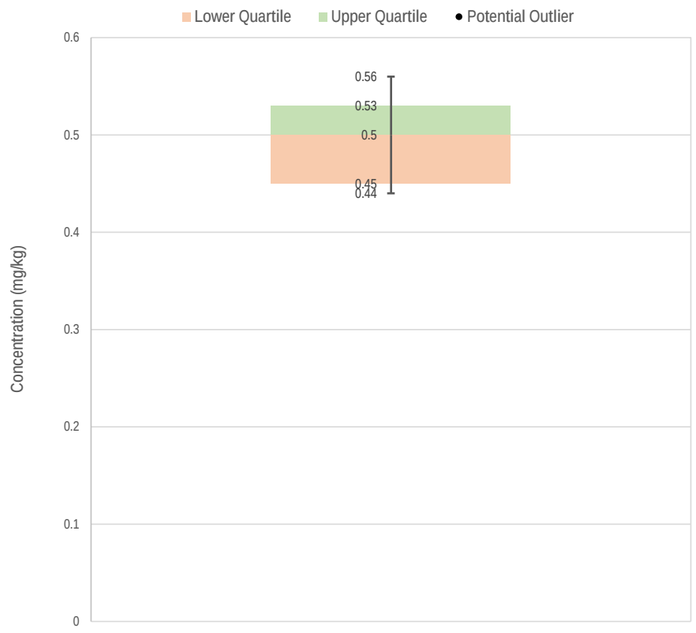
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

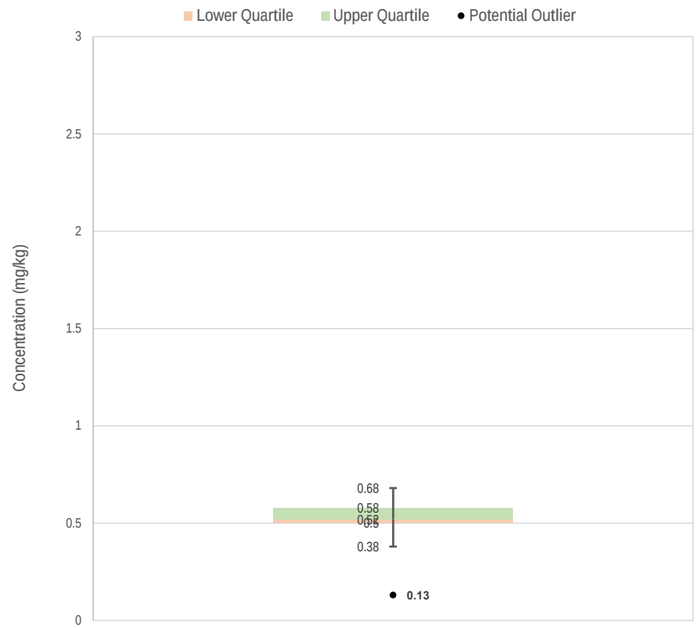
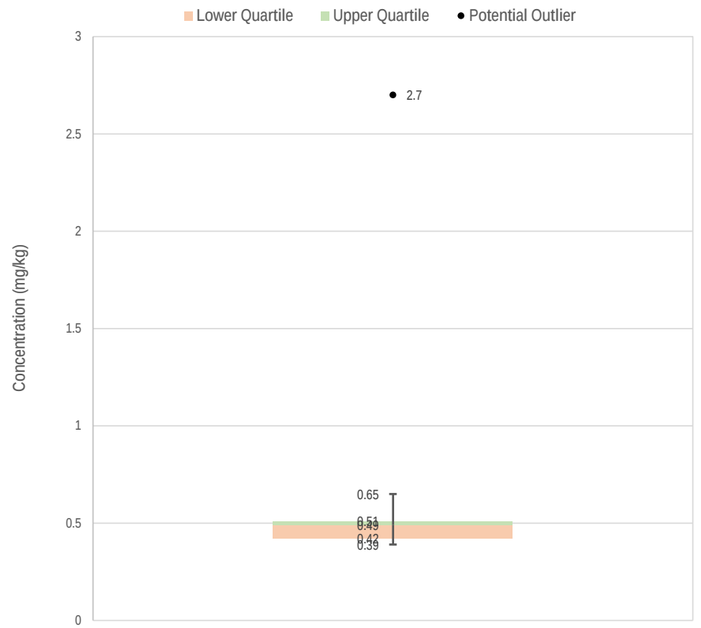
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Beryllium | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  | |
| General Statistics[1] | | |
| Frequency of Detection: 7/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.23 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.74 | Type: Tukey's Test<br>p-value: 0.000027 | Type: Tukey's Test<br>p-value: 0.0000052 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.74 | p-value: 0.000041 | p-value: 0.000016 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

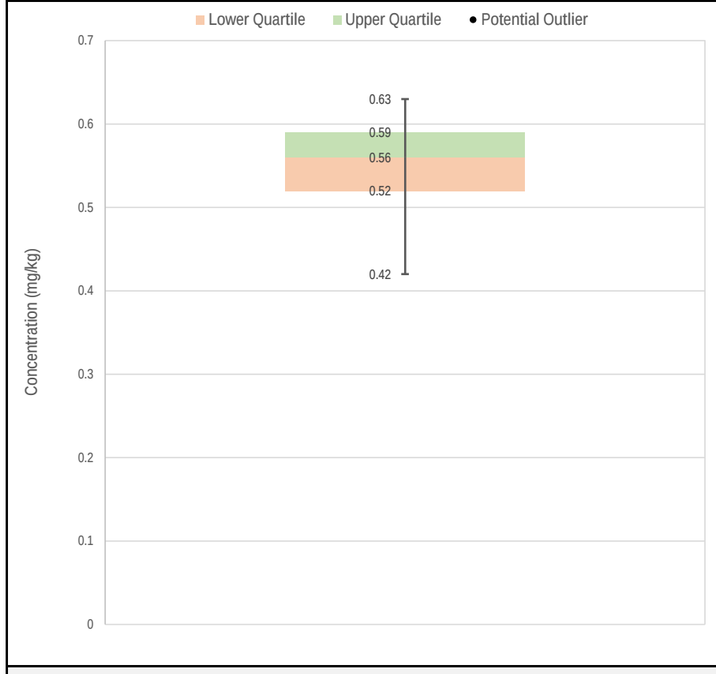
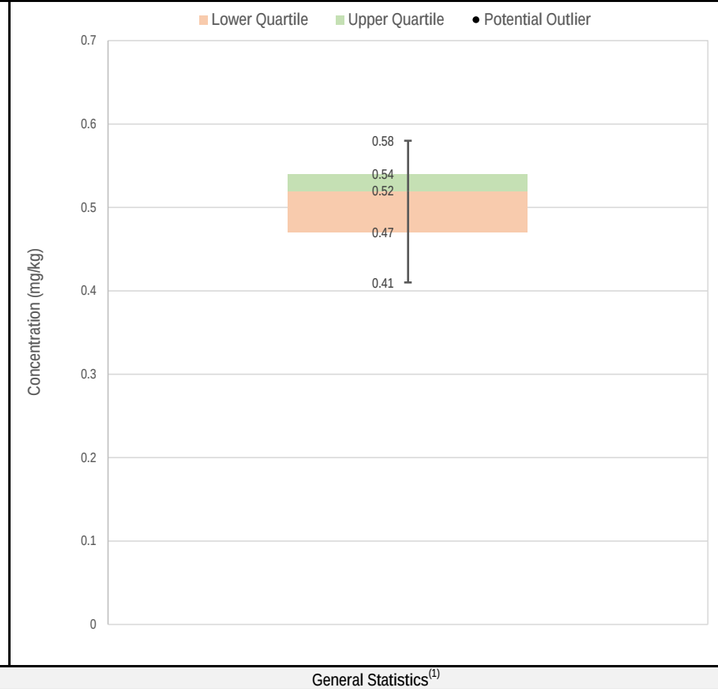
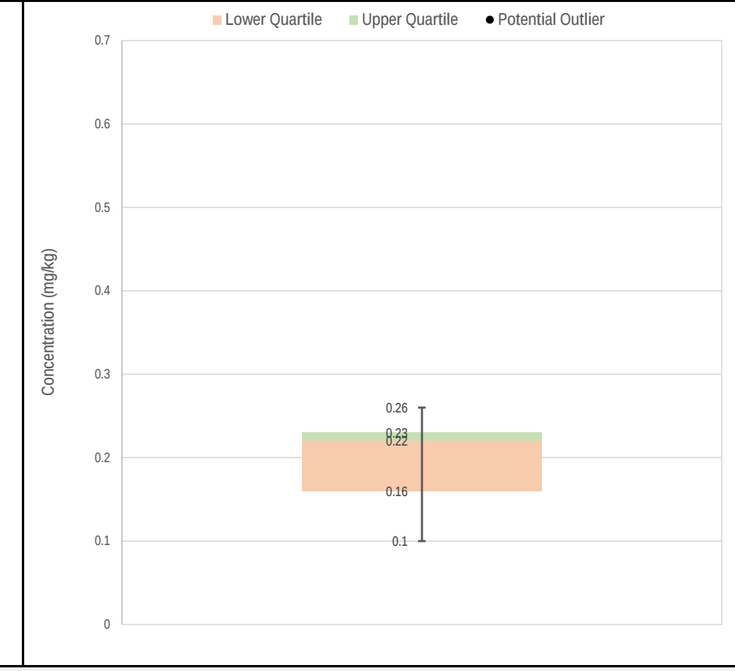
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Beryllium | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  | |
| General Statistics[1] | | |
| Frequency of Detection: 23/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Not Discernible | Frequency of Detection: 24/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.56 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.37 | Type: Dunn's Test<br>p-value: 2.6E-09 | Type: Dunn's Test<br>p-value: 0.000013 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.37 | p-value: 7.8E-09 | p-value: 0.00002 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

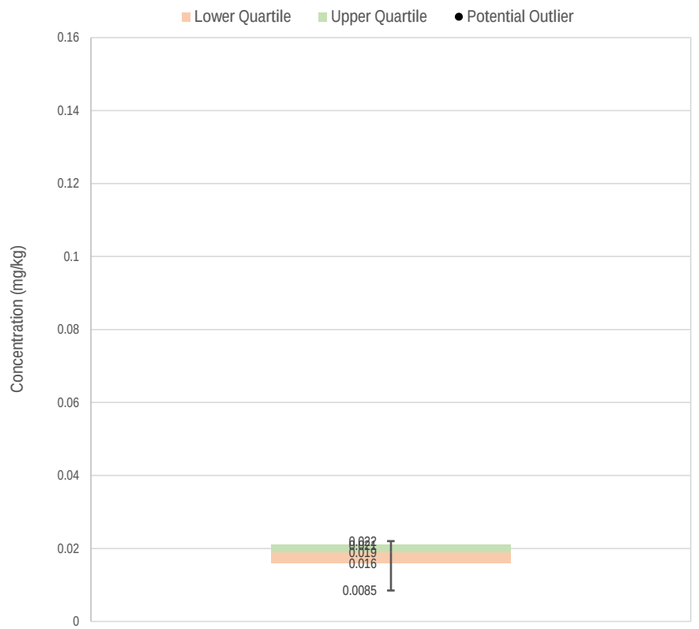
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Beryllium | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.87 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.16 | Type: Tukey's Test<br>p-value: 8.9E-15 | Type: Tukey's Test<br>p-value: 1.7E-13 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.16 | p-value: 2.7E-14 | p-value: 2.6E-13 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

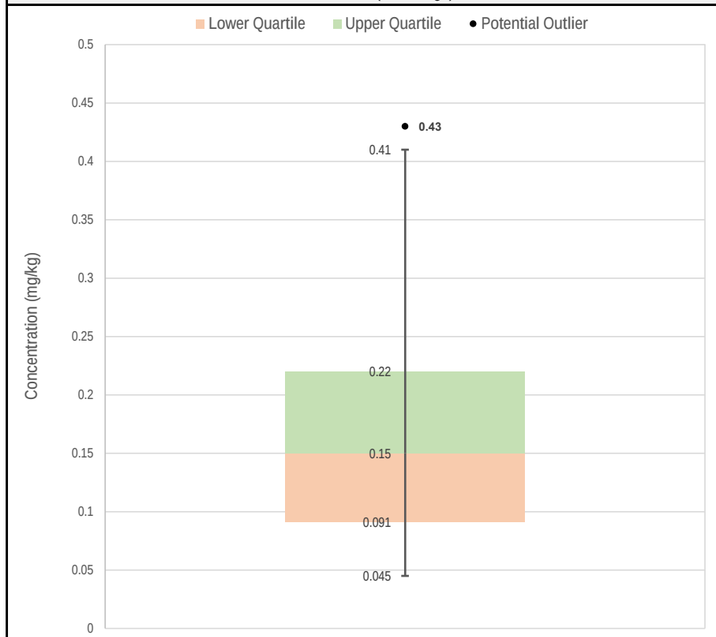
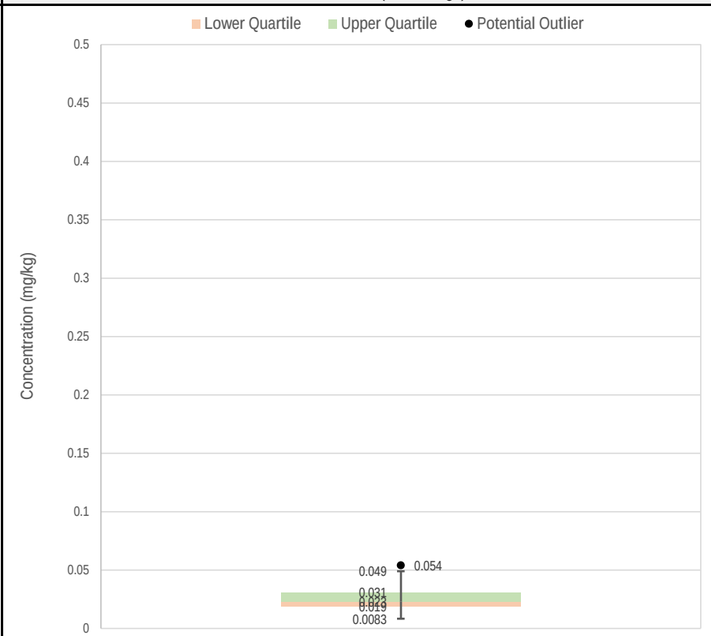
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Cadmium | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.0088 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.16 | Type: Dunn's Test<br>p-value: 0.00012 | Type: Dunn's Test<br>p-value: 0.093 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.16 | p-value: 0.00037 | p-value: 0.14 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Cadmium | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | |  |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Not Discernible | Frequency of Detection: 24/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.000015 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.00026 | Type: Dunn's Test<br>p-value: 1.5E-10 | Type: Dunn's Test<br>p-value: 0.025 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.00039 | p-value: 4.6E-10 | p-value: 0.025 |

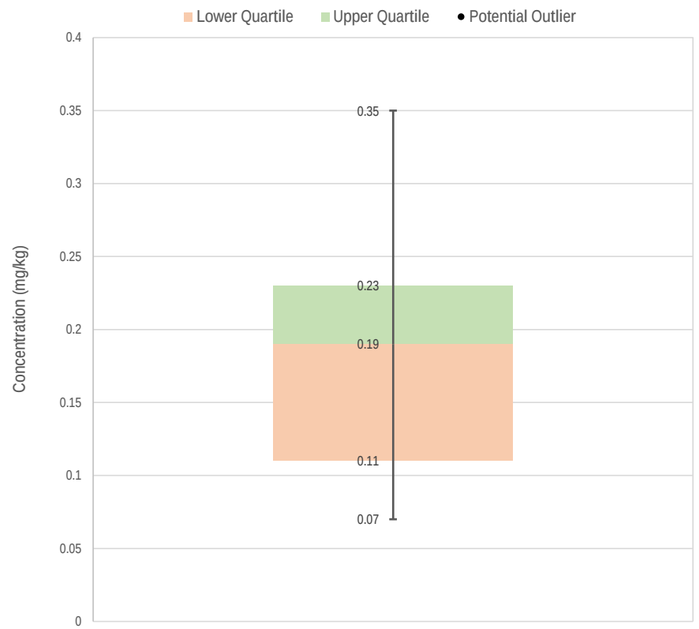
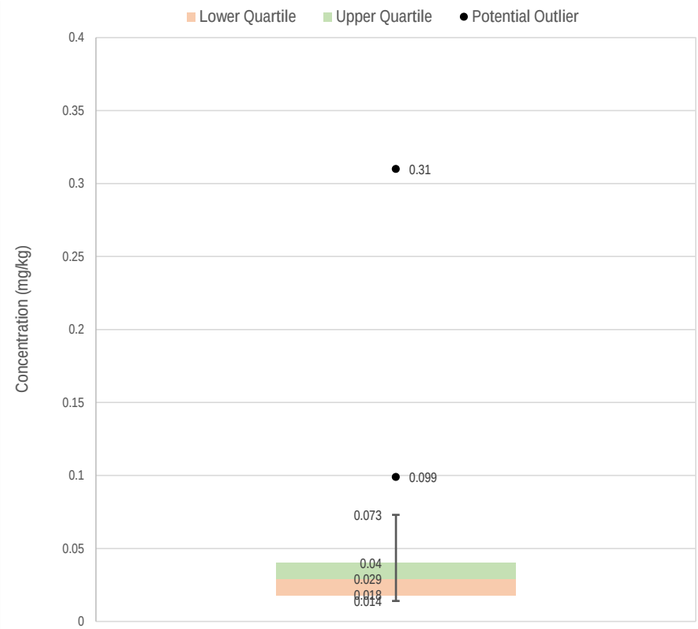
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

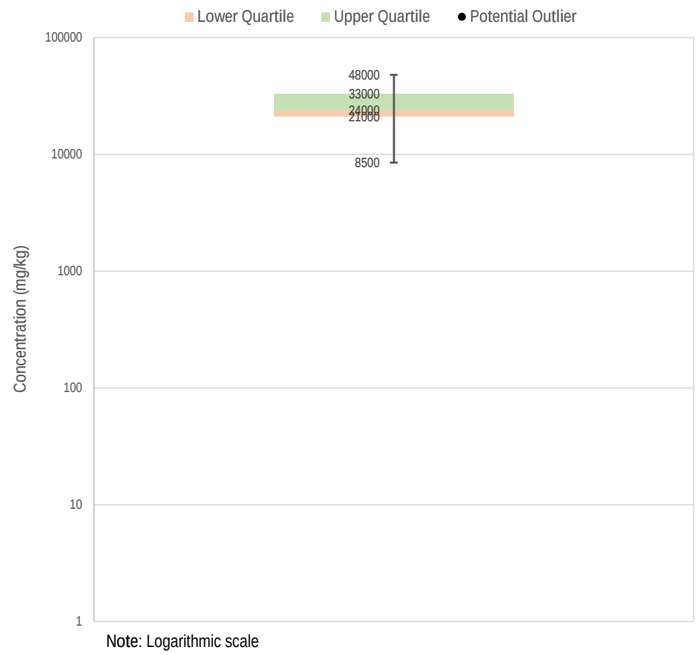
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Cadmium | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | |  |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 10/11<br>Data Distribution: Lognormal |
| Homogeneity of Variance (Levene's Test) p-value: 0.37 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.04 | Type: Dunn's Test<br>p-value: 0.00031 | Type: Dunn's Test<br>p-value: 0.47 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.061 | p-value: 0.00093 | p-value: 0.47 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

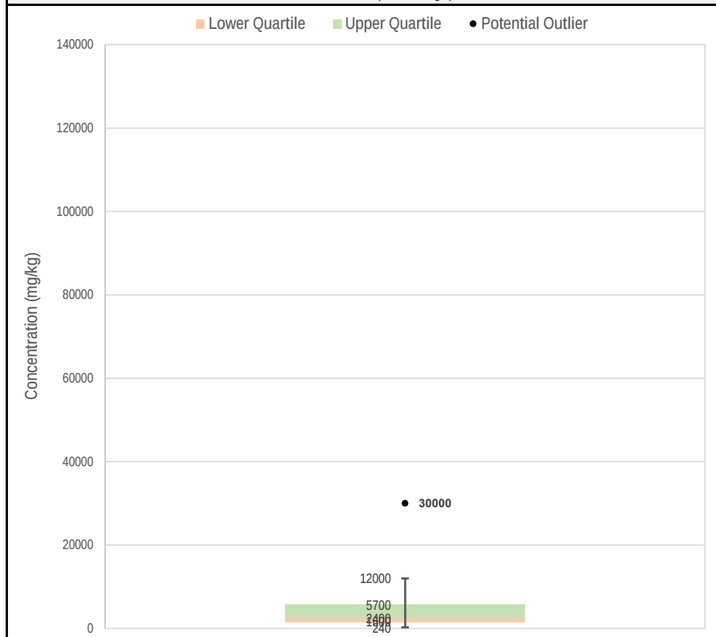
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Calcium | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | |  |
| Note: Logarithmic scale | Note: Logarithmic scale | Note: Logarithmic scale |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Not Discernible | Frequency of Detection: 8/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.1 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: 0.0026 | Type: Dunn's Test<br>p-value: 0.027 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: > 0.99 | p-value: 0.0079 | p-value: 0.04 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Calcium | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | | |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Lognormal | Frequency of Detection: 24/24<br>Data Distribution: Gamma | Frequency of Detection: 24/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.00007 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.097 | Type: Dunn's Test<br>p-value: 0.000000014 | Type: Dunn's Test<br>p-value: 0.00059 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.097 | p-value: 0.000000042 | p-value: 0.00089 |

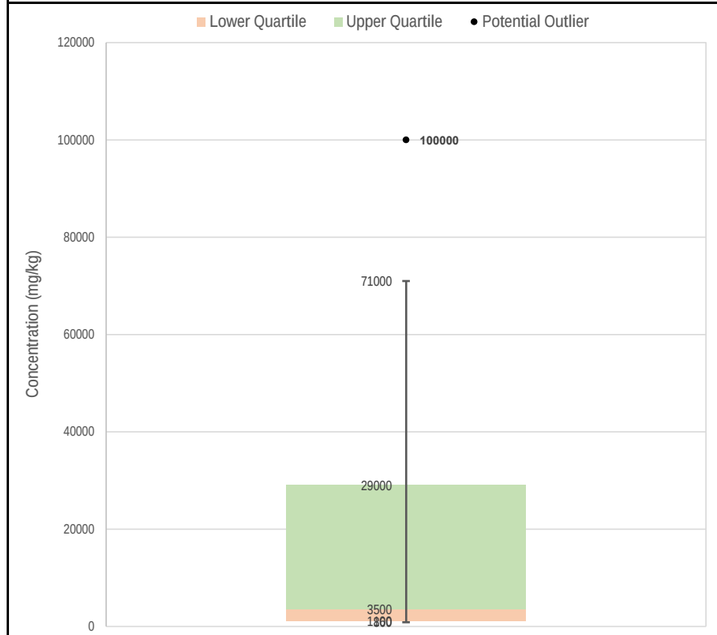
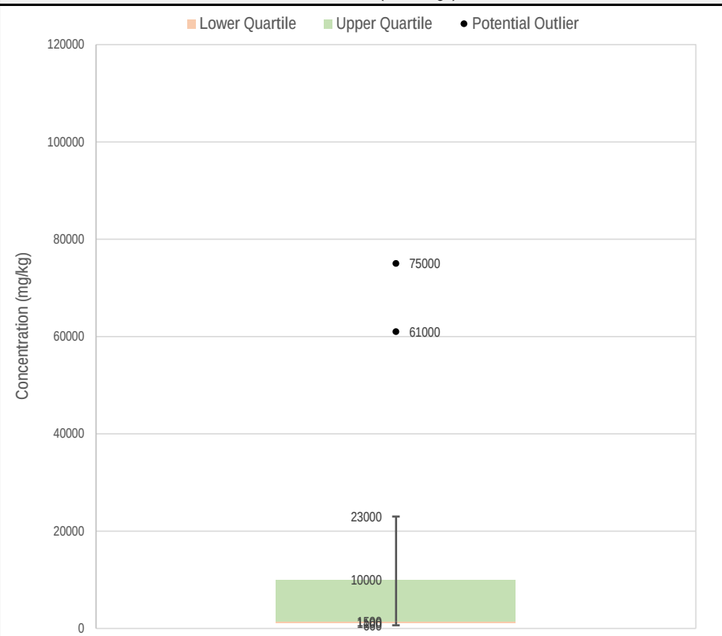
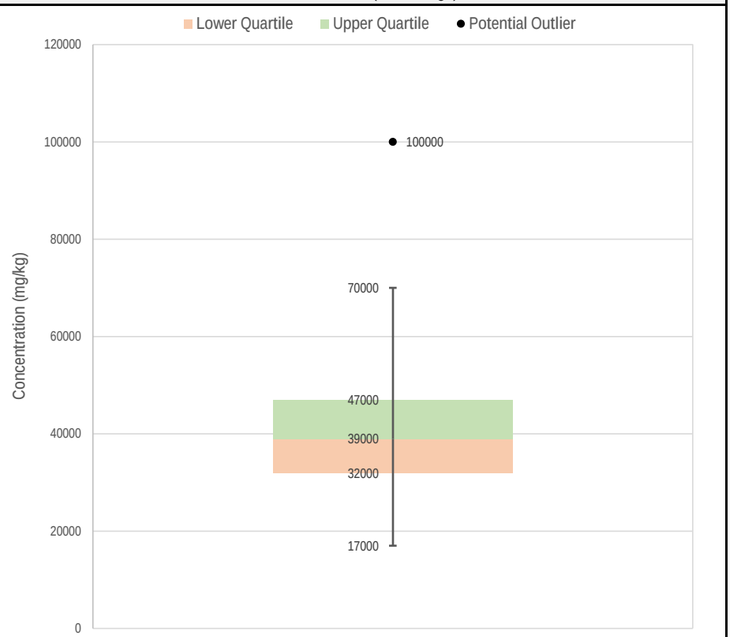
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Calcium | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Lognormal | Frequency of Detection: 11/11<br>Data Distribution: Not Discernible | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.92 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: 0.028 | Type: Dunn's Test<br>p-value: 0.014 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: > 0.99 | p-value: 0.042 | p-value: 0.043 |

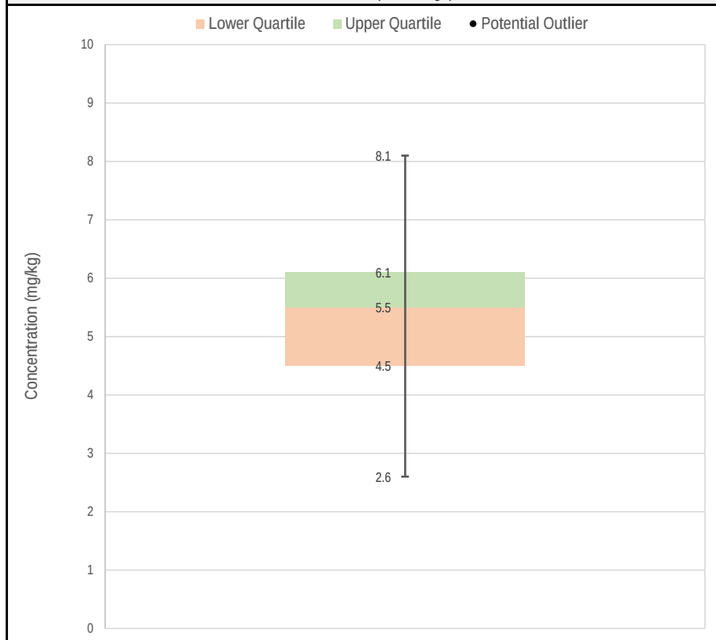
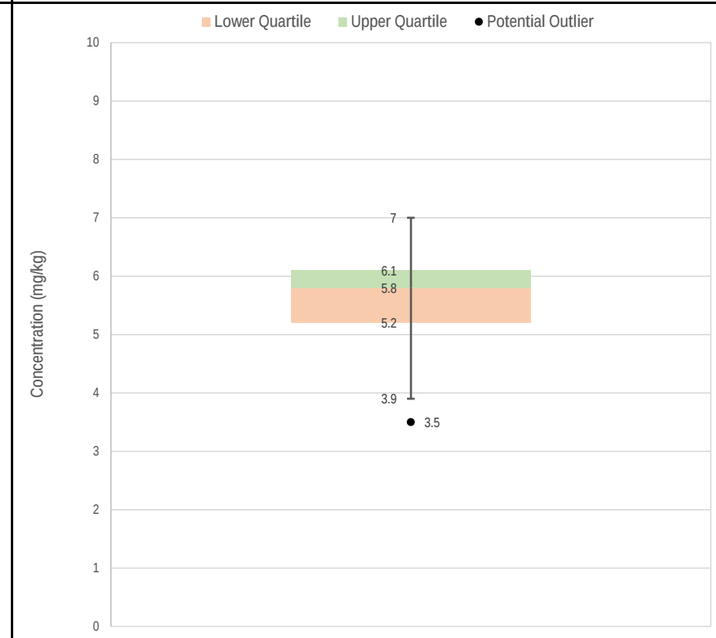
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Chromium | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Not Discernible | Frequency of Detection: 8/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.65 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.53 | Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 |

Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

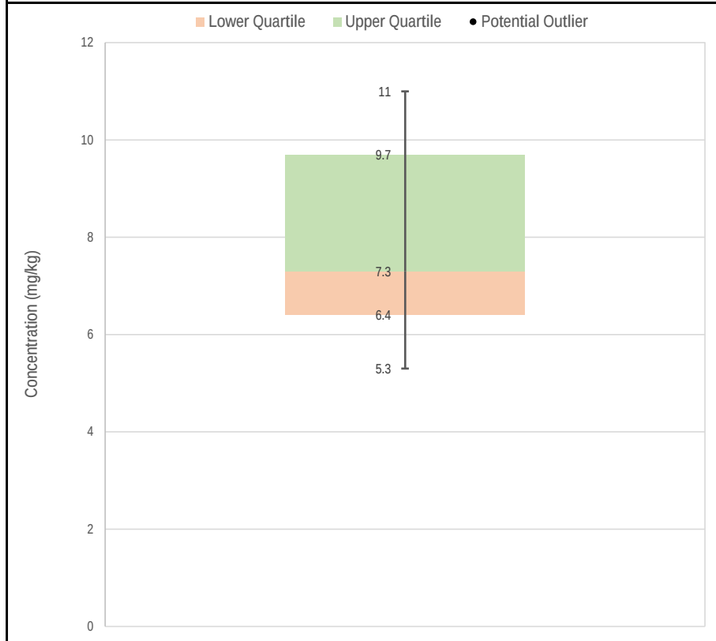
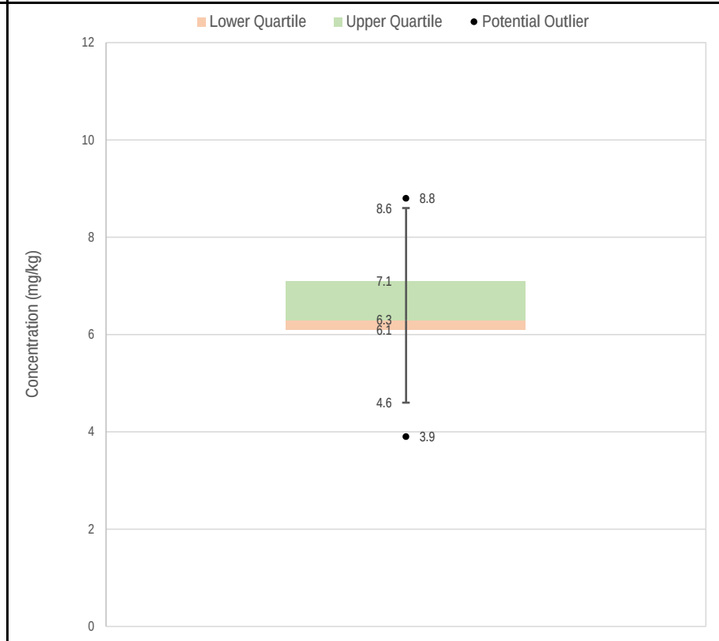
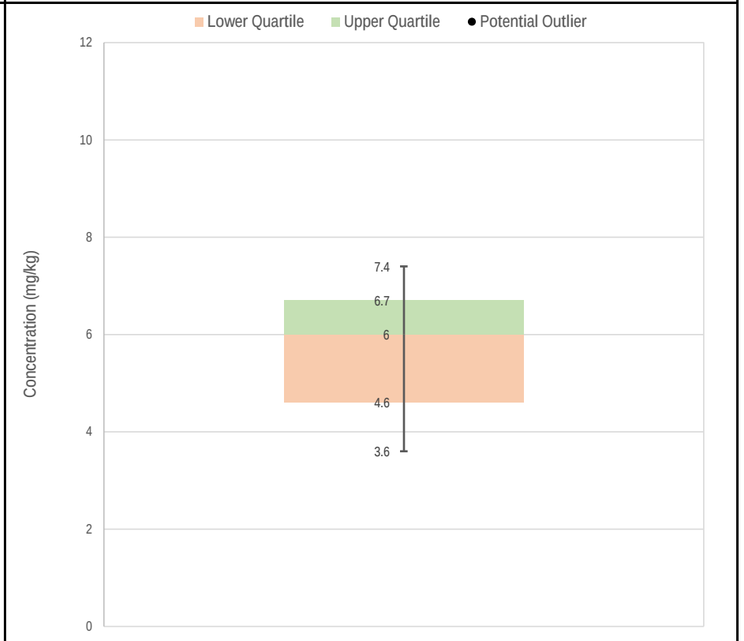
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Chromium | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.16 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.02 | Type: Dunn's Test<br>p-value: 0.028 | Type: Dunn's Test<br>p-value: > 0.99 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.059 | p-value: 0.042 | p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

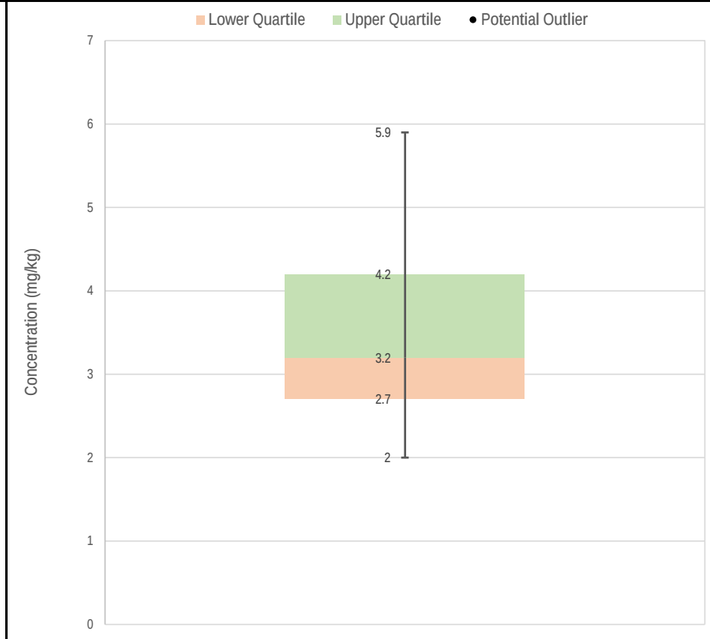
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Chromium | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.037 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.5 | Type: Dunn's Test<br>p-value: 0.042 | Type: Dunn's Test<br>p-value: 0.84 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.75 | p-value: 0.12 | p-value: 0.84 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Cobalt | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  | |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.76 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.22 | Type: Tukey's Test<br>p-value: 0.49 | Type: Tukey's Test<br>p-value: 0.85 |

Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Cobalt | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.63 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: > 0.99 | Type: Tukey's Test<br>p-value: 0.61 | Type: Tukey's Test<br>p-value: 0.64 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

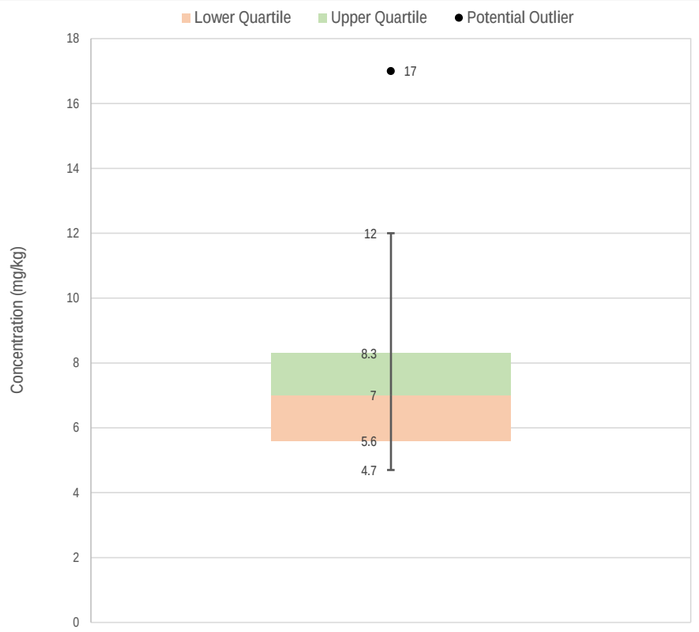
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Cobalt | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.78 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.99 | Type: Tukey's Test<br>p-value: 0.063 | Type: Tukey's Test<br>p-value: 0.046 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.99 | p-value: 0.094 | p-value: 0.14 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

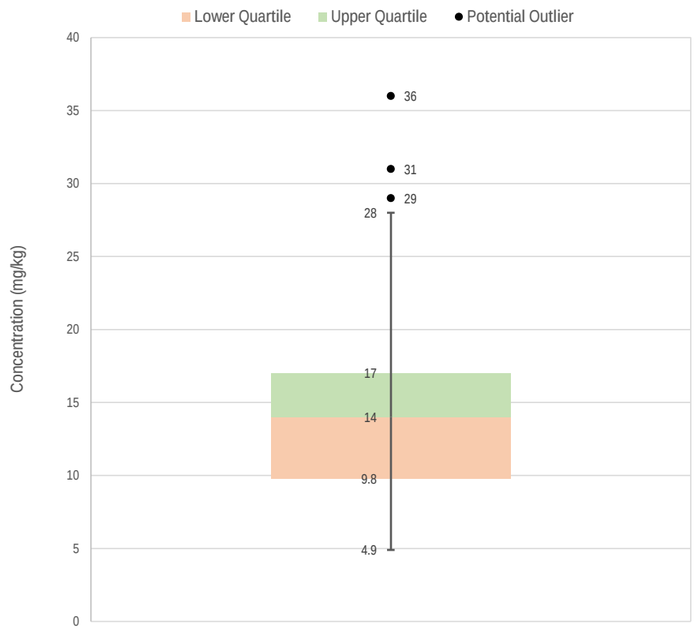
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Copper | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.94 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.34 | Type: Tukey's Test<br>p-value: 0.12 | Type: Tukey's Test<br>p-value: 0.81 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Copper | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | |  |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Gamma |
| Homogeneity of Variance (Levene's Test) p-value: 0.63 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 |

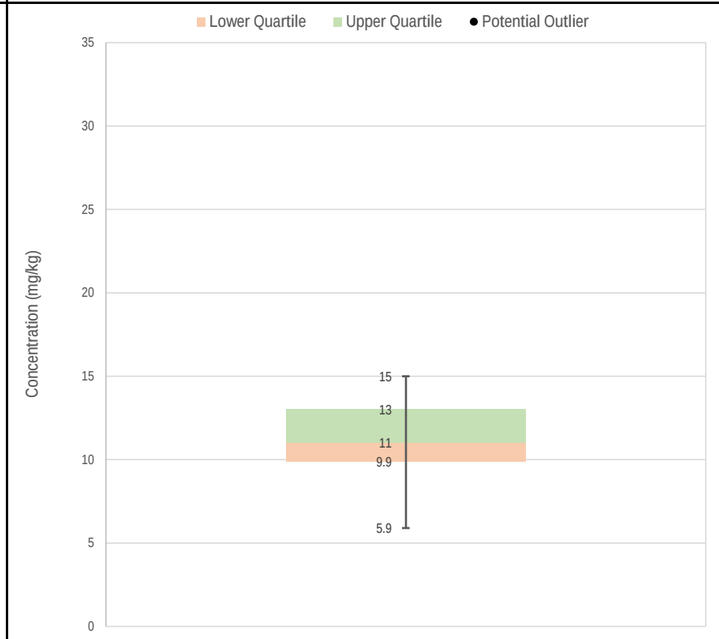
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Copper | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | |  |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.00029 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: 0.33 | Type: Dunn's Test<br>p-value: 0.13 |

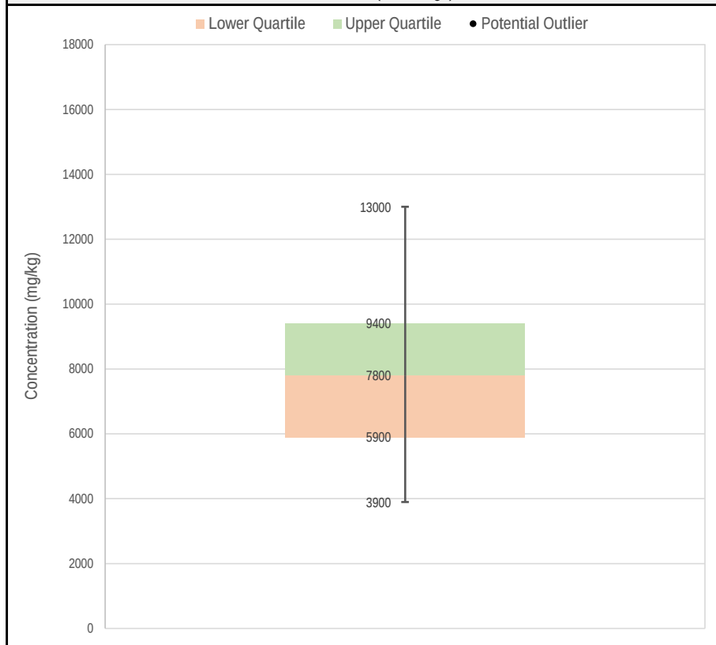
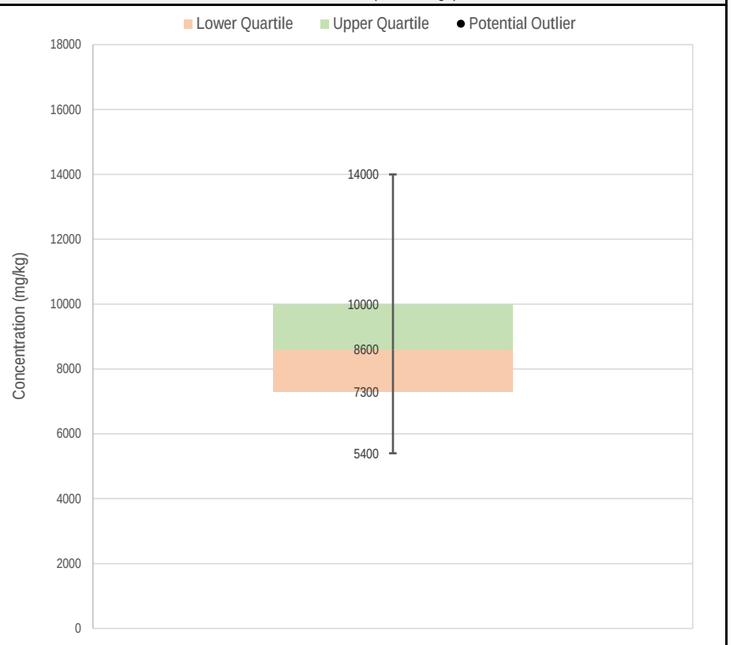
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

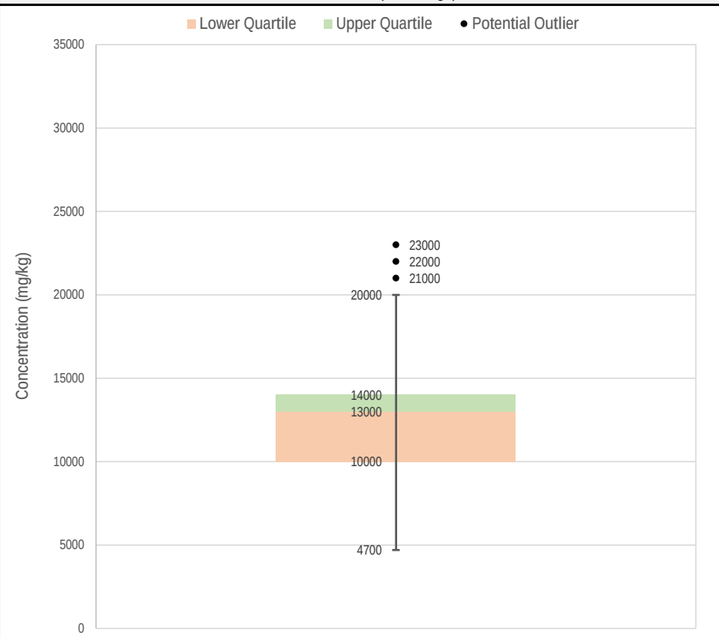
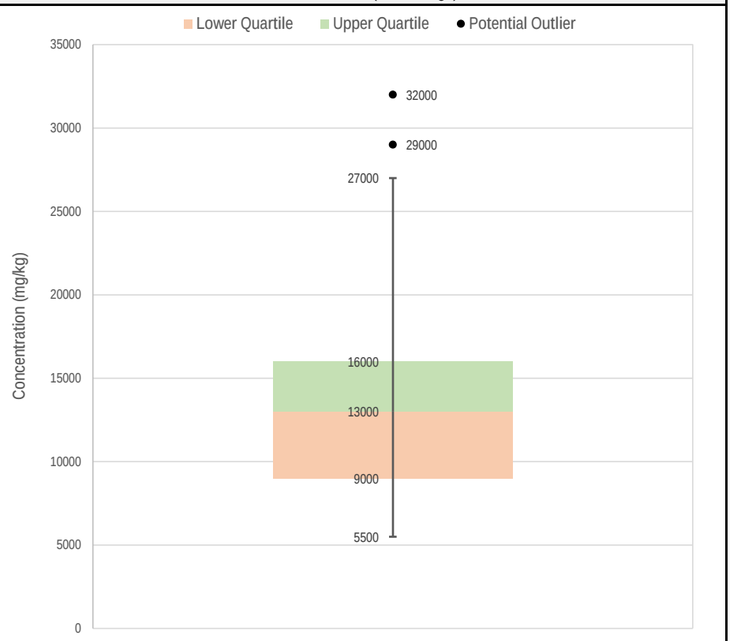
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Iron | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.97 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.32 | Type: Tukey's Test<br>p-value: 0.67 | Type: Tukey's Test<br>p-value: 0.82 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Iron | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.3 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.63 | Type: Tukey's Test<br>p-value: 0.83 | Type: Tukey's Test<br>p-value: 0.94 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

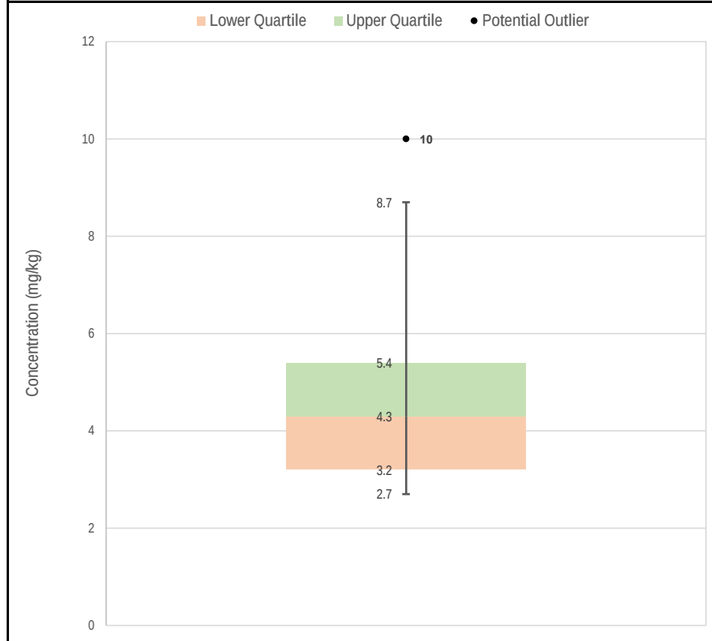
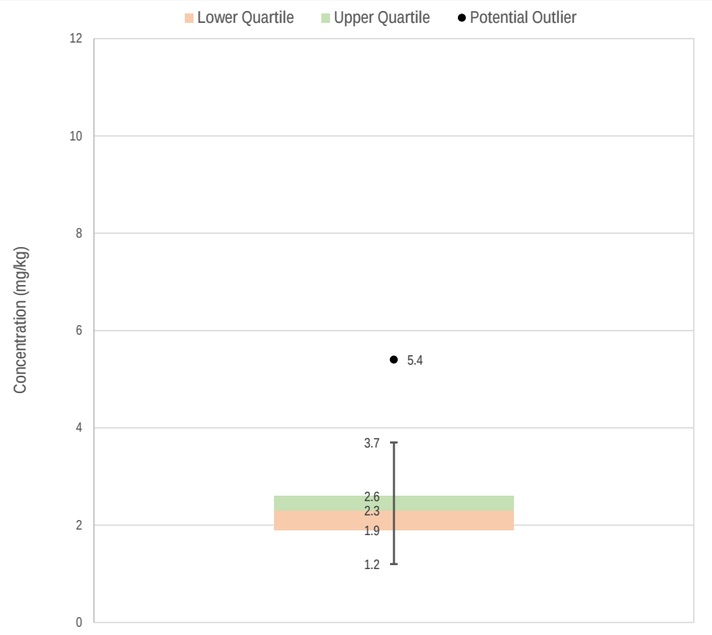
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Iron | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.17 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.61 | Type: Tukey's Test<br>p-value: 0.0038 | Type: Tukey's Test<br>p-value: 0.04 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.61 | p-value: 0.011 | p-value: 0.059 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Lead | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Not Discernible | Frequency of Detection: 8/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.68 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.064 | Type: Dunn's Test<br>p-value: 0.011 | Type: Dunn's Test<br>p-value: > 0.99 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.096 | p-value: 0.033 | p-value: > 0.99 |

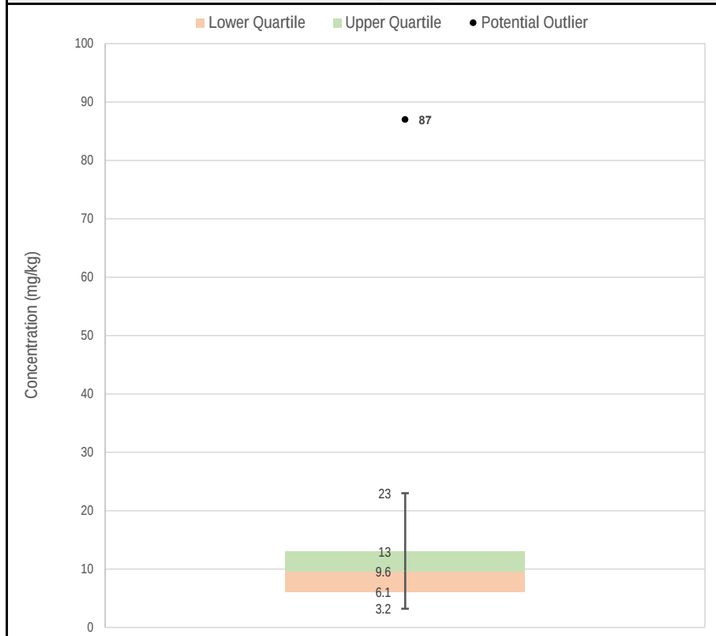
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Lead | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | | |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Lognormal | Frequency of Detection: 24/24<br>Data Distribution: Not Discernible | Frequency of Detection: 24/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.44 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.0022 | Type: Dunn's Test<br>p-value: 0.0052 | Type: Dunn's Test<br>p-value: > 0.99 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.0066 | p-value: 0.0078 | p-value: > 0.99 |

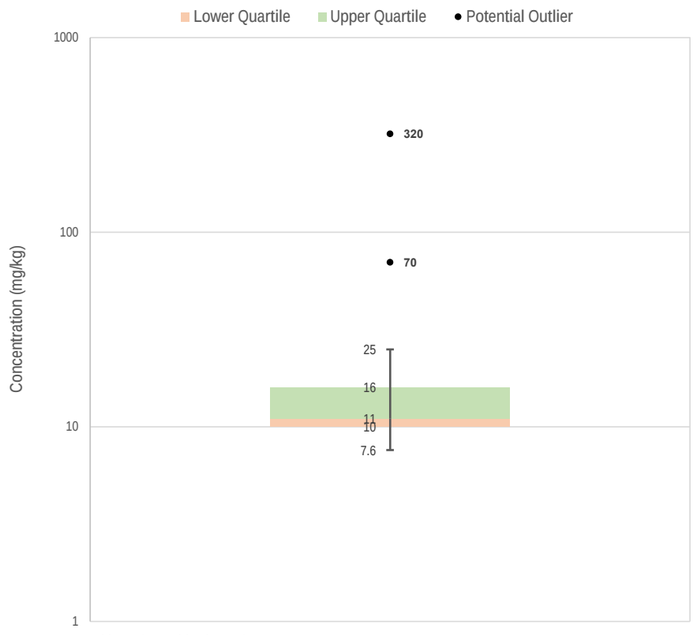
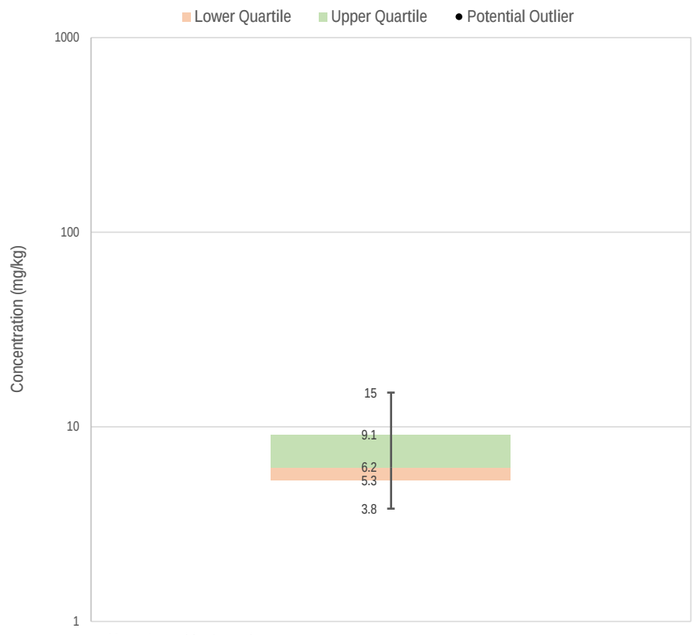
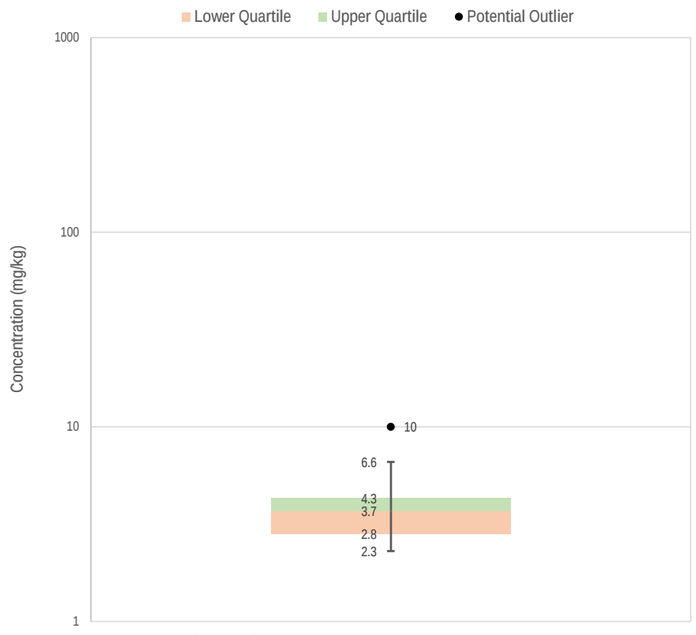
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

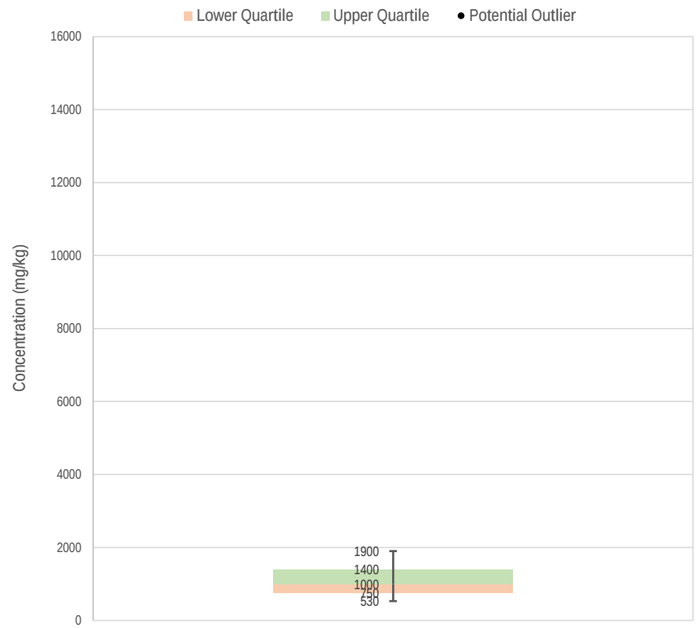
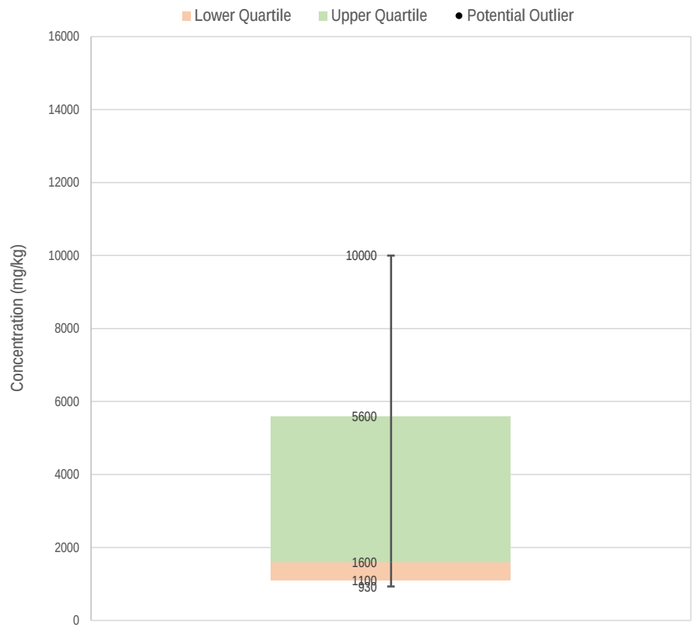
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Lead | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  |  |
| Note: Logarithmic scale | Note: Logarithmic scale | Note: Logarithmic scale |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Not Discernible | Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.25 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.084 | Type: Dunn's Test<br>p-value: 0.000034 | Type: Dunn's Test<br>p-value: 0.084 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.13 | p-value: 0.0001 | p-value: 0.13 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

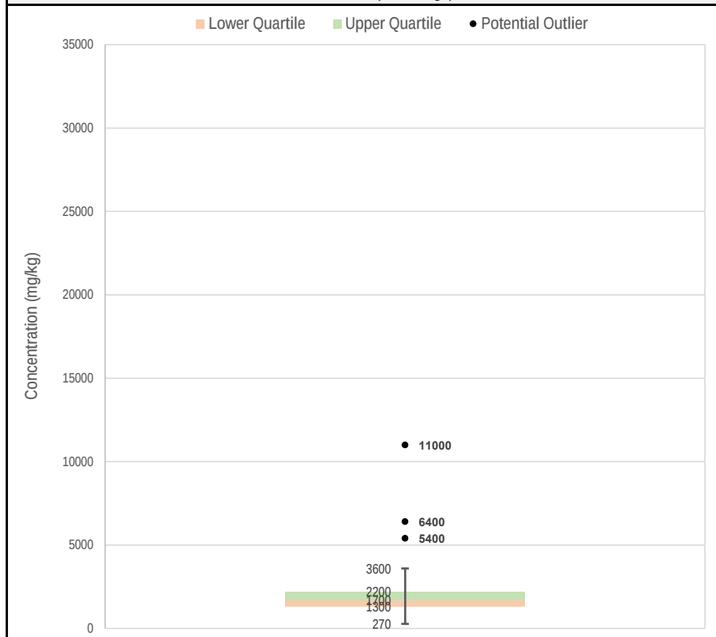
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Magnesium | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  | |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.0082 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.36 | Type: Dunn's Test<br>p-value: 0.0012 | Type: Dunn's Test<br>p-value: 0.14 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.36 | p-value: 0.0036 | p-value: 0.21 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Magnesium | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | | |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Not Discernible | Frequency of Detection: 24/24<br>Data Distribution: Gamma | Frequency of Detection: 24/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.001 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.012 | Type: Dunn's Test<br>p-value: 0.000000082 | Type: Dunn's Test<br>p-value: 0.022 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.018 | p-value: 0.00000025 | p-value: 0.022 |

Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

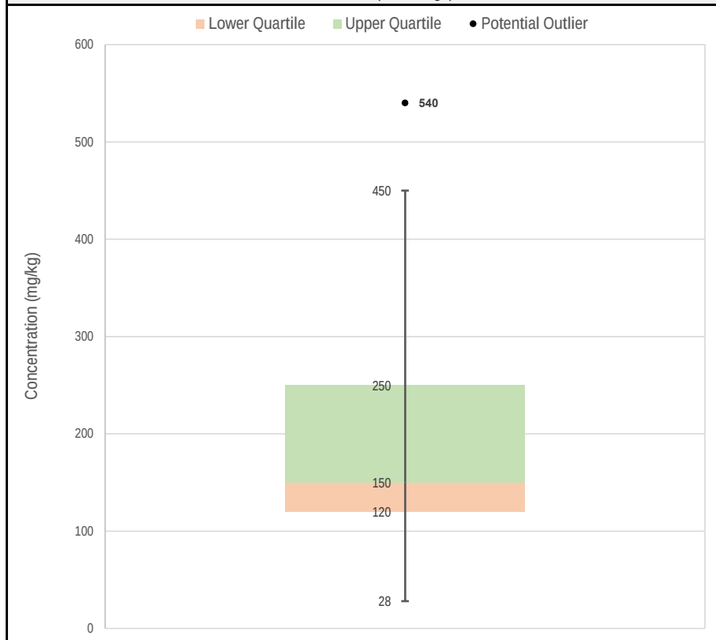
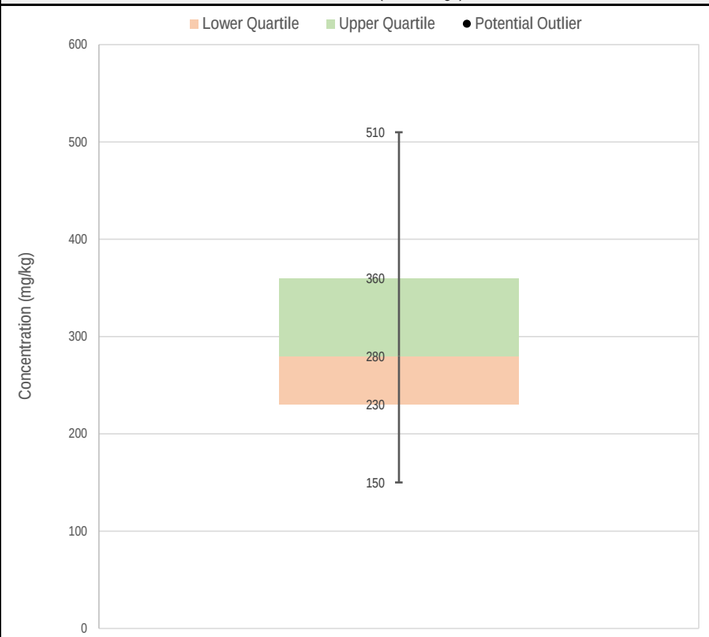
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Magnesium | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Not Discernible | Frequency of Detection: 11/11<br>Data Distribution: Lognormal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.77 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: 0.013 | Type: Dunn's Test<br>p-value: 0.011 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: > 0.99 | p-value: 0.019 | p-value: 0.033 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

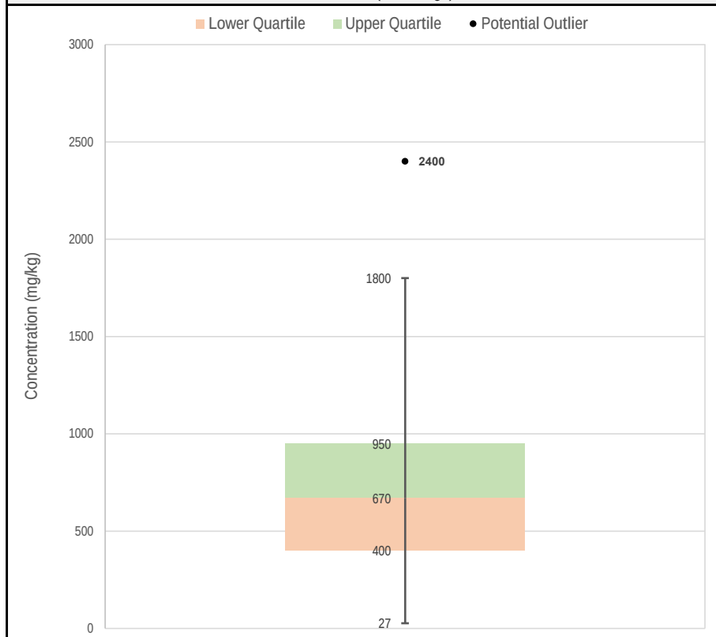
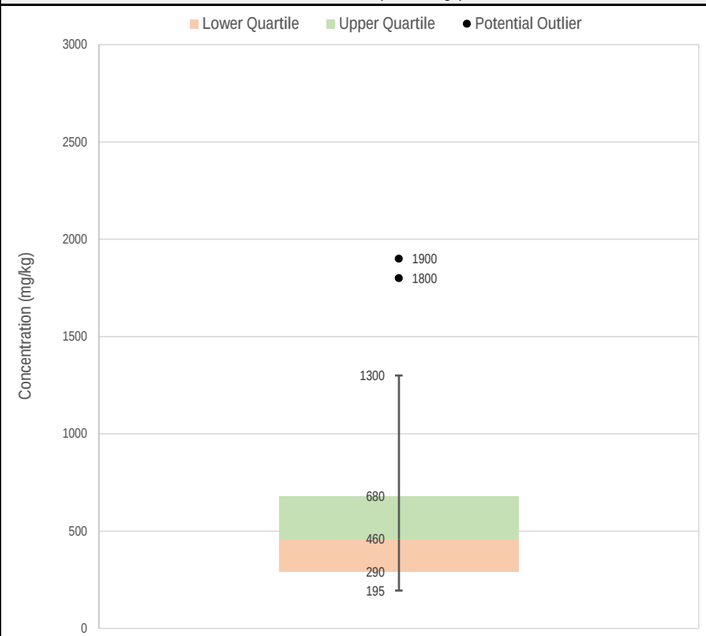
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Manganese | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.76 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.38 | Type: Tukey's Test<br>p-value: 0.37 | Type: Tukey's Test<br>p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

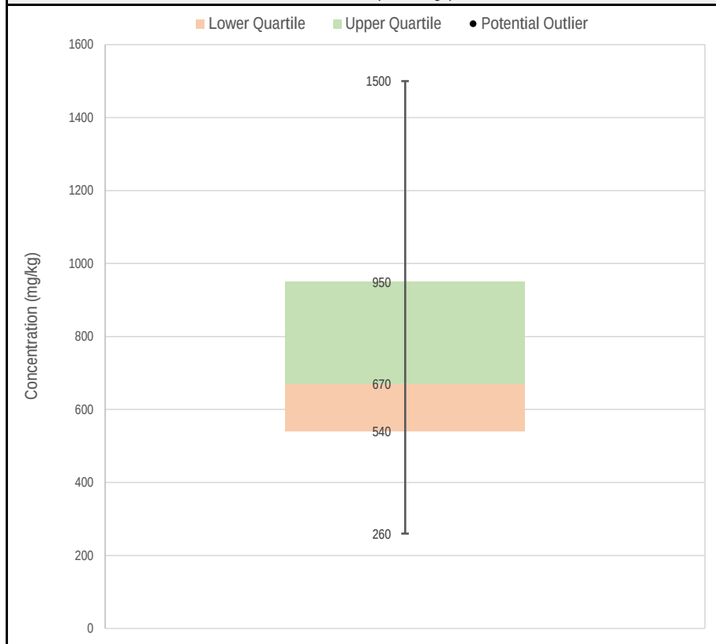
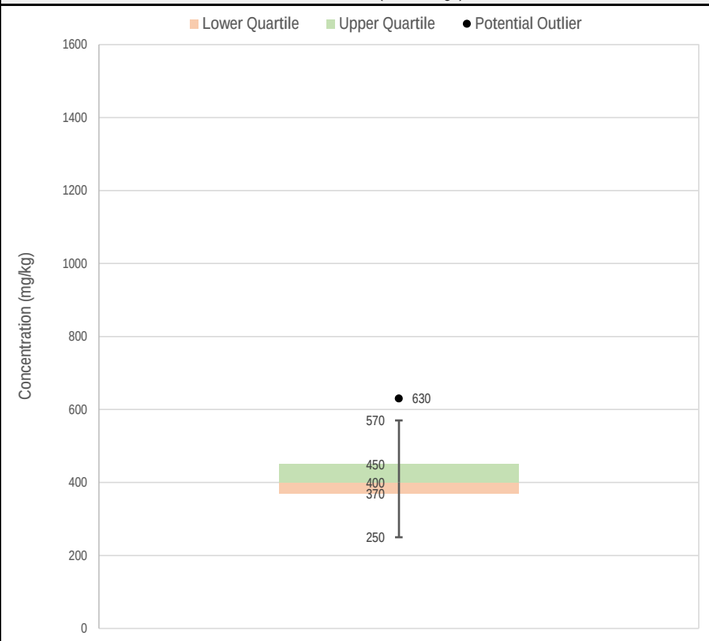
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Manganese | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | |  |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Gamma |
| Homogeneity of Variance (Levene's Test) p-value: 0.21 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.44 | Type: Dunn's Test<br>p-value: 0.56 | Type: Dunn's Test<br>p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

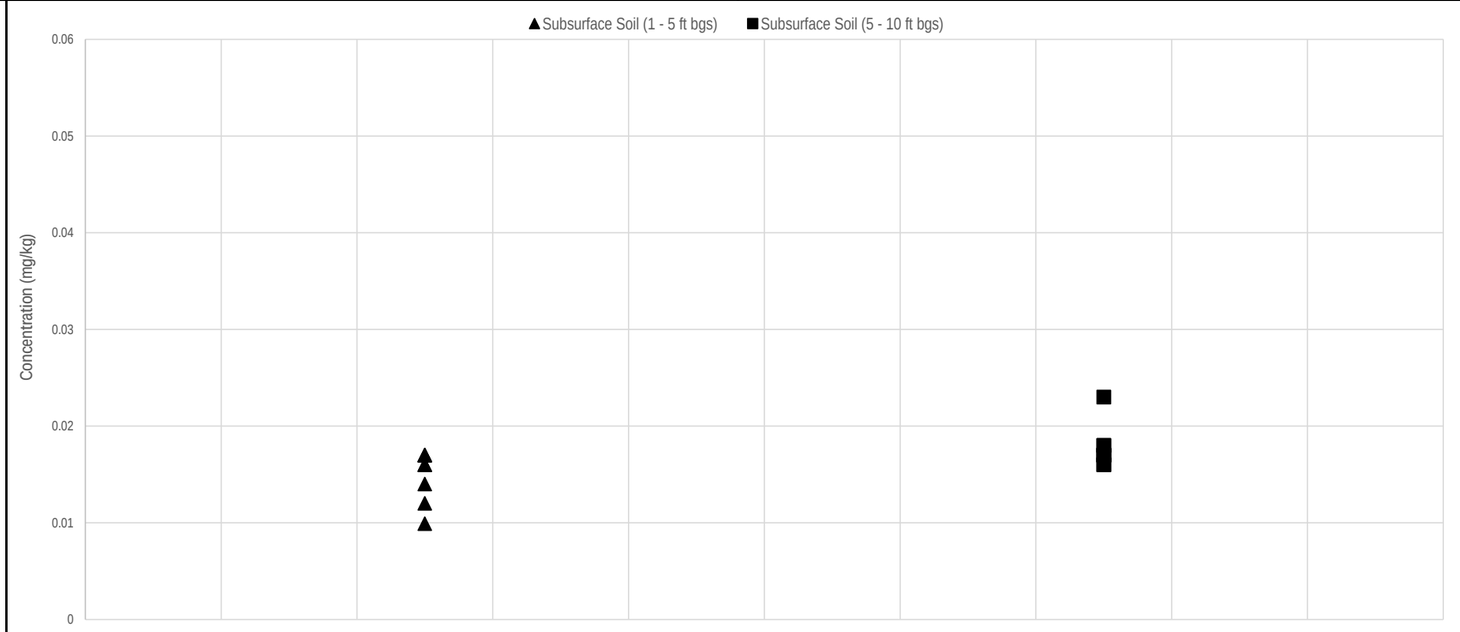
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Manganese | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | |  |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.012 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: 0.01 | Type: Dunn's Test<br>p-value: 0.028 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: > 0.99 | p-value: 0.031 | p-value: 0.042 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Mercury | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  | |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 3/8<br>Data Distribution: Normal | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.000054 | | |

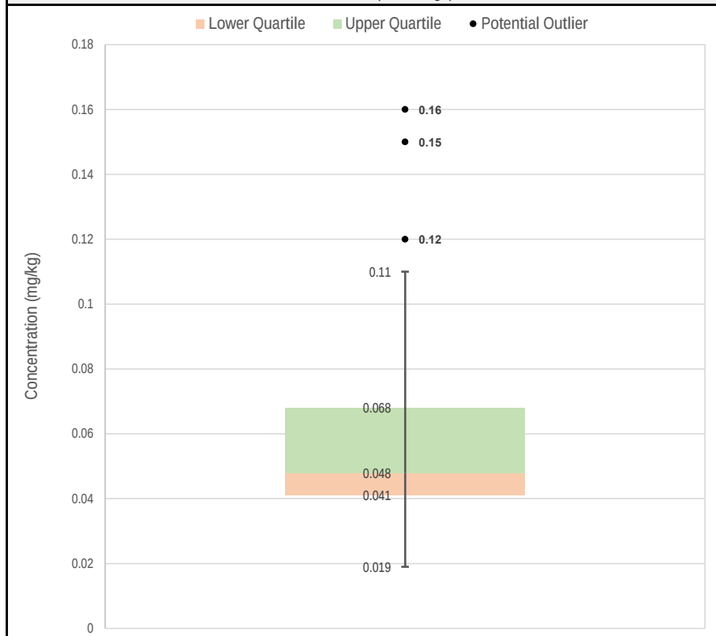
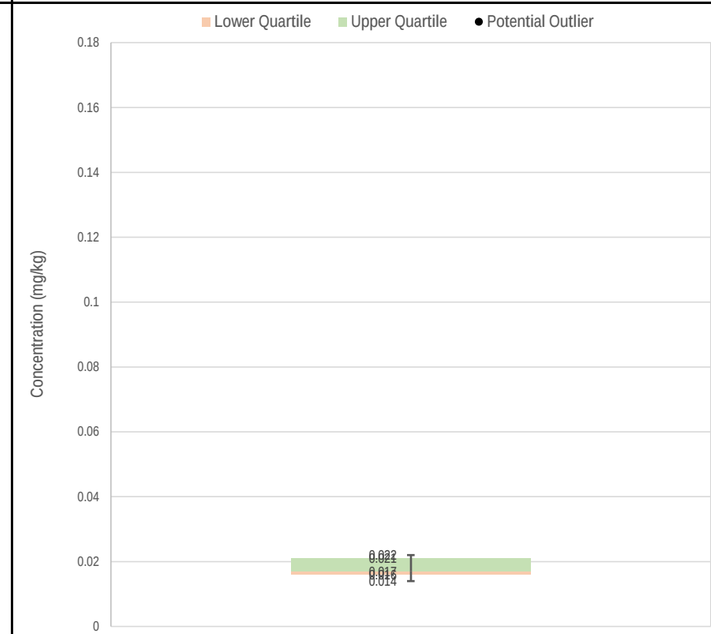
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Mercury | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | |  |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Gamma | Frequency of Detection: 18/24<br>Data Distribution: Not Discernible | Frequency of Detection: 8/24<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.0025 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.00000091 | Type: Dunn's Test<br>p-value: 0.0000013 | Type: Dunn's Test<br>p-value: > 0.99 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.0000027 | p-value: 0.000002 | p-value: > 0.99 |

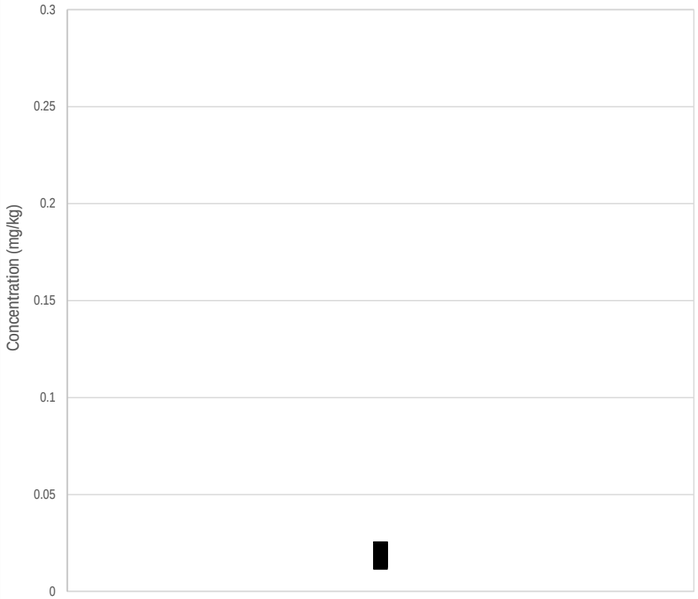
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Mercury | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | |  |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 8/11<br>Data Distribution: Normal | Frequency of Detection: 4/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.00071 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.03 | Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.045 | p-value: -- | p-value: -- |

Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Nickel | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.75 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.29 | Type: Tukey's Test<br>p-value: 0.33 | Type: Tukey's Test<br>p-value: 0.99 |

Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

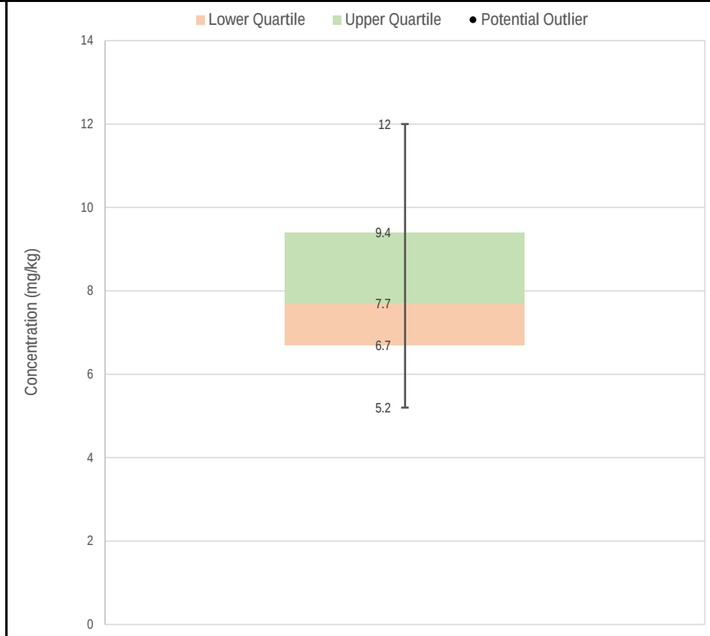
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Nickel | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.54 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.89 | Type: Tukey's Test<br>p-value: 0.21 | Type: Tukey's Test<br>p-value: 0.44 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Nickel | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  | |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.52 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: > 0.99 | Type: Tukey's Test<br>p-value: 0.65 | Type: Tukey's Test<br>p-value: 0.63 |

Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

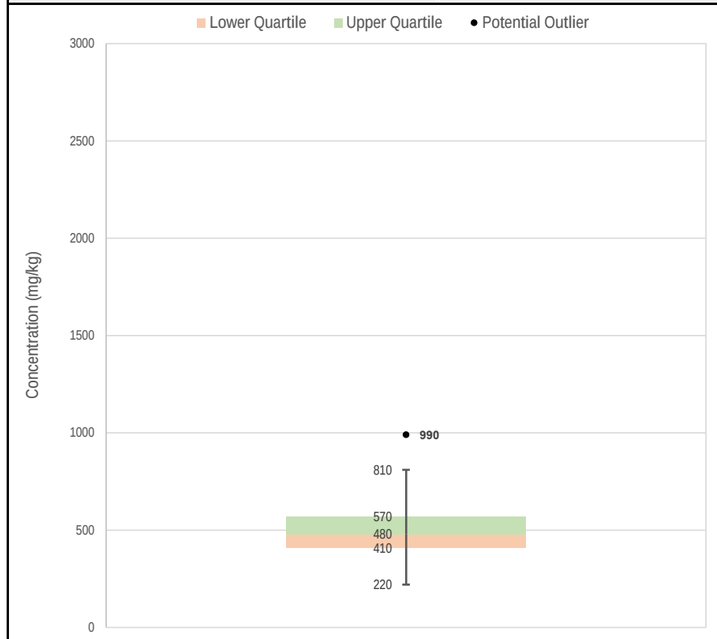
| Potassium | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| **General Statistics**[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.93 | | |
| **Multiple Comparison Test**[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.17 | Type: Tukey's Test<br>p-value: 0.025 | Type: Tukey's Test<br>p-value: 0.61 |
| **Benjamini-Hochberg**[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.25 | p-value: 0.076 | p-value: 0.61 |



Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

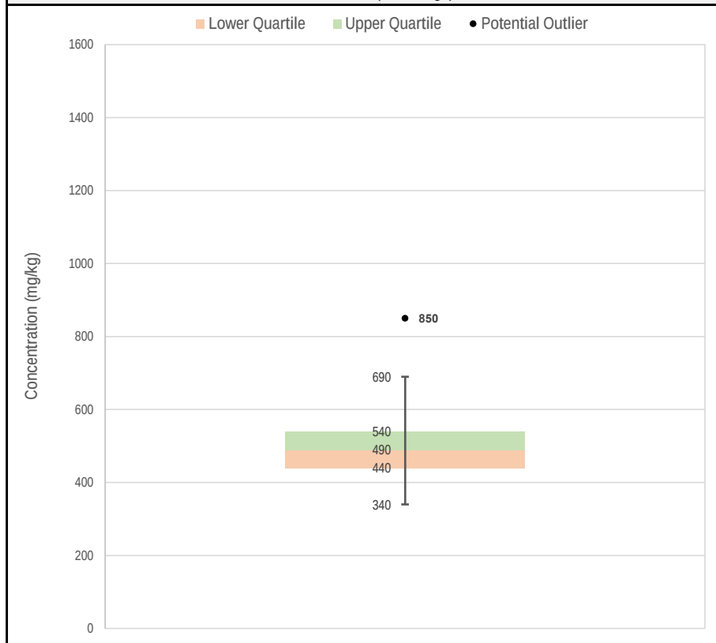
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Potassium | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | | |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Gamma |
| Homogeneity of Variance (Levene's Test) p-value: 0.061 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.13 | Type: Dunn's Test<br>p-value: 0.0000018 | Type: Dunn's Test<br>p-value: 0.009 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.13 | p-value: 0.0000054 | p-value: 0.014 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

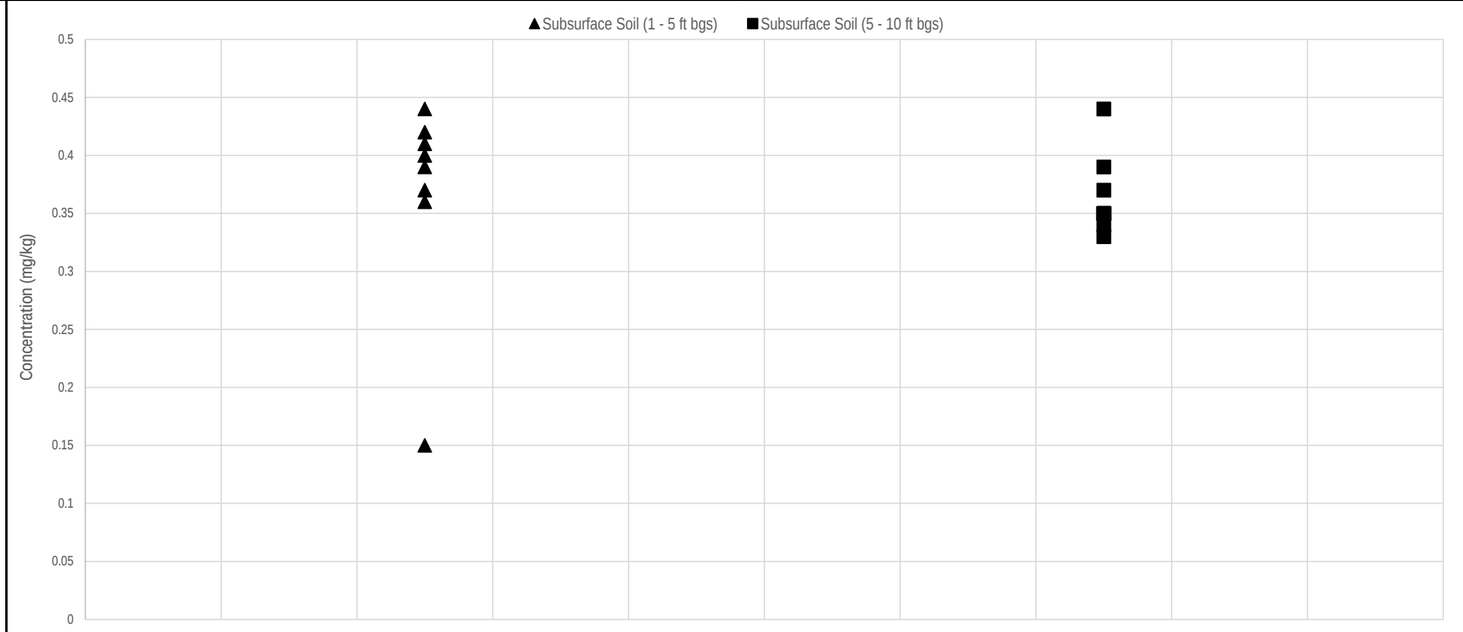
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Potassium | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | | |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.069 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.72 | Type: Tukey's Test<br>p-value: 0.069 | Type: Tukey's Test<br>p-value: 0.29 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Selenium | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  | |
| General Statistics[1] | | |
| Frequency of Detection: 7/8<br>Data Distribution: Normal | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible | Frequency of Detection: 0/8<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.2 | | |

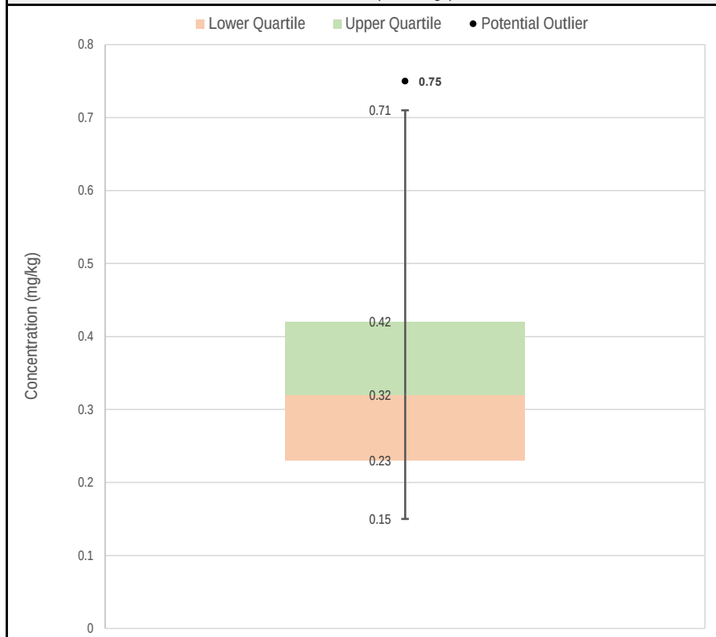
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

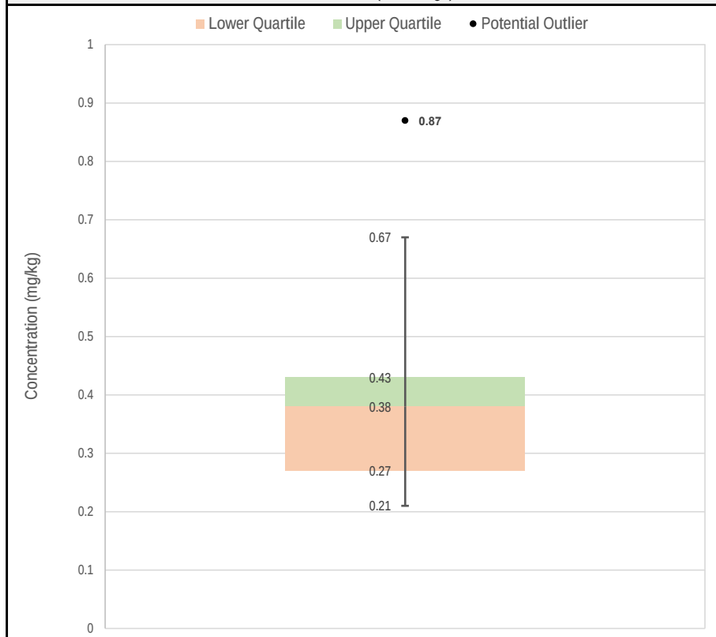
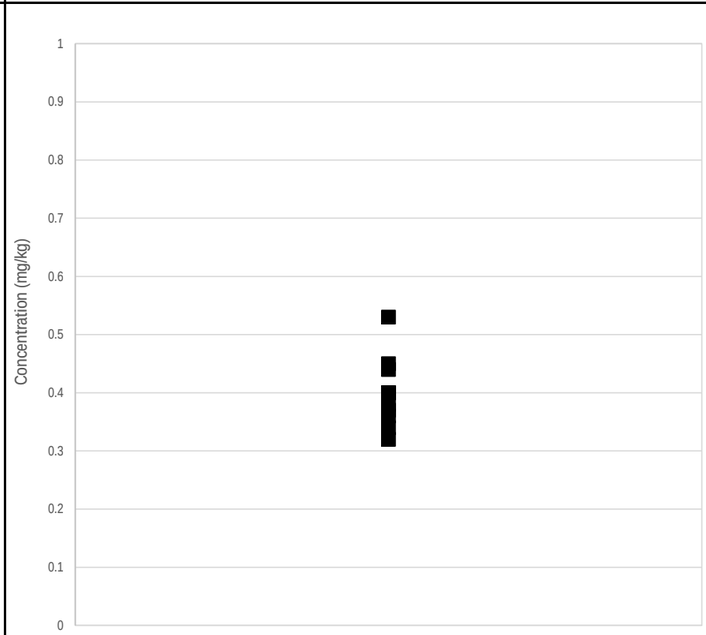
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Selenium | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | | |
| General Statistics[1] | | |
| Frequency of Detection: 23/24<br>Data Distribution: Normal | Frequency of Detection: 10/24<br>Data Distribution: Normal | Frequency of Detection: 4/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.000096 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Selenium | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | |  |
| General Statistics[1] | | |
| Frequency of Detection: 10/11<br>Data Distribution: Normal | Frequency of Detection: 8/11<br>Data Distribution: Normal | Frequency of Detection: 1/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.13 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.22 | Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.32 | p-value: -- | p-value: -- |

Notes:

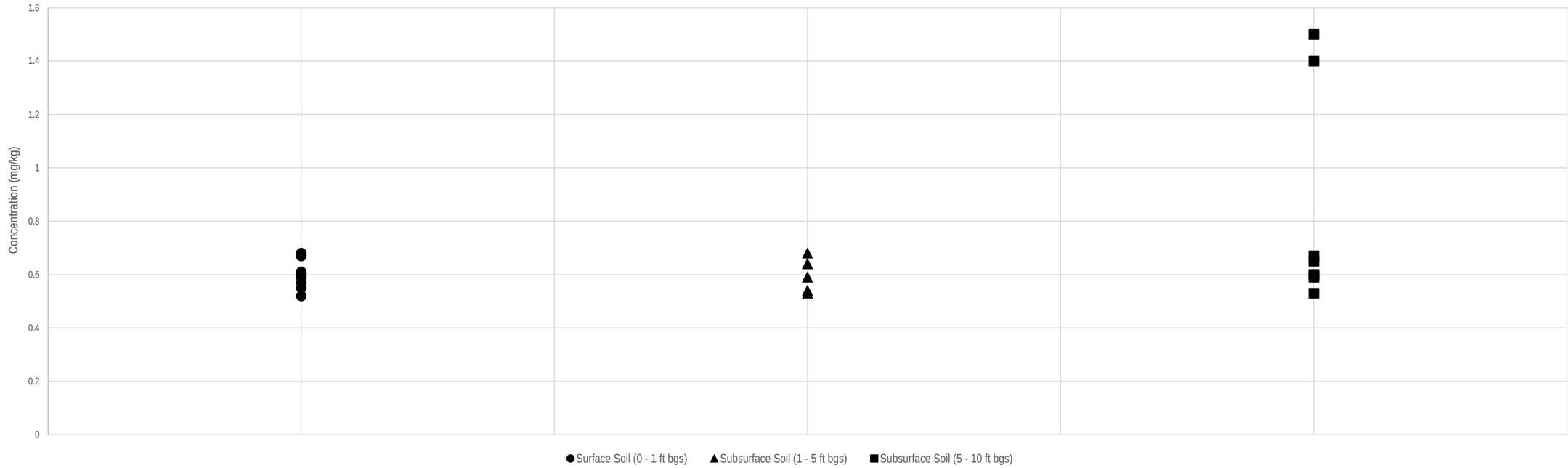
(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Silver | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |

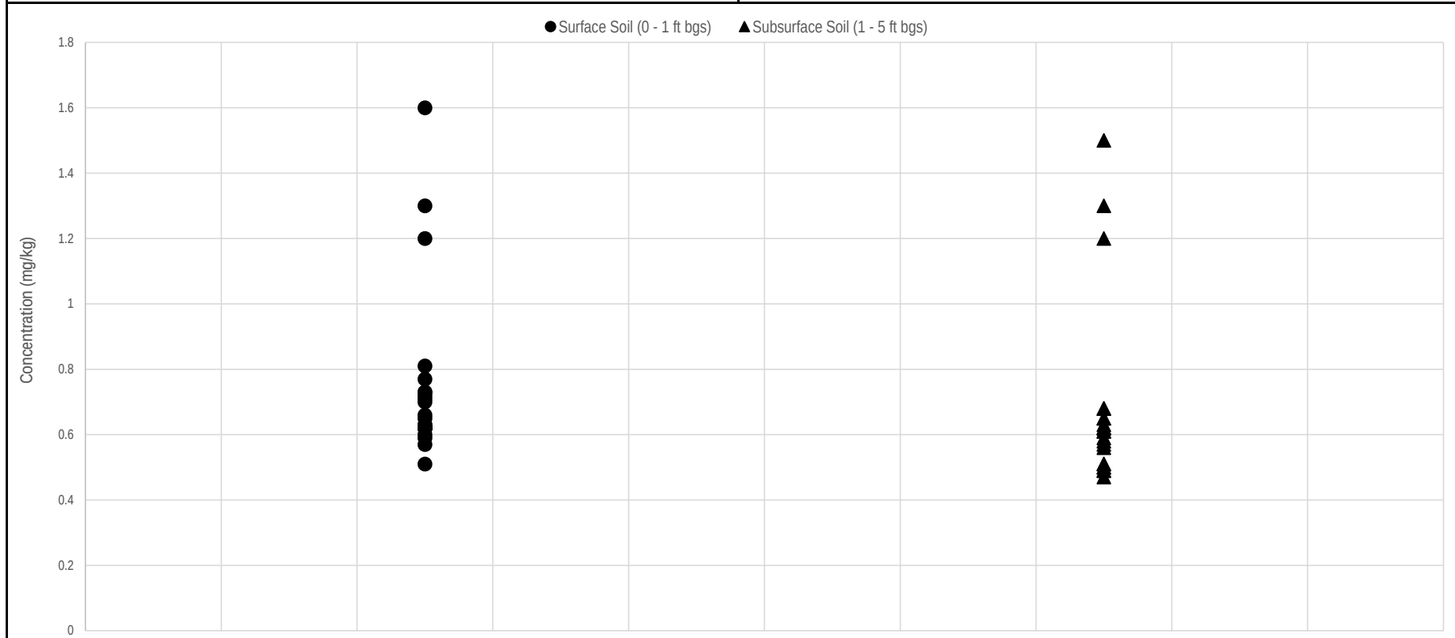
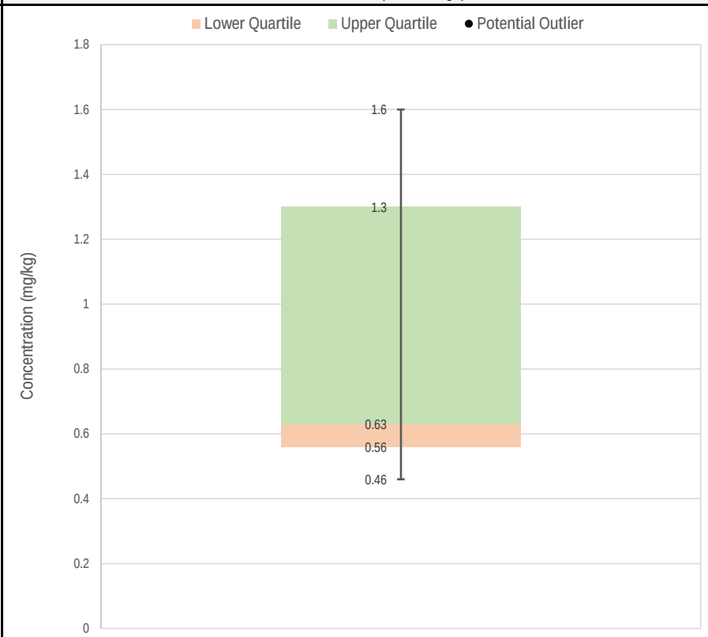



| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 0/8<br>Data Distribution: Not Discernible | Frequency of Detection: 0/8<br>Data Distribution: Not Discernible | Frequency of Detection: 2/8<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.13 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Silver | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | |  |
| General Statistics[1] | | |
| Frequency of Detection: 3/24<br>Data Distribution: Normal | Frequency of Detection: 3/24<br>Data Distribution: Normal | Frequency of Detection: 7/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.001 | | |

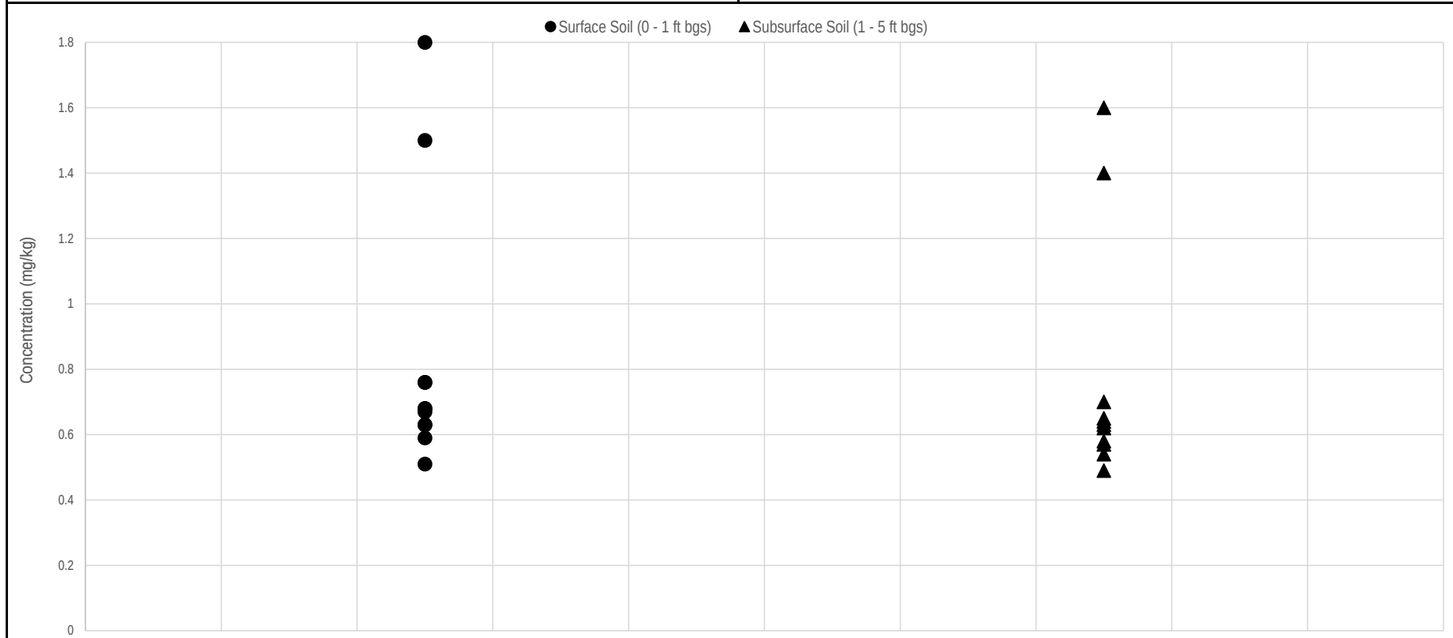
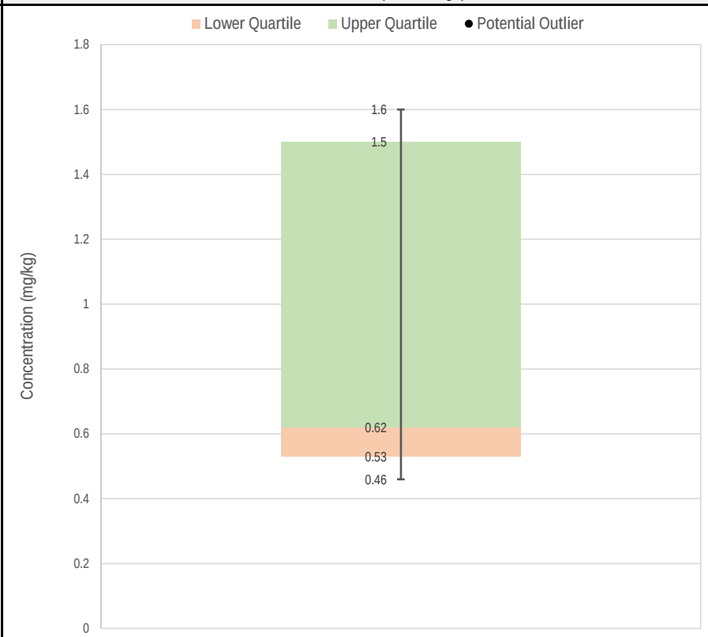




Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Silver | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | |  |
| General Statistics[1] | | |
| Frequency of Detection: 2/11<br>Data Distribution: Not Discernible | Frequency of Detection: 2/11<br>Data Distribution: Not Discernible | Frequency of Detection: 5/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.23 | | |

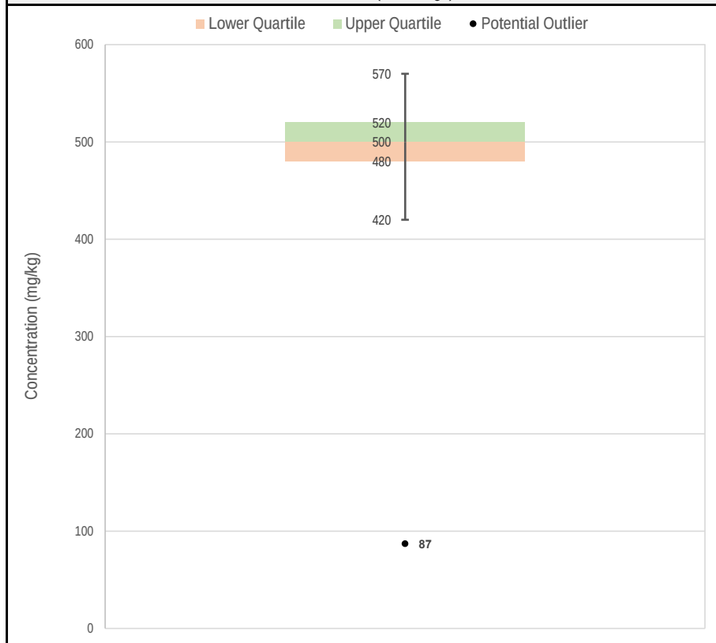
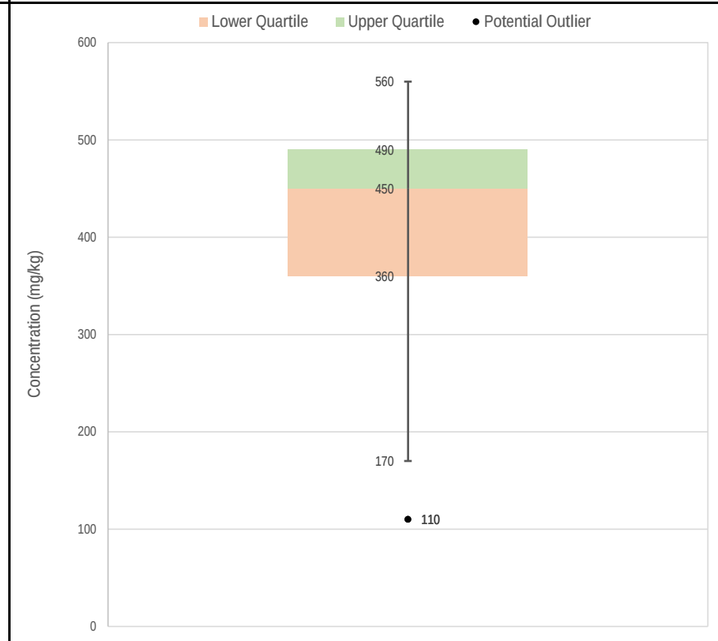
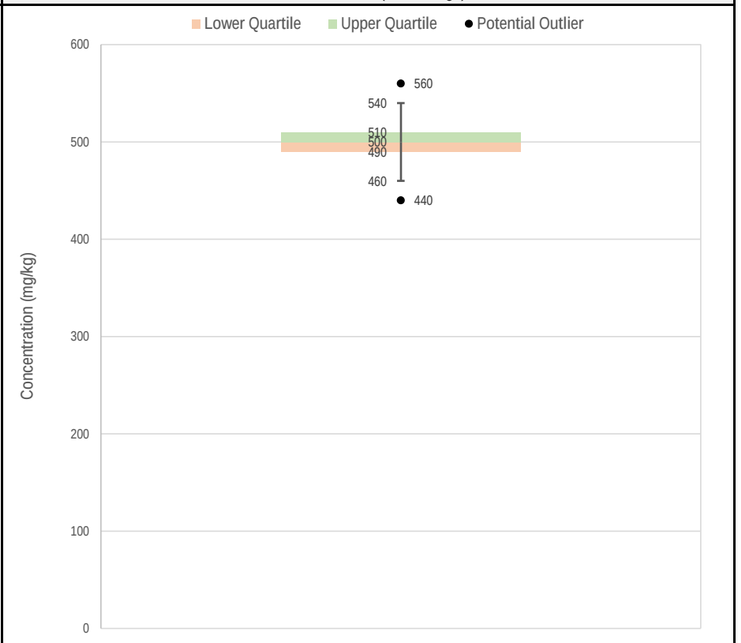




Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sodium | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 7/8<br>Data Distribution: Normal | Frequency of Detection: 6/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.057 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.59 | Type: Tukey's Test<br>p-value: 0.82 | Type: Tukey's Test<br>p-value: 0.27 |

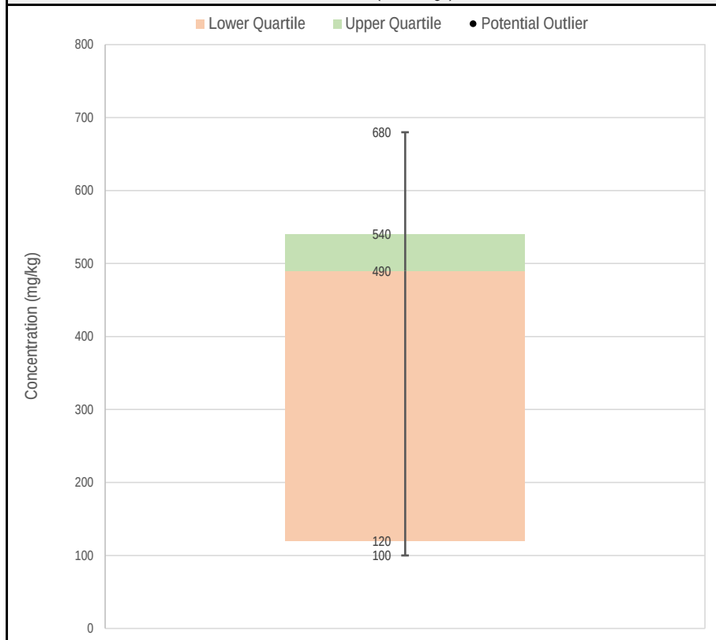
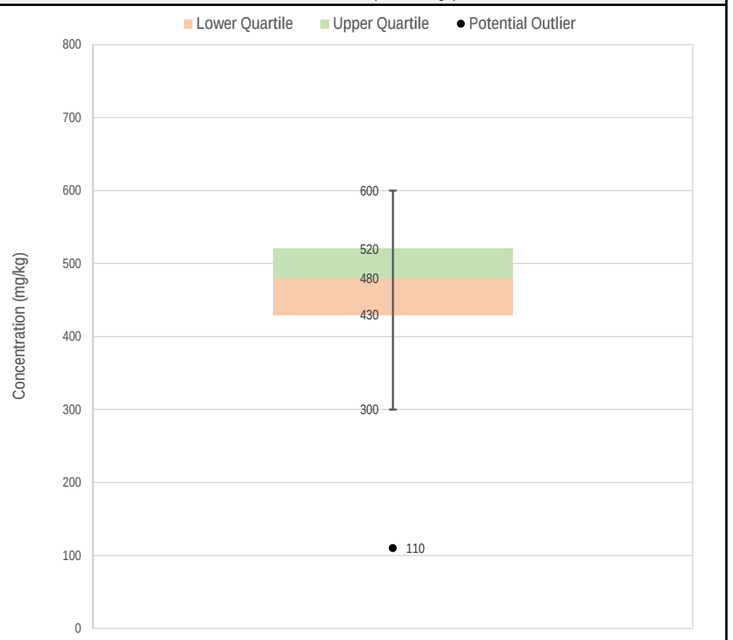
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sodium | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | |  |
| General Statistics[1] | | |
| Frequency of Detection: 16/24<br>Data Distribution: Normal | Frequency of Detection: 21/24<br>Data Distribution: Normal | Frequency of Detection: 23/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.000011 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 |

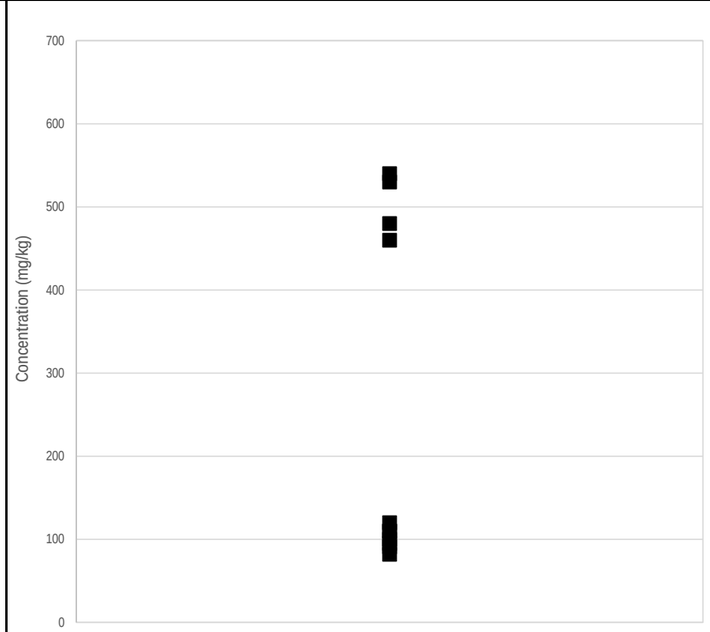
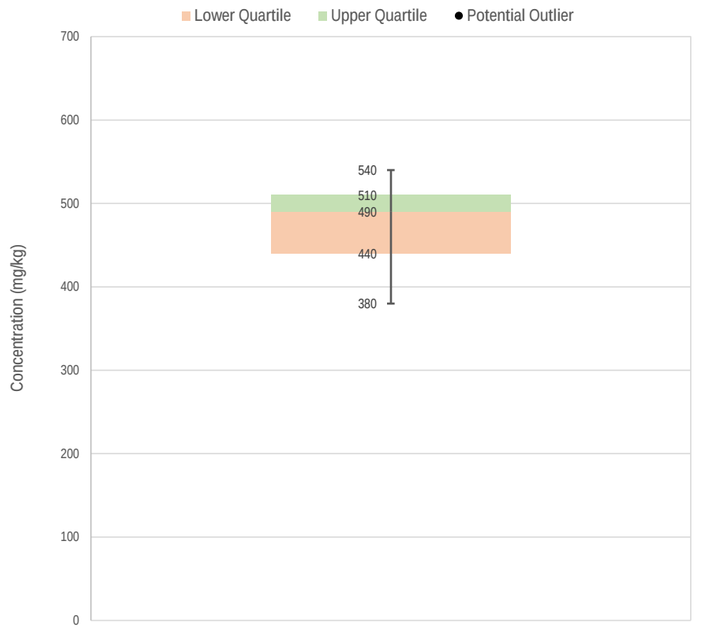
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

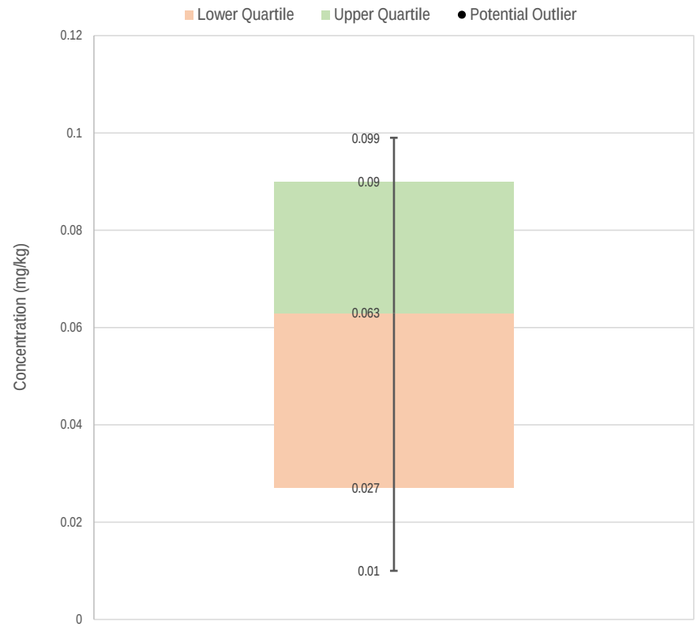
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sodium | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 5/11<br>Data Distribution: Normal | Frequency of Detection: 4/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 4.8E-09 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: N/A<br>p-value: -- | Type: Dunn's Test<br>p-value: 0.96 | Type: N/A<br>p-value: -- |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Thallium | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | |  |
| General Statistics[1] | | |
| Frequency of Detection: 4/8<br>Data Distribution: Normal | Frequency of Detection: 4/8<br>Data Distribution: Normal | Frequency of Detection: 4/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.53 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.91 | Type: Tukey's Test<br>p-value: 0.71 | Type: Tukey's Test<br>p-value: 0.46 |

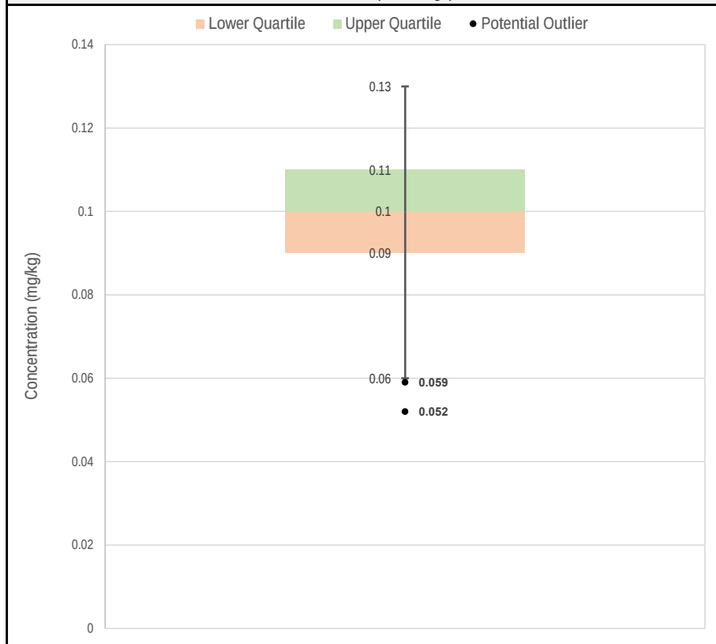
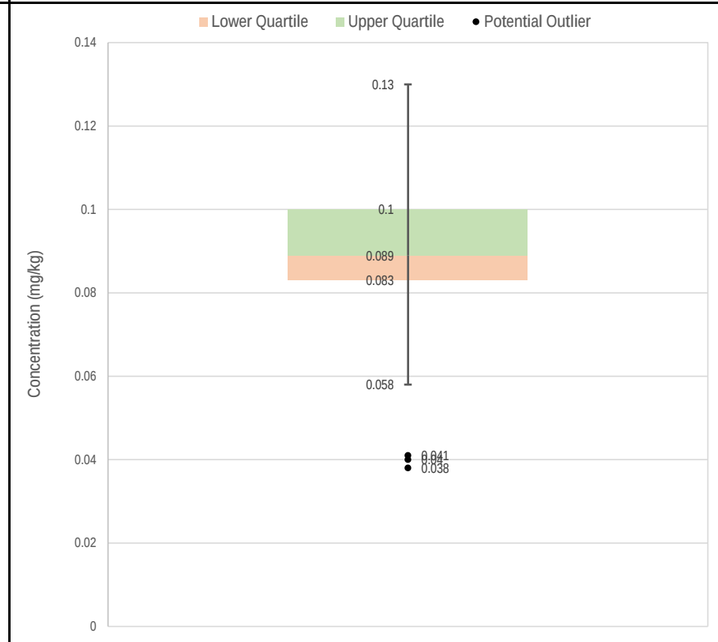
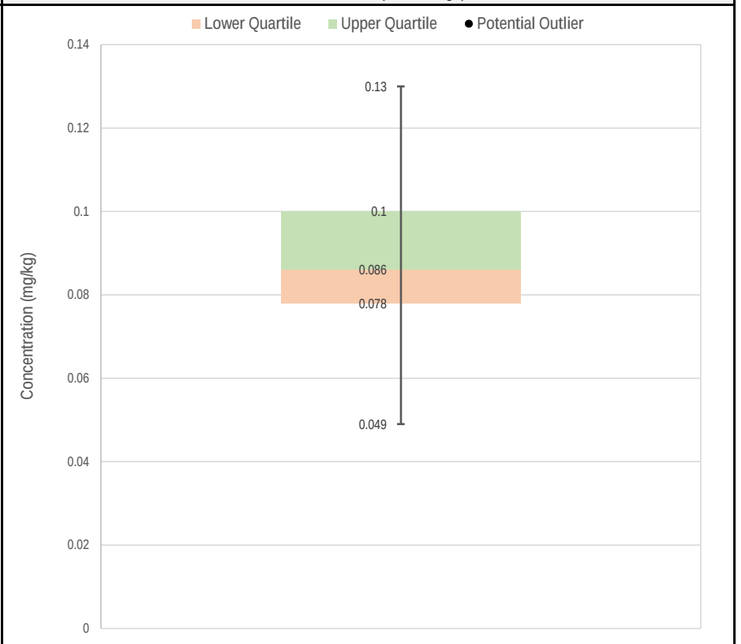
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Thallium | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 11/24<br>Data Distribution: Normal | Frequency of Detection: 8/24<br>Data Distribution: Normal | Frequency of Detection: 10/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.97 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.35 | Type: Tukey's Test<br>p-value: 0.16 | Type: Tukey's Test<br>p-value: 0.89 |

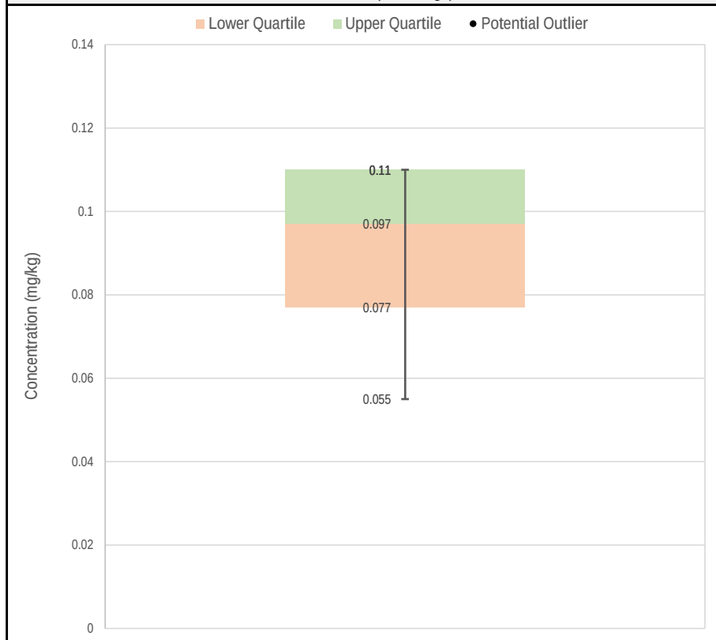
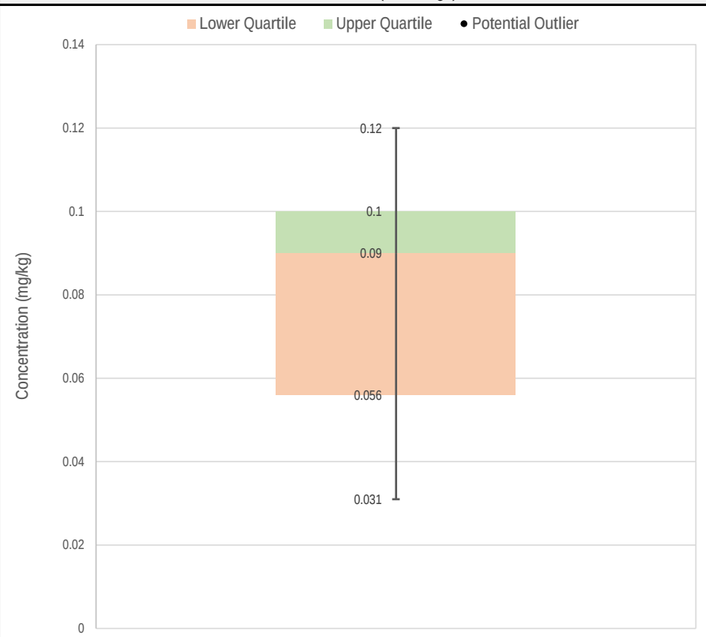
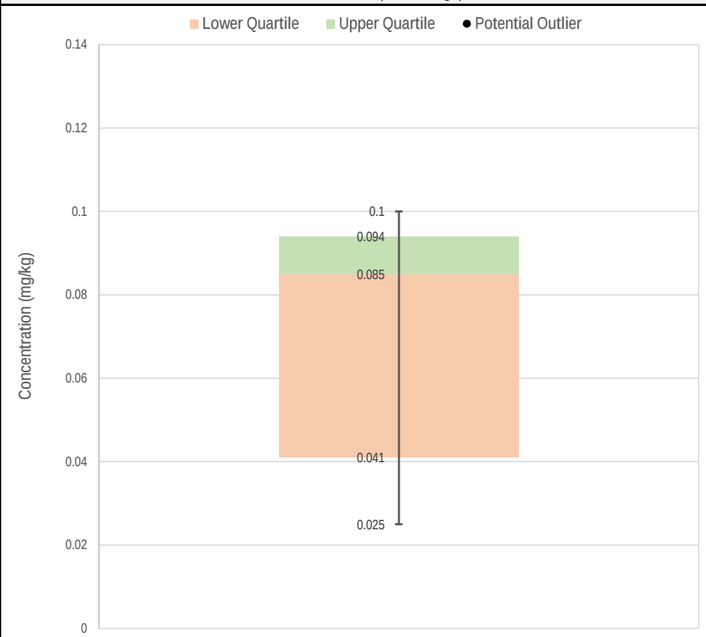
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Thallium | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/11<br>Data Distribution: Normal | Frequency of Detection: 7/11<br>Data Distribution: Normal | Frequency of Detection: 7/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.14 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.59 | Type: Tukey's Test<br>p-value: 0.17 | Type: Tukey's Test<br>p-value: 0.67 |

Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

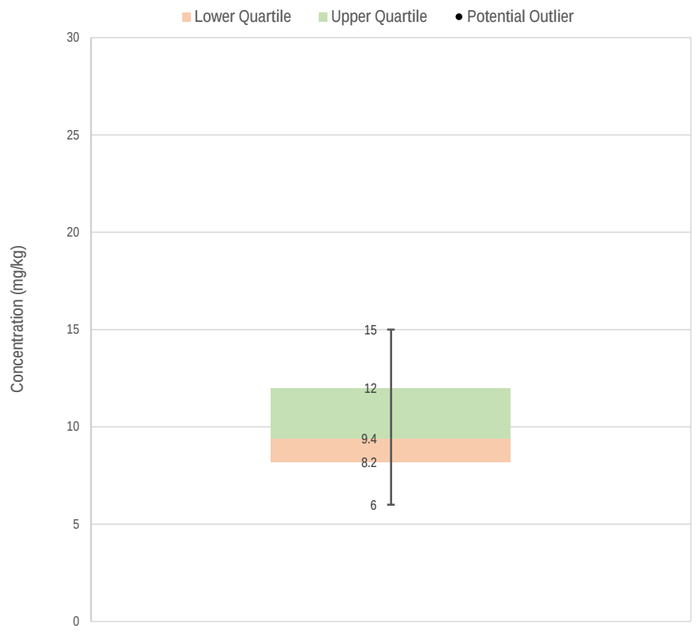
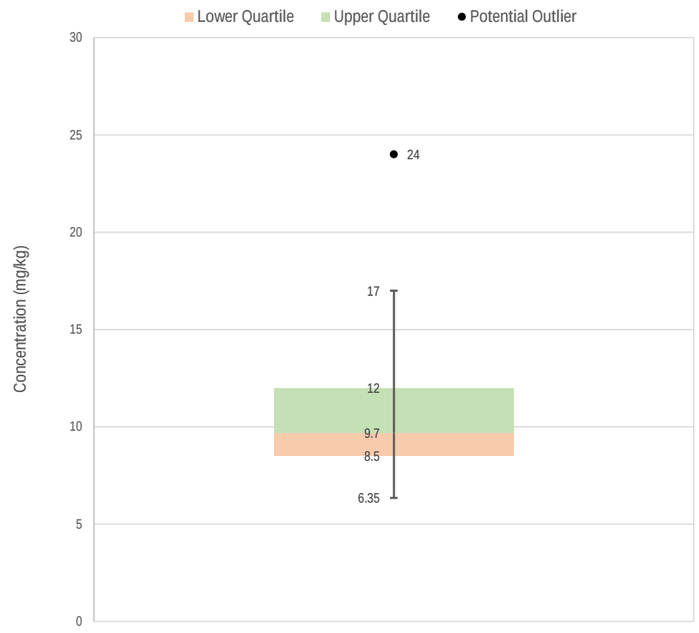
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Vanadium | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.19 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.82 | Type: Tukey's Test<br>p-value: 0.2 | Type: Tukey's Test<br>p-value: 0.063 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Vanadium | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.1 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.01 | Type: Tukey's Test<br>p-value: 0.017 | Type: Tukey's Test<br>p-value: 0.98 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.031 | p-value: 0.025 | p-value: 0.98 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

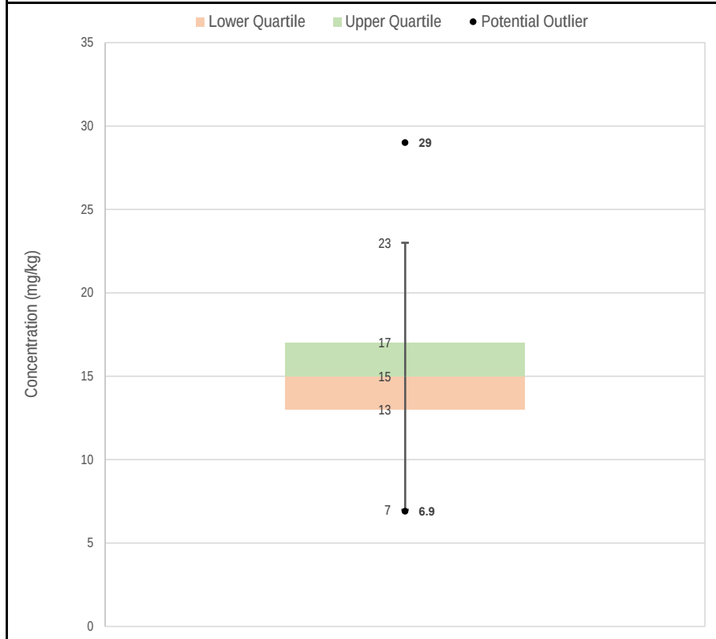
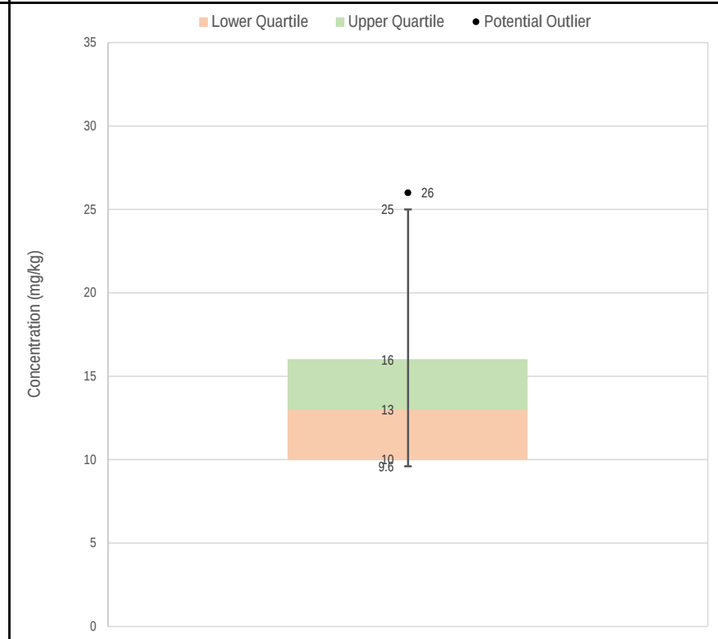
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Vanadium | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.079 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.14 | Type: Tukey's Test<br>p-value: 0.00055 | Type: Tukey's Test<br>p-value: 0.074 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.14 | p-value: 0.0017 | p-value: 0.11 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Zinc | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  | |
| General Statistics[1] | | |
| Frequency of Detection: 7/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 8/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.58 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Tukey's Test<br>p-value: 0.88 | Type: Tukey's Test<br>p-value: 0.57 | Type: Tukey's Test<br>p-value: 0.85 |

Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

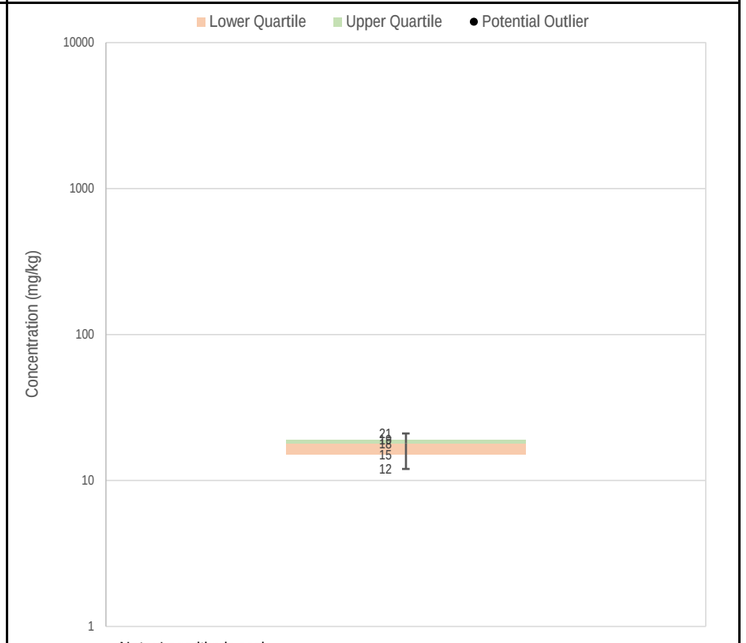
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Zinc | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Lognormal | Frequency of Detection: 24/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.092 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.026 | Type: Dunn's Test<br>p-value: 0.029 | Type: Dunn's Test<br>p-value: > 0.99 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.077 | p-value: 0.043 | p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

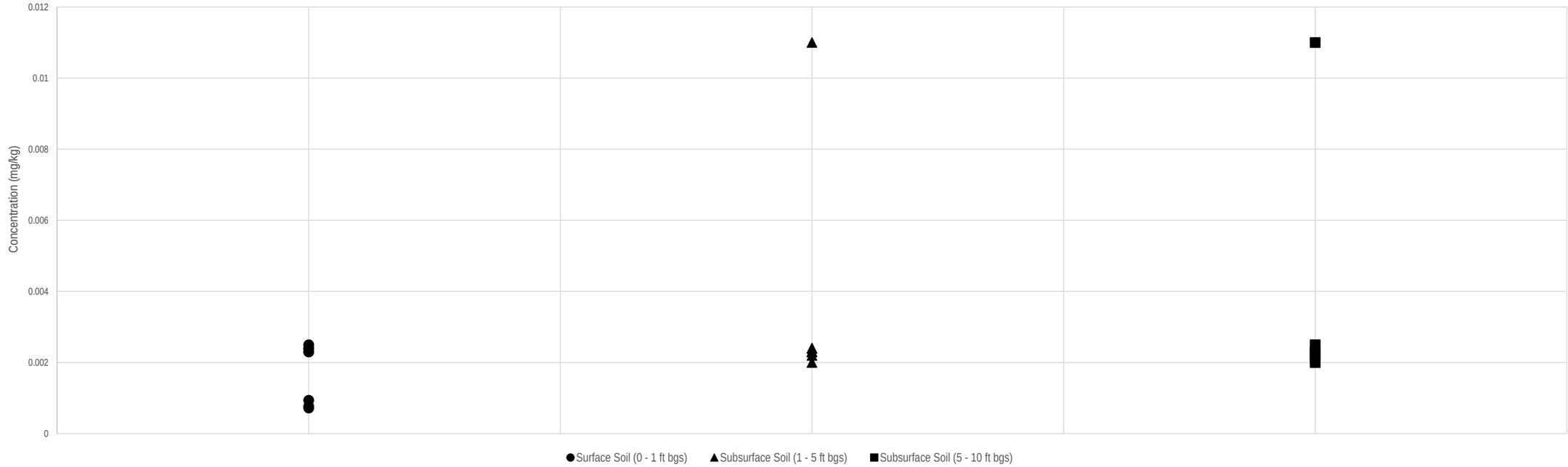
| Zinc | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | |  |
| Note: Logarithmic scale | Note: Logarithmic scale | Note: Logarithmic scale |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Not Discernible | Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.32 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.15 | Type: Dunn's Test<br>p-value: 0.000013 | Type: Dunn's Test<br>p-value: 0.026 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.15 | p-value: 0.000039 | p-value: 0.039 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| 1-Methylnaphthalene | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |

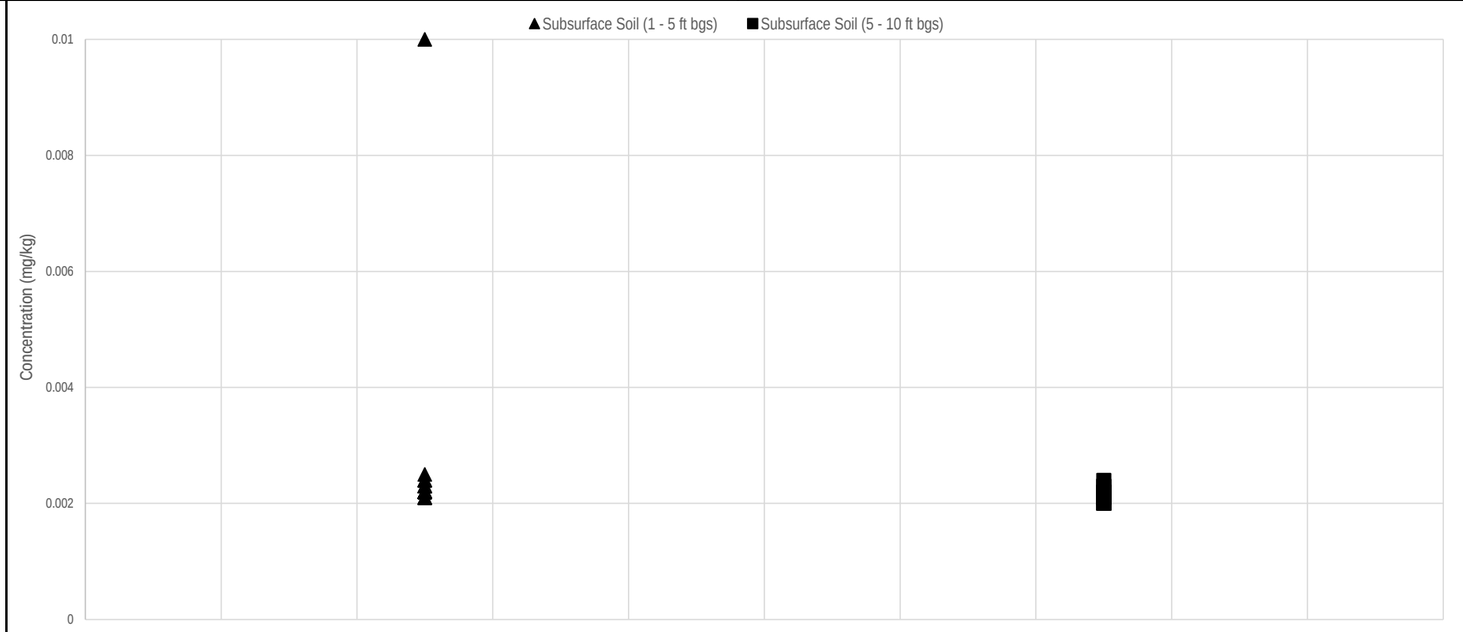



| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 3/8<br>Data Distribution: Normal | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.87 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

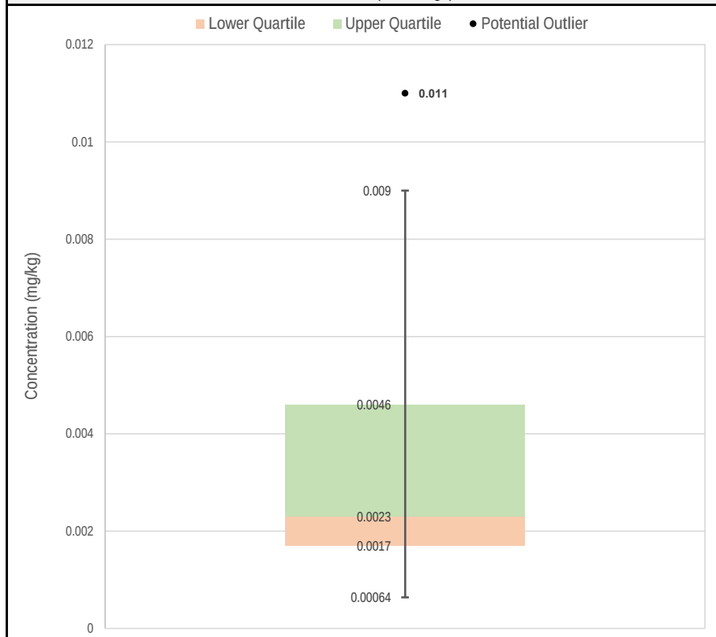
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| 1-Methylnaphthalene | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  | |
| General Statistics[1] | | |
| Frequency of Detection: 10/24<br>Data Distribution: Normal | Frequency of Detection: 1/24<br>Data Distribution: Not Discernible | Frequency of Detection: 0/24<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.25 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| 1-Methylnaphthalene | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | | |
| General Statistics[1] | | |
| Frequency of Detection: 6/11<br>Data Distribution: Normal | Frequency of Detection: 0/11<br>Data Distribution: Not Discernible | Frequency of Detection: 1/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.099 | | |



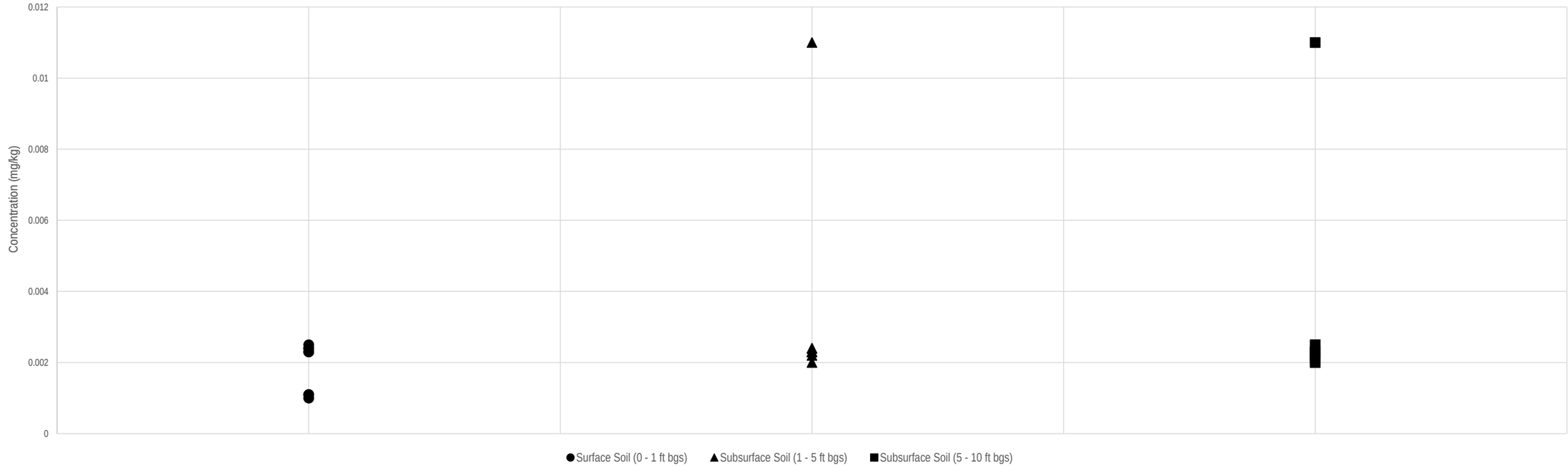


Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| 2-Methylnaphthalene | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |

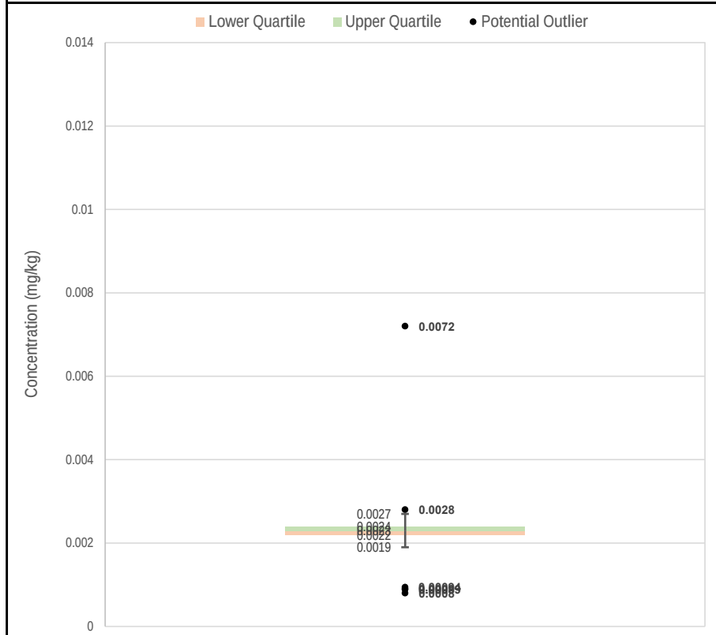
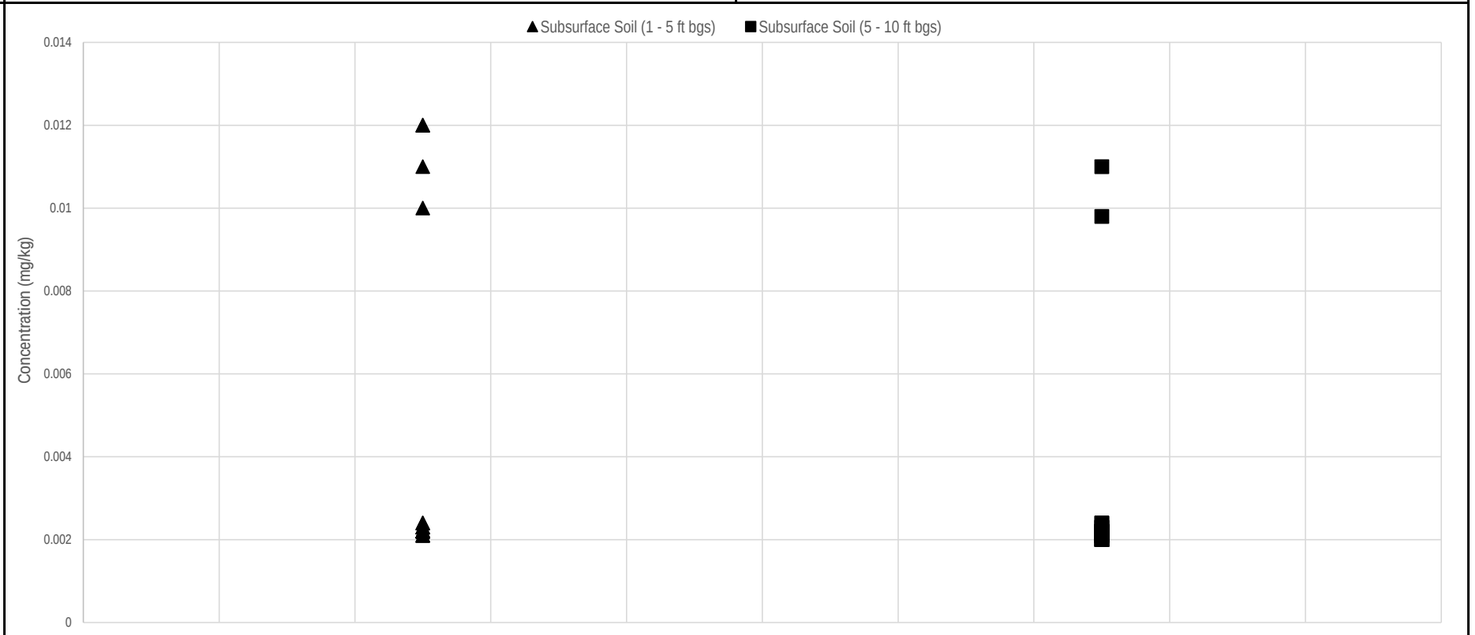



| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 3/8<br>Data Distribution: Normal | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.83 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

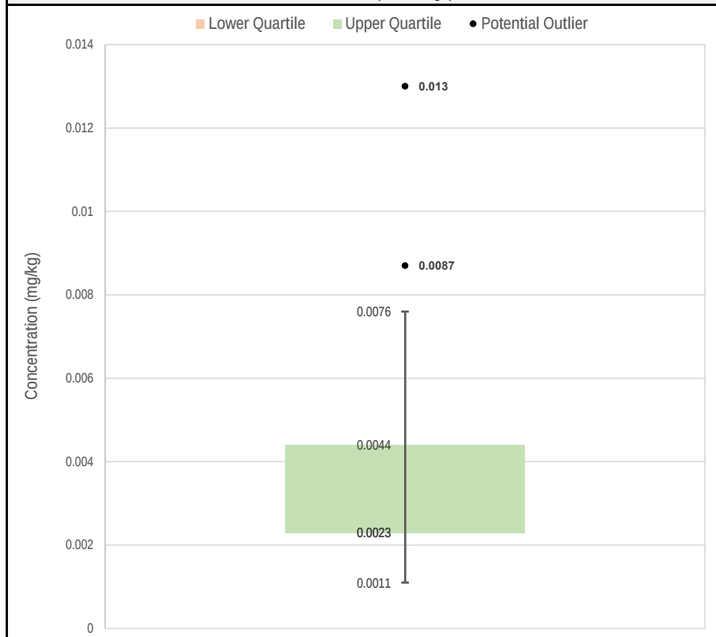
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| 2-Methylnaphthalene | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  | |
| General Statistics[1] | | |
| Frequency of Detection: 7/24<br>Data Distribution: Normal | Frequency of Detection: 4/24<br>Data Distribution: Normal | Frequency of Detection: 2/24<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.35 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| 2-Methylnaphthalene | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | | |
| General Statistics[1] | | |
| Frequency of Detection: 5/11<br>Data Distribution: Normal | Frequency of Detection: 0/11<br>Data Distribution: Not Discernible | Frequency of Detection: 1/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.14 | | |



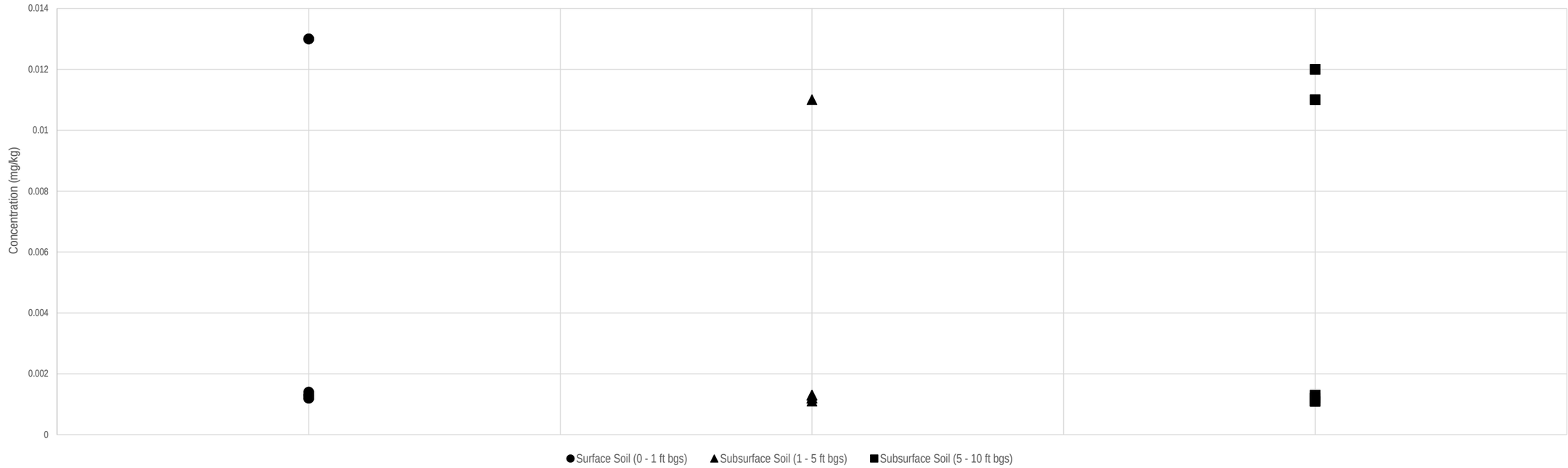


Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Acenaphthene | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |

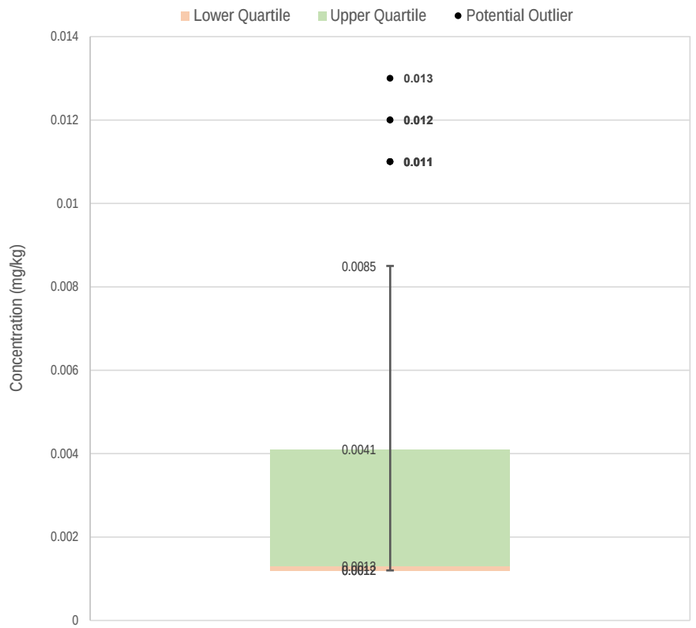
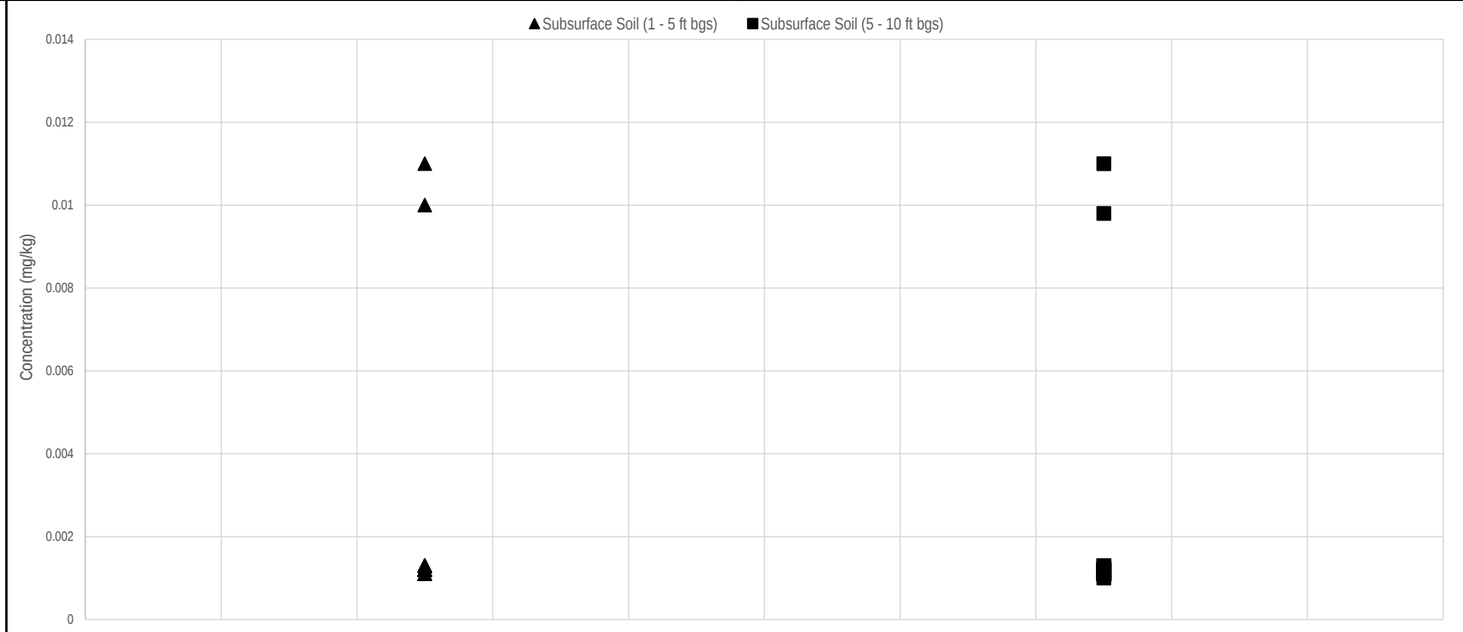



| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 2/8<br>Data Distribution: Not Discernible | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible | Frequency of Detection: 2/8<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.74 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

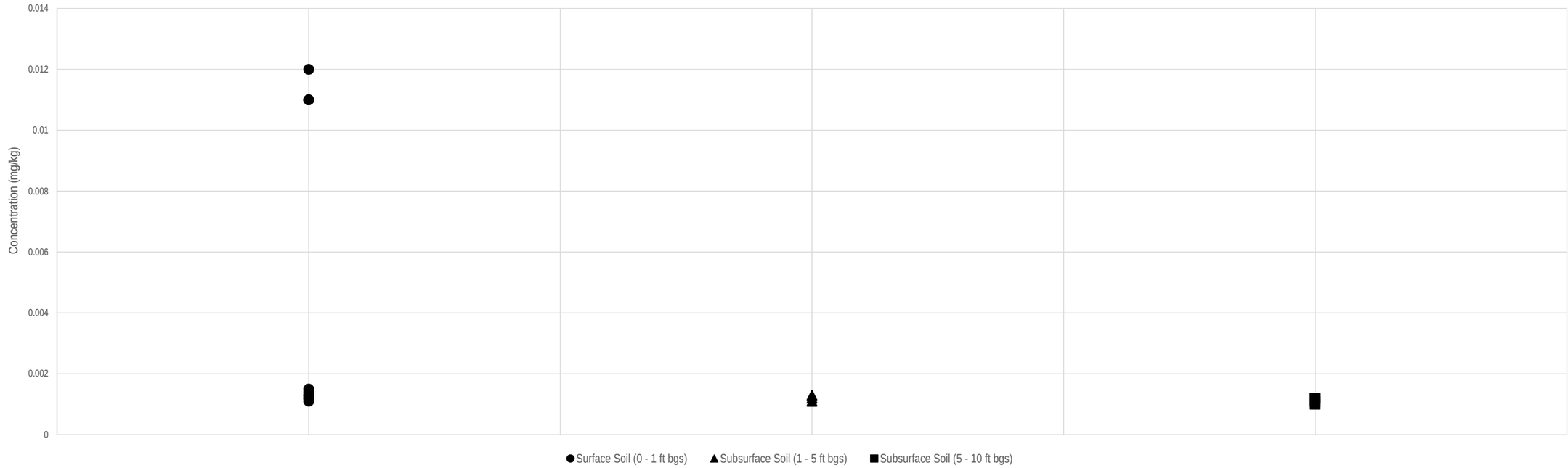
| Acenaphthene | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  | |
| General Statistics[1] | | |
| Frequency of Detection: 6/24<br>Data Distribution: Normal | Frequency of Detection: 2/24<br>Data Distribution: Not Discernible | Frequency of Detection: 2/24<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.099 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Acenaphthene | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |



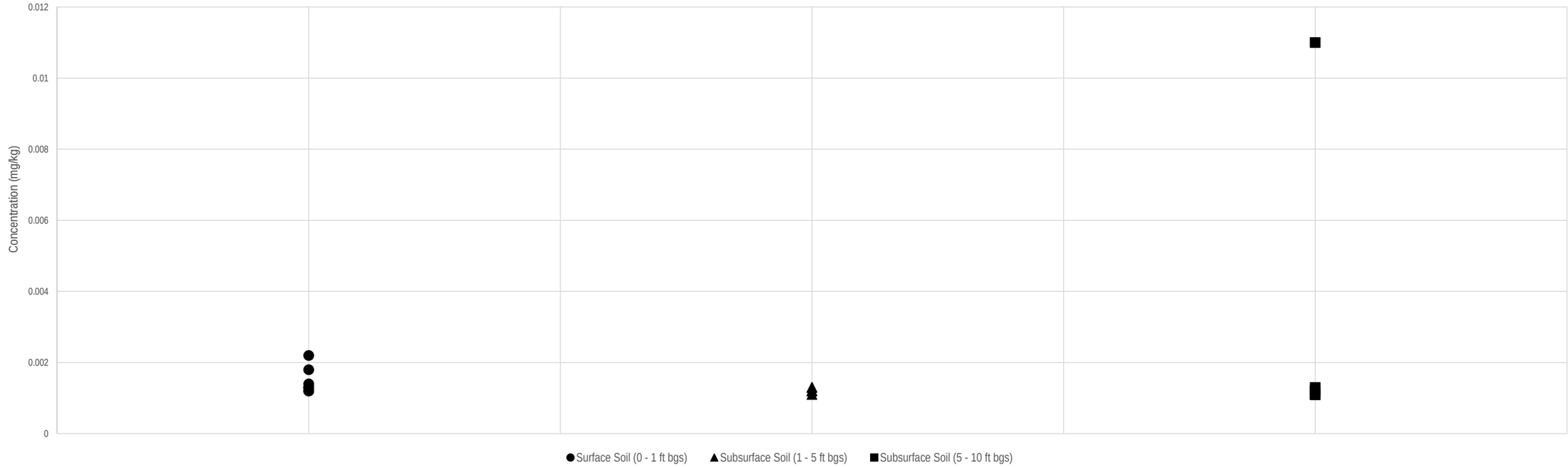

| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 3/11<br>Data Distribution: Not Discernible | Frequency of Detection: 0/11<br>Data Distribution: Not Discernible | Frequency of Detection: 0/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.0066 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Acenaphthylene | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |

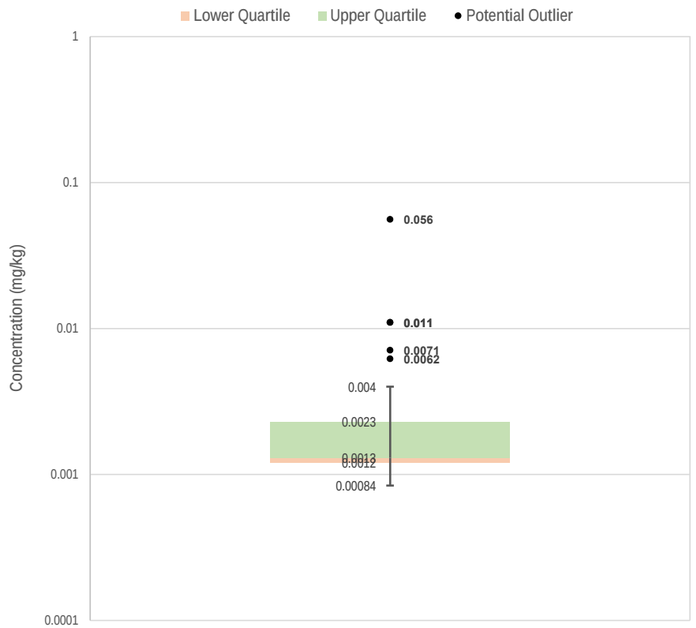
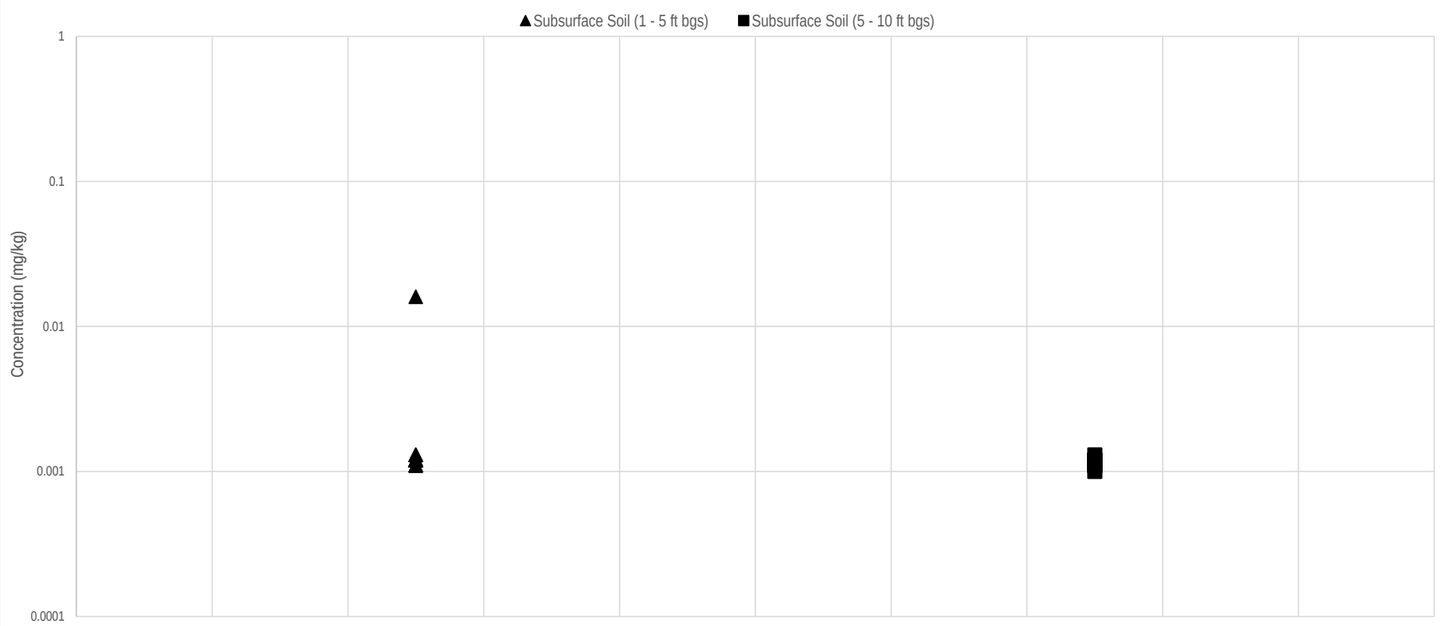



| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 2/8<br>Data Distribution: Not Discernible | Frequency of Detection: 0/8<br>Data Distribution: Not Discernible | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.43 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Acenaphthylene | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  <br>Note: Logarithmic scale |  <br>Note: Logarithmic scale | |
| General Statistics[1] | | |
| Frequency of Detection: 11/24<br>Data Distribution: Lognormal | Frequency of Detection: 1/24<br>Data Distribution: Not Discernible | Frequency of Detection: 0/24<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.14 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Acenaphthylene | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 10/11<br>Data Distribution: Not Discernible | Frequency of Detection: 0/11<br>Data Distribution: Not Discernible | Frequency of Detection: 0/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.026 | | |



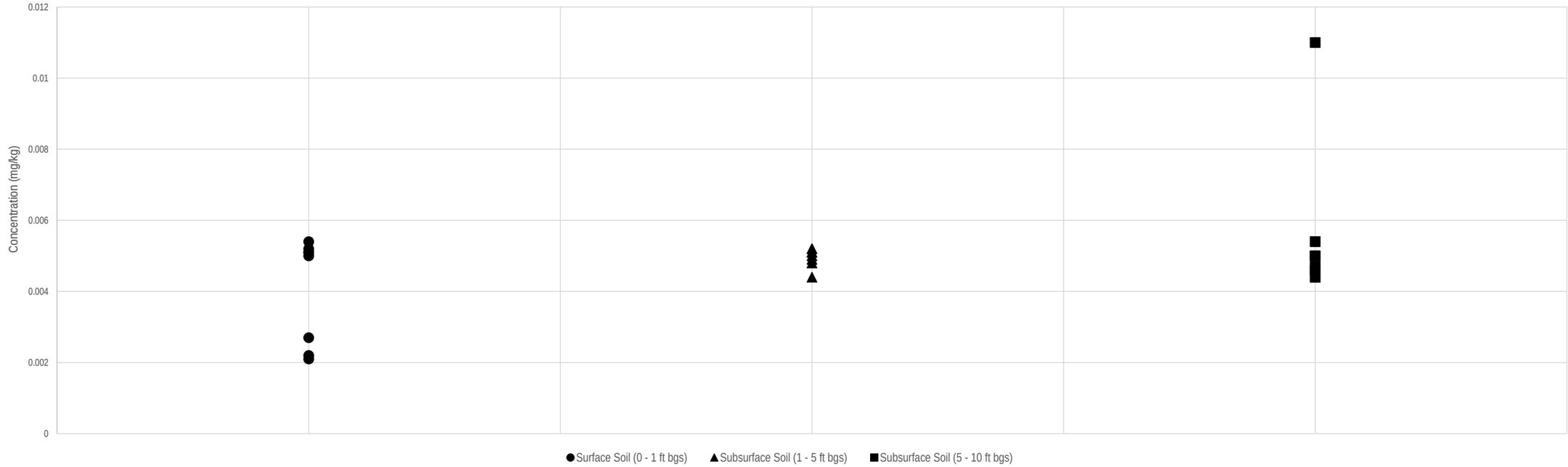


Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Anthracene | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |

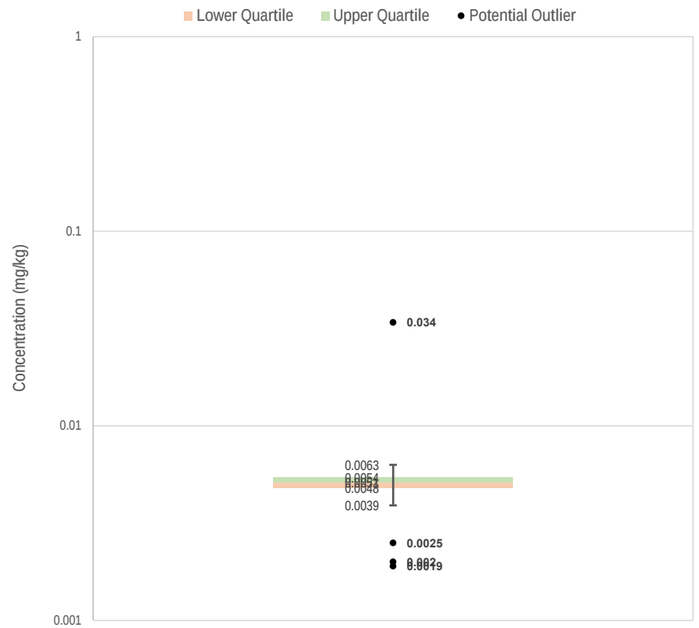
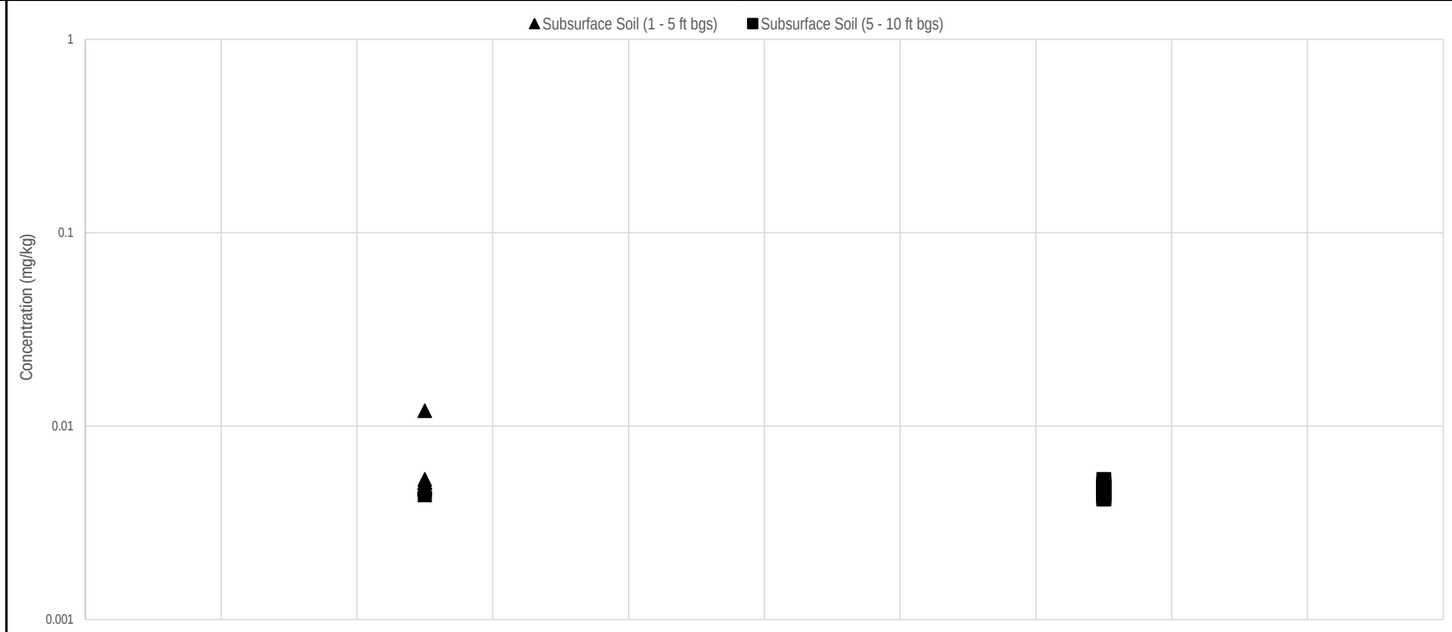



| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 3/8<br>Data Distribution: Normal | Frequency of Detection: 0/8<br>Data Distribution: Not Discernible | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.4 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

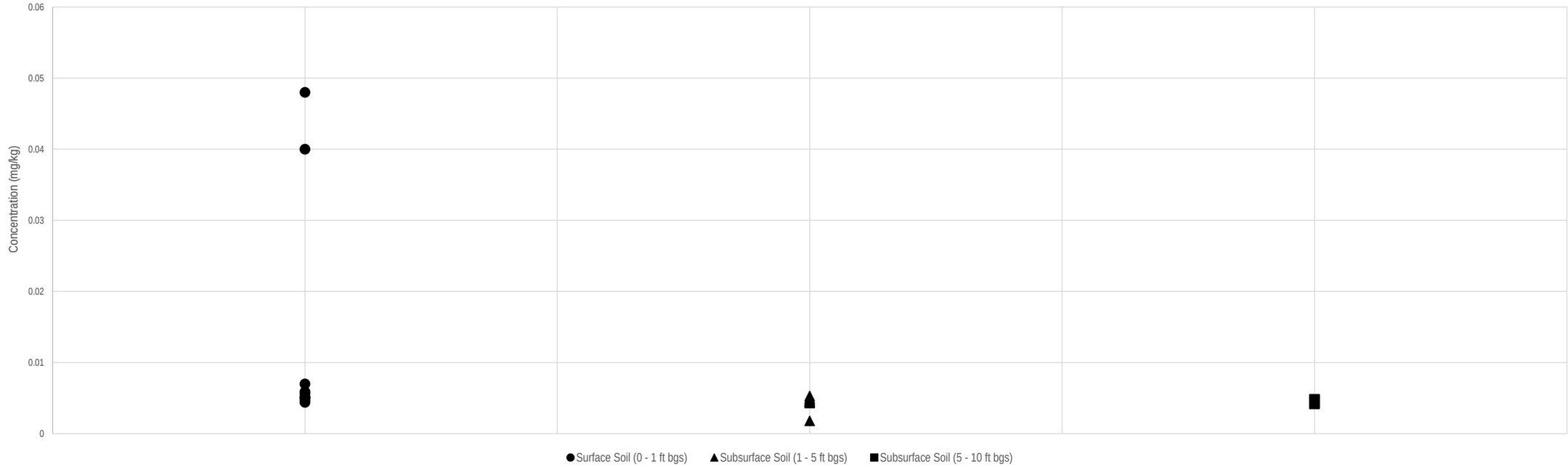
| Anthracene | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  Note: Logarithmic scale |  Note: Logarithmic scale | |
| General Statistics[1] | | |
| Frequency of Detection: 7/24<br>Data Distribution: Lognormal | Frequency of Detection: 1/24<br>Data Distribution: Not Discernible | Frequency of Detection: 0/24<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.21 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Anthracene | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |

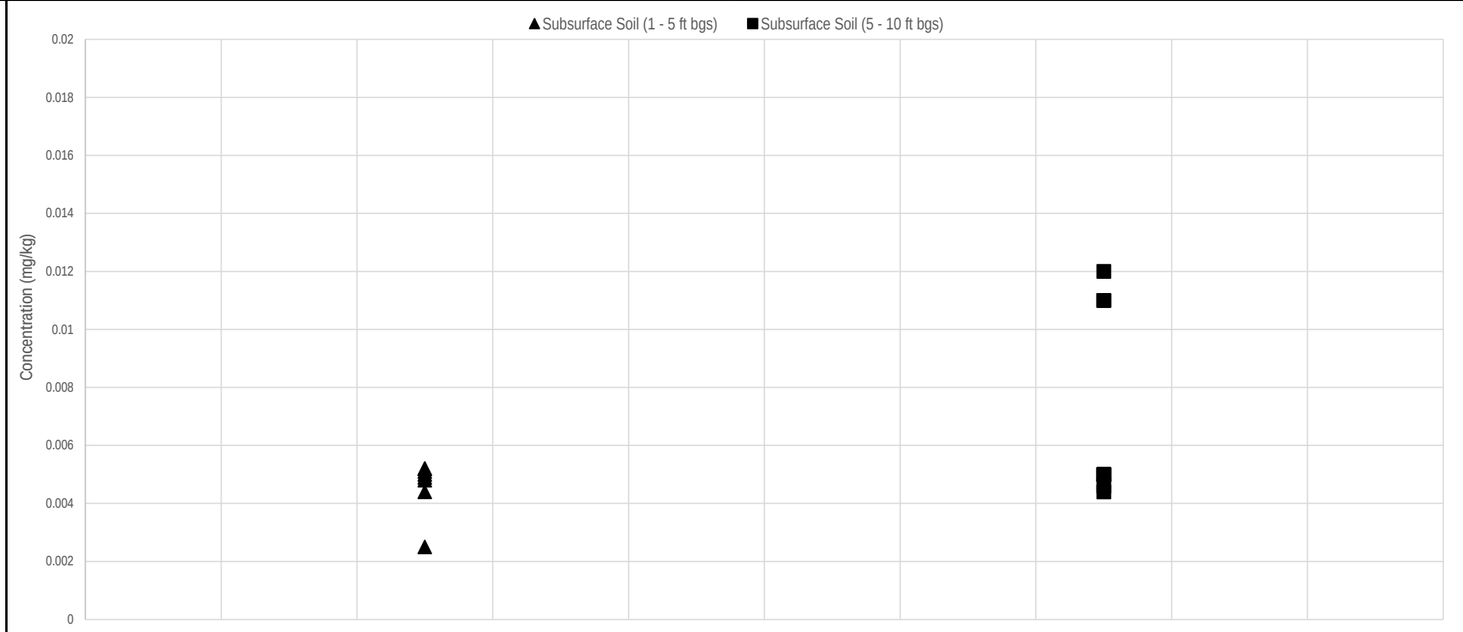



| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 2/11<br>Data Distribution: Not Discernible | Frequency of Detection: 1/11<br>Data Distribution: Not Discernible | Frequency of Detection: 0/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.12 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

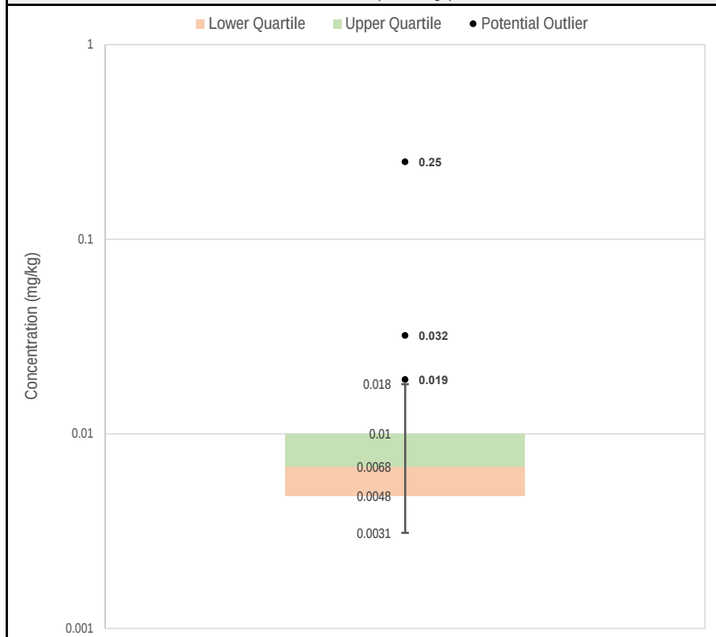
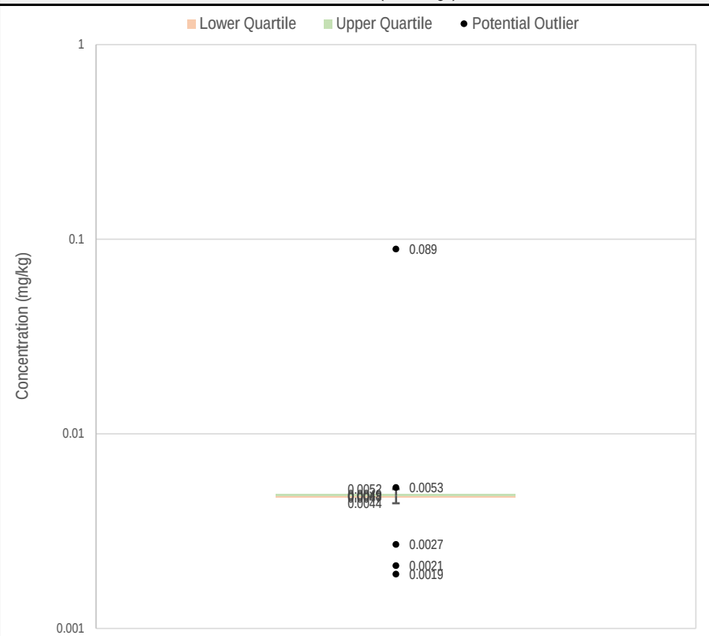
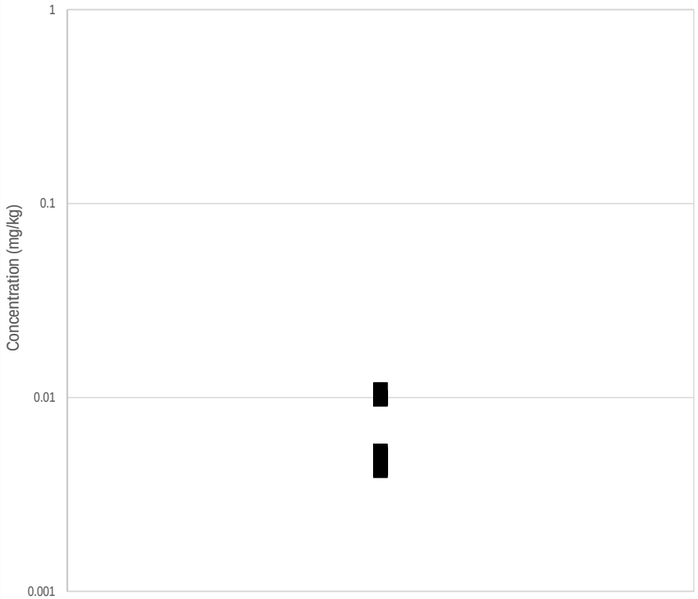
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(a)anthracene | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  | |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible | Frequency of Detection: 3/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.1 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(a)anthracene | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  <br>Note: Logarithmic scale |  <br>Note: Logarithmic scale |  <br>Note: Logarithmic scale |
| General Statistics[1] | | |
| Frequency of Detection: 19/24<br>Data Distribution: Not Discernible | Frequency of Detection: 5/24<br>Data Distribution: Lognormal | Frequency of Detection: 4/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.31 | | |

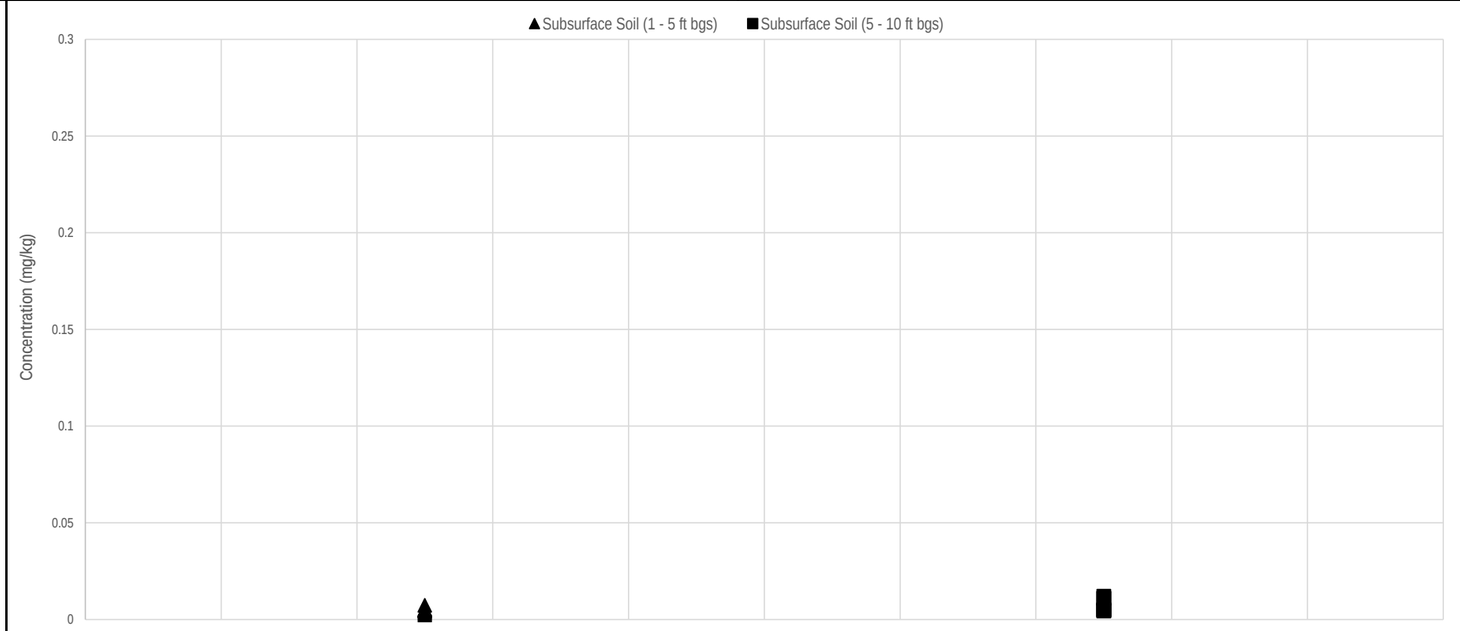
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

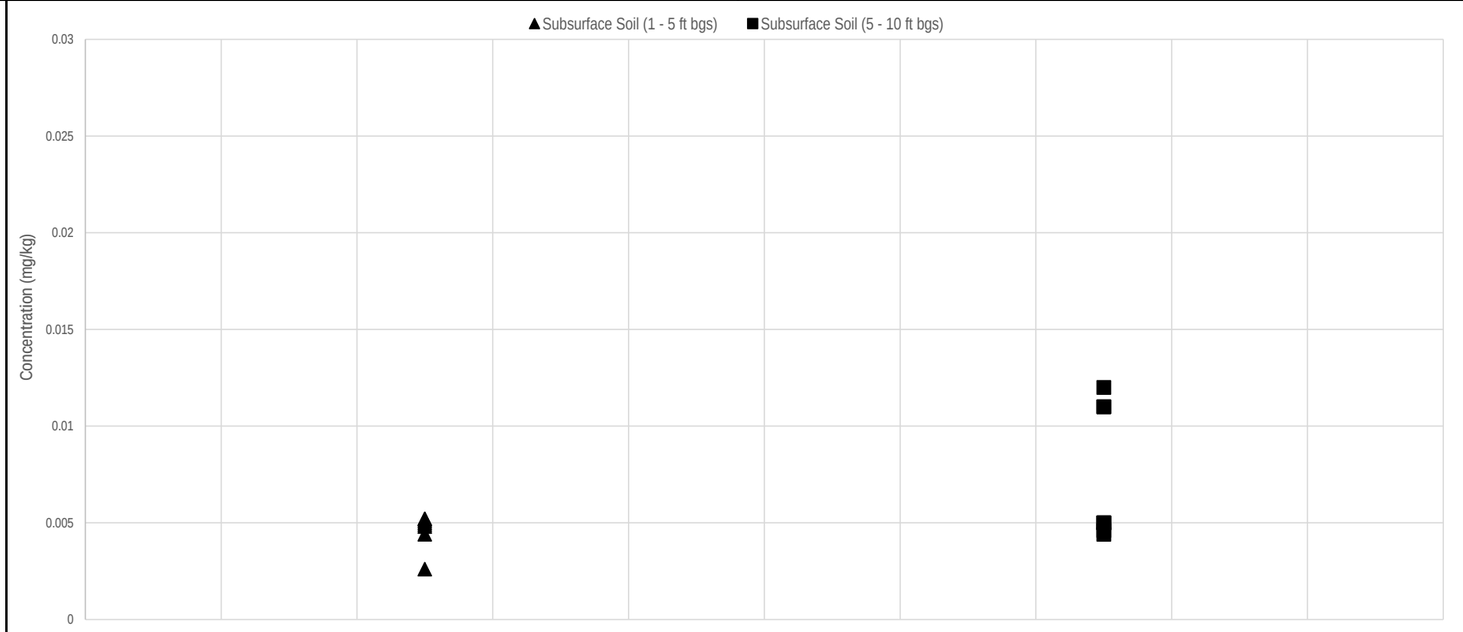
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(a)anthracene | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  | |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Not Discernible | Frequency of Detection: 4/11<br>Data Distribution: Normal | Frequency of Detection: 0/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.05 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

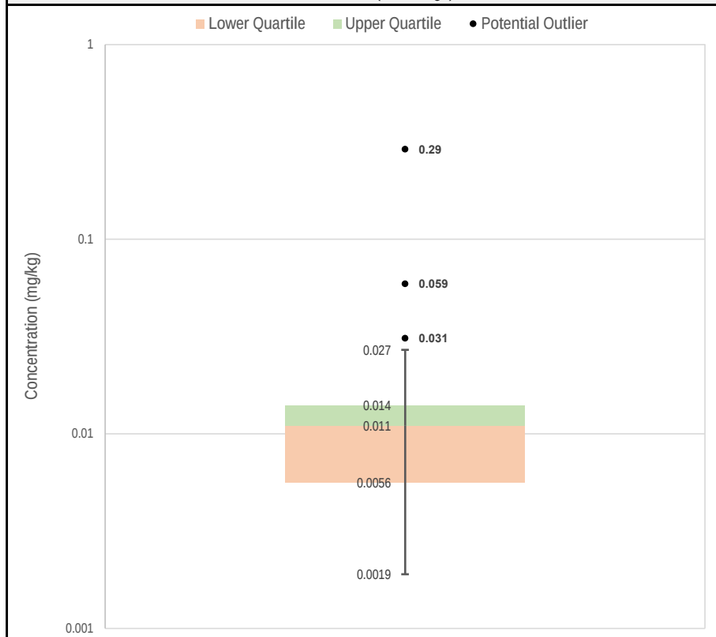
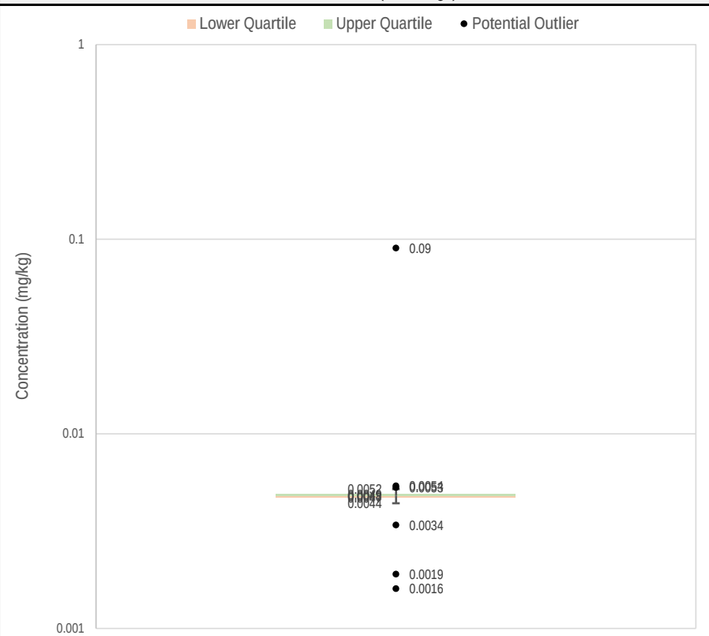
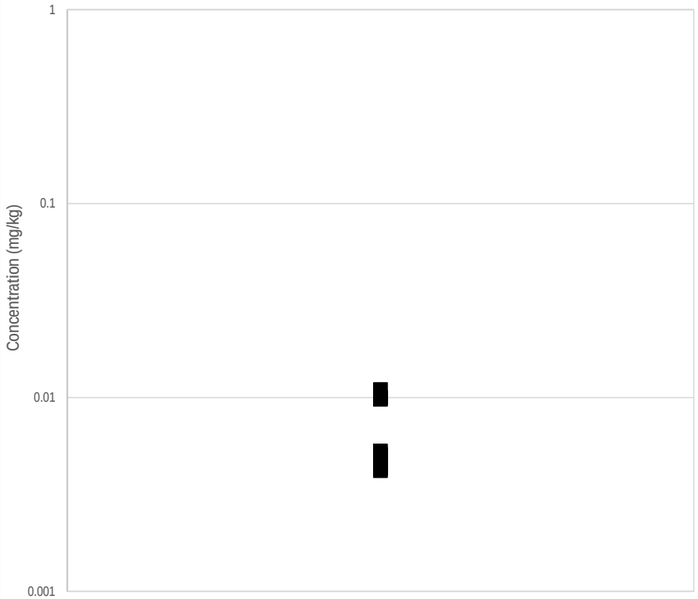
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(a)pyrene | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  | |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible | Frequency of Detection: 3/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.0072 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(a)pyrene | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  <br>Note: Logarithmic scale |  <br>Note: Logarithmic scale |  <br>Note: Logarithmic scale |
| General Statistics[1] | | |
| Frequency of Detection: 20/24<br>Data Distribution: Not Discernible | Frequency of Detection: 5/24<br>Data Distribution: Lognormal | Frequency of Detection: 4/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.2 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.00024 | Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.00035 | p-value: -- | p-value: -- |

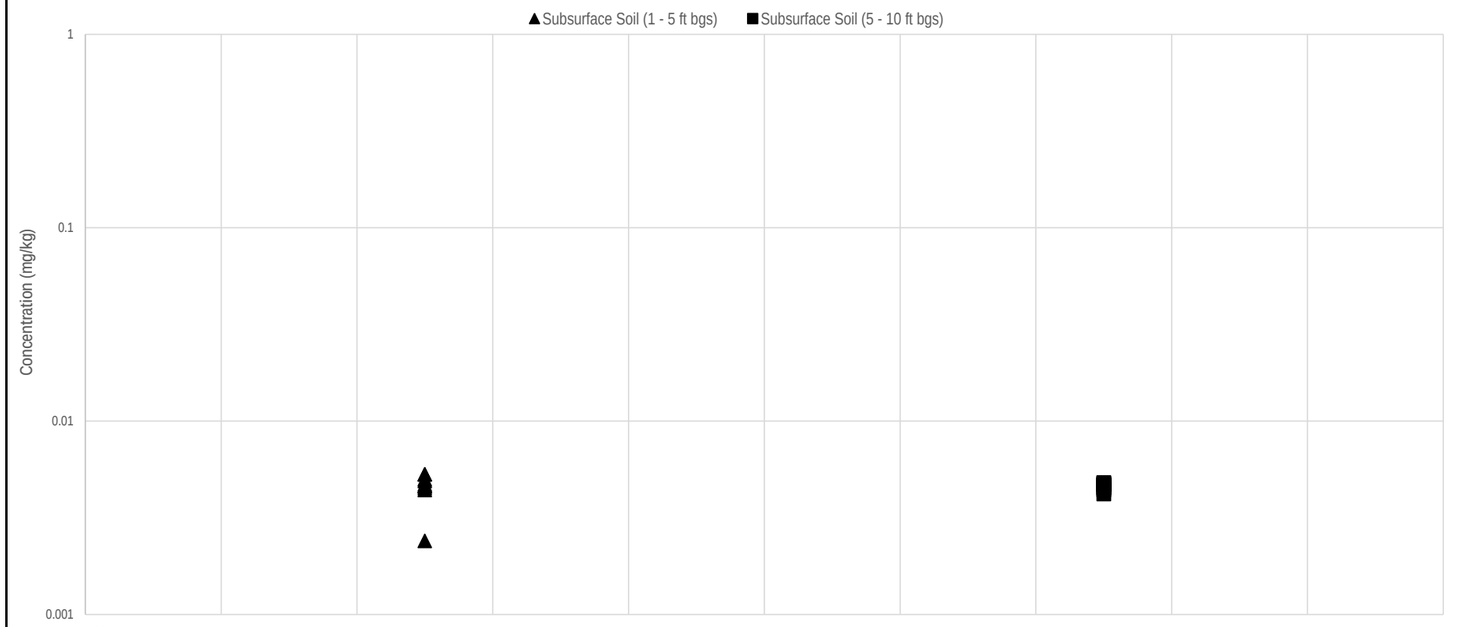
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

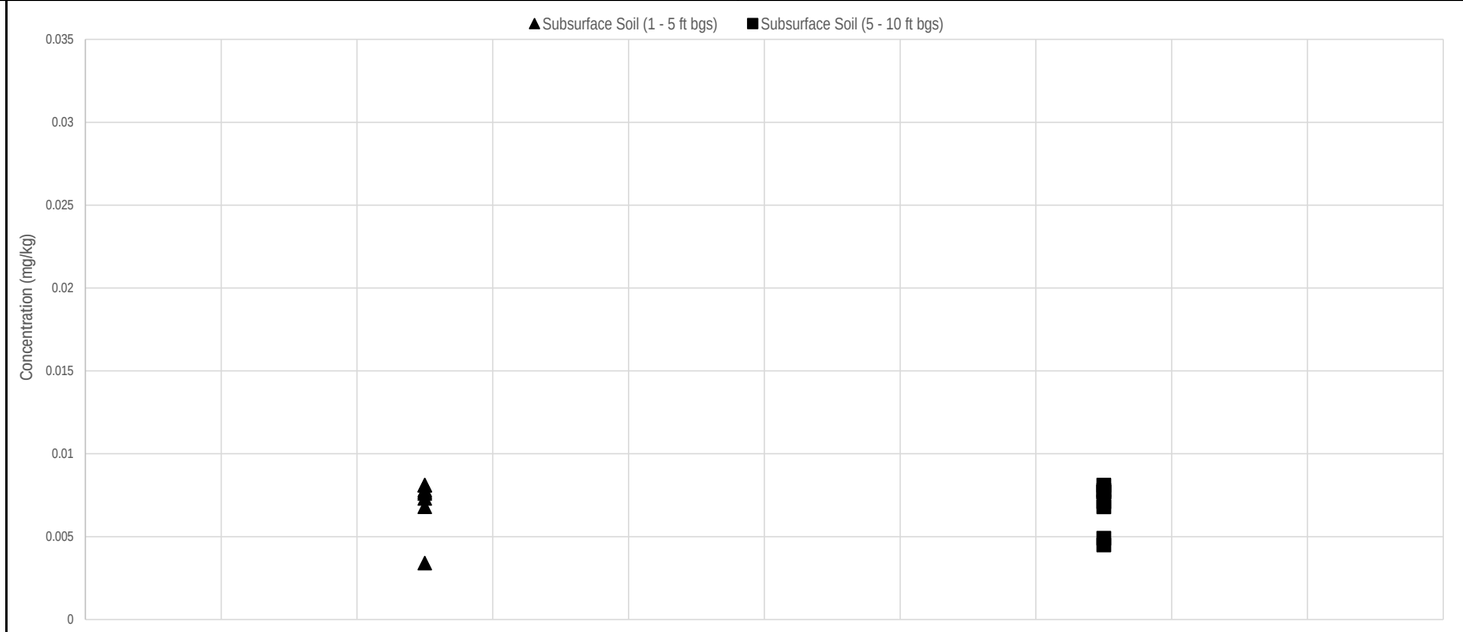
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(a)pyrene | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| <br>Note: Logarithmic scale |  <br>Note: Logarithmic scale | |
| General Statistics[1] | | |
| Frequency of Detection: 9/11<br>Data Distribution: Not Discernible | Frequency of Detection: 1/11<br>Data Distribution: Not Discernible | Frequency of Detection: 0/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.02 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

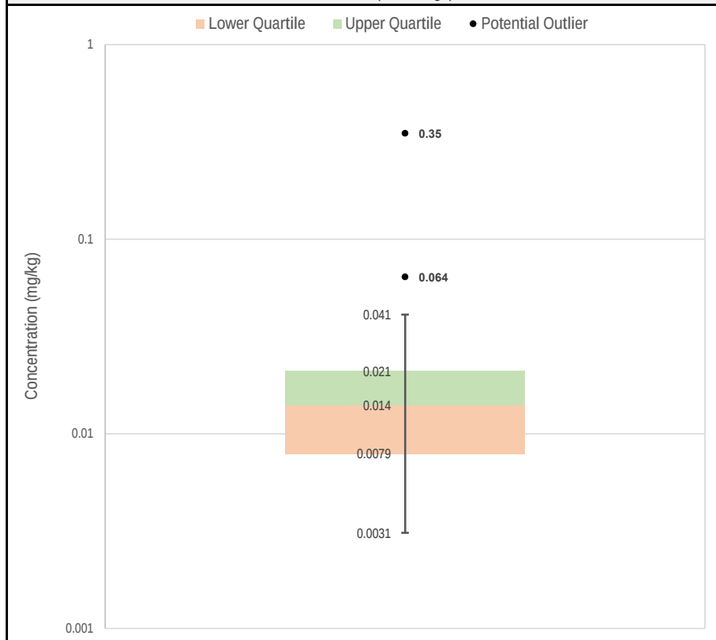
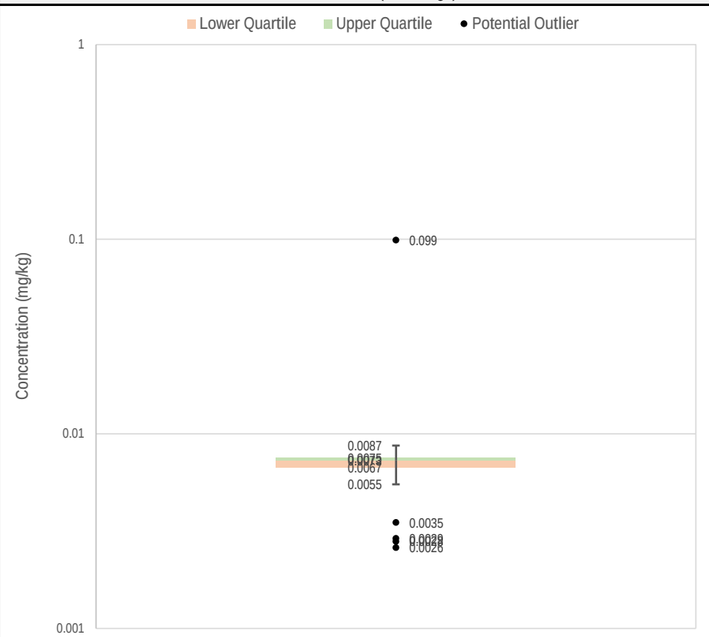
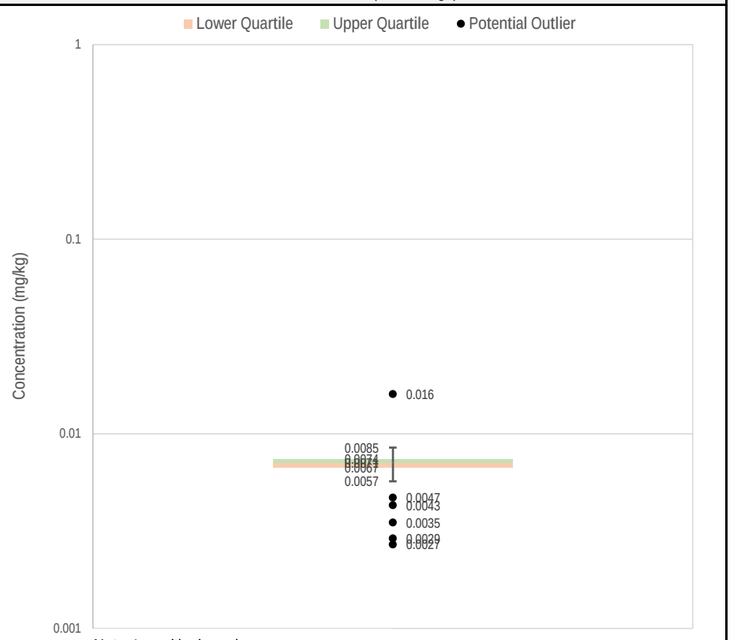
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(b)fluoranthene | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  | |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible | Frequency of Detection: 3/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.00089 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

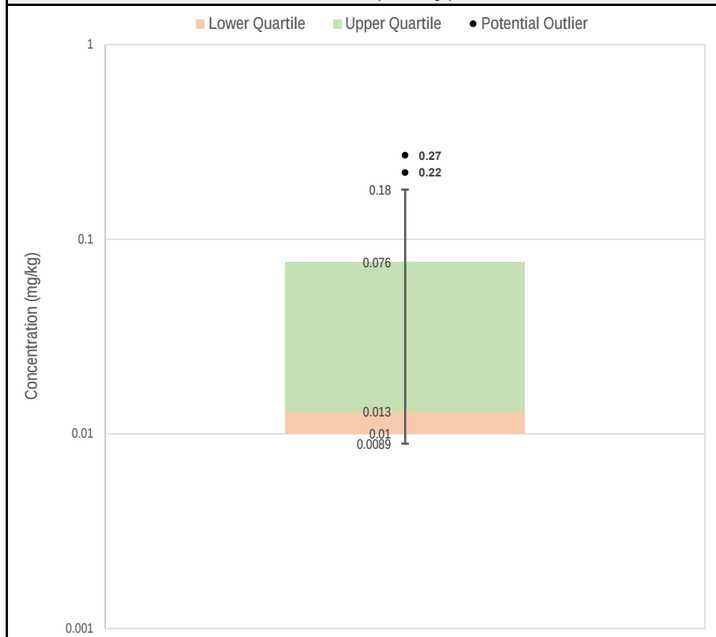
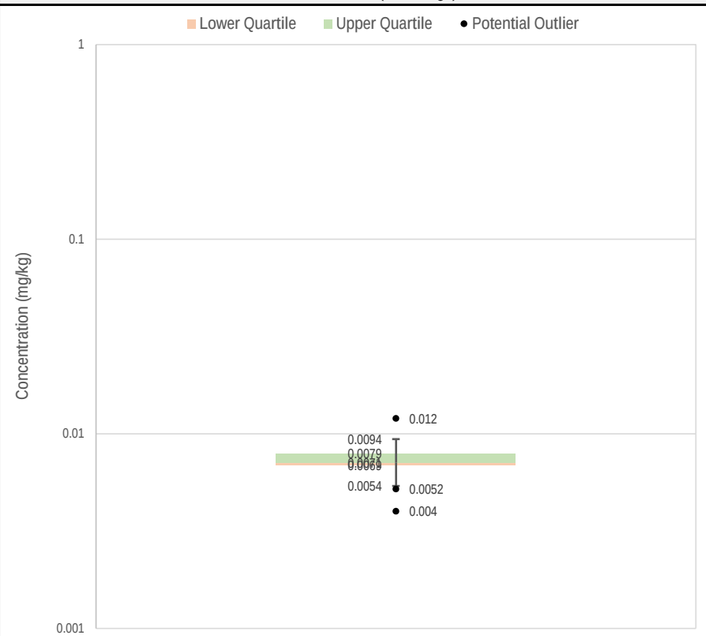
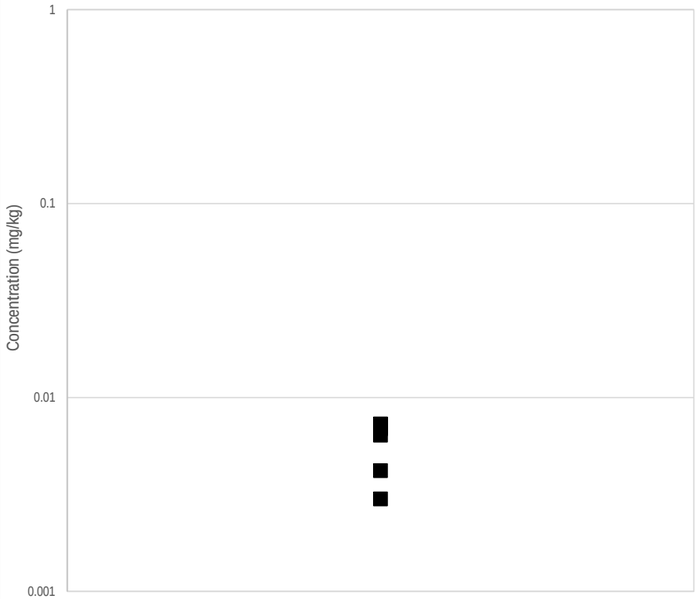
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(b)fluoranthene | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  |  |
| Note: Logarithmic scale | Note: Logarithmic scale | Note: Logarithmic scale |
| General Statistics[1] | | |
| Frequency of Detection: 21/24<br>Data Distribution: Lognormal | Frequency of Detection: 7/24<br>Data Distribution: Not Discernible | Frequency of Detection: 6/24<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.16 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.0016 | Type: Dunn's Test<br>p-value: 0.00022 | Type: Dunn's Test<br>p-value: > 0.99 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.0024 | p-value: 0.00065 | p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(b)fluoranthene | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  <br>Note: Logarithmic scale |  <br>Note: Logarithmic scale |  <br>Note: Logarithmic scale |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Not Discernible | Frequency of Detection: 4/11<br>Data Distribution: Normal | Frequency of Detection: 2/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.033 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.0015 | Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.0023 | p-value: -- | p-value: -- |

Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

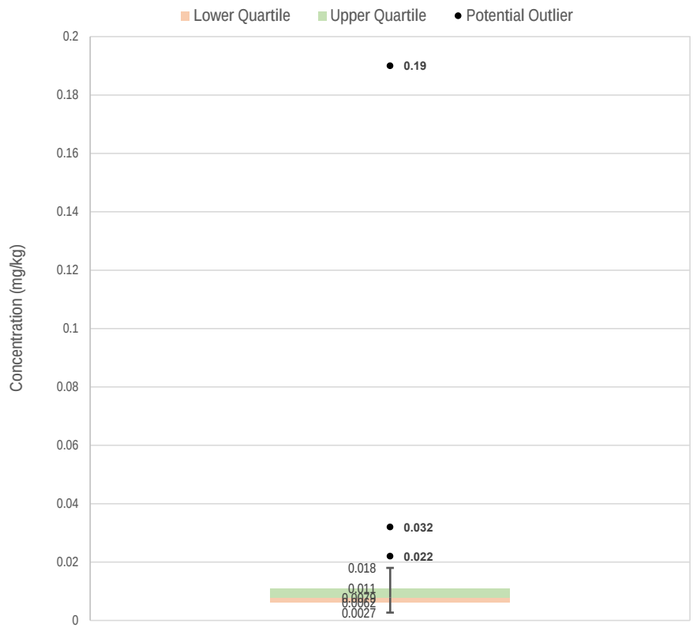
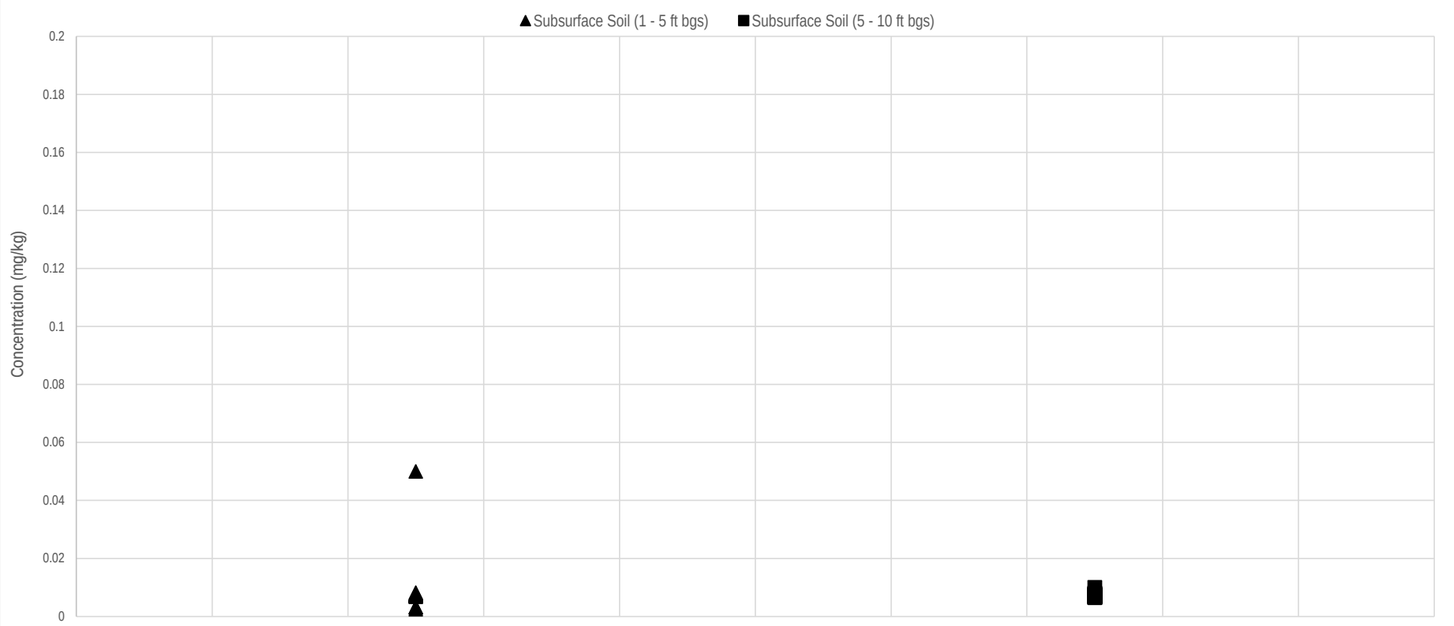
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(g,h,i)perylene | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 7/8<br>Data Distribution: Normal | Frequency of Detection: 0/8<br>Data Distribution: Not Discernible | Frequency of Detection: 2/8<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.017 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

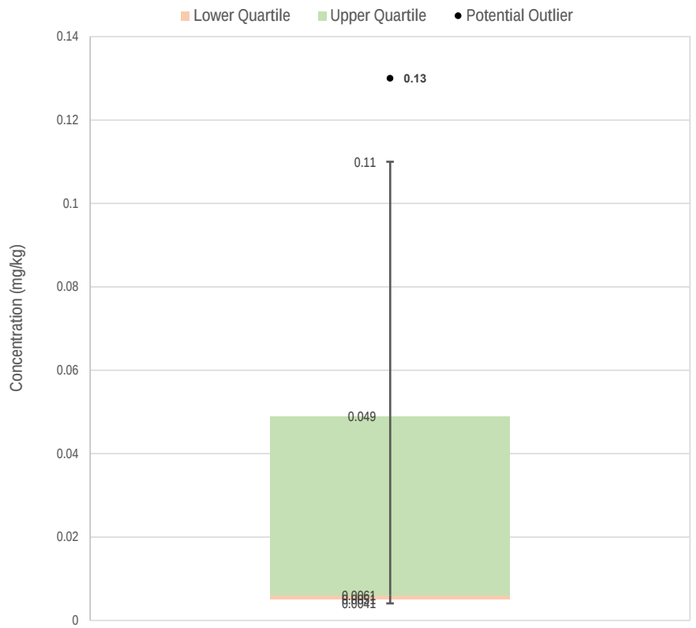
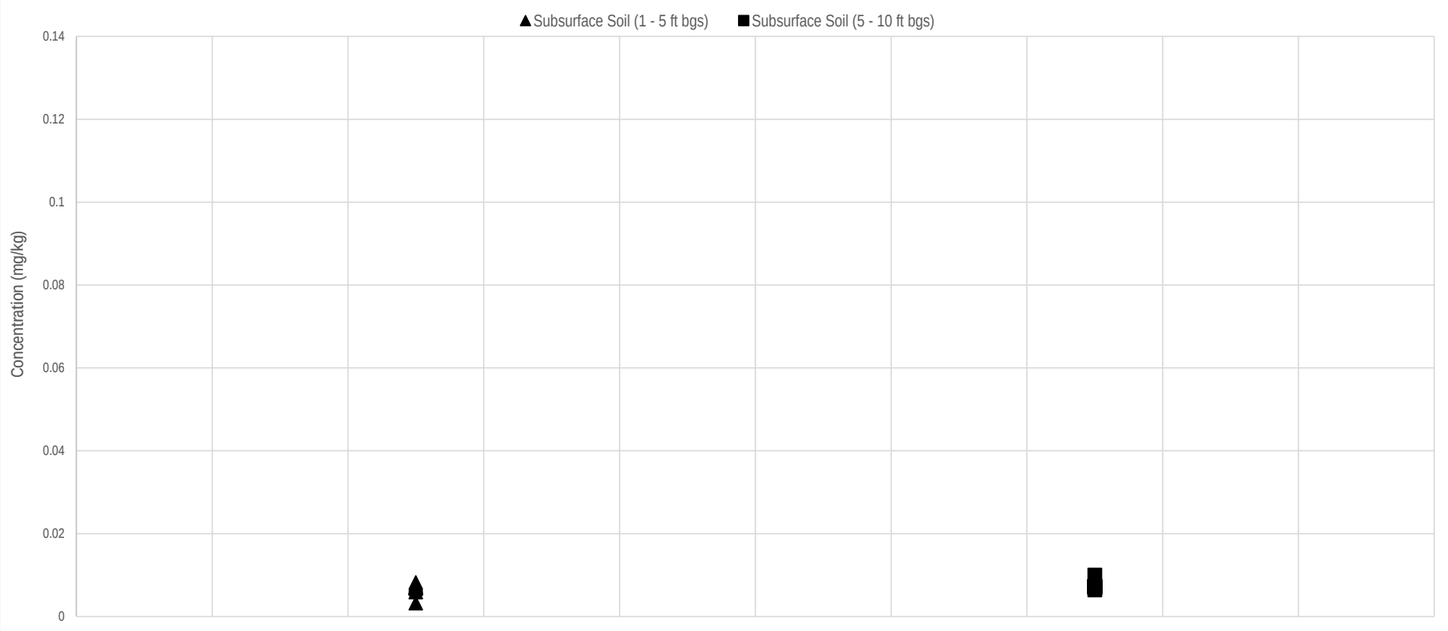
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(g,h,i)perylene | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  | |
| General Statistics[1] | | |
| Frequency of Detection: 19/24<br>Data Distribution: Not Discernible | Frequency of Detection: 4/24<br>Data Distribution: Not Discernible | Frequency of Detection: 1/24<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.19 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

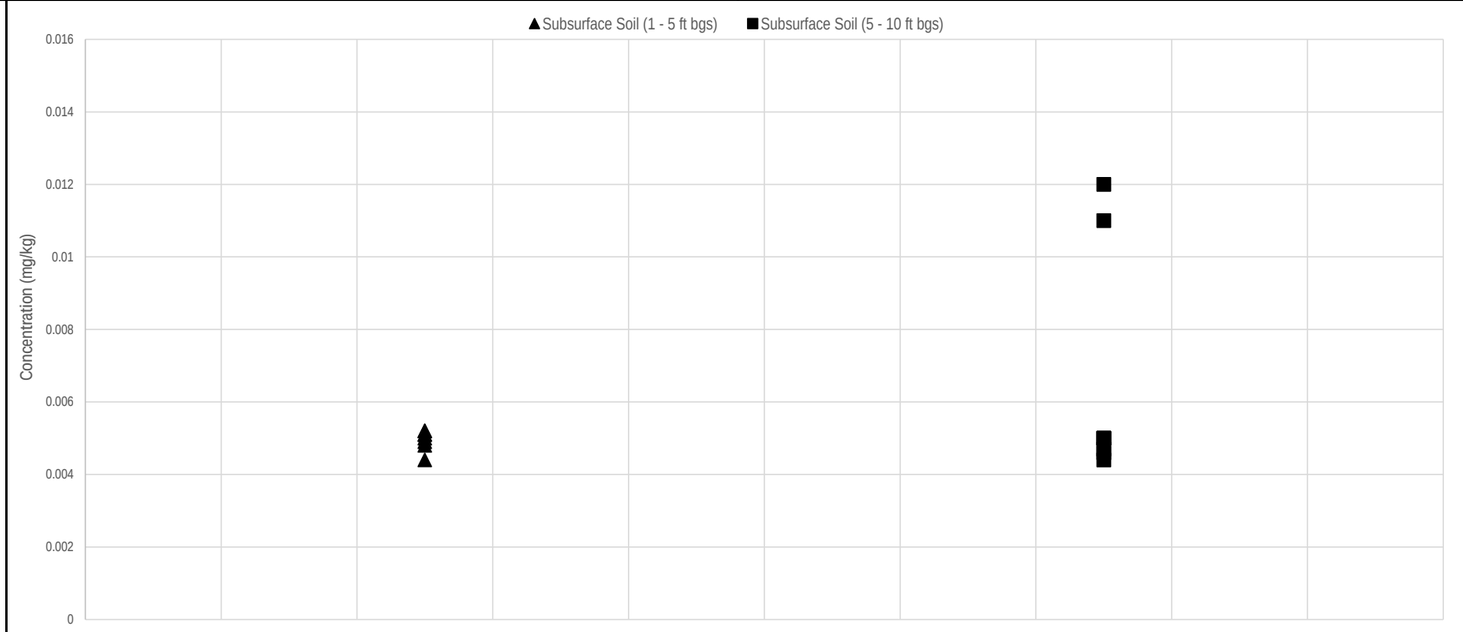
| Benzo(g,h,i)perylene | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  | |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Not Discernible | Frequency of Detection: 2/11<br>Data Distribution: Not Discernible | Frequency of Detection: 1/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.023 | | |



Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

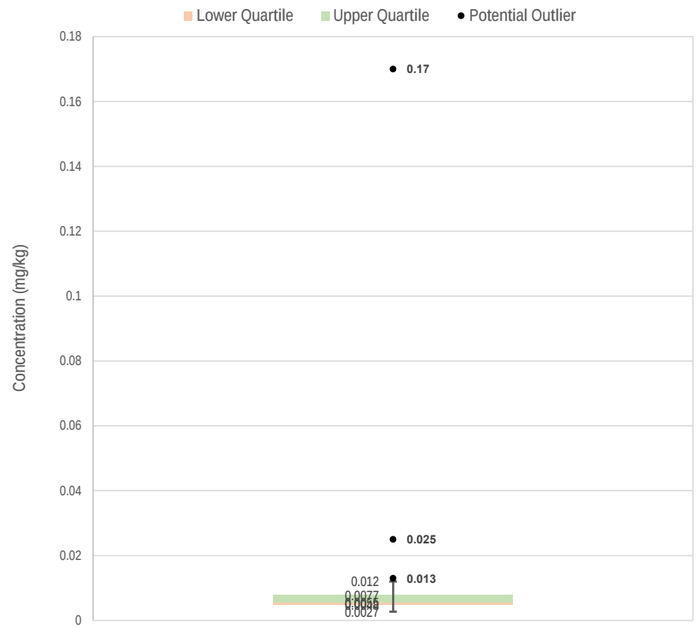
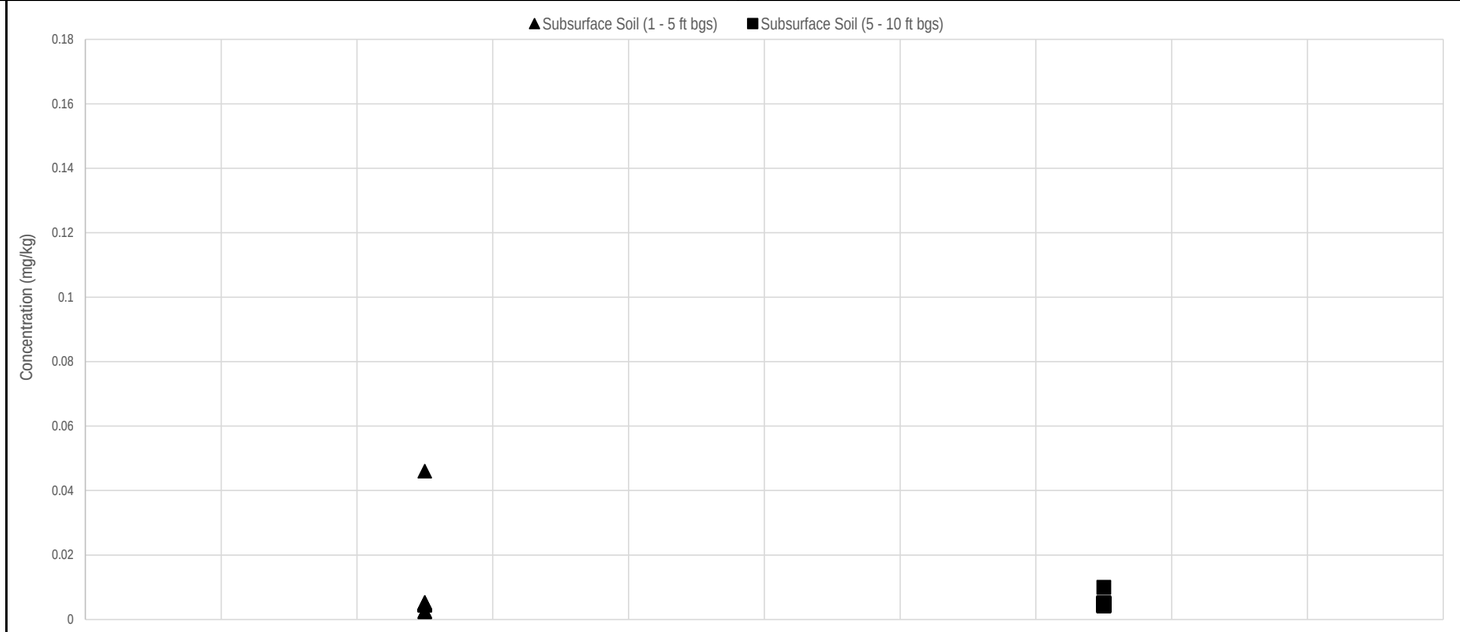
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(k)fluoranthene | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  | |
| General Statistics[1] | | |
| Frequency of Detection: 7/8<br>Data Distribution: Normal | Frequency of Detection: 0/8<br>Data Distribution: Not Discernible | Frequency of Detection: 2/8<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.15 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

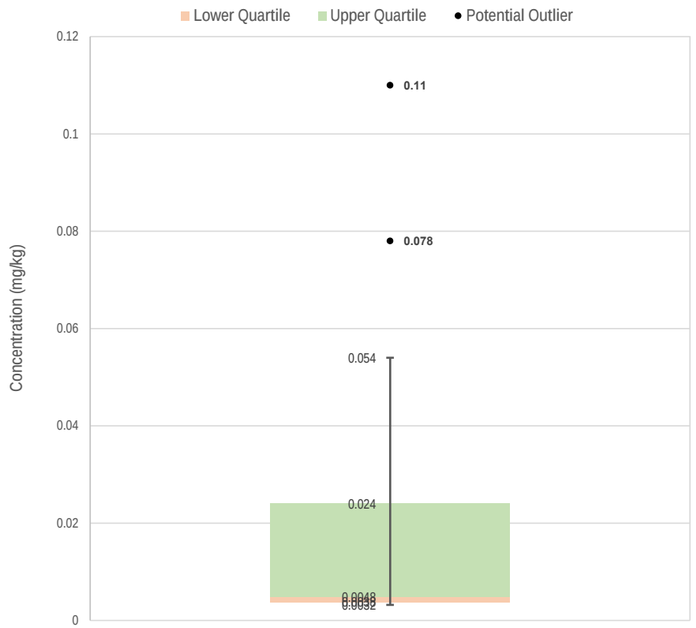
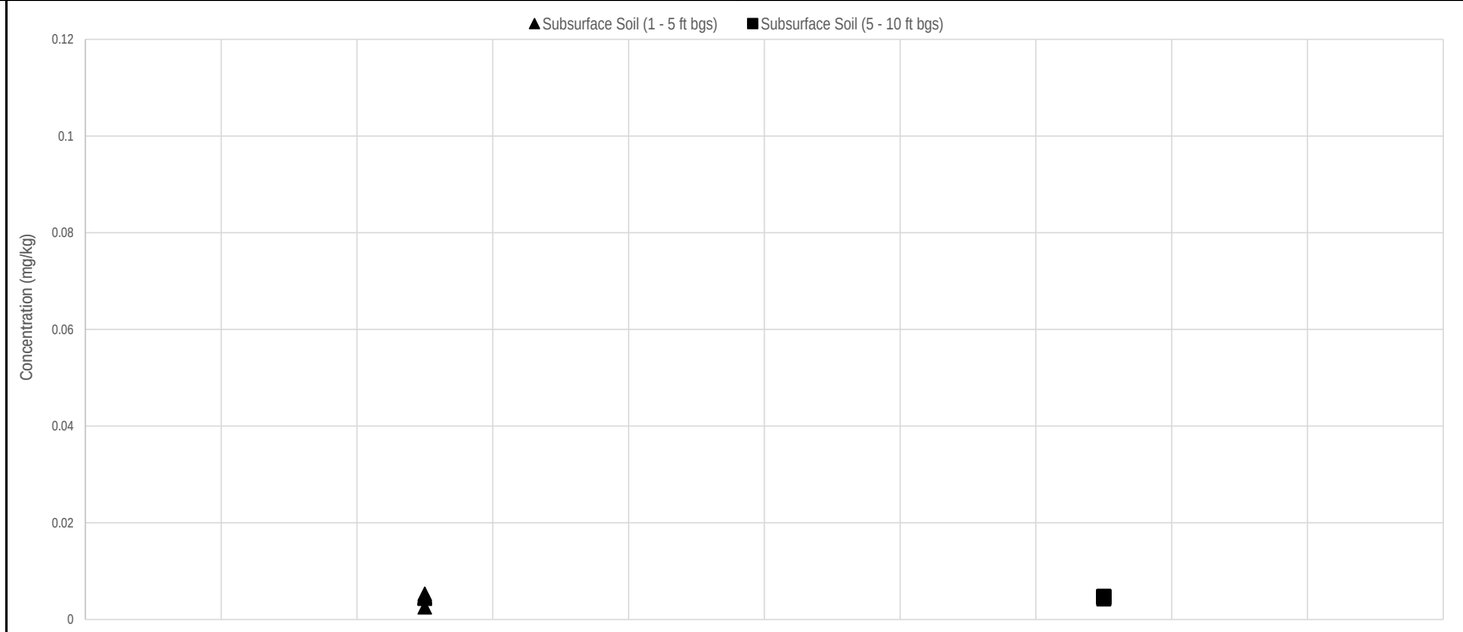
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(k)fluoranthene | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  | |
| General Statistics[1] | | |
| Frequency of Detection: 17/24<br>Data Distribution: Not Discernible | Frequency of Detection: 3/24<br>Data Distribution: Normal | Frequency of Detection: 1/24<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.27 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

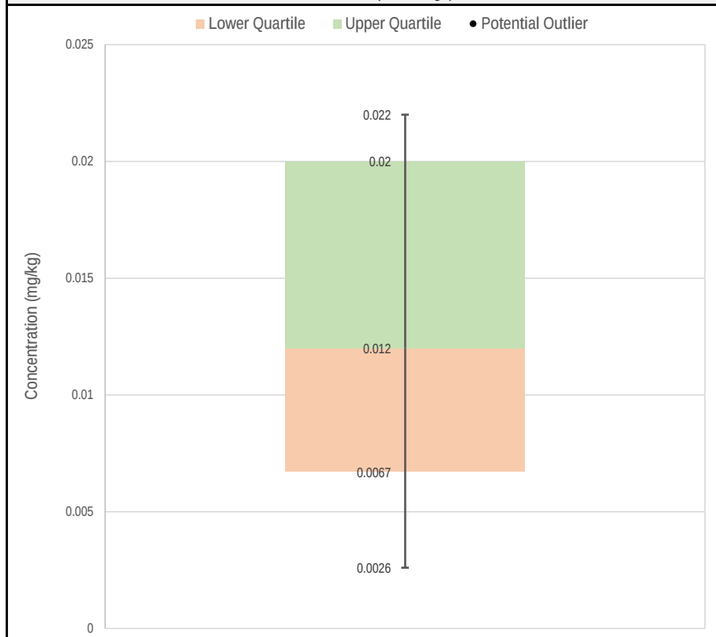
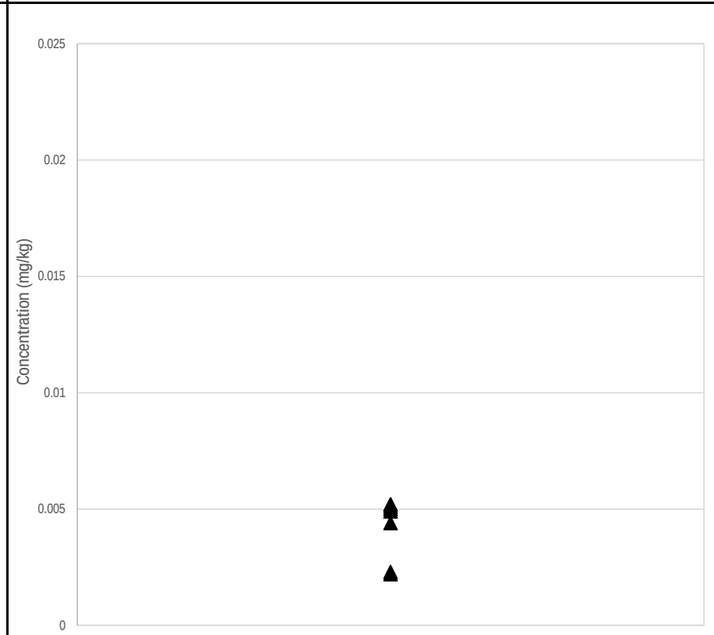
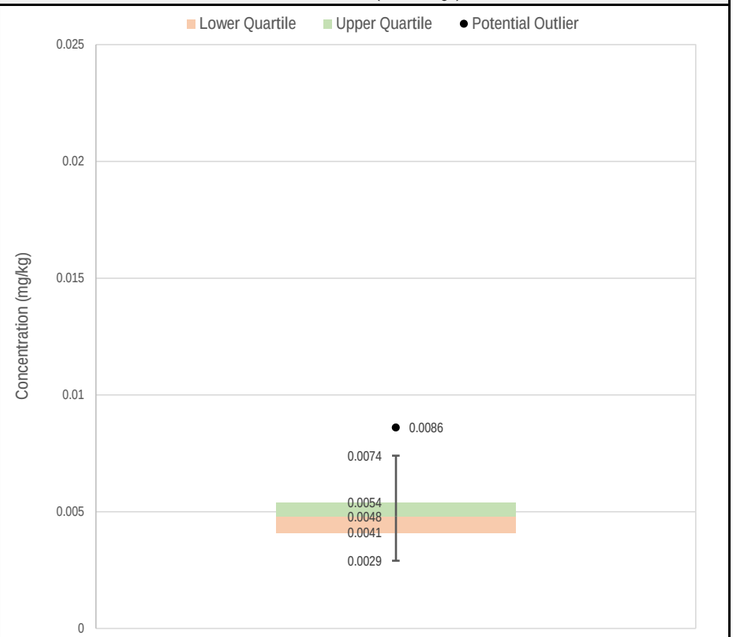
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(k)fluoranthene | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  | |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Not Discernible | Frequency of Detection: 2/11<br>Data Distribution: Not Discernible | Frequency of Detection: 0/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.044 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

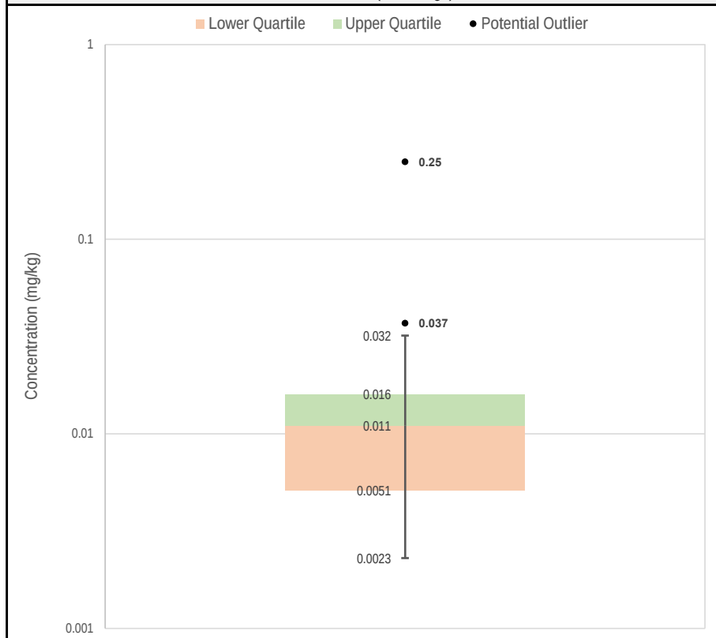
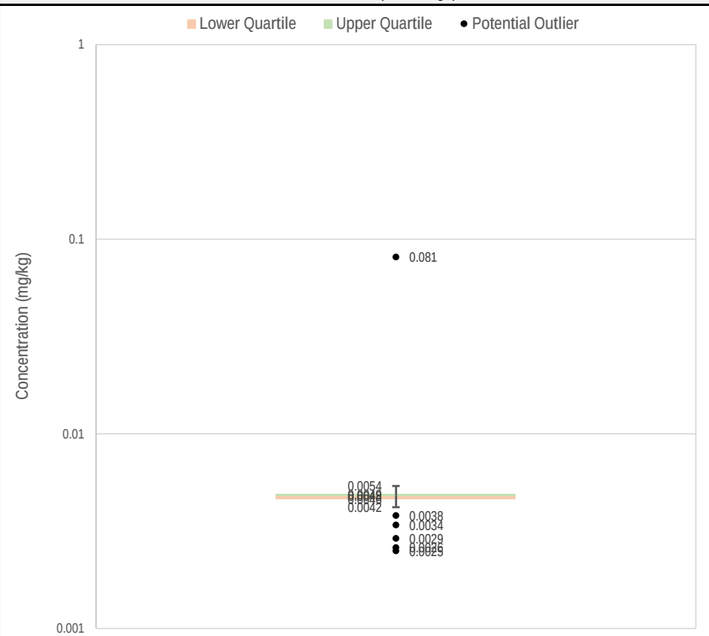
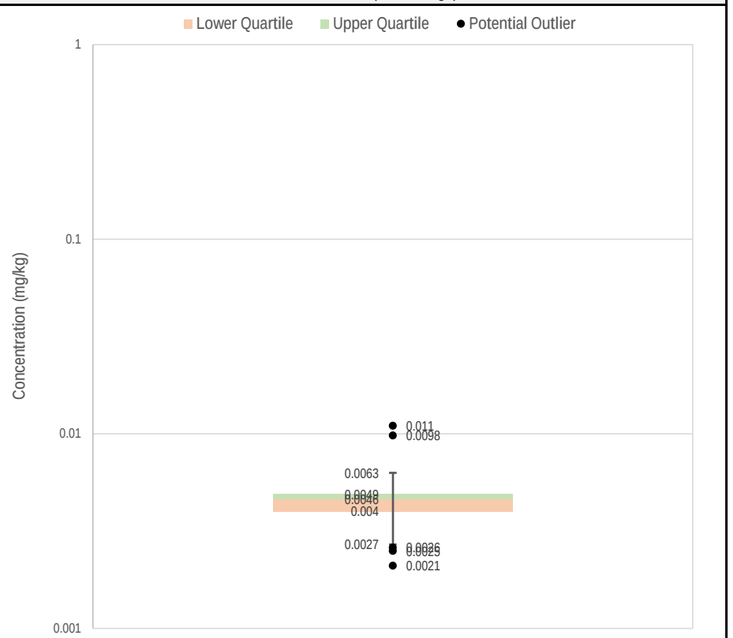
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Chrysene | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 2/8<br>Data Distribution: Not Discernible | Frequency of Detection: 4/8<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.00062 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: N/A<br>p-value: -- | Type: Dunn's Test<br>p-value: 0.13 | Type: N/A<br>p-value: -- |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

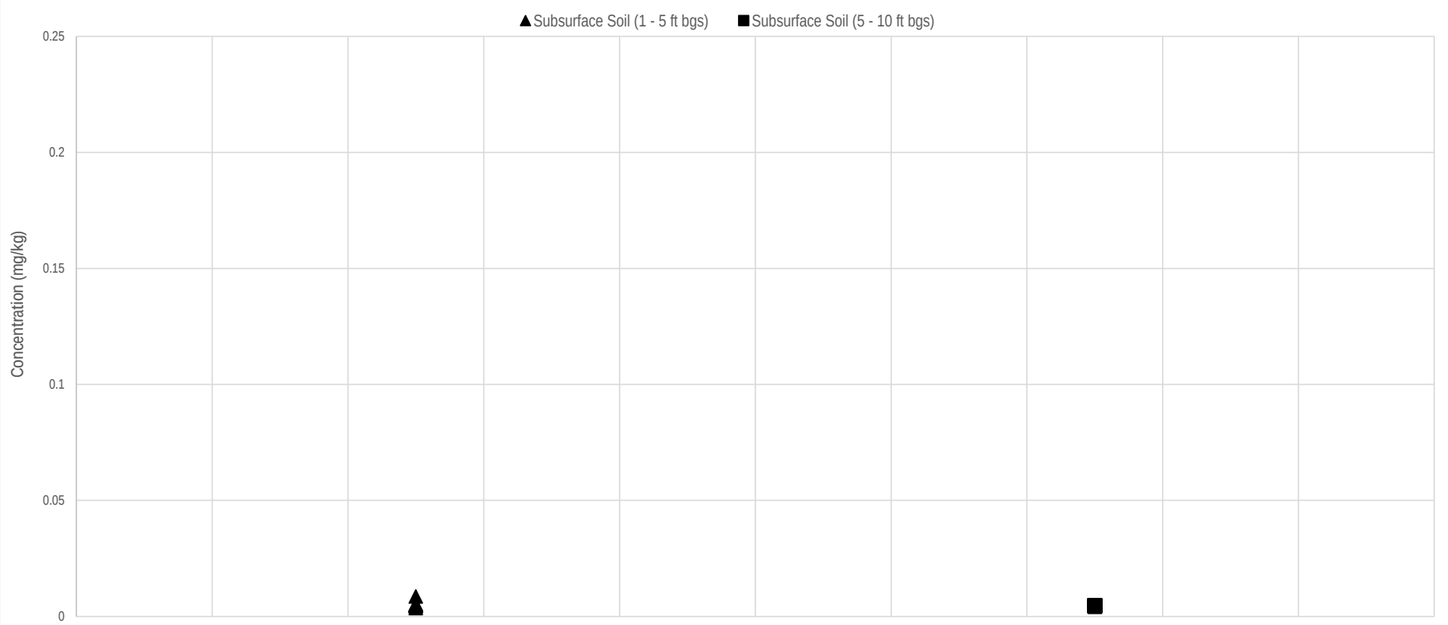
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Chrysene | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  |  |
| Note: Logarithmic scale | Note: Logarithmic scale | Note: Logarithmic scale |
| General Statistics[1] | | |
| Frequency of Detection: 21/24<br>Data Distribution: Lognormal | Frequency of Detection: 7/24<br>Data Distribution: Not Discernible | Frequency of Detection: 9/24<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.18 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.0027 | Type: Dunn's Test<br>p-value: 0.00031 | Type: Dunn's Test<br>p-value: > 0.99 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.004 | p-value: 0.00093 | p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Chrysene | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  | |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Normal | Frequency of Detection: 4/11<br>Data Distribution: Normal | Frequency of Detection: 1/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.017 | | |

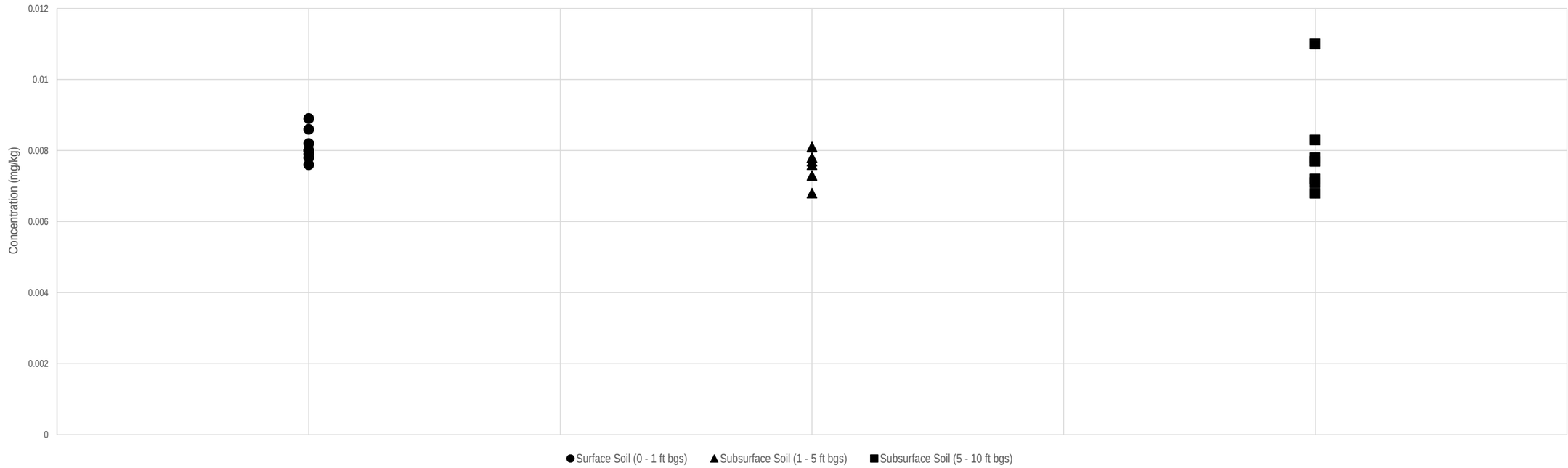


Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Dibenz(a,h)anthracene | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |



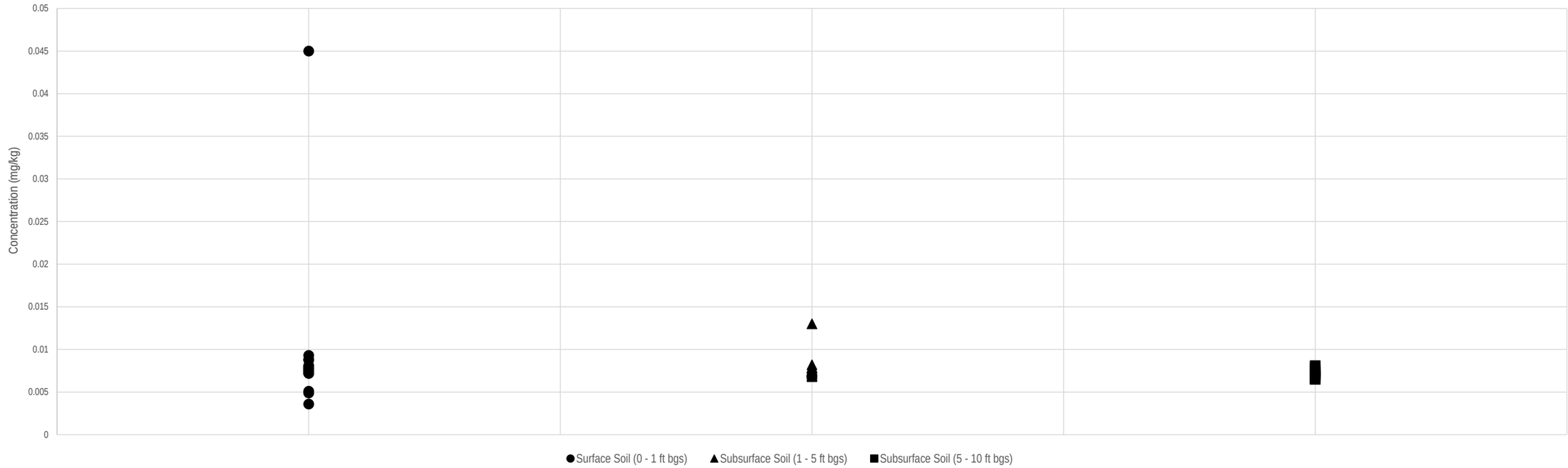

| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 0/8<br>Data Distribution: Not Discernible | Frequency of Detection: 0/8<br>Data Distribution: Not Discernible | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.32 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Dibenz(a,h)anthracene | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |



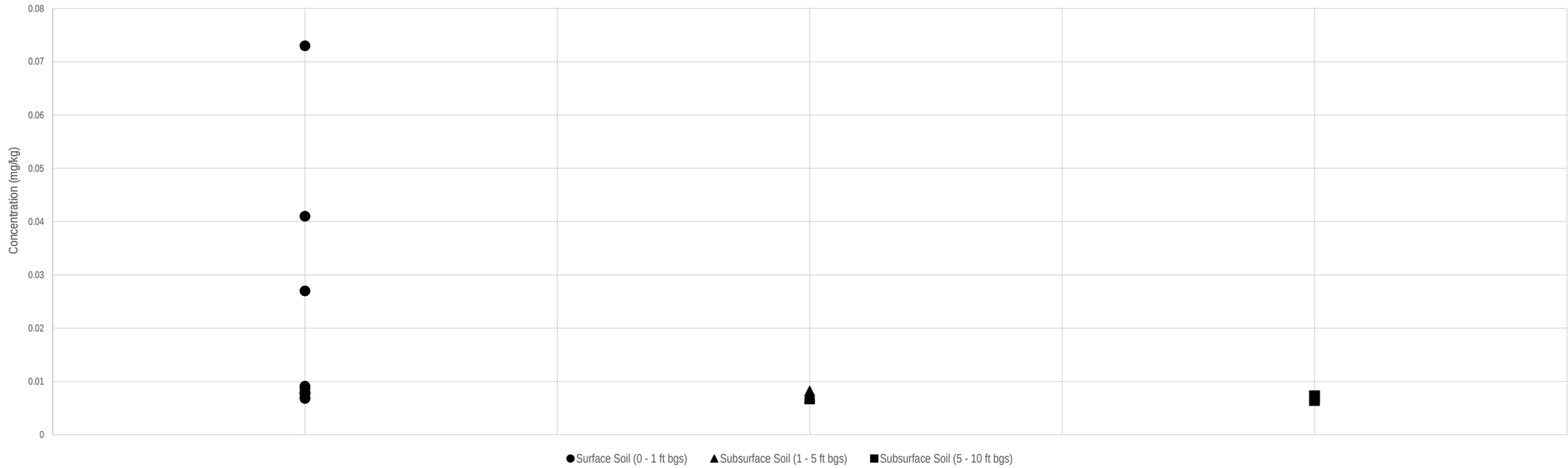

| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 4/24<br>Data Distribution: Not Discernible | Frequency of Detection: 1/24<br>Data Distribution: Not Discernible | Frequency of Detection: 0/24<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.24 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Dibenz(a,h)anthracene | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |

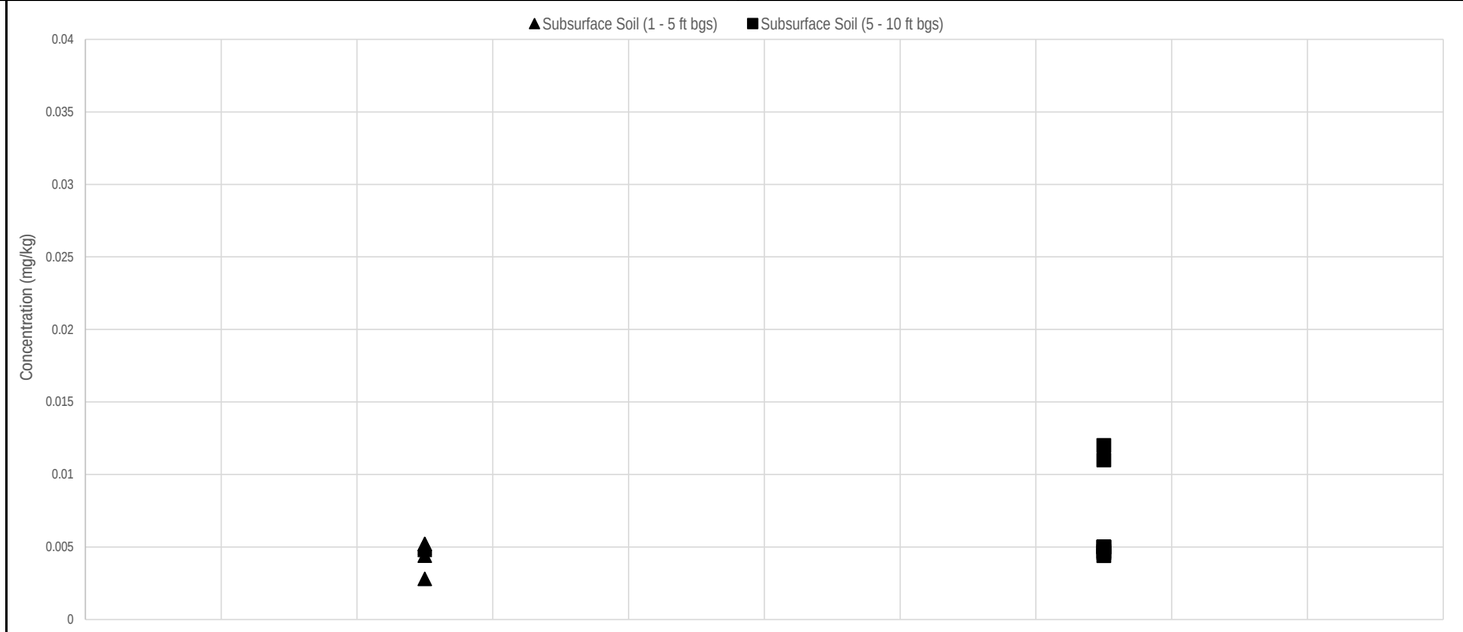



| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 3/11<br>Data Distribution: Normal | Frequency of Detection: 0/11<br>Data Distribution: Not Discernible | Frequency of Detection: 0/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.069 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

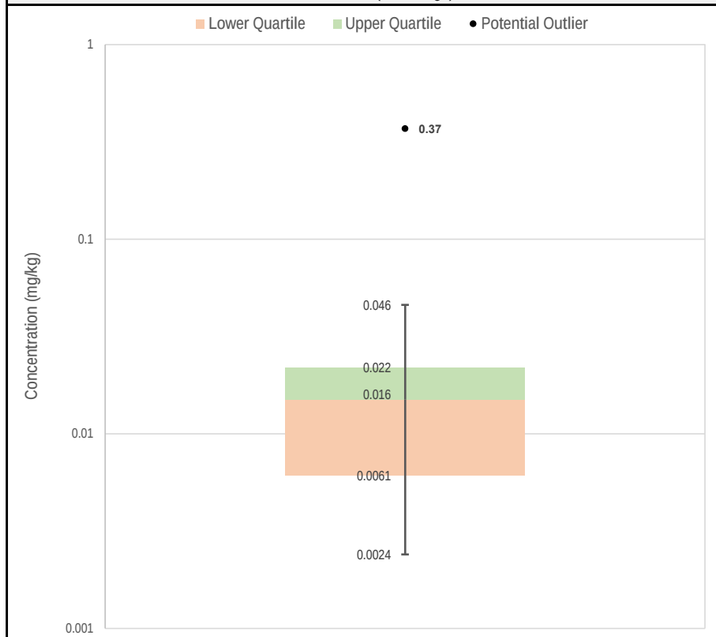
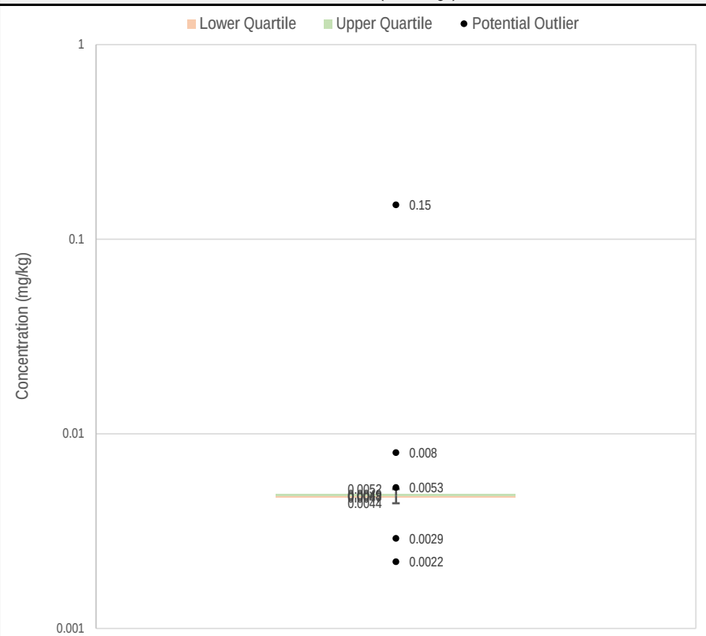
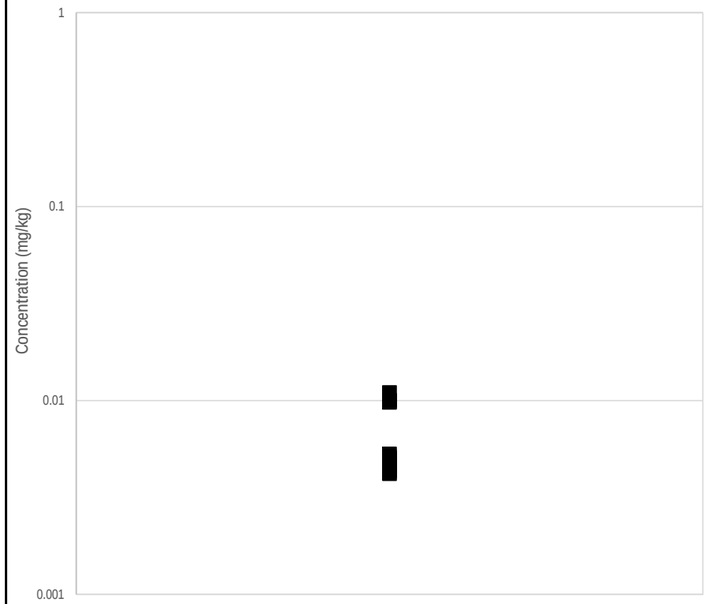
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Fluoranthene | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  | |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible | Frequency of Detection: 2/8<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.0018 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Fluoranthene | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  <br>Note: Logarithmic scale |  <br>Note: Logarithmic scale |  |
| General Statistics[1] | | |
| Frequency of Detection: 21/24<br>Data Distribution: Not Discernible | Frequency of Detection: 5/24<br>Data Distribution: Lognormal | Frequency of Detection: 4/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.22 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.000045 | Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.000067 | p-value: -- | p-value: -- |

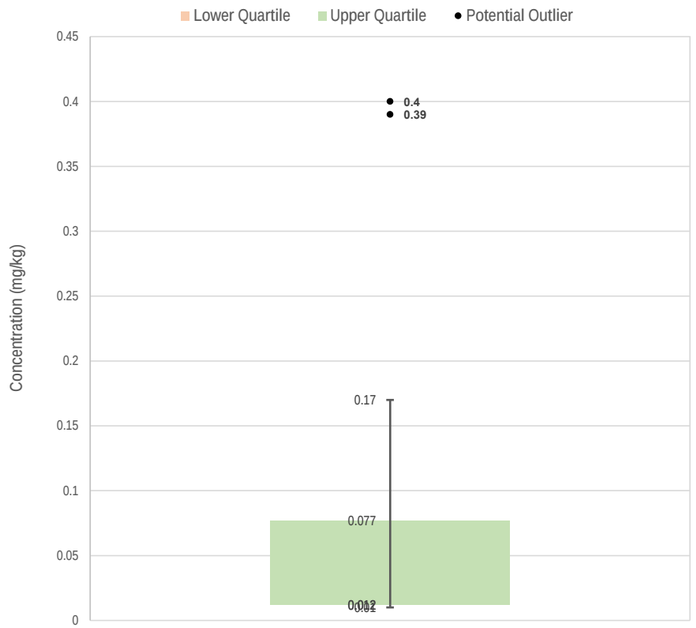
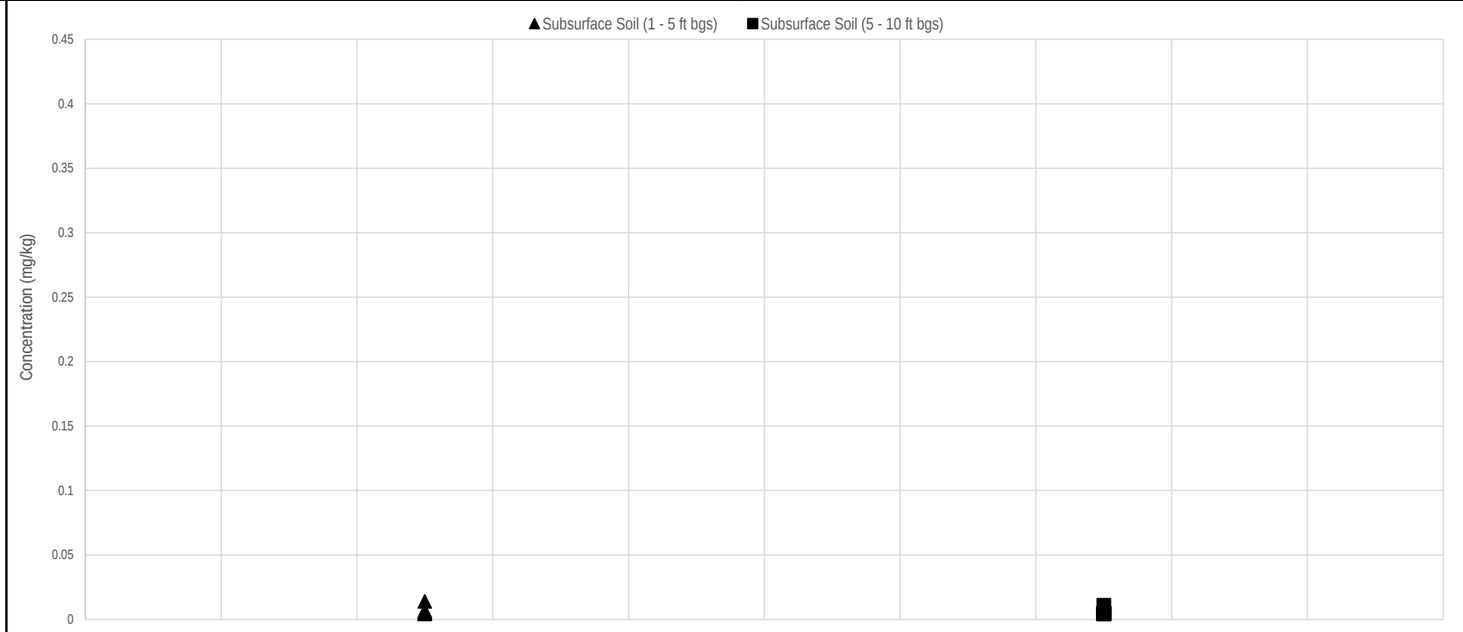
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Fluoranthene | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  | |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Not Discernible | Frequency of Detection: 4/11<br>Data Distribution: Normal | Frequency of Detection: 1/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.055 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.0029 | Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.0044 | p-value: -- | p-value: -- |

Notes:

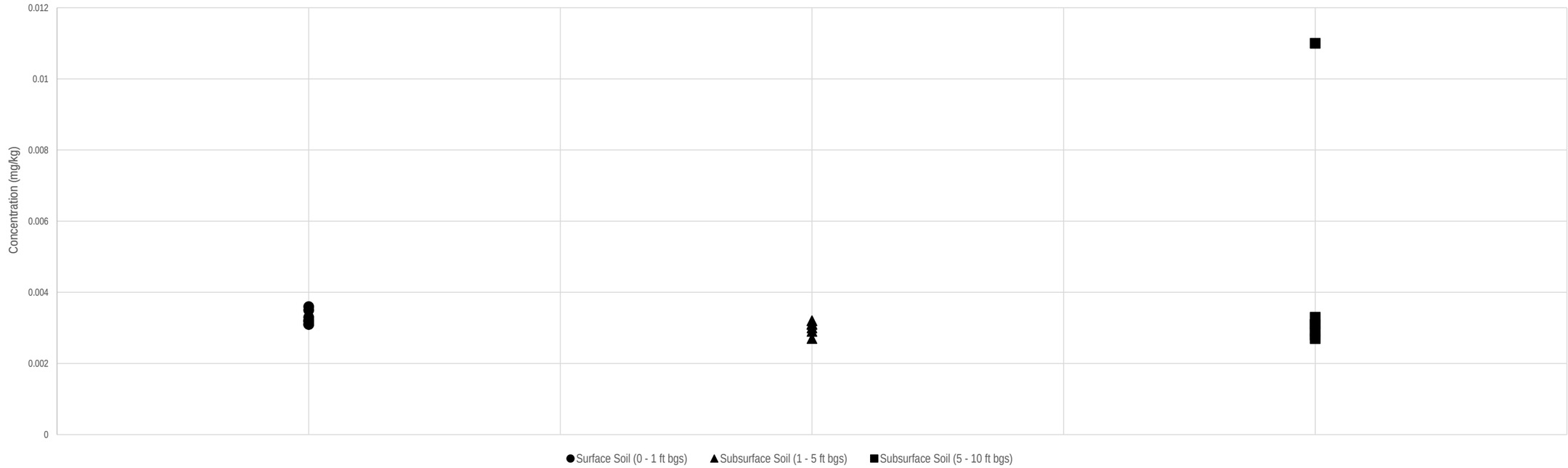
(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Fluorene | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |

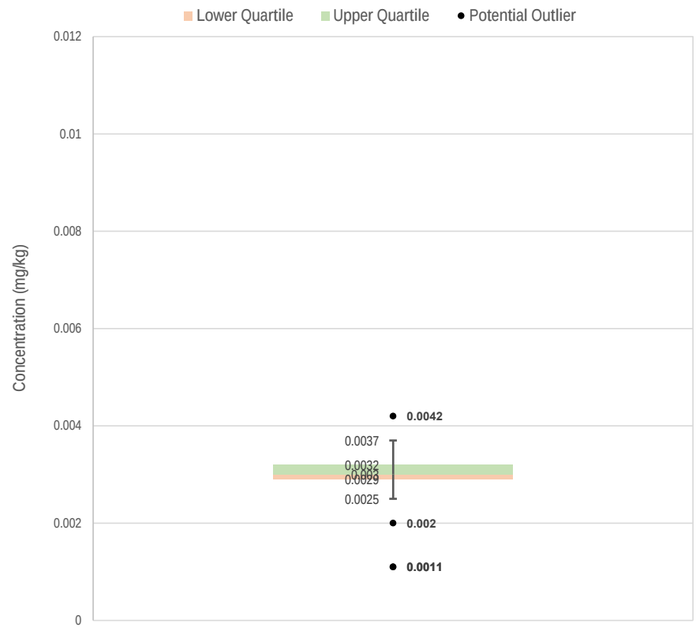



| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 0/8<br>Data Distribution: Not Discernible | Frequency of Detection: 0/8<br>Data Distribution: Not Discernible | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.36 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

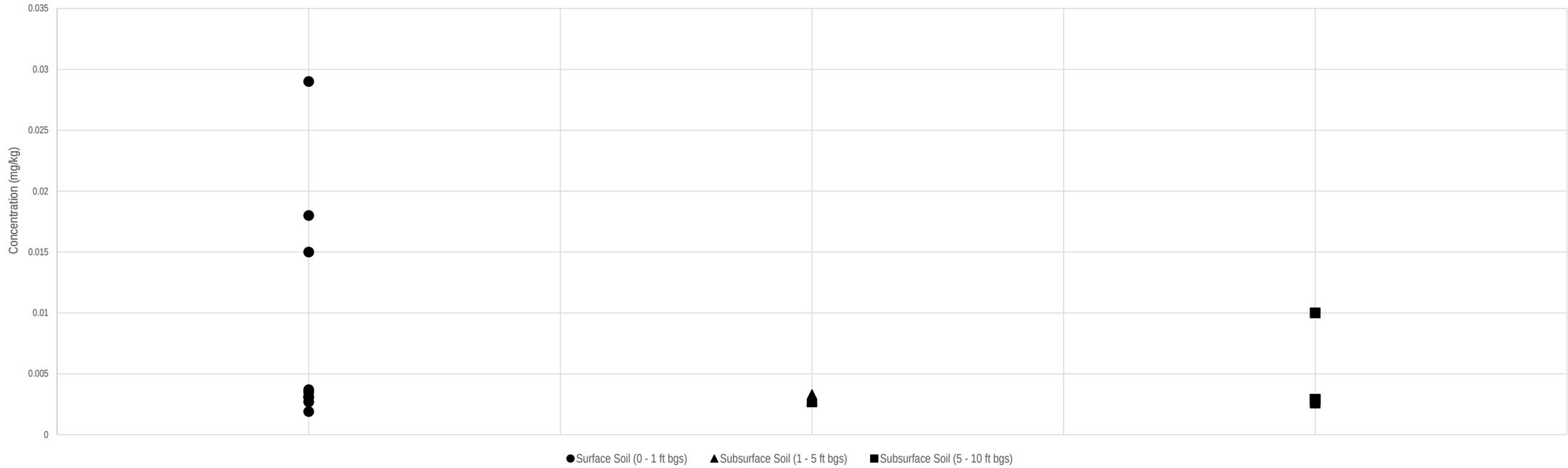
| Fluorene | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | | |
| General Statistics[1] | | |
| Frequency of Detection: 5/24<br>Data Distribution: Normal | Frequency of Detection: 2/24<br>Data Distribution: Not Discernible | Frequency of Detection: 1/24<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.75 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Fluorene | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |

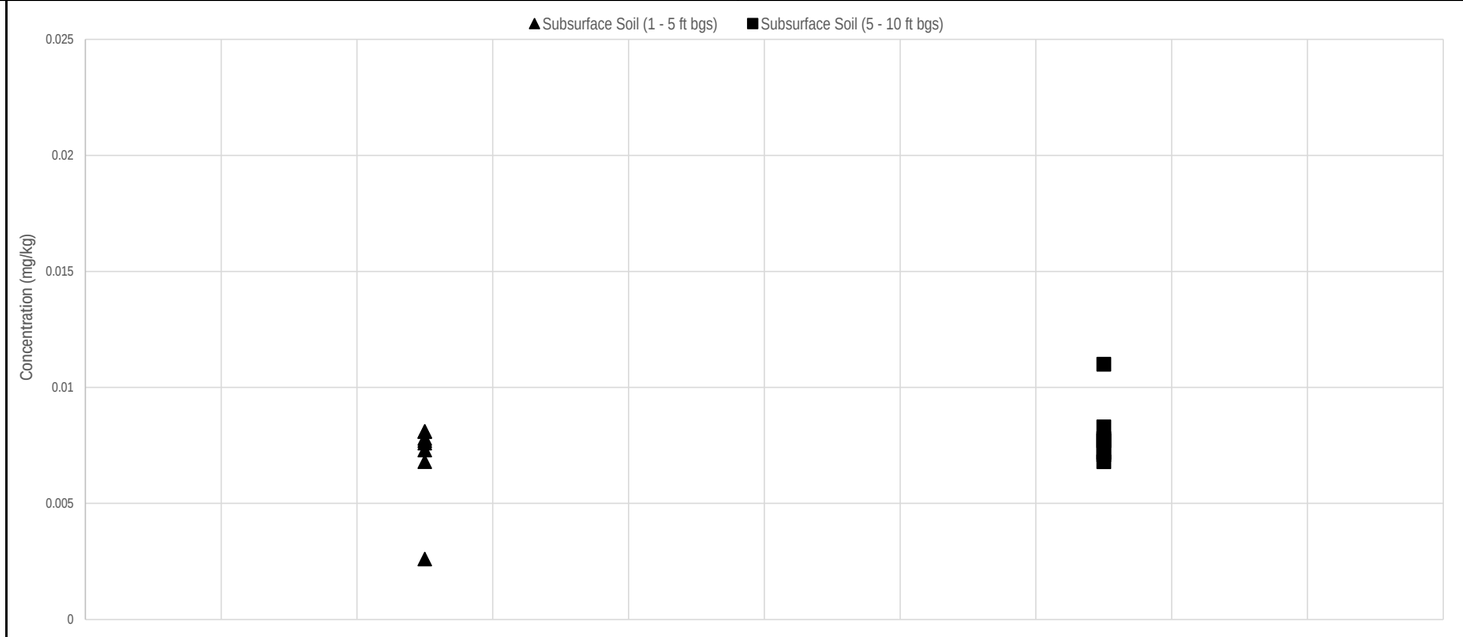



| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 3/11<br>Data Distribution: Normal | Frequency of Detection: 0/11<br>Data Distribution: Not Discernible | Frequency of Detection: 1/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.069 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

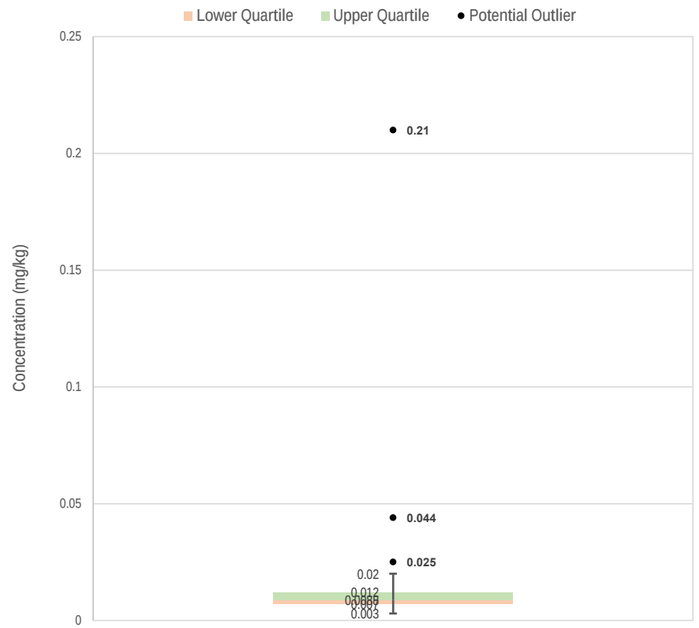
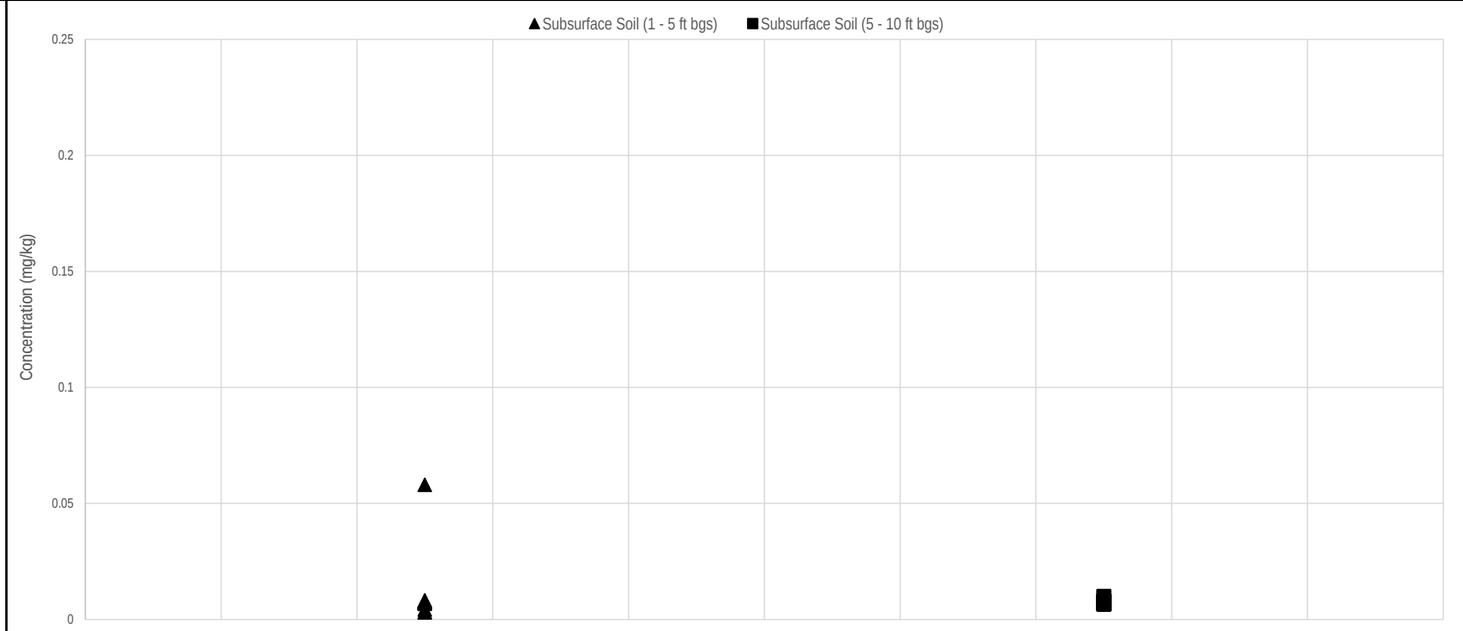
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Indeno(1,2,3-c,d)pyrene | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  | |
| General Statistics[1] | | |
| Frequency of Detection: 7/8<br>Data Distribution: Normal | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.0023 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Indeno(1,2,3-c,d)pyrene | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  | |
| General Statistics[1] | | |
| Frequency of Detection: 19/24<br>Data Distribution: Not Discernible | Frequency of Detection: 4/24<br>Data Distribution: Not Discernible | Frequency of Detection: 2/24<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.17 | | |

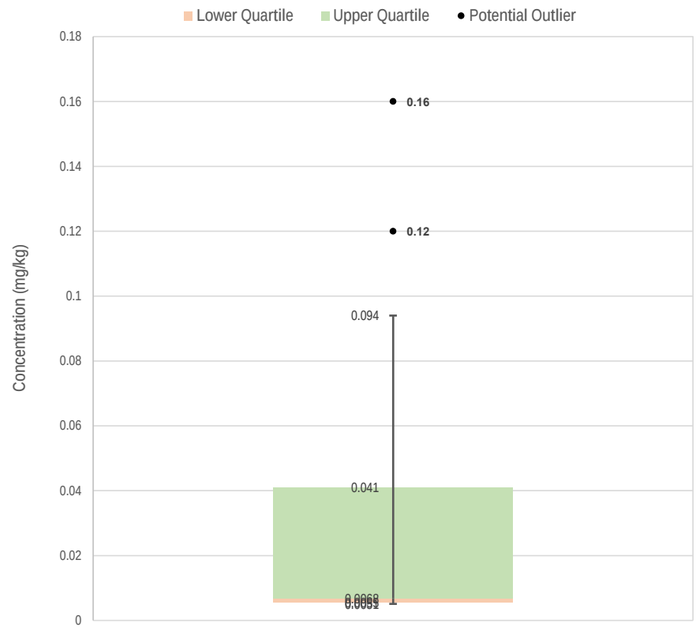
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Indeno(1,2,3-c,d)pyrene | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | | |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Not Discernible | Frequency of Detection: 1/11<br>Data Distribution: Not Discernible | Frequency of Detection: 0/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.038 | | |

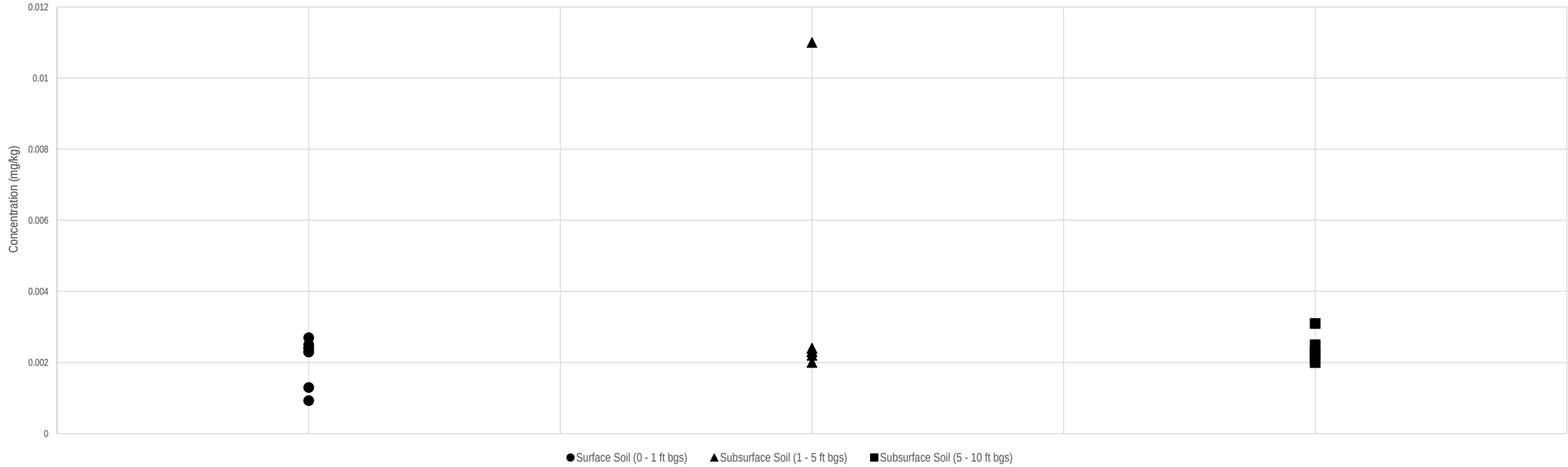


Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Naphthalene | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |

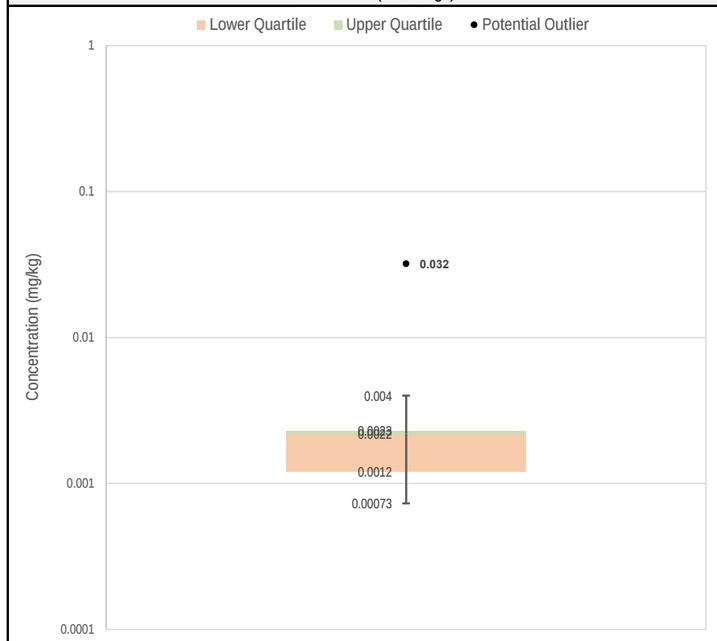
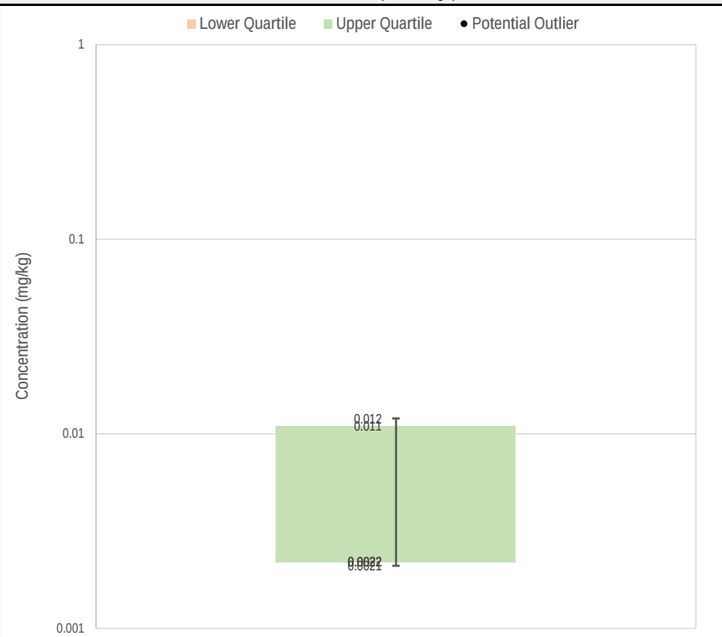
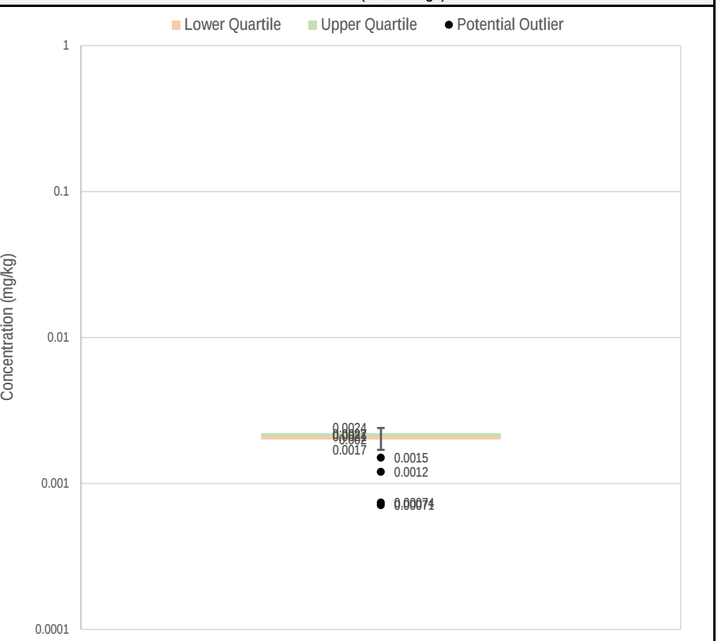



| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 2/8<br>Data Distribution: Not Discernible | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.54 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

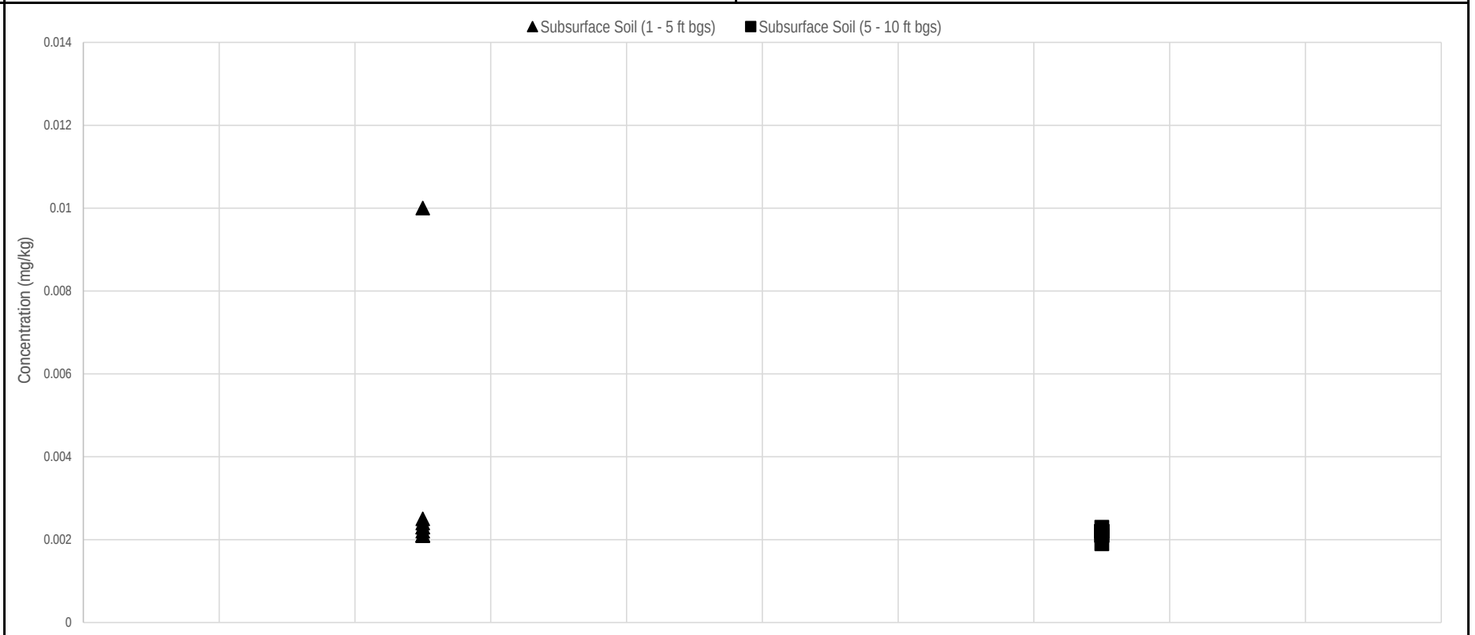
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Naphthalene | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  |  |
| Note: Logarithmic scale | Note: Logarithmic scale | Note: Logarithmic scale |
| General Statistics[1] | | |
| Frequency of Detection: 14/24<br>Data Distribution: Not Discernible | Frequency of Detection: 8/24<br>Data Distribution: Normal | Frequency of Detection: 5/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.088 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: Dunn's Test<br>p-value: 0.014 | Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: 0.0026 |
| Benjamini-Hochberg[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| p-value: 0.021 | p-value: > 0.99 | p-value: 0.0079 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

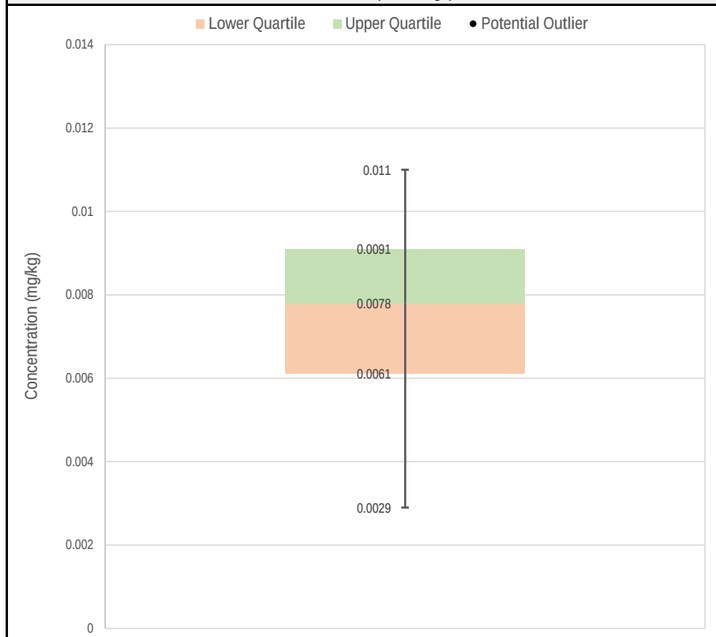
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Naphthalene | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  | |
| General Statistics[1] | | |
| Frequency of Detection: 7/11<br>Data Distribution: Normal | Frequency of Detection: 1/11<br>Data Distribution: Not Discernible | Frequency of Detection: 1/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.062 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

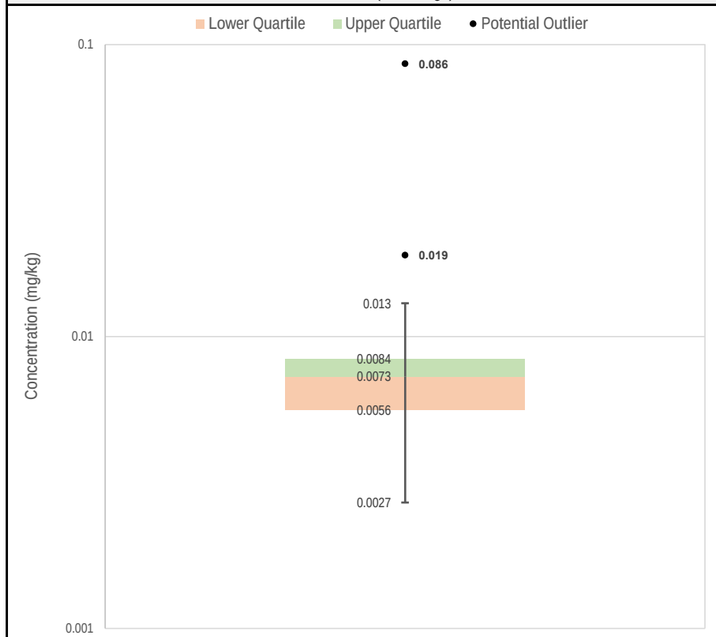
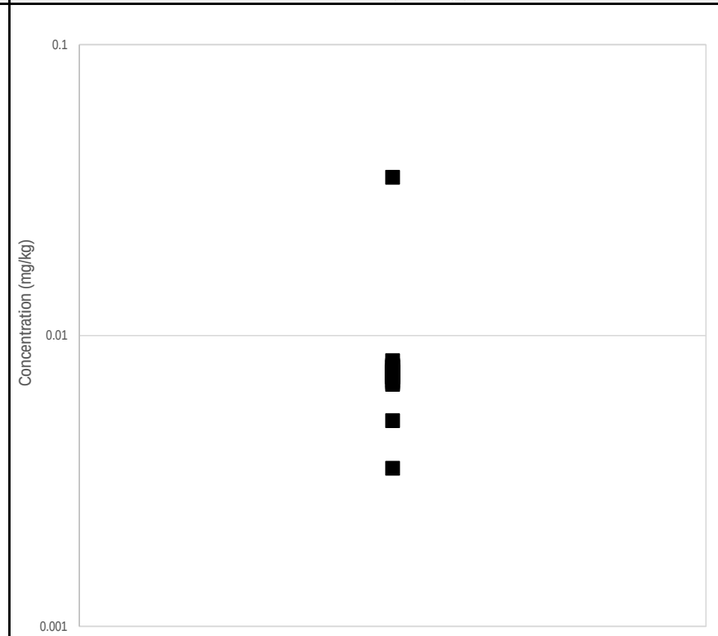
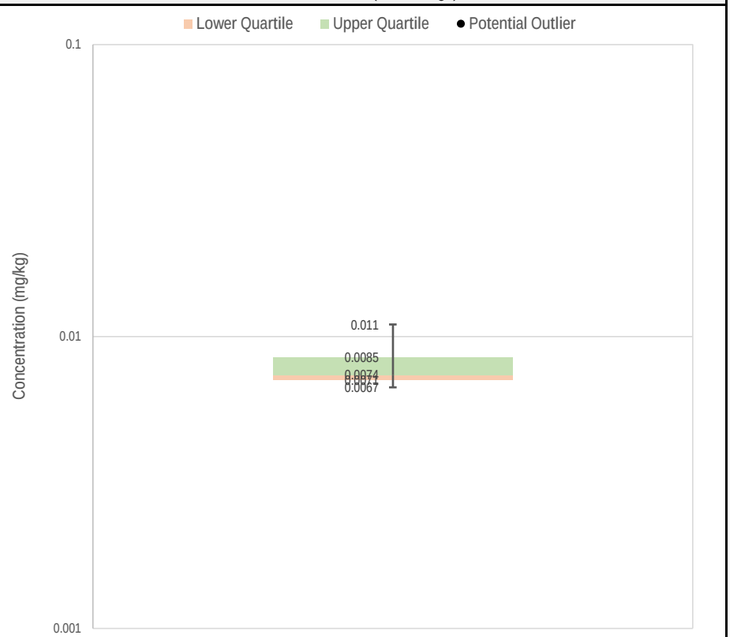
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Phenanthrene | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  | | |
| General Statistics[1] | | |
| Frequency of Detection: 7/8<br>Data Distribution: Normal | Frequency of Detection: 0/8<br>Data Distribution: Not Discernible | Frequency of Detection: 2/8<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.075 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

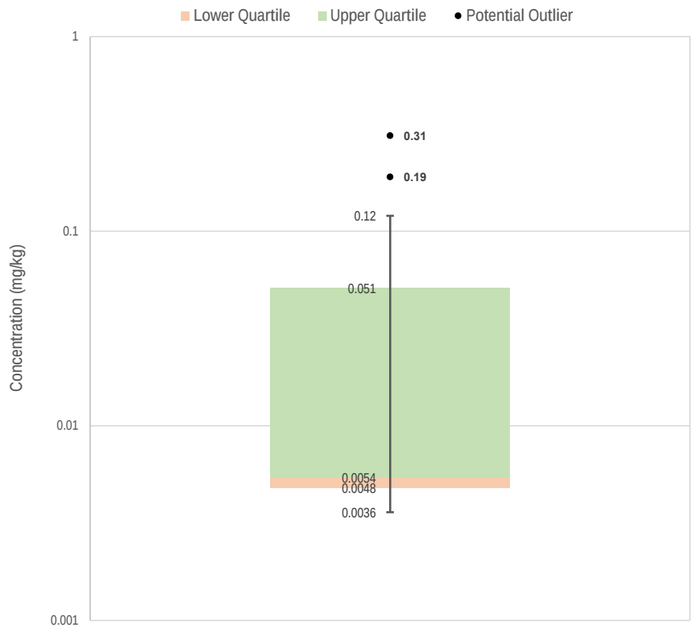
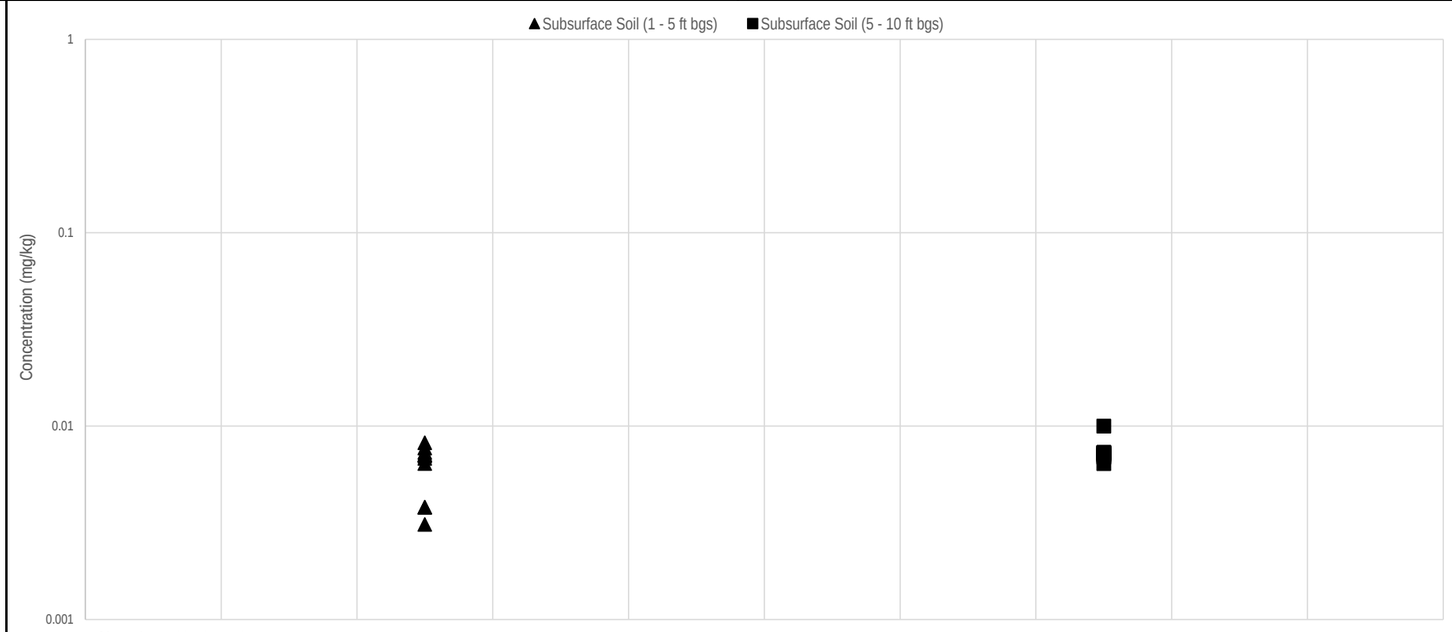
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Phenanthrene | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  <br>Note: Logarithmic scale |  <br>Note: Logarithmic scale |  <br>Note: Logarithmic scale |
| General Statistics[1] | | |
| Frequency of Detection: 19/24<br>Data Distribution: Not Discernible | Frequency of Detection: 3/24<br>Data Distribution: Normal | Frequency of Detection: 6/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.27 | | |
| Multiple Comparison Test[1] | | |
| Surface Soil (0 - 1 ft bgs) to Subsurface Soil (1 - 5 ft bgs) | Surface Soil (0 - 1 ft bgs) to Subsurface Soil (5 - 10 ft bgs) | Subsurface Soil (1 - 5 ft bgs) to Subsurface Soil (5 - 10 ft bgs) |
| Type: N/A<br>p-value: -- | Type: Dunn's Test<br>p-value: > 0.99 | Type: N/A<br>p-value: -- |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

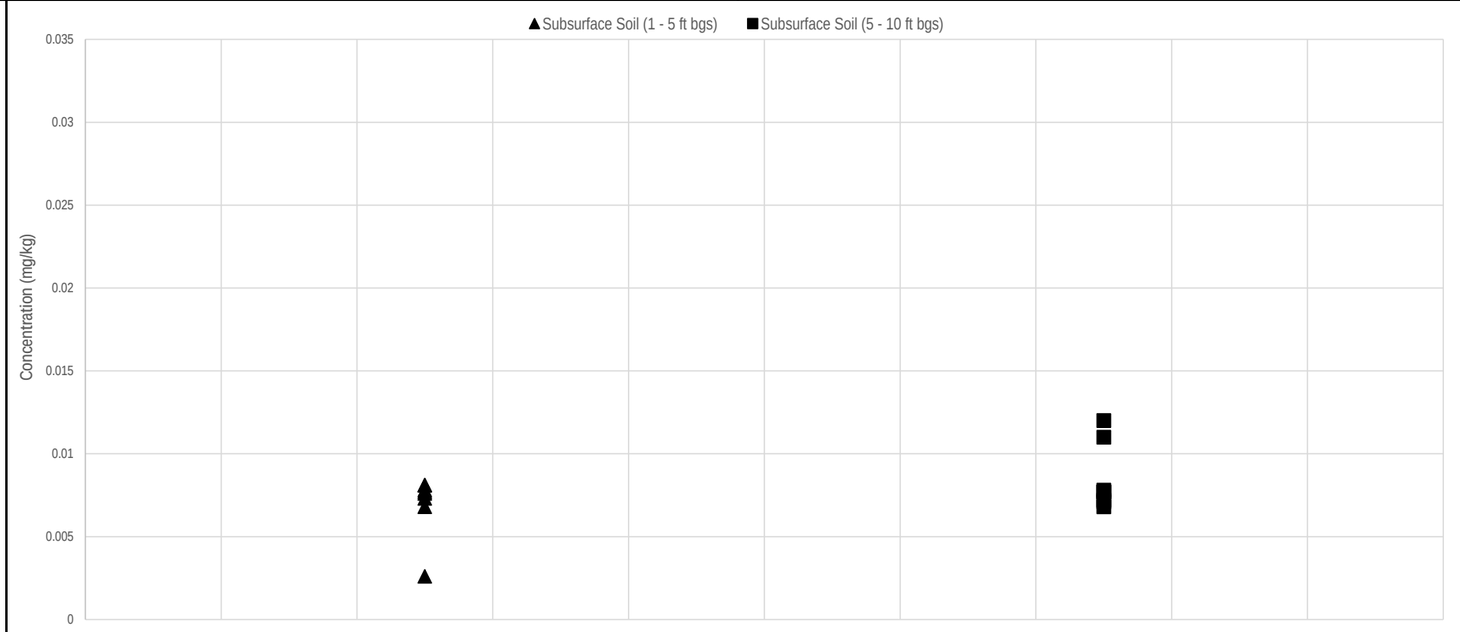
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Phenanthrene | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  <br>Note: Logarithmic scale |  <br>Note: Logarithmic scale | |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Not Discernible | Frequency of Detection: 4/11<br>Data Distribution: Normal | Frequency of Detection: 1/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.065 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

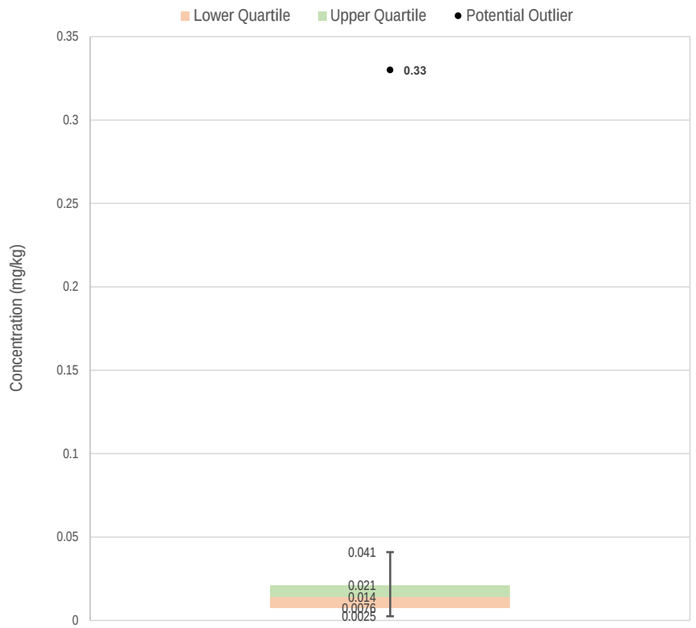
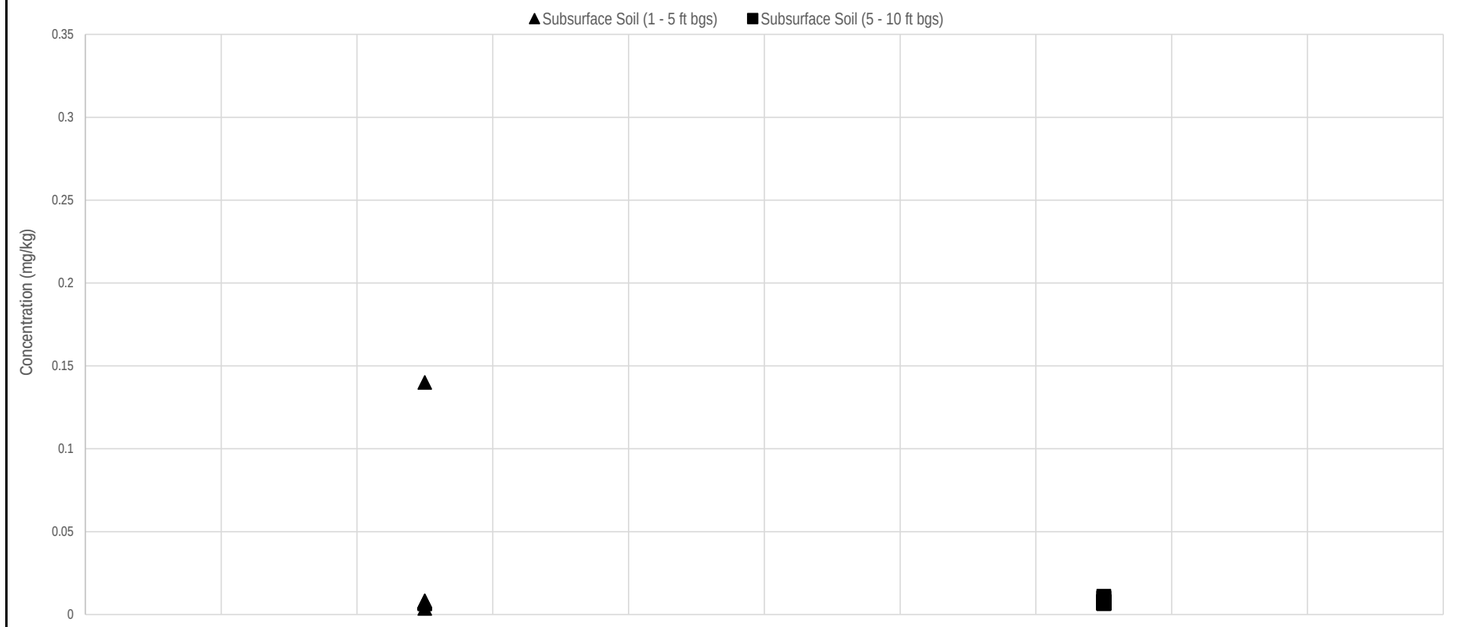
Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Pyrene | | |
|---|---|---|
| Lacustrine Silt and Clay (Psc) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| |  | |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 1/8<br>Data Distribution: Not Discernible | Frequency of Detection: 2/8<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.00015 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Pyrene | | |
|---|---|---|
| Sorted Sand and Gravel (Ps) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
|  |  | |
| General Statistics[1] | | |
| Frequency of Detection: 21/24<br>Data Distribution: Lognormal | Frequency of Detection: 4/24<br>Data Distribution: Lognormal | Frequency of Detection: 3/24<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.22 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.1
Depth Interval Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Pyrene | | |
|---|---|---|
| Diamicton - Till (Pd) | | |
| Surface Soil (0 - 1 ft bgs) | Subsurface Soil (1 - 5 ft bgs) | Subsurface Soil (5 - 10 ft bgs) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 11/11<br>Data Distribution: Not Discernible | Frequency of Detection: 4/11<br>Data Distribution: Normal | Frequency of Detection: 1/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.023 | | |

Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

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# APPENDIX G.2

# Geologic Unit Comparisons

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Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Aluminum | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| *Depth Interval for Specified Geology Determined Statistically Different* | | |
| General Statistics[1] | | |
| Frequency of Detection: N/A<br>Data Distribution: N/A | Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.22 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- | Type: Tukey's Test<br>p-value: 0.46 |

Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Antimony | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 0/24<br>Data Distribution: Not Discernible | Frequency of Detection: 6/72<br>Data Distribution: Normal | Frequency of Detection: 20/33<br>Data Distribution: Lognormal |
| Homogeneity of Variance (Levene's Test) p-value: 0.15 | | |

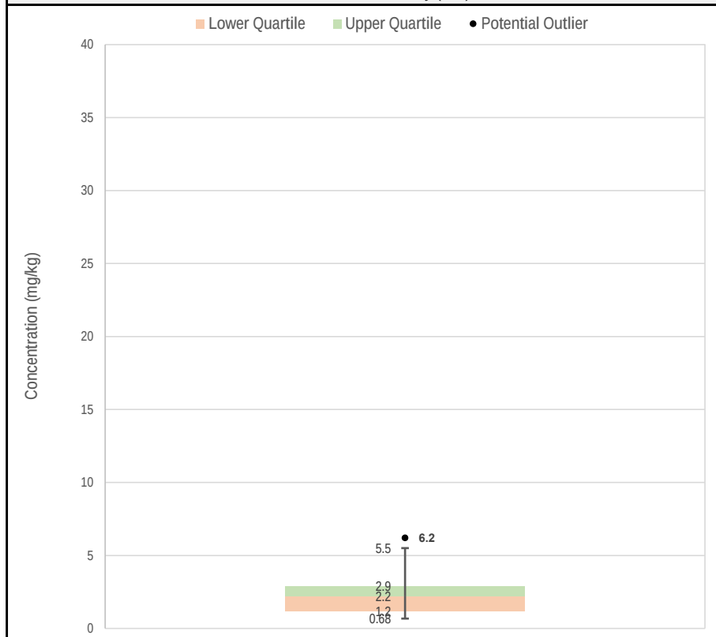
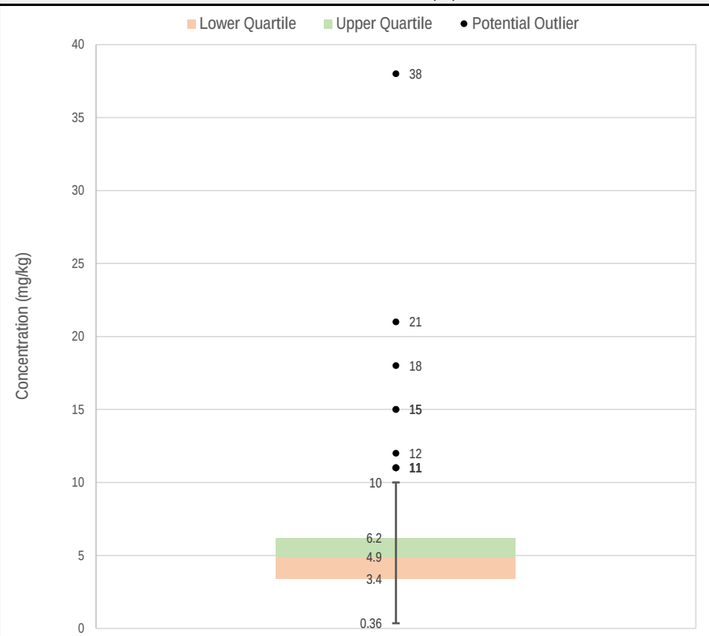
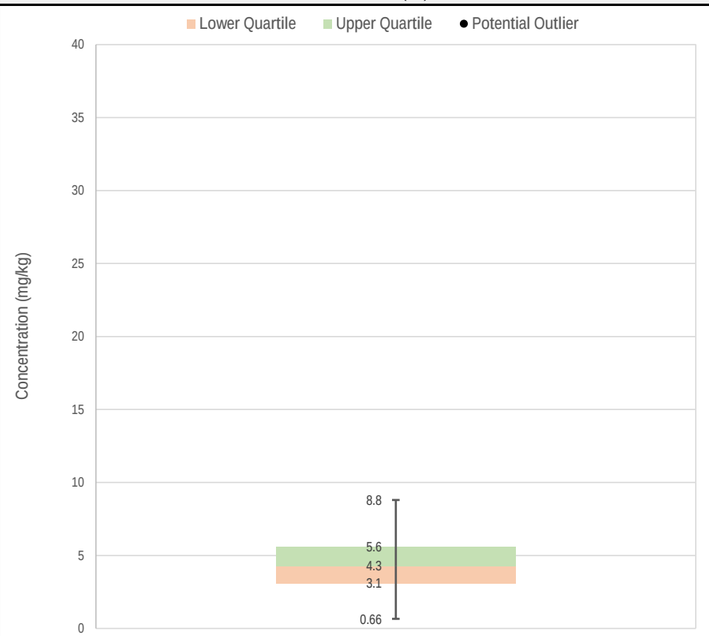
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Arsenic | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 72/72<br>Data Distribution: Not Discernible | Frequency of Detection: 33/33<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.038 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.0000003 | Type: Dunn's Test<br>p-value: 0.00033 | Type: Dunn's Test<br>p-value: 0.9 |
| Benjamini-Hochberg[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| p-value: 0.0000009 | p-value: 0.0005 | p-value: 0.9 |

Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

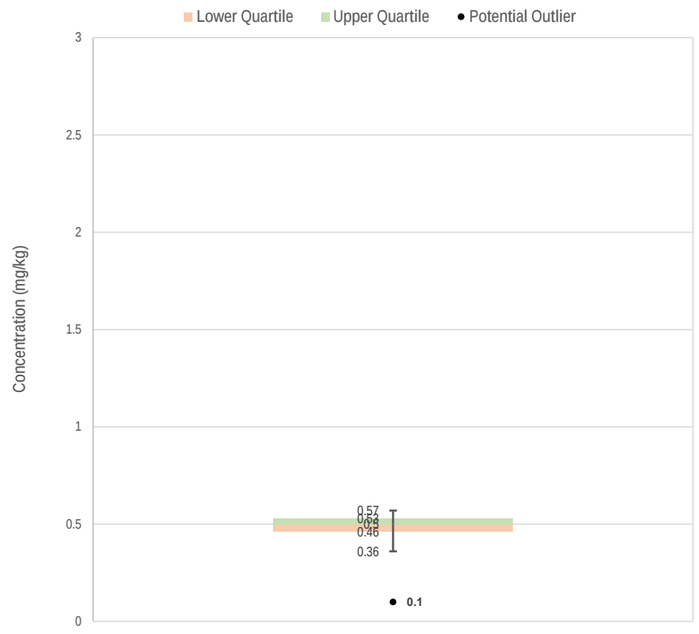
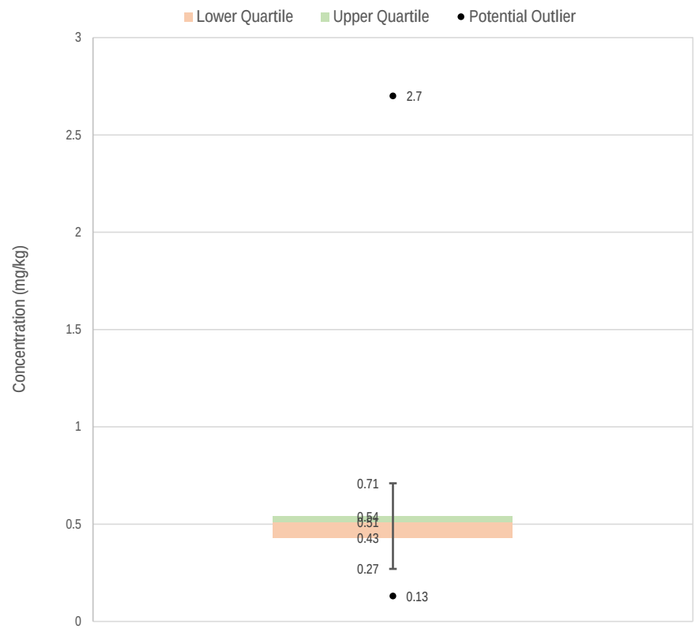
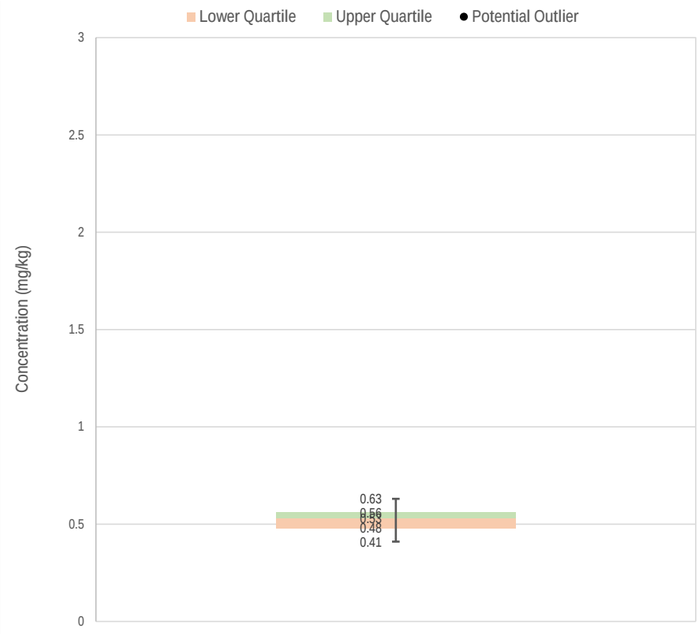
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Barium | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 72/72<br>Data Distribution: Lognormal | Frequency of Detection: 33/33<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.38 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.77 | Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

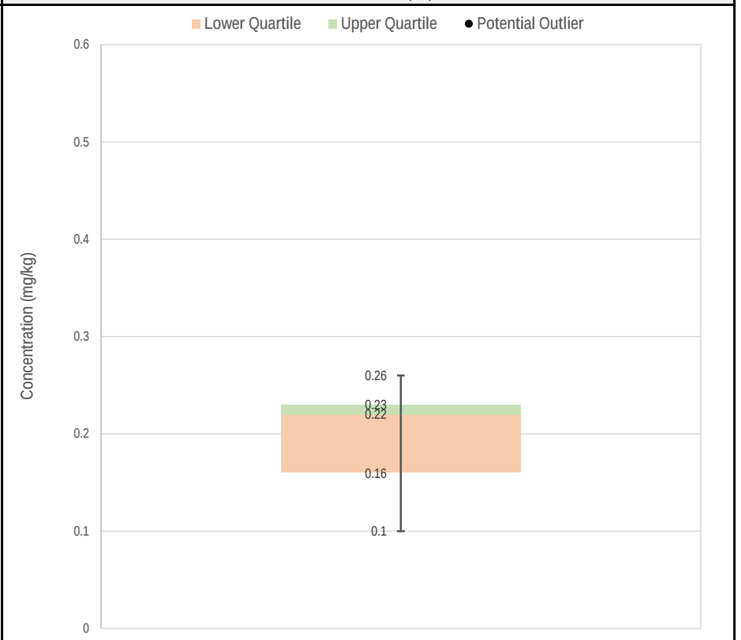
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Beryllium | | |
|---|---|---|
| Soil (0 - 5 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 15/16<br>Data Distribution: Normal | Frequency of Detection: 47/48<br>Data Distribution: Not Discernible | Frequency of Detection: 22/22<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.59 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: 0.35 | Type: Dunn's Test<br>p-value: 0.49 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Beryllium | | |
|---|---|---|
| Subsurface Soil (5 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| | |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.24 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Tukey's Test<br>p-value: 0.49 | Type: Tukey's Test<br>p-value: 0.97 | Type: Tukey's Test<br>p-value: 0.57 |

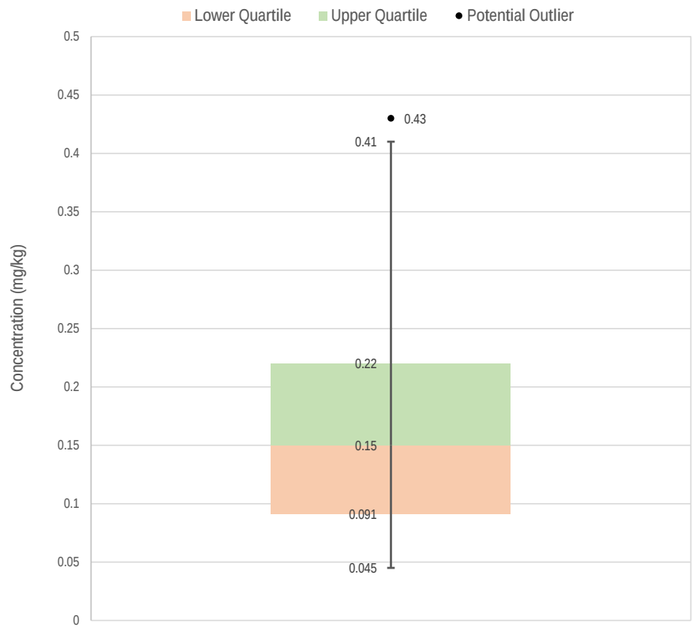
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

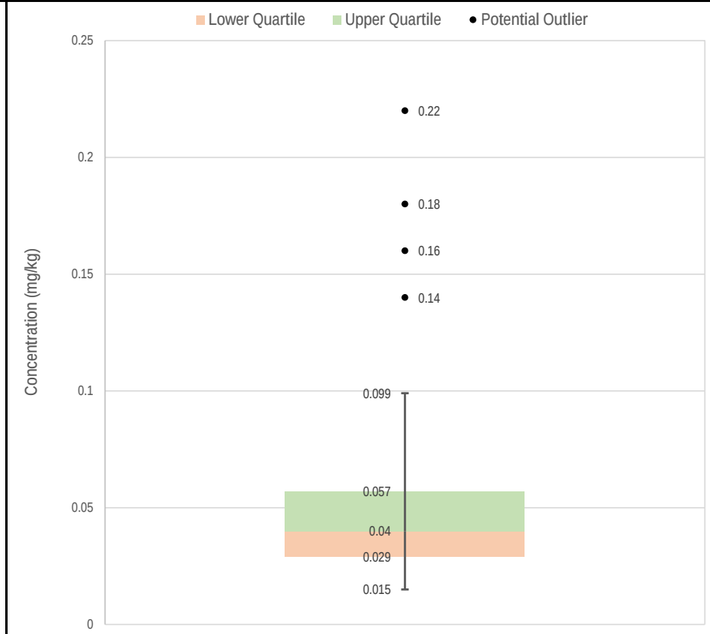
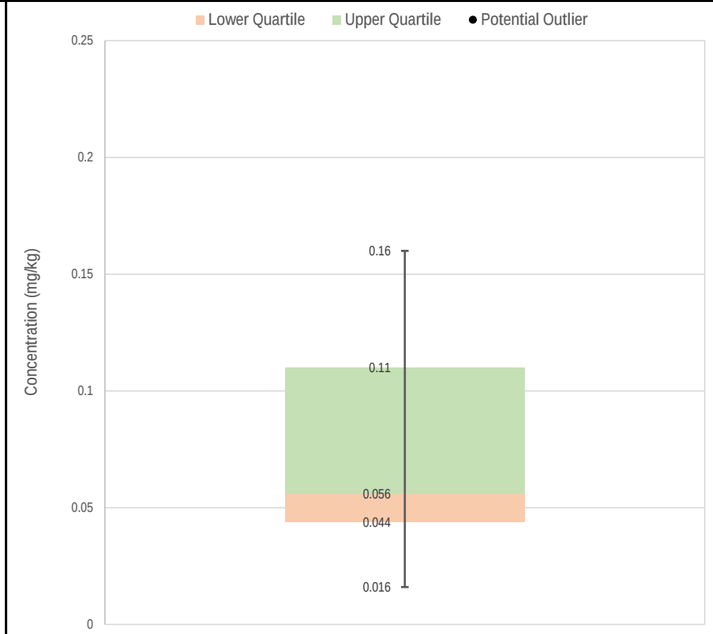
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Cadmium | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| |  | |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.051 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Tukey's Test<br>p-value: 0.099 | Type: Tukey's Test<br>p-value: 0.13 | Type: Tukey's Test<br>p-value: 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

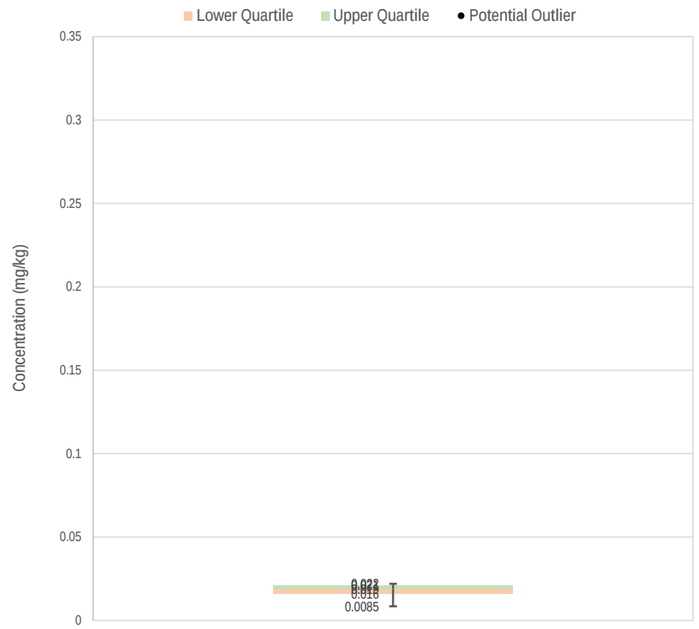
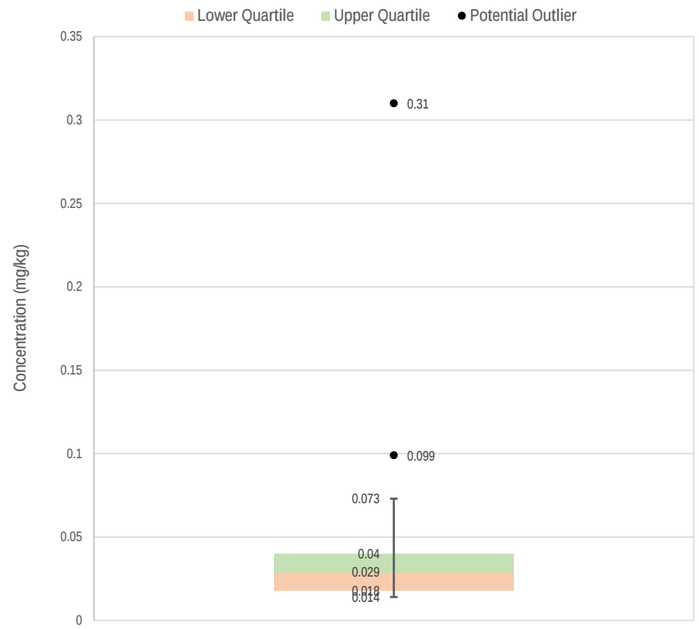
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Cadmium | | |
|---|---|---|
| Subsurface Soil (1 - 5 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Not Discernible | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.3 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.87 | Type: Dunn's Test<br>p-value: 0.084 | Type: Dunn's Test<br>p-value: 0.32 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Cadmium | | |
|---|---|---|
| Subsurface Soil (5 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  | |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 10/11<br>Data Distribution: Lognormal |
| Homogeneity of Variance (Levene's Test) p-value: 0.088 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.23 | Type: Dunn's Test<br>p-value: 0.17 | Type: Dunn's Test<br>p-value: > 0.99 |

Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

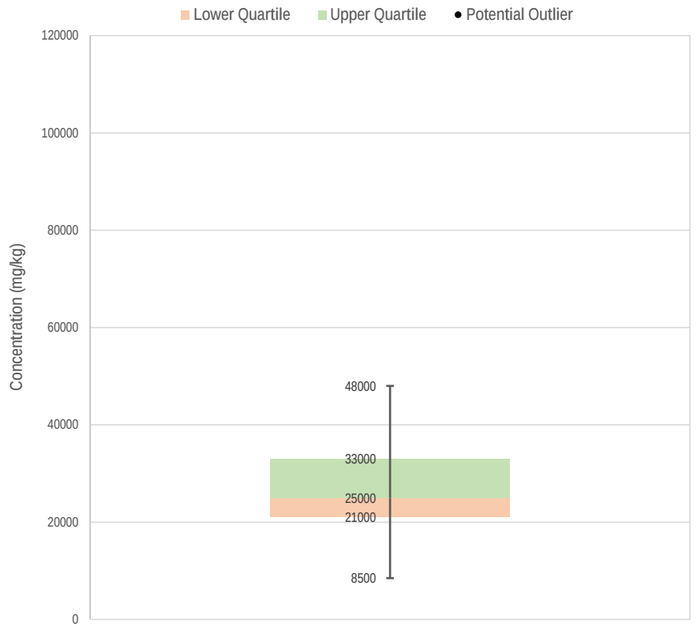
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Calcium | | |
|---|---|---|
| Soil (0 - 5 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| | | |
| Note: Logarithmic scale | Note: Logarithmic scale | Note: Logarithmic scale |
| General Statistics[1] | | |
| Frequency of Detection: 16/16<br>Data Distribution: Not Discernible | Frequency of Detection: 48/48<br>Data Distribution: Not Discernible | Frequency of Detection: 22/22<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.23 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.13 | Type: Dunn's Test<br>p-value: 0.96 | Type: Dunn's Test<br>p-value: 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

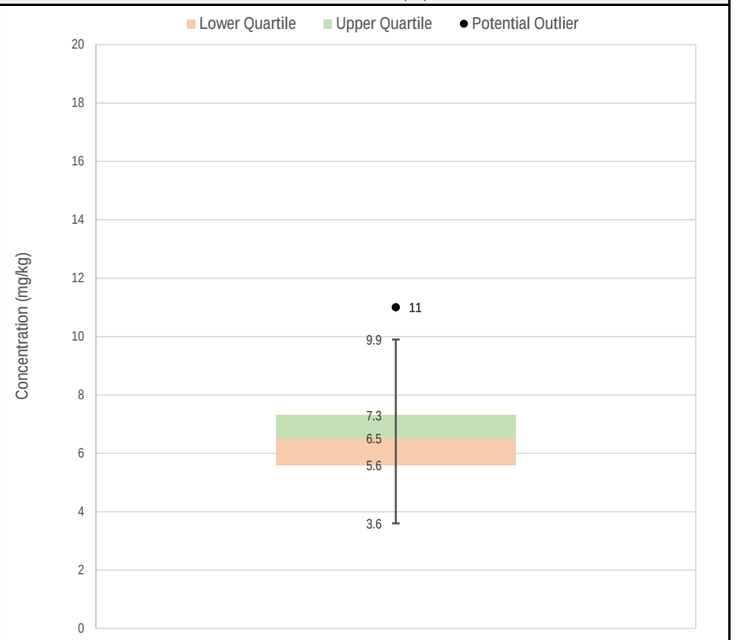
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Calcium | | |
|---|---|---|
| Subsurface Soil (5 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  | | |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.026 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.015 | Type: Dunn's Test<br>p-value: 0.42 | Type: Dunn's Test<br>p-value: 0.61 |
| Benjamini-Hochberg[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| p-value: 0.044 | p-value: 0.63 | p-value: 0.61 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

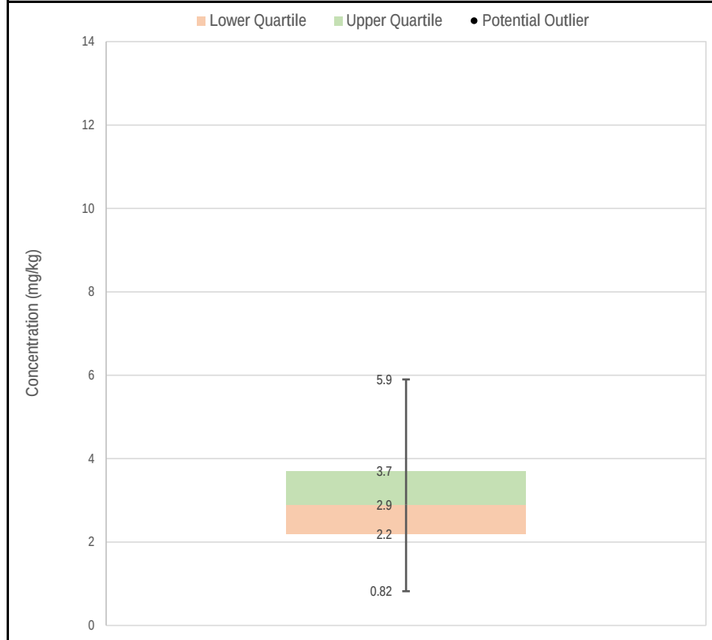
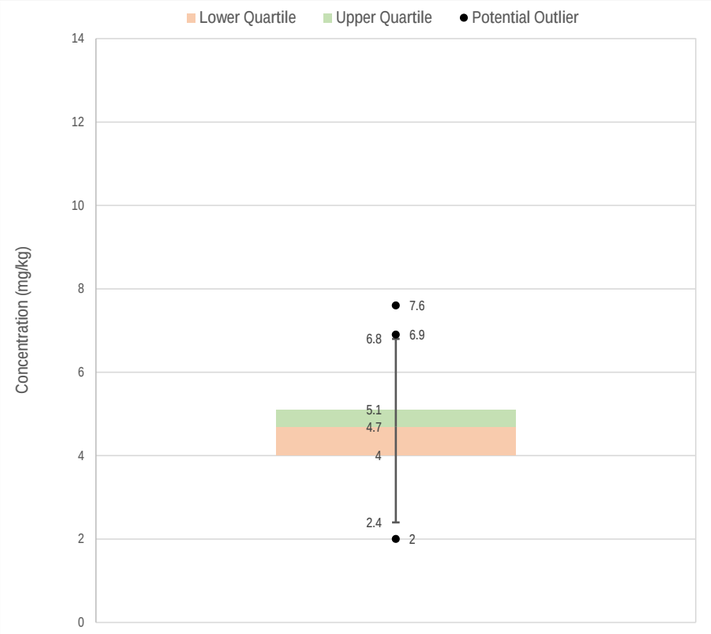
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Chromium | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| | |  |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 72/72<br>Data Distribution: Gamma | Frequency of Detection: 33/33<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.19 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.16 | Type: Dunn's Test<br>p-value: 0.16 | Type: Dunn's Test<br>p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

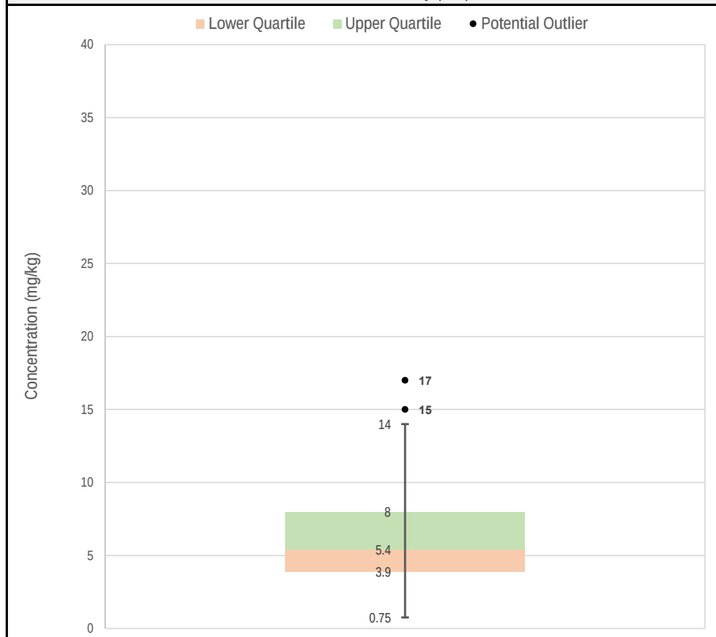
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Cobalt | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  | |  |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 72/72<br>Data Distribution: Normal | Frequency of Detection: 33/33<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.0026 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.000037 | Type: Dunn's Test<br>p-value: 0.0012 | Type: Dunn's Test<br>p-value: > 0.99 |
| Benjamini-Hochberg[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| p-value: 0.00011 | p-value: 0.0017 | p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Copper | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  | | |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 72/72<br>Data Distribution: Normal | Frequency of Detection: 33/33<br>Data Distribution: Lognormal |
| Homogeneity of Variance (Levene's Test) p-value: 0.034 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.0000036 | Type: Dunn's Test<br>p-value: 0.0000042 | Type: Dunn's Test<br>p-value: > 0.99 |
| Benjamini-Hochberg[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| p-value: 0.000011 | p-value: 0.0000063 | p-value: > 0.99 |

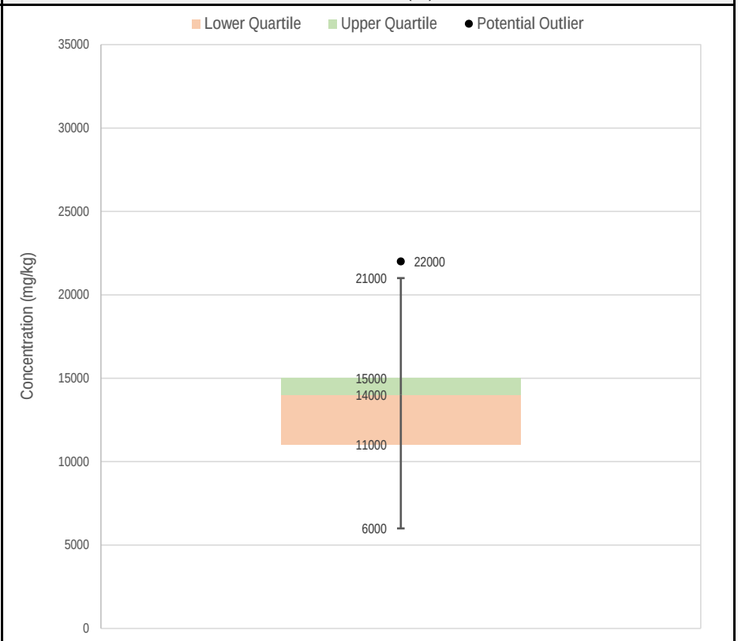
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

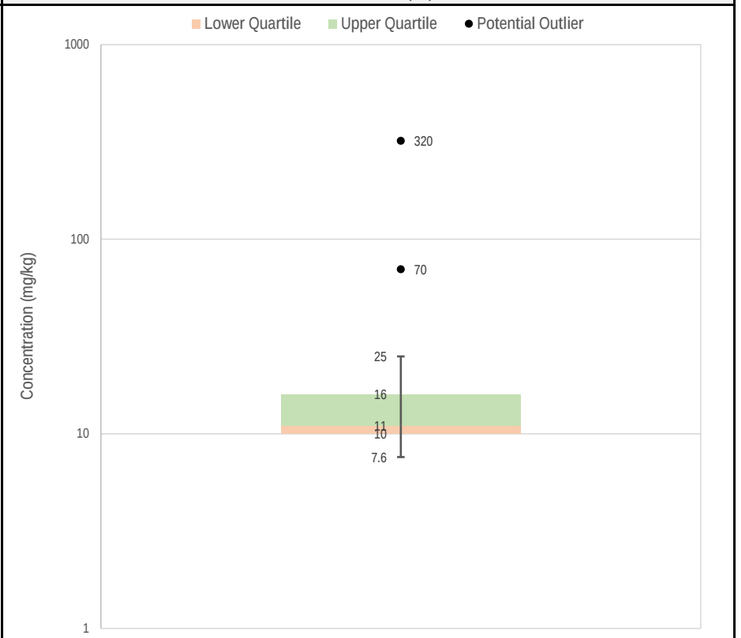
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Iron | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| | |  |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 72/72<br>Data Distribution: Normal | Frequency of Detection: 33/33<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.0013 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.000047 | Type: Dunn's Test<br>p-value: 0.00029 | Type: Dunn's Test<br>p-value: > 0.99 |
| Benjamini-Hochberg[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| p-value: 0.00014 | p-value: 0.00043 | p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

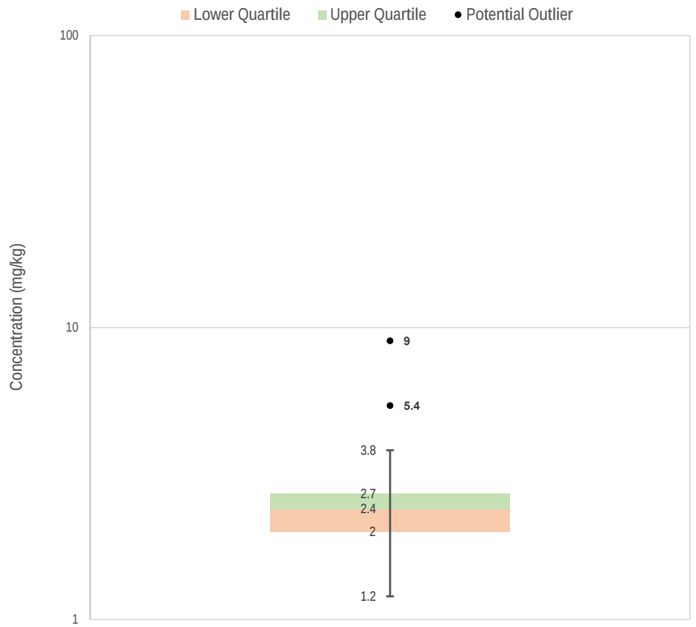
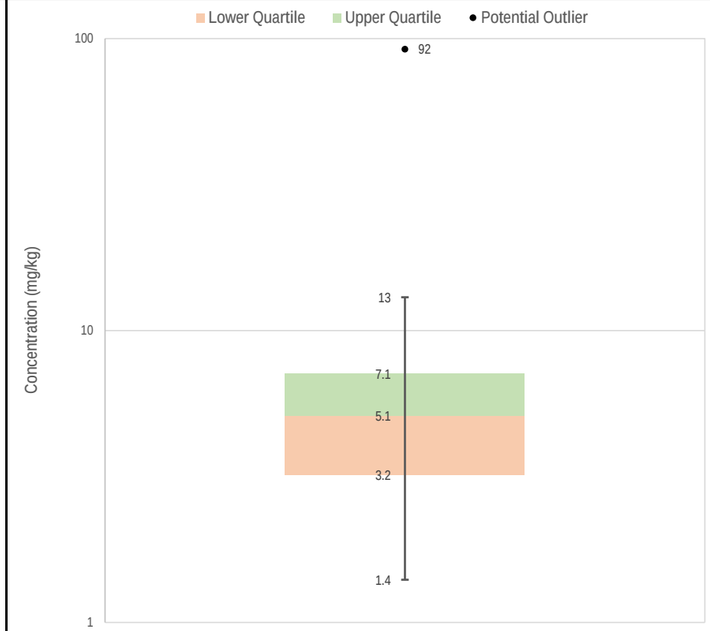
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Lead | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| Note: Logarithmic scale | Note: Logarithmic scale |  Note: Logarithmic scale |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Lognormal | Frequency of Detection: 11/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.21 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.03 | Type: Dunn's Test<br>p-value: 0.0015 | Type: Dunn's Test<br>p-value: 0.36 |
| Benjamini-Hochberg[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| p-value: 0.045 | p-value: 0.0045 | p-value: 0.36 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

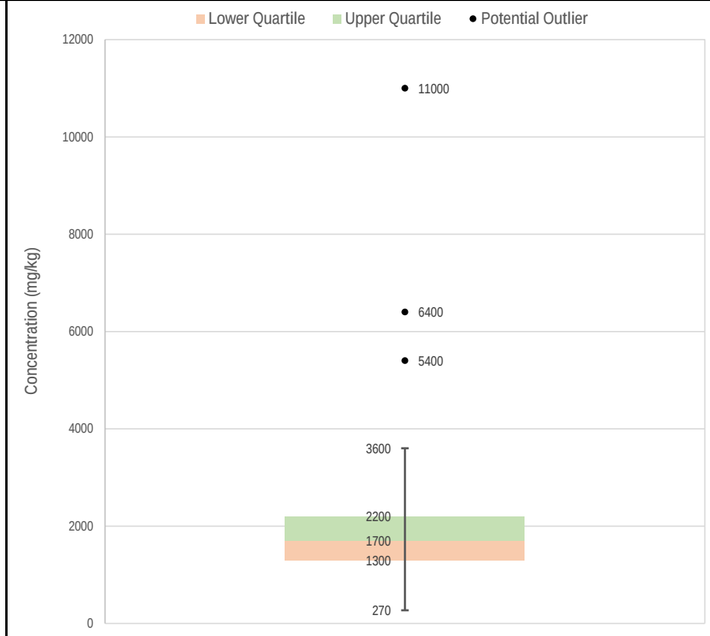
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Lead | | |
|---|---|---|
| Subsurface Soil (1 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  <br>Note: Logarithmic scale |  <br>Note: Logarithmic scale | *Depth Interval for Specified Geology Determined Statistically Different* |
| General Statistics[1] | | |
| Frequency of Detection: 16/16<br>Data Distribution: Not Discernible | Frequency of Detection: 48/48<br>Data Distribution: Not Discernible | Frequency of Detection: N/A<br>Data Distribution: N/A |
| Homogeneity of Variance (Levene's Test) p-value: 0.38 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.00016 | Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

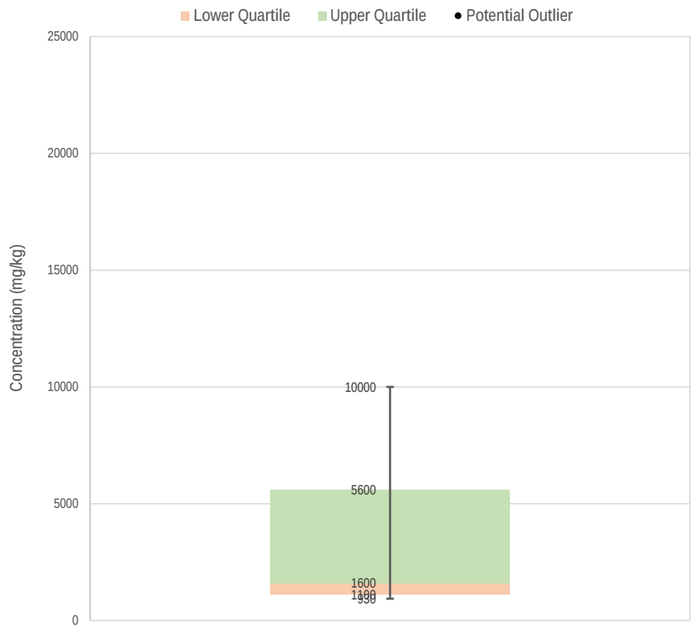
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Magnesium | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| |  | *Depth Interval for Specified Geology Determined Statistically Different* |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Not Discernible | Frequency of Detection: N/A<br>Data Distribution: N/A |
| Homogeneity of Variance (Levene's Test) p-value: 0.32 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.021 | Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Magnesium | | |
|---|---|---|
| Subsurface Soil (1 - 5 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  | | *Depth Interval for Specified Geology Determined Statistically Different* |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Gamma | Frequency of Detection: N/A<br>Data Distribution: N/A |
| Homogeneity of Variance (Levene's Test) p-value: 0.22 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.14 | Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Magnesium | | |
|---|---|---|
| Subsurface Soil (5 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.11 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Tukey's Test<br>p-value: 0.2 | Type: Tukey's Test<br>p-value: 0.75 | Type: Tukey's Test<br>p-value: 0.56 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

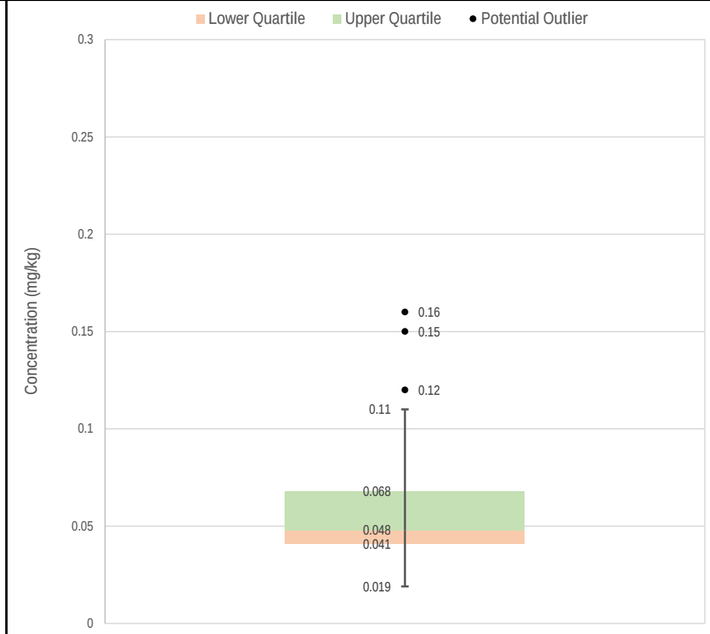
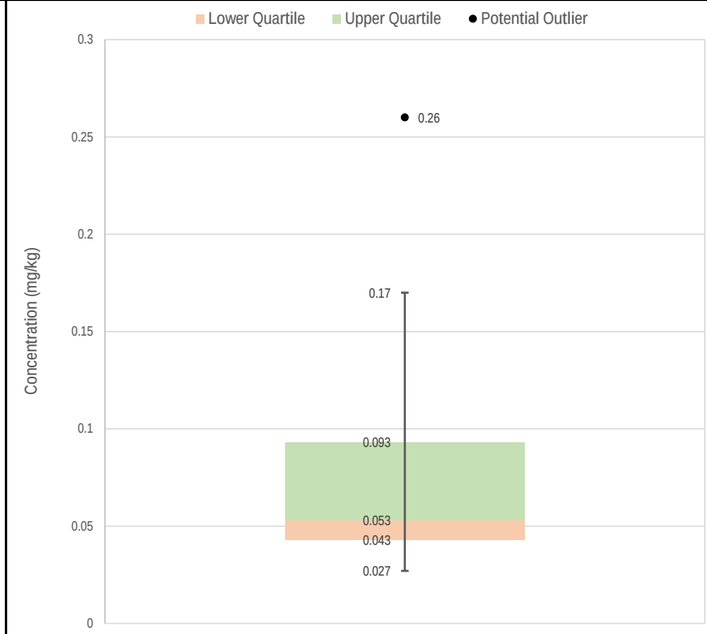
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Manganese | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| | | *Depth Interval for Specified Geology Determined Statistically Different* |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 72/72<br>Data Distribution: Gamma | Frequency of Detection: N/A<br>Data Distribution: N/A |
| Homogeneity of Variance (Levene's Test) p-value: 0.0076 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.000011 | Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Mercury | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 24/24<br>Data Distribution: Gamma | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.23 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.14 | Type: Dunn's Test<br>p-value: 0.058 | Type: Dunn's Test<br>p-value: > 0.99 |

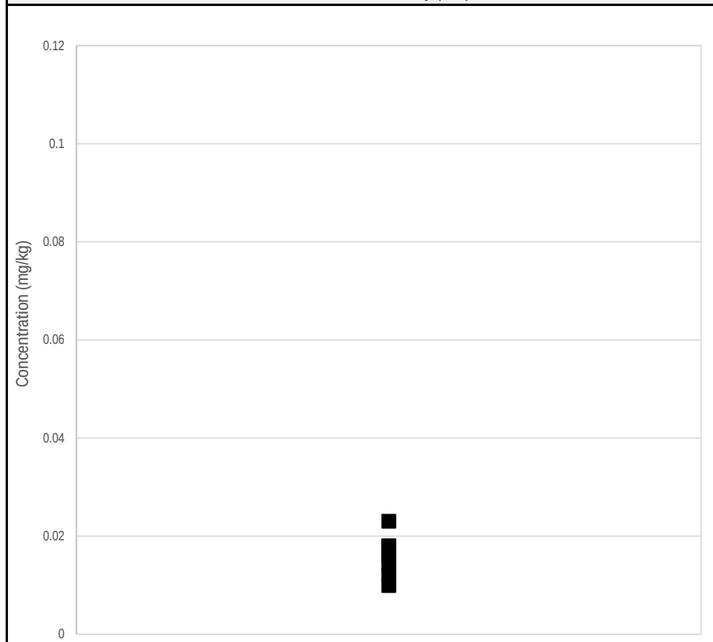
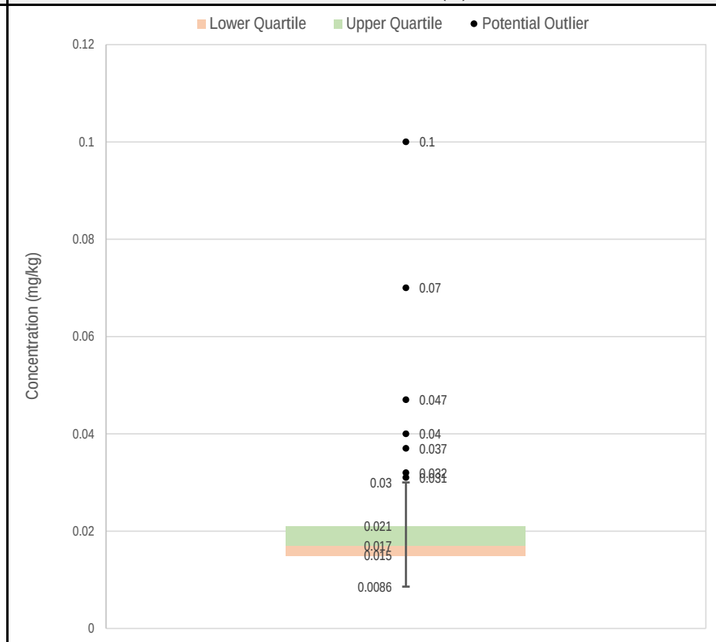
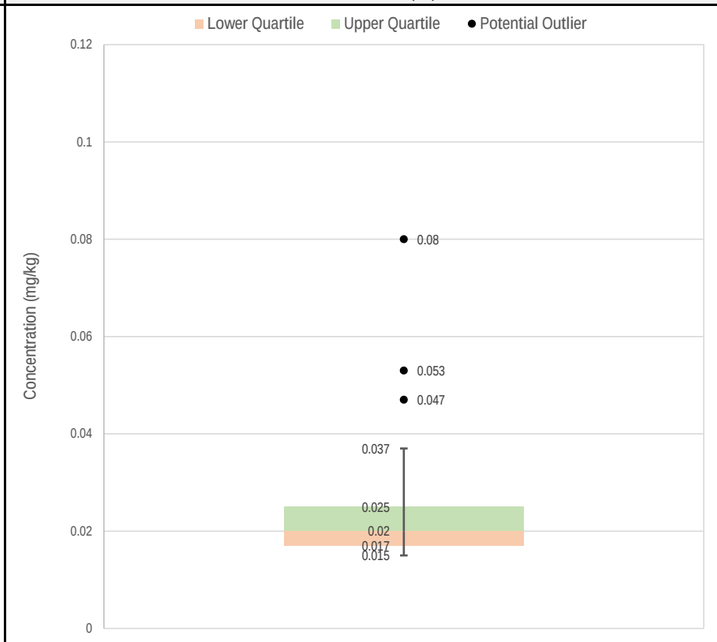
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Mercury | | |
|---|---|---|
| Subsurface Soil (1 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 4/16<br>Data Distribution: Normal | Frequency of Detection: 26/48<br>Data Distribution: Lognormal | Frequency of Detection: 12/22<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.22 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- | Type: Dunn's Test<br>p-value: 0.088 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Nickel | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 72/72<br>Data Distribution: Gamma | Frequency of Detection: 33/33<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.1 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.0018 | Type: Dunn's Test<br>p-value: 0.0024 | Type: Dunn's Test<br>p-value: > 0.99 |
| Benjamini-Hochberg[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| p-value: 0.0054 | p-value: 0.0036 | p-value: > 0.99 |

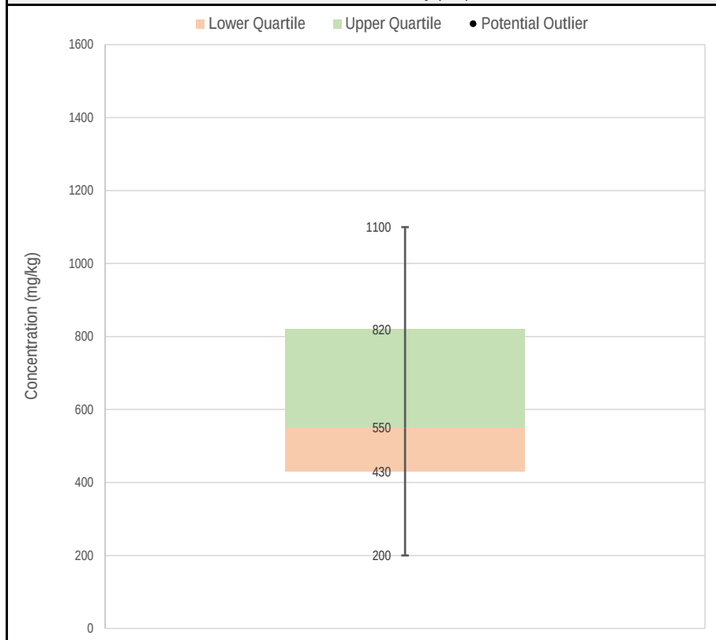
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Potassium | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  | *Depth Interval for Specified Geology Determined Statistically Different* | |
| General Statistics[1] | | |
| Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: N/A<br>Data Distribution: N/A | Frequency of Detection: 33/33<br>Data Distribution: Gamma |
| Homogeneity of Variance (Levene's Test) p-value: 0.61 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: N/A<br>p-value: -- | Type: Dunn's Test<br>p-value: 0.76 | Type: N/A<br>p-value: -- |

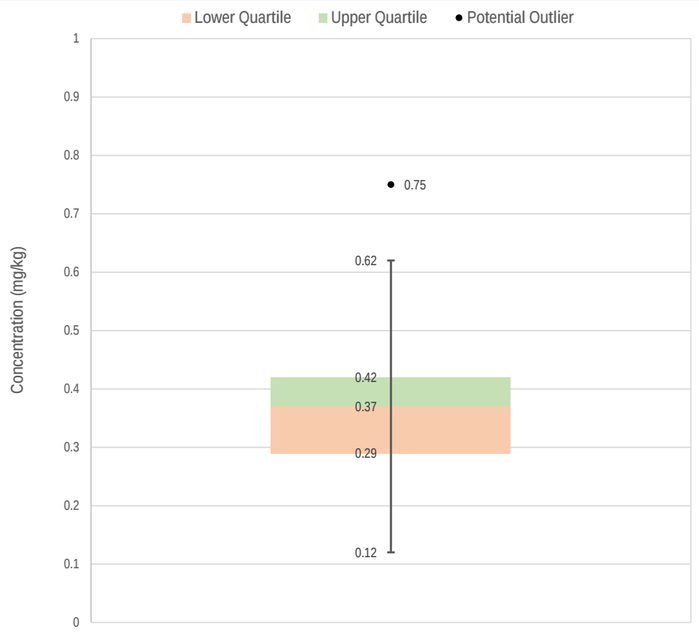
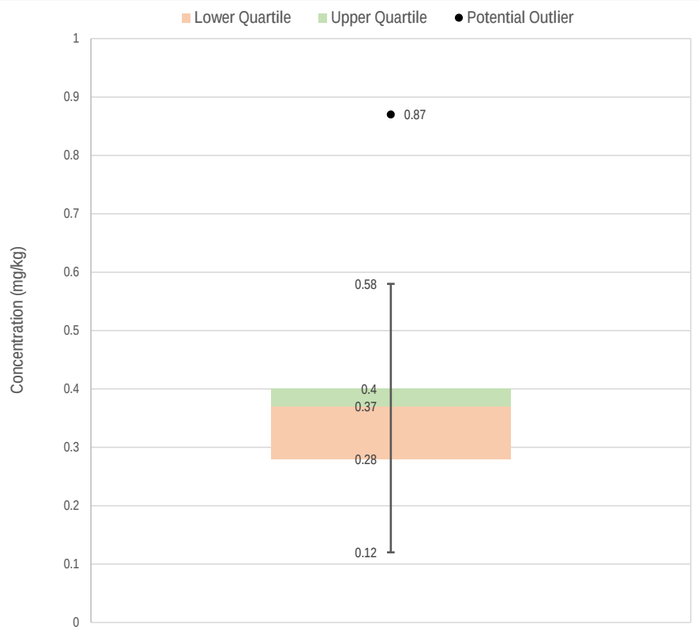
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Selenium | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/24<br>Data Distribution: Normal | Frequency of Detection: 37/72<br>Data Distribution: Normal | Frequency of Detection: 19/33<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.71 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Tukey's Test<br>p-value: 0.76 | Type: Tukey's Test<br>p-value: 0.83 | Type: Tukey's Test<br>p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Silver | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| | | |
| General Statistics[1] | | |
| Frequency of Detection: 2/24<br>Data Distribution: Not Discernible | Frequency of Detection: 13/72<br>Data Distribution: Normal | Frequency of Detection: 9/33<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.066 | | |

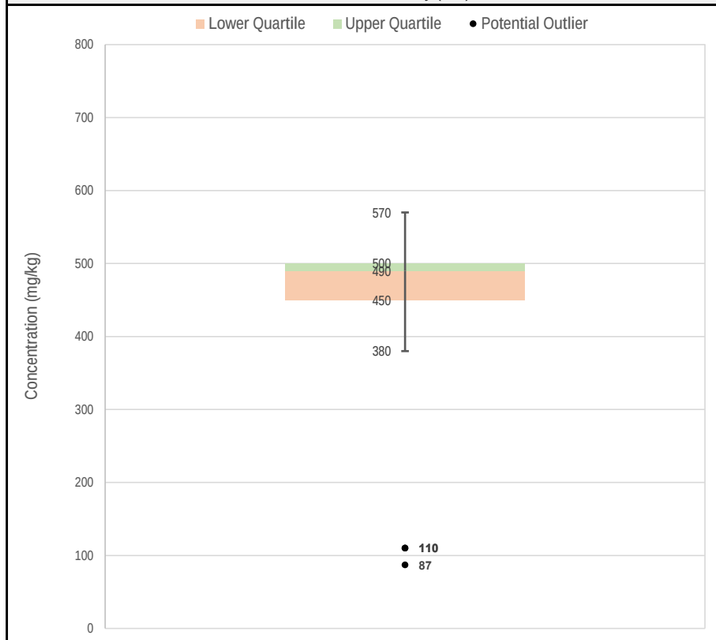
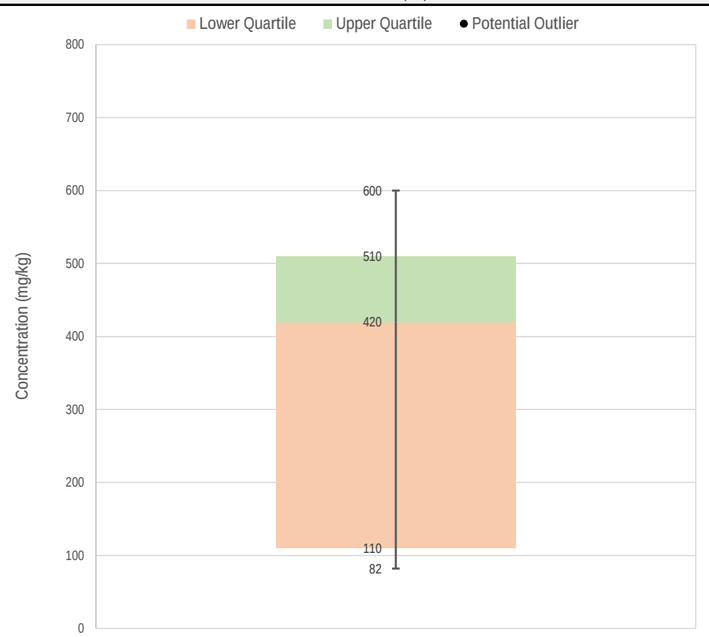




Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

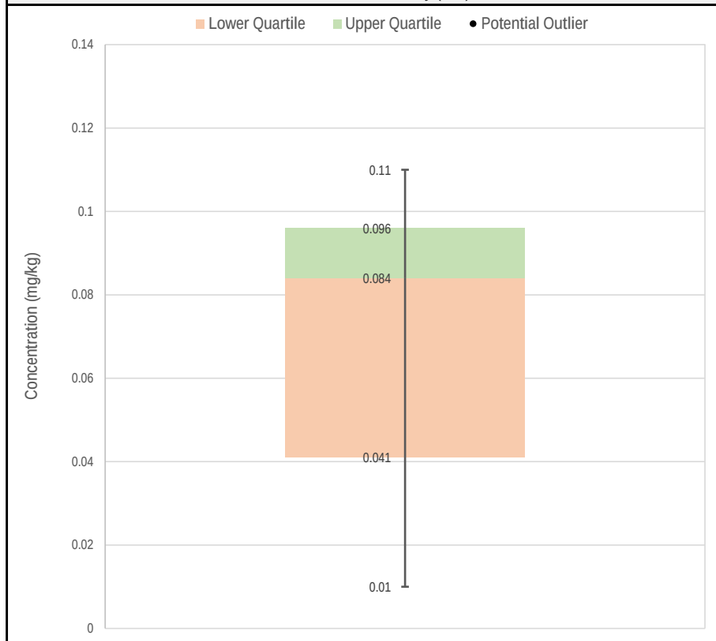
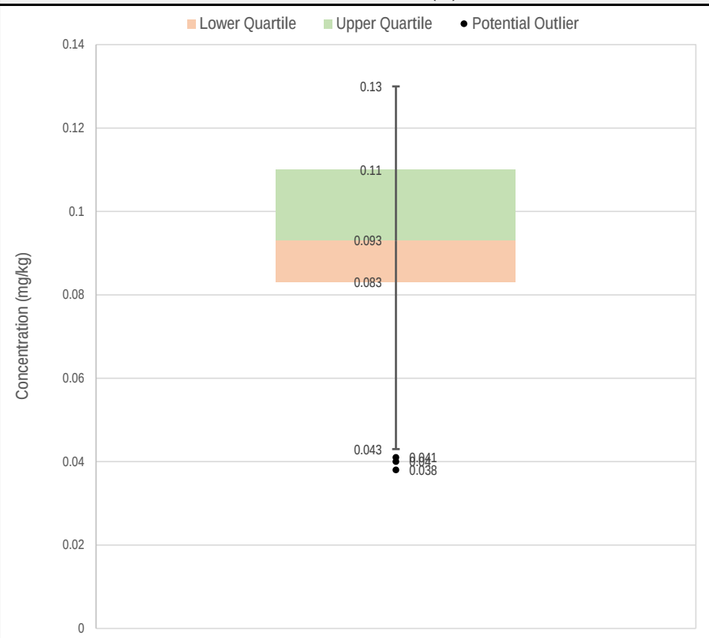
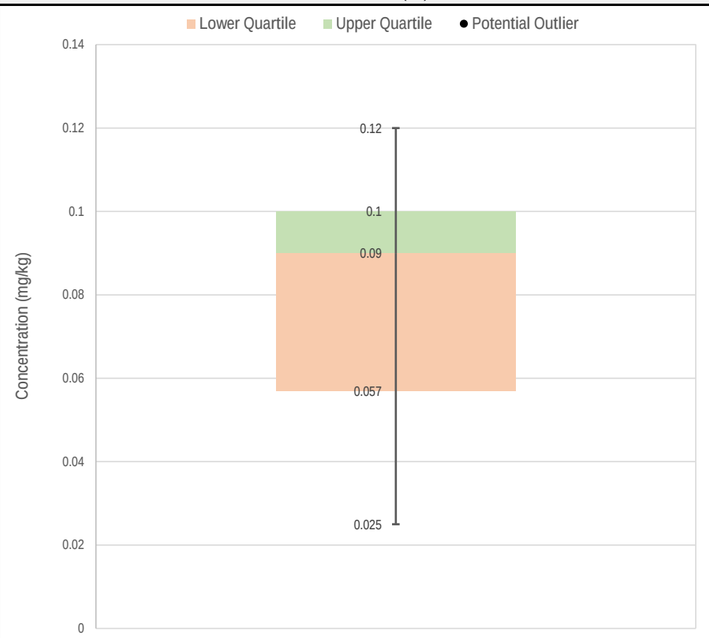
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Sodium | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  | |  |
| General Statistics[1] | | |
| Frequency of Detection: 21/24<br>Data Distribution: Normal | Frequency of Detection: 60/72<br>Data Distribution: Normal | Frequency of Detection: 20/33<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.00031 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: 0.17 | Type: Dunn's Test<br>p-value: 0.32 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Thallium | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 12/24<br>Data Distribution: Normal | Frequency of Detection: 29/72<br>Data Distribution: Normal | Frequency of Detection: 22/33<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.0027 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.014 | Type: Dunn's Test<br>p-value: 0.64 | Type: Dunn's Test<br>p-value: 0.34 |
| Benjamini-Hochberg[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| p-value: 0.042 | p-value: 0.64 | p-value: 0.52 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Vanadium | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| *Depth Interval for Specified Geology Determined Statistically Different* | | |
| General Statistics[1] | | |
| Frequency of Detection: N/A<br>Data Distribution: N/A | Frequency of Detection: 24/24<br>Data Distribution: Normal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.12 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- | Type: Tukey's Test<br>p-value: 0.99 |

Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

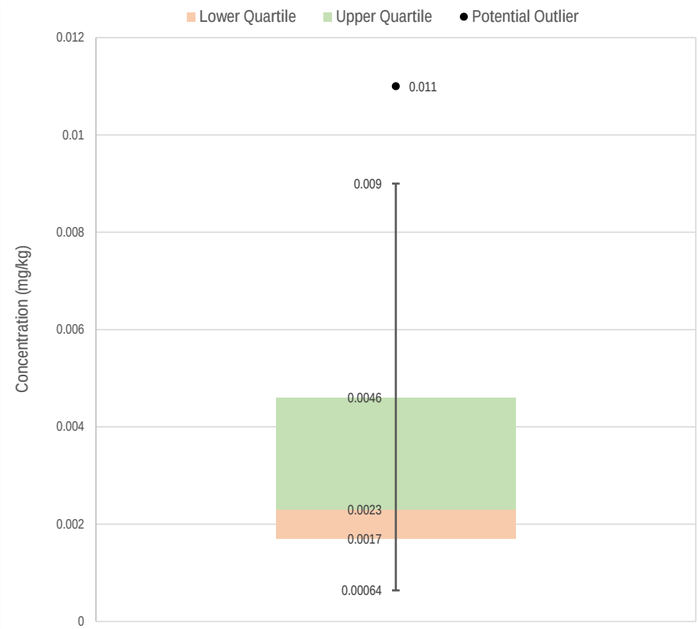
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Zinc | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| | | *Depth Interval for Specified Geology Determined Statistically Different* |
| General Statistics[1] | | |
| Frequency of Detection: 23/24<br>Data Distribution: Normal | Frequency of Detection: 72/72<br>Data Distribution: Lognormal | Frequency of Detection: N/A<br>Data Distribution: N/A |
| Homogeneity of Variance (Levene's Test) p-value: 0.028 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: 0.0001 | Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

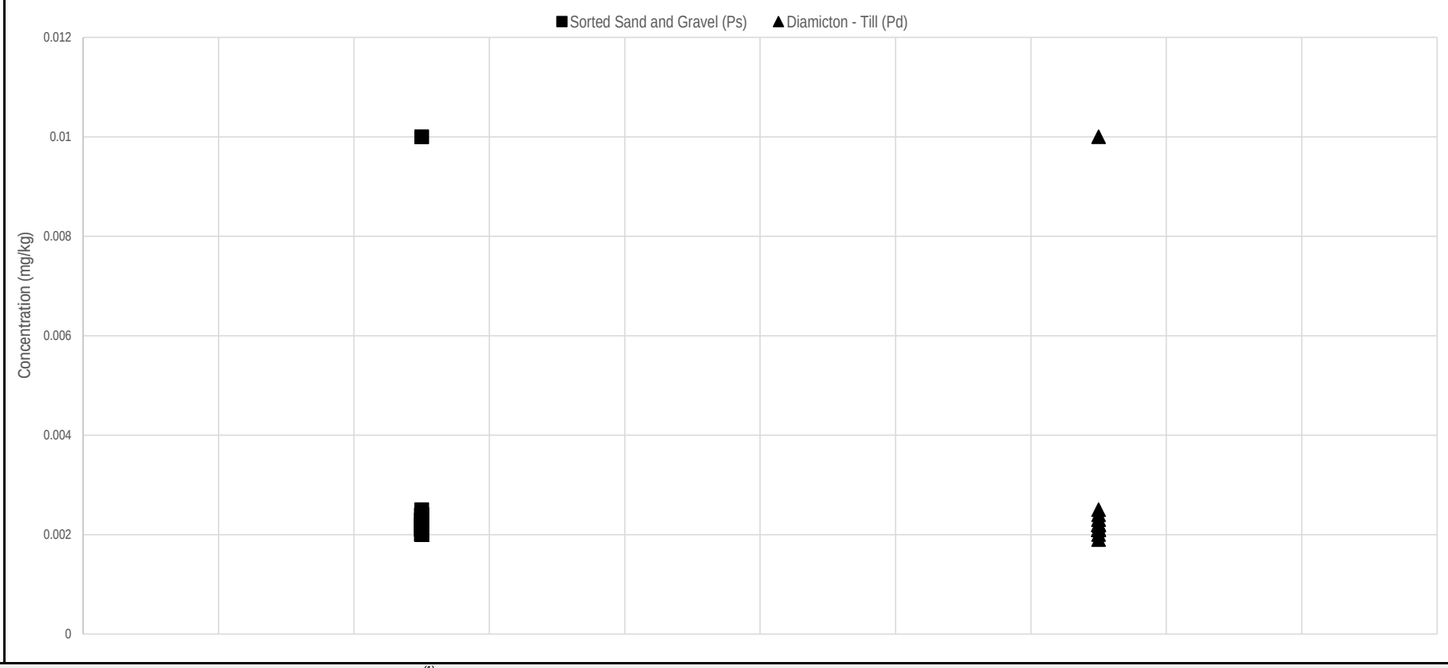
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| 1-Methylnaphthalene | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| *Depth Interval for Specified Geology Determined Statistically Different* | |  |
| General Statistics[1] | | |
| Frequency of Detection: N/A<br>Data Distribution: N/A | Frequency of Detection: 10/24<br>Data Distribution: Normal | Frequency of Detection: 6/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.014 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- | Type: Dunn's Test<br>p-value: 0.2 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

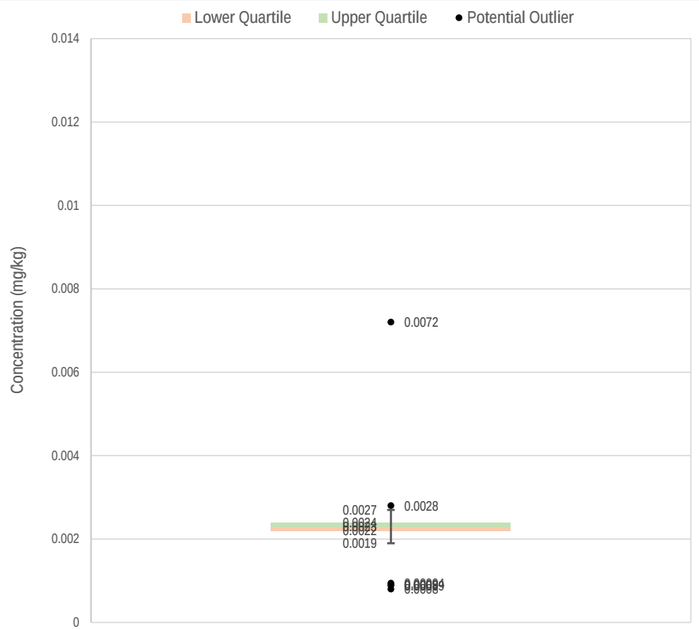
| 1-Methylnaphthalene | | |
|---|---|---|
| Subsurface Soil (1 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| *Depth Interval for Specified Geology Determined Statistically Different* |  | |
| General Statistics[1] | | |
| Frequency of Detection: N/A<br>Data Distribution: N/A | Frequency of Detection: 1/48<br>Data Distribution: Not Discernible | Frequency of Detection: 1/22<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.56 | | |



Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

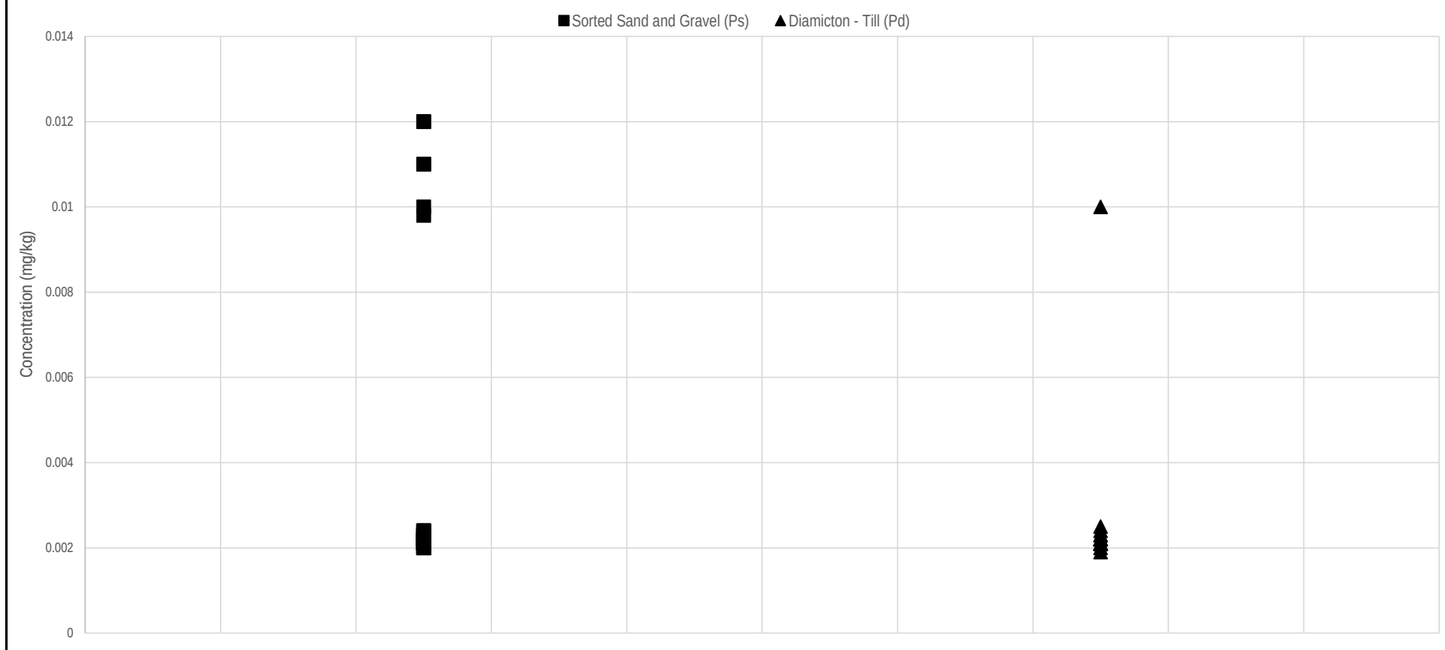
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| 2-Methylnaphthalene | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| *Depth Interval for Specified Geology Determined Statistically Different* |  | |
| General Statistics[1] | | |
| Frequency of Detection: N/A<br>Data Distribution: N/A | Frequency of Detection: 7/24<br>Data Distribution: Normal | Frequency of Detection: 5/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.042 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- | Type: Dunn's Test<br>p-value: 0.22 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

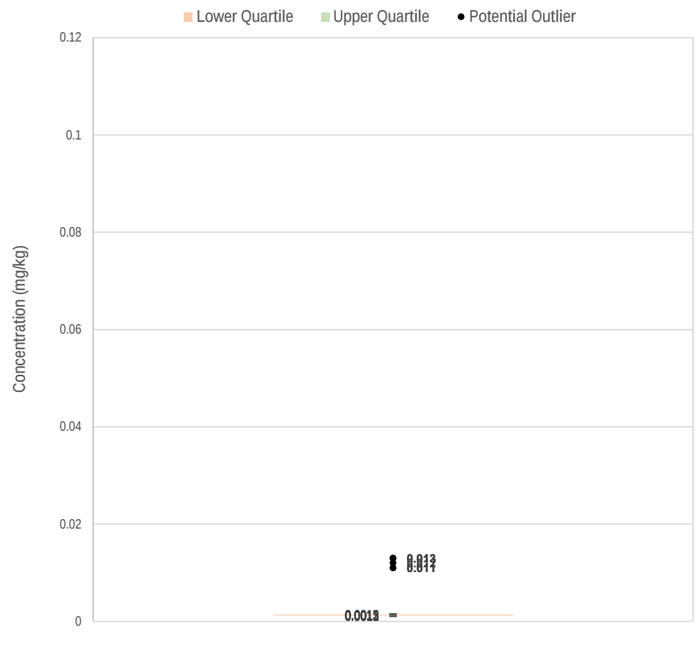
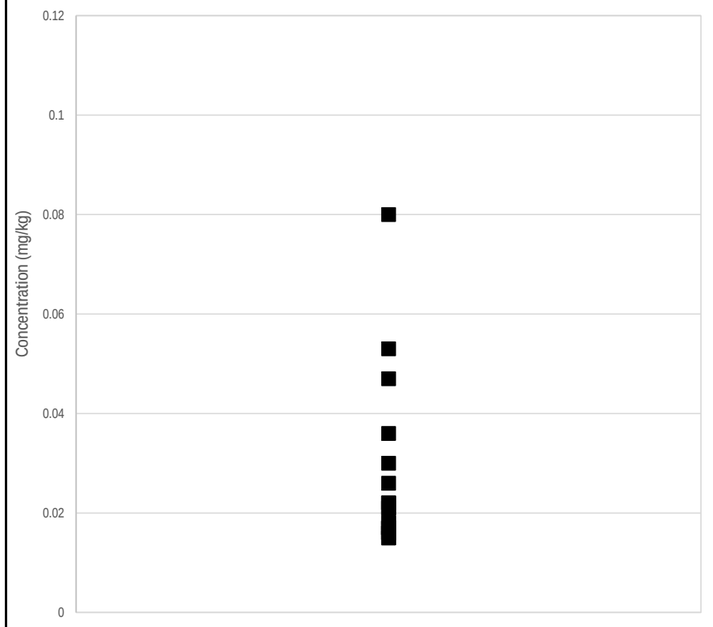
| 2-Methylnaphthalene | | |
|---|---|---|
| Subsurface Soil (1 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| *Depth Interval for Specified Geology Determined Statistically Different* |  | |
| General Statistics[1] | | |
| Frequency of Detection: N/A<br>Data Distribution: N/A | Frequency of Detection: 6/48<br>Data Distribution: Normal | Frequency of Detection: 1/22<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.29 | | |



Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

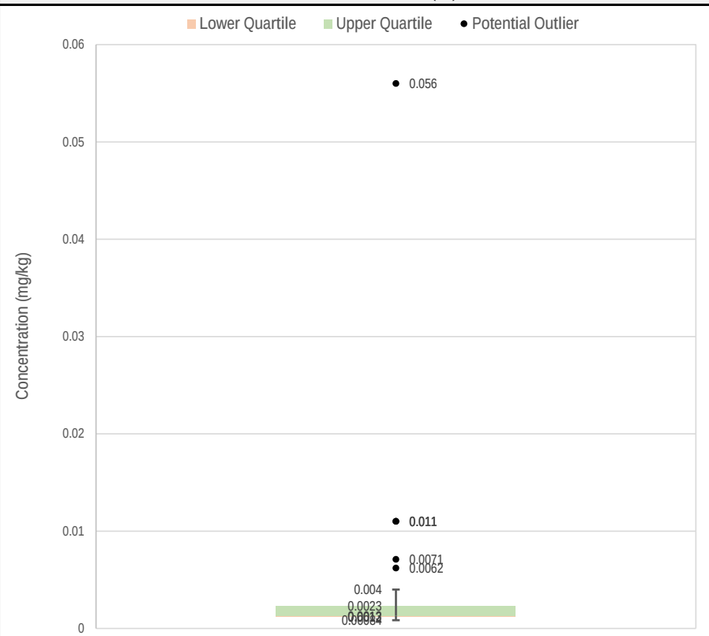
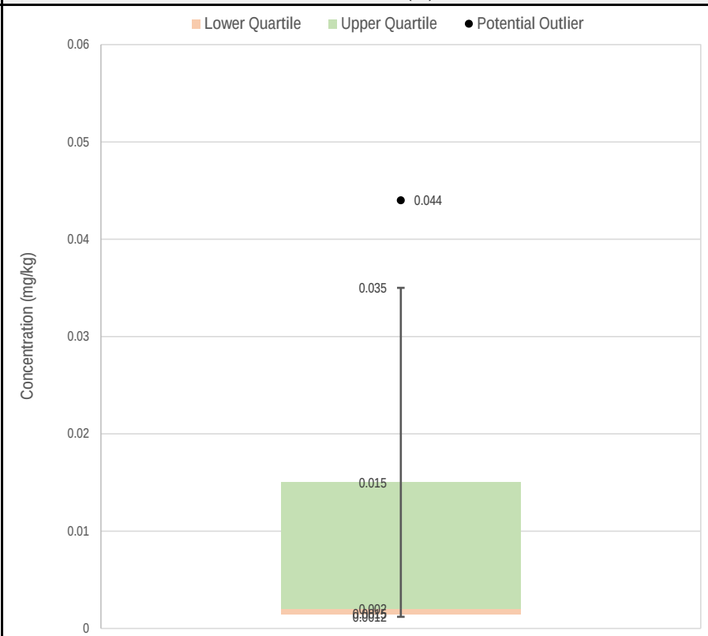
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Acenaphthene | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  | *Depth Interval for Specified Geology Determined Statistically Different* |  |
| General Statistics[1] | | |
| Frequency of Detection: 5/24<br>Data Distribution: Normal | Frequency of Detection: N/A<br>Data Distribution: N/A | Frequency of Detection: 3/33<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.33 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

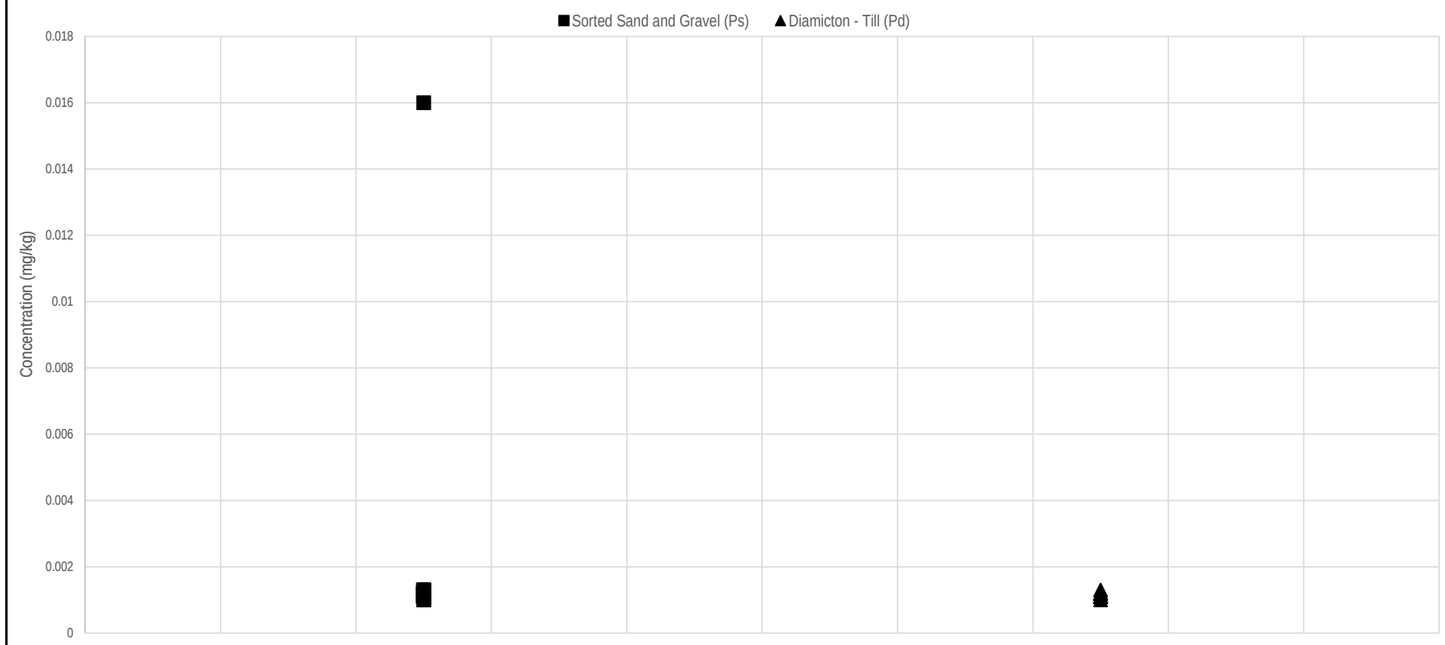
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Acenaphthylene | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| *Depth Interval for Specified Geology Determined Statistically Different* |  |  |
| General Statistics[1] | | |
| Frequency of Detection: N/A<br>Data Distribution: N/A | Frequency of Detection: 11/24<br>Data Distribution: Lognormal | Frequency of Detection: 10/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.31 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- | Type: Dunn's Test<br>p-value: 0.048 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

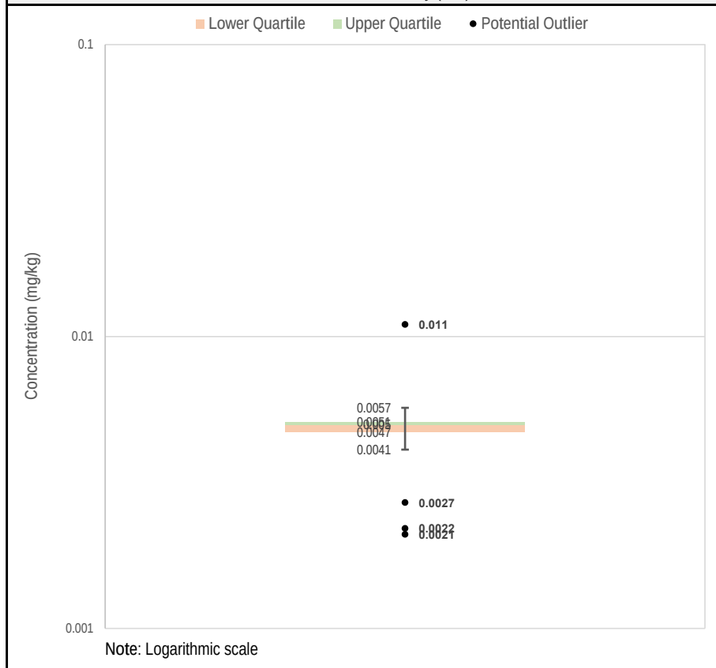
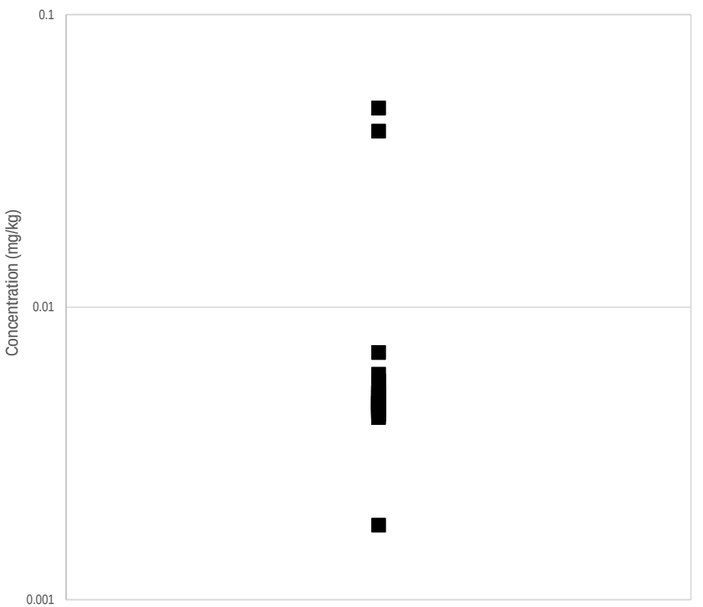
| Acenaphthylene | | |
|---|---|---|
| Subsurface Soil (1 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| *Depth Interval for Specified Geology Determined Statistically Different* |  | |
| General Statistics[1] | | |
| Frequency of Detection: N/A<br>Data Distribution: N/A | Frequency of Detection: 1/48<br>Data Distribution: Not Discernible | Frequency of Detection: 0/22<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.51 | | |



Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

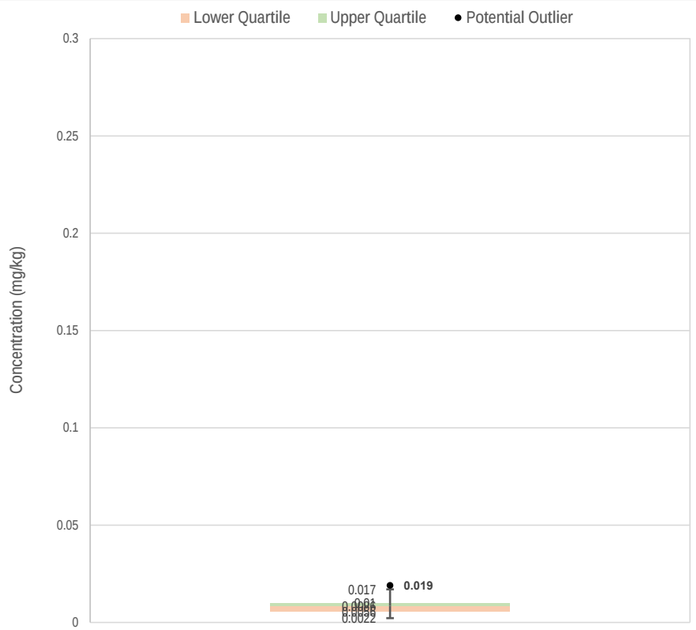
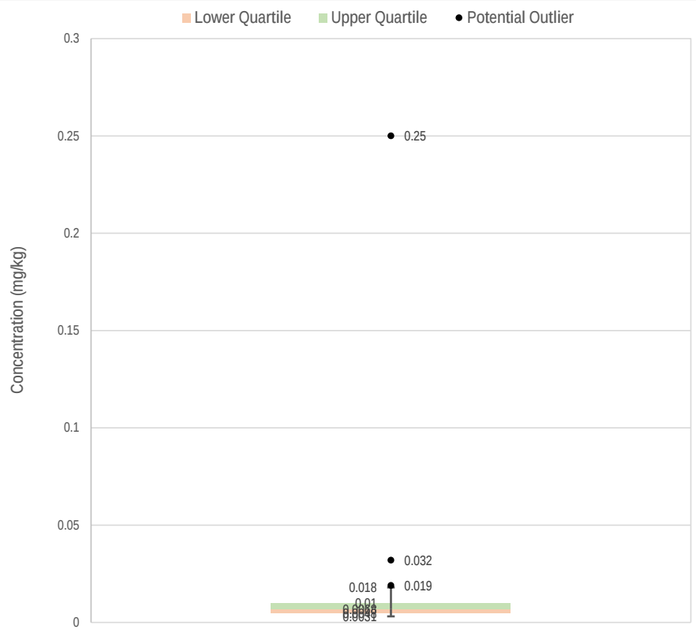
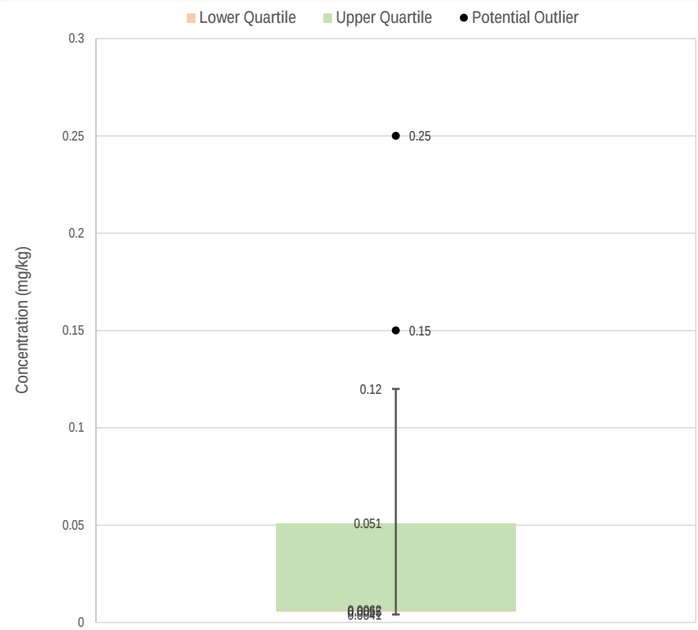
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Anthracene | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  <br>Note: Logarithmic scale | *Depth Interval for Specified Geology Determined Statistically Different* |  <br>Note: Logarithmic scale |
| General Statistics[1] | | |
| Frequency of Detection: 4/24<br>Data Distribution: Normal | Frequency of Detection: N/A<br>Data Distribution: N/A | Frequency of Detection: 3/33<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.31 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

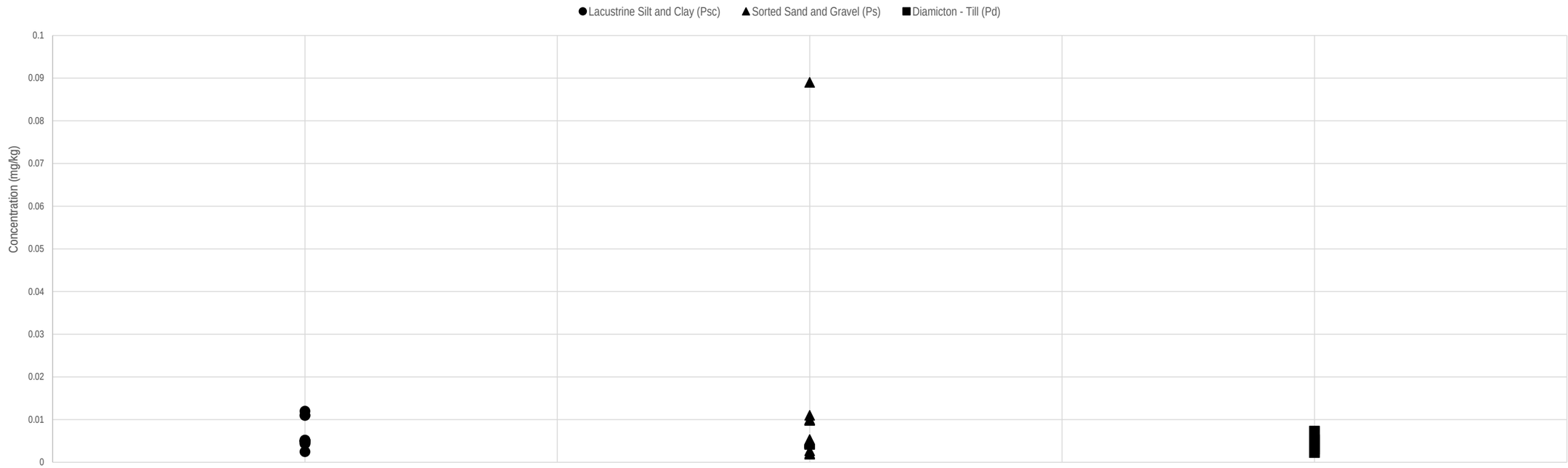
| Benzo(a)anthracene | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 19/24<br>Data Distribution: Not Discernible | Frequency of Detection: 11/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.22 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(a)anthracene | | |
|---|---|---|
| Subsurface Soil (1 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |




| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 4/16<br>Data Distribution: Normal | Frequency of Detection: 9/48<br>Data Distribution: Lognormal | Frequency of Detection: 4/22<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.68 | | |

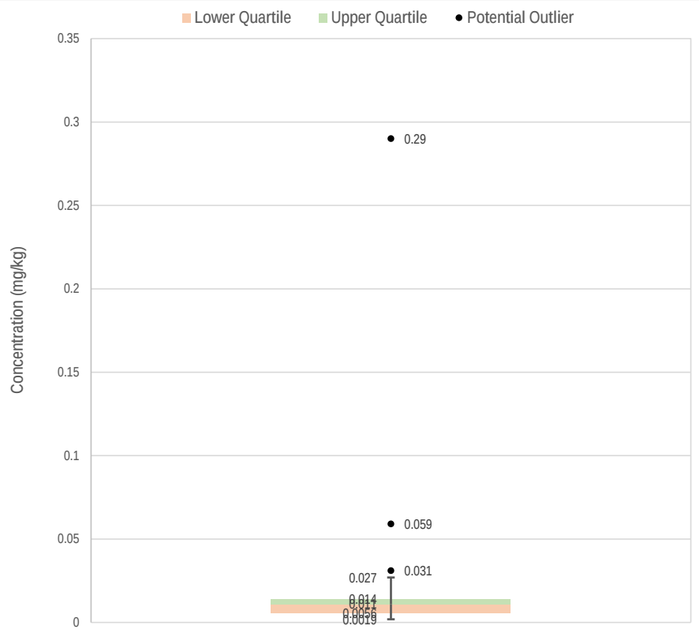
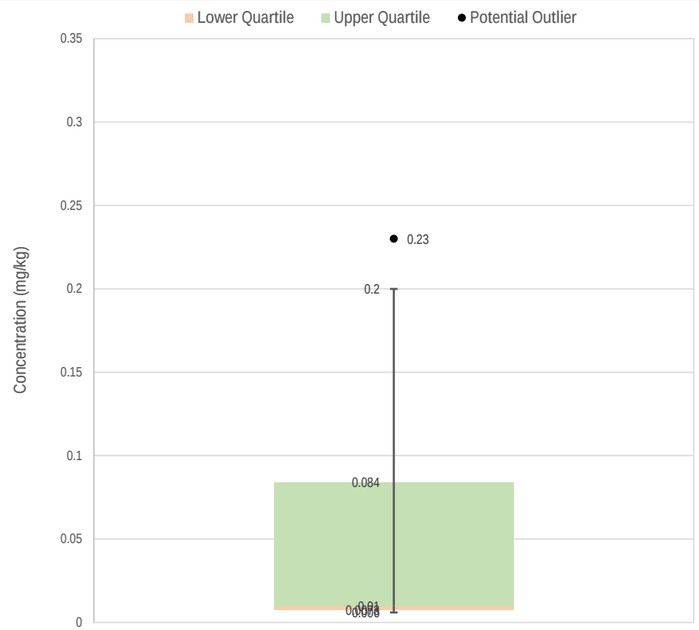
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

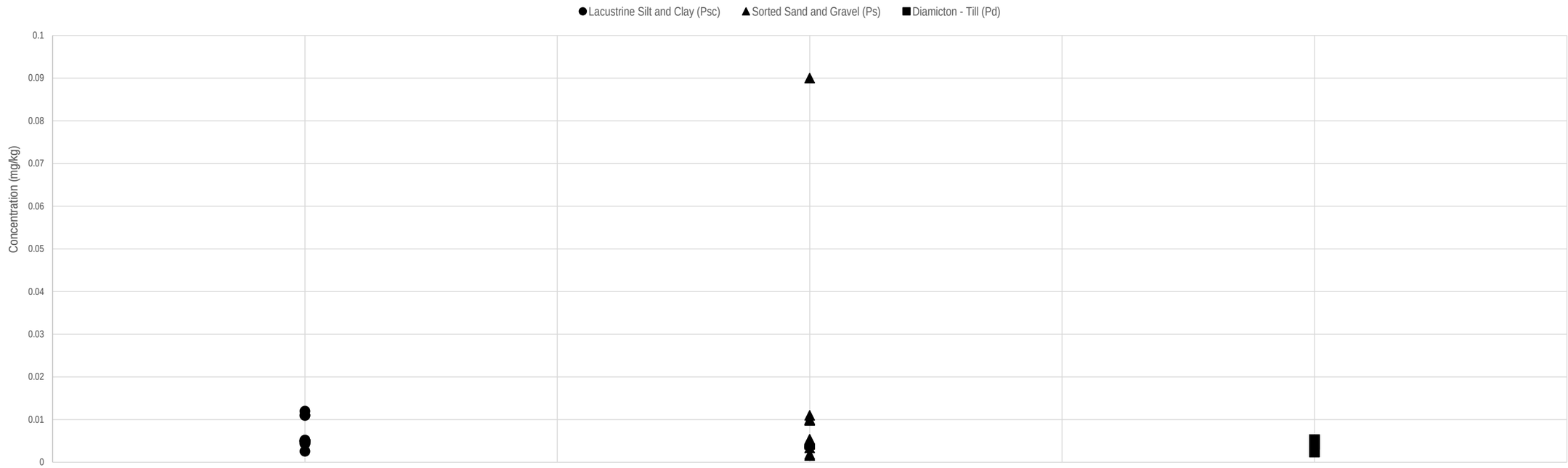
| Benzo(a)pyrene | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 20/24<br>Data Distribution: Not Discernible | Frequency of Detection: 9/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.22 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: 0.98 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(a)pyrene | | |
|---|---|---|
| Subsurface Soil (1 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |




| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 4/16<br>Data Distribution: Normal | Frequency of Detection: 9/48<br>Data Distribution: Lognormal | Frequency of Detection: 1/22<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.64 | | |

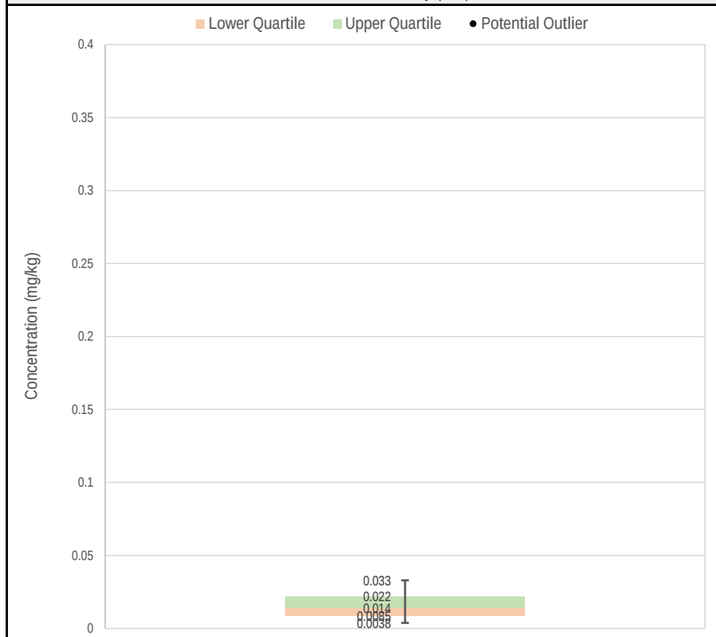
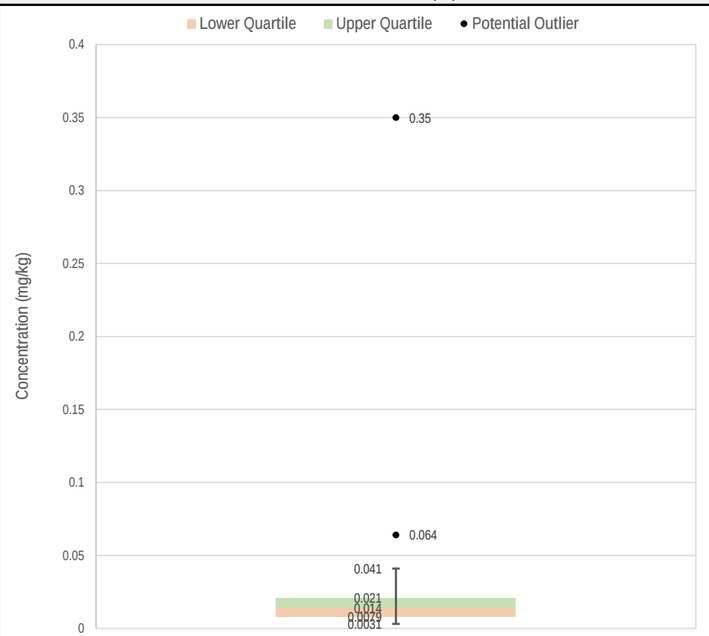
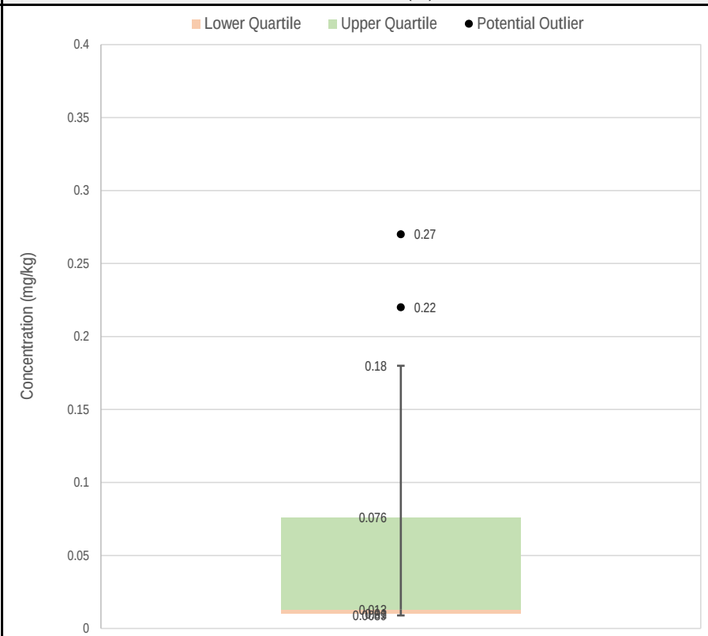
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

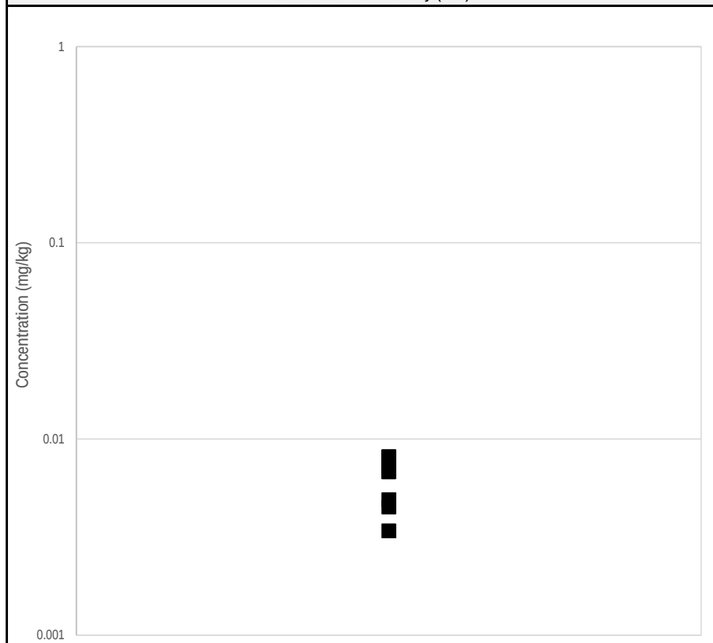
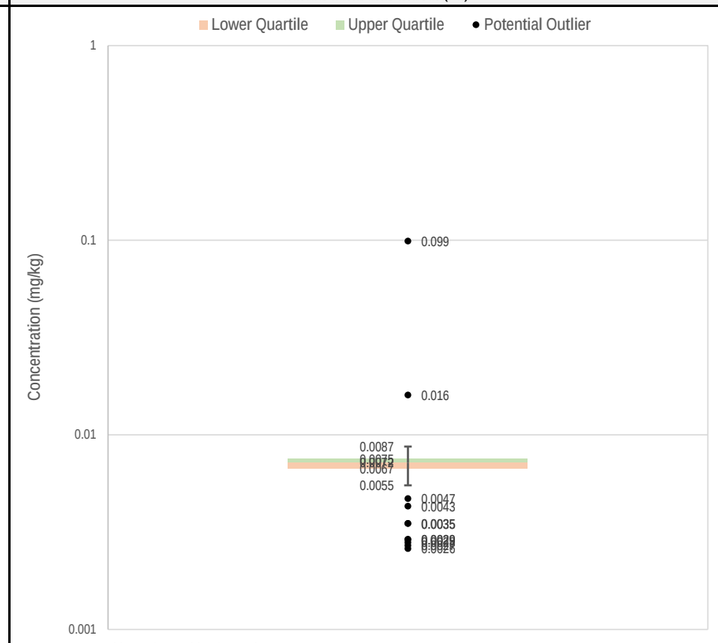
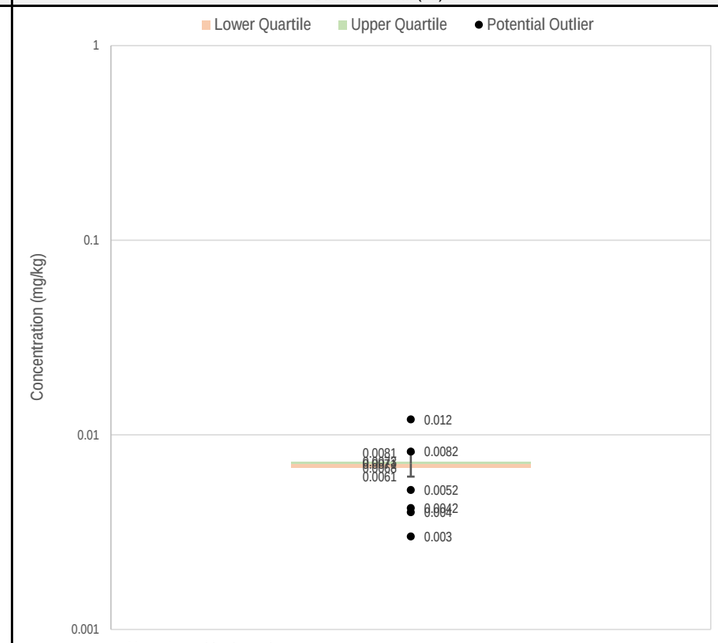
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(b)fluoranthene | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 21/24<br>Data Distribution: Lognormal | Frequency of Detection: 11/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.3 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: 0.87 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

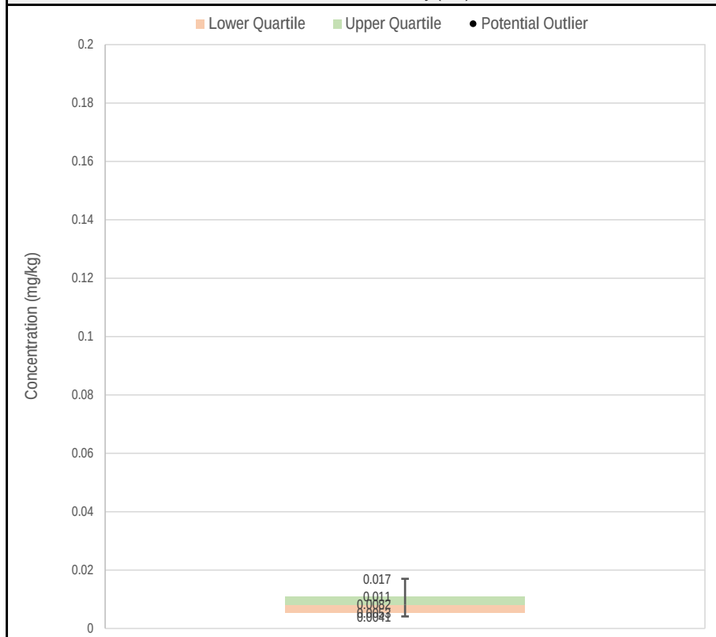
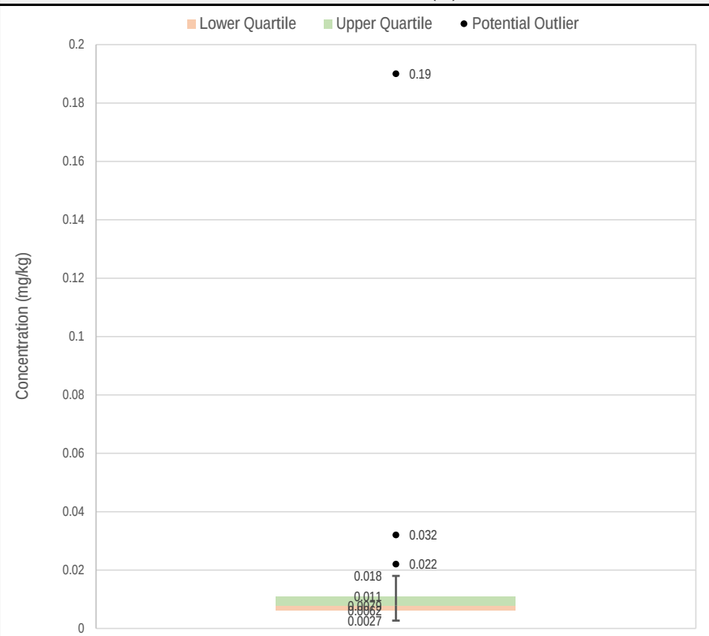
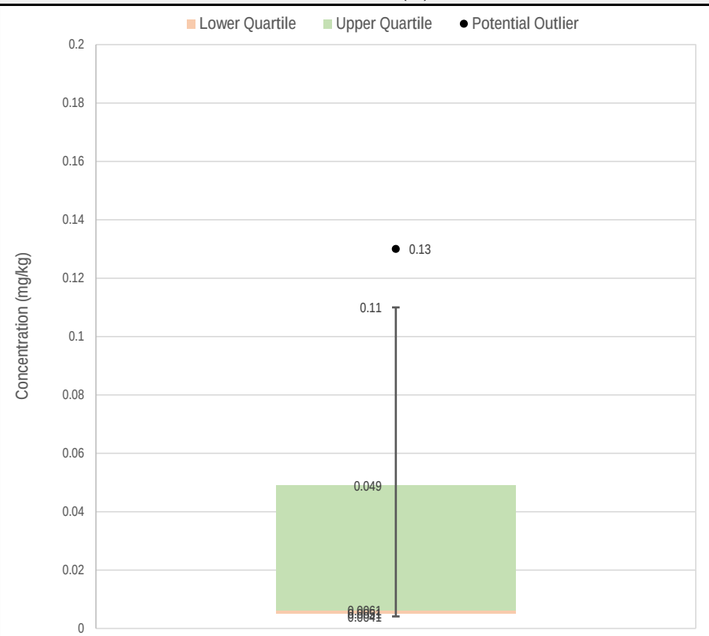
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(b)fluoranthene | | |
|---|---|---|
| Subsurface Soil (1 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  <br>Note: Logarithmic scale |  <br>Note: Logarithmic scale |  <br>Note: Logarithmic scale |
| General Statistics[1] | | |
| Frequency of Detection: 4/16<br>Data Distribution: Normal | Frequency of Detection: 13/48<br>Data Distribution: Not Discernible | Frequency of Detection: 6/22<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.62 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: N/A<br>p-value: -- | Type: N/A<br>p-value: -- | Type: Dunn's Test<br>p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

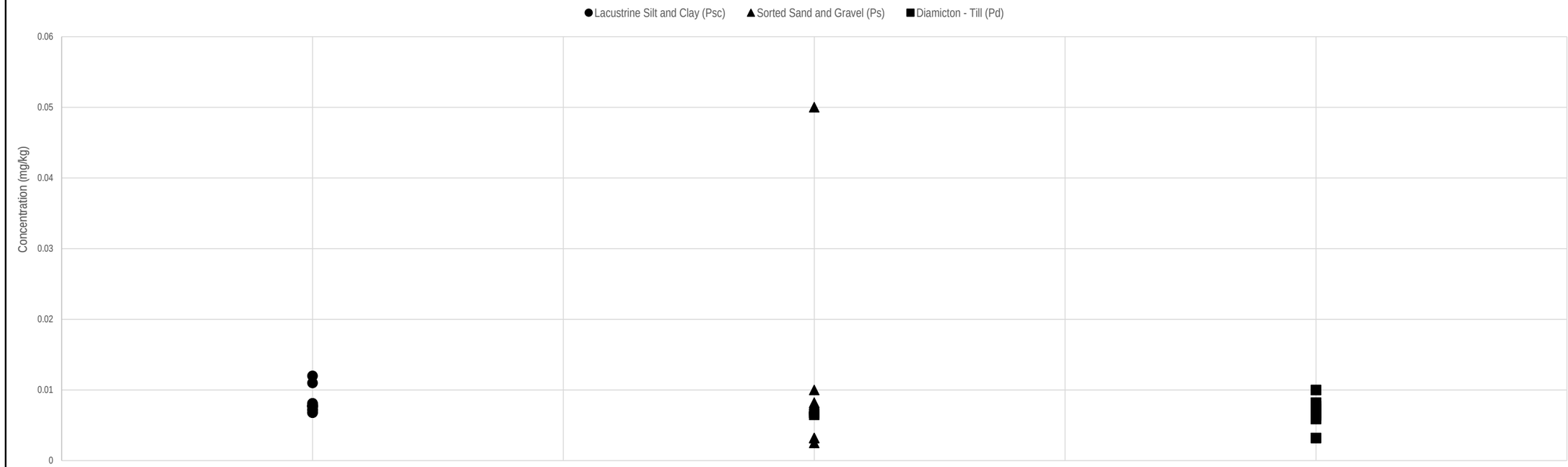
| Benzo(g,h,i)perylene | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 7/8<br>Data Distribution: Normal | Frequency of Detection: 19/24<br>Data Distribution: Not Discernible | Frequency of Detection: 11/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.3 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(g,h,i)perylene | | |
|---|---|---|
| Subsurface Soil (1 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |

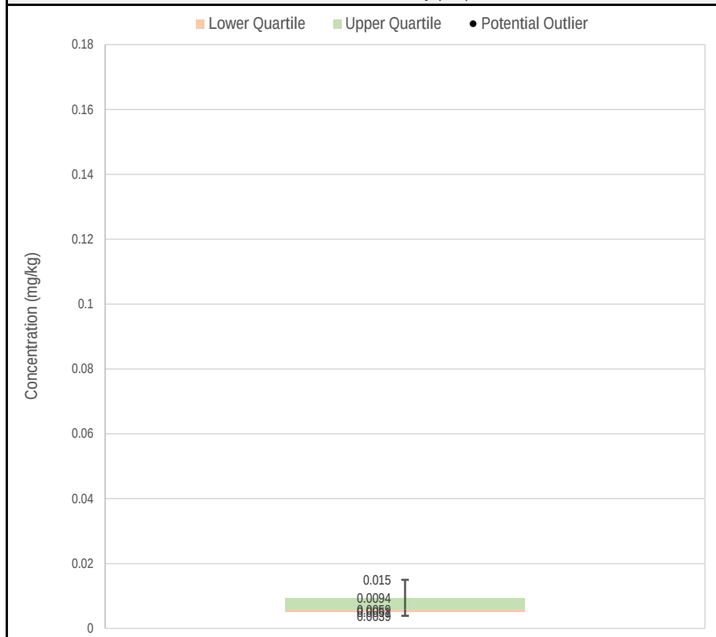
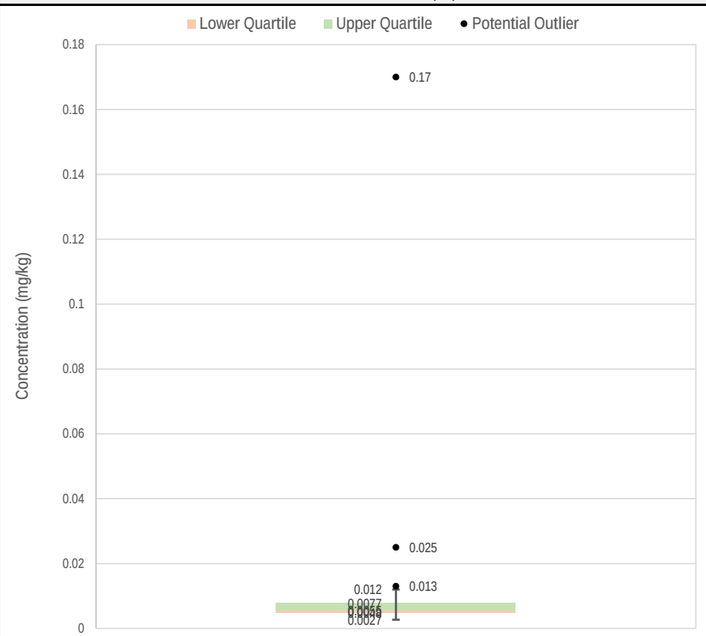
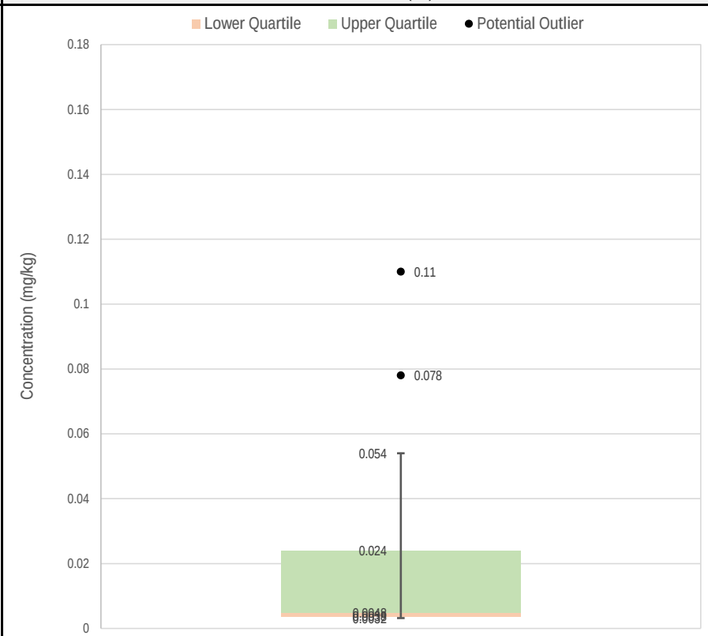



| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 2/16 | Frequency of Detection: 5/48 | Frequency of Detection: 3/22 |
| Data Distribution: Not Discernible | Data Distribution: Normal | Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.71 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

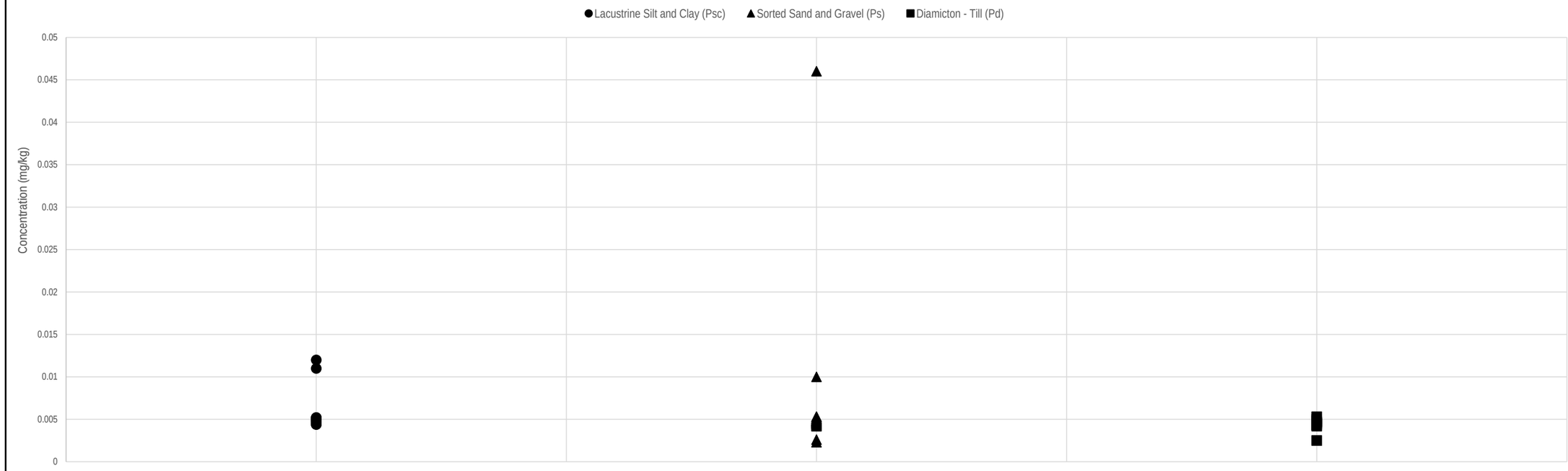
| Benzo(k)fluoranthene | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 7/8<br>Data Distribution: Normal | Frequency of Detection: 17/24<br>Data Distribution: Not Discernible | Frequency of Detection: 11/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.45 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Benzo(k)fluoranthene | | |
|---|---|---|
| Subsurface Soil (1 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |

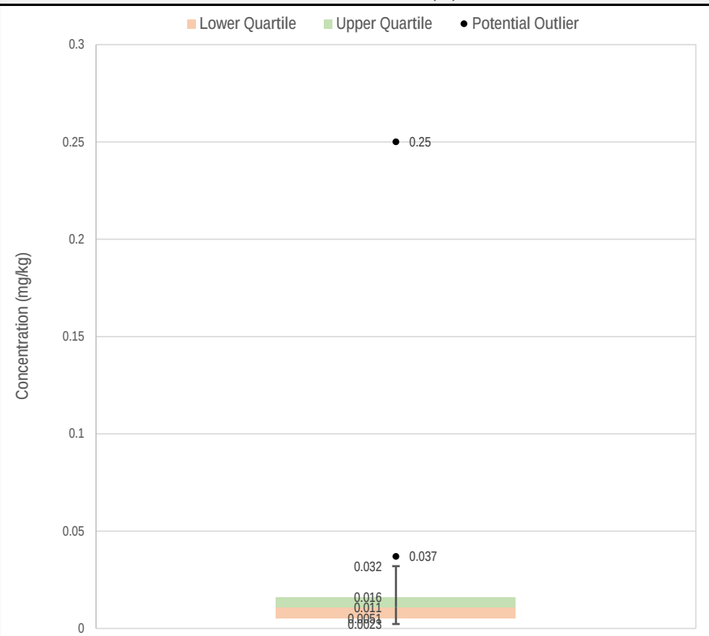
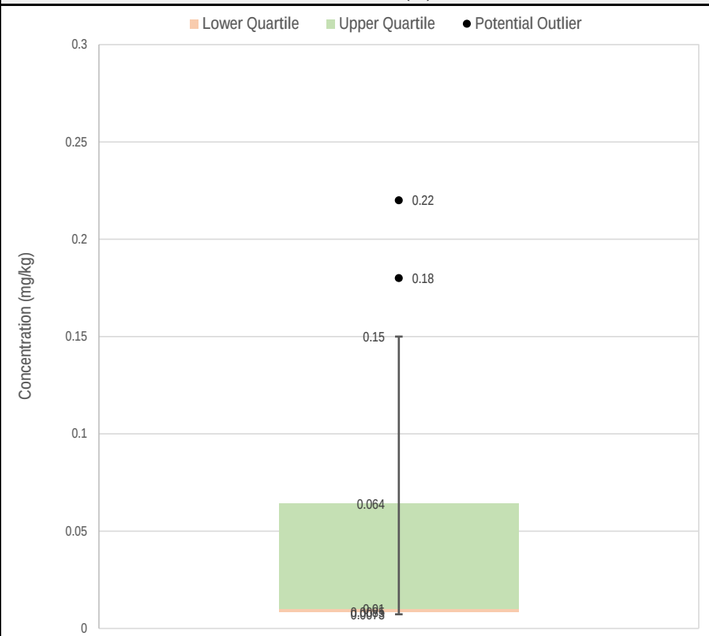



| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 2/16<br>Data Distribution: Not Discernible | Frequency of Detection: 4/48<br>Data Distribution: Normal | Frequency of Detection: 2/22<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.71 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

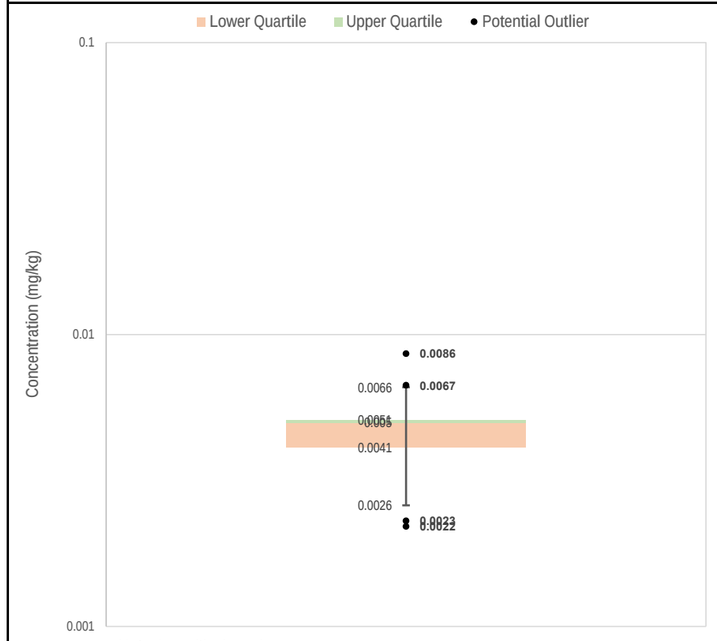
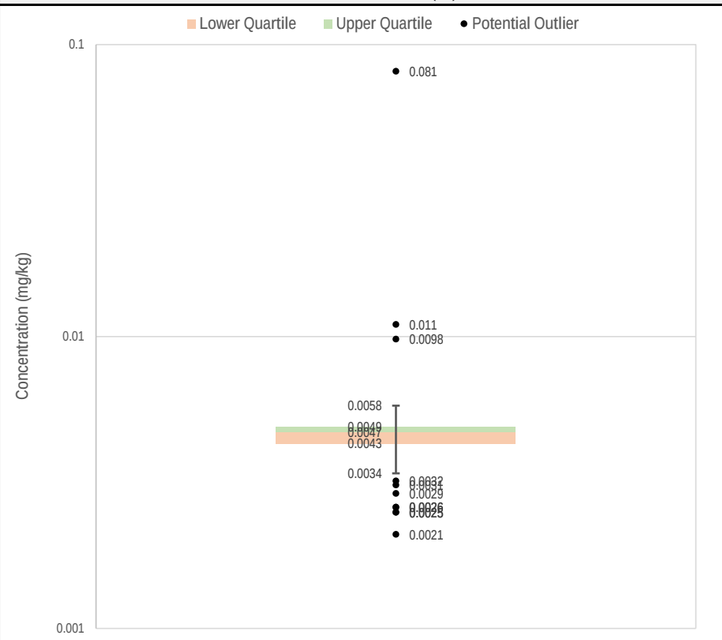
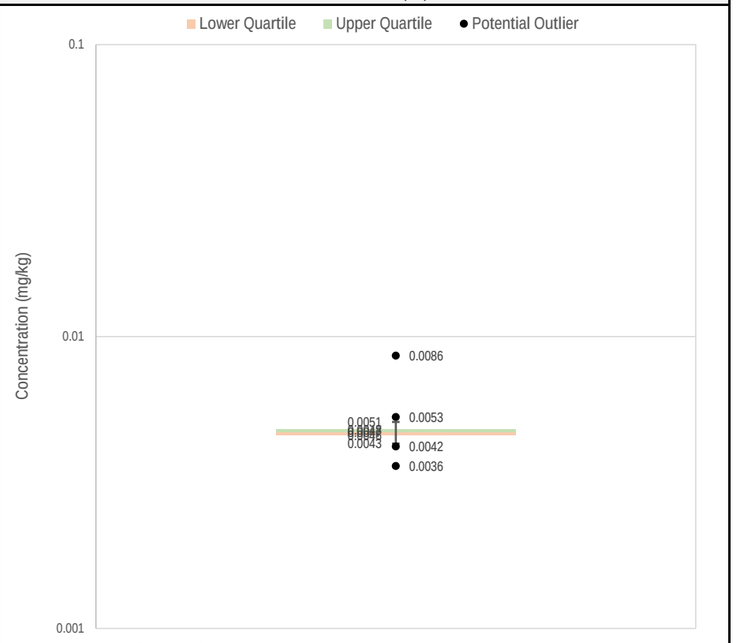
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Chrysene | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| |  |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 21/24<br>Data Distribution: Lognormal | Frequency of Detection: 11/11<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.15 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: 0.92 | Type: Dunn's Test<br>p-value: 0.31 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

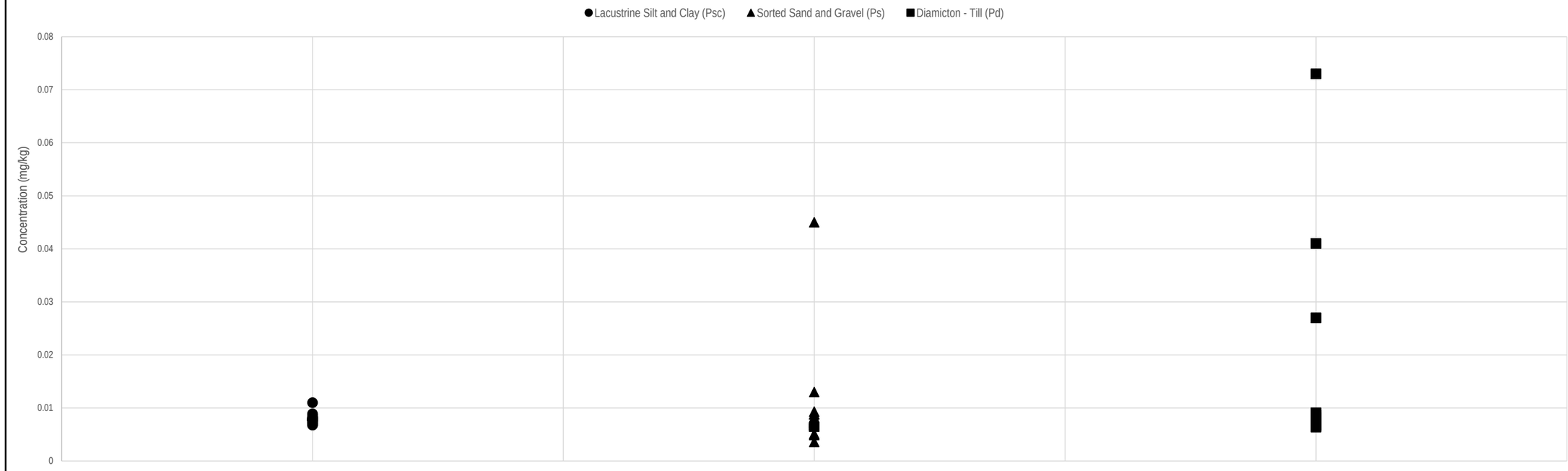
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Chrysene | | |
|---|---|---|
| Subsurface Soil (1 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  |  |  |
| Note: Logarithmic scale | Note: Logarithmic scale | Note: Logarithmic scale |
| General Statistics[1] | | |
| Frequency of Detection: 6/16<br>Data Distribution: Normal | Frequency of Detection: 16/48<br>Data Distribution: Not Discernible | Frequency of Detection: 5/22<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.62 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

| Dibenz(a,h)anthracene | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |




| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 1/24<br>Data Distribution: Not Discernible | Frequency of Detection: 5/72<br>Data Distribution: Normal | Frequency of Detection: 3/33<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.11 | | |

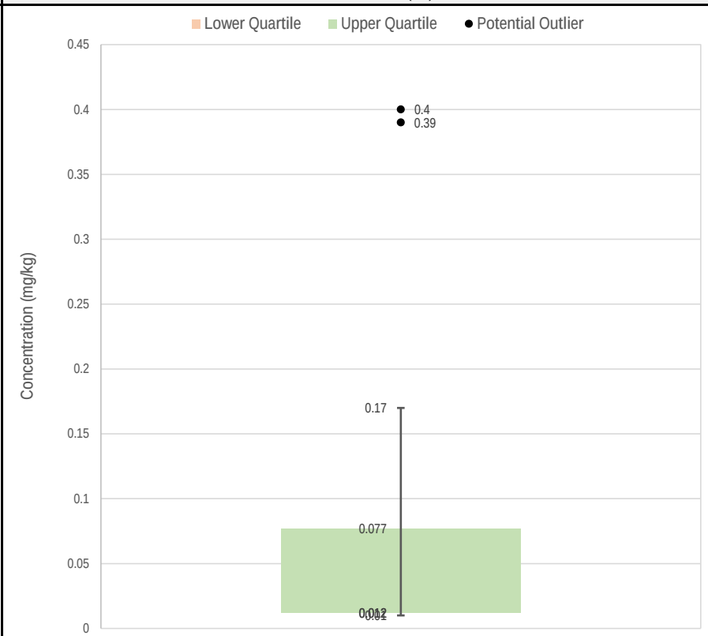
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

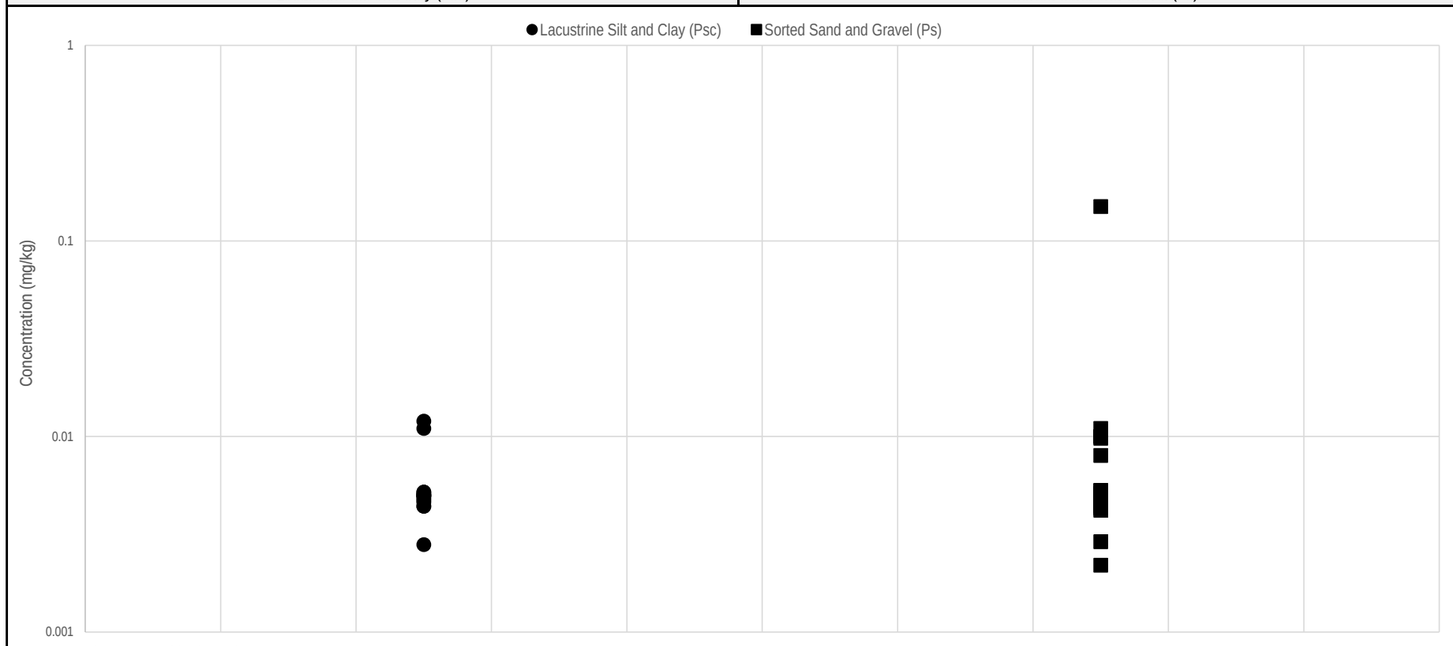
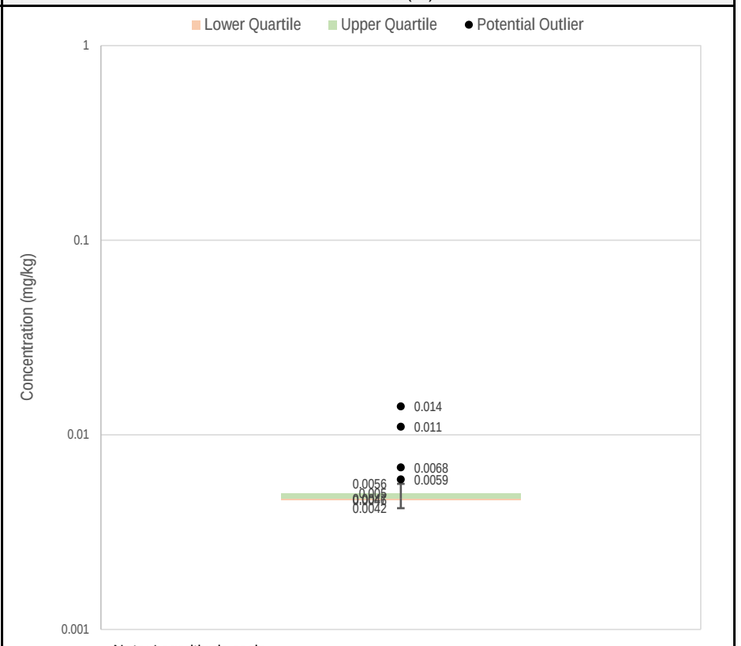
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Fluoranthene | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
| | |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 21/24<br>Data Distribution: Not Discernible | Frequency of Detection: 11/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.16 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: 0.74 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

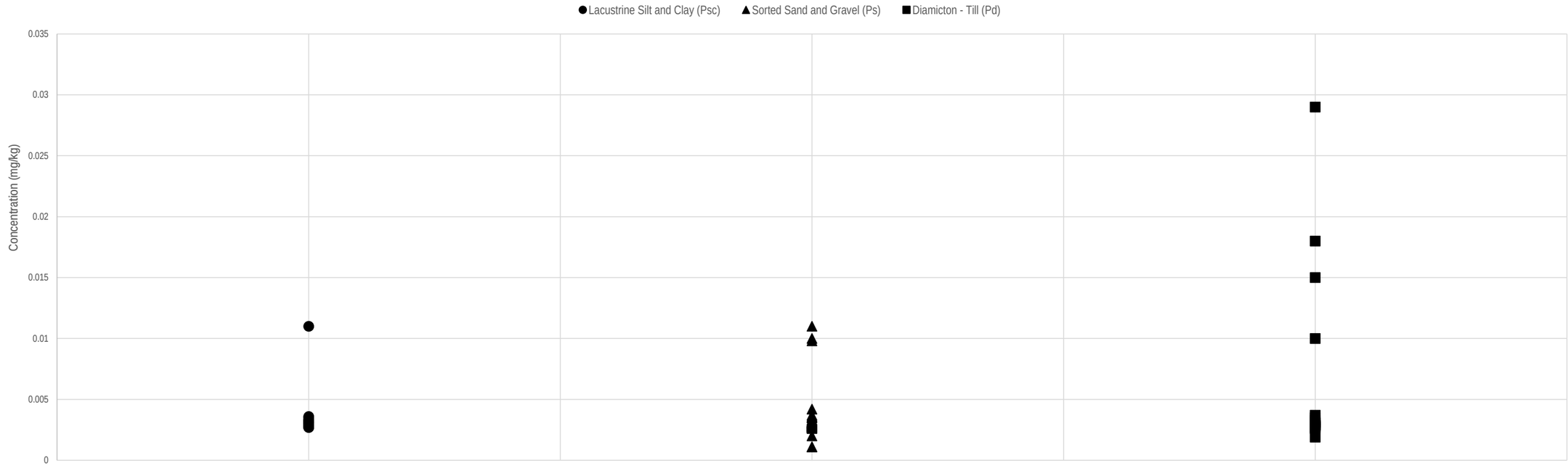
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Fluoranthene | | |
|---|---|---|
| Subsurface Soil (1 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  Note: Logarithmic scale | |  Note: Logarithmic scale |
| General Statistics[1] | | |
| Frequency of Detection: 3/16<br>Data Distribution: Normal | Frequency of Detection: 9/48<br>Data Distribution: Not Discernible | Frequency of Detection: 5/22<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.73 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

| Fluorene | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |




| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 1/24<br>Data Distribution: Not Discernible | Frequency of Detection: 8/72<br>Data Distribution: Normal | Frequency of Detection: 4/33<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.058 | | |

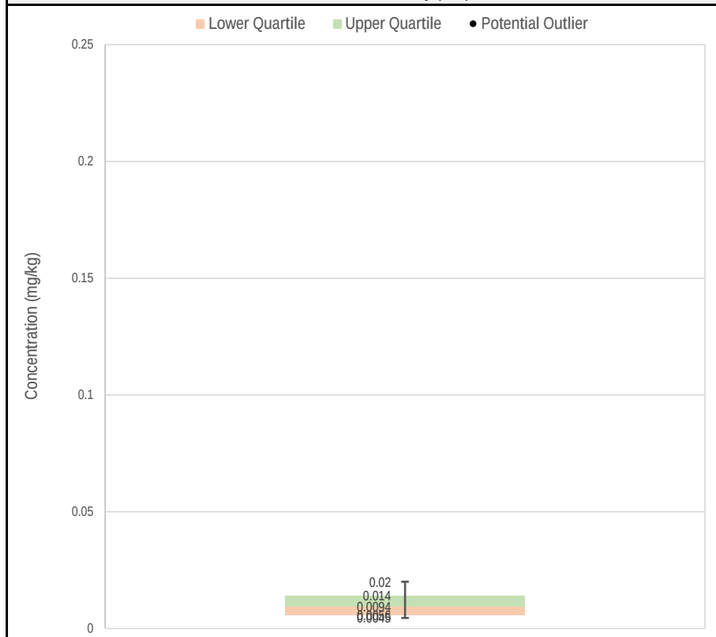
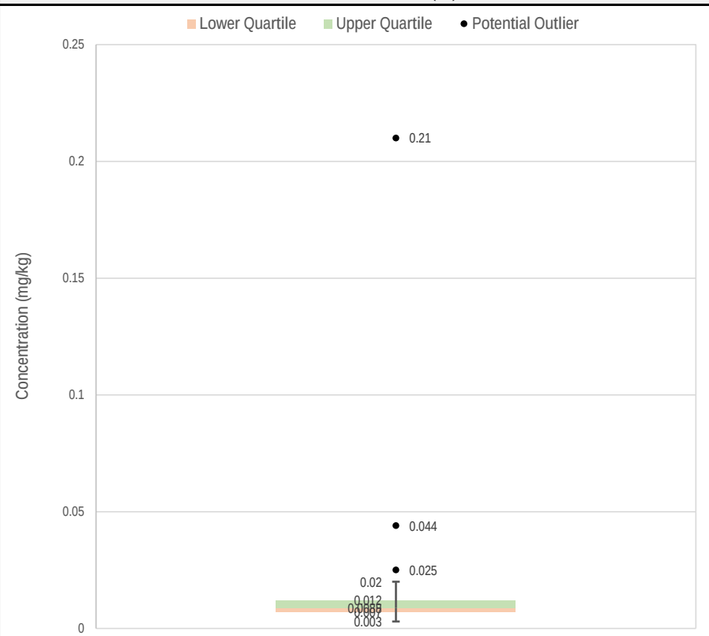
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

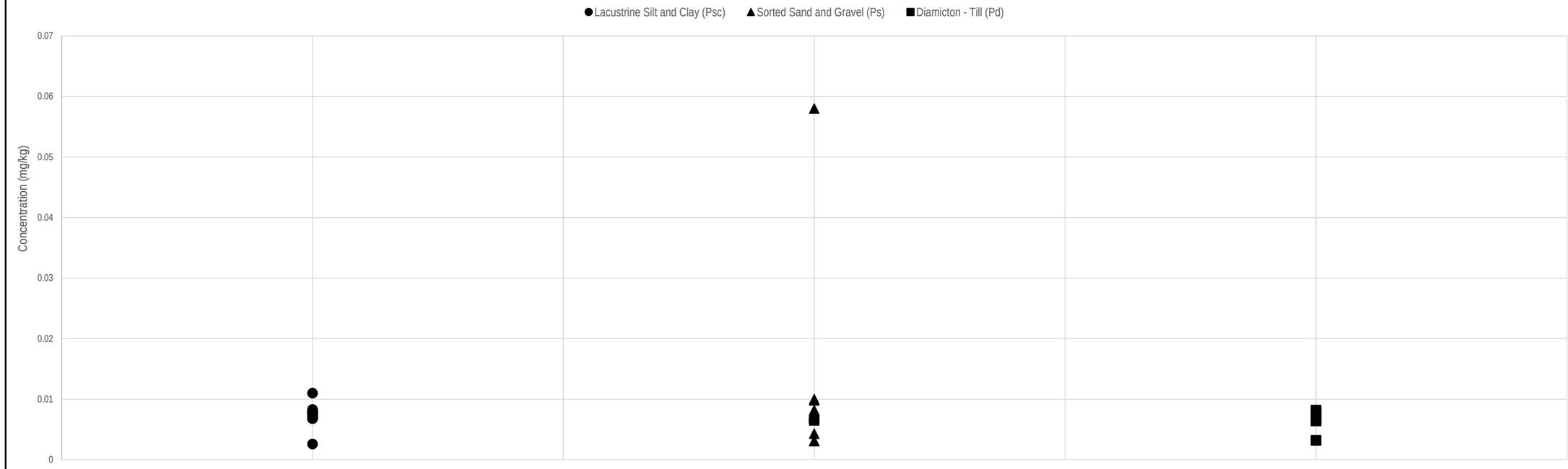
| Indeno(1,2,3-c,d)pyrene | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  |  | |
| General Statistics[1] | | |
| Frequency of Detection: 7/8<br>Data Distribution: Normal | Frequency of Detection: 19/24<br>Data Distribution: Not Discernible | Frequency of Detection: 11/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.34 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: > 0.99 |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Indeno(1,2,3-c,d)pyrene | | |
|---|---|---|
| Subsurface Soil (1 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |

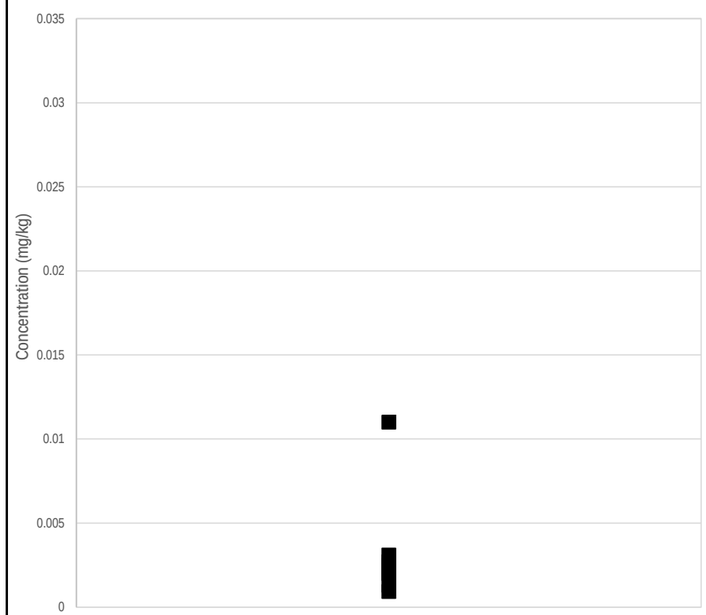
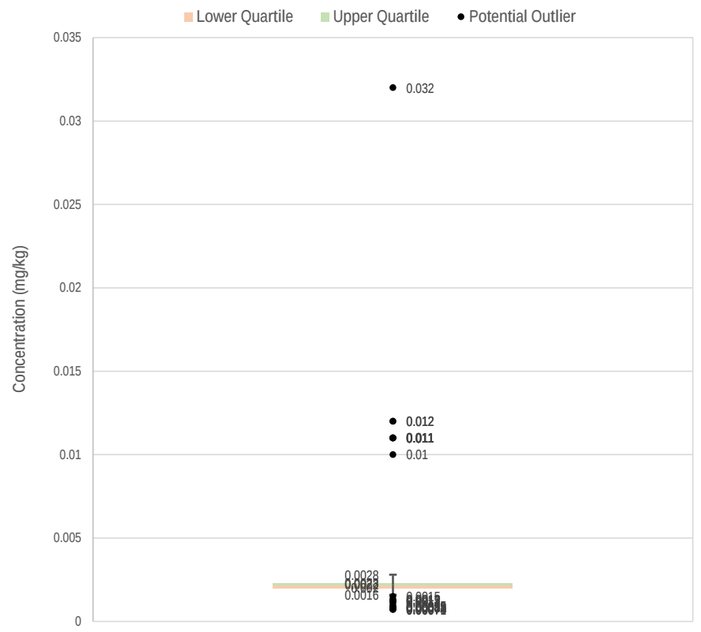



| General Statistics[1] | | |
|---|---|---|
| Frequency of Detection: 2/16<br>Data Distribution: Not Discernible | Frequency of Detection: 6/48<br>Data Distribution: Gamma | Frequency of Detection: 1/22<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.67 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Naphthalene | | |
|---|---|---|
| Soil (0 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  |  | *Depth Interval for Specified Geology Determined Statistically Different* |
| General Statistics[1] | | |
| Frequency of Detection: 4/24<br>Data Distribution: Normal | Frequency of Detection: 27/72<br>Data Distribution: Not Discernible | Frequency of Detection: N/A<br>Data Distribution: N/A |
| Homogeneity of Variance (Levene's Test) p-value: 0.23 | | |

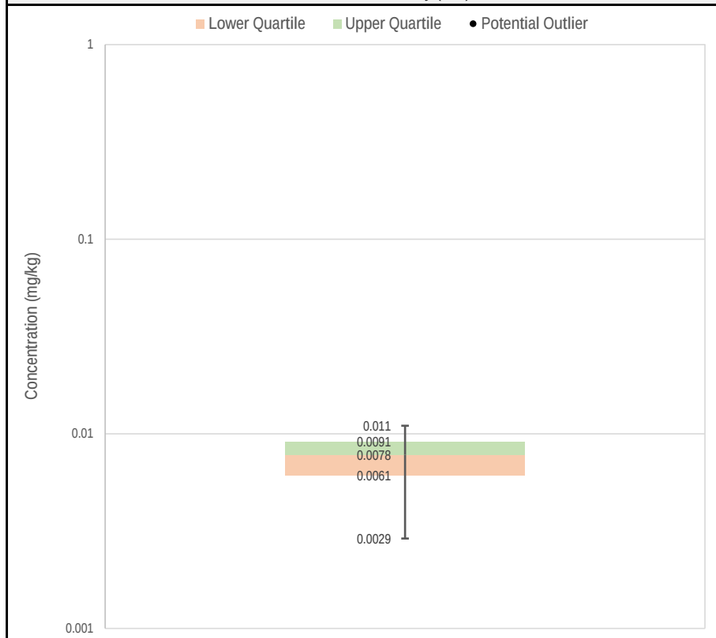
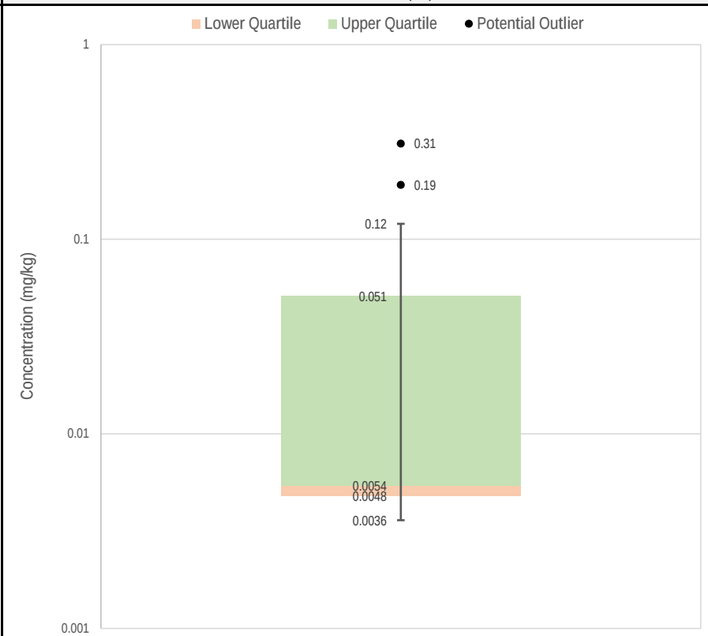
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

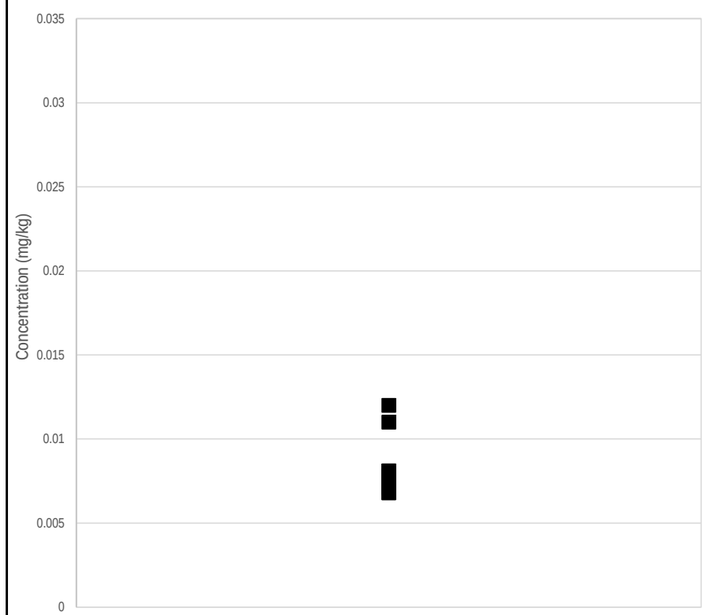
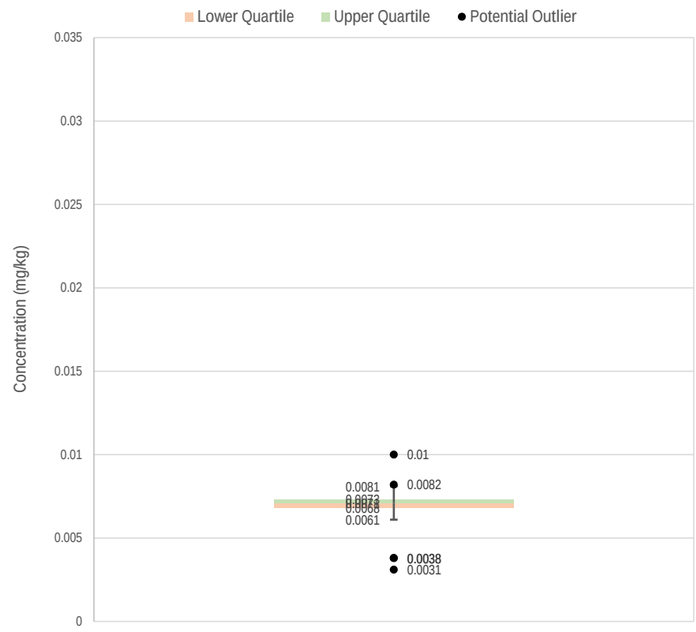
Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Phenanthrene | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  <br>Note: Logarithmic scale | *Depth Interval for Specified Geology Determined Statistically Different* |  <br>Note: Logarithmic scale |
| General Statistics[1] | | |
| Frequency of Detection: 7/8<br>Data Distribution: Normal | Frequency of Detection: N/A<br>Data Distribution: N/A | Frequency of Detection: 11/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.17 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: N/A<br>p-value: -- | Type: Dunn's Test<br>p-value: 0.87 | Type: N/A<br>p-value: -- |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Phenanthrene | | |
|---|---|---|
| Subsurface Soil (1 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  | *Depth Interval for Specified Geology Determined Statistically Different* |  |
| General Statistics[1] | | |
| Frequency of Detection: 2/16<br>Data Distribution: Not Discernible | Frequency of Detection: N/A<br>Data Distribution: N/A | Frequency of Detection: 5/22<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.85 | | |

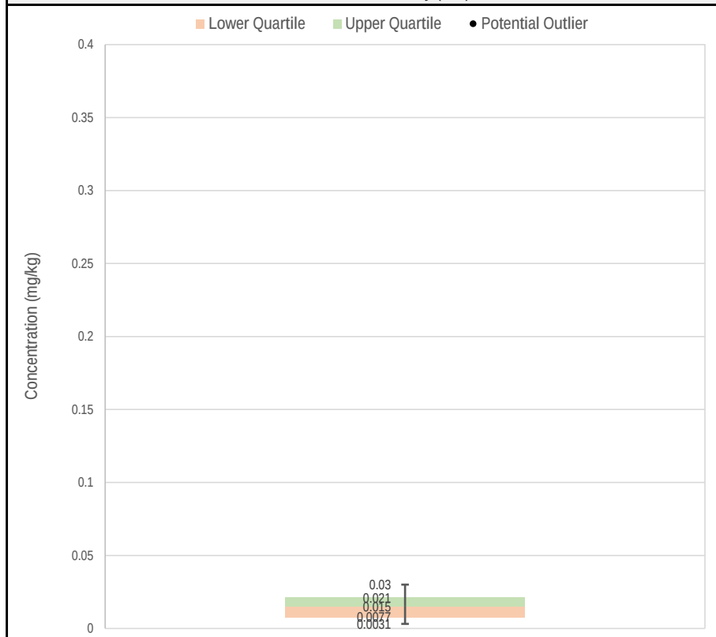
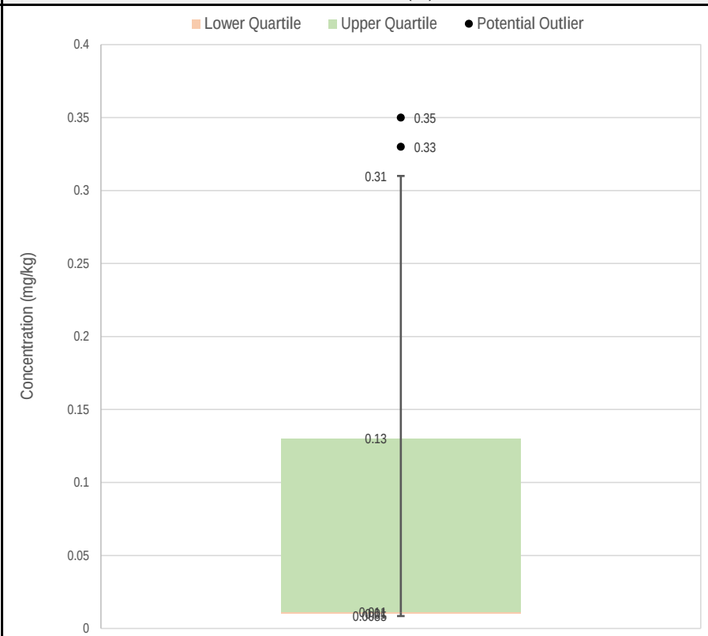
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Pyrene | | |
|---|---|---|
| Surface Soil (0 - 1 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  | |  |
| General Statistics[1] | | |
| Frequency of Detection: 8/8<br>Data Distribution: Normal | Frequency of Detection: 21/24<br>Data Distribution: Lognormal | Frequency of Detection: 11/11<br>Data Distribution: Not Discernible |
| Homogeneity of Variance (Levene's Test) p-value: 0.079 | | |
| Multiple Comparison Test[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| Type: Dunn's Test<br>p-value: > 0.99 | Type: Dunn's Test<br>p-value: 0.99 | Type: Dunn's Test<br>p-value: 0.72 |
| Benjamini-Hochberg[1] | | |
| Lacustrine Silt and Clay (Psc) to Sorted Sand and Gravel (Ps) | Lacustrine Silt and Clay (Psc) to Diamicton - Till (Pd) | Sorted Sand and Gravel (Ps) to Diamicton - Till (Pd) |
| p-value: > 0.99 | p-value: > 0.99 | p-value: > 0.99 |

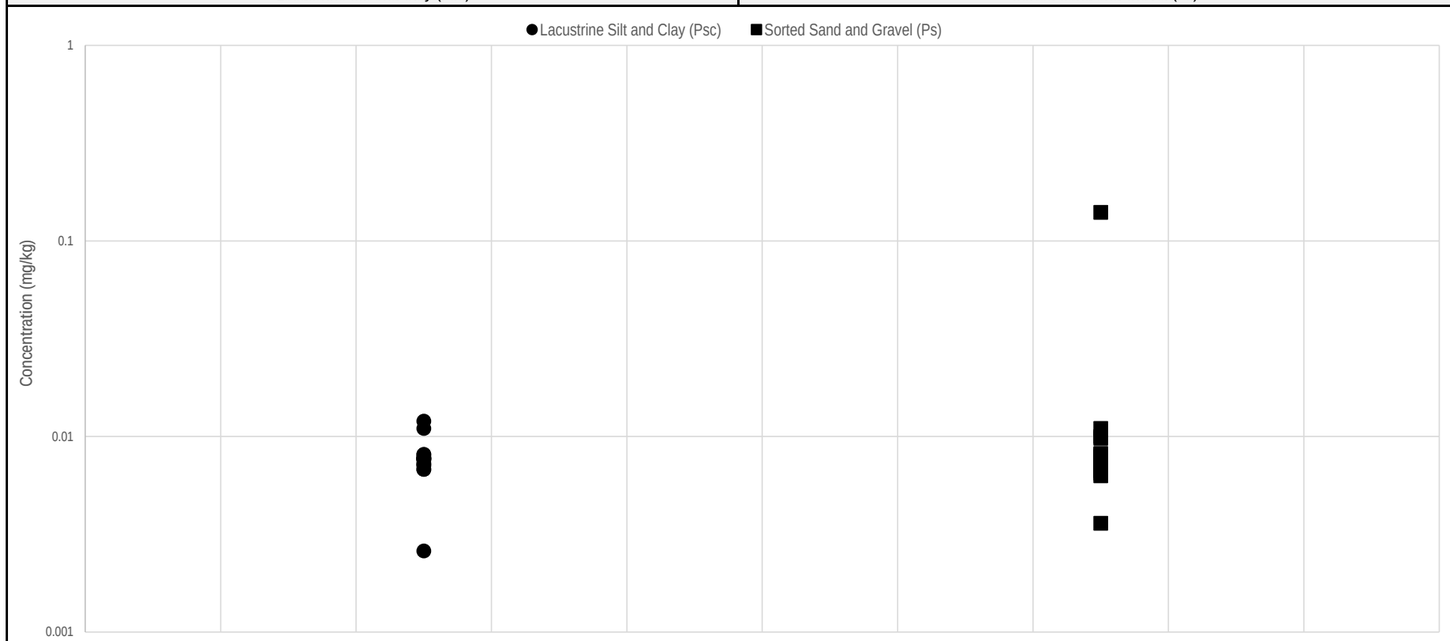
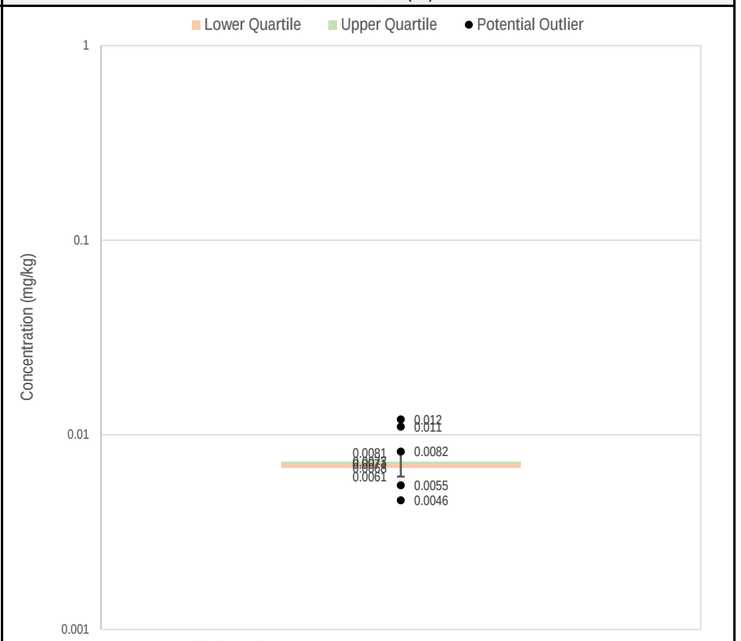
Notes:

(1) Statistically significantly different at $p \leq 0.05$.

(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

Appendix G.2
Geologic Unit Comparisons
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| Pyrene | | |
|---|---|---|
| Subsurface Soil (1 - 10 ft bgs) | | |
| Lacustrine Silt and Clay (Psc) | Sorted Sand and Gravel (Ps) | Diamicton - Till (Pd) |
|  Note: Logarithmic scale | |  Note: Logarithmic scale |
| General Statistics[1] | | |
| Frequency of Detection: 3/16<br>Data Distribution: Normal | Frequency of Detection: 7/48<br>Data Distribution: Not Discernible | Frequency of Detection: 5/22<br>Data Distribution: Normal |
| Homogeneity of Variance (Levene's Test) p-value: 0.75 | | |

Notes:
(1) Statistically significantly different at $p \leq 0.05$.
(2) Data distributions were determined using the United States Environmental Protection Agency (USEPA) ProUCL Version 5.2 software. All other statistical analyses presented were performed using the Real Statistics Using Excel package developed by Charles Zaiontz for direct use within Microsoft Excel (https://www.real-statistics.com/).

ft bgs - feet below ground surface

# APPENDIX H

# Background Threshold Value Calculation Backup

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**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Background Statistics for Data Sets with Non-Detects**

**User Selected Options**

| | |
|---|---|
| Date/Time of Computation | ProUCL 5.2 10/12/2022 2:14:11 PM |
| From File | WorkSheet.xls |
| Full Precision | OFF |
| Confidence Coefficient | 95% |
| Coverage | 95% |
| Different or Future K Observations | 1 |
| Number of Bootstrap Operations | 2000 |

**Conc (1-methylnaphthalene | [subsurface soil_1_5][subsurface soil_5_10] | [ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 70 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 8 | | |
| Number of Detects | 2 | Number of Non-Detects | 68 |
| Number of Distinct Detects | 1 | Number of Distinct Non-Detects | 7 |
| Minimum Detect | 0.01 | Minimum Non-Detect | 0.0019 |
| Maximum Detect | 0.01 | Maximum Non-Detect | 0.0025 |
| Variance Detected | 0 | Percent Non-Detects | 97.14% |
| Mean Detected | 0.01 | SD Detected | 0 |
| Mean of Detected Logged Data | -4.605 | SD of Detected Logged Data | 0 |

**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**
**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**

**The data set for variable Conc (1-methylnaphthalene | [subsurface soil_1_5][subsurface soil_5_10] | [ps][pd]) was not processed!**

**Conc (1-methylnaphthalene | [surface soil] | [ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 35 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 19 | | |
| Number of Detects | 16 | Number of Non-Detects | 19 |
| Number of Distinct Detects | 13 | Number of Distinct Non-Detects | 6 |
| Minimum Detect | 6.1000E-4 | Minimum Non-Detect | 0.0022 |
| Maximum Detect | 0.011 | Maximum Non-Detect | 0.0028 |
| Variance Detected | 9.1661E-6 | Percent Non-Detects | 54.29% |
| Mean Detected | 0.00243 | SD Detected | 0.00303 |
| Mean of Detected Logged Data | -6.542 | SD of Detected Logged Data | 0.961 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.157 | d2max (for USL) | 2.812 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.658 | **Shapiro Wilk GOF Test** | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 1% Shapiro Wilk Critical Value | 0.844 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.294 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.248 | Data Not Normal at 1% Significance Level |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00163 | KM SD | 0.00214 |
| 95% UTL95% Coverage | 0.00624 | 95% KM UPL (t) | 0.0053 |
| 90% KM Percentile (z) | 0.00437 | 95% KM Percentile (z) | 0.00515 |
| 99% KM Percentile (z) | 0.00661 | 95% KM USL | 0.00764 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00175 | SD | 0.00211 |
| 95% UTL95% Coverage | 0.0063 | 95% UPL (t) | 0.00537 |
| 90% Percentile (z) | 0.00446 | 95% Percentile (z) | 0.00522 |
| 99% Percentile (z) | 0.00666 | 95% USL | 0.00768 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 1.62 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.762 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.279 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.221 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.098 | k star (bias corrected MLE) | 0.934 |
| Theta hat (MLE) | 0.00221 | Theta star (bias corrected MLE) | 0.0026 |
| nu hat (MLE) | 35.13 | nu star (bias corrected) | 29.88 |
| MLE Mean (bias corrected) | 0.00243 | | |
| MLE Sd (bias corrected) | 0.00251 | 95% Percentile of Chisquare (2kstar) | 5.732 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 6.1000E-4 | Mean | 0.00654 |
| Maximum | 0.011 | Median | 0.01 |
| SD | 0.00432 | CV | 0.661 |
| k hat (MLE) | 1.226 | k star (bias corrected MLE) | 1.14 |
| Theta hat (MLE) | 0.00533 | Theta star (bias corrected MLE) | 0.00573 |
| nu hat (MLE) | 85.84 | nu star (bias corrected) | 79.81 |
| MLE Mean (bias corrected) | 0.00654 | MLE Sd (bias corrected) | 0.00612 |
| 95% Percentile of Chisquare (2kstar) | 6.524 | 90% Percentile | 0.0146 |
| 95% Percentile | 0.0187 | 99% Percentile | 0.0282 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0253 | 0.0285 | 95% Approx. Gamma UPL | 0.0194 | 0.021 |
| 95% Gamma USL | 0.0362 | 0.0432 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00163 | SD (KM) | 0.00214 |
| Variance (KM) | 4.5664E-6 | SE of Mean (KM) | 3.8455E-4 |
| k hat (KM) | 0.585 | k star (KM) | 0.554 |
| nu hat (KM) | 40.97 | nu star (KM) | 38.79 |
| theta hat (KM) | 0.00279 | theta star (KM) | 0.00295 |
| 80% gamma percentile (KM) | 0.00269 | 90% gamma percentile (KM) | 0.00433 |
| 95% gamma percentile (KM) | 0.00605 | 99% gamma percentile (KM) | 0.0103 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.00551 | 0.00545 | 95% Approx. Gamma UPL | 0.00428 | 0.00417 |
| 95% KM Gamma Percentile | 0.0041 | 0.00399 | 95% Gamma USL | 0.00772 | 0.00786 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.816 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.906 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.236 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.196 | Data Not Lognormal at 10% Significance Level |

**Data Not Lognormal at 10% Significance Level**

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00171 | Mean in Log Scale | -6.743 |
| SD in Original Scale | 0.00215 | SD in Log Scale | 0.748 |
| 95% UTL95% Coverage | 0.00591 | 95% BCA UTL95% Coverage | 0.011 |
| 95% Bootstrap (%) UTL95% Coverage | 0.011 | 95% UPL (t) | 0.00425 |
| 90% Percentile (z) | 0.00307 | 95% Percentile (z) | 0.00403 |
| 99% Percentile (z) | 0.00671 | 95% USL | 0.00964 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -6.803 | 95% KM UTL (Lognormal)95% Coverage | 0.00536 |
| KM SD of Logged Data | 0.73 | 95% KM UPL (Lognormal) | 0.00388 |
| 95% KM Percentile Lognormal (z) | 0.00369 | 95% KM USL (Lognormal) | 0.00865 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00175 | Mean in Log Scale | -6.648 |
| SD in Original Scale | 0.00211 | SD in Log Scale | 0.649 |
| 95% UTL95% Coverage | 0.00525 | 95% UPL (t) | 0.00394 |
| 90% Percentile (z) | 0.00298 | 95% Percentile (z) | 0.00377 |
| 99% Percentile (z) | 0.00586 | 95% USL | 0.00803 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 35 | 95% UTL with95% Coverage | 0.011 |
| Approx, f used to compute achieved CC | 1.842 | Approximate Actual Confidence Coefficient achieved by UTL | 0.834 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.00772 |
| 95% USL | 0.011 | 95% KM Chebyshev UPL | 0.0111 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (1-methylnaphthalene | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 10 | | |
| Number of Detects | 5 | Number of Non-Detects | 19 |
| Number of Distinct Detects | 4 | Number of Distinct Non-Detects | 6 |
| Minimum Detect | 7.2000E-4 | Minimum Non-Detect | 0.002 |
| Maximum Detect | 0.011 | Maximum Non-Detect | 0.0025 |
| Variance Detected | 3.1157E-5 | Percent Non-Detects | 79.17% |
| Mean Detected | 0.00489 | SD Detected | 0.00558 |
| Mean of Detected Logged Data | -6.079 | SD of Detected Logged Data | 1.436 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.694 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.686 | Detected Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.36 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.396 | Detected Data appear Normal at 1% Significance Level | |

Detected Data appear Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00166 | KM SD | 0.00282 |
| 95% UTL95% Coverage | 0.00817 | 95% KM UPL (t) | 0.00659 |
| 90% KM Percentile (z) | 0.00527 | 95% KM Percentile (z) | 0.00629 |
| 99% KM Percentile (z) | 0.00821 | 95% KM USL | 0.00911 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Mean | 0.00192 | SD | 0.0028 |
| 95% UTL95% Coverage | 0.00839 | 95% UPL (t) | 0.00682 |
| 90% Percentile (z) | 0.00551 | 95% Percentile (z) | 0.00653 |
| 99% Percentile (z) | 0.00843 | 95% USL | 0.00932 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.837 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.697 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.371 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.366 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.785 | k star (bias corrected MLE) | 0.447 |
| Theta hat (MLE) | 0.00622 | Theta star (bias corrected MLE) | 0.0109 |
| nu hat (MLE) | 7.853 | nu star (bias corrected) | 4.475 |
| MLE Mean (bias corrected) | 0.00489 | | |
| MLE Sd (bias corrected) | 0.0073 | 95% Percentile of Chisquare (2kstar) | 3.576 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 7.2000E-4 | Mean | 0.00893 |
| Maximum | 0.011 | Median | 0.01 |
| SD | 0.00315 | CV | 0.353 |
| k hat (MLE) | 2.727 | k star (bias corrected MLE) | 2.414 |
| Theta hat (MLE) | 0.00328 | Theta star (bias corrected MLE) | 0.0037 |
| nu hat (MLE) | 130.9 | nu star (bias corrected) | 115.9 |
| MLE Mean (bias corrected) | 0.00893 | MLE Sd (bias corrected) | 0.00575 |
| 95% Percentile of Chisquare (2kstar) | 10.8 | 90% Percentile | 0.0166 |
| 95% Percentile | 0.02 | 99% Percentile | 0.0274 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0262 | 0.0295 | 95% Approx. Gamma UPL | 0.0205 | 0.0223 |
| 95% Gamma USL | 0.03 | 0.0346 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00166 | SD (KM) | 0.00282 |
| Variance (KM) | 7.9401E-6 | SE of Mean (KM) | 6.4516E-4 |
| k hat (KM) | 0.347 | k star (KM) | 0.331 |
| nu hat (KM) | 16.64 | nu star (KM) | 15.89 |
| theta hat (KM) | 0.00479 | theta star (KM) | 0.00501 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 80% gamma percentile (KM) | 0.0026 | 90% gamma percentile (KM) | 0.00483 |
| 95% gamma percentile (KM) | 0.00735 | 99% gamma percentile (KM) | 0.0138 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.00651 | 0.00625 | 95% Approx. Gamma UPL | 0.00463 | 0.00436 |
| 95% KM Gamma Percentile | 0.00432 | 0.00406 | 95% Gamma USL | 0.00785 | 0.00764 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.73 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.806 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.332 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.319 | Data Not Lognormal at 10% Significance Level |

**Data Not Lognormal at 10% Significance Level**

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00192 | Mean in Log Scale | -6.798 |
| SD in Original Scale | 0.00288 | SD in Log Scale | 0.933 |
| 95% UTL95% Coverage | 0.00963 | 95% BCA UTL95% Coverage | 0.011 |
| 95% Bootstrap (%) UTL95% Coverage | 0.011 | 95% UPL (t) | 0.00571 |
| 90% Percentile (z) | 0.00369 | 95% Percentile (z) | 0.00518 |
| 99% Percentile (z) | 0.00979 | 95% USL | 0.0132 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -6.907 | 95% KM UTL (Lognormal)95% Coverage | 0.00541 |
| KM SD of Logged Data | 0.731 | 95% KM UPL (Lognormal) | 0.00359 |
| 95% KM Percentile Lognormal (z) | 0.00333 | 95% KM USL (Lognormal) | 0.00691 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00192 | Mean in Log Scale | -6.63 |
| SD in Original Scale | 0.0028 | SD in Log Scale | 0.667 |
| 95% UTL95% Coverage | 0.00616 | 95% UPL (t) | 0.00424 |
| 90% Percentile (z) | 0.0031 | 95% Percentile (z) | 0.00396 |
| 99% Percentile (z) | 0.00623 | 95% USL | 0.0077 |

**DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.**

**Nonparametric Distribution Free Background Statistics**

**Data appear to follow a Discernible Distribution**

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 24 | 95% UTL with95% Coverage | 0.011 |
| Approx, f used to compute achieved CC | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.708 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.011 |
| 95% USL | 0.011 | 95% KM Chebyshev UPL | 0.0142 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (2-methylnaphthalene | [subsurface soil_1_5][subsurface soil_5_10] | [ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 70 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 11 | | |
| Number of Detects | 7 | Number of Non-Detects | 63 |
| Number of Distinct Detects | 4 | Number of Distinct Non-Detects | 7 |
| Minimum Detect | 0.0098 | Minimum Non-Detect | 0.0019 |
| Maximum Detect | 0.012 | Maximum Non-Detect | 0.0025 |
| Variance Detected | 8.7238E-7 | Percent Non-Detects | 90% |
| Mean Detected | 0.0108 | SD Detected | 9.3401E-4 |
| Mean of Detected Logged Data | -4.529 | SD of Detected Logged Data | 0.0858 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.985 | d2max (for USL) | 3.084 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.857 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.73 | Detected Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.241 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.35 | Detected Data appear Normal at 1% Significance Level | |

Detected Data appear Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00279 | KM SD | 0.00269 |
| 95% UTL95% Coverage | 0.00814 | 95% KM UPL (t) | 0.00731 |
| 90% KM Percentile (z) | 0.00624 | 95% KM Percentile (z) | 0.00722 |
| 99% KM Percentile (z) | 0.00906 | 95% KM USL | 0.0111 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00206 | SD | 0.00296 |
| 95% UTL95% Coverage | 0.00793 | 95% UPL (t) | 0.00703 |
| 90% Percentile (z) | 0.00585 | 95% Percentile (z) | 0.00693 |
| 99% Percentile (z) | 0.00894 | 95% USL | 0.0112 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 0.531 | **Anderson-Darling GOF Test** | |
| 5% A-D Critical Value | 0.708 | Detected data appear Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.26 | **Kolmogorov-Smirnov GOF** | |
| 5% K-S Critical Value | 0.311 | Detected data appear Gamma Distributed at 5% Significance Level | |

Detected data appear Gamma Distributed at 5% Significance Level

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 158.1 | k star (bias corrected MLE) | 90.44 |
| Theta hat (MLE) | 6.8490E-5 | Theta star (bias corrected MLE) | 1.1973E-4 |
| nu hat (MLE) | 2213 | nu star (bias corrected) | 1266 |
| MLE Mean (bias corrected) | 0.0108 | | |
| MLE Sd (bias corrected) | 0.00114 | 95% Percentile of Chisquare (2kstar) | 213.3 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0098 | Mean | 0.0101 |
| Maximum | 0.012 | Median | 0.01 |
| SD | 3.7221E-4 | CV | 0.0369 |
| k hat (MLE) | 822.7 | k star (bias corrected MLE) | 787.5 |
| Theta hat (MLE) | 1.2255E-5 | Theta star (bias corrected MLE) | 1.2804E-5 |
| nu hat (MLE) | 115183 | nu star (bias corrected) | 110248 |
| MLE Mean (bias corrected) | 0.0101 | MLE Sd (bias corrected) | 3.5930E-4 |
| 95% Percentile of Chisquare (2kstar) | 1668 | 90% Percentile | 0.0105 |
| 95% Percentile | 0.0107 | 99% Percentile | 0.0109 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0108 | 0.0108 | 95% Approx. Gamma UPL | 0.0107 | 0.0107 |
| 95% Gamma USL | 0.0112 | 0.0112 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00279 | SD (KM) | 0.00269 |
| Variance (KM) | 7.2495E-6 | SE of Mean (KM) | 3.4760E-4 |
| k hat (KM) | 1.076 | k star (KM) | 1.039 |
| nu hat (KM) | 150.6 | nu star (KM) | 145.5 |
| theta hat (KM) | 0.0026 | theta star (KM) | 0.00269 |
| 80% gamma percentile (KM) | 0.00448 | 90% gamma percentile (KM) | 0.00637 |
| 95% gamma percentile (KM) | 0.00825 | 99% gamma percentile (KM) | 0.0126 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.00703 | 0.00687 | 95% Approx. Gamma UPL | 0.00609 | 0.00593 |
| 95% KM Gamma Percentile | 0.00599 | 0.00583 | 95% Gamma USL | 0.0112 | 0.0112 |

**Lognormal GOF Test on Detected Observations Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.86 | **Shapiro Wilk GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.838 | Detected Data appear Lognormal at 10% Significance Level | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Lilliefors Test Statistic | 0.242 | **Lilliefors GOF Test** | |
| 10% Lilliefors Critical Value | 0.28 | Detected Data appear Lognormal at 10% Significance Level | |

Detected Data appear Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00716 | Mean in Log Scale | -4.966 |
| SD in Original Scale | 0.00171 | SD in Log Scale | 0.23 |
| 95% UTL95% Coverage | 0.011 | 95% BCA UTL95% Coverage | 0.0116 |
| 95% Bootstrap (%) UTL95% Coverage | 0.0116 | 95% UPL (t) | 0.0103 |
| 90% Percentile (z) | 0.00936 | 95% Percentile (z) | 0.0102 |
| 99% Percentile (z) | 0.0119 | 95% USL | 0.0142 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -6.092 | 95% KM UTL (Lognormal)95% Coverage | 0.00637 |
| KM SD of Logged Data | 0.522 | 95% KM UPL (Lognormal) | 0.00543 |
| 95% KM Percentile Lognormal (z) | 0.00533 | 95% KM USL (Lognormal) | 0.0113 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00206 | Mean in Log Scale | -6.594 |
| SD in Original Scale | 0.00296 | SD in Log Scale | 0.696 |
| 95% UTL95% Coverage | 0.00545 | 95% UPL (t) | 0.0044 |
| 90% Percentile (z) | 0.00334 | 95% Percentile (z) | 0.0043 |
| 99% Percentile (z) | 0.0069 | 95% USL | 0.0117 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 69 | 95% UTL with95% Coverage | 0.012 |
| Approx, f used to compute achieved CC | 1.816 | Approximate Actual Confidence Coefficient achieved by UTL | 0.871 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.011 |
| 95% USL | 0.012 | 95% KM Chebyshev UPL | 0.0146 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (2-methylnaphthalene | [surface soil] | [ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 35 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 16 | | |
| Number of Detects | 12 | Number of Non-Detects | 23 |
| Number of Distinct Detects | 11 | Number of Distinct Non-Detects | 6 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Minimum Detect | 8.0000E-4 | Minimum Non-Detect | 0.0022 |
| Maximum Detect | 0.013 | Maximum Non-Detect | 0.0028 |
| Variance Detected | 1.6293E-5 | Percent Non-Detects | 65.71% |
| Mean Detected | 0.00374 | SD Detected | 0.00404 |
| Mean of Detected Logged Data | -6.1 | SD of Detected Logged Data | 1.036 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.157 | d2max (for USL) | 2.812 |

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.764 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.805 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.297 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.281 | Data Not Normal at 1% Significance Level |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00201 | KM SD | 0.0026 |
| 95% UTL95% Coverage | 0.00763 | 95% KM UPL (t) | 0.00647 |
| 90% KM Percentile (z) | 0.00535 | 95% KM Percentile (z) | 0.00629 |
| 99% KM Percentile (z) | 0.00807 | 95% KM USL | 0.00933 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00207 | SD | 0.00261 |
| 95% UTL95% Coverage | 0.00769 | 95% UPL (t) | 0.00653 |
| 90% Percentile (z) | 0.00541 | 95% Percentile (z) | 0.00635 |
| 99% Percentile (z) | 0.00813 | 95% USL | 0.00939 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.982 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.754 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.269 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.252 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.113 | k star (bias corrected MLE) | 0.89 |
| Theta hat (MLE) | 0.00336 | Theta star (bias corrected MLE) | 0.00421 |
| nu hat (MLE) | 26.72 | nu star (bias corrected) | 21.37 |
| MLE Mean (bias corrected) | 0.00374 | | |
| MLE Sd (bias corrected) | 0.00397 | 95% Percentile of Chisquare (2kstar) | 5.559 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 8.0000E-4 | Mean | 0.00786 |
| Maximum | 0.013 | Median | 0.01 |
| SD | 0.00379 | CV | 0.482 |
| k hat (MLE) | 1.995 | k star (bias corrected MLE) | 1.843 |
| Theta hat (MLE) | 0.00394 | Theta star (bias corrected MLE) | 0.00426 |
| nu hat (MLE) | 139.7 | nu star (bias corrected) | 129 |
| MLE Mean (bias corrected) | 0.00786 | MLE Sd (bias corrected) | 0.00579 |
| 95% Percentile of Chisquare (2kstar) | 8.975 | 90% Percentile | 0.0156 |
| 95% Percentile | 0.0191 | 99% Percentile | 0.027 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0245 | 0.0272 | 95% Approx. Gamma UPL | 0.0196 | 0.0211 |
| 95% Gamma USL | 0.0332 | 0.0385 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00201 | SD (KM) | 0.0026 |
| Variance (KM) | 6.7811E-6 | SE of Mean (KM) | 4.7130E-4 |
| k hat (KM) | 0.595 | k star (KM) | 0.563 |
| nu hat (KM) | 41.66 | nu star (KM) | 39.43 |
| theta hat (KM) | 0.00338 | theta star (KM) | 0.00357 |
| 80% gamma percentile (KM) | 0.00331 | 90% gamma percentile (KM) | 0.0053 |
| 95% gamma percentile (KM) | 0.0074 | 99% gamma percentile (KM) | 0.0125 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.00675 | 0.00666 | 95% Approx. Gamma UPL | 0.00525 | 0.0051 |
| 95% KM Gamma Percentile | 0.00503 | 0.00488 | 95% Gamma USL | 0.00946 | 0.00958 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.843 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.883 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.254 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.223 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00215 | Mean in Log Scale | -6.529 |
| SD in Original Scale | 0.00263 | SD in Log Scale | 0.786 |
| 95% UTL95% Coverage | 0.00796 | 95% BCA UTL95% Coverage | 0.013 |
| 95% Bootstrap (%) UTL95% Coverage | 0.013 | 95% UPL (t) | 0.00562 |
| 90% Percentile (z) | 0.004 | 95% Percentile (z) | 0.00532 |
| 99% Percentile (z) | 0.00909 | 95% USL | 0.0133 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -6.595 | 95% KM UTL (Lognormal)95% Coverage | 0.00644 |
| KM SD of Logged Data | 0.718 | 95% KM UPL (Lognormal) | 0.00469 |
| 95% KM Percentile Lognormal (z) | 0.00446 | 95% KM USL (Lognormal) | 0.0103 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00207 | Mean in Log Scale | -6.518 |
| SD in Original Scale | 0.00261 | SD in Log Scale | 0.667 |
| 95% UTL95% Coverage | 0.00623 | 95% UPL (t) | 0.00464 |
| 90% Percentile (z) | 0.00347 | 95% Percentile (z) | 0.00443 |
| 99% Percentile (z) | 0.00697 | 95% USL | 0.00964 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 35 | 95% UTL with95% Coverage | 0.013 |
| Approx, f used to compute achieved CC | 1.842 | Approximate Actual Confidence Coefficient achieved by UTL | 0.834 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.00956 |
| 95% USL | 0.013 | 95% KM Chebyshev UPL | 0.0135 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (2-methylnaphthalene | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 9 | | |
| Number of Detects | 5 | Number of Non-Detects | 19 |
| Number of Distinct Detects | 3 | Number of Distinct Non-Detects | 6 |
| Minimum Detect | 0.001 | Minimum Non-Detect | 0.002 |
| Maximum Detect | 0.011 | Maximum Non-Detect | 0.0025 |
| Variance Detected | 2.9603E-5 | Percent Non-Detects | 79.17% |
| Mean Detected | 0.00504 | SD Detected | 0.00544 |
| Mean of Detected Logged Data | -5.91 | SD of Detected Logged Data | 1.279 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.689 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.686 | Detected Data appear Normal at 1% Significance Level | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Lilliefors Test Statistic | 0.366 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.396 | Detected Data appear Normal at 1% Significance Level | |

Detected Data appear Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00189 | KM SD | 0.00275 |
| 95% UTL95% Coverage | 0.00823 | 95% KM UPL (t) | 0.0067 |
| 90% KM Percentile (z) | 0.00541 | 95% KM Percentile (z) | 0.00641 |
| 99% KM Percentile (z) | 0.00828 | 95% KM USL | 0.00915 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00196 | SD | 0.00279 |
| 95% UTL95% Coverage | 0.00839 | 95% UPL (t) | 0.00683 |
| 90% Percentile (z) | 0.00553 | 95% Percentile (z) | 0.00654 |
| 99% Percentile (z) | 0.00844 | 95% USL | 0.00932 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 0.895 | **Anderson-Darling GOF Test** | |
| 5% A-D Critical Value | 0.693 | Data Not Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.39 | **Kolmogorov-Smirnov GOF** | |
| 5% K-S Critical Value | 0.365 | Data Not Gamma Distributed at 5% Significance Level | |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.938 | k star (bias corrected MLE) | 0.509 |
| Theta hat (MLE) | 0.00537 | Theta star (bias corrected MLE) | 0.00991 |
| nu hat (MLE) | 9.38 | nu star (bias corrected) | 5.085 |
| MLE Mean (bias corrected) | 0.00504 | | |
| MLE Sd (bias corrected) | 0.00707 | 95% Percentile of Chisquare (2kstar) | 3.883 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.001 | Mean | 0.00897 |
| Maximum | 0.011 | Median | 0.01 |
| SD | 0.00306 | CV | 0.342 |
| k hat (MLE) | 3.227 | k star (bias corrected MLE) | 2.851 |
| Theta hat (MLE) | 0.00278 | Theta star (bias corrected MLE) | 0.00314 |
| nu hat (MLE) | 154.9 | nu star (bias corrected) | 136.9 |
| MLE Mean (bias corrected) | 0.00897 | MLE Sd (bias corrected) | 0.00531 |
| 95% Percentile of Chisquare (2kstar) | 12.15 | 90% Percentile | 0.0161 |
| 95% Percentile | 0.0191 | 99% Percentile | 0.0256 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0246 | 0.0273 | 95% Approx. Gamma UPL | 0.0195 | 0.021 |
| 95% Gamma USL | 0.028 | 0.0316 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00189 | SD (KM) | 0.00275 |
| Variance (KM) | 7.5394E-6 | SE of Mean (KM) | 6.2718E-4 |
| k hat (KM) | 0.476 | k star (KM) | 0.444 |
| nu hat (KM) | 22.85 | nu star (KM) | 21.33 |
| theta hat (KM) | 0.00398 | theta star (KM) | 0.00426 |
| 80% gamma percentile (KM) | 0.00309 | 90% gamma percentile (KM) | 0.00525 |
| 95% gamma percentile (KM) | 0.00759 | 99% gamma percentile (KM) | 0.0134 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.00675 | 0.00651 | 95% Approx. Gamma UPL | 0.00494 | 0.00471 |
| 95% KM Gamma Percentile | 0.00465 | 0.00442 | 95% Gamma USL | 0.00802 | 0.00782 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.706 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.806 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.36 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.319 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00219 | Mean in Log Scale | -6.542 |
| SD in Original Scale | 0.00282 | SD in Log Scale | 0.825 |
| 95% UTL95% Coverage | 0.00968 | 95% BCA UTL95% Coverage | 0.011 |
| 95% Bootstrap (%) UTL95% Coverage | 0.011 | 95% UPL (t) | 0.0061 |
| 90% Percentile (z) | 0.00415 | 95% Percentile (z) | 0.0056 |
| 99% Percentile (z) | 0.00982 | 95% USL | 0.0128 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -6.65 | 95% KM UTL (Lognormal)95% Coverage | 0.00576 |
| KM SD of Logged Data | 0.647 | 95% KM UPL (Lognormal) | 0.00401 |
| 95% KM Percentile Lognormal (z) | 0.00375 | 95% KM USL (Lognormal) | 0.00715 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00196 | Mean in Log Scale | -6.594 |
| SD in Original Scale | 0.00279 | SD in Log Scale | 0.645 |
| 95% UTL95% Coverage | 0.00607 | 95% UPL (t) | 0.00423 |
| 90% Percentile (z) | 0.00313 | 95% Percentile (z) | 0.00395 |
| 99% Percentile (z) | 0.00614 | 95% USL | 0.00753 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 24 | 95% UTL with95% Coverage | 0.011 |
| Approx, f used to compute achieved CC | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.708 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.011 |
| 95% USL | 0.011 | 95% KM Chebyshev UPL | 0.0141 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (acenaphthene | [subsurface soil_1_5][subsurface soil_5_10] | [ps])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 48 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 7 | | |
| Number of Detects | 4 | Number of Non-Detects | 44 |
| Number of Distinct Detects | 3 | Number of Distinct Non-Detects | 4 |
| Minimum Detect | 0.0098 | Minimum Non-Detect | 0.001 |
| Maximum Detect | 0.011 | Maximum Non-Detect | 0.0013 |
| Variance Detected | 4.1000E-7 | Percent Non-Detects | 91.67% |
| Mean Detected | 0.0105 | SD Detected | 6.4031E-4 |
| Mean of Detected Logged Data | -4.563 | SD of Detected Logged Data | 0.0614 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.069 | d2max (for USL) | 2.941 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.801 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.687 | Detected Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.305 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.413 | Detected Data appear Normal at 1% Significance Level | |

Detected Data appear Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00179 | KM SD | 0.00262 |
| 95% UTL95% Coverage | 0.0072 | 95% KM UPL (t) | 0.00622 |
| 90% KM Percentile (z) | 0.00514 | 95% KM Percentile (z) | 0.00609 |
| 99% KM Percentile (z) | 0.00787 | 95% KM USL | 0.00948 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00141 | SD | 0.00276 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% UTL95% Coverage | 0.00712 | 95% UPL (t) | 0.00609 |
| 90% Percentile (z) | 0.00495 | 95% Percentile (z) | 0.00595 |
| 99% Percentile (z) | 0.00783 | 95% USL | 0.00953 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.571 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.657 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.339 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.394 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 354.2 | k star (bias corrected MLE) | 88.71 |
| Theta hat (MLE) | 2.9507E-5 | Theta star (bias corrected MLE) | 1.1781E-4 |
| nu hat (MLE) | 2833 | nu star (bias corrected) | 709.6 |
| MLE Mean (bias corrected) | 0.0105 | | |
| MLE Sd (bias corrected) | 0.00111 | 95% Percentile of Chisquare (2kstar) | 209.5 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0098 | Mean | 0.01 |
| Maximum | 0.011 | Median | 0.01 |
| SD | 2.0486E-4 | CV | 0.0204 |
| k hat (MLE) | 2596 | k star (bias corrected MLE) | 2434 |
| Theta hat (MLE) | 3.8666E-6 | Theta star (bias corrected MLE) | 4.1243E-6 |
| nu hat (MLE) | 249213 | nu star (bias corrected) | 233639 |
| MLE Mean (bias corrected) | 0.01 | MLE Sd (bias corrected) | 2.0346E-4 |
| 95% Percentile of Chisquare (2kstar) | 5031 | 90% Percentile | 0.0103 |
| 95% Percentile | 0.0104 | 99% Percentile | 0.0105 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0105 | 0.0105 | 95% Approx. Gamma UPL | 0.0104 | 0.0104 |
| 95% Gamma USL | 0.0106 | 0.0106 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00179 | SD (KM) | 0.00262 |
| Variance (KM) | 6.8473E-6 | SE of Mean (KM) | 4.3612E-4 |
| k hat (KM) | 0.467 | k star (KM) | 0.451 |
| nu hat (KM) | 44.8 | nu star (KM) | 43.33 |
| theta hat (KM) | 0.00383 | theta star (KM) | 0.00396 |
| 80% gamma percentile (KM) | 0.00292 | 90% gamma percentile (KM) | 0.00494 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% gamma percentile (KM) | 0.00712 | 99% gamma percentile (KM) | 0.0125 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.00561 | 0.00537 | 95% Approx. Gamma UPL | 0.00453 | 0.0043 |
| 95% KM Gamma Percentile | 0.0044 | 0.00417 | 95% Gamma USL | 0.00878 | 0.00865 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.804 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.792 | Detected Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.305 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.346 | Detected Data appear Lognormal at 10% Significance Level |

Detected Data appear Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00743 | Mean in Log Scale | -4.918 |
| SD in Original Scale | 0.00138 | SD in Log Scale | 0.181 |
| 95% UTL95% Coverage | 0.0106 | 95% BCA UTL95% Coverage | 0.011 |
| 95% Bootstrap (%) UTL95% Coverage | 0.011 | 95% UPL (t) | 0.00994 |
| 90% Percentile (z) | 0.00922 | 95% Percentile (z) | 0.00985 |
| 99% Percentile (z) | 0.0111 | 95% USL | 0.0125 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -6.712 | 95% KM UTL (Lognormal)95% Coverage | 0.00465 |
| KM SD of Logged Data | 0.648 | 95% KM UPL (Lognormal) | 0.00365 |
| 95% KM Percentile Lognormal (z) | 0.00353 | 95% KM USL (Lognormal) | 0.00818 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00141 | Mean in Log Scale | -7.202 |
| SD in Original Scale | 0.00276 | SD in Log Scale | 0.806 |
| 95% UTL95% Coverage | 0.00395 | 95% UPL (t) | 0.00292 |
| 90% Percentile (z) | 0.0021 | 95% Percentile (z) | 0.00281 |
| 99% Percentile (z) | 0.00487 | 95% USL | 0.00799 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 48 | 95% UTL with95% Coverage | 0.011 |
| Approx, f used to compute achieved CC | 2.526 | Approximate Actual Confidence Coefficient achieved by UTL | 0.915 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.0106 |
| 95% USL | 0.011 | 95% KM Chebyshev UPL | 0.0133 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (acenaphthene | [surface soil] | [ps])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 8 | | |
| Number of Detects | 6 | Number of Non-Detects | 18 |
| Number of Distinct Detects | 3 | Number of Distinct Non-Detects | 5 |
| Minimum Detect | 0.011 | Minimum Non-Detect | 0.0012 |
| Maximum Detect | 0.013 | Maximum Non-Detect | 0.0018 |
| Variance Detected | 6.6667E-7 | Percent Non-Detects | 75% |
| Mean Detected | 0.0117 | SD Detected | 8.1650E-4 |
| Mean of Detected Logged Data | -4.453 | SD of Detected Logged Data | 0.0688 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.821 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.713 | Detected Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.293 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.373 | Detected Data appear Normal at 1% Significance Level |

**Detected Data appear Normal at 1% Significance Level**

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00382 | KM SD | 0.00455 |
| 95% UTL95% Coverage | 0.0143 | 95% KM UPL (t) | 0.0118 |
| 90% KM Percentile (z) | 0.00964 | 95% KM Percentile (z) | 0.0113 |
| 99% KM Percentile (z) | 0.0144 | 95% KM USL | 0.0158 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0034 | SD | 0.00489 |
| 95% UTL95% Coverage | 0.0147 | 95% UPL (t) | 0.012 |
| 90% Percentile (z) | 0.00967 | 95% Percentile (z) | 0.0114 |
| 99% Percentile (z) | 0.0148 | 95% USL | 0.0163 |

**DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons**

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.618 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.696 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.316 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.332 | Detected data appear Gamma Distributed at 5% Significance Level |

**Detected data appear Gamma Distributed at 5% Significance Level**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 250.9 | k star (bias corrected MLE) | 125.5 |
| Theta hat (MLE) | 4.6504E-5 | Theta star (bias corrected MLE) | 9.2926E-5 |
| nu hat (MLE) | 3010 | nu star (bias corrected) | 1507 |
| MLE Mean (bias corrected) | 0.0117 | | |
| MLE Sd (bias corrected) | 0.00104 | 95% Percentile of Chisquare (2kstar) | 289.1 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.01 | Mean | 0.0104 |
| Maximum | 0.013 | Median | 0.01 |
| SD | 8.2712E-4 | CV | 0.0794 |
| k hat (MLE) | 181.1 | k star (bias corrected MLE) | 158.5 |
| Theta hat (MLE) | 5.7550E-5 | Theta star (bias corrected MLE) | 6.5760E-5 |
| nu hat (MLE) | 8693 | nu star (bias corrected) | 7608 |
| MLE Mean (bias corrected) | 0.0104 | MLE Sd (bias corrected) | 8.2788E-4 |
| 95% Percentile of Chisquare (2kstar) | 359.5 | 90% Percentile | 0.0115 |
| 95% Percentile | 0.0118 | 99% Percentile | 0.0124 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0123 | 0.0123 | 95% Approx. Gamma UPL | 0.0118 | 0.0118 |
| 95% Gamma USL | 0.0126 | 0.0126 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00382 | SD (KM) | 0.00455 |
| Variance (KM) | 2.0680E-5 | SE of Mean (KM) | 0.00102 |
| k hat (KM) | 0.704 | k star (KM) | 0.644 |
| nu hat (KM) | 33.81 | nu star (KM) | 30.92 |
| theta hat (KM) | 0.00542 | theta star (KM) | 0.00593 |
| 80% gamma percentile (KM) | 0.00629 | 90% gamma percentile (KM) | 0.00977 |
| 95% gamma percentile (KM) | 0.0134 | 99% gamma percentile (KM) | 0.0221 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.017 | 0.0176 | 95% Approx. Gamma UPL | 0.0118 | 0.0118 |
| 95% KM Gamma Percentile | 0.011 | 0.0109 | 95% Gamma USL | 0.0207 | 0.0219 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.822 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.826 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.296 | **Lilliefors GOF Test** |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 10% Lilliefors Critical Value | 0.298 | Detected Data appear Lognormal at 10% Significance Level |

Detected Data appear Approximate Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00956 | Mean in Log Scale | -4.661 |
| SD in Original Scale | 0.00147 | SD in Log Scale | 0.15 |
| 95% UTL95% Coverage | 0.0134 | 95% BCA UTL95% Coverage | 0.0129 |
| 95% Bootstrap (%) UTL95% Coverage | 0.013 | 95% UPL (t) | 0.0123 |
| 90% Percentile (z) | 0.0115 | 95% Percentile (z) | 0.0121 |
| 99% Percentile (z) | 0.0134 | 95% USL | 0.014 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -6.157 | 95% KM UTL (Lognormal)95% Coverage | 0.0206 |
| KM SD of Logged Data | 0.984 | 95% KM UPL (Lognormal) | 0.0119 |
| 95% KM Percentile Lognormal (z) | 0.0107 | 95% KM USL (Lognormal) | 0.0286 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0034 | Mean in Log Scale | -6.625 |
| SD in Original Scale | 0.00489 | SD in Log Scale | 1.285 |
| 95% UTL95% Coverage | 0.0258 | 95% UPL (t) | 0.0126 |
| 90% Percentile (z) | 0.00688 | 95% Percentile (z) | 0.011 |
| 99% Percentile (z) | 0.0263 | 95% USL | 0.0396 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 24 | 95% UTL with95% Coverage | 0.013 |
| Approx, f used to compute achieved CC | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.708 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.0128 |
| 95% USL | 0.013 | 95% KM Chebyshev UPL | 0.024 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (acenaphthene | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 33 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 8 | | |
| Number of Detects | 3 | Number of Non-Detects | 30 |
| Number of Distinct Detects | 1 | Number of Distinct Non-Detects | 7 |
| Minimum Detect | 0.011 | Minimum Non-Detect | 0.001 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Maximum Detect | 0.011 | Maximum Non-Detect | 0.012 |
| Variance Detected | 4.514E-36 | Percent Non-Detects | 90.91% |
| Mean Detected | 0.011 | SD Detected | 2.125E-18 |
| Mean of Detected Logged Data | -4.51 | SD of Detected Logged Data | 0 |

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (acenaphthene | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [pd]) was not processed!

**Conc (acenaphthene | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 7 | | |
| Number of Detects | 5 | Number of Non-Detects | 19 |
| Number of Distinct Detects | 3 | Number of Distinct Non-Detects | 4 |
| Minimum Detect | 0.011 | Minimum Non-Detect | 0.0011 |
| Maximum Detect | 0.013 | Maximum Non-Detect | 0.0014 |
| Variance Detected | 1.0000E-6 | Percent Non-Detects | 79.17% |
| Mean Detected | 0.012 | SD Detected | 0.001 |
| Mean of Detected Logged Data | -4.426 | SD of Detected Logged Data | 0.0835 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.821 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.686 | Detected Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.241 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.396 | Detected Data appear Normal at 1% Significance Level | |

Detected Data appear Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00337 | KM SD | 0.00445 |
| 95% UTL95% Coverage | 0.0136 | 95% KM UPL (t) | 0.0111 |
| 90% KM Percentile (z) | 0.00907 | 95% KM Percentile (z) | 0.0107 |
| 99% KM Percentile (z) | 0.0137 | 95% KM USL | 0.0151 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00299 | SD | 0.00474 |
| 95% UTL95% Coverage | 0.0139 | 95% UPL (t) | 0.0113 |
| 90% Percentile (z) | 0.00906 | 95% Percentile (z) | 0.0108 |
| 99% Percentile (z) | 0.014 | 95% USL | 0.0155 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.534 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.678 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.27 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.357 | Detected data appear Gamma Distributed at 5% Significance Level |

**Detected data appear Gamma Distributed at 5% Significance Level**

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 179.5 | k star (bias corrected MLE) | 71.95 |
| Theta hat (MLE) | 6.6837E-5 | Theta star (bias corrected MLE) | 1.6678E-4 |
| nu hat (MLE) | 1795 | nu star (bias corrected) | 719.5 |
| MLE Mean (bias corrected) | 0.012 | | |
| MLE Sd (bias corrected) | 0.00141 | 95% Percentile of Chisquare (2kstar) | 172.9 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.01 | Mean | 0.0104 |
| Maximum | 0.013 | Median | 0.01 |
| SD | 9.2861E-4 | CV | 0.0891 |
| k hat (MLE) | 146.4 | k star (bias corrected MLE) | 128.1 |
| Theta hat (MLE) | 7.1149E-5 | Theta star (bias corrected MLE) | 8.1296E-5 |
| nu hat (MLE) | 7027 | nu star (bias corrected) | 6150 |
| MLE Mean (bias corrected) | 0.0104 | MLE Sd (bias corrected) | 9.2024E-4 |
| 95% Percentile of Chisquare (2kstar) | 294.6 | 90% Percentile | 0.0116 |
| 95% Percentile | 0.012 | 99% Percentile | 0.0127 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0126 | 0.0126 | 95% Approx. Gamma UPL | 0.012 | 0.012 |
| 95% Gamma USL | 0.0129 | 0.0129 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00337 | SD (KM) | 0.00445 |
| Variance (KM) | 1.9762E-5 | SE of Mean (KM) | 0.00101 |
| k hat (KM) | 0.575 | k star (KM) | 0.531 |
| nu hat (KM) | 27.6 | nu star (KM) | 25.48 |
| theta hat (KM) | 0.00586 | theta star (KM) | 0.00635 |
| 80% gamma percentile (KM) | 0.00555 | 90% gamma percentile (KM) | 0.00901 |
| 95% gamma percentile (KM) | 0.0127 | 99% gamma percentile (KM) | 0.0216 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | | | |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0151 | 0.0155 | 95% Approx. Gamma UPL | 0.0105 | 0.0103 |
| 95% KM Gamma Percentile | 0.00972 | 0.00954 | 95% Gamma USL | 0.0185 | 0.0193 |

**Lognormal GOF Test on Detected Observations Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.82 | **Shapiro Wilk GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.806 | Detected Data appear Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.243 | **Lilliefors GOF Test** | |
| 10% Lilliefors Critical Value | 0.319 | Detected Data appear Lognormal at 10% Significance Level | |

Detected Data appear Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00914 | Mean in Log Scale | -4.713 |
| SD in Original Scale | 0.00181 | SD in Log Scale | 0.19 |
| 95% UTL95% Coverage | 0.0139 | 95% BCA UTL95% Coverage | 0.013 |
| 95% Bootstrap (%) UTL95% Coverage | 0.013 | 95% UPL (t) | 0.0125 |
| 90% Percentile (z) | 0.0115 | 95% Percentile (z) | 0.0123 |
| 99% Percentile (z) | 0.014 | 95% USL | 0.0148 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -6.315 | 95% KM UTL (Lognormal)95% Coverage | 0.017 |
| KM SD of Logged Data | 0.97 | 95% KM UPL (Lognormal) | 0.00987 |
| 95% KM Percentile Lognormal (z) | 0.00892 | 95% KM USL (Lognormal) | 0.0235 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00299 | Mean in Log Scale | -6.78 |
| SD in Original Scale | 0.00474 | SD in Log Scale | 1.236 |
| 95% UTL95% Coverage | 0.0197 | 95% UPL (t) | 0.00987 |
| 90% Percentile (z) | 0.00554 | 95% Percentile (z) | 0.00868 |
| 99% Percentile (z) | 0.0201 | 95% USL | 0.0298 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 24 | 95% UTL with95% Coverage | 0.013 |
| Approx, f used to compute achieved CC | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.708 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.013 |
| 95% USL | 0.013 | 95% KM Chebyshev UPL | 0.0231 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (acenaphthylene | [subsurface soil_1_5][subsurface soil_5_10] | [ps][pd])**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 70 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 5 | | |
| Number of Detects | 1 | Number of Non-Detects | 69 |
| Number of Distinct Detects | 1 | Number of Distinct Non-Detects | 4 |
| Minimum Detect | 0.016 | Minimum Non-Detect | 0.001 |
| Maximum Detect | 0.016 | Maximum Non-Detect | 0.0013 |
| Variance Detected | N/A | Percent Non-Detects | 98.57% |
| Mean Detected | 0.016 | SD Detected | N/A |
| Mean of Detected Logged Data | -4.135 | SD of Detected Logged Data | N/A |

**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**
**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**

**The data set for variable Conc (acenaphthylene | [subsurface soil_1_5][subsurface soil_5_10] | [ps][pd]) was not processed!**

**Conc (acenaphthylene | [surface soil] | [pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 11 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 9 | | |
| Number of Detects | 10 | Number of Non-Detects | 1 |
| Number of Distinct Detects | 8 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | 0.0012 | Minimum Non-Detect | 0.012 |
| Maximum Detect | 0.044 | Maximum Non-Detect | 0.012 |
| Variance Detected | 2.0292E-4 | Percent Non-Detects | 9.091% |
| Mean Detected | 0.00946 | SD Detected | 0.0142 |
| Mean of Detected Logged Data | -5.601 | SD of Detected Logged Data | 1.368 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.815 | d2max (for USL) | 2.234 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.659 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.781 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.395 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.304 | Data Not Normal at 1% Significance Level | |

**Data Not Normal at 1% Significance Level**

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00875 | KM SD | 0.0131 |
| 95% UTL95% Coverage | 0.0456 | 95% KM UPL (t) | 0.0335 |
| 90% KM Percentile (z) | 0.0255 | 95% KM Percentile (z) | 0.0303 |
| 99% KM Percentile (z) | 0.0392 | 95% KM USL | 0.038 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00915 | SD | 0.0136 |
| 95% UTL95% Coverage | 0.0473 | 95% UPL (t) | 0.0348 |
| 90% Percentile (z) | 0.0265 | 95% Percentile (z) | 0.0314 |
| 99% Percentile (z) | 0.0407 | 95% USL | 0.0394 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 1.357 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.765 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.393 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.278 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.65 | k star (bias corrected MLE) | 0.521 |
| Theta hat (MLE) | 0.0146 | Theta star (bias corrected MLE) | 0.0181 |
| nu hat (MLE) | 12.99 | nu star (bias corrected) | 10.43 |
| MLE Mean (bias corrected) | 0.00946 | | |
| MLE Sd (bias corrected) | 0.0131 | 95% Percentile of Chisquare (2kstar) | 3.947 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0012 | Mean | 0.00951 |
| Maximum | 0.044 | Median | 0.002 |
| SD | 0.0135 | CV | 1.421 |
| k hat (MLE) | 0.706 | k star (bias corrected MLE) | 0.574 |
| Theta hat (MLE) | 0.0135 | Theta star (bias corrected MLE) | 0.0166 |
| nu hat (MLE) | 15.54 | nu star (bias corrected) | 12.63 |
| MLE Mean (bias corrected) | 0.00951 | MLE Sd (bias corrected) | 0.0125 |
| 95% Percentile of Chisquare (2kstar) | 4.198 | 90% Percentile | 0.025 |
| 95% Percentile | 0.0348 | 99% Percentile | 0.0585 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0734 | 0.0838 | 95% Approx. Gamma UPL | 0.039 | 0.0406 |
| 95% Gamma USL | 0.05 | 0.0539 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00875 | SD (KM) | 0.0131 |
| Variance (KM) | 1.7107E-4 | SE of Mean (KM) | 0.00416 |
| k hat (KM) | 0.448 | k star (KM) | 0.386 |
| nu hat (KM) | 9.847 | nu star (KM) | 8.495 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| theta hat (KM) | 0.0195 | theta star (KM) | 0.0227 |
| 80% gamma percentile (KM) | 0.0141 | 90% gamma percentile (KM) | 0.0249 |
| 95% gamma percentile (KM) | 0.0368 | 99% gamma percentile (KM) | 0.0669 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.064 | 0.0708 | 95% Approx. Gamma UPL | 0.0339 | 0.0344 |
| 95% KM Gamma Percentile | 0.0278 | 0.0276 | 95% Gamma USL | 0.0435 | 0.0456 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.763 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.869 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.348 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.241 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00879 | Mean in Log Scale | -5.652 |
| SD in Original Scale | 0.0137 | SD in Log Scale | 1.308 |
| 95% UTL95% Coverage | 0.14 | 95% BCA UTL95% Coverage | 0.044 |
| 95% Bootstrap (%) UTL95% Coverage | 0.044 | 95% UPL (t) | 0.0418 |
| 90% Percentile (z) | 0.0188 | 95% Percentile (z) | 0.0302 |
| 99% Percentile (z) | 0.0737 | 95% USL | 0.0653 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -5.676 | 95% KM UTL (Lognormal)95% Coverage | 0.12 |
| KM SD of Logged Data | 1.262 | 95% KM UPL (Lognormal) | 0.0373 |
| 95% KM Percentile Lognormal (z) | 0.0273 | 95% KM USL (Lognormal) | 0.0574 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00915 | Mean in Log Scale | -5.557 |
| SD in Original Scale | 0.0136 | SD in Log Scale | 1.306 |
| 95% UTL95% Coverage | 0.152 | 95% UPL (t) | 0.0457 |
| 90% Percentile (z) | 0.0206 | 95% Percentile (z) | 0.0331 |
| 99% Percentile (z) | 0.0805 | 95% USL | 0.0714 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 11 | 95% UTL with95% Coverage | 0.044 |
| Approx, f used to compute achieved CC | 0.579 | Approximate Actual Confidence Coefficient achieved by UTL | 0.431 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.044 |
| 95% USL | 0.044 | 95% KM Chebyshev UPL | 0.0683 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (acenaphthylene | [surface soil] | [ps])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 12 | | |
| Number of Detects | 11 | Number of Non-Detects | 13 |
| Number of Distinct Detects | 9 | Number of Distinct Non-Detects | 4 |
| Minimum Detect | 8.4000E-4 | Minimum Non-Detect | 0.0012 |
| Maximum Detect | 0.056 | Maximum Non-Detect | 0.011 |
| Variance Detected | 2.6336E-4 | Percent Non-Detects | 54.17% |
| Mean Detected | 0.00748 | SD Detected | 0.0162 |
| Mean of Detected Logged Data | -5.892 | SD of Detected Logged Data | 1.201 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.444 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.792 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.418 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.291 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00397 | KM SD | 0.011 |
| 95% UTL95% Coverage | 0.0293 | 95% KM UPL (t) | 0.0232 |
| 90% KM Percentile (z) | 0.018 | 95% KM Percentile (z) | 0.022 |
| 99% KM Percentile (z) | 0.0295 | 95% KM USL | 0.033 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00417 | SD | 0.0112 |
| 95% UTL95% Coverage | 0.0301 | 95% UPL (t) | 0.0238 |
| 90% Percentile (z) | 0.0186 | 95% Percentile (z) | 0.0226 |
| 99% Percentile (z) | 0.0303 | 95% USL | 0.0338 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 1.594 | **Anderson-Darling GOF Test** | |
| 5% A-D Critical Value | 0.772 | Data Not Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.312 | **Kolmogorov-Smirnov GOF** | |
| 5% K-S Critical Value | 0.267 | Data Not Gamma Distributed at 5% Significance Level | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.618 | k star (bias corrected MLE) | 0.51 |
| Theta hat (MLE) | 0.0121 | Theta star (bias corrected MLE) | 0.0147 |
| nu hat (MLE) | 13.59 | nu star (bias corrected) | 11.21 |
| MLE Mean (bias corrected) | 0.00748 | | |
| MLE Sd (bias corrected) | 0.0105 | 95% Percentile of Chisquare (2kstar) | 3.89 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 8.4000E-4 | Mean | 0.00884 |
| Maximum | 0.056 | Median | 0.01 |
| SD | 0.0108 | CV | 1.219 |
| k hat (MLE) | 1.21 | k star (bias corrected MLE) | 1.087 |
| Theta hat (MLE) | 0.00731 | Theta star (bias corrected MLE) | 0.00814 |
| nu hat (MLE) | 58.09 | nu star (bias corrected) | 52.16 |
| MLE Mean (bias corrected) | 0.00884 | MLE Sd (bias corrected) | 0.00848 |
| 95% Percentile of Chisquare (2kstar) | 6.323 | 90% Percentile | 0.0199 |
| 95% Percentile | 0.0257 | 99% Percentile | 0.0391 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0366 | 0.0393 | 95% Approx. Gamma UPL | 0.0262 | 0.027 |
| 95% Gamma USL | 0.044 | 0.0483 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00397 | SD (KM) | 0.011 |
| Variance (KM) | 1.2042E-4 | SE of Mean (KM) | 0.00235 |
| k hat (KM) | 0.131 | k star (KM) | 0.142 |
| nu hat (KM) | 6.285 | nu star (KM) | 6.832 |
| theta hat (KM) | 0.0303 | theta star (KM) | 0.0279 |
| 80% gamma percentile (KM) | 0.00413 | 90% gamma percentile (KM) | 0.0117 |
| 95% gamma percentile (KM) | 0.0221 | 99% gamma percentile (KM) | 0.0526 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0182 | 0.017 | 95% Approx. Gamma UPL | 0.012 | 0.0109 |
| 95% KM Gamma Percentile | 0.0111 | 0.01 | 95% Gamma USL | 0.0228 | 0.0217 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.814 | **Shapiro Wilk GOF Test** |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 10% Shapiro Wilk Critical Value | 0.876 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.226 | **Lilliefors GOF Test** | |
| 10% Lilliefors Critical Value | 0.231 | Detected Data appear Lognormal at 10% Significance Level | |

Detected Data appear Approximate Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00371 | Mean in Log Scale | -6.925 |
| SD in Original Scale | 0.0113 | SD in Log Scale | 1.364 |
| 95% UTL95% Coverage | 0.0229 | 95% BCA UTL95% Coverage | 0.056 |
| 95% Bootstrap (%) UTL95% Coverage | 0.056 | 95% UPL (t) | 0.0107 |
| 90% Percentile (z) | 0.00564 | 95% Percentile (z) | 0.00926 |
| 99% Percentile (z) | 0.0235 | 95% USL | 0.0362 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -6.483 | 95% KM UTL (Lognormal)95% Coverage | 0.0144 |
| KM SD of Logged Data | 0.973 | 95% KM UPL (Lognormal) | 0.00838 |
| 95% KM Percentile Lognormal (z) | 0.00757 | 95% KM USL (Lognormal) | 0.02 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00417 | Mean in Log Scale | -6.515 |
| SD in Original Scale | 0.0112 | SD in Log Scale | 1.148 |
| 95% UTL95% Coverage | 0.021 | 95% UPL (t) | 0.011 |
| 90% Percentile (z) | 0.00645 | 95% Percentile (z) | 0.00979 |
| 99% Percentile (z) | 0.0214 | 95% USL | 0.0308 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 24 | 95% UTL with95% Coverage | 0.056 |
| Approx, f used to compute achieved CC | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.708 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.0448 |
| 95% USL | 0.056 | 95% KM Chebyshev UPL | 0.0528 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (acenaphthylene | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 7 | | |
| Number of Detects | 3 | Number of Non-Detects | 21 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Number of Distinct Detects | 3 | Number of Distinct Non-Detects | 4 |
| Minimum Detect | 0.0018 | Minimum Non-Detect | 0.0011 |
| Maximum Detect | 0.011 | Maximum Non-Detect | 0.0014 |
| Variance Detected | 2.7040E-5 | Percent Non-Detects | 87.5% |
| Mean Detected | 0.005 | SD Detected | 0.0052 |
| Mean of Detected Logged Data | -5.65 | SD of Detected Logged Data | 0.992 |

Warning: Data set has only 3 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.783 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.753 | Detected Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.372 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.429 | Detected Data appear Normal at 1% Significance Level |

Detected Data appear Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00159 | KM SD | 0.00198 |
| 95% UTL95% Coverage | 0.00616 | 95% KM UPL (t) | 0.00505 |
| 90% KM Percentile (z) | 0.00412 | 95% KM Percentile (z) | 0.00484 |
| 99% KM Percentile (z) | 0.00619 | 95% KM USL | 0.00682 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00116 | SD | 0.00213 |
| 95% UTL95% Coverage | 0.00609 | 95% UPL (t) | 0.00489 |
| 90% Percentile (z) | 0.00389 | 95% Percentile (z) | 0.00467 |
| 99% Percentile (z) | 0.00612 | 95% USL | 0.0068 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.519 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.638 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.4 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.437 | Detected data appear Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.569 | k star (bias corrected MLE) | N/A |
| Theta hat (MLE) | 0.00319 | Theta star (bias corrected MLE) | N/A |
| nu hat (MLE) | 9.413 | nu star (bias corrected) | N/A |
| MLE Mean (bias corrected) | N/A | | |
| MLE Sd (bias corrected) | N/A | 95% Percentile of Chisquare (2kstar) | N/A |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0018 | Mean | 0.00938 |
| Maximum | 0.011 | Median | 0.01 |
| SD | 0.00228 | CV | 0.243 |
| k hat (MLE) | 7.735 | k star (bias corrected MLE) | 6.796 |
| Theta hat (MLE) | 0.00121 | Theta star (bias corrected MLE) | 0.00138 |
| nu hat (MLE) | 371.3 | nu star (bias corrected) | 326.2 |
| MLE Mean (bias corrected) | 0.00938 | MLE Sd (bias corrected) | 0.0036 |
| 95% Percentile of Chisquare (2kstar) | 23.15 | 90% Percentile | 0.0142 |
| 95% Percentile | 0.016 | 99% Percentile | 0.0197 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.019 | 0.0201 | 95% Approx. Gamma UPL | 0.0162 | 0.0168 |
| 95% Gamma USL | 0.0209 | 0.0223 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00159 | SD (KM) | 0.00198 |
| Variance (KM) | 3.9169E-6 | SE of Mean (KM) | 4.9478E-4 |
| k hat (KM) | 0.643 | k star (KM) | 0.591 |
| nu hat (KM) | 30.88 | nu star (KM) | 28.36 |
| theta hat (KM) | 0.00247 | theta star (KM) | 0.00269 |
| 80% gamma percentile (KM) | 0.00262 | 90% gamma percentile (KM) | 0.00414 |
| 95% gamma percentile (KM) | 0.00574 | 99% gamma percentile (KM) | 0.00962 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.00458 | 0.00439 | 95% Approx. Gamma UPL | 0.00355 | 0.00338 |
| 95% KM Gamma Percentile | 0.00337 | 0.00322 | 95% Gamma USL | 0.00529 | 0.00509 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.832 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.789 | Detected Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.349 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.389 | Detected Data appear Lognormal at 10% Significance Level |

Detected Data appear Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 6.5959E-4 | Mean in Log Scale | -10.98 |
| SD in Original Scale | 0.00227 | SD in Log Scale | 2.898 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% UTL95% Coverage | 0.0137 | 95% BCA UTL95% Coverage | 0.011 |
| 95% Bootstrap (%) UTL95% Coverage | 0.011 | 95% UPL (t) | 0.00271 |
| 90% Percentile (z) | 6.9898E-4 | 95% Percentile (z) | 0.002 |
| 99% Percentile (z) | 0.0144 | 95% USL | 0.0362 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -6.667 | 95% KM UTL (Lognormal)95% Coverage | 0.00385 |
| KM SD of Logged Data | 0.479 | 95% KM UPL (Lognormal) | 0.00294 |
| 95% KM Percentile Lognormal (z) | 0.0028 | 95% KM USL (Lognormal) | 0.00452 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00116 | Mean in Log Scale | -7.182 |
| SD in Original Scale | 0.00213 | SD in Log Scale | 0.663 |
| 95% UTL95% Coverage | 0.00351 | 95% UPL (t) | 0.00242 |
| 90% Percentile (z) | 0.00178 | 95% Percentile (z) | 0.00226 |
| 99% Percentile (z) | 0.00355 | 95% USL | 0.00439 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 24 | 95% UTL with95% Coverage | 0.011 |
| Approx, f used to compute achieved CC | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.708 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.0088 |
| 95% USL | 0.011 | 95% KM Chebyshev UPL | 0.0104 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (aluminum | [subsurface soil_1_5] | [pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 11 | Number of Distinct Observations | 11 |
| Minimum | 3400 | First Quartile | 4550 |
| Second Largest | 6300 | Median | 5300 |
| Maximum | 8500 | Third Quartile | 6100 |
| Mean | 5373 | SD | 1423 |
| Coefficient of Variation | 0.265 | Skewness | 0.75 |
| Mean of logged Data | 8.558 | SD of logged Data | 0.262 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.815 | d2max (for USL) | 2.234 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.94 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.792 | Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.166 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.291 | Data appear Normal at 1% Significance Level |

Data appear Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 9380 | 90% Percentile (z) | 7197 |
| | 95% UPL (t) | 8067 | 95% Percentile (z) | 7714 |
| | 95% USL | 8553 | 99% Percentile (z) | 8684 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.255 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.729 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.147 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.255 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 16.17 | k star (bias corrected MLE) | 11.82 |
| Theta hat (MLE) | 332.2 | Theta star (bias corrected MLE) | 454.4 |
| nu hat (MLE) | 355.8 | nu star (bias corrected) | 260.1 |
| MLE Mean (bias corrected) | 5373 | MLE Sd (bias corrected) | 1562 |

**Background Statistics Assuming Gamma Distribution**

| | | | | |
|---|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | | 8336 | 90% Percentile | 7447 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | | 8384 | 95% Percentile | 8174 |
| 95% WH Approx. Gamma UTL with | 95% Coverage | 10190 | 99% Percentile | 9658 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 10340 | | |
| | 95% WH USL | 8992 | 95% HW USL | 9071 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.964 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.876 | Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.166 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.231 | Data appear Lognormal at 10% Significance Level |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 10897 | 90% Percentile (z) | 7288 |
| | 95% UPL (t) | 8556 | 95% Percentile (z) | 8017 |
| | 95% USL | 9356 | 99% Percentile (z) | 9586 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 11 | 95% UTL with 95% Coverage | 8500 |
| Approx, f used to compute achieved CC | 0.579 | Approximate Actual Confidence Coefficient achieved by UTL | 0.431 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 8500 | 95% BCA Bootstrap UTL with 95% Coverage | 8500 |
| 95% UPL | 8500 | 90% Percentile | 6300 |
| 90% Chebyshev UPL | 9833 | 95% Percentile | 7400 |
| 95% Chebyshev UPL | 11853 | 99% Percentile | 8280 |
| 95% USL | 8500 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (aluminum | [subsurface soil_1_5][subsurface soil_5_10] | [ps])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 48 | Number of Distinct Observations | 29 |
| Minimum | 2300 | First Quartile | 3250 |
| Second Largest | 8100 | Median | 4200 |
| Maximum | 13000 | Third Quartile | 5225 |
| Mean | 4521 | SD | 1830 |
| Coefficient of Variation | 0.405 | Skewness | 2.333 |
| Mean of logged Data | 8.353 | SD of logged Data | 0.345 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.069 | d2max (for USL) | 2.941 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.825 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.929 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.15 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.148 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 8306 | 90% Percentile (z) | 6866 |
| 95% UPL (t) | 7623 | 95% Percentile (z) | 7530 |
| 95% USL | 9902 | 99% Percentile (z) | 8777 |

**Gamma GOF Test**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 0.526 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.751 | Detected data appear Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.0985 | **Kolmogorov-Smirnov Gamma GOF Test** | |
| 5% K-S Critical Value | 0.128 | Detected data appear Gamma Distributed at 5% Significance Level | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 8.105 | k star (bias corrected MLE) | 7.612 |
| Theta hat (MLE) | 557.8 | Theta star (bias corrected MLE) | 593.9 |
| nu hat (MLE) | 778.1 | nu star (bias corrected) | 730.8 |
| MLE Mean (bias corrected) | 4521 | MLE Sd (bias corrected) | 1639 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 7542 | 90% Percentile | 6707 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 7553 | 95% Percentile | 7509 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 8415 | 99% Percentile | 9175 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 8463 | | |
| 95% WH USL | 10712 | 95% HW USL | 10907 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.968 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.954 | Data appear Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.0808 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.117 | Data appear Lognormal at 10% Significance Level | |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 8673 | 90% Percentile (z) | 6608 |
| 95% UPL (t) | 7624 | 95% Percentile (z) | 7492 |
| 95% USL | 11722 | 99% Percentile (z) | 9480 |

**Nonparametric Distribution Free Background Statistics**

Data appear Gamma Distributed at 5% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 48 | 95% UTL with 95% Coverage | 13000 |
| Approx, f used to compute achieved CC | 2.526 | Approximate Actual Confidence Coefficient achieved by UTL | 0.915 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 11285 | 95% BCA Bootstrap UTL with 95% Coverage | 8100 |
| 95% UPL | 7650 | 90% Percentile | 6370 |
| 90% Chebyshev UPL | 10067 | 95% Percentile | 7100 |
| 95% Chebyshev UPL | 12579 | 99% Percentile | 10697 |
| 95% USL | 13000 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (aluminum | [subsurface soil_5_10] | [pd])**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 11 | Number of Distinct Observations | 9 |
| Minimum | 2200 | First Quartile | 3350 |
| Second Largest | 4600 | Median | 4200 |
| Maximum | 5200 | Third Quartile | 4550 |
| Mean | 3955 | SD | 903.7 |
| Coefficient of Variation | 0.229 | Skewness | -0.78 |
| Mean of logged Data | 8.255 | SD of logged Data | 0.259 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.815 | d2max (for USL) | 2.234 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.915 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.792 | Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.243 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.291 | Data appear Normal at 1% Significance Level |

Data appear Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 6499 | 90% Percentile (z) | 5113 |
| | 95% UPL (t) | 5665 | 95% Percentile (z) | 5441 |
| | 95% USL | 5973 | 99% Percentile (z) | 6057 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.65 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.729 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.268 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.255 | Data Not Gamma Distributed at 5% Significance Level |

Detected data follow Appr. Gamma Distribution at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 18.09 | k star (bias corrected MLE) | 13.22 |
| Theta hat (MLE) | 218.6 | Theta star (bias corrected MLE) | 299.2 |
| nu hat (MLE) | 398 | nu star (bias corrected) | 290.8 |
| MLE Mean (bias corrected) | 3955 | MLE Sd (bias corrected) | 1088 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 6008 | 90% Percentile | 5397 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 6066 | 95% Percentile | 5897 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 7276 | 99% Percentile | 6914 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 7420 | | |
| 95% WH USL | 6458 | 95% HW USL | 6543 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.87 | **Shapiro Wilk Lognormal GOF Test** |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 10% Shapiro Wilk Critical Value | 0.876 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.27 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.231 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 7962 | 90% Percentile (z) | | 5356 |
| | 95% UPL (t) | 6274 | 95% Percentile (z) | | 5884 |
| | 95% USL | 6851 | 99% Percentile (z) | | 7017 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| Order of Statistic, order | | 11 | 95% UTL with | 95% Coverage | 5200 |
| Approx, f used to compute achieved CC | | 0.579 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.431 |
| | | | Approximate Sample Size needed to achieve specified CC | | 59 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 5200 | 95% BCA Bootstrap UTL with | 95% Coverage | 5200 |
| | 95% UPL | 5200 | | 90% Percentile | 4600 |
| | 90% Chebyshev UPL | 6786 | | 95% Percentile | 4900 |
| | 95% Chebyshev UPL | 8069 | | 99% Percentile | 5140 |
| | 95% USL | 5200 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (aluminum | [surface soil] | [ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 35 | Number of Distinct Observations | 25 |
| Minimum | 2900 | First Quartile | 5150 |
| Second Largest | 8600 | Median | 6400 |
| Maximum | 8800 | Third Quartile | 7800 |
| Mean | 6311 | SD | 1743 |
| Coefficient of Variation | 0.276 | Skewness | -0.414 |
| Mean of logged Data | 8.706 | SD of logged Data | 0.315 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.157 | d2max (for USL) | 2.812 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.937 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.91 | Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.118 | **Lilliefors GOF Test** |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 1% Lilliefors Critical Value | 0.172 | Data appear Normal at 1% Significance Level |

Data appear Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 10072 | 90% Percentile (z) | | 8546 |
| | 95% UPL (t) | 9301 | 95% Percentile (z) | | 9179 |
| | 95% USL | 11213 | 99% Percentile (z) | | 10367 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.842 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.748 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.116 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.149 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data follow Appr. Gamma Distribution at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 11.55 | k star (bias corrected MLE) | 10.58 |
| Theta hat (MLE) | 546.3 | Theta star (bias corrected MLE) | 596.5 |
| nu hat (MLE) | 808.6 | nu star (bias corrected) | 740.7 |
| MLE Mean (bias corrected) | 6311 | MLE Sd (bias corrected) | 1940 |

**Background Statistics Assuming Gamma Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | | 9883 | 90% Percentile | | 8891 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | | 9988 | 95% Percentile | | 9805 |
| 95% WH Approx. Gamma UTL with | 95% Coverage | 11049 | 99% Percentile | | 11677 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 11233 | | | |
| | 95% WH USL | 12939 | 95% HW USL | | 13285 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.895 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.944 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.127 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.136 | Data appear Lognormal at 10% Significance Level |

Data appear Approximate Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 11924 | 90% Percentile (z) | | 9048 |
| | 95% UPL (t) | 10372 | 95% Percentile (z) | | 10146 |
| | 95% USL | 14658 | 99% Percentile (z) | | 12578 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| Order of Statistic, order | | 35 | 95% UTL with | 95% Coverage | 8800 |
| Approx, f used to compute achieved CC | | 1.842 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.834 |
| | | | Approximate Sample Size needed to achieve specified CC | | 59 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | | | |
|---|---|---|---|---|---|
| 95% Percentile Bootstrap UTL with | 95% Coverage | 8800 | 95% BCA Bootstrap UTL with | 95% Coverage | 8600 |
| | 95% UPL | 8640 | | 90% Percentile | 8520 |
| | 90% Chebyshev UPL | 11616 | | 95% Percentile | 8600 |
| | 95% Chebyshev UPL | 14018 | | 99% Percentile | 8732 |
| | 95% USL | 8800 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (aluminum | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Distinct Observations | 18 |
| Minimum | 2200 | First Quartile | 3325 |
| Second Largest | 6400 | Median | 3900 |
| Maximum | 7100 | Third Quartile | 4700 |
| Mean | 4125 | SD | 1337 |
| Coefficient of Variation | 0.324 | Skewness | 0.63 |
| Mean of logged Data | 8.275 | SD of logged Data | 0.325 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.941 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.884 | Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.144 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.205 | Data appear Normal at 1% Significance Level | |

Data appear Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 7211 | 90% Percentile (z) | | 5838 |
| | 95% UPL (t) | 6463 | 95% Percentile (z) | | 6323 |
| | 95% USL | 7659 | 99% Percentile (z) | | 7234 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.322 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.744 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.102 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.178 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 10.17 | k star (bias corrected MLE) | 8.924 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Theta hat (MLE) | 405.7 | Theta star (bias corrected MLE) | 462.2 |
| nu hat (MLE) | 488 | nu star (bias corrected) | 428.4 |
| MLE Mean (bias corrected) | 4125 | MLE Sd (bias corrected) | 1381 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 6706 | 90% Percentile | 5964 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 6753 | 95% Percentile | 6627 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 7782 | 99% Percentile | 7995 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 7892 | | |
| 95% WH USL | 8478 | 95% HW USL | 8639 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.963 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.93 | Data appear Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.104 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.162 | Data appear Lognormal at 10% Significance Level | |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 8309 | 90% Percentile (z) | 5951 |
| 95% UPL (t) | 6927 | 95% Percentile (z) | 6696 |
| 95% USL | 9264 | 99% Percentile (z) | 8356 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 24 | 95% UTL with 95% Coverage | 7100 |
| Approx, f used to compute achieved CC | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.708 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 7100 | 95% BCA Bootstrap UTL with 95% Coverage | 7100 |
| 95% UPL | 6925 | 90% Percentile | 6180 |
| 90% Chebyshev UPL | 8217 | 95% Percentile | 6385 |
| 95% Chebyshev UPL | 10071 | 99% Percentile | 6939 |
| 95% USL | 7100 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (anthracene | [subsurface soil_1_5][subsurface soil_5_10] | [ps])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 48 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 12 | | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Number of Detects | 1 | Number of Non-Detects | 47 |
| Number of Distinct Detects | 1 | Number of Distinct Non-Detects | 11 |
| Minimum Detect | 0.012 | Minimum Non-Detect | 0.0042 |
| Maximum Detect | 0.012 | Maximum Non-Detect | 0.0053 |
| Variance Detected | N/A | Percent Non-Detects | 97.92% |
| Mean Detected | 0.012 | SD Detected | N/A |
| Mean of Detected Logged Data | -4.423 | SD of Detected Logged Data | N/A |

**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**
**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**

**The data set for variable Conc (anthracene | [subsurface soil_1_5][subsurface soil_5_10] | [ps]) was not processed!**

**Conc (anthracene | [surface soil] | [ps])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 16 | | |
| Number of Detects | 7 | Number of Non-Detects | 17 |
| Number of Distinct Detects | 7 | Number of Distinct Non-Detects | 10 |
| Minimum Detect | 0.0019 | Minimum Non-Detect | 0.0047 |
| Maximum Detect | 0.034 | Maximum Non-Detect | 0.006 |
| Variance Detected | 1.3414E-4 | Percent Non-Detects | 70.83% |
| Mean Detected | 0.00799 | SD Detected | 0.0116 |
| Mean of Detected Logged Data | -5.382 | SD of Detected Logged Data | 0.994 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.578 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.73 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.422 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.35 | Data Not Normal at 1% Significance Level | |

**Data Not Normal at 1% Significance Level**

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0044 | KM SD | 0.00631 |
| 95% UTL95% Coverage | 0.019 | 95% KM UPL (t) | 0.0154 |
| 90% KM Percentile (z) | 0.0125 | 95% KM Percentile (z) | 0.0148 |
| 99% KM Percentile (z) | 0.0191 | 95% KM USL | 0.0211 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00416 | SD | 0.00643 |
| 95% UTL95% Coverage | 0.019 | 95% UPL (t) | 0.0154 |
| 90% Percentile (z) | 0.0124 | 95% Percentile (z) | 0.0147 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 99% Percentile (z) | 0.0191 | 95% USL | 0.0212 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.871 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.727 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.328 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.319 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.041 | k star (bias corrected MLE) | 0.69 |
| Theta hat (MLE) | 0.00767 | Theta star (bias corrected MLE) | 0.0116 |
| nu hat (MLE) | 14.58 | nu star (bias corrected) | 9.662 |
| MLE Mean (bias corrected) | 0.00799 | | |
| MLE Sd (bias corrected) | 0.00961 | 95% Percentile of Chisquare (2kstar) | 4.722 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0019 | Mean | 0.00941 |
| Maximum | 0.034 | Median | 0.01 |
| SD | 0.00599 | CV | 0.636 |
| k hat (MLE) | 3.169 | k star (bias corrected MLE) | 2.8 |
| Theta hat (MLE) | 0.00297 | Theta star (bias corrected MLE) | 0.00336 |
| nu hat (MLE) | 152.1 | nu star (bias corrected) | 134.4 |
| MLE Mean (bias corrected) | 0.00941 | MLE Sd (bias corrected) | 0.00562 |
| 95% Percentile of Chisquare (2kstar) | 11.99 | 90% Percentile | 0.017 |
| 95% Percentile | 0.0202 | 99% Percentile | 0.0271 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.026 | 0.0272 | 95% Approx. Gamma UPL | 0.0205 | 0.021 |
| 95% Gamma USL | 0.0297 | 0.0314 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0044 | SD (KM) | 0.00631 |
| Variance (KM) | 3.9833E-5 | SE of Mean (KM) | 0.00147 |
| k hat (KM) | 0.486 | k star (KM) | 0.453 |
| nu hat (KM) | 23.33 | nu star (KM) | 21.75 |
| theta hat (KM) | 0.00905 | theta star (KM) | 0.00971 |
| 80% gamma percentile (KM) | 0.00719 | 90% gamma percentile (KM) | 0.0121 |
| 95% gamma percentile (KM) | 0.0175 | 99% gamma percentile (KM) | 0.0308 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0148 | 0.0145 | 95% Approx. Gamma UPL | 0.011 | 0.0106 |
| 95% KM Gamma Percentile | 0.0104 | 0.01 | 95% Gamma USL | 0.0175 | 0.0172 |

**Lognormal GOF Test on Detected Observations Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.837 | **Shapiro Wilk GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.838 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.245 | **Lilliefors GOF Test** | |
| 10% Lilliefors Critical Value | 0.28 | Detected Data appear Lognormal at 10% Significance Level | |

**Detected Data appear Approximate Lognormal at 10% Significance Level**

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00435 | Mean in Log Scale | -5.753 |
| SD in Original Scale | 0.00642 | SD in Log Scale | 0.621 |
| 95% UTL95% Coverage | 0.0133 | 95% BCA UTL95% Coverage | 0.0298 |
| 95% Bootstrap (%) UTL95% Coverage | 0.034 | 95% UPL (t) | 0.00941 |
| 90% Percentile (z) | 0.00704 | 95% Percentile (z) | 0.00882 |
| 99% Percentile (z) | 0.0135 | 95% USL | 0.0164 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -5.756 | 95% KM UTL (Lognormal)95% Coverage | 0.0138 |
| KM SD of Logged Data | 0.637 | 95% KM UPL (Lognormal) | 0.00964 |
| 95% KM Percentile Lognormal (z) | 0.00902 | 95% KM USL (Lognormal) | 0.0171 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00416 | Mean in Log Scale | -5.791 |
| SD in Original Scale | 0.00643 | SD in Log Scale | 0.578 |
| 95% UTL95% Coverage | 0.0116 | 95% UPL (t) | 0.00839 |
| 90% Percentile (z) | 0.00641 | 95% Percentile (z) | 0.0079 |
| 99% Percentile (z) | 0.0117 | 95% USL | 0.0141 |

**DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.**

**Nonparametric Distribution Free Background Statistics**

**Data appear to follow a Discernible Distribution**

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 24 | 95% UTL with95% Coverage | 0.034 |
| Approx, f used to compute achieved CC | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.708 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.027 |
| 95% USL | 0.034 | 95% KM Chebyshev UPL | 0.0325 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (anthracene | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 57 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 23 | | |
| Number of Detects | 7 | Number of Non-Detects | 50 |
| Number of Distinct Detects | 7 | Number of Distinct Non-Detects | 16 |
| Minimum Detect | 0.0018 | Minimum Non-Detect | 0.0042 |
| Maximum Detect | 0.04 | Maximum Non-Detect | 0.048 |
| Variance Detected | 1.9205E-4 | Percent Non-Detects | 87.72% |
| Mean Detected | 0.00954 | SD Detected | 0.0139 |
| Mean of Detected Logged Data | -5.316 | SD of Detected Logged Data | 1.148 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.028 | d2max (for USL) | 3.007 |

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.641 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.73 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.315 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.35 | Detected Data appear Normal at 1% Significance Level |

Detected Data appear Approximate Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00312 | KM SD | 0.00515 |
| 95% UTL95% Coverage | 0.0136 | 95% KM UPL (t) | 0.0118 |
| 90% KM Percentile (z) | 0.00972 | 95% KM Percentile (z) | 0.0116 |
| 99% KM Percentile (z) | 0.0151 | 95% KM USL | 0.0186 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00368 | SD | 0.0058 |
| 95% UTL95% Coverage | 0.0154 | 95% UPL (t) | 0.0135 |
| 90% Percentile (z) | 0.0111 | 95% Percentile (z) | 0.0132 |
| 99% Percentile (z) | 0.0172 | 95% USL | 0.0211 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.716 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.732 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.297 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.321 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.883 | k star (bias corrected MLE) | 0.6 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Theta hat (MLE) | 0.0108 | Theta star (bias corrected MLE) | 0.0159 |
| nu hat (MLE) | 12.36 | nu star (bias corrected) | 8.396 |
| MLE Mean (bias corrected) | 0.00954 | | |
| MLE Sd (bias corrected) | 0.0123 | 95% Percentile of Chisquare (2kstar) | 4.317 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0018 | Mean | 0.00994 |
| Maximum | 0.04 | Median | 0.01 |
| SD | 0.00454 | CV | 0.456 |
| k hat (MLE) | 6.287 | k star (bias corrected MLE) | 5.968 |
| Theta hat (MLE) | 0.00158 | Theta star (bias corrected MLE) | 0.00167 |
| nu hat (MLE) | 716.7 | nu star (bias corrected) | 680.3 |
| MLE Mean (bias corrected) | 0.00994 | MLE Sd (bias corrected) | 0.00407 |
| 95% Percentile of Chisquare (2kstar) | 20.94 | 90% Percentile | 0.0154 |
| 95% Percentile | 0.0174 | 99% Percentile | 0.0218 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0195 | 0.0199 | 95% Approx. Gamma UPL | 0.0174 | 0.0177 |
| 95% Gamma USL | 0.0261 | 0.0274 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00312 | SD (KM) | 0.00515 |
| Variance (KM) | 2.6566E-5 | SE of Mean (KM) | 7.6080E-4 |
| k hat (KM) | 0.366 | k star (KM) | 0.358 |
| nu hat (KM) | 41.71 | nu star (KM) | 40.85 |
| theta hat (KM) | 0.00852 | theta star (KM) | 0.0087 |
| 80% gamma percentile (KM) | 0.00496 | 90% gamma percentile (KM) | 0.00897 |
| 95% gamma percentile (KM) | 0.0135 | 99% gamma percentile (KM) | 0.0249 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.00813 | 0.00762 | 95% Approx. Gamma UPL | 0.00688 | 0.00645 |
| 95% KM Gamma Percentile | 0.00673 | 0.00631 | 95% Gamma USL | 0.0125 | 0.0119 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.853 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.838 | Detected Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.27 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.28 | Detected Data appear Lognormal at 10% Significance Level |

**Detected Data appear Lognormal at 10% Significance Level**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00346 | Mean in Log Scale | -5.975 |
| SD in Original Scale | 0.00522 | SD in Log Scale | 0.651 |
| 95% UTL95% Coverage | 0.00952 | 95% BCA UTL95% Coverage | 0.011 |
| 95% Bootstrap (%) UTL95% Coverage | 0.0168 | 95% UPL (t) | 0.00763 |
| 90% Percentile (z) | 0.00586 | 95% Percentile (z) | 0.00742 |
| 99% Percentile (z) | 0.0116 | 95% USL | 0.018 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -6.028 | 95% KM UTL (Lognormal)95% Coverage | 0.0064 |
| KM SD of Logged Data | 0.482 | 95% KM UPL (Lognormal) | 0.00543 |
| 95% KM Percentile Lognormal (z) | 0.00532 | 95% KM USL (Lognormal) | 0.0103 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00368 | Mean in Log Scale | -5.896 |
| SD in Original Scale | 0.0058 | SD in Log Scale | 0.534 |
| 95% UTL95% Coverage | 0.00813 | 95% UPL (t) | 0.00678 |
| 90% Percentile (z) | 0.00546 | 95% Percentile (z) | 0.00663 |
| 99% Percentile (z) | 0.00954 | 95% USL | 0.0137 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 57 | 95% UTL with95% Coverage | 0.048 |
| Approx, f used to compute achieved CC | 3 | Approximate Actual Confidence Coefficient achieved by UTL | 0.946 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.0139 |
| 95% USL | 0.048 | 95% KM Chebyshev UPL | 0.0258 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (antimony | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 33 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 24 | | |
| Number of Detects | 20 | Number of Non-Detects | 13 |
| Number of Distinct Detects | 17 | Number of Distinct Non-Detects | 9 |
| Minimum Detect | 0.074 | Minimum Non-Detect | 0.074 |
| Maximum Detect | 1 | Maximum Non-Detect | 0.21 |
| Variance Detected | 0.0399 | Percent Non-Detects | 39.39% |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Mean Detected | 0.194 | SD Detected | 0.2 |
| Mean of Detected Logged Data | -1.876 | SD of Detected Logged Data | 0.604 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.176 | d2max (for USL) | 2.787 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.512 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.868 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.32 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.223 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.15 | KM SD | 0.161 |
| 95% UTL95% Coverage | 0.501 | 95% KM UPL (t) | 0.427 |
| 90% KM Percentile (z) | 0.357 | 95% KM Percentile (z) | 0.415 |
| 99% KM Percentile (z) | 0.525 | 95% KM USL | 0.6 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.141 | SD | 0.168 |
| 95% UTL95% Coverage | 0.507 | 95% UPL (t) | 0.43 |
| 90% Percentile (z) | 0.357 | 95% Percentile (z) | 0.418 |
| 99% Percentile (z) | 0.533 | 95% USL | 0.61 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 1.343 | **Anderson-Darling GOF Test** | |
| 5% A-D Critical Value | 0.751 | Data Not Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.207 | **Kolmogorov-Smirnov GOF** | |
| 5% K-S Critical Value | 0.196 | Data Not Gamma Distributed at 5% Significance Level | |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 2.293 | k star (bias corrected MLE) | 1.982 |
| Theta hat (MLE) | 0.0844 | Theta star (bias corrected MLE) | 0.0977 |
| nu hat (MLE) | 91.72 | nu star (bias corrected) | 79.3 |
| MLE Mean (bias corrected) | 0.194 | | |
| MLE Sd (bias corrected) | 0.138 | 95% Percentile of Chisquare (2kstar) | 9.431 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.01 | Mean | 0.126 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Maximum | 1 | Median | 0.094 |
| SD | 0.177 | CV | 1.403 |
| k hat (MLE) | 0.814 | k star (bias corrected MLE) | 0.76 |
| Theta hat (MLE) | 0.155 | Theta star (bias corrected MLE) | 0.166 |
| nu hat (MLE) | 53.71 | nu star (bias corrected) | 50.16 |
| MLE Mean (bias corrected) | 0.126 | MLE Sd (bias corrected) | 0.145 |
| 95% Percentile of Chisquare (2kstar) | 5.023 | 90% Percentile | 0.31 |
| 95% Percentile | 0.417 | 99% Percentile | 0.669 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.571 | 0.627 | 95% Approx. Gamma UPL | 0.415 | 0.437 |
| 95% Gamma USL | 0.834 | 0.971 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.15 | SD (KM) | 0.161 |
| Variance (KM) | 0.0261 | SE of Mean (KM) | 0.0289 |
| k hat (KM) | 0.863 | k star (KM) | 0.805 |
| nu hat (KM) | 56.95 | nu star (KM) | 53.1 |
| theta hat (KM) | 0.174 | theta star (KM) | 0.186 |
| 80% gamma percentile (KM) | 0.245 | 90% gamma percentile (KM) | 0.364 |
| 95% gamma percentile (KM) | 0.485 | 99% gamma percentile (KM) | 0.772 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.421 | 0.416 | 95% Approx. Gamma UPL | 0.339 | 0.332 |
| 95% KM Gamma Percentile | 0.327 | 0.32 | 95% Gamma USL | 0.549 | 0.551 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.864 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.92 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.164 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.176 | Detected Data appear Lognormal at 10% Significance Level |

**Detected Data appear Approximate Lognormal at 10% Significance Level**

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.141 | Mean in Log Scale | -2.261 |
| SD in Original Scale | 0.168 | SD in Log Scale | 0.708 |
| 95% UTL95% Coverage | 0.486 | 95% BCA UTL95% Coverage | 0.556 |
| 95% Bootstrap (%) UTL95% Coverage | 1 | 95% UPL (t) | 0.352 |
| 90% Percentile (z) | 0.258 | 95% Percentile (z) | 0.334 |
| 99% Percentile (z) | 0.54 | 95% USL | 0.748 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -2.126 | 95% KM UTL (Lognormal)95% Coverage | 0.408 |
| KM SD of Logged Data | 0.565 | 95% KM UPL (Lognormal) | 0.315 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% KM Percentile Lognormal (z) | 0.302 | 95% KM USL (Lognormal) | 0.576 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.141 | Mean in Log Scale | -2.281 |
| SD in Original Scale | 0.168 | SD in Log Scale | 0.732 |
| 95% UTL95% Coverage | 0.503 | 95% UPL (t) | 0.36 |
| 90% Percentile (z) | 0.261 | 95% Percentile (z) | 0.341 |
| 99% Percentile (z) | 0.562 | 95% USL | 0.787 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 33 | 95% UTL with95% Coverage | 1 |
| Approx, f used to compute achieved CC | 1.737 | Approximate Actual Confidence Coefficient achieved by UTL | 0.816 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.482 |
| 95% USL | 1 | 95% KM Chebyshev UPL | 0.864 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (antimony | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc][ps])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 96 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 34 | | |
| Number of Detects | 6 | Number of Non-Detects | 90 |
| Number of Distinct Detects | 4 | Number of Distinct Non-Detects | 32 |
| Minimum Detect | 0.16 | Minimum Non-Detect | 0.08 |
| Maximum Detect | 0.27 | Maximum Non-Detect | 0.33 |
| Variance Detected | 0.00234 | Percent Non-Detects | 93.75% |
| Mean Detected | 0.202 | SD Detected | 0.0483 |
| Mean of Detected Logged Data | -1.625 | SD of Detected Logged Data | 0.237 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.93 | d2max (for USL) | 3.196 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.829 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.713 | Detected Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.306 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.373 | Detected Data appear Normal at 1% Significance Level | |

Detected Data appear Normal at 1% Significance Level

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0888 | KM SD | 0.0328 |
| 95% UTL95% Coverage | 0.152 | 95% KM UPL (t) | 0.144 |
| 90% KM Percentile (z) | 0.131 | 95% KM Percentile (z) | 0.143 |
| 99% KM Percentile (z) | 0.165 | 95% KM USL | 0.194 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0741 | SD | 0.0433 |
| 95% UTL95% Coverage | 0.158 | 95% UPL (t) | 0.146 |
| 90% Percentile (z) | 0.13 | 95% Percentile (z) | 0.145 |
| 99% Percentile (z) | 0.175 | 95% USL | 0.212 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.63 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.697 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.331 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.332 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 21.37 | k star (bias corrected MLE) | 10.8 |
| Theta hat (MLE) | 0.00944 | Theta star (bias corrected MLE) | 0.0187 |
| nu hat (MLE) | 256.4 | nu star (bias corrected) | 129.5 |
| MLE Mean (bias corrected) | 0.202 | | |
| MLE Sd (bias corrected) | 0.0614 | 95% Percentile of Chisquare (2kstar) | 33.41 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.01 | Mean | 0.0358 |
| Maximum | 0.27 | Median | 0.01 |
| SD | 0.0505 | CV | 1.41 |
| k hat (MLE) | 0.998 | k star (bias corrected MLE) | 0.974 |
| Theta hat (MLE) | 0.0358 | Theta star (bias corrected MLE) | 0.0367 |
| nu hat (MLE) | 191.6 | nu star (bias corrected) | 187 |
| MLE Mean (bias corrected) | 0.0358 | MLE Sd (bias corrected) | 0.0363 |
| 95% Percentile of Chisquare (2kstar) | 5.89 | 90% Percentile | 0.0829 |
| 95% Percentile | 0.108 | 99% Percentile | 0.167 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.123 | 0.124 | 95% Approx. Gamma UPL | 0.103 | 0.102 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 95% Gamma USL | 0.256 | 0.279 |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0888 | SD (KM) | 0.0328 |
| Variance (KM) | 0.00107 | SE of Mean (KM) | 0.00389 |
| k hat (KM) | 7.342 | k star (KM) | 7.119 |
| nu hat (KM) | 1410 | nu star (KM) | 1367 |
| theta hat (KM) | 0.0121 | theta star (KM) | 0.0125 |
| 80% gamma percentile (KM) | 0.115 | 90% gamma percentile (KM) | 0.133 |
| 95% gamma percentile (KM) | 0.15 | 99% gamma percentile (KM) | 0.184 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.141 | 0.139 | 95% Approx. Gamma UPL | 0.132 | 0.131 |
| 95% KM Gamma Percentile | 0.132 | 0.13 | 95% Gamma USL | 0.186 | 0.186 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.815 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.826 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.31 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.298 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0741 | Mean in Log Scale | -2.703 |
| SD in Original Scale | 0.0404 | SD in Log Scale | 0.424 |
| 95% UTL95% Coverage | 0.152 | 95% BCA UTL95% Coverage | 0.175 |
| 95% Bootstrap (%) UTL95% Coverage | 0.22 | 95% UPL (t) | 0.136 |
| 90% Percentile (z) | 0.115 | 95% Percentile (z) | 0.135 |
| 99% Percentile (z) | 0.18 | 95% USL | 0.26 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -2.459 | 95% KM UTL (Lognormal)95% Coverage | 0.135 |
| KM SD of Logged Data | 0.238 | 95% KM UPL (Lognormal) | 0.127 |
| 95% KM Percentile Lognormal (z) | 0.126 | 95% KM USL (Lognormal) | 0.183 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0741 | Mean in Log Scale | -2.72 |
| SD in Original Scale | 0.0433 | SD in Log Scale | 0.45 |
| 95% UTL95% Coverage | 0.157 | 95% UPL (t) | 0.14 |
| 90% Percentile (z) | 0.117 | 95% Percentile (z) | 0.138 |
| 99% Percentile (z) | 0.188 | 95% USL | 0.278 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 94 | 95% UTL with95% Coverage | 0.27 |
| Approx, f used to compute achieved CC | 1.649 | Approximate Actual Confidence Coefficient achieved by UTL | 0.864 |
| Approximate Sample Size needed to achieve specified CC | 93 | 95% UPL | 0.232 |
| 95% USL | 0.33 | 95% KM Chebyshev UPL | 0.232 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (arsenic | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 105 | Number of Distinct Observations | 57 |
| Minimum | 0.36 | First Quartile | 3.1 |
| Second Largest | 21 | Median | 4.8 |
| Maximum | 38 | Third Quartile | 6 |
| Mean | 5.559 | SD | 4.644 |
| Coefficient of Variation | 0.835 | Skewness | 4.045 |
| Mean of logged Data | 1.497 | SD of logged Data | 0.668 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.916 | d2max (for USL) | 3.226 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.67 | **Normal GOF Test** | |
| 1% Shapiro Wilk P Value | 0 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.246 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.1 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 14.46 | 90% Percentile (z) | 11.51 |
| | 95% UPL (t) | 13.3 | 95% Percentile (z) | 13.2 |
| | 95% USL | 20.54 | 99% Percentile (z) | 16.36 |

**Gamma GOF Test**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 2.378 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.762 | Data Not Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.15 | **Kolmogorov-Smirnov Gamma GOF Test** | |
| 5% K-S Critical Value | 0.0891 | Data Not Gamma Distributed at 5% Significance Level | |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| k hat (MLE) | 2.441 | k star (bias corrected MLE) | 2.378 |
| Theta hat (MLE) | 2.277 | Theta star (bias corrected MLE) | 2.338 |
| nu hat (MLE) | 512.7 | nu star (bias corrected) | 499.3 |
| MLE Mean (bias corrected) | 5.559 | MLE Sd (bias corrected) | 3.605 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 12.36 | 90% Percentile | 10.39 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 12.49 | 95% Percentile | 12.5 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 13.92 | 99% Percentile | 17.13 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 14.18 | | |
| 95% WH USL | 24.31 | 95% HW USL | 26.08 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.953 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk P Value | 0.00398 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.113 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.0794 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 16.07 | 90% Percentile (z) | 10.52 |
| 95% UPL (t) | 13.62 | 95% Percentile (z) | 13.41 |
| 95% USL | 38.58 | 99% Percentile (z) | 21.15 |

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 104 | 95% UTL with 95% Coverage | 21 |
| Approx, f used to compute achieved CC | 1.807 | Approximate Actual Confidence Coefficient achieved by UTL | 0.901 |
| | | Approximate Sample Size needed to achieve specified CC | 93 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 17.4 | 95% BCA Bootstrap UTL with 95% Coverage | 15 |
| 95% UPL | 14.1 | 90% Percentile | 9.8 |
| 90% Chebyshev UPL | 19.56 | 95% Percentile | 11.8 |
| 95% Chebyshev UPL | 25.9 | 99% Percentile | 20.88 |
| 95% USL | 38 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (arsenic | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Distinct Observations | 19 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Minimum | 0.68 | First Quartile | 1.175 |
| Second Largest | 4.7 | Median | 2.15 |
| Maximum | 6.2 | Third Quartile | 2.875 |
| Mean | 2.293 | SD | 1.366 |
| Coefficient of Variation | 0.595 | Skewness | 1.209 |
| Mean of logged Data | 0.666 | SD of logged Data | 0.592 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.901 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.884 | Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.148 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.205 | Data appear Normal at 1% Significance Level |

Data appear Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 5.447 | 90% Percentile (z) | 4.043 |
| 95% UPL (t) | 4.682 | 95% Percentile (z) | 4.54 |
| 95% USL | 5.904 | 99% Percentile (z) | 5.47 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.257 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.751 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.0944 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.179 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 3.207 | k star (bias corrected MLE) | 2.834 |
| Theta hat (MLE) | 0.715 | Theta star (bias corrected MLE) | 0.809 |
| nu hat (MLE) | 153.9 | nu star (bias corrected) | 136 |
| MLE Mean (bias corrected) | 2.293 | MLE Sd (bias corrected) | 1.362 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 5.007 | 90% Percentile | 4.12 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 5.095 | 95% Percentile | 4.893 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 6.344 | 99% Percentile | 6.574 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 6.573 | | |
| 95% WH USL | 7.247 | 95% HW USL | 7.599 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.974 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.93 | Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.111 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.162 | Data appear Lognormal at 10% Significance Level |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 7.636 | 90% Percentile (z) | 4.157 |
| | 95% UPL (t) | 5.482 | 95% Percentile (z) | 5.154 |
| | 95% USL | 9.31 | 99% Percentile (z) | 7.715 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | |
|---|---|---|---|---|
| | Order of Statistic, order | 24 | 95% UTL with 95% Coverage | 6.2 |
| | Approx, f used to compute achieved CC | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.708 |
| | | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 6.2 | 95% BCA Bootstrap UTL with 95% Coverage | 5.975 |
| | 95% UPL | 5.825 | 90% Percentile | 4.01 |
| | 90% Chebyshev UPL | 6.475 | 95% Percentile | 4.61 |
| | 95% Chebyshev UPL | 8.369 | 99% Percentile | 5.855 |
| | 95% USL | 6.2 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (barium | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 129 | Number of Distinct Observations | 57 |
| Minimum | 9.6 | First Quartile | 28 |
| Second Largest | 180 | Median | 39 |
| Maximum | 320 | Third Quartile | 51 |
| Mean | 44.73 | SD | 33.11 |
| Coefficient of Variation | 0.74 | Skewness | 5.176 |
| Mean of logged Data | 3.65 | SD of logged Data | 0.524 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.887 | d2max (for USL) | 3.294 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.633 | **Normal GOF Test** | |
| 1% Shapiro Wilk P Value | 0 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.188 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.0906 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 107.2 | 90% Percentile (z) | | 87.16 |
| | 95% UPL (t) | 99.8 | 95% Percentile (z) | | 99.19 |
| | 95% USL | 153.8 | 99% Percentile (z) | | 121.8 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 1.452 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.758 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.0959 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.0824 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 3.475 | k star (bias corrected MLE) | 3.399 |
| Theta hat (MLE) | 12.87 | Theta star (bias corrected MLE) | 13.16 |
| nu hat (MLE) | 896.5 | nu star (bias corrected) | 877 |
| MLE Mean (bias corrected) | 44.73 | MLE Sd (bias corrected) | 24.26 |

**Background Statistics Assuming Gamma Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | | 89.79 | 90% Percentile | | 77.25 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | | 89.8 | 95% Percentile | | 90.61 |
| 95% WH Approx. Gamma UTL with | 95% Coverage | 98.55 | 99% Percentile | | 119.4 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 99.02 | | | |
| | 95% WH USL | 167 | 95% HW USL | | 174.3 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.981 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk P Value | 0.499 | Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.0576 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.0717 | Data appear Lognormal at 10% Significance Level |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 103.3 | 90% Percentile (z) | | 75.25 |
| | 95% UPL (t) | 91.9 | 95% Percentile (z) | | 91.02 |
| | 95% USL | 215.9 | 99% Percentile (z) | | 130.1 |

**Nonparametric Distribution Free Background Statistics**

Data appear Lognormal at 10% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| Order of Statistic, order | | 127 | 95% UTL with | 95% Coverage | 110 |
| Approx, f used to compute achieved CC | | 1.658 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.891 |
| | | | Approximate Sample Size needed to achieve specified CC | | 124 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 95 | 95% BCA Bootstrap UTL with | 95% Coverage | 95 |
| | 95% UPL | 86.5 | | 90% Percentile | 68 |
| | 90% Chebyshev UPL | 144.5 | | 95% Percentile | 81 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% Chebyshev UPL | 189.6 | 99% Percentile | 160.4 |
| 95% USL | 320 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (benzo(a)anthracene | [subsurface soil_1_5][subsurface soil_5_10] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 86 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 25 | | |
| Number of Detects | 17 | Number of Non-Detects | 69 |
| Number of Distinct Detects | 14 | Number of Distinct Non-Detects | 12 |
| Minimum Detect | 0.0019 | Minimum Non-Detect | 0.0042 |
| Maximum Detect | 0.089 | Maximum Non-Detect | 0.0053 |
| Variance Detected | 4.1418E-4 | Percent Non-Detects | 80.23% |
| Mean Detected | 0.0114 | SD Detected | 0.0204 |
| Mean of Detected Logged Data | -5.069 | SD of Detected Logged Data | 0.97 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.948 | d2max (for USL) | 3.157 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.425 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.851 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.43 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.241 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00436 | KM SD | 0.00947 |
| 95% UTL95% Coverage | 0.0228 | 95% KM UPL (t) | 0.0202 |
| 90% KM Percentile (z) | 0.0165 | 95% KM Percentile (z) | 0.0199 |
| 99% KM Percentile (z) | 0.0264 | 95% KM USL | 0.0343 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00417 | SD | 0.00955 |
| 95% UTL95% Coverage | 0.0228 | 95% UPL (t) | 0.0201 |
| 90% Percentile (z) | 0.0164 | 95% Percentile (z) | 0.0199 |
| 99% Percentile (z) | 0.0264 | 95% USL | 0.0343 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 1.477 | **Anderson-Darling GOF Test** | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 5% A-D Critical Value | 0.767 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.29 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.215 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.967 | k star (bias corrected MLE) | 0.836 |
| Theta hat (MLE) | 0.0118 | Theta star (bias corrected MLE) | 0.0137 |
| nu hat (MLE) | 32.89 | nu star (bias corrected) | 28.42 |
| MLE Mean (bias corrected) | 0.0114 | | |
| MLE Sd (bias corrected) | 0.0125 | 95% Percentile of Chisquare (2kstar) | 5.338 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0019 | Mean | 0.0103 |
| Maximum | 0.089 | Median | 0.01 |
| SD | 0.00885 | CV | 0.86 |
| k hat (MLE) | 4.33 | k star (bias corrected MLE) | 4.186 |
| Theta hat (MLE) | 0.00238 | Theta star (bias corrected MLE) | 0.00246 |
| nu hat (MLE) | 744.7 | nu star (bias corrected) | 720 |
| MLE Mean (bias corrected) | 0.0103 | MLE Sd (bias corrected) | 0.00503 |
| 95% Percentile of Chisquare (2kstar) | 16.04 | 90% Percentile | 0.017 |
| 95% Percentile | 0.0197 | 99% Percentile | 0.0254 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0214 | 0.0213 | 95% Approx. Gamma UPL | 0.0193 | 0.0192 |
| 95% Gamma USL | 0.0324 | 0.033 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00436 | SD (KM) | 0.00947 |
| Variance (KM) | 8.9694E-5 | SE of Mean (KM) | 0.00107 |
| k hat (KM) | 0.212 | k star (KM) | 0.212 |
| nu hat (KM) | 36.48 | nu star (KM) | 36.54 |
| theta hat (KM) | 0.0206 | theta star (KM) | 0.0205 |
| 80% gamma percentile (KM) | 0.00592 | 90% gamma percentile (KM) | 0.0132 |
| 95% gamma percentile (KM) | 0.0221 | 99% gamma percentile (KM) | 0.0465 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0119 | 0.0112 | 95% Approx. Gamma UPL | 0.0102 | 0.00956 |
| 95% KM Gamma Percentile | 0.0101 | 0.00941 | 95% Gamma USL | 0.0215 | 0.0206 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Lognormal GOF Test on Detected Observations Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.867 | **Shapiro Wilk GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.91 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.194 | **Lilliefors GOF Test** | |
| 10% Lilliefors Critical Value | 0.19 | Data Not Lognormal at 10% Significance Level | |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00464 | Mean in Log Scale | -5.772 |
| SD in Original Scale | 0.00955 | SD in Log Scale | 0.717 |
| 95% UTL95% Coverage | 0.0126 | 95% BCA UTL95% Coverage | 0.011 |
| 95% Bootstrap (%) UTL95% Coverage | 0.0118 | 95% UPL (t) | 0.0103 |
| 90% Percentile (z) | 0.0078 | 95% Percentile (z) | 0.0101 |
| 99% Percentile (z) | 0.0165 | 95% USL | 0.0299 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -5.791 | 95% KM UTL (Lognormal)95% Coverage | 0.00951 |
| KM SD of Logged Data | 0.583 | 95% KM UPL (Lognormal) | 0.0081 |
| 95% KM Percentile Lognormal (z) | 0.00797 | 95% KM USL (Lognormal) | 0.0192 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00417 | Mean in Log Scale | -5.851 |
| SD in Original Scale | 0.00955 | SD in Log Scale | 0.576 |
| 95% UTL95% Coverage | 0.00884 | 95% UPL (t) | 0.00754 |
| 90% Percentile (z) | 0.00602 | 95% Percentile (z) | 0.00742 |
| 99% Percentile (z) | 0.011 | 95% USL | 0.0177 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 85 | 95% UTL with95% Coverage | 0.089 |
| Approx, f used to compute achieved CC | 2.237 | Approximate Actual Confidence Coefficient achieved by UTL | 0.933 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.011 |
| 95% USL | 0.089 | 95% KM Chebyshev UPL | 0.0459 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (benzo(a)anthracene | [surface soil] | [psc][ps][pd])**

**General Statistics**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Total Number of Observations | 43 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 32 | | |
| Number of Detects | 38 | Number of Non-Detects | 5 |
| Number of Distinct Detects | 30 | Number of Distinct Non-Detects | 4 |
| Minimum Detect | 0.0022 | Minimum Non-Detect | 0.0047 |
| Maximum Detect | 0.25 | Maximum Non-Detect | 0.0057 |
| Variance Detected | 0.00346 | Percent Non-Detects | 11.63% |
| Mean Detected | 0.0273 | SD Detected | 0.0588 |
| Mean of Detected Logged Data | -4.553 | SD of Detected Logged Data | 1.123 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.097 | d2max (for USL) | 2.897 |

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.429 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.916 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.398 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.165 | Data Not Normal at 1% Significance Level |

**Data Not Normal at 1% Significance Level**

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0245 | KM SD | 0.0551 |
| 95% UTL95% Coverage | 0.14 | 95% KM UPL (t) | 0.118 |
| 90% KM Percentile (z) | 0.0951 | 95% KM Percentile (z) | 0.115 |
| 99% KM Percentile (z) | 0.153 | 95% KM USL | 0.184 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0244 | SD | 0.0558 |
| 95% UTL95% Coverage | 0.141 | 95% UPL (t) | 0.119 |
| 90% Percentile (z) | 0.0959 | 95% Percentile (z) | 0.116 |
| 99% Percentile (z) | 0.154 | 95% USL | 0.186 |

**DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons**

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 5.177 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.799 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.314 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.15 | Data Not Gamma Distributed at 5% Significance Level |

**Data Not Gamma Distributed at 5% Significance Level**

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.643 | k star (bias corrected MLE) | 0.61 |
| Theta hat (MLE) | 0.0424 | Theta star (bias corrected MLE) | 0.0447 |
| nu hat (MLE) | 48.87 | nu star (bias corrected) | 46.34 |
| MLE Mean (bias corrected) | 0.0273 | | |
| MLE Sd (bias corrected) | 0.0349 | 95% Percentile of Chisquare (2kstar) | 4.363 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0022 | Mean | 0.0253 |
| Maximum | 0.25 | Median | 0.0084 |
| SD | 0.0555 | CV | 2.197 |
| k hat (MLE) | 0.688 | k star (bias corrected MLE) | 0.655 |
| Theta hat (MLE) | 0.0367 | Theta star (bias corrected MLE) | 0.0386 |
| nu hat (MLE) | 59.15 | nu star (bias corrected) | 56.36 |
| MLE Mean (bias corrected) | 0.0253 | MLE Sd (bias corrected) | 0.0312 |
| 95% Percentile of Chisquare (2kstar) | 4.568 | 90% Percentile | 0.0644 |
| 95% Percentile | 0.0881 | 99% Percentile | 0.145 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.105 | 0.101 | 95% Approx. Gamma UPL | 0.078 | 0.0735 |
| 95% Gamma USL | 0.178 | 0.181 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0245 | SD (KM) | 0.0551 |
| Variance (KM) | 0.00303 | SE of Mean (KM) | 0.00851 |
| k hat (KM) | 0.199 | k star (KM) | 0.2 |
| nu hat (KM) | 17.08 | nu star (KM) | 17.22 |
| theta hat (KM) | 0.124 | theta star (KM) | 0.123 |
| 80% gamma percentile (KM) | 0.0324 | 90% gamma percentile (KM) | 0.0742 |
| 95% gamma percentile (KM) | 0.126 | 99% gamma percentile (KM) | 0.27 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.103 | 0.0991 | 95% Approx. Gamma UPL | 0.0757 | 0.0711 |
| 95% KM Gamma Percentile | 0.0723 | 0.0677 | 95% Gamma USL | 0.176 | 0.18 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.823 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.947 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.222 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.13 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0244 | Mean in Log Scale | -4.715 |
| SD in Original Scale | 0.0558 | SD in Log Scale | 1.149 |
| 95% UTL95% Coverage | 0.0997 | 95% BCA UTL95% Coverage | 0.25 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% Bootstrap (%) UTL95% Coverage | 0.25 | 95% UPL (t) | 0.0633 |
| 90% Percentile (z) | 0.0391 | 95% Percentile (z) | 0.0593 |
| 99% Percentile (z) | 0.13 | 95% USL | 0.25 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -4.675 | 95% KM UTL (Lognormal)95% Coverage | 0.0934 |
| KM SD of Logged Data | 1.099 | 95% KM UPL (Lognormal) | 0.0605 |
| 95% KM Percentile Lognormal (z) | 0.0568 | 95% KM USL (Lognormal) | 0.225 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0244 | Mean in Log Scale | -4.72 |
| SD in Original Scale | 0.0558 | SD in Log Scale | 1.153 |
| 95% UTL95% Coverage | 0.1 | 95% UPL (t) | 0.0634 |
| 90% Percentile (z) | 0.0391 | 95% Percentile (z) | 0.0594 |
| 99% Percentile (z) | 0.13 | 95% USL | 0.251 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 43 | 95% UTL with95% Coverage | 0.25 |
| Approx, f used to compute achieved CC | 2.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.89 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.23 |
| 95% USL | 0.25 | 95% KM Chebyshev UPL | 0.267 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (benzo(a)pyrene | [subsurface soil_1_5][subsurface soil_5_10] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 86 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 23 | | |
| Number of Detects | 14 | Number of Non-Detects | 72 |
| Number of Distinct Detects | 11 | Number of Distinct Non-Detects | 12 |
| Minimum Detect | 0.0016 | Minimum Non-Detect | 0.0042 |
| Maximum Detect | 0.09 | Maximum Non-Detect | 0.0053 |
| Variance Detected | 5.0722E-4 | Percent Non-Detects | 83.72% |
| Mean Detected | 0.013 | SD Detected | 0.0225 |
| Mean of Detected Logged Data | -4.985 | SD of Detected Logged Data | 1.052 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.948 | d2max (for USL) | 3.157 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.453 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.825 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.446 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.263 | Data Not Normal at 1% Significance Level |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00411 | KM SD | 0.00961 |
| 95% UTL95% Coverage | 0.0228 | 95% KM UPL (t) | 0.0202 |
| 90% KM Percentile (z) | 0.0164 | 95% KM Percentile (z) | 0.0199 |
| 99% KM Percentile (z) | 0.0265 | 95% KM USL | 0.0345 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00411 | SD | 0.00965 |
| 95% UTL95% Coverage | 0.0229 | 95% UPL (t) | 0.0203 |
| 90% Percentile (z) | 0.0165 | 95% Percentile (z) | 0.02 |
| 99% Percentile (z) | 0.0266 | 95% USL | 0.0346 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 1.27 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.764 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.318 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.236 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.909 | k star (bias corrected MLE) | 0.761 |
| Theta hat (MLE) | 0.0143 | Theta star (bias corrected MLE) | 0.0171 |
| nu hat (MLE) | 25.44 | nu star (bias corrected) | 21.32 |
| MLE Mean (bias corrected) | 0.013 | | |
| MLE Sd (bias corrected) | 0.0149 | 95% Percentile of Chisquare (2kstar) | 5.029 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0016 | Mean | 0.0105 |
| Maximum | 0.09 | Median | 0.01 |
| SD | 0.00888 | CV | 0.846 |
| k hat (MLE) | 4.721 | k star (bias corrected MLE) | 4.565 |
| Theta hat (MLE) | 0.00222 | Theta star (bias corrected MLE) | 0.0023 |
| nu hat (MLE) | 812.1 | nu star (bias corrected) | 785.1 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| MLE Mean (bias corrected) | 0.0105 | MLE Sd (bias corrected) | 0.00491 |
| 95% Percentile of Chisquare (2kstar) | 17.1 | 90% Percentile | 0.0171 |
| 95% Percentile | 0.0196 | 99% Percentile | 0.0251 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0212 | 0.0211 | 95% Approx. Gamma UPL | 0.0192 | 0.019 |
| 95% Gamma USL | 0.0317 | 0.0321 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00411 | SD (KM) | 0.00961 |
| Variance (KM) | 9.2388E-5 | SE of Mean (KM) | 0.0011 |
| k hat (KM) | 0.183 | k star (KM) | 0.184 |
| nu hat (KM) | 31.45 | nu star (KM) | 31.68 |
| theta hat (KM) | 0.0225 | theta star (KM) | 0.0223 |
| 80% gamma percentile (KM) | 0.00517 | 90% gamma percentile (KM) | 0.0124 |
| 95% gamma percentile (KM) | 0.0216 | 99% gamma percentile (KM) | 0.0473 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0116 | 0.0108 | 95% Approx. Gamma UPL | 0.0099 | 0.00921 |
| 95% KM Gamma Percentile | 0.00974 | 0.00906 | 95% Gamma USL | 0.0214 | 0.0206 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.878 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.895 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.225 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.208 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00436 | Mean in Log Scale | -5.905 |
| SD in Original Scale | 0.0097 | SD in Log Scale | 0.794 |
| 95% UTL95% Coverage | 0.0128 | 95% BCA UTL95% Coverage | 0.011 |
| 95% Bootstrap (%) UTL95% Coverage | 0.011 | 95% UPL (t) | 0.0103 |
| 90% Percentile (z) | 0.00753 | 95% Percentile (z) | 0.0101 |
| 99% Percentile (z) | 0.0173 | 95% USL | 0.0334 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -5.897 | 95% KM UTL (Lognormal)95% Coverage | 0.00921 |
| KM SD of Logged Data | 0.621 | 95% KM UPL (Lognormal) | 0.00776 |
| 95% KM Percentile Lognormal (z) | 0.00763 | 95% KM USL (Lognormal) | 0.0195 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00411 | Mean in Log Scale | -5.87 |
| SD in Original Scale | 0.00965 | SD in Log Scale | 0.571 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% UTL95% Coverage | 0.00858 | 95% UPL (t) | 0.00733 |
| 90% Percentile (z) | 0.00587 | 95% Percentile (z) | 0.00722 |
| 99% Percentile (z) | 0.0106 | 95% USL | 0.0171 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 85 | 95% UTL with95% Coverage | 0.09 |
| Approx, f used to compute achieved CC | 2.237 | Approximate Actual Confidence Coefficient achieved by UTL | 0.933 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.011 |
| 95% USL | 0.09 | 95% KM Chebyshev UPL | 0.0462 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (benzo(a)pyrene | [surface soil] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 43 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 34 | | |
| Number of Detects | 37 | Number of Non-Detects | 6 |
| Number of Distinct Detects | 31 | Number of Distinct Non-Detects | 5 |
| Minimum Detect | 0.0019 | Minimum Non-Detect | 0.0048 |
| Maximum Detect | 0.29 | Maximum Non-Detect | 0.11 |
| Variance Detected | 0.00393 | Percent Non-Detects | 13.95% |
| Mean Detected | 0.0315 | SD Detected | 0.0627 |
| Mean of Detected Logged Data | -4.302 | SD of Detected Logged Data | 1.095 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.097 | d2max (for USL) | 2.897 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.459 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.814 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.375 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.168 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0278 | KM SD | 0.0581 |
| 95% UTL95% Coverage | 0.15 | 95% KM UPL (t) | 0.127 |
| 90% KM Percentile (z) | 0.102 | 95% KM Percentile (z) | 0.123 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 99% KM Percentile (z) | 0.163 | 95% KM USL | 0.196 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0287 | SD | 0.0589 |
| 95% UTL95% Coverage | 0.152 | 95% UPL (t) | 0.129 |
| 90% Percentile (z) | 0.104 | 95% Percentile (z) | 0.126 |
| 99% Percentile (z) | 0.166 | 95% USL | 0.199 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 4.313 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.792 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.314 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.151 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.715 | k star (bias corrected MLE) | 0.675 |
| Theta hat (MLE) | 0.044 | Theta star (bias corrected MLE) | 0.0466 |
| nu hat (MLE) | 52.89 | nu star (bias corrected) | 49.94 |
| MLE Mean (bias corrected) | 0.0315 | | |
| MLE Sd (bias corrected) | 0.0383 | 95% Percentile of Chisquare (2kstar) | 4.655 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0019 | Mean | 0.0285 |
| Maximum | 0.29 | Median | 0.01 |
| SD | 0.0585 | CV | 2.056 |
| k hat (MLE) | 0.761 | k star (bias corrected MLE) | 0.723 |
| Theta hat (MLE) | 0.0374 | Theta star (bias corrected MLE) | 0.0394 |
| nu hat (MLE) | 65.43 | nu star (bias corrected) | 62.2 |
| MLE Mean (bias corrected) | 0.0285 | MLE Sd (bias corrected) | 0.0335 |
| 95% Percentile of Chisquare (2kstar) | 4.866 | 90% Percentile | 0.0709 |
| 95% Percentile | 0.0957 | 99% Percentile | 0.155 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.115 | 0.112 | 95% Approx. Gamma UPL | 0.0866 | 0.0823 |
| 95% Gamma USL | 0.192 | 0.197 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0278 | SD (KM) | 0.0581 |
| Variance (KM) | 0.00338 | SE of Mean (KM) | 0.00899 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| k hat (KM) | 0.229 | k star (KM) | 0.228 |
| nu hat (KM) | 19.68 | nu star (KM) | 19.64 |
| theta hat (KM) | 0.122 | theta star (KM) | 0.122 |
| 80% gamma percentile (KM) | 0.039 | 90% gamma percentile (KM) | 0.0839 |
| 95% gamma percentile (KM) | 0.138 | 99% gamma percentile (KM) | 0.285 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.115 | 0.113 | 95% Approx. Gamma UPL | 0.0858 | 0.082 |
| 95% KM Gamma Percentile | 0.082 | 0.0781 | 95% Gamma USL | 0.195 | 0.203 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.874 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.946 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.219 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.132 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0276 | Mean in Log Scale | -4.497 |
| SD in Original Scale | 0.0588 | SD in Log Scale | 1.149 |
| 95% UTL95% Coverage | 0.124 | 95% BCA UTL95% Coverage | 0.278 |
| 95% Bootstrap (%) UTL95% Coverage | 0.284 | 95% UPL (t) | 0.0787 |
| 90% Percentile (z) | 0.0486 | 95% Percentile (z) | 0.0738 |
| 99% Percentile (z) | 0.161 | 95% USL | 0.311 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -4.474 | 95% KM UTL (Lognormal)95% Coverage | 0.118 |
| KM SD of Logged Data | 1.116 | 95% KM UPL (Lognormal) | 0.0762 |
| 95% KM Percentile Lognormal (z) | 0.0715 | 95% KM USL (Lognormal) | 0.289 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0287 | Mean in Log Scale | -4.444 |
| SD in Original Scale | 0.0589 | SD in Log Scale | 1.155 |
| 95% UTL95% Coverage | 0.132 | 95% UPL (t) | 0.0839 |
| 90% Percentile (z) | 0.0516 | 95% Percentile (z) | 0.0786 |
| 99% Percentile (z) | 0.173 | 95% USL | 0.334 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 43 | 95% UTL with95% Coverage | 0.29 |
| Approx, f used to compute achieved CC | 2.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.89 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.218 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% USL | 0.29 | 95% KM Chebyshev UPL | 0.284 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (benzo(b)fluoranthene | [subsurface soil_1_5][subsurface soil_5_10] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 86 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 35 | | |
| Number of Detects | 23 | Number of Non-Detects | 63 |
| Number of Distinct Detects | 20 | Number of Distinct Non-Detects | 17 |
| Minimum Detect | 0.0026 | Minimum Non-Detect | 0.0064 |
| Maximum Detect | 0.099 | Maximum Non-Detect | 0.0082 |
| Variance Detected | 3.9254E-4 | Percent Non-Detects | 73.26% |
| Mean Detected | 0.00933 | SD Detected | 0.0198 |
| Mean of Detected Logged Data | -5.249 | SD of Detected Logged Data | 0.799 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.948 | d2max (for USL) | 3.157 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.331 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.881 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.394 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.209 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00538 | KM SD | 0.0103 |
| 95% UTL95% Coverage | 0.0255 | 95% KM UPL (t) | 0.0227 |
| 90% KM Percentile (z) | 0.0186 | 95% KM Percentile (z) | 0.0224 |
| 99% KM Percentile (z) | 0.0294 | 95% KM USL | 0.038 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00518 | SD | 0.0104 |
| 95% UTL95% Coverage | 0.0254 | 95% UPL (t) | 0.0226 |
| 90% Percentile (z) | 0.0185 | 95% Percentile (z) | 0.0223 |
| 99% Percentile (z) | 0.0294 | 95% USL | 0.038 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 3.429 | **Anderson-Darling GOF Test** | |
| 5% A-D Critical Value | 0.769 | Data Not Gamma Distributed at 5% Significance Level | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| K-S Test Statistic | 0.29 | **Kolmogorov-Smirnov GOF** | |
| 5% K-S Critical Value | 0.187 | Data Not Gamma Distributed at 5% Significance Level | |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.005 | k star (bias corrected MLE) | 0.903 |
| Theta hat (MLE) | 0.00928 | Theta star (bias corrected MLE) | 0.0103 |
| nu hat (MLE) | 46.23 | nu star (bias corrected) | 41.54 |
| MLE Mean (bias corrected) | 0.00933 | | |
| MLE Sd (bias corrected) | 0.00981 | 95% Percentile of Chisquare (2kstar) | 5.61 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0026 | Mean | 0.00992 |
| Maximum | 0.099 | Median | 0.01 |
| SD | 0.0101 | CV | 1.018 |
| k hat (MLE) | 3.381 | k star (bias corrected MLE) | 3.271 |
| Theta hat (MLE) | 0.00293 | Theta star (bias corrected MLE) | 0.00303 |
| nu hat (MLE) | 581.6 | nu star (bias corrected) | 562.6 |
| MLE Mean (bias corrected) | 0.00992 | MLE Sd (bias corrected) | 0.00549 |
| 95% Percentile of Chisquare (2kstar) | 13.4 | 90% Percentile | 0.0173 |
| 95% Percentile | 0.0203 | 99% Percentile | 0.0269 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0222 | 0.022 | 95% Approx. Gamma UPL | 0.0198 | 0.0196 |
| 95% Gamma USL | 0.035 | 0.0356 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00538 | SD (KM) | 0.0103 |
| Variance (KM) | 1.0695E-4 | SE of Mean (KM) | 0.00116 |
| k hat (KM) | 0.271 | k star (KM) | 0.269 |
| nu hat (KM) | 46.62 | nu star (KM) | 46.33 |
| theta hat (KM) | 0.0199 | theta star (KM) | 0.02 |
| 80% gamma percentile (KM) | 0.00802 | 90% gamma percentile (KM) | 0.0161 |
| 95% gamma percentile (KM) | 0.0255 | 99% gamma percentile (KM) | 0.0503 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0134 | 0.0125 | 95% Approx. Gamma UPL | 0.0117 | 0.0109 |
| 95% KM Gamma Percentile | 0.0115 | 0.0108 | 95% Gamma USL | 0.0227 | 0.0215 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Lognormal GOF Test on Detected Observations Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.743 | **Shapiro Wilk GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.928 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.201 | **Lilliefors GOF Test** | |
| 10% Lilliefors Critical Value | 0.165 | Data Not Lognormal at 10% Significance Level | |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00564 | Mean in Log Scale | -5.44 |
| SD in Original Scale | 0.0104 | SD in Log Scale | 0.52 |
| 95% UTL95% Coverage | 0.012 | 95% BCA UTL95% Coverage | 0.012 |
| 95% Bootstrap (%) UTL95% Coverage | 0.014 | 95% UPL (t) | 0.0104 |
| 90% Percentile (z) | 0.00845 | 95% Percentile (z) | 0.0102 |
| 99% Percentile (z) | 0.0146 | 95% USL | 0.0224 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -5.485 | 95% KM UTL (Lognormal)95% Coverage | 0.0107 |
| KM SD of Logged Data | 0.485 | 95% KM UPL (Lognormal) | 0.00934 |
| 95% KM Percentile Lognormal (z) | 0.00922 | 95% KM USL (Lognormal) | 0.0192 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00518 | Mean in Log Scale | -5.513 |
| SD in Original Scale | 0.0104 | SD in Log Scale | 0.44 |
| 95% UTL95% Coverage | 0.0095 | 95% UPL (t) | 0.00841 |
| 90% Percentile (z) | 0.00709 | 95% Percentile (z) | 0.00831 |
| 99% Percentile (z) | 0.0112 | 95% USL | 0.0162 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 85 | 95% UTL with95% Coverage | 0.099 |
| Approx, f used to compute achieved CC | 2.237 | Approximate Actual Confidence Coefficient achieved by UTL | 0.933 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.0082 |
| 95% USL | 0.099 | 95% KM Chebyshev UPL | 0.0507 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (benzo(b)fluoranthene | [surface soil] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 43 | Number of Missing Observations | 0 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Number of Distinct Observations | 35 | | |
| Number of Detects | 40 | Number of Non-Detects | 3 |
| Number of Distinct Detects | 33 | Number of Distinct Non-Detects | 2 |
| Minimum Detect | 0.0031 | Minimum Non-Detect | 0.0074 |
| Maximum Detect | 0.35 | Maximum Non-Detect | 0.008 |
| Variance Detected | 0.00537 | Percent Non-Detects | 6.977% |
| Mean Detected | 0.039 | SD Detected | 0.0733 |
| Mean of Detected Logged Data | -4.024 | SD of Detected Logged Data | 1.076 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.097 | d2max (for USL) | 2.897 |

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.482 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.919 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.357 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.162 | Data Not Normal at 1% Significance Level |

**Data Not Normal at 1% Significance Level**

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0366 | KM SD | 0.0703 |
| 95% UTL95% Coverage | 0.184 | 95% KM UPL (t) | 0.156 |
| 90% KM Percentile (z) | 0.127 | 95% KM Percentile (z) | 0.152 |
| 99% KM Percentile (z) | 0.2 | 95% KM USL | 0.24 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0365 | SD | 0.0712 |
| 95% UTL95% Coverage | 0.186 | 95% UPL (t) | 0.158 |
| 90% Percentile (z) | 0.128 | 95% Percentile (z) | 0.154 |
| 99% Percentile (z) | 0.202 | 95% USL | 0.243 |

**DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons**

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 3.739 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.788 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.249 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.145 | Data Not Gamma Distributed at 5% Significance Level |

**Data Not Gamma Distributed at 5% Significance Level**

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.766 | k star (bias corrected MLE) | 0.726 |
| Theta hat (MLE) | 0.0508 | Theta star (bias corrected MLE) | 0.0537 |
| nu hat (MLE) | 61.31 | nu star (bias corrected) | 58.05 |
| MLE Mean (bias corrected) | 0.039 | | |
| MLE Sd (bias corrected) | 0.0457 | 95% Percentile of Chisquare (2kstar) | 4.876 |

**Gamma ROS Statistics using Imputed Non-Detects**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0031 | Mean | 0.0369 |
| Maximum | 0.35 | Median | 0.013 |
| SD | 0.071 | CV | 1.921 |
| k hat (MLE) | 0.778 | k star (bias corrected MLE) | 0.739 |
| Theta hat (MLE) | 0.0475 | Theta star (bias corrected MLE) | 0.05 |
| nu hat (MLE) | 66.88 | nu star (bias corrected) | 63.54 |
| MLE Mean (bias corrected) | 0.0369 | MLE Sd (bias corrected) | 0.043 |
| 95% Percentile of Chisquare (2kstar) | 4.933 | 90% Percentile | 0.0916 |
| 95% Percentile | 0.123 | 99% Percentile | 0.199 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.151 | 0.149 | 95% Approx. Gamma UPL | 0.113 | 0.109 |
| 95% Gamma USL | 0.25 | 0.261 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0366 | SD (KM) | 0.0703 |
| Variance (KM) | 0.00494 | SE of Mean (KM) | 0.0109 |
| k hat (KM) | 0.271 | k star (KM) | 0.267 |
| nu hat (KM) | 23.28 | nu star (KM) | 22.99 |
| theta hat (KM) | 0.135 | theta star (KM) | 0.137 |
| 80% gamma percentile (KM) | 0.0543 | 90% gamma percentile (KM) | 0.109 |
| 95% gamma percentile (KM) | 0.174 | 99% gamma percentile (KM) | 0.343 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.15 | 0.148 | 95% Approx. Gamma UPL | 0.112 | 0.108 |
| 95% KM Gamma Percentile | 0.107 | 0.103 | 95% Gamma USL | 0.249 | 0.262 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.903 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.949 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.149 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.128 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0365 | Mean in Log Scale | -4.137 |
| SD in Original Scale | 0.0712 | SD in Log Scale | 1.12 |
| 95% UTL95% Coverage | 0.167 | 95% BCA UTL95% Coverage | 0.337 |
| 95% Bootstrap (%) UTL95% Coverage | 0.342 | 95% UPL (t) | 0.107 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 90% Percentile (z) | 0.067 | 95% Percentile (z) | 0.101 |
| 99% Percentile (z) | 0.216 | 95% USL | 0.409 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -4.119 | 95% KM UTL (Lognormal)95% Coverage | 0.158 |
| KM SD of Logged Data | 1.086 | 95% KM UPL (Lognormal) | 0.103 |
| 95% KM Percentile Lognormal (z) | 0.0969 | 95% KM USL (Lognormal) | 0.377 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0365 | Mean in Log Scale | -4.132 |
| SD in Original Scale | 0.0712 | SD in Log Scale | 1.111 |
| 95% UTL95% Coverage | 0.165 | 95% UPL (t) | 0.106 |
| 90% Percentile (z) | 0.0667 | 95% Percentile (z) | 0.0999 |
| 99% Percentile (z) | 0.213 | 95% USL | 0.402 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 43 | 95% UTL with95% Coverage | 0.35 |
| Approx, f used to compute achieved CC | 2.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.89 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.26 |
| 95% USL | 0.35 | 95% KM Chebyshev UPL | 0.347 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (benzo(g,h,i)perylene | [subsurface soil_1_5][subsurface soil_5_10] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 86 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 24 | | |
| Number of Detects | 10 | Number of Non-Detects | 76 |
| Number of Distinct Detects | 7 | Number of Distinct Non-Detects | 17 |
| Minimum Detect | 0.0025 | Minimum Non-Detect | 0.0064 |
| Maximum Detect | 0.05 | Maximum Non-Detect | 0.0082 |
| Variance Detected | 2.0052E-4 | Percent Non-Detects | 88.37% |
| Mean Detected | 0.0111 | SD Detected | 0.0142 |
| Mean of Detected Logged Data | -4.95 | SD of Detected Logged Data | 0.915 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.948 | d2max (for USL) | 3.157 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.597 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.781 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.375 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.304 | Data Not Normal at 1% Significance Level |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00447 | KM SD | 0.00529 |
| 95% UTL95% Coverage | 0.0148 | 95% KM UPL (t) | 0.0133 |
| 90% KM Percentile (z) | 0.0113 | 95% KM Percentile (z) | 0.0132 |
| 99% KM Percentile (z) | 0.0168 | 95% KM USL | 0.0212 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00451 | SD | 0.0052 |
| 95% UTL95% Coverage | 0.0146 | 95% UPL (t) | 0.0132 |
| 90% Percentile (z) | 0.0112 | 95% Percentile (z) | 0.0131 |
| 99% Percentile (z) | 0.0166 | 95% USL | 0.0209 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.791 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.744 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.249 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.272 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data follow Appr. Gamma Distribution at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.254 | k star (bias corrected MLE) | 0.945 |
| Theta hat (MLE) | 0.00885 | Theta star (bias corrected MLE) | 0.0117 |
| nu hat (MLE) | 25.09 | nu star (bias corrected) | 18.89 |
| MLE Mean (bias corrected) | 0.0111 | | |
| MLE Sd (bias corrected) | 0.0114 | 95% Percentile of Chisquare (2kstar) | 5.775 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0025 | Mean | 0.0101 |
| Maximum | 0.05 | Median | 0.01 |
| SD | 0.00462 | CV | 0.456 |
| k hat (MLE) | 9.639 | k star (bias corrected MLE) | 9.31 |
| Theta hat (MLE) | 0.00105 | Theta star (bias corrected MLE) | 0.00109 |
| nu hat (MLE) | 1658 | nu star (bias corrected) | 1601 |
| MLE Mean (bias corrected) | 0.0101 | MLE Sd (bias corrected) | 0.00332 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% Percentile of Chisquare (2kstar) | 29.66 | 90% Percentile | 0.0145 |
| 95% Percentile | 0.0161 | 99% Percentile | 0.0194 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0173 | 0.0173 | 95% Approx. Gamma UPL | 0.016 | 0.016 |
| 95% Gamma USL | 0.0235 | 0.0238 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00447 | SD (KM) | 0.00529 |
| Variance (KM) | 2.7998E-5 | SE of Mean (KM) | 7.8737E-4 |
| k hat (KM) | 0.714 | k star (KM) | 0.697 |
| nu hat (KM) | 122.9 | nu star (KM) | 119.9 |
| theta hat (KM) | 0.00626 | theta star (KM) | 0.00641 |
| 80% gamma percentile (KM) | 0.00735 | 90% gamma percentile (KM) | 0.0112 |
| 95% gamma percentile (KM) | 0.0152 | 99% gamma percentile (KM) | 0.0248 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0103 | 0.00996 | 95% Approx. Gamma UPL | 0.00913 | 0.00882 |
| 95% KM Gamma Percentile | 0.00902 | 0.00871 | 95% Gamma USL | 0.0166 | 0.0163 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.882 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.869 | Detected Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.207 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.241 | Detected Data appear Lognormal at 10% Significance Level |

Detected Data appear Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00467 | Mean in Log Scale | -5.576 |
| SD in Original Scale | 0.00539 | SD in Log Scale | 0.556 |
| 95% UTL95% Coverage | 0.0112 | 95% BCA UTL95% Coverage | 0.011 |
| 95% Bootstrap (%) UTL95% Coverage | 0.011 | 95% UPL (t) | 0.0096 |
| 90% Percentile (z) | 0.00772 | 95% Percentile (z) | 0.00945 |
| 99% Percentile (z) | 0.0138 | 95% USL | 0.0219 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -5.588 | 95% KM UTL (Lognormal)95% Coverage | 0.00921 |
| KM SD of Logged Data | 0.462 | 95% KM UPL (Lognormal) | 0.00811 |
| 95% KM Percentile Lognormal (z) | 0.008 | 95% KM USL (Lognormal) | 0.0161 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00451 | Mean in Log Scale | -5.538 |
| SD in Original Scale | 0.0052 | SD in Log Scale | 0.371 |
| 95% UTL95% Coverage | 0.0081 | 95% UPL (t) | 0.00732 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 90% Percentile (z) | 0.00633 | 95% Percentile (z) | 0.00724 |
| 99% Percentile (z) | 0.00932 | 95% USL | 0.0127 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 85 | 95% UTL with95% Coverage | 0.05 |
| Approx, f used to compute achieved CC | 2.237 | Approximate Actual Confidence Coefficient achieved by UTL | 0.933 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.01 |
| 95% USL | 0.05 | 95% KM Chebyshev UPL | 0.0277 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (benzo(g,h,i)perylene | [surface soil] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 43 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 35 | | |
| Number of Detects | 37 | Number of Non-Detects | 6 |
| Number of Distinct Detects | 31 | Number of Distinct Non-Detects | 5 |
| Minimum Detect | 0.0027 | Minimum Non-Detect | 0.0072 |
| Maximum Detect | 0.19 | Maximum Non-Detect | 0.0088 |
| Variance Detected | 0.0015 | Percent Non-Detects | 13.95% |
| Mean Detected | 0.0216 | SD Detected | 0.0387 |
| Mean of Detected Logged Data | -4.573 | SD of Detected Logged Data | 1.041 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.097 | d2max (for USL) | 2.897 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.507 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.814 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.348 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.168 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0193 | KM SD | 0.0359 |
| 95% UTL95% Coverage | 0.0945 | 95% KM UPL (t) | 0.0803 |
| 90% KM Percentile (z) | 0.0653 | 95% KM Percentile (z) | 0.0783 |
| 99% KM Percentile (z) | 0.103 | 95% KM USL | 0.123 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0191 | SD | 0.0364 |
| 95% UTL95% Coverage | 0.0954 | 95% UPL (t) | 0.081 |
| 90% Percentile (z) | 0.0657 | 95% Percentile (z) | 0.0789 |
| 99% Percentile (z) | 0.104 | 95% USL | 0.125 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 3.72 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.786 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.266 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.15 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.805 | k star (bias corrected MLE) | 0.758 |
| Theta hat (MLE) | 0.0268 | Theta star (bias corrected MLE) | 0.0285 |
| nu hat (MLE) | 59.56 | nu star (bias corrected) | 56.06 |
| MLE Mean (bias corrected) | 0.0216 | | |
| MLE Sd (bias corrected) | 0.0248 | 95% Percentile of Chisquare (2kstar) | 5.012 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0027 | Mean | 0.02 |
| Maximum | 0.19 | Median | 0.0092 |
| SD | 0.0361 | CV | 1.807 |
| k hat (MLE) | 0.883 | k star (bias corrected MLE) | 0.837 |
| Theta hat (MLE) | 0.0226 | Theta star (bias corrected MLE) | 0.0239 |
| nu hat (MLE) | 75.95 | nu star (bias corrected) | 71.98 |
| MLE Mean (bias corrected) | 0.02 | MLE Sd (bias corrected) | 0.0218 |
| 95% Percentile of Chisquare (2kstar) | 5.343 | 90% Percentile | 0.048 |
| 95% Percentile | 0.0637 | 99% Percentile | 0.101 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0782 | 0.077 | 95% Approx. Gamma UPL | 0.0595 | 0.0574 |
| 95% Gamma USL | 0.127 | 0.132 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0193 | SD (KM) | 0.0359 |
| Variance (KM) | 0.00129 | SE of Mean (KM) | 0.00555 |
| k hat (KM) | 0.289 | k star (KM) | 0.284 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| nu hat (KM) | 24.82 | nu star (KM) | 24.42 |
| theta hat (KM) | 0.0668 | theta star (KM) | 0.0679 |
| 80% gamma percentile (KM) | 0.0291 | 90% gamma percentile (KM) | 0.0572 |
| 95% gamma percentile (KM) | 0.0897 | 99% gamma percentile (KM) | 0.175 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0763 | 0.075 | 95% Approx. Gamma UPL | 0.0577 | 0.0554 |
| 95% KM Gamma Percentile | 0.0553 | 0.053 | 95% Gamma USL | 0.125 | 0.13 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.865 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.946 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.172 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.132 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0193 | Mean in Log Scale | -4.669 |
| SD in Original Scale | 0.0363 | SD in Log Scale | 0.996 |
| 95% UTL95% Coverage | 0.0757 | 95% BCA UTL95% Coverage | 0.177 |
| 95% Bootstrap (%) UTL95% Coverage | 0.184 | 95% UPL (t) | 0.051 |
| 90% Percentile (z) | 0.0336 | 95% Percentile (z) | 0.0482 |
| 99% Percentile (z) | 0.0951 | 95% USL | 0.168 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -4.676 | 95% KM UTL (Lognormal)95% Coverage | 0.0745 |
| KM SD of Logged Data | 0.991 | 95% KM UPL (Lognormal) | 0.0503 |
| 95% KM Percentile Lognormal (z) | 0.0476 | 95% KM USL (Lognormal) | 0.165 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0191 | Mean in Log Scale | -4.71 |
| SD in Original Scale | 0.0364 | SD in Log Scale | 1.023 |
| 95% UTL95% Coverage | 0.077 | 95% UPL (t) | 0.0514 |
| 90% Percentile (z) | 0.0334 | 95% Percentile (z) | 0.0485 |
| 99% Percentile (z) | 0.0974 | 95% USL | 0.175 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 43 | 95% UTL with95% Coverage | 0.19 |
| Approx, f used to compute achieved CC | 2.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.89 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.123 |
| 95% USL | 0.19 | 95% KM Chebyshev UPL | 0.178 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (benzo(k)fluoranthene | [subsurface soil_1_5][subsurface soil_5_10] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 86 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 19 | | |
| Number of Detects | 8 | Number of Non-Detects | 78 |
| Number of Distinct Detects | 8 | Number of Distinct Non-Detects | 12 |
| Minimum Detect | 0.0023 | Minimum Non-Detect | 0.0042 |
| Maximum Detect | 0.046 | Maximum Non-Detect | 0.0053 |
| Variance Detected | 2.1258E-4 | Percent Non-Detects | 90.7% |
| Mean Detected | 0.0114 | SD Detected | 0.0146 |
| Mean of Detected Logged Data | -5.008 | SD of Detected Logged Data | 1.045 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.948 | d2max (for USL) | 3.157 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.655 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.749 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.357 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.333 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00339 | KM SD | 0.0049 |
| 95% UTL95% Coverage | 0.0129 | 95% KM UPL (t) | 0.0116 |
| 90% KM Percentile (z) | 0.00966 | 95% KM Percentile (z) | 0.0114 |
| 99% KM Percentile (z) | 0.0148 | 95% KM USL | 0.0189 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0032 | SD | 0.00494 |
| 95% UTL95% Coverage | 0.0128 | 95% UPL (t) | 0.0115 |
| 90% Percentile (z) | 0.00954 | 95% Percentile (z) | 0.0113 |
| 99% Percentile (z) | 0.0147 | 95% USL | 0.0188 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.597 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.734 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.226 | **Kolmogorov-Smirnov GOF** |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 5% K-S Critical Value | 0.301 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.081 | k star (bias corrected MLE) | 0.759 |
| Theta hat (MLE) | 0.0105 | Theta star (bias corrected MLE) | 0.015 |
| nu hat (MLE) | 17.3 | nu star (bias corrected) | 12.14 |
| MLE Mean (bias corrected) | 0.0114 | | |
| MLE Sd (bias corrected) | 0.013 | 95% Percentile of Chisquare (2kstar) | 5.018 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0023 | Mean | 0.0101 |
| Maximum | 0.046 | Median | 0.01 |
| SD | 0.0042 | CV | 0.415 |
| k hat (MLE) | 10.18 | k star (bias corrected MLE) | 9.831 |
| Theta hat (MLE) | 9.9478E-4 | Theta star (bias corrected MLE) | 0.00103 |
| nu hat (MLE) | 1751 | nu star (bias corrected) | 1691 |
| MLE Mean (bias corrected) | 0.0101 | MLE Sd (bias corrected) | 0.00323 |
| 95% Percentile of Chisquare (2kstar) | 30.98 | 90% Percentile | 0.0144 |
| 95% Percentile | 0.016 | 99% Percentile | 0.0191 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0171 | 0.0172 | 95% Approx. Gamma UPL | 0.0159 | 0.0159 |
| 95% Gamma USL | 0.023 | 0.0235 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00339 | SD (KM) | 0.0049 |
| Variance (KM) | 2.3992E-5 | SE of Mean (KM) | 5.7864E-4 |
| k hat (KM) | 0.478 | k star (KM) | 0.469 |
| nu hat (KM) | 82.18 | nu star (KM) | 80.65 |
| theta hat (KM) | 0.00709 | theta star (KM) | 0.00722 |
| 80% gamma percentile (KM) | 0.00554 | 90% gamma percentile (KM) | 0.00928 |
| 95% gamma percentile (KM) | 0.0133 | 99% gamma percentile (KM) | 0.0233 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.00789 | 0.00746 | 95% Approx. Gamma UPL | 0.00698 | 0.0066 |
| 95% KM Gamma Percentile | 0.00689 | 0.00652 | 95% Gamma USL | 0.0129 | 0.0123 |

**Lognormal GOF Test on Detected Observations Only**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.889 | **Shapiro Wilk GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.851 | Detected Data appear Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.192 | **Lilliefors GOF Test** | |
| 10% Lilliefors Critical Value | 0.265 | Detected Data appear Lognormal at 10% Significance Level | |

Detected Data appear Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00368 | Mean in Log Scale | -5.901 |
| SD in Original Scale | 0.00508 | SD in Log Scale | 0.673 |
| 95% UTL95% Coverage | 0.0102 | 95% BCA UTL95% Coverage | 0.011 |
| 95% Bootstrap (%) UTL95% Coverage | 0.011 | 95% UPL (t) | 0.00844 |
| 90% Percentile (z) | 0.00648 | 95% Percentile (z) | 0.00828 |
| 99% Percentile (z) | 0.0131 | 95% USL | 0.0229 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -5.885 | 95% KM UTL (Lognormal)95% Coverage | 0.00643 |
| KM SD of Logged Data | 0.431 | 95% KM UPL (Lognormal) | 0.00571 |
| 95% KM Percentile Lognormal (z) | 0.00564 | 95% KM USL (Lognormal) | 0.0108 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0032 | Mean in Log Scale | -5.95 |
| SD in Original Scale | 0.00494 | SD in Log Scale | 0.43 |
| 95% UTL95% Coverage | 0.00602 | 95% UPL (t) | 0.00535 |
| 90% Percentile (z) | 0.00452 | 95% Percentile (z) | 0.00529 |
| 99% Percentile (z) | 0.00709 | 95% USL | 0.0101 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 85 | 95% UTL with95% Coverage | 0.046 |
| Approx, f used to compute achieved CC | 2.237 | Approximate Actual Confidence Coefficient achieved by UTL | 0.933 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.00835 |
| 95% USL | 0.046 | 95% KM Chebyshev UPL | 0.0249 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (benzo(k)fluoranthene | [surface soil] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 43 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 32 | | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Number of Detects | 35 | Number of Non-Detects | 8 |
| Number of Distinct Detects | 30 | Number of Distinct Non-Detects | 5 |
| Minimum Detect | 0.0027 | Minimum Non-Detect | 0.0047 |
| Maximum Detect | 0.17 | Maximum Non-Detect | 0.0057 |
| Variance Detected | 0.00117 | Percent Non-Detects | 18.6% |
| Mean Detected | 0.0174 | SD Detected | 0.0342 |
| Mean of Detected Logged Data | -4.814 | SD of Detected Logged Data | 1.016 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.097 | d2max (for USL) | 2.897 |

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.457 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.91 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.357 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.172 | Data Not Normal at 1% Significance Level |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0149 | KM SD | 0.0308 |
| 95% UTL95% Coverage | 0.0796 | 95% KM UPL (t) | 0.0674 |
| 90% KM Percentile (z) | 0.0544 | 95% KM Percentile (z) | 0.0656 |
| 99% KM Percentile (z) | 0.0866 | 95% KM USL | 0.104 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0147 | SD | 0.0313 |
| 95% UTL95% Coverage | 0.0803 | 95% UPL (t) | 0.0679 |
| 90% Percentile (z) | 0.0548 | 95% Percentile (z) | 0.0661 |
| 99% Percentile (z) | 0.0874 | 95% USL | 0.105 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 4.241 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.786 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.291 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.154 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.779 | k star (bias corrected MLE) | 0.732 |
| Theta hat (MLE) | 0.0224 | Theta star (bias corrected MLE) | 0.0238 |
| nu hat (MLE) | 54.56 | nu star (bias corrected) | 51.21 |
| MLE Mean (bias corrected) | 0.0174 | | |
| MLE Sd (bias corrected) | 0.0204 | 95% Percentile of Chisquare (2kstar) | 4.902 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0027 | Mean | 0.016 |
| Maximum | 0.17 | Median | 0.0077 |
| SD | 0.0309 | CV | 1.924 |
| k hat (MLE) | 0.909 | k star (bias corrected MLE) | 0.861 |
| Theta hat (MLE) | 0.0177 | Theta star (bias corrected MLE) | 0.0186 |
| nu hat (MLE) | 78.13 | nu star (bias corrected) | 74.02 |
| MLE Mean (bias corrected) | 0.016 | MLE Sd (bias corrected) | 0.0173 |
| 95% Percentile of Chisquare (2kstar) | 5.439 | 90% Percentile | 0.0383 |
| 95% Percentile | 0.0507 | 99% Percentile | 0.0798 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0613 | 0.0597 | 95% Approx. Gamma UPL | 0.0469 | 0.0448 |
| 95% Gamma USL | 0.0992 | 0.101 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0149 | SD (KM) | 0.0308 |
| Variance (KM) | 9.5142E-4 | SE of Mean (KM) | 0.00477 |
| k hat (KM) | 0.232 | k star (KM) | 0.232 |
| nu hat (KM) | 19.99 | nu star (KM) | 19.93 |
| theta hat (KM) | 0.064 | theta star (KM) | 0.0642 |
| 80% gamma percentile (KM) | 0.021 | 90% gamma percentile (KM) | 0.0448 |
| 95% gamma percentile (KM) | 0.0736 | 99% gamma percentile (KM) | 0.151 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0583 | 0.0562 | 95% Approx. Gamma UPL | 0.044 | 0.0416 |
| 95% KM Gamma Percentile | 0.0422 | 0.0397 | 95% Gamma USL | 0.0961 | 0.0974 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.821 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.944 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.201 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.136 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0148 | Mean in Log Scale | -4.98 |
| SD in Original Scale | 0.0312 | SD in Log Scale | 0.985 |
| 95% UTL95% Coverage | 0.0543 | 95% BCA UTL95% Coverage | 0.164 |
| 95% Bootstrap (%) UTL95% Coverage | 0.164 | 95% UPL (t) | 0.0367 |
| 90% Percentile (z) | 0.0243 | 95% Percentile (z) | 0.0348 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 99% Percentile (z) | 0.068 | 95% USL | 0.119 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -4.963 | 95% KM UTL (Lognormal)95% Coverage | 0.0521 |
| KM SD of Logged Data | 0.958 | 95% KM UPL (Lognormal) | 0.0357 |
| 95% KM Percentile Lognormal (z) | 0.0338 | 95% KM USL (Lognormal) | 0.112 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0147 | Mean in Log Scale | -5.031 |
| SD in Original Scale | 0.0313 | SD in Log Scale | 1.023 |
| 95% UTL95% Coverage | 0.0558 | 95% UPL (t) | 0.0372 |
| 90% Percentile (z) | 0.0242 | 95% Percentile (z) | 0.0351 |
| 99% Percentile (z) | 0.0706 | 95% USL | 0.127 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 43 | 95% UTL with95% Coverage | 0.17 |
| Approx, f used to compute achieved CC | 2.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.89 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.104 |
| 95% USL | 0.17 | 95% KM Chebyshev UPL | 0.151 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (beryllium | [subsurface soil_5_10] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 43 | Number of Distinct Observations | 23 |
| Minimum | 0.068 | First Quartile | 0.155 |
| Second Largest | 0.33 | Median | 0.21 |
| Maximum | 0.56 | Third Quartile | 0.24 |
| Mean | 0.21 | SD | 0.081 |
| Coefficient of Variation | 0.386 | Skewness | 1.836 |
| Mean of logged Data | -1.628 | SD of logged Data | 0.369 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.097 | d2max (for USL) | 2.897 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.881 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.923 | Data Not Normal at 1% Significance Level | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Lilliefors Test Statistic | 0.128 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.156 | Data appear Normal at 1% Significance Level | |

Data appear Approximate Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 0.379 | 90% Percentile (z) | 0.313 |
| | 95% UPL (t) | 0.347 | 95% Percentile (z) | 0.343 |
| | 95% USL | 0.444 | 99% Percentile (z) | 0.398 |

**Gamma GOF Test**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 0.429 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.75 | Detected data appear Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.0905 | **Kolmogorov-Smirnov Gamma GOF Test** | |
| 5% K-S Critical Value | 0.135 | Detected data appear Gamma Distributed at 5% Significance Level | |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 7.766 | k star (bias corrected MLE) | 7.24 |
| Theta hat (MLE) | 0.027 | Theta star (bias corrected MLE) | 0.029 |
| nu hat (MLE) | 667.9 | nu star (bias corrected) | 622.6 |
| MLE Mean (bias corrected) | 0.21 | MLE Sd (bias corrected) | 0.0779 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 0.354 | 90% Percentile | 0.314 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 0.357 | 95% Percentile | 0.352 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 0.399 | 99% Percentile | 0.432 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 0.404 | | |
| 95% WH USL | 0.5 | 95% HW USL | 0.513 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.976 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.951 | Data appear Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.0923 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.123 | Data appear Lognormal at 10% Significance Level | |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 0.426 | 90% Percentile (z) | 0.315 |
| | 95% UPL (t) | 0.368 | 95% Percentile (z) | 0.36 |
| | 95% USL | 0.572 | 99% Percentile (z) | 0.464 |

**Nonparametric Distribution Free Background Statistics**

Data appear Approximate Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| Order of Statistic, order | 43 | 95% UTL with | 95% Coverage | 0.56 |
| Approx, f used to compute achieved CC | 2.263 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.89 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | | | |
|---|---|---|---|---|---|
| | | | Approximate Sample Size needed to achieve specified CC | | 59 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 0.537 | 95% BCA Bootstrap UTL with | 95% Coverage | 0.535 |
| | 95% UPL | 0.326 | | 90% Percentile | 0.286 |
| | 90% Chebyshev UPL | 0.455 | | 95% Percentile | 0.309 |
| | 95% Chebyshev UPL | 0.567 | | 99% Percentile | 0.463 |
| | 95% USL | 0.56 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (beryllium | [surface soil][subsurface soil_1_5] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 86 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 28 | | |
| Number of Detects | 84 | Number of Non-Detects | 2 |
| Number of Distinct Detects | 26 | Number of Distinct Non-Detects | 2 |
| Minimum Detect | 0.39 | Minimum Non-Detect | 0.1 |
| Maximum Detect | 2.7 | Maximum Non-Detect | 0.13 |
| Variance Detected | 0.061 | Percent Non-Detects | 2.326% |
| Mean Detected | 0.535 | SD Detected | 0.247 |
| Mean of Detected Logged Data | -0.663 | SD of Detected Logged Data | 0.22 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.948 | d2max (for USL) | 3.157 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.307 | **Normal GOF Test on Detected Observations Only** | |
| 1% Shapiro Wilk P Value | 0 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.321 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.112 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.525 | KM SD | 0.251 |
| 95% UTL95% Coverage | 1.015 | 95% KM UPL (t) | 0.945 |
| 90% KM Percentile (z) | 0.847 | 95% KM Percentile (z) | 0.938 |
| 99% KM Percentile (z) | 1.11 | 95% KM USL | 1.319 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.524 | SD | 0.255 |
| 95% UTL95% Coverage | 1.02 | 95% UPL (t) | 0.95 |
| 90% Percentile (z) | 0.85 | 95% Percentile (z) | 0.943 |
| 99% Percentile (z) | 1.116 | 95% USL | 1.328 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 8.857 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.751 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.23 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.0974 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 13.5 | k star (bias corrected MLE) | 13.03 |
| Theta hat (MLE) | 0.0396 | Theta star (bias corrected MLE) | 0.0411 |
| nu hat (MLE) | 2268 | nu star (bias corrected) | 2189 |
| MLE Mean (bias corrected) | 0.535 | | |
| MLE Sd (bias corrected) | 0.148 | 95% Percentile of Chisquare (2kstar) | 38.95 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.26 | Mean | 0.529 |
| Maximum | 2.7 | Median | 0.51 |
| SD | 0.248 | CV | 0.468 |
| k hat (MLE) | 12.25 | k star (bias corrected MLE) | 11.83 |
| Theta hat (MLE) | 0.0432 | Theta star (bias corrected MLE) | 0.0447 |
| nu hat (MLE) | 2107 | nu star (bias corrected) | 2035 |
| MLE Mean (bias corrected) | 0.529 | MLE Sd (bias corrected) | 0.154 |
| 95% Percentile of Chisquare (2kstar) | 36 | 90% Percentile | 0.733 |
| 95% Percentile | 0.804 | 99% Percentile | 0.95 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.853 | 0.84 | 95% Approx. Gamma UPL | 0.798 | 0.786 |
| 95% Gamma USL | 1.126 | 1.112 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.525 | SD (KM) | 0.251 |
| Variance (KM) | 0.0632 | SE of Mean (KM) | 0.0273 |
| k hat (KM) | 4.363 | k star (KM) | 4.219 |
| nu hat (KM) | 750.5 | nu star (KM) | 725.6 |
| theta hat (KM) | 0.12 | theta star (KM) | 0.124 |
| 80% gamma percentile (KM) | 0.719 | 90% gamma percentile (KM) | 0.868 |
| 95% gamma percentile (KM) | 1.004 | 99% gamma percentile (KM) | 1.293 |

**The following statistics are computed using gamma distribution and KM estimates**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.905 | 0.907 | 95% Approx. Gamma UPL | 0.839 | 0.838 |
| 95% KM Gamma Percentile | 0.833 | 0.832 | 95% Gamma USL | 1.238 | 1.257 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Approximate Test Statistic | 0.629 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk P Value | 0 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.181 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.0886 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.531 | Mean in Log Scale | -0.673 |
| SD in Original Scale | 0.246 | SD in Log Scale | 0.227 |
| 95% UTL95% Coverage | 0.794 | 95% BCA UTL95% Coverage | 0.64 |
| 95% Bootstrap (%) UTL95% Coverage | 0.64 | 95% UPL (t) | 0.746 |
| 90% Percentile (z) | 0.683 | 95% Percentile (z) | 0.741 |
| 99% Percentile (z) | 0.865 | 95% USL | 1.044 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -0.701 | 95% KM UTL (Lognormal)95% Coverage | 0.941 |
| KM SD of Logged Data | 0.328 | 95% KM UPL (Lognormal) | 0.859 |
| 95% KM Percentile Lognormal (z) | 0.852 | 95% KM USL (Lognormal) | 1.399 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.524 | Mean in Log Scale | -0.714 |
| SD in Original Scale | 0.255 | SD in Log Scale | 0.399 |
| 95% UTL95% Coverage | 1.065 | 95% UPL (t) | 0.954 |
| 90% Percentile (z) | 0.817 | 95% Percentile (z) | 0.944 |
| 99% Percentile (z) | 1.239 | 95% USL | 1.726 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 85 | 95% UTL with95% Coverage | 2.7 |
| Approx, f used to compute achieved CC | 2.237 | Approximate Actual Confidence Coefficient achieved by UTL | 0.933 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.63 |
| 95% USL | 2.7 | 95% KM Chebyshev UPL | 1.627 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Conc (cadmium | [subsurface soil_1_5] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 43 | Number of Distinct Observations | 33 |
| Minimum | 0.015 | First Quartile | 0.0305 |
| Second Largest | 0.18 | Median | 0.043 |
| Maximum | 0.22 | Third Quartile | 0.0595 |
| Mean | 0.0589 | SD | 0.0484 |
| Coefficient of Variation | 0.821 | Skewness | 1.822 |
| Mean of logged Data | -3.08 | SD of logged Data | 0.68 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.097 | d2max (for USL) | 2.897 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.756 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.923 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.268 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.156 | Data Not Normal at 1% Significance Level | |

**Data Not Normal at 1% Significance Level**

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 0.16 | 90% Percentile (z) | 0.121 |
| | 95% UPL (t) | 0.141 | 95% Percentile (z) | 0.139 |
| | 95% USL | 0.199 | 99% Percentile (z) | 0.171 |

**Gamma GOF Test**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 1.685 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.759 | Data Not Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.187 | **Kolmogorov-Smirnov Gamma GOF Test** | |
| 5% K-S Critical Value | 0.136 | Data Not Gamma Distributed at 5% Significance Level | |

**Data Not Gamma Distributed at 5% Significance Level**

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 2.163 | k star (bias corrected MLE) | 2.028 |
| Theta hat (MLE) | 0.0272 | Theta star (bias corrected MLE) | 0.0291 |
| nu hat (MLE) | 186.1 | nu star (bias corrected) | 174.4 |
| MLE Mean (bias corrected) | 0.0589 | MLE Sd (bias corrected) | 0.0414 |

**Background Statistics Assuming Gamma Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | | 0.14 | 90% Percentile | 0.114 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | | 0.141 | 95% Percentile | 0.139 |
| 95% WH Approx. Gamma UTL with | 95% Coverage | 0.17 | 99% Percentile | 0.194 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 0.174 | | |
| | 95% WH USL | 0.245 | 95% HW USL | 0.258 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.942 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.951 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.137 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.123 | Data Not Lognormal at 10% Significance Level | |

Data Not Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 0.191 | 90% Percentile (z) | | 0.11 |
| | 95% UPL (t) | 0.146 | 95% Percentile (z) | | 0.141 |
| | 95% USL | 0.33 | 99% Percentile (z) | | 0.224 |

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| Order of Statistic, order | | 43 | 95% UTL with | 95% Coverage | 0.22 |
| Approx, f used to compute achieved CC | | 2.263 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.89 |
| | | | Approximate Sample Size needed to achieve specified CC | | 59 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 0.216 | 95% BCA Bootstrap UTL with | 95% Coverage | 0.18 |
| | 95% UPL | 0.176 | | 90% Percentile | 0.136 |
| | 90% Chebyshev UPL | 0.206 | | 95% Percentile | 0.16 |
| | 95% Chebyshev UPL | 0.272 | | 99% Percentile | 0.203 |
| | 95% USL | 0.22 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (cadmium | [subsurface soil_5_10] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 43 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 26 | | |
| Number of Detects | 42 | Number of Non-Detects | 1 |
| Number of Distinct Detects | 26 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | 0.0083 | Minimum Non-Detect | 0.04 |
| Maximum Detect | 0.31 | Maximum Non-Detect | 0.04 |
| Variance Detected | 0.00217 | Percent Non-Detects | 2.326% |
| Mean Detected | 0.0323 | SD Detected | 0.0466 |
| Mean of Detected Logged Data | -3.736 | SD of Detected Logged Data | 0.629 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.097 | d2max (for USL) | 2.897 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.382 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.922 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.315 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.157 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.032 | KM SD | 0.0455 |
| 95% UTL95% Coverage | 0.127 | 95% KM UPL (t) | 0.109 |
| 90% KM Percentile (z) | 0.0903 | 95% KM Percentile (z) | 0.107 |
| 99% KM Percentile (z) | 0.138 | 95% KM USL | 0.164 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.032 | SD | 0.0461 |
| 95% UTL95% Coverage | 0.129 | 95% UPL (t) | 0.11 |
| 90% Percentile (z) | 0.091 | 95% Percentile (z) | 0.108 |
| 99% Percentile (z) | 0.139 | 95% USL | 0.165 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 3.445 | **Anderson-Darling GOF Test** | |
| 5% A-D Critical Value | 0.762 | Data Not Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.22 | **Kolmogorov-Smirnov GOF** | |
| 5% K-S Critical Value | 0.138 | Data Not Gamma Distributed at 5% Significance Level | |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.807 | k star (bias corrected MLE) | 1.694 |
| Theta hat (MLE) | 0.0179 | Theta star (bias corrected MLE) | 0.019 |
| nu hat (MLE) | 151.8 | nu star (bias corrected) | 142.3 |
| MLE Mean (bias corrected) | 0.0323 | | |
| MLE Sd (bias corrected) | 0.0248 | 95% Percentile of Chisquare (2kstar) | 8.476 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0083 | Mean | 0.0319 |
| Maximum | 0.31 | Median | 0.021 |
| SD | 0.0461 | CV | 1.442 |
| k hat (MLE) | 1.829 | k star (bias corrected MLE) | 1.717 |
| Theta hat (MLE) | 0.0175 | Theta star (bias corrected MLE) | 0.0186 |
| nu hat (MLE) | 157.3 | nu star (bias corrected) | 147.7 |
| MLE Mean (bias corrected) | 0.0319 | MLE Sd (bias corrected) | 0.0244 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% Percentile of Chisquare (2kstar) | 8.555 | 90% Percentile | 0.0644 |
| 95% Percentile | 0.0796 | 99% Percentile | 0.113 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0942 | 0.0917 | 95% Approx. Gamma UPL | 0.0766 | 0.0739 |
| 95% Gamma USL | 0.138 | 0.137 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.032 | SD (KM) | 0.0455 |
| Variance (KM) | 0.00207 | SE of Mean (KM) | 0.00703 |
| k hat (KM) | 0.494 | k star (KM) | 0.475 |
| nu hat (KM) | 42.46 | nu star (KM) | 40.83 |
| theta hat (KM) | 0.0648 | theta star (KM) | 0.0674 |
| 80% gamma percentile (KM) | 0.0524 | 90% gamma percentile (KM) | 0.0875 |
| 95% gamma percentile (KM) | 0.125 | 99% gamma percentile (KM) | 0.218 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0933 | 0.0908 | 95% Approx. Gamma UPL | 0.076 | 0.0733 |
| 95% KM Gamma Percentile | 0.0737 | 0.071 | 95% Gamma USL | 0.136 | 0.135 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.847 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.951 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.161 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.124 | Data Not Lognormal at 10% Significance Level |

**Data Not Lognormal at 10% Significance Level**

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.032 | Mean in Log Scale | -3.739 |
| SD in Original Scale | 0.046 | SD in Log Scale | 0.622 |
| 95% UTL95% Coverage | 0.0877 | 95% BCA UTL95% Coverage | 0.284 |
| 95% Bootstrap (%) UTL95% Coverage | 0.289 | 95% UPL (t) | 0.0685 |
| 90% Percentile (z) | 0.0528 | 95% Percentile (z) | 0.0662 |
| 99% Percentile (z) | 0.101 | 95% USL | 0.144 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -3.74 | 95% KM UTL (Lognormal)95% Coverage | 0.0867 |
| KM SD of Logged Data | 0.617 | 95% KM UPL (Lognormal) | 0.0679 |
| 95% KM Percentile Lognormal (z) | 0.0656 | 95% KM USL (Lognormal) | 0.142 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.032 | Mean in Log Scale | -3.74 |
| SD in Original Scale | 0.0461 | SD in Log Scale | 0.622 |
| 95% UTL95% Coverage | 0.0876 | 95% UPL (t) | 0.0685 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 90% Percentile (z) | 0.0528 | 95% Percentile (z) | 0.0661 |
| 99% Percentile (z) | 0.101 | 95% USL | 0.144 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 43 | 95% UTL with95% Coverage | 0.31 |
| Approx, f used to compute achieved CC | 2.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.89 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.09 |
| 95% USL | 0.31 | 95% KM Chebyshev UPL | 0.233 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (cadmium | [surface soil] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 43 | Number of Distinct Observations | 32 |
| Minimum | 0.024 | First Quartile | 0.0905 |
| Second Largest | 0.41 | Median | 0.13 |
| Maximum | 0.43 | Third Quartile | 0.21 |
| Mean | 0.167 | SD | 0.103 |
| Coefficient of Variation | 0.616 | Skewness | 1.054 |
| Mean of logged Data | -1.98 | SD of logged Data | 0.643 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.097 | d2max (for USL) | 2.897 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.898 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.923 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.151 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.156 | Data appear Normal at 1% Significance Level | |

Data appear Approximate Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 0.382 | 90% Percentile (z) | 0.298 |
| 95% UPL (t) | 0.341 | 95% Percentile (z) | 0.335 |
| 95% USL | 0.464 | 99% Percentile (z) | 0.405 |

**Gamma GOF Test**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 0.284 | **Anderson-Darling Gamma GOF Test** | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 5% A-D Critical Value | 0.756 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.0893 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.136 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 2.814 | k star (bias corrected MLE) | 2.633 |
| Theta hat (MLE) | 0.0592 | Theta star (bias corrected MLE) | 0.0633 |
| nu hat (MLE) | 242 | nu star (bias corrected) | 226.4 |
| MLE Mean (bias corrected) | 0.167 | MLE Sd (bias corrected) | 0.103 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 0.368 | 90% Percentile | 0.304 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 0.375 | 95% Percentile | 0.363 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 0.439 | 99% Percentile | 0.492 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 0.455 | | |
| 95% WH USL | 0.611 | 95% HW USL | 0.653 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.98 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.951 | Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.109 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.123 | Data appear Lognormal at 10% Significance Level |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 0.532 | 90% Percentile (z) | 0.315 |
| 95% UPL (t) | 0.412 | 95% Percentile (z) | 0.398 |
| 95% USL | 0.889 | 99% Percentile (z) | 0.616 |

**Nonparametric Distribution Free Background Statistics**

Data appear Approximate Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 43 | 95% UTL with 95% Coverage | 0.43 |
| Approx, f used to compute achieved CC | 2.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.89 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 0.428 | 95% BCA Bootstrap UTL with 95% Coverage | 0.427 |
| 95% UPL | 0.408 | 90% Percentile | 0.328 |
| 90% Chebyshev UPL | 0.478 | 95% Percentile | 0.395 |
| 95% Chebyshev UPL | 0.619 | 99% Percentile | 0.422 |
| 95% USL | 0.43 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (calcium | [subsurface soil_5_10] | [psc][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 19 | Number of Distinct Observations | 16 |
| Minimum | 8500 | First Quartile | 23000 |
| Second Largest | 48000 | Median | 33000 |
| Maximum | 100000 | Third Quartile | 45000 |
| Mean | 35868 | SD | 19529 |
| Coefficient of Variation | 0.544 | Skewness | 1.917 |
| Mean of logged Data | 10.36 | SD of logged Data | 0.528 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.423 | d2max (for USL) | 2.531 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.831 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.863 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.215 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.229 | Data appear Normal at 1% Significance Level |

Data appear Approximate Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 83187 | 90% Percentile (z) | 60896 |
| | 95% UPL (t) | 70613 | 95% Percentile (z) | 67991 |
| | 95% USL | 85300 | 99% Percentile (z) | 81300 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.35 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.745 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.164 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.199 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 4.114 | k star (bias corrected MLE) | 3.5 |
| Theta hat (MLE) | 8718 | Theta star (bias corrected MLE) | 10249 |
| nu hat (MLE) | 156.3 | nu star (bias corrected) | 133 |
| MLE Mean (bias corrected) | 35868 | MLE Sd (bias corrected) | 19173 |

**Background Statistics Assuming Gamma Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | | 73830 | 90% Percentile | 61577 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | | 75034 | 95% Percentile | 72082 |
| 95% WH Approx. Gamma UTL with | 95% Coverage | 94353 | 99% Percentile | 94671 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 97608 | | |
| | 95% WH USL | 98136 | 95% HW USL | 101850 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.955 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.917 | Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.162 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.18 | Data appear Lognormal at 10% Significance Level |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 113496 | 90% Percentile (z) | | 62151 |
| | 95% UPL (t) | 80807 | 95% Percentile (z) | | 75281 |
| | 95% USL | 120163 | 99% Percentile (z) | | 107854 |

**Nonparametric Distribution Free Background Statistics**

Data appear Approximate Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| Order of Statistic, order | | 19 | 95% UTL with | 95% Coverage | 100000 |
| Approx, f used to compute achieved CC | | 1 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.623 |
| | | | Approximate Sample Size needed to achieve specified CC | | 59 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 100000 | 95% BCA Bootstrap UTL with | 95% Coverage | 100000 |
| | 95% UPL | 100000 | 90% Percentile | | 48000 |
| | 90% Chebyshev UPL | 95978 | 95% Percentile | | 53200 |
| | 95% Chebyshev UPL | 123205 | 99% Percentile | | 90640 |
| | 95% USL | 100000 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (calcium | [subsurface soil_5_10] | [ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 35 | Number of Distinct Observations | 28 |
| Minimum | 3400 | First Quartile | 32500 |
| Second Largest | 97000 | Median | 46000 |
| Maximum | 100000 | Third Quartile | 75500 |
| Mean | 51731 | SD | 26543 |
| Coefficient of Variation | 0.513 | Skewness | 0.265 |
| Mean of logged Data | 10.67 | SD of logged Data | 0.703 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.157 | d2max (for USL) | 2.812 |

**Normal GOF Test**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.952 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.91 | Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.127 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.172 | Data appear Normal at 1% Significance Level |

Data appear Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 108988 | 90% Percentile (z) | 85747 |
| | 95% UPL (t) | 97250 | 95% Percentile (z) | 95390 |
| | 95% USL | 126363 | 99% Percentile (z) | 113479 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.421 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.754 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.0861 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.15 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 2.946 | k star (bias corrected MLE) | 2.713 |
| Theta hat (MLE) | 17560 | Theta star (bias corrected MLE) | 19071 |
| nu hat (MLE) | 206.2 | nu star (bias corrected) | 189.9 |
| MLE Mean (bias corrected) | 51731 | MLE Sd (bias corrected) | 31410 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 113436 | 90% Percentile | 93831 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 118237 | 95% Percentile | 111791 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 137557 | 99% Percentile | 150935 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 146226 | | |
| 95% WH USL | 179193 | 95% HW USL | 196427 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.874 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.944 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.118 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.136 | Data appear Lognormal at 10% Significance Level |

Data appear Approximate Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 197089 | 90% Percentile (z) | 106482 |
| | 95% UPL (t) | 144416 | 95% Percentile (z) | 137474 |
| | 95% USL | 312301 | 99% Percentile (z) | 221990 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 35 | 95% UTL with 95% Coverage | 100000 |
| Approx, f used to compute achieved CC | 1.842 | Approximate Actual Confidence Coefficient achieved by UTL | 0.834 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 100000 | 95% BCA Bootstrap UTL with 95% Coverage | 100000 |
| 95% UPL | 97600 | 90% Percentile | 90200 |
| 90% Chebyshev UPL | 132489 | 95% Percentile | 94900 |
| 95% Chebyshev UPL | 169069 | 99% Percentile | 98980 |
| 95% USL | 100000 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (calcium | [surface soil][subsurface soil_1_5] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 86 | Number of Distinct Observations | 55 |
| Minimum | 240 | First Quartile | 1400 |
| Second Largest | 100000 | Median | 2500 |
| Maximum | 120000 | Third Quartile | 12750 |
| Mean | 13025 | SD | 22401 |
| Coefficient of Variation | 1.72 | Skewness | 2.725 |
| Mean of logged Data | 8.36 | SD of logged Data | 1.455 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.948 | d2max (for USL) | 3.157 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.607 | **Normal GOF Test** |
| 1% Shapiro Wilk P Value | 0 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.296 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.111 | Data Not Normal at 1% Significance Level |

Data Not Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 56660 | 90% Percentile (z) | 41733 |
| 95% UPL (t) | 50493 | 95% Percentile (z) | 49871 |
| 95% USL | 83754 | 99% Percentile (z) | 65137 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 5.59 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.813 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.224 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.102 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.56 | k star (bias corrected MLE) | 0.548 |
| Theta hat (MLE) | 23254 | Theta star (bias corrected MLE) | 23754 |
| nu hat (MLE) | 96.34 | nu star (bias corrected) | 94.32 |
| MLE Mean (bias corrected) | 13025 | MLE Sd (bias corrected) | 17590 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 43863 | 90% Percentile | 34557 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 43999 | 95% Percentile | 48412 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 55063 | 99% Percentile | 82192 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 56837 | | |
| 95% WH USL | 126852 | 95% HW USL | 148972 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.912 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk P Value | 2.4993E-6 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.157 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.0876 | Data Not Lognormal at 10% Significance Level | |

Data Not Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 72721 | 90% Percentile (z) | 27580 |
| 95% UPL (t) | 48720 | 95% Percentile (z) | 46791 |
| 95% USL | 422621 | 99% Percentile (z) | 126122 |

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 86 | 95% UTL with 95% Coverage | 120000 |
| Approx, f used to compute achieved CC | 2.237 | Approximate Actual Confidence Coefficient achieved by UTL | 0.933 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 90250 | 95% BCA Bootstrap UTL with 95% Coverage | 91500 |
| 95% UPL | 64250 | 90% Percentile | 34000 |
| 90% Chebyshev UPL | 80617 | 95% Percentile | 60500 |
| 95% Chebyshev UPL | 111233 | 99% Percentile | 103000 |
| 95% USL | 120000 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (chromium | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc][ps][pd])**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 129 | Number of Distinct Observations | 56 |
| Minimum | 2.6 | First Quartile | 5.4 |
| Second Largest | 14 | Median | 6.1 |
| Maximum | 18 | Third Quartile | 7.3 |
| Mean | 6.526 | SD | 2.102 |
| Coefficient of Variation | 0.322 | Skewness | 1.825 |
| Mean of logged Data | 1.831 | SD of logged Data | 0.297 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.887 | d2max (for USL) | 3.294 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.897 | **Normal GOF Test** |
| 1% Shapiro Wilk P Value | 7.913E-13 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.137 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.0906 | Data Not Normal at 1% Significance Level |

Data Not Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 10.49 | 90% Percentile (z) | 9.221 |
| | 95% UPL (t) | 10.02 | 95% Percentile (z) | 9.984 |
| | 95% USL | 13.45 | 99% Percentile (z) | 11.42 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.963 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.752 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.094 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.0819 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 11.29 | k star (bias corrected MLE) | 11.03 |
| Theta hat (MLE) | 0.578 | Theta star (bias corrected MLE) | 0.592 |
| nu hat (MLE) | 2913 | nu star (bias corrected) | 2846 |
| MLE Mean (bias corrected) | 6.526 | MLE Sd (bias corrected) | 1.965 |

**Background Statistics Assuming Gamma Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | | 10.07 | 90% Percentile | 9.137 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | | 10.1 | 95% Percentile | 10.06 |
| 95% WH Approx. Gamma UTL with | 95% Coverage | 10.66 | 99% Percentile | 11.94 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 10.71 | | |
| | 95% WH USL | 14.93 | 95% HW USL | 15.26 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.987 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk P Value | 0.865 | Data appear Lognormal at 10% Significance Level |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Lilliefors Test Statistic | 0.0797 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.0717 | Data Not Lognormal at 10% Significance Level | |

Data appear Approximate Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 10.93 | 90% Percentile (z) | | 9.129 |
| | 95% UPL (t) | 10.22 | 95% Percentile (z) | | 10.17 |
| | 95% USL | 16.6 | 99% Percentile (z) | | 12.45 |

**Nonparametric Distribution Free Background Statistics**

Data appear Approximate Lognormal at 10% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| Order of Statistic, order | | 127 | 95% UTL with | 95% Coverage | 11 |
| Approx, f used to compute achieved CC | | 1.658 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.891 |
| | | | Approximate Sample Size needed to achieve specified CC | | 124 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 11 | 95% BCA Bootstrap UTL with | 95% Coverage | 11 |
| | 95% UPL | 10.45 | | 90% Percentile | 9 |
| | 90% Chebyshev UPL | 12.86 | | 95% Percentile | 9.86 |
| | 95% Chebyshev UPL | 15.73 | | 99% Percentile | 13.16 |
| | 95% USL | 18 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (chrysene | [subsurface soil_1_5][subsurface soil_5_10] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 86 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 28 | | |
| Number of Detects | 27 | Number of Non-Detects | 59 |
| Number of Distinct Detects | 20 | Number of Distinct Non-Detects | 12 |
| Minimum Detect | 0.0021 | Minimum Non-Detect | 0.0042 |
| Maximum Detect | 0.081 | Maximum Non-Detect | 0.0053 |
| Variance Detected | 2.2305E-4 | Percent Non-Detects | 68.6% |
| Mean Detected | 0.00728 | SD Detected | 0.0149 |
| Mean of Detected Logged Data | -5.427 | SD of Detected Logged Data | 0.75 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.948 | d2max (for USL) | 3.157 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.32 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.894 | Data Not Normal at 1% Significance Level | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| Lilliefors Test Statistic | 0.365 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.194 | Data Not Normal at 1% Significance Level |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00429 | KM SD | 0.00847 |
| 95% UTL95% Coverage | 0.0208 | 95% KM UPL (t) | 0.0185 |
| 90% KM Percentile (z) | 0.0151 | 95% KM Percentile (z) | 0.0182 |
| 99% KM Percentile (z) | 0.024 | 95% KM USL | 0.031 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00392 | SD | 0.00857 |
| 95% UTL95% Coverage | 0.0206 | 95% UPL (t) | 0.0183 |
| 90% Percentile (z) | 0.0149 | 95% Percentile (z) | 0.018 |
| 99% Percentile (z) | 0.0239 | 95% USL | 0.031 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 3.548 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.771 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.29 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.173 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.129 | k star (bias corrected MLE) | 1.028 |
| Theta hat (MLE) | 0.00645 | Theta star (bias corrected MLE) | 0.00708 |
| nu hat (MLE) | 60.95 | nu star (bias corrected) | 55.51 |
| MLE Mean (bias corrected) | 0.00728 | | |
| MLE Sd (bias corrected) | 0.00718 | 95% Percentile of Chisquare (2kstar) | 6.099 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0021 | Mean | 0.00915 |
| Maximum | 0.081 | Median | 0.01 |
| SD | 0.00836 | CV | 0.914 |
| k hat (MLE) | 3.119 | k star (bias corrected MLE) | 3.018 |
| Theta hat (MLE) | 0.00293 | Theta star (bias corrected MLE) | 0.00303 |
| nu hat (MLE) | 536.5 | nu star (bias corrected) | 519.1 |
| MLE Mean (bias corrected) | 0.00915 | MLE Sd (bias corrected) | 0.00526 |
| 95% Percentile of Chisquare (2kstar) | 12.65 | 90% Percentile | 0.0162 |
| 95% Percentile | 0.0192 | 99% Percentile | 0.0256 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0212 | 0.0214 | 95% Approx. Gamma UPL | 0.0189 | 0.0189 |
| 95% Gamma USL | 0.034 | 0.0355 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00429 | SD (KM) | 0.00847 |
| Variance (KM) | 7.1727E-5 | SE of Mean (KM) | 9.3606E-4 |
| k hat (KM) | 0.257 | k star (KM) | 0.256 |
| nu hat (KM) | 44.21 | nu star (KM) | 44 |
| theta hat (KM) | 0.0167 | theta star (KM) | 0.0168 |
| 80% gamma percentile (KM) | 0.00629 | 90% gamma percentile (KM) | 0.0129 |
| 95% gamma percentile (KM) | 0.0206 | 99% gamma percentile (KM) | 0.0413 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0107 | 0.00998 | 95% Approx. Gamma UPL | 0.00934 | 0.00871 |
| 95% KM Gamma Percentile | 0.00921 | 0.00859 | 95% Gamma USL | 0.0183 | 0.0172 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.769 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.935 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.199 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.153 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00444 | Mean in Log Scale | -5.695 |
| SD in Original Scale | 0.00852 | SD in Log Scale | 0.532 |
| 95% UTL95% Coverage | 0.00948 | 95% BCA UTL95% Coverage | 0.0098 |
| 95% Bootstrap (%) UTL95% Coverage | 0.0098 | 95% UPL (t) | 0.00819 |
| 90% Percentile (z) | 0.00665 | 95% Percentile (z) | 0.00807 |
| 99% Percentile (z) | 0.0116 | 95% USL | 0.018 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -5.718 | 95% KM UTL (Lognormal)95% Coverage | 0.00842 |
| KM SD of Logged Data | 0.483 | 95% KM UPL (Lognormal) | 0.00737 |
| 95% KM Percentile Lognormal (z) | 0.00727 | 95% KM USL (Lognormal) | 0.0151 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00392 | Mean in Log Scale | -5.849 |
| SD in Original Scale | 0.00857 | SD in Log Scale | 0.507 |
| 95% UTL95% Coverage | 0.00773 | 95% UPL (t) | 0.00673 |
| 90% Percentile (z) | 0.00552 | 95% Percentile (z) | 0.00663 |
| 99% Percentile (z) | 0.00937 | 95% USL | 0.0143 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 85 | 95% UTL with95% Coverage | 0.081 |
| Approx, f used to compute achieved CC | 2.237 | Approximate Actual Confidence Coefficient achieved by UTL | 0.933 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.0086 |
| 95% USL | 0.081 | 95% KM Chebyshev UPL | 0.0414 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (chrysene | [surface soil] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 43 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 35 | | |
| Number of Detects | 40 | Number of Non-Detects | 3 |
| Number of Distinct Detects | 33 | Number of Distinct Non-Detects | 2 |
| Minimum Detect | 0.0023 | Minimum Non-Detect | 0.0048 |
| Maximum Detect | 0.25 | Maximum Non-Detect | 0.0052 |
| Variance Detected | 0.00315 | Percent Non-Detects | 6.977% |
| Mean Detected | 0.0306 | SD Detected | 0.0561 |
| Mean of Detected Logged Data | -4.275 | SD of Detected Logged Data | 1.105 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.097 | d2max (for USL) | 2.897 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.492 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.919 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.365 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.162 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0287 | KM SD | 0.0539 |
| 95% UTL95% Coverage | 0.142 | 95% KM UPL (t) | 0.12 |
| 90% KM Percentile (z) | 0.0978 | 95% KM Percentile (z) | 0.117 |
| 99% KM Percentile (z) | 0.154 | 95% KM USL | 0.185 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0286 | SD | 0.0546 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% UTL95% Coverage | 0.143 | 95% UPL (t) | 0.121 |
| 90% Percentile (z) | 0.0986 | 95% Percentile (z) | 0.118 |
| 99% Percentile (z) | 0.156 | 95% USL | 0.187 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 3.38 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.789 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.251 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.145 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.759 | k star (bias corrected MLE) | 0.718 |
| Theta hat (MLE) | 0.0403 | Theta star (bias corrected MLE) | 0.0426 |
| nu hat (MLE) | 60.69 | nu star (bias corrected) | 57.47 |
| MLE Mean (bias corrected) | 0.0306 | | |
| MLE Sd (bias corrected) | 0.0361 | 95% Percentile of Chisquare (2kstar) | 4.845 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0023 | Mean | 0.0292 |
| Maximum | 0.25 | Median | 0.011 |
| SD | 0.0543 | CV | 1.864 |
| k hat (MLE) | 0.781 | k star (bias corrected MLE) | 0.742 |
| Theta hat (MLE) | 0.0373 | Theta star (bias corrected MLE) | 0.0393 |
| nu hat (MLE) | 67.12 | nu star (bias corrected) | 63.78 |
| MLE Mean (bias corrected) | 0.0292 | MLE Sd (bias corrected) | 0.0339 |
| 95% Percentile of Chisquare (2kstar) | 4.944 | 90% Percentile | 0.0722 |
| 95% Percentile | 0.0972 | 99% Percentile | 0.157 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.12 | 0.119 | 95% Approx. Gamma UPL | 0.0899 | 0.0871 |
| 95% Gamma USL | 0.198 | 0.209 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0287 | SD (KM) | 0.0539 |
| Variance (KM) | 0.00291 | SE of Mean (KM) | 0.00833 |
| k hat (KM) | 0.283 | k star (KM) | 0.279 |
| nu hat (KM) | 24.35 | nu star (KM) | 23.99 |
| theta hat (KM) | 0.101 | theta star (KM) | 0.103 |
| 80% gamma percentile (KM) | 0.0431 | 90% gamma percentile (KM) | 0.0853 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% gamma percentile (KM) | 0.134 | 99% gamma percentile (KM) | 0.263 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.119 | 0.119 | 95% Approx. Gamma UPL | 0.0889 | 0.0863 |
| 95% KM Gamma Percentile | 0.085 | 0.0823 | 95% Gamma USL | 0.198 | 0.211 |

**Lognormal GOF Test on Detected Observations Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.917 | **Shapiro Wilk GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.949 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.139 | **Lilliefors GOF Test** | |
| 10% Lilliefors Critical Value | 0.128 | Data Not Lognormal at 10% Significance Level | |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0286 | Mean in Log Scale | -4.393 |
| SD in Original Scale | 0.0546 | SD in Log Scale | 1.151 |
| 95% UTL95% Coverage | 0.138 | 95% BCA UTL95% Coverage | 0.22 |
| 95% Bootstrap (%) UTL95% Coverage | 0.243 | 95% UPL (t) | 0.0877 |
| 90% Percentile (z) | 0.0541 | 95% Percentile (z) | 0.0821 |
| 99% Percentile (z) | 0.18 | 95% USL | 0.347 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -4.378 | 95% KM UTL (Lognormal)95% Coverage | 0.131 |
| KM SD of Logged Data | 1.119 | 95% KM UPL (Lognormal) | 0.0843 |
| 95% KM Percentile Lognormal (z) | 0.0791 | 95% KM USL (Lognormal) | 0.321 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0286 | Mean in Log Scale | -4.396 |
| SD in Original Scale | 0.0546 | SD in Log Scale | 1.154 |
| 95% UTL95% Coverage | 0.139 | 95% UPL (t) | 0.0879 |
| 90% Percentile (z) | 0.0541 | 95% Percentile (z) | 0.0823 |
| 99% Percentile (z) | 0.181 | 95% USL | 0.349 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 43 | 95% UTL with95% Coverage | 0.25 |
| Approx, f used to compute achieved CC | 2.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.89 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.212 |
| 95% USL | 0.25 | 95% KM Chebyshev UPL | 0.266 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (cobalt | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 105 | Number of Distinct Observations | 51 |
| Minimum | 0.61 | First Quartile | 3.7 |
| Second Largest | 10 | Median | 4.8 |
| Maximum | 12 | Third Quartile | 6 |
| Mean | 4.855 | SD | 1.806 |
| Coefficient of Variation | 0.372 | Skewness | 0.659 |
| Mean of logged Data | 1.502 | SD of logged Data | 0.429 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.916 | d2max (for USL) | 3.226 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.976 | **Normal GOF Test** |
| 1% Shapiro Wilk P Value | 0.314 | Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.0814 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.1 | Data appear Normal at 1% Significance Level |

Data appear Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 8.315 | 90% Percentile (z) | 7.169 |
| 95% UPL (t) | 7.866 | 95% Percentile (z) | 7.825 |
| 95% USL | 10.68 | 99% Percentile (z) | 9.056 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.785 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.754 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.0883 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.0882 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 6.529 | k star (bias corrected MLE) | 6.349 |
| Theta hat (MLE) | 0.744 | Theta star (bias corrected MLE) | 0.765 |
| nu hat (MLE) | 1371 | nu star (bias corrected) | 1333 |
| MLE Mean (bias corrected) | 4.855 | MLE Sd (bias corrected) | 1.927 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 8.414 | 90% Percentile | 7.43 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 8.554 | 95% Percentile | 8.397 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 9.114 | 99% Percentile | 10.42 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | | | |
|---|---|---|---|---|---|
| 95% HW Approx. Gamma UTL with | 95% Coverage | 9.313 | | | |
| | 95% WH USL | 13.45 | | 95% HW USL | 14.19 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.937 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk P Value | 7.2846E-5 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.117 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.0794 | Data Not Lognormal at 10% Significance Level | |

Data Not Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 10.2 | | 90% Percentile (z) | 7.774 |
| | 95% UPL (t) | 9.173 | | 95% Percentile (z) | 9.084 |
| | 95% USL | 17.89 | | 99% Percentile (z) | 12.17 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| | Order of Statistic, order | 104 | 95% UTL with | 95% Coverage | 10 |
| | Approx, f used to compute achieved CC | 1.807 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.901 |
| | | | Approximate Sample Size needed to achieve specified CC | | 93 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 8.54 | 95% BCA Bootstrap UTL with | 95% Coverage | 8.5 |
| | 95% UPL | 7.67 | | 90% Percentile | 7.06 |
| | 90% Chebyshev UPL | 10.3 | | 95% Percentile | 7.54 |
| | 95% Chebyshev UPL | 12.76 | | 99% Percentile | 9.948 |
| | 95% USL | 12 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (cobalt | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Distinct Observations | 21 |
| Minimum | 0.82 | First Quartile | 2.225 |
| Second Largest | 5.7 | Median | 2.9 |
| Maximum | 5.9 | Third Quartile | 3.725 |
| Mean | 3.072 | SD | 1.4 |
| Coefficient of Variation | 0.456 | Skewness | 0.612 |
| Mean of logged Data | 1.015 | SD of logged Data | 0.492 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.945 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.884 | Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.13 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.205 | Data appear Normal at 1% Significance Level | |

Data appear Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 6.305 | 90% Percentile (z) | 4.866 |
| | 95% UPL (t) | 5.521 | 95% Percentile (z) | 5.375 |
| | 95% USL | 6.774 | 99% Percentile (z) | 6.329 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.182 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.747 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.0763 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.178 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 4.819 | k star (bias corrected MLE) | 4.245 |
| Theta hat (MLE) | 0.637 | Theta star (bias corrected MLE) | 0.724 |
| nu hat (MLE) | 231.3 | nu star (bias corrected) | 203.7 |
| MLE Mean (bias corrected) | 3.072 | MLE Sd (bias corrected) | 1.491 |

**Background Statistics Assuming Gamma Distribution**

| | | | | |
|---|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | | 5.974 | 90% Percentile | 5.07 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | | 6.079 | 95% Percentile | 5.862 |
| 95% WH Approx. Gamma UTL with | 95% Coverage | 7.309 | 99% Percentile | 7.55 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 7.545 | | |
| | 95% WH USL | 8.195 | 95% HW USL | 8.54 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.968 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.93 | Data appear Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.106 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.162 | Data appear Lognormal at 10% Significance Level | |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 8.595 | 90% Percentile (z) | 5.184 |
| | 95% UPL (t) | 6.526 | 95% Percentile (z) | 6.199 |
| | 95% USL | 10.14 | 99% Percentile (z) | 8.669 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 24 | 95% UTL with 95% Coverage | 5.9 |
| Approx, f used to compute achieved CC | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.708 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 5.9 | 95% BCA Bootstrap UTL with 95% Coverage | 5.9 |
| 95% UPL | 5.85 | 90% Percentile | 5.29 |
| 90% Chebyshev UPL | 7.359 | 95% Percentile | 5.67 |
| 95% Chebyshev UPL | 9.301 | 99% Percentile | 5.854 |
| 95% USL | 5.9 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (copper | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 105 | Number of Distinct Observations | 46 |
| Minimum | 1.2 | First Quartile | 9.6 |
| Second Largest | 31 | Median | 14 |
| Maximum | 36 | Third Quartile | 19 |
| Mean | 14.35 | SD | 7.254 |
| Coefficient of Variation | 0.505 | Skewness | 0.543 |
| Mean of logged Data | 2.502 | SD of logged Data | 0.639 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.916 | d2max (for USL) | 3.226 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.962 | **Normal GOF Test** | |
| 1% Shapiro Wilk P Value | 0.0256 | Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.131 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.1 | Data Not Normal at 1% Significance Level | |

**Data appear Approximate Normal at 1% Significance Level**

**Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 28.25 | 90% Percentile (z) | 23.65 |
| 95% UPL (t) | 26.45 | 95% Percentile (z) | 26.28 |
| 95% USL | 37.75 | 99% Percentile (z) | 31.23 |

**Gamma GOF Test**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 0.718 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.758 | Detected data appear Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.0883 | **Kolmogorov-Smirnov Gamma GOF Test** | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 5% K-S Critical Value | 0.0887 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 3.256 | k star (bias corrected MLE) | 3.169 |
| Theta hat (MLE) | 4.408 | Theta star (bias corrected MLE) | 4.529 |
| nu hat (MLE) | 683.7 | nu star (bias corrected) | 665.5 |
| MLE Mean (bias corrected) | 14.35 | MLE Sd (bias corrected) | 8.062 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 29.74 | 90% Percentile | 25.16 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 30.69 | 95% Percentile | 29.65 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 33.06 | 99% Percentile | 39.36 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 34.44 | | |
| 95% WH USL | 54.73 | 95% HW USL | 60.19 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.912 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk P Value | 6.2478E-8 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.127 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.0794 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 41.54 | 90% Percentile (z) | 27.7 |
| 95% UPL (t) | 35.44 | 95% Percentile (z) | 34.93 |
| 95% USL | 95.94 | 99% Percentile (z) | 53.99 |

**Nonparametric Distribution Free Background Statistics**

Data appear Approximate Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 104 | 95% UTL with 95% Coverage | 31 |
| Approx, f used to compute achieved CC | 1.807 | Approximate Actual Confidence Coefficient achieved by UTL | 0.901 |
| | | Approximate Sample Size needed to achieve specified CC | 93 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 29 | 95% BCA Bootstrap UTL with 95% Coverage | 29 |
| 95% UPL | 29 | 90% Percentile | 24 |
| 90% Chebyshev UPL | 36.22 | 95% Percentile | 28.6 |
| 95% Chebyshev UPL | 46.12 | 99% Percentile | 30.92 |
| 95% USL | 36 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Conc (copper | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Distinct Observations | 21 |
| Minimum | 0.75 | First Quartile | 3.85 |
| Second Largest | 15 | Median | 5.4 |
| Maximum | 17 | Third Quartile | 8 |
| Mean | 6.273 | SD | 3.961 |
| Coefficient of Variation | 0.631 | Skewness | 1.116 |
| Mean of logged Data | 1.618 | SD of logged Data | 0.736 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.91 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.884 | Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.129 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.205 | Data appear Normal at 1% Significance Level |

Data appear Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 15.42 | 90% Percentile (z) | 11.35 |
| 95% UPL (t) | 13.2 | 95% Percentile (z) | 12.79 |
| 95% USL | 16.75 | 99% Percentile (z) | 15.49 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.315 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.753 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.116 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.18 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 2.44 | k star (bias corrected MLE) | 2.163 |
| Theta hat (MLE) | 2.571 | Theta star (bias corrected MLE) | 2.9 |
| nu hat (MLE) | 117.1 | nu star (bias corrected) | 103.8 |
| MLE Mean (bias corrected) | 6.273 | MLE Sd (bias corrected) | 4.265 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 14.92 | 90% Percentile | 11.98 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 15.46 | 95% Percentile | 14.52 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 19.37 | 99% Percentile | 20.12 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 20.6 | | |
| 95% WH USL | 22.42 | 95% HW USL | 24.24 |

**Lognormal GOF Test**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.942 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.93 | Data appear Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.129 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.162 | Data appear Lognormal at 10% Significance Level | |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 27.6 | 90% Percentile (z) | | 12.95 |
| | 95% UPL (t) | 18.27 | 95% Percentile (z) | | 16.92 |
| | 95% USL | 35.31 | 99% Percentile (z) | | 27.95 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| Order of Statistic, order | | 24 | 95% UTL with | 95% Coverage | 17 |
| Approx, f used to compute achieved CC | | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.708 |
| | | | Approximate Sample Size needed to achieve specified CC | | 59 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 17 | 95% BCA Bootstrap UTL with | 95% Coverage | 17 |
| | 95% UPL | 16.5 | | 90% Percentile | 9.72 |
| | 90% Chebyshev UPL | 18.4 | | 95% Percentile | 14.24 |
| | 95% Chebyshev UPL | 23.9 | | 99% Percentile | 16.54 |
| | 95% USL | 17 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (dibenz(a,h)anthracene | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 129 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 34 | | |
| Number of Detects | 9 | Number of Non-Detects | 120 |
| Number of Distinct Detects | 9 | Number of Distinct Non-Detects | 26 |
| Minimum Detect | 0.0036 | Minimum Non-Detect | 0.0064 |
| Maximum Detect | 0.045 | Maximum Non-Detect | 0.073 |
| Variance Detected | 2.5965E-4 | Percent Non-Detects | 93.02% |
| Mean Detected | 0.0175 | SD Detected | 0.0161 |
| Mean of Detected Logged Data | -4.438 | SD of Detected Logged Data | 0.949 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.887 | d2max (for USL) | 3.294 |

**Normal GOF Test on Detects Only**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.809 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.764 | Detected Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.277 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.316 | Detected Data appear Normal at 1% Significance Level |

Detected Data appear Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00551 | KM SD | 0.00526 |
| 95% UTL95% Coverage | 0.0154 | 95% KM UPL (t) | 0.0143 |
| 90% KM Percentile (z) | 0.0123 | 95% KM Percentile (z) | 0.0142 |
| 99% KM Percentile (z) | 0.0178 | 95% KM USL | 0.0228 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00496 | SD | 0.00604 |
| 95% UTL95% Coverage | 0.0164 | 95% UPL (t) | 0.015 |
| 90% Percentile (z) | 0.0127 | 95% Percentile (z) | 0.0149 |
| 99% Percentile (z) | 0.019 | 95% USL | 0.0249 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.49 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.736 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.186 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.284 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.414 | k star (bias corrected MLE) | 1.017 |
| Theta hat (MLE) | 0.0124 | Theta star (bias corrected MLE) | 0.0172 |
| nu hat (MLE) | 25.46 | nu star (bias corrected) | 18.3 |
| MLE Mean (bias corrected) | 0.0175 | | |
| MLE Sd (bias corrected) | 0.0174 | 95% Percentile of Chisquare (2kstar) | 6.057 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0036 | Mean | 0.0106 |
| Maximum | 0.045 | Median | 0.01 |
| SD | 0.00448 | CV | 0.421 |
| k hat (MLE) | 12.68 | k star (bias corrected MLE) | 12.39 |
| Theta hat (MLE) | 8.3873E-4 | Theta star (bias corrected MLE) | 8.5835E-4 |
| nu hat (MLE) | 3271 | nu star (bias corrected) | 3196 |
| MLE Mean (bias corrected) | 0.0106 | MLE Sd (bias corrected) | 0.00302 |
| 95% Percentile of Chisquare (2kstar) | 37.38 | 90% Percentile | 0.0146 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% Percentile | 0.016 | 99% Percentile | 0.0189 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0168 | 0.0166 | 95% Approx. Gamma UPL | 0.0159 | 0.0158 |
| 95% Gamma USL | 0.0231 | 0.023 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00551 | SD (KM) | 0.00526 |
| Variance (KM) | 2.7676E-5 | SE of Mean (KM) | 6.2303E-4 |
| k hat (KM) | 1.099 | k star (KM) | 1.078 |
| nu hat (KM) | 283.5 | nu star (KM) | 278.2 |
| theta hat (KM) | 0.00502 | theta star (KM) | 0.00511 |
| 80% gamma percentile (KM) | 0.00882 | 90% gamma percentile (KM) | 0.0125 |
| 95% gamma percentile (KM) | 0.0161 | 99% gamma percentile (KM) | 0.0245 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0113 | 0.0109 | 95% Approx. Gamma UPL | 0.0104 | 0.00999 |
| 95% KM Gamma Percentile | 0.0103 | 0.00992 | 95% Gamma USL | 0.0184 | 0.018 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.913 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.859 | Detected Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.154 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.252 | Detected Data appear Lognormal at 10% Significance Level |

Detected Data appear Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0057 | Mean in Log Scale | -5.38 |
| SD in Original Scale | 0.00563 | SD in Log Scale | 0.586 |
| 95% UTL95% Coverage | 0.0139 | 95% BCA UTL95% Coverage | 0.0122 |
| 95% Bootstrap (%) UTL95% Coverage | 0.013 | 95% UPL (t) | 0.0122 |
| 90% Percentile (z) | 0.00976 | 95% Percentile (z) | 0.0121 |
| 99% Percentile (z) | 0.018 | 95% USL | 0.0317 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -5.327 | 95% KM UTL (Lognormal)95% Coverage | 0.00992 |
| KM SD of Logged Data | 0.378 | 95% KM UPL (Lognormal) | 0.00911 |
| 95% KM Percentile Lognormal (z) | 0.00905 | 95% KM USL (Lognormal) | 0.0169 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00496 | Mean in Log Scale | -5.492 |
| SD in Original Scale | 0.00604 | SD in Log Scale | 0.43 |
| 95% UTL95% Coverage | 0.00928 | 95% UPL (t) | 0.00843 |
| 90% Percentile (z) | 0.00715 | 95% Percentile (z) | 0.00836 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 99% Percentile (z) | 0.0112 | 95% USL | 0.017 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 126 | 95% UTL with95% Coverage | 0.041 |
| Approx, f used to compute achieved CC | 1.658 | Approximate Actual Confidence Coefficient achieved by UTL | 0.891 |
| Approximate Sample Size needed to achieve specified CC | 124 | 95% UPL | 0.0102 |
| 95% USL | 0.073 | 95% KM Chebyshev UPL | 0.0285 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (fluoranthene | [subsurface soil_1_5][subsurface soil_5_10] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 86 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 24 | | |
| Number of Detects | 17 | Number of Non-Detects | 69 |
| Number of Distinct Detects | 14 | Number of Distinct Non-Detects | 12 |
| Minimum Detect | 0.0022 | Minimum Non-Detect | 0.0042 |
| Maximum Detect | 0.15 | Maximum Non-Detect | 0.0053 |
| Variance Detected | 0.0012 | Percent Non-Detects | 80.23% |
| Mean Detected | 0.0163 | SD Detected | 0.0346 |
| Mean of Detected Logged Data | -4.793 | SD of Detected Logged Data | 0.935 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.948 | d2max (for USL) | 3.157 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.354 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.851 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.467 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.241 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00539 | KM SD | 0.0159 |
| 95% UTL95% Coverage | 0.0364 | 95% KM UPL (t) | 0.032 |
| 90% KM Percentile (z) | 0.0258 | 95% KM Percentile (z) | 0.0315 |
| 99% KM Percentile (z) | 0.0424 | 95% KM USL | 0.0556 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00512 | SD | 0.016 |
| 95% UTL95% Coverage | 0.0363 | 95% UPL (t) | 0.0319 |
| 90% Percentile (z) | 0.0257 | 95% Percentile (z) | 0.0315 |
| 99% Percentile (z) | 0.0424 | 95% USL | 0.0557 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 2.311 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.771 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.351 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.216 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.869 | k star (bias corrected MLE) | 0.755 |
| Theta hat (MLE) | 0.0187 | Theta star (bias corrected MLE) | 0.0216 |
| nu hat (MLE) | 29.56 | nu star (bias corrected) | 25.68 |
| MLE Mean (bias corrected) | 0.0163 | | |
| MLE Sd (bias corrected) | 0.0187 | 95% Percentile of Chisquare (2kstar) | 5.002 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0022 | Mean | 0.0112 |
| Maximum | 0.15 | Median | 0.01 |
| SD | 0.0152 | CV | 1.356 |
| k hat (MLE) | 3.401 | k star (bias corrected MLE) | 3.29 |
| Theta hat (MLE) | 0.00331 | Theta star (bias corrected MLE) | 0.00342 |
| nu hat (MLE) | 584.9 | nu star (bias corrected) | 565.9 |
| MLE Mean (bias corrected) | 0.0112 | MLE Sd (bias corrected) | 0.0062 |
| 95% Percentile of Chisquare (2kstar) | 13.45 | 90% Percentile | 0.0196 |
| 95% Percentile | 0.023 | 99% Percentile | 0.0304 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0244 | 0.0233 | 95% Approx. Gamma UPL | 0.0218 | 0.0209 |
| 95% Gamma USL | 0.0381 | 0.0367 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00539 | SD (KM) | 0.0159 |
| Variance (KM) | 2.5271E-4 | SE of Mean (KM) | 0.00177 |
| k hat (KM) | 0.115 | k star (KM) | 0.119 |
| nu hat (KM) | 19.75 | nu star (KM) | 20.39 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| theta hat (KM) | 0.0469 | theta star (KM) | 0.0454 |
| 80% gamma percentile (KM) | 0.00466 | 90% gamma percentile (KM) | 0.0152 |
| 95% gamma percentile (KM) | 0.0308 | 99% gamma percentile (KM) | 0.0785 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0154 | 0.014 | 95% Approx. Gamma UPL | 0.0131 | 0.0119 |
| 95% KM Gamma Percentile | 0.0128 | 0.0117 | 95% Gamma USL | 0.0292 | 0.0273 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.822 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.91 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.229 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.19 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00519 | Mean in Log Scale | -5.895 |
| SD in Original Scale | 0.0161 | SD in Log Scale | 0.863 |
| 95% UTL95% Coverage | 0.0148 | 95% BCA UTL95% Coverage | 0.0118 |
| 95% Bootstrap (%) UTL95% Coverage | 0.0133 | 95% UPL (t) | 0.0117 |
| 90% Percentile (z) | 0.00832 | 95% Percentile (z) | 0.0114 |
| 99% Percentile (z) | 0.0205 | 95% USL | 0.042 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -5.703 | 95% KM UTL (Lognormal)95% Coverage | 0.0112 |
| KM SD of Logged Data | 0.622 | 95% KM UPL (Lognormal) | 0.00945 |
| 95% KM Percentile Lognormal (z) | 0.00929 | 95% KM USL (Lognormal) | 0.0238 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00512 | Mean in Log Scale | -5.796 |
| SD in Original Scale | 0.016 | SD in Log Scale | 0.646 |
| 95% UTL95% Coverage | 0.0107 | 95% UPL (t) | 0.00896 |
| 90% Percentile (z) | 0.00696 | 95% Percentile (z) | 0.0088 |
| 99% Percentile (z) | 0.0137 | 95% USL | 0.0234 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 85 | 95% UTL with95% Coverage | 0.15 |
| Approx, f used to compute achieved CC | 2.237 | Approximate Actual Confidence Coefficient achieved by UTL | 0.933 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.011 |
| 95% USL | 0.15 | 95% KM Chebyshev UPL | 0.0751 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (fluoranthene | [surface soil] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 43 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 33 | | |
| Number of Detects | 40 | Number of Non-Detects | 3 |
| Number of Distinct Detects | 32 | Number of Distinct Non-Detects | 2 |
| Minimum Detect | 0.0024 | Minimum Non-Detect | 0.0048 |
| Maximum Detect | 0.4 | Maximum Non-Detect | 0.0052 |
| Variance Detected | 0.00987 | Percent Non-Detects | 6.977% |
| Mean Detected | 0.0472 | SD Detected | 0.0993 |
| Mean of Detected Logged Data | -3.964 | SD of Detected Logged Data | 1.129 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.097 | d2max (for USL) | 2.897 |

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.421 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.919 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.388 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.162 | Data Not Normal at 1% Significance Level |

**Data Not Normal at 1% Significance Level**

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0441 | KM SD | 0.0953 |
| 95% UTL95% Coverage | 0.244 | 95% KM UPL (t) | 0.206 |
| 90% KM Percentile (z) | 0.166 | 95% KM Percentile (z) | 0.201 |
| 99% KM Percentile (z) | 0.266 | 95% KM USL | 0.32 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.044 | SD | 0.0964 |
| 95% UTL95% Coverage | 0.246 | 95% UPL (t) | 0.208 |
| 90% Percentile (z) | 0.168 | 95% Percentile (z) | 0.203 |
| 99% Percentile (z) | 0.268 | 95% USL | 0.323 |

**DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons**

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 4.617 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.797 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.282 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.146 | Data Not Gamma Distributed at 5% Significance Level |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.668 | k star (bias corrected MLE) | 0.635 |
| Theta hat (MLE) | 0.0706 | Theta star (bias corrected MLE) | 0.0743 |
| nu hat (MLE) | 53.47 | nu star (bias corrected) | 50.79 |
| MLE Mean (bias corrected) | 0.0472 | | |
| MLE Sd (bias corrected) | 0.0592 | 95% Percentile of Chisquare (2kstar) | 4.477 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0024 | Mean | 0.0446 |
| Maximum | 0.4 | Median | 0.015 |
| SD | 0.0962 | CV | 2.158 |
| k hat (MLE) | 0.676 | k star (bias corrected MLE) | 0.644 |
| Theta hat (MLE) | 0.0659 | Theta star (bias corrected MLE) | 0.0692 |
| nu hat (MLE) | 58.14 | nu star (bias corrected) | 55.42 |
| MLE Mean (bias corrected) | 0.0446 | MLE Sd (bias corrected) | 0.0555 |
| 95% Percentile of Chisquare (2kstar) | 4.52 | 90% Percentile | 0.114 |
| 95% Percentile | 0.156 | 99% Percentile | 0.258 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.187 | 0.182 | 95% Approx. Gamma UPL | 0.139 | 0.132 |
| 95% Gamma USL | 0.317 | 0.328 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0441 | SD (KM) | 0.0953 |
| Variance (KM) | 0.00908 | SE of Mean (KM) | 0.0147 |
| k hat (KM) | 0.214 | k star (KM) | 0.215 |
| nu hat (KM) | 18.41 | nu star (KM) | 18.46 |
| theta hat (KM) | 0.206 | theta star (KM) | 0.205 |
| 80% gamma percentile (KM) | 0.0602 | 90% gamma percentile (KM) | 0.133 |
| 95% gamma percentile (KM) | 0.223 | 99% gamma percentile (KM) | 0.467 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.187 | 0.183 | 95% Approx. Gamma UPL | 0.138 | 0.131 |
| 95% KM Gamma Percentile | 0.131 | 0.125 | 95% Gamma USL | 0.319 | 0.334 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.885 | **Shapiro Wilk GOF Test** |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 10% Shapiro Wilk Critical Value | 0.949 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.165 | **Lilliefors GOF Test** | |
| 10% Lilliefors Critical Value | 0.128 | Data Not Lognormal at 10% Significance Level | |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.044 | Mean in Log Scale | -4.111 |
| SD in Original Scale | 0.0964 | SD in Log Scale | 1.217 |
| 95% UTL95% Coverage | 0.21 | 95% BCA UTL95% Coverage | 0.397 |
| 95% Bootstrap (%) UTL95% Coverage | 0.399 | 95% UPL (t) | 0.13 |
| 90% Percentile (z) | 0.0779 | 95% Percentile (z) | 0.121 |
| 99% Percentile (z) | 0.278 | 95% USL | 0.556 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -4.094 | 95% KM UTL (Lognormal)95% Coverage | 0.197 |
| KM SD of Logged Data | 1.177 | 95% KM UPL (Lognormal) | 0.123 |
| 95% KM Percentile Lognormal (z) | 0.115 | 95% KM USL (Lognormal) | 0.504 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.044 | Mean in Log Scale | -4.107 |
| SD in Original Scale | 0.0964 | SD in Log Scale | 1.209 |
| 95% UTL95% Coverage | 0.208 | 95% UPL (t) | 0.129 |
| 90% Percentile (z) | 0.0775 | 95% Percentile (z) | 0.12 |
| 99% Percentile (z) | 0.274 | 95% USL | 0.546 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 43 | 95% UTL with95% Coverage | 0.4 |
| Approx, f used to compute achieved CC | 2.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.89 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.386 |
| 95% USL | 0.4 | 95% KM Chebyshev UPL | 0.464 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (fluorene | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 129 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 21 | | |
| Number of Detects | 13 | Number of Non-Detects | 116 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Number of Distinct Detects | 10 | Number of Distinct Non-Detects | 12 |
| Minimum Detect | 0.0011 | Minimum Non-Detect | 0.0026 |
| Maximum Detect | 0.018 | Maximum Non-Detect | 0.029 |
| Variance Detected | 3.2187E-5 | Percent Non-Detects | 89.92% |
| Mean Detected | 0.00752 | SD Detected | 0.00567 |
| Mean of Detected Logged Data | -5.274 | SD of Detected Logged Data | 1.011 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.887 | d2max (for USL) | 3.294 |

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.888 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.814 | Detected Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.194 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.271 | Detected Data appear Normal at 1% Significance Level |

Detected Data appear Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00219 | KM SD | 0.00254 |
| 95% UTL95% Coverage | 0.00698 | 95% KM UPL (t) | 0.00641 |
| 90% KM Percentile (z) | 0.00544 | 95% KM Percentile (z) | 0.00637 |
| 99% KM Percentile (z) | 0.0081 | 95% KM USL | 0.0106 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00221 | SD | 0.00274 |
| 95% UTL95% Coverage | 0.00739 | 95% UPL (t) | 0.00677 |
| 90% Percentile (z) | 0.00573 | 95% Percentile (z) | 0.00672 |
| 99% Percentile (z) | 0.00859 | 95% USL | 0.0112 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.713 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.751 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.267 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.241 | Data Not Gamma Distributed at 5% Significance Level |

Detected data follow Appr. Gamma Distribution at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.445 | k star (bias corrected MLE) | 1.162 |
| Theta hat (MLE) | 0.00521 | Theta star (bias corrected MLE) | 0.00647 |
| nu hat (MLE) | 37.56 | nu star (bias corrected) | 30.22 |
| MLE Mean (bias corrected) | 0.00752 | | |
| MLE Sd (bias corrected) | 0.00698 | 95% Percentile of Chisquare (2kstar) | 6.607 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0011 | Mean | 0.00975 |
| Maximum | 0.018 | Median | 0.01 |
| SD | 0.00189 | CV | 0.194 |
| k hat (MLE) | 12.03 | k star (bias corrected MLE) | 11.75 |
| Theta hat (MLE) | 8.1068E-4 | Theta star (bias corrected MLE) | 8.2962E-4 |
| nu hat (MLE) | 3103 | nu star (bias corrected) | 3032 |
| MLE Mean (bias corrected) | 0.00975 | MLE Sd (bias corrected) | 0.00284 |
| 95% Percentile of Chisquare (2kstar) | 35.8 | 90% Percentile | 0.0135 |
| 95% Percentile | 0.0149 | 99% Percentile | 0.0176 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0156 | 0.0162 | 95% Approx. Gamma UPL | 0.0148 | 0.0153 |
| 95% Gamma USL | 0.0216 | 0.0231 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00219 | SD (KM) | 0.00254 |
| Variance (KM) | 6.4496E-6 | SE of Mean (KM) | 3.0863E-4 |
| k hat (KM) | 0.743 | k star (KM) | 0.731 |
| nu hat (KM) | 191.8 | nu star (KM) | 188.7 |
| theta hat (KM) | 0.00295 | theta star (KM) | 0.00299 |
| 80% gamma percentile (KM) | 0.00359 | 90% gamma percentile (KM) | 0.00544 |
| 95% gamma percentile (KM) | 0.00734 | 99% gamma percentile (KM) | 0.0118 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.00547 | 0.00532 | 95% Approx. Gamma UPL | 0.0049 | 0.00475 |
| 95% KM Gamma Percentile | 0.00485 | 0.0047 | 95% Gamma USL | 0.0102 | 0.0102 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.873 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.889 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.278 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.215 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00244 | Mean in Log Scale | -6.367 |
| SD in Original Scale | 0.00269 | SD in Log Scale | 0.796 |
| 95% UTL95% Coverage | 0.00771 | 95% BCA UTL95% Coverage | 0.0106 |
| 95% Bootstrap (%) UTL95% Coverage | 0.0106 | 95% UPL (t) | 0.00646 |
| 90% Percentile (z) | 0.00476 | 95% Percentile (z) | 0.00636 |
| 99% Percentile (z) | 0.0109 | 95% USL | 0.0237 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -6.37 | 95% KM UTL (Lognormal)95% Coverage | 0.00496 |
| KM SD of Logged Data | 0.564 | 95% KM UPL (Lognormal) | 0.00438 |
| 95% KM Percentile Lognormal (z) | 0.00433 | 95% KM USL (Lognormal) | 0.011 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00221 | Mean in Log Scale | -6.361 |
| SD in Original Scale | 0.00274 | SD in Log Scale | 0.523 |
| 95% UTL95% Coverage | 0.00464 | 95% UPL (t) | 0.00412 |
| 90% Percentile (z) | 0.00338 | 95% Percentile (z) | 0.00409 |
| 99% Percentile (z) | 0.00584 | 95% USL | 0.00969 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 126 | 95% UTL with95% Coverage | 0.015 |
| Approx, f used to compute achieved CC | 1.658 | Approximate Actual Confidence Coefficient achieved by UTL | 0.891 |
| Approximate Sample Size needed to achieve specified CC | 124 | 95% UPL | 0.01 |
| 95% USL | 0.029 | 95% KM Chebyshev UPL | 0.0133 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (indeno(1,2,3-c,d)pyrene | [subsurface soil_1_5][subsurface soil_5_10] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 86 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 26 | | |
| Number of Detects | 9 | Number of Non-Detects | 77 |
| Number of Distinct Detects | 8 | Number of Distinct Non-Detects | 18 |
| Minimum Detect | 0.0026 | Minimum Non-Detect | 0.0064 |
| Maximum Detect | 0.058 | Maximum Non-Detect | 0.0083 |
| Variance Detected | 3.1355E-4 | Percent Non-Detects | 89.53% |
| Mean Detected | 0.0117 | SD Detected | 0.0177 |
| Mean of Detected Logged Data | -5.032 | SD of Detected Logged Data | 1.002 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.948 | d2max (for USL) | 3.157 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.551 | **Shapiro Wilk GOF Test** | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 1% Shapiro Wilk Critical Value | 0.764 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.404 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.316 | Data Not Normal at 1% Significance Level |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00414 | KM SD | 0.00601 |
| 95% UTL95% Coverage | 0.0158 | 95% KM UPL (t) | 0.0142 |
| 90% KM Percentile (z) | 0.0118 | 95% KM Percentile (z) | 0.014 |
| 99% KM Percentile (z) | 0.0181 | 95% KM USL | 0.0231 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0045 | SD | 0.00597 |
| 95% UTL95% Coverage | 0.0161 | 95% UPL (t) | 0.0145 |
| 90% Percentile (z) | 0.0121 | 95% Percentile (z) | 0.0143 |
| 99% Percentile (z) | 0.0184 | 95% USL | 0.0233 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 1.027 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.744 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.278 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.287 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data follow Appr. Gamma Distribution at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.993 | k star (bias corrected MLE) | 0.736 |
| Theta hat (MLE) | 0.0118 | Theta star (bias corrected MLE) | 0.0159 |
| nu hat (MLE) | 17.87 | nu star (bias corrected) | 13.25 |
| MLE Mean (bias corrected) | 0.0117 | | |
| MLE Sd (bias corrected) | 0.0136 | 95% Percentile of Chisquare (2kstar) | 4.921 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0026 | Mean | 0.0102 |
| Maximum | 0.058 | Median | 0.01 |
| SD | 0.00546 | CV | 0.536 |
| k hat (MLE) | 8.219 | k star (bias corrected MLE) | 7.94 |
| Theta hat (MLE) | 0.00124 | Theta star (bias corrected MLE) | 0.00128 |
| nu hat (MLE) | 1414 | nu star (bias corrected) | 1366 |
| MLE Mean (bias corrected) | 0.0102 | MLE Sd (bias corrected) | 0.00361 |
| 95% Percentile of Chisquare (2kstar) | 26.14 | 90% Percentile | 0.015 |
| 95% Percentile | 0.0168 | 99% Percentile | 0.0204 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.018 | 0.0179 | 95% Approx. Gamma UPL | 0.0166 | 0.0165 |
| 95% Gamma USL | 0.0249 | 0.0252 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00414 | SD (KM) | 0.00601 |
| Variance (KM) | 3.6089E-5 | SE of Mean (KM) | 7.2971E-4 |
| k hat (KM) | 0.475 | k star (KM) | 0.466 |
| nu hat (KM) | 81.72 | nu star (KM) | 80.21 |
| theta hat (KM) | 0.00872 | theta star (KM) | 0.00888 |
| 80% gamma percentile (KM) | 0.00678 | 90% gamma percentile (KM) | 0.0114 |
| 95% gamma percentile (KM) | 0.0163 | 99% gamma percentile (KM) | 0.0285 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.00933 | 0.00881 | 95% Approx. Gamma UPL | 0.00829 | 0.00784 |
| 95% KM Gamma Percentile | 0.00819 | 0.00775 | 95% Gamma USL | 0.0149 | 0.0142 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.827 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.859 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.217 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.252 | Detected Data appear Lognormal at 10% Significance Level |

**Detected Data appear Approximate Lognormal at 10% Significance Level**

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00454 | Mean in Log Scale | -5.624 |
| SD in Original Scale | 0.00616 | SD in Log Scale | 0.561 |
| 95% UTL95% Coverage | 0.0108 | 95% BCA UTL95% Coverage | 0.01 |
| 95% Bootstrap (%) UTL95% Coverage | 0.0101 | 95% UPL (t) | 0.00924 |
| 90% Percentile (z) | 0.00742 | 95% Percentile (z) | 0.00909 |
| 99% Percentile (z) | 0.0133 | 95% USL | 0.0213 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -5.666 | 95% KM UTL (Lognormal)95% Coverage | 0.00762 |
| KM SD of Logged Data | 0.405 | 95% KM UPL (Lognormal) | 0.00682 |
| 95% KM Percentile Lognormal (z) | 0.00674 | 95% KM USL (Lognormal) | 0.0124 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0045 | Mean in Log Scale | -5.552 |
| SD in Original Scale | 0.00597 | SD in Log Scale | 0.36 |
| 95% UTL95% Coverage | 0.00782 | 95% UPL (t) | 0.00708 |
| 90% Percentile (z) | 0.00615 | 95% Percentile (z) | 0.00701 |
| 99% Percentile (z) | 0.00896 | 95% USL | 0.0121 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 85 | 95% UTL with95% Coverage | 0.058 |
| Approx, f used to compute achieved CC | 2.237 | Approximate Actual Confidence Coefficient achieved by UTL | 0.933 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.00927 |
| 95% USL | 0.058 | 95% KM Chebyshev UPL | 0.0305 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (indeno(1,2,3-c,d)pyrene | [surface soil] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 43 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 36 | | |
| Number of Detects | 37 | Number of Non-Detects | 6 |
| Number of Distinct Detects | 32 | Number of Distinct Non-Detects | 5 |
| Minimum Detect | 0.003 | Minimum Non-Detect | 0.0072 |
| Maximum Detect | 0.21 | Maximum Non-Detect | 0.0088 |
| Variance Detected | 0.00197 | Percent Non-Detects | 13.95% |
| Mean Detected | 0.0245 | SD Detected | 0.0444 |
| Mean of Detected Logged Data | -4.448 | SD of Detected Logged Data | 1.036 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.097 | d2max (for USL) | 2.897 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.493 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.814 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.351 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.168 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0218 | KM SD | 0.0412 |
| 95% UTL95% Coverage | 0.108 | 95% KM UPL (t) | 0.0919 |
| 90% KM Percentile (z) | 0.0746 | 95% KM Percentile (z) | 0.0896 |
| 99% KM Percentile (z) | 0.118 | 95% KM USL | 0.141 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Mean | 0.0216 | SD | 0.0418 |
| 95% UTL95% Coverage | 0.109 | 95% UPL (t) | 0.0927 |
| 90% Percentile (z) | 0.0751 | 95% Percentile (z) | 0.0903 |
| 99% Percentile (z) | 0.119 | 95% USL | 0.143 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 3.679 | **Anderson-Darling GOF Test** | |
| 5% A-D Critical Value | 0.786 | Data Not Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.274 | **Kolmogorov-Smirnov GOF** | |
| 5% K-S Critical Value | 0.15 | Data Not Gamma Distributed at 5% Significance Level | |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.804 | k star (bias corrected MLE) | 0.757 |
| Theta hat (MLE) | 0.0304 | Theta star (bias corrected MLE) | 0.0323 |
| nu hat (MLE) | 59.51 | nu star (bias corrected) | 56.02 |
| MLE Mean (bias corrected) | 0.0245 | | |
| MLE Sd (bias corrected) | 0.0281 | 95% Percentile of Chisquare (2kstar) | 5.01 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.003 | Mean | 0.0224 |
| Maximum | 0.21 | Median | 0.01 |
| SD | 0.0415 | CV | 1.847 |
| k hat (MLE) | 0.872 | k star (bias corrected MLE) | 0.826 |
| Theta hat (MLE) | 0.0257 | Theta star (bias corrected MLE) | 0.0272 |
| nu hat (MLE) | 74.97 | nu star (bias corrected) | 71.07 |
| MLE Mean (bias corrected) | 0.0224 | MLE Sd (bias corrected) | 0.0247 |
| 95% Percentile of Chisquare (2kstar) | 5.3 | 90% Percentile | 0.0541 |
| 95% Percentile | 0.072 | 99% Percentile | 0.114 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0879 | 0.0863 | 95% Approx. Gamma UPL | 0.0669 | 0.0643 |
| 95% Gamma USL | 0.143 | 0.148 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0218 | SD (KM) | 0.0412 |
| Variance (KM) | 0.0017 | SE of Mean (KM) | 0.00637 |
| k hat (KM) | 0.279 | k star (KM) | 0.275 |
| nu hat (KM) | 24.02 | nu star (KM) | 23.68 |
| theta hat (KM) | 0.078 | theta star (KM) | 0.0791 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 80% gamma percentile (KM) | 0.0326 | 90% gamma percentile (KM) | 0.0648 |
| 95% gamma percentile (KM) | 0.102 | 99% gamma percentile (KM) | 0.201 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0863 | 0.0846 | 95% Approx. Gamma UPL | 0.0652 | 0.0625 |
| 95% KM Gamma Percentile | 0.0625 | 0.0597 | 95% Gamma USL | 0.142 | 0.147 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.867 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.946 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.193 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.132 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0218 | Mean in Log Scale | -4.563 |
| SD in Original Scale | 0.0417 | SD in Log Scale | 1.003 |
| 95% UTL95% Coverage | 0.0855 | 95% BCA UTL95% Coverage | 0.201 |
| 95% Bootstrap (%) UTL95% Coverage | 0.205 | 95% UPL (t) | 0.0575 |
| 90% Percentile (z) | 0.0377 | 95% Percentile (z) | 0.0543 |
| 99% Percentile (z) | 0.108 | 95% USL | 0.191 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -4.564 | 95% KM UTL (Lognormal)95% Coverage | 0.0837 |
| KM SD of Logged Data | 0.993 | 95% KM UPL (Lognormal) | 0.0565 |
| 95% KM Percentile Lognormal (z) | 0.0534 | 95% KM USL (Lognormal) | 0.185 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0216 | Mean in Log Scale | -4.602 |
| SD in Original Scale | 0.0418 | SD in Log Scale | 1.034 |
| 95% UTL95% Coverage | 0.0878 | 95% UPL (t) | 0.0583 |
| 90% Percentile (z) | 0.0378 | 95% Percentile (z) | 0.055 |
| 99% Percentile (z) | 0.111 | 95% USL | 0.201 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 43 | 95% UTL with95% Coverage | 0.21 |
| Approx, f used to compute achieved CC | 2.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.89 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.152 |
| 95% USL | 0.21 | 95% KM Chebyshev UPL | 0.203 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (iron | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 105 | Number of Distinct Observations | 35 |
| Minimum | 2500 | First Quartile | 10000 |
| Second Largest | 29000 | Median | 14000 |
| Maximum | 32000 | Third Quartile | 17000 |
| Mean | 13805 | SD | 5169 |
| Coefficient of Variation | 0.374 | Skewness | 0.576 |
| Mean of logged Data | 9.455 | SD of logged Data | 0.421 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.916 | d2max (for USL) | 3.226 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.972 | **Normal GOF Test** | |
| 1% Shapiro Wilk P Value | 0.189 | Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.104 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.1 | Data Not Normal at 1% Significance Level | |

Data appear Approximate Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 23709 | 90% Percentile (z) | 20430 |
| | 95% UPL (t) | 22425 | 95% Percentile (z) | 22308 |
| | 95% USL | 30481 | 99% Percentile (z) | 25830 |

**Gamma GOF Test**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 0.511 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.754 | Detected data appear Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.0803 | **Kolmogorov-Smirnov Gamma GOF Test** | |
| 5% K-S Critical Value | 0.0882 | Detected data appear Gamma Distributed at 5% Significance Level | |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 6.583 | k star (bias corrected MLE) | 6.401 |
| Theta hat (MLE) | 2097 | Theta star (bias corrected MLE) | 2157 |
| nu hat (MLE) | 1382 | nu star (bias corrected) | 1344 |
| MLE Mean (bias corrected) | 13805 | MLE Sd (bias corrected) | 5456 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 23890 | 90% Percentile | 21095 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 24244 | 95% Percentile | 23829 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | | | |
|---|---|---|---|---|---|
| 95% WH Approx. Gamma UTL with | 95% Coverage | 25873 | | 99% Percentile | 29544 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 26386 | | | |
| | 95% WH USL | 38164 | | 95% HW USL | 40115 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.948 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk P Value | 0.0011 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.104 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.0794 | Data Not Lognormal at 10% Significance Level | |

Data Not Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 28596 | | 90% Percentile (z) | 21896 |
| | 95% UPL (t) | 25757 | | 95% Percentile (z) | 25513 |
| | 95% USL | 49622 | | 99% Percentile (z) | 33984 |

**Nonparametric Distribution Free Background Statistics**

Data appear Approximate Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| Order of Statistic, order | | 104 | 95% UTL with | 95% Coverage | 29000 |
| Approx, f used to compute achieved CC | | 1.807 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.901 |
| | | | Approximate Sample Size needed to achieve specified CC | | 93 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 22800 | 95% BCA Bootstrap UTL with | 95% Coverage | 22000 |
| | 95% UPL | 22000 | | 90% Percentile | 21000 |
| | 90% Chebyshev UPL | 29386 | | 95% Percentile | 22000 |
| | 95% Chebyshev UPL | 36444 | | 99% Percentile | 28760 |
| | 95% USL | 32000 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (iron | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Distinct Observations | 20 |
| Minimum | 3900 | First Quartile | 6900 |
| Second Largest | 14000 | Median | 8700 |
| Maximum | 17000 | Third Quartile | 10100 |
| Mean | 8958 | SD | 3082 |
| Coefficient of Variation | 0.344 | Skewness | 0.729 |
| Mean of logged Data | 9.043 | SD of logged Data | 0.35 |

**Critical Values for Background Threshold Values (BTVs)**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.961 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.884 | Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.142 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.205 | Data appear Normal at 1% Significance Level |

Data appear Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 16076 | 90% Percentile (z) | 12909 |
| | 95% UPL (t) | 14350 | 95% Percentile (z) | 14029 |
| | 95% USL | 17108 | 99% Percentile (z) | 16129 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.175 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.745 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.101 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.178 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 8.917 | k star (bias corrected MLE) | 7.83 |
| Theta hat (MLE) | 1005 | Theta star (bias corrected MLE) | 1144 |
| nu hat (MLE) | 428 | nu star (bias corrected) | 375.8 |
| MLE Mean (bias corrected) | 8958 | MLE Sd (bias corrected) | 3201 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 14980 | 90% Percentile | 13227 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 15111 | 95% Percentile | 14790 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 17529 | 99% Percentile | 18030 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 17827 | | |
| 95% WH USL | 19184 | 95% HW USL | 19617 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.983 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.93 | Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.0886 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.162 | Data appear Lognormal at 10% Significance Level |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 18999 | 90% Percentile (z) | 13256 |
| | 95% UPL (t) | 15616 | 95% Percentile (z) | 15055 |
| | 95% USL | 21364 | 99% Percentile (z) | 19115 |

**Nonparametric Distribution Free Background Statistics**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 24 | 95% UTL with 95% Coverage | 17000 |
| Approx, f used to compute achieved CC | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.708 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 17000 | 95% BCA Bootstrap UTL with 95% Coverage | 17000 |
| 95% UPL | 16250 | 90% Percentile | 12700 |
| 90% Chebyshev UPL | 18396 | 95% Percentile | 13850 |
| 95% Chebyshev UPL | 22672 | 99% Percentile | 16310 |
| 95% USL | 17000 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (lead | [surface soil] | [ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 35 | Number of Distinct Observations | 27 |
| Minimum | 3.2 | First Quartile | 7.25 |
| Second Largest | 87 | Median | 10 |
| Maximum | 320 | Third Quartile | 14.5 |
| Mean | 22.81 | SD | 54.36 |
| Coefficient of Variation | 2.383 | Skewness | 5.152 |
| Mean of logged Data | 2.424 | SD of logged Data | 0.909 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.157 | d2max (for USL) | 2.812 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.331 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.91 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.442 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.172 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 140.1 | 90% Percentile (z) | 92.48 |
| 95% UPL (t) | 116 | 95% Percentile (z) | 112.2 |
| 95% USL | 175.7 | 99% Percentile (z) | 149.3 |

**Gamma GOF Test**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 4.652 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.783 | Data Not Gamma Distributed at 5% Significance Level | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| K-S Test Statistic | 0.331 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.154 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.839 | k star (bias corrected MLE) | 0.786 |
| Theta hat (MLE) | 27.19 | Theta star (bias corrected MLE) | 29.02 |
| nu hat (MLE) | 58.72 | nu star (bias corrected) | 55.02 |
| MLE Mean (bias corrected) | 22.81 | MLE Sd (bias corrected) | 25.73 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 66.7 | 90% Percentile | 55.7 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 62.41 | 95% Percentile | 74.47 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 90.57 | 99% Percentile | 118.9 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 86.42 | | |
| 95% WH USL | 135.4 | 95% HW USL | 133.9 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.831 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.944 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.206 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.136 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 80.26 | 90% Percentile (z) | 36.2 |
| 95% UPL (t) | 53.69 | 95% Percentile (z) | 50.37 |
| 95% USL | 145.5 | 99% Percentile (z) | 93.6 |

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 35 | 95% UTL with 95% Coverage | 320 |
| Approx, f used to compute achieved CC | 1.842 | Approximate Actual Confidence Coefficient achieved by UTL | 0.834 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 320 | 95% BCA Bootstrap UTL with 95% Coverage | 320 |
| 95% UPL | 133.6 | 90% Percentile | 18.6 |
| 90% Chebyshev UPL | 188.2 | 95% Percentile | 75.1 |
| 95% Chebyshev UPL | 263.1 | 99% Percentile | 240.8 |
| 95% USL | 320 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Conc (lead | [surface soil] | [psc])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 8 | Number of Distinct Observations | 7 |
| Minimum | 2.7 | First Quartile | 3.2 |
| Second Largest | 6.9 | Median | 4.35 |
| Maximum | 10 | Third Quartile | 5.4 |
| Mean | 4.95 | SD | 2.427 |
| Coefficient of Variation | 0.49 | Skewness | 1.515 |
| Mean of logged Data | 1.51 | SD of logged Data | 0.435 |

Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,
refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 3.187 | d2max (for USL) | 2.032 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.842 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.749 | Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.258 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.333 | Data appear Normal at 1% Significance Level | |

Data appear Normal at 1% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Background Statistics Assuming Normal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 12.68 | 90% Percentile (z) | 8.06 |
| | 95% UPL (t) | 9.826 | 95% Percentile (z) | 8.941 |
| | 95% USL | 9.88 | 99% Percentile (z) | 10.6 |

**Gamma GOF Test**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 0.397 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.718 | Detected data appear Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.204 | **Kolmogorov-Smirnov Gamma GOF Test** | |
| 5% K-S Critical Value | 0.295 | Detected data appear Gamma Distributed at 5% Significance Level | |

Detected data appear Gamma Distributed at 5% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 5.78 | k star (bias corrected MLE) | 3.696 |
| Theta hat (MLE) | 0.856 | Theta star (bias corrected MLE) | 1.339 |
| nu hat (MLE) | 92.47 | nu star (bias corrected) | 59.13 |
| MLE Mean (bias corrected) | 4.95 | MLE Sd (bias corrected) | 2.575 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 10.33 | 90% Percentile | 8.402 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | | |
|---|---|---|---|---|
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 10.44 | | 95% Percentile | 9.801 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 15.17 | | 99% Percentile | 12.8 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 15.73 | | | |
| 95% WH USL | 10.41 | | 95% HW USL | 10.52 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.933 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.851 | Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.178 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.265 | Data appear Lognormal at 10% Significance Level |

Data appear Lognormal at 10% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 18.1 | 90% Percentile (z) | 7.906 |
| 95% UPL (t) | 10.85 | 95% Percentile (z) | 9.258 |
| 95% USL | 10.95 | 99% Percentile (z) | 12.45 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 8 | 95% UTL with 95% Coverage | 10 |
| Approx, f used to compute achieved CC | 0.421 | Approximate Actual Confidence Coefficient achieved by UTL | 0.337 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 10 | 95% BCA Bootstrap UTL with 95% Coverage | 10 |
| 95% UPL | 10 | 90% Percentile | 7.83 |
| 90% Chebyshev UPL | 12.67 | 95% Percentile | 8.915 |
| 95% Chebyshev UPL | 16.17 | 99% Percentile | 9.783 |
| 95% USL | 10 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (lead | [subsurface soil_1_5] | [pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 11 | Number of Distinct Observations | 11 |
| Minimum | 3.8 | First Quartile | 5.3 |
| Second Largest | 11 | Median | 6.2 |
| Maximum | 15 | Third Quartile | 9.05 |
| Mean | 7.5 | SD | 3.375 |
| Coefficient of Variation | 0.45 | Skewness | 1.105 |
| Mean of logged Data | 1.929 | SD of logged Data | 0.43 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.815 | d2max (for USL) | 2.234 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.911 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.792 | Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.195 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.291 | Data appear Normal at 1% Significance Level |

Data appear Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 17 | 90% Percentile (z) | 11.83 |
| | 95% UPL (t) | 13.89 | 95% Percentile (z) | 13.05 |
| | 95% USL | 15.04 | 99% Percentile (z) | 15.35 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.216 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.731 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.169 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.256 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 6.005 | k star (bias corrected MLE) | 4.428 |
| Theta hat (MLE) | 1.249 | Theta star (bias corrected MLE) | 1.694 |
| nu hat (MLE) | 132.1 | nu star (bias corrected) | 97.41 |
| MLE Mean (bias corrected) | 7.5 | MLE Sd (bias corrected) | 3.564 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 14.7 | 90% Percentile | 12.28 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 14.87 | 95% Percentile | 14.16 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 19.84 | 99% Percentile | 18.16 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 20.46 | | |
| 95% WH USL | 16.48 | 95% HW USL | 16.78 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.969 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.876 | Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.142 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.231 | Data appear Lognormal at 10% Significance Level |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 23.08 | 90% Percentile (z) | 11.94 |
| | 95% UPL (t) | 15.53 | 95% Percentile (z) | 13.96 |
| | 95% USL | 17.98 | 99% Percentile (z) | 18.71 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 11 | 95% UTL with 95% Coverage | 15 |
| Approx, f used to compute achieved CC | 0.579 | Approximate Actual Confidence Coefficient achieved by UTL | 0.431 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 15 | 95% BCA Bootstrap UTL with 95% Coverage | 15 |
| 95% UPL | 15 | 90% Percentile | 11 |
| 90% Chebyshev UPL | 18.08 | 95% Percentile | 13 |
| 95% Chebyshev UPL | 22.87 | 99% Percentile | 14.6 |
| 95% USL | 15 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (lead | [subsurface soil_1_5][subsurface soil_5_10] | [ps])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 48 | Number of Distinct Observations | 39 |
| Minimum | 1.4 | First Quartile | 3.175 |
| Second Largest | 11 | Median | 5.1 |
| Maximum | 92 | Third Quartile | 7.1 |
| Mean | 7.004 | SD | 12.75 |
| Coefficient of Variation | 1.82 | Skewness | 6.565 |
| Mean of logged Data | 1.594 | SD of logged Data | 0.664 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.069 | d2max (for USL) | 2.941 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.294 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.929 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.378 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.148 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 33.37 | 90% Percentile (z) | 23.34 |
| 95% UPL (t) | 28.62 | 95% Percentile (z) | 27.97 |
| 95% USL | 44.49 | 99% Percentile (z) | 36.66 |

**Gamma GOF Test**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 3.377 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.767 | Data Not Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.22 | **Kolmogorov-Smirnov Gamma GOF Test** | |
| 5% K-S Critical Value | 0.13 | Data Not Gamma Distributed at 5% Significance Level | |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.563 | k star (bias corrected MLE) | 1.48 |
| Theta hat (MLE) | 4.48 | Theta star (bias corrected MLE) | 4.734 |
| nu hat (MLE) | 150.1 | nu star (bias corrected) | 142 |
| MLE Mean (bias corrected) | 7.004 | MLE Sd (bias corrected) | 5.758 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 17.18 | 90% Percentile | 14.64 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 16.42 | 95% Percentile | 18.33 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 21.11 | 99% Percentile | 26.66 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 20.33 | | |
| 95% WH USL | 32.53 | 95% HW USL | 32.16 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.888 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.954 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.124 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.117 | Data Not Lognormal at 10% Significance Level | |

Data Not Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 19.44 | 90% Percentile (z) | 11.53 |
| 95% UPL (t) | 15.17 | 95% Percentile (z) | 14.67 |
| 95% USL | 34.69 | 99% Percentile (z) | 23.07 |

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 48 | 95% UTL with 95% Coverage | 92 |
| Approx, f used to compute achieved CC | 2.526 | Approximate Actual Confidence Coefficient achieved by UTL | 0.915 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 63.65 | 95% BCA Bootstrap UTL with 95% Coverage | 63.23 |
| 95% UPL | 10.46 | 90% Percentile | 8.46 |
| 90% Chebyshev UPL | 45.64 | 95% Percentile | 9.485 |
| 95% Chebyshev UPL | 63.15 | 99% Percentile | 53.93 |
| 95% USL | 92 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (lead | [subsurface soil_1_5][subsurface soil_5_10] | [psc])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 16 | Number of Distinct Observations | 10 |
| Minimum | 1.2 | First Quartile | 2.025 |
| Second Largest | 5.4 | Median | 2.4 |
| Maximum | 9 | Third Quartile | 2.65 |
| Mean | 2.806 | SD | 1.921 |
| Coefficient of Variation | 0.685 | Skewness | 2.599 |
| Mean of logged Data | 0.888 | SD of logged Data | 0.51 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.524 | d2max (for USL) | 2.443 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.675 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.844 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.314 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.248 | Data Not Normal at 1% Significance Level |

**Data Not Normal at 1% Significance Level**

**Background Statistics Assuming Normal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 7.656 | 90% Percentile (z) | 5.268 |
| | 95% UPL (t) | 6.278 | 95% Percentile (z) | 5.966 |
| | 95% USL | 7.5 | 99% Percentile (z) | 7.276 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 1.049 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.743 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.266 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.216 | Data Not Gamma Distributed at 5% Significance Level |

**Data Not Gamma Distributed at 5% Significance Level**

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 3.642 | k star (bias corrected MLE) | 3.001 |
| Theta hat (MLE) | 0.77 | Theta star (bias corrected MLE) | 0.935 |
| nu hat (MLE) | 116.6 | nu star (bias corrected) | 96.03 |
| MLE Mean (bias corrected) | 2.806 | MLE Sd (bias corrected) | 1.62 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | | 6.048 | 90% Percentile | 4.978 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | | 6.046 | 95% Percentile | 5.889 |
| 95% WH Approx. Gamma UTL with | 95% Coverage | 8.044 | 99% Percentile | 7.862 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 8.175 | | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% WH USL | 7.8 | 95% HW USL | 7.911 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.89 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.906 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.228 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.196 | Data Not Lognormal at 10% Significance Level | |

Data Not Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 8.8 | 90% Percentile (z) | 4.672 |
| | 95% UPL (t) | 6.106 | 95% Percentile (z) | 5.622 |
| | 95% USL | 8.445 | 99% Percentile (z) | 7.956 |

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| Order of Statistic, order | | 16 | 95% UTL with | 95% Coverage | 9 |
| Approx, f used to compute achieved CC | | 0.842 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.56 |
| | | | Approximate Sample Size needed to achieve specified CC | | 59 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 9 | 95% BCA Bootstrap UTL with | 95% Coverage | 9 |
| | 95% UPL | 9 | | 90% Percentile | 4.25 |
| | 90% Chebyshev UPL | 8.747 | | 95% Percentile | 6.3 |
| | 95% Chebyshev UPL | 11.44 | | 99% Percentile | 8.46 |
| | 95% USL | 9 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (lead | [subsurface soil_5_10] | [pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 11 | Number of Distinct Observations | 10 |
| Minimum | 2.3 | First Quartile | 2.8 |
| Second Largest | 5.7 | Median | 3.7 |
| Maximum | 10 | Third Quartile | 4.35 |
| Mean | 4.145 | SD | 2.193 |
| Coefficient of Variation | 0.529 | Skewness | 2.171 |
| Mean of logged Data | 1.328 | SD of logged Data | 0.427 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.815 | d2max (for USL) | 2.234 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.761 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.792 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.254 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.291 | Data appear Normal at 1% Significance Level | |

Data appear Approximate Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 10.32 | 90% Percentile (z) | 6.956 |
| | 95% UPL (t) | 8.297 | 95% Percentile (z) | 7.752 |
| | 95% USL | 9.044 | 99% Percentile (z) | 9.247 |

**Gamma GOF Test**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 0.535 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.731 | Detected data appear Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.203 | **Kolmogorov-Smirnov Gamma GOF Test** | |
| 5% K-S Critical Value | 0.256 | Detected data appear Gamma Distributed at 5% Significance Level | |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 5.471 | k star (bias corrected MLE) | 4.039 |
| Theta hat (MLE) | 0.758 | Theta star (bias corrected MLE) | 1.026 |
| nu hat (MLE) | 120.4 | nu star (bias corrected) | 88.87 |
| MLE Mean (bias corrected) | 4.145 | MLE Sd (bias corrected) | 2.063 |

**Background Statistics Assuming Gamma Distribution**

| | | | | |
|---|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | | 8.314 | 90% Percentile | 6.91 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | | 8.339 | 95% Percentile | 8.015 |
| 95% WH Approx. Gamma UTL with | 95% Coverage | 11.34 | 99% Percentile | 10.37 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 11.58 | | |
| | 95% WH USL | 9.361 | 95% HW USL | 9.444 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.912 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.876 | Data appear Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.173 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.231 | Data appear Lognormal at 10% Significance Level | |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 12.55 | 90% Percentile (z) | 6.521 |
| | 95% UPL (t) | 8.466 | 95% Percentile (z) | 7.615 |
| | 95% USL | 9.793 | 99% Percentile (z) | 10.19 |

**Nonparametric Distribution Free Background Statistics**

Data appear Approximate Normal at 1% Significance Level

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 11 | 95% UTL with 95% Coverage | 10 |
| Approx, f used to compute achieved CC | 0.579 | Approximate Actual Confidence Coefficient achieved by UTL | 0.431 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 10 | 95% BCA Bootstrap UTL with 95% Coverage | 10 |
| 95% UPL | 10 | 90% Percentile | 5.7 |
| 90% Chebyshev UPL | 11.02 | 95% Percentile | 7.85 |
| 95% Chebyshev UPL | 14.13 | 99% Percentile | 9.57 |
| 95% USL | 10 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (magnesium | [subsurface soil_1_5] | [psc][ps])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 32 | Number of Distinct Observations | 23 |
| Minimum | 880 | First Quartile | 1600 |
| Second Largest | 18000 | Median | 2900 |
| Maximum | 21000 | Third Quartile | 9700 |
| Mean | 5945 | SD | 5745 |
| Coefficient of Variation | 0.966 | Skewness | 1.169 |
| Mean of logged Data | 8.207 | SD of logged Data | 1.026 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.186 | d2max (for USL) | 2.773 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.82 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.904 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.233 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.18 | Data Not Normal at 1% Significance Level |

Data Not Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 18505 | 90% Percentile (z) | 13308 |
| 95% UPL (t) | 15837 | 95% Percentile (z) | 15395 |
| 95% USL | 21878 | 99% Percentile (z) | 19310 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 1.077 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.772 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.175 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.159 | Data Not Gamma Distributed at 5% Significance Level |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.173 | k star (bias corrected MLE) | 1.084 |
| Theta hat (MLE) | 5067 | Theta star (bias corrected MLE) | 5484 |
| nu hat (MLE) | 75.09 | nu star (bias corrected) | 69.38 |
| MLE Mean (bias corrected) | 5945 | MLE Sd (bias corrected) | 5710 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 17670 | 90% Percentile | 13420 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 18275 | 95% Percentile | 17312 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 23562 | 99% Percentile | 26296 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 25170 | | |
| 95% WH USL | 32715 | 95% HW USL | 36479 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.914 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.941 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.133 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.142 | Data appear Lognormal at 10% Significance Level | |

Data appear Approximate Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 34576 | 90% Percentile (z) | 13662 |
| 95% UPL (t) | 21466 | 95% Percentile (z) | 19836 |
| 95% USL | 63163 | 99% Percentile (z) | 39923 |

**Nonparametric Distribution Free Background Statistics**

Data appear Approximate Lognormal at 10% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 32 | 95% UTL with 95% Coverage | 21000 |
| Approx, f used to compute achieved CC | 1.684 | Approximate Actual Confidence Coefficient achieved by UTL | 0.806 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 21000 | 95% BCA Bootstrap UTL with 95% Coverage | 19350 |
| 95% UPL | 19050 | 90% Percentile | 15700 |
| 90% Chebyshev UPL | 23447 | 95% Percentile | 16900 |
| 95% Chebyshev UPL | 31374 | 99% Percentile | 20070 |
| 95% USL | 21000 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (magnesium | [subsurface soil_5_10] | [psc][ps][pd])**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 43 | Number of Distinct Observations | 34 |
| Minimum | 1900 | First Quartile | 6350 |
| Second Largest | 27000 | Median | 9600 |
| Maximum | 32000 | Third Quartile | 13500 |
| Mean | 10874 | SD | 6664 |
| Coefficient of Variation | 0.613 | Skewness | 1.446 |
| Mean of logged Data | 9.126 | SD of logged Data | 0.594 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.097 | d2max (for USL) | 2.897 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.873 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.923 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.167 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.156 | Data Not Normal at 1% Significance Level |

**Data Not Normal at 1% Significance Level**

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 24851 | 90% Percentile (z) | 19415 |
| | 95% UPL (t) | 22213 | 95% Percentile (z) | 21836 |
| | 95% USL | 30181 | 99% Percentile (z) | 26378 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.38 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.755 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.0914 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.136 | Detected data appear Gamma Distributed at 5% Significance Level |

**Detected data appear Gamma Distributed at 5% Significance Level**

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 3.138 | k star (bias corrected MLE) | 2.934 |
| Theta hat (MLE) | 3466 | Theta star (bias corrected MLE) | 3706 |
| nu hat (MLE) | 269.8 | nu star (bias corrected) | 252.4 |
| MLE Mean (bias corrected) | 10874 | MLE Sd (bias corrected) | 6348 |

**Background Statistics Assuming Gamma Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | | 23186 | 90% Percentile | 19386 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | | 23539 | 95% Percentile | 22967 |
| 95% WH Approx. Gamma UTL with | 95% Coverage | 27493 | 99% Percentile | 30739 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 28258 | | |
| | 95% WH USL | 37762 | 95% HW USL | 39924 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.988 | **Shapiro Wilk Lognormal GOF Test** |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 10% Shapiro Wilk Critical Value | 0.951 | Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.0772 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.123 | Data appear Lognormal at 10% Significance Level |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 31958 | 90% Percentile (z) | 19687 |
| | 95% UPL (t) | 25263 | 95% Percentile (z) | 24428 |
| | 95% USL | 51396 | 99% Percentile (z) | 36619 |

**Nonparametric Distribution Free Background Statistics**

Data appear Gamma Distributed at 5% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| Order of Statistic, order | | 43 | 95% UTL with | 95% Coverage | 32000 |
| Approx, f used to compute achieved CC | | 2.263 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.89 |
| | | | Approximate Sample Size needed to achieve specified CC | | 59 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 31500 | 95% BCA Bootstrap UTL with | 95% Coverage | 31500 |
| | 95% UPL | 27000 | | 90% Percentile | 19800 |
| | 90% Chebyshev UPL | 31099 | | 95% Percentile | 26400 |
| | 95% Chebyshev UPL | 40260 | | 99% Percentile | 29900 |
| | 95% USL | 32000 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (magnesium | [surface soil] | [ps])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Distinct Observations | 17 |
| Minimum | 270 | First Quartile | 1275 |
| Second Largest | 6400 | Median | 1700 |
| Maximum | 11000 | Third Quartile | 2225 |
| Mean | 2330 | SD | 2282 |
| Coefficient of Variation | 0.979 | Skewness | 2.882 |
| Mean of logged Data | 7.472 | SD of logged Data | 0.73 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.629 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.884 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.345 | **Lilliefors GOF Test** |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 1% Lilliefors Critical Value | 0.205 | Data Not Normal at 1% Significance Level |

Data Not Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 7601 | 90% Percentile (z) | | 5255 |
| | 95% UPL (t) | 6323 | 95% Percentile (z) | | 6085 |
| | 95% USL | 8365 | 99% Percentile (z) | | 7640 |

**Gamma GOF Test**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 1.441 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.756 | Data Not Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.242 | **Kolmogorov-Smirnov Gamma GOF Test** | |
| 5% K-S Critical Value | 0.18 | Data Not Gamma Distributed at 5% Significance Level | |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.924 | k star (bias corrected MLE) | 1.711 |
| Theta hat (MLE) | 1211 | Theta star (bias corrected MLE) | 1362 |
| nu hat (MLE) | 92.35 | nu star (bias corrected) | 82.14 |
| MLE Mean (bias corrected) | 2330 | MLE Sd (bias corrected) | 1781 |

**Background Statistics Assuming Gamma Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | | 5886 | 90% Percentile | | 4704 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | | 5916 | 95% Percentile | | 5812 |
| 95% WH Approx. Gamma UTL with | 95% Coverage | 7830 | 99% Percentile | | 8293 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 8045 | | | |
| | 95% WH USL | 9176 | 95% HW USL | | 9567 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.921 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.93 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.19 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.162 | Data Not Lognormal at 10% Significance Level | |

Data Not Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 9491 | 90% Percentile (z) | | 4482 |
| | 95% UPL (t) | 6306 | 95% Percentile (z) | | 5843 |
| | 95% USL | 12120 | 99% Percentile (z) | | 9612 |

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| Order of Statistic, order | | 24 | 95% UTL with | 95% Coverage | 11000 |
| Approx, f used to compute achieved CC | | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.708 |
| | | | Approximate Sample Size needed to achieve specified CC | | 59 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | | | |
|---|---|---|---|---|---|
| 95% Percentile Bootstrap UTL with | 95% Coverage | 11000 | 95% BCA Bootstrap UTL with | 95% Coverage | 11000 |
| | 95% UPL | 9850 | | 90% Percentile | 4530 |
| | 90% Chebyshev UPL | 9319 | | 95% Percentile | 6250 |
| | 95% Chebyshev UPL | 12485 | | 99% Percentile | 9942 |
| | 95% USL | 11000 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (magnesium | [surface soil] | [psc])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 8 | Number of Distinct Observations | 7 |
| Minimum | 530 | First Quartile | 752.5 |
| Second Largest | 1400 | Median | 1010 |
| Maximum | 1900 | Third Quartile | 1400 |
| Mean | 1088 | SD | 465.9 |
| Coefficient of Variation | 0.428 | Skewness | 0.574 |
| Mean of logged Data | 6.91 | SD of logged Data | 0.437 |

Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,
refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 3.187 | d2max (for USL) | 2.032 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.931 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.749 | Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.217 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.333 | Data appear Normal at 1% Significance Level |

Data appear Normal at 1% Significance Level
Note GOF tests may be unreliable for small sample sizes

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 2572 | | 90% Percentile (z) | 1685 |
| | 95% UPL (t) | 2024 | | 95% Percentile (z) | 1854 |
| | 95% USL | 2034 | | 99% Percentile (z) | 2171 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.295 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.718 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.205 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.295 | Detected data appear Gamma Distributed at 5% Significance Level |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Detected data appear Gamma Distributed at 5% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 6.258 | k star (bias corrected MLE) | 3.994 |
| Theta hat (MLE) | 173.8 | Theta star (bias corrected MLE) | 272.3 |
| nu hat (MLE) | 100.1 | nu star (bias corrected) | 63.91 |
| MLE Mean (bias corrected) | 1088 | MLE Sd (bias corrected) | 544.1 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 2221 | 90% Percentile | 1817 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 2260 | 95% Percentile | 2109 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 3225 | 99% Percentile | 2732 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 3373 | | |
| 95% WH USL | 2238 | 95% HW USL | 2278 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.954 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.851 | Data appear Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.177 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.265 | Data appear Lognormal at 10% Significance Level | |

Data appear Lognormal at 10% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 4032 | 90% Percentile (z) | 1754 |
| 95% UPL (t) | 2410 | 95% Percentile (z) | 2055 |
| 95% USL | 2434 | 99% Percentile (z) | 2768 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 8 | 95% UTL with 95% Coverage | 1900 |
| Approx, f used to compute achieved CC | 0.421 | Approximate Actual Confidence Coefficient achieved by UTL | 0.337 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 1900 | 95% BCA Bootstrap UTL with 95% Coverage | 1900 |
| 95% UPL | 1900 | 90% Percentile | 1550 |
| 90% Chebyshev UPL | 2570 | 95% Percentile | 1725 |
| 95% Chebyshev UPL | 3241 | 99% Percentile | 1865 |
| 95% USL | 1900 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Conc (magnesium | [surface soil][subsurface soil_1_5] | [pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 22 | Number of Distinct Observations | 18 |
| Minimum | 810 | First Quartile | 1225 |
| Second Largest | 17000 | Median | 1650 |
| Maximum | 18000 | Third Quartile | 3500 |
| Mean | 3905 | SD | 5222 |
| Coefficient of Variation | 1.337 | Skewness | 2.142 |
| Mean of logged Data | 7.736 | SD of logged Data | 0.932 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.349 | d2max (for USL) | 2.603 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.59 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.878 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.326 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.214 | Data Not Normal at 1% Significance Level | |

**Data Not Normal at 1% Significance Level**

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 16170 | 90% Percentile (z) | 10597 |
| | 95% UPL (t) | 13092 | 95% Percentile (z) | 12494 |
| | 95% USL | 17495 | 99% Percentile (z) | 16052 |

**Gamma GOF Test**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 2.368 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.769 | Data Not Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.278 | **Kolmogorov-Smirnov Gamma GOF Test** | |
| 5% K-S Critical Value | 0.19 | Data Not Gamma Distributed at 5% Significance Level | |

**Data Not Gamma Distributed at 5% Significance Level**

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.073 | k star (bias corrected MLE) | 0.957 |
| Theta hat (MLE) | 3639 | Theta star (bias corrected MLE) | 4081 |
| nu hat (MLE) | 47.21 | nu star (bias corrected) | 42.11 |
| MLE Mean (bias corrected) | 3905 | MLE Sd (bias corrected) | 3992 |

**Background Statistics Assuming Gamma Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | | 11977 | 90% Percentile | 9090 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | | 11884 | 95% Percentile | 11882 |
| 95% WH Approx. Gamma UTL with | 95% Coverage | 17367 | 99% Percentile | 18387 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 17828 | | |
| | 95% WH USL | 20112 | 95% HW USL | 20978 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.827 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.926 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.219 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.169 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 20434 | 90% Percentile (z) | | 7558 |
| | 95% UPL (t) | 11797 | 95% Percentile (z) | | 10603 |
| | 95% USL | 25884 | 99% Percentile (z) | | 20007 |

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| Order of Statistic, order | | 22 | 95% UTL with | 95% Coverage | 18000 |
| Approx, f used to compute achieved CC | | 1.158 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.676 |
| | | | Approximate Sample Size needed to achieve specified CC | | 59 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 18000 | 95% BCA Bootstrap UTL with | 95% Coverage | 18000 |
| | 95% UPL | 17850 | | 90% Percentile | 13130 |
| | 90% Chebyshev UPL | 19922 | | 95% Percentile | 16850 |
| | 95% Chebyshev UPL | 27177 | | 99% Percentile | 17790 |
| | 95% USL | 18000 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (manganese | [subsurface soil_5_10] | [pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 11 | Number of Distinct Observations | 10 |
| Minimum | 250 | First Quartile | 370 |
| Second Largest | 550 | Median | 400 |
| Maximum | 630 | Third Quartile | 450 |
| Mean | 416.4 | SD | 106.1 |
| Coefficient of Variation | 0.255 | Skewness | 0.639 |
| Mean of logged Data | 6.002 | SD of logged Data | 0.254 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.815 | d2max (for USL) | 2.234 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.952 | **Shapiro Wilk GOF Test** |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 1% Shapiro Wilk Critical Value | 0.792 | Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.214 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.291 | Data appear Normal at 1% Significance Level |

Data appear Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 715.1 | 90% Percentile (z) | 552.4 |
| | 95% UPL (t) | 617.3 | 95% Percentile (z) | 590.9 |
| | 95% USL | 653.5 | 99% Percentile (z) | 663.3 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.273 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.729 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.181 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.255 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 17.27 | k star (bias corrected MLE) | 12.62 |
| Theta hat (MLE) | 24.11 | Theta star (bias corrected MLE) | 33 |
| nu hat (MLE) | 379.9 | nu star (bias corrected) | 277.6 |
| MLE Mean (bias corrected) | 416.4 | MLE Sd (bias corrected) | 117.2 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 637.9 | 90% Percentile | 571.9 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 641.6 | 95% Percentile | 626 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 775.5 | 99% Percentile | 736.3 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 786.6 | | |
| 95% WH USL | 686.7 | 95% HW USL | 692.6 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.971 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.876 | Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.171 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.231 | Data appear Lognormal at 10% Significance Level |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 827.8 | 90% Percentile (z) | 560.3 |
| | 95% UPL (t) | 654.6 | 95% Percentile (z) | 614.6 |
| | 95% USL | 714 | 99% Percentile (z) | 731 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | |
|---|---|---|---|---|
| Order of Statistic, order | 11 | 95% UTL with | 95% Coverage | 630 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | | | |
|---|---|---|---|---|---|
| Approx, f used to compute achieved CC | | 0.579 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.431 |
| | | | Approximate Sample Size needed to achieve specified CC | | 59 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 630 | 95% BCA Bootstrap UTL with | 95% Coverage | 630 |
| | 95% UPL | 630 | | 90% Percentile | 550 |
| | 90% Chebyshev UPL | 748.9 | | 95% Percentile | 590 |
| | 95% Chebyshev UPL | 899.6 | | 99% Percentile | 622 |
| | 95% USL | 630 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (manganese | [surface soil][subsurface soil_1_5] | [pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 22 | Number of Distinct Observations | 18 |
| Minimum | 260 | First Quartile | 522.5 |
| Second Largest | 1300 | Median | 655 |
| Maximum | 1500 | Third Quartile | 787.5 |
| Mean | 720.5 | SD | 315.7 |
| Coefficient of Variation | 0.438 | Skewness | 1.01 |
| Mean of logged Data | 6.493 | SD of logged Data | 0.426 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.349 | d2max (for USL) | 2.603 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.908 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.878 | Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.186 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.214 | Data appear Normal at 1% Significance Level |

**Data appear Normal at 1% Significance Level**

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 1462 | 90% Percentile (z) | | 1125 |
| | 95% UPL (t) | 1276 | 95% Percentile (z) | | 1240 |
| | 95% USL | 1542 | 99% Percentile (z) | | 1455 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.418 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.746 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.131 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.186 | Detected data appear Gamma Distributed at 5% Significance Level |

**Detected data appear Gamma Distributed at 5% Significance Level**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 5.936 | k star (bias corrected MLE) | 5.157 |
| Theta hat (MLE) | 121.4 | Theta star (bias corrected MLE) | 139.7 |
| nu hat (MLE) | 261.2 | nu star (bias corrected) | 226.9 |
| MLE Mean (bias corrected) | 720.5 | MLE Sd (bias corrected) | 317.3 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 1332 | 90% Percentile | 1145 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 1345 | 95% Percentile | 1309 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 1619 | 99% Percentile | 1655 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 1654 | | |
| 95% WH USL | 1755 | 95% HW USL | 1802 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.975 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.926 | Data appear Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.112 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.169 | Data appear Lognormal at 10% Significance Level | |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 1797 | 90% Percentile (z) | 1140 |
| 95% UPL (t) | 1398 | 95% Percentile (z) | 1331 |
| 95% USL | 2002 | 99% Percentile (z) | 1780 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 22 | 95% UTL with 95% Coverage | 1500 |
| Approx, f used to compute achieved CC | 1.158 | Approximate Actual Confidence Coefficient achieved by UTL | 0.676 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 1500 | 95% BCA Bootstrap UTL with 95% Coverage | 1490 |
| 95% UPL | 1470 | 90% Percentile | 1100 |
| 90% Chebyshev UPL | 1689 | 95% Percentile | 1290 |
| 95% Chebyshev UPL | 2127 | 99% Percentile | 1458 |
| 95% USL | 1500 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (manganese | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [ps])**

**General Statistics**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Total Number of Observations | 72 | Number of Distinct Observations | 53 |
| Minimum | 27 | First Quartile | 330 |
| Second Largest | 1900 | Median | 505 |
| Maximum | 2400 | Third Quartile | 702.5 |
| Mean | 608.5 | SD | 437 |
| Coefficient of Variation | 0.718 | Skewness | 1.801 |
| Mean of logged Data | 6.159 | SD of logged Data | 0.784 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.98 | d2max (for USL) | 3.094 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.851 | **Normal GOF Test** |
| 1% Shapiro Wilk P Value | 8.620E-10 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.172 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.121 | Data Not Normal at 1% Significance Level |

Data Not Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 1474 | 90% Percentile (z) | 1169 |
| | 95% UPL (t) | 1342 | 95% Percentile (z) | 1327 |
| | 95% USL | 1961 | 99% Percentile (z) | 1625 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.511 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.763 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.0871 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.106 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 2.134 | k star (bias corrected MLE) | 2.055 |
| Theta hat (MLE) | 285.1 | Theta star (bias corrected MLE) | 296.1 |
| nu hat (MLE) | 307.4 | nu star (bias corrected) | 295.9 |
| MLE Mean (bias corrected) | 608.5 | MLE Sd (bias corrected) | 424.5 |

**Background Statistics Assuming Gamma Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | | 1432 | 90% Percentile | 1176 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | | 1478 | 95% Percentile | 1431 |
| 95% WH Approx. Gamma UTL with | 95% Coverage | 1665 | 99% Percentile | 1996 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 1743 | | |
| | 95% WH USL | 2743 | 95% HW USL | 3041 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.94 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk P Value | 0.00321 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.0872 | **Lilliefors Lognormal GOF Test** |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 10% Lilliefors Critical Value | 0.0955 | Data appear Lognormal at 10% Significance Level |

Data appear Approximate Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 2235 | 90% Percentile (z) | | 1292 |
| | 95% UPL (t) | 1764 | 95% Percentile (z) | | 1718 |
| | 95% USL | 5356 | 99% Percentile (z) | | 2933 |

**Nonparametric Distribution Free Background Statistics**

Data appear Gamma Distributed at 5% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| Order of Statistic, order | | 72 | 95% UTL with | 95% Coverage | 2400 |
| Approx, f used to compute achieved CC | | 1.868 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.881 |
| | | | Approximate Sample Size needed to achieve specified CC | | 59 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 1900 | 95% BCA Bootstrap UTL with | 95% Coverage | 1800 |
| | 95% UPL | 1605 | | 90% Percentile | 1000 |
| | 90% Chebyshev UPL | 1929 | | 95% Percentile | 1500 |
| | 95% Chebyshev UPL | 2526 | | 99% Percentile | 2045 |
| | 95% USL | 2400 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (manganese | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Distinct Observations | 20 |
| Minimum | 28 | First Quartile | 147.5 |
| Second Largest | 530 | Median | 255 |
| Maximum | 540 | Third Quartile | 327.5 |
| Mean | 266 | SD | 145.3 |
| Coefficient of Variation | 0.546 | Skewness | 0.408 |
| Mean of logged Data | 5.39 | SD of logged Data | 0.717 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.951 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.884 | Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.105 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.205 | Data appear Normal at 1% Significance Level |

Data appear Normal at 1% Significance Level

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 601.4 | 90% Percentile (z) | | 452.2 |
| | 95% UPL (t) | 520.1 | 95% Percentile (z) | | 504.9 |
| | 95% USL | 650.1 | 99% Percentile (z) | | 603.9 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.382 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.752 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.14 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.179 | Detected data appear Gamma Distributed at 5% Significance Level |

**Detected data appear Gamma Distributed at 5% Significance Level**

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 2.744 | k star (bias corrected MLE) | 2.429 |
| Theta hat (MLE) | 96.93 | Theta star (bias corrected MLE) | 109.5 |
| nu hat (MLE) | 131.7 | nu star (bias corrected) | 116.6 |
| MLE Mean (bias corrected) | 266 | MLE Sd (bias corrected) | 170.7 |

**Background Statistics Assuming Gamma Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | | 610.2 | 90% Percentile | | 494.6 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | | 635.8 | 95% Percentile | | 594.1 |
| 95% WH Approx. Gamma UTL with | 95% Coverage | 783 | 99% Percentile | | 812.3 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 837.3 | | | |
| | 95% WH USL | 900.6 | 95% HW USL | | 978.7 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.903 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.93 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.175 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.162 | Data Not Lognormal at 10% Significance Level |

**Data Not Lognormal at 10% Significance Level**

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 1148 | 90% Percentile (z) | | 549.6 |
| | 95% UPL (t) | 768.5 | 95% Percentile (z) | | 713.1 |
| | 95% USL | 1459 | 99% Percentile (z) | | 1162 |

**Nonparametric Distribution Free Background Statistics**

**Data appear Normal at 1% Significance Level**

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| Order of Statistic, order | | 24 | 95% UTL with | 95% Coverage | 540 |
| Approx, f used to compute achieved CC | | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.708 |
| | | | Approximate Sample Size needed to achieve specified CC | | 59 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 540 | 95% BCA Bootstrap UTL with | 95% Coverage | 540 |
| | 95% UPL | 537.5 | 90% Percentile | | 498 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 90% Chebyshev UPL | 710.8 | 95% Percentile | 527 |
| 95% Chebyshev UPL | 912.2 | 99% Percentile | 537.7 |
| 95% USL | 540 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (mercury | [subsurface soil_1_5][subsurface soil_5_10] | [ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 70 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 28 | | |
| Number of Detects | 38 | Number of Non-Detects | 32 |
| Number of Distinct Detects | 26 | Number of Distinct Non-Detects | 7 |
| Minimum Detect | 0.0086 | Minimum Non-Detect | 0.014 |
| Maximum Detect | 0.1 | Maximum Non-Detect | 0.022 |
| Variance Detected | 4.0735E-4 | Percent Non-Detects | 45.71% |
| Mean Detected | 0.0276 | SD Detected | 0.0202 |
| Mean of Detected Logged Data | -3.786 | SD of Detected Logged Data | 0.611 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.985 | d2max (for USL) | 3.084 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.778 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.916 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.268 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.165 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0202 | KM SD | 0.0168 |
| 95% UTL95% Coverage | 0.0536 | 95% KM UPL (t) | 0.0484 |
| 90% KM Percentile (z) | 0.0418 | 95% KM Percentile (z) | 0.0479 |
| 99% KM Percentile (z) | 0.0593 | 95% KM USL | 0.0721 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0188 | SD | 0.0177 |
| 95% UTL95% Coverage | 0.0539 | 95% UPL (t) | 0.0485 |
| 90% Percentile (z) | 0.0415 | 95% Percentile (z) | 0.0479 |
| 99% Percentile (z) | 0.0599 | 95% USL | 0.0733 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| A-D Test Statistic | 1.034 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.756 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.218 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.144 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 2.69 | k star (bias corrected MLE) | 2.496 |
| Theta hat (MLE) | 0.0103 | Theta star (bias corrected MLE) | 0.0111 |
| nu hat (MLE) | 204.5 | nu star (bias corrected) | 189.7 |
| MLE Mean (bias corrected) | 0.0276 | | |
| MLE Sd (bias corrected) | 0.0175 | 95% Percentile of Chisquare (2kstar) | 11.06 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0086 | Mean | 0.02 |
| Maximum | 0.1 | Median | 0.0131 |
| SD | 0.017 | CV | 0.85 |
| k hat (MLE) | 2.505 | k star (bias corrected MLE) | 2.407 |
| Theta hat (MLE) | 0.00799 | Theta star (bias corrected MLE) | 0.00832 |
| nu hat (MLE) | 350.7 | nu star (bias corrected) | 337 |
| MLE Mean (bias corrected) | 0.02 | MLE Sd (bias corrected) | 0.0129 |
| 95% Percentile of Chisquare (2kstar) | 10.78 | 90% Percentile | 0.0373 |
| 95% Percentile | 0.0448 | 99% Percentile | 0.0614 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0515 | 0.0515 | 95% Approx. Gamma UPL | 0.0445 | 0.0442 |
| 95% Gamma USL | 0.0823 | 0.0853 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0202 | SD (KM) | 0.0168 |
| Variance (KM) | 2.8312E-4 | SE of Mean (KM) | 0.00207 |
| k hat (KM) | 1.441 | k star (KM) | 1.388 |
| nu hat (KM) | 201.7 | nu star (KM) | 194.4 |
| theta hat (KM) | 0.014 | theta star (KM) | 0.0145 |
| 80% gamma percentile (KM) | 0.0315 | 90% gamma percentile (KM) | 0.0429 |
| 95% gamma percentile (KM) | 0.054 | 99% gamma percentile (KM) | 0.0792 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0512 | 0.0513 | 95% Approx. Gamma UPL | 0.0444 | 0.0441 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | | | |
|---|---|---|---|---|---|
| 95% KM Gamma Percentile | 0.0437 | 0.0433 | 95% Gamma USL | 0.0814 | 0.0843 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.952 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.947 | Detected Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.178 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.13 | Data Not Lognormal at 10% Significance Level |

**Detected Data appear Approximate Lognormal at 10% Significance Level**

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0202 | Mean in Log Scale | -4.126 |
| SD in Original Scale | 0.017 | SD in Log Scale | 0.624 |
| 95% UTL95% Coverage | 0.0558 | 95% BCA UTL95% Coverage | 0.0755 |
| 95% Bootstrap (%) UTL95% Coverage | 0.0761 | 95% UPL (t) | 0.0461 |
| 90% Percentile (z) | 0.0359 | 95% Percentile (z) | 0.0451 |
| 99% Percentile (z) | 0.069 | 95% USL | 0.111 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -4.11 | 95% KM UTL (Lognormal)95% Coverage | 0.0521 |
| KM SD of Logged Data | 0.583 | 95% KM UPL (Lognormal) | 0.0436 |
| 95% KM Percentile Lognormal (z) | 0.0428 | 95% KM USL (Lognormal) | 0.0989 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0188 | Mean in Log Scale | -4.244 |
| SD in Original Scale | 0.0177 | SD in Log Scale | 0.676 |
| 95% UTL95% Coverage | 0.0549 | 95% UPL (t) | 0.0446 |
| 90% Percentile (z) | 0.0341 | 95% Percentile (z) | 0.0436 |
| 99% Percentile (z) | 0.0691 | 95% USL | 0.115 |

**DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.**

**Nonparametric Distribution Free Background Statistics**

**Data appear to follow a Discernible Distribution**

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 69 | 95% UTL with95% Coverage | 0.1 |
| Approx, f used to compute achieved CC | 1.816 | Approximate Actual Confidence Coefficient achieved by UTL | 0.871 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.0607 |
| 95% USL | 0.1 | 95% KM Chebyshev UPL | 0.0941 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (mercury | [subsurface soil_1_5][subsurface soil_5_10] | [psc])**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 16 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 7 | | |
| Number of Detects | 4 | Number of Non-Detects | 12 |
| Number of Distinct Detects | 4 | Number of Distinct Non-Detects | 3 |
| Minimum Detect | 0.0099 | Minimum Non-Detect | 0.016 |
| Maximum Detect | 0.023 | Maximum Non-Detect | 0.018 |
| Variance Detected | 3.3236E-5 | Percent Non-Detects | 75% |
| Mean Detected | 0.0147 | SD Detected | 0.00577 |
| Mean of Detected Logged Data | -4.27 | SD of Detected Logged Data | 0.361 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.524 | d2max (for USL) | 2.443 |

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.874 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.687 | Detected Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.3 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.413 | Detected Data appear Normal at 1% Significance Level |

**Detected Data appear Normal at 1% Significance Level**

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0127 | KM SD | 0.00312 |
| 95% UTL95% Coverage | 0.0205 | 95% KM UPL (t) | 0.0183 |
| 90% KM Percentile (z) | 0.0167 | 95% KM Percentile (z) | 0.0178 |
| 99% KM Percentile (z) | 0.0199 | 95% KM USL | 0.0203 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00999 | SD | 0.00383 |
| 95% UTL95% Coverage | 0.0197 | 95% UPL (t) | 0.0169 |
| 90% Percentile (z) | 0.0149 | 95% Percentile (z) | 0.0163 |
| 99% Percentile (z) | 0.0189 | 95% USL | 0.0194 |

**DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons**

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.34 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.657 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.27 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.395 | Detected data appear Gamma Distributed at 5% Significance Level |

**Detected data appear Gamma Distributed at 5% Significance Level**

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 9.863 | k star (bias corrected MLE) | 2.633 |
| Theta hat (MLE) | 0.00149 | Theta star (bias corrected MLE) | 0.00559 |
| nu hat (MLE) | 78.91 | nu star (bias corrected) | 21.06 |
| MLE Mean (bias corrected) | 0.0147 | | |
| MLE Sd (bias corrected) | 0.00908 | 95% Percentile of Chisquare (2kstar) | 11.48 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0099 | Mean | 0.013 |
| Maximum | 0.023 | Median | 0.0124 |
| SD | 0.00343 | CV | 0.264 |
| k hat (MLE) | 18.28 | k star (bias corrected MLE) | 14.9 |
| Theta hat (MLE) | 7.1073E-4 | Theta star (bias corrected MLE) | 8.7229E-4 |
| nu hat (MLE) | 585.1 | nu star (bias corrected) | 476.7 |
| MLE Mean (bias corrected) | 0.013 | MLE Sd (bias corrected) | 0.00337 |
| 95% Percentile of Chisquare (2kstar) | 43.52 | 90% Percentile | 0.0175 |
| 95% Percentile | 0.019 | 99% Percentile | 0.0221 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0223 | 0.0224 | 95% Approx. Gamma UPL | 0.0192 | 0.0192 |
| 95% Gamma USL | 0.0219 | 0.022 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0127 | SD (KM) | 0.00312 |
| Variance (KM) | 9.7600E-6 | SE of Mean (KM) | 0.0013 |
| k hat (KM) | 16.41 | k star (KM) | 13.38 |
| nu hat (KM) | 525.2 | nu star (KM) | 428 |
| theta hat (KM) | 7.7116E-4 | theta star (KM) | 9.4616E-4 |
| 80% gamma percentile (KM) | 0.0154 | 90% gamma percentile (KM) | 0.0172 |
| 95% gamma percentile (KM) | 0.0188 | 99% gamma percentile (KM) | 0.0221 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0208 | 0.0208 | 95% Approx. Gamma UPL | 0.0181 | 0.0181 |
| 95% KM Gamma Percentile | 0.0176 | 0.0175 | 95% Gamma USL | 0.0205 | 0.0205 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.938 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.792 | Detected Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.249 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.346 | Detected Data appear Lognormal at 10% Significance Level |

Detected Data appear Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0128 | Mean in Log Scale | -4.39 |
| SD in Original Scale | 0.0035 | SD in Log Scale | 0.247 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% UTL95% Coverage | 0.0231 | 95% BCA UTL95% Coverage | 0.023 |
| 95% Bootstrap (%) UTL95% Coverage | 0.023 | 95% UPL (t) | 0.0194 |
| 90% Percentile (z) | 0.017 | 95% Percentile (z) | 0.0186 |
| 99% Percentile (z) | 0.022 | 95% USL | 0.0227 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -4.394 | 95% KM UTL (Lognormal)95% Coverage | 0.021 |
| KM SD of Logged Data | 0.211 | 95% KM UPL (Lognormal) | 0.0181 |
| 95% KM Percentile Lognormal (z) | 0.0175 | 95% KM USL (Lognormal) | 0.0207 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00999 | Mean in Log Scale | -4.651 |
| SD in Original Scale | 0.00383 | SD in Log Scale | 0.281 |
| 95% UTL95% Coverage | 0.0194 | 95% UPL (t) | 0.0159 |
| 90% Percentile (z) | 0.0137 | 95% Percentile (z) | 0.0152 |
| 99% Percentile (z) | 0.0184 | 95% USL | 0.019 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 16 | 95% UTL with95% Coverage | 0.023 |
| Approx, f used to compute achieved CC | 0.842 | Approximate Actual Confidence Coefficient achieved by UTL | 0.56 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.023 |
| 95% USL | 0.023 | 95% KM Chebyshev UPL | 0.0267 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (mercury | [surface soil] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 43 | Number of Distinct Observations | 29 |
| Minimum | 0.0099 | First Quartile | 0.0395 |
| Second Largest | 0.16 | Median | 0.046 |
| Maximum | 0.26 | Third Quartile | 0.066 |
| Mean | 0.0617 | SD | 0.0469 |
| Coefficient of Variation | 0.759 | Skewness | 2.439 |
| Mean of logged Data | -2.987 | SD of logged Data | 0.623 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.097 | d2max (for USL) | 2.897 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.745 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.923 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.238 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.156 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 0.16 | 90% Percentile (z) | 0.122 |
| | 95% UPL (t) | 0.141 | 95% Percentile (z) | 0.139 |
| | 95% USL | 0.198 | 99% Percentile (z) | 0.171 |

**Gamma GOF Test**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 1.367 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.757 | Data Not Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.153 | **Kolmogorov-Smirnov Gamma GOF Test** | |
| 5% K-S Critical Value | 0.136 | Data Not Gamma Distributed at 5% Significance Level | |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 2.632 | k star (bias corrected MLE) | 2.464 |
| Theta hat (MLE) | 0.0235 | Theta star (bias corrected MLE) | 0.0251 |
| nu hat (MLE) | 226.4 | nu star (bias corrected) | 211.9 |
| MLE Mean (bias corrected) | 0.0617 | MLE Sd (bias corrected) | 0.0393 |

**Background Statistics Assuming Gamma Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | | 0.138 | 90% Percentile | 0.114 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | | 0.139 | 95% Percentile | 0.137 |
| 95% WH Approx. Gamma UTL with | 95% Coverage | 0.165 | 99% Percentile | 0.187 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 0.169 | | |
| | 95% WH USL | 0.232 | 95% HW USL | 0.243 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.969 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.951 | Data appear Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.113 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.123 | Data appear Lognormal at 10% Significance Level | |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 0.186 | 90% Percentile (z) | 0.112 |
| | 95% UPL (t) | 0.146 | 95% Percentile (z) | 0.141 |
| | 95% USL | 0.307 | 99% Percentile (z) | 0.215 |

**Nonparametric Distribution Free Background Statistics**

Data appear Lognormal at 10% Significance Level

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 43 | 95% UTL with 95% Coverage | 0.26 |
| Approx, f used to compute achieved CC | 2.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.89 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 0.25 | 95% BCA Bootstrap UTL with 95% Coverage | 0.25 |
| 95% UPL | 0.16 | 90% Percentile | 0.118 |
| 90% Chebyshev UPL | 0.204 | 95% Percentile | 0.159 |
| 95% Chebyshev UPL | 0.268 | 99% Percentile | 0.218 |
| 95% USL | 0.26 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (naphthalene | [subsurface soil_1_5][subsurface soil_5_10] | [pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 22 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 7 | | |
| Number of Detects | 2 | Number of Non-Detects | 20 |
| Number of Distinct Detects | 2 | Number of Distinct Non-Detects | 6 |
| Minimum Detect | 0.0023 | Minimum Non-Detect | 0.0019 |
| Maximum Detect | 0.01 | Maximum Non-Detect | 0.0025 |
| Variance Detected | 2.9645E-5 | Percent Non-Detects | 90.91% |
| Mean Detected | 0.00615 | SD Detected | 0.00544 |
| Mean of Detected Logged Data | -5.34 | SD of Detected Logged Data | 1.039 |

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.349 | d2max (for USL) | 2.603 |

**Normal GOF Test on Detects Only**

Not Enough Data to Perform GOF Test

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00229 | KM SD | 0.00169 |
| 95% UTL95% Coverage | 0.00625 | 95% KM UPL (t) | 0.00525 |
| 90% KM Percentile (z) | 0.00445 | 95% KM Percentile (z) | 0.00506 |
| 99% KM Percentile (z) | 0.00621 | 95% KM USL | 0.00667 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00155 | SD | 0.00191 |

| | | | |
|---|---|---|---|
| 95% UTL95% Coverage | 0.00603 | 95% UPL (t) | 0.0049 |
| 90% Percentile (z) | 0.00399 | 95% Percentile (z) | 0.00468 |
| 99% Percentile (z) | 0.00598 | 95% USL | 0.00651 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

Not Enough Data to Perform GOF Test

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 2.162 | k star (bias corrected MLE) | N/A |
| Theta hat (MLE) | 0.00284 | Theta star (bias corrected MLE) | N/A |
| nu hat (MLE) | 8.649 | nu star (bias corrected) | N/A |
| MLE Mean (bias corrected) | N/A | | |
| MLE Sd (bias corrected) | N/A | 95% Percentile of Chisquare (2kstar) | N/A |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00229 | SD (KM) | 0.00169 |
| Variance (KM) | 2.8396E-6 | SE of Mean (KM) | 5.0815E-4 |
| k hat (KM) | 1.844 | k star (KM) | 1.623 |
| nu hat (KM) | 81.14 | nu star (KM) | 71.41 |
| theta hat (KM) | 0.00124 | theta star (KM) | 0.00141 |
| 80% gamma percentile (KM) | 0.00351 | 90% gamma percentile (KM) | 0.00468 |
| 95% gamma percentile (KM) | 0.00581 | 99% gamma percentile (KM) | 0.00834 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0052 | 0.00506 | 95% Approx. Gamma UPL | 0.00425 | 0.00413 |
| 95% KM Gamma Percentile | 0.00408 | 0.00397 | 95% Gamma USL | 0.00565 | 0.00551 |

**Lognormal GOF Test on Detected Observations Only**

Not Enough Data to Perform GOF Test

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 6.2872E-4 | Mean in Log Scale | -10.08 |
| SD in Original Scale | 0.00215 | SD in Log Scale | 2.218 |
| 95% UTL95% Coverage | 0.00769 | 95% BCA UTL95% Coverage | 0.01 |
| 95% Bootstrap (%) UTL95% Coverage | 0.01 | 95% UPL (t) | 0.00208 |
| 90% Percentile (z) | 7.2111E-4 | 95% Percentile (z) | 0.00161 |
| 99% Percentile (z) | 0.00732 | 95% USL | 0.0135 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -6.181 | 95% KM UTL (Lognormal)95% Coverage | 0.00467 |
| KM SD of Logged Data | 0.346 | 95% KM UPL (Lognormal) | 0.0038 |
| 95% KM Percentile Lognormal (z) | 0.00366 | 95% KM USL (Lognormal) | 0.0051 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00155 | Mean in Log Scale | -6.688 |
| SD in Original Scale | 0.00191 | SD in Log Scale | 0.495 |
| 95% UTL95% Coverage | 0.00398 | 95% UPL (t) | 0.00297 |
| 90% Percentile (z) | 0.00235 | 95% Percentile (z) | 0.00281 |
| 99% Percentile (z) | 0.00394 | 95% USL | 0.00452 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 22 | 95% UTL with95% Coverage | 0.01 |
| Approx, f used to compute achieved CC | 1.158 | Approximate Actual Confidence Coefficient achieved by UTL | 0.676 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.00887 |
| 95% USL | 0.01 | 95% KM Chebyshev UPL | 0.0098 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (naphthalene | [surface soil] | [pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 11 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 10 | | |
| Number of Detects | 7 | Number of Non-Detects | 4 |
| Number of Distinct Detects | 6 | Number of Distinct Non-Detects | 4 |
| Minimum Detect | 0.0012 | Minimum Non-Detect | 0.002 |
| Maximum Detect | 0.012 | Maximum Non-Detect | 0.0027 |
| Variance Detected | 2.2740E-5 | Percent Non-Detects | 36.36% |
| Mean Detected | 0.00506 | SD Detected | 0.00477 |
| Mean of Detected Logged Data | -5.761 | SD of Detected Logged Data | 1.082 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.815 | d2max (for USL) | 2.234 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.783 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.73 | Detected Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.331 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.35 | Detected Data appear Normal at 1% Significance Level | |

Detected Data appear Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00371 | KM SD | 0.00395 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% UTL95% Coverage | 0.0148 | 95% KM UPL (t) | 0.0112 |
| 90% KM Percentile (z) | 0.00877 | 95% KM Percentile (z) | 0.0102 |
| 99% KM Percentile (z) | 0.0129 | 95% KM USL | 0.0125 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00365 | SD | 0.00418 |
| 95% UTL95% Coverage | 0.0154 | 95% UPL (t) | 0.0116 |
| 90% Percentile (z) | 0.00901 | 95% Percentile (z) | 0.0105 |
| 99% Percentile (z) | 0.0134 | 95% USL | 0.013 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 0.84 | **Anderson-Darling GOF Test** | |
| 5% A-D Critical Value | 0.725 | Data Not Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.324 | **Kolmogorov-Smirnov GOF** | |
| 5% K-S Critical Value | 0.319 | Data Not Gamma Distributed at 5% Significance Level | |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.193 | k star (bias corrected MLE) | 0.777 |
| Theta hat (MLE) | 0.00424 | Theta star (bias corrected MLE) | 0.00651 |
| nu hat (MLE) | 16.7 | nu star (bias corrected) | 10.88 |
| MLE Mean (bias corrected) | 0.00506 | | |
| MLE Sd (bias corrected) | 0.00574 | 95% Percentile of Chisquare (2kstar) | 5.094 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0012 | Mean | 0.00685 |
| Maximum | 0.012 | Median | 0.01 |
| SD | 0.00446 | CV | 0.65 |
| k hat (MLE) | 1.542 | k star (bias corrected MLE) | 1.182 |
| Theta hat (MLE) | 0.00445 | Theta star (bias corrected MLE) | 0.0058 |
| nu hat (MLE) | 33.92 | nu star (bias corrected) | 26 |
| MLE Mean (bias corrected) | 0.00685 | MLE Sd (bias corrected) | 0.00631 |
| 95% Percentile of Chisquare (2kstar) | 6.679 | 90% Percentile | 0.0151 |
| 95% Percentile | 0.0194 | 99% Percentile | 0.0291 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0351 | 0.0407 | 95% Approx. Gamma UPL | 0.0215 | 0.0233 |
| 95% Gamma USL | 0.026 | 0.0289 | | | |

**Estimates of Gamma Parameters using KM Estimates**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00371 | SD (KM) | 0.00395 |
| Variance (KM) | 1.5599E-5 | SE of Mean (KM) | 0.00129 |
| k hat (KM) | 0.882 | k star (KM) | 0.702 |
| nu hat (KM) | 19.4 | nu star (KM) | 15.44 |
| theta hat (KM) | 0.00421 | theta star (KM) | 0.00528 |
| 80% gamma percentile (KM) | 0.0061 | 90% gamma percentile (KM) | 0.0093 |
| 95% gamma percentile (KM) | 0.0126 | 99% gamma percentile (KM) | 0.0205 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.02 | 0.0215 | 95% Approx. Gamma UPL | 0.0119 | 0.012 |
| 95% KM Gamma Percentile | 0.0101 | 0.0101 | 95% Gamma USL | 0.0146 | 0.0151 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.775 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.838 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.287 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.28 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0038 | Mean in Log Scale | -6.006 |
| SD in Original Scale | 0.00408 | SD in Log Scale | 0.904 |
| 95% UTL95% Coverage | 0.0314 | 95% BCA UTL95% Coverage | 0.012 |
| 95% Bootstrap (%) UTL95% Coverage | 0.012 | 95% UPL (t) | 0.0136 |
| 90% Percentile (z) | 0.00785 | 95% Percentile (z) | 0.0109 |
| 99% Percentile (z) | 0.0202 | 95% USL | 0.0186 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -6.073 | 95% KM UTL (Lognormal)95% Coverage | 0.0293 |
| KM SD of Logged Data | 0.903 | 95% KM UPL (Lognormal) | 0.0127 |
| 95% KM Percentile Lognormal (z) | 0.0102 | 95% KM USL (Lognormal) | 0.0173 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00365 | Mean in Log Scale | -6.114 |
| SD in Original Scale | 0.00418 | SD in Log Scale | 0.973 |
| 95% UTL95% Coverage | 0.0342 | 95% UPL (t) | 0.014 |
| 90% Percentile (z) | 0.0077 | 95% Percentile (z) | 0.011 |
| 99% Percentile (z) | 0.0213 | 95% USL | 0.0194 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 11 | 95% UTL with95% Coverage | 0.012 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Approx, f used to compute achieved CC | 0.579 | Approximate Actual Confidence Coefficient achieved by UTL | 0.431 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.012 |
| 95% USL | 0.012 | 95% KM Chebyshev UPL | 0.0217 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (naphthalene | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc][ps])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 96 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 27 | | |
| Number of Detects | 31 | Number of Non-Detects | 65 |
| Number of Distinct Detects | 21 | Number of Distinct Non-Detects | 8 |
| Minimum Detect | 7.1000E-4 | Minimum Non-Detect | 0.002 |
| Maximum Detect | 0.032 | Maximum Non-Detect | 0.0027 |
| Variance Detected | 4.5046E-5 | Percent Non-Detects | 67.71% |
| Mean Detected | 0.00519 | SD Detected | 0.00671 |
| Mean of Detected Logged Data | -5.945 | SD of Detected Logged Data | 1.158 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.93 | d2max (for USL) | 3.196 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.66 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.902 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.3 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.182 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00244 | KM SD | 0.00422 |
| 95% UTL95% Coverage | 0.0106 | 95% KM UPL (t) | 0.00947 |
| 90% KM Percentile (z) | 0.00784 | 95% KM Percentile (z) | 0.00937 |
| 99% KM Percentile (z) | 0.0122 | 95% KM USL | 0.0159 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00244 | SD | 0.00423 |
| 95% UTL95% Coverage | 0.0106 | 95% UPL (t) | 0.0095 |
| 90% Percentile (z) | 0.00786 | 95% Percentile (z) | 0.00939 |
| 99% Percentile (z) | 0.0123 | 95% USL | 0.016 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| A-D Test Statistic | 2.656 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.782 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.237 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.163 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.86 | k star (bias corrected MLE) | 0.798 |
| Theta hat (MLE) | 0.00604 | Theta star (bias corrected MLE) | 0.0065 |
| nu hat (MLE) | 53.3 | nu star (bias corrected) | 49.48 |
| MLE Mean (bias corrected) | 0.00519 | | |
| MLE Sd (bias corrected) | 0.00581 | 95% Percentile of Chisquare (2kstar) | 5.182 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 7.1000E-4 | Mean | 0.00845 |
| Maximum | 0.032 | Median | 0.01 |
| SD | 0.0044 | CV | 0.521 |
| k hat (MLE) | 2.046 | k star (bias corrected MLE) | 1.989 |
| Theta hat (MLE) | 0.00413 | Theta star (bias corrected MLE) | 0.00425 |
| nu hat (MLE) | 392.9 | nu star (bias corrected) | 381.9 |
| MLE Mean (bias corrected) | 0.00845 | MLE Sd (bias corrected) | 0.00599 |
| 95% Percentile of Chisquare (2kstar) | 9.453 | 90% Percentile | 0.0164 |
| 95% Percentile | 0.0201 | 99% Percentile | 0.0281 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0231 | 0.0251 | 95% Approx. Gamma UPL | 0.0202 | 0.0216 |
| 95% Gamma USL | 0.0408 | 0.0482 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00244 | SD (KM) | 0.00422 |
| Variance (KM) | 1.7769E-5 | SE of Mean (KM) | 4.4117E-4 |
| k hat (KM) | 0.334 | k star (KM) | 0.33 |
| nu hat (KM) | 64.13 | nu star (KM) | 63.46 |
| theta hat (KM) | 0.00729 | theta star (KM) | 0.00737 |
| 80% gamma percentile (KM) | 0.00382 | 90% gamma percentile (KM) | 0.00709 |
| 95% gamma percentile (KM) | 0.0108 | 99% gamma percentile (KM) | 0.0203 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0078 | 0.00752 | 95% Approx. Gamma UPL | 0.00659 | 0.00629 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | | | |
|---|---|---|---|---|---|
| 95% KM Gamma Percentile | 0.00648 | 0.00618 | 95% Gamma USL | 0.0159 | 0.0162 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.841 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.94 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.199 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.143 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00268 | Mean in Log Scale | -6.461 |
| SD in Original Scale | 0.00422 | SD in Log Scale | 0.914 |
| 95% UTL95% Coverage | 0.00913 | 95% BCA UTL95% Coverage | 0.011 |
| 95% Bootstrap (%) UTL95% Coverage | 0.012 | 95% UPL (t) | 0.00719 |
| 90% Percentile (z) | 0.00505 | 95% Percentile (z) | 0.00703 |
| 99% Percentile (z) | 0.0131 | 95% USL | 0.029 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -6.547 | 95% KM UTL (Lognormal)95% Coverage | 0.00678 |
| KM SD of Logged Data | 0.805 | 95% KM UPL (Lognormal) | 0.0055 |
| 95% KM Percentile Lognormal (z) | 0.00539 | 95% KM USL (Lognormal) | 0.0188 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00244 | Mean in Log Scale | -6.519 |
| SD in Original Scale | 0.00423 | SD in Log Scale | 0.765 |
| 95% UTL95% Coverage | 0.00646 | 95% UPL (t) | 0.00529 |
| 90% Percentile (z) | 0.00393 | 95% Percentile (z) | 0.00519 |
| 99% Percentile (z) | 0.00874 | 95% USL | 0.017 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 94 | 95% UTL with95% Coverage | 0.012 |
| Approx, f used to compute achieved CC | 1.649 | Approximate Actual Confidence Coefficient achieved by UTL | 0.864 |
| Approximate Sample Size needed to achieve specified CC | 93 | 95% UPL | 0.011 |
| 95% USL | 0.032 | 95% KM Chebyshev UPL | 0.0209 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (nickel | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [ps][pd])**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 105 | Number of Distinct Observations | 56 |
| Minimum | 1.2 | First Quartile | 6 |
| Second Largest | 13 | Median | 7.8 |
| Maximum | 23 | Third Quartile | 9.4 |
| Mean | 7.776 | SD | 2.797 |
| Coefficient of Variation | 0.36 | Skewness | 1.433 |
| Mean of logged Data | 1.984 | SD of logged Data | 0.387 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.916 | d2max (for USL) | 3.226 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.93 | **Normal GOF Test** |
| 1% Shapiro Wilk P Value | 1.1565E-5 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.108 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.1 | Data Not Normal at 1% Significance Level |

Data Not Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 13.13 | 90% Percentile (z) | 11.36 |
| 95% UPL (t) | 12.44 | 95% Percentile (z) | 12.38 |
| 95% USL | 16.8 | 99% Percentile (z) | 14.28 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.967 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.753 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.0942 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.0882 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 7.671 | k star (bias corrected MLE) | 7.458 |
| Theta hat (MLE) | 1.014 | Theta star (bias corrected MLE) | 1.043 |
| nu hat (MLE) | 1611 | nu star (bias corrected) | 1566 |
| MLE Mean (bias corrected) | 7.776 | MLE Sd (bias corrected) | 2.847 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 12.99 | 90% Percentile | 11.58 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 13.15 | 95% Percentile | 12.97 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 14 | 99% Percentile | 15.88 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 14.24 | | |
| 95% WH USL | 20.18 | 95% HW USL | 21.07 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.943 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk P Value | 3.6837E-4 | Data Not Lognormal at 10% Significance Level |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Lilliefors Test Statistic | 0.101 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.0794 | Data Not Lognormal at 10% Significance Level | |

Data Not Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 15.28 | 90% Percentile (z) | 11.95 |
| | 95% UPL (t) | 13.87 | 95% Percentile (z) | 13.75 |
| | 95% USL | 25.37 | 99% Percentile (z) | 17.91 |

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| Order of Statistic, order | | 104 | 95% UTL with | 95% Coverage | 13 |
| Approx, f used to compute achieved CC | | 1.807 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.901 |
| | | | Approximate Sample Size needed to achieve specified CC | | 93 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 13 | 95% BCA Bootstrap UTL with | 95% Coverage | 13 |
| | 95% UPL | 12 | | 90% Percentile | 10.6 |
| | 90% Chebyshev UPL | 16.21 | | 95% Percentile | 11.8 |
| | 95% Chebyshev UPL | 20.02 | | 99% Percentile | 13 |
| | 95% USL | 23 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (nickel | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Distinct Observations | 23 |
| Minimum | 1.8 | First Quartile | 3.925 |
| Second Largest | 9.6 | Median | 5.3 |
| Maximum | 11 | Third Quartile | 6.775 |
| Mean | 5.558 | SD | 2.393 |
| Coefficient of Variation | 0.43 | Skewness | 0.541 |
| Mean of logged Data | 1.619 | SD of logged Data | 0.464 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.969 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.884 | Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.101 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.205 | Data appear Normal at 1% Significance Level | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Data appear Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 11.08 | 90% Percentile (z) | 8.625 |
| | 95% UPL (t) | 9.744 | 95% Percentile (z) | 9.494 |
| | 95% USL | 11.88 | 99% Percentile (z) | 11.12 |

**Gamma GOF Test**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 0.116 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.746 | Detected data appear Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.065 | **Kolmogorov-Smirnov Gamma GOF Test** | |
| 5% K-S Critical Value | 0.178 | Detected data appear Gamma Distributed at 5% Significance Level | |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 5.365 | k star (bias corrected MLE) | 4.722 |
| Theta hat (MLE) | 1.036 | Theta star (bias corrected MLE) | 1.177 |
| nu hat (MLE) | 257.5 | nu star (bias corrected) | 226.7 |
| MLE Mean (bias corrected) | 5.558 | MLE Sd (bias corrected) | 2.558 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 10.51 | 90% Percentile | 8.984 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 10.68 | 95% Percentile | 10.32 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 12.75 | 99% Percentile | 13.16 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 13.13 | | |
| 95% WH USL | 14.23 | 95% HW USL | 14.78 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.975 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.93 | Data appear Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.0917 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.162 | Data appear Lognormal at 10% Significance Level | |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 14.74 | 90% Percentile (z) | 9.151 |
| | 95% UPL (t) | 11.37 | 95% Percentile (z) | 10.83 |
| | 95% USL | 17.22 | 99% Percentile (z) | 14.86 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 24 | 95% UTL with 95% Coverage | 11 |
| Approx, f used to compute achieved CC | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.708 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 11 | 95% BCA Bootstrap UTL with 95% Coverage | 11 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% UPL | 10.65 | 90% Percentile | 8.92 |
| 90% Chebyshev UPL | 12.88 | 95% Percentile | 9.525 |
| 95% Chebyshev UPL | 16.2 | 99% Percentile | 10.68 |
| 95% USL | 11 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (phenanthrene | [subsurface soil_1_5][subsurface soil_5_10] | [psc][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 38 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 17 | | |
| Number of Detects | 7 | Number of Non-Detects | 31 |
| Number of Distinct Detects | 6 | Number of Distinct Non-Detects | 12 |
| Minimum Detect | 0.0031 | Minimum Non-Detect | 0.0064 |
| Maximum Detect | 0.012 | Maximum Non-Detect | 0.0082 |
| Variance Detected | 1.4313E-5 | Percent Non-Detects | 81.58% |
| Mean Detected | 0.00716 | SD Detected | 0.00378 |
| Mean of Detected Logged Data | -5.073 | SD of Detected Logged Data | 0.571 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.132 | d2max (for USL) | 2.846 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.861 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.73 | Detected Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.241 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.35 | Detected Data appear Normal at 1% Significance Level | |

Detected Data appear Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00468 | KM SD | 0.00218 |
| 95% UTL95% Coverage | 0.00932 | 95% KM UPL (t) | 0.0084 |
| 90% KM Percentile (z) | 0.00747 | 95% KM Percentile (z) | 0.00826 |
| 99% KM Percentile (z) | 0.00974 | 95% KM USL | 0.0109 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00431 | SD | 0.00206 |
| 95% UTL95% Coverage | 0.0087 | 95% UPL (t) | 0.00783 |
| 90% Percentile (z) | 0.00695 | 95% Percentile (z) | 0.0077 |
| 99% Percentile (z) | 0.0091 | 95% USL | 0.0102 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.525 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.71 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.259 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.313 | Detected data appear Gamma Distributed at 5% Significance Level |

**Detected data appear Gamma Distributed at 5% Significance Level**

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 3.907 | k star (bias corrected MLE) | 2.328 |
| Theta hat (MLE) | 0.00183 | Theta star (bias corrected MLE) | 0.00307 |
| nu hat (MLE) | 54.7 | nu star (bias corrected) | 32.59 |
| MLE Mean (bias corrected) | 0.00716 | | |
| MLE Sd (bias corrected) | 0.00469 | 95% Percentile of Chisquare (2kstar) | 10.53 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0031 | Mean | 0.00948 |
| Maximum | 0.012 | Median | 0.01 |
| SD | 0.00189 | CV | 0.199 |
| k hat (MLE) | 15.6 | k star (bias corrected MLE) | 14.39 |
| Theta hat (MLE) | 6.0748E-4 | Theta star (bias corrected MLE) | 6.5875E-4 |
| nu hat (MLE) | 1186 | nu star (bias corrected) | 1093 |
| MLE Mean (bias corrected) | 0.00948 | MLE Sd (bias corrected) | 0.0025 |
| 95% Percentile of Chisquare (2kstar) | 42.28 | 90% Percentile | 0.0128 |
| 95% Percentile | 0.0139 | 99% Percentile | 0.0162 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0154 | 0.0157 | 95% Approx. Gamma UPL | 0.014 | 0.0142 |
| 95% Gamma USL | 0.0179 | 0.0185 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00468 | SD (KM) | 0.00218 |
| Variance (KM) | 4.7445E-6 | SE of Mean (KM) | 6.1977E-4 |
| k hat (KM) | 4.607 | k star (KM) | 4.261 |
| nu hat (KM) | 350.2 | nu star (KM) | 323.9 |
| theta hat (KM) | 0.00101 | theta star (KM) | 0.0011 |
| 80% gamma percentile (KM) | 0.0064 | 90% gamma percentile (KM) | 0.00771 |
| 95% gamma percentile (KM) | 0.00891 | 99% gamma percentile (KM) | 0.0115 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | | | |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.00931 | 0.00933 | 95% Approx. Gamma UPL | 0.00815 | 0.00812 |
| 95% KM Gamma Percentile | 0.00798 | 0.00795 | 95% Gamma USL | 0.0115 | 0.0117 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.867 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.838 | Detected Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.238 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.28 | Detected Data appear Lognormal at 10% Significance Level |

Detected Data appear Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00475 | Mean in Log Scale | -5.423 |
| SD in Original Scale | 0.00214 | SD in Log Scale | 0.366 |
| 95% UTL95% Coverage | 0.00962 | 95% BCA UTL95% Coverage | 0.012 |
| 95% Bootstrap (%) UTL95% Coverage | 0.012 | 95% UPL (t) | 0.00824 |
| 90% Percentile (z) | 0.00705 | 95% Percentile (z) | 0.00805 |
| 99% Percentile (z) | 0.0103 | 95% USL | 0.0125 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -5.443 | 95% KM UTL (Lognormal)95% Coverage | 0.0094 |
| KM SD of Logged Data | 0.364 | 95% KM UPL (Lognormal) | 0.00806 |
| 95% KM Percentile Lognormal (z) | 0.00787 | 95% KM USL (Lognormal) | 0.0122 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00431 | Mean in Log Scale | -5.51 |
| SD in Original Scale | 0.00206 | SD in Log Scale | 0.316 |
| 95% UTL95% Coverage | 0.00794 | 95% UPL (t) | 0.00694 |
| 90% Percentile (z) | 0.00607 | 95% Percentile (z) | 0.0068 |
| 99% Percentile (z) | 0.00844 | 95% USL | 0.00995 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 38 | 95% UTL with95% Coverage | 0.012 |
| Approx, f used to compute achieved CC | 2 | Approximate Actual Confidence Coefficient achieved by UTL | 0.858 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.0111 |
| 95% USL | 0.012 | 95% KM Chebyshev UPL | 0.0143 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (phenanthrene | [surface soil] | [psc][pd])**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 19 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 16 | | |
| Number of Detects | 18 | Number of Non-Detects | 1 |
| Number of Distinct Detects | 16 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | 0.0029 | Minimum Non-Detect | 0.0078 |
| Maximum Detect | 0.31 | Maximum Non-Detect | 0.0078 |
| Variance Detected | 0.00661 | Percent Non-Detects | 5.263% |
| Mean Detected | 0.0381 | SD Detected | 0.0813 |
| Mean of Detected Logged Data | -4.532 | SD of Detected Logged Data | 1.385 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.423 | d2max (for USL) | 2.531 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.492 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.858 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.408 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.235 | Data Not Normal at 1% Significance Level | |

**Data Not Normal at 1% Significance Level**

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0364 | KM SD | 0.0773 |
| 95% UTL95% Coverage | 0.224 | 95% KM UPL (t) | 0.174 |
| 90% KM Percentile (z) | 0.135 | 95% KM Percentile (z) | 0.163 |
| 99% KM Percentile (z) | 0.216 | 95% KM USL | 0.232 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0363 | SD | 0.0794 |
| 95% UTL95% Coverage | 0.229 | 95% UPL (t) | 0.178 |
| 90% Percentile (z) | 0.138 | 95% Percentile (z) | 0.167 |
| 99% Percentile (z) | 0.221 | 95% USL | 0.237 |

**DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons**

**Gamma GOF Tests on Detected Observations Only**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 2.625 | **Anderson-Darling GOF Test** | |
| 5% A-D Critical Value | 0.8 | Data Not Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.37 | **Kolmogorov-Smirnov GOF** | |
| 5% K-S Critical Value | 0.215 | Data Not Gamma Distributed at 5% Significance Level | |

**Data Not Gamma Distributed at 5% Significance Level**

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.502 | k star (bias corrected MLE) | 0.455 |
| Theta hat (MLE) | 0.0759 | Theta star (bias corrected MLE) | 0.0837 |
| nu hat (MLE) | 18.07 | nu star (bias corrected) | 16.39 |
| MLE Mean (bias corrected) | 0.0381 | | |

| | | | |
|---|---|---|---|
| MLE Sd (bias corrected) | 0.0565 | 95% Percentile of Chisquare (2kstar) | 3.616 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0029 | Mean | 0.0366 |
| Maximum | 0.31 | Median | 0.0071 |
| SD | 0.0793 | CV | 2.164 |
| k hat (MLE) | 0.515 | k star (bias corrected MLE) | 0.468 |
| Theta hat (MLE) | 0.0712 | Theta star (bias corrected MLE) | 0.0782 |
| nu hat (MLE) | 19.55 | nu star (bias corrected) | 17.8 |
| MLE Mean (bias corrected) | 0.0366 | MLE Sd (bias corrected) | 0.0535 |
| 95% Percentile of Chisquare (2kstar) | 3.683 | 90% Percentile | 0.1 |
| 95% Percentile | 0.144 | 99% Percentile | 0.252 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.224 | 0.23 | 95% Approx. Gamma UPL | 0.134 | 0.129 |
| 95% Gamma USL | 0.243 | 0.251 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0364 | SD (KM) | 0.0773 |
| Variance (KM) | 0.00597 | SE of Mean (KM) | 0.0182 |
| k hat (KM) | 0.221 | k star (KM) | 0.221 |
| nu hat (KM) | 8.411 | nu star (KM) | 8.416 |
| theta hat (KM) | 0.164 | theta star (KM) | 0.164 |
| 80% gamma percentile (KM) | 0.0503 | 90% gamma percentile (KM) | 0.11 |
| 95% gamma percentile (KM) | 0.182 | 99% gamma percentile (KM) | 0.378 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.214 | 0.217 | 95% Approx. Gamma UPL | 0.128 | 0.123 |
| 95% KM Gamma Percentile | 0.114 | 0.107 | 95% Gamma USL | 0.231 | 0.238 |

**Lognormal GOF Test on Detected Observations Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.791 | **Shapiro Wilk GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.914 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.271 | **Lilliefors GOF Test** | |
| 10% Lilliefors Critical Value | 0.185 | Data Not Lognormal at 10% Significance Level | |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0364 | Mean in Log Scale | -4.574 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| SD in Original Scale | 0.0794 | SD in Log Scale | 1.358 |
| 95% UTL95% Coverage | 0.277 | 95% BCA UTL95% Coverage | 0.31 |
| 95% Bootstrap (%) UTL95% Coverage | 0.31 | 95% UPL (t) | 0.116 |
| 90% Percentile (z) | 0.0588 | 95% Percentile (z) | 0.0963 |
| 99% Percentile (z) | 0.243 | 95% USL | 0.321 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -4.578 | 95% KM UTL (Lognormal)95% Coverage | 0.255 |
| KM SD of Logged Data | 1.326 | 95% KM UPL (Lognormal) | 0.109 |
| 95% KM Percentile Lognormal (z) | 0.091 | 95% KM USL (Lognormal) | 0.295 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0363 | Mean in Log Scale | -4.585 |
| SD in Original Scale | 0.0794 | SD in Log Scale | 1.366 |
| 95% UTL95% Coverage | 0.279 | 95% UPL (t) | 0.116 |
| 90% Percentile (z) | 0.0587 | 95% Percentile (z) | 0.0964 |
| 99% Percentile (z) | 0.245 | 95% USL | 0.324 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 19 | 95% UTL with95% Coverage | 0.31 |
| Approx, f used to compute achieved CC | 1 | Approximate Actual Confidence Coefficient achieved by UTL | 0.623 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.31 |
| 95% USL | 0.31 | 95% KM Chebyshev UPL | 0.382 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (phenanthrene | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [ps])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 72 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 34 | | |
| Number of Detects | 28 | Number of Non-Detects | 44 |
| Number of Distinct Detects | 20 | Number of Distinct Non-Detects | 17 |
| Minimum Detect | 0.0027 | Minimum Non-Detect | 0.0067 |
| Maximum Detect | 0.086 | Maximum Non-Detect | 0.0088 |
| Variance Detected | 2.5118E-4 | Percent Non-Detects | 61.11% |
| Mean Detected | 0.0115 | SD Detected | 0.0158 |
| Mean of Detected Logged Data | -4.816 | SD of Detected Logged Data | 0.715 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.98 | d2max (for USL) | 3.094 |

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.455 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.896 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.405 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.191 | Data Not Normal at 1% Significance Level |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00742 | KM SD | 0.0103 |
| 95% UTL95% Coverage | 0.0278 | 95% KM UPL (t) | 0.0247 |
| 90% KM Percentile (z) | 0.0206 | 95% KM Percentile (z) | 0.0243 |
| 99% KM Percentile (z) | 0.0314 | 95% KM USL | 0.0393 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00673 | SD | 0.0105 |
| 95% UTL95% Coverage | 0.0275 | 95% UPL (t) | 0.0243 |
| 90% Percentile (z) | 0.0202 | 95% Percentile (z) | 0.024 |
| 99% Percentile (z) | 0.0312 | 95% USL | 0.0392 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 2.273 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.762 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.308 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.168 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.571 | k star (bias corrected MLE) | 1.427 |
| Theta hat (MLE) | 0.00732 | Theta star (bias corrected MLE) | 0.00806 |
| nu hat (MLE) | 88 | nu star (bias corrected) | 79.9 |
| MLE Mean (bias corrected) | 0.0115 | | |
| MLE Sd (bias corrected) | 0.00962 | 95% Percentile of Chisquare (2kstar) | 7.559 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0027 | Mean | 0.0106 |
| Maximum | 0.086 | Median | 0.01 |
| SD | 0.0098 | CV | 0.926 |
| k hat (MLE) | 3.762 | k star (bias corrected MLE) | 3.615 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Theta hat (MLE) | 0.00281 | Theta star (bias corrected MLE) | 0.00293 |
| nu hat (MLE) | 541.8 | nu star (bias corrected) | 520.5 |
| MLE Mean (bias corrected) | 0.0106 | MLE Sd (bias corrected) | 0.00557 |
| 95% Percentile of Chisquare (2kstar) | 14.4 | 90% Percentile | 0.018 |
| 95% Percentile | 0.0211 | 99% Percentile | 0.0276 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0233 | 0.0229 | 95% Approx. Gamma UPL | 0.0206 | 0.0202 |
| 95% Gamma USL | 0.0349 | 0.035 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00742 | SD (KM) | 0.0103 |
| Variance (KM) | 1.0597E-4 | SE of Mean (KM) | 0.00126 |
| k hat (KM) | 0.519 | k star (KM) | 0.507 |
| nu hat (KM) | 74.76 | nu star (KM) | 72.98 |
| theta hat (KM) | 0.0143 | theta star (KM) | 0.0146 |
| 80% gamma percentile (KM) | 0.0122 | 90% gamma percentile (KM) | 0.02 |
| 95% gamma percentile (KM) | 0.0284 | 99% gamma percentile (KM) | 0.0489 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0194 | 0.0188 | 95% Approx. Gamma UPL | 0.0167 | 0.0161 |
| 95% KM Gamma Percentile | 0.0164 | 0.0158 | 95% Gamma USL | 0.0319 | 0.0318 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.883 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.936 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.227 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.151 | Data Not Lognormal at 10% Significance Level |

**Data Not Lognormal at 10% Significance Level**

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0073 | Mean in Log Scale | -5.183 |
| SD in Original Scale | 0.0104 | SD in Log Scale | 0.578 |
| 95% UTL95% Coverage | 0.0176 | 95% BCA UTL95% Coverage | 0.0141 |
| 95% Bootstrap (%) UTL95% Coverage | 0.035 | 95% UPL (t) | 0.0148 |
| 90% Percentile (z) | 0.0118 | 95% Percentile (z) | 0.0145 |
| 99% Percentile (z) | 0.0215 | 95% USL | 0.0336 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -5.161 | 95% KM UTL (Lognormal)95% Coverage | 0.0177 |
| KM SD of Logged Data | 0.57 | 95% KM UPL (Lognormal) | 0.0149 |
| 95% KM Percentile Lognormal (z) | 0.0147 | 95% KM USL (Lognormal) | 0.0335 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00673 | Mean in Log Scale | -5.297 |
| SD in Original Scale | 0.0105 | SD in Log Scale | 0.588 |
| 95% UTL95% Coverage | 0.016 | 95% UPL (t) | 0.0134 |
| 90% Percentile (z) | 0.0106 | 95% Percentile (z) | 0.0132 |
| 99% Percentile (z) | 0.0196 | 95% USL | 0.0308 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 71 | 95% UTL with95% Coverage | 0.086 |
| Approx, f used to compute achieved CC | 1.868 | Approximate Actual Confidence Coefficient achieved by UTL | 0.881 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.0138 |
| 95% USL | 0.086 | 95% KM Chebyshev UPL | 0.0526 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (potassium | [subsurface soil_5_10] | [ps])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Distinct Observations | 19 |
| Minimum | 460 | First Quartile | 715 |
| Second Largest | 1800 | Median | 870 |
| Maximum | 2700 | Third Quartile | 1100 |
| Mean | 966.3 | SD | 477 |
| Coefficient of Variation | 0.494 | Skewness | 2.357 |
| Mean of logged Data | 6.787 | SD of logged Data | 0.404 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.771 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.884 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.265 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.205 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 2068 | 90% Percentile (z) | 1578 |
| 95% UPL (t) | 1801 | 95% Percentile (z) | 1751 |
| 95% USL | 2227 | 99% Percentile (z) | 2076 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.637 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.746 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.198 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.178 | Data Not Gamma Distributed at 5% Significance Level |

Detected data follow Appr. Gamma Distribution at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 5.933 | k star (bias corrected MLE) | 5.219 |
| Theta hat (MLE) | 162.9 | Theta star (bias corrected MLE) | 185.1 |
| nu hat (MLE) | 284.8 | nu star (bias corrected) | 250.5 |
| MLE Mean (bias corrected) | 966.3 | MLE Sd (bias corrected) | 423 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 1773 | 90% Percentile | 1532 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 1776 | 95% Percentile | 1750 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 2135 | 99% Percentile | 2210 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 2156 | | |
| 95% WH USL | 2373 | 95% HW USL | 2411 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.948 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.93 | Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.171 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.162 | Data Not Lognormal at 10% Significance Level |

Data appear Approximate Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 2252 | 90% Percentile (z) | 1487 |
| 95% UPL (t) | 1796 | 95% Percentile (z) | 1722 |
| 95% USL | 2578 | 99% Percentile (z) | 2268 |

**Nonparametric Distribution Free Background Statistics**

Data appear Approximate Gamma Distribution at 5% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 24 | 95% UTL with 95% Coverage | 2700 |
| Approx, f used to compute achieved CC | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.708 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 2700 | 95% BCA Bootstrap UTL with 95% Coverage | 2565 |
| 95% UPL | 2475 | 90% Percentile | 1310 |
| 90% Chebyshev UPL | 2427 | 95% Percentile | 1740 |
| 95% Chebyshev UPL | 3088 | 99% Percentile | 2493 |
| 95% USL | 2700 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (potassium | [surface soil][subsurface soil_1_5] | [ps])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 48 | Number of Distinct Observations | 34 |
| Minimum | 220 | First Quartile | 417.5 |
| Second Largest | 990 | Median | 525 |
| Maximum | 1700 | Third Quartile | 692.5 |
| Mean | 578.3 | SD | 241.9 |
| Coefficient of Variation | 0.418 | Skewness | 2.307 |
| Mean of logged Data | 6.292 | SD of logged Data | 0.361 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.069 | d2max (for USL) | 2.941 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.833 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.929 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.173 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.148 | Data Not Normal at 1% Significance Level |

Data Not Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 1079 | 90% Percentile (z) | 888.4 |
| | 95% UPL (t) | 988.5 | 95% Percentile (z) | 976.3 |
| | 95% USL | 1290 | 99% Percentile (z) | 1141 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.605 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.751 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.12 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.128 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 7.525 | k star (bias corrected MLE) | 7.069 |
| Theta hat (MLE) | 76.85 | Theta star (bias corrected MLE) | 81.81 |
| nu hat (MLE) | 722.4 | nu star (bias corrected) | 678.6 |
| MLE Mean (bias corrected) | 578.3 | MLE Sd (bias corrected) | 217.5 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 980.7 | 90% Percentile | 868.7 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 983 | 95% Percentile | 976.3 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | | | |
|---|---|---|---|---|---|
| 95% WH Approx. Gamma UTL with | 95% Coverage | 1098 | | 99% Percentile | 1200 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 1106 | | | |
| | 95% WH USL | 1408 | | 95% HW USL | 1437 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.982 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.954 | Data appear Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.0942 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.117 | Data appear Lognormal at 10% Significance Level | |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 1140 | | 90% Percentile (z) | 858 |
| | 95% UPL (t) | 996.2 | | 95% Percentile (z) | 978.2 |
| | 95% USL | 1561 | | 99% Percentile (z) | 1251 |

**Nonparametric Distribution Free Background Statistics**

Data appear Gamma Distributed at 5% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| Order of Statistic, order | | 48 | 95% UTL with | 95% Coverage | 1700 |
| Approx, f used to compute achieved CC | | 2.526 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.915 |
| | | | Approximate Sample Size needed to achieve specified CC | | 59 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 1452 | 95% BCA Bootstrap UTL with | 95% Coverage | 1441 |
| | 95% UPL | 976.5 | | 90% Percentile | 828 |
| | 90% Chebyshev UPL | 1312 | | 95% Percentile | 932 |
| | 95% Chebyshev UPL | 1644 | | 99% Percentile | 1366 |
| | 95% USL | 1700 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (potassium | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 57 | Number of Distinct Observations | 44 |
| Minimum | 200 | First Quartile | 440 |
| Second Largest | 1400 | Median | 530 |
| Maximum | 1500 | Third Quartile | 770 |
| Mean | 614.4 | SD | 270.5 |
| Coefficient of Variation | 0.44 | Skewness | 1.137 |
| Mean of logged Data | 6.331 | SD of logged Data | 0.429 |

**Critical Values for Background Threshold Values (BTVs)**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.028 | d2max (for USL) | 3.007 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.918 | **Normal GOF Test** | |
| 1% Shapiro Wilk P Value | 6.8096E-4 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.144 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.135 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 1163 | 90% Percentile (z) | 961.1 |
| | 95% UPL (t) | 1071 | 95% Percentile (z) | 1059 |
| | 95% USL | 1428 | 99% Percentile (z) | 1244 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.381 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.753 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.0936 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.118 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 5.729 | k star (bias corrected MLE) | 5.439 |
| Theta hat (MLE) | 107.2 | Theta star (bias corrected MLE) | 113 |
| nu hat (MLE) | 653.1 | nu star (bias corrected) | 620.1 |
| MLE Mean (bias corrected) | 614.4 | MLE Sd (bias corrected) | 263.4 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 1108 | 90% Percentile | 966.9 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 1118 | 95% Percentile | 1102 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 1244 | 99% Percentile | 1386 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 1263 | | |
| 95% WH USL | 1696 | 95% HW USL | 1759 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.984 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk P Value | 0.832 | Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.0652 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.107 | Data appear Lognormal at 10% Significance Level |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 1342 | 90% Percentile (z) | 973.7 |
| | 95% UPL (t) | 1159 | 95% Percentile (z) | 1138 |
| | 95% USL | 2043 | 99% Percentile (z) | 1525 |

**Nonparametric Distribution Free Background Statistics**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Data appear Gamma Distributed at 5% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 57 | 95% UTL with 95% Coverage | 1500 |
| Approx, f used to compute achieved CC | 3 | Approximate Actual Confidence Coefficient achieved by UTL | 0.946 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 1420 | 95% BCA Bootstrap UTL with 95% Coverage | 1400 |
| 95% UPL | 1130 | 90% Percentile | 948 |
| 90% Chebyshev UPL | 1433 | 95% Percentile | 1020 |
| 95% Chebyshev UPL | 1804 | 99% Percentile | 1444 |
| 95% USL | 1500 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (pyrene | [subsurface soil_1_5][subsurface soil_5_10] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 86 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 27 | | |
| Number of Detects | 15 | Number of Non-Detects | 71 |
| Number of Distinct Detects | 12 | Number of Distinct Non-Detects | 17 |
| Minimum Detect | 0.0026 | Minimum Non-Detect | 0.0064 |
| Maximum Detect | 0.14 | Maximum Non-Detect | 0.0082 |
| Variance Detected | 0.00117 | Percent Non-Detects | 82.56% |
| Mean Detected | 0.0169 | SD Detected | 0.0342 |
| Mean of Detected Logged Data | -4.714 | SD of Detected Logged Data | 0.893 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.948 | d2max (for USL) | 3.157 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.367 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.835 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.49 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.255 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.00686 | KM SD | 0.0146 |
| 95% UTL95% Coverage | 0.0353 | 95% KM UPL (t) | 0.0313 |
| 90% KM Percentile (z) | 0.0256 | 95% KM Percentile (z) | 0.0309 |
| 99% KM Percentile (z) | 0.0408 | 95% KM USL | 0.053 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.00596 | SD | 0.0148 |
| 95% UTL95% Coverage | 0.0347 | 95% UPL (t) | 0.0307 |
| 90% Percentile (z) | 0.0249 | 95% Percentile (z) | 0.0303 |
| 99% Percentile (z) | 0.0403 | 95% USL | 0.0526 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 2.374 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.767 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.414 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.229 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.92 | k star (bias corrected MLE) | 0.78 |
| Theta hat (MLE) | 0.0184 | Theta star (bias corrected MLE) | 0.0217 |
| nu hat (MLE) | 27.59 | nu star (bias corrected) | 23.41 |
| MLE Mean (bias corrected) | 0.0169 | | |
| MLE Sd (bias corrected) | 0.0191 | 95% Percentile of Chisquare (2kstar) | 5.108 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0026 | Mean | 0.0112 |
| Maximum | 0.14 | Median | 0.01 |
| SD | 0.0141 | CV | 1.261 |
| k hat (MLE) | 3.927 | k star (bias corrected MLE) | 3.798 |
| Theta hat (MLE) | 0.00285 | Theta star (bias corrected MLE) | 0.00295 |
| nu hat (MLE) | 675.5 | nu star (bias corrected) | 653.3 |
| MLE Mean (bias corrected) | 0.0112 | MLE Sd (bias corrected) | 0.00575 |
| 95% Percentile of Chisquare (2kstar) | 14.93 | 90% Percentile | 0.0189 |
| 95% Percentile | 0.022 | 99% Percentile | 0.0287 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0233 | 0.0222 | 95% Approx. Gamma UPL | 0.021 | 0.02 |
| 95% Gamma USL | 0.0356 | 0.0339 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.00686 | SD (KM) | 0.0146 |
| Variance (KM) | 2.1333E-4 | SE of Mean (KM) | 0.00171 |
| k hat (KM) | 0.221 | k star (KM) | 0.221 |
| nu hat (KM) | 37.97 | nu star (KM) | 37.97 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| theta hat (KM) | 0.0311 | theta star (KM) | 0.0311 |
| 80% gamma percentile (KM) | 0.00948 | 90% gamma percentile (KM) | 0.0207 |
| 95% gamma percentile (KM) | 0.0344 | 99% gamma percentile (KM) | 0.0716 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0177 | 0.0165 | 95% Approx. Gamma UPL | 0.0153 | 0.0143 |
| 95% KM Gamma Percentile | 0.0151 | 0.0141 | 95% Gamma USL | 0.0308 | 0.0293 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.781 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.901 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.305 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.202 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00661 | Mean in Log Scale | -5.357 |
| SD in Original Scale | 0.0148 | SD in Log Scale | 0.591 |
| 95% UTL95% Coverage | 0.0149 | 95% BCA UTL95% Coverage | 0.0118 |
| 95% Bootstrap (%) UTL95% Coverage | 0.012 | 95% UPL (t) | 0.0127 |
| 90% Percentile (z) | 0.0101 | 95% Percentile (z) | 0.0125 |
| 99% Percentile (z) | 0.0186 | 95% USL | 0.0305 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -5.282 | 95% KM UTL (Lognormal)95% Coverage | 0.0144 |
| KM SD of Logged Data | 0.535 | 95% KM UPL (Lognormal) | 0.0124 |
| 95% KM Percentile Lognormal (z) | 0.0123 | 95% KM USL (Lognormal) | 0.0275 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.00596 | Mean in Log Scale | -5.457 |
| SD in Original Scale | 0.0148 | SD in Log Scale | 0.502 |
| 95% UTL95% Coverage | 0.0113 | 95% UPL (t) | 0.00987 |
| 90% Percentile (z) | 0.00812 | 95% Percentile (z) | 0.00974 |
| 99% Percentile (z) | 0.0137 | 95% USL | 0.0208 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 85 | 95% UTL with95% Coverage | 0.14 |
| Approx, f used to compute achieved CC | 2.237 | Approximate Actual Confidence Coefficient achieved by UTL | 0.933 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.011 |
| 95% USL | 0.14 | 95% KM Chebyshev UPL | 0.0709 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (pyrene | [surface soil] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 43 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 30 | | |
| Number of Detects | 40 | Number of Non-Detects | 3 |
| Number of Distinct Detects | 29 | Number of Distinct Non-Detects | 2 |
| Minimum Detect | 0.0025 | Minimum Non-Detect | 0.0074 |
| Maximum Detect | 0.35 | Maximum Non-Detect | 0.008 |
| Variance Detected | 0.00789 | Percent Non-Detects | 6.977% |
| Mean Detected | 0.0449 | SD Detected | 0.0888 |
| Mean of Detected Logged Data | -4.025 | SD of Detected Logged Data | 1.161 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.097 | d2max (for USL) | 2.897 |

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.463 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.919 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.402 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.162 | Data Not Normal at 1% Significance Level |

**Data Not Normal at 1% Significance Level**

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0421 | KM SD | 0.0852 |
| 95% UTL95% Coverage | 0.221 | 95% KM UPL (t) | 0.187 |
| 90% KM Percentile (z) | 0.151 | 95% KM Percentile (z) | 0.182 |
| 99% KM Percentile (z) | 0.24 | 95% KM USL | 0.289 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0421 | SD | 0.0862 |
| 95% UTL95% Coverage | 0.223 | 95% UPL (t) | 0.189 |
| 90% Percentile (z) | 0.153 | 95% Percentile (z) | 0.184 |
| 99% Percentile (z) | 0.243 | 95% USL | 0.292 |

**DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons**

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 4.593 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.798 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.274 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.146 | Data Not Gamma Distributed at 5% Significance Level |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.66 | k star (bias corrected MLE) | 0.628 |
| Theta hat (MLE) | 0.068 | Theta star (bias corrected MLE) | 0.0716 |
| nu hat (MLE) | 52.84 | nu star (bias corrected) | 50.21 |
| MLE Mean (bias corrected) | 0.0449 | | |
| MLE Sd (bias corrected) | 0.0567 | 95% Percentile of Chisquare (2kstar) | 4.444 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0025 | Mean | 0.0425 |
| Maximum | 0.35 | Median | 0.013 |
| SD | 0.0861 | CV | 2.026 |
| k hat (MLE) | 0.67 | k star (bias corrected MLE) | 0.639 |
| Theta hat (MLE) | 0.0634 | Theta star (bias corrected MLE) | 0.0665 |
| nu hat (MLE) | 57.64 | nu star (bias corrected) | 54.95 |
| MLE Mean (bias corrected) | 0.0425 | MLE Sd (bias corrected) | 0.0532 |
| 95% Percentile of Chisquare (2kstar) | 4.495 | 90% Percentile | 0.109 |
| 95% Percentile | 0.149 | 99% Percentile | 0.247 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.182 | 0.179 | 95% Approx. Gamma UPL | 0.134 | 0.128 |
| 95% Gamma USL | 0.308 | 0.323 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0421 | SD (KM) | 0.0852 |
| Variance (KM) | 0.00726 | SE of Mean (KM) | 0.0132 |
| k hat (KM) | 0.245 | k star (KM) | 0.243 |
| nu hat (KM) | 21.03 | nu star (KM) | 20.9 |
| theta hat (KM) | 0.172 | theta star (KM) | 0.173 |
| 80% gamma percentile (KM) | 0.0606 | 90% gamma percentile (KM) | 0.127 |
| 95% gamma percentile (KM) | 0.206 | 99% gamma percentile (KM) | 0.417 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.18 | 0.177 | 95% Approx. Gamma UPL | 0.133 | 0.127 |
| 95% KM Gamma Percentile | 0.127 | 0.121 | 95% Gamma USL | 0.306 | 0.322 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.876 | **Shapiro Wilk GOF Test** |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 10% Shapiro Wilk Critical Value | 0.949 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.172 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.128 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.042 | Mean in Log Scale | -4.139 |
| SD in Original Scale | 0.0863 | SD in Log Scale | 1.196 |
| 95% UTL95% Coverage | 0.196 | 95% BCA UTL95% Coverage | 0.348 |
| 95% Bootstrap (%) UTL95% Coverage | 0.348 | 95% UPL (t) | 0.122 |
| 90% Percentile (z) | 0.0738 | 95% Percentile (z) | 0.114 |
| 99% Percentile (z) | 0.257 | 95% USL | 0.509 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -4.119 | 95% KM UTL (Lognormal)95% Coverage | 0.186 |
| KM SD of Logged Data | 1.161 | 95% KM UPL (Lognormal) | 0.117 |
| 95% KM Percentile Lognormal (z) | 0.11 | 95% KM USL (Lognormal) | 0.47 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0421 | Mean in Log Scale | -4.133 |
| SD in Original Scale | 0.0862 | SD in Log Scale | 1.187 |
| 95% UTL95% Coverage | 0.193 | 95% UPL (t) | 0.121 |
| 90% Percentile (z) | 0.0734 | 95% Percentile (z) | 0.113 |
| 99% Percentile (z) | 0.254 | 95% USL | 0.5 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 43 | 95% UTL with95% Coverage | 0.35 |
| Approx, f used to compute achieved CC | 2.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.89 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.33 |
| 95% USL | 0.35 | 95% KM Chebyshev UPL | 0.418 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (selenium | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 129 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 43 | | |
| Number of Detects | 64 | Number of Non-Detects | 65 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Number of Distinct Detects | 37 | Number of Distinct Non-Detects | 17 |
| Minimum Detect | 0.12 | Minimum Non-Detect | 0.27 |
| Maximum Detect | 0.87 | Maximum Non-Detect | 0.47 |
| Variance Detected | 0.0245 | Percent Non-Detects | 50.39% |
| Mean Detected | 0.312 | SD Detected | 0.157 |
| Mean of Detected Logged Data | -1.285 | SD of Detected Logged Data | 0.494 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.887 | d2max (for USL) | 3.294 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.905 | **Normal GOF Test on Detected Observations Only** | |
| 1% Shapiro Wilk P Value | 4.0606E-5 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.111 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.128 | Detected Data appear Normal at 1% Significance Level | |

Detected Data appear Approximate Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.264 | KM SD | 0.131 |
| 95% UTL95% Coverage | 0.511 | 95% KM UPL (t) | 0.482 |
| 90% KM Percentile (z) | 0.432 | 95% KM Percentile (z) | 0.479 |
| 99% KM Percentile (z) | 0.568 | 95% KM USL | 0.695 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.252 | SD | 0.126 |
| 95% UTL95% Coverage | 0.489 | 95% UPL (t) | 0.461 |
| 90% Percentile (z) | 0.413 | 95% Percentile (z) | 0.459 |
| 99% Percentile (z) | 0.545 | 95% USL | 0.666 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 0.674 | **Anderson-Darling GOF Test** | |
| 5% A-D Critical Value | 0.754 | Detected data appear Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.0918 | **Kolmogorov-Smirnov GOF** | |
| 5% K-S Critical Value | 0.112 | Detected data appear Gamma Distributed at 5% Significance Level | |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 4.371 | k star (bias corrected MLE) | 4.177 |
| Theta hat (MLE) | 0.0713 | Theta star (bias corrected MLE) | 0.0746 |
| nu hat (MLE) | 559.5 | nu star (bias corrected) | 534.6 |
| MLE Mean (bias corrected) | 0.312 | | |
| MLE Sd (bias corrected) | 0.152 | 95% Percentile of Chisquare (2kstar) | 16.01 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.102 | Mean | 0.264 |
| Maximum | 0.87 | Median | 0.235 |
| SD | 0.128 | CV | 0.487 |
| k hat (MLE) | 5.189 | k star (bias corrected MLE) | 5.073 |
| Theta hat (MLE) | 0.0508 | Theta star (bias corrected MLE) | 0.052 |
| nu hat (MLE) | 1339 | nu star (bias corrected) | 1309 |
| MLE Mean (bias corrected) | 0.264 | MLE Sd (bias corrected) | 0.117 |
| 95% Percentile of Chisquare (2kstar) | 18.51 | 90% Percentile | 0.42 |
| 95% Percentile | 0.481 | 99% Percentile | 0.609 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.521 | 0.526 | 95% Approx. Gamma UPL | 0.481 | 0.484 |
| 95% Gamma USL | 0.823 | 0.857 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.264 | SD (KM) | 0.131 |
| Variance (KM) | 0.0171 | SE of Mean (KM) | 0.0134 |
| k hat (KM) | 4.095 | k star (KM) | 4.005 |
| nu hat (KM) | 1056 | nu star (KM) | 1033 |
| theta hat (KM) | 0.0646 | theta star (KM) | 0.066 |
| 80% gamma percentile (KM) | 0.365 | 90% gamma percentile (KM) | 0.442 |
| 95% gamma percentile (KM) | 0.512 | 99% gamma percentile (KM) | 0.664 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.528 | 0.533 | 95% Approx. Gamma UPL | 0.487 | 0.489 |
| 95% KM Gamma Percentile | 0.484 | 0.486 | 95% Gamma USL | 0.84 | 0.875 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Approximate Test Statistic | 0.956 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk P Value | 0.0508 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.113 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.101 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.264 | Mean in Log Scale | -1.422 |
| SD in Original Scale | 0.126 | SD in Log Scale | 0.414 |
| 95% UTL95% Coverage | 0.527 | 95% BCA UTL95% Coverage | 0.56 |
| 95% Bootstrap (%) UTL95% Coverage | 0.57 | 95% UPL (t) | 0.48 |
| 90% Percentile (z) | 0.41 | 95% Percentile (z) | 0.476 |
| 99% Percentile (z) | 0.631 | 95% USL | 0.942 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -1.434 | 95% KM UTL (Lognormal)95% Coverage | 0.553 |
| KM SD of Logged Data | 0.447 | 95% KM UPL (Lognormal) | 0.501 |
| 95% KM Percentile Lognormal (z) | 0.497 | 95% KM USL (Lognormal) | 1.037 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.252 | Mean in Log Scale | -1.467 |
| SD in Original Scale | 0.126 | SD in Log Scale | 0.4 |
| 95% UTL95% Coverage | 0.49 | 95% UPL (t) | 0.448 |
| 90% Percentile (z) | 0.385 | 95% Percentile (z) | 0.445 |
| 99% Percentile (z) | 0.584 | 95% USL | 0.86 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 126 | 95% UTL with95% Coverage | 0.6 |
| Approx, f used to compute achieved CC | 1.658 | Approximate Actual Confidence Coefficient achieved by UTL | 0.891 |
| Approximate Sample Size needed to achieve specified CC | 124 | 95% UPL | 0.505 |
| 95% USL | 0.87 | 95% KM Chebyshev UPL | 0.836 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (silver | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 105 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 34 | | |
| Number of Detects | 22 | Number of Non-Detects | 83 |
| Number of Distinct Detects | 6 | Number of Distinct Non-Detects | 28 |
| Minimum Detect | 1.2 | Minimum Non-Detect | 0.46 |
| Maximum Detect | 1.8 | Maximum Non-Detect | 0.81 |
| Variance Detected | 0.0235 | Percent Non-Detects | 79.05% |
| Mean Detected | 1.459 | SD Detected | 0.153 |
| Mean of Detected Logged Data | 0.372 | SD of Detected Logged Data | 0.107 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.916 | d2max (for USL) | 3.226 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.928 | **Shapiro Wilk GOF Test** | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 1% Shapiro Wilk Critical Value | 0.878 | Detected Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.196 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.214 | Detected Data appear Normal at 1% Significance Level |

Detected Data appear Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.669 | KM SD | 0.412 |
| 95% UTL95% Coverage | 1.459 | 95% KM UPL (t) | 1.357 |
| 90% KM Percentile (z) | 1.198 | 95% KM Percentile (z) | 1.348 |
| 99% KM Percentile (z) | 1.629 | 95% KM USL | 2 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.545 | SD | 0.479 |
| 95% UTL95% Coverage | 1.463 | 95% UPL (t) | 1.344 |
| 90% Percentile (z) | 1.159 | 95% Percentile (z) | 1.333 |
| 99% Percentile (z) | 1.66 | 95% USL | 2.091 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.77 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.741 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.21 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.185 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 93.18 | k star (bias corrected MLE) | 80.51 |
| Theta hat (MLE) | 0.0157 | Theta star (bias corrected MLE) | 0.0181 |
| nu hat (MLE) | 4100 | nu star (bias corrected) | 3542 |
| MLE Mean (bias corrected) | 1.459 | | |
| MLE Sd (bias corrected) | 0.163 | 95% Percentile of Chisquare (2kstar) | 191.6 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.575 | Mean | 1.05 |
| Maximum | 1.8 | Median | 1.01 |
| SD | 0.257 | CV | 0.244 |
| k hat (MLE) | 18.04 | k star (bias corrected MLE) | 17.53 |
| Theta hat (MLE) | 0.0582 | Theta star (bias corrected MLE) | 0.0599 |
| nu hat (MLE) | 3789 | nu star (bias corrected) | 3682 |
| MLE Mean (bias corrected) | 1.05 | MLE Sd (bias corrected) | 0.251 |
| 95% Percentile of Chisquare (2kstar) | 49.88 | 90% Percentile | 1.381 |
| 95% Percentile | 1.493 | 99% Percentile | 1.719 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 1.575 | 1.581 | 95% Approx. Gamma UPL | 1.496 | 1.499 |
| 95% Gamma USL | 2.041 | 2.071 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.669 | SD (KM) | 0.412 |
| Variance (KM) | 0.17 | SE of Mean (KM) | 0.0412 |
| k hat (KM) | 2.635 | k star (KM) | 2.566 |
| nu hat (KM) | 553.4 | nu star (KM) | 538.9 |
| theta hat (KM) | 0.254 | theta star (KM) | 0.261 |
| 80% gamma percentile (KM) | 0.973 | 90% gamma percentile (KM) | 1.229 |
| 95% gamma percentile (KM) | 1.47 | 99% gamma percentile (KM) | 1.998 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 1.447 | 1.445 | 95% Approx. Gamma UPL | 1.31 | 1.304 |
| 95% KM Gamma Percentile | 1.298 | 1.291 | 95% Gamma USL | 2.326 | 2.393 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.92 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.926 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.212 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.169 | Data Not Lognormal at 10% Significance Level |

**Data Not Lognormal at 10% Significance Level**

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 1.095 | Mean in Log Scale | 0.0723 |
| SD in Original Scale | 0.223 | SD in Log Scale | 0.19 |
| 95% UTL95% Coverage | 1.548 | 95% BCA UTL95% Coverage | 1.6 |
| 95% Bootstrap (%) UTL95% Coverage | 1.6 | 95% UPL (t) | 1.477 |
| 90% Percentile (z) | 1.372 | 95% Percentile (z) | 1.47 |
| 99% Percentile (z) | 1.674 | 95% USL | 1.987 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -0.536 | 95% KM UTL (Lognormal)95% Coverage | 1.44 |
| KM SD of Logged Data | 0.47 | 95% KM UPL (Lognormal) | 1.281 |
| 95% KM Percentile Lognormal (z) | 1.268 | 95% KM USL (Lognormal) | 2.666 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.545 | Mean in Log Scale | -0.875 |
| SD in Original Scale | 0.479 | SD in Log Scale | 0.658 |
| 95% UTL95% Coverage | 1.47 | 95% UPL (t) | 1.249 |
| 90% Percentile (z) | 0.969 | 95% Percentile (z) | 1.23 |
| 99% Percentile (z) | 1.926 | 95% USL | 3.48 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 103 | 95% UTL with95% Coverage | 1.6 |
| Approx, f used to compute achieved CC | 1.807 | Approximate Actual Confidence Coefficient achieved by UTL | 0.901 |
| Approximate Sample Size needed to achieve specified CC | 93 | 95% UPL | 1.6 |
| 95% USL | 1.8 | 95% KM Chebyshev UPL | 2.475 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (silver | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 14 | | |
| Number of Detects | 2 | Number of Non-Detects | 22 |
| Number of Distinct Detects | 2 | Number of Distinct Non-Detects | 12 |
| Minimum Detect | 1.4 | Minimum Non-Detect | 0.52 |
| Maximum Detect | 1.5 | Maximum Non-Detect | 0.68 |
| Variance Detected | 0.005 | Percent Non-Detects | 91.67% |
| Mean Detected | 1.45 | SD Detected | 0.0707 |
| Mean of Detected Logged Data | 0.371 | SD of Detected Logged Data | 0.0488 |

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test on Detects Only**

Not Enough Data to Perform GOF Test

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.598 | KM SD | 0.257 |
| 95% UTL95% Coverage | 1.192 | 95% KM UPL (t) | 1.048 |
| 90% KM Percentile (z) | 0.927 | 95% KM Percentile (z) | 1.021 |
| 99% KM Percentile (z) | 1.196 | 95% KM USL | 1.278 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Mean | 0.395 | SD | 0.326 |
| 95% UTL95% Coverage | 1.148 | 95% UPL (t) | 0.966 |
| 90% Percentile (z) | 0.813 | 95% Percentile (z) | 0.932 |
| 99% Percentile (z) | 1.154 | 95% USL | 1.258 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

Not Enough Data to Perform GOF Test

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 840.7 | k star (bias corrected MLE) | N/A |
| Theta hat (MLE) | 0.00172 | Theta star (bias corrected MLE) | N/A |
| nu hat (MLE) | 3363 | nu star (bias corrected) | N/A |
| MLE Mean (bias corrected) | N/A | | |
| MLE Sd (bias corrected) | N/A | 95% Percentile of Chisquare (2kstar) | N/A |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.598 | SD (KM) | 0.257 |
| Variance (KM) | 0.0663 | SE of Mean (KM) | 0.0743 |
| k hat (KM) | 5.387 | k star (KM) | 4.741 |
| nu hat (KM) | 258.6 | nu star (KM) | 227.6 |
| theta hat (KM) | 0.111 | theta star (KM) | 0.126 |
| 80% gamma percentile (KM) | 0.808 | 90% gamma percentile (KM) | 0.965 |
| 95% gamma percentile (KM) | 1.108 | 99% gamma percentile (KM) | 1.412 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 1.127 | 1.118 | 95% Approx. Gamma UPL | 0.97 | 0.96 |
| 95% KM Gamma Percentile | 0.943 | 0.933 | 95% Gamma USL | 1.228 | 1.221 |

**Lognormal GOF Test on Detected Observations Only**

Not Enough Data to Perform GOF Test

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 1.014 | Mean in Log Scale | 0.0033 |
| SD in Original Scale | 0.158 | SD in Log Scale | 0.142 |
| 95% UTL95% Coverage | 1.392 | 95% BCA UTL95% Coverage | 1.5 |
| 95% Bootstrap (%) UTL95% Coverage | 1.5 | 95% UPL (t) | 1.286 |
| 90% Percentile (z) | 1.203 | 95% Percentile (z) | 1.267 |
| 99% Percentile (z) | 1.396 | 95% USL | 1.46 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -0.569 | 95% KM UTL (Lognormal)95% Coverage | 1.09 |
| KM SD of Logged Data | 0.283 | 95% KM UPL (Lognormal) | 0.93 |
| 95% KM Percentile Lognormal (z) | 0.903 | 95% KM USL (Lognormal) | 1.198 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.395 | Mean in Log Scale | -1.077 |
| SD in Original Scale | 0.326 | SD in Log Scale | 0.454 |
| 95% UTL95% Coverage | 0.971 | 95% UPL (t) | 0.753 |
| 90% Percentile (z) | 0.609 | 95% Percentile (z) | 0.718 |
| 99% Percentile (z) | 0.978 | 95% USL | 1.13 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 24 | 95% UTL with95% Coverage | 1.5 |
| Approx, f used to compute achieved CC | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.708 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 1.475 |
| 95% USL | 1.5 | 95% KM Chebyshev UPL | 1.743 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (sodium | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc][ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 129 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 34 | | |
| Number of Detects | 101 | Number of Non-Detects | 28 |
| Number of Distinct Detects | 24 | Number of Distinct Non-Detects | 10 |
| Minimum Detect | 380 | Minimum Non-Detect | 82 |
| Maximum Detect | 680 | Maximum Non-Detect | 130 |
| Variance Detected | 3535 | Percent Non-Detects | 21.71% |
| Mean Detected | 491.2 | SD Detected | 59.45 |
| Mean of Detected Logged Data | 6.19 | SD of Detected Logged Data | 0.121 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.887 | d2max (for USL) | 3.294 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.969 | **Normal GOF Test on Detected Observations Only** | |
| 1% Shapiro Wilk P Value | 0.109 | Detected Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.0788 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.102 | Detected Data appear Normal at 1% Significance Level | |

Detected Data appear Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| KM Mean | 402.4 | KM SD | 176.6 |
| 95% UTL95% Coverage | 735.6 | 95% KM UPL (t) | 696.1 |
| 90% KM Percentile (z) | 628.7 | 95% KM Percentile (z) | 692.9 |
| 99% KM Percentile (z) | 813.2 | 95% KM USL | 984.2 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 396.2 | SD | 188.7 |
| 95% UTL95% Coverage | 752.2 | 95% UPL (t) | 710 |
| 90% Percentile (z) | 637.9 | 95% Percentile (z) | 706.5 |
| 99% Percentile (z) | 835.1 | 95% USL | 1018 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.726 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.75 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.0935 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.0889 | Data Not Gamma Distributed at 5% Significance Level |

Detected data follow Appr. Gamma Distribution at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 69.28 | k star (bias corrected MLE) | 67.23 |
| Theta hat (MLE) | 7.09 | Theta star (bias corrected MLE) | 7.307 |
| nu hat (MLE) | 13994 | nu star (bias corrected) | 13579 |
| MLE Mean (bias corrected) | 491.2 | | |
| MLE Sd (bias corrected) | 59.91 | 95% Percentile of Chisquare (2kstar) | 162.5 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 317.1 | Mean | 464.6 |
| Maximum | 680 | Median | 480 |
| SD | 73.65 | CV | 0.159 |
| k hat (MLE) | 39.77 | k star (bias corrected MLE) | 38.85 |
| Theta hat (MLE) | 11.68 | Theta star (bias corrected MLE) | 11.96 |
| nu hat (MLE) | 10261 | nu star (bias corrected) | 10023 |
| MLE Mean (bias corrected) | 464.6 | MLE Sd (bias corrected) | 74.53 |
| 95% Percentile of Chisquare (2kstar) | 99.28 | 90% Percentile | 562.3 |
| 95% Percentile | 593.6 | 99% Percentile | 655.3 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 613.9 | 615.5 | 95% Approx. Gamma UPL | 594.2 | 595.3 |
| 95% Gamma USL | 748 | 754.7 | | | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 402.4 | SD (KM) | 176.6 |
| Variance (KM) | 31194 | SE of Mean (KM) | 15.63 |
| k hat (KM) | 5.19 | k star (KM) | 5.075 |
| nu hat (KM) | 1339 | nu star (KM) | 1309 |
| theta hat (KM) | 77.53 | theta star (KM) | 79.29 |
| 80% gamma percentile (KM) | 540 | 90% gamma percentile (KM) | 641.5 |
| 95% gamma percentile (KM) | 733.9 | 99% gamma percentile (KM) | 929.2 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 972.9 | 1035 | 95% Approx. Gamma UPL | 878.5 | 923.6 |
| 95% KM Gamma Percentile | 871 | 914.9 | 95% Gamma USL | 1726 | 1978 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Approximate Test Statistic | 0.969 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk P Value | 0.118 | Detected Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.102 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.0809 | Data Not Lognormal at 10% Significance Level |

**Detected Data appear Approximate Lognormal at 10% Significance Level**

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 465.8 | Mean in Log Scale | 6.132 |
| SD in Original Scale | 71.97 | SD in Log Scale | 0.155 |
| 95% UTL95% Coverage | 616.9 | 95% BCA UTL95% Coverage | 600 |
| 95% Bootstrap (%) UTL95% Coverage | 600 | 95% UPL (t) | 595.8 |
| 90% Percentile (z) | 561.5 | 95% Percentile (z) | 594.1 |
| 99% Percentile (z) | 660.4 | 95% USL | 767.5 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | 5.803 | 95% KM UTL (Lognormal)95% Coverage | 1345 |
| KM SD of Logged Data | 0.743 | 95% KM UPL (Lognormal) | 1139 |
| 95% KM Percentile Lognormal (z) | 1123 | 95% KM USL (Lognormal) | 3824 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 396.2 | Mean in Log Scale | 5.708 |
| SD in Original Scale | 188.7 | SD in Log Scale | 0.925 |
| 95% UTL95% Coverage | 1727 | 95% UPL (t) | 1404 |
| 90% Percentile (z) | 986.4 | 95% Percentile (z) | 1381 |
| 99% Percentile (z) | 2594 | 95% USL | 6352 |

**DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.**

**Nonparametric Distribution Free Background Statistics**

**Data appear to follow a Discernible Distribution**

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 126 | 95% UTL with95% Coverage | 610 |
| Approx, f used to compute achieved CC | 1.658 | Approximate Actual Confidence Coefficient achieved by UTL | 0.891 |
| Approximate Sample Size needed to achieve specified CC | 124 | 95% UPL | 585 |
| 95% USL | 680 | 95% KM Chebyshev UPL | 1175 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (thallium | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 105 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 43 | | |
| Number of Detects | 51 | Number of Non-Detects | 54 |
| Number of Distinct Detects | 36 | Number of Distinct Non-Detects | 18 |
| Minimum Detect | 0.025 | Minimum Non-Detect | 0.068 |
| Maximum Detect | 0.13 | Maximum Non-Detect | 0.13 |
| Variance Detected | 7.7884E-4 | Percent Non-Detects | 51.43% |
| Mean Detected | 0.076 | SD Detected | 0.0279 |
| Mean of Detected Logged Data | -2.651 | SD of Detected Logged Data | 0.402 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.916 | d2max (for USL) | 3.226 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.954 | **Normal GOF Test on Detected Observations Only** | |
| 1% Shapiro Wilk P Value | 0.0849 | Detected Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.101 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.143 | Detected Data appear Normal at 1% Significance Level | |

Detected Data appear Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0681 | KM SD | 0.0248 |
| 95% UTL95% Coverage | 0.116 | 95% KM UPL (t) | 0.109 |
| 90% KM Percentile (z) | 0.0998 | 95% KM Percentile (z) | 0.109 |
| 99% KM Percentile (z) | 0.126 | 95% KM USL | 0.148 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0624 | SD | 0.0239 |
| 95% UTL95% Coverage | 0.108 | 95% UPL (t) | 0.102 |
| 90% Percentile (z) | 0.0931 | 95% Percentile (z) | 0.102 |
| 99% Percentile (z) | 0.118 | 95% USL | 0.139 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.527 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.752 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.0935 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.124 | Detected data appear Gamma Distributed at 5% Significance Level |

**Detected data appear Gamma Distributed at 5% Significance Level**

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 6.951 | k star (bias corrected MLE) | 6.555 |
| Theta hat (MLE) | 0.0109 | Theta star (bias corrected MLE) | 0.0116 |
| nu hat (MLE) | 709 | nu star (bias corrected) | 668.6 |
| MLE Mean (bias corrected) | 0.076 | | |
| MLE Sd (bias corrected) | 0.0297 | 95% Percentile of Chisquare (2kstar) | 22.51 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.025 | Mean | 0.0681 |
| Maximum | 0.13 | Median | 0.064 |
| SD | 0.0228 | CV | 0.334 |
| k hat (MLE) | 9.496 | k star (bias corrected MLE) | 9.231 |
| Theta hat (MLE) | 0.00717 | Theta star (bias corrected MLE) | 0.00738 |
| nu hat (MLE) | 1994 | nu star (bias corrected) | 1939 |
| MLE Mean (bias corrected) | 0.0681 | MLE Sd (bias corrected) | 0.0224 |
| 95% Percentile of Chisquare (2kstar) | 29.46 | 90% Percentile | 0.0979 |
| 95% Percentile | 0.109 | 99% Percentile | 0.131 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.117 | 0.118 | 95% Approx. Gamma UPL | 0.109 | 0.11 |
| 95% Gamma USL | 0.163 | 0.168 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0681 | SD (KM) | 0.0248 |
| Variance (KM) | 6.1430E-4 | SE of Mean (KM) | 0.0031 |
| k hat (KM) | 7.543 | k star (KM) | 7.334 |
| nu hat (KM) | 1584 | nu star (KM) | 1540 |
| theta hat (KM) | 0.00902 | theta star (KM) | 0.00928 |
| 80% gamma percentile (KM) | 0.0878 | 90% gamma percentile (KM) | 0.102 |
| 95% gamma percentile (KM) | 0.114 | 99% gamma percentile (KM) | 0.14 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | | | |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.123 | 0.125 | 95% Approx. Gamma UPL | 0.114 | 0.115 |
| 95% KM Gamma Percentile | 0.114 | 0.115 | 95% Gamma USL | 0.179 | 0.186 |

**Lognormal GOF Test on Detected Observations Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Approximate Test Statistic | 0.951 | **Shapiro Wilk GOF Test** | |
| 10% Shapiro Wilk P Value | 0.0585 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.101 | **Lilliefors GOF Test** | |
| 10% Lilliefors Critical Value | 0.113 | Detected Data appear Lognormal at 10% Significance Level | |

**Detected Data appear Approximate Lognormal at 10% Significance Level**

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0674 | Mean in Log Scale | -2.752 |
| SD in Original Scale | 0.0229 | SD in Log Scale | 0.332 |
| 95% UTL95% Coverage | 0.12 | 95% BCA UTL95% Coverage | 0.11 |
| 95% Bootstrap (%) UTL95% Coverage | 0.128 | 95% UPL (t) | 0.111 |
| 90% Percentile (z) | 0.0976 | 95% Percentile (z) | 0.11 |
| 99% Percentile (z) | 0.138 | 95% USL | 0.186 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -2.756 | 95% KM UTL (Lognormal)95% Coverage | 0.131 |
| KM SD of Logged Data | 0.378 | 95% KM UPL (Lognormal) | 0.119 |
| 95% KM Percentile Lognormal (z) | 0.118 | 95% KM USL (Lognormal) | 0.215 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0624 | Mean in Log Scale | -2.836 |
| SD in Original Scale | 0.0239 | SD in Log Scale | 0.345 |
| 95% UTL95% Coverage | 0.114 | 95% UPL (t) | 0.104 |
| 90% Percentile (z) | 0.0913 | 95% Percentile (z) | 0.103 |
| 99% Percentile (z) | 0.131 | 95% USL | 0.178 |

**DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.**

**Nonparametric Distribution Free Background Statistics**

**Data appear to follow a Discernible Distribution**

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 103 | 95% UTL with95% Coverage | 0.13 |
| Approx, f used to compute achieved CC | 1.807 | Approximate Actual Confidence Coefficient achieved by UTL | 0.901 |
| Approximate Sample Size needed to achieve specified CC | 93 | 95% UPL | 0.127 |
| 95% USL | 0.13 | 95% KM Chebyshev UPL | 0.177 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (thallium | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc])**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 20 | | |
| Number of Detects | 12 | Number of Non-Detects | 12 |
| Number of Distinct Detects | 11 | Number of Distinct Non-Detects | 9 |
| Minimum Detect | 0.01 | Minimum Non-Detect | 0.081 |
| Maximum Detect | 0.095 | Maximum Non-Detect | 0.11 |
| Variance Detected | 4.6627E-4 | Percent Non-Detects | 50% |
| Mean Detected | 0.0419 | SD Detected | 0.0216 |
| Mean of Detected Logged Data | -3.3 | SD of Detected Logged Data | 0.559 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.913 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.805 | Detected Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.212 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.281 | Detected Data appear Normal at 1% Significance Level | |

Detected Data appear Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0403 | KM SD | 0.0188 |
| 95% UTL95% Coverage | 0.0837 | 95% KM UPL (t) | 0.0731 |
| 90% KM Percentile (z) | 0.0644 | 95% KM Percentile (z) | 0.0712 |
| 99% KM Percentile (z) | 0.084 | 95% KM USL | 0.0899 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0451 | SD | 0.0157 |
| 95% UTL95% Coverage | 0.0812 | 95% UPL (t) | 0.0725 |
| 90% Percentile (z) | 0.0652 | 95% Percentile (z) | 0.0708 |
| 99% Percentile (z) | 0.0815 | 95% USL | 0.0865 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 0.279 | **Anderson-Darling GOF Test** | |
| 5% A-D Critical Value | 0.736 | Detected data appear Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.146 | **Kolmogorov-Smirnov GOF** | |
| 5% K-S Critical Value | 0.246 | Detected data appear Gamma Distributed at 5% Significance Level | |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 4.067 | k star (bias corrected MLE) | 3.106 |
| Theta hat (MLE) | 0.0103 | Theta star (bias corrected MLE) | 0.0135 |
| nu hat (MLE) | 97.61 | nu star (bias corrected) | 74.54 |
| MLE Mean (bias corrected) | 0.0419 | | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| MLE Sd (bias corrected) | 0.0238 | 95% Percentile of Chisquare (2kstar) | 12.91 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.01 | Mean | 0.0395 |
| Maximum | 0.095 | Median | 0.0368 |
| SD | 0.0159 | CV | 0.402 |
| k hat (MLE) | 6.944 | k star (bias corrected MLE) | 6.104 |
| Theta hat (MLE) | 0.00569 | Theta star (bias corrected MLE) | 0.00648 |
| nu hat (MLE) | 333.3 | nu star (bias corrected) | 293 |
| MLE Mean (bias corrected) | 0.0395 | MLE Sd (bias corrected) | 0.016 |
| 95% Percentile of Chisquare (2kstar) | 21.3 | 90% Percentile | 0.0609 |
| 95% Percentile | 0.069 | 99% Percentile | 0.0859 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0831 | 0.0851 | 95% Approx. Gamma UPL | 0.0699 | 0.0708 |
| 95% Gamma USL | 0.0918 | 0.0946 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0403 | SD (KM) | 0.0188 |
| Variance (KM) | 3.5238E-4 | SE of Mean (KM) | 0.00521 |
| k hat (KM) | 4.611 | k star (KM) | 4.062 |
| nu hat (KM) | 221.3 | nu star (KM) | 195 |
| theta hat (KM) | 0.00874 | theta star (KM) | 0.00992 |
| 80% gamma percentile (KM) | 0.0555 | 90% gamma percentile (KM) | 0.0671 |
| 95% gamma percentile (KM) | 0.0778 | 99% gamma percentile (KM) | 0.101 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.0971 | 0.101 | 95% Approx. Gamma UPL | 0.0791 | 0.0808 |
| 95% KM Gamma Percentile | 0.076 | 0.0774 | 95% Gamma USL | 0.109 | 0.114 |

**Lognormal GOF Test on Detected Observations Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.94 | **Shapiro Wilk GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.883 | Detected Data appear Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.171 | **Lilliefors GOF Test** | |
| 10% Lilliefors Critical Value | 0.223 | Detected Data appear Lognormal at 10% Significance Level | |

Detected Data appear Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0386 | Mean in Log Scale | -3.33 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| SD in Original Scale | 0.016 | SD in Log Scale | 0.409 |
| 95% UTL95% Coverage | 0.0921 | 95% BCA UTL95% Coverage | 0.095 |
| 95% Bootstrap (%) UTL95% Coverage | 0.095 | 95% UPL (t) | 0.0732 |
| 90% Percentile (z) | 0.0605 | 95% Percentile (z) | 0.0702 |
| 99% Percentile (z) | 0.0927 | 95% USL | 0.106 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -3.329 | 95% KM UTL (Lognormal)95% Coverage | 0.118 |
| KM SD of Logged Data | 0.517 | 95% KM UPL (Lognormal) | 0.0885 |
| 95% KM Percentile Lognormal (z) | 0.0838 | 95% KM USL (Lognormal) | 0.14 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0451 | Mean in Log Scale | -3.168 |
| SD in Original Scale | 0.0157 | SD in Log Scale | 0.415 |
| 95% UTL95% Coverage | 0.11 | 95% UPL (t) | 0.0871 |
| 90% Percentile (z) | 0.0717 | 95% Percentile (z) | 0.0834 |
| 99% Percentile (z) | 0.111 | 95% USL | 0.126 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 24 | 95% UTL with95% Coverage | 0.11 |
| Approx, f used to compute achieved CC | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.708 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.11 |
| 95% USL | 0.11 | 95% KM Chebyshev UPL | 0.124 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (thallium | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 57 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 36 | | |
| Number of Detects | 34 | Number of Non-Detects | 23 |
| Number of Distinct Detects | 31 | Number of Distinct Non-Detects | 11 |
| Minimum Detect | 0.01 | Minimum Non-Detect | 0.081 |
| Maximum Detect | 0.12 | Maximum Non-Detect | 0.11 |
| Variance Detected | 8.6444E-4 | Percent Non-Detects | 40.35% |
| Mean Detected | 0.0616 | SD Detected | 0.0294 |
| Mean of Detected Logged Data | -2.919 | SD of Detected Logged Data | 0.557 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.028 | d2max (for USL) | 3.007 |

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.94 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.908 | Detected Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.137 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.175 | Detected Data appear Normal at 1% Significance Level |

Detected Data appear Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0573 | KM SD | 0.027 |
| 95% UTL95% Coverage | 0.112 | 95% KM UPL (t) | 0.103 |
| 90% KM Percentile (z) | 0.0919 | 95% KM Percentile (z) | 0.102 |
| 99% KM Percentile (z) | 0.12 | 95% KM USL | 0.138 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0564 | SD | 0.0236 |
| 95% UTL95% Coverage | 0.104 | 95% UPL (t) | 0.0962 |
| 90% Percentile (z) | 0.0867 | 95% Percentile (z) | 0.0952 |
| 99% Percentile (z) | 0.111 | 95% USL | 0.127 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.499 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.752 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.122 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.152 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 3.955 | k star (bias corrected MLE) | 3.625 |
| Theta hat (MLE) | 0.0156 | Theta star (bias corrected MLE) | 0.017 |
| nu hat (MLE) | 268.9 | nu star (bias corrected) | 246.5 |
| MLE Mean (bias corrected) | 0.0616 | | |
| MLE Sd (bias corrected) | 0.0323 | 95% Percentile of Chisquare (2kstar) | 14.43 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.01 | Mean | 0.0569 |
| Maximum | 0.12 | Median | 0.0505 |
| SD | 0.0245 | CV | 0.431 |
| k hat (MLE) | 5.417 | k star (bias corrected MLE) | 5.144 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Theta hat (MLE) | 0.0105 | Theta star (bias corrected MLE) | 0.0111 |
| nu hat (MLE) | 617.5 | nu star (bias corrected) | 586.4 |
| MLE Mean (bias corrected) | 0.0569 | MLE Sd (bias corrected) | 0.0251 |
| 95% Percentile of Chisquare (2kstar) | 18.7 | 90% Percentile | 0.0905 |
| 95% Percentile | 0.103 | 99% Percentile | 0.131 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.117 | 0.12 | 95% Approx. Gamma UPL | 0.104 | 0.105 |
| 95% Gamma USL | 0.161 | 0.168 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0573 | SD (KM) | 0.027 |
| Variance (KM) | 7.2789E-4 | SE of Mean (KM) | 0.00436 |
| k hat (KM) | 4.509 | k star (KM) | 4.283 |
| nu hat (KM) | 514 | nu star (KM) | 488.3 |
| theta hat (KM) | 0.0127 | theta star (KM) | 0.0134 |
| 80% gamma percentile (KM) | 0.0784 | 90% gamma percentile (KM) | 0.0944 |
| 95% gamma percentile (KM) | 0.109 | 99% gamma percentile (KM) | 0.14 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.128 | 0.132 | 95% Approx. Gamma UPL | 0.112 | 0.114 |
| 95% KM Gamma Percentile | 0.11 | 0.112 | 95% Gamma USL | 0.181 | 0.192 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.937 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.943 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.106 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.137 | Detected Data appear Lognormal at 10% Significance Level |

**Detected Data appear Approximate Lognormal at 10% Significance Level**

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0558 | Mean in Log Scale | -2.987 |
| SD in Original Scale | 0.025 | SD in Log Scale | 0.466 |
| 95% UTL95% Coverage | 0.13 | 95% BCA UTL95% Coverage | 0.11 |
| 95% Bootstrap (%) UTL95% Coverage | 0.112 | 95% UPL (t) | 0.111 |
| 90% Percentile (z) | 0.0916 | 95% Percentile (z) | 0.109 |
| 99% Percentile (z) | 0.149 | 95% USL | 0.205 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -2.986 | 95% KM UTL (Lognormal)95% Coverage | 0.149 |
| KM SD of Logged Data | 0.534 | 95% KM UPL (Lognormal) | 0.124 |
| 95% KM Percentile Lognormal (z) | 0.122 | 95% KM USL (Lognormal) | 0.252 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0564 | Mean in Log Scale | -2.961 |
| SD in Original Scale | 0.0236 | SD in Log Scale | 0.435 |
| 95% UTL95% Coverage | 0.125 | 95% UPL (t) | 0.108 |
| 90% Percentile (z) | 0.0903 | 95% Percentile (z) | 0.106 |
| 99% Percentile (z) | 0.142 | 95% USL | 0.191 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 57 | 95% UTL with95% Coverage | 0.12 |
| Approx, f used to compute achieved CC | 3 | Approximate Actual Confidence Coefficient achieved by UTL | 0.946 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.11 |
| 95% USL | 0.12 | 95% KM Chebyshev UPL | 0.176 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (vanadium | [subsurface soil_1_5] | [pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 11 | Number of Distinct Observations | 7 |
| Minimum | 7.3 | First Quartile | 10.4 |
| Second Largest | 13 | Median | 11 |
| Maximum | 16 | Third Quartile | 12 |
| Mean | 11.29 | SD | 2.232 |
| Coefficient of Variation | 0.198 | Skewness | 0.363 |
| Mean of logged Data | 2.406 | SD of logged Data | 0.202 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.815 | d2max (for USL) | 2.234 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.949 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.792 | Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.194 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.291 | Data appear Normal at 1% Significance Level | |

Data appear Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 17.57 | 90% Percentile (z) | 14.15 |
| 95% UPL (t) | 15.52 | 95% Percentile (z) | 14.96 |
| 95% USL | 16.28 | 99% Percentile (z) | 16.48 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.36 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.729 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.198 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.255 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 27.73 | k star (bias corrected MLE) | 20.23 |
| Theta hat (MLE) | 0.407 | Theta star (bias corrected MLE) | 0.558 |
| nu hat (MLE) | 610.2 | nu star (bias corrected) | 445.1 |
| MLE Mean (bias corrected) | 11.29 | MLE Sd (bias corrected) | 2.51 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 15.93 | 90% Percentile | 14.6 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 16 | 95% Percentile | 15.71 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 18.69 | 99% Percentile | 17.94 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 18.88 | | |
| 95% WH USL | 16.92 | 95% HW USL | 17.03 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.949 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.876 | Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.212 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.231 | Data appear Lognormal at 10% Significance Level |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 19.58 | 90% Percentile (z) | 14.36 |
| 95% UPL (t) | 16.25 | 95% Percentile (z) | 15.46 |
| 95% USL | 17.41 | 99% Percentile (z) | 17.74 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 11 | 95% UTL with 95% Coverage | 16 |
| Approx, f used to compute achieved CC | 0.579 | Approximate Actual Confidence Coefficient achieved by UTL | 0.431 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 16 | 95% BCA Bootstrap UTL with 95% Coverage | 16 |
| 95% UPL | 16 | 90% Percentile | 13 |
| 90% Chebyshev UPL | 18.28 | 95% Percentile | 14.5 |
| 95% Chebyshev UPL | 21.45 | 99% Percentile | 15.7 |
| 95% USL | 16 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (vanadium | [subsurface soil_1_5][subsurface soil_5_10] | [ps])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 48 | Number of Distinct Observations | 27 |
| Minimum | 6 | First Quartile | 8.15 |
| Second Largest | 15 | Median | 9.55 |
| Maximum | 24 | Third Quartile | 12 |
| Mean | 10.21 | SD | 3.084 |
| Coefficient of Variation | 0.302 | Skewness | 1.957 |
| Mean of logged Data | 2.285 | SD of logged Data | 0.271 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.069 | d2max (for USL) | 2.941 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.862 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.929 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.152 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.148 | Data Not Normal at 1% Significance Level |

Data Not Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 16.59 | 90% Percentile (z) | 14.16 |
| | 95% UPL (t) | 15.44 | 95% Percentile (z) | 15.28 |
| | 95% USL | 19.28 | 99% Percentile (z) | 17.38 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.552 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.749 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.119 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.128 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 13.38 | k star (bias corrected MLE) | 12.56 |
| Theta hat (MLE) | 0.763 | Theta star (bias corrected MLE) | 0.813 |
| nu hat (MLE) | 1285 | nu star (bias corrected) | 1206 |
| MLE Mean (bias corrected) | 10.21 | MLE Sd (bias corrected) | 2.881 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 15.42 | 90% Percentile | 14.03 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 15.45 | 95% Percentile | 15.36 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | | | |
|---|---|---|---|---|---|
| 95% WH Approx. Gamma UTL with | 95% Coverage | 16.85 | | 99% Percentile | 18.07 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 16.92 | | | |
| | 95% WH USL | 20.52 | | 95% HW USL | 20.78 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.963 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.954 | Data appear Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.0997 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.117 | Data appear Lognormal at 10% Significance Level | |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 17.21 | | 90% Percentile (z) | 13.91 |
| | 95% UPL (t) | 15.56 | | 95% Percentile (z) | 15.34 |
| | 95% USL | 21.8 | | 99% Percentile (z) | 18.45 |

**Nonparametric Distribution Free Background Statistics**

Data appear Gamma Distributed at 5% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | | |
|---|---|---|---|---|---|
| | Order of Statistic, order | 48 | 95% UTL with | 95% Coverage | 24 |
| | Approx, f used to compute achieved CC | 2.526 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.915 |
| | | | Approximate Sample Size needed to achieve specified CC | | 59 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 20.85 | 95% BCA Bootstrap UTL with | 95% Coverage | 20.85 |
| | 95% UPL | 15 | | 90% Percentile | 13 |
| | 90% Chebyshev UPL | 19.55 | | 95% Percentile | 14.65 |
| | 95% Chebyshev UPL | 23.79 | | 99% Percentile | 19.77 |
| | 95% USL | 24 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (vanadium | [subsurface soil_5_10] | [pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 11 | Number of Distinct Observations | 8 |
| Minimum | 7.1 | First Quartile | 8.25 |
| Second Largest | 10 | Median | 9.8 |
| Maximum | 11 | Third Quartile | 10 |
| Mean | 9.191 | SD | 1.276 |
| Coefficient of Variation | 0.139 | Skewness | -0.629 |
| Mean of logged Data | 2.209 | SD of logged Data | 0.146 |

**Critical Values for Background Threshold Values (BTVs)**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.815 | d2max (for USL) | 2.234 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.877 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.792 | Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.262 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.291 | Data appear Normal at 1% Significance Level | |

Data appear Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 12.78 | 90% Percentile (z) | 10.83 |
| | 95% UPL (t) | 11.61 | 95% Percentile (z) | 11.29 |
| | 95% USL | 12.04 | 99% Percentile (z) | 12.16 |

**Gamma GOF Test**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 0.811 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.728 | Data Not Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.279 | **Kolmogorov-Smirnov Gamma GOF Test** | |
| 5% K-S Critical Value | 0.255 | Data Not Gamma Distributed at 5% Significance Level | |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 53.68 | k star (bias corrected MLE) | 39.1 |
| Theta hat (MLE) | 0.171 | Theta star (bias corrected MLE) | 0.235 |
| nu hat (MLE) | 1181 | nu star (bias corrected) | 860.3 |
| MLE Mean (bias corrected) | 9.191 | MLE Sd (bias corrected) | 1.47 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 11.85 | 90% Percentile | 11.12 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 11.88 | 95% Percentile | 11.73 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 13.34 | 99% Percentile | 12.95 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 13.43 | | |
| 95% WH USL | 12.39 | 95% HW USL | 12.44 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.858 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.876 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.278 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.231 | Data Not Lognormal at 10% Significance Level | |

Data Not Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 13.72 | 90% Percentile (z) | 10.98 |
| | 95% UPL (t) | 12 | 95% Percentile (z) | 11.57 |
| | 95% USL | 12.61 | 99% Percentile (z) | 12.78 |

**Nonparametric Distribution Free Background Statistics**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 11 | 95% UTL with 95% Coverage | 11 |
| Approx, f used to compute achieved CC | 0.579 | Approximate Actual Confidence Coefficient achieved by UTL | 0.431 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 11 | 95% BCA Bootstrap UTL with 95% Coverage | 11 |
| 95% UPL | 11 | 90% Percentile | 10 |
| 90% Chebyshev UPL | 13.19 | 95% Percentile | 10.5 |
| 95% Chebyshev UPL | 15 | 99% Percentile | 10.9 |
| 95% USL | 11 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (vanadium | [surface soil] | [ps][pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 35 | Number of Distinct Observations | 16 |
| Minimum | 4.7 | First Quartile | 11 |
| Second Largest | 18 | Median | 13 |
| Maximum | 20 | Third Quartile | 16 |
| Mean | 13.11 | SD | 3.659 |
| Coefficient of Variation | 0.279 | Skewness | -0.386 |
| Mean of logged Data | 2.527 | SD of logged Data | 0.332 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.157 | d2max (for USL) | 2.812 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.962 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.91 | Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.125 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.172 | Data appear Normal at 1% Significance Level | |

Data appear Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 21.01 | 90% Percentile (z) | 17.8 |
| 95% UPL (t) | 19.39 | 95% Percentile (z) | 19.13 |
| 95% USL | 23.4 | 99% Percentile (z) | 21.63 |

**Gamma GOF Test**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 0.765 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.748 | Data Not Gamma Distributed at 5% Significance Level | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| K-S Test Statistic | 0.138 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.149 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data follow Appr. Gamma Distribution at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 10.86 | k star (bias corrected MLE) | 9.951 |
| Theta hat (MLE) | 1.207 | Theta star (bias corrected MLE) | 1.318 |
| nu hat (MLE) | 760.4 | nu star (bias corrected) | 696.6 |
| MLE Mean (bias corrected) | 13.11 | MLE Sd (bias corrected) | 4.157 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 20.78 | 90% Percentile | 18.64 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 21.05 | 95% Percentile | 20.62 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 23.3 | 99% Percentile | 24.67 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 23.76 | | |
| 95% WH USL | 27.38 | 95% HW USL | 28.24 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.88 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.944 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.136 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.136 | Data Not Lognormal at 10% Significance Level |

Data Not Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 25.6 | 90% Percentile (z) | 19.15 |
| 95% UPL (t) | 22.1 | 95% Percentile (z) | 21.6 |
| 95% USL | 31.8 | 99% Percentile (z) | 27.07 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 35 | 95% UTL with 95% Coverage | 20 |
| Approx, f used to compute achieved CC | 1.842 | Approximate Actual Confidence Coefficient achieved by UTL | 0.834 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 20 | 95% BCA Bootstrap UTL with 95% Coverage | 18 |
| 95% UPL | 18.4 | 90% Percentile | 17.6 |
| 90% Chebyshev UPL | 24.25 | 95% Percentile | 18 |
| 95% Chebyshev UPL | 29.29 | 99% Percentile | 19.32 |
| 95% USL | 20 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Conc (vanadium | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Distinct Observations | 15 |
| Minimum | 6.4 | First Quartile | 8.7 |
| Second Largest | 13 | Median | 9.9 |
| Maximum | 15 | Third Quartile | 11.25 |
| Mean | 10.15 | SD | 2.049 |
| Coefficient of Variation | 0.202 | Skewness | 0.314 |
| Mean of logged Data | 2.298 | SD of logged Data | 0.205 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.978 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.884 | Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.113 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.205 | Data appear Normal at 1% Significance Level | |

**Data appear Normal at 1% Significance Level**

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 14.89 | 90% Percentile (z) | 12.78 |
| | 95% UPL (t) | 13.74 | 95% Percentile (z) | 13.52 |
| | 95% USL | 15.57 | 99% Percentile (z) | 14.92 |

**Gamma GOF Test**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 0.216 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.742 | Detected data appear Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.099 | **Kolmogorov-Smirnov Gamma GOF Test** | |
| 5% K-S Critical Value | 0.177 | Detected data appear Gamma Distributed at 5% Significance Level | |

**Detected data appear Gamma Distributed at 5% Significance Level**

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 25.39 | k star (bias corrected MLE) | 22.24 |
| Theta hat (MLE) | 0.4 | Theta star (bias corrected MLE) | 0.457 |
| nu hat (MLE) | 1219 | nu star (bias corrected) | 1068 |
| MLE Mean (bias corrected) | 10.15 | MLE Sd (bias corrected) | 2.153 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 14.03 | 90% Percentile | 12.99 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 14.08 | 95% Percentile | 13.94 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 15.51 | 99% Percentile | 15.82 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 15.62 | | |
| 95% WH USL | 16.44 | 95% HW USL | 16.59 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.978 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.93 | Data appear Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.103 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.162 | Data appear Lognormal at 10% Significance Level | |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 15.98 | 90% Percentile (z) | 12.95 |
| | 95% UPL (t) | 14.25 | 95% Percentile (z) | 13.95 |
| | 95% USL | 17.12 | 99% Percentile (z) | 16.04 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | |
|---|---|---|---|---|
| Order of Statistic, order | | 24 | 95% UTL with 95% Coverage | 15 |
| Approx, f used to compute achieved CC | | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.708 |
| | | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 15 | 95% BCA Bootstrap UTL with 95% Coverage | 14.7 |
| | 95% UPL | 14.5 | 90% Percentile | 12.7 |
| | 90% Chebyshev UPL | 16.43 | 95% Percentile | 13 |
| | 95% Chebyshev UPL | 19.27 | 99% Percentile | 14.54 |
| | 95% USL | 15 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (zinc | [subsurface soil_5_10] | [pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 11 | Number of Distinct Observations | 8 |
| Minimum | 12 | First Quartile | 15.5 |
| Second Largest | 20 | Median | 18 |
| Maximum | 21 | Third Quartile | 19 |
| Mean | 17.27 | SD | 2.724 |
| Coefficient of Variation | 0.158 | Skewness | -0.677 |
| Mean of logged Data | 2.837 | SD of logged Data | 0.168 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.815 | d2max (for USL) | 2.234 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.943 | **Shapiro Wilk GOF Test** |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 1% Shapiro Wilk Critical Value | 0.792 | Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.242 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.291 | Data appear Normal at 1% Significance Level |

Data appear Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 24.94 | 90% Percentile (z) | 20.76 |
| | 95% UPL (t) | 22.43 | 95% Percentile (z) | 21.75 |
| | 95% USL | 23.36 | 99% Percentile (z) | 23.61 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.436 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.728 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.261 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.255 | Data Not Gamma Distributed at 5% Significance Level |

Detected data follow Appr. Gamma Distribution at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 40.74 | k star (bias corrected MLE) | 29.69 |
| Theta hat (MLE) | 0.424 | Theta star (bias corrected MLE) | 0.582 |
| nu hat (MLE) | 896.2 | nu star (bias corrected) | 653.1 |
| MLE Mean (bias corrected) | 17.27 | MLE Sd (bias corrected) | 3.17 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 23.05 | 90% Percentile | 21.44 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 23.15 | 95% Percentile | 22.8 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 26.37 | 99% Percentile | 25.49 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 26.61 | | |
| 95% WH USL | 24.25 | 95% HW USL | 24.39 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.915 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.876 | Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.261 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.231 | Data Not Lognormal at 10% Significance Level |

Data appear Approximate Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 27.41 | 90% Percentile (z) | 21.17 |
| | 95% UPL (t) | 23.47 | 95% Percentile (z) | 22.51 |
| | 95% USL | 24.86 | 99% Percentile (z) | 25.25 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | |
|---|---|---|---|---|
| Order of Statistic, order | 11 | 95% UTL with | 95% Coverage | 21 |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | | | |
|---|---|---|---|---|---|
| Approx, f used to compute achieved CC | | 0.579 | Approximate Actual Confidence Coefficient achieved by UTL | | 0.431 |
| | | | Approximate Sample Size needed to achieve specified CC | | 59 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 21 | 95% BCA Bootstrap UTL with | 95% Coverage | 21 |
| | 95% UPL | 21 | | 90% Percentile | 20 |
| | 90% Chebyshev UPL | 25.81 | | 95% Percentile | 20.5 |
| | 95% Chebyshev UPL | 29.67 | | 99% Percentile | 20.9 |
| | 95% USL | 21 | | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (zinc | [surface soil][subsurface soil_1_5] | [pd])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 22 | Number of Distinct Observations | 19 |
| Minimum | 18 | First Quartile | 22.25 |
| Second Largest | 170 | Median | 29.5 |
| Maximum | 2500 | Third Quartile | 34.5 |
| Mean | 149 | SD | 526.2 |
| Coefficient of Variation | 3.532 | Skewness | 4.66 |
| Mean of logged Data | 3.62 | SD of logged Data | 1.072 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.349 | d2max (for USL) | 2.603 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.255 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.878 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.451 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.214 | Data Not Normal at 1% Significance Level |

**Data Not Normal at 1% Significance Level**

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 1385 | 90% Percentile (z) | | 823.3 |
| | 95% UPL (t) | 1075 | 95% Percentile (z) | | 1014 |
| | 95% USL | 1518 | 99% Percentile (z) | | 1373 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 5.622 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.812 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.46 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.197 | Data Not Gamma Distributed at 5% Significance Level |

**Data Not Gamma Distributed at 5% Significance Level**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.465 | k star (bias corrected MLE) | 0.431 |
| Theta hat (MLE) | 320.7 | Theta star (bias corrected MLE) | 345.2 |
| nu hat (MLE) | 20.44 | nu star (bias corrected) | 18.98 |
| MLE Mean (bias corrected) | 149 | MLE Sd (bias corrected) | 226.8 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 459.9 | 90% Percentile | 415 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 393.7 | 95% Percentile | 602.8 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 749.1 | 99% Percentile | 1071 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 666.1 | | |
| 95% WH USL | 903.8 | 95% HW USL | 819.1 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.58 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.926 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.357 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.169 | Data Not Lognormal at 10% Significance Level | |

Data Not Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 463.3 | 90% Percentile (z) | 147.5 |
| 95% UPL (t) | 246.2 | 95% Percentile (z) | 217.8 |
| 95% USL | 608.1 | 99% Percentile (z) | 452.2 |

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 22 | 95% UTL with 95% Coverage | 2500 |
| Approx, f used to compute achieved CC | 1.158 | Approximate Actual Confidence Coefficient achieved by UTL | 0.676 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 2500 | 95% BCA Bootstrap UTL with 95% Coverage | 2500 |
| 95% UPL | 2151 | 90% Percentile | 87.5 |
| 90% Chebyshev UPL | 1763 | 95% Percentile | 166.2 |
| 95% Chebyshev UPL | 2494 | 99% Percentile | 2011 |
| 95% USL | 2500 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (zinc | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [ps])**

**General Statistics**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Total Number of Observations | 72 | Number of Distinct Observations | 33 |
| Minimum | 7 | First Quartile | 14 |
| Second Largest | 88 | Median | 20 |
| Maximum | 98 | Third Quartile | 28.25 |
| Mean | 24.07 | SD | 15.46 |
| Coefficient of Variation | 0.642 | Skewness | 2.709 |
| Mean of logged Data | 3.039 | SD of logged Data | 0.51 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 1.98 | d2max (for USL) | 3.094 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.752 | **Normal GOF Test** |
| 1% Shapiro Wilk P Value | 1.110E-16 | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.186 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.121 | Data Not Normal at 1% Significance Level |

Data Not Normal at 1% Significance Level

**Background Statistics Assuming Normal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 54.67 | 90% Percentile (z) | 43.88 |
| | 95% UPL (t) | 50.01 | 95% Percentile (z) | 49.49 |
| | 95% USL | 71.89 | 99% Percentile (z) | 60.03 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 1.245 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.756 | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.117 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.106 | Data Not Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 3.684 | k star (bias corrected MLE) | 3.54 |
| Theta hat (MLE) | 6.533 | Theta star (bias corrected MLE) | 6.799 |
| nu hat (MLE) | 530.5 | nu star (bias corrected) | 509.8 |
| MLE Mean (bias corrected) | 24.07 | MLE Sd (bias corrected) | 12.79 |

**Background Statistics Assuming Gamma Distribution**

| | | | | |
|---|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | | 48.19 | 90% Percentile | 41.22 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | | 48.28 | 95% Percentile | 48.22 |
| 95% WH Approx. Gamma UTL with | 95% Coverage | 54.48 | 99% Percentile | 63.25 |
| 95% HW Approx. Gamma UTL with | 95% Coverage | 54.92 | | |
| | 95% WH USL | 82.39 | 95% HW USL | 85.56 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.971 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk P Value | 0.257 | Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.0778 | **Lilliefors Lognormal GOF Test** |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 10% Lilliefors Critical Value | 0.0955 | Data appear Lognormal at 10% Significance Level |

Data appear Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | | |
|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 57.34 | 90% Percentile (z) | 40.15 |
| | 95% UPL (t) | 49.16 | 95% Percentile (z) | 48.33 |
| | 95% USL | 101.2 | 99% Percentile (z) | 68.42 |

**Nonparametric Distribution Free Background Statistics**

Data appear Lognormal at 10% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | | |
|---|---|---|---|---|
| Order of Statistic, order | | 72 | 95% UTL with 95% Coverage | 98 |
| Approx, f used to compute achieved CC | | 1.868 | Approximate Actual Confidence Coefficient achieved by UTL | 0.881 |
| | | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with | 95% Coverage | 88 | 95% BCA Bootstrap UTL with 95% Coverage | 88 |
| | 95% UPL | 48.7 | 90% Percentile | 39.9 |
| | 90% Chebyshev UPL | 70.76 | 95% Percentile | 46.35 |
| | 95% Chebyshev UPL | 91.91 | 99% Percentile | 90.9 |
| | 95% USL | 98 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (zinc | [surface soil][subsurface soil_1_5][subsurface soil_5_10] | [psc])**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 24 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 16 | | |
| Number of Detects | 23 | Number of Non-Detects | 1 |
| Number of Distinct Detects | 15 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | 8.9 | Minimum Non-Detect | 6.9 |
| Maximum Detect | 29 | Maximum Non-Detect | 6.9 |
| Variance Detected | 25.51 | Percent Non-Detects | 4.167% |
| Mean Detected | 14.6 | SD Detected | 5.051 |
| Mean of Detected Logged Data | 2.632 | SD of Detected Logged Data | 0.31 |

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 2.309 | d2max (for USL) | 2.644 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.861 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.881 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.156 | **Lilliefors GOF Test** | |

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| 1% Lilliefors Critical Value | 0.209 | Detected Data appear Normal at 1% Significance Level |

Detected Data appear Approximate Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 14.28 | KM SD | 5.074 |
| 95% UTL95% Coverage | 26 | 95% KM UPL (t) | 23.16 |
| 90% KM Percentile (z) | 20.78 | 95% KM Percentile (z) | 22.63 |
| 99% KM Percentile (z) | 26.08 | 95% KM USL | 27.7 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 14.14 | SD | 5.439 |
| 95% UTL95% Coverage | 26.69 | 95% UPL (t) | 23.65 |
| 90% Percentile (z) | 21.11 | 95% Percentile (z) | 23.08 |
| 99% Percentile (z) | 26.79 | 95% USL | 28.51 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.481 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.744 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.121 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.182 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 10.36 | k star (bias corrected MLE) | 9.042 |
| Theta hat (MLE) | 1.409 | Theta star (bias corrected MLE) | 1.615 |
| nu hat (MLE) | 476.8 | nu star (bias corrected) | 415.9 |
| MLE Mean (bias corrected) | 14.6 | | |
| MLE Sd (bias corrected) | 4.855 | 95% Percentile of Chisquare (2kstar) | 28.98 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 4.726 | Mean | 14.19 |
| Maximum | 29 | Median | 13.5 |
| SD | 5.335 | CV | 0.376 |
| k hat (MLE) | 7.81 | k star (bias corrected MLE) | 6.861 |
| Theta hat (MLE) | 1.817 | Theta star (bias corrected MLE) | 2.068 |
| nu hat (MLE) | 374.9 | nu star (bias corrected) | 329.3 |
| MLE Mean (bias corrected) | 14.19 | MLE Sd (bias corrected) | 5.417 |
| 95% Percentile of Chisquare (2kstar) | 23.32 | 90% Percentile | 21.42 |
| 95% Percentile | 24.11 | 99% Percentile | 29.72 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 28.83 | 29.37 | 95% Approx. Gamma UPL | 24.43 | 24.66 |
| 95% Gamma USL | 31.71 | 32.49 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 14.28 | SD (KM) | 5.074 |
| Variance (KM) | 25.75 | SE of Mean (KM) | 1.059 |
| k hat (KM) | 7.918 | k star (KM) | 6.956 |
| nu hat (KM) | 380.1 | nu star (KM) | 333.9 |
| theta hat (KM) | 1.803 | theta star (KM) | 2.053 |
| 80% gamma percentile (KM) | 18.52 | 90% gamma percentile (KM) | 21.51 |
| 95% gamma percentile (KM) | 24.19 | 99% gamma percentile (KM) | 29.78 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 27.4 | 27.69 | 95% Approx. Gamma UPL | 23.51 | 23.6 |
| 95% KM Gamma Percentile | 22.83 | 22.89 | 95% Gamma USL | 29.92 | 30.38 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.948 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.928 | Detected Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.0996 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.165 | Detected Data appear Lognormal at 10% Significance Level |

Detected Data appear Lognormal at 10% Significance Level

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 14.26 | Mean in Log Scale | 2.6 |
| SD in Original Scale | 5.212 | SD in Log Scale | 0.342 |
| 95% UTL95% Coverage | 29.64 | 95% BCA UTL95% Coverage | 29 |
| 95% Bootstrap (%) UTL95% Coverage | 29 | 95% UPL (t) | 24.48 |
| 90% Percentile (z) | 20.86 | 95% Percentile (z) | 23.62 |
| 99% Percentile (z) | 29.81 | 95% USL | 33.23 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | 2.603 | 95% KM UTL (Lognormal)95% Coverage | 28.83 |
| KM SD of Logged Data | 0.329 | 95% KM UPL (Lognormal) | 23.99 |
| 95% KM Percentile Lognormal (z) | 23.18 | 95% KM USL (Lognormal) | 32.19 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 14.14 | Mean in Log Scale | 2.574 |
| SD in Original Scale | 5.439 | SD in Log Scale | 0.416 |
| 95% UTL95% Coverage | 34.28 | 95% UPL (t) | 27.16 |
| 90% Percentile (z) | 22.36 | 95% Percentile (z) | 26.01 |
| 99% Percentile (z) | 34.53 | 95% USL | 39.41 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Table H-1**
**ProUCL UPL and UTL Calculation Output - Soil**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 24 | 95% UTL with95% Coverage | 29 |
| Approx, f used to compute achieved CC | 1.263 | Approximate Actual Confidence Coefficient achieved by UTL | 0.708 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 28.25 |
| 95% USL | 29 | 95% KM Chebyshev UPL | 36.85 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Background Statistics for Data Sets with Non-Detects**

**User Selected Options**

| | |
|---|---|
| Date/Time of Computation | ProUCL 5.2 8/24/2022 9:54:57 AM |
| From File | WorkSheet.xls |
| Full Precision | OFF |
| Confidence Coefficient | 95% |
| Coverage | 95% |
| Different or Future K Observations | 1 |
| Number of Bootstrap Operations | 2000 |

**Conc (wg | background | met | 7429-90-5 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 4 | | |
| Number of Detects | 3 | Number of Non-Detects | 6 |
| Number of Distinct Detects | 3 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | 350 | Minimum Non-Detect | 70 |
| Maximum Detect | 1700 | Maximum Non-Detect | 70 |
| Variance Detected | 569700 | Percent Non-Detects | 66.67% |
| Mean Detected | 830 | SD Detected | 754.8 |
| Mean of Detected Logged Data | 6.461 | SD of Detected Logged Data | 0.854 |

Warning: Data set has only 3 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,
refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 3.031 | d2max (for USL) | 2.11 |

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.8 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.753 | Detected Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.364 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.429 | Detected Data appear Normal at 1% Significance Level |

Detected Data appear Normal at 1% Significance Level
Note GOF tests may be unreliable for small sample sizes

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 323.3 | KM SD | 504.9 |
| 95% UTL95% Coverage | 1854 | 95% KM UPL (t) | 1313 |
| 90% KM Percentile (z) | 970.4 | 95% KM Percentile (z) | 1154 |
| 99% KM Percentile (z) | 1498 | 95% KM USL | 1389 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 300 | SD | 548.1 |
| 95% UTL95% Coverage | 1961 | 95% UPL (t) | 1374 |
| 90% Percentile (z) | 1002 | 95% Percentile (z) | 1202 |
| 99% Percentile (z) | 1575 | 95% USL | 1456 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.486 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.637 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.387 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.435 | Detected data appear Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 2.071 | k star (bias corrected MLE) | N/A |
| Theta hat (MLE) | 400.7 | Theta star (bias corrected MLE) | N/A |
| nu hat (MLE) | 12.43 | nu star (bias corrected) | N/A |
| MLE Mean (bias corrected) | N/A | | |
| MLE Sd (bias corrected) | N/A | 95% Percentile of Chisquare (2kstar) | N/A |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.01 | Mean | 276.7 |
| Maximum | 1700 | Median | 0.01 |
| SD | 560.9 | CV | 2.027 |
| k hat (MLE) | 0.121 | k star (bias corrected MLE) | 0.155 |
| Theta hat (MLE) | 2284 | Theta star (bias corrected MLE) | 1787 |
| nu hat (MLE) | 2.18 | nu star (bias corrected) | 2.787 |
| MLE Mean (bias corrected) | 276.7 | MLE Sd (bias corrected) | 703.2 |
| 95% Percentile of Chisquare (2kstar) | 1.694 | 90% Percentile | 823.8 |
| 95% Percentile | 1513 | 99% Percentile | 3501 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 4755 | 7744 | 95% Approx. Gamma UPL | 1715 | 2067 |
| 95% Gamma USL | 2022 | 2557 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 323.3 | SD (KM) | 504.9 |
| Variance (KM) | 254956 | SE of Mean (KM) | 206.1 |
| k hat (KM) | 0.41 | k star (KM) | 0.347 |
| nu hat (KM) | 7.381 | nu star (KM) | 6.254 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| theta hat (KM) | 788.5 | theta star (KM) | 930.6 |
| 80% gamma percentile (KM) | 511.3 | 90% gamma percentile (KM) | 934.7 |
| 95% gamma percentile (KM) | 1409 | 99% gamma percentile (KM) | 2622 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 2450 | 2680 | 95% Approx. Gamma UPL | 1236 | 1241 |
| 95% KM Gamma Percentile | 977.1 | 959.1 | 95% Gamma USL | 1373 | 1395 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.856 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.789 | Detected Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.336 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.389 | Detected Data appear Lognormal at 10% Significance Level |

Detected Data appear Lognormal at 10% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 300 | Mean in Log Scale | 4.166 |
| SD in Original Scale | 548.8 | SD in Log Scale | 2.033 |
| 95% UTL95% Coverage | 30574 | 95% BCA UTL95% Coverage | 1700 |
| 95% Bootstrap (%) UTL95% Coverage | 1700 | 95% UPL (t) | 3466 |
| 90% Percentile (z) | 872.5 | 95% Percentile (z) | 1826 |
| 99% Percentile (z) | 7298 | 95% USL | 4697 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | 4.986 | 95% KM UTL (Lognormal)95% Coverage | 4336 |
| KM SD of Logged Data | 1.118 | 95% KM UPL (Lognormal) | 1310 |
| 95% KM Percentile Lognormal (z) | 920.6 | 95% KM USL (Lognormal) | 1548 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 300 | Mean in Log Scale | 4.524 |
| SD in Original Scale | 548.1 | SD in Log Scale | 1.514 |
| 95% UTL95% Coverage | 9079 | 95% UPL (t) | 1794 |
| 90% Percentile (z) | 642 | 95% Percentile (z) | 1113 |
| 99% Percentile (z) | 3124 | 95% USL | 2249 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 9 | 95% UTL with95% Coverage | 1700 |
| Approx, f used to compute achieved CC | 0.474 | Approximate Actual Confidence Coefficient achieved by UTL | 0.37 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 1700 |
| 95% USL | 1700 | 95% KM Chebyshev UPL | 2643 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (wg | background | met | 7439-89-6 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 9 | | |
| Number of Detects | 8 | Number of Non-Detects | 1 |
| Number of Distinct Detects | 8 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | 27 | Minimum Non-Detect | 85 |
| Maximum Detect | 4000 | Maximum Non-Detect | 85 |
| Variance Detected | 2875435 | Percent Non-Detects | 11.11% |
| Mean Detected | 1221 | SD Detected | 1696 |
| Mean of Detected Logged Data | 6.072 | SD of Detected Logged Data | 1.686 |

Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,
refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 3.031 | d2max (for USL) | 2.11 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.669 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.749 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.399 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.333 | Data Not Normal at 1% Significance Level | |

Data Not Normal at 1% Significance Level

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 1088 | KM SD | 1542 |
| 95% UTL95% Coverage | 5761 | 95% KM UPL (t) | 4110 |
| 90% KM Percentile (z) | 3064 | 95% KM Percentile (z) | 3624 |
| 99% KM Percentile (z) | 4675 | 95% KM USL | 4341 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 1090 | SD | 1634 |
| 95% UTL95% Coverage | 6043 | 95% UPL (t) | 4293 |
| 90% Percentile (z) | 3184 | 95% Percentile (z) | 3778 |
| 99% Percentile (z) | 4891 | 95% USL | 4537 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| A-D Test Statistic | 0.536 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.756 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.278 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.307 | Detected data appear Gamma Distributed at 5% Significance Level |

**Detected data appear Gamma Distributed at 5% Significance Level**

**Note GOF tests may be unreliable for small sample sizes**

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.597 | k star (bias corrected MLE) | 0.457 |
| Theta hat (MLE) | 2045 | Theta star (bias corrected MLE) | 2674 |
| nu hat (MLE) | 9.554 | nu star (bias corrected) | 7.305 |
| MLE Mean (bias corrected) | 1221 | | |
| MLE Sd (bias corrected) | 1807 | 95% Percentile of Chisquare (2kstar) | 3.623 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.01 | Mean | 1085 |
| Maximum | 4000 | Median | 470 |
| SD | 1638 | CV | 1.509 |
| k hat (MLE) | 0.324 | k star (bias corrected MLE) | 0.29 |
| Theta hat (MLE) | 3353 | Theta star (bias corrected MLE) | 3744 |
| nu hat (MLE) | 5.827 | nu star (bias corrected) | 5.218 |
| MLE Mean (bias corrected) | 1085 | MLE Sd (bias corrected) | 2016 |
| 95% Percentile of Chisquare (2kstar) | 2.681 | 90% Percentile | 3213 |
| 95% Percentile | 5019 | 99% Percentile | 9732 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 13257 | 19702 | 95% Approx. Gamma UPL | 5863 | 7228 |
| 95% Gamma USL | 6664 | 8448 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 1088 | SD (KM) | 1542 |
| Variance (KM) | 2377223 | SE of Mean (KM) | 549.4 |
| k hat (KM) | 0.498 | k star (KM) | 0.406 |
| nu hat (KM) | 8.967 | nu star (KM) | 7.311 |
| theta hat (KM) | 2185 | theta star (KM) | 2679 |
| 80% gamma percentile (KM) | 1759 | 90% gamma percentile (KM) | 3065 |
| 95% gamma percentile (KM) | 4498 | 99% gamma percentile (KM) | 8093 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | | | |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 10404 | 12859 | 95% Approx. Gamma UPL | 4872 | 5275 |
| 95% KM Gamma Percentile | 3736 | 3888 | 95% Gamma USL | 5483 | 6049 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.936 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.851 | Detected Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.186 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.265 | Detected Data appear Lognormal at 10% Significance Level |

Detected Data appear Lognormal at 10% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 1088 | Mean in Log Scale | 5.759 |
| SD in Original Scale | 1635 | SD in Log Scale | 1.836 |
| 95% UTL95% Coverage | 82705 | 95% BCA UTL95% Coverage | 4000 |
| 95% Bootstrap (%) UTL95% Coverage | 4000 | 95% UPL (t) | 11581 |
| 90% Percentile (z) | 3332 | 95% Percentile (z) | 6492 |
| 99% Percentile (z) | 22684 | 95% USL | 15236 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | 5.763 | 95% KM UTL (Lognormal)95% Coverage | 59209 |
| KM SD of Logged Data | 1.724 | 95% KM UPL (Lognormal) | 9346 |
| 95% KM Percentile Lognormal (z) | 5427 | 95% KM USL (Lognormal) | 12092 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 1090 | Mean in Log Scale | 5.814 |
| SD in Original Scale | 1634 | SD in Log Scale | 1.757 |
| 95% UTL95% Coverage | 68800 | 95% UPL (t) | 10484 |
| 90% Percentile (z) | 3182 | 95% Percentile (z) | 6025 |
| 99% Percentile (z) | 19950 | 95% USL | 13631 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 9 | 95% UTL with95% Coverage | 4000 |
| Approx, f used to compute achieved CC | 0.474 | Approximate Actual Confidence Coefficient achieved by UTL | 0.37 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 4000 |
| 95% USL | 4000 | 95% KM Chebyshev UPL | 8172 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Conc (wg | background | met | 7439-92-1 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 2 | | |
| Number of Detects | 3 | Number of Non-Detects | 6 |
| Number of Distinct Detects | 1 | Number of Distinct Non-Detects | 2 |
| Minimum Detect | 3 | Minimum Non-Detect | 0.7 |
| Maximum Detect | 3 | Maximum Non-Detect | 3 |
| Variance Detected | 0 | Percent Non-Detects | 66.67% |
| Mean Detected | 3 | SD Detected | 0 |
| Mean of Detected Logged Data | 1.099 | SD of Detected Logged Data | 0 |

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (wg | background | met | 7439-92-1 | d) was not processed!

**Conc (wg | background | met | 7439-95-4 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Distinct Observations | 8 |
| Minimum | 8100 | First Quartile | 15000 |
| Second Largest | 45000 | Median | 25000 |
| Maximum | 80000 | Third Quartile | 45000 |
| Mean | 31678 | SD | 22213 |
| Coefficient of Variation | 0.701 | Skewness | 1.371 |
| Mean of logged Data | 10.15 | SD of logged Data | 0.701 |

Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,
refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 3.031 | d2max (for USL) | 2.11 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.876 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.764 | Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.215 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.316 | Data appear Normal at 1% Significance Level | |

Data appear Normal at 1% Significance Level
Note GOF tests may be unreliable for small sample sizes

**Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 99005 | 90% Percentile (z) | 60145 |
| 95% UPL (t) | 75218 | 95% Percentile (z) | 68215 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% USL | 78537 | 99% Percentile (z) | 83353 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.223 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.728 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.137 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.282 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 2.52 | k star (bias corrected MLE) | 1.754 |
| Theta hat (MLE) | 12570 | Theta star (bias corrected MLE) | 18059 |
| nu hat (MLE) | 45.36 | nu star (bias corrected) | 31.57 |
| MLE Mean (bias corrected) | 31678 | MLE Sd (bias corrected) | 23918 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 85286 | 90% Percentile | 63558 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 88052 | 95% Percentile | 78366 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 137079 | 99% Percentile | 111473 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 148452 | | |
| 95% WH USL | 91552 | 95% HW USL | 95111 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.98 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.859 | Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.129 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.252 | Data appear Lognormal at 10% Significance Level |

Data appear Lognormal at 10% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 214528 | 90% Percentile (z) | 62954 |
| 95% UPL (t) | 101288 | 95% Percentile (z) | 81208 |
| 95% USL | 112470 | 99% Percentile (z) | 130923 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 9 | 95% UTL with 95% Coverage | 80000 |
| Approx, f used to compute achieved CC | 0.474 | Approximate Actual Confidence Coefficient achieved by UTL | 0.37 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 80000 | 95% BCA Bootstrap UTL with 95% Coverage | 80000 |
| 95% UPL | 80000 | 90% Percentile | 52000 |
| 90% Chebyshev UPL | 101921 | 95% Percentile | 66000 |
| 95% Chebyshev UPL | 133739 | 99% Percentile | 77200 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

95% USL 80000

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (wg | background | met | 7439-96-5 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Distinct Observations | 9 |
| Minimum | 9.5 | First Quartile | 570 |
| Second Largest | 1300 | Median | 940 |
| Maximum | 2800 | Third Quartile | 1200 |
| Mean | 1011 | SD | 787.8 |
| Coefficient of Variation | 0.779 | Skewness | 1.452 |
| Mean of logged Data | 6.365 | SD of logged Data | 1.638 |

Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,
refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 3.031 | d2max (for USL) | 2.11 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.882 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.764 | Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.246 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.316 | Data appear Normal at 1% Significance Level |

Data appear Normal at 1% Significance Level
Note GOF tests may be unreliable for small sample sizes

**Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 3399 | 90% Percentile (z) | 2021 |
| 95% UPL (t) | 2555 | 95% Percentile (z) | 2307 |
| 95% USL | 2673 | 99% Percentile (z) | 2844 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.624 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.743 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.205 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.287 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level
Note GOF tests may be unreliable for small sample sizes

**Gamma Statistics**

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.037 | k star (bias corrected MLE) | 0.766 |
| Theta hat (MLE) | 974.7 | Theta star (bias corrected MLE) | 1321 |
| nu hat (MLE) | 18.67 | nu star (bias corrected) | 13.78 |
| MLE Mean (bias corrected) | 1011 | MLE Sd (bias corrected) | 1156 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 3785 | 90% Percentile | 2485 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 4471 | 95% Percentile | 3332 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 6943 | 99% Percentile | 5341 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 9227 | | |
| 95% WH USL | 4151 | 95% HW USL | 4988 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.715 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.859 | Data Not Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.293 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.252 | Data Not Lognormal at 10% Significance Level | |

Data Not Lognormal at 10% Significance Level

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 83201 | 90% Percentile (z) | 4739 |
| 95% UPL (t) | 14401 | 95% Percentile (z) | 8593 |
| 95% USL | 18395 | 99% Percentile (z) | 26236 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 9 | 95% UTL with 95% Coverage | 2800 |
| Approx, f used to compute achieved CC | 0.474 | Approximate Actual Confidence Coefficient achieved by UTL | 0.37 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 2800 | 95% BCA Bootstrap UTL with 95% Coverage | 2800 |
| 95% UPL | 2800 | 90% Percentile | 1600 |
| 90% Chebyshev UPL | 3502 | 95% Percentile | 2200 |
| 95% Chebyshev UPL | 4631 | 99% Percentile | 2680 |
| 95% USL | 2800 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (wg | background | met | 7439-97-6 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Number of Distinct Observations | 1 | | |
| Number of Detects | 0 | Number of Non-Detects | 9 |
| Number of Distinct Detects | 0 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | N/A | Minimum Non-Detect | 0.08 |
| Maximum Detect | N/A | Maximum Non-Detect | 0.08 |
| Variance Detected | N/A | Percent Non-Detects | 100% |
| Mean Detected | N/A | SD Detected | N/A |
| Mean of Detected Logged Data | N/A | SD of Detected Logged Data | N/A |

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!
Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (wg | background | met | 7439-97-6 | d) was not processed!

**Conc (wg | background | met | 7440-02-0 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 2 | | |
| Number of Detects | 1 | Number of Non-Detects | 8 |
| Number of Distinct Detects | 1 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | 40 | Minimum Non-Detect | 8 |
| Maximum Detect | 40 | Maximum Non-Detect | 8 |
| Variance Detected | N/A | Percent Non-Detects | 88.89% |
| Mean Detected | 40 | SD Detected | N/A |
| Mean of Detected Logged Data | 3.689 | SD of Detected Logged Data | N/A |

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (wg | background | met | 7440-02-0 | d) was not processed!

**Conc (wg | background | met | 7440-09-7 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 8 | | |
| Number of Detects | 6 | Number of Non-Detects | 3 |
| Number of Distinct Detects | 6 | Number of Distinct Non-Detects | 2 |
| Minimum Detect | 700 | Minimum Non-Detect | 940 |
| Maximum Detect | 6000 | Maximum Non-Detect | 3000 |
| Variance Detected | 4451617 | Percent Non-Detects | 33.33% |
| Mean Detected | 2418 | SD Detected | 2110 |
| Mean of Detected Logged Data | 7.481 | SD of Detected Logged Data | 0.854 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach, refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 3.031 | d2max (for USL) | 2.11 |

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.837 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.713 | Detected Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.264 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.373 | Detected Data appear Normal at 1% Significance Level |

Detected Data appear Normal at 1% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 1942 | KM SD | 1725 |
| 95% UTL95% Coverage | 7170 | 95% KM UPL (t) | 5323 |
| 90% KM Percentile (z) | 4153 | 95% KM Percentile (z) | 4779 |
| 99% KM Percentile (z) | 5955 | 95% KM USL | 5581 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 1998 | SD | 1808 |
| 95% UTL95% Coverage | 7478 | 95% UPL (t) | 5542 |
| 90% Percentile (z) | 4315 | 95% Percentile (z) | 4972 |
| 99% Percentile (z) | 6204 | 95% USL | 5812 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.379 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.706 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.245 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.337 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.762 | k star (bias corrected MLE) | 0.992 |
| Theta hat (MLE) | 1373 | Theta star (bias corrected MLE) | 2438 |
| nu hat (MLE) | 21.14 | nu star (bias corrected) | 11.9 |
| MLE Mean (bias corrected) | 2418 | | |
| MLE Sd (bias corrected) | 2428 | 95% Percentile of Chisquare (2kstar) | 5.96 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 373.1 | Mean | 1881 |
| Maximum | 6000 | Median | 1100 |
| SD | 1882 | CV | 1 |
| k hat (MLE) | 1.419 | k star (bias corrected MLE) | 1.02 |
| Theta hat (MLE) | 1325 | Theta star (bias corrected MLE) | 1844 |
| nu hat (MLE) | 25.55 | nu star (bias corrected) | 18.37 |
| MLE Mean (bias corrected) | 1881 | MLE Sd (bias corrected) | 1862 |
| 95% Percentile of Chisquare (2kstar) | 6.07 | 90% Percentile | 4310 |
| 95% Percentile | 5596 | 99% Percentile | 8576 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 11214 | 12444 | 95% Approx. Gamma UPL | 6303 | 6537 |
| 95% Gamma USL | 6878 | 7198 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 1942 | SD (KM) | 1725 |
| Variance (KM) | 2974676 | SE of Mean (KM) | 636.3 |
| k hat (KM) | 1.268 | k star (KM) | 0.92 |
| nu hat (KM) | 22.83 | nu star (KM) | 16.55 |
| theta hat (KM) | 1531 | theta star (KM) | 2112 |
| 80% gamma percentile (KM) | 3146 | 90% gamma percentile (KM) | 4566 |
| 95% gamma percentile (KM) | 5994 | 99% gamma percentile (KM) | 9333 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 9313 | 9905 | 95% Approx. Gamma UPL | 5560 | 5633 |
| 95% KM Gamma Percentile | 4689 | 4693 | 95% Gamma USL | 6008 | 6125 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.926 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.826 | Detected Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.212 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.298 | Detected Data appear Lognormal at 10% Significance Level |

Detected Data appear Lognormal at 10% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 1942 | Mean in Log Scale | 7.269 |
| SD in Original Scale | 1826 | SD in Log Scale | 0.77 |
| 95% UTL95% Coverage | 14820 | 95% BCA UTL95% Coverage | 6000 |
| 95% Bootstrap (%) UTL95% Coverage | 6000 | 95% UPL (t) | 6495 |
| 90% Percentile (z) | 3851 | 95% Percentile (z) | 5095 |
| 99% Percentile (z) | 8612 | 95% USL | 7288 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | 7.267 | 95% KM UTL (Lognormal)95% Coverage | 13028 |
| KM SD of Logged Data | 0.728 | 95% KM UPL (Lognormal) | 5973 |
| 95% KM Percentile Lognormal (z) | 4748 | 95% KM USL (Lognormal) | 6660 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 1998 | Mean in Log Scale | 7.296 |
| SD in Original Scale | 1808 | SD in Log Scale | 0.803 |
| 95% UTL95% Coverage | 16826 | 95% UPL (t) | 7119 |
| 90% Percentile (z) | 4128 | 95% Percentile (z) | 5526 |
| 99% Percentile (z) | 9554 | 95% USL | 8027 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 9 | 95% UTL with95% Coverage | 6000 |
| Approx, f used to compute achieved CC | 0.474 | Approximate Actual Confidence Coefficient achieved by UTL | 0.37 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 6000 |
| 95% USL | 6000 | 95% KM Chebyshev UPL | 9867 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (wg | background | met | 7440-22-4 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 1 | | |
| Number of Detects | 0 | Number of Non-Detects | 9 |
| Number of Distinct Detects | 0 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | N/A | Minimum Non-Detect | 5 |
| Maximum Detect | N/A | Maximum Non-Detect | 5 |
| Variance Detected | N/A | Percent Non-Detects | 100% |
| Mean Detected | N/A | SD Detected | N/A |
| Mean of Detected Logged Data | N/A | SD of Detected Logged Data | N/A |

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!
Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (wg | background | met | 7440-22-4 | d) was not processed!

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Conc (wg | background | met | 7440-23-5 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 9 | | |
| Number of Detects | 8 | Number of Non-Detects | 1 |
| Number of Distinct Detects | 8 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | 1500 | Minimum Non-Detect | 5000 |
| Maximum Detect | 160000 | Maximum Non-Detect | 5000 |
| Variance Detected | 3.088E+9 | Percent Non-Detects | 11.11% |
| Mean Detected | 42588 | SD Detected | 55574 |
| Mean of Detected Logged Data | 9.648 | SD of Detected Logged Data | 1.69 |

Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,
refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 3.031 | d2max (for USL) | 2.11 |

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.785 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.749 | Detected Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.263 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.333 | Detected Data appear Normal at 1% Significance Level |

Detected Data appear Normal at 1% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 38094 | KM SD | 50633 |
| 95% UTL95% Coverage | 191562 | 95% KM UPL (t) | 137341 |
| 90% KM Percentile (z) | 102983 | 95% KM Percentile (z) | 121378 |
| 99% KM Percentile (z) | 155883 | 95% KM USL | 144907 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 38133 | SD | 53674 |
| 95% UTL95% Coverage | 200820 | 95% UPL (t) | 143342 |
| 90% Percentile (z) | 106920 | 95% Percentile (z) | 126420 |
| 99% Percentile (z) | 162998 | 95% USL | 151362 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.327 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.755 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.222 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.307 | Detected data appear Gamma Distributed at 5% Significance Level |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

Detected data appear Gamma Distributed at 5% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 0.609 | k star (bias corrected MLE) | 0.464 |
| Theta hat (MLE) | 69892 | Theta star (bias corrected MLE) | 91751 |
| nu hat (MLE) | 9.749 | nu star (bias corrected) | 7.427 |
| MLE Mean (bias corrected) | 42588 | | |
| MLE Sd (bias corrected) | 62509 | 95% Percentile of Chisquare (2kstar) | 3.662 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.01 | Mean | 37856 |
| Maximum | 160000 | Median | 7600 |
| SD | 53888 | CV | 1.424 |
| k hat (MLE) | 0.281 | k star (bias corrected MLE) | 0.262 |
| Theta hat (MLE) | 134591 | Theta star (bias corrected MLE) | 144717 |
| nu hat (MLE) | 5.063 | nu star (bias corrected) | 4.708 |
| MLE Mean (bias corrected) | 37856 | MLE Sd (bias corrected) | 74016 |
| 95% Percentile of Chisquare (2kstar) | 2.498 | 90% Percentile | 113228 |
| 95% Percentile | 180757 | 99% Percentile | 359400 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | WH | HW |
|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 470338 | 726233 | 95% Approx. Gamma UPL 208111 | 264327 |
| 95% Gamma USL | 236522 | 309358 | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 38094 | SD (KM) | 50633 |
| Variance (KM) | 2.564E+9 | SE of Mean (KM) | 18043 |
| k hat (KM) | 0.566 | k star (KM) | 0.451 |
| nu hat (KM) | 10.19 | nu star (KM) | 8.126 |
| theta hat (KM) | 67297 | theta star (KM) | 84383 |
| 80% gamma percentile (KM) | 62192 | 90% gamma percentile (KM) | 105206 |
| 95% gamma percentile (KM) | 151732 | 99% gamma percentile (KM) | 267290 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | WH | HW |
|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 355084 | 437682 | 95% Approx. Gamma UPL 168699 | 182968 |
| 95% KM Gamma Percentile | 130127 | 135852 | 95% Gamma USL 189375 | 209147 |

**Lognormal GOF Test on Detected Observations Only**

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.947 | **Shapiro Wilk GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.851 | Detected Data appear Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.172 | **Lilliefors GOF Test** | |
| 10% Lilliefors Critical Value | 0.265 | Detected Data appear Lognormal at 10% Significance Level | |

Detected Data appear Lognormal at 10% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 38057 | Mean in Log Scale | 9.409 |
| SD in Original Scale | 53732 | SD in Log Scale | 1.735 |
| 95% UTL95% Coverage | 2347885 | 95% BCA UTL95% Coverage | 160000 |
| 95% Bootstrap (%) UTL95% Coverage | 160000 | 95% UPL (t) | 366105 |
| 90% Percentile (z) | 112767 | 95% Percentile (z) | 211831 |
| 99% Percentile (z) | 691205 | 95% USL | 474486 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | 9.423 | 95% KM UTL (Lognormal)95% Coverage | 1697323 |
| KM SD of Logged Data | 1.624 | 95% KM UPL (Lognormal) | 298259 |
| 95% KM Percentile Lognormal (z) | 178755 | 95% KM USL (Lognormal) | 380162 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 38133 | Mean in Log Scale | 9.445 |
| SD in Original Scale | 53674 | SD in Log Scale | 1.694 |
| 95% UTL95% Coverage | 2145837 | 95% UPL (t) | 349813 |
| 90% Percentile (z) | 110828 | 95% Percentile (z) | 205072 |
| 99% Percentile (z) | 650479 | 95% USL | 450566 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 9 | 95% UTL with95% Coverage | 160000 |
| Approx, f used to compute achieved CC | 0.474 | Approximate Actual Confidence Coefficient achieved by UTL | 0.37 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 160000 |
| 95% USL | 160000 | 95% KM Chebyshev UPL | 270735 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (wg | background | met | 7440-28-0 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Number of Distinct Observations | 1 | | |
| Number of Detects | 0 | Number of Non-Detects | 9 |
| Number of Distinct Detects | 0 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | N/A | Minimum Non-Detect | 0.2 |
| Maximum Detect | N/A | Maximum Non-Detect | 0.2 |
| Variance Detected | N/A | Percent Non-Detects | 100% |
| Mean Detected | N/A | SD Detected | N/A |
| Mean of Detected Logged Data | N/A | SD of Detected Logged Data | N/A |

**Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!**
**Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!**
**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**

**The data set for variable Conc (wg | background | met | 7440-28-0 | d) was not processed!**

**Conc (wg | background | met | 7440-36-0 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 1 | | |
| Number of Detects | 0 | Number of Non-Detects | 9 |
| Number of Distinct Detects | 0 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | N/A | Minimum Non-Detect | 1 |
| Maximum Detect | N/A | Maximum Non-Detect | 1 |
| Variance Detected | N/A | Percent Non-Detects | 100% |
| Mean Detected | N/A | SD Detected | N/A |
| Mean of Detected Logged Data | N/A | SD of Detected Logged Data | N/A |

**Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!**
**Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!**
**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**

**The data set for variable Conc (wg | background | met | 7440-36-0 | d) was not processed!**

**Conc (wg | background | met | 7440-38-2 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 2 | | |
| Number of Detects | 7 | Number of Non-Detects | 2 |
| Number of Distinct Detects | 1 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | 5 | Minimum Non-Detect | 1 |
| Maximum Detect | 5 | Maximum Non-Detect | 1 |
| Variance Detected | 0 | Percent Non-Detects | 22.22% |
| Mean Detected | 5 | SD Detected | 0 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Mean of Detected Logged Data | 1.609 | SD of Detected Logged Data | 2.398E-16 |

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (wg | background | met | 7440-38-2 | d) was not processed!

**Conc (wg | background | met | 7440-39-3 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Distinct Observations | 8 |
| Minimum | 28 | First Quartile | 64 |
| Second Largest | 170 | Median | 85 |
| Maximum | 310 | Third Quartile | 110 |
| Mean | 111 | SD | 85.47 |
| Coefficient of Variation | 0.77 | Skewness | 1.816 |
| Mean of logged Data | 4.483 | SD of logged Data | 0.71 |

Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,
refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 3.031 | d2max (for USL) | 2.11 |

**Normal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.821 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.764 | Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.282 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.316 | Data appear Normal at 1% Significance Level |

Data appear Normal at 1% Significance Level
Note GOF tests may be unreliable for small sample sizes

**Background Statistics Assuming Normal Distribution**

| | | | | | |
|---|---|---|---|---|---|
| 95% UTL with | 95% Coverage | 370 | 90% Percentile (z) | 220.5 |
| | 95% UPL (t) | 278.5 | 95% Percentile (z) | 251.6 |
| | 95% USL | 291.3 | 99% Percentile (z) | 309.8 |

**Gamma GOF Test**

| | | |
|---|---|---|
| A-D Test Statistic | 0.248 | **Anderson-Darling Gamma GOF Test** |
| 5% A-D Critical Value | 0.729 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.197 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.282 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level
Note GOF tests may be unreliable for small sample sizes

**Gamma Statistics**

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| k hat (MLE) | 2.362 | k star (bias corrected MLE) | 1.648 |
| Theta hat (MLE) | 47 | Theta star (bias corrected MLE) | 67.34 |
| nu hat (MLE) | 42.51 | nu star (bias corrected) | 29.67 |
| MLE Mean (bias corrected) | 111 | MLE Sd (bias corrected) | 86.45 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 305.2 | 90% Percentile | 226.1 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 313.6 | 95% Percentile | 280.2 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 495.8 | 99% Percentile | 401.8 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 534.4 | | |
| 95% WH USL | 328.2 | 95% HW USL | 339.3 |

**Lognormal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.987 | **Shapiro Wilk Lognormal GOF Test** | |
| 10% Shapiro Wilk Critical Value | 0.859 | Data appear Lognormal at 10% Significance Level | |
| Lilliefors Test Statistic | 0.157 | **Lilliefors Lognormal GOF Test** | |
| 10% Lilliefors Critical Value | 0.252 | Data appear Lognormal at 10% Significance Level | |

Data appear Lognormal at 10% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 760.3 | 90% Percentile (z) | 219.7 |
| 95% UPL (t) | 355.6 | 95% Percentile (z) | 284.3 |
| 95% USL | 395.4 | 99% Percentile (z) | 461.2 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 9 | 95% UTL with 95% Coverage | 310 |
| Approx, f used to compute achieved CC | 0.474 | Approximate Actual Confidence Coefficient achieved by UTL | 0.37 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 310 | 95% BCA Bootstrap UTL with 95% Coverage | 310 |
| 95% UPL | 310 | 90% Percentile | 198 |
| 90% Chebyshev UPL | 381.3 | 95% Percentile | 254 |
| 95% Chebyshev UPL | 503.7 | 99% Percentile | 298.8 |
| 95% USL | 310 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (wg | background | met | 7440-41-7 | d)**

**General Statistics**

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 1 | | |
| Number of Detects | 0 | Number of Non-Detects | 9 |
| Number of Distinct Detects | 0 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | N/A | Minimum Non-Detect | 0.5 |
| Maximum Detect | N/A | Maximum Non-Detect | 0.5 |
| Variance Detected | N/A | Percent Non-Detects | 100% |
| Mean Detected | N/A | SD Detected | N/A |
| Mean of Detected Logged Data | N/A | SD of Detected Logged Data | N/A |

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!
Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (wg | background | met | 7440-41-7 | d) was not processed!

**Conc (wg | background | met | 7440-43-9 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 1 | | |
| Number of Detects | 0 | Number of Non-Detects | 9 |
| Number of Distinct Detects | 0 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | N/A | Minimum Non-Detect | 1.8 |
| Maximum Detect | N/A | Maximum Non-Detect | 1.8 |
| Variance Detected | N/A | Percent Non-Detects | 100% |
| Mean Detected | N/A | SD Detected | N/A |
| Mean of Detected Logged Data | N/A | SD of Detected Logged Data | N/A |

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!
Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (wg | background | met | 7440-43-9 | d) was not processed!

**Conc (wg | background | met | 7440-47-3 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 2 | | |
| Number of Detects | 3 | Number of Non-Detects | 6 |
| Number of Distinct Detects | 1 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | 10 | Minimum Non-Detect | 1.8 |
| Maximum Detect | 10 | Maximum Non-Detect | 1.8 |
| Variance Detected | 0 | Percent Non-Detects | 66.67% |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Mean Detected | 10 | SD Detected | 0 |
| Mean of Detected Logged Data | 2.303 | SD of Detected Logged Data | 0 |

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (wg | background | met | 7440-47-3 | d) was not processed!

**Conc (wg | background | met | 7440-48-4 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 9 | | |
| Number of Detects | 8 | Number of Non-Detects | 1 |
| Number of Distinct Detects | 8 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | 0.098 | Minimum Non-Detect | 0.35 |
| Maximum Detect | 4.2 | Maximum Non-Detect | 0.35 |
| Variance Detected | 1.827 | Percent Non-Detects | 11.11% |
| Mean Detected | 1.625 | SD Detected | 1.352 |
| Mean of Detected Logged Data | 0.0267 | SD of Detected Logged Data | 1.21 |

Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,
refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 3.031 | d2max (for USL) | 2.11 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.93 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.749 | Detected Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.169 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.333 | Detected Data appear Normal at 1% Significance Level | |

Detected Data appear Normal at 1% Significance Level
Note GOF tests may be unreliable for small sample sizes

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 1.455 | KM SD | 1.285 |
| 95% UTL95% Coverage | 5.35 | 95% KM UPL (t) | 3.974 |
| 90% KM Percentile (z) | 3.102 | 95% KM Percentile (z) | 3.569 |
| 99% KM Percentile (z) | 4.444 | 95% KM USL | 4.166 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 1.464 | SD | 1.354 |
| 95% UTL95% Coverage | 5.566 | 95% UPL (t) | 4.117 |
| 90% Percentile (z) | 3.198 | 95% Percentile (z) | 3.69 |
| 99% Percentile (z) | 4.612 | 95% USL | 4.319 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.214 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.732 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.183 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.3 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 1.23 | k star (bias corrected MLE) | 0.852 |
| Theta hat (MLE) | 1.321 | Theta star (bias corrected MLE) | 1.907 |
| nu hat (MLE) | 19.68 | nu star (bias corrected) | 13.63 |
| MLE Mean (bias corrected) | 1.625 | | |
| MLE Sd (bias corrected) | 1.76 | 95% Percentile of Chisquare (2kstar) | 5.405 |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.01 | Mean | 1.445 |
| Maximum | 4.2 | Median | 1.4 |
| SD | 1.374 | CV | 0.951 |
| k hat (MLE) | 0.705 | k star (bias corrected MLE) | 0.544 |
| Theta hat (MLE) | 2.05 | Theta star (bias corrected MLE) | 2.656 |
| nu hat (MLE) | 12.69 | nu star (bias corrected) | 9.794 |
| MLE Mean (bias corrected) | 1.445 | MLE Sd (bias corrected) | 1.959 |
| 95% Percentile of Chisquare (2kstar) | 4.056 | 90% Percentile | 3.841 |
| 95% Percentile | 5.387 | 99% Percentile | 9.159 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 12.94 | 17.63 | 95% Approx. Gamma UPL | 6.48 | 7.696 |
| 95% Gamma USL | 7.209 | 8.734 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 1.455 | SD (KM) | 1.285 |
| Variance (KM) | 1.651 | SE of Mean (KM) | 0.458 |
| k hat (KM) | 1.282 | k star (KM) | 0.929 |
| nu hat (KM) | 23.08 | nu star (KM) | 16.72 |
| theta hat (KM) | 1.135 | theta star (KM) | 1.566 |
| 80% gamma percentile (KM) | 2.355 | 90% gamma percentile (KM) | 3.412 |
| 95% gamma percentile (KM) | 4.475 | 99% gamma percentile (KM) | 6.956 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 10.11 | 12.32 | 95% Approx. Gamma UPL | 5.398 | 5.947 |
| 95% KM Gamma Percentile | 4.363 | 4.667 | 95% Gamma USL | 5.941 | 6.638 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.921 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.851 | Detected Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.226 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.265 | Detected Data appear Lognormal at 10% Significance Level |

**Detected Data appear Lognormal at 10% Significance Level**

**Note GOF tests may be unreliable for small sample sizes**

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 1.459 | Mean in Log Scale | -0.198 |
| SD in Original Scale | 1.358 | SD in Log Scale | 1.318 |
| 95% UTL95% Coverage | 44.51 | 95% BCA UTL95% Coverage | 4.2 |
| 95% Bootstrap (%) UTL95% Coverage | 4.2 | 95% UPL (t) | 10.86 |
| 90% Percentile (z) | 4.44 | 95% Percentile (z) | 7.165 |
| 99% Percentile (z) | 17.59 | 95% USL | 13.22 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -0.234 | 95% KM UTL (Lognormal)95% Coverage | 40.42 |
| KM SD of Logged Data | 1.298 | 95% KM UPL (Lognormal) | 10.07 |
| 95% KM Percentile Lognormal (z) | 6.689 | 95% KM USL (Lognormal) | 12.23 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 1.464 | Mean in Log Scale | -0.17 |
| SD in Original Scale | 1.354 | SD in Log Scale | 1.277 |
| 95% UTL95% Coverage | 40.42 | 95% UPL (t) | 10.3 |
| 90% Percentile (z) | 4.332 | 95% Percentile (z) | 6.888 |
| 99% Percentile (z) | 16.44 | 95% USL | 12.47 |

**DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.**

**Nonparametric Distribution Free Background Statistics**

**Data appear to follow a Discernible Distribution**

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 9 | 95% UTL with95% Coverage | 4.2 |
| Approx, f used to compute achieved CC | 0.474 | Approximate Actual Confidence Coefficient achieved by UTL | 0.37 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 4.2 |
| 95% USL | 4.2 | 95% KM Chebyshev UPL | 7.359 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (wg | background | met | 7440-50-8 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 2 | | |
| Number of Detects | 1 | Number of Non-Detects | 8 |
| Number of Distinct Detects | 1 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | 15 | Minimum Non-Detect | 10 |
| Maximum Detect | 15 | Maximum Non-Detect | 10 |
| Variance Detected | N/A | Percent Non-Detects | 88.89% |
| Mean Detected | 15 | SD Detected | N/A |
| Mean of Detected Logged Data | 2.708 | SD of Detected Logged Data | N/A |

**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**
**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**

**The data set for variable Conc (wg | background | met | 7440-50-8 | d) was not processed!**

**Conc (wg | background | met | 7440-62-2 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 2 | | |
| Number of Detects | 1 | Number of Non-Detects | 8 |
| Number of Distinct Detects | 1 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | 15 | Minimum Non-Detect | 4 |
| Maximum Detect | 15 | Maximum Non-Detect | 4 |
| Variance Detected | N/A | Percent Non-Detects | 88.89% |
| Mean Detected | 15 | SD Detected | N/A |
| Mean of Detected Logged Data | 2.708 | SD of Detected Logged Data | N/A |

**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**
**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**

**The data set for variable Conc (wg | background | met | 7440-62-2 | d) was not processed!**

**Conc (wg | background | met | 7440-66-6 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 1 | | |
| Number of Detects | 0 | Number of Non-Detects | 9 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Number of Distinct Detects | 0 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | N/A | Minimum Non-Detect | 15 |
| Maximum Detect | N/A | Maximum Non-Detect | 15 |
| Variance Detected | N/A | Percent Non-Detects | 100% |
| Mean Detected | N/A | SD Detected | N/A |
| Mean of Detected Logged Data | N/A | SD of Detected Logged Data | N/A |

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!
Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (wg | background | met | 7440-66-6 | d) was not processed!

**Conc (wg | background | met | 7440-70-2 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Distinct Observations | 8 |
| Minimum | 73000 | First Quartile | 86000 |
| Second Largest | 130000 | Median | 95000 |
| Maximum | 170000 | Third Quartile | 120000 |
| Mean | 104667 | SD | 30668 |
| Coefficient of Variation | 0.293 | Skewness | 1.32 |
| Mean of logged Data | 11.52 | SD of logged Data | 0.269 |

Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,
refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 3.031 | d2max (for USL) | 2.11 |

**Normal GOF Test**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.875 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.764 | Data appear Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.278 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.316 | Data appear Normal at 1% Significance Level | |

Data appear Normal at 1% Significance Level
Note GOF tests may be unreliable for small sample sizes

**Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 197620 | 90% Percentile (z) | 143969 |
| 95% UPL (t) | 164779 | 95% Percentile (z) | 155110 |
| 95% USL | 169362 | 99% Percentile (z) | 176010 |

**Gamma GOF Test**

| | | | |
|---|---|---|---|
| A-D Test Statistic | 0.404 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.721 | Detected data appear Gamma Distributed at 5% Significance Level | |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | |
|---|---|---|
| K-S Test Statistic | 0.262 | **Kolmogorov-Smirnov Gamma GOF Test** |
| 5% K-S Critical Value | 0.279 | Detected data appear Gamma Distributed at 5% Significance Level |

Detected data appear Gamma Distributed at 5% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Gamma Statistics**

| | | | |
|---|---|---|---|
| k hat (MLE) | 14.9 | k star (bias corrected MLE) | 10 |
| Theta hat (MLE) | 7027 | Theta star (bias corrected MLE) | 10462 |
| nu hat (MLE) | 268.1 | nu star (bias corrected) | 180.1 |
| MLE Mean (bias corrected) | 104667 | MLE Sd (bias corrected) | 33091 |

**Background Statistics Assuming Gamma Distribution**

| | | | |
|---|---|---|---|
| 95% Wilson Hilferty (WH) Approx. Gamma UPL | 168481 | 90% Percentile | 148680 |
| 95% Hawkins Wixley (HW) Approx. Gamma UPL | 169138 | 95% Percentile | 164368 |
| 95% WH Approx. Gamma UTL with 95% Coverage | 214441 | 99% Percentile | 196574 |
| 95% HW Approx. Gamma UTL with 95% Coverage | 217495 | | |
| 95% WH USL | 174456 | 95% HW USL | 175347 |

**Lognormal GOF Test**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.931 | **Shapiro Wilk Lognormal GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.859 | Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.244 | **Lilliefors Lognormal GOF Test** |
| 10% Lilliefors Critical Value | 0.252 | Data appear Lognormal at 10% Significance Level |

Data appear Lognormal at 10% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Background Statistics assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| 95% UTL with 95% Coverage | 228737 | 90% Percentile (z) | 142842 |
| 95% UPL (t) | 171463 | 95% Percentile (z) | 157514 |
| 95% USL | 178499 | 99% Percentile (z) | 189223 |

**Nonparametric Distribution Free Background Statistics**

Data appear Normal at 1% Significance Level

**Nonparametric Upper Limits for Background Threshold Values**

| | | | |
|---|---|---|---|
| Order of Statistic, order | 9 | 95% UTL with 95% Coverage | 170000 |
| Approx, f used to compute achieved CC | 0.474 | Approximate Actual Confidence Coefficient achieved by UTL | 0.37 |
| | | Approximate Sample Size needed to achieve specified CC | 59 |
| 95% Percentile Bootstrap UTL with 95% Coverage | 170000 | 95% BCA Bootstrap UTL with 95% Coverage | 170000 |
| 95% UPL | 170000 | 90% Percentile | 138000 |
| 90% Chebyshev UPL | 201646 | 95% Percentile | 154000 |
| 95% Chebyshev UPL | 245574 | 99% Percentile | 166800 |
| 95% USL | 170000 | | |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (wg | background | met | 7782-49-2 | d)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 1 | | |
| Number of Detects | 0 | Number of Non-Detects | 9 |
| Number of Distinct Detects | 0 | Number of Distinct Non-Detects | 1 |
| Minimum Detect | N/A | Minimum Non-Detect | 19 |
| Maximum Detect | N/A | Maximum Non-Detect | 19 |
| Variance Detected | N/A | Percent Non-Detects | 100% |
| Mean Detected | N/A | SD Detected | N/A |
| Mean of Detected Logged Data | N/A | SD of Detected Logged Data | N/A |

**Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!**
**Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!**
**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**

**The data set for variable Conc (wg | background | met | 7782-49-2 | d) was not processed!**

**Conc (wg | background | pah | 120-12-7 | t)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 4 | | |
| Number of Detects | 0 | Number of Non-Detects | 9 |
| Number of Distinct Detects | 0 | Number of Distinct Non-Detects | 4 |
| Minimum Detect | N/A | Minimum Non-Detect | 0.1 |
| Maximum Detect | N/A | Maximum Non-Detect | 0.13 |
| Variance Detected | N/A | Percent Non-Detects | 100% |
| Mean Detected | N/A | SD Detected | N/A |
| Mean of Detected Logged Data | N/A | SD of Detected Logged Data | N/A |

**Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!**
**Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!**
**The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).**

**The data set for variable Conc (wg | background | pah | 120-12-7 | t) was not processed!**

**Conc (wg | background | pah | 129-00-0 | t)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Number of Distinct Observations | 4 | | |
| Number of Detects | 0 | Number of Non-Detects | 9 |
| Number of Distinct Detects | 0 | Number of Distinct Non-Detects | 4 |
| Minimum Detect | N/A | Minimum Non-Detect | 0.1 |
| Maximum Detect | N/A | Maximum Non-Detect | 0.13 |
| Variance Detected | N/A | Percent Non-Detects | 100% |
| Mean Detected | N/A | SD Detected | N/A |
| Mean of Detected Logged Data | N/A | SD of Detected Logged Data | N/A |

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!
Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (wg | background | pah | 129-00-0 | t) was not processed!

**Conc (wg | background | pah | 191-24-2 | t)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 4 | | |
| Number of Detects | 3 | Number of Non-Detects | 6 |
| Number of Distinct Detects | 2 | Number of Distinct Non-Detects | 3 |
| Minimum Detect | 0.11 | Minimum Non-Detect | 0.1 |
| Maximum Detect | 0.12 | Maximum Non-Detect | 0.13 |
| Variance Detected | 3.3333E-5 | Percent Non-Detects | 66.67% |
| Mean Detected | 0.113 | SD Detected | 0.00577 |
| Mean of Detected Logged Data | -2.178 | SD of Detected Logged Data | 0.0502 |

Warning: Data set has only 3 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,
refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 3.031 | d2max (for USL) | 2.11 |

**Normal GOF Test on Detects Only**

| | | | |
|---|---|---|---|
| Shapiro Wilk Test Statistic | 0.75 | **Shapiro Wilk GOF Test** | |
| 1% Shapiro Wilk Critical Value | 0.753 | Data Not Normal at 1% Significance Level | |
| Lilliefors Test Statistic | 0.385 | **Lilliefors GOF Test** | |
| 1% Lilliefors Critical Value | 0.429 | Detected Data appear Normal at 1% Significance Level | |

Detected Data appear Approximate Normal at 1% Significance Level
Note GOF tests may be unreliable for small sample sizes

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.105 | KM SD | 0.00707 |
| 95% UTL95% Coverage | 0.126 | 95% KM UPL (t) | 0.119 |
| 90% KM Percentile (z) | 0.114 | 95% KM Percentile (z) | 0.117 |
| 99% KM Percentile (z) | 0.121 | 95% KM USL | 0.12 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0733 | SD | 0.0305 |
| 95% UTL95% Coverage | 0.166 | 95% UPL (t) | 0.133 |
| 90% Percentile (z) | 0.112 | 95% Percentile (z) | 0.124 |
| 99% Percentile (z) | 0.144 | 95% USL | 0.138 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.619 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.635 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.427 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.431 | Detected data appear Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 589 | k star (bias corrected MLE) | N/A |
| Theta hat (MLE) | 1.9242E-4 | Theta star (bias corrected MLE) | N/A |
| nu hat (MLE) | 3534 | nu star (bias corrected) | N/A |
| MLE Mean (bias corrected) | N/A | | |
| MLE Sd (bias corrected) | N/A | 95% Percentile of Chisquare (2kstar) | N/A |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0847 | Mean | 0.101 |
| Maximum | 0.12 | Median | 0.1 |
| SD | 0.011 | CV | 0.109 |
| k hat (MLE) | 95.79 | k star (bias corrected MLE) | 63.93 |
| Theta hat (MLE) | 0.00105 | Theta star (bias corrected MLE) | 0.00157 |
| nu hat (MLE) | 1724 | nu star (bias corrected) | 1151 |
| MLE Mean (bias corrected) | 0.101 | MLE Sd (bias corrected) | 0.0126 |
| 95% Percentile of Chisquare (2kstar) | 155.3 | 90% Percentile | 0.117 |
| 95% Percentile | 0.122 | 99% Percentile | 0.132 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.137 | 0.138 | 95% Approx. Gamma UPL | 0.123 | 0.123 |
| 95% Gamma USL | 0.125 | 0.125 | | | |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.105 | SD (KM) | 0.00707 |
| Variance (KM) | 5.0000E-5 | SE of Mean (KM) | 0.00306 |
| k hat (KM) | 220.5 | k star (KM) | 147.1 |
| nu hat (KM) | 3969 | nu star (KM) | 2647 |
| theta hat (KM) | 4.7619E-4 | theta star (KM) | 7.1393E-4 |
| 80% gamma percentile (KM) | 0.112 | 90% gamma percentile (KM) | 0.116 |
| 95% gamma percentile (KM) | 0.12 | 99% gamma percentile (KM) | 0.126 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.127 | 0.127 | 95% Approx. Gamma UPL | 0.119 | 0.119 |
| 95% KM Gamma Percentile | 0.117 | 0.117 | 95% Gamma USL | 0.12 | 0.12 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.75 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.789 | Data Not Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.385 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.389 | Detected Data appear Lognormal at 10% Significance Level |

Detected Data appear Approximate Lognormal at 10% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.102 | Mean in Log Scale | -2.29 |
| SD in Original Scale | 0.0101 | SD in Log Scale | 0.0977 |
| 95% UTL95% Coverage | 0.136 | 95% BCA UTL95% Coverage | 0.12 |
| 95% Bootstrap (%) UTL95% Coverage | 0.12 | 95% UPL (t) | 0.123 |
| 90% Percentile (z) | 0.115 | 95% Percentile (z) | 0.119 |
| 99% Percentile (z) | 0.127 | 95% USL | 0.124 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -2.256 | 95% KM UTL (Lognormal)95% Coverage | 0.128 |
| KM SD of Logged Data | 0.0652 | 95% KM UPL (Lognormal) | 0.119 |
| 95% KM Percentile Lognormal (z) | 0.117 | 95% KM USL (Lognormal) | 0.12 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0733 | Mean in Log Scale | -2.684 |
| SD in Original Scale | 0.0305 | SD in Log Scale | 0.389 |
| 95% UTL95% Coverage | 0.222 | 95% UPL (t) | 0.146 |
| 90% Percentile (z) | 0.112 | 95% Percentile (z) | 0.13 |
| 99% Percentile (z) | 0.169 | 95% USL | 0.155 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 9 | 95% UTL with95% Coverage | 0.13 |
| Approx, f used to compute achieved CC | 0.474 | Approximate Actual Confidence Coefficient achieved by UTL | 0.37 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.13 |
| 95% USL | 0.13 | 95% KM Chebyshev UPL | 0.137 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (wg | background | pah | 193-39-5 | t)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 4 | | |
| Number of Detects | 1 | Number of Non-Detects | 8 |
| Number of Distinct Detects | 1 | Number of Distinct Non-Detects | 4 |
| Minimum Detect | 0.11 | Minimum Non-Detect | 0.1 |
| Maximum Detect | 0.11 | Maximum Non-Detect | 0.13 |
| Variance Detected | N/A | Percent Non-Detects | 88.89% |
| Mean Detected | 0.11 | SD Detected | N/A |
| Mean of Detected Logged Data | -2.207 | SD of Detected Logged Data | N/A |

**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**
**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**

**The data set for variable Conc (wg | background | pah | 193-39-5 | t) was not processed!**

**Conc (wg | background | pah | 205-99-2 | t)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 4 | | |
| Number of Detects | 1 | Number of Non-Detects | 8 |
| Number of Distinct Detects | 1 | Number of Distinct Non-Detects | 3 |
| Minimum Detect | 0.12 | Minimum Non-Detect | 0.1 |
| Maximum Detect | 0.12 | Maximum Non-Detect | 0.13 |
| Variance Detected | N/A | Percent Non-Detects | 88.89% |
| Mean Detected | 0.12 | SD Detected | N/A |
| Mean of Detected Logged Data | -2.12 | SD of Detected Logged Data | N/A |

**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**
**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

The data set for variable Conc (wg | background | pah | 205-99-2 | t) was not processed!

**Conc (wg | background | pah | 206-44-0 | t)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 4 | | |
| Number of Detects | 0 | Number of Non-Detects | 9 |
| Number of Distinct Detects | 0 | Number of Distinct Non-Detects | 4 |
| Minimum Detect | N/A | Minimum Non-Detect | 0.1 |
| Maximum Detect | N/A | Maximum Non-Detect | 0.13 |
| Variance Detected | N/A | Percent Non-Detects | 100% |
| Mean Detected | N/A | SD Detected | N/A |
| Mean of Detected Logged Data | N/A | SD of Detected Logged Data | N/A |

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!
Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (wg | background | pah | 206-44-0 | t) was not processed!

**Conc (wg | background | pah | 207-08-9 | t)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 6 | | |
| Number of Detects | 2 | Number of Non-Detects | 7 |
| Number of Distinct Detects | 2 | Number of Distinct Non-Detects | 4 |
| Minimum Detect | 0.12 | Minimum Non-Detect | 0.05 |
| Maximum Detect | 0.13 | Maximum Non-Detect | 0.054 |
| Variance Detected | 5.0000E-5 | Percent Non-Detects | 77.78% |
| Mean Detected | 0.125 | SD Detected | 0.00707 |
| Mean of Detected Logged Data | -2.08 | SD of Detected Logged Data | 0.0566 |

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,
refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 3.031 | d2max (for USL) | 2.11 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Normal GOF Test on Detects Only**

Not Enough Data to Perform GOF Test

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0667 | KM SD | 0.0313 |
| 95% UTL95% Coverage | 0.161 | 95% KM UPL (t) | 0.128 |
| 90% KM Percentile (z) | 0.107 | 95% KM Percentile (z) | 0.118 |
| 99% KM Percentile (z) | 0.139 | 95% KM USL | 0.133 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0482 | SD | 0.0436 |
| 95% UTL95% Coverage | 0.18 | 95% UPL (t) | 0.134 |
| 90% Percentile (z) | 0.104 | 95% Percentile (z) | 0.12 |
| 99% Percentile (z) | 0.15 | 95% USL | 0.14 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

Not Enough Data to Perform GOF Test

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 624.7 | k star (bias corrected MLE) | N/A |
| Theta hat (MLE) | 2.0011E-4 | Theta star (bias corrected MLE) | N/A |
| nu hat (MLE) | 2499 | nu star (bias corrected) | N/A |
| MLE Mean (bias corrected) | N/A | | |
| MLE Sd (bias corrected) | N/A | 95% Percentile of Chisquare (2kstar) | N/A |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0667 | SD (KM) | 0.0313 |
| Variance (KM) | 9.7778E-4 | SE of Mean (KM) | 0.0147 |
| k hat (KM) | 4.545 | k star (KM) | 3.104 |
| nu hat (KM) | 81.82 | nu star (KM) | 55.88 |
| theta hat (KM) | 0.0147 | theta star (KM) | 0.0215 |
| 80% gamma percentile (KM) | 0.0947 | 90% gamma percentile (KM) | 0.117 |
| 95% gamma percentile (KM) | 0.139 | 99% gamma percentile (KM) | 0.184 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.179 | 0.182 | 95% Approx. Gamma UPL | 0.129 | 0.129 |
| 95% KM Gamma Percentile | 0.116 | 0.116 | 95% Gamma USL | 0.135 | 0.136 |

**Lognormal GOF Test on Detected Observations Only**

Not Enough Data to Perform GOF Test

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0993 | Mean in Log Scale | -2.32 |
| SD in Original Scale | 0.0159 | SD in Log Scale | 0.151 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 95% UTL95% Coverage | 0.155 | 95% BCA UTL95% Coverage | 0.13 |
| 95% Bootstrap (%) UTL95% Coverage | 0.13 | 95% UPL (t) | 0.132 |
| 90% Percentile (z) | 0.119 | 95% Percentile (z) | 0.126 |
| 99% Percentile (z) | 0.14 | 95% USL | 0.135 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -2.792 | 95% KM UTL (Lognormal)95% Coverage | 0.195 |
| KM SD of Logged Data | 0.381 | 95% KM UPL (Lognormal) | 0.129 |
| 95% KM Percentile Lognormal (z) | 0.115 | 95% KM USL (Lognormal) | 0.137 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0482 | Mean in Log Scale | -3.295 |
| SD in Original Scale | 0.0436 | SD in Log Scale | 0.689 |
| 95% UTL95% Coverage | 0.299 | 95% UPL (t) | 0.143 |
| 90% Percentile (z) | 0.0897 | 95% Percentile (z) | 0.115 |
| 99% Percentile (z) | 0.184 | 95% USL | 0.159 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data do not follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 9 | 95% UTL with95% Coverage | 0.13 |
| Approx, f used to compute achieved CC | 0.474 | Approximate Actual Confidence Coefficient achieved by UTL | 0.37 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.13 |
| 95% USL | 0.13 | 95% KM Chebyshev UPL | 0.21 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (wg | background | pah | 208-96-8 | t)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 5 | | |
| Number of Detects | 3 | Number of Non-Detects | 6 |
| Number of Distinct Detects | 3 | Number of Distinct Non-Detects | 2 |
| Minimum Detect | 0.1 | Minimum Non-Detect | 0.021 |
| Maximum Detect | 0.12 | Maximum Non-Detect | 0.026 |
| Variance Detected | 1.0000E-4 | Percent Non-Detects | 66.67% |
| Mean Detected | 0.11 | SD Detected | 0.01 |
| Mean of Detected Logged Data | -2.21 | SD of Detected Logged Data | 0.0912 |

Warning: Data set has only 3 Detected Values.

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

This is not enough to compute meaningful or reliable statistics and estimates.

Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach, refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance.

**Critical Values for Background Threshold Values (BTVs)**

| | | | |
|---|---|---|---|
| Tolerance Factor K (For UTL) | 3.031 | d2max (for USL) | 2.11 |

**Normal GOF Test on Detects Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 1 | **Shapiro Wilk GOF Test** |
| 1% Shapiro Wilk Critical Value | 0.753 | Detected Data appear Normal at 1% Significance Level |
| Lilliefors Test Statistic | 0.175 | **Lilliefors GOF Test** |
| 1% Lilliefors Critical Value | 0.429 | Detected Data appear Normal at 1% Significance Level |

Detected Data appear Normal at 1% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| KM Mean | 0.0507 | KM SD | 0.0422 |
| 95% UTL95% Coverage | 0.179 | 95% KM UPL (t) | 0.133 |
| 90% KM Percentile (z) | 0.105 | 95% KM Percentile (z) | 0.12 |
| 99% KM Percentile (z) | 0.149 | 95% KM USL | 0.14 |

**DL/2 Substitution Background Statistics Assuming Normal Distribution**

| | | | |
|---|---|---|---|
| Mean | 0.0439 | SD | 0.0498 |
| 95% UTL95% Coverage | 0.195 | 95% UPL (t) | 0.142 |
| 90% Percentile (z) | 0.108 | 95% Percentile (z) | 0.126 |
| 99% Percentile (z) | 0.16 | 95% USL | 0.149 |

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

**Gamma GOF Tests on Detected Observations Only**

| | | |
|---|---|---|
| A-D Test Statistic | 0.246 | **Anderson-Darling GOF Test** |
| 5% A-D Critical Value | 0.635 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.225 | **Kolmogorov-Smirnov GOF** |
| 5% K-S Critical Value | 0.431 | Detected data appear Gamma Distributed at 5% Significance Level |

Data Not Gamma Distributed at 5% Significance Level

**Gamma Statistics on Detected Data Only**

| | | | |
|---|---|---|---|
| k hat (MLE) | 180.9 | k star (bias corrected MLE) | N/A |
| Theta hat (MLE) | 6.0802E-4 | Theta star (bias corrected MLE) | N/A |
| nu hat (MLE) | 1085 | nu star (bias corrected) | N/A |
| MLE Mean (bias corrected) | N/A | | |
| MLE Sd (bias corrected) | N/A | 95% Percentile of Chisquare (2kstar) | N/A |

**Gamma ROS Statistics using Imputed Non-Detects**

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

| | | | |
|---|---|---|---|
| Minimum | 0.0511 | Mean | 0.0834 |
| Maximum | 0.12 | Median | 0.0788 |
| SD | 0.0227 | CV | 0.272 |
| k hat (MLE) | 15.11 | k star (bias corrected MLE) | 10.15 |
| Theta hat (MLE) | 0.00552 | Theta star (bias corrected MLE) | 0.00822 |
| nu hat (MLE) | 272 | nu star (bias corrected) | 182.7 |
| MLE Mean (bias corrected) | 0.0834 | MLE Sd (bias corrected) | 0.0262 |
| 95% Percentile of Chisquare (2kstar) | 31.78 | 90% Percentile | 0.118 |
| 95% Percentile | 0.131 | 99% Percentile | 0.156 |

**The following statistics are computed using Gamma ROS Statistics on Imputed Data**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.17 | 0.174 | 95% Approx. Gamma UPL | 0.134 | 0.135 |
| 95% Gamma USL | 0.139 | 0.14 | | | |

**Estimates of Gamma Parameters using KM Estimates**

| | | | |
|---|---|---|---|
| Mean (KM) | 0.0507 | SD (KM) | 0.0422 |
| Variance (KM) | 0.00178 | SE of Mean (KM) | 0.0172 |
| k hat (KM) | 1.44 | k star (KM) | 1.034 |
| nu hat (KM) | 25.92 | nu star (KM) | 18.62 |
| theta hat (KM) | 0.0352 | theta star (KM) | 0.049 |
| 80% gamma percentile (KM) | 0.0813 | 90% gamma percentile (KM) | 0.116 |
| 95% gamma percentile (KM) | 0.15 | 99% gamma percentile (KM) | 0.229 |

**The following statistics are computed using gamma distribution and KM estimates**

**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

| | WH | HW | | WH | HW |
|---|---|---|---|---|---|
| 95% Approx. Gamma UTL with 95% Coverage | 0.255 | 0.276 | 95% Approx. Gamma UPL | 0.15 | 0.154 |
| 95% KM Gamma Percentile | 0.126 | 0.127 | 95% Gamma USL | 0.163 | 0.168 |

**Lognormal GOF Test on Detected Observations Only**

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.999 | **Shapiro Wilk GOF Test** |
| 10% Shapiro Wilk Critical Value | 0.789 | Detected Data appear Lognormal at 10% Significance Level |
| Lilliefors Test Statistic | 0.179 | **Lilliefors GOF Test** |
| 10% Lilliefors Critical Value | 0.389 | Detected Data appear Lognormal at 10% Significance Level |

Detected Data appear Lognormal at 10% Significance Level

Note GOF tests may be unreliable for small sample sizes

**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0871 | Mean in Log Scale | -2.461 |
| SD in Original Scale | 0.0192 | SD in Log Scale | 0.216 |
| 95% UTL95% Coverage | 0.164 | 95% BCA UTL95% Coverage | 0.12 |
| 95% Bootstrap (%) UTL95% Coverage | 0.12 | 95% UPL (t) | 0.13 |
| 90% Percentile (z) | 0.113 | 95% Percentile (z) | 0.122 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| 99% Percentile (z) | 0.141 | 95% USL | 0.135 |

**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| KM Mean of Logged Data | -3.312 | 95% KM UTL (Lognormal)95% Coverage | 0.388 |
| KM SD of Logged Data | 0.781 | 95% KM UPL (Lognormal) | 0.168 |
| 95% KM Percentile Lognormal (z) | 0.132 | 95% KM USL (Lognormal) | 0.189 |

**Background DL/2 Statistics Assuming Lognormal Distribution**

| | | | |
|---|---|---|---|
| Mean in Original Scale | 0.0439 | Mean in Log Scale | -3.751 |
| SD in Original Scale | 0.0498 | SD in Log Scale | 1.158 |
| 95% UTL95% Coverage | 0.787 | 95% UPL (t) | 0.228 |
| 90% Percentile (z) | 0.104 | 95% Percentile (z) | 0.158 |
| 99% Percentile (z) | 0.348 | 95% USL | 0.271 |

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

**Nonparametric Distribution Free Background Statistics**

Data appear to follow a Discernible Distribution

**Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

| | | | |
|---|---|---|---|
| Order of Statistic, r | 9 | 95% UTL with95% Coverage | 0.12 |
| Approx, f used to compute achieved CC | 0.474 | Approximate Actual Confidence Coefficient achieved by UTL | 0.37 |
| Approximate Sample Size needed to achieve specified CC | 59 | 95% UPL | 0.12 |
| 95% USL | 0.12 | 95% KM Chebyshev UPL | 0.245 |

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

**Conc (wg | background | pah | 218-01-9 | t)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 4 | | |
| Number of Detects | 1 | Number of Non-Detects | 8 |
| Number of Distinct Detects | 1 | Number of Distinct Non-Detects | 3 |
| Minimum Detect | 0.12 | Minimum Non-Detect | 0.1 |
| Maximum Detect | 0.12 | Maximum Non-Detect | 0.13 |
| Variance Detected | N/A | Percent Non-Detects | 88.89% |
| Mean Detected | 0.12 | SD Detected | N/A |
| Mean of Detected Logged Data | -2.12 | SD of Detected Logged Data | N/A |

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (wg | background | pah | 218-01-9 | t) was not processed!

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

**Conc (wg | background | pah | 50-32-8 | t)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 6 | | |
| Number of Detects | 1 | Number of Non-Detects | 8 |
| Number of Distinct Detects | 1 | Number of Distinct Non-Detects | 5 |
| Minimum Detect | 0.11 | Minimum Non-Detect | 0.05 |
| Maximum Detect | 0.11 | Maximum Non-Detect | 0.065 |
| Variance Detected | N/A | Percent Non-Detects | 88.89% |
| Mean Detected | 0.11 | SD Detected | N/A |
| Mean of Detected Logged Data | -2.207 | SD of Detected Logged Data | N/A |

**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**
**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**

**The data set for variable Conc (wg | background | pah | 50-32-8 | t) was not processed!**

**Conc (wg | background | pah | 53-70-3 | t)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 4 | | |
| Number of Detects | 1 | Number of Non-Detects | 8 |
| Number of Distinct Detects | 1 | Number of Distinct Non-Detects | 4 |
| Minimum Detect | 0.11 | Minimum Non-Detect | 0.1 |
| Maximum Detect | 0.11 | Maximum Non-Detect | 0.13 |
| Variance Detected | N/A | Percent Non-Detects | 88.89% |
| Mean Detected | 0.11 | SD Detected | N/A |
| Mean of Detected Logged Data | -2.207 | SD of Detected Logged Data | N/A |

**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**
**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**

**The data set for variable Conc (wg | background | pah | 53-70-3 | t) was not processed!**

**Conc (wg | background | pah | 56-55-3 | t)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 4 | | |
| Number of Detects | 1 | Number of Non-Detects | 8 |
| Number of Distinct Detects | 1 | Number of Distinct Non-Detects | 3 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Minimum Detect | 0.12 | Minimum Non-Detect | 0.1 |
| Maximum Detect | 0.12 | Maximum Non-Detect | 0.13 |
| Variance Detected | N/A | Percent Non-Detects | 88.89% |
| Mean Detected | 0.12 | SD Detected | N/A |
| Mean of Detected Logged Data | -2.12 | SD of Detected Logged Data | N/A |

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (wg | background | pah | 56-55-3 | t) was not processed!

**Conc (wg | background | pah | 83-32-9 | t)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 5 | | |
| Number of Detects | 1 | Number of Non-Detects | 8 |
| Number of Distinct Detects | 1 | Number of Distinct Non-Detects | 4 |
| Minimum Detect | 0.1 | Minimum Non-Detect | 0.012 |
| Maximum Detect | 0.1 | Maximum Non-Detect | 0.016 |
| Variance Detected | N/A | Percent Non-Detects | 88.89% |
| Mean Detected | 0.1 | SD Detected | N/A |
| Mean of Detected Logged Data | -2.303 | SD of Detected Logged Data | N/A |

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (wg | background | pah | 83-32-9 | t) was not processed!

**Conc (wg | background | pah | 85-01-8 | t)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 4 | | |
| Number of Detects | 1 | Number of Non-Detects | 8 |
| Number of Distinct Detects | 1 | Number of Distinct Non-Detects | 3 |
| Minimum Detect | 0.12 | Minimum Non-Detect | 0.1 |
| Maximum Detect | 0.12 | Maximum Non-Detect | 0.13 |
| Variance Detected | N/A | Percent Non-Detects | 88.89% |
| Mean Detected | 0.12 | SD Detected | N/A |
| Mean of Detected Logged Data | -2.12 | SD of Detected Logged Data | N/A |

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

The data set for variable Conc (wg | background | pah | 85-01-8 | t) was not processed!

**Conc (wg | background | pah | 86-73-7 | t)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 6 | | |
| Number of Detects | 0 | Number of Non-Detects | 9 |
| Number of Distinct Detects | 0 | Number of Distinct Non-Detects | 6 |
| Minimum Detect | N/A | Minimum Non-Detect | 0.04 |
| Maximum Detect | N/A | Maximum Non-Detect | 0.052 |
| Variance Detected | N/A | Percent Non-Detects | 100% |
| Mean Detected | N/A | SD Detected | N/A |
| Mean of Detected Logged Data | N/A | SD of Detected Logged Data | N/A |

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!
Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (wg | background | pah | 86-73-7 | t) was not processed!

**Conc (wg | background | pah | 90-12-0 | t)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 6 | | |
| Number of Detects | 0 | Number of Non-Detects | 9 |
| Number of Distinct Detects | 0 | Number of Distinct Non-Detects | 6 |
| Minimum Detect | N/A | Minimum Non-Detect | 0.04 |
| Maximum Detect | N/A | Maximum Non-Detect | 0.052 |
| Variance Detected | N/A | Percent Non-Detects | 100% |
| Mean Detected | N/A | SD Detected | N/A |
| Mean of Detected Logged Data | N/A | SD of Detected Logged Data | N/A |

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!
Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (wg | background | pah | 90-12-0 | t) was not processed!

**Conc (wg | background | pah | 91-20-3 | t)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |

**Table H-2**
**ProUCL UPL and UTL Calculation Output - Groundwater**
**Phase 1 Risk Screening and Data Gaps Analysis**
**Former New York Ordnance Works, Baldwinsville, NY**

| | | | |
|---|---|---|---|
| Number of Distinct Observations | 6 | | |
| Number of Detects | 0 | Number of Non-Detects | 9 |
| Number of Distinct Detects | 0 | Number of Distinct Non-Detects | 6 |
| Minimum Detect | N/A | Minimum Non-Detect | 0.05 |
| Maximum Detect | N/A | Maximum Non-Detect | 0.065 |
| Variance Detected | N/A | Percent Non-Detects | 100% |
| Mean Detected | N/A | SD Detected | N/A |
| Mean of Detected Logged Data | N/A | SD of Detected Logged Data | N/A |

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!
Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (wg | background | pah | 91-20-3 | t) was not processed!

**Conc (wg | background | pah | 91-57-6 | t)**

**General Statistics**

| | | | |
|---|---|---|---|
| Total Number of Observations | 9 | Number of Missing Observations | 0 |
| Number of Distinct Observations | 6 | | |
| Number of Detects | 0 | Number of Non-Detects | 9 |
| Number of Distinct Detects | 0 | Number of Distinct Non-Detects | 6 |
| Minimum Detect | N/A | Minimum Non-Detect | 0.05 |
| Maximum Detect | N/A | Maximum Non-Detect | 0.065 |
| Variance Detected | N/A | Percent Non-Detects | 100% |
| Mean Detected | N/A | SD Detected | N/A |
| Mean of Detected Logged Data | N/A | SD of Detected Logged Data | N/A |

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!
Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Conc (wg | background | pah | 91-57-6 | t) was not processed!

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# APPENDIX I

# Comparison of Site Concentrations to Background Threshold Values

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Table I-1
Site to Background Sample Comparison - Area of Concern 1, Surface Soil (0 - 1 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-01-020 | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-01-SL020-A | |
| | | | | | | Sample Type: | N | |
| | | | | | | Sample Depth (feet): | 0 - 1 | |
| | | | | | | Sample Geology: | Psc | |
| | | | | | | Sample Date: | 2021-04-06 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier |
| Metals (Total) | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 1 | N/A | No | mg/kg | 5800 | |
| Antimony | 7440-36-0 | 0.15 | 1 | N/A | No | mg/kg | 0.14 | J |
| Arsenic | 7440-38-2 | 4.7 | 1 | N/A | Yes | mg/kg | 6.9 | |
| Barium | 7440-39-3 | 100 | 1 | N/A | No | mg/kg | 43 | |
| Beryllium | 7440-41-7 | < LOQ | 1 | N/A | Yes | mg/kg | 0.53 | J+ |
| Cadmium | 7440-43-9 | 0.38 | 1 | N/A | No | mg/kg | 0.13 | |
| Calcium | 7440-70-2 | 120000 | 1 | N/A | No | mg/kg | 40000 | |
| Chromium | 7440-47-3 | 11 | 1 | N/A | No | mg/kg | 7.5 | |
| Cobalt | 7440-48-4 | 5.5 | 1 | N/A | Yes | mg/kg | 9.4 | |
| Copper | 7440-50-8 | 13 | 1 | N/A | Yes | mg/kg | 28 | |
| Iron | 7439-89-6 | 14000 | 1 | N/A | Yes | mg/kg | 17000 | |
| Lead | 7439-92-1 | 9.8 | 1 | N/A | Yes | mg/kg | 19 | |
| Magnesium | 7439-95-4 | 2000 | 1 | N/A | Yes | mg/kg | 15000 | |
| Manganese | 7439-96-5 | 520 | 1 | N/A | Yes | mg/kg | 600 | |
| Mercury | 7439-97-6 | 0.19 | 1 | N/A | No | mg/kg | 0.02 | J |
| Nickel | 7440-02-0 | 9.7 | 1 | N/A | Yes | mg/kg | 12 | |
| Potassium | 7440-09-7 | 1200 | 1 | N/A | No | mg/kg | 1100 | |
| Selenium | 7782-49-2 | 0.51 | 1 | N/A | Yes | mg/kg | 0.57 | J+ |
| Silver | 7440-22-4 | < LOQ | 1 | N/A | No | mg/kg | 0.64 | U |
| Sodium | 7440-23-5 | < LOQ | 1 | N/A | Yes | mg/kg | 530 | J+ |
| Thallium | 7440-28-0 | 0.11 | 1 | N/A | No | mg/kg | 0.11 | U |
| Vanadium | 7440-62-2 | 14 | 1 | N/A | No | mg/kg | 11 | |
| Zinc | 7440-66-6 | 23 | 1 | N/A | Yes | mg/kg | 44 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-2
Site to Background Sample Comparison - Area of Concern 1, Surface Soil (0 - 1 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | Sample Location: | NYOW-01-007 | | NYOW-01-009 | | NYOW-01-011 | | NYOW-01-013 | | NYOW-01-018 | | NYOW-01-019 | | NYOW-01-021 | | NYOW-01-022 | | NYOW-01-023 | | NYOW-01-024 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-01-SL007-A | | NYOW-01-SL009-A | | NYOW-01-SL011-A | | NYOW-01-SL013-A | | NYOW-01-SL018-A | | NYOW-01-SL019-A | | NYOW-01-SL021-A | | NYOW-01-SL022-A | | NYOW-01-SL023-A | | NYOW-01-SL024-A | |
| | | | | | | | Sample Type: | N | | N | | N | | N | | N | | C | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | | | | Sample Geology: | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | |
| | | | | | | | Sample Date: | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-14 | | 2021-04-08 | | 2021-04-06 | | 2021-04-07 | | 2021-04-07 | | 2021-04-02 | | 2021-04-07 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 10000 | 15 | N/A | No | mg/kg | 6500 | | 3900 | | 4200 | | 4600 | | 5100 | | 4000 | J | 6400 | | 7800 | | 6000 | | 4400 | | |
| Antimony | 7440-36-0 | 0.15 | 15 | N/A | Yes | mg/kg | 0.23 | J | 0.19 | J | 0.13 | J | 0.13 | J | 0.082 | J | 0.095 | J | 0.15 | J | 0.18 | | 0.13 | J | 0.1 | J | |
| Arsenic | 7440-38-2 | 21 | 15 | N/A | No | mg/kg | 5.7 | | 4.7 | | 2.4 | | 4.8 | | 4.7 | | 3.9 | | 4.5 | | 4.7 | | 4.7 | | 4 | | |
| Barium | 7440-39-3 | 100 | 15 | N/A | No | mg/kg | 86 | | 72 | | 32 | | 39 | | 40 | J+ | 25 | J | 51 | | 61 | | 40 | | 37 | | |
| Beryllium | 7440-41-7 | < LOQ | 15 | N/A | Yes | mg/kg | 0.72 | J+ | 0.56 | J+ | 0.52 | J+ | 0.57 | J+ | 0.4 | J+ | 0.45 | J+ | 0.43 | J+ | 0.53 | J+ | 0.46 | J+ | 0.6 | J+ | |
| Cadmium | 7440-43-9 | 0.38 | 15 | N/A | Yes | mg/kg | 0.37 | | 0.19 | | 0.32 | | 0.14 | | 0.058 | J | 0.058 | J | 0.14 | | 0.65 | | 0.79 | | 0.058 | J | |
| Calcium | 7440-70-2 | 120000 | 15 | N/A | No | mg/kg | 21000 | | 31000 | | 20000 | | 55000 | | 40000 | | 13000 | | 13000 | J | 35000 | | 33000 | J | 38000 | | |
| Chromium | 7440-47-3 | 11 | 15 | N/A | No | mg/kg | 9.3 | | 5.4 | | 5 | | 6.8 | | 6.1 | | 6.4 | J | 7.9 | | 9.3 | | 7.2 | | 5.4 | | |
| Cobalt | 7440-48-4 | 8.3 | 15 | N/A | Yes | mg/kg | 5.7 | | 3.9 | | 3.7 | | 6.4 | | 4.9 | | 3.4 | J | 6.2 | | 6 | | 5.9 | | 4.8 | | |
| Copper | 7440-50-8 | 28 | 15 | N/A | Yes | mg/kg | 21 | | 15 | | 23 | | 80 | | 13 | | 14 | J | 20 | | 24 | | 28 | | 13 | | |
| Iron | 7439-89-6 | 24000 | 15 | N/A | Yes | mg/kg | 16000 | | 10000 | | 9100 | | 14000 | | 12000 | | 10000 | | 15000 | | 18000 | | 14000 | J | 12000 | | |
| Lead | 7439-92-1 | 320 | 15 | N/A | No | mg/kg | 37 | | 23 | | 7.6 | | 14 | | 6.1 | | 4.2 | J | 12 | | 30 | | 7.2 | | 5.9 | | |
| Magnesium | 7439-95-4 | 6300 | 15 | N/A | Yes | mg/kg | 8200 | | 8000 | | 5400 | | 12000 | | 10000 | | 4800 | | 3800 | J | 8100 | | 7600 | | 12000 | | |
| Manganese | 7439-96-5 | 1700 | 15 | N/A | No | mg/kg | 450 | | 1100 | | 740 | | 580 | | 420 | | 320 | | 590 | J | 500 | | 620 | | 450 | | |
| Mercury | 7439-97-6 | 0.19 | 15 | N/A | No | mg/kg | 0.073 | | 0.019 | J | 0.032 | | 0.038 | | 0.018 | J | 0.017 | J | 0.032 | | 0.046 | | 0.017 | J | 0.018 | U | |
| Nickel | 7440-02-0 | 13 | 15 | N/A | No | mg/kg | 12 | | 7.3 | | 6.9 | | 9.1 | | 8.3 | | 8.1 | J | 9.3 | | 12 | | 8.8 | | 7.1 | | |
| Potassium | 7440-09-7 | 1100 | 15 | N/A | Yes | mg/kg | 1200 | | 810 | | 700 | | 1100 | | 850 | | 480 | J | 700 | | 810 | | 870 | | 760 | | |
| Selenium | 7782-49-2 | 0.51 | 15 | N/A | Yes | mg/kg | 0.77 | J+ | 0.55 | J+ | 0.54 | J+ | 0.59 | J+ | 0.48 | J+ | 0.43 | J+ | 0.53 | J+ | 0.44 | J+ | 0.56 | J+ | 0.45 | J+ | |
| Silver | 7440-22-4 | < LOQ | 15 | N/A | Yes | mg/kg | 2.2 | J+ | 1.7 | J+ | 1.6 | J+ | 0.69 | U | 0.47 | U | 0.53 | U | 0.52 | U | 0.63 | U | 0.55 | U | 0.72 | U | |
| Sodium | 7440-23-5 | < LOQ | 15 | N/A | Yes | mg/kg | 720 | J+ | 560 | J+ | 520 | J+ | 570 | J+ | 400 | J+ | 450 | J+ | 430 | J+ | 530 | J+ | 460 | J+ | 600 | J+ | |
| Thallium | 7440-28-0 | 0.12 | 15 | N/A | No | mg/kg | 0.083 | J | 0.052 | J | 0.031 | J | 0.069 | J | 0.051 | J | 0.086 | U | 0.088 | J | 0.07 | J | 0.073 | J | 0.048 | J | |
| Vanadium | 7440-62-2 | 21 | 15 | N/A | No | mg/kg | 15 | | 11 | | 8.8 | | 10 | | 11 | | 8.4 | J | 12 | | 14 | | 12 | | 9.5 | | |
| Zinc | 7440-66-6 | 57 | 15 | N/A | Yes | mg/kg | 110 | | 57 | | 55 | | 38 | | 11 | | 22 | | 28 | J | 27 | | 44 | | 41 | | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-2
Site to Background Sample Comparison - Area of Concern 1, Surface Soil (0 - 1 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-01-025 | | NYOW-01-029 | | NYOW-01-032 | | NYOW-01-035 | | NYOW-01-038 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-01-SL025-A | | NYOW-01-SL029-A | | NYOW-01-SL032-A | | NYOW-01-SL035-A | | NYOW-01-SL038-A | |
| | | | | | | | Sample Type: | N | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | | | | Sample Geology: | Ps | | Ps | | Ps | | Ps | | Ps | |
| | | | | | | | Sample Date: | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-14 | | 2021-04-13 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Metals (Total) | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 10000 | 15 | N/A | No | mg/kg | | 5100 | | 6900 | | 6600 | | 6900 | | 5400 | |
| Antimony | 7440-36-0 | 0.15 | 15 | N/A | Yes | mg/kg | | 0.11 | J | 0.18 | J | 0.23 | | 0.24 | J | 0.091 | J |
| Arsenic | 7440-38-2 | 21 | 15 | N/A | No | mg/kg | | 8.7 | | 11 | | 7.1 | | 7.8 | | 4.7 | |
| Barium | 7440-39-3 | 100 | 15 | N/A | No | mg/kg | | 61 | | 96 | | 58 | | 67 | | 37 | |
| Beryllium | 7440-41-7 | < LOQ | 15 | N/A | Yes | mg/kg | | 0.55 | J+ | 0.51 | J+ | 0.55 | J+ | 0.57 | J+ | 0.5 | J+ |
| Cadmium | 7440-43-9 | 0.38 | 15 | N/A | Yes | mg/kg | | 0.053 | J | 0.29 | | 0.28 | | 0.37 | | 0.14 | |
| Calcium | 7440-70-2 | 120000 | 15 | N/A | No | mg/kg | | 63000 | | 11000 | | 11000 | | 18000 | | 38000 | |
| Chromium | 7440-47-3 | 11 | 15 | N/A | No | mg/kg | | 6.5 | | 10 | | 9.8 | | 9.2 | | 6.3 | |
| Cobalt | 7440-48-4 | 8.3 | 15 | N/A | Yes | mg/kg | | 7.4 | | 8.3 | | 8.6 | | 9.4 | | 5.5 | |
| Copper | 7440-50-8 | 28 | 15 | N/A | Yes | mg/kg | | 22 | | 24 | | 33 | | 32 | | 14 | |
| Iron | 7439-89-6 | 24000 | 15 | N/A | Yes | mg/kg | | 17000 | | 26000 | | 17000 | | 20000 | | 13000 | |
| Lead | 7439-92-1 | 320 | 15 | N/A | No | mg/kg | | 11 | | 26 | | 23 | | 31 | | 6.8 | |
| Magnesium | 7439-95-4 | 6300 | 15 | N/A | Yes | mg/kg | | 12000 | | 5300 | | 4700 | | 2900 | | 11000 | |
| Manganese | 7439-96-5 | 1700 | 15 | N/A | No | mg/kg | | 510 | | 1000 | | 740 | | 1000 | | 470 | |
| Mercury | 7439-97-6 | 0.19 | 15 | N/A | No | mg/kg | | 0.013 | J | 0.056 | | 0.052 | | 0.078 | | 0.022 | |
| Nickel | 7440-02-0 | 13 | 15 | N/A | No | mg/kg | | 11 | | 13 | | 12 | | 12 | | 9 | |
| Potassium | 7440-09-7 | 1100 | 15 | N/A | Yes | mg/kg | | 1300 | | 940 | | 970 | | 1300 | | 1100 | |
| Selenium | 7782-49-2 | 0.51 | 15 | N/A | Yes | mg/kg | | 0.4 | U | 0.6 | J+ | 0.56 | J+ | 0.49 | J+ | 0.55 | J+ |
| Silver | 7440-22-4 | < LOQ | 15 | N/A | Yes | mg/kg | | 1.7 | J+ | 1.5 | J+ | 0.66 | U | 0.68 | U | 1.5 | J+ |
| Sodium | 7440-23-5 | < LOQ | 15 | N/A | Yes | mg/kg | | 550 | J+ | 510 | J+ | 550 | J+ | 110 | U | 500 | J+ |
| Thallium | 7440-28-0 | 0.12 | 15 | N/A | No | mg/kg | | 0.053 | J | 0.078 | J | 0.072 | J | 0.11 | | 0.054 | J |
| Vanadium | 7440-62-2 | 21 | 15 | N/A | No | mg/kg | | 11 | | 16 | | 15 | | 14 | | 12 | |
| Zinc | 7440-66-6 | 57 | 15 | N/A | Yes | mg/kg | | 29 | | 60 | | 75 | | 64 | | 39 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-3
Site to Background Sample Comparison - Area of Concern 1, Surface Soil (0 - 1 ft bgs, Pd)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-01-002 | | NYOW-01-005 | | NYOW-01-015 | | NYOW-01-016 | | NYOW-01-026 | | NYOW-01-027 | | NYOW-01-028 | | NYOW-01-030 | | NYOW-01-031 | | NYOW-01-033 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-01-SL002-A | | NYOW-01-SL005-A | | NYOW-01-SL015-A | | NYOW-01-SL016-A | | NYOW-01-SL026-A | | NYOW-01-SL027-A | | NYOW-01-SL028-A | | NYOW-01-SL030-A | | NYOW-01-SL031-A | | NYOW-01-SL033-A | |
| | | | | | | | Sample Type: | N | | C | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | | | | Sample Geology: | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | |
| | | | | | | | Sample Date: | 2021-04-09 | | 2021-04-08 | | 2021-04-02 | | 2021-04-02 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 10000 | 14 | N/A | Yes | mg/kg | | 11000 | | 6400 | | 7900 | | 6500 | | 4200 | | 6800 | | 4500 | | 6800 | | 6500 | | 7800 | |
| Antimony | 7440-36-0 | 0.41 | 14 | N/A | Yes | mg/kg | | 0.16 | J- | 0.11 | J | 0.17 | J | 0.15 | J | 0.34 | | 0.11 | J | 0.56 | | 0.16 | J | 0.42 | | 0.17 | J |
| Arsenic | 7440-38-2 | 21 | 14 | N/A | No | mg/kg | | 4.2 | | 4 | | 4.9 | | 5.2 | | 3.3 | | 5 | | 5.1 | | 4.5 | | 4.8 | | 5.7 | |
| Barium | 7440-39-3 | 100 | 14 | N/A | Yes | mg/kg | | 81 | | 46 | J+ | 61 | | 55 | | 83 | | 52 | | 120 | | 58 | | 44 | | 49 | |
| Beryllium | 7440-41-7 | < LOQ | 14 | N/A | Yes | mg/kg | | 0.48 | J+ | 0.47 | J+ | 0.52 | J+ | 0.44 | J+ | 0.87 | J+ | 0.47 | J+ | 0.63 | J+ | 0.47 | J+ | 0.45 | J+ | 0.51 | J+ |
| Cadmium | 7440-43-9 | 0.38 | 14 | N/A | Yes | mg/kg | | 0.17 | | 0.13 | | 0.31 | | 0.13 | | 0.51 | | 0.2 | | 0.53 | | 0.49 | | 0.23 | | 0.26 | |
| Calcium | 7440-70-2 | 120000 | 14 | N/A | No | mg/kg | | 26000 | | 13000 | | 25000 | J | 40000 | J | 32000 | | 14000 | | 10000 | | 5400 | | 16000 | | 6100 | |
| Chromium | 7440-47-3 | 11 | 14 | N/A | Yes | mg/kg | | 11 | J- | 7 | | 9.9 | | 8.6 | | 10 | | 8.1 | | 18 | | 9.8 | | 9.2 | | 8.5 | |
| Cobalt | 7440-48-4 | 8.3 | 14 | N/A | Yes | mg/kg | | 7.3 | | 4.6 | | 7.6 | | 4.5 | | 4.2 | | 6.5 | | 4.5 | | 5.8 | | 8 | | 6.4 | |
| Copper | 7440-50-8 | 28 | 14 | N/A | Yes | mg/kg | | 21 | | 11 | | 22 | | 14 | | 20 | | 24 | | 24 | | 21 | | 22 | | 20 | |
| Iron | 7439-89-6 | 24000 | 14 | N/A | No | mg/kg | | 17000 | | 13000 | | 17000 | J | 12000 | J | 9600 | | 18000 | | 12000 | | 16000 | | 18000 | | 17000 | |
| Lead | 7439-92-1 | 320 | 14 | N/A | No | mg/kg | | 29 | | 11 | | 10 | | 14 | | 54 | | 14 | | 72 | | 21 | | 18 | | 17 | |
| Magnesium | 7439-95-4 | 13000 | 14 | N/A | No | mg/kg | | 6600 | J- | 4300 | | 7000 | | 7800 | | 5200 | | 5100 | | 3000 | | 3300 | | 6400 | | 3700 | |
| Manganese | 7439-96-5 | 1300 | 14 | N/A | Yes | mg/kg | | 1400 | J | 550 | | 710 | | 450 | | 950 | | 770 | | 550 | | 540 | | 760 | | 680 | |
| Mercury | 7439-97-6 | 0.19 | 14 | N/A | Yes | mg/kg | | 0.039 | | 0.053 | | 0.021 | J | 0.015 | J | 0.26 | | 0.042 | | 0.76 | | 0.053 | | 0.14 | | 0.06 | |
| Nickel | 7440-02-0 | 13 | 14 | N/A | No | mg/kg | | 12 | | 8 | | 12 | | 8.2 | | 9.2 | | 12 | | 11 | | 11 | | 13 | | 12 | |
| Potassium | 7440-09-7 | 1200 | 14 | N/A | Yes | mg/kg | | 1400 | J+ | 550 | | 1300 | | 930 | | 1100 | | 1300 | | 1100 | | 720 | | 1200 | | 1200 | |
| Selenium | 7782-49-2 | 0.51 | 14 | N/A | Yes | mg/kg | | 0.4 | J+ | 0.49 | J+ | 0.49 | J+ | 0.49 | J+ | 0.85 | J+ | 0.43 | J+ | 0.7 | J+ | 0.51 | J+ | 0.43 | J+ | 0.45 | J+ |
| Silver | 7440-22-4 | < LOQ | 14 | N/A | Yes | mg/kg | | 1.4 | J+ | 0.56 | U | 0.63 | U | 0.53 | U | 2.6 | J+ | 0.56 | U | 1.9 | J+ | 0.56 | U | 1.3 | J+ | 0.61 | U |
| Sodium | 7440-23-5 | < LOQ | 14 | N/A | Yes | mg/kg | | 480 | J+ | 470 | J+ | 520 | J+ | 440 | J+ | 170 | U | 470 | J+ | 130 | U | 93 | U | 450 | J+ | 100 | U |
| Thallium | 7440-28-0 | 0.11 | 14 | N/A | No | mg/kg | | 0.071 | J | 0.059 | J | 0.052 | J | 0.081 | J | 0.074 | J | 0.065 | J | 0.062 | J | 0.056 | J | 0.064 | J | 0.072 | J |
| Vanadium | 7440-62-2 | 21 | 14 | N/A | No | mg/kg | | 20 | | 12 | | 16 | | 13 | | 13 | | 15 | | 14 | | 13 | | 14 | | 14 | |
| Zinc | 7440-66-6 | 250 | 14 | N/A | No | mg/kg | | 52 | | 180 | J | 39 | | 40 | | 170 | | 56 | | 120 | | 85 | | 51 | | 53 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-3
Site to Background Sample Comparison - Area of Concern 1, Surface Soil (0 - 1 ft bgs, Pd)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-01-034 | | NYOW-01-036 | | NYOW-01-037 | | NYOW-01-039 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-01-SL034-A | | NYOW-01-SL036-A | | NYOW-01-SL037-A | | NYOW-01-SL039-A | |
| | | | | | | Sample Type: | N | | N | | N | | N | |
| | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | | | Sample Geology: | Pd | | Pd | | Pd | | Pd | |
| | | | | | | Sample Date: | 2021-04-14 | | 2021-04-14 | | 2021-04-13 | | 2021-04-13 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Metals (Total) | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 10000 | 14 | N/A | Yes | mg/kg | 2000 | | 5700 | | 6100 | | 8000 | |
| Antimony | 7440-36-0 | 0.41 | 14 | N/A | Yes | mg/kg | 0.41 | | 0.31 | | 0.17 | J | 0.31 | |
| Arsenic | 7440-38-2 | 21 | 14 | N/A | No | mg/kg | 3.7 | | 5.6 | | 3.6 | | 4.1 | |
| Barium | 7440-39-3 | 100 | 14 | N/A | Yes | mg/kg | 41 | | 62 | | 42 | | 40 | |
| Beryllium | 7440-41-7 | < LOQ | 14 | N/A | Yes | mg/kg | 0.52 | U | 0.58 | J+ | 0.67 | J+ | 0.67 | U |
| Cadmium | 7440-43-9 | 0.38 | 14 | N/A | Yes | mg/kg | 0.57 | | 0.25 | | 0.45 | | 0.16 | |
| Calcium | 7440-70-2 | 120000 | 14 | N/A | No | mg/kg | 41000 | | 17000 | | 16000 | | 16000 | |
| Chromium | 7440-47-3 | 11 | 14 | N/A | Yes | mg/kg | 18 | | 14 | | 7.6 | | 11 | J |
| Cobalt | 7440-48-4 | 8.3 | 14 | N/A | Yes | mg/kg | 3.9 | | 8.4 | | 5.7 | | 4.5 | |
| Copper | 7440-50-8 | 28 | 14 | N/A | Yes | mg/kg | 19 | | 33 | | 21 | | 19 | |
| Iron | 7439-89-6 | 24000 | 14 | N/A | No | mg/kg | 6000 | | 18000 | | 15000 | | 13000 | |
| Lead | 7439-92-1 | 320 | 14 | N/A | No | mg/kg | 200 | | 44 | | 21 | | 39 | |
| Magnesium | 7439-95-4 | 13000 | 14 | N/A | No | mg/kg | 8700 | | 6400 | | 3100 | | 1700 | |
| Manganese | 7439-96-5 | 1300 | 14 | N/A | Yes | mg/kg | 270 | | 830 | | 640 | | 410 | |
| Mercury | 7439-97-6 | 0.19 | 14 | N/A | Yes | mg/kg | 0.096 | | 0.085 | | 0.062 | | 0.037 | |
| Nickel | 7440-02-0 | 13 | 14 | N/A | No | mg/kg | 7.4 | | 13 | | 11 | | 8.4 | |
| Potassium | 7440-09-7 | 1200 | 14 | N/A | Yes | mg/kg | 660 | | 1300 | | 1000 | | 1100 | J |
| Selenium | 7782-49-2 | 0.51 | 14 | N/A | Yes | mg/kg | 0.61 | J+ | 0.54 | J+ | 0.59 | J+ | 0.45 | J+ |
| Silver | 7440-22-4 | < LOQ | 14 | N/A | Yes | mg/kg | 1.6 | J+ | 0.7 | U | 0.8 | U | 0.67 | U |
| Sodium | 7440-23-5 | < LOQ | 14 | N/A | Yes | mg/kg | 520 | J+ | 580 | J+ | 130 | U | 560 | J+ |
| Thallium | 7440-28-0 | 0.11 | 14 | N/A | No | mg/kg | 0.048 | J | 0.086 | J | 0.059 | J | 0.055 | J |
| Vanadium | 7440-62-2 | 21 | 14 | N/A | No | mg/kg | 7.2 | | 13 | | 13 | | 14 | |
| Zinc | 7440-66-6 | 250 | 14 | N/A | No | mg/kg | 110 | | 55 | | 87 | | 39 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

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Table I-4
Site to Background Sample Comparison - Area of Concern 1, Subsurface Soil (1 - 5 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-01-020 | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-01-PH020-B | |
| | | | | | | Sample Type: | N | |
| | | | | | | Sample Depth (feet): | 1 - 5 | |
| | | | | | | Sample Geology: | Psc | |
| | | | | | | Sample Date: | 2021-04-06 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier |
| Metals (Total) | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 1 | N/A | No | mg/kg | 5000 | |
| Antimony | 7440-36-0 | 0.15 | 1 | N/A | Yes | mg/kg | 0.2 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 1 | N/A | Yes | mg/kg | 7.9 | |
| Barium | 7440-39-3 | 100 | 1 | N/A | No | mg/kg | 39 | |
| Beryllium | 7440-41-7 | < LOQ | 1 | N/A | Yes | mg/kg | 0.44 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 1 | N/A | No | mg/kg | 0.078 | J |
| Calcium | 7440-70-2 | 120000 | 1 | N/A | No | mg/kg | 80000 | |
| Chromium | 7440-47-3 | 11 | 1 | N/A | No | mg/kg | 6.7 | |
| Cobalt | 7440-48-4 | 5.5 | 1 | N/A | Yes | mg/kg | 10 | |
| Copper | 7440-50-8 | 13 | 1 | N/A | Yes | mg/kg | 27 | |
| Iron | 7439-89-6 | 14000 | 1 | N/A | Yes | mg/kg | 15000 | |
| Lead | 7439-92-1 | 6.3 | 1 | N/A | Yes | mg/kg | 13 | |
| Magnesium | 7439-95-4 | 35000 | 1 | N/A | No | mg/kg | 17000 | |
| Manganese | 7439-96-5 | 520 | 1 | N/A | Yes | mg/kg | 550 | |
| Mercury | 7439-97-6 | 0.027 | 1 | N/A | No | mg/kg | 0.019 | U |
| Nickel | 7440-02-0 | 9.7 | 1 | N/A | Yes | mg/kg | 11 | |
| Potassium | 7440-09-7 | 1200 | 1 | N/A | No | mg/kg | 1200 | |
| Selenium | 7782-49-2 | 0.51 | 1 | N/A | Yes | mg/kg | 0.57 | J+ |
| Silver | 7440-22-4 | < LOQ | 1 | N/A | No | mg/kg | 0.53 | U |
| Sodium | 7440-23-5 | < LOQ | 1 | N/A | Yes | mg/kg | 440 | J+ |
| Thallium | 7440-28-0 | 0.11 | 1 | N/A | No | mg/kg | 0.11 | U |
| Vanadium | 7440-62-2 | 14 | 1 | N/A | No | mg/kg | 10 | |
| Zinc | 7440-66-6 | 23 | 1 | N/A | Yes | mg/kg | 37 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
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Table I-5
Site to Background Sample Comparison - Area of Concern 1, Subsurface Soil (1 - 5 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-01-018 | | NYOW-01-019 | | NYOW-01-021 | | NYOW-01-022 | | NYOW-01-023 | | NYOW-01-024 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-01-PH018-B | | NYOW-01-PH019-B | | NYOW-01-PH021-B | | NYOW-01-PH022-B | | NYOW-01-PH023-B | | NYOW-01-PH024-B | |
| | | | | | | | Sample Type: | N | | N | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | | | | Sample Geology: | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | |
| | | | | | | | Sample Date: | 2021-04-08 | | 2021-04-06 | | 2021-04-07 | | 2021-04-07 | | 2021-04-02 | | 2021-04-07 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Metals (Total) | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 6 | N/A | No | mg/kg | | 4900 | | 4900 | | 3400 | | 5800 | | 5500 | | 5300 | |
| Antimony | 7440-36-0 | 0.15 | 6 | N/A | Yes | mg/kg | | 0.17 | J+ | 0.11 | UJ | 0.093 | U | 0.19 | J+ | 0.19 | J+ | 0.16 | J+ |
| Arsenic | 7440-38-2 | 21 | 6 | N/A | No | mg/kg | | 6 | | 2.8 | | 2.1 | | 4.9 | | 4.2 | | 4.3 | |
| Barium | 7440-39-3 | 100 | 6 | N/A | Yes | mg/kg | | 40 | J+ | 43 | J- | 35 | | 260 | | 35 | | 37 | |
| Beryllium | 7440-41-7 | < LOQ | 6 | N/A | Yes | mg/kg | | 0.42 | J+ | 0.43 | J+ | 0.51 | J+ | 0.12 | U | 0.44 | J+ | 0.5 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 6 | N/A | Yes | mg/kg | | 0.044 | J | 0.04 | J | 0.058 | J | 0.34 | | 0.079 | J | 0.11 | |
| Calcium | 7440-70-2 | 120000 | 6 | N/A | No | mg/kg | | 47000 | | 8800 | J- | 13000 | | 61000 | | 32000 | J | 13000 | |
| Chromium | 7440-47-3 | 11 | 6 | N/A | No | mg/kg | | 6.3 | | 6.8 | J- | 4.6 | | 6.7 | | 7.9 | J- | 6.9 | |
| Cobalt | 7440-48-4 | 8.3 | 6 | N/A | Yes | mg/kg | | 5.4 | | 5 | J- | 2.9 | | 12 | | 9.7 | J- | 4.6 | |
| Copper | 7440-50-8 | 28 | 6 | N/A | Yes | mg/kg | | 15 | | 13 | | 7.2 | | 11 | | 39 | J- | 14 | |
| Iron | 7439-89-6 | 24000 | 6 | N/A | No | mg/kg | | 15000 | | 13000 | J | 8300 | | 22000 | | 14000 | J | 12000 | |
| Lead | 7439-92-1 | 33 | 6 | N/A | No | mg/kg | | 5.9 | | 3.2 | J- | 3.8 | | 6.9 | | 7.3 | J- | 6.4 | |
| Magnesium | 7439-95-4 | 35000 | 6 | N/A | No | mg/kg | | 14000 | | 4000 | J- | 4400 | | 2400 | | 7900 | J- | 4900 | |
| Manganese | 7439-96-5 | 1700 | 6 | N/A | Yes | mg/kg | | 610 | | 260 | J- | 230 | | 7000 | | 510 | | 420 | |
| Mercury | 7439-97-6 | 0.056 | 6 | N/A | No | mg/kg | | 0.012 | J | 0.018 | U | 0.048 | | 0.032 | | 0.022 | | 0.026 | |
| Nickel | 7440-02-0 | 13 | 6 | N/A | No | mg/kg | | 9 | | 9.7 | J- | 4.9 | | 7.2 | | 12 | J- | 7.7 | |
| Potassium | 7440-09-7 | 1100 | 6 | N/A | No | mg/kg | | 830 | | 830 | | 570 | | 500 | | 740 | J | 640 | |
| Selenium | 7782-49-2 | 0.51 | 6 | N/A | No | mg/kg | | 0.35 | U | 0.39 | J+ | 0.44 | U | 0.41 | J+ | 0.45 | J+ | 0.45 | J+ |
| Silver | 7440-22-4 | < LOQ | 6 | N/A | Yes | mg/kg | | 0.5 | U | 0.52 | UJ | 0.61 | U | 1.5 | J+ | 0.52 | UJ | 0.6 | U |
| Sodium | 7440-23-5 | < LOQ | 6 | N/A | Yes | mg/kg | | 420 | J+ | 430 | J+ | 510 | J+ | 490 | J+ | 440 | J+ | 500 | J+ |
| Thallium | 7440-28-0 | 0.12 | 6 | N/A | No | mg/kg | | 0.067 | J | 0.078 | U | 0.045 | J | 0.082 | | 0.071 | J | 0.069 | J |
| Vanadium | 7440-62-2 | 17 | 6 | N/A | Yes | mg/kg | | 11 | | 10 | J- | 8.3 | | 19 | | 15 | J | 11 | |
| Zinc | 7440-66-6 | 57 | 6 | N/A | Yes | mg/kg | | 12 | | 18 | J- | 81 | | 110 | | 31 | J- | 26 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
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Table I-6
Site to Background Sample Comparison - Area of Concern 1, Subsurface Soil (1 - 5 ft bgs, Pd)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-01-002 | | NYOW-01-005 | | NYOW-01-015 | | NYOW-01-016 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-01-PH002-B | | NYOW-01-PH005-B | | NYOW-01-PH015-B | | NYOW-01-PH016-B | |
| | | | | | | Sample Type: | N | | C | | N | | N | |
| | | | | | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | | | Sample Geology: | Pd | | Pd | | Pd | | Pd | |
| | | | | | | Sample Date: | 2021-04-09 | | 2021-04-08 | | 2021-04-02 | | 2021-04-02 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Metals (Total) | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8100 | 4 | N/A | No | mg/kg | 7000 | | 3400 | | 6100 | | 5300 | |
| Antimony | 7440-36-0 | 0.41 | 4 | N/A | No | mg/kg | 0.17 | J+ | 0.081 | U | 0.18 | J+ | 0.16 | J+ |
| Arsenic | 7440-38-2 | 21 | 4 | N/A | No | mg/kg | 3.7 | | 3.7 | | 6.6 | | 7.6 | |
| Barium | 7440-39-3 | 100 | 4 | N/A | No | mg/kg | 41 | | 31 | J+ | 50 | | 55 | |
| Beryllium | 7440-41-7 | < LOQ | 4 | N/A | Yes | mg/kg | 0.4 | J+ | 0.4 | J+ | 0.36 | J+ | 0.41 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 4 | N/A | No | mg/kg | 0.092 | J | 0.039 | J | 0.013 | J | 0.1 | |
| Calcium | 7440-70-2 | 120000 | 4 | N/A | No | mg/kg | 21000 | J | 38000 | | 76000 | J | 50000 | J |
| Chromium | 7440-47-3 | 11 | 4 | N/A | No | mg/kg | 8.4 | | 6.2 | | 7.4 | | 10 | |
| Cobalt | 7440-48-4 | 8.3 | 4 | N/A | Yes | mg/kg | 5.9 | J | 3.8 | | 13 | | 5.7 | |
| Copper | 7440-50-8 | 28 | 4 | N/A | No | mg/kg | 19 | | 10 | | 26 | | 26 | |
| Iron | 7439-89-6 | 24000 | 4 | N/A | No | mg/kg | 16000 | | 9600 | | 14000 | J | 20000 | J |
| Lead | 7439-92-1 | 14 | 4 | N/A | Yes | mg/kg | 14 | | 3.3 | | 8.8 | | 40 | |
| Magnesium | 7439-95-4 | 13000 | 4 | N/A | Yes | mg/kg | 5700 | J | 9500 | | 24000 | | 10000 | |
| Manganese | 7439-96-5 | 1300 | 4 | N/A | No | mg/kg | 550 | | 340 | | 460 | | 850 | |
| Mercury | 7439-97-6 | 0.056 | 4 | N/A | No | mg/kg | 0.015 | J | 0.017 | U | 0.015 | J | 0.013 | J |
| Nickel | 7440-02-0 | 13 | 4 | N/A | No | mg/kg | 11 | J | 6.9 | | 13 | | 13 | |
| Potassium | 7440-09-7 | 1200 | 4 | N/A | Yes | mg/kg | 1000 | J+ | 610 | | 2000 | | 790 | |
| Selenium | 7782-49-2 | 0.51 | 4 | N/A | No | mg/kg | 0.47 | J+ | 0.33 | U | 0.39 | U | 0.4 | U |
| Silver | 7440-22-4 | < LOQ | 4 | N/A | Yes | mg/kg | 1.2 | J+ | 0.48 | U | 1.1 | J+ | 1.2 | J+ |
| Sodium | 7440-23-5 | < LOQ | 4 | N/A | Yes | mg/kg | 400 | J+ | 400 | J+ | 360 | J+ | 410 | J+ |
| Thallium | 7440-28-0 | 0.11 | 4 | N/A | No | mg/kg | 0.058 | J | 0.037 | J | 0.11 | | 0.094 | J |
| Vanadium | 7440-62-2 | 16 | 4 | N/A | No | mg/kg | 16 | | 9.3 | | 11 | | 12 | |
| Zinc | 7440-66-6 | 250 | 4 | N/A | No | mg/kg | 40 | | 32 | | 25 | | 130 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-7
Site to Background Sample Comparison - Area of Concern 1, Subsurface Soil (5 - 10 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-01-020 | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-01-PH020-C | |
| | | | | | | Sample Type: | N | |
| | | | | | | Sample Depth (feet): | 5 - 10 | |
| | | | | | | Sample Geology: | Psc | |
| | | | | | | Sample Date: | 2021-04-06 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier |
| Metals (Total) | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 1 | N/A | Yes | mg/kg | 7400 | |
| Antimony | 7440-36-0 | 0.15 | 1 | N/A | No | mg/kg | 0.15 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 1 | N/A | Yes | mg/kg | 7 | |
| Barium | 7440-39-3 | 100 | 1 | N/A | No | mg/kg | 53 | |
| Beryllium | 7440-41-7 | 0.56 | 1 | N/A | No | mg/kg | 0.46 | J+ |
| Cadmium | 7440-43-9 | 0.31 | 1 | N/A | No | mg/kg | 0.088 | J+ |
| Calcium | 7440-70-2 | 71000 | 1 | N/A | Yes | mg/kg | 73000 | |
| Chromium | 7440-47-3 | 11 | 1 | N/A | No | mg/kg | 9.5 | |
| Cobalt | 7440-48-4 | 5.5 | 1 | N/A | Yes | mg/kg | 11 | |
| Copper | 7440-50-8 | 13 | 1 | N/A | Yes | mg/kg | 19 | |
| Iron | 7439-89-6 | 14000 | 1 | N/A | Yes | mg/kg | 16000 | |
| Lead | 7439-92-1 | 6.3 | 1 | N/A | Yes | mg/kg | 7.9 | |
| Magnesium | 7439-95-4 | 27000 | 1 | N/A | No | mg/kg | 23000 | |
| Manganese | 7439-96-5 | 520 | 1 | N/A | No | mg/kg | 450 | |
| Mercury | 7439-97-6 | 0.027 | 1 | N/A | No | mg/kg | 0.015 | U |
| Nickel | 7440-02-0 | 9.7 | 1 | N/A | Yes | mg/kg | 15 | |
| Potassium | 7440-09-7 | 1200 | 1 | N/A | Yes | mg/kg | 2500 | |
| Selenium | 7782-49-2 | 0.51 | 1 | N/A | No | mg/kg | 0.44 | J+ |
| Silver | 7440-22-4 | < LOQ | 1 | N/A | No | mg/kg | 0.56 | U |
| Sodium | 7440-23-5 | < LOQ | 1 | N/A | Yes | mg/kg | 460 | J+ |
| Thallium | 7440-28-0 | 0.11 | 1 | N/A | No | mg/kg | 0.097 | |
| Vanadium | 7440-62-2 | 14 | 1 | N/A | No | mg/kg | 12 | |
| Zinc | 7440-66-6 | 23 | 1 | N/A | Yes | mg/kg | 29 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-8
Site to Background Sample Comparison - Area of Concern 1, Subsurface Soil (5 - 10 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-01-018 | | NYOW-01-019 | | NYOW-01-021 | | NYOW-01-022 | | NYOW-01-023 | | NYOW-01-024 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-01-PH018-C | | NYOW-01-PH019-C | | NYOW-01-PH021-C | | NYOW-01-PH022-C | | NYOW-01-PH023-C | | NYOW-01-PH024-C | |
| | | | | | | | Sample Type: | N | | C | | N | | N | | C | | N | |
| | | | | | | | Sample Depth (feet): | 5 - 10 | | 5 - 10 | | 5 - 10 | | 5 - 10 | | 5 - 10 | | 5 - 10 | |
| | | | | | | | Sample Geology: | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | |
| | | | | | | | Sample Date: | 2021-04-08 | | 2021-04-06 | | 2021-04-07 | | 2021-04-07 | | 2021-04-02 | | 2021-04-07 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Metals (Total) | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 6 | N/A | No | mg/kg | | 3000 | | 3600 | | 4500 | | 6000 | | 4800 | | 5000 | |
| Antimony | 7440-36-0 | 0.15 | 6 | N/A | Yes | mg/kg | | 0.084 | U | 0.17 | J+ | 0.097 | U | 0.18 | J+ | 0.2 | J+ | 0.19 | J+ |
| Arsenic | 7440-38-2 | 21 | 6 | N/A | No | mg/kg | | 3.7 | | 4.3 | | 3.7 | | 4.6 | | 3.1 | | 5.5 | |
| Barium | 7440-39-3 | 100 | 6 | N/A | No | mg/kg | | 29 | J+ | 31 | | 58 | | 73 | | 47 | | 30 | |
| Beryllium | 7440-41-7 | 0.56 | 6 | N/A | No | mg/kg | | 0.49 | J+ | 0.5 | J+ | 0.41 | J+ | 0.41 | J+ | 0.38 | J+ | 0.46 | J+ |
| Cadmium | 7440-43-9 | 0.31 | 6 | N/A | No | mg/kg | | 0.099 | J+ | 0.076 | J+ | 0.097 | J+ | 0.095 | J+ | 0.083 | J+ | 0.086 | J+ |
| Calcium | 7440-70-2 | 110000 | 6 | N/A | No | mg/kg | | 54000 | | 77000 | | 36000 | | 3800 | | 29000 | J | 4500 | |
| Chromium | 7440-47-3 | 11 | 6 | N/A | No | mg/kg | | 4.6 | | 5.2 | | 9.1 | | 9.6 | | 6.6 | | 6.7 | |
| Cobalt | 7440-48-4 | 8.3 | 6 | N/A | No | mg/kg | | 4.5 | | 4.6 | | 4.9 | | 6.9 | | 4.8 | J | 5.5 | |
| Copper | 7440-50-8 | 28 | 6 | N/A | No | mg/kg | | 11 | | 24 | J | 12 | | 13 | | 15 | | 20 | |
| Iron | 7439-89-6 | 24000 | 6 | N/A | No | mg/kg | | 10000 | | 11000 | | 11000 | | 15000 | | 10000 | J | 14000 | |
| Lead | 7439-92-1 | 33 | 6 | N/A | No | mg/kg | | 3.3 | | 3.7 | | 3.4 | | 6.2 | | 3.1 | | 4.8 | |
| Magnesium | 7439-95-4 | 27000 | 6 | N/A | No | mg/kg | | 15000 | | 21000 | | 10000 | | 2800 | | 7700 | J | 3100 | |
| Manganese | 7439-96-5 | 1700 | 6 | N/A | No | mg/kg | | 420 | | 450 | | 380 | | 570 | | 280 | | 490 | |
| Mercury | 7439-97-6 | 0.056 | 6 | N/A | No | mg/kg | | 0.02 | J+ | 0.016 | U | 0.015 | U | 0.017 | U | 0.019 | J+ | 0.017 | U |
| Nickel | 7440-02-0 | 13 | 6 | N/A | No | mg/kg | | 6.6 | | 7.6 | | 9 | | 11 | | 9.3 | J | 9.4 | |
| Potassium | 7440-09-7 | 1800 | 6 | N/A | No | mg/kg | | 620 | | 1100 | | 1000 | | 900 | | 1100 | | 700 | |
| Selenium | 7782-49-2 | 0.51 | 6 | N/A | No | mg/kg | | 0.4 | U | 0.38 | J+ | 0.39 | U | 0.48 | J+ | 0.33 | U | 0.43 | J+ |
| Silver | 7440-22-4 | < LOQ | 6 | N/A | No | mg/kg | | 0.58 | U | 0.6 | U | 0.49 | U | 0.49 | U | 0.46 | U | 0.55 | U |
| Sodium | 7440-23-5 | < LOQ | 6 | N/A | Yes | mg/kg | | 490 | J+ | 500 | J+ | 410 | J+ | 410 | J+ | 380 | J+ | 460 | J+ |
| Thallium | 7440-28-0 | 0.12 | 6 | N/A | No | mg/kg | | 0.044 | J | 0.076 | U | 0.046 | J | 0.053 | J | 0.046 | J | 0.076 | J |
| Vanadium | 7440-62-2 | 17 | 6 | N/A | No | mg/kg | | 7.6 | | 7.7 | | 9.4 | | 12 | | 9.5 | | 9.8 | |
| Zinc | 7440-66-6 | 57 | 6 | N/A | No | mg/kg | | 19 | | 21 | J | 33 | | 28 | | 17 | | 30 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

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Table I-9
Site to Background Sample Comparison - Area of Concern 1, Subsurface Soil (5 - 10 ft bgs, Pd)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-01-002 | | NYOW-01-005 | | NYOW-01-015 | | NYOW-01-016 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-01-PH002-C | | NYOW-01-PH005-C | | NYOW-01-PH015-C | | NYOW-01-PH016-C | |
| | | | | | | Sample Type: | C | | C | | N | | N | |
| | | | | | | Sample Depth (feet): | 5 - 10 | | 5 - 10 | | 5 - 10 | | 5 - 10 | |
| | | | | | | Sample Geology: | Pd | | Pd | | Pd | | Pd | |
| | | | | | | Sample Date: | 2021-04-09 | | 2021-04-08 | | 2021-04-02 | | 2021-04-02 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Metals (Total) | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 5700 | 4 | N/A | No | mg/kg | 4300 | | 2100 | | 5700 | | 4800 | |
| Antimony | 7440-36-0 | 0.41 | 4 | N/A | No | mg/kg | 0.15 | J+ | 0.11 | U | 0.19 | J+ | 0.19 | J+ |
| Arsenic | 7440-38-2 | 21 | 4 | N/A | No | mg/kg | 3.7 | | 2.1 | | 7.7 | | 6.1 | |
| Barium | 7440-39-3 | 100 | 4 | N/A | No | mg/kg | 24 | | 17 | J+ | 44 | | 45 | |
| Beryllium | 7440-41-7 | 0.56 | 4 | N/A | No | mg/kg | 0.38 | J+ | 0.42 | J+ | 0.4 | J+ | 0.43 | J+ |
| Cadmium | 7440-43-9 | 0.31 | 4 | N/A | No | mg/kg | 0.083 | J+ | 0.093 | J+ | 0.082 | J+ | 0.08 | J+ |
| Calcium | 7440-70-2 | 71000 | 4 | N/A | Yes | mg/kg | 71000 | | 43000 | | 84000 | J | 92000 | J |
| Chromium | 7440-47-3 | 11 | 4 | N/A | No | mg/kg | 5.5 | | 3.4 | | 7.2 | | 6.7 | |
| Cobalt | 7440-48-4 | 8.3 | 4 | N/A | Yes | mg/kg | 5.5 | | 2.2 | | 11 | | 8.5 | |
| Copper | 7440-50-8 | 28 | 4 | N/A | Yes | mg/kg | 16 | | 6.8 | | 26 | | 100 | |
| Iron | 7439-89-6 | 24000 | 4 | N/A | No | mg/kg | 11000 | | 6800 | | 15000 | J | 14000 | J |
| Lead | 7439-92-1 | 8.3 | 4 | N/A | Yes | mg/kg | 5.9 | | 2.7 | | 9.1 | | 7.1 | |
| Magnesium | 7439-95-4 | 27000 | 4 | N/A | Yes | mg/kg | 14000 | | 14000 | | 26000 | | 31000 | |
| Manganese | 7439-96-5 | 620 | 4 | N/A | No | mg/kg | 430 | | 290 | | 540 | | 580 | |
| Mercury | 7439-97-6 | 0.056 | 4 | N/A | No | mg/kg | 0.016 | U | 0.018 | U | 0.019 | J+ | 0.019 | J+ |
| Nickel | 7440-02-0 | 13 | 4 | N/A | No | mg/kg | 7.5 | | 3.8 | | 12 | | 11 | |
| Potassium | 7440-09-7 | 1200 | 4 | N/A | Yes | mg/kg | 870 | | 400 | | 2000 | | 1600 | |
| Selenium | 7782-49-2 | 0.51 | 4 | N/A | No | mg/kg | 0.33 | U | 0.37 | U | 0.41 | J+ | 0.32 | U |
| Silver | 7440-22-4 | < LOQ | 4 | N/A | Yes | mg/kg | 1.1 | J+ | 0.51 | U | 1.2 | J+ | 1.3 | J+ |
| Sodium | 7440-23-5 | < LOQ | 4 | N/A | Yes | mg/kg | 380 | J+ | 420 | J+ | 400 | J+ | 430 | J+ |
| Thallium | 7440-28-0 | 0.11 | 4 | N/A | No | mg/kg | 0.052 | J | 0.022 | J | 0.098 | | 0.08 | |
| Vanadium | 7440-62-2 | 12 | 4 | N/A | No | mg/kg | 10 | | 6.8 | | 11 | | 9.5 | |
| Zinc | 7440-66-6 | 22 | 4 | N/A | Yes | mg/kg | 21 | | 18 | | 26 | | 29 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-10
Site to Background Sample Comparison - Area of Concern 1, Total Soil (0 - 5 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-01-020 | | NYOW-01-020 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-01-SL020-A | | NYOW-01-PH020-B | |
| | | | | | | Sample Type: | N | | N | |
| | | | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | |
| | | | | | | Sample Geology: | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-04-06 | | 2021-04-06 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 2 | N/A | No | mg/kg | 5800 | | 5000 | |
| Antimony | 7440-36-0 | 0.15 | 2 | N/A | Yes | mg/kg | 0.14 | J | 0.2 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 2 | N/A | Yes | mg/kg | 6.9 | | 7.9 | |
| Barium | 7440-39-3 | 100 | 2 | N/A | No | mg/kg | 43 | | 39 | |
| Beryllium | 7440-41-7 | < LOQ | 2 | N/A | Yes | mg/kg | 0.53 | J+ | 0.44 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 2 | N/A | No | mg/kg | 0.13 | | 0.078 | J |
| Calcium | 7440-70-2 | 120000 | 2 | N/A | No | mg/kg | 40000 | | 80000 | |
| Chromium | 7440-47-3 | 11 | 2 | N/A | No | mg/kg | 7.5 | | 6.7 | |
| Cobalt | 7440-48-4 | 5.5 | 2 | N/A | Yes | mg/kg | 9.4 | | 10 | |
| Copper | 7440-50-8 | 13 | 2 | N/A | Yes | mg/kg | 28 | | 27 | |
| Iron | 7439-89-6 | 14000 | 2 | N/A | Yes | mg/kg | 17000 | | 15000 | |
| Lead | 7439-92-1 | 6.3 | 2 | N/A | Yes | mg/kg | 19 | | 13 | |
| Magnesium | 7439-95-4 | 2000 | 2 | N/A | Yes | mg/kg | 15000 | | 17000 | |
| Manganese | 7439-96-5 | 520 | 2 | N/A | Yes | mg/kg | 600 | | 550 | |
| Mercury | 7439-97-6 | 0.027 | 2 | N/A | No | mg/kg | 0.02 | J | 0.019 | U |
| Nickel | 7440-02-0 | 9.7 | 2 | N/A | Yes | mg/kg | 12 | | 11 | |
| Potassium | 7440-09-7 | 1200 | 2 | N/A | No | mg/kg | 1100 | | 1200 | |
| Selenium | 7782-49-2 | 0.51 | 2 | N/A | Yes | mg/kg | 0.57 | J+ | 0.57 | J+ |
| Silver | 7440-22-4 | < LOQ | 2 | N/A | No | mg/kg | 0.64 | U | 0.53 | U |
| Sodium | 7440-23-5 | < LOQ | 2 | N/A | Yes | mg/kg | 530 | J+ | 440 | J+ |
| Thallium | 7440-28-0 | 0.11 | 2 | N/A | No | mg/kg | 0.11 | U | 0.11 | U |
| Vanadium | 7440-62-2 | 14 | 2 | N/A | No | mg/kg | 11 | | 10 | |
| Zinc | 7440-66-6 | 23 | 2 | N/A | Yes | mg/kg | 44 | | 37 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-11
Site to Background Sample Comparison - Area of Concern 1, Total Soil (0 - 5 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-01-007 | | NYOW-01-009 | | NYOW-01-011 | | NYOW-01-013 | | NYOW-01-018 | | NYOW-01-019 | | NYOW-01-021 | | NYOW-01-022 | | NYOW-01-023 | | NYOW-01-024 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-01-SL007-A | | NYOW-01-SL009-A | | NYOW-01-SL011-A | | NYOW-01-SL013-A | | NYOW-01-SL018-A | | NYOW-01-SL019-A | | NYOW-01-SL021-A | | NYOW-01-SL022-A | | NYOW-01-SL023-A | | NYOW-01-SL024-A | |
| | | | | | | | Sample Type: | N | | N | | N | | N | | N | | C | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | | | | Sample Geology: | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | |
| | | | | | | | Sample Date: | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-14 | | 2021-04-08 | | 2021-04-06 | | 2021-04-07 | | 2021-04-07 | | 2021-04-02 | | 2021-04-07 | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 21 | 0.0% | No | mg/kg | | 6500 | | 3900 | | 4200 | | 4600 | | 5100 | | 4000 | J | 6400 | | 7800 | | 6000 | | 4400 | |
| Antimony | 7440-36-0 | 0.15 | 21 | 47.6% | Yes | mg/kg | | 0.23 | J | 0.19 | J | 0.13 | J | 0.13 | J | 0.082 | J | 0.095 | J | 0.15 | J | 0.18 | | 0.13 | J | 0.1 | J |
| Arsenic | 7440-38-2 | 21 | 21 | 0.0% | No | mg/kg | | 5.7 | | 4.7 | | 2.4 | | 4.8 | | 4.7 | | 3.9 | | 4.5 | | 4.7 | | 4.7 | | 4 | |
| Barium | 7440-39-3 | 100 | 21 | 4.8% | No | mg/kg | | 86 | | 72 | | 32 | | 39 | | 40 | J+ | 25 | J | 51 | | 61 | | 40 | | 37 | |
| Beryllium | 7440-41-7 | < LOQ | 21 | 95.2% | Yes | mg/kg | | 0.72 | J+ | 0.56 | J+ | 0.52 | J+ | 0.57 | J+ | 0.4 | J+ | 0.45 | J+ | 0.43 | J+ | 0.53 | J+ | 0.46 | J+ | 0.6 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 21 | 42.9% | Yes | mg/kg | | 0.37 | | 0.19 | | 0.32 | | 0.14 | | 0.058 | J | 0.058 | J | 0.14 | | 0.65 | | 0.79 | | 0.058 | J |
| Calcium | 7440-70-2 | 120000 | 21 | 0.0% | No | mg/kg | | 21000 | | 31000 | | 20000 | | 55000 | | 40000 | | 13000 | | 13000 | J | 35000 | | 33000 | J | 38000 | |
| Chromium | 7440-47-3 | 11 | 21 | 0.0% | No | mg/kg | | 9.3 | | 5.4 | | 5 | | 6.8 | | 6.1 | | 6.4 | J | 7.9 | | 9.3 | | 7.2 | | 5.4 | |
| Cobalt | 7440-48-4 | 8.3 | 21 | 19.0% | Yes | mg/kg | | 5.7 | | 3.9 | | 3.7 | | 6.4 | | 4.9 | | 3.4 | J | 6.2 | | 6 | | 5.9 | | 4.8 | |
| Copper | 7440-50-8 | 28 | 21 | 19.0% | Yes | mg/kg | | 21 | | 15 | | 23 | | 80 | | 13 | | 14 | J | 20 | | 24 | | 28 | | 13 | |
| Iron | 7439-89-6 | 24000 | 21 | 4.8% | No | mg/kg | | 16000 | | 10000 | | 9100 | | 14000 | | 12000 | | 10000 | | 15000 | | 18000 | | 14000 | J | 12000 | |
| Lead | 7439-92-1 | 33 | 21 | 4.8% | No | mg/kg | | 37 | | 23 | | 7.6 | | 14 | | 6.1 | | 4.2 | J | 12 | | 30 | | 7.2 | | 5.9 | |
| Magnesium | 7439-95-4 | 6300 | 21 | 52.4% | Yes | mg/kg | | 8200 | | 8000 | | 5400 | | 12000 | | 10000 | | 4800 | | 3800 | J | 8100 | | 7600 | | 12000 | |
| Manganese | 7439-96-5 | 1700 | 21 | 4.8% | No | mg/kg | | 450 | | 1100 | | 740 | | 580 | | 420 | | 320 | | 590 | J | 500 | | 620 | | 450 | |
| Mercury | 7439-97-6 | 0.056 | 21 | 9.5% | Yes | mg/kg | | 0.073 | | 0.019 | J | 0.032 | | 0.038 | | 0.018 | J | 0.017 | J | 0.032 | | 0.046 | | 0.017 | J | 0.018 | U |
| Nickel | 7440-02-0 | 13 | 21 | 0.0% | No | mg/kg | | 12 | | 7.3 | | 6.9 | | 9.1 | | 8.3 | | 8.1 | J | 9.3 | | 12 | | 8.8 | | 7.1 | |
| Potassium | 7440-09-7 | 1100 | 21 | 14.3% | Yes | mg/kg | | 1200 | | 810 | | 700 | | 1100 | | 850 | | 480 | J | 700 | | 810 | | 870 | | 760 | |
| Selenium | 7782-49-2 | 0.51 | 21 | 42.9% | Yes | mg/kg | | 0.77 | J+ | 0.55 | J+ | 0.54 | J+ | 0.59 | J+ | 0.48 | J+ | 0.43 | J+ | 0.53 | J+ | 0.44 | J+ | 0.56 | J+ | 0.45 | J+ |
| Silver | 7440-22-4 | < LOQ | 21 | 33.3% | Yes | mg/kg | | 2.2 | J+ | 1.7 | J+ | 1.6 | J+ | 0.69 | U | 0.47 | U | 0.53 | U | 0.52 | U | 0.63 | U | 0.55 | U | 0.72 | U |
| Sodium | 7440-23-5 | < LOQ | 21 | 95.2% | Yes | mg/kg | | 720 | J+ | 560 | J+ | 520 | J+ | 570 | J+ | 400 | J+ | 450 | J+ | 430 | J+ | 530 | J+ | 460 | J+ | 600 | J+ |
| Thallium | 7440-28-0 | 0.12 | 21 | 0.0% | No | mg/kg | | 0.083 | J | 0.052 | J | 0.031 | J | 0.069 | J | 0.051 | J | 0.086 | U | 0.088 | J | 0.07 | J | 0.073 | J | 0.048 | J |
| Vanadium | 7440-62-2 | 17 | 21 | 4.8% | No | mg/kg | | 15 | | 11 | | 8.8 | | 10 | | 11 | | 8.4 | J | 12 | | 14 | | 12 | | 9.5 | |
| Zinc | 7440-66-6 | 57 | 21 | 28.6% | Yes | mg/kg | | 110 | | 57 | | 55 | | 38 | | 11 | | 22 | | 28 | J | 27 | | 44 | | 41 | |

Notes
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CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
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| | |
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| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

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Table I-11
Site to Background Sample Comparison - Area of Concern 1, Total Soil (0 - 5 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-01-025 | | NYOW-01-029 | | NYOW-01-032 | | NYOW-01-035 | | NYOW-01-038 | | NYOW-01-018 | | NYOW-01-019 | | NYOW-01-021 | | NYOW-01-022 | | NYOW-01-023 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-01-SL025-A | | NYOW-01-SL029-A | | NYOW-01-SL032-A | | NYOW-01-SL035-A | | NYOW-01-SL038-A | | NYOW-01-PH018-B | | NYOW-01-PH019-B | | NYOW-01-PH021-B | | NYOW-01-PH022-B | | NYOW-01-PH023-B | |
| | | | | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | | | | Sample Geology: | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | |
| | | | | | | | Sample Date: | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-14 | | 2021-04-13 | | 2021-04-08 | | 2021-04-06 | | 2021-04-07 | | 2021-04-07 | | 2021-04-02 | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 21 | 0.0% | No | mg/kg | | 5100 | | 6900 | | 6600 | | 6900 | | 5400 | | 4900 | | 4900 | | 3400 | | 5800 | | 5500 | |
| Antimony | 7440-36-0 | 0.15 | 21 | 47.6% | Yes | mg/kg | | 0.11 | J | 0.18 | J | 0.23 | | 0.24 | J | 0.091 | J | 0.17 | J+ | 0.11 | UJ | 0.093 | U | 0.19 | J+ | 0.19 | J+ |
| Arsenic | 7440-38-2 | 21 | 21 | 0.0% | No | mg/kg | | 8.7 | | 11 | | 7.1 | | 7.8 | | 4.7 | | 6 | | 2.8 | | 2.1 | | 4.9 | | 4.2 | |
| Barium | 7440-39-3 | 100 | 21 | 4.8% | No | mg/kg | | 61 | | 96 | | 58 | | 67 | | 37 | | 40 | J+ | 43 | J- | 35 | | 260 | | 35 | |
| Beryllium | 7440-41-7 | < LOQ | 21 | 95.2% | Yes | mg/kg | | 0.55 | J+ | 0.51 | J+ | 0.55 | J+ | 0.57 | J+ | 0.5 | J+ | 0.42 | J+ | 0.43 | J+ | 0.51 | J+ | 0.12 | U | 0.44 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 21 | 42.9% | Yes | mg/kg | | 0.053 | J | 0.29 | | 0.28 | | 0.37 | | 0.14 | | 0.044 | J | 0.04 | J | 0.058 | J | 0.34 | | 0.079 | J |
| Calcium | 7440-70-2 | 120000 | 21 | 0.0% | No | mg/kg | | 63000 | | 11000 | | 11000 | | 18000 | | 38000 | | 47000 | | 8800 | J- | 13000 | | 61000 | | 32000 | J |
| Chromium | 7440-47-3 | 11 | 21 | 0.0% | No | mg/kg | | 6.5 | | 10 | | 9.8 | | 9.2 | | 6.3 | | 6.3 | | 6.8 | J- | 4.6 | | 6.7 | | 7.9 | J- |
| Cobalt | 7440-48-4 | 8.3 | 21 | 19.0% | Yes | mg/kg | | 7.4 | | 8.3 | | 8.6 | | 9.4 | | 5.5 | | 5.4 | | 5 | J- | 2.9 | | 12 | | 9.7 | J- |
| Copper | 7440-50-8 | 28 | 21 | 19.0% | Yes | mg/kg | | 22 | | 24 | | 33 | | 32 | | 14 | | 15 | | 13 | | 7.2 | | 11 | | 39 | J- |
| Iron | 7439-89-6 | 24000 | 21 | 4.8% | No | mg/kg | | 17000 | | 26000 | | 17000 | | 20000 | | 13000 | | 15000 | | 13000 | J | 8300 | | 22000 | | 14000 | J |
| Lead | 7439-92-1 | 33 | 21 | 4.8% | No | mg/kg | | 11 | | 26 | | 23 | | 31 | | 6.8 | | 5.9 | | 3.2 | J- | 3.8 | | 6.9 | | 7.3 | J- |
| Magnesium | 7439-95-4 | 6300 | 21 | 52.4% | Yes | mg/kg | | 12000 | | 5300 | | 4700 | | 2900 | | 11000 | | 14000 | | 4000 | J- | 4400 | | 2400 | | 7900 | J- |
| Manganese | 7439-96-5 | 1700 | 21 | 4.8% | No | mg/kg | | 510 | | 1000 | | 740 | | 1000 | | 470 | | 610 | | 260 | J- | 230 | | 7000 | | 510 | |
| Mercury | 7439-97-6 | 0.056 | 21 | 9.5% | Yes | mg/kg | | 0.013 | J | 0.056 | | 0.052 | | 0.078 | | 0.022 | | 0.012 | J | 0.018 | U | 0.048 | | 0.032 | | 0.022 | |
| Nickel | 7440-02-0 | 13 | 21 | 0.0% | No | mg/kg | | 11 | | 13 | | 12 | | 12 | | 9 | | 9 | | 9.7 | J- | 4.9 | | 7.2 | | 12 | J- |
| Potassium | 7440-09-7 | 1100 | 21 | 14.3% | Yes | mg/kg | | 1300 | | 940 | | 970 | | 1300 | | 1100 | | 830 | | 830 | | 570 | | 500 | | 740 | J |
| Selenium | 7782-49-2 | 0.51 | 21 | 42.9% | Yes | mg/kg | | 0.4 | U | 0.6 | J+ | 0.56 | J+ | 0.49 | J+ | 0.55 | J+ | 0.35 | U | 0.39 | J+ | 0.44 | U | 0.41 | J+ | 0.45 | J+ |
| Silver | 7440-22-4 | < LOQ | 21 | 33.3% | Yes | mg/kg | | 1.7 | J+ | 1.5 | J+ | 0.66 | U | 0.68 | U | 1.5 | J+ | 0.5 | U | 0.52 | UJ | 0.61 | U | 1.5 | J+ | 0.52 | UJ |
| Sodium | 7440-23-5 | < LOQ | 21 | 95.2% | Yes | mg/kg | | 550 | J+ | 510 | J+ | 550 | J+ | 110 | U | 500 | J+ | 420 | J+ | 430 | J+ | 510 | J+ | 490 | J+ | 440 | J+ |
| Thallium | 7440-28-0 | 0.12 | 21 | 0.0% | No | mg/kg | | 0.053 | J | 0.078 | J | 0.072 | J | 0.11 | | 0.054 | J | 0.067 | J | 0.078 | U | 0.045 | J | 0.082 | | 0.071 | J |
| Vanadium | 7440-62-2 | 17 | 21 | 4.8% | No | mg/kg | | 11 | | 16 | | 15 | | 14 | | 12 | | 11 | | 10 | J- | 8.3 | | 19 | | 15 | J |
| Zinc | 7440-66-6 | 57 | 21 | 28.6% | Yes | mg/kg | | 29 | | 60 | | 75 | | 64 | | 39 | | 12 | | 18 | J- | 81 | | 110 | | 31 | J- |

Notes
-- = Not Evaluated
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CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
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ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

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Site to Background Sample Comparison - Area of Concern 1, Total Soil (0 - 5 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-01-024 | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-01-PH024-B | |
| | | | | | | Sample Type: | N | |
| | | | | | | Sample Depth (feet): | 1 - 5 | |
| | | | | | | Sample Geology: | Ps | |
| | | | | | | Sample Date: | 2021-04-07 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier |
| Metals (Total) | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 21 | 0.0% | No | mg/kg | 5300 | |
| Antimony | 7440-36-0 | 0.15 | 21 | 47.6% | Yes | mg/kg | 0.16 | J+ |
| Arsenic | 7440-38-2 | 21 | 21 | 0.0% | No | mg/kg | 4.3 | |
| Barium | 7440-39-3 | 100 | 21 | 4.8% | No | mg/kg | 37 | |
| Beryllium | 7440-41-7 | < LOQ | 21 | 95.2% | Yes | mg/kg | 0.5 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 21 | 42.9% | Yes | mg/kg | 0.11 | |
| Calcium | 7440-70-2 | 120000 | 21 | 0.0% | No | mg/kg | 13000 | |
| Chromium | 7440-47-3 | 11 | 21 | 0.0% | No | mg/kg | 6.9 | |
| Cobalt | 7440-48-4 | 8.3 | 21 | 19.0% | Yes | mg/kg | 4.6 | |
| Copper | 7440-50-8 | 28 | 21 | 19.0% | Yes | mg/kg | 14 | |
| Iron | 7439-89-6 | 24000 | 21 | 4.8% | No | mg/kg | 12000 | |
| Lead | 7439-92-1 | 33 | 21 | 4.8% | No | mg/kg | 6.4 | |
| Magnesium | 7439-95-4 | 6300 | 21 | 52.4% | Yes | mg/kg | 4900 | |
| Manganese | 7439-96-5 | 1700 | 21 | 4.8% | No | mg/kg | 420 | |
| Mercury | 7439-97-6 | 0.056 | 21 | 9.5% | Yes | mg/kg | 0.026 | |
| Nickel | 7440-02-0 | 13 | 21 | 0.0% | No | mg/kg | 7.7 | |
| Potassium | 7440-09-7 | 1100 | 21 | 14.3% | Yes | mg/kg | 640 | |
| Selenium | 7782-49-2 | 0.51 | 21 | 42.9% | Yes | mg/kg | 0.45 | J+ |
| Silver | 7440-22-4 | < LOQ | 21 | 33.3% | Yes | mg/kg | 0.6 | U |
| Sodium | 7440-23-5 | < LOQ | 21 | 95.2% | Yes | mg/kg | 500 | J+ |
| Thallium | 7440-28-0 | 0.12 | 21 | 0.0% | No | mg/kg | 0.069 | J |
| Vanadium | 7440-62-2 | 17 | 21 | 4.8% | No | mg/kg | 11 | |
| Zinc | 7440-66-6 | 57 | 21 | 28.6% | Yes | mg/kg | 26 | |

Notes

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CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
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mg/kg = millgram per kilogram
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| ND | Not detected at the LOD |
| Detect | Detected result |
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Geology

| | |
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| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
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Site to Background Sample Comparison - Area of Concern 1, Total Soil (0 - 5 ft bgs, Pd)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-01-002 | | NYOW-01-005 | | NYOW-01-015 | | NYOW-01-016 | | NYOW-01-026 | | NYOW-01-027 | | NYOW-01-028 | | NYOW-01-030 | | NYOW-01-031 | | NYOW-01-033 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-01-SL002-A | | NYOW-01-SL005-A | | NYOW-01-SL015-A | | NYOW-01-SL016-A | | NYOW-01-SL026-A | | NYOW-01-SL027-A | | NYOW-01-SL028-A | | NYOW-01-SL030-A | | NYOW-01-SL031-A | | NYOW-01-SL033-A | |
| | | | | | | | Sample Type: | N | | C | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | | | | Sample Geology: | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | |
| | | | | | | | Sample Date: | 2021-04-09 | | 2021-04-08 | | 2021-04-02 | | 2021-04-02 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8100 | 18 | N/A | Yes | mg/kg | | 11000 | | 6400 | | 7900 | | 6500 | | 4200 | | 6800 | | 4500 | | 6800 | | 6500 | | 7800 | |
| Antimony | 7440-36-0 | 0.41 | 18 | N/A | Yes | mg/kg | | 0.16 | J- | 0.11 | J | 0.17 | J | 0.15 | J | 0.34 | | 0.11 | J | 0.56 | | 0.16 | J | 0.42 | | 0.17 | J |
| Arsenic | 7440-38-2 | 21 | 18 | N/A | No | mg/kg | | 4.2 | | 4 | | 4.9 | | 5.2 | | 3.3 | | 5 | | 5.1 | | 4.5 | | 4.8 | | 5.7 | |
| Barium | 7440-39-3 | 100 | 18 | N/A | Yes | mg/kg | | 81 | | 46 | J+ | 61 | | 55 | | 83 | | 52 | | 120 | | 58 | | 44 | | 49 | |
| Beryllium | 7440-41-7 | < LOQ | 18 | N/A | Yes | mg/kg | | 0.48 | J+ | 0.47 | J+ | 0.52 | J+ | 0.44 | J+ | 0.87 | J+ | 0.47 | J+ | 0.63 | J+ | 0.47 | J+ | 0.45 | J+ | 0.51 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 18 | N/A | Yes | mg/kg | | 0.17 | | 0.13 | | 0.31 | | 0.13 | | 0.51 | | 0.2 | | 0.53 | | 0.49 | | 0.23 | | 0.26 | |
| Calcium | 7440-70-2 | 120000 | 18 | N/A | No | mg/kg | | 26000 | | 13000 | | 25000 | J | 40000 | J | 32000 | | 14000 | | 10000 | | 5400 | | 16000 | | 6100 | |
| Chromium | 7440-47-3 | 11 | 18 | N/A | Yes | mg/kg | | 11 | J- | 7 | | 9.9 | | 8.6 | | 10 | | 8.1 | | 18 | | 9.8 | | 9.2 | | 8.5 | |
| Cobalt | 7440-48-4 | 8.3 | 18 | N/A | Yes | mg/kg | | 7.3 | | 4.6 | | 7.6 | | 4.5 | | 4.2 | | 6.5 | | 4.5 | | 5.8 | | 8 | | 6.4 | |
| Copper | 7440-50-8 | 28 | 18 | N/A | Yes | mg/kg | | 21 | | 11 | | 22 | | 14 | | 20 | | 24 | | 24 | | 21 | | 22 | | 20 | |
| Iron | 7439-89-6 | 24000 | 18 | N/A | No | mg/kg | | 17000 | | 13000 | | 17000 | J | 12000 | J | 9600 | | 18000 | | 12000 | | 16000 | | 18000 | | 17000 | |
| Lead | 7439-92-1 | 14 | 18 | N/A | Yes | mg/kg | | 29 | | 11 | | 10 | | 14 | | 54 | | 14 | | 72 | | 21 | | 18 | | 17 | |
| Magnesium | 7439-95-4 | 13000 | 18 | N/A | Yes | mg/kg | | 6600 | J- | 4300 | | 7000 | | 7800 | | 5200 | | 5100 | | 3000 | | 3300 | | 6400 | | 3700 | |
| Manganese | 7439-96-5 | 1300 | 18 | N/A | Yes | mg/kg | | 1400 | J | 550 | | 710 | | 450 | | 950 | | 770 | | 550 | | 540 | | 760 | | 680 | |
| Mercury | 7439-97-6 | 0.056 | 18 | N/A | Yes | mg/kg | | 0.039 | | 0.053 | | 0.021 | J | 0.015 | J | 0.26 | | 0.042 | | 0.76 | | 0.053 | | 0.14 | | 0.06 | |
| Nickel | 7440-02-0 | 13 | 18 | N/A | No | mg/kg | | 12 | | 8 | | 12 | | 8.2 | | 9.2 | | 12 | | 11 | | 11 | | 13 | | 12 | |
| Potassium | 7440-09-7 | 1200 | 18 | N/A | Yes | mg/kg | | 1400 | J+ | 550 | | 1300 | | 930 | | 1100 | | 1300 | | 1100 | | 720 | | 1200 | | 1200 | |
| Selenium | 7782-49-2 | 0.51 | 18 | N/A | Yes | mg/kg | | 0.4 | J+ | 0.49 | J+ | 0.49 | J+ | 0.49 | J+ | 0.85 | J+ | 0.43 | J+ | 0.7 | J+ | 0.51 | J+ | 0.43 | J+ | 0.45 | J+ |
| Silver | 7440-22-4 | < LOQ | 18 | N/A | Yes | mg/kg | | 1.4 | J+ | 0.56 | U | 0.63 | U | 0.53 | U | 2.6 | J+ | 0.56 | U | 1.9 | J+ | 0.56 | U | 1.3 | J+ | 0.61 | U |
| Sodium | 7440-23-5 | < LOQ | 18 | N/A | Yes | mg/kg | | 480 | J+ | 470 | J+ | 520 | J+ | 440 | J+ | 170 | U | 470 | J+ | 130 | U | 93 | U | 450 | J+ | 100 | U |
| Thallium | 7440-28-0 | 0.11 | 18 | N/A | No | mg/kg | | 0.071 | J | 0.059 | J | 0.052 | J | 0.081 | J | 0.074 | J | 0.065 | J | 0.062 | J | 0.056 | J | 0.064 | J | 0.072 | J |
| Vanadium | 7440-62-2 | 16 | 18 | N/A | Yes | mg/kg | | 20 | | 12 | | 16 | | 13 | | 13 | | 15 | | 14 | | 13 | | 14 | | 14 | |
| Zinc | 7440-66-6 | 250 | 18 | N/A | No | mg/kg | | 52 | | 180 | J | 39 | | 40 | | 170 | | 56 | | 120 | | 85 | | 51 | | 53 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-12
Site to Background Sample Comparison - Area of Concern 1, Total Soil (0 - 5 ft bgs, Pd)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-01-034 | | NYOW-01-036 | | NYOW-01-037 | | NYOW-01-039 | | NYOW-01-002 | | NYOW-01-005 | | NYOW-01-015 | | NYOW-01-016 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-01-SL034-A | | NYOW-01-SL036-A | | NYOW-01-SL037-A | | NYOW-01-SL039-A | | NYOW-01-PH002-B | | NYOW-01-PH005-B | | NYOW-01-PH015-B | | NYOW-01-PH016-B | |
| | | | | | | | Sample Type: | N | | N | | N | | N | | N | | C | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | | | | Sample Geology: | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | |
| | | | | | | | Sample Date: | 2021-04-14 | | 2021-04-14 | | 2021-04-13 | | 2021-04-13 | | 2021-04-09 | | 2021-04-08 | | 2021-04-02 | | 2021-04-02 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8100 | 18 | N/A | Yes | mg/kg | | 2000 | | 5700 | | 6100 | | 8000 | | 7000 | | 3400 | | 6100 | | 5300 | |
| Antimony | 7440-36-0 | 0.41 | 18 | N/A | Yes | mg/kg | | 0.41 | | 0.31 | | 0.17 | J | 0.31 | | 0.17 | J+ | 0.081 | U | 0.18 | J+ | 0.16 | J+ |
| Arsenic | 7440-38-2 | 21 | 18 | N/A | No | mg/kg | | 3.7 | | 5.6 | | 3.6 | | 4.1 | | 3.7 | | 3.7 | | 6.6 | | 7.6 | |
| Barium | 7440-39-3 | 100 | 18 | N/A | Yes | mg/kg | | 41 | | 62 | | 42 | | 40 | | 41 | | 31 | J+ | 50 | | 55 | |
| Beryllium | 7440-41-7 | < LOQ | 18 | N/A | Yes | mg/kg | | 0.52 | U | 0.58 | J+ | 0.67 | J+ | 0.67 | U | 0.4 | J+ | 0.4 | J+ | 0.36 | J+ | 0.41 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 18 | N/A | Yes | mg/kg | | 0.57 | | 0.25 | | 0.45 | | 0.16 | | 0.092 | J | 0.039 | J | 0.013 | J | 0.1 | |
| Calcium | 7440-70-2 | 120000 | 18 | N/A | No | mg/kg | | 41000 | | 17000 | | 16000 | | 16000 | | 21000 | J | 38000 | | 76000 | J | 50000 | J |
| Chromium | 7440-47-3 | 11 | 18 | N/A | Yes | mg/kg | | 18 | | 14 | | 7.6 | | 11 | J | 8.4 | | 6.2 | | 7.4 | | 10 | |
| Cobalt | 7440-48-4 | 8.3 | 18 | N/A | Yes | mg/kg | | 3.9 | | 8.4 | | 5.7 | | 4.5 | | 5.9 | J | 3.8 | | 13 | | 5.7 | |
| Copper | 7440-50-8 | 28 | 18 | N/A | Yes | mg/kg | | 19 | | 33 | | 21 | | 19 | | 19 | | 10 | | 26 | | 26 | |
| Iron | 7439-89-6 | 24000 | 18 | N/A | No | mg/kg | | 6000 | | 18000 | | 15000 | | 13000 | | 16000 | | 9600 | | 14000 | J | 20000 | J |
| Lead | 7439-92-1 | 14 | 18 | N/A | Yes | mg/kg | | 200 | | 44 | | 21 | | 39 | | 14 | | 3.3 | | 8.8 | | 40 | |
| Magnesium | 7439-95-4 | 13000 | 18 | N/A | Yes | mg/kg | | 8700 | | 6400 | | 3100 | | 1700 | | 5700 | J | 9500 | | 24000 | | 10000 | |
| Manganese | 7439-96-5 | 1300 | 18 | N/A | Yes | mg/kg | | 270 | | 830 | | 640 | | 410 | | 550 | | 340 | | 460 | | 850 | |
| Mercury | 7439-97-6 | 0.056 | 18 | N/A | Yes | mg/kg | | 0.096 | | 0.085 | | 0.062 | | 0.037 | | 0.015 | J | 0.017 | U | 0.015 | J | 0.013 | J |
| Nickel | 7440-02-0 | 13 | 18 | N/A | No | mg/kg | | 7.4 | | 13 | | 11 | | 8.4 | | 11 | J | 6.9 | | 13 | | 13 | |
| Potassium | 7440-09-7 | 1200 | 18 | N/A | Yes | mg/kg | | 660 | | 1300 | | 1000 | | 1100 | J | 1000 | J+ | 610 | | 2000 | | 790 | |
| Selenium | 7782-49-2 | 0.51 | 18 | N/A | Yes | mg/kg | | 0.61 | J+ | 0.54 | J+ | 0.59 | J+ | 0.45 | J+ | 0.47 | J+ | 0.33 | U | 0.39 | U | 0.4 | U |
| Silver | 7440-22-4 | < LOQ | 18 | N/A | Yes | mg/kg | | 1.6 | J+ | 0.7 | U | 0.8 | U | 0.67 | U | 1.2 | J+ | 0.48 | U | 1.1 | J+ | 1.2 | J+ |
| Sodium | 7440-23-5 | < LOQ | 18 | N/A | Yes | mg/kg | | 520 | J+ | 580 | J+ | 130 | U | 560 | J+ | 400 | J+ | 400 | J+ | 360 | J+ | 410 | J+ |
| Thallium | 7440-28-0 | 0.11 | 18 | N/A | No | mg/kg | | 0.048 | J | 0.086 | J | 0.059 | J | 0.055 | J | 0.058 | J | 0.037 | J | 0.11 | | 0.094 | J |
| Vanadium | 7440-62-2 | 16 | 18 | N/A | Yes | mg/kg | | 7.2 | | 13 | | 13 | | 14 | | 16 | | 9.3 | | 11 | | 12 | |
| Zinc | 7440-66-6 | 250 | 18 | N/A | No | mg/kg | | 110 | | 55 | | 87 | | 39 | | 40 | | 32 | | 25 | | 130 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions

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Table I-13
Site to Background Sample Comparison - Area of Concern 1, Total Soil (0 - 10 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-01-020 | | NYOW-01-020 | | NYOW-01-020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-01-SL020-A | | NYOW-01-PH020-B | | NYOW-01-PH020-C | |
| | | | | | | Sample Type: | N | | N | | N | |
| | | | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | | | | Sample Geology: | Psc | | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-04-06 | | 2021-04-06 | | 2021-04-06 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Metals (Total) | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 3 | N/A | Yes | mg/kg | 5800 | | 5000 | | 7400 | |
| Antimony | 7440-36-0 | 0.15 | 3 | N/A | Yes | mg/kg | 0.14 | J | 0.2 | J+ | 0.15 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 3 | N/A | Yes | mg/kg | 6.9 | | 7.9 | | 7 | |
| Barium | 7440-39-3 | 100 | 3 | N/A | No | mg/kg | 43 | | 39 | | 53 | |
| Beryllium | 7440-41-7 | 0.56 | 3 | N/A | No | mg/kg | 0.53 | J+ | 0.44 | J+ | 0.46 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 3 | N/A | No | mg/kg | 0.13 | | 0.078 | J | 0.088 | J+ |
| Calcium | 7440-70-2 | 71000 | 3 | N/A | Yes | mg/kg | 40000 | | 80000 | | 73000 | |
| Chromium | 7440-47-3 | 11 | 3 | N/A | No | mg/kg | 7.5 | | 6.7 | | 9.5 | |
| Cobalt | 7440-48-4 | 5.5 | 3 | N/A | Yes | mg/kg | 9.4 | | 10 | | 11 | |
| Copper | 7440-50-8 | 13 | 3 | N/A | Yes | mg/kg | 28 | | 27 | | 19 | |
| Iron | 7439-89-6 | 14000 | 3 | N/A | Yes | mg/kg | 17000 | | 15000 | | 16000 | |
| Lead | 7439-92-1 | 6.3 | 3 | N/A | Yes | mg/kg | 19 | | 13 | | 7.9 | |
| Magnesium | 7439-95-4 | 2000 | 3 | N/A | Yes | mg/kg | 15000 | | 17000 | | 23000 | |
| Manganese | 7439-96-5 | 520 | 3 | N/A | Yes | mg/kg | 600 | | 550 | | 450 | |
| Mercury | 7439-97-6 | 0.027 | 3 | N/A | No | mg/kg | 0.02 | J | 0.019 | U | 0.015 | U |
| Nickel | 7440-02-0 | 9.7 | 3 | N/A | Yes | mg/kg | 12 | | 11 | | 15 | |
| Potassium | 7440-09-7 | 1200 | 3 | N/A | Yes | mg/kg | 1100 | | 1200 | | 2500 | |
| Selenium | 7782-49-2 | 0.51 | 3 | N/A | Yes | mg/kg | 0.57 | J+ | 0.57 | J+ | 0.44 | J+ |
| Silver | 7440-22-4 | < LOQ | 3 | N/A | No | mg/kg | 0.64 | U | 0.53 | U | 0.56 | U |
| Sodium | 7440-23-5 | < LOQ | 3 | N/A | Yes | mg/kg | 530 | J+ | 440 | J+ | 460 | J+ |
| Thallium | 7440-28-0 | 0.11 | 3 | N/A | No | mg/kg | 0.11 | U | 0.11 | U | 0.097 | |
| Vanadium | 7440-62-2 | 14 | 3 | N/A | No | mg/kg | 11 | | 10 | | 12 | |
| Zinc | 7440-66-6 | 23 | 3 | N/A | Yes | mg/kg | 44 | | 37 | | 29 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| |
|---|
| ND = Not detected at the LOD |
| Detect = Detected result |
| Detect = Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions

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Table I-14
Site to Background Sample Comparison - Area of Concern 1, Total Soil (0 - 10 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-01-007 | | NYOW-01-009 | | NYOW-01-011 | | NYOW-01-013 | | NYOW-01-018 | | NYOW-01-019 | | NYOW-01-021 | | NYOW-01-022 | | NYOW-01-023 | | NYOW-01-024 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-01-SL007-A | | NYOW-01-SL009-A | | NYOW-01-SL011-A | | NYOW-01-SL013-A | | NYOW-01-SL018-A | | NYOW-01-SL019-A | | NYOW-01-SL021-A | | NYOW-01-SL022-A | | NYOW-01-SL023-A | | NYOW-01-SL024-A | |
| | | | | | | | Sample Type: | N | | N | | N | | N | | N | | C | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | | | | Sample Geology: | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | |
| | | | | | | | Sample Date: | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-14 | | 2021-04-08 | | 2021-04-06 | | 2021-04-07 | | 2021-04-07 | | 2021-04-02 | | 2021-04-07 | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 27 | 0.0% | No | mg/kg | 6500 | | 3900 | | 4200 | | 4600 | | 5100 | | 4000 | J | 6400 | | 7800 | | 6000 | | 4400 | |
| Antimony | 7440-36-0 | 0.15 | 27 | 51.9% | Yes | mg/kg | 0.23 | J | 0.19 | J | 0.13 | J | 0.13 | J | 0.082 | J | 0.095 | J | 0.15 | J | 0.18 | | 0.13 | J | 0.1 | J |
| Arsenic | 7440-38-2 | 21 | 27 | 0.0% | No | mg/kg | 5.7 | | 4.7 | | 2.4 | | 4.8 | | 4.7 | | 3.9 | | 4.5 | | 4.7 | | 4.7 | | 4 | |
| Barium | 7440-39-3 | 100 | 27 | 3.7% | No | mg/kg | 86 | | 72 | | 32 | | 39 | | 40 | J+ | 25 | J | 51 | | 61 | | 40 | | 37 | |
| Beryllium | 7440-41-7 | 0.56 | 27 | 14.8% | Yes | mg/kg | 0.72 | J+ | 0.56 | J+ | 0.52 | J+ | 0.57 | J+ | 0.4 | J+ | 0.45 | J+ | 0.43 | J+ | 0.53 | J+ | 0.46 | J+ | 0.6 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 27 | 33.3% | Yes | mg/kg | 0.37 | | 0.19 | | 0.32 | | 0.14 | | 0.058 | J | 0.058 | J | 0.14 | | 0.65 | | 0.79 | | 0.058 | J |
| Calcium | 7440-70-2 | 110000 | 27 | 0.0% | No | mg/kg | 21000 | | 31000 | | 20000 | | 55000 | | 40000 | | 13000 | | 13000 | J | 35000 | | 33000 | J | 38000 | |
| Chromium | 7440-47-3 | 11 | 27 | 0.0% | No | mg/kg | 9.3 | | 5.4 | | 5 | | 6.8 | | 6.1 | | 6.4 | J | 7.9 | | 9.3 | | 7.2 | | 5.4 | |
| Cobalt | 7440-48-4 | 8.3 | 27 | 14.8% | Yes | mg/kg | 5.7 | | 3.9 | | 3.7 | | 6.4 | | 4.9 | | 3.4 | J | 6.2 | | 6 | | 5.9 | | 4.8 | |
| Copper | 7440-50-8 | 28 | 27 | 14.8% | Yes | mg/kg | 21 | | 15 | | 23 | | 80 | | 13 | | 14 | J | 20 | | 24 | | 28 | | 13 | |
| Iron | 7439-89-6 | 24000 | 27 | 3.7% | No | mg/kg | 16000 | | 10000 | | 9100 | | 14000 | | 12000 | | 10000 | | 15000 | | 18000 | | 14000 | J | 12000 | |
| Lead | 7439-92-1 | 33 | 27 | 3.7% | No | mg/kg | 37 | | 23 | | 7.6 | | 14 | | 6.1 | | 4.2 | J | 12 | | 30 | | 7.2 | | 5.9 | |
| Magnesium | 7439-95-4 | 6300 | 27 | 55.6% | Yes | mg/kg | 8200 | | 8000 | | 5400 | | 12000 | | 10000 | | 4800 | | 3800 | J | 8100 | | 7600 | | 12000 | |
| Manganese | 7439-96-5 | 1700 | 27 | 3.7% | No | mg/kg | 450 | | 1100 | | 740 | | 580 | | 420 | | 320 | | 590 | J | 500 | | 620 | | 450 | |
| Mercury | 7439-97-6 | 0.056 | 27 | 7.4% | Yes | mg/kg | 0.073 | | 0.019 | J | 0.032 | | 0.038 | | 0.018 | J | 0.017 | J | 0.032 | | 0.046 | | 0.017 | J | 0.018 | U |
| Nickel | 7440-02-0 | 13 | 27 | 0.0% | No | mg/kg | 12 | | 7.3 | | 6.9 | | 9.1 | | 8.3 | | 8.1 | J | 9.3 | | 12 | | 8.8 | | 7.1 | |
| Potassium | 7440-09-7 | 1100 | 27 | 11.1% | Yes | mg/kg | 1200 | | 810 | | 700 | | 1100 | | 850 | | 480 | J | 700 | | 810 | | 870 | | 760 | |
| Selenium | 7782-49-2 | 0.51 | 27 | 33.3% | Yes | mg/kg | 0.77 | J+ | 0.55 | J+ | 0.54 | J+ | 0.59 | J+ | 0.48 | J+ | 0.43 | J+ | 0.53 | J+ | 0.44 | J+ | 0.56 | J+ | 0.45 | J+ |
| Silver | 7440-22-4 | < LOQ | 27 | 25.9% | Yes | mg/kg | 2.2 | J+ | 1.7 | J+ | 1.6 | J+ | 0.69 | U | 0.47 | U | 0.53 | U | 0.52 | U | 0.63 | U | 0.55 | U | 0.72 | U |
| Sodium | 7440-23-5 | < LOQ | 27 | 96.3% | Yes | mg/kg | 720 | J+ | 560 | J+ | 520 | J+ | 570 | J+ | 400 | J+ | 450 | J+ | 430 | J+ | 530 | J+ | 460 | J+ | 600 | J+ |
| Thallium | 7440-28-0 | 0.12 | 27 | 0.0% | No | mg/kg | 0.083 | J | 0.052 | J | 0.031 | J | 0.069 | J | 0.051 | J | 0.086 | U | 0.088 | J | 0.07 | J | 0.073 | J | 0.048 | J |
| Vanadium | 7440-62-2 | 17 | 27 | 3.7% | No | mg/kg | 15 | | 11 | | 8.8 | | 10 | | 11 | | 8.4 | J | 12 | | 14 | | 12 | | 9.5 | |
| Zinc | 7440-66-6 | 57 | 27 | 22.2% | Yes | mg/kg | 110 | | 57 | | 55 | | 38 | | 11 | | 22 | | 28 | J | 27 | | 44 | | 41 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-14
Site to Background Sample Comparison - Area of Concern 1, Total Soil (0 - 10 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-01-025 | | NYOW-01-029 | | NYOW-01-032 | | NYOW-01-035 | | NYOW-01-038 | | NYOW-01-018 | | NYOW-01-019 | | NYOW-01-021 | | NYOW-01-022 | | NYOW-01-023 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-01-SL025-A | | NYOW-01-SL029-A | | NYOW-01-SL032-A | | NYOW-01-SL035-A | | NYOW-01-SL038-A | | NYOW-01-PH018-B | | NYOW-01-PH019-B | | NYOW-01-PH021-B | | NYOW-01-PH022-B | | NYOW-01-PH023-B | |
| | | | | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | | | | Sample Geology: | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | |
| | | | | | | | Sample Date: | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-14 | | 2021-04-13 | | 2021-04-08 | | 2021-04-06 | | 2021-04-07 | | 2021-04-07 | | 2021-04-02 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 27 | 0.0% | No | mg/kg | | 5100 | | 6900 | | 6600 | | 6900 | | 5400 | | 4900 | | 4900 | | 3400 | | 5800 | | 5500 | |
| Antimony | 7440-36-0 | 0.15 | 27 | 51.9% | Yes | mg/kg | | 0.11 | J | 0.18 | J | 0.23 | | 0.24 | J | 0.091 | J | 0.17 | J+ | 0.11 | UJ | 0.093 | U | 0.19 | J+ | 0.19 | J+ |
| Arsenic | 7440-38-2 | 21 | 27 | 0.0% | No | mg/kg | | 8.7 | | 11 | | 7.1 | | 7.8 | | 4.7 | | 6 | | 2.8 | | 2.1 | | 4.9 | | 4.2 | |
| Barium | 7440-39-3 | 100 | 27 | 3.7% | No | mg/kg | | 61 | | 96 | | 58 | | 67 | | 37 | | 40 | J+ | 43 | J- | 35 | | 260 | | 35 | |
| Beryllium | 7440-41-7 | 0.56 | 27 | 14.8% | Yes | mg/kg | | 0.55 | J+ | 0.51 | J+ | 0.55 | J+ | 0.57 | J+ | 0.5 | J+ | 0.42 | J+ | 0.43 | J+ | 0.51 | J+ | 0.12 | U | 0.44 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 27 | 33.3% | Yes | mg/kg | | 0.053 | J | 0.29 | | 0.28 | | 0.37 | | 0.14 | | 0.044 | J | 0.04 | J | 0.058 | J | 0.34 | | 0.079 | J |
| Calcium | 7440-70-2 | 110000 | 27 | 0.0% | No | mg/kg | | 63000 | | 11000 | | 11000 | | 18000 | | 38000 | | 47000 | | 8800 | J- | 13000 | | 61000 | | 32000 | J |
| Chromium | 7440-47-3 | 11 | 27 | 0.0% | No | mg/kg | | 6.5 | | 10 | | 9.8 | | 9.2 | | 6.3 | | 6.3 | | 6.8 | J- | 4.6 | | 6.7 | | 7.9 | J- |
| Cobalt | 7440-48-4 | 8.3 | 27 | 14.8% | Yes | mg/kg | | 7.4 | | 8.3 | | 8.6 | | 9.4 | | 5.5 | | 5.4 | | 5 | J- | 2.9 | | 12 | | 9.7 | J- |
| Copper | 7440-50-8 | 28 | 27 | 14.8% | Yes | mg/kg | | 22 | | 24 | | 33 | | 32 | | 14 | | 15 | | 13 | | 7.2 | | 11 | | 39 | J- |
| Iron | 7439-89-6 | 24000 | 27 | 3.7% | No | mg/kg | | 17000 | | 26000 | | 17000 | | 20000 | | 13000 | | 15000 | | 13000 | J | 8300 | | 22000 | | 14000 | J |
| Lead | 7439-92-1 | 33 | 27 | 3.7% | No | mg/kg | | 11 | | 26 | | 23 | | 31 | | 6.8 | | 5.9 | | 3.2 | J- | 3.8 | | 6.9 | | 7.3 | J- |
| Magnesium | 7439-95-4 | 6300 | 27 | 55.6% | Yes | mg/kg | | 12000 | | 5300 | | 4700 | | 2900 | | 11000 | | 14000 | | 4000 | J- | 4400 | | 2400 | | 7900 | J- |
| Manganese | 7439-96-5 | 1700 | 27 | 3.7% | No | mg/kg | | 510 | | 1000 | | 740 | | 1000 | | 470 | | 610 | | 260 | J- | 230 | | 7000 | | 510 | |
| Mercury | 7439-97-6 | 0.056 | 27 | 7.4% | Yes | mg/kg | | 0.013 | J | 0.056 | | 0.052 | | 0.078 | | 0.022 | | 0.012 | J | 0.018 | U | 0.048 | | 0.032 | | 0.022 | |
| Nickel | 7440-02-0 | 13 | 27 | 0.0% | No | mg/kg | | 11 | | 13 | | 12 | | 12 | | 9 | | 9 | | 9.7 | J- | 4.9 | | 7.2 | | 12 | J- |
| Potassium | 7440-09-7 | 1100 | 27 | 11.1% | Yes | mg/kg | | 1300 | | 940 | | 970 | | 1300 | | 1100 | | 830 | | 830 | | 570 | | 500 | | 740 | J |
| Selenium | 7782-49-2 | 0.51 | 27 | 33.3% | Yes | mg/kg | | 0.4 | U | 0.6 | J+ | 0.56 | J+ | 0.49 | J+ | 0.55 | J+ | 0.35 | U | 0.39 | J+ | 0.44 | U | 0.41 | J+ | 0.45 | J+ |
| Silver | 7440-22-4 | < LOQ | 27 | 25.9% | Yes | mg/kg | | 1.7 | J+ | 1.5 | J+ | 0.66 | U | 0.68 | U | 1.5 | J+ | 0.5 | U | 0.52 | UJ | 0.61 | U | 1.5 | J+ | 0.52 | UJ |
| Sodium | 7440-23-5 | < LOQ | 27 | 96.3% | Yes | mg/kg | | 550 | J+ | 510 | J+ | 550 | J+ | 110 | U | 500 | J+ | 420 | J+ | 430 | J+ | 510 | J+ | 490 | J+ | 440 | J+ |
| Thallium | 7440-28-0 | 0.12 | 27 | 0.0% | No | mg/kg | | 0.053 | J | 0.078 | J | 0.072 | J | 0.11 | | 0.054 | J | 0.067 | J | 0.078 | U | 0.045 | J | 0.082 | | 0.071 | J |
| Vanadium | 7440-62-2 | 17 | 27 | 3.7% | No | mg/kg | | 11 | | 16 | | 15 | | 14 | | 12 | | 11 | | 10 | J- | 8.3 | | 19 | | 15 | J |
| Zinc | 7440-66-6 | 57 | 27 | 22.2% | Yes | mg/kg | | 29 | | 60 | | 75 | | 64 | | 39 | | 12 | | 18 | J- | 81 | | 110 | | 31 | J- |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions

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Table I-14
Site to Background Sample Comparison - Area of Concern 1, Total Soil (0 - 10 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-01-024 | | NYOW-01-018 | | NYOW-01-019 | | NYOW-01-021 | | NYOW-01-022 | | NYOW-01-023 | | NYOW-01-024 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-01-PH024-B | | NYOW-01-PH018-C | | NYOW-01-PH019-C | | NYOW-01-PH021-C | | NYOW-01-PH022-C | | NYOW-01-PH023-C | | NYOW-01-PH024-C | |
| | | | | | | | Sample Type: | N | | N | | C | | N | | N | | C | | N | |
| | | | | | | | Sample Depth (feet): | 1 - 5 | | 5 - 10 | | 5 - 10 | | 5 - 10 | | 5 - 10 | | 5 - 10 | | 5 - 10 | |
| | | | | | | | Sample Geology: | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | |
| | | | | | | | Sample Date: | 2021-04-07 | | 2021-04-08 | | 2021-04-06 | | 2021-04-07 | | 2021-04-07 | | 2021-04-02 | | 2021-04-07 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 27 | 0.0% | No | mg/kg | | 5300 | | 3000 | | 3600 | | 4500 | | 6000 | | 4800 | | 5000 | |
| Antimony | 7440-36-0 | 0.15 | 27 | 51.9% | Yes | mg/kg | | 0.16 | J+ | 0.084 | U | 0.17 | J+ | 0.097 | U | 0.18 | J+ | 0.2 | J+ | 0.19 | J+ |
| Arsenic | 7440-38-2 | 21 | 27 | 0.0% | No | mg/kg | | 4.3 | | 3.7 | | 4.3 | | 3.7 | | 4.6 | | 3.1 | | 5.5 | |
| Barium | 7440-39-3 | 100 | 27 | 3.7% | No | mg/kg | | 37 | | 29 | J+ | 31 | | 58 | | 73 | | 47 | | 30 | |
| Beryllium | 7440-41-7 | 0.56 | 27 | 14.8% | Yes | mg/kg | | 0.5 | J+ | 0.49 | J+ | 0.5 | J+ | 0.41 | J+ | 0.41 | J+ | 0.38 | J+ | 0.46 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 27 | 33.3% | Yes | mg/kg | | 0.11 | | 0.099 | J+ | 0.076 | J+ | 0.097 | J+ | 0.095 | J+ | 0.083 | J+ | 0.086 | J+ |
| Calcium | 7440-70-2 | 110000 | 27 | 0.0% | No | mg/kg | | 13000 | | 54000 | | 77000 | | 36000 | | 3800 | | 29000 | J | 4500 | |
| Chromium | 7440-47-3 | 11 | 27 | 0.0% | No | mg/kg | | 6.9 | | 4.6 | | 5.2 | | 9.1 | | 9.6 | | 6.6 | | 6.7 | |
| Cobalt | 7440-48-4 | 8.3 | 27 | 14.8% | Yes | mg/kg | | 4.6 | | 4.5 | | 4.6 | | 4.9 | | 6.9 | | 4.8 | J | 5.5 | |
| Copper | 7440-50-8 | 28 | 27 | 14.8% | Yes | mg/kg | | 14 | | 11 | | 24 | J | 12 | | 13 | | 15 | | 20 | |
| Iron | 7439-89-6 | 24000 | 27 | 3.7% | No | mg/kg | | 12000 | | 10000 | | 11000 | | 11000 | | 15000 | | 10000 | J | 14000 | |
| Lead | 7439-92-1 | 33 | 27 | 3.7% | No | mg/kg | | 6.4 | | 3.3 | | 3.7 | | 3.4 | | 6.2 | | 3.1 | | 4.8 | |
| Magnesium | 7439-95-4 | 6300 | 27 | 55.6% | Yes | mg/kg | | 4900 | | 15000 | | 21000 | | 10000 | | 2800 | | 7700 | J | 3100 | |
| Manganese | 7439-96-5 | 1700 | 27 | 3.7% | No | mg/kg | | 420 | | 420 | | 450 | | 380 | | 570 | | 280 | | 490 | |
| Mercury | 7439-97-6 | 0.056 | 27 | 7.4% | Yes | mg/kg | | 0.026 | | 0.02 | J+ | 0.016 | U | 0.015 | U | 0.017 | U | 0.019 | J+ | 0.017 | U |
| Nickel | 7440-02-0 | 13 | 27 | 0.0% | No | mg/kg | | 7.7 | | 6.6 | | 7.6 | | 9 | | 11 | | 9.3 | J | 9.4 | |
| Potassium | 7440-09-7 | 1100 | 27 | 11.1% | Yes | mg/kg | | 640 | | 620 | | 1100 | | 1000 | | 900 | | 1100 | | 700 | |
| Selenium | 7782-49-2 | 0.51 | 27 | 33.3% | Yes | mg/kg | | 0.45 | J+ | 0.4 | U | 0.38 | J+ | 0.39 | U | 0.48 | J+ | 0.33 | U | 0.43 | J+ |
| Silver | 7440-22-4 | < LOQ | 27 | 25.9% | Yes | mg/kg | | 0.6 | U | 0.58 | U | 0.6 | U | 0.49 | U | 0.49 | U | 0.46 | U | 0.55 | U |
| Sodium | 7440-23-5 | < LOQ | 27 | 96.3% | Yes | mg/kg | | 500 | J+ | 490 | J+ | 500 | J+ | 410 | J+ | 410 | J+ | 380 | J+ | 460 | J+ |
| Thallium | 7440-28-0 | 0.12 | 27 | 0.0% | No | mg/kg | | 0.069 | J | 0.044 | J | 0.076 | U | 0.046 | J | 0.053 | J | 0.046 | J | 0.076 | J |
| Vanadium | 7440-62-2 | 17 | 27 | 3.7% | No | mg/kg | | 11 | | 7.6 | | 7.7 | | 9.4 | | 12 | | 9.5 | | 9.8 | |
| Zinc | 7440-66-6 | 57 | 27 | 22.2% | Yes | mg/kg | | 26 | | 19 | | 21 | J | 33 | | 28 | | 17 | | 30 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
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% = Percent

Legend

| |
|---|
| ND = Not detected at the LOD |
| Detect = Detected result |
| Detect = Detected result > BTV |

Geology

| |
|---|
| Psc = Lacustrine Silt and Clay |
| Ps = Sorted Sand and Gravel |
| Pd = Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
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UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-15
Site to Background Sample Comparison - Area of Concern 1, Total Soil (0 - 10 ft bgs, Pd)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-01-002 | | NYOW-01-005 | | NYOW-01-015 | | NYOW-01-016 | | NYOW-01-026 | | NYOW-01-027 | | NYOW-01-028 | | NYOW-01-030 | | NYOW-01-031 | | NYOW-01-033 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-01-SL002-A | | NYOW-01-SL005-A | | NYOW-01-SL015-A | | NYOW-01-SL016-A | | NYOW-01-SL026-A | | NYOW-01-SL027-A | | NYOW-01-SL028-A | | NYOW-01-SL030-A | | NYOW-01-SL031-A | | NYOW-01-SL033-A | |
| | | | | | | | Sample Type: | N | | C | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | | | | Sample Geology: | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | |
| | | | | | | | Sample Date: | 2021-04-09 | | 2021-04-08 | | 2021-04-02 | | 2021-04-02 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 5700 | 22 | 54.5% | Yes | mg/kg | | 11000 | | 6400 | | 7900 | | 6500 | | 4200 | | 6800 | | 4500 | | 6800 | | 6500 | | 7800 | |
| Antimony | 7440-36-0 | 0.41 | 22 | 9.1% | Yes | mg/kg | | 0.16 | J- | 0.11 | J | 0.17 | J | 0.15 | J | 0.34 | | 0.11 | J | 0.56 | | 0.16 | J | 0.42 | | 0.17 | J |
| Arsenic | 7440-38-2 | 21 | 22 | 0.0% | No | mg/kg | | 4.2 | | 4 | | 4.9 | | 5.2 | | 3.3 | | 5 | | 5.1 | | 4.5 | | 4.8 | | 5.7 | |
| Barium | 7440-39-3 | 100 | 22 | 4.5% | No | mg/kg | | 81 | | 46 | J+ | 61 | | 55 | | 83 | | 52 | | 120 | | 58 | | 44 | | 49 | |
| Beryllium | 7440-41-7 | 0.56 | 22 | 18.2% | Yes | mg/kg | | 0.48 | J+ | 0.47 | J+ | 0.52 | J+ | 0.44 | J+ | 0.87 | J+ | 0.47 | J+ | 0.63 | J+ | 0.47 | J+ | 0.45 | J+ | 0.51 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 22 | 50.0% | Yes | mg/kg | | 0.17 | | 0.13 | | 0.31 | | 0.13 | | 0.51 | | 0.2 | | 0.53 | | 0.49 | | 0.23 | | 0.26 | |
| Calcium | 7440-70-2 | 71000 | 22 | 13.6% | Yes | mg/kg | | 26000 | | 13000 | | 25000 | J | 40000 | J | 32000 | | 14000 | | 10000 | | 5400 | | 16000 | | 6100 | |
| Chromium | 7440-47-3 | 11 | 22 | 13.6% | Yes | mg/kg | | 11 | J- | 7 | | 9.9 | | 8.6 | | 10 | | 8.1 | | 18 | | 9.8 | | 9.2 | | 8.5 | |
| Cobalt | 7440-48-4 | 8.3 | 22 | 18.2% | Yes | mg/kg | | 7.3 | | 4.6 | | 7.6 | | 4.5 | | 4.2 | | 6.5 | | 4.5 | | 5.8 | | 8 | | 6.4 | |
| Copper | 7440-50-8 | 28 | 22 | 9.1% | Yes | mg/kg | | 21 | | 11 | | 22 | | 14 | | 20 | | 24 | | 24 | | 21 | | 22 | | 20 | |
| Iron | 7439-89-6 | 24000 | 22 | 0.0% | No | mg/kg | | 17000 | | 13000 | | 17000 | J | 12000 | J | 9600 | | 18000 | | 12000 | | 16000 | | 18000 | | 17000 | |
| Lead | 7439-92-1 | 8.3 | 22 | 81.8% | Yes | mg/kg | | 29 | | 11 | | 10 | | 14 | | 54 | | 14 | | 72 | | 21 | | 18 | | 17 | |
| Magnesium | 7439-95-4 | 13000 | 22 | 22.7% | Yes | mg/kg | | 6600 | J- | 4300 | | 7000 | | 7800 | | 5200 | | 5100 | | 3000 | | 3300 | | 6400 | | 3700 | |
| Manganese | 7439-96-5 | 620 | 22 | 40.9% | Yes | mg/kg | | 1400 | J | 550 | | 710 | | 450 | | 950 | | 770 | | 550 | | 540 | | 760 | | 680 | |
| Mercury | 7439-97-6 | 0.056 | 22 | 31.8% | Yes | mg/kg | | 0.039 | | 0.053 | | 0.021 | J | 0.015 | J | 0.26 | | 0.042 | | 0.76 | | 0.053 | | 0.14 | | 0.06 | |
| Nickel | 7440-02-0 | 13 | 22 | 0.0% | No | mg/kg | | 12 | | 8 | | 12 | | 8.2 | | 9.2 | | 12 | | 11 | | 11 | | 13 | | 12 | |
| Potassium | 7440-09-7 | 1200 | 22 | 31.8% | Yes | mg/kg | | 1400 | J+ | 550 | | 1300 | | 930 | | 1100 | | 1300 | | 1100 | | 720 | | 1200 | | 1200 | |
| Selenium | 7782-49-2 | 0.51 | 22 | 22.7% | Yes | mg/kg | | 0.4 | J+ | 0.49 | J+ | 0.49 | J+ | 0.49 | J+ | 0.85 | J+ | 0.43 | J+ | 0.7 | J+ | 0.51 | J+ | 0.43 | J+ | 0.45 | J+ |
| Silver | 7440-22-4 | < LOQ | 22 | 50.0% | Yes | mg/kg | | 1.4 | J+ | 0.56 | U | 0.63 | U | 0.53 | U | 2.6 | J+ | 0.56 | U | 1.9 | J+ | 0.56 | U | 1.3 | J+ | 0.61 | U |
| Sodium | 7440-23-5 | < LOQ | 22 | 77.3% | Yes | mg/kg | | 480 | J+ | 470 | J+ | 520 | J+ | 440 | J+ | 170 | U | 470 | J+ | 130 | U | 93 | U | 450 | J+ | 100 | U |
| Thallium | 7440-28-0 | 0.11 | 22 | 0.0% | No | mg/kg | | 0.071 | J | 0.059 | J | 0.052 | J | 0.081 | J | 0.074 | J | 0.065 | J | 0.062 | J | 0.056 | J | 0.064 | J | 0.072 | J |
| Vanadium | 7440-62-2 | 12 | 22 | 59.1% | Yes | mg/kg | | 20 | | 12 | | 16 | | 13 | | 13 | | 15 | | 14 | | 13 | | 14 | | 14 | |
| Zinc | 7440-66-6 | 22 | 22 | 90.9% | Yes | mg/kg | | 52 | | 180 | J | 39 | | 40 | | 170 | | 56 | | 120 | | 85 | | 51 | | 53 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| |
|---|
| ND |
| Detect |
| Detect |

Not detected at the LOD
Detected result
Detected result > BTV

Geology

| |
|---|
| Psc |
| Ps |
| Pd |

Lacustrine Silt and Clay
Sorted Sand and Gravel
Diamicton (Till)

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-15
Site to Background Sample Comparison - Area of Concern 1, Total Soil (0 - 10 ft bgs, Pd)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-01-034 | | NYOW-01-036 | | NYOW-01-037 | | NYOW-01-039 | | NYOW-01-002 | | NYOW-01-005 | | NYOW-01-015 | | NYOW-01-016 | | NYOW-01-002 | | NYOW-01-005 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-01-SL034-A | | NYOW-01-SL036-A | | NYOW-01-SL037-A | | NYOW-01-SL039-A | | NYOW-01-PH002-B | | NYOW-01-PH005-B | | NYOW-01-PH015-B | | NYOW-01-PH016-B | | NYOW-01-PH002-C | | NYOW-01-PH005-C | |
| | | | | | | | Sample Type: | N | | N | | N | | N | | N | | C | | N | | N | | C | | C | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 5 - 10 | | 5 - 10 | |
| | | | | | | | Sample Geology: | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | | Pd | |
| | | | | | | | Sample Date: | 2021-04-14 | | 2021-04-14 | | 2021-04-13 | | 2021-04-13 | | 2021-04-09 | | 2021-04-08 | | 2021-04-02 | | 2021-04-02 | | 2021-04-09 | | 2021-04-08 | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 5700 | 22 | 54.5% | Yes | mg/kg | | 2000 | | 5700 | | 6100 | | 8000 | | 7000 | | 3400 | | 6100 | | 5300 | | 4300 | | 2100 | |
| Antimony | 7440-36-0 | 0.41 | 22 | 9.1% | Yes | mg/kg | | 0.41 | | 0.31 | | 0.17 | J | 0.31 | | 0.17 | J+ | 0.081 | U | 0.18 | J+ | 0.16 | J+ | 0.15 | J+ | 0.11 | U |
| Arsenic | 7440-38-2 | 21 | 22 | 0.0% | No | mg/kg | | 3.7 | | 5.6 | | 3.6 | | 4.1 | | 3.7 | | 3.7 | | 6.6 | | 7.6 | | 3.7 | | 2.1 | |
| Barium | 7440-39-3 | 100 | 22 | 4.5% | No | mg/kg | | 41 | | 62 | | 42 | | 40 | | 41 | | 31 | J+ | 50 | | 55 | | 24 | | 17 | J+ |
| Beryllium | 7440-41-7 | 0.56 | 22 | 18.2% | Yes | mg/kg | | 0.52 | U | 0.58 | J+ | 0.67 | J+ | 0.67 | U | 0.4 | J+ | 0.4 | J+ | 0.36 | J+ | 0.41 | J+ | 0.38 | J+ | 0.42 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 22 | 50.0% | Yes | mg/kg | | 0.57 | | 0.25 | | 0.45 | | 0.16 | | 0.092 | J | 0.039 | J | 0.013 | J | 0.1 | | 0.083 | J+ | 0.093 | J+ |
| Calcium | 7440-70-2 | 71000 | 22 | 13.6% | Yes | mg/kg | | 41000 | | 17000 | | 16000 | | 16000 | | 21000 | J | 38000 | | 76000 | J | 50000 | J | 71000 | | 43000 | |
| Chromium | 7440-47-3 | 11 | 22 | 13.6% | Yes | mg/kg | | 18 | | 14 | | 7.6 | | 11 | J | 8.4 | | 6.2 | | 7.4 | | 10 | | 5.5 | | 3.4 | |
| Cobalt | 7440-48-4 | 8.3 | 22 | 18.2% | Yes | mg/kg | | 3.9 | | 8.4 | | 5.7 | | 4.5 | | 5.9 | J | 3.8 | | 13 | | 5.7 | | 5.5 | | 2.2 | |
| Copper | 7440-50-8 | 28 | 22 | 9.1% | Yes | mg/kg | | 19 | | 33 | | 21 | | 19 | | 19 | | 10 | | 26 | | 26 | | 16 | | 6.8 | |
| Iron | 7439-89-6 | 24000 | 22 | 0.0% | No | mg/kg | | 6000 | | 18000 | | 15000 | | 13000 | | 16000 | | 9600 | | 14000 | J | 20000 | J | 11000 | | 6800 | |
| Lead | 7439-92-1 | 8.3 | 22 | 81.8% | Yes | mg/kg | | 200 | | 44 | | 21 | | 39 | | 14 | | 3.3 | | 8.8 | | 40 | | 5.9 | | 2.7 | |
| Magnesium | 7439-95-4 | 13000 | 22 | 22.7% | Yes | mg/kg | | 8700 | | 6400 | | 3100 | | 1700 | | 5700 | J | 9500 | | 24000 | | 10000 | | 14000 | | 14000 | |
| Manganese | 7439-96-5 | 620 | 22 | 40.9% | Yes | mg/kg | | 270 | | 830 | | 640 | | 410 | | 550 | | 340 | | 460 | | 850 | | 430 | | 290 | |
| Mercury | 7439-97-6 | 0.056 | 22 | 31.8% | Yes | mg/kg | | 0.096 | | 0.085 | | 0.062 | | 0.037 | | 0.015 | J | 0.017 | U | 0.015 | J | 0.013 | J | 0.016 | U | 0.018 | U |
| Nickel | 7440-02-0 | 13 | 22 | 0.0% | No | mg/kg | | 7.4 | | 13 | | 11 | | 8.4 | | 11 | J | 6.9 | | 13 | | 13 | | 7.5 | | 3.8 | |
| Potassium | 7440-09-7 | 1200 | 22 | 31.8% | Yes | mg/kg | | 660 | | 1300 | | 1000 | | 1100 | J | 1000 | J+ | 610 | | 2000 | | 790 | | 870 | | 400 | |
| Selenium | 7782-49-2 | 0.51 | 22 | 22.7% | Yes | mg/kg | | 0.61 | J+ | 0.54 | J+ | 0.59 | J+ | 0.45 | J+ | 0.47 | J+ | 0.33 | U | 0.39 | U | 0.4 | U | 0.33 | U | 0.37 | U |
| Silver | 7440-22-4 | < LOQ | 22 | 50.0% | Yes | mg/kg | | 1.6 | J+ | 0.7 | U | 0.8 | U | 0.67 | U | 1.2 | J+ | 0.48 | U | 1.1 | J+ | 1.2 | J+ | 1.1 | J+ | 0.51 | U |
| Sodium | 7440-23-5 | < LOQ | 22 | 77.3% | Yes | mg/kg | | 520 | J+ | 580 | J+ | 130 | U | 560 | J+ | 400 | J+ | 400 | J+ | 360 | J+ | 410 | J+ | 380 | J+ | 420 | J+ |
| Thallium | 7440-28-0 | 0.11 | 22 | 0.0% | No | mg/kg | | 0.048 | J | 0.086 | J | 0.059 | J | 0.055 | J | 0.058 | J | 0.037 | J | 0.11 | | 0.094 | J | 0.052 | J | 0.022 | J |
| Vanadium | 7440-62-2 | 12 | 22 | 59.1% | Yes | mg/kg | | 7.2 | | 13 | | 13 | | 14 | | 16 | | 9.3 | | 11 | | 12 | | 10 | | 6.8 | |
| Zinc | 7440-66-6 | 22 | 22 | 90.9% | Yes | mg/kg | | 110 | | 55 | | 87 | | 39 | | 40 | | 32 | | 25 | | 130 | | 21 | | 18 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-15
Site to Background Sample Comparison - Area of Concern 1, Total Soil (0 - 10 ft bgs, Pd)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: NYOW-01-015<br>Sample Name: NYOW-01-PH015-C<br>Sample Type: N<br>Sample Depth (feet): 5 - 10<br>Sample Geology: Pd<br>Sample Date: 2021-04-02 | | Sample Location: NYOW-01-016<br>Sample Name: NYOW-01-PH016-C<br>Sample Type: N<br>Sample Depth (feet): 5 - 10<br>Sample Geology: Pd<br>Sample Date: 2021-04-02 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Result | Qualifier | Result | Qualifier |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 5700 | 22 | 54.5% | Yes | mg/kg | 5700 | | 4800 | |
| Antimony | 7440-36-0 | 0.41 | 22 | 9.1% | Yes | mg/kg | 0.19 | J+ | 0.19 | J+ |
| Arsenic | 7440-38-2 | 21 | 22 | 0.0% | No | mg/kg | 7.7 | | 6.1 | |
| Barium | 7440-39-3 | 100 | 22 | 4.5% | No | mg/kg | 44 | | 45 | |
| Beryllium | 7440-41-7 | 0.56 | 22 | 18.2% | Yes | mg/kg | 0.4 | J+ | 0.43 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 22 | 50.0% | Yes | mg/kg | 0.082 | J+ | 0.08 | J+ |
| Calcium | 7440-70-2 | 71000 | 22 | 13.6% | Yes | mg/kg | 84000 | J | 92000 | J |
| Chromium | 7440-47-3 | 11 | 22 | 13.6% | Yes | mg/kg | 7.2 | | 6.7 | |
| Cobalt | 7440-48-4 | 8.3 | 22 | 18.2% | Yes | mg/kg | 11 | | 8.5 | |
| Copper | 7440-50-8 | 28 | 22 | 9.1% | Yes | mg/kg | 26 | | 100 | |
| Iron | 7439-89-6 | 24000 | 22 | 0.0% | No | mg/kg | 15000 | J | 14000 | J |
| Lead | 7439-92-1 | 8.3 | 22 | 81.8% | Yes | mg/kg | 9.1 | | 7.1 | |
| Magnesium | 7439-95-4 | 13000 | 22 | 22.7% | Yes | mg/kg | 26000 | | 31000 | |
| Manganese | 7439-96-5 | 620 | 22 | 40.9% | Yes | mg/kg | 540 | | 580 | |
| Mercury | 7439-97-6 | 0.056 | 22 | 31.8% | Yes | mg/kg | 0.019 | J+ | 0.019 | J+ |
| Nickel | 7440-02-0 | 13 | 22 | 0.0% | No | mg/kg | 12 | | 11 | |
| Potassium | 7440-09-7 | 1200 | 22 | 31.8% | Yes | mg/kg | 2000 | | 1600 | |
| Selenium | 7782-49-2 | 0.51 | 22 | 22.7% | Yes | mg/kg | 0.41 | J+ | 0.32 | U |
| Silver | 7440-22-4 | < LOQ | 22 | 50.0% | Yes | mg/kg | 1.2 | J+ | 1.3 | J+ |
| Sodium | 7440-23-5 | < LOQ | 22 | 77.3% | Yes | mg/kg | 400 | J+ | 430 | J+ |
| Thallium | 7440-28-0 | 0.11 | 22 | 0.0% | No | mg/kg | 0.098 | | 0.08 | |
| Vanadium | 7440-62-2 | 12 | 22 | 59.1% | Yes | mg/kg | 11 | | 9.5 | |
| Zinc | 7440-66-6 | 22 | 22 | 90.9% | Yes | mg/kg | 26 | | 29 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-16
Site to Background Sample Comparison - Area of Concern 1, Shallow Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-01-001 | | NYOW-01-005 | | NYOW-01-006 | | NYOW-01-018 | | NYOW-01-019 | | NYOW-01-021 | | NYOW-01-022 | | NYOW-01-023 | | NYOW-01-024 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-01-WL001-A | | NYOW-01-WL005-A | | NYOW-01-WL006-B | | NYOW-01-WL018-A | | NYOW-01-WL019-A | | NYOW-01-WL021-A | | NYOW-01-WL022-A | | NYOW-01-WL023-A | | NYOW-01-WL024-A | |
| | | | | | | | Sample Type: | N | | C | | N | | N | | N | | N | | N | | N | | N | |
| | | | | | | | Sample Date: | 2021-04-12 | | 2021-04-12 | | 2021-04-08 | | 2021-04-12 | | 2021-04-08 | | 2021-04-09 | | 2021-04-09 | | 2021-04-09 | | 2021-04-12 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Metals (Dissolved) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 1300 | 9 | N/A | No | µg/L | | 680 | | 950 | J | 32 | J | 23 | J | 30 | J | 70 | U | 63 | J | 280 | J | 70 | U |
| Antimony | 7440-36-0 | N/A | 9 | N/A | No | µg/L | | 6 | J+ | 1 | U | 1 | U | 6 | J+ | 1 | U | 6 | J+ | 6 | J+ | 1 | U | 1 | U |
| Arsenic | 7440-38-2 | < LOQ | 9 | N/A | Yes | µg/L | | 5 | J+ | 5 | J+ | 5 | J+ | 1 | U | 5 | J+ | 5 | J+ | 5 | J+ | 5 | J+ | 1 | U |
| Barium | 7440-39-3 | 280 | 9 | N/A | Yes | µg/L | | 38 | | 210 | | 250 | | 89 | | 170 | | 330 | | 690 | | 150 | | 76 | |
| Beryllium | 7440-41-7 | 0.5 | 9 | N/A | No | µg/L | | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U |
| Cadmium | 7440-43-9 | N/A | 9 | N/A | No | µg/L | | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 5 | J+ | 1.8 | U | 1.8 | U |
| Calcium | 7440-70-2 | 160000 | 9 | N/A | No | µg/L | | 76000 | | 130000 | | 130000 | | 120000 | | 140000 | | 100000 | | 130000 | | 130000 | | 110000 | |
| Chromium | 7440-47-3 | < LOQ | 9 | N/A | Yes | µg/L | | 10 | J+ | 10 | J+ | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 10 | J+ | 10 | J+ | 1.8 | U |
| Cobalt | 7440-48-4 | 4 | 9 | N/A | No | µg/L | | 1.3 | | 3.9 | | 1.7 | | 1.2 | | 3.1 | | 0.38 | J | 1.1 | | 1.7 | | 1 | |
| Copper | 7440-50-8 | < LOQ | 9 | N/A | Yes | µg/L | | 10 | U | 15 | J+ | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | 15 | J+ | 10 | U |
| Iron | 7439-89-6 | 4900 | 9 | N/A | Yes | µg/L | | 1300 | | 4300 | J | 15000 | | 92 | J | 8500 | | 96 | J | 220 | | 3200 | | 36 | J |
| Lead | 7439-92-1 | < LOQ | 9 | N/A | Yes | µg/L | | 3 | J+ | 3 | J+ | 0.7 | U | 0.7 | U | 0.7 | U | 3 | J+ | 0.7 | U | 3 | J+ | 0.7 | U |
| Magnesium | 7439-95-4 | 75000 | 9 | N/A | No | µg/L | | 17000 | | 48000 | | 34000 | | 41000 | | 53000 | | 29000 | | 72000 | | 30000 | | 18000 | |
| Manganese | 7439-96-5 | 2600 | 9 | N/A | Yes | µg/L | | 1300 | | 990 | | 770 | | 320 | | 2900 | | 500 | | 2000 | | 1200 | | 1200 | |
| Mercury | 7439-97-6 | N/A | 9 | N/A | No | µg/L | | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U |
| Nickel | 7440-02-0 | < LOQ | 9 | N/A | Yes | µg/L | | 8 | U | 40 | J+ | 8 | U | 40 | J+ | 8 | U | 8 | U | 40 | J+ | 40 | J+ | 8 | U |
| Potassium | 7440-09-7 | 9900 | 9 | N/A | Yes | µg/L | | 1200 | J | 3200 | | 980 | J | 1400 | J | 1500 | J | 5200 | | 11000 | | 4400 | | 3500 | |
| Selenium | 7782-49-2 | N/A | 9 | N/A | No | µg/L | | 19 | U | 19 | U | 19 | U | 19 | U | 19 | U | 19 | U | 19 | U | 19 | U | 19 | U |
| Silver | 7440-22-4 | 5 | 9 | N/A | No | µg/L | | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| Sodium | 7440-23-5 | 140000 | 9 | N/A | No | µg/L | | 2100 | J+ | 5700 | J+ | 4300 | J | 4700 | J+ | 5300 | | 68000 | | 17000 | | 4900 | J | 140000 | J+ |
| Thallium | 7440-28-0 | N/A | 9 | N/A | No | µg/L | | 0.2 | UJ | 0.2 | UJ | 0.2 | UJ | 0.2 | UJ | 0.2 | UJ | 0.2 | UJ | 0.2 | U | 0.2 | U | 0.2 | UJ |
| Vanadium | 7440-62-2 | < LOQ | 9 | N/A | Yes | µg/L | | 4 | U | 15 | J+ | 15 | J+ | 4 | U | 15 | J+ | 4 | U | 15 | J+ | 15 | J+ | 4 | U |
| Zinc | 7440-66-6 | 15 | 9 | N/A | Yes | µg/L | | 150 | J+ | 150 | J+ | 15 | U | 15 | U | 15 | U | 15 | U | 15 | U | 150 | J+ | 15 | U |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend
ND – Not detected at the LOD
Detect – Detected result
Detect – Detected result > BTV

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
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R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-17
Site to Background Sample Comparison - Area of Concern 3, Surface Soil (0 - 1 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-03-001 | | NYOW-03-002 | | NYOW-03-003 | | NYOW-03-004 | | NYOW-03-005 | | NYOW-03-006 | | NYOW-03-007 | | NYOW-03-008 | | NYOW-03-009 | | NYOW-03-010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-03-SL001-A | | NYOW-03-SL002-A | | NYOW-03-SL003-A | | NYOW-03-SL004-A | | NYOW-03-SL005-A | | NYOW-03-SL006-A | | NYOW-03-SL007-A | | NYOW-03-SL008-A | | NYOW-03-SL009-A | | NYOW-03-SL010-A | |
| | | | | | | | Sample Type: | N | | N | | N | | N | | N | | C | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | |
| | | | | | | | Sample Date: | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-04-01 | | 2021-04-01 | | 2021-04-01 | | 2021-04-05 | | 2021-04-05 | | 2021-03-31 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 16 | N/A | Yes | mg/kg | | 0.0027 | U | 0.0026 | U | 0.0026 | U | 0.0027 | J | 0.0041 | J | 0.0009 | J | 0.026 | J+ | 0.3 | J+ | 0.011 | J | 0.027 | J |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 16 | N/A | Yes | mg/kg | | 0.0014 | J | 0.0021 | J | 0.0026 | U | 0.0031 | J | 0.0037 | J | 0.0011 | J | 0.031 | J+ | 0.21 | J+ | 0.012 | J | 0.035 | J |
| Acenaphthene | 83-32-9 | < LOQ | 16 | N/A | Yes | mg/kg | | 0.0015 | U | 0.0018 | J | 0.0014 | U | 0.0016 | U | 0.0061 | J | 0.0012 | U | 0.029 | J+ | 0.23 | J+ | 0.014 | U | 0.026 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 16 | N/A | Yes | mg/kg | | 0.0015 | U | 0.0055 | J | 0.0014 | U | 0.0016 | U | 0.1 | | 0.0078 | J | 0.77 | | 1.6 | | 0.09 | J- | 0.49 | |
| Anthracene | 120-12-7 | 0.048 | 16 | N/A | Yes | mg/kg | | 0.0042 | J | 0.0049 | J | 0.0055 | U | 0.008 | J | 0.094 | | 0.0061 | J | 0.35 | J+ | 1.5 | | 0.047 | J- | 0.17 | J |
| Benzo(a)anthracene | 56-55-3 | 0.14 | 16 | N/A | Yes | mg/kg | | 0.02 | | 0.028 | | 0.0032 | J | 0.018 | | 0.33 | | 0.035 | J | 2 | | 4.5 | | 0.14 | J- | 0.58 | |
| Benzo(a)pyrene | 50-32-8 | 0.15 | 16 | N/A | Yes | mg/kg | | 0.022 | | 0.033 | | 0.0047 | J | 0.019 | | 0.28 | | 0.038 | J | 2.3 | | 4.4 | | 0.15 | J- | 0.84 | |
| Benzo(b)fluoranthene | 205-99-2 | 0.18 | 16 | N/A | Yes | mg/kg | | 0.034 | | 0.044 | | 0.0062 | J | 0.029 | J- | 0.32 | | 0.052 | J | 2.6 | | 4.7 | | 0.23 | J- | 1 | |
| Benzo(g,h,i)perylene | 191-24-2 | 0.095 | 16 | N/A | Yes | mg/kg | | 0.013 | J | 0.018 | | 0.003 | J | 0.014 | J- | 0.19 | | 0.022 | J | 1.2 | | 2.1 | | 0.098 | J- | 0.52 | |
| Benzo(k)fluoranthene | 207-08-9 | 0.08 | 16 | N/A | Yes | mg/kg | | 0.012 | J | 0.016 | | 0.0055 | U | 0.01 | J | 0.14 | | 0.019 | J | 1 | | 1.9 | | 0.094 | J- | 0.43 | |
| Chrysene | 218-01-9 | 0.14 | 16 | N/A | Yes | mg/kg | | 0.024 | | 0.034 | | 0.0044 | J | 0.022 | | 0.29 | | 0.037 | J | 2 | | 3.3 | | 0.16 | J- | 0.73 | |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 16 | N/A | Yes | mg/kg | | 0.0091 | U | 0.0085 | U | 0.0085 | U | 0.0098 | U | 0.046 | | 0.0078 | U | 0.35 | J+ | 0.69 | | 0.026 | | 0.14 | J |
| Fluoranthene | 206-44-0 | 0.24 | 16 | N/A | Yes | mg/kg | | 0.04 | | 0.062 | | 0.007 | J | 0.042 | | 0.56 | | 0.059 | J | 3.2 | | 6.8 | | 0.28 | J- | 1.1 | |
| Fluorene | 86-73-7 | 0.015 | 16 | N/A | Yes | mg/kg | | 0.0036 | U | 0.0023 | J | 0.0034 | U | 0.0054 | J | 0.037 | | 0.0031 | U | 0.12 | J+ | 1.4 | | 0.031 | J- | 0.077 | J |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.11 | 16 | N/A | Yes | mg/kg | | 0.016 | | 0.021 | | 0.0085 | U | 0.017 | J- | 0.21 | | 0.026 | J | 1.7 | | 3.1 | | 0.11 | J- | 0.6 | |
| Naphthalene | 91-20-3 | 0.012 | 16 | N/A | Yes | mg/kg | | 0.0027 | U | 0.0024 | J | 0.0026 | U | 0.0055 | J | 0.0064 | J | 0.0016 | J | 0.054 | J+ | 0.11 | J+ | 0.015 | | 0.042 | J |
| Phenanthrene | 85-01-8 | 0.17 | 16 | N/A | Yes | mg/kg | | 0.018 | | 0.027 | | 0.0036 | J | 0.031 | | 0.31 | | 0.015 | | 1.4 | | 6.7 | | 0.2 | J- | 0.45 | |
| Pyrene | 129-00-0 | 0.22 | 16 | N/A | Yes | mg/kg | | 0.033 | | 0.054 | | 0.006 | J | 0.034 | | 0.4 | | 0.054 | J | 3.6 | | 7 | | 0.23 | J- | 1.1 | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 16 | N/A | Yes | mg/kg | | 3200 | | 5000 | | 9100 | | 8500 | | 7200 | | 9500 | | 8200 | | 5600 | | 11000 | | 5500 | |
| Antimony | 7440-36-0 | 0.15 | 16 | N/A | Yes | mg/kg | | 0.14 | J | 0.14 | J | 0.11 | U | 0.21 | J | 0.13 | J | 0.11 | J | 0.36 | | 0.31 | | 0.17 | J | 0.19 | J |
| Arsenic | 7440-38-2 | 4.7 | 16 | N/A | No | mg/kg | | 3 | | 2 | | 2.1 | | 2.4 | J | 3.9 | | 3.1 | | 4.4 | | 4.3 | | 2.3 | | 2.5 | |
| Barium | 7440-39-3 | 100 | 16 | N/A | No | mg/kg | | 10 | | 17 | | 16 | | 14 | | 36 | | 52 | | 56 | | 38 | | 21 | J- | 41 | |
| Beryllium | 7440-41-7 | < LOQ | 16 | N/A | Yes | mg/kg | | 0.49 | J+ | 0.64 | J+ | 0.58 | J+ | 0.62 | J+ | 0.48 | J+ | 0.53 | J+ | 0.54 | J+ | 0.47 | J+ | 0.61 | J+ | 0.46 | J+ |
| Cadmium | 7440-43-9 | 0.38 | 16 | N/A | Yes | mg/kg | | 0.15 | | 0.17 | | 0.087 | J | 0.15 | J | 0.099 | | 0.35 | J | 0.26 | | 0.27 | | 0.22 | | 0.15 | |
| Calcium | 7440-70-2 | 120000 | 16 | N/A | No | mg/kg | | 960 | | 1600 | | 500 | | 760 | | 110000 | J | 7200 | J | 18000 | J | 30000 | | 3900 | J+ | 37000 | |
| Chromium | 7440-47-3 | 11 | 16 | N/A | No | mg/kg | | 2.5 | J | 3.8 | J | 6.4 | | 5.9 | | 8.2 | | 11 | | 10 | | 7.6 | | 7.5 | J- | 7.2 | |
| Cobalt | 7440-48-4 | 5.5 | 16 | N/A | Yes | mg/kg | | 0.54 | J | 1.2 | J | 1.7 | | 1.6 | | 4.2 | | 7.2 | | 8 | | 4.7 | | 2.6 | J- | 4.1 | |
| Copper | 7440-50-8 | 13 | 16 | N/A | Yes | mg/kg | | 3.8 | J | 4 | J | 4.3 | J | 4.4 | J | 11 | | 12 | | 26 | | 13 | | 4.9 | J- | 12 | |
| Iron | 7439-89-6 | 14000 | 16 | N/A | Yes | mg/kg | | 4400 | | 5500 | | 7300 | | 8200 | | 10000 | | 21000 | | 20000 | | 12000 | | 12000 | | 12000 | |
| Lead | 7439-92-1 | 9.8 | 16 | N/A | Yes | mg/kg | | 9.9 | J+ | 9.9 | J+ | 7.1 | J+ | 13 | J- | 11 | | 23 | | 54 | | 3.4 | | 7.6 | J- | 21 | J+ |
| Magnesium | 7439-95-4 | 2000 | 16 | N/A | Yes | mg/kg | | 310 | | 590 | | 710 | | 640 | | 3300 | J | 4600 | J | 6200 | J | 9800 | | 1100 | J | 8000 | |
| Manganese | 7439-96-5 | 520 | 16 | N/A | Yes | mg/kg | | 48 | | 93 | | 48 | | 65 | J- | 480 | J | 550 | J | 480 | J | 400 | | 120 | J+ | 340 | |
| Mercury | 7439-97-6 | 0.19 | 16 | N/A | No | mg/kg | | 0.048 | | 0.049 | | 0.047 | | 0.088 | | 0.034 | | 0.061 | | 0.16 | | 0.05 | | 0.058 | | 0.04 | |
| Nickel | 7440-02-0 | 9.7 | 16 | N/A | Yes | mg/kg | | 1.4 | J | 2.9 | J | 3.3 | J | 3.3 | J | 8.7 | | 13 | | 18 | | 10 | | 5.4 | J- | 9.5 | |
| Potassium | 7440-09-7 | 1200 | 16 | N/A | Yes | mg/kg | | 260 | J | 230 | J | 170 | J | 210 | J | 750 | J+ | 1000 | | 1300 | | 1100 | | 330 | J | 750 | |
| Selenium | 7782-49-2 | 0.51 | 16 | N/A | Yes | mg/kg | | 0.3 | J | 0.38 | J | 0.36 | J | 0.61 | J | 0.25 | J | 0.35 | J | 0.29 | J | 0.2 | J | 0.36 | J | 0.23 | J |
| Silver | 7440-22-4 | < LOQ | 16 | N/A | Yes | mg/kg | | 0.59 | U | 0.77 | U | 0.69 | U | 0.75 | U | 0.58 | U | 0.64 | U | 0.65 | U | 0.57 | U | 0.73 | UJ | 1.4 | J+ |
| Sodium | 7440-23-5 | < LOQ | 16 | N/A | Yes | mg/kg | | 98 | U | 130 | U | 120 | U | 120 | U | 480 | J+ | 530 | J+ | 540 | J+ | 470 | J+ | 610 | J+ | 460 | J+ |
| Thallium | 7440-28-0 | 0.11 | 16 | N/A | Yes | mg/kg | | 0.11 | U | 0.098 | U | 0.1 | U | 0.12 | UJ | 0.11 | | 0.12 | | 0.17 | | 0.11 | | 0.1 | J | 0.094 | U |
| Vanadium | 7440-62-2 | 14 | 16 | N/A | Yes | mg/kg | | 5.9 | | 8.3 | | 11 | | 12 | | 15 | | 17 | | 14 | | 10 | | 16 | J- | 11 | |
| Zinc | 7440-66-6 | 23 | 16 | N/A | Yes | mg/kg | | 12 | | 21 | | 22 | | 23 | | 24 | | 56 | | 81 | | 60 | | 22 | J | 36 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-17
Site to Background Sample Comparison - Area of Concern 3, Surface Soil (0 - 1 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-03-011 | | NYOW-03-012 | | NYOW-03-013 | | NYOW-03-014 | | NYOW-03-015 | | NYOW-03-016 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-03-SL011-A | | NYOW-03-SL012-A | | NYOW-03-SL013-A | | NYOW-03-SL014-A | | NYOW-03-SL015-A | | NYOW-03-SL016-A | |
| | | | | | | | Sample Type: | N | | N | | C | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | |
| | | | | | | | Sample Date: | 2021-03-31 | | 2021-03-31 | | 2021-04-05 | | 2021-04-05 | | 2021-04-05 | | 2021-04-01 | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 16 | N/A | Yes | mg/kg | | 0.049 | U | 0.025 | J- | 0.0011 | J | 0.01 | J | 0.65 | | 0.0023 | J |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 16 | N/A | Yes | mg/kg | | 0.049 | U | 0.028 | J- | 0.0019 | J | 0.012 | J | 1 | | 0.0024 | J |
| Acenaphthene | 83-32-9 | < LOQ | 16 | N/A | Yes | mg/kg | | 0.026 | U | 0.018 | J- | 0.0013 | U | 0.012 | U | 4.3 | | 0.0012 | J |
| Acenaphthylene | 208-96-8 | 0.01 | 16 | N/A | Yes | mg/kg | | 0.29 | | 0.39 | J- | 0.02 | J | 0.12 | | 1.1 | | 0.02 | |
| Anthracene | 120-12-7 | 0.048 | 16 | N/A | Yes | mg/kg | | 0.092 | J | 0.15 | J- | 0.021 | J | 0.08 | J | 8.2 | | 0.0082 | J |
| Benzo(a)anthracene | 56-55-3 | 0.14 | 16 | N/A | Yes | mg/kg | | 0.32 | | 0.64 | J- | 0.056 | J | 0.26 | | 5.3 | | 0.046 | |
| Benzo(a)pyrene | 50-32-8 | 0.15 | 16 | N/A | Yes | mg/kg | | 0.44 | | 0.76 | J- | 0.065 | J | 0.26 | | 3.2 | | 0.056 | |
| Benzo(b)fluoranthene | 205-99-2 | 0.18 | 16 | N/A | Yes | mg/kg | | 0.56 | | 1.1 | J- | 0.12 | J | 0.37 | | 4.9 | | 0.075 | |
| Benzo(g,h,i)perylene | 191-24-2 | 0.095 | 16 | N/A | Yes | mg/kg | | 0.28 | | 0.34 | J- | 0.052 | J | 0.15 | | 1.3 | | 0.035 | |
| Benzo(k)fluoranthene | 207-08-9 | 0.08 | 16 | N/A | Yes | mg/kg | | 0.24 | J | 0.35 | J- | 0.037 | J | 0.16 | | 1.7 | | 0.027 | |
| Chrysene | 218-01-9 | 0.14 | 16 | N/A | Yes | mg/kg | | 0.42 | | 0.72 | J- | 0.074 | J | 0.27 | | 4.9 | | 0.052 | |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 16 | N/A | Yes | mg/kg | | 0.081 | J | 0.097 | J- | 0.0093 | J | 0.05 | J | 0.44 | | 0.0077 | U |
| Fluoranthene | 206-44-0 | 0.24 | 16 | N/A | Yes | mg/kg | | 0.56 | | 1.5 | J- | 0.093 | J | 0.45 | | 20 | | 0.078 | |
| Fluorene | 86-73-7 | 0.015 | 16 | N/A | Yes | mg/kg | | 0.033 | J | 0.092 | J- | 0.0023 | J | 0.039 | J | 4.3 | | 0.0022 | J |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.11 | 16 | N/A | Yes | mg/kg | | 0.34 | | 0.64 | J- | 0.053 | | 0.19 | | 1.7 | | 0.043 | |
| Naphthalene | 91-20-3 | 0.012 | 16 | N/A | Yes | mg/kg | | 0.049 | U | 0.052 | J- | 0.0029 | J | 0.008 | J | 0.78 | | 0.0025 | J |
| Phenanthrene | 85-01-8 | 0.17 | 16 | N/A | Yes | mg/kg | | 0.24 | J | 0.71 | J- | 0.014 | J | 0.29 | | 27 | | 0.022 | |
| Pyrene | 129-00-0 | 0.22 | 16 | N/A | Yes | mg/kg | | 0.64 | | 1.1 | J- | 0.082 | | 0.44 | | 16 | | 0.075 | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 16 | N/A | Yes | mg/kg | | 5900 | | 8500 | | 6100 | | 4400 | | 6100 | | 7300 | |
| Antimony | 7440-36-0 | 0.15 | 16 | N/A | Yes | mg/kg | | 0.16 | J | 0.18 | J | 0.095 | J | 0.13 | J | 0.24 | J | 0.3 | |
| Arsenic | 7440-38-2 | 4.7 | 16 | N/A | No | mg/kg | | 2.4 | | 2.8 | | 2.3 | | 2.7 | | 3.8 | | 3.6 | |
| Barium | 7440-39-3 | 100 | 16 | N/A | No | mg/kg | | 30 | | 49 | | 20 | | 26 | | 39 | | 40 | |
| Beryllium | 7440-41-7 | < LOQ | 16 | N/A | Yes | mg/kg | | 0.56 | J+ | 0.43 | J+ | 0.45 | J+ | 0.49 | J+ | 0.73 | J+ | 0.46 | J+ |
| Cadmium | 7440-43-9 | 0.38 | 16 | N/A | Yes | mg/kg | | 0.2 | | 0.3 | | 0.053 | J | 0.22 | | 0.49 | | 0.55 | |
| Calcium | 7440-70-2 | 120000 | 16 | N/A | No | mg/kg | | 9800 | | 11000 | | 1600 | | 74000 | | 25000 | | 32000 | J |
| Chromium | 7440-47-3 | 11 | 16 | N/A | No | mg/kg | | 7.4 | | 10 | | 6.7 | | 8.1 | | 9.3 | | 8.7 | |
| Cobalt | 7440-48-4 | 5.5 | 16 | N/A | Yes | mg/kg | | 4.2 | | 6 | | 3.9 | | 4.1 | | 3.8 | | 6 | |
| Copper | 7440-50-8 | 13 | 16 | N/A | Yes | mg/kg | | 13 | | 18 | | 9.5 | | 19 | | 21 | | 28 | |
| Iron | 7439-89-6 | 14000 | 16 | N/A | Yes | mg/kg | | 11000 | | 15000 | | 11000 | | 10000 | | 11000 | | 19000 | |
| Lead | 7439-92-1 | 9.8 | 16 | N/A | Yes | mg/kg | | 11 | J+ | 23 | | 3.9 | | 18 | | 28 | | 38 | |
| Magnesium | 7439-95-4 | 2000 | 16 | N/A | Yes | mg/kg | | 2900 | | 3600 | | 1600 | | 7100 | | 3100 | | 9200 | J |
| Manganese | 7439-96-5 | 520 | 16 | N/A | Yes | mg/kg | | 370 | | 650 | | 350 | | 420 | | 340 | | 560 | J |
| Mercury | 7439-97-6 | 0.19 | 16 | N/A | No | mg/kg | | 0.033 | | 0.022 | J | 0.016 | J | 0.025 | | 0.059 | | 0.045 | |
| Nickel | 7440-02-0 | 9.7 | 16 | N/A | Yes | mg/kg | | 9.2 | | 13 | | 7.9 | | 9.8 | | 8.8 | | 11 | |
| Potassium | 7440-09-7 | 1200 | 16 | N/A | Yes | mg/kg | | 750 | | 1200 | | 600 | | 830 | | 920 | | 870 | |
| Selenium | 7782-49-2 | 0.51 | 16 | N/A | Yes | mg/kg | | 0.24 | J | 0.33 | J | 0.15 | J | 0.2 | J | 0.31 | J | 0.29 | J |
| Silver | 7440-22-4 | < LOQ | 16 | N/A | Yes | mg/kg | | 0.67 | U | 0.51 | U | 0.54 | U | 0.59 | U | 0.88 | U | 1.4 | J+ |
| Sodium | 7440-23-5 | < LOQ | 16 | N/A | Yes | mg/kg | | 560 | J+ | 430 | J+ | 450 | J+ | 490 | J+ | 730 | J+ | 460 | J+ |
| Thallium | 7440-28-0 | 0.11 | 16 | N/A | Yes | mg/kg | | 0.1 | U | 0.09 | | 0.054 | J | 0.09 | | 0.11 | J | 0.13 | |
| Vanadium | 7440-62-2 | 14 | 16 | N/A | Yes | mg/kg | | 12 | | 16 | | 12 | | 11 | | 14 | | 16 | |
| Zinc | 7440-66-6 | 23 | 16 | N/A | Yes | mg/kg | | 36 | | 44 | | 23 | | 55 | | 85 | | 50 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-18
Site to Background Sample Comparison - Area of Concern 3, Subsurface Soil (1 - 5 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-03-001 | | NYOW-03-002 | | NYOW-03-003 | | NYOW-03-004 | | NYOW-03-005 | | NYOW-03-006 | | NYOW-03-007 | | NYOW-03-008 | | NYOW-03-009 | | NYOW-03-010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-03-PH001-B | | NYOW-03-PH002-B | | NYOW-03-PH003-B | | NYOW-03-PH004-B | | NYOW-03-PH005-B | | NYOW-03-PH006-B | | NYOW-03-PH007-B | | NYOW-03-PH008-B | | NYOW-03-PH009-B | | NYOW-03-PH010-B | |
| | | | | | | | Sample Type: | N | | N | | N | | N | | C | | N | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | |
| | | | | | | | Sample Date: | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-04-01 | | 2021-04-01 | | 2021-04-01 | | 2021-04-05 | | 2021-04-05 | | 2021-03-31 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 16 | N/A | Yes | mg/kg | | 0.0024 | U | 0.0024 | U | 0.0025 | U | 0.0024 | U | 0.018 | J | 0.0026 | U | 0.00077 | J | 0.00092 | J | 0.0023 | UJ | 0.046 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 16 | N/A | Yes | mg/kg | | 0.0024 | U | 0.0024 | U | 0.0025 | U | 0.0024 | U | 0.016 | J | 0.0026 | U | 0.00074 | J | 0.0024 | U | 0.0023 | UJ | 0.046 | U |
| Acenaphthene | 83-32-9 | < LOQ | 16 | N/A | Yes | mg/kg | | 0.0013 | U | 0.0013 | U | 0.0013 | U | 0.0013 | U | 0.0013 | U | 0.0014 | U | 0.011 | J+ | 0.012 | U | 0.0013 | UJ | 0.024 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 16 | N/A | Yes | mg/kg | | 0.0013 | U | 0.0013 | U | 0.0013 | U | 0.0013 | U | 0.04 | J | 0.0014 | U | 0.0097 | J | 0.018 | | 0.012 | UJ | 0.024 | U |
| Anthracene | 120-12-7 | 0.048 | 16 | N/A | Yes | mg/kg | | 0.0053 | U | 0.0052 | U | 0.0053 | U | 0.0052 | U | 0.065 | J- | 0.0056 | U | 0.0055 | J | 0.0063 | J | 0.0051 | UJ | 0.099 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 16 | N/A | Yes | mg/kg | | 0.0053 | U | 0.0052 | U | 0.0053 | U | 0.0052 | U | 0.43 | J | 0.0056 | U | 0.013 | | 0.014 | | 0.0051 | UJ | 0.099 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 16 | N/A | Yes | mg/kg | | 0.0053 | U | 0.0052 | U | 0.0053 | U | 0.0052 | U | 1.3 | J | 0.0056 | U | 0.018 | | 0.018 | | 0.0051 | UJ | 0.099 | U |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 16 | N/A | Yes | mg/kg | | 0.0081 | U | 0.0079 | U | 0.0082 | U | 0.0079 | U | 1.9 | J | 0.0086 | U | 0.027 | | 0.022 | | 0.0078 | UJ | 0.15 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 16 | N/A | Yes | mg/kg | | 0.0081 | U | 0.0079 | U | 0.0082 | U | 0.0079 | U | 0.82 | J | 0.0086 | U | 0.012 | | 0.0094 | J | 0.0078 | UJ | 0.15 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 16 | N/A | Yes | mg/kg | | 0.0053 | U | 0.0052 | U | 0.0053 | U | 0.0052 | U | 0.84 | J | 0.0056 | U | 0.0082 | J | 0.0084 | J | 0.0051 | UJ | 0.099 | U |
| Chrysene | 218-01-9 | 0.081 | 16 | N/A | Yes | mg/kg | | 0.0053 | U | 0.0052 | U | 0.0053 | U | 0.0052 | U | 1.2 | J | 0.0056 | U | 0.016 | | 0.013 | | 0.0051 | UJ | 0.099 | U |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 16 | N/A | Yes | mg/kg | | 0.0081 | U | 0.0079 | U | 0.0082 | U | 0.0079 | U | 0.29 | J- | 0.0086 | U | 0.0076 | U | 0.0056 | J | 0.0078 | UJ | 0.15 | U |
| Fluoranthene | 206-44-0 | 0.15 | 16 | N/A | Yes | mg/kg | | 0.0053 | U | 0.0052 | U | 0.0053 | U | 0.0052 | U | 0.19 | J- | 0.0056 | U | 0.017 | | 0.018 | | 0.0051 | UJ | 0.099 | U |
| Fluorene | 86-73-7 | 0.015 | 16 | N/A | Yes | mg/kg | | 0.0033 | U | 0.0032 | U | 0.0033 | U | 0.0032 | U | 0.005 | J | 0.0035 | U | 0.0015 | J | 0.0052 | J | 0.0031 | UJ | 0.061 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 16 | N/A | Yes | mg/kg | | 0.0081 | U | 0.0079 | U | 0.0082 | U | 0.0079 | U | 1 | J | 0.0086 | U | 0.012 | | 0.012 | | 0.0078 | UJ | 0.15 | U |
| Naphthalene | 91-20-3 | 0.012 | 16 | N/A | No | mg/kg | | 0.0024 | U | 0.012 | J+ | 0.0025 | U | 0.0024 | U | 0.012 | J+ | 0.0026 | U | 0.011 | J+ | 0.012 | J+ | 0.0023 | UJ | 0.046 | U |
| Phenanthrene | 85-01-8 | 0.012 | 16 | N/A | Yes | mg/kg | | 0.0081 | U | 0.0079 | U | 0.0082 | U | 0.0079 | U | 0.05 | J- | 0.0086 | U | 0.007 | J | 0.014 | | 0.0078 | UJ | 0.15 | U |
| Pyrene | 129-00-0 | 0.14 | 16 | N/A | Yes | mg/kg | | 0.0081 | U | 0.0079 | U | 0.0082 | U | 0.0079 | U | 0.26 | J- | 0.0086 | U | 0.02 | | 0.021 | | 0.0078 | UJ | 0.15 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 16 | N/A | Yes | mg/kg | | 7600 | | 6300 | | 6300 | | 4500 | | 7200 | | 8200 | | 6600 | | 6400 | J | 9300 | | 7900 | |
| Antimony | 7440-36-0 | 0.15 | 16 | N/A | Yes | mg/kg | | 0.09 | U | 0.097 | U | 0.17 | J+ | 0.18 | J+ | 0.2 | J+ | 0.24 | J+ | 0.2 | J+ | 0.16 | J+ | 0.2 | J+ | 0.16 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 16 | N/A | Yes | mg/kg | | 1.6 | | 2.4 | | 2.1 | | 2.4 | | 5.7 | | 5.9 | | 4.3 | | 1.9 | | 2.6 | | 2.4 | |
| Barium | 7440-39-3 | 100 | 16 | N/A | No | mg/kg | | 14 | | 32 | | 24 | | 25 | | 33 | | 52 | | 31 | | 19 | J- | 22 | | 25 | |
| Beryllium | 7440-41-7 | < LOQ | 16 | N/A | Yes | mg/kg | | 0.12 | J | 0.26 | J | 0.25 | J | 0.18 | J | 0.25 | J | 0.47 | J | 0.35 | J | 0.23 | J- | 0.34 | J | 0.28 | J |
| Cadmium | 7440-43-9 | 0.16 | 16 | N/A | No | mg/kg | | 0.038 | J | 0.065 | J | 0.058 | J | 0.053 | J | 0.13 | | 0.092 | J | 0.064 | J | 0.083 | J | 0.051 | J | 0.087 | J |
| Calcium | 7440-70-2 | 120000 | 16 | N/A | No | mg/kg | | 700 | | 850 | | 1100 | | 1200 | | 7200 | J | 4800 | J | 60000 | J | 5900 | J- | 1400 | | 2200 | |
| Chromium | 7440-47-3 | 11 | 16 | N/A | No | mg/kg | | 5.9 | | 6.5 | | 7.5 | | 5.5 | | 7.7 | | 11 | | 7.6 | | 6.1 | J- | 9.3 | | 7.6 | |
| Cobalt | 7440-48-4 | 5.5 | 16 | N/A | Yes | mg/kg | | 2.8 | | 3.3 | | 3.9 | | 3.6 | | 3.1 | | 7.3 | | 7 | | 3.4 | J- | 5.1 | | 4.3 | |
| Copper | 7440-50-8 | 13 | 16 | N/A | Yes | mg/kg | | 5.8 | | 7.8 | | 9.4 | | 9.2 | | 9.2 | | 20 | | 20 | | 6.4 | J- | 11 | | 7.6 | |
| Iron | 7439-89-6 | 14000 | 16 | N/A | Yes | mg/kg | | 8000 | | 9100 | | 11000 | | 9300 | | 13000 | | 23000 | | 17000 | | 8700 | J | 12000 | | 10000 | |
| Lead | 7439-92-1 | 6.3 | 16 | N/A | Yes | mg/kg | | 3.3 | J+ | 2.7 | J+ | 3.5 | J+ | 2.8 | | 16 | | 25 | | 25 | | 6.5 | J- | 4.3 | | 8.3 | J+ |
| Magnesium | 7439-95-4 | 35000 | 16 | N/A | No | mg/kg | | 1100 | | 1300 | | 1500 | | 1200 | | 1600 | J | 2900 | J | 16000 | J | 3100 | J- | 1900 | | 1900 | |
| Manganese | 7439-96-5 | 520 | 16 | N/A | Yes | mg/kg | | 69 | | 220 | | 330 | | 560 | | 210 | J | 500 | J | 520 | J | 160 | J- | 380 | | 320 | |
| Mercury | 7439-97-6 | 0.027 | 16 | N/A | Yes | mg/kg | | 0.037 | | 0.011 | J | 0.018 | U | 0.009 | J | 0.037 | | 0.032 | | 0.039 | | 0.023 | | 0.024 | | 0.034 | |
| Nickel | 7440-02-0 | 9.7 | 16 | N/A | Yes | mg/kg | | 7.7 | | 6.4 | | 8.6 | | 7.1 | | 7.5 | | 20 | | 17 | | 6.7 | J- | 9.9 | | 10 | |
| Potassium | 7440-09-7 | 1200 | 16 | N/A | Yes | mg/kg | | 290 | | 360 | | 380 | | 380 | | 520 | | 1200 | | 1400 | | 470 | J- | 560 | | 460 | |
| Selenium | 7782-49-2 | 0.51 | 16 | N/A | Yes | mg/kg | | 0.51 | J+ | 0.43 | J+ | 0.44 | U | 0.43 | U | 0.46 | J+ | 0.6 | J+ | 0.53 | J+ | 0.45 | J+ | 0.58 | J+ | 0.52 | J+ |
| Silver | 7440-22-4 | < LOQ | 16 | N/A | Yes | mg/kg | | 0.56 | U | 0.5 | U | 0.51 | U | 0.53 | U | 0.57 | U | 0.61 | U | 0.52 | U | 0.55 | UJ | 0.57 | U | 0.52 | U |
| Sodium | 7440-23-5 | < LOQ | 16 | N/A | Yes | mg/kg | | 470 | J+ | 420 | J+ | 420 | J+ | 440 | J+ | 480 | J+ | 510 | J+ | 440 | J+ | 460 | J+ | 470 | J+ | 430 | J+ |
| Thallium | 7440-28-0 | 0.11 | 16 | N/A | Yes | mg/kg | | 0.1 | U | 0.087 | U | 0.11 | U | 0.11 | U | 0.14 | | 0.14 | | 0.18 | | 0.068 | J | 0.063 | J | 0.1 | U |
| Vanadium | 7440-62-2 | 14 | 16 | N/A | Yes | mg/kg | | 9.9 | | 10 | | 12 | | 10 | | 14 | | 15 | | 11 | | 10 | J- | 15 | | 12 | |
| Zinc | 7440-66-6 | 23 | 16 | N/A | Yes | mg/kg | | 19 | | 17 | | 22 | | 20 | | 34 | | 41 | | 34 | | 25 | J- | 21 | | 25 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-18
Site to Background Sample Comparison - Area of Concern 3, Subsurface Soil (1 - 5 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-03-011 | | NYOW-03-012 | | NYOW-03-013 | | NYOW-03-014 | | NYOW-03-015 | | NYOW-03-016 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-03-PH011-B | | NYOW-03-PH012-B | | NYOW-03-PH013-B | | NYOW-03-PH014-B | | NYOW-03-PH015-B | | NYOW-03-PH016-B | |
| | | | | | | | Sample Type: | N | | C | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | |
| | | | | | | | Sample Date: | 2021-03-31 | | 2021-03-31 | | 2021-04-05 | | 2021-04-05 | | 2021-04-05 | | 2021-04-01 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 16 | N/A | Yes | mg/kg | | 0.0024 | U | 0.0044 | J | 0.0025 | U | 0.0024 | U | 0.00065 | J | 0.0022 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 16 | N/A | Yes | mg/kg | | 0.0024 | U | 0.0043 | J | 0.0025 | U | 0.0024 | U | 0.00085 | J | 0.0022 | U |
| Acenaphthene | 83-32-9 | < LOQ | 16 | N/A | Yes | mg/kg | | 0.012 | J+ | 0.01 | J+ | 0.0013 | U | 0.0013 | U | 0.0013 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 16 | N/A | Yes | mg/kg | | 0.0029 | J | 0.037 | | 0.013 | U | 0.012 | U | 0.012 | U | 0.0012 | U |
| Anthracene | 120-12-7 | 0.048 | 16 | N/A | Yes | mg/kg | | 0.0025 | J | 0.016 | | 0.0054 | U | 0.0021 | J | 0.0065 | J | 0.0048 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 16 | N/A | Yes | mg/kg | | 0.022 | | 0.061 | | 0.0054 | U | 0.0037 | J | 0.019 | | 0.0025 | J |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 16 | N/A | Yes | mg/kg | | 0.031 | | 0.056 | | 0.0054 | U | 0.0039 | J | 0.019 | | 0.0027 | J |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 16 | N/A | Yes | mg/kg | | 0.055 | | 0.081 | | 0.0084 | U | 0.0061 | J | 0.031 | | 0.004 | J |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 16 | N/A | Yes | mg/kg | | 0.023 | | 0.031 | J | 0.0084 | U | 0.0081 | U | 0.01 | J | 0.0074 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 16 | N/A | Yes | mg/kg | | 0.019 | | 0.037 | | 0.0054 | U | 0.0027 | J | 0.0099 | J | 0.0048 | U |
| Chrysene | 218-01-9 | 0.081 | 16 | N/A | Yes | mg/kg | | 0.034 | | 0.066 | | 0.0054 | U | 0.0044 | J | 0.02 | | 0.0028 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 16 | N/A | Yes | mg/kg | | 0.0063 | J | 0.01 | | 0.0084 | U | 0.0081 | U | 0.0082 | U | 0.0074 | U |
| Fluoranthene | 206-44-0 | 0.15 | 16 | N/A | Yes | mg/kg | | 0.06 | | 0.16 | | 0.0054 | U | 0.0075 | J | 0.029 | | 0.0047 | J |
| Fluorene | 86-73-7 | 0.015 | 16 | N/A | Yes | mg/kg | | 0.0013 | J | 0.016 | J | 0.0033 | U | 0.0014 | J | 0.0017 | J | 0.003 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 16 | N/A | Yes | mg/kg | | 0.035 | | 0.04 | | 0.0084 | U | 0.0028 | J | 0.012 | | 0.0074 | U |
| Naphthalene | 91-20-3 | 0.012 | 16 | N/A | No | mg/kg | | 0.0024 | U | 0.01 | J+ | 0.0025 | U | 0.0024 | U | 0.012 | J+ | 0.0022 | U |
| Phenanthrene | 85-01-8 | 0.012 | 16 | N/A | Yes | mg/kg | | 0.022 | | 0.11 | J | 0.0084 | U | 0.0052 | J | 0.012 | | 0.0074 | U |
| Pyrene | 129-00-0 | 0.14 | 16 | N/A | Yes | mg/kg | | 0.048 | | 0.11 | | 0.0084 | U | 0.0059 | J | 0.029 | | 0.0039 | J |
| **Metals (Total)** | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 16 | N/A | Yes | mg/kg | | 6100 | | 5000 | | 9100 | | 10000 | | 11000 | | 9200 | |
| Antimony | 7440-36-0 | 0.15 | 16 | N/A | Yes | mg/kg | | 0.22 | J+ | 0.15 | J+ | 0.2 | J+ | 0.19 | J+ | 0.24 | J+ | 0.17 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 16 | N/A | Yes | mg/kg | | 4.8 | | 3 | | 2.2 | | 3 | | 3.7 | | 1.5 | |
| Barium | 7440-39-3 | 100 | 16 | N/A | No | mg/kg | | 33 | | 25 | | 19 | | 29 | | 30 | | 23 | |
| Beryllium | 7440-41-7 | < LOQ | 16 | N/A | Yes | mg/kg | | 0.48 | | 0.4 | J | 0.31 | J | 0.38 | J | 0.36 | J | 0.18 | J |
| Cadmium | 7440-43-9 | 0.16 | 16 | N/A | No | mg/kg | | 0.035 | J | 0.089 | J | 0.081 | J | 0.083 | J | 0.11 | | 0.055 | J |
| Calcium | 7440-70-2 | 120000 | 16 | N/A | No | mg/kg | | 66000 | | 40000 | J | 1200 | | 3800 | | 2200 | | 2200 | J |
| Chromium | 7440-47-3 | 11 | 16 | N/A | No | mg/kg | | 6.7 | | 5.6 | | 8.4 | | 10 | | 10 | | 7.4 | |
| Cobalt | 7440-48-4 | 5.5 | 16 | N/A | Yes | mg/kg | | 10 | | 7.5 | | 4.7 | | 5.3 | | 6.3 | | 3 | |
| Copper | 7440-50-8 | 13 | 16 | N/A | Yes | mg/kg | | 29 | | 18 | | 8.9 | | 13 | | 9.8 | | 6.8 | |
| Iron | 7439-89-6 | 14000 | 16 | N/A | Yes | mg/kg | | 20000 | | 16000 | | 11000 | | 14000 | | 14000 | | 10000 | |
| Lead | 7439-92-1 | 6.3 | 16 | N/A | Yes | mg/kg | | 56 | | 38 | J | 4.7 | | 10 | | 8.8 | | 7.1 | |
| Magnesium | 7439-95-4 | 35000 | 16 | N/A | No | mg/kg | | 18000 | | 14000 | J | 1700 | | 2500 | | 1700 | | 1400 | J |
| Manganese | 7439-96-5 | 520 | 16 | N/A | Yes | mg/kg | | 450 | | 440 | | 300 | | 420 | | 370 | | 210 | J |
| Mercury | 7439-97-6 | 0.027 | 16 | N/A | Yes | mg/kg | | 0.047 | | 0.045 | | 0.023 | | 0.036 | | 0.034 | | 0.035 | |
| Nickel | 7440-02-0 | 9.7 | 16 | N/A | Yes | mg/kg | | 24 | | 17 | | 9.7 | | 10 | | 9.8 | | 6.5 | |
| Potassium | 7440-09-7 | 1200 | 16 | N/A | Yes | mg/kg | | 1600 | | 1100 | J | 500 | | 590 | | 500 | | 380 | |
| Selenium | 7782-49-2 | 0.51 | 16 | N/A | Yes | mg/kg | | 0.54 | J+ | 0.39 | J+ | 0.52 | J+ | 0.55 | J+ | 0.45 | J+ | 0.43 | J+ |
| Silver | 7440-22-4 | < LOQ | 16 | N/A | Yes | mg/kg | | 1.4 | J+ | 1.2 | J+ | 0.6 | U | 0.63 | U | 0.59 | U | 0.62 | U |
| Sodium | 7440-23-5 | < LOQ | 16 | N/A | Yes | mg/kg | | 470 | J+ | 400 | J+ | 500 | J+ | 530 | J+ | 490 | J+ | 520 | J+ |
| Thallium | 7440-28-0 | 0.11 | 16 | N/A | Yes | mg/kg | | 0.49 | | 0.15 | J | 0.061 | J | 0.073 | J | 0.083 | J | 0.042 | J |
| Vanadium | 7440-62-2 | 14 | 16 | N/A | Yes | mg/kg | | 7.9 | | 7.4 | | 14 | | 16 | | 16 | | 14 | |
| Zinc | 7440-66-6 | 23 | 16 | N/A | Yes | mg/kg | | 18 | | 17 | | 23 | | 33 | | 28 | | 25 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-19
Site to Background Sample Comparison - Area of Concern 3, Total Soil (0 - 5 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-03-001 | | NYOW-03-002 | | NYOW-03-003 | | NYOW-03-004 | | NYOW-03-005 | | NYOW-03-006 | | NYOW-03-007 | | NYOW-03-008 | | NYOW-03-009 | | NYOW-03-010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-03-SL001-A | | NYOW-03-SL002-A | | NYOW-03-SL003-A | | NYOW-03-SL004-A | | NYOW-03-SL005-A | | NYOW-03-SL006-A | | NYOW-03-SL007-A | | NYOW-03-SL008-A | | NYOW-03-SL009-A | | NYOW-03-SL010-A | |
| | | | | | | | Sample Type: | N | | N | | N | | N | | N | | C | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | |
| | | | | | | | Sample Date: | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-04-01 | | 2021-04-01 | | 2021-04-01 | | 2021-04-05 | | 2021-04-05 | | 2021-03-31 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 32 | 18.8% | Yes | mg/kg | | 0.0027 | U | 0.0026 | U | 0.0026 | U | 0.0027 | J | 0.0041 | J | 0.0009 | J | 0.026 | J+ | 0.3 | J+ | 0.011 | J | 0.027 | J |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 32 | 18.8% | Yes | mg/kg | | 0.0014 | J | 0.0021 | J | 0.0026 | U | 0.0031 | J | 0.0037 | J | 0.0011 | J | 0.031 | J+ | 0.21 | J+ | 0.012 | J | 0.035 | J |
| Acenaphthene | 83-32-9 | < LOQ | 32 | 21.9% | Yes | mg/kg | | 0.0015 | U | 0.0018 | J | 0.0014 | U | 0.0016 | U | 0.0061 | J | 0.0012 | U | 0.029 | J+ | 0.23 | J+ | 0.014 | U | 0.026 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 32 | 43.8% | Yes | mg/kg | | 0.0015 | U | 0.0055 | J | 0.0014 | U | 0.0016 | U | 0.1 | | 0.0078 | J | 0.77 | | 1.6 | | 0.09 | J- | 0.49 | |
| Anthracene | 120-12-7 | 0.048 | 32 | 28.1% | Yes | mg/kg | | 0.0042 | J | 0.0049 | J | 0.0055 | U | 0.008 | J | 0.094 | | 0.0061 | J | 0.35 | J+ | 1.5 | | 0.047 | J- | 0.17 | J |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 32 | 31.3% | Yes | mg/kg | | 0.02 | | 0.028 | | 0.0032 | J | 0.018 | | 0.33 | | 0.035 | J | 2 | | 4.5 | | 0.14 | J- | 0.58 | |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 32 | 31.3% | Yes | mg/kg | | 0.022 | | 0.033 | | 0.0047 | J | 0.019 | | 0.28 | | 0.038 | J | 2.3 | | 4.4 | | 0.15 | J- | 0.84 | |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 32 | 34.4% | Yes | mg/kg | | 0.034 | | 0.044 | | 0.0062 | J | 0.029 | J- | 0.32 | | 0.052 | J | 2.6 | | 4.7 | | 0.23 | J- | 1 | |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 32 | 34.4% | Yes | mg/kg | | 0.013 | J | 0.018 | | 0.003 | J | 0.014 | J- | 0.19 | | 0.022 | J | 1.2 | | 2.1 | | 0.098 | J- | 0.52 | |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 32 | 31.3% | Yes | mg/kg | | 0.012 | J | 0.016 | | 0.0055 | U | 0.01 | J | 0.14 | | 0.019 | J | 1 | | 1.9 | | 0.094 | J- | 0.43 | |
| Chrysene | 218-01-9 | 0.081 | 32 | 31.3% | Yes | mg/kg | | 0.024 | | 0.034 | | 0.0044 | J | 0.022 | | 0.29 | | 0.037 | J | 2 | | 3.3 | | 0.16 | J- | 0.73 | |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 32 | 31.3% | Yes | mg/kg | | 0.0091 | U | 0.0085 | U | 0.0085 | U | 0.0098 | U | 0.046 | | 0.0078 | U | 0.35 | J+ | 0.69 | | 0.026 | | 0.14 | J |
| Fluoranthene | 206-44-0 | 0.15 | 32 | 34.4% | Yes | mg/kg | | 0.04 | | 0.062 | | 0.007 | J | 0.042 | | 0.56 | | 0.059 | J | 3.2 | | 6.8 | | 0.28 | J- | 1.1 | |
| Fluorene | 86-73-7 | 0.015 | 32 | 31.3% | Yes | mg/kg | | 0.0036 | U | 0.0023 | J | 0.0034 | U | 0.0054 | J | 0.037 | | 0.0031 | U | 0.12 | J+ | 1.4 | | 0.031 | J- | 0.077 | J |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 32 | 31.3% | Yes | mg/kg | | 0.016 | | 0.021 | | 0.0085 | U | 0.017 | J- | 0.21 | | 0.026 | J | 1.7 | | 3.1 | | 0.11 | J- | 0.6 | |
| Naphthalene | 91-20-3 | 0.012 | 32 | 18.8% | Yes | mg/kg | | 0.0027 | U | 0.0024 | J | 0.0026 | U | 0.0055 | J | 0.0064 | J | 0.0016 | J | 0.054 | J+ | 0.11 | J+ | 0.015 | | 0.042 | J |
| Phenanthrene | 85-01-8 | 0.012 | 32 | 59.4% | Yes | mg/kg | | 0.018 | | 0.027 | | 0.0036 | J | 0.031 | | 0.31 | | 0.015 | | 1.4 | | 6.7 | | 0.2 | J- | 0.45 | |
| Pyrene | 129-00-0 | 0.14 | 32 | 31.3% | Yes | mg/kg | | 0.033 | | 0.054 | | 0.006 | J | 0.034 | | 0.4 | | 0.054 | J | 3.6 | | 7 | | 0.23 | J- | 1.1 | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 32 | 56.3% | Yes | mg/kg | | 3200 | | 5000 | | 9100 | | 8500 | | 7200 | | 9500 | | 8200 | | 5600 | | 11000 | | 5500 | |
| Antimony | 7440-36-0 | 0.15 | 32 | 68.8% | Yes | mg/kg | | 0.14 | J | 0.14 | J | 0.11 | U | 0.21 | J | 0.13 | J | 0.11 | J | 0.36 | | 0.31 | | 0.17 | J | 0.19 | J |
| Arsenic | 7440-38-2 | 4.7 | 32 | 9.4% | Yes | mg/kg | | 3 | | 2 | | 2.1 | | 2.4 | J | 3.9 | | 3.1 | | 4.4 | | 4.3 | | 2.3 | | 2.5 | |
| Barium | 7440-39-3 | 100 | 32 | 0.0% | No | mg/kg | | 10 | | 17 | | 16 | | 14 | | 36 | | 52 | | 56 | | 38 | | 21 | J- | 41 | |
| Beryllium | 7440-41-7 | < LOQ | 32 | 56.3% | Yes | mg/kg | | 0.49 | J+ | 0.64 | J+ | 0.58 | J+ | 0.62 | J+ | 0.48 | J+ | 0.53 | J+ | 0.54 | J+ | 0.47 | J+ | 0.61 | J+ | 0.46 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 32 | 31.3% | Yes | mg/kg | | 0.15 | | 0.17 | | 0.087 | J | 0.15 | J | 0.099 | | 0.35 | J | 0.26 | | 0.27 | | 0.22 | | 0.15 | |
| Calcium | 7440-70-2 | 120000 | 32 | 0.0% | No | mg/kg | | 960 | | 1600 | | 500 | | 760 | | 110000 | J | 7200 | J | 18000 | J | 30000 | | 3900 | J+ | 37000 | |
| Chromium | 7440-47-3 | 11 | 32 | 0.0% | No | mg/kg | | 2.5 | J | 3.8 | J | 6.4 | | 5.9 | | 8.2 | | 11 | | 10 | | 7.6 | | 7.5 | J- | 7.2 | |
| Cobalt | 7440-48-4 | 5.5 | 32 | 28.1% | Yes | mg/kg | | 0.54 | J | 1.2 | J | 1.7 | | 1.6 | | 4.2 | | 7.2 | | 8 | | 4.7 | | 2.6 | J- | 4.1 | |
| Copper | 7440-50-8 | 13 | 32 | 28.1% | Yes | mg/kg | | 3.8 | J | 4 | J | 4.3 | J | 4.4 | J | 11 | | 12 | | 26 | | 13 | | 4.9 | J- | 12 | |
| Iron | 7439-89-6 | 14000 | 32 | 25.0% | Yes | mg/kg | | 4400 | | 5500 | | 7300 | | 8200 | | 10000 | | 21000 | | 20000 | | 12000 | | 12000 | | 12000 | |
| Lead | 7439-92-1 | 6.3 | 32 | 75.0% | Yes | mg/kg | | 9.9 | J+ | 9.9 | J+ | 7.1 | J+ | 13 | J- | 11 | | 23 | | 54 | | 3.4 | | 7.6 | J- | 21 | J+ |
| Magnesium | 7439-95-4 | 2000 | 32 | 50.0% | Yes | mg/kg | | 310 | | 590 | | 710 | | 640 | | 3300 | J | 4600 | J | 6200 | J | 9800 | | 1100 | J | 8000 | |
| Manganese | 7439-96-5 | 520 | 32 | 12.5% | Yes | mg/kg | | 48 | | 93 | | 48 | | 65 | J- | 480 | J | 550 | J | 480 | J | 400 | | 120 | J+ | 340 | |
| Mercury | 7439-97-6 | 0.027 | 32 | 71.9% | Yes | mg/kg | | 0.048 | | 0.049 | | 0.047 | | 0.088 | | 0.034 | | 0.061 | | 0.16 | | 0.05 | | 0.058 | | 0.04 | |
| Nickel | 7440-02-0 | 9.7 | 32 | 43.8% | Yes | mg/kg | | 1.4 | J | 2.9 | J | 3.3 | J | 3.3 | J | 8.7 | | 13 | | 18 | | 10 | | 5.4 | J- | 9.5 | |
| Potassium | 7440-09-7 | 1200 | 32 | 9.4% | Yes | mg/kg | | 260 | J | 230 | J | 170 | J | 210 | J | 750 | J+ | 1000 | | 1300 | | 1100 | | 330 | J | 750 | |
| Selenium | 7782-49-2 | 0.51 | 32 | 25.0% | Yes | mg/kg | | 0.3 | J | 0.38 | J | 0.36 | J | 0.61 | J | 0.25 | J | 0.35 | J | 0.29 | J | 0.2 | J | 0.36 | J | 0.23 | J |
| Silver | 7440-22-4 | < LOQ | 32 | 12.5% | Yes | mg/kg | | 0.59 | U | 0.77 | U | 0.69 | U | 0.75 | U | 0.58 | U | 0.64 | U | 0.65 | U | 0.57 | U | 0.73 | UJ | 1.4 | J+ |
| Sodium | 7440-23-5 | < LOQ | 32 | 87.5% | Yes | mg/kg | | 98 | U | 130 | U | 120 | U | 120 | U | 480 | J+ | 530 | J+ | 540 | J+ | 470 | J+ | 610 | J+ | 460 | J+ |
| Thallium | 7440-28-0 | 0.11 | 32 | 25.0% | Yes | mg/kg | | 0.11 | U | 0.098 | U | 0.1 | U | 0.12 | UJ | 0.11 | | 0.12 | | 0.17 | | 0.11 | | 0.1 | J | 0.094 | U |
| Vanadium | 7440-62-2 | 14 | 32 | 28.1% | Yes | mg/kg | | 5.9 | | 8.3 | | 11 | | 12 | | 15 | | 17 | | 14 | | 10 | | 16 | J- | 11 | |
| Zinc | 7440-66-6 | 23 | 32 | 56.3% | Yes | mg/kg | | 12 | | 21 | | 22 | | 23 | | 24 | | 56 | | 81 | | 60 | | 22 | J | 36 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-19
Site to Background Sample Comparison - Area of Concern 3, Total Soil (0 - 5 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-03-011 | | NYOW-03-012 | | NYOW-03-013 | | NYOW-03-014 | | NYOW-03-015 | | NYOW-03-016 | | NYOW-03-001 | | NYOW-03-002 | | NYOW-03-003 | | NYOW-03-004 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-03-SL011-A | | NYOW-03-SL012-A | | NYOW-03-SL013-A | | NYOW-03-SL014-A | | NYOW-03-SL015-A | | NYOW-03-SL016-A | | NYOW-03-PH001-B | | NYOW-03-PH002-B | | NYOW-03-PH003-B | | NYOW-03-PH004-B | |
| | | | | | | | Sample Type: | N | | N | | C | | N | | N | | N | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | |
| | | | | | | | Sample Date: | 2021-03-31 | | 2021-03-31 | | 2021-04-05 | | 2021-04-05 | | 2021-04-05 | | 2021-04-01 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 32 | 18.8% | Yes | mg/kg | | 0.049 | U | 0.025 | J- | 0.0011 | J | 0.01 | J | 0.65 | | 0.0023 | J | 0.0024 | U | 0.0024 | U | 0.0025 | U | 0.0024 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 32 | 18.8% | Yes | mg/kg | | 0.049 | U | 0.028 | J- | 0.0019 | J | 0.012 | J | 1 | | 0.0024 | J | 0.0024 | U | 0.0024 | U | 0.0025 | U | 0.0024 | U |
| Acenaphthene | 83-32-9 | < LOQ | 32 | 21.9% | Yes | mg/kg | | 0.026 | U | 0.018 | J- | 0.0013 | U | 0.012 | U | 4.3 | | 0.0012 | J | 0.0013 | U | 0.0013 | U | 0.0013 | U | 0.0013 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 32 | 43.8% | Yes | mg/kg | | 0.29 | | 0.39 | J- | 0.02 | J | 0.12 | | 1.1 | | 0.02 | | 0.0013 | U | 0.0013 | U | 0.0013 | U | 0.0013 | U |
| Anthracene | 120-12-7 | 0.048 | 32 | 28.1% | Yes | mg/kg | | 0.092 | J | 0.15 | J- | 0.021 | J | 0.08 | J | 8.2 | | 0.0082 | J | 0.0053 | U | 0.0052 | U | 0.0053 | U | 0.0052 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 32 | 31.3% | Yes | mg/kg | | 0.32 | | 0.64 | J- | 0.056 | J | 0.26 | | 5.3 | | 0.046 | | 0.0053 | U | 0.0052 | U | 0.0053 | U | 0.0052 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 32 | 31.3% | Yes | mg/kg | | 0.44 | | 0.76 | J- | 0.065 | J | 0.26 | | 3.2 | | 0.056 | | 0.0053 | U | 0.0052 | U | 0.0053 | U | 0.0052 | U |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 32 | 34.4% | Yes | mg/kg | | 0.56 | | 1.1 | J- | 0.12 | J | 0.37 | | 4.9 | | 0.075 | | 0.0081 | U | 0.0079 | U | 0.0082 | U | 0.0079 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 32 | 34.4% | Yes | mg/kg | | 0.28 | | 0.34 | J- | 0.052 | J | 0.15 | | 1.3 | | 0.035 | | 0.0081 | U | 0.0079 | U | 0.0082 | U | 0.0079 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 32 | 31.3% | Yes | mg/kg | | 0.24 | J | 0.35 | J- | 0.037 | J | 0.16 | | 1.7 | | 0.027 | | 0.0053 | U | 0.0052 | U | 0.0053 | U | 0.0052 | U |
| Chrysene | 218-01-9 | 0.081 | 32 | 31.3% | Yes | mg/kg | | 0.42 | | 0.72 | J- | 0.074 | J | 0.27 | | 4.9 | | 0.052 | | 0.0053 | U | 0.0052 | U | 0.0053 | U | 0.0052 | U |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 32 | 31.3% | Yes | mg/kg | | 0.081 | J | 0.097 | J- | 0.0093 | J | 0.05 | J | 0.44 | | 0.0077 | U | 0.0081 | U | 0.0079 | U | 0.0082 | U | 0.0079 | U |
| Fluoranthene | 206-44-0 | 0.15 | 32 | 34.4% | Yes | mg/kg | | 0.56 | | 1.5 | J- | 0.093 | J | 0.45 | | 20 | | 0.078 | | 0.0053 | U | 0.0052 | U | 0.0053 | U | 0.0052 | U |
| Fluorene | 86-73-7 | 0.015 | 32 | 31.3% | Yes | mg/kg | | 0.033 | J | 0.092 | J- | 0.0023 | J | 0.039 | J | 4.3 | | 0.0022 | J | 0.0033 | U | 0.0032 | U | 0.0033 | U | 0.0032 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 32 | 31.3% | Yes | mg/kg | | 0.34 | | 0.64 | J- | 0.053 | | 0.19 | | 1.7 | | 0.043 | | 0.0081 | U | 0.0079 | U | 0.0082 | U | 0.0079 | U |
| Naphthalene | 91-20-3 | 0.012 | 32 | 18.8% | Yes | mg/kg | | 0.049 | U | 0.052 | J- | 0.0029 | J | 0.008 | J | 0.78 | | 0.0025 | J | 0.0024 | U | 0.012 | J+ | 0.0025 | U | 0.0024 | U |
| Phenanthrene | 85-01-8 | 0.012 | 32 | 59.4% | Yes | mg/kg | | 0.24 | J | 0.71 | J- | 0.014 | J | 0.29 | | 27 | | 0.022 | | 0.0081 | U | 0.0079 | U | 0.0082 | U | 0.0079 | U |
| Pyrene | 129-00-0 | 0.14 | 32 | 31.3% | Yes | mg/kg | | 0.64 | | 1.1 | J- | 0.082 | | 0.44 | | 16 | | 0.075 | | 0.0081 | U | 0.0079 | U | 0.0082 | U | 0.0079 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 32 | 56.3% | Yes | mg/kg | | 5900 | | 8500 | | 6100 | | 4400 | | 6100 | | 7300 | | 7600 | | 6300 | | 6300 | | 4500 | |
| Antimony | 7440-36-0 | 0.15 | 32 | 68.8% | Yes | mg/kg | | 0.16 | J | 0.18 | J | 0.095 | J | 0.13 | J | 0.24 | J | 0.3 | | 0.09 | U | 0.097 | U | 0.17 | J+ | 0.18 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 32 | 9.4% | Yes | mg/kg | | 2.4 | | 2.8 | | 2.3 | | 2.7 | | 3.8 | | 3.6 | | 1.6 | | 2.4 | | 2.1 | | 2.4 | |
| Barium | 7440-39-3 | 100 | 32 | 0.0% | No | mg/kg | | 30 | | 49 | | 20 | | 26 | | 39 | | 40 | | 14 | | 32 | | 24 | | 25 | |
| Beryllium | 7440-41-7 | < LOQ | 32 | 56.3% | Yes | mg/kg | | 0.56 | J+ | 0.43 | J+ | 0.45 | J+ | 0.49 | J+ | 0.73 | J+ | 0.46 | J+ | 0.12 | J | 0.26 | J | 0.25 | J | 0.18 | J |
| Cadmium | 7440-43-9 | 0.16 | 32 | 31.3% | Yes | mg/kg | | 0.2 | | 0.3 | | 0.053 | J | 0.22 | | 0.49 | | 0.55 | | 0.038 | J | 0.065 | J | 0.058 | J | 0.053 | J |
| Calcium | 7440-70-2 | 120000 | 32 | 0.0% | No | mg/kg | | 9800 | | 11000 | | 1600 | | 74000 | | 25000 | | 32000 | J | 700 | | 850 | | 1100 | | 1200 | |
| Chromium | 7440-47-3 | 11 | 32 | 0.0% | No | mg/kg | | 7.4 | | 10 | | 6.7 | | 8.1 | | 9.3 | | 8.7 | | 5.9 | | 6.5 | | 7.5 | | 5.5 | |
| Cobalt | 7440-48-4 | 5.5 | 32 | 28.1% | Yes | mg/kg | | 4.2 | | 6 | | 3.9 | | 4.1 | | 3.8 | | 6 | | 2.8 | | 3.3 | | 3.9 | | 3.6 | |
| Copper | 7440-50-8 | 13 | 32 | 28.1% | Yes | mg/kg | | 13 | | 18 | | 9.5 | | 19 | | 21 | | 28 | | 5.8 | | 7.8 | | 9.4 | | 9.2 | |
| Iron | 7439-89-6 | 14000 | 32 | 25.0% | Yes | mg/kg | | 11000 | | 15000 | | 11000 | | 10000 | | 11000 | | 19000 | | 8000 | | 9100 | | 11000 | | 9300 | |
| Lead | 7439-92-1 | 6.3 | 32 | 75.0% | Yes | mg/kg | | 11 | J+ | 23 | | 3.9 | | 18 | | 28 | | 38 | | 3.3 | J+ | 2.7 | J+ | 3.5 | J+ | 2.8 | |
| Magnesium | 7439-95-4 | 2000 | 32 | 50.0% | Yes | mg/kg | | 2900 | | 3600 | | 1600 | | 7100 | | 3100 | | 9200 | J | 1100 | | 1300 | | 1500 | | 1200 | |
| Manganese | 7439-96-5 | 520 | 32 | 12.5% | Yes | mg/kg | | 370 | | 650 | | 350 | | 420 | | 340 | | 560 | J | 69 | | 220 | | 330 | | 560 | |
| Mercury | 7439-97-6 | 0.027 | 32 | 71.9% | Yes | mg/kg | | 0.033 | | 0.022 | J | 0.016 | J | 0.025 | | 0.059 | | 0.045 | | 0.037 | | 0.011 | J | 0.018 | U | 0.009 | J |
| Nickel | 7440-02-0 | 9.7 | 32 | 43.8% | Yes | mg/kg | | 9.2 | | 13 | | 7.9 | | 9.8 | | 8.8 | | 11 | | 7.7 | | 6.4 | | 8.6 | | 7.1 | |
| Potassium | 7440-09-7 | 1200 | 32 | 9.4% | Yes | mg/kg | | 750 | | 1200 | | 600 | | 830 | | 920 | | 870 | | 290 | | 360 | | 380 | | 380 | |
| Selenium | 7782-49-2 | 0.51 | 32 | 25.0% | Yes | mg/kg | | 0.24 | J | 0.33 | J | 0.15 | J | 0.2 | J | 0.31 | J | 0.29 | J | 0.51 | J+ | 0.43 | J+ | 0.44 | U | 0.43 | U |
| Silver | 7440-22-4 | < LOQ | 32 | 12.5% | Yes | mg/kg | | 0.67 | U | 0.51 | U | 0.54 | U | 0.59 | U | 0.88 | U | 1.4 | J+ | 0.56 | U | 0.5 | U | 0.51 | U | 0.53 | U |
| Sodium | 7440-23-5 | < LOQ | 32 | 87.5% | Yes | mg/kg | | 560 | J+ | 430 | J+ | 450 | J+ | 490 | J+ | 730 | J+ | 460 | J+ | 470 | J+ | 420 | J+ | 420 | J+ | 440 | J+ |
| Thallium | 7440-28-0 | 0.11 | 32 | 25.0% | Yes | mg/kg | | 0.1 | U | 0.09 | | 0.054 | J | 0.09 | | 0.11 | J | 0.13 | | 0.1 | U | 0.087 | U | 0.11 | U | 0.11 | U |
| Vanadium | 7440-62-2 | 14 | 32 | 28.1% | Yes | mg/kg | | 12 | | 16 | | 12 | | 11 | | 14 | | 16 | | 9.9 | | 10 | | 12 | | 10 | |
| Zinc | 7440-66-6 | 23 | 32 | 56.3% | Yes | mg/kg | | 36 | | 44 | | 23 | | 55 | | 85 | | 50 | | 19 | | 17 | | 22 | | 20 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-19
Site to Background Sample Comparison - Area of Concern 3, Total Soil (0 - 5 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-03-005 | | NYOW-03-006 | | NYOW-03-007 | | NYOW-03-008 | | NYOW-03-009 | | NYOW-03-010 | | NYOW-03-011 | | NYOW-03-012 | | NYOW-03-013 | | NYOW-03-014 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-03-PH005-B | | NYOW-03-PH006-B | | NYOW-03-PH007-B | | NYOW-03-PH008-B | | NYOW-03-PH009-B | | NYOW-03-PH010-B | | NYOW-03-PH011-B | | NYOW-03-PH012-B | | NYOW-03-PH013-B | | NYOW-03-PH014-B | |
| | | | | | | | Sample Type: | C | | N | | N | | N | | N | | N | | N | | C | | N | | N | |
| | | | | | | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | |
| | | | | | | | Sample Date: | 2021-04-01 | | 2021-04-01 | | 2021-04-01 | | 2021-04-05 | | 2021-04-05 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-04-05 | | 2021-04-05 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 32 | 18.8% | Yes | mg/kg | | 0.018 | J | 0.0026 | U | 0.00077 | J | 0.00092 | J | 0.0023 | UJ | 0.046 | U | 0.0024 | U | 0.0044 | J | 0.0025 | U | 0.0024 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 32 | 18.8% | Yes | mg/kg | | 0.016 | J | 0.0026 | U | 0.00074 | J | 0.0024 | U | 0.0023 | UJ | 0.046 | U | 0.0024 | U | 0.0043 | J | 0.0025 | U | 0.0024 | U |
| Acenaphthene | 83-32-9 | < LOQ | 32 | 21.9% | Yes | mg/kg | | 0.0013 | U | 0.0014 | U | 0.011 | J+ | 0.012 | U | 0.0013 | UJ | 0.024 | U | 0.012 | J+ | 0.01 | J+ | 0.0013 | U | 0.0013 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 32 | 43.8% | Yes | mg/kg | | 0.04 | J | 0.0014 | U | 0.0097 | J | 0.018 | | 0.012 | UJ | 0.024 | U | 0.0029 | J | 0.037 | | 0.013 | U | 0.012 | U |
| Anthracene | 120-12-7 | 0.048 | 32 | 28.1% | Yes | mg/kg | | 0.065 | J- | 0.0056 | U | 0.0055 | J | 0.0063 | J | 0.0051 | UJ | 0.099 | U | 0.0025 | J | 0.016 | | 0.0054 | U | 0.0021 | J |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 32 | 31.3% | Yes | mg/kg | | 0.43 | J | 0.0056 | U | 0.013 | | 0.014 | | 0.0051 | UJ | 0.099 | U | 0.022 | | 0.061 | | 0.0054 | U | 0.0037 | J |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 32 | 31.3% | Yes | mg/kg | | 1.3 | J | 0.0056 | U | 0.018 | | 0.018 | | 0.0051 | UJ | 0.099 | U | 0.031 | | 0.056 | | 0.0054 | U | 0.0039 | J |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 32 | 34.4% | Yes | mg/kg | | 1.9 | J | 0.0086 | U | 0.027 | | 0.022 | | 0.0078 | UJ | 0.15 | U | 0.055 | | 0.081 | | 0.0084 | U | 0.0061 | J |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 32 | 34.4% | Yes | mg/kg | | 0.82 | J | 0.0086 | U | 0.012 | | 0.0094 | J | 0.0078 | UJ | 0.15 | U | 0.023 | | 0.031 | J | 0.0084 | U | 0.0081 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 32 | 31.3% | Yes | mg/kg | | 0.84 | J | 0.0056 | U | 0.0082 | J | 0.0084 | J | 0.0051 | UJ | 0.099 | U | 0.019 | | 0.037 | | 0.0054 | U | 0.0027 | J |
| Chrysene | 218-01-9 | 0.081 | 32 | 31.3% | Yes | mg/kg | | 1.2 | J | 0.0056 | U | 0.016 | | 0.013 | | 0.0051 | UJ | 0.099 | U | 0.034 | | 0.066 | | 0.0054 | U | 0.0044 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 32 | 31.3% | Yes | mg/kg | | 0.29 | J- | 0.0086 | U | 0.0076 | U | 0.0056 | J | 0.0078 | UJ | 0.15 | U | 0.0063 | J | 0.01 | | 0.0084 | U | 0.0081 | U |
| Fluoranthene | 206-44-0 | 0.15 | 32 | 34.4% | Yes | mg/kg | | 0.19 | J- | 0.0056 | U | 0.017 | | 0.018 | | 0.0051 | UJ | 0.099 | U | 0.06 | | 0.16 | | 0.0054 | U | 0.0075 | J |
| Fluorene | 86-73-7 | 0.015 | 32 | 31.3% | Yes | mg/kg | | 0.005 | J | 0.0035 | U | 0.0015 | J | 0.0052 | J | 0.0031 | UJ | 0.061 | U | 0.0013 | J | 0.016 | J | 0.0033 | U | 0.0014 | J |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 32 | 31.3% | Yes | mg/kg | | 1 | J | 0.0086 | U | 0.012 | | 0.012 | | 0.0078 | UJ | 0.15 | U | 0.035 | | 0.04 | | 0.0084 | U | 0.0028 | J |
| Naphthalene | 91-20-3 | 0.012 | 32 | 18.8% | Yes | mg/kg | | 0.012 | J+ | 0.0026 | U | 0.011 | J+ | 0.012 | J+ | 0.0023 | UJ | 0.046 | U | 0.0024 | U | 0.01 | J+ | 0.0025 | U | 0.0024 | U |
| Phenanthrene | 85-01-8 | 0.012 | 32 | 59.4% | Yes | mg/kg | | 0.05 | J- | 0.0086 | U | 0.007 | J | 0.014 | | 0.0078 | UJ | 0.15 | U | 0.022 | | 0.11 | J | 0.0084 | U | 0.0052 | J |
| Pyrene | 129-00-0 | 0.14 | 32 | 31.3% | Yes | mg/kg | | 0.26 | J- | 0.0086 | U | 0.02 | | 0.021 | | 0.0078 | UJ | 0.15 | U | 0.048 | | 0.11 | | 0.0084 | U | 0.0059 | J |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 32 | 56.3% | Yes | mg/kg | | 7200 | | 8200 | | 6600 | | 6400 | J | 9300 | | 7900 | | 6100 | | 5000 | | 9100 | | 10000 | |
| Antimony | 7440-36-0 | 0.15 | 32 | 68.8% | Yes | mg/kg | | 0.2 | J+ | 0.24 | J+ | 0.2 | J+ | 0.16 | J+ | 0.2 | J+ | 0.16 | J+ | 0.22 | J+ | 0.15 | J+ | 0.2 | J+ | 0.19 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 32 | 9.4% | Yes | mg/kg | | 5.7 | | 5.9 | | 4.3 | | 1.9 | | 2.6 | | 2.4 | | 4.8 | | 3 | | 2.2 | | 3 | |
| Barium | 7440-39-3 | 100 | 32 | 0.0% | No | mg/kg | | 33 | | 52 | | 31 | | 19 | J- | 22 | | 25 | | 33 | | 25 | | 19 | | 29 | |
| Beryllium | 7440-41-7 | < LOQ | 32 | 56.3% | Yes | mg/kg | | 0.25 | J | 0.47 | J | 0.35 | J | 0.23 | J- | 0.34 | J | 0.28 | J | 0.48 | | 0.4 | J | 0.31 | J | 0.38 | J |
| Cadmium | 7440-43-9 | 0.16 | 32 | 31.3% | Yes | mg/kg | | 0.13 | | 0.092 | J | 0.064 | J | 0.083 | J | 0.051 | J | 0.087 | J | 0.035 | J | 0.089 | J | 0.081 | J | 0.083 | J |
| Calcium | 7440-70-2 | 120000 | 32 | 0.0% | No | mg/kg | | 7200 | J | 4800 | J | 60000 | J | 5900 | J- | 1400 | | 2200 | | 66000 | | 40000 | J | 1200 | | 3800 | |
| Chromium | 7440-47-3 | 11 | 32 | 0.0% | No | mg/kg | | 7.7 | | 11 | | 7.6 | | 6.1 | J- | 9.3 | | 7.6 | | 6.7 | | 5.6 | | 8.4 | | 10 | |
| Cobalt | 7440-48-4 | 5.5 | 32 | 28.1% | Yes | mg/kg | | 3.1 | | 7.3 | | 7 | | 3.4 | J- | 5.1 | | 4.3 | | 10 | | 7.5 | | 4.7 | | 5.3 | |
| Copper | 7440-50-8 | 13 | 32 | 28.1% | Yes | mg/kg | | 9.2 | | 20 | | 20 | | 6.4 | J- | 11 | | 7.6 | | 29 | | 18 | | 8.9 | | 13 | |
| Iron | 7439-89-6 | 14000 | 32 | 25.0% | Yes | mg/kg | | 13000 | | 23000 | | 17000 | | 8700 | J | 12000 | | 10000 | | 20000 | | 16000 | | 11000 | | 14000 | |
| Lead | 7439-92-1 | 6.3 | 32 | 75.0% | Yes | mg/kg | | 16 | | 25 | | 25 | | 6.5 | J- | 4.3 | | 8.3 | J+ | 56 | | 38 | J | 4.7 | | 10 | |
| Magnesium | 7439-95-4 | 2000 | 32 | 50.0% | Yes | mg/kg | | 1600 | J | 2900 | J | 16000 | J | 3100 | J- | 1900 | | 1900 | | 18000 | | 14000 | J | 1700 | | 2500 | |
| Manganese | 7439-96-5 | 520 | 32 | 12.5% | Yes | mg/kg | | 210 | J | 500 | J | 520 | J | 160 | J- | 380 | | 320 | | 450 | | 440 | | 300 | | 420 | |
| Mercury | 7439-97-6 | 0.027 | 32 | 71.9% | Yes | mg/kg | | 0.037 | | 0.032 | | 0.039 | | 0.023 | | 0.024 | | 0.034 | | 0.047 | | 0.045 | | 0.023 | | 0.036 | |
| Nickel | 7440-02-0 | 9.7 | 32 | 43.8% | Yes | mg/kg | | 7.5 | | 20 | | 17 | | 6.7 | J- | 9.9 | | 10 | | 24 | | 17 | | 9.7 | | 10 | |
| Potassium | 7440-09-7 | 1200 | 32 | 9.4% | Yes | mg/kg | | 520 | | 1200 | | 1400 | | 470 | J- | 560 | | 460 | | 1600 | | 1100 | J | 500 | | 590 | |
| Selenium | 7782-49-2 | 0.51 | 32 | 25.0% | Yes | mg/kg | | 0.46 | J+ | 0.6 | J+ | 0.53 | J+ | 0.45 | J+ | 0.58 | J+ | 0.52 | J+ | 0.54 | J+ | 0.39 | J+ | 0.52 | J+ | 0.55 | J+ |
| Silver | 7440-22-4 | < LOQ | 32 | 12.5% | Yes | mg/kg | | 0.57 | U | 0.61 | U | 0.52 | U | 0.55 | UJ | 0.57 | U | 0.52 | U | 1.4 | J+ | 1.2 | J+ | 0.6 | U | 0.63 | U |
| Sodium | 7440-23-5 | < LOQ | 32 | 87.5% | Yes | mg/kg | | 480 | J+ | 510 | J+ | 440 | J+ | 460 | J+ | 470 | J+ | 430 | J+ | 470 | J+ | 400 | J+ | 500 | J+ | 530 | J+ |
| Thallium | 7440-28-0 | 0.11 | 32 | 25.0% | Yes | mg/kg | | 0.14 | | 0.14 | | 0.18 | | 0.068 | J | 0.063 | J | 0.1 | U | 0.49 | | 0.15 | J | 0.061 | J | 0.073 | J |
| Vanadium | 7440-62-2 | 14 | 32 | 28.1% | Yes | mg/kg | | 14 | | 15 | | 11 | | 10 | J- | 15 | | 12 | | 7.9 | | 7.4 | | 14 | | 16 | |
| Zinc | 7440-66-6 | 23 | 32 | 56.3% | Yes | mg/kg | | 34 | | 41 | | 34 | | 25 | J- | 21 | | 25 | | 18 | | 17 | | 23 | | 33 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-19
Site to Background Sample Comparison - Area of Concern 3, Total Soil (0 - 5 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: NYOW-03-015<br>Sample Name: NYOW-03-PH015-B<br>Sample Type: N<br>Sample Depth (feet): 1 - 5<br>Sample Geology: Psc<br>Sample Date: 2021-04-05 | | Sample Location: NYOW-03-016<br>Sample Name: NYOW-03-PH016-B<br>Sample Type: N<br>Sample Depth (feet): 1 - 5<br>Sample Geology: Psc<br>Sample Date: 2021-04-01 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 32 | 18.8% | Yes | mg/kg | 0.00065 | J | 0.0022 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 32 | 18.8% | Yes | mg/kg | 0.00085 | J | 0.0022 | U |
| Acenaphthene | 83-32-9 | < LOQ | 32 | 21.9% | Yes | mg/kg | 0.0013 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 32 | 43.8% | Yes | mg/kg | 0.012 | U | 0.0012 | U |
| Anthracene | 120-12-7 | 0.048 | 32 | 28.1% | Yes | mg/kg | 0.0065 | J | 0.0048 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 32 | 31.3% | Yes | mg/kg | 0.019 | | 0.0025 | J |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 32 | 31.3% | Yes | mg/kg | 0.019 | | 0.0027 | J |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 32 | 34.4% | Yes | mg/kg | 0.031 | | 0.004 | J |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 32 | 34.4% | Yes | mg/kg | 0.01 | J | 0.0074 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 32 | 31.3% | Yes | mg/kg | 0.0099 | J | 0.0048 | U |
| Chrysene | 218-01-9 | 0.081 | 32 | 31.3% | Yes | mg/kg | 0.02 | | 0.0028 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 32 | 31.3% | Yes | mg/kg | 0.0082 | U | 0.0074 | U |
| Fluoranthene | 206-44-0 | 0.15 | 32 | 34.4% | Yes | mg/kg | 0.029 | | 0.0047 | J |
| Fluorene | 86-73-7 | 0.015 | 32 | 31.3% | Yes | mg/kg | 0.0017 | J | 0.003 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 32 | 31.3% | Yes | mg/kg | 0.012 | | 0.0074 | U |
| Naphthalene | 91-20-3 | 0.012 | 32 | 18.8% | Yes | mg/kg | 0.012 | J+ | 0.0022 | U |
| Phenanthrene | 85-01-8 | 0.012 | 32 | 59.4% | Yes | mg/kg | 0.012 | | 0.0074 | U |
| Pyrene | 129-00-0 | 0.14 | 32 | 31.3% | Yes | mg/kg | 0.029 | | 0.0039 | J |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 32 | 56.3% | Yes | mg/kg | 11000 | | 9200 | |
| Antimony | 7440-36-0 | 0.15 | 32 | 68.8% | Yes | mg/kg | 0.24 | J+ | 0.17 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 32 | 9.4% | Yes | mg/kg | 3.7 | | 1.5 | |
| Barium | 7440-39-3 | 100 | 32 | 0.0% | No | mg/kg | 30 | | 23 | |
| Beryllium | 7440-41-7 | < LOQ | 32 | 56.3% | Yes | mg/kg | 0.36 | J | 0.18 | J |
| Cadmium | 7440-43-9 | 0.16 | 32 | 31.3% | Yes | mg/kg | 0.11 | | 0.055 | J |
| Calcium | 7440-70-2 | 120000 | 32 | 0.0% | No | mg/kg | 2200 | | 2200 | J |
| Chromium | 7440-47-3 | 11 | 32 | 0.0% | No | mg/kg | 10 | | 7.4 | |
| Cobalt | 7440-48-4 | 5.5 | 32 | 28.1% | Yes | mg/kg | 6.3 | | 3 | |
| Copper | 7440-50-8 | 13 | 32 | 28.1% | Yes | mg/kg | 9.8 | | 6.8 | |
| Iron | 7439-89-6 | 14000 | 32 | 25.0% | Yes | mg/kg | 14000 | | 10000 | |
| Lead | 7439-92-1 | 6.3 | 32 | 75.0% | Yes | mg/kg | 8.8 | | 7.1 | |
| Magnesium | 7439-95-4 | 2000 | 32 | 50.0% | Yes | mg/kg | 1700 | | 1400 | J |
| Manganese | 7439-96-5 | 520 | 32 | 12.5% | Yes | mg/kg | 370 | | 210 | J |
| Mercury | 7439-97-6 | 0.027 | 32 | 71.9% | Yes | mg/kg | 0.034 | | 0.035 | |
| Nickel | 7440-02-0 | 9.7 | 32 | 43.8% | Yes | mg/kg | 9.8 | | 6.5 | |
| Potassium | 7440-09-7 | 1200 | 32 | 9.4% | Yes | mg/kg | 500 | | 380 | |
| Selenium | 7782-49-2 | 0.51 | 32 | 25.0% | Yes | mg/kg | 0.45 | J+ | 0.43 | J+ |
| Silver | 7440-22-4 | < LOQ | 32 | 12.5% | Yes | mg/kg | 0.59 | U | 0.62 | U |
| Sodium | 7440-23-5 | < LOQ | 32 | 87.5% | Yes | mg/kg | 490 | J+ | 520 | J+ |
| Thallium | 7440-28-0 | 0.11 | 32 | 25.0% | Yes | mg/kg | 0.083 | J | 0.042 | J |
| Vanadium | 7440-62-2 | 14 | 32 | 28.1% | Yes | mg/kg | 16 | | 14 | |
| Zinc | 7440-66-6 | 23 | 32 | 56.3% | Yes | mg/kg | 28 | | 25 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-20
Site to Background Sample Comparison - Area of Concern 3, Shallow Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-03-002 | | NYOW-03-007 | | NYOW-03-009 | | NYOW-03-010 | | NYOW-03-013 | | NYOW-03-014 | | NYOW-03-015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-03-WL002-A | | NYOW-03-WL007-A | | NYOW-03-WL009-A | | NYOW-03-WL010-A | | NYOW-03-WL013-A | | NYOW-03-WL014-A | | NYOW-03-WL015-A | |
| | | | | | | Sample Type: | N | | N | | N | | N | | C | | N | | N | |
| | | | | | | Sample Date: | 2021-04-02 | | 2021-04-02 | | 2021-04-07 | | 2021-04-02 | | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.05 | 7 | N/A | No | µg/L | 0.042 | U | 0.041 | U | 0.041 | U | 0.042 | U | 0.04 | U | 0.04 | U | 0.044 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.063 | 7 | N/A | No | µg/L | 0.052 | U | 0.051 | U | 0.051 | U | 0.053 | U | 0.05 | U | 0.05 | U | 0.055 | U |
| Acenaphthene | 83-32-9 | < LOQ | 7 | N/A | No | µg/L | 0.013 | U | 0.012 | U | 0.012 | U | 0.013 | U | 0.012 | U | 0.012 | U | 0.013 | U |
| Acenaphthylene | 208-96-8 | 0.25 | 7 | N/A | No | µg/L | 0.021 | U | 0.02 | U | 0.02 | U | 0.021 | U | 0.02 | U | 0.02 | U | 0.022 | U |
| Anthracene | 120-12-7 | 0.13 | 7 | N/A | No | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U |
| Benzo(a)anthracene | 56-55-3 | < LOQ | 7 | N/A | No | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U |
| Benzo(a)pyrene | 50-32-8 | < LOQ | 7 | N/A | No | µg/L | 0.052 | U | 0.051 | U | 0.051 | U | 0.053 | U | 0.05 | U | 0.05 | U | 0.055 | U |
| Benzo(b)fluoranthene | 205-99-2 | < LOQ | 7 | N/A | No | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.14 | 7 | N/A | No | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.21 | 7 | N/A | No | µg/L | 0.052 | U | 0.051 | U | 0.051 | U | 0.053 | U | 0.05 | U | 0.05 | U | 0.055 | U |
| Chrysene | 218-01-9 | < LOQ | 7 | N/A | No | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U |
| Dibenz(a,h)anthracene | 53-70-3 | < LOQ | 7 | N/A | No | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U |
| Fluoranthene | 206-44-0 | 0.13 | 7 | N/A | No | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U |
| Fluorene | 86-73-7 | 0.05 | 7 | N/A | No | µg/L | 0.042 | U | 0.041 | U | 0.041 | U | 0.042 | U | 0.04 | U | 0.04 | U | 0.044 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | < LOQ | 7 | N/A | No | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U |
| Naphthalene | 91-20-3 | 0.063 | 7 | N/A | No | µg/L | 0.052 | U | 0.051 | U | 0.051 | U | 0.053 | U | 0.05 | U | 0.05 | U | 0.055 | U |
| Phenanthrene | 85-01-8 | < LOQ | 7 | N/A | No | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U |
| Pyrene | 129-00-0 | 0.13 | 7 | N/A | No | µg/L | 0.1 | U | 0.1 | U | 0.1 | U | 0.11 | U | 0.099 | U | 0.1 | U | 0.11 | U |
| Metals (Dissolved) | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 1300 | 7 | N/A | No | µg/L | 300 | J+ | 300 | J+ | 300 | J+ | 300 | J+ | 300 | J+ | 300 | J+ | 300 | J+ |
| Antimony | 7440-36-0 | N/A | 7 | N/A | No | µg/L | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Arsenic | 7440-38-2 | < LOQ | 7 | N/A | Yes | µg/L | 5 | J+ | 5 | J+ | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Barium | 7440-39-3 | 280 | 7 | N/A | No | µg/L | 100 | | 67 | | 12 | | 80 | | 60 | | 57 | | 50 | |
| Beryllium | 7440-41-7 | 0.5 | 7 | N/A | No | µg/L | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U |
| Cadmium | 7440-43-9 | N/A | 7 | N/A | No | µg/L | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U |
| Calcium | 7440-70-2 | 160000 | 7 | N/A | Yes | µg/L | 110000 | | 110000 | | 74000 | J- | 170000 | | 150000 | | 130000 | | 160000 | |
| Chromium | 7440-47-3 | < LOQ | 7 | N/A | No | µg/L | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U |
| Cobalt | 7440-48-4 | 4 | 7 | N/A | Yes | µg/L | 5.1 | | 0.82 | J | 0.35 | U | 1.6 | | 0.43 | J | 0.4 | J | 0.44 | J |
| Copper | 7440-50-8 | < LOQ | 7 | N/A | No | µg/L | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Iron | 7439-89-6 | 4900 | 7 | N/A | No | µg/L | 530 | | 1100 | | 85 | U | 380 | | 120 | J | 85 | U | 85 | U |
| Lead | 7439-92-1 | < LOQ | 7 | N/A | Yes | µg/L | 0.7 | U | 0.7 | U | 0.7 | U | 3 | J+ | 3 | J+ | 3 | J+ | 3 | J+ |
| Magnesium | 7439-95-4 | 75000 | 7 | N/A | No | µg/L | 34000 | | 20000 | | 11000 | | 24000 | | 30000 | | 20000 | | 18000 | |
| Manganese | 7439-96-5 | 2600 | 7 | N/A | Yes | µg/L | 11000 | | 260 | | 7.7 | J | 530 | | 29 | J | 280 | | 2200 | |
| Mercury | 7439-97-6 | N/A | 7 | N/A | No | µg/L | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U | 0.08 | U |
| Nickel | 7440-02-0 | < LOQ | 7 | N/A | Yes | µg/L | 40 | J+ | 8 | U | 8 | U | 40 | J+ | 8 | U | 40 | J+ | 40 | J+ |
| Potassium | 7440-09-7 | 9900 | 7 | N/A | No | µg/L | 2500 | J | 1400 | J | 1500 | J | 1700 | J | 3800 | | 3800 | | 2600 | J |
| Selenium | 7782-49-2 | N/A | 7 | N/A | No | µg/L | 22 | J+ | 19 | U | 19 | U | 19 | U | 19 | U | 19 | U | 19 | U |
| Silver | 7440-22-4 | 5 | 7 | N/A | No | µg/L | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| Sodium | 7440-23-5 | 140000 | 7 | N/A | No | µg/L | 9600 | | 760 | J | 15000 | | 24000 | | 73000 | | 73000 | | 73000 | |
| Thallium | 7440-28-0 | N/A | 7 | N/A | No | µg/L | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U |
| Vanadium | 7440-62-2 | < LOQ | 7 | N/A | Yes | µg/L | 4 | U | 15 | J+ | 15 | J+ | 15 | J+ | 15 | J+ | 15 | J+ | 15 | J+ |
| Zinc | 7440-66-6 | 15 | 7 | N/A | Yes | µg/L | 15 | U | 15 | U | 150 | J+ | 15 | U | 15 | U | 15 | U | 15 | U |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-21
Site to Background Sample Comparison - Area of Concern 5 (Boiler House), Surface Soil (0 - 1 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-016 | | NYOW-05-017-1 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-SL016-A | | NYOW-05-SL017-1-A | |
| | | | | | | Sample Type: | N | | C | |
| | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | |
| | | | | | | Sample Geology: | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-01-14 | | 2021-01-14 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 2 | N/A | No | mg/kg | 0.012 | J+ | 0.002 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 2 | N/A | No | mg/kg | 0.012 | J+ | 0.01 | J+ |
| Acenaphthene | 83-32-9 | < LOQ | 2 | N/A | No | mg/kg | 0.0013 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 2 | N/A | Yes | mg/kg | 0.012 | J+ | 0.01 | J+ |
| Anthracene | 120-12-7 | 0.048 | 2 | N/A | No | mg/kg | 0.012 | J+ | 0.01 | J+ |
| Benzo(a)anthracene | 56-55-3 | 0.14 | 2 | N/A | No | mg/kg | 0.031 | | 0.024 | |
| Benzo(a)pyrene | 50-32-8 | 0.15 | 2 | N/A | No | mg/kg | 0.029 | | 0.024 | |
| Benzo(b)fluoranthene | 205-99-2 | 0.18 | 2 | N/A | No | mg/kg | 0.04 | | 0.035 | |
| Benzo(g,h,i)perylene | 191-24-2 | 0.095 | 2 | N/A | No | mg/kg | 0.02 | | 0.017 | |
| Benzo(k)fluoranthene | 207-08-9 | 0.08 | 2 | N/A | No | mg/kg | 0.016 | | 0.012 | |
| Chrysene | 218-01-9 | 0.14 | 2 | N/A | No | mg/kg | 0.034 | | 0.027 | |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 2 | N/A | No | mg/kg | 0.012 | J+ | 0.01 | J+ |
| Fluoranthene | 206-44-0 | 0.24 | 2 | N/A | No | mg/kg | 0.056 | | 0.045 | |
| Fluorene | 86-73-7 | 0.015 | 2 | N/A | No | mg/kg | 0.0032 | U | 0.01 | J+ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.11 | 2 | N/A | No | mg/kg | 0.023 | | 0.02 | |
| Naphthalene | 91-20-3 | 0.012 | 2 | N/A | No | mg/kg | 0.012 | J+ | 0.01 | J+ |
| Phenanthrene | 85-01-8 | 0.17 | 2 | N/A | No | mg/kg | 0.019 | | 0.019 | |
| Pyrene | 129-00-0 | 0.22 | 2 | N/A | No | mg/kg | 0.055 | | 0.042 | |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 2 | N/A | No | mg/kg | 6200 | | 5600 | |
| Antimony | 7440-36-0 | 0.15 | 2 | N/A | Yes | mg/kg | 0.2 | J+ | 0.17 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 2 | N/A | Yes | mg/kg | 25 | | 6.3 | |
| Barium | 7440-39-3 | 100 | 2 | N/A | No | mg/kg | 53 | | 56 | |
| Beryllium | 7440-41-7 | < LOQ | 2 | N/A | Yes | mg/kg | 0.46 | J+ | 0.46 | J+ |
| Cadmium | 7440-43-9 | 0.38 | 2 | N/A | No | mg/kg | 0.038 | J | 0.066 | J |
| Calcium | 7440-70-2 | 120000 | 2 | N/A | No | mg/kg | 42000 | | 16000 | |
| Chromium | 7440-47-3 | 11 | 2 | N/A | No | mg/kg | 8.8 | | 7.5 | |
| Cobalt | 7440-48-4 | 5.5 | 2 | N/A | Yes | mg/kg | 5.8 | | 5.9 | |
| Copper | 7440-50-8 | 13 | 2 | N/A | Yes | mg/kg | 20 | | 19 | |
| Iron | 7439-89-6 | 14000 | 2 | N/A | Yes | mg/kg | 15000 | | 18000 | |
| Lead | 7439-92-1 | 9.8 | 2 | N/A | No | mg/kg | 7.5 | | 7.7 | |
| Magnesium | 7439-95-4 | 2000 | 2 | N/A | Yes | mg/kg | 13000 | | 5700 | |
| Manganese | 7439-96-5 | 520 | 2 | N/A | Yes | mg/kg | 630 | | 710 | |
| Mercury | 7439-97-6 | 0.19 | 2 | N/A | No | mg/kg | 0.033 | | 0.021 | U |
| Nickel | 7440-02-0 | 9.7 | 2 | N/A | Yes | mg/kg | 11 | | 12 | |
| Potassium | 7440-09-7 | 1200 | 2 | N/A | No | mg/kg | 1200 | | 890 | |
| Selenium | 7782-49-2 | 0.51 | 2 | N/A | No | mg/kg | 0.34 | U | 0.45 | J+ |
| Silver | 7440-22-4 | < LOQ | 2 | N/A | No | mg/kg | 0.55 | U | 0.55 | U |
| Sodium | 7440-23-5 | < LOQ | 2 | N/A | Yes | mg/kg | 460 | J+ | 460 | J+ |
| Thallium | 7440-28-0 | 0.11 | 2 | N/A | No | mg/kg | 0.086 | U | 0.1 | |
| Vanadium | 7440-62-2 | 14 | 2 | N/A | No | mg/kg | 13 | | 13 | |
| Zinc | 7440-66-6 | 23 | 2 | N/A | Yes | mg/kg | 31 | | 28 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-22
Site to Background Sample Comparison - Area of Concern 5 (Boiler House), Subsurface Soil (1 - 5 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-016 | | NYOW-05-017-1 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-PH016-B | | NYOW-05-PH017-1-B | |
| | | | | | | Sample Type: | N | | C | |
| | | | | | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | |
| | | | | | | Sample Geology: | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-01-14 | | 2021-01-14 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 2 | N/A | No | mg/kg | 0.0021 | U | 0.0022 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 2 | N/A | No | mg/kg | 0.0021 | U | 0.0022 | U |
| Acenaphthene | 83-32-9 | < LOQ | 2 | N/A | No | mg/kg | 0.0011 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 2 | N/A | No | mg/kg | 0.0011 | U | 0.0011 | U |
| Anthracene | 120-12-7 | 0.048 | 2 | N/A | No | mg/kg | 0.0046 | U | 0.0047 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 2 | N/A | No | mg/kg | 0.0046 | U | 0.0047 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 2 | N/A | No | mg/kg | 0.0046 | U | 0.0047 | U |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 2 | N/A | No | mg/kg | 0.0071 | U | 0.0072 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 2 | N/A | No | mg/kg | 0.0071 | U | 0.0072 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 2 | N/A | No | mg/kg | 0.0046 | U | 0.0047 | U |
| Chrysene | 218-01-9 | 0.081 | 2 | N/A | No | mg/kg | 0.0046 | U | 0.0047 | U |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 2 | N/A | No | mg/kg | 0.0071 | U | 0.0072 | U |
| Fluoranthene | 206-44-0 | 0.15 | 2 | N/A | No | mg/kg | 0.0046 | U | 0.0047 | U |
| Fluorene | 86-73-7 | 0.015 | 2 | N/A | No | mg/kg | 0.0028 | U | 0.0029 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 2 | N/A | No | mg/kg | 0.0071 | U | 0.0072 | U |
| Naphthalene | 91-20-3 | 0.012 | 2 | N/A | No | mg/kg | 0.0021 | U | 0.0022 | U |
| Phenanthrene | 85-01-8 | 0.012 | 2 | N/A | No | mg/kg | 0.0071 | U | 0.0072 | U |
| Pyrene | 129-00-0 | 0.14 | 2 | N/A | No | mg/kg | 0.0071 | U | 0.0072 | U |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 2 | N/A | Yes | mg/kg | 9000 | | 9900 | |
| Antimony | 7440-36-0 | 0.15 | 2 | N/A | Yes | mg/kg | 0.19 | J+ | 0.18 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 2 | N/A | Yes | mg/kg | 12 | | 4.6 | |
| Barium | 7440-39-3 | 100 | 2 | N/A | No | mg/kg | 69 | | 68 | |
| Beryllium | 7440-41-7 | < LOQ | 2 | N/A | Yes | mg/kg | 0.39 | J | 0.44 | J |
| Cadmium | 7440-43-9 | 0.16 | 2 | N/A | No | mg/kg | 0.025 | J | 0.063 | J |
| Calcium | 7440-70-2 | 120000 | 2 | N/A | No | mg/kg | 42000 | | 54000 | |
| Chromium | 7440-47-3 | 11 | 2 | N/A | Yes | mg/kg | 12 | | 14 | |
| Cobalt | 7440-48-4 | 5.5 | 2 | N/A | Yes | mg/kg | 7.8 | | 8.2 | |
| Copper | 7440-50-8 | 13 | 2 | N/A | Yes | mg/kg | 16 | | 17 | |
| Iron | 7439-89-6 | 14000 | 2 | N/A | Yes | mg/kg | 20000 | | 18000 | |
| Lead | 7439-92-1 | 6.3 | 2 | N/A | Yes | mg/kg | 5.5 | | 7.5 | |
| Magnesium | 7439-95-4 | 35000 | 2 | N/A | No | mg/kg | 14000 | | 15000 | |
| Manganese | 7439-96-5 | 520 | 2 | N/A | No | mg/kg | 390 | | 480 | |
| Mercury | 7439-97-6 | 0.027 | 2 | N/A | No | mg/kg | 0.015 | U | 0.016 | U |
| Nickel | 7440-02-0 | 9.7 | 2 | N/A | Yes | mg/kg | 16 | | 18 | |
| Potassium | 7440-09-7 | 1200 | 2 | N/A | Yes | mg/kg | 2000 | | 1900 | |
| Selenium | 7782-49-2 | 0.51 | 2 | N/A | No | mg/kg | 0.31 | U | 0.38 | U |
| Silver | 7440-22-4 | < LOQ | 2 | N/A | No | mg/kg | 0.56 | U | 0.51 | U |
| Sodium | 7440-23-5 | < LOQ | 2 | N/A | Yes | mg/kg | 460 | J+ | 420 | J+ |
| Thallium | 7440-28-0 | 0.11 | 2 | N/A | Yes | mg/kg | 0.078 | U | 0.13 | |
| Vanadium | 7440-62-2 | 14 | 2 | N/A | Yes | mg/kg | 18 | | 19 | |
| Zinc | 7440-66-6 | 23 | 2 | N/A | Yes | mg/kg | 31 | | 37 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-23
Site to Background Sample Comparison - Area of Concern 5 (Boiler House), Subsurface Soil (5 - 10 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-016 | | NYOW-05-017-1 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-PH016-C | | NYOW-05-PH017-1-C | |
| | | | | | | Sample Type: | N | | N | |
| | | | | | | Sample Depth (feet): | 5 - 10 | | 5 - 10 | |
| | | | | | | Sample Geology: | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-01-14 | | 2021-01-14 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 2 | N/A | No | mg/kg | 0.0023 | U | 0.0022 | UJ |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 2 | N/A | No | mg/kg | 0.0023 | U | 0.0022 | UJ |
| Acenaphthene | 83-32-9 | < LOQ | 2 | N/A | No | mg/kg | 0.0012 | U | 0.0012 | UJ |
| Acenaphthylene | 208-96-8 | 0.01 | 2 | N/A | No | mg/kg | 0.0012 | U | 0.0012 | UJ |
| Anthracene | 120-12-7 | 0.048 | 2 | N/A | No | mg/kg | 0.0049 | U | 0.0048 | UJ |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 2 | N/A | No | mg/kg | 0.0049 | U | 0.0048 | UJ |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 2 | N/A | No | mg/kg | 0.0049 | U | 0.0048 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 2 | N/A | No | mg/kg | 0.0076 | U | 0.0074 | UJ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 2 | N/A | No | mg/kg | 0.0076 | U | 0.0074 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 2 | N/A | No | mg/kg | 0.0049 | U | 0.0048 | UJ |
| Chrysene | 218-01-9 | 0.081 | 2 | N/A | No | mg/kg | 0.0046 | J | 0.0048 | UJ |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 2 | N/A | No | mg/kg | 0.0076 | U | 0.0074 | UJ |
| Fluoranthene | 206-44-0 | 0.15 | 2 | N/A | No | mg/kg | 0.0049 | U | 0.0048 | UJ |
| Fluorene | 86-73-7 | 0.015 | 2 | N/A | No | mg/kg | 0.003 | U | 0.003 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 2 | N/A | No | mg/kg | 0.0076 | U | 0.0074 | UJ |
| Naphthalene | 91-20-3 | 0.012 | 2 | N/A | No | mg/kg | 0.0023 | U | 0.0022 | UJ |
| Phenanthrene | 85-01-8 | 0.012 | 2 | N/A | No | mg/kg | 0.0076 | U | 0.0074 | UJ |
| Pyrene | 129-00-0 | 0.14 | 2 | N/A | No | mg/kg | 0.0076 | U | 0.0074 | UJ |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 2 | N/A | Yes | mg/kg | 9100 | | 11000 | |
| Antimony | 7440-36-0 | 0.15 | 2 | N/A | No | mg/kg | 0.12 | J | 0.15 | J |
| Arsenic | 7440-38-2 | 4.7 | 2 | N/A | Yes | mg/kg | 16 | | 4.2 | |
| Barium | 7440-39-3 | 100 | 2 | N/A | No | mg/kg | 73 | | 96 | |
| Beryllium | 7440-41-7 | 0.56 | 2 | N/A | No | mg/kg | 0.41 | J | 0.43 | J |
| Cadmium | 7440-43-9 | 0.31 | 2 | N/A | No | mg/kg | 0.056 | J | 0.051 | J |
| Calcium | 7440-70-2 | 71000 | 2 | N/A | No | mg/kg | 52000 | | 60000 | |
| Chromium | 7440-47-3 | 11 | 2 | N/A | Yes | mg/kg | 13 | | 15 | |
| Cobalt | 7440-48-4 | 5.5 | 2 | N/A | Yes | mg/kg | 7.9 | | 8.5 | |
| Copper | 7440-50-8 | 13 | 2 | N/A | Yes | mg/kg | 20 | | 18 | |
| Iron | 7439-89-6 | 14000 | 2 | N/A | Yes | mg/kg | 19000 | | 19000 | |
| Lead | 7439-92-1 | 6.3 | 2 | N/A | Yes | mg/kg | 6.5 | | 7.3 | |
| Magnesium | 7439-95-4 | 27000 | 2 | N/A | No | mg/kg | 18000 | | 16000 | |
| Manganese | 7439-96-5 | 520 | 2 | N/A | Yes | mg/kg | 460 | | 590 | |
| Mercury | 7439-97-6 | 0.027 | 2 | N/A | No | mg/kg | 0.017 | U | 0.017 | U |
| Nickel | 7440-02-0 | 9.7 | 2 | N/A | Yes | mg/kg | 16 | | 20 | |
| Potassium | 7440-09-7 | 1200 | 2 | N/A | Yes | mg/kg | 1900 | | 2000 | |
| Selenium | 7782-49-2 | 0.51 | 2 | N/A | No | mg/kg | 0.35 | U | 0.41 | J+ |
| Silver | 7440-22-4 | < LOQ | 2 | N/A | No | mg/kg | 0.53 | U | 0.53 | U |
| Sodium | 7440-23-5 | < LOQ | 2 | N/A | Yes | mg/kg | 440 | J+ | 440 | J+ |
| Thallium | 7440-28-0 | 0.11 | 2 | N/A | No | mg/kg | 0.096 | | 0.083 | U |
| Vanadium | 7440-62-2 | 14 | 2 | N/A | Yes | mg/kg | 19 | | 19 | |
| Zinc | 7440-66-6 | 23 | 2 | N/A | Yes | mg/kg | 32 | | 38 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-24
Site to Background Sample Comparison - Area of Concern 5 (Boiler House), Total Soil (0 - 5 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-016 | | NYOW-05-017-1 | | NYOW-05-016 | | NYOW-05-017-1 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-SL016-A | | NYOW-05-SL017-1-A | | NYOW-05-PH016-B | | NYOW-05-PH017-1-B | |
| | | | | | | Sample Type: | N | | C | | N | | C | |
| | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | |
| | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 4 | N/A | No | mg/kg | 0.012 | J+ | 0.002 | U | 0.0021 | U | 0.0022 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 4 | N/A | No | mg/kg | 0.012 | J+ | 0.01 | J+ | 0.0021 | U | 0.0022 | U |
| Acenaphthene | 83-32-9 | < LOQ | 4 | N/A | No | mg/kg | 0.0013 | U | 0.0011 | U | 0.0011 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 4 | N/A | Yes | mg/kg | 0.012 | J+ | 0.01 | J+ | 0.0011 | U | 0.0011 | U |
| Anthracene | 120-12-7 | 0.048 | 4 | N/A | No | mg/kg | 0.012 | J+ | 0.01 | J+ | 0.0046 | U | 0.0047 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 4 | N/A | No | mg/kg | 0.031 | | 0.024 | | 0.0046 | U | 0.0047 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 4 | N/A | No | mg/kg | 0.029 | | 0.024 | | 0.0046 | U | 0.0047 | U |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 4 | N/A | No | mg/kg | 0.04 | | 0.035 | | 0.0071 | U | 0.0072 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 4 | N/A | No | mg/kg | 0.02 | | 0.017 | | 0.0071 | U | 0.0072 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 4 | N/A | No | mg/kg | 0.016 | | 0.012 | | 0.0046 | U | 0.0047 | U |
| Chrysene | 218-01-9 | 0.081 | 4 | N/A | No | mg/kg | 0.034 | | 0.027 | | 0.0046 | U | 0.0047 | U |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 4 | N/A | No | mg/kg | 0.012 | J+ | 0.01 | J+ | 0.0071 | U | 0.0072 | U |
| Fluoranthene | 206-44-0 | 0.15 | 4 | N/A | No | mg/kg | 0.056 | | 0.045 | | 0.0046 | U | 0.0047 | U |
| Fluorene | 86-73-7 | 0.015 | 4 | N/A | No | mg/kg | 0.0032 | U | 0.01 | J+ | 0.0028 | U | 0.0029 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 4 | N/A | No | mg/kg | 0.023 | | 0.02 | | 0.0071 | U | 0.0072 | U |
| Naphthalene | 91-20-3 | 0.012 | 4 | N/A | No | mg/kg | 0.012 | J+ | 0.01 | J+ | 0.0021 | U | 0.0022 | U |
| Phenanthrene | 85-01-8 | 0.012 | 4 | N/A | Yes | mg/kg | 0.019 | | 0.019 | | 0.0071 | U | 0.0072 | U |
| Pyrene | 129-00-0 | 0.14 | 4 | N/A | No | mg/kg | 0.055 | | 0.042 | | 0.0071 | U | 0.0072 | U |
| Metals (Total) | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 4 | N/A | Yes | mg/kg | 6200 | | 5600 | | 9000 | | 9900 | |
| Antimony | 7440-36-0 | 0.15 | 4 | N/A | Yes | mg/kg | 0.2 | J+ | 0.17 | J+ | 0.19 | J+ | 0.18 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 4 | N/A | Yes | mg/kg | 25 | | 6.3 | | 12 | | 4.6 | |
| Barium | 7440-39-3 | 100 | 4 | N/A | No | mg/kg | 53 | | 56 | | 69 | | 68 | |
| Beryllium | 7440-41-7 | < LOQ | 4 | N/A | Yes | mg/kg | 0.46 | J+ | 0.46 | J+ | 0.39 | J | 0.44 | J |
| Cadmium | 7440-43-9 | 0.16 | 4 | N/A | No | mg/kg | 0.038 | J | 0.066 | J | 0.025 | J | 0.063 | J |
| Calcium | 7440-70-2 | 120000 | 4 | N/A | No | mg/kg | 42000 | | 16000 | | 42000 | | 54000 | |
| Chromium | 7440-47-3 | 11 | 4 | N/A | Yes | mg/kg | 8.8 | | 7.5 | | 12 | | 14 | |
| Cobalt | 7440-48-4 | 5.5 | 4 | N/A | Yes | mg/kg | 5.8 | | 5.9 | | 7.8 | | 8.2 | |
| Copper | 7440-50-8 | 13 | 4 | N/A | Yes | mg/kg | 20 | | 19 | | 16 | | 17 | |
| Iron | 7439-89-6 | 14000 | 4 | N/A | Yes | mg/kg | 15000 | | 18000 | | 20000 | | 18000 | |
| Lead | 7439-92-1 | 6.3 | 4 | N/A | Yes | mg/kg | 7.5 | | 7.7 | | 5.5 | | 7.5 | |
| Magnesium | 7439-95-4 | 2000 | 4 | N/A | Yes | mg/kg | 13000 | | 5700 | | 14000 | | 15000 | |
| Manganese | 7439-96-5 | 520 | 4 | N/A | Yes | mg/kg | 630 | | 710 | | 390 | | 480 | |
| Mercury | 7439-97-6 | 0.027 | 4 | N/A | Yes | mg/kg | 0.033 | | 0.021 | U | 0.015 | U | 0.016 | U |
| Nickel | 7440-02-0 | 9.7 | 4 | N/A | Yes | mg/kg | 11 | | 12 | | 16 | | 18 | |
| Potassium | 7440-09-7 | 1200 | 4 | N/A | Yes | mg/kg | 1200 | | 890 | | 2000 | | 1900 | |
| Selenium | 7782-49-2 | 0.51 | 4 | N/A | No | mg/kg | 0.34 | U | 0.45 | J+ | 0.31 | U | 0.38 | U |
| Silver | 7440-22-4 | < LOQ | 4 | N/A | No | mg/kg | 0.55 | U | 0.55 | U | 0.56 | U | 0.51 | U |
| Sodium | 7440-23-5 | < LOQ | 4 | N/A | Yes | mg/kg | 460 | J+ | 460 | J+ | 460 | J+ | 420 | J+ |
| Thallium | 7440-28-0 | 0.11 | 4 | N/A | Yes | mg/kg | 0.086 | U | 0.1 | | 0.078 | U | 0.13 | |
| Vanadium | 7440-62-2 | 14 | 4 | N/A | Yes | mg/kg | 13 | | 13 | | 18 | | 19 | |
| Zinc | 7440-66-6 | 23 | 4 | N/A | Yes | mg/kg | 31 | | 28 | | 31 | | 37 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-25
Site to Background Sample Comparison - Area of Concern 5 (Boiler House), Total Soil (0 - 10 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Location: | NYOW-05-016 | | NYOW-05-017-1 | | NYOW-05-016 | | NYOW-05-017-1 | | NYOW-05-016 | | NYOW-05-017-1 | |
| | | | | | | Sample Name: | NYOW-05-SL016-A | | NYOW-05-SL017-1-A | | NYOW-05-PH016-B | | NYOW-05-PH017-1-B | | NYOW-05-PH016-C | | NYOW-05-PH017-1-C | |
| | | | | | | Sample Type: | N | | C | | N | | C | | N | | N | |
| | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 5 - 10 | | 5 - 10 | |
| | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 6 | N/A | No | mg/kg | 0.012 | J+ | 0.002 | U | 0.0021 | U | 0.0022 | U | 0.0023 | U | 0.0022 | UJ |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 6 | N/A | No | mg/kg | 0.012 | J+ | 0.01 | J+ | 0.0021 | U | 0.0022 | U | 0.0023 | U | 0.0022 | UJ |
| Acenaphthene | 83-32-9 | < LOQ | 6 | N/A | No | mg/kg | 0.0013 | U | 0.0011 | U | 0.0011 | U | 0.0011 | U | 0.0012 | U | 0.0012 | UJ |
| Acenaphthylene | 208-96-8 | 0.01 | 6 | N/A | Yes | mg/kg | 0.012 | J+ | 0.01 | J+ | 0.0011 | U | 0.0011 | U | 0.0012 | U | 0.0012 | UJ |
| Anthracene | 120-12-7 | 0.048 | 6 | N/A | No | mg/kg | 0.012 | J+ | 0.01 | J+ | 0.0046 | U | 0.0047 | U | 0.0049 | U | 0.0048 | UJ |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 6 | N/A | No | mg/kg | 0.031 | | 0.024 | | 0.0046 | U | 0.0047 | U | 0.0049 | U | 0.0048 | UJ |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 6 | N/A | No | mg/kg | 0.029 | | 0.024 | | 0.0046 | U | 0.0047 | U | 0.0049 | U | 0.0048 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 6 | N/A | No | mg/kg | 0.04 | | 0.035 | | 0.0071 | U | 0.0072 | U | 0.0076 | U | 0.0074 | UJ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 6 | N/A | No | mg/kg | 0.02 | | 0.017 | | 0.0071 | U | 0.0072 | U | 0.0076 | U | 0.0074 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 6 | N/A | No | mg/kg | 0.016 | | 0.012 | | 0.0046 | U | 0.0047 | U | 0.0049 | U | 0.0048 | UJ |
| Chrysene | 218-01-9 | 0.081 | 6 | N/A | No | mg/kg | 0.034 | | 0.027 | | 0.0046 | U | 0.0047 | U | 0.0046 | J | 0.0048 | UJ |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 6 | N/A | No | mg/kg | 0.012 | J+ | 0.01 | J+ | 0.0071 | U | 0.0072 | U | 0.0076 | U | 0.0074 | UJ |
| Fluoranthene | 206-44-0 | 0.15 | 6 | N/A | No | mg/kg | 0.056 | | 0.045 | | 0.0046 | U | 0.0047 | U | 0.0049 | U | 0.0048 | UJ |
| Fluorene | 86-73-7 | 0.015 | 6 | N/A | No | mg/kg | 0.0032 | U | 0.01 | J+ | 0.0028 | U | 0.0029 | U | 0.003 | U | 0.003 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 6 | N/A | No | mg/kg | 0.023 | | 0.02 | | 0.0071 | U | 0.0072 | U | 0.0076 | U | 0.0074 | UJ |
| Naphthalene | 91-20-3 | 0.012 | 6 | N/A | No | mg/kg | 0.012 | J+ | 0.01 | J+ | 0.0021 | U | 0.0022 | U | 0.0023 | U | 0.0022 | UJ |
| Phenanthrene | 85-01-8 | 0.012 | 6 | N/A | Yes | mg/kg | 0.019 | | 0.019 | | 0.0071 | U | 0.0072 | U | 0.0076 | U | 0.0074 | UJ |
| Pyrene | 129-00-0 | 0.14 | 6 | N/A | No | mg/kg | 0.055 | | 0.042 | | 0.0071 | U | 0.0072 | U | 0.0076 | U | 0.0074 | UJ |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 6 | N/A | Yes | mg/kg | 6200 | | 5600 | | 9000 | | 9900 | | 9100 | | 11000 | |
| Antimony | 7440-36-0 | 0.15 | 6 | N/A | Yes | mg/kg | 0.2 | J+ | 0.17 | J+ | 0.19 | J+ | 0.18 | J+ | 0.12 | J | 0.15 | J |
| Arsenic | 7440-38-2 | 4.7 | 6 | N/A | Yes | mg/kg | 25 | | 6.3 | | 12 | | 4.6 | | 16 | | 4.2 | |
| Barium | 7440-39-3 | 100 | 6 | N/A | No | mg/kg | 53 | | 56 | | 69 | | 68 | | 73 | | 96 | |
| Beryllium | 7440-41-7 | 0.56 | 6 | N/A | No | mg/kg | 0.46 | J+ | 0.46 | J+ | 0.39 | J | 0.44 | J | 0.41 | J | 0.43 | J |
| Cadmium | 7440-43-9 | 0.16 | 6 | N/A | No | mg/kg | 0.038 | J | 0.066 | J | 0.025 | J | 0.063 | J | 0.056 | J | 0.051 | J |
| Calcium | 7440-70-2 | 71000 | 6 | N/A | No | mg/kg | 42000 | | 16000 | | 42000 | | 54000 | | 52000 | | 60000 | |
| Chromium | 7440-47-3 | 11 | 6 | N/A | Yes | mg/kg | 8.8 | | 7.5 | | 12 | | 14 | | 13 | | 15 | |
| Cobalt | 7440-48-4 | 5.5 | 6 | N/A | Yes | mg/kg | 5.8 | | 5.9 | | 7.8 | | 8.2 | | 7.9 | | 8.5 | |
| Copper | 7440-50-8 | 13 | 6 | N/A | Yes | mg/kg | 20 | | 19 | | 16 | | 17 | | 20 | | 18 | |
| Iron | 7439-89-6 | 14000 | 6 | N/A | Yes | mg/kg | 15000 | | 18000 | | 20000 | | 18000 | | 19000 | | 19000 | |
| Lead | 7439-92-1 | 6.3 | 6 | N/A | Yes | mg/kg | 7.5 | | 7.7 | | 5.5 | | 7.5 | | 6.5 | | 7.3 | |
| Magnesium | 7439-95-4 | 2000 | 6 | N/A | Yes | mg/kg | 13000 | | 5700 | | 14000 | | 15000 | | 18000 | | 16000 | |
| Manganese | 7439-96-5 | 520 | 6 | N/A | Yes | mg/kg | 630 | | 710 | | 390 | | 480 | | 460 | | 590 | |
| Mercury | 7439-97-6 | 0.027 | 6 | N/A | Yes | mg/kg | 0.033 | | 0.021 | U | 0.015 | U | 0.016 | U | 0.017 | U | 0.017 | U |
| Nickel | 7440-02-0 | 9.7 | 6 | N/A | Yes | mg/kg | 11 | | 12 | | 16 | | 18 | | 16 | | 20 | |
| Potassium | 7440-09-7 | 1200 | 6 | N/A | Yes | mg/kg | 1200 | | 890 | | 2000 | | 1900 | | 1900 | | 2000 | |
| Selenium | 7782-49-2 | 0.51 | 6 | N/A | No | mg/kg | 0.34 | U | 0.45 | J+ | 0.31 | U | 0.38 | U | 0.35 | U | 0.41 | J+ |
| Silver | 7440-22-4 | < LOQ | 6 | N/A | No | mg/kg | 0.55 | U | 0.55 | U | 0.56 | U | 0.51 | U | 0.53 | U | 0.53 | U |
| Sodium | 7440-23-5 | < LOQ | 6 | N/A | Yes | mg/kg | 460 | J+ | 460 | J+ | 460 | J+ | 420 | J+ | 440 | J+ | 440 | J+ |
| Thallium | 7440-28-0 | 0.11 | 6 | N/A | Yes | mg/kg | 0.086 | U | 0.1 | | 0.078 | U | 0.13 | | 0.096 | | 0.083 | U |
| Vanadium | 7440-62-2 | 14 | 6 | N/A | Yes | mg/kg | 13 | | 13 | | 18 | | 19 | | 19 | | 19 | |
| Zinc | 7440-66-6 | 23 | 6 | N/A | Yes | mg/kg | 31 | | 28 | | 31 | | 37 | | 32 | | 38 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-26
Site to Background Sample Comparison - Area of Concern 5 (Boiler House), Surface Soil (0 - 1 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-05-018 | | NYOW-05-019 | | NYOW-05-020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-05-SL018-A | | NYOW-05-SL019-A | | NYOW-05-SL020-A | |
| | | | | | | | Sample Type: | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | | | | Sample Geology: | Ps | | Ps | | Ps | |
| | | | | | | | Sample Date: | 2021-01-11 | | 2021-01-11 | | 2021-01-08 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.011 | 3 | N/A | No | mg/kg | | 0.0023 | UJ | 0.01 | J+ | 0.0022 | UJ |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | 3 | N/A | No | mg/kg | | 0.0023 | UJ | 0.01 | J+ | 0.011 | J+ |
| Acenaphthene | 83-32-9 | < LOQ | 3 | N/A | No | mg/kg | | 0.0012 | UJ | 0.0011 | UJ | 0.0012 | UJ |
| Acenaphthylene | 208-96-8 | 0.053 | 3 | N/A | No | mg/kg | | 0.0012 | UJ | 0.0011 | UJ | 0.0012 | UJ |
| Anthracene | 120-12-7 | 0.033 | 3 | N/A | No | mg/kg | | 0.005 | UJ | 0.0044 | UJ | 0.0048 | UJ |
| Benzo(a)anthracene | 56-55-3 | 0.14 | 3 | N/A | No | mg/kg | | 0.0067 | J- | 0.01 | J- | 0.0076 | J- |
| Benzo(a)pyrene | 50-32-8 | 0.15 | 3 | N/A | No | mg/kg | | 0.0061 | J- | 0.01 | J- | 0.0079 | J- |
| Benzo(b)fluoranthene | 205-99-2 | 0.18 | 3 | N/A | No | mg/kg | | 0.01 | J- | 0.016 | J- | 0.012 | J- |
| Benzo(g,h,i)perylene | 191-24-2 | 0.095 | 3 | N/A | No | mg/kg | | 0.0076 | UJ | 0.0075 | J- | 0.0061 | J- |
| Benzo(k)fluoranthene | 207-08-9 | 0.08 | 3 | N/A | No | mg/kg | | 0.0034 | J- | 0.0055 | J- | 0.0044 | J- |
| Chrysene | 218-01-9 | 0.14 | 3 | N/A | No | mg/kg | | 0.0085 | J- | 0.012 | J- | 0.0091 | J- |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 3 | N/A | No | mg/kg | | 0.0076 | UJ | 0.0068 | UJ | 0.0074 | UJ |
| Fluoranthene | 206-44-0 | 0.24 | 3 | N/A | No | mg/kg | | 0.013 | J- | 0.017 | J- | 0.013 | J- |
| Fluorene | 86-73-7 | 0.015 | 3 | N/A | No | mg/kg | | 0.0031 | UJ | 0.0027 | UJ | 0.003 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.11 | 3 | N/A | No | mg/kg | | 0.005 | J- | 0.0085 | J- | 0.0064 | J- |
| Naphthalene | 91-20-3 | 0.012 | 3 | N/A | No | mg/kg | | 0.0023 | UJ | 0.01 | J+ | 0.011 | J+ |
| Phenanthrene | 85-01-8 | 0.086 | 3 | N/A | No | mg/kg | | 0.0058 | J- | 0.0061 | J- | 0.0051 | J- |
| Pyrene | 129-00-0 | 0.22 | 3 | N/A | No | mg/kg | | 0.013 | J- | 0.016 | J- | 0.012 | J- |
| Metals (Total) | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 10000 | 3 | N/A | No | mg/kg | | 5200 | | 5300 | | 5100 | J+ |
| Antimony | 7440-36-0 | 0.15 | 3 | N/A | Yes | mg/kg | | 0.22 | J+ | 0.16 | J+ | 0.18 | J+ |
| Arsenic | 7440-38-2 | 21 | 3 | N/A | No | mg/kg | | 5.8 | | 5.8 | | 4.8 | |
| Barium | 7440-39-3 | 100 | 3 | N/A | No | mg/kg | | 53 | | 41 | | 49 | |
| Beryllium | 7440-41-7 | < LOQ | 3 | N/A | Yes | mg/kg | | 0.4 | J+ | 0.42 | J+ | 0.41 | J+ |
| Cadmium | 7440-43-9 | 0.38 | 3 | N/A | No | mg/kg | | 0.09 | J | 0.086 | | 0.055 | J |
| Calcium | 7440-70-2 | 120000 | 3 | N/A | No | mg/kg | | 25000 | | 19000 | | 22000 | |
| Chromium | 7440-47-3 | 11 | 3 | N/A | No | mg/kg | | 7.4 | | 7.2 | | 7.9 | |
| Cobalt | 7440-48-4 | 8.3 | 3 | N/A | No | mg/kg | | 5 | | 4.7 | | 5.3 | |
| Copper | 7440-50-8 | 28 | 3 | N/A | No | mg/kg | | 16 | | 14 | | 20 | |
| Iron | 7439-89-6 | 24000 | 3 | N/A | No | mg/kg | | 15000 | | 14000 | | 15000 | |
| Lead | 7439-92-1 | 320 | 3 | N/A | No | mg/kg | | 7.6 | | 6.4 | | 7.5 | |
| Magnesium | 7439-95-4 | 6300 | 3 | N/A | Yes | mg/kg | | 9400 | | 6100 | | 7700 | |
| Manganese | 7439-96-5 | 1700 | 3 | N/A | No | mg/kg | | 670 | | 490 | | 710 | |
| Mercury | 7439-97-6 | 0.19 | 3 | N/A | No | mg/kg | | 0.0075 | J | 0.054 | | 0.014 | J |
| Nickel | 7440-02-0 | 13 | 3 | N/A | No | mg/kg | | 10 | | 9.6 | | 11 | |
| Potassium | 7440-09-7 | 1100 | 3 | N/A | No | mg/kg | | 930 | | 870 | | 770 | |
| Selenium | 7782-49-2 | 0.51 | 3 | N/A | No | mg/kg | | 0.5 | J+ | 0.37 | J+ | 0.41 | J+ |
| Silver | 7440-22-4 | < LOQ | 3 | N/A | No | mg/kg | | 0.47 | U | 0.51 | U | 0.49 | U |
| Sodium | 7440-23-5 | < LOQ | 3 | N/A | No | mg/kg | | 400 | U | 85 | U | 82 | U |
| Thallium | 7440-28-0 | 0.12 | 3 | N/A | No | mg/kg | | 0.099 | U | 0.073 | U | 0.061 | J |
| Vanadium | 7440-62-2 | 21 | 3 | N/A | No | mg/kg | | 12 | | 11 | | 12 | |
| Zinc | 7440-66-6 | 57 | 3 | N/A | No | mg/kg | | 25 | | 25 | | 27 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-27
Site to Background Sample Comparison - Area of Concern 5 (Boiler House), Subsurface Soil (1 - 5 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: NYOW-05-018<br>Sample Name: NYOW-05-PH018-B<br>Sample Type: N<br>Sample Depth (feet): 1 - 5<br>Sample Geology: Ps<br>Sample Date: 2021-01-11 | | Sample Location: NYOW-05-019<br>Sample Name: NYOW-05-PH019-B<br>Sample Type: N<br>Sample Depth (feet): 1 - 5<br>Sample Geology: Ps<br>Sample Date: 2021-01-11 | | Sample Location: NYOW-05-020<br>Sample Name: NYOW-05-PH020-B<br>Sample Type: N<br>Sample Depth (feet): 1 - 5<br>Sample Geology: Ps<br>Sample Date: 2021-01-08 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | < LOQ | 3 | N/A | Yes | mg/kg | 0.011 | J+ | 0.0022 | UJ | 0.012 | J+ |
| 2-Methylnaphthalene | 91-57-6 | < LOQ | 3 | N/A | Yes | mg/kg | 0.011 | J+ | 0.0022 | UJ | 0.012 | J+ |
| Acenaphthene | 83-32-9 | < LOQ | 3 | N/A | No | mg/kg | 0.0012 | U | 0.0012 | UJ | 0.0013 | U |
| Acenaphthylene | 208-96-8 | 0.013 | 3 | N/A | No | mg/kg | 0.0012 | U | 0.0012 | UJ | 0.0013 | U |
| Anthracene | 120-12-7 | 0.0052 | 3 | N/A | Yes | mg/kg | 0.0049 | U | 0.0047 | UJ | 0.012 | J+ |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 3 | N/A | No | mg/kg | 0.011 | J+ | 0.0047 | UJ | 0.012 | J+ |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 3 | N/A | No | mg/kg | 0.011 | J+ | 0.0047 | UJ | 0.012 | J+ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 3 | N/A | No | mg/kg | 0.011 | J+ | 0.011 | J+ | 0.012 | J+ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 3 | N/A | No | mg/kg | 0.011 | J+ | 0.0073 | UJ | 0.012 | J+ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 3 | N/A | No | mg/kg | 0.011 | J+ | 0.0047 | UJ | 0.012 | J+ |
| Chrysene | 218-01-9 | 0.081 | 3 | N/A | No | mg/kg | 0.0066 | J | 0.0023 | J- | 0.015 | |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 3 | N/A | No | mg/kg | 0.0075 | U | 0.0073 | UJ | 0.008 | U |
| Fluoranthene | 206-44-0 | 0.15 | 3 | N/A | No | mg/kg | 0.01 | J | 0.0033 | J- | 0.02 | |
| Fluorene | 86-73-7 | 0.015 | 3 | N/A | No | mg/kg | 0.003 | U | 0.0029 | UJ | 0.012 | J+ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 3 | N/A | No | mg/kg | 0.011 | J+ | 0.0073 | UJ | 0.012 | J+ |
| Naphthalene | 91-20-3 | 0.012 | 3 | N/A | No | mg/kg | 0.011 | J+ | 0.011 | J+ | 0.012 | J+ |
| Phenanthrene | 85-01-8 | 0.086 | 3 | N/A | No | mg/kg | 0.011 | J+ | 0.0073 | UJ | 0.012 | J+ |
| Pyrene | 129-00-0 | 0.14 | 3 | N/A | No | mg/kg | 0.0099 | J | 0.0031 | J- | 0.017 | |
| **Metals (Total)** | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 3 | N/A | No | mg/kg | 5900 | | 5100 | | 6300 | J+ |
| Antimony | 7440-36-0 | 0.15 | 3 | N/A | Yes | mg/kg | 0.16 | J+ | 0.16 | J+ | 0.21 | J+ |
| Arsenic | 7440-38-2 | 21 | 3 | N/A | No | mg/kg | 9.5 | | 6.5 | | 5.1 | |
| Barium | 7440-39-3 | 100 | 3 | N/A | No | mg/kg | 53 | | 52 | | 44 | |
| Beryllium | 7440-41-7 | < LOQ | 3 | N/A | No | mg/kg | 0.27 | J | 0.21 | J | 0.27 | J |
| Cadmium | 7440-43-9 | 0.16 | 3 | N/A | No | mg/kg | 0.14 | | 0.039 | J | 0.083 | J |
| Calcium | 7440-70-2 | 120000 | 3 | N/A | No | mg/kg | 30000 | | 14000 | | 63000 | |
| Chromium | 7440-47-3 | 11 | 3 | N/A | No | mg/kg | 8.4 | | 6.8 | | 9.5 | |
| Cobalt | 7440-48-4 | 8.3 | 3 | N/A | No | mg/kg | 5.5 | | 5.3 | | 6.3 | |
| Copper | 7440-50-8 | 28 | 3 | N/A | No | mg/kg | 17 | | 22 | | 17 | |
| Iron | 7439-89-6 | 24000 | 3 | N/A | No | mg/kg | 16000 | | 16000 | | 15000 | |
| Lead | 7439-92-1 | 33 | 3 | N/A | No | mg/kg | 7.8 | | 6.3 | | 28 | |
| Magnesium | 7439-95-4 | 35000 | 3 | N/A | No | mg/kg | 9200 | | 4600 | | 16000 | |
| Manganese | 7439-96-5 | 1700 | 3 | N/A | No | mg/kg | 670 | | 750 | | 480 | |
| Mercury | 7439-97-6 | 0.056 | 3 | N/A | No | mg/kg | 0.015 | U | 0.015 | J | 0.048 | |
| Nickel | 7440-02-0 | 13 | 3 | N/A | Yes | mg/kg | 11 | | 11 | | 14 | |
| Potassium | 7440-09-7 | 1100 | 3 | N/A | No | mg/kg | 980 | | 710 | J | 960 | |
| Selenium | 7782-49-2 | 0.51 | 3 | N/A | No | mg/kg | 0.45 | J+ | 0.5 | J+ | 0.48 | J+ |
| Silver | 7440-22-4 | < LOQ | 3 | N/A | No | mg/kg | 0.57 | U | 0.47 | U | 0.51 | U |
| Sodium | 7440-23-5 | < LOQ | 3 | N/A | No | mg/kg | 95 | U | 390 | U | 420 | U |
| Thallium | 7440-28-0 | 0.12 | 3 | N/A | Yes | mg/kg | 0.14 | | 0.099 | U | 0.099 | |
| Vanadium | 7440-62-2 | 17 | 3 | N/A | No | mg/kg | 13 | | 11 | | 13 | |
| Zinc | 7440-66-6 | 57 | 3 | N/A | Yes | mg/kg | 26 | | 22 | | 150 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-28
Site to Background Sample Comparison - Area of Concern 5 (Boiler House), Subsurface Soil (5 - 10 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Location: | NYOW-05-018 | | NYOW-05-019 | | NYOW-05-020 | |
| | | | | | | Sample Name: | NYOW-05-PH018-C | | NYOW-05-PH019-C | | NYOW-05-PH020-C | |
| | | | | | | Sample Type: | N | | N | | N | |
| | | | | | | Sample Depth (feet): | 5 - 6 | | 5 - 10 | | 5 - 10 | |
| | | | | | | Sample Geology: | Ps | | Ps | | Ps | |
| | | | | | | Sample Date: | 2021-01-11 | | 2021-01-11 | | 2021-01-08 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | < LOQ | 3 | N/A | Yes | mg/kg | 0.13 | | 0.0023 | U | 0.0021 | U |
| 2-Methylnaphthalene | 91-57-6 | < LOQ | 3 | N/A | Yes | mg/kg | 0.16 | | 0.0023 | U | 0.0015 | J |
| Acenaphthene | 83-32-9 | < LOQ | 3 | N/A | Yes | mg/kg | 0.012 | J+ | 0.0012 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | 0.013 | 3 | N/A | No | mg/kg | 0.012 | J+ | 0.0012 | U | 0.0011 | U |
| Anthracene | 120-12-7 | 0.0052 | 3 | N/A | Yes | mg/kg | 0.012 | J+ | 0.0051 | U | 0.0046 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 3 | N/A | No | mg/kg | 0.042 | | 0.0051 | U | 0.0046 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 3 | N/A | No | mg/kg | 0.033 | | 0.0051 | U | 0.0046 | U |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 3 | N/A | No | mg/kg | 0.048 | | 0.0078 | U | 0.0071 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 3 | N/A | No | mg/kg | 0.024 | | 0.0078 | U | 0.0071 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 3 | N/A | No | mg/kg | 0.016 | | 0.0051 | U | 0.0046 | U |
| Chrysene | 218-01-9 | 0.081 | 3 | N/A | No | mg/kg | 0.06 | | 0.0051 | U | 0.004 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 3 | N/A | No | mg/kg | 0.012 | J+ | 0.0078 | U | 0.0071 | U |
| Fluoranthene | 206-44-0 | 0.15 | 3 | N/A | No | mg/kg | 0.063 | | 0.0031 | J | 0.0046 | U |
| Fluorene | 86-73-7 | 0.015 | 3 | N/A | No | mg/kg | 0.012 | J+ | 0.0031 | U | 0.0028 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 3 | N/A | No | mg/kg | 0.024 | | 0.0078 | U | 0.0071 | U |
| Naphthalene | 91-20-3 | 0.012 | 3 | N/A | Yes | mg/kg | 0.1 | | 0.0014 | J | 0.0029 | J |
| Phenanthrene | 85-01-8 | 0.086 | 3 | N/A | Yes | mg/kg | 0.12 | | 0.0078 | U | 0.0071 | U |
| Pyrene | 129-00-0 | 0.14 | 3 | N/A | No | mg/kg | 0.067 | | 0.0027 | J | 0.0023 | J |
| Metals (Total) | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 3 | N/A | Yes | mg/kg | 8100 | | 9100 | | 10000 | J+ |
| Antimony | 7440-36-0 | 0.15 | 3 | N/A | Yes | mg/kg | 0.2 | | 0.16 | J | 0.11 | U |
| Arsenic | 7440-38-2 | 21 | 3 | N/A | Yes | mg/kg | 6.8 | | 40 | | 3.7 | |
| Barium | 7440-39-3 | 100 | 3 | N/A | Yes | mg/kg | 53 | | 48 | | 130 | |
| Beryllium | 7440-41-7 | 0.56 | 3 | N/A | No | mg/kg | 0.39 | J | 0.36 | J | 0.46 | |
| Cadmium | 7440-43-9 | 0.31 | 3 | N/A | No | mg/kg | 0.1 | | 0.098 | | 0.056 | J |
| Calcium | 7440-70-2 | 110000 | 3 | N/A | No | mg/kg | 47000 | | 47000 | | 55000 | |
| Chromium | 7440-47-3 | 11 | 3 | N/A | Yes | mg/kg | 12 | | 12 | | 16 | |
| Cobalt | 7440-48-4 | 8.3 | 3 | N/A | No | mg/kg | 6.7 | | 7.8 | | 7.9 | |
| Copper | 7440-50-8 | 28 | 3 | N/A | No | mg/kg | 20 | | 17 | | 18 | |
| Iron | 7439-89-6 | 24000 | 3 | N/A | No | mg/kg | 17000 | | 17000 | | 19000 | |
| Lead | 7439-92-1 | 33 | 3 | N/A | No | mg/kg | 13 | | 7.1 | | 8.1 | |
| Magnesium | 7439-95-4 | 27000 | 3 | N/A | No | mg/kg | 14000 | | 17000 | | 14000 | |
| Manganese | 7439-96-5 | 1700 | 3 | N/A | No | mg/kg | 520 | | 460 | | 450 | |
| Mercury | 7439-97-6 | 0.056 | 3 | N/A | Yes | mg/kg | 0.2 | | 0.045 | | 0.017 | U |
| Nickel | 7440-02-0 | 13 | 3 | N/A | Yes | mg/kg | 14 | | 17 | | 17 | |
| Potassium | 7440-09-7 | 1800 | 3 | N/A | No | mg/kg | 1600 | | 1800 | | 1800 | |
| Selenium | 7782-49-2 | 0.51 | 3 | N/A | No | mg/kg | 0.49 | J+ | 0.44 | J+ | 0.42 | U |
| Silver | 7440-22-4 | < LOQ | 3 | N/A | No | mg/kg | 0.54 | U | 0.49 | U | 0.55 | U |
| Sodium | 7440-23-5 | < LOQ | 3 | N/A | No | mg/kg | 450 | U | 410 | U | 460 | U |
| Thallium | 7440-28-0 | 0.12 | 3 | N/A | Yes | mg/kg | 0.13 | | 0.71 | | 0.098 | J |
| Vanadium | 7440-62-2 | 17 | 3 | N/A | Yes | mg/kg | 15 | | 16 | | 18 | |
| Zinc | 7440-66-6 | 57 | 3 | N/A | Yes | mg/kg | 83 | | 34 | | 37 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-29
Site to Background Sample Comparison - Area of Concern 5 (Boiler House), Total Soil (0 - 5 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-05-018 | | NYOW-05-019 | | NYOW-05-020 | | NYOW-05-018 | | NYOW-05-019 | | NYOW-05-020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-05-SL018-A | | NYOW-05-SL019-A | | NYOW-05-SL020-A | | NYOW-05-PH018-B | | NYOW-05-PH019-B | | NYOW-05-PH020-B | |
| | | | | | | | Sample Type: | N | | N | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | | | | Sample Geology: | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | |
| | | | | | | | Sample Date: | 2021-01-11 | | 2021-01-11 | | 2021-01-08 | | 2021-01-11 | | 2021-01-11 | | 2021-01-08 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.011 | 6 | N/A | Yes | mg/kg | | 0.0023 | UJ | 0.01 | J+ | 0.0022 | UJ | 0.011 | J+ | 0.0022 | UJ | 0.012 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | 6 | N/A | No | mg/kg | | 0.0023 | UJ | 0.01 | J+ | 0.011 | J+ | 0.011 | J+ | 0.0022 | UJ | 0.012 | J+ |
| Acenaphthene | 83-32-9 | < LOQ | 6 | N/A | No | mg/kg | | 0.0012 | UJ | 0.0011 | UJ | 0.0012 | UJ | 0.0012 | U | 0.0012 | UJ | 0.0013 | U |
| Acenaphthylene | 208-96-8 | 0.013 | 6 | N/A | No | mg/kg | | 0.0012 | UJ | 0.0011 | UJ | 0.0012 | UJ | 0.0012 | U | 0.0012 | UJ | 0.0013 | U |
| Anthracene | 120-12-7 | 0.0052 | 6 | N/A | Yes | mg/kg | | 0.005 | UJ | 0.0044 | UJ | 0.0048 | UJ | 0.0049 | U | 0.0047 | UJ | 0.012 | J+ |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 6 | N/A | No | mg/kg | | 0.0067 | J- | 0.01 | J- | 0.0076 | J- | 0.011 | J+ | 0.0047 | UJ | 0.012 | J+ |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 6 | N/A | No | mg/kg | | 0.0061 | J- | 0.01 | J- | 0.0079 | J- | 0.011 | J+ | 0.0047 | UJ | 0.012 | J+ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 6 | N/A | No | mg/kg | | 0.01 | J- | 0.016 | J- | 0.012 | J- | 0.011 | J+ | 0.011 | J+ | 0.012 | J+ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 6 | N/A | No | mg/kg | | 0.0076 | UJ | 0.0075 | J- | 0.0061 | J- | 0.011 | J+ | 0.0073 | UJ | 0.012 | J+ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 6 | N/A | No | mg/kg | | 0.0034 | J- | 0.0055 | J- | 0.0044 | J- | 0.011 | J+ | 0.0047 | UJ | 0.012 | J+ |
| Chrysene | 218-01-9 | 0.081 | 6 | N/A | No | mg/kg | | 0.0085 | J- | 0.012 | J- | 0.0091 | J- | 0.0066 | J | 0.0023 | J- | 0.015 | |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 6 | N/A | No | mg/kg | | 0.0076 | UJ | 0.0068 | UJ | 0.0074 | UJ | 0.0075 | U | 0.0073 | UJ | 0.008 | U |
| Fluoranthene | 206-44-0 | 0.15 | 6 | N/A | No | mg/kg | | 0.013 | J- | 0.017 | J- | 0.013 | J- | 0.01 | J | 0.0033 | J- | 0.02 | |
| Fluorene | 86-73-7 | 0.015 | 6 | N/A | No | mg/kg | | 0.0031 | UJ | 0.0027 | UJ | 0.003 | UJ | 0.003 | U | 0.0029 | UJ | 0.012 | J+ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 6 | N/A | No | mg/kg | | 0.005 | J- | 0.0085 | J- | 0.0064 | J- | 0.011 | J+ | 0.0073 | UJ | 0.012 | J+ |
| Naphthalene | 91-20-3 | 0.012 | 6 | N/A | No | mg/kg | | 0.0023 | UJ | 0.01 | J+ | 0.011 | J+ | 0.011 | J+ | 0.011 | J+ | 0.012 | J+ |
| Phenanthrene | 85-01-8 | 0.086 | 6 | N/A | No | mg/kg | | 0.0058 | J- | 0.0061 | J- | 0.0051 | J- | 0.011 | J+ | 0.0073 | UJ | 0.012 | J+ |
| Pyrene | 129-00-0 | 0.14 | 6 | N/A | No | mg/kg | | 0.013 | J- | 0.016 | J- | 0.012 | J- | 0.0099 | J | 0.0031 | J- | 0.017 | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 6 | N/A | No | mg/kg | | 5200 | | 5300 | | 5100 | J+ | 5900 | | 5100 | | 6300 | J+ |
| Antimony | 7440-36-0 | 0.15 | 6 | N/A | Yes | mg/kg | | 0.22 | J+ | 0.16 | J+ | 0.18 | J+ | 0.16 | J+ | 0.16 | J+ | 0.21 | J+ |
| Arsenic | 7440-38-2 | 21 | 6 | N/A | No | mg/kg | | 5.8 | | 5.8 | | 4.8 | | 9.5 | | 6.5 | | 5.1 | |
| Barium | 7440-39-3 | 100 | 6 | N/A | No | mg/kg | | 53 | | 41 | | 49 | | 53 | | 52 | | 44 | |
| Beryllium | 7440-41-7 | < LOQ | 6 | N/A | Yes | mg/kg | | 0.4 | J+ | 0.42 | J+ | 0.41 | J+ | 0.27 | J | 0.21 | J | 0.27 | J |
| Cadmium | 7440-43-9 | 0.16 | 6 | N/A | No | mg/kg | | 0.09 | J | 0.086 | | 0.055 | J | 0.14 | | 0.039 | J | 0.083 | J |
| Calcium | 7440-70-2 | 120000 | 6 | N/A | No | mg/kg | | 25000 | | 19000 | | 22000 | | 30000 | | 14000 | | 63000 | |
| Chromium | 7440-47-3 | 11 | 6 | N/A | No | mg/kg | | 7.4 | | 7.2 | | 7.9 | | 8.4 | | 6.8 | | 9.5 | |
| Cobalt | 7440-48-4 | 8.3 | 6 | N/A | No | mg/kg | | 5 | | 4.7 | | 5.3 | | 5.5 | | 5.3 | | 6.3 | |
| Copper | 7440-50-8 | 28 | 6 | N/A | No | mg/kg | | 16 | | 14 | | 20 | | 17 | | 22 | | 17 | |
| Iron | 7439-89-6 | 24000 | 6 | N/A | No | mg/kg | | 15000 | | 14000 | | 15000 | | 16000 | | 16000 | | 15000 | |
| Lead | 7439-92-1 | 33 | 6 | N/A | No | mg/kg | | 7.6 | | 6.4 | | 7.5 | | 7.8 | | 6.3 | | 28 | |
| Magnesium | 7439-95-4 | 6300 | 6 | N/A | Yes | mg/kg | | 9400 | | 6100 | | 7700 | | 9200 | | 4600 | | 16000 | |
| Manganese | 7439-96-5 | 1700 | 6 | N/A | No | mg/kg | | 670 | | 490 | | 710 | | 670 | | 750 | | 480 | |
| Mercury | 7439-97-6 | 0.056 | 6 | N/A | No | mg/kg | | 0.0075 | J | 0.054 | | 0.014 | J | 0.015 | U | 0.015 | J | 0.048 | |
| Nickel | 7440-02-0 | 13 | 6 | N/A | Yes | mg/kg | | 10 | | 9.6 | | 11 | | 11 | | 11 | | 14 | |
| Potassium | 7440-09-7 | 1100 | 6 | N/A | No | mg/kg | | 930 | | 870 | | 770 | | 980 | | 710 | J | 960 | |
| Selenium | 7782-49-2 | 0.51 | 6 | N/A | No | mg/kg | | 0.5 | J+ | 0.37 | J+ | 0.41 | J+ | 0.45 | J+ | 0.5 | J+ | 0.48 | J+ |
| Silver | 7440-22-4 | < LOQ | 6 | N/A | No | mg/kg | | 0.47 | U | 0.51 | U | 0.49 | U | 0.57 | U | 0.47 | U | 0.51 | U |
| Sodium | 7440-23-5 | < LOQ | 6 | N/A | No | mg/kg | | 400 | U | 85 | U | 82 | U | 95 | U | 390 | U | 420 | U |
| Thallium | 7440-28-0 | 0.12 | 6 | N/A | Yes | mg/kg | | 0.099 | U | 0.073 | U | 0.061 | J | 0.14 | | 0.099 | U | 0.099 | |
| Vanadium | 7440-62-2 | 17 | 6 | N/A | No | mg/kg | | 12 | | 11 | | 12 | | 13 | | 11 | | 13 | |
| Zinc | 7440-66-6 | 57 | 6 | N/A | Yes | mg/kg | | 25 | | 25 | | 27 | | 26 | | 22 | | 150 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-30
Site to Background Sample Comparison - Area of Concern 5 (Boiler House), Total Soil (0 - 10 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-05-018 | | NYOW-05-019 | | NYOW-05-020 | | NYOW-05-018 | | NYOW-05-019 | | NYOW-05-020 | | NYOW-05-018 | | NYOW-05-019 | | NYOW-05-020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-05-SL018-A | | NYOW-05-SL019-A | | NYOW-05-SL020-A | | NYOW-05-PH018-B | | NYOW-05-PH019-B | | NYOW-05-PH020-B | | NYOW-05-PH018-C | | NYOW-05-PH019-C | | NYOW-05-PH020-C | |
| | | | | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 5 - 6 | | 5 - 10 | | 5 - 10 | |
| | | | | | | | Sample Geology: | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | |
| | | | | | | | Sample Date: | 2021-01-11 | | 2021-01-11 | | 2021-01-08 | | 2021-01-11 | | 2021-01-11 | | 2021-01-08 | | 2021-01-11 | | 2021-01-11 | | 2021-01-08 | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.011 | 9 | N/A | Yes | mg/kg | | 0.0023 | UJ | 0.01 | J+ | 0.0022 | UJ | 0.011 | J+ | 0.0022 | UJ | 0.012 | J+ | 0.13 | | 0.0023 | U | 0.0021 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | 9 | N/A | Yes | mg/kg | | 0.0023 | UJ | 0.01 | J+ | 0.011 | J+ | 0.011 | J+ | 0.0022 | UJ | 0.012 | J+ | 0.16 | | 0.0023 | U | 0.0015 | J |
| Acenaphthene | 83-32-9 | < LOQ | 9 | N/A | Yes | mg/kg | | 0.0012 | UJ | 0.0011 | UJ | 0.0012 | UJ | 0.0012 | U | 0.0012 | UJ | 0.0013 | U | 0.012 | J+ | 0.0012 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | 0.013 | 9 | N/A | No | mg/kg | | 0.0012 | UJ | 0.0011 | UJ | 0.0012 | UJ | 0.0012 | U | 0.0012 | UJ | 0.0013 | U | 0.012 | J+ | 0.0012 | U | 0.0011 | U |
| Anthracene | 120-12-7 | 0.0052 | 9 | N/A | Yes | mg/kg | | 0.005 | UJ | 0.0044 | UJ | 0.0048 | UJ | 0.0049 | U | 0.0047 | UJ | 0.012 | J+ | 0.012 | J+ | 0.0051 | U | 0.0046 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 9 | N/A | No | mg/kg | | 0.0067 | J- | 0.01 | J- | 0.0076 | J- | 0.011 | J+ | 0.0047 | UJ | 0.012 | J+ | 0.042 | | 0.0051 | U | 0.0046 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 9 | N/A | No | mg/kg | | 0.0061 | J- | 0.01 | J- | 0.0079 | J- | 0.011 | J+ | 0.0047 | UJ | 0.012 | J+ | 0.033 | | 0.0051 | U | 0.0046 | U |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 9 | N/A | No | mg/kg | | 0.01 | J- | 0.016 | J- | 0.012 | J- | 0.011 | J+ | 0.011 | J+ | 0.012 | J+ | 0.048 | | 0.0078 | U | 0.0071 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 9 | N/A | No | mg/kg | | 0.0076 | UJ | 0.0075 | J- | 0.0061 | J- | 0.011 | J+ | 0.0073 | UJ | 0.012 | J+ | 0.024 | | 0.0078 | U | 0.0071 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 9 | N/A | No | mg/kg | | 0.0034 | J- | 0.0055 | J- | 0.0044 | J- | 0.011 | J+ | 0.0047 | UJ | 0.012 | J+ | 0.016 | | 0.0051 | U | 0.0046 | U |
| Chrysene | 218-01-9 | 0.081 | 9 | N/A | No | mg/kg | | 0.0085 | J- | 0.012 | J- | 0.0091 | J- | 0.0066 | J | 0.0023 | J- | 0.015 | | 0.06 | | 0.0051 | U | 0.004 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 9 | N/A | No | mg/kg | | 0.0076 | UJ | 0.0068 | UJ | 0.0074 | UJ | 0.0075 | U | 0.0073 | UJ | 0.008 | U | 0.012 | J+ | 0.0078 | U | 0.0071 | U |
| Fluoranthene | 206-44-0 | 0.15 | 9 | N/A | No | mg/kg | | 0.013 | J- | 0.017 | J- | 0.013 | J- | 0.01 | J | 0.0033 | J- | 0.02 | | 0.063 | | 0.0031 | J | 0.0046 | U |
| Fluorene | 86-73-7 | 0.015 | 9 | N/A | No | mg/kg | | 0.0031 | UJ | 0.0027 | UJ | 0.003 | UJ | 0.003 | U | 0.0029 | UJ | 0.012 | J+ | 0.012 | J+ | 0.0031 | U | 0.0028 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 9 | N/A | No | mg/kg | | 0.005 | J- | 0.0085 | J- | 0.0064 | J- | 0.011 | J+ | 0.0073 | UJ | 0.012 | J+ | 0.024 | | 0.0078 | U | 0.0071 | U |
| Naphthalene | 91-20-3 | 0.012 | 9 | N/A | Yes | mg/kg | | 0.0023 | UJ | 0.01 | J+ | 0.011 | J+ | 0.011 | J+ | 0.011 | J+ | 0.012 | J+ | 0.1 | | 0.0014 | J | 0.0029 | J |
| Phenanthrene | 85-01-8 | 0.086 | 9 | N/A | Yes | mg/kg | | 0.0058 | J- | 0.0061 | J- | 0.0051 | J- | 0.011 | J+ | 0.0073 | UJ | 0.012 | J+ | 0.12 | | 0.0078 | U | 0.0071 | U |
| Pyrene | 129-00-0 | 0.14 | 9 | N/A | No | mg/kg | | 0.013 | J- | 0.016 | J- | 0.012 | J- | 0.0099 | J | 0.0031 | J- | 0.017 | | 0.067 | | 0.0027 | J | 0.0023 | J |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 9 | N/A | Yes | mg/kg | | 5200 | | 5300 | | 5100 | J+ | 5900 | | 5100 | | 6300 | J+ | 8100 | | 9100 | | 10000 | J+ |
| Antimony | 7440-36-0 | 0.15 | 9 | N/A | Yes | mg/kg | | 0.22 | J+ | 0.16 | J+ | 0.18 | J+ | 0.16 | J+ | 0.16 | J+ | 0.21 | J+ | 0.2 | | 0.16 | J | 0.11 | U |
| Arsenic | 7440-38-2 | 21 | 9 | N/A | Yes | mg/kg | | 5.8 | | 5.8 | | 4.8 | | 9.5 | | 6.5 | | 5.1 | | 6.8 | | 40 | | 3.7 | |
| Barium | 7440-39-3 | 100 | 9 | N/A | Yes | mg/kg | | 53 | | 41 | | 49 | | 53 | | 52 | | 44 | | 53 | | 48 | | 130 | |
| Beryllium | 7440-41-7 | 0.56 | 9 | N/A | No | mg/kg | | 0.4 | J+ | 0.42 | J+ | 0.41 | J+ | 0.27 | J | 0.21 | J | 0.27 | J | 0.39 | J | 0.36 | J | 0.46 | |
| Cadmium | 7440-43-9 | 0.16 | 9 | N/A | No | mg/kg | | 0.09 | J | 0.086 | | 0.055 | J | 0.14 | | 0.039 | J | 0.083 | J | 0.1 | | 0.098 | | 0.056 | J |
| Calcium | 7440-70-2 | 110000 | 9 | N/A | No | mg/kg | | 25000 | | 19000 | | 22000 | | 30000 | | 14000 | | 63000 | | 47000 | | 47000 | | 55000 | |
| Chromium | 7440-47-3 | 11 | 9 | N/A | Yes | mg/kg | | 7.4 | | 7.2 | | 7.9 | | 8.4 | | 6.8 | | 9.5 | | 12 | | 12 | | 16 | |
| Cobalt | 7440-48-4 | 8.3 | 9 | N/A | No | mg/kg | | 5 | | 4.7 | | 5.3 | | 5.5 | | 5.3 | | 6.3 | | 6.7 | | 7.8 | | 7.9 | |
| Copper | 7440-50-8 | 28 | 9 | N/A | No | mg/kg | | 16 | | 14 | | 20 | | 17 | | 22 | | 17 | | 20 | | 17 | | 18 | |
| Iron | 7439-89-6 | 24000 | 9 | N/A | No | mg/kg | | 15000 | | 14000 | | 15000 | | 16000 | | 16000 | | 15000 | | 17000 | | 17000 | | 19000 | |
| Lead | 7439-92-1 | 33 | 9 | N/A | No | mg/kg | | 7.6 | | 6.4 | | 7.5 | | 7.8 | | 6.3 | | 28 | | 13 | | 7.1 | | 8.1 | |
| Magnesium | 7439-95-4 | 6300 | 9 | N/A | Yes | mg/kg | | 9400 | | 6100 | | 7700 | | 9200 | | 4600 | | 16000 | | 14000 | | 17000 | | 14000 | |
| Manganese | 7439-96-5 | 1700 | 9 | N/A | No | mg/kg | | 670 | | 490 | | 710 | | 670 | | 750 | | 480 | | 520 | | 460 | | 450 | |
| Mercury | 7439-97-6 | 0.056 | 9 | N/A | Yes | mg/kg | | 0.0075 | J | 0.054 | | 0.014 | J | 0.015 | U | 0.015 | J | 0.048 | | 0.2 | | 0.045 | | 0.017 | U |
| Nickel | 7440-02-0 | 13 | 9 | N/A | Yes | mg/kg | | 10 | | 9.6 | | 11 | | 11 | | 11 | | 14 | | 14 | | 17 | | 17 | |
| Potassium | 7440-09-7 | 1100 | 9 | N/A | Yes | mg/kg | | 930 | | 870 | | 770 | | 980 | | 710 | J | 960 | | 1600 | | 1800 | | 1800 | |
| Selenium | 7782-49-2 | 0.51 | 9 | N/A | No | mg/kg | | 0.5 | J+ | 0.37 | J+ | 0.41 | J+ | 0.45 | J+ | 0.5 | J+ | 0.48 | J+ | 0.49 | J+ | 0.44 | J+ | 0.42 | U |
| Silver | 7440-22-4 | < LOQ | 9 | N/A | No | mg/kg | | 0.47 | U | 0.51 | U | 0.49 | U | 0.57 | U | 0.47 | U | 0.51 | U | 0.54 | U | 0.49 | U | 0.55 | U |
| Sodium | 7440-23-5 | < LOQ | 9 | N/A | No | mg/kg | | 400 | U | 85 | U | 82 | U | 95 | U | 390 | U | 420 | U | 450 | U | 410 | U | 460 | U |
| Thallium | 7440-28-0 | 0.12 | 9 | N/A | Yes | mg/kg | | 0.099 | U | 0.073 | U | 0.061 | J | 0.14 | | 0.099 | U | 0.099 | | 0.13 | | 0.71 | | 0.098 | J |
| Vanadium | 7440-62-2 | 17 | 9 | N/A | Yes | mg/kg | | 12 | | 11 | | 12 | | 13 | | 11 | | 13 | | 15 | | 16 | | 18 | |
| Zinc | 7440-66-6 | 57 | 9 | N/A | Yes | mg/kg | | 25 | | 25 | | 27 | | 26 | | 22 | | 150 | | 83 | | 34 | | 37 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-31
Site to Background Sample Comparison - Area of Concern 5 (Boiler House), Shallow Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-016 | | NYOW-05-017-1 | | NYOW-05-019 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-WL016-A | | NYOW-05-WL017-1-A | | NYOW-05-WL019-A | |
| | | | | | | Sample Type: | N | | N | | N | |
| | | | | | | Sample Date: | 2021-01-15 | | 2021-01-15 | | 2021-01-15 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.05 | 3 | N/A | Yes | µg/L | 0.042 | J | 0.068 | J- | 0.19 | J- |
| 2-Methylnaphthalene | 91-57-6 | 0.063 | 3 | N/A | Yes | µg/L | 0.054 | UJ | 0.11 | J- | 0.2 | J- |
| Acenaphthene | 83-32-9 | < LOQ | 3 | N/A | Yes | µg/L | 0.013 | UJ | 0.013 | UJ | 0.1 | J+ |
| Acenaphthylene | 208-96-8 | 0.25 | 3 | N/A | No | µg/L | 0.022 | UJ | 0.022 | UJ | 0.021 | UJ |
| Anthracene | 120-12-7 | 0.13 | 3 | N/A | No | µg/L | 0.11 | UJ | 0.11 | UJ | 0.1 | J+ |
| Benzo(a)anthracene | 56-55-3 | < LOQ | 3 | N/A | Yes | µg/L | 0.063 | J | 0.11 | UJ | 0.31 | J- |
| Benzo(a)pyrene | 50-32-8 | < LOQ | 3 | N/A | Yes | µg/L | 0.056 | J | 0.055 | UJ | 0.31 | J- |
| Benzo(b)fluoranthene | 205-99-2 | < LOQ | 3 | N/A | Yes | µg/L | 0.085 | J | 0.11 | UJ | 0.44 | J- |
| Benzo(g,h,i)perylene | 191-24-2 | 0.14 | 3 | N/A | Yes | µg/L | 0.049 | J | 0.11 | UJ | 0.17 | J- |
| Benzo(k)fluoranthene | 207-08-9 | 0.21 | 3 | N/A | Yes | µg/L | 0.04 | J | 0.055 | UJ | 0.22 | J- |
| Chrysene | 218-01-9 | < LOQ | 3 | N/A | Yes | µg/L | 0.092 | J | 0.11 | UJ | 0.35 | J- |
| Dibenz(a,h)anthracene | 53-70-3 | < LOQ | 3 | N/A | Yes | µg/L | 0.11 | UJ | 0.11 | UJ | 0.1 | J+ |
| Fluoranthene | 206-44-0 | 0.13 | 3 | N/A | Yes | µg/L | 0.11 | J | 0.11 | UJ | 0.6 | J- |
| Fluorene | 86-73-7 | 0.05 | 3 | N/A | No | µg/L | 0.043 | UJ | 0.044 | UJ | 0.041 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | < LOQ | 3 | N/A | Yes | µg/L | 0.045 | J | 0.11 | UJ | 0.21 | J- |
| Naphthalene | 91-20-3 | 0.063 | 3 | N/A | Yes | µg/L | 0.13 | J | 0.18 | J | 0.23 | J |
| Phenanthrene | 85-01-8 | < LOQ | 3 | N/A | Yes | µg/L | 0.11 | J | 0.11 | J- | 0.42 | J- |
| Pyrene | 129-00-0 | 0.13 | 3 | N/A | Yes | µg/L | 0.11 | J | 0.11 | UJ | 0.48 | J- |
| Metals (Dissolved) | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 1300 | 3 | N/A | No | µg/L | 300 | J+ | 300 | J+ | 300 | J+ |
| Antimony | 7440-36-0 | N/A | 3 | N/A | No | µg/L | 6 | J+ | 6 | J+ | 6 | J+ |
| Arsenic | 7440-38-2 | < LOQ | 3 | N/A | Yes | µg/L | 9 | | 2.9 | J | 140 | |
| Barium | 7440-39-3 | 280 | 3 | N/A | No | µg/L | 150 | | 84 | | 23 | |
| Beryllium | 7440-41-7 | 0.5 | 3 | N/A | No | µg/L | 0.5 | U | 0.5 | U | 0.5 | U |
| Cadmium | 7440-43-9 | N/A | 3 | N/A | No | µg/L | 1.8 | U | 1.8 | U | 1.8 | U |
| Calcium | 7440-70-2 | 160000 | 3 | N/A | No | µg/L | 31000 | | 25000 | | 37000 | |
| Chromium | 7440-47-3 | < LOQ | 3 | N/A | No | µg/L | 1.8 | U | 1.8 | U | 1.8 | U |
| Cobalt | 7440-48-4 | 4 | 3 | N/A | No | µg/L | 1 | J+ | 1 | J+ | 1 | J+ |
| Copper | 7440-50-8 | < LOQ | 3 | N/A | No | µg/L | 10 | U | 10 | U | 10 | U |
| Iron | 7439-89-6 | 4900 | 3 | N/A | No | µg/L | 100 | | 85 | U | 85 | U |
| Lead | 7439-92-1 | < LOQ | 3 | N/A | No | µg/L | 0.7 | U | 0.7 | U | 0.7 | U |
| Magnesium | 7439-95-4 | 75000 | 3 | N/A | No | µg/L | 23000 | | 15000 | | 2400 | |
| Manganese | 7439-96-5 | 2600 | 3 | N/A | No | µg/L | 170 | | 29 | | 3.9 | J |
| Mercury | 7439-97-6 | N/A | 3 | N/A | No | µg/L | 0.08 | U | 0.08 | U | 0.08 | U |
| Nickel | 7440-02-0 | < LOQ | 3 | N/A | No | µg/L | 8 | U | 8 | U | 8 | U |
| Potassium | 7440-09-7 | 9900 | 3 | N/A | No | µg/L | 4700 | | 8500 | | 9000 | |
| Selenium | 7782-49-2 | N/A | 3 | N/A | No | µg/L | 19 | UJ | 19 | UJ | 19 | UJ |
| Silver | 7440-22-4 | 5 | 3 | N/A | No | µg/L | 5 | U | 5 | U | 5 | U |
| Sodium | 7440-23-5 | 140000 | 3 | N/A | No | µg/L | 18000 | | 18000 | | 33000 | |
| Thallium | 7440-28-0 | N/A | 3 | N/A | No | µg/L | 0.2 | U | 1 | U | 0.2 | U |
| Vanadium | 7440-62-2 | < LOQ | 3 | N/A | Yes | µg/L | 4 | U | 4 | U | 15 | J+ |
| Zinc | 7440-66-6 | 15 | 3 | N/A | No | µg/L | 15 | U | 15 | U | 15 | U |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-32
Site to Background Sample Comparison - Area of Concern 5 (Coal Aggregate Bins), Surface Soil (0 - 1 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | Sample Location: | NYOW-05-021 | | NYOW-05-022 | | NYOW-05-023 | | NYOW-05-024 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-05-SL021-A | | NYOW-05-SL022-A | | NYOW-05-SL023-A | | NYOW-05-SL024-A | |
| | | | | | | | Sample Type: | N | | N | | C | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | |
| | | | | | | | Sample Date: | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 4 | N/A | Yes | mg/kg | 1.8 | | 0.0054 | J | 2.3 | | 7.4 | |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 4 | N/A | Yes | mg/kg | 2.5 | | 0.0071 | J | 3.2 | | 10 | |
| Acenaphthene | 83-32-9 | < LOQ | 4 | N/A | Yes | mg/kg | 0.013 | U | 0.0013 | U | 0.065 | J- | 0.056 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 4 | N/A | Yes | mg/kg | 0.054 | J | 0.0036 | J | 0.37 | | 0.056 | U |
| Anthracene | 120-12-7 | 0.048 | 4 | N/A | Yes | mg/kg | 0.062 | J | 0.0036 | J | 0.22 | J | 0.23 | U |
| Benzo(a)anthracene | 56-55-3 | 0.14 | 4 | N/A | Yes | mg/kg | 0.21 | | 0.019 | | 0.39 | | 0.44 | J |
| Benzo(a)pyrene | 50-32-8 | 0.15 | 4 | N/A | Yes | mg/kg | 0.12 | | 0.022 | | 0.79 | | 0.18 | J |
| Benzo(b)fluoranthene | 205-99-2 | 0.18 | 4 | N/A | Yes | mg/kg | 0.21 | | 0.034 | | 1.4 | | 0.28 | J |
| Benzo(g,h,i)perylene | 191-24-2 | 0.095 | 4 | N/A | Yes | mg/kg | 0.13 | | 0.022 | | 4.7 | | 0.35 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.08 | 4 | N/A | Yes | mg/kg | 0.063 | J | 0.012 | | 0.4 | | 0.23 | U |
| Chrysene | 218-01-9 | 0.14 | 4 | N/A | Yes | mg/kg | 0.25 | | 0.024 | | 1.1 | | 0.57 | |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 4 | N/A | Yes | mg/kg | 0.081 | U | 0.0047 | J | 0.88 | | 0.35 | U |
| Fluoranthene | 206-44-0 | 0.24 | 4 | N/A | Yes | mg/kg | 0.31 | | 0.034 | | 0.32 | | 0.46 | J |
| Fluorene | 86-73-7 | 0.015 | 4 | N/A | Yes | mg/kg | 0.031 | J | 0.0013 | J | 0.041 | J- | 0.11 | J |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.11 | 4 | N/A | Yes | mg/kg | 0.11 | J | 0.026 | | 3.4 | | 0.35 | U |
| Naphthalene | 91-20-3 | 0.012 | 4 | N/A | Yes | mg/kg | 1.8 | | 0.009 | J | 2.6 | | 7.1 | |
| Phenanthrene | 85-01-8 | 0.17 | 4 | N/A | Yes | mg/kg | 0.98 | | 0.014 | | 1.1 | | 3.9 | |
| Pyrene | 129-00-0 | 0.22 | 4 | N/A | Yes | mg/kg | 0.34 | | 0.031 | | 0.41 | | 0.73 | |
| Metals (Total) | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 4 | N/A | Yes | mg/kg | 5700 | J+ | 8000 | J+ | 4000 | J+ | 1400 | J+ |
| Antimony | 7440-36-0 | 0.15 | 4 | N/A | Yes | mg/kg | 0.25 | | 0.15 | J | 0.33 | | 0.19 | J |
| Arsenic | 7440-38-2 | 4.7 | 4 | N/A | Yes | mg/kg | 10 | | 5.4 | | 13 | | 16 | |
| Barium | 7440-39-3 | 100 | 4 | N/A | No | mg/kg | 52 | | 54 | J+ | 37 | | 27 | |
| Beryllium | 7440-41-7 | < LOQ | 4 | N/A | Yes | mg/kg | 0.42 | J | 0.39 | J- | 0.29 | J | 0.63 | |
| Cadmium | 7440-43-9 | 0.38 | 4 | N/A | No | mg/kg | 0.25 | | 0.15 | | 0.37 | | 0.11 | J |
| Calcium | 7440-70-2 | 120000 | 4 | N/A | No | mg/kg | 13000 | | 17000 | J | 72000 | J | 4400 | |
| Chromium | 7440-47-3 | 11 | 4 | N/A | Yes | mg/kg | 8.3 | | 13 | J- | 8.2 | | 5.8 | |
| Cobalt | 7440-48-4 | 5.5 | 4 | N/A | Yes | mg/kg | 6.4 | | 7.5 | J- | 4.9 | | 1.8 | |
| Copper | 7440-50-8 | 13 | 4 | N/A | Yes | mg/kg | 20 | | 22 | | 17 | | 10 | |
| Iron | 7439-89-6 | 14000 | 4 | N/A | Yes | mg/kg | 17000 | | 21000 | J | 13000 | | 11000 | |
| Lead | 7439-92-1 | 9.8 | 4 | N/A | Yes | mg/kg | 21 | | 8.6 | J- | 17 | | 8.9 | |
| Magnesium | 7439-95-4 | 2000 | 4 | N/A | Yes | mg/kg | 4000 | | 9000 | J | 6500 | | 620 | |
| Manganese | 7439-96-5 | 520 | 4 | N/A | Yes | mg/kg | 650 | | 660 | J | 420 | | 110 | |
| Mercury | 7439-97-6 | 0.19 | 4 | N/A | No | mg/kg | 0.11 | | 0.03 | | 0.077 | | 0.064 | |
| Nickel | 7440-02-0 | 9.7 | 4 | N/A | Yes | mg/kg | 13 | | 15 | | 12 | | 6.1 | |
| Potassium | 7440-09-7 | 1200 | 4 | N/A | No | mg/kg | 1000 | | 970 | J+ | 1000 | | 420 | |
| Selenium | 7782-49-2 | 0.51 | 4 | N/A | Yes | mg/kg | 0.9 | | 0.22 | J | 0.65 | | 0.83 | |
| Silver | 7440-22-4 | < LOQ | 4 | N/A | No | mg/kg | 0.78 | U | 0.61 | U | 0.63 | U | 0.72 | U |
| Sodium | 7440-23-5 | < LOQ | 4 | N/A | No | mg/kg | 130 | U | 510 | UJ | 130 | U | 600 | U |
| Thallium | 7440-28-0 | 0.11 | 4 | N/A | Yes | mg/kg | 0.18 | | 0.11 | U | 0.24 | | 0.26 | |
| Vanadium | 7440-62-2 | 14 | 4 | N/A | Yes | mg/kg | 15 | | 17 | | 11 | | 7.6 | |
| Zinc | 7440-66-6 | 23 | 4 | N/A | Yes | mg/kg | 55 | | 36 | J- | 54 | | 16 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-33
Site to Background Sample Comparison - Area of Concern 5 (Coal Aggregate Bins), Subsurface Soil (1 - 5 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | Sample Location: | NYOW-05-021 | | NYOW-05-022 | | NYOW-05-023 | | NYOW-05-024 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-05-PH021-B | | NYOW-05-PH022-B | | NYOW-05-PH023-B | | NYOW-05-PH024-B | |
| | | | | | | | Sample Type: | N | | C | | N | | N | |
| | | | | | | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | |
| | | | | | | | Sample Date: | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 4 | N/A | Yes | mg/kg | 0.014 | | 0.0021 | UJ | 0.008 | J | 0.083 | J- |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 4 | N/A | Yes | mg/kg | 0.019 | | 0.0018 | J | 0.012 | | 0.13 | J- |
| Acenaphthene | 83-32-9 | < LOQ | 4 | N/A | No | mg/kg | 0.0012 | U | 0.0011 | UJ | 0.0011 | U | 0.0013 | UJ |
| Acenaphthylene | 208-96-8 | 0.01 | 4 | N/A | Yes | mg/kg | 0.011 | J+ | 0.011 | J+ | 0.011 | J+ | 0.0013 | UJ |
| Anthracene | 120-12-7 | 0.048 | 4 | N/A | No | mg/kg | 0.011 | J+ | 0.0045 | UJ | 0.011 | J+ | 0.0051 | UJ |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 4 | N/A | No | mg/kg | 0.011 | | 0.0026 | J | 0.016 | | 0.0081 | J- |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 4 | N/A | No | mg/kg | 0.0096 | J | 0.0029 | J | 0.016 | | 0.006 | J- |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 4 | N/A | No | mg/kg | 0.02 | | 0.0055 | J | 0.027 | | 0.011 | J- |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 4 | N/A | No | mg/kg | 0.012 | | 0.017 | J | 0.046 | | 0.0053 | J- |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 4 | N/A | No | mg/kg | 0.011 | J+ | 0.0045 | UJ | 0.011 | J+ | 0.012 | J+ |
| Chrysene | 218-01-9 | 0.081 | 4 | N/A | No | mg/kg | 0.016 | | 0.004 | J | 0.025 | | 0.011 | J- |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 4 | N/A | No | mg/kg | 0.0076 | U | 0.0069 | UJ | 0.011 | J+ | 0.0078 | UJ |
| Fluoranthene | 206-44-0 | 0.15 | 4 | N/A | No | mg/kg | 0.019 | | 0.0043 | J | 0.03 | | 0.012 | J- |
| Fluorene | 86-73-7 | 0.015 | 4 | N/A | No | mg/kg | 0.003 | U | 0.0028 | UJ | 0.011 | J+ | 0.012 | J+ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 4 | N/A | No | mg/kg | 0.011 | | 0.013 | J | 0.035 | | 0.0052 | J- |
| Naphthalene | 91-20-3 | 0.012 | 4 | N/A | Yes | mg/kg | 0.019 | | 0.0039 | J | 0.02 | | 0.11 | J- |
| Phenanthrene | 85-01-8 | 0.012 | 4 | N/A | Yes | mg/kg | 0.013 | | 0.0069 | UJ | 0.022 | | 0.034 | J- |
| Pyrene | 129-00-0 | 0.14 | 4 | N/A | No | mg/kg | 0.018 | | 0.004 | J | 0.027 | | 0.012 | J- |
| Metals (Total) | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 4 | N/A | Yes | mg/kg | 8800 | J+ | 5400 | J+ | 6900 | J+ | 6500 | J+ |
| Antimony | 7440-36-0 | 0.15 | 4 | N/A | Yes | mg/kg | 0.21 | | 0.15 | | 0.17 | J | 0.095 | J |
| Arsenic | 7440-38-2 | 4.7 | 4 | N/A | Yes | mg/kg | 7.4 | | 5.8 | | 6.9 | | 6.3 | |
| Barium | 7440-39-3 | 100 | 4 | N/A | No | mg/kg | 78 | | 41 | | 51 | | 48 | |
| Beryllium | 7440-41-7 | < LOQ | 4 | N/A | Yes | mg/kg | 0.44 | J+ | 0.39 | J+ | 0.47 | J+ | 0.54 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 4 | N/A | Yes | mg/kg | 0.25 | | 0.14 | | 0.21 | | 0.1 | |
| Calcium | 7440-70-2 | 120000 | 4 | N/A | No | mg/kg | 5200 | | 44000 | J | 7700 | | 18000 | |
| Chromium | 7440-47-3 | 11 | 4 | N/A | No | mg/kg | 9.9 | | 7 | | 7.7 | | 8.6 | |
| Cobalt | 7440-48-4 | 5.5 | 4 | N/A | Yes | mg/kg | 9 | | 5 | | 6.3 | | 6 | |
| Copper | 7440-50-8 | 13 | 4 | N/A | Yes | mg/kg | 34 | | 22 | | 20 | | 24 | |
| Iron | 7439-89-6 | 14000 | 4 | N/A | Yes | mg/kg | 31000 | | 19000 | | 20000 | | 20000 | |
| Lead | 7439-92-1 | 6.3 | 4 | N/A | Yes | mg/kg | 18 | | 11 | J | 15 | | 8.8 | |
| Magnesium | 7439-95-4 | 35000 | 4 | N/A | No | mg/kg | 3800 | | 7900 | | 2800 | | 5800 | |
| Manganese | 7439-96-5 | 520 | 4 | N/A | Yes | mg/kg | 2400 | | 920 | | 910 | | 820 | |
| Mercury | 7439-97-6 | 0.027 | 4 | N/A | Yes | mg/kg | 0.084 | | 0.032 | | 0.076 | | 0.033 | |
| Nickel | 7440-02-0 | 9.7 | 4 | N/A | Yes | mg/kg | 14 | | 9.4 | | 10 | | 11 | |
| Potassium | 7440-09-7 | 1200 | 4 | N/A | No | mg/kg | 490 | | 560 | | 620 | | 690 | |
| Selenium | 7782-49-2 | 0.51 | 4 | N/A | Yes | mg/kg | 0.54 | J+ | 0.46 | J+ | 0.55 | J+ | 0.43 | J+ |
| Silver | 7440-22-4 | < LOQ | 4 | N/A | No | mg/kg | 0.53 | U | 0.46 | U | 0.56 | U | 0.65 | U |
| Sodium | 7440-23-5 | < LOQ | 4 | N/A | No | mg/kg | 440 | U | 100 | U | 94 | U | 540 | U |
| Thallium | 7440-28-0 | 0.11 | 4 | N/A | Yes | mg/kg | 0.12 | | 0.092 | U | 0.11 | U | 0.087 | U |
| Vanadium | 7440-62-2 | 14 | 4 | N/A | Yes | mg/kg | 18 | | 12 | | 15 | | 14 | |
| Zinc | 7440-66-6 | 23 | 4 | N/A | Yes | mg/kg | 66 | | 29 | | 37 | | 30 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-34
Site to Background Sample Comparison - Area of Concern 5 (Coal Aggregate Bins), Subsurface Soil (5 - 10 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-021 | | NYOW-05-022 | | NYOW-05-023 | | NYOW-05-024 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-PH021-C | | NYOW-05-PH022-C | | NYOW-05-PH023-C | | NYOW-05-PH024-C | |
| | | | | | | Sample Type: | N | | N | | N | | N | |
| | | | | | | Sample Depth (feet): | 5 - 10 | | 5 - 10 | | 5 - 10 | | 5 - 10 | |
| | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 4 | N/A | No | mg/kg | 0.0022 | UJ | 0.0021 | U | 0.0022 | U | 0.011 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 4 | N/A | No | mg/kg | 0.0022 | UJ | 0.0021 | U | 0.0022 | U | 0.011 | J+ |
| Acenaphthene | 83-32-9 | < LOQ | 4 | N/A | No | mg/kg | 0.0012 | UJ | 0.0011 | U | 0.0012 | U | 0.0012 | UJ |
| Acenaphthylene | 208-96-8 | 0.01 | 4 | N/A | No | mg/kg | 0.0012 | UJ | 0.0011 | U | 0.0012 | U | 0.0012 | UJ |
| Anthracene | 120-12-7 | 0.048 | 4 | N/A | No | mg/kg | 0.0048 | UJ | 0.0046 | U | 0.0048 | U | 0.0048 | UJ |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 4 | N/A | No | mg/kg | 0.0048 | UJ | 0.011 | J+ | 0.0048 | U | 0.0048 | UJ |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 4 | N/A | No | mg/kg | 0.0048 | UJ | 0.011 | J+ | 0.0048 | U | 0.0048 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 4 | N/A | No | mg/kg | 0.0074 | UJ | 0.011 | J+ | 0.0073 | U | 0.0074 | UJ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 4 | N/A | No | mg/kg | 0.0074 | UJ | 0.011 | J+ | 0.0073 | U | 0.0074 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 4 | N/A | No | mg/kg | 0.0048 | UJ | 0.011 | J+ | 0.0048 | U | 0.0048 | UJ |
| Chrysene | 218-01-9 | 0.081 | 4 | N/A | No | mg/kg | 0.0048 | UJ | 0.011 | J+ | 0.0048 | U | 0.0048 | UJ |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 4 | N/A | No | mg/kg | 0.0074 | UJ | 0.0071 | U | 0.0073 | U | 0.0074 | UJ |
| Fluoranthene | 206-44-0 | 0.15 | 4 | N/A | No | mg/kg | 0.0048 | UJ | 0.011 | J+ | 0.0048 | U | 0.0048 | UJ |
| Fluorene | 86-73-7 | 0.015 | 4 | N/A | No | mg/kg | 0.003 | UJ | 0.0029 | U | 0.0029 | U | 0.003 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 4 | N/A | No | mg/kg | 0.0074 | UJ | 0.011 | J+ | 0.0073 | U | 0.0074 | UJ |
| Naphthalene | 91-20-3 | 0.012 | 4 | N/A | No | mg/kg | 0.011 | J+ | 0.011 | J+ | 0.011 | J+ | 0.011 | J+ |
| Phenanthrene | 85-01-8 | 0.012 | 4 | N/A | No | mg/kg | 0.0074 | UJ | 0.0071 | U | 0.0073 | U | 0.0074 | UJ |
| Pyrene | 129-00-0 | 0.14 | 4 | N/A | No | mg/kg | 0.0074 | UJ | 0.011 | J+ | 0.0073 | U | 0.0074 | UJ |
| Metals (Total) | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 4 | N/A | Yes | mg/kg | 5900 | J+ | 7100 | J+ | 6900 | J+ | 6100 | J+ |
| Antimony | 7440-36-0 | 0.15 | 4 | N/A | Yes | mg/kg | 0.21 | J+ | 0.16 | J+ | 0.21 | J+ | 0.16 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 4 | N/A | Yes | mg/kg | 3.3 | | 5.8 | | 3.5 | | 4.1 | |
| Barium | 7440-39-3 | 100 | 4 | N/A | No | mg/kg | 75 | | 45 | | 45 | | 48 | |
| Beryllium | 7440-41-7 | 0.56 | 4 | N/A | Yes | mg/kg | 0.61 | J+ | 0.46 | J+ | 0.5 | J+ | 0.4 | J+ |
| Cadmium | 7440-43-9 | 0.31 | 4 | N/A | No | mg/kg | 0.036 | J | 0.1 | | 0.038 | J | 0.021 | J |
| Calcium | 7440-70-2 | 71000 | 4 | N/A | No | mg/kg | 55000 | | 46000 | | 36000 | | 42000 | |
| Chromium | 7440-47-3 | 11 | 4 | N/A | No | mg/kg | 8.5 | | 9.8 | | 10 | | 9.2 | |
| Cobalt | 7440-48-4 | 5.5 | 4 | N/A | Yes | mg/kg | 6.3 | | 7.3 | | 6.4 | | 5.4 | |
| Copper | 7440-50-8 | 13 | 4 | N/A | Yes | mg/kg | 19 | | 17 | | 18 | | 14 | |
| Iron | 7439-89-6 | 14000 | 4 | N/A | Yes | mg/kg | 18000 | | 16000 | | 16000 | | 14000 | |
| Lead | 7439-92-1 | 6.3 | 4 | N/A | Yes | mg/kg | 14 | | 5.8 | | 6.6 | | 4.7 | |
| Magnesium | 7439-95-4 | 27000 | 4 | N/A | Yes | mg/kg | 28000 | | 12000 | | 11000 | | 8700 | |
| Manganese | 7439-96-5 | 520 | 4 | N/A | Yes | mg/kg | 1100 | J | 490 | | 610 | | 480 | |
| Mercury | 7439-97-6 | 0.027 | 4 | N/A | No | mg/kg | 0.023 | J+ | 0.016 | U | 0.022 | J+ | 0.017 | U |
| Nickel | 7440-02-0 | 9.7 | 4 | N/A | Yes | mg/kg | 13 | | 15 | | 14 | | 11 | |
| Potassium | 7440-09-7 | 1200 | 4 | N/A | No | mg/kg | 1000 | | 1100 | | 1000 | | 990 | |
| Selenium | 7782-49-2 | 0.51 | 4 | N/A | No | mg/kg | 0.34 | UJ | 0.46 | J+ | 0.45 | U | 0.35 | U |
| Silver | 7440-22-4 | < LOQ | 4 | N/A | No | mg/kg | 0.73 | U | 0.55 | U | 0.59 | U | 0.48 | U |
| Sodium | 7440-23-5 | < LOQ | 4 | N/A | No | mg/kg | 610 | U | 460 | U | 500 | U | 400 | U |
| Thallium | 7440-28-0 | 0.11 | 4 | N/A | No | mg/kg | 0.082 | J | 0.092 | U | 0.11 | U | 0.088 | U |
| Vanadium | 7440-62-2 | 14 | 4 | N/A | Yes | mg/kg | 16 | | 14 | | 13 | | 12 | |
| Zinc | 7440-66-6 | 23 | 4 | N/A | Yes | mg/kg | 44 | J+ | 28 | | 29 | | 22 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-35
Site to Background Sample Comparison - Area of Concern 5 (Coal Aggregate Bins), Total Soil (0 - 5 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-05-021 | | NYOW-05-022 | | NYOW-05-023 | | NYOW-05-024 | | NYOW-05-021 | | NYOW-05-022 | | NYOW-05-023 | | NYOW-05-024 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-05-SL021-A | | NYOW-05-SL022-A | | NYOW-05-SL023-A | | NYOW-05-SL024-A | | NYOW-05-PH021-B | | NYOW-05-PH022-B | | NYOW-05-PH023-B | | NYOW-05-PH024-B | |
| | | | | | | | Sample Type: | N | | N | | C | | N | | N | | C | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | |
| | | | | | | | Sample Date: | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 8 | N/A | Yes | mg/kg | | 1.8 | | 0.0054 | J | 2.3 | | 7.4 | | 0.014 | | 0.0021 | UJ | 0.008 | J | 0.083 | J- |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 8 | N/A | Yes | mg/kg | | 2.5 | | 0.0071 | J | 3.2 | | 10 | | 0.019 | | 0.0018 | J | 0.012 | | 0.13 | J- |
| Acenaphthene | 83-32-9 | < LOQ | 8 | N/A | Yes | mg/kg | | 0.013 | U | 0.0013 | U | 0.065 | J- | 0.056 | U | 0.0012 | U | 0.0011 | UJ | 0.0011 | U | 0.0013 | UJ |
| Acenaphthylene | 208-96-8 | 0.01 | 8 | N/A | Yes | mg/kg | | 0.054 | J | 0.0036 | J | 0.37 | | 0.056 | U | 0.011 | J+ | 0.011 | J+ | 0.011 | J+ | 0.0013 | UJ |
| Anthracene | 120-12-7 | 0.048 | 8 | N/A | Yes | mg/kg | | 0.062 | J | 0.0036 | J | 0.22 | J | 0.23 | U | 0.011 | J+ | 0.0045 | UJ | 0.011 | J+ | 0.0051 | UJ |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 8 | N/A | Yes | mg/kg | | 0.21 | | 0.019 | | 0.39 | | 0.44 | J | 0.011 | | 0.0026 | J | 0.016 | | 0.0081 | J- |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 8 | N/A | Yes | mg/kg | | 0.12 | | 0.022 | | 0.79 | | 0.18 | J | 0.0096 | J | 0.0029 | J | 0.016 | | 0.006 | J- |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 8 | N/A | Yes | mg/kg | | 0.21 | | 0.034 | | 1.4 | | 0.28 | J | 0.02 | | 0.0055 | J | 0.027 | | 0.011 | J- |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 8 | N/A | Yes | mg/kg | | 0.13 | | 0.022 | | 4.7 | | 0.35 | U | 0.012 | | 0.017 | J | 0.046 | | 0.0053 | J- |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 8 | N/A | Yes | mg/kg | | 0.063 | J | 0.012 | | 0.4 | | 0.23 | U | 0.011 | J+ | 0.0045 | UJ | 0.011 | J+ | 0.012 | J+ |
| Chrysene | 218-01-9 | 0.081 | 8 | N/A | Yes | mg/kg | | 0.25 | | 0.024 | | 1.1 | | 0.57 | | 0.016 | | 0.004 | J | 0.025 | | 0.011 | J- |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 8 | N/A | Yes | mg/kg | | 0.081 | U | 0.0047 | J | 0.88 | | 0.35 | U | 0.0076 | U | 0.0069 | UJ | 0.011 | J+ | 0.0078 | UJ |
| Fluoranthene | 206-44-0 | 0.15 | 8 | N/A | Yes | mg/kg | | 0.31 | | 0.034 | | 0.32 | | 0.46 | J | 0.019 | | 0.0043 | J | 0.03 | | 0.012 | J- |
| Fluorene | 86-73-7 | 0.015 | 8 | N/A | Yes | mg/kg | | 0.031 | J | 0.0013 | J | 0.041 | J- | 0.11 | J | 0.003 | U | 0.0028 | UJ | 0.011 | J+ | 0.012 | J+ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 8 | N/A | Yes | mg/kg | | 0.11 | J | 0.026 | | 3.4 | | 0.35 | U | 0.011 | | 0.013 | J | 0.035 | | 0.0052 | J- |
| Naphthalene | 91-20-3 | 0.012 | 8 | N/A | Yes | mg/kg | | 1.8 | | 0.009 | J | 2.6 | | 7.1 | | 0.019 | | 0.0039 | J | 0.02 | | 0.11 | J- |
| Phenanthrene | 85-01-8 | 0.012 | 8 | N/A | Yes | mg/kg | | 0.98 | | 0.014 | | 1.1 | | 3.9 | | 0.013 | | 0.0069 | UJ | 0.022 | | 0.034 | J- |
| Pyrene | 129-00-0 | 0.14 | 8 | N/A | Yes | mg/kg | | 0.34 | | 0.031 | | 0.41 | | 0.73 | | 0.018 | | 0.004 | J | 0.027 | | 0.012 | J- |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 8 | N/A | Yes | mg/kg | | 5700 | J+ | 8000 | J+ | 4000 | J+ | 1400 | J+ | 8800 | J+ | 5400 | J+ | 6900 | J+ | 6500 | J+ |
| Antimony | 7440-36-0 | 0.15 | 8 | N/A | Yes | mg/kg | | 0.25 | | 0.15 | J | 0.33 | | 0.19 | J | 0.21 | | 0.15 | | 0.17 | J | 0.095 | J |
| Arsenic | 7440-38-2 | 4.7 | 8 | N/A | Yes | mg/kg | | 10 | | 5.4 | | 13 | | 16 | | 7.4 | | 5.8 | | 6.9 | | 6.3 | |
| Barium | 7440-39-3 | 100 | 8 | N/A | No | mg/kg | | 52 | | 54 | J+ | 37 | | 27 | | 78 | | 41 | | 51 | | 48 | |
| Beryllium | 7440-41-7 | < LOQ | 8 | N/A | Yes | mg/kg | | 0.42 | J | 0.39 | J- | 0.29 | J | 0.63 | | 0.44 | J+ | 0.39 | J+ | 0.47 | J+ | 0.54 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 8 | N/A | Yes | mg/kg | | 0.25 | | 0.15 | | 0.37 | | 0.11 | J | 0.25 | | 0.14 | | 0.21 | | 0.1 | |
| Calcium | 7440-70-2 | 120000 | 8 | N/A | No | mg/kg | | 13000 | | 17000 | J | 72000 | J | 4400 | | 5200 | | 44000 | J | 7700 | | 18000 | |
| Chromium | 7440-47-3 | 11 | 8 | N/A | Yes | mg/kg | | 8.3 | | 13 | J- | 8.2 | | 5.8 | | 9.9 | | 7 | | 7.7 | | 8.6 | |
| Cobalt | 7440-48-4 | 5.5 | 8 | N/A | Yes | mg/kg | | 6.4 | | 7.5 | J- | 4.9 | | 1.8 | | 9 | | 5 | | 6.3 | | 6 | |
| Copper | 7440-50-8 | 13 | 8 | N/A | Yes | mg/kg | | 20 | | 22 | | 17 | | 10 | | 34 | | 22 | | 20 | | 24 | |
| Iron | 7439-89-6 | 14000 | 8 | N/A | Yes | mg/kg | | 17000 | | 21000 | J | 13000 | | 11000 | | 31000 | | 19000 | | 20000 | | 20000 | |
| Lead | 7439-92-1 | 6.3 | 8 | N/A | Yes | mg/kg | | 21 | | 8.6 | J- | 17 | | 8.9 | | 18 | | 11 | J | 15 | | 8.8 | |
| Magnesium | 7439-95-4 | 2000 | 8 | N/A | Yes | mg/kg | | 4000 | | 9000 | J | 6500 | | 620 | | 3800 | | 7900 | | 2800 | | 5800 | |
| Manganese | 7439-96-5 | 520 | 8 | N/A | Yes | mg/kg | | 650 | | 660 | J | 420 | | 110 | | 2400 | | 920 | | 910 | | 820 | |
| Mercury | 7439-97-6 | 0.027 | 8 | N/A | Yes | mg/kg | | 0.11 | | 0.03 | | 0.077 | | 0.064 | | 0.084 | | 0.032 | | 0.076 | | 0.033 | |
| Nickel | 7440-02-0 | 9.7 | 8 | N/A | Yes | mg/kg | | 13 | | 15 | | 12 | | 6.1 | | 14 | | 9.4 | | 10 | | 11 | |
| Potassium | 7440-09-7 | 1200 | 8 | N/A | No | mg/kg | | 1000 | | 970 | J+ | 1000 | | 420 | | 490 | | 560 | | 620 | | 690 | |
| Selenium | 7782-49-2 | 0.51 | 8 | N/A | Yes | mg/kg | | 0.9 | | 0.22 | J | 0.65 | | 0.83 | | 0.54 | J+ | 0.46 | J+ | 0.55 | J+ | 0.43 | J+ |
| Silver | 7440-22-4 | < LOQ | 8 | N/A | No | mg/kg | | 0.78 | U | 0.61 | U | 0.63 | U | 0.72 | U | 0.53 | U | 0.46 | U | 0.56 | U | 0.65 | U |
| Sodium | 7440-23-5 | < LOQ | 8 | N/A | No | mg/kg | | 130 | U | 510 | UJ | 130 | U | 600 | U | 440 | U | 100 | U | 94 | U | 540 | U |
| Thallium | 7440-28-0 | 0.11 | 8 | N/A | Yes | mg/kg | | 0.18 | | 0.11 | U | 0.24 | | 0.26 | | 0.12 | | 0.092 | U | 0.11 | U | 0.087 | U |
| Vanadium | 7440-62-2 | 14 | 8 | N/A | Yes | mg/kg | | 15 | | 17 | | 11 | | 7.6 | | 18 | | 12 | | 15 | | 14 | |
| Zinc | 7440-66-6 | 23 | 8 | N/A | Yes | mg/kg | | 55 | | 36 | J- | 54 | | 16 | | 66 | | 29 | | 37 | | 30 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-36
Site to Background Sample Comparison - Area of Concern 5 (Coal Aggregate Bins), Total Soil (0 - 10 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-05-021 | | NYOW-05-022 | | NYOW-05-023 | | NYOW-05-024 | | NYOW-05-021 | | NYOW-05-022 | | NYOW-05-023 | | NYOW-05-024 | | NYOW-05-021 | | NYOW-05-022 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-05-SL021-A | | NYOW-05-SL022-A | | NYOW-05-SL023-A | | NYOW-05-SL024-A | | NYOW-05-PH021-B | | NYOW-05-PH022-B | | NYOW-05-PH023-B | | NYOW-05-PH024-B | | NYOW-05-PH021-C | | NYOW-05-PH022-C | |
| | | | | | | | Sample Type: | N | | N | | C | | N | | N | | C | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 5 - 10 | | 5 - 10 | |
| | | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | |
| | | | | | | | Sample Date: | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 12 | N/A | Yes | mg/kg | | 1.8 | | 0.0054 | J | 2.3 | | 7.4 | | 0.014 | | 0.0021 | UJ | 0.008 | J | 0.083 | J- | 0.0022 | UJ | 0.0021 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 12 | N/A | Yes | mg/kg | | 2.5 | | 0.0071 | J | 3.2 | | 10 | | 0.019 | | 0.0018 | J | 0.012 | | 0.13 | J- | 0.0022 | UJ | 0.0021 | U |
| Acenaphthene | 83-32-9 | < LOQ | 12 | N/A | Yes | mg/kg | | 0.013 | U | 0.0013 | U | 0.065 | J- | 0.056 | U | 0.0012 | U | 0.0011 | UJ | 0.0011 | U | 0.0013 | UJ | 0.0012 | UJ | 0.0011 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 12 | N/A | Yes | mg/kg | | 0.054 | J | 0.0036 | J | 0.37 | | 0.056 | U | 0.011 | J+ | 0.011 | J+ | 0.011 | J+ | 0.0013 | UJ | 0.0012 | UJ | 0.0011 | U |
| Anthracene | 120-12-7 | 0.048 | 12 | N/A | Yes | mg/kg | | 0.062 | J | 0.0036 | J | 0.22 | J | 0.23 | U | 0.011 | J+ | 0.0045 | UJ | 0.011 | J+ | 0.0051 | UJ | 0.0048 | UJ | 0.0046 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 12 | N/A | Yes | mg/kg | | 0.21 | | 0.019 | | 0.39 | | 0.44 | J | 0.011 | | 0.0026 | J | 0.016 | | 0.0081 | J- | 0.0048 | UJ | 0.011 | J+ |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 12 | N/A | Yes | mg/kg | | 0.12 | | 0.022 | | 0.79 | | 0.18 | J | 0.0096 | J | 0.0029 | J | 0.016 | | 0.006 | J- | 0.0048 | UJ | 0.011 | J+ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 12 | N/A | Yes | mg/kg | | 0.21 | | 0.034 | | 1.4 | | 0.28 | J | 0.02 | | 0.0055 | J | 0.027 | | 0.011 | J- | 0.0074 | UJ | 0.011 | J+ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 12 | N/A | Yes | mg/kg | | 0.13 | | 0.022 | | 4.7 | | 0.35 | U | 0.012 | | 0.017 | J | 0.046 | | 0.0053 | J- | 0.0074 | UJ | 0.011 | J+ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 12 | N/A | Yes | mg/kg | | 0.063 | J | 0.012 | | 0.4 | | 0.23 | U | 0.011 | J+ | 0.0045 | UJ | 0.011 | J+ | 0.012 | J+ | 0.0048 | UJ | 0.011 | J+ |
| Chrysene | 218-01-9 | 0.081 | 12 | N/A | Yes | mg/kg | | 0.25 | | 0.024 | | 1.1 | | 0.57 | | 0.016 | | 0.004 | J | 0.025 | | 0.011 | J- | 0.0048 | UJ | 0.011 | J+ |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 12 | N/A | Yes | mg/kg | | 0.081 | U | 0.0047 | J | 0.88 | | 0.35 | U | 0.0076 | U | 0.0069 | UJ | 0.011 | J+ | 0.0078 | UJ | 0.0074 | UJ | 0.0071 | U |
| Fluoranthene | 206-44-0 | 0.15 | 12 | N/A | Yes | mg/kg | | 0.31 | | 0.034 | | 0.32 | | 0.46 | J | 0.019 | | 0.0043 | J | 0.03 | | 0.012 | J- | 0.0048 | UJ | 0.011 | J+ |
| Fluorene | 86-73-7 | 0.015 | 12 | N/A | Yes | mg/kg | | 0.031 | J | 0.0013 | J | 0.041 | J- | 0.11 | J | 0.003 | U | 0.0028 | UJ | 0.011 | J+ | 0.012 | J+ | 0.003 | UJ | 0.0029 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 12 | N/A | Yes | mg/kg | | 0.11 | J | 0.026 | | 3.4 | | 0.35 | U | 0.011 | | 0.013 | J | 0.035 | | 0.0052 | J- | 0.0074 | UJ | 0.011 | J+ |
| Naphthalene | 91-20-3 | 0.012 | 12 | N/A | Yes | mg/kg | | 1.8 | | 0.009 | J | 2.6 | | 7.1 | | 0.019 | | 0.0039 | J | 0.02 | | 0.11 | J- | 0.011 | J+ | 0.011 | J+ |
| Phenanthrene | 85-01-8 | 0.012 | 12 | N/A | Yes | mg/kg | | 0.98 | | 0.014 | | 1.1 | | 3.9 | | 0.013 | | 0.0069 | UJ | 0.022 | | 0.034 | J- | 0.0074 | UJ | 0.0071 | U |
| Pyrene | 129-00-0 | 0.14 | 12 | N/A | Yes | mg/kg | | 0.34 | | 0.031 | | 0.41 | | 0.73 | | 0.018 | | 0.004 | J | 0.027 | | 0.012 | J- | 0.0074 | UJ | 0.011 | J+ |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 12 | N/A | Yes | mg/kg | | 5700 | J+ | 8000 | J+ | 4000 | J+ | 1400 | J+ | 8800 | J+ | 5400 | J+ | 6900 | J+ | 6500 | J+ | 5900 | J+ | 7100 | J+ |
| Antimony | 7440-36-0 | 0.15 | 12 | N/A | Yes | mg/kg | | 0.25 | | 0.15 | J | 0.33 | | 0.19 | J | 0.21 | | 0.15 | | 0.17 | J | 0.095 | J | 0.21 | J+ | 0.16 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 12 | N/A | Yes | mg/kg | | 10 | | 5.4 | | 13 | | 16 | | 7.4 | | 5.8 | | 6.9 | | 6.3 | | 3.3 | | 5.8 | |
| Barium | 7440-39-3 | 100 | 12 | N/A | No | mg/kg | | 52 | | 54 | J+ | 37 | | 27 | | 78 | | 41 | | 51 | | 48 | | 75 | | 45 | |
| Beryllium | 7440-41-7 | 0.56 | 12 | N/A | Yes | mg/kg | | 0.42 | J | 0.39 | J- | 0.29 | J | 0.63 | | 0.44 | J+ | 0.39 | J+ | 0.47 | J+ | 0.54 | J+ | 0.61 | J+ | 0.46 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 12 | N/A | Yes | mg/kg | | 0.25 | | 0.15 | | 0.37 | | 0.11 | J | 0.25 | | 0.14 | | 0.21 | | 0.1 | | 0.036 | J | 0.1 | |
| Calcium | 7440-70-2 | 71000 | 12 | N/A | Yes | mg/kg | | 13000 | | 17000 | J | 72000 | J | 4400 | | 5200 | | 44000 | J | 7700 | | 18000 | | 55000 | | 46000 | |
| Chromium | 7440-47-3 | 11 | 12 | N/A | Yes | mg/kg | | 8.3 | | 13 | J- | 8.2 | | 5.8 | | 9.9 | | 7 | | 7.7 | | 8.6 | | 8.5 | | 9.8 | |
| Cobalt | 7440-48-4 | 5.5 | 12 | N/A | Yes | mg/kg | | 6.4 | | 7.5 | J- | 4.9 | | 1.8 | | 9 | | 5 | | 6.3 | | 6 | | 6.3 | | 7.3 | |
| Copper | 7440-50-8 | 13 | 12 | N/A | Yes | mg/kg | | 20 | | 22 | | 17 | | 10 | | 34 | | 22 | | 20 | | 24 | | 19 | | 17 | |
| Iron | 7439-89-6 | 14000 | 12 | N/A | Yes | mg/kg | | 17000 | | 21000 | J | 13000 | | 11000 | | 31000 | | 19000 | | 20000 | | 20000 | | 18000 | | 16000 | |
| Lead | 7439-92-1 | 6.3 | 12 | N/A | Yes | mg/kg | | 21 | | 8.6 | J- | 17 | | 8.9 | | 18 | | 11 | J | 15 | | 8.8 | | 14 | | 5.8 | |
| Magnesium | 7439-95-4 | 2000 | 12 | N/A | Yes | mg/kg | | 4000 | | 9000 | J | 6500 | | 620 | | 3800 | | 7900 | | 2800 | | 5800 | | 28000 | | 12000 | |
| Manganese | 7439-96-5 | 520 | 12 | N/A | Yes | mg/kg | | 650 | | 660 | J | 420 | | 110 | | 2400 | | 920 | | 910 | | 820 | | 1100 | J | 490 | |
| Mercury | 7439-97-6 | 0.027 | 12 | N/A | Yes | mg/kg | | 0.11 | | 0.03 | | 0.077 | | 0.064 | | 0.084 | | 0.032 | | 0.076 | | 0.033 | | 0.023 | J+ | 0.016 | U |
| Nickel | 7440-02-0 | 9.7 | 12 | N/A | Yes | mg/kg | | 13 | | 15 | | 12 | | 6.1 | | 14 | | 9.4 | | 10 | | 11 | | 13 | | 15 | |
| Potassium | 7440-09-7 | 1200 | 12 | N/A | No | mg/kg | | 1000 | | 970 | J+ | 1000 | | 420 | | 490 | | 560 | | 620 | | 690 | | 1000 | | 1100 | |
| Selenium | 7782-49-2 | 0.51 | 12 | N/A | Yes | mg/kg | | 0.9 | | 0.22 | J | 0.65 | | 0.83 | | 0.54 | J+ | 0.46 | J+ | 0.55 | J+ | 0.43 | J+ | 0.34 | UJ | 0.46 | J+ |
| Silver | 7440-22-4 | < LOQ | 12 | N/A | No | mg/kg | | 0.78 | U | 0.61 | U | 0.63 | U | 0.72 | U | 0.53 | U | 0.46 | U | 0.56 | U | 0.65 | U | 0.73 | U | 0.55 | U |
| Sodium | 7440-23-5 | < LOQ | 12 | N/A | No | mg/kg | | 130 | U | 510 | UJ | 130 | U | 600 | U | 440 | U | 100 | U | 94 | U | 540 | U | 610 | U | 460 | U |
| Thallium | 7440-28-0 | 0.11 | 12 | N/A | Yes | mg/kg | | 0.18 | | 0.11 | U | 0.24 | | 0.26 | | 0.12 | | 0.092 | U | 0.11 | U | 0.087 | U | 0.082 | J | 0.092 | U |
| Vanadium | 7440-62-2 | 14 | 12 | N/A | Yes | mg/kg | | 15 | | 17 | | 11 | | 7.6 | | 18 | | 12 | | 15 | | 14 | | 16 | | 14 | |
| Zinc | 7440-66-6 | 23 | 12 | N/A | Yes | mg/kg | | 55 | | 36 | J- | 54 | | 16 | | 66 | | 29 | | 37 | | 30 | | 44 | J+ | 28 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-36
Site to Background Sample Comparison - Area of Concern 5 (Coal Aggregate Bins), Total Soil (0 - 10 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: NYOW-05-023<br>Sample Name: NYOW-05-PH023-C<br>Sample Type: N<br>Sample Depth (feet): 5 - 10<br>Sample Geology: Psc<br>Sample Date: 2021-01-08 Result | Qualifier | Sample Location: NYOW-05-024<br>Sample Name: NYOW-05-PH024-C<br>Sample Type: N<br>Sample Depth (feet): 5 - 10<br>Sample Geology: Psc<br>Sample Date: 2021-01-08 Result | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 12 | N/A | Yes | mg/kg | 0.0022 | U | 0.011 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 12 | N/A | Yes | mg/kg | 0.0022 | U | 0.011 | J+ |
| Acenaphthene | 83-32-9 | < LOQ | 12 | N/A | Yes | mg/kg | 0.0012 | U | 0.0012 | UJ |
| Acenaphthylene | 208-96-8 | 0.01 | 12 | N/A | Yes | mg/kg | 0.0012 | U | 0.0012 | UJ |
| Anthracene | 120-12-7 | 0.048 | 12 | N/A | Yes | mg/kg | 0.0048 | U | 0.0048 | UJ |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 12 | N/A | Yes | mg/kg | 0.0048 | U | 0.0048 | UJ |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 12 | N/A | Yes | mg/kg | 0.0048 | U | 0.0048 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 12 | N/A | Yes | mg/kg | 0.0073 | U | 0.0074 | UJ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 12 | N/A | Yes | mg/kg | 0.0073 | U | 0.0074 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 12 | N/A | Yes | mg/kg | 0.0048 | U | 0.0048 | UJ |
| Chrysene | 218-01-9 | 0.081 | 12 | N/A | Yes | mg/kg | 0.0048 | U | 0.0048 | UJ |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 12 | N/A | Yes | mg/kg | 0.0073 | U | 0.0074 | UJ |
| Fluoranthene | 206-44-0 | 0.15 | 12 | N/A | Yes | mg/kg | 0.0048 | U | 0.0048 | UJ |
| Fluorene | 86-73-7 | 0.015 | 12 | N/A | Yes | mg/kg | 0.0029 | U | 0.003 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 12 | N/A | Yes | mg/kg | 0.0073 | U | 0.0074 | UJ |
| Naphthalene | 91-20-3 | 0.012 | 12 | N/A | Yes | mg/kg | 0.011 | J+ | 0.011 | J+ |
| Phenanthrene | 85-01-8 | 0.012 | 12 | N/A | Yes | mg/kg | 0.0073 | U | 0.0074 | UJ |
| Pyrene | 129-00-0 | 0.14 | 12 | N/A | Yes | mg/kg | 0.0073 | U | 0.0074 | UJ |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 12 | N/A | Yes | mg/kg | 6900 | J+ | 6100 | J+ |
| Antimony | 7440-36-0 | 0.15 | 12 | N/A | Yes | mg/kg | 0.21 | J+ | 0.16 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 12 | N/A | Yes | mg/kg | 3.5 | | 4.1 | |
| Barium | 7440-39-3 | 100 | 12 | N/A | No | mg/kg | 45 | | 48 | |
| Beryllium | 7440-41-7 | 0.56 | 12 | N/A | Yes | mg/kg | 0.5 | J+ | 0.4 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 12 | N/A | Yes | mg/kg | 0.038 | J | 0.021 | J |
| Calcium | 7440-70-2 | 71000 | 12 | N/A | Yes | mg/kg | 36000 | | 42000 | |
| Chromium | 7440-47-3 | 11 | 12 | N/A | Yes | mg/kg | 10 | | 9.2 | |
| Cobalt | 7440-48-4 | 5.5 | 12 | N/A | Yes | mg/kg | 6.4 | | 5.4 | |
| Copper | 7440-50-8 | 13 | 12 | N/A | Yes | mg/kg | 18 | | 14 | |
| Iron | 7439-89-6 | 14000 | 12 | N/A | Yes | mg/kg | 16000 | | 14000 | |
| Lead | 7439-92-1 | 6.3 | 12 | N/A | Yes | mg/kg | 6.6 | | 4.7 | |
| Magnesium | 7439-95-4 | 2000 | 12 | N/A | Yes | mg/kg | 11000 | | 8700 | |
| Manganese | 7439-96-5 | 520 | 12 | N/A | Yes | mg/kg | 610 | | 480 | |
| Mercury | 7439-97-6 | 0.027 | 12 | N/A | Yes | mg/kg | 0.022 | J+ | 0.017 | U |
| Nickel | 7440-02-0 | 9.7 | 12 | N/A | Yes | mg/kg | 14 | | 11 | |
| Potassium | 7440-09-7 | 1200 | 12 | N/A | No | mg/kg | 1000 | | 990 | |
| Selenium | 7782-49-2 | 0.51 | 12 | N/A | Yes | mg/kg | 0.45 | U | 0.35 | U |
| Silver | 7440-22-4 | < LOQ | 12 | N/A | No | mg/kg | 0.59 | U | 0.48 | U |
| Sodium | 7440-23-5 | < LOQ | 12 | N/A | No | mg/kg | 500 | U | 400 | U |
| Thallium | 7440-28-0 | 0.11 | 12 | N/A | Yes | mg/kg | 0.11 | U | 0.088 | U |
| Vanadium | 7440-62-2 | 14 | 12 | N/A | Yes | mg/kg | 13 | | 12 | |
| Zinc | 7440-66-6 | 23 | 12 | N/A | Yes | mg/kg | 29 | | 22 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-37
Site to Background Sample Comparison - Area of Concern 5 (Coal Aggregate Bins), Surface Soil (0 - 1 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-025 | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-SL025-A | |
| | | | | | | Sample Type: | N | |
| | | | | | | Sample Depth (feet): | 0 - 1 | |
| | | | | | | Sample Geology: | Ps | |
| | | | | | | Sample Date: | 2021-01-11 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.011 | 1 | N/A | Yes | mg/kg | 0.077 | |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | 1 | N/A | Yes | mg/kg | 0.089 | |
| Acenaphthene | 83-32-9 | < LOQ | 1 | N/A | No | mg/kg | 0.0013 | U |
| Acenaphthylene | 208-96-8 | 0.053 | 1 | N/A | No | mg/kg | 0.0081 | J |
| Anthracene | 120-12-7 | 0.033 | 1 | N/A | No | mg/kg | 0.0048 | J |
| Benzo(a)anthracene | 56-55-3 | 0.14 | 1 | N/A | No | mg/kg | 0.019 | J+ |
| Benzo(a)pyrene | 50-32-8 | 0.15 | 1 | N/A | No | mg/kg | 0.023 | |
| Benzo(b)fluoranthene | 205-99-2 | 0.18 | 1 | N/A | No | mg/kg | 0.059 | |
| Benzo(g,h,i)perylene | 191-24-2 | 0.095 | 1 | N/A | No | mg/kg | 0.065 | |
| Benzo(k)fluoranthene | 207-08-9 | 0.08 | 1 | N/A | No | mg/kg | 0.014 | |
| Chrysene | 218-01-9 | 0.14 | 1 | N/A | No | mg/kg | 0.04 | J+ |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 1 | N/A | No | mg/kg | 0.012 | |
| Fluoranthene | 206-44-0 | 0.24 | 1 | N/A | No | mg/kg | 0.029 | J+ |
| Fluorene | 86-73-7 | 0.015 | 1 | N/A | No | mg/kg | 0.0021 | J |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.11 | 1 | N/A | No | mg/kg | 0.05 | |
| Naphthalene | 91-20-3 | 0.012 | 1 | N/A | Yes | mg/kg | 0.063 | |
| Phenanthrene | 85-01-8 | 0.086 | 1 | N/A | No | mg/kg | 0.057 | |
| Pyrene | 129-00-0 | 0.22 | 1 | N/A | No | mg/kg | 0.029 | J+ |
| Metals (Total) | | | | | | | | |
| Aluminum | 7429-90-5 | 10000 | 1 | N/A | No | mg/kg | 5600 | |
| Antimony | 7440-36-0 | 0.15 | 1 | N/A | Yes | mg/kg | 0.16 | J |
| Arsenic | 7440-38-2 | 21 | 1 | N/A | No | mg/kg | 4.6 | |
| Barium | 7440-39-3 | 100 | 1 | N/A | No | mg/kg | 34 | |
| Beryllium | 7440-41-7 | < LOQ | 1 | N/A | No | mg/kg | 0.28 | J- |
| Cadmium | 7440-43-9 | 0.38 | 1 | N/A | No | mg/kg | 0.1 | J |
| Calcium | 7440-70-2 | 120000 | 1 | N/A | No | mg/kg | 26000 | |
| Chromium | 7440-47-3 | 11 | 1 | N/A | No | mg/kg | 8.6 | J- |
| Cobalt | 7440-48-4 | 8.3 | 1 | N/A | No | mg/kg | 5.2 | J- |
| Copper | 7440-50-8 | 28 | 1 | N/A | No | mg/kg | 14 | |
| Iron | 7439-89-6 | 24000 | 1 | N/A | No | mg/kg | 14000 | |
| Lead | 7439-92-1 | 320 | 1 | N/A | No | mg/kg | 8.9 | J- |
| Magnesium | 7439-95-4 | 6300 | 1 | N/A | Yes | mg/kg | 11000 | J- |
| Manganese | 7439-96-5 | 1700 | 1 | N/A | No | mg/kg | 410 | J |
| Mercury | 7439-97-6 | 0.19 | 1 | N/A | No | mg/kg | 0.026 | |
| Nickel | 7440-02-0 | 13 | 1 | N/A | No | mg/kg | 11 | J- |
| Potassium | 7440-09-7 | 1100 | 1 | N/A | No | mg/kg | 1100 | |
| Selenium | 7782-49-2 | 0.51 | 1 | N/A | No | mg/kg | 0.31 | J |
| Silver | 7440-22-4 | < LOQ | 1 | N/A | No | mg/kg | 0.68 | UJ |
| Sodium | 7440-23-5 | < LOQ | 1 | N/A | No | mg/kg | 110 | U |
| Thallium | 7440-28-0 | 0.12 | 1 | N/A | No | mg/kg | 0.12 | |
| Vanadium | 7440-62-2 | 21 | 1 | N/A | No | mg/kg | 13 | |
| Zinc | 7440-66-6 | 57 | 1 | N/A | No | mg/kg | 34 | J- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-38
Site to Background Sample Comparison - Area of Concern 5 (Coal Aggregate Bins), Subsurface Soil (1 - 5 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Location: | NYOW-05-025 | |
| | | | | | | Sample Name: | NYOW-05-PH025-B | |
| | | | | | | Sample Type: | N | |
| | | | | | | Sample Depth (feet): | 1 - 5 | |
| | | | | | | Sample Geology: | Ps | |
| | | | | | | Sample Date: | 2021-01-11 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | < LOQ | 1 | N/A | No | mg/kg | 0.0022 | J |
| 2-Methylnaphthalene | 91-57-6 | < LOQ | 1 | N/A | No | mg/kg | 0.0028 | J |
| Acenaphthene | 83-32-9 | < LOQ | 1 | N/A | No | mg/kg | 0.0013 | U |
| Acenaphthylene | 208-96-8 | 0.013 | 1 | N/A | No | mg/kg | 0.0013 | U |
| Anthracene | 120-12-7 | 0.0052 | 1 | N/A | No | mg/kg | 0.0052 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 1 | N/A | No | mg/kg | 0.0025 | J |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 1 | N/A | No | mg/kg | 0.0032 | J |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 1 | N/A | No | mg/kg | 0.0067 | J |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 1 | N/A | No | mg/kg | 0.011 | J |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 1 | N/A | No | mg/kg | 0.0052 | U |
| Chrysene | 218-01-9 | 0.081 | 1 | N/A | No | mg/kg | 0.0062 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 1 | N/A | No | mg/kg | 0.0079 | U |
| Fluoranthene | 206-44-0 | 0.15 | 1 | N/A | No | mg/kg | 0.0048 | J |
| Fluorene | 86-73-7 | 0.015 | 1 | N/A | No | mg/kg | 0.0032 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 1 | N/A | No | mg/kg | 0.01 | J |
| Naphthalene | 91-20-3 | 0.012 | 1 | N/A | No | mg/kg | 0.0027 | J |
| Phenanthrene | 85-01-8 | 0.086 | 1 | N/A | No | mg/kg | 0.0041 | J |
| Pyrene | 129-00-0 | 0.14 | 1 | N/A | No | mg/kg | 0.0041 | J |
| Metals (Total) | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 1 | N/A | Yes | mg/kg | 9000 | |
| Antimony | 7440-36-0 | 0.15 | 1 | N/A | Yes | mg/kg | 0.16 | J |
| Arsenic | 7440-38-2 | 21 | 1 | N/A | No | mg/kg | 5.4 | |
| Barium | 7440-39-3 | 100 | 1 | N/A | No | mg/kg | 66 | |
| Beryllium | 7440-41-7 | < LOQ | 1 | N/A | Yes | mg/kg | 2.3 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 1 | N/A | No | mg/kg | 0.11 | |
| Calcium | 7440-70-2 | 120000 | 1 | N/A | No | mg/kg | 18000 | |
| Chromium | 7440-47-3 | 11 | 1 | N/A | No | mg/kg | 11 | |
| Cobalt | 7440-48-4 | 8.3 | 1 | N/A | No | mg/kg | 7.6 | |
| Copper | 7440-50-8 | 28 | 1 | N/A | No | mg/kg | 21 | |
| Iron | 7439-89-6 | 24000 | 1 | N/A | No | mg/kg | 24000 | |
| Lead | 7439-92-1 | 33 | 1 | N/A | No | mg/kg | 11 | |
| Magnesium | 7439-95-4 | 35000 | 1 | N/A | No | mg/kg | 4400 | |
| Manganese | 7439-96-5 | 1700 | 1 | N/A | No | mg/kg | 1100 | |
| Mercury | 7439-97-6 | 0.056 | 1 | N/A | No | mg/kg | 0.051 | |
| Nickel | 7440-02-0 | 13 | 1 | N/A | Yes | mg/kg | 14 | |
| Potassium | 7440-09-7 | 1100 | 1 | N/A | No | mg/kg | 820 | J |
| Selenium | 7782-49-2 | 0.51 | 1 | N/A | No | mg/kg | 0.42 | J+ |
| Silver | 7440-22-4 | < LOQ | 1 | N/A | No | mg/kg | 0.55 | U |
| Sodium | 7440-23-5 | < LOQ | 1 | N/A | No | mg/kg | 460 | U |
| Thallium | 7440-28-0 | 0.12 | 1 | N/A | No | mg/kg | 0.11 | |
| Vanadium | 7440-62-2 | 17 | 1 | N/A | No | mg/kg | 17 | |
| Zinc | 7440-66-6 | 57 | 1 | N/A | No | mg/kg | 36 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-39
Site to Background Sample Comparison - Area of Concern 5 (Coal Aggregate Bins), Subsurface Soil (5 - 10 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Location: | NYOW-05-025 | |
| | | | | | | Sample Name: | NYOW-05-PH025-C | |
| | | | | | | Sample Type: | N | |
| | | | | | | Sample Depth (feet): | 5 - 10 | |
| | | | | | | Sample Geology: | Ps | |
| | | | | | | Sample Date: | 2021-01-11 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | < LOQ | 1 | N/A | No | mg/kg | 0.0023 | U |
| 2-Methylnaphthalene | 91-57-6 | < LOQ | 1 | N/A | No | mg/kg | 0.0023 | U |
| Acenaphthene | 83-32-9 | < LOQ | 1 | N/A | No | mg/kg | 0.0013 | U |
| Acenaphthylene | 208-96-8 | 0.013 | 1 | N/A | No | mg/kg | 0.0013 | U |
| Anthracene | 120-12-7 | 0.0052 | 1 | N/A | No | mg/kg | 0.0051 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 1 | N/A | No | mg/kg | 0.0051 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 1 | N/A | No | mg/kg | 0.0051 | U |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 1 | N/A | No | mg/kg | 0.0078 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 1 | N/A | No | mg/kg | 0.0078 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 1 | N/A | No | mg/kg | 0.0051 | U |
| Chrysene | 218-01-9 | 0.081 | 1 | N/A | No | mg/kg | 0.0051 | U |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 1 | N/A | No | mg/kg | 0.0078 | U |
| Fluoranthene | 206-44-0 | 0.15 | 1 | N/A | No | mg/kg | 0.0051 | U |
| Fluorene | 86-73-7 | 0.015 | 1 | N/A | No | mg/kg | 0.0031 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 1 | N/A | No | mg/kg | 0.0078 | U |
| Naphthalene | 91-20-3 | 0.012 | 1 | N/A | No | mg/kg | 0.0023 | U |
| Phenanthrene | 85-01-8 | 0.086 | 1 | N/A | No | mg/kg | 0.0078 | U |
| Pyrene | 129-00-0 | 0.14 | 1 | N/A | No | mg/kg | 0.0078 | U |
| Metals (Total) | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 1 | N/A | Yes | mg/kg | 9000 | |
| Antimony | 7440-36-0 | 0.15 | 1 | N/A | Yes | mg/kg | 0.21 | J+ |
| Arsenic | 7440-38-2 | 21 | 1 | N/A | No | mg/kg | 9.7 | |
| Barium | 7440-39-3 | 100 | 1 | N/A | No | mg/kg | 61 | |
| Beryllium | 7440-41-7 | 0.56 | 1 | N/A | No | mg/kg | 0.41 | J+ |
| Cadmium | 7440-43-9 | 0.31 | 1 | N/A | No | mg/kg | 0.086 | J |
| Calcium | 7440-70-2 | 110000 | 1 | N/A | No | mg/kg | 53000 | |
| Chromium | 7440-47-3 | 11 | 1 | N/A | Yes | mg/kg | 13 | |
| Cobalt | 7440-48-4 | 8.3 | 1 | N/A | No | mg/kg | 7.5 | |
| Copper | 7440-50-8 | 28 | 1 | N/A | No | mg/kg | 18 | |
| Iron | 7439-89-6 | 24000 | 1 | N/A | No | mg/kg | 20000 | |
| Lead | 7439-92-1 | 33 | 1 | N/A | No | mg/kg | 7.3 | |
| Magnesium | 7439-95-4 | 27000 | 1 | N/A | No | mg/kg | 18000 | |
| Manganese | 7439-96-5 | 1700 | 1 | N/A | No | mg/kg | 480 | |
| Mercury | 7439-97-6 | 0.056 | 1 | N/A | No | mg/kg | 0.023 | J+ |
| Nickel | 7440-02-0 | 13 | 1 | N/A | Yes | mg/kg | 17 | |
| Potassium | 7440-09-7 | 1800 | 1 | N/A | No | mg/kg | 1700 | |
| Selenium | 7782-49-2 | 0.51 | 1 | N/A | No | mg/kg | 0.44 | J+ |
| Silver | 7440-22-4 | < LOQ | 1 | N/A | No | mg/kg | 0.49 | U |
| Sodium | 7440-23-5 | < LOQ | 1 | N/A | No | mg/kg | 410 | U |
| Thallium | 7440-28-0 | 0.12 | 1 | N/A | No | mg/kg | 0.1 | |
| Vanadium | 7440-62-2 | 17 | 1 | N/A | No | mg/kg | 17 | |
| Zinc | 7440-66-6 | 57 | 1 | N/A | No | mg/kg | 33 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-40
Site to Background Sample Comparison - Area of Concern 5 (Coal Aggregate Bins), Total Soil (0 - 5 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-025 | | NYOW-05-025 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-SL025-A | | NYOW-05-PH025-B | |
| | | | | | | Sample Type: | N | | N | |
| | | | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | |
| | | | | | | Sample Geology: | Ps | | Ps | |
| | | | | | | Sample Date: | 2021-01-11 | | 2021-01-11 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.011 | 2 | N/A | Yes | mg/kg | 0.077 | | 0.0022 | J |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | 2 | N/A | Yes | mg/kg | 0.089 | | 0.0028 | J |
| Acenaphthene | 83-32-9 | < LOQ | 2 | N/A | No | mg/kg | 0.0013 | U | 0.0013 | U |
| Acenaphthylene | 208-96-8 | 0.013 | 2 | N/A | No | mg/kg | 0.0081 | J | 0.0013 | U |
| Anthracene | 120-12-7 | 0.0052 | 2 | N/A | No | mg/kg | 0.0048 | J | 0.0052 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 2 | N/A | No | mg/kg | 0.019 | J+ | 0.0025 | J |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 2 | N/A | No | mg/kg | 0.023 | | 0.0032 | J |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 2 | N/A | No | mg/kg | 0.059 | | 0.0067 | J |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 2 | N/A | Yes | mg/kg | 0.065 | | 0.011 | J |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 2 | N/A | No | mg/kg | 0.014 | | 0.0052 | U |
| Chrysene | 218-01-9 | 0.081 | 2 | N/A | No | mg/kg | 0.04 | J+ | 0.0062 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 2 | N/A | No | mg/kg | 0.012 | | 0.0079 | U |
| Fluoranthene | 206-44-0 | 0.15 | 2 | N/A | No | mg/kg | 0.029 | J+ | 0.0048 | J |
| Fluorene | 86-73-7 | 0.015 | 2 | N/A | No | mg/kg | 0.0021 | J | 0.0032 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 2 | N/A | No | mg/kg | 0.05 | | 0.01 | J |
| Naphthalene | 91-20-3 | 0.012 | 2 | N/A | Yes | mg/kg | 0.063 | | 0.0027 | J |
| Phenanthrene | 85-01-8 | 0.086 | 2 | N/A | No | mg/kg | 0.057 | | 0.0041 | J |
| Pyrene | 129-00-0 | 0.14 | 2 | N/A | No | mg/kg | 0.029 | J+ | 0.0041 | J |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 2 | N/A | Yes | mg/kg | 5600 | | 9000 | |
| Antimony | 7440-36-0 | 0.15 | 2 | N/A | Yes | mg/kg | 0.16 | J | 0.16 | J |
| Arsenic | 7440-38-2 | 21 | 2 | N/A | No | mg/kg | 4.6 | | 5.4 | |
| Barium | 7440-39-3 | 100 | 2 | N/A | No | mg/kg | 34 | | 66 | |
| Beryllium | 7440-41-7 | < LOQ | 2 | N/A | Yes | mg/kg | 0.28 | J- | 2.3 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 2 | N/A | No | mg/kg | 0.1 | J | 0.11 | |
| Calcium | 7440-70-2 | 120000 | 2 | N/A | No | mg/kg | 26000 | | 18000 | |
| Chromium | 7440-47-3 | 11 | 2 | N/A | No | mg/kg | 8.6 | J- | 11 | |
| Cobalt | 7440-48-4 | 8.3 | 2 | N/A | No | mg/kg | 5.2 | J- | 7.6 | |
| Copper | 7440-50-8 | 28 | 2 | N/A | No | mg/kg | 14 | | 21 | |
| Iron | 7439-89-6 | 24000 | 2 | N/A | No | mg/kg | 14000 | | 24000 | |
| Lead | 7439-92-1 | 33 | 2 | N/A | No | mg/kg | 8.9 | J- | 11 | |
| Magnesium | 7439-95-4 | 6300 | 2 | N/A | Yes | mg/kg | 11000 | J- | 4400 | |
| Manganese | 7439-96-5 | 1700 | 2 | N/A | No | mg/kg | 410 | J | 1100 | |
| Mercury | 7439-97-6 | 0.056 | 2 | N/A | No | mg/kg | 0.026 | | 0.051 | |
| Nickel | 7440-02-0 | 13 | 2 | N/A | Yes | mg/kg | 11 | J- | 14 | |
| Potassium | 7440-09-7 | 1100 | 2 | N/A | No | mg/kg | 1100 | | 820 | J |
| Selenium | 7782-49-2 | 0.51 | 2 | N/A | No | mg/kg | 0.31 | J | 0.42 | J+ |
| Silver | 7440-22-4 | < LOQ | 2 | N/A | No | mg/kg | 0.68 | UJ | 0.55 | U |
| Sodium | 7440-23-5 | < LOQ | 2 | N/A | No | mg/kg | 110 | U | 460 | U |
| Thallium | 7440-28-0 | 0.12 | 2 | N/A | No | mg/kg | 0.12 | | 0.11 | |
| Vanadium | 7440-62-2 | 17 | 2 | N/A | No | mg/kg | 13 | | 17 | |
| Zinc | 7440-66-6 | 57 | 2 | N/A | No | mg/kg | 34 | J- | 36 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-41
Site to Background Sample Comparison - Area of Concern 5 (Coal Aggregate Bins), Total Soil (0 - 10 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | Sample Location: | | NYOW-05-025 | | NYOW-05-025 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | | NYOW-05-SL025-A | | NYOW-05-PH025-B | |
| | | | | | | | Sample Type: | | N | | N | |
| | | | | | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | |
| | | | | | | | Sample Geology: | | Ps | | Ps | |
| | | | | | | | Sample Date: | | 2021-01-11 | | 2021-01-11 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.011 | 3 | N/A | Yes | mg/kg | 0.077 | | 0.0022 | J | 0.0023 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | 3 | N/A | Yes | mg/kg | 0.089 | | 0.0028 | J | 0.0023 | U |
| Acenaphthene | 83-32-9 | < LOQ | 3 | N/A | No | mg/kg | 0.0013 | U | 0.0013 | U | 0.0013 | U |
| Acenaphthylene | 208-96-8 | 0.013 | 3 | N/A | No | mg/kg | 0.0081 | J | 0.0013 | U | 0.0013 | U |
| Anthracene | 120-12-7 | 0.0052 | 3 | N/A | No | mg/kg | 0.0048 | J | 0.0052 | U | 0.0051 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 3 | N/A | No | mg/kg | 0.019 | J+ | 0.0025 | J | 0.0051 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 3 | N/A | No | mg/kg | 0.023 | | 0.0032 | J | 0.0051 | U |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 3 | N/A | No | mg/kg | 0.059 | | 0.0067 | J | 0.0078 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 3 | N/A | Yes | mg/kg | 0.065 | | 0.011 | J | 0.0078 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 3 | N/A | No | mg/kg | 0.014 | | 0.0052 | U | 0.0051 | U |
| Chrysene | 218-01-9 | 0.081 | 3 | N/A | No | mg/kg | 0.04 | J+ | 0.0062 | J | 0.0051 | U |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 3 | N/A | No | mg/kg | 0.012 | | 0.0079 | U | 0.0078 | U |
| Fluoranthene | 206-44-0 | 0.15 | 3 | N/A | No | mg/kg | 0.029 | J+ | 0.0048 | J | 0.0051 | U |
| Fluorene | 86-73-7 | 0.015 | 3 | N/A | No | mg/kg | 0.0021 | J | 0.0032 | U | 0.0031 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 3 | N/A | No | mg/kg | 0.05 | | 0.01 | J | 0.0078 | U |
| Naphthalene | 91-20-3 | 0.012 | 3 | N/A | Yes | mg/kg | 0.063 | | 0.0027 | J | 0.0023 | U |
| Phenanthrene | 85-01-8 | 0.086 | 3 | N/A | No | mg/kg | 0.057 | | 0.0041 | J | 0.0078 | U |
| Pyrene | 129-00-0 | 0.14 | 3 | N/A | No | mg/kg | 0.029 | J+ | 0.0041 | J | 0.0078 | U |
| Metals (Total) | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 3 | N/A | Yes | mg/kg | 5600 | | 9000 | | 9000 | |
| Antimony | 7440-36-0 | 0.15 | 3 | N/A | Yes | mg/kg | 0.16 | J | 0.16 | J | 0.21 | J+ |
| Arsenic | 7440-38-2 | 21 | 3 | N/A | No | mg/kg | 4.6 | | 5.4 | | 9.7 | |
| Barium | 7440-39-3 | 100 | 3 | N/A | No | mg/kg | 34 | | 66 | | 61 | |
| Beryllium | 7440-41-7 | 0.56 | 3 | N/A | Yes | mg/kg | 0.28 | J- | 2.3 | J+ | 0.41 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 3 | N/A | No | mg/kg | 0.1 | J | 0.11 | | 0.086 | J |
| Calcium | 7440-70-2 | 110000 | 3 | N/A | No | mg/kg | 26000 | | 18000 | | 53000 | |
| Chromium | 7440-47-3 | 11 | 3 | N/A | Yes | mg/kg | 8.6 | J- | 11 | | 13 | |
| Cobalt | 7440-48-4 | 8.3 | 3 | N/A | No | mg/kg | 5.2 | J- | 7.6 | | 7.5 | |
| Copper | 7440-50-8 | 28 | 3 | N/A | No | mg/kg | 14 | | 21 | | 18 | |
| Iron | 7439-89-6 | 24000 | 3 | N/A | No | mg/kg | 14000 | | 24000 | | 20000 | |
| Lead | 7439-92-1 | 33 | 3 | N/A | No | mg/kg | 8.9 | J- | 11 | | 7.3 | |
| Magnesium | 7439-95-4 | 6300 | 3 | N/A | Yes | mg/kg | 11000 | J- | 4400 | | 18000 | |
| Manganese | 7439-96-5 | 1700 | 3 | N/A | No | mg/kg | 410 | J | 1100 | | 480 | |
| Mercury | 7439-97-6 | 0.056 | 3 | N/A | No | mg/kg | 0.026 | | 0.051 | | 0.023 | J+ |
| Nickel | 7440-02-0 | 13 | 3 | N/A | Yes | mg/kg | 11 | J- | 14 | | 17 | |
| Potassium | 7440-09-7 | 1100 | 3 | N/A | Yes | mg/kg | 1100 | | 820 | J | 1700 | |
| Selenium | 7782-49-2 | 0.51 | 3 | N/A | No | mg/kg | 0.31 | J | 0.42 | J+ | 0.44 | J+ |
| Silver | 7440-22-4 | < LOQ | 3 | N/A | No | mg/kg | 0.68 | UJ | 0.55 | U | 0.49 | U |
| Sodium | 7440-23-5 | < LOQ | 3 | N/A | No | mg/kg | 110 | U | 460 | U | 410 | U |
| Thallium | 7440-28-0 | 0.12 | 3 | N/A | No | mg/kg | 0.12 | | 0.11 | | 0.1 | |
| Vanadium | 7440-62-2 | 17 | 3 | N/A | No | mg/kg | 13 | | 17 | | 17 | |
| Zinc | 7440-66-6 | 57 | 3 | N/A | No | mg/kg | 34 | J- | 36 | | 33 | |

| | | | | | | | Sample Location: | | NYOW-05-025 | | NYOW-05-025 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | | NYOW-05-SL025-A | | NYOW-05-PH025-B | |
| | | | | | | | Sample Type: | | N | | N | |
| | | | | | | | Sample Depth (feet): | | 0 - 1 | | 1 - 5 | |
| | | | | | | | Sample Geology: | | Ps | | Ps | |
| | | | | | | | Sample Date: | | 2021-01-11 | | 2021-01-11 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-42
Site to Background Sample Comparison - Area of Concern 5 (Coal Aggregate Bins), Shallow Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-024 | | NYOW-05-025 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-WL024-A | | NYOW-05-WL025-A | |
| | | | | | | Sample Type: | N | | N | |
| | | | | | | Sample Date: | 2021-01-11 | | 2021-01-12 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.05 | 2 | N/A | Yes | µg/L | 0.63 | J- | 0.041 | UJ |
| 2-Methylnaphthalene | 91-57-6 | 0.063 | 2 | N/A | Yes | µg/L | 0.89 | J- | 0.051 | UJ |
| Acenaphthene | 83-32-9 | < LOQ | 2 | N/A | No | µg/L | 0.016 | UJ | 0.012 | UJ |
| Acenaphthylene | 208-96-8 | 0.25 | 2 | N/A | No | µg/L | 0.026 | UJ | 0.02 | UJ |
| Anthracene | 120-12-7 | 0.13 | 2 | N/A | No | µg/L | 0.13 | UJ | 0.1 | UJ |
| Benzo(a)anthracene | 56-55-3 | < LOQ | 2 | N/A | No | µg/L | 0.13 | UJ | 0.1 | UJ |
| Benzo(a)pyrene | 50-32-8 | < LOQ | 2 | N/A | No | µg/L | 0.066 | UJ | 0.051 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | < LOQ | 2 | N/A | No | µg/L | 0.13 | UJ | 0.1 | UJ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.14 | 2 | N/A | No | µg/L | 0.13 | UJ | 0.1 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 0.21 | 2 | N/A | No | µg/L | 0.066 | UJ | 0.051 | UJ |
| Chrysene | 218-01-9 | < LOQ | 2 | N/A | Yes | µg/L | 0.13 | UJ | 0.1 | J+ |
| Dibenz(a,h)anthracene | 53-70-3 | < LOQ | 2 | N/A | No | µg/L | 0.13 | UJ | 0.1 | UJ |
| Fluoranthene | 206-44-0 | 0.13 | 2 | N/A | No | µg/L | 0.13 | UJ | 0.1 | UJ |
| Fluorene | 86-73-7 | 0.05 | 2 | N/A | No | µg/L | 0.053 | UJ | 0.041 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | < LOQ | 2 | N/A | No | µg/L | 0.13 | UJ | 0.1 | UJ |
| Naphthalene | 91-20-3 | 0.063 | 2 | N/A | Yes | µg/L | 0.97 | J- | 0.051 | UJ |
| Phenanthrene | 85-01-8 | < LOQ | 2 | N/A | Yes | µg/L | 0.24 | J- | 0.1 | UJ |
| Pyrene | 129-00-0 | 0.13 | 2 | N/A | No | µg/L | 0.13 | UJ | 0.1 | UJ |
| Metals (Dissolved) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 1300 | 2 | N/A | Yes | µg/L | 2100 | | 36 | J |
| Antimony | 7440-36-0 | N/A | 2 | N/A | No | µg/L | 1 | U | 1 | U |
| Arsenic | 7440-38-2 | < LOQ | 2 | N/A | Yes | µg/L | 5 | J+ | 5 | J+ |
| Barium | 7440-39-3 | 280 | 2 | N/A | No | µg/L | 130 | | 55 | |
| Beryllium | 7440-41-7 | 0.5 | 2 | N/A | No | µg/L | 0.5 | U | 0.5 | U |
| Cadmium | 7440-43-9 | N/A | 2 | N/A | No | µg/L | 1.8 | U | 1.8 | U |
| Calcium | 7440-70-2 | 160000 | 2 | N/A | No | µg/L | 110000 | | 110000 | |
| Chromium | 7440-47-3 | < LOQ | 2 | N/A | Yes | µg/L | 12 | | 0.52 | J |
| Cobalt | 7440-48-4 | 4 | 2 | N/A | No | µg/L | 3.7 | | 1.3 | |
| Copper | 7440-50-8 | < LOQ | 2 | N/A | Yes | µg/L | 15 | J+ | 10 | U |
| Iron | 7439-89-6 | 4900 | 2 | N/A | Yes | µg/L | 6300 | | 100 | U |
| Lead | 7439-92-1 | < LOQ | 2 | N/A | Yes | µg/L | 3 | J+ | 0.7 | U |
| Magnesium | 7439-95-4 | 75000 | 2 | N/A | No | µg/L | 37000 | | 22000 | |
| Manganese | 7439-96-5 | 2600 | 2 | N/A | No | µg/L | 1200 | | 1200 | |
| Mercury | 7439-97-6 | N/A | 2 | N/A | No | µg/L | 0.08 | U | 0.08 | U |
| Nickel | 7440-02-0 | < LOQ | 2 | N/A | Yes | µg/L | 40 | J+ | 40 | J+ |
| Potassium | 7440-09-7 | 9900 | 2 | N/A | No | µg/L | 8100 | | 4600 | |
| Selenium | 7782-49-2 | N/A | 2 | N/A | No | µg/L | 19 | U | 19 | U |
| Silver | 7440-22-4 | 5 | 2 | N/A | No | µg/L | 5 | U | 5 | U |
| Sodium | 7440-23-5 | 140000 | 2 | N/A | No | µg/L | 93000 | | 20000 | |
| Thallium | 7440-28-0 | N/A | 2 | N/A | No | µg/L | 0.2 | U | 0.2 | U |
| Vanadium | 7440-62-2 | < LOQ | 2 | N/A | Yes | µg/L | 15 | J+ | 4 | U |
| Zinc | 7440-66-6 | 15 | 2 | N/A | Yes | µg/L | 150 | J+ | 15 | U |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-43
Site to Background Sample Comparison - Area of Concern 5 (Coal Storage Area), Surface Soil (0 - 1 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | Sample Location: | | NYOW-05-006 | | NYOW-05-008 | | NYOW-05-009 | | NYOW-05-010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | | NYOW-05-SL006-A | | NYOW-05-SL008-A | | NYOW-05-SL009-A | | NYOW-05-SL010-A | |
| | | | | | | | Sample Type: | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | | | | Sample Geology: | | Psc | | Psc | | Psc | | Psc | |
| | | | | | | | Sample Date: | | 2021-01-08 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 4 | N/A | Yes | mg/kg | 5.7 | | 6 | | 0.12 | | 0.039 | J- |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 4 | N/A | Yes | mg/kg | 7.7 | | 4.8 | | 0.086 | | 0.017 | |
| Acenaphthene | 83-32-9 | < LOQ | 4 | N/A | Yes | mg/kg | 0.037 | U | 0.34 | J+ | 0.0016 | U | 0.012 | J+ |
| Acenaphthylene | 208-96-8 | 0.01 | 4 | N/A | Yes | mg/kg | 0.35 | J+ | 0.34 | J+ | 0.015 | J+ | 0.012 | J+ |
| Anthracene | 120-12-7 | 0.048 | 4 | N/A | Yes | mg/kg | 0.35 | J+ | 0.34 | J+ | 0.0066 | U | 0.005 | U |
| Benzo(a)anthracene | 56-55-3 | 0.14 | 4 | N/A | Yes | mg/kg | 0.27 | J | 0.61 | | 0.044 | | 0.036 | |
| Benzo(a)pyrene | 50-32-8 | 0.15 | 4 | N/A | Yes | mg/kg | 0.12 | J | 0.31 | J | 0.032 | | 0.014 | |
| Benzo(b)fluoranthene | 205-99-2 | 0.18 | 4 | N/A | Yes | mg/kg | 0.19 | J | 0.43 | | 0.1 | | 0.06 | J- |
| Benzo(g,h,i)perylene | 191-24-2 | 0.095 | 4 | N/A | Yes | mg/kg | 0.23 | U | 0.25 | J | 0.027 | | 0.016 | |
| Benzo(k)fluoranthene | 207-08-9 | 0.08 | 4 | N/A | Yes | mg/kg | 0.15 | U | 0.34 | J+ | 0.015 | J+ | 0.012 | J+ |
| Chrysene | 218-01-9 | 0.14 | 4 | N/A | Yes | mg/kg | 0.35 | | 1 | | 0.31 | | 0.18 | J- |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 4 | N/A | Yes | mg/kg | 0.23 | U | 0.23 | U | 0.018 | | 0.013 | |
| Fluoranthene | 206-44-0 | 0.24 | 4 | N/A | Yes | mg/kg | 0.32 | J | 0.76 | | 0.1 | | 0.044 | |
| Fluorene | 86-73-7 | 0.015 | 4 | N/A | Yes | mg/kg | 0.096 | J | 0.26 | J | 0.03 | | 0.012 | |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.11 | 4 | N/A | No | mg/kg | 0.23 | U | 0.08 | J | 0.019 | | 0.0069 | J |
| Naphthalene | 91-20-3 | 0.012 | 4 | N/A | Yes | mg/kg | 5.6 | | 2 | | 0.039 | | 0.017 | J- |
| Phenanthrene | 85-01-8 | 0.17 | 4 | N/A | Yes | mg/kg | 2.3 | | 4.2 | | 0.34 | | 0.16 | J- |
| Pyrene | 129-00-0 | 0.22 | 4 | N/A | Yes | mg/kg | 0.45 | | 0.99 | | 0.13 | | 0.068 | J- |
| Metals (Total) | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 4 | N/A | No | mg/kg | 2500 | J+ | 2700 | | 2800 | | 4800 | J |
| Antimony | 7440-36-0 | 0.15 | 4 | N/A | Yes | mg/kg | 0.32 | | 0.46 | | 0.16 | J | 0.11 | UJ |
| Arsenic | 7440-38-2 | 4.7 | 4 | N/A | Yes | mg/kg | 24 | | 12 | | 9.7 | | 4.5 | |
| Barium | 7440-39-3 | 100 | 4 | N/A | No | mg/kg | 34 | | 37 | | 45 | | 65 | |
| Beryllium | 7440-41-7 | < LOQ | 4 | N/A | Yes | mg/kg | 0.68 | J+ | 0.59 | J+ | 0.67 | J+ | 0.47 | J+ |
| Cadmium | 7440-43-9 | 0.38 | 4 | N/A | No | mg/kg | 0.23 | | 0.21 | | 0.19 | | 0.11 | |
| Calcium | 7440-70-2 | 120000 | 4 | N/A | No | mg/kg | 11000 | | 5500 | | 4500 | | 2000 | J+ |
| Chromium | 7440-47-3 | 11 | 4 | N/A | No | mg/kg | 7.2 | | 6.6 | | 6 | | 7.2 | |
| Cobalt | 7440-48-4 | 5.5 | 4 | N/A | Yes | mg/kg | 6.6 | | 2.1 | | 2.4 | | 3.4 | |
| Copper | 7440-50-8 | 13 | 4 | N/A | Yes | mg/kg | 22 | | 9.8 | | 7.4 | | 5.3 | |
| Iron | 7439-89-6 | 14000 | 4 | N/A | Yes | mg/kg | 16000 | | 12000 | | 8100 | | 14000 | |
| Lead | 7439-92-1 | 9.8 | 4 | N/A | Yes | mg/kg | 21 | | 18 | | 13 | | 4.2 | |
| Magnesium | 7439-95-4 | 2000 | 4 | N/A | Yes | mg/kg | 2700 | | 740 | | 930 | | 1100 | J |
| Manganese | 7439-96-5 | 520 | 4 | N/A | No | mg/kg | 320 | | 110 | | 330 | | 400 | J- |
| Mercury | 7439-97-6 | 0.19 | 4 | N/A | No | mg/kg | 0.086 | | 0.19 | | 0.1 | | 0.11 | |
| Nickel | 7440-02-0 | 9.7 | 4 | N/A | Yes | mg/kg | 13 | | 4.9 | | 5.4 | | 5.7 | |
| Potassium | 7440-09-7 | 1200 | 4 | N/A | No | mg/kg | 610 | | 420 | | 350 | J | 350 | |
| Selenium | 7782-49-2 | 0.51 | 4 | N/A | Yes | mg/kg | 1 | | 1.5 | | 0.64 | J | 0.4 | J |
| Silver | 7440-22-4 | < LOQ | 4 | N/A | No | mg/kg | 0.82 | U | 0.71 | U | 0.8 | U | 0.57 | U |
| Sodium | 7440-23-5 | < LOQ | 4 | N/A | Yes | mg/kg | 140 | U | 590 | J+ | 670 | J+ | 470 | J+ |
| Thallium | 7440-28-0 | 0.11 | 4 | N/A | Yes | mg/kg | 0.34 | | 0.6 | | 0.24 | | 0.18 | |
| Vanadium | 7440-62-2 | 14 | 4 | N/A | Yes | mg/kg | 12 | | 15 | | 11 | | 15 | |
| Zinc | 7440-66-6 | 23 | 4 | N/A | Yes | mg/kg | 44 | | 35 | | 28 | | 14 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-44
Site to Background Sample Comparison - Area of Concern 5 (Coal Storage Area), Subsurface Soil (1 - 5 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-006 | | NYOW-05-008 | | NYOW-05-009 | | NYOW-05-010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-PH006-B | | NYOW-05-PH008-B | | NYOW-05-PH009-B | | NYOW-05-PH010-B | |
| | | | | | | Sample Type: | N | | N | | N | | N | |
| | | | | | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-01-08 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 4 | N/A | No | mg/kg | 0.0024 | U | 0.01 | J+ | 0.0023 | U | 0.0021 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 4 | N/A | No | mg/kg | 0.0024 | U | 0.01 | J+ | 0.0023 | U | 0.0021 | U |
| Acenaphthene | 83-32-9 | < LOQ | 4 | N/A | No | mg/kg | 0.0013 | U | 0.0011 | U | 0.0012 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 4 | N/A | No | mg/kg | 0.0013 | U | 0.0011 | U | 0.0012 | U | 0.0011 | U |
| Anthracene | 120-12-7 | 0.048 | 4 | N/A | No | mg/kg | 0.0052 | U | 0.0045 | U | 0.0049 | U | 0.0045 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 4 | N/A | No | mg/kg | 0.0052 | U | 0.0045 | U | 0.0049 | U | 0.0045 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 4 | N/A | No | mg/kg | 0.0052 | U | 0.0045 | U | 0.0049 | U | 0.0045 | U |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 4 | N/A | No | mg/kg | 0.008 | U | 0.0069 | U | 0.0076 | U | 0.01 | J+ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 4 | N/A | No | mg/kg | 0.008 | U | 0.0069 | U | 0.0076 | U | 0.0069 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 4 | N/A | No | mg/kg | 0.0052 | U | 0.0045 | U | 0.0049 | U | 0.0045 | U |
| Chrysene | 218-01-9 | 0.081 | 4 | N/A | No | mg/kg | 0.0052 | U | 0.0045 | U | 0.0049 | U | 0.0045 | U |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 4 | N/A | No | mg/kg | 0.008 | U | 0.0069 | U | 0.0076 | U | 0.0069 | U |
| Fluoranthene | 206-44-0 | 0.15 | 4 | N/A | No | mg/kg | 0.0052 | U | 0.0045 | U | 0.0049 | U | 0.0045 | U |
| Fluorene | 86-73-7 | 0.015 | 4 | N/A | No | mg/kg | 0.0032 | U | 0.0028 | U | 0.003 | U | 0.0027 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 4 | N/A | No | mg/kg | 0.008 | U | 0.0069 | U | 0.0076 | U | 0.0069 | U |
| Naphthalene | 91-20-3 | 0.012 | 4 | N/A | No | mg/kg | 0.0024 | U | 0.01 | J+ | 0.0023 | U | 0.0021 | U |
| Phenanthrene | 85-01-8 | 0.012 | 4 | N/A | No | mg/kg | 0.008 | U | 0.0069 | U | 0.0076 | U | 0.0069 | U |
| Pyrene | 129-00-0 | 0.14 | 4 | N/A | No | mg/kg | 0.008 | U | 0.0069 | U | 0.0076 | U | 0.0069 | U |
| Metals (Total) | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 4 | N/A | No | mg/kg | 5400 | J+ | 6500 | | 3600 | | 5600 | |
| Antimony | 7440-36-0 | 0.15 | 4 | N/A | Yes | mg/kg | 0.17 | J+ | 0.16 | J+ | 0.087 | U | 0.2 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 4 | N/A | Yes | mg/kg | 3.9 | | 4 | | 5.1 | | 26 | |
| Barium | 7440-39-3 | 100 | 4 | N/A | Yes | mg/kg | 46 | | 36 | | 37 | | 110 | |
| Beryllium | 7440-41-7 | < LOQ | 4 | N/A | Yes | mg/kg | 0.43 | J+ | 0.42 | J+ | 0.5 | J+ | 0.53 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 4 | N/A | Yes | mg/kg | 0.17 | | 0.04 | J | 0.038 | J | 0.026 | J |
| Calcium | 7440-70-2 | 120000 | 4 | N/A | No | mg/kg | 6300 | | 46000 | | 5000 | | 76000 | |
| Chromium | 7440-47-3 | 11 | 4 | N/A | No | mg/kg | 7.2 | | 8.9 | | 5 | | 7.3 | |
| Cobalt | 7440-48-4 | 5.5 | 4 | N/A | Yes | mg/kg | 4.8 | | 4.9 | | 3.5 | | 8 | |
| Copper | 7440-50-8 | 13 | 4 | N/A | Yes | mg/kg | 13 | | 19 | | 9.3 | | 27 | |
| Iron | 7439-89-6 | 14000 | 4 | N/A | Yes | mg/kg | 16000 | | 14000 | | 9500 | | 25000 | |
| Lead | 7439-92-1 | 6.3 | 4 | N/A | Yes | mg/kg | 7.2 | | 4.7 | | 3.1 | | 4.5 | |
| Magnesium | 7439-95-4 | 35000 | 4 | N/A | No | mg/kg | 2200 | | 12000 | | 2400 | | 8400 | |
| Manganese | 7439-96-5 | 520 | 4 | N/A | Yes | mg/kg | 630 | | 360 | | 340 | | 870 | |
| Mercury | 7439-97-6 | 0.027 | 4 | N/A | Yes | mg/kg | 0.031 | | 0.015 | U | 0.017 | U | 0.016 | U |
| Nickel | 7440-02-0 | 9.7 | 4 | N/A | Yes | mg/kg | 8.2 | | 11 | | 5.5 | | 14 | |
| Potassium | 7440-09-7 | 1200 | 4 | N/A | No | mg/kg | 480 | | 1200 | | 400 | | 1200 | |
| Selenium | 7782-49-2 | 0.51 | 4 | N/A | No | mg/kg | 0.46 | J+ | 0.38 | U | 0.39 | U | 0.38 | U |
| Silver | 7440-22-4 | < LOQ | 4 | N/A | No | mg/kg | 0.51 | U | 0.5 | U | 0.59 | U | 0.63 | U |
| Sodium | 7440-23-5 | < LOQ | 4 | N/A | Yes | mg/kg | 86 | U | 420 | J+ | 500 | J+ | 530 | J+ |
| Thallium | 7440-28-0 | 0.11 | 4 | N/A | No | mg/kg | 0.092 | U | 0.094 | J+ | 0.096 | J+ | 0.096 | J+ |
| Vanadium | 7440-62-2 | 14 | 4 | N/A | No | mg/kg | 13 | | 13 | | 8.7 | | 13 | |
| Zinc | 7440-66-6 | 23 | 4 | N/A | Yes | mg/kg | 24 | | 23 | | 15 | | 27 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-45
Site to Background Sample Comparison - Area of Concern 5 (Coal Storage Area), Subsurface Soil (5 - 10 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-006 | | NYOW-05-008 | | NYOW-05-009 | | NYOW-05-010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-PH006-C | | NYOW-05-PH008-C | | NYOW-05-PH009-C | | NYOW-05-PH010-C | |
| | | | | | | Sample Type: | N | | N | | N | | N | |
| | | | | | | Sample Depth (feet): | 5 - 10 | | 5 - 10 | | 5 - 10 | | 5 - 10 | |
| | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-01-08 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 4 | N/A | No | mg/kg | 0.0023 | U | 0.011 | J+ | 0.0022 | U | 0.0021 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 4 | N/A | No | mg/kg | 0.011 | J+ | 0.011 | J+ | 0.0022 | U | 0.0021 | U |
| Acenaphthene | 83-32-9 | < LOQ | 4 | N/A | No | mg/kg | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 4 | N/A | No | mg/kg | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0011 | U |
| Anthracene | 120-12-7 | 0.048 | 4 | N/A | No | mg/kg | 0.005 | U | 0.0049 | U | 0.0049 | U | 0.011 | J+ |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 4 | N/A | No | mg/kg | 0.005 | U | 0.0049 | U | 0.0049 | U | 0.019 | |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 4 | N/A | No | mg/kg | 0.005 | U | 0.0049 | U | 0.0049 | U | 0.011 | |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 4 | N/A | No | mg/kg | 0.0076 | U | 0.0076 | U | 0.0075 | U | 0.039 | |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 4 | N/A | No | mg/kg | 0.0076 | U | 0.0076 | U | 0.0075 | U | 0.011 | |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 4 | N/A | No | mg/kg | 0.005 | U | 0.0049 | U | 0.0049 | U | 0.012 | |
| Chrysene | 218-01-9 | 0.081 | 4 | N/A | No | mg/kg | 0.005 | U | 0.0049 | U | 0.0049 | U | 0.036 | |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 4 | N/A | No | mg/kg | 0.0076 | U | 0.0076 | U | 0.0075 | U | 0.011 | J+ |
| Fluoranthene | 206-44-0 | 0.15 | 4 | N/A | No | mg/kg | 0.005 | U | 0.0049 | U | 0.0049 | U | 0.023 | |
| Fluorene | 86-73-7 | 0.015 | 4 | N/A | No | mg/kg | 0.003 | U | 0.003 | U | 0.003 | U | 0.0028 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 4 | N/A | No | mg/kg | 0.0076 | U | 0.0076 | U | 0.0075 | U | 0.012 | |
| Naphthalene | 91-20-3 | 0.012 | 4 | N/A | No | mg/kg | 0.011 | J+ | 0.011 | J+ | 0.011 | J+ | 0.0021 | U |
| Phenanthrene | 85-01-8 | 0.012 | 4 | N/A | No | mg/kg | 0.0076 | U | 0.0076 | U | 0.0075 | U | 0.011 | J+ |
| Pyrene | 129-00-0 | 0.14 | 4 | N/A | No | mg/kg | 0.0076 | U | 0.0076 | U | 0.0075 | U | 0.023 | |
| Metals (Total) | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 4 | N/A | Yes | mg/kg | 5900 | J+ | 8200 | | 2000 | | 7000 | |
| Antimony | 7440-36-0 | 0.15 | 4 | N/A | Yes | mg/kg | 0.085 | U | 0.21 | J+ | 0.1 | U | 0.18 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 4 | N/A | Yes | mg/kg | 4 | | 5.8 | | 6.2 | | 79 | |
| Barium | 7440-39-3 | 100 | 4 | N/A | No | mg/kg | 48 | | 59 | | 28 | | 76 | |
| Beryllium | 7440-41-7 | 0.56 | 4 | N/A | No | mg/kg | 0.49 | J+ | 0.42 | J+ | 0.44 | J+ | 0.46 | J+ |
| Cadmium | 7440-43-9 | 0.31 | 4 | N/A | No | mg/kg | 0.08 | J+ | 0.11 | J+ | 0.086 | J+ | 0.095 | J+ |
| Calcium | 7440-70-2 | 71000 | 4 | N/A | Yes | mg/kg | 54000 | | 37000 | | 37000 | | 91000 | |
| Chromium | 7440-47-3 | 11 | 4 | N/A | Yes | mg/kg | 8.8 | | 12 | | 3.8 | | 9.8 | |
| Cobalt | 7440-48-4 | 5.5 | 4 | N/A | Yes | mg/kg | 6.5 | | 7.4 | | 2.7 | | 8.4 | |
| Copper | 7440-50-8 | 13 | 4 | N/A | Yes | mg/kg | 13 | | 16 | | 11 | | 15 | |
| Iron | 7439-89-6 | 14000 | 4 | N/A | Yes | mg/kg | 19000 | | 18000 | | 8500 | | 26000 | |
| Lead | 7439-92-1 | 6.3 | 4 | N/A | No | mg/kg | 4.6 | | 5.7 | | 2.4 | | 4.3 | |
| Magnesium | 7439-95-4 | 27000 | 4 | N/A | No | mg/kg | 15000 | | 10000 | | 7000 | | 27000 | |
| Manganese | 7439-96-5 | 520 | 4 | N/A | Yes | mg/kg | 780 | | 510 | | 320 | | 480 | |
| Mercury | 7439-97-6 | 0.027 | 4 | N/A | No | mg/kg | 0.016 | U | 0.016 | U | 0.018 | U | 0.017 | U |
| Nickel | 7440-02-0 | 9.7 | 4 | N/A | Yes | mg/kg | 13 | | 16 | | 5 | | 16 | |
| Potassium | 7440-09-7 | 1200 | 4 | N/A | Yes | mg/kg | 750 | | 1400 | | 390 | | 1600 | |
| Selenium | 7782-49-2 | 0.51 | 4 | N/A | No | mg/kg | 0.32 | U | 0.43 | U | 0.34 | U | 0.38 | U |
| Silver | 7440-22-4 | < LOQ | 4 | N/A | No | mg/kg | 0.59 | U | 0.5 | U | 0.53 | U | 0.55 | U |
| Sodium | 7440-23-5 | < LOQ | 4 | N/A | Yes | mg/kg | 490 | U | 420 | J+ | 440 | J+ | 460 | J+ |
| Thallium | 7440-28-0 | 0.11 | 4 | N/A | No | mg/kg | 0.08 | U | 0.11 | J+ | 0.086 | J+ | 0.095 | J+ |
| Vanadium | 7440-62-2 | 14 | 4 | N/A | Yes | mg/kg | 12 | | 17 | | 5.9 | | 11 | |
| Zinc | 7440-66-6 | 23 | 4 | N/A | Yes | mg/kg | 23 | | 29 | | 11 | | 21 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-46
Site to Background Sample Comparison - Area of Concern 5 (Coal Storage Area), Total Soil (0 - 5 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-05-006 | | NYOW-05-008 | | NYOW-05-009 | | NYOW-05-010 | | NYOW-05-006 | | NYOW-05-008 | | NYOW-05-009 | | NYOW-05-010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-05-SL006-A | | NYOW-05-SL008-A | | NYOW-05-SL009-A | | NYOW-05-SL010-A | | NYOW-05-PH006-B | | NYOW-05-PH008-B | | NYOW-05-PH009-B | | NYOW-05-PH010-B | |
| | | | | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | |
| | | | | | | | Sample Date: | 2021-01-08 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-08 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 8 | N/A | Yes | mg/kg | | 5.7 | | 6 | | 0.12 | | 0.039 | J- | 0.0024 | U | 0.01 | J+ | 0.0023 | U | 0.0021 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 8 | N/A | Yes | mg/kg | | 7.7 | | 4.8 | | 0.086 | | 0.017 | | 0.0024 | U | 0.01 | J+ | 0.0023 | U | 0.0021 | U |
| Acenaphthene | 83-32-9 | < LOQ | 8 | N/A | Yes | mg/kg | | 0.037 | U | 0.34 | J+ | 0.0016 | U | 0.012 | J+ | 0.0013 | U | 0.0011 | U | 0.0012 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 8 | N/A | Yes | mg/kg | | 0.35 | J+ | 0.34 | J+ | 0.015 | J+ | 0.012 | J+ | 0.0013 | U | 0.0011 | U | 0.0012 | U | 0.0011 | U |
| Anthracene | 120-12-7 | 0.048 | 8 | N/A | Yes | mg/kg | | 0.35 | J+ | 0.34 | J+ | 0.0066 | U | 0.005 | U | 0.0052 | U | 0.0045 | U | 0.0049 | U | 0.0045 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 8 | N/A | Yes | mg/kg | | 0.27 | J | 0.61 | | 0.044 | | 0.036 | | 0.0052 | U | 0.0045 | U | 0.0049 | U | 0.0045 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 8 | N/A | Yes | mg/kg | | 0.12 | J | 0.31 | J | 0.032 | | 0.014 | | 0.0052 | U | 0.0045 | U | 0.0049 | U | 0.0045 | U |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 8 | N/A | Yes | mg/kg | | 0.19 | J | 0.43 | | 0.1 | | 0.06 | J- | 0.008 | U | 0.0069 | U | 0.0076 | U | 0.01 | J+ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 8 | N/A | Yes | mg/kg | | 0.23 | U | 0.25 | J | 0.027 | | 0.016 | | 0.008 | U | 0.0069 | U | 0.0076 | U | 0.0069 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 8 | N/A | Yes | mg/kg | | 0.15 | U | 0.34 | J+ | 0.015 | J+ | 0.012 | J+ | 0.0052 | U | 0.0045 | U | 0.0049 | U | 0.0045 | U |
| Chrysene | 218-01-9 | 0.081 | 8 | N/A | Yes | mg/kg | | 0.35 | | 1 | | 0.31 | | 0.18 | J- | 0.0052 | U | 0.0045 | U | 0.0049 | U | 0.0045 | U |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 8 | N/A | Yes | mg/kg | | 0.23 | U | 0.23 | U | 0.018 | | 0.013 | | 0.008 | U | 0.0069 | U | 0.0076 | U | 0.0069 | U |
| Fluoranthene | 206-44-0 | 0.15 | 8 | N/A | Yes | mg/kg | | 0.32 | J | 0.76 | | 0.1 | | 0.044 | | 0.0052 | U | 0.0045 | U | 0.0049 | U | 0.0045 | U |
| Fluorene | 86-73-7 | 0.015 | 8 | N/A | Yes | mg/kg | | 0.096 | J | 0.26 | J | 0.03 | | 0.012 | | 0.0032 | U | 0.0028 | U | 0.003 | U | 0.0027 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 8 | N/A | Yes | mg/kg | | 0.23 | U | 0.08 | J | 0.019 | | 0.0069 | J | 0.008 | U | 0.0069 | U | 0.0076 | U | 0.0069 | U |
| Naphthalene | 91-20-3 | 0.012 | 8 | N/A | Yes | mg/kg | | 5.6 | | 2 | | 0.039 | | 0.017 | J- | 0.0024 | U | 0.01 | J+ | 0.0023 | U | 0.0021 | U |
| Phenanthrene | 85-01-8 | 0.012 | 8 | N/A | Yes | mg/kg | | 2.3 | | 4.2 | | 0.34 | | 0.16 | J- | 0.008 | U | 0.0069 | U | 0.0076 | U | 0.0069 | U |
| Pyrene | 129-00-0 | 0.14 | 8 | N/A | Yes | mg/kg | | 0.45 | | 0.99 | | 0.13 | | 0.068 | J- | 0.008 | U | 0.0069 | U | 0.0076 | U | 0.0069 | U |
| **Metals (Total)** | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 8 | N/A | No | mg/kg | | 2500 | J+ | 2700 | | 2800 | | 4800 | J | 5400 | J+ | 6500 | | 3600 | | 5600 | |
| Antimony | 7440-36-0 | 0.15 | 8 | N/A | Yes | mg/kg | | 0.32 | | 0.46 | | 0.16 | J | 0.11 | UJ | 0.17 | J+ | 0.16 | J+ | 0.087 | U | 0.2 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 8 | N/A | Yes | mg/kg | | 24 | | 12 | | 9.7 | | 4.5 | | 3.9 | | 4 | | 5.1 | | 26 | |
| Barium | 7440-39-3 | 100 | 8 | N/A | Yes | mg/kg | | 34 | | 37 | | 45 | | 65 | | 46 | | 36 | | 37 | | 110 | |
| Beryllium | 7440-41-7 | < LOQ | 8 | N/A | Yes | mg/kg | | 0.68 | J+ | 0.59 | J+ | 0.67 | J+ | 0.47 | J+ | 0.43 | J+ | 0.42 | J+ | 0.5 | J+ | 0.53 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 8 | N/A | Yes | mg/kg | | 0.23 | | 0.21 | | 0.19 | | 0.11 | | 0.17 | | 0.04 | J | 0.038 | J | 0.026 | J |
| Calcium | 7440-70-2 | 120000 | 8 | N/A | No | mg/kg | | 11000 | | 5500 | | 4500 | | 2000 | J+ | 6300 | | 46000 | | 5000 | | 76000 | |
| Chromium | 7440-47-3 | 11 | 8 | N/A | No | mg/kg | | 7.2 | | 6.6 | | 6 | | 7.2 | | 7.2 | | 8.9 | | 5 | | 7.3 | |
| Cobalt | 7440-48-4 | 5.5 | 8 | N/A | Yes | mg/kg | | 6.6 | | 2.1 | | 2.4 | | 3.4 | | 4.8 | | 4.9 | | 3.5 | | 8 | |
| Copper | 7440-50-8 | 13 | 8 | N/A | Yes | mg/kg | | 22 | | 9.8 | | 7.4 | | 5.3 | | 13 | | 19 | | 9.3 | | 27 | |
| Iron | 7439-89-6 | 14000 | 8 | N/A | Yes | mg/kg | | 16000 | | 12000 | | 8100 | | 14000 | | 16000 | | 14000 | | 9500 | | 25000 | |
| Lead | 7439-92-1 | 6.3 | 8 | N/A | Yes | mg/kg | | 21 | | 18 | | 13 | | 4.2 | | 7.2 | | 4.7 | | 3.1 | | 4.5 | |
| Magnesium | 7439-95-4 | 2000 | 8 | N/A | Yes | mg/kg | | 2700 | | 740 | | 930 | | 1100 | J | 2200 | | 12000 | | 2400 | | 8400 | |
| Manganese | 7439-96-5 | 520 | 8 | N/A | Yes | mg/kg | | 320 | | 110 | | 330 | | 400 | J- | 630 | | 360 | | 340 | | 870 | |
| Mercury | 7439-97-6 | 0.027 | 8 | N/A | Yes | mg/kg | | 0.086 | | 0.19 | | 0.1 | | 0.11 | | 0.031 | | 0.015 | U | 0.017 | U | 0.016 | U |
| Nickel | 7440-02-0 | 9.7 | 8 | N/A | Yes | mg/kg | | 13 | | 4.9 | | 5.4 | | 5.7 | | 8.2 | | 11 | | 5.5 | | 14 | |
| Potassium | 7440-09-7 | 1200 | 8 | N/A | No | mg/kg | | 610 | | 420 | | 350 | J | 350 | | 480 | | 1200 | | 400 | | 1200 | |
| Selenium | 7782-49-2 | 0.51 | 8 | N/A | Yes | mg/kg | | 1 | | 1.5 | | 0.64 | J | 0.4 | J | 0.46 | J+ | 0.38 | U | 0.39 | U | 0.38 | U |
| Silver | 7440-22-4 | < LOQ | 8 | N/A | No | mg/kg | | 0.82 | U | 0.71 | U | 0.8 | U | 0.57 | U | 0.51 | U | 0.5 | U | 0.59 | U | 0.63 | U |
| Sodium | 7440-23-5 | < LOQ | 8 | N/A | Yes | mg/kg | | 140 | U | 590 | J+ | 670 | J+ | 470 | J+ | 86 | U | 420 | J+ | 500 | J+ | 530 | J+ |
| Thallium | 7440-28-0 | 0.11 | 8 | N/A | Yes | mg/kg | | 0.34 | | 0.6 | | 0.24 | | 0.18 | | 0.092 | U | 0.094 | J+ | 0.096 | J+ | 0.096 | J+ |
| Vanadium | 7440-62-2 | 14 | 8 | N/A | Yes | mg/kg | | 12 | | 15 | | 11 | | 15 | | 13 | | 13 | | 8.7 | | 13 | |
| Zinc | 7440-66-6 | 23 | 8 | N/A | Yes | mg/kg | | 44 | | 35 | | 28 | | 14 | | 24 | | 23 | | 15 | | 27 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-47
Site to Background Sample Comparison - Area of Concern 5 (Coal Storage Area), Total Soil (0 - 10 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-05-006 | | NYOW-05-008 | | NYOW-05-009 | | NYOW-05-010 | | NYOW-05-006 | | NYOW-05-008 | | NYOW-05-009 | | NYOW-05-010 | | NYOW-05-006 | | NYOW-05-008 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-05-SL006-A | | NYOW-05-SL008-A | | NYOW-05-SL009-A | | NYOW-05-SL010-A | | NYOW-05-PH006-B | | NYOW-05-PH008-B | | NYOW-05-PH009-B | | NYOW-05-PH010-B | | NYOW-05-PH006-C | | NYOW-05-PH008-C | |
| | | | | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 5 - 10 | | 5 - 10 | |
| | | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | |
| | | | | | | | Sample Date: | 2021-01-08 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-08 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-08 | | 2021-01-07 | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 12 | N/A | Yes | mg/kg | | 5.7 | | 6 | | 0.12 | | 0.039 | J- | 0.0024 | U | 0.01 | J+ | 0.0023 | U | 0.0021 | U | 0.0023 | U | 0.011 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 12 | N/A | Yes | mg/kg | | 7.7 | | 4.8 | | 0.086 | | 0.017 | | 0.0024 | U | 0.01 | J+ | 0.0023 | U | 0.0021 | U | 0.011 | J+ | 0.011 | J+ |
| Acenaphthene | 83-32-9 | < LOQ | 12 | N/A | Yes | mg/kg | | 0.037 | U | 0.34 | J+ | 0.0016 | U | 0.012 | J+ | 0.0013 | U | 0.0011 | U | 0.0012 | U | 0.0011 | U | 0.0012 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 12 | N/A | Yes | mg/kg | | 0.35 | J+ | 0.34 | J+ | 0.015 | J+ | 0.012 | J+ | 0.0013 | U | 0.0011 | U | 0.0012 | U | 0.0011 | U | 0.0012 | U | 0.0012 | U |
| Anthracene | 120-12-7 | 0.048 | 12 | N/A | Yes | mg/kg | | 0.35 | J+ | 0.34 | J+ | 0.0066 | U | 0.005 | U | 0.0052 | U | 0.0045 | U | 0.0049 | U | 0.0045 | U | 0.005 | U | 0.0049 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 12 | N/A | Yes | mg/kg | | 0.27 | J | 0.61 | | 0.044 | | 0.036 | | 0.0052 | U | 0.0045 | U | 0.0049 | U | 0.0045 | U | 0.005 | U | 0.0049 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 12 | N/A | Yes | mg/kg | | 0.12 | J | 0.31 | J | 0.032 | | 0.014 | | 0.0052 | U | 0.0045 | U | 0.0049 | U | 0.0045 | U | 0.005 | U | 0.0049 | U |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 12 | N/A | Yes | mg/kg | | 0.19 | J | 0.43 | | 0.1 | | 0.06 | J- | 0.008 | U | 0.0069 | U | 0.0076 | U | 0.01 | J+ | 0.0076 | U | 0.0076 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 12 | N/A | Yes | mg/kg | | 0.23 | U | 0.25 | J | 0.027 | | 0.016 | | 0.008 | U | 0.0069 | U | 0.0076 | U | 0.0069 | U | 0.0076 | U | 0.0076 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 12 | N/A | Yes | mg/kg | | 0.15 | U | 0.34 | J+ | 0.015 | J+ | 0.012 | J+ | 0.0052 | U | 0.0045 | U | 0.0049 | U | 0.0045 | U | 0.005 | U | 0.0049 | U |
| Chrysene | 218-01-9 | 0.081 | 12 | N/A | Yes | mg/kg | | 0.35 | | 1 | | 0.31 | | 0.18 | J- | 0.0052 | U | 0.0045 | U | 0.0049 | U | 0.0045 | U | 0.005 | U | 0.0049 | U |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 12 | N/A | Yes | mg/kg | | 0.23 | U | 0.23 | U | 0.018 | | 0.013 | | 0.008 | U | 0.0069 | U | 0.0076 | U | 0.0069 | U | 0.0076 | U | 0.0076 | U |
| Fluoranthene | 206-44-0 | 0.15 | 12 | N/A | Yes | mg/kg | | 0.32 | J | 0.76 | | 0.1 | | 0.044 | | 0.0052 | U | 0.0045 | U | 0.0049 | U | 0.0045 | U | 0.005 | U | 0.0049 | U |
| Fluorene | 86-73-7 | 0.015 | 12 | N/A | Yes | mg/kg | | 0.096 | J | 0.26 | J | 0.03 | | 0.012 | | 0.0032 | U | 0.0028 | U | 0.003 | U | 0.0027 | U | 0.003 | U | 0.003 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 12 | N/A | Yes | mg/kg | | 0.23 | U | 0.08 | J | 0.019 | | 0.0069 | J | 0.008 | U | 0.0069 | U | 0.0076 | U | 0.0069 | U | 0.0076 | U | 0.0076 | U |
| Naphthalene | 91-20-3 | 0.012 | 12 | N/A | Yes | mg/kg | | 5.6 | | 2 | | 0.039 | | 0.017 | J- | 0.0024 | U | 0.01 | J+ | 0.0023 | U | 0.0021 | U | 0.011 | J+ | 0.011 | J+ |
| Phenanthrene | 85-01-8 | 0.012 | 12 | N/A | Yes | mg/kg | | 2.3 | | 4.2 | | 0.34 | | 0.16 | J- | 0.008 | U | 0.0069 | U | 0.0076 | U | 0.0069 | U | 0.0076 | U | 0.0076 | U |
| Pyrene | 129-00-0 | 0.14 | 12 | N/A | Yes | mg/kg | | 0.45 | | 0.99 | | 0.13 | | 0.068 | J- | 0.008 | U | 0.0069 | U | 0.0076 | U | 0.0069 | U | 0.0076 | U | 0.0076 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 12 | N/A | Yes | mg/kg | | 2500 | J+ | 2700 | | 2800 | | 4800 | J | 5400 | J+ | 6500 | | 3600 | | 5600 | | 5900 | J+ | 8200 | |
| Antimony | 7440-36-0 | 0.15 | 12 | N/A | Yes | mg/kg | | 0.32 | | 0.46 | | 0.16 | J | 0.11 | UJ | 0.17 | J+ | 0.16 | J+ | 0.087 | U | 0.2 | J+ | 0.085 | U | 0.21 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 12 | N/A | Yes | mg/kg | | 24 | | 12 | | 9.7 | | 4.5 | | 3.9 | | 4 | | 5.1 | | 26 | | 4 | | 5.8 | |
| Barium | 7440-39-3 | 100 | 12 | N/A | Yes | mg/kg | | 34 | | 37 | | 45 | | 65 | | 46 | | 36 | | 37 | | 110 | | 48 | | 59 | |
| Beryllium | 7440-41-7 | 0.56 | 12 | N/A | Yes | mg/kg | | 0.68 | J+ | 0.59 | J+ | 0.67 | J+ | 0.47 | J+ | 0.43 | J+ | 0.42 | J+ | 0.5 | J+ | 0.53 | J+ | 0.49 | J+ | 0.42 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 12 | N/A | Yes | mg/kg | | 0.23 | | 0.21 | | 0.19 | | 0.11 | | 0.17 | | 0.04 | J | 0.038 | J | 0.026 | J | 0.08 | J+ | 0.11 | J+ |
| Calcium | 7440-70-2 | 71000 | 12 | N/A | Yes | mg/kg | | 11000 | | 5500 | | 4500 | | 2000 | J+ | 6300 | | 46000 | | 5000 | | 76000 | | 54000 | | 37000 | |
| Chromium | 7440-47-3 | 11 | 12 | N/A | Yes | mg/kg | | 7.2 | | 6.6 | | 6 | | 7.2 | | 7.2 | | 8.9 | | 5 | | 7.3 | | 8.8 | | 12 | |
| Cobalt | 7440-48-4 | 5.5 | 12 | N/A | Yes | mg/kg | | 6.6 | | 2.1 | | 2.4 | | 3.4 | | 4.8 | | 4.9 | | 3.5 | | 8 | | 6.5 | | 7.4 | |
| Copper | 7440-50-8 | 13 | 12 | N/A | Yes | mg/kg | | 22 | | 9.8 | | 7.4 | | 5.3 | | 13 | | 19 | | 9.3 | | 27 | | 13 | | 16 | |
| Iron | 7439-89-6 | 14000 | 12 | N/A | Yes | mg/kg | | 16000 | | 12000 | | 8100 | | 14000 | | 16000 | | 14000 | | 9500 | | 25000 | | 19000 | | 18000 | |
| Lead | 7439-92-1 | 6.3 | 12 | N/A | Yes | mg/kg | | 21 | | 18 | | 13 | | 4.2 | | 7.2 | | 4.7 | | 3.1 | | 4.5 | | 4.6 | | 5.7 | |
| Magnesium | 7439-95-4 | 2000 | 12 | N/A | Yes | mg/kg | | 2700 | | 740 | | 930 | | 1100 | J | 2200 | | 12000 | | 2400 | | 8400 | | 15000 | | 10000 | |
| Manganese | 7439-96-5 | 520 | 12 | N/A | Yes | mg/kg | | 320 | | 110 | | 330 | | 400 | J- | 630 | | 360 | | 340 | | 870 | | 780 | | 510 | |
| Mercury | 7439-97-6 | 0.027 | 12 | N/A | Yes | mg/kg | | 0.086 | | 0.19 | | 0.1 | | 0.11 | | 0.031 | | 0.015 | U | 0.017 | U | 0.016 | U | 0.016 | U | 0.016 | U |
| Nickel | 7440-02-0 | 9.7 | 12 | N/A | Yes | mg/kg | | 13 | | 4.9 | | 5.4 | | 5.7 | | 8.2 | | 11 | | 5.5 | | 14 | | 13 | | 16 | |
| Potassium | 7440-09-7 | 1200 | 12 | N/A | Yes | mg/kg | | 610 | | 420 | | 350 | J | 350 | | 480 | | 1200 | | 400 | | 1200 | | 750 | | 1400 | |
| Selenium | 7782-49-2 | 0.51 | 12 | N/A | Yes | mg/kg | | 1 | | 1.5 | | 0.64 | J | 0.4 | J | 0.46 | J+ | 0.38 | U | 0.39 | U | 0.38 | U | 0.32 | U | 0.43 | U |
| Silver | 7440-22-4 | < LOQ | 12 | N/A | No | mg/kg | | 0.82 | U | 0.71 | U | 0.8 | U | 0.57 | U | 0.51 | U | 0.5 | U | 0.59 | U | 0.63 | U | 0.59 | U | 0.5 | U |
| Sodium | 7440-23-5 | < LOQ | 12 | N/A | Yes | mg/kg | | 140 | U | 590 | J+ | 670 | J+ | 470 | J+ | 86 | U | 420 | J+ | 500 | J+ | 530 | J+ | 490 | U | 420 | J+ |
| Thallium | 7440-28-0 | 0.11 | 12 | N/A | Yes | mg/kg | | 0.34 | | 0.6 | | 0.24 | | 0.18 | | 0.092 | U | 0.094 | J+ | 0.096 | J+ | 0.096 | J+ | 0.08 | U | 0.11 | J+ |
| Vanadium | 7440-62-2 | 14 | 12 | N/A | Yes | mg/kg | | 12 | | 15 | | 11 | | 15 | | 13 | | 13 | | 8.7 | | 13 | | 12 | | 17 | |
| Zinc | 7440-66-6 | 23 | 12 | N/A | Yes | mg/kg | | 44 | | 35 | | 28 | | 14 | | 24 | | 23 | | 15 | | 27 | | 23 | | 29 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-47
Site to Background Sample Comparison - Area of Concern 5 (Coal Storage Area), Total Soil (0 - 10 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Location: | NYOW-05-009 | | NYOW-05-010 | |
| | | | | | | Sample Name: | NYOW-05-PH009-C | | NYOW-05-PH010-C | |
| | | | | | | Sample Type: | N | | N | |
| | | | | | | Sample Depth (feet): | 5 - 10 | | 5 - 10 | |
| | | | | | | Sample Geology: | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-01-07 | | 2021-01-07 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 12 | N/A | Yes | mg/kg | 0.0022 | U | 0.0021 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 12 | N/A | Yes | mg/kg | 0.0022 | U | 0.0021 | U |
| Acenaphthene | 83-32-9 | < LOQ | 12 | N/A | Yes | mg/kg | 0.0012 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 12 | N/A | Yes | mg/kg | 0.0012 | U | 0.0011 | U |
| Anthracene | 120-12-7 | 0.048 | 12 | N/A | Yes | mg/kg | 0.0049 | U | 0.011 | J+ |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 12 | N/A | Yes | mg/kg | 0.0049 | U | 0.019 | |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 12 | N/A | Yes | mg/kg | 0.0049 | U | 0.011 | |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 12 | N/A | Yes | mg/kg | 0.0075 | U | 0.039 | |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 12 | N/A | Yes | mg/kg | 0.0075 | U | 0.011 | |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 12 | N/A | Yes | mg/kg | 0.0049 | U | 0.012 | |
| Chrysene | 218-01-9 | 0.081 | 12 | N/A | Yes | mg/kg | 0.0049 | U | 0.036 | |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 12 | N/A | Yes | mg/kg | 0.0075 | U | 0.011 | J+ |
| Fluoranthene | 206-44-0 | 0.15 | 12 | N/A | Yes | mg/kg | 0.0049 | U | 0.023 | |
| Fluorene | 86-73-7 | 0.015 | 12 | N/A | Yes | mg/kg | 0.003 | U | 0.0028 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 12 | N/A | Yes | mg/kg | 0.0075 | U | 0.012 | |
| Naphthalene | 91-20-3 | 0.012 | 12 | N/A | Yes | mg/kg | 0.011 | J+ | 0.0021 | U |
| Phenanthrene | 85-01-8 | 0.012 | 12 | N/A | Yes | mg/kg | 0.0075 | U | 0.011 | J+ |
| Pyrene | 129-00-0 | 0.14 | 12 | N/A | Yes | mg/kg | 0.0075 | U | 0.023 | |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 12 | N/A | Yes | mg/kg | 2000 | | 7000 | |
| Antimony | 7440-36-0 | 0.15 | 12 | N/A | Yes | mg/kg | 0.1 | U | 0.18 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 12 | N/A | Yes | mg/kg | 6.2 | | 79 | |
| Barium | 7440-39-3 | 100 | 12 | N/A | Yes | mg/kg | 28 | | 76 | |
| Beryllium | 7440-41-7 | 0.56 | 12 | N/A | Yes | mg/kg | 0.44 | J+ | 0.46 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 12 | N/A | Yes | mg/kg | 0.086 | J+ | 0.095 | J+ |
| Calcium | 7440-70-2 | 71000 | 12 | N/A | Yes | mg/kg | 37000 | | 91000 | |
| Chromium | 7440-47-3 | 11 | 12 | N/A | Yes | mg/kg | 3.8 | | 9.8 | |
| Cobalt | 7440-48-4 | 5.5 | 12 | N/A | Yes | mg/kg | 2.7 | | 8.4 | |
| Copper | 7440-50-8 | 13 | 12 | N/A | Yes | mg/kg | 11 | | 15 | |
| Iron | 7439-89-6 | 14000 | 12 | N/A | Yes | mg/kg | 8500 | | 26000 | |
| Lead | 7439-92-1 | 6.3 | 12 | N/A | Yes | mg/kg | 2.4 | | 4.3 | |
| Magnesium | 7439-95-4 | 2000 | 12 | N/A | Yes | mg/kg | 7000 | | 27000 | |
| Manganese | 7439-96-5 | 520 | 12 | N/A | Yes | mg/kg | 320 | | 480 | |
| Mercury | 7439-97-6 | 0.027 | 12 | N/A | Yes | mg/kg | 0.018 | U | 0.017 | U |
| Nickel | 7440-02-0 | 9.7 | 12 | N/A | Yes | mg/kg | 5 | | 16 | |
| Potassium | 7440-09-7 | 1200 | 12 | N/A | Yes | mg/kg | 390 | | 1600 | |
| Selenium | 7782-49-2 | 0.51 | 12 | N/A | Yes | mg/kg | 0.34 | U | 0.38 | U |
| Silver | 7440-22-4 | < LOQ | 12 | N/A | No | mg/kg | 0.53 | U | 0.55 | U |
| Sodium | 7440-23-5 | < LOQ | 12 | N/A | Yes | mg/kg | 440 | J+ | 460 | J+ |
| Thallium | 7440-28-0 | 0.11 | 12 | N/A | Yes | mg/kg | 0.086 | J+ | 0.095 | J+ |
| Vanadium | 7440-62-2 | 14 | 12 | N/A | Yes | mg/kg | 5.9 | | 11 | |
| Zinc | 7440-66-6 | 23 | 12 | N/A | Yes | mg/kg | 11 | | 21 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

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J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-48
Site to Background Sample Comparison - Area of Concern 5 (Coal Storage Area), Surface Soil (0 - 1 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-007 | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-SL007-A | |
| | | | | | | Sample Type: | N | |
| | | | | | | Sample Depth (feet): | 0 - 1 | |
| | | | | | | Sample Geology: | Ps | |
| | | | | | | Sample Date: | 2021-01-07 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.011 | 1 | N/A | Yes | mg/kg | 10 | |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | 1 | N/A | Yes | mg/kg | 14 | |
| Acenaphthene | 83-32-9 | < LOQ | 1 | N/A | Yes | mg/kg | 0.32 | J+ |
| Acenaphthylene | 208-96-8 | 0.053 | 1 | N/A | Yes | mg/kg | 0.32 | J+ |
| Anthracene | 120-12-7 | 0.033 | 1 | N/A | Yes | mg/kg | 0.32 | J+ |
| Benzo(a)anthracene | 56-55-3 | 0.14 | 1 | N/A | Yes | mg/kg | 0.75 | |
| Benzo(a)pyrene | 50-32-8 | 0.15 | 1 | N/A | Yes | mg/kg | 0.38 | |
| Benzo(b)fluoranthene | 205-99-2 | 0.18 | 1 | N/A | Yes | mg/kg | 0.46 | |
| Benzo(g,h,i)perylene | 191-24-2 | 0.095 | 1 | N/A | Yes | mg/kg | 0.28 | J |
| Benzo(k)fluoranthene | 207-08-9 | 0.08 | 1 | N/A | Yes | mg/kg | 0.32 | J+ |
| Chrysene | 218-01-9 | 0.14 | 1 | N/A | Yes | mg/kg | 0.91 | |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 1 | N/A | No | mg/kg | 0.22 | U |
| Fluoranthene | 206-44-0 | 0.24 | 1 | N/A | Yes | mg/kg | 0.66 | |
| Fluorene | 86-73-7 | 0.015 | 1 | N/A | Yes | mg/kg | 0.17 | J |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.11 | 1 | N/A | No | mg/kg | 0.11 | J |
| Naphthalene | 91-20-3 | 0.012 | 1 | N/A | Yes | mg/kg | 9.2 | |
| Phenanthrene | 85-01-8 | 0.086 | 1 | N/A | Yes | mg/kg | 5.3 | |
| Pyrene | 129-00-0 | 0.22 | 1 | N/A | Yes | mg/kg | 0.98 | |
| Metals (Total) | | | | | | | | |
| Aluminum | 7429-90-5 | 10000 | 1 | N/A | No | mg/kg | 2600 | |
| Antimony | 7440-36-0 | 0.15 | 1 | N/A | Yes | mg/kg | 0.24 | J |
| Arsenic | 7440-38-2 | 21 | 1 | N/A | No | mg/kg | 19 | |
| Barium | 7440-39-3 | 100 | 1 | N/A | No | mg/kg | 43 | |
| Beryllium | 7440-41-7 | < LOQ | 1 | N/A | Yes | mg/kg | 0.75 | J+ |
| Cadmium | 7440-43-9 | 0.38 | 1 | N/A | No | mg/kg | 0.38 | |
| Calcium | 7440-70-2 | 120000 | 1 | N/A | No | mg/kg | 16000 | |
| Chromium | 7440-47-3 | 11 | 1 | N/A | No | mg/kg | 6 | |
| Cobalt | 7440-48-4 | 8.3 | 1 | N/A | No | mg/kg | 4.2 | |
| Copper | 7440-50-8 | 28 | 1 | N/A | No | mg/kg | 22 | |
| Iron | 7439-89-6 | 24000 | 1 | N/A | No | mg/kg | 13000 | |
| Lead | 7439-92-1 | 320 | 1 | N/A | No | mg/kg | 18 | |
| Magnesium | 7439-95-4 | 6300 | 1 | N/A | No | mg/kg | 2900 | |
| Manganese | 7439-96-5 | 1700 | 1 | N/A | No | mg/kg | 270 | |
| Mercury | 7439-97-6 | 0.19 | 1 | N/A | No | mg/kg | 0.093 | |
| Nickel | 7440-02-0 | 13 | 1 | N/A | No | mg/kg | 9.2 | |
| Potassium | 7440-09-7 | 1100 | 1 | N/A | No | mg/kg | 640 | |
| Selenium | 7782-49-2 | 0.51 | 1 | N/A | Yes | mg/kg | 0.98 | |
| Silver | 7440-22-4 | < LOQ | 1 | N/A | No | mg/kg | 0.9 | U |
| Sodium | 7440-23-5 | < LOQ | 1 | N/A | Yes | mg/kg | 750 | J+ |
| Thallium | 7440-28-0 | 0.12 | 1 | N/A | Yes | mg/kg | 0.34 | |
| Vanadium | 7440-62-2 | 21 | 1 | N/A | No | mg/kg | 10 | |
| Zinc | 7440-66-6 | 57 | 1 | N/A | Yes | mg/kg | 58 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-49
Site to Background Sample Comparison - Area of Concern 5 (Coal Storage Area), Subsurface Soil (1 - 5 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-007 | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-PH007-B | |
| | | | | | | Sample Type: | C | |
| | | | | | | Sample Depth (feet): | 1 - 5 | |
| | | | | | | Sample Geology: | Ps | |
| | | | | | | Sample Date: | 2021-01-07 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | < LOQ | 1 | N/A | No | mg/kg | 0.002 | UJ |
| 2-Methylnaphthalene | 91-57-6 | < LOQ | 1 | N/A | No | mg/kg | 0.002 | UJ |
| Acenaphthene | 83-32-9 | < LOQ | 1 | N/A | No | mg/kg | 0.0011 | UJ |
| Acenaphthylene | 208-96-8 | 0.013 | 1 | N/A | No | mg/kg | 0.0011 | UJ |
| Anthracene | 120-12-7 | 0.0052 | 1 | N/A | No | mg/kg | 0.0043 | UJ |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 1 | N/A | No | mg/kg | 0.0043 | UJ |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 1 | N/A | No | mg/kg | 0.0043 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 1 | N/A | No | mg/kg | 0.0067 | UJ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 1 | N/A | No | mg/kg | 0.0067 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 1 | N/A | No | mg/kg | 0.0043 | UJ |
| Chrysene | 218-01-9 | 0.081 | 1 | N/A | No | mg/kg | 0.0043 | UJ |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 1 | N/A | No | mg/kg | 0.0067 | UJ |
| Fluoranthene | 206-44-0 | 0.15 | 1 | N/A | No | mg/kg | 0.0043 | UJ |
| Fluorene | 86-73-7 | 0.015 | 1 | N/A | No | mg/kg | 0.0027 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 1 | N/A | No | mg/kg | 0.0067 | UJ |
| Naphthalene | 91-20-3 | 0.012 | 1 | N/A | No | mg/kg | 0.01 | J+ |
| Phenanthrene | 85-01-8 | 0.086 | 1 | N/A | No | mg/kg | 0.0067 | UJ |
| Pyrene | 129-00-0 | 0.14 | 1 | N/A | No | mg/kg | 0.0067 | UJ |
| Metals (Total) | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 1 | N/A | No | mg/kg | 4700 | |
| Antimony | 7440-36-0 | 0.15 | 1 | N/A | Yes | mg/kg | 0.17 | J+ |
| Arsenic | 7440-38-2 | 21 | 1 | N/A | No | mg/kg | 2.8 | |
| Barium | 7440-39-3 | 100 | 1 | N/A | No | mg/kg | 39 | |
| Beryllium | 7440-41-7 | < LOQ | 1 | N/A | Yes | mg/kg | 0.46 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 1 | N/A | No | mg/kg | 0.029 | J |
| Calcium | 7440-70-2 | 120000 | 1 | N/A | No | mg/kg | 29000 | |
| Chromium | 7440-47-3 | 11 | 1 | N/A | No | mg/kg | 6.5 | |
| Cobalt | 7440-48-4 | 8.3 | 1 | N/A | No | mg/kg | 3.9 | |
| Copper | 7440-50-8 | 28 | 1 | N/A | No | mg/kg | 14 | |
| Iron | 7439-89-6 | 24000 | 1 | N/A | No | mg/kg | 10000 | |
| Lead | 7439-92-1 | 33 | 1 | N/A | No | mg/kg | 3 | |
| Magnesium | 7439-95-4 | 35000 | 1 | N/A | No | mg/kg | 6300 | |
| Manganese | 7439-96-5 | 1700 | 1 | N/A | No | mg/kg | 440 | |
| Mercury | 7439-97-6 | 0.056 | 1 | N/A | No | mg/kg | 0.017 | U |
| Nickel | 7440-02-0 | 13 | 1 | N/A | No | mg/kg | 8.3 | |
| Potassium | 7440-09-7 | 1100 | 1 | N/A | No | mg/kg | 760 | |
| Selenium | 7782-49-2 | 0.51 | 1 | N/A | No | mg/kg | 0.36 | U |
| Silver | 7440-22-4 | < LOQ | 1 | N/A | No | mg/kg | 0.56 | U |
| Sodium | 7440-23-5 | < LOQ | 1 | N/A | Yes | mg/kg | 460 | J+ |
| Thallium | 7440-28-0 | 0.12 | 1 | N/A | No | mg/kg | 0.09 | J+ |
| Vanadium | 7440-62-2 | 17 | 1 | N/A | No | mg/kg | 9.8 | |
| Zinc | 7440-66-6 | 57 | 1 | N/A | No | mg/kg | 19 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-50
Site to Background Sample Comparison - Area of Concern 5 (Coal Storage Area), Subsurface Soil (5 - 10 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-007 | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-PH007-C | |
| | | | | | | Sample Type: | N | |
| | | | | | | Sample Depth (feet): | 5 - 10 | |
| | | | | | | Sample Geology: | Ps | |
| | | | | | | Sample Date: | 2021-01-07 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | < LOQ | 1 | N/A | No | mg/kg | 0.0023 | UJ |
| 2-Methylnaphthalene | 91-57-6 | < LOQ | 1 | N/A | No | mg/kg | 0.0023 | UJ |
| Acenaphthene | 83-32-9 | < LOQ | 1 | N/A | No | mg/kg | 0.0012 | UJ |
| Acenaphthylene | 208-96-8 | 0.013 | 1 | N/A | No | mg/kg | 0.0012 | UJ |
| Anthracene | 120-12-7 | 0.0052 | 1 | N/A | No | mg/kg | 0.0049 | UJ |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 1 | N/A | No | mg/kg | 0.0026 | J- |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 1 | N/A | No | mg/kg | 0.0019 | J- |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 1 | N/A | No | mg/kg | 0.0065 | J- |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 1 | N/A | No | mg/kg | 0.0075 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 1 | N/A | No | mg/kg | 0.0049 | UJ |
| Chrysene | 218-01-9 | 0.081 | 1 | N/A | No | mg/kg | 0.0057 | J- |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 1 | N/A | No | mg/kg | 0.0075 | UJ |
| Fluoranthene | 206-44-0 | 0.15 | 1 | N/A | No | mg/kg | 0.0049 | UJ |
| Fluorene | 86-73-7 | 0.015 | 1 | N/A | No | mg/kg | 0.003 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 1 | N/A | No | mg/kg | 0.0075 | UJ |
| Naphthalene | 91-20-3 | 0.012 | 1 | N/A | No | mg/kg | 0.011 | J+ |
| Phenanthrene | 85-01-8 | 0.086 | 1 | N/A | No | mg/kg | 0.0075 | UJ |
| Pyrene | 129-00-0 | 0.14 | 1 | N/A | No | mg/kg | 0.0075 | UJ |
| Metals (Total) | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 1 | N/A | No | mg/kg | 5900 | |
| Antimony | 7440-36-0 | 0.15 | 1 | N/A | No | mg/kg | 0.1 | U |
| Arsenic | 7440-38-2 | 21 | 1 | N/A | No | mg/kg | 3.3 | |
| Barium | 7440-39-3 | 100 | 1 | N/A | No | mg/kg | 43 | |
| Beryllium | 7440-41-7 | 0.56 | 1 | N/A | No | mg/kg | 0.54 | J+ |
| Cadmium | 7440-43-9 | 0.31 | 1 | N/A | No | mg/kg | 0.09 | J+ |
| Calcium | 7440-70-2 | 110000 | 1 | N/A | No | mg/kg | 55000 | |
| Chromium | 7440-47-3 | 11 | 1 | N/A | No | mg/kg | 9.3 | |
| Cobalt | 7440-48-4 | 8.3 | 1 | N/A | No | mg/kg | 6.1 | |
| Copper | 7440-50-8 | 28 | 1 | N/A | No | mg/kg | 13 | |
| Iron | 7439-89-6 | 24000 | 1 | N/A | No | mg/kg | 14000 | |
| Lead | 7439-92-1 | 33 | 1 | N/A | No | mg/kg | 5.3 | |
| Magnesium | 7439-95-4 | 27000 | 1 | N/A | No | mg/kg | 15000 | |
| Manganese | 7439-96-5 | 1700 | 1 | N/A | No | mg/kg | 400 | |
| Mercury | 7439-97-6 | 0.056 | 1 | N/A | No | mg/kg | 0.017 | U |
| Nickel | 7440-02-0 | 13 | 1 | N/A | No | mg/kg | 13 | |
| Potassium | 7440-09-7 | 1800 | 1 | N/A | No | mg/kg | 1000 | |
| Selenium | 7782-49-2 | 0.51 | 1 | N/A | No | mg/kg | 0.36 | U |
| Silver | 7440-22-4 | < LOQ | 1 | N/A | No | mg/kg | 0.65 | U |
| Sodium | 7440-23-5 | < LOQ | 1 | N/A | Yes | mg/kg | 540 | J+ |
| Thallium | 7440-28-0 | 0.12 | 1 | N/A | No | mg/kg | 0.09 | J+ |
| Vanadium | 7440-62-2 | 17 | 1 | N/A | No | mg/kg | 12 | |
| Zinc | 7440-66-6 | 57 | 1 | N/A | No | mg/kg | 25 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-51
Site to Background Sample Comparison - Area of Concern 5 (Coal Storage Area), Total Soil (0 - 5 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-007 | | NYOW-05-007 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-SL007-A | | NYOW-05-PH007-B | |
| | | | | | | Sample Type: | N | | C | |
| | | | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | |
| | | | | | | Sample Geology: | Ps | | Ps | |
| | | | | | | Sample Date: | 2021-01-07 | | 2021-01-07 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.011 | 2 | N/A | Yes | mg/kg | 10 | | 0.002 | UJ |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | 2 | N/A | Yes | mg/kg | 14 | | 0.002 | UJ |
| Acenaphthene | 83-32-9 | < LOQ | 2 | N/A | Yes | mg/kg | 0.32 | J+ | 0.0011 | UJ |
| Acenaphthylene | 208-96-8 | 0.013 | 2 | N/A | Yes | mg/kg | 0.32 | J+ | 0.0011 | UJ |
| Anthracene | 120-12-7 | 0.0052 | 2 | N/A | Yes | mg/kg | 0.32 | J+ | 0.0043 | UJ |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 2 | N/A | Yes | mg/kg | 0.75 | | 0.0043 | UJ |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 2 | N/A | Yes | mg/kg | 0.38 | | 0.0043 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 2 | N/A | Yes | mg/kg | 0.46 | | 0.0067 | UJ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 2 | N/A | Yes | mg/kg | 0.28 | J | 0.0067 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 2 | N/A | Yes | mg/kg | 0.32 | J+ | 0.0043 | UJ |
| Chrysene | 218-01-9 | 0.081 | 2 | N/A | Yes | mg/kg | 0.91 | | 0.0043 | UJ |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 2 | N/A | No | mg/kg | 0.22 | U | 0.0067 | UJ |
| Fluoranthene | 206-44-0 | 0.15 | 2 | N/A | Yes | mg/kg | 0.66 | | 0.0043 | UJ |
| Fluorene | 86-73-7 | 0.015 | 2 | N/A | Yes | mg/kg | 0.17 | J | 0.0027 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 2 | N/A | Yes | mg/kg | 0.11 | J | 0.0067 | UJ |
| Naphthalene | 91-20-3 | 0.012 | 2 | N/A | Yes | mg/kg | 9.2 | | 0.01 | J+ |
| Phenanthrene | 85-01-8 | 0.086 | 2 | N/A | Yes | mg/kg | 5.3 | | 0.0067 | UJ |
| Pyrene | 129-00-0 | 0.14 | 2 | N/A | Yes | mg/kg | 0.98 | | 0.0067 | UJ |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 2 | N/A | No | mg/kg | 2600 | | 4700 | |
| Antimony | 7440-36-0 | 0.15 | 2 | N/A | Yes | mg/kg | 0.24 | J | 0.17 | J+ |
| Arsenic | 7440-38-2 | 21 | 2 | N/A | No | mg/kg | 19 | | 2.8 | |
| Barium | 7440-39-3 | 100 | 2 | N/A | No | mg/kg | 43 | | 39 | |
| Beryllium | 7440-41-7 | < LOQ | 2 | N/A | Yes | mg/kg | 0.75 | J+ | 0.46 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 2 | N/A | Yes | mg/kg | 0.38 | | 0.029 | J |
| Calcium | 7440-70-2 | 120000 | 2 | N/A | No | mg/kg | 16000 | | 29000 | |
| Chromium | 7440-47-3 | 11 | 2 | N/A | No | mg/kg | 6 | | 6.5 | |
| Cobalt | 7440-48-4 | 8.3 | 2 | N/A | No | mg/kg | 4.2 | | 3.9 | |
| Copper | 7440-50-8 | 28 | 2 | N/A | No | mg/kg | 22 | | 14 | |
| Iron | 7439-89-6 | 24000 | 2 | N/A | No | mg/kg | 13000 | | 10000 | |
| Lead | 7439-92-1 | 33 | 2 | N/A | No | mg/kg | 18 | | 3 | |
| Magnesium | 7439-95-4 | 6300 | 2 | N/A | No | mg/kg | 2900 | | 6300 | |
| Manganese | 7439-96-5 | 1700 | 2 | N/A | No | mg/kg | 270 | | 440 | |
| Mercury | 7439-97-6 | 0.056 | 2 | N/A | Yes | mg/kg | 0.093 | | 0.017 | U |
| Nickel | 7440-02-0 | 13 | 2 | N/A | No | mg/kg | 9.2 | | 8.3 | |
| Potassium | 7440-09-7 | 1100 | 2 | N/A | No | mg/kg | 640 | | 760 | |
| Selenium | 7782-49-2 | 0.51 | 2 | N/A | Yes | mg/kg | 0.98 | | 0.36 | U |
| Silver | 7440-22-4 | < LOQ | 2 | N/A | No | mg/kg | 0.9 | U | 0.56 | U |
| Sodium | 7440-23-5 | < LOQ | 2 | N/A | Yes | mg/kg | 750 | J+ | 460 | J+ |
| Thallium | 7440-28-0 | 0.12 | 2 | N/A | Yes | mg/kg | 0.34 | | 0.09 | J+ |
| Vanadium | 7440-62-2 | 17 | 2 | N/A | No | mg/kg | 10 | | 9.8 | |
| Zinc | 7440-66-6 | 57 | 2 | N/A | Yes | mg/kg | 58 | | 19 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-52
Site to Background Sample Comparison - Area of Concern 5 (Coal Storage Area), Total Soil (0 - 10 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Location: | NYOW-05-007 | | NYOW-05-007 | | NYOW-05-007 | |
| | | | | | | Sample Name: | NYOW-05-SL007-A | | NYOW-05-PH007-B | | NYOW-05-PH007-C | |
| | | | | | | Sample Type: | N | | C | | N | |
| | | | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | | | | Sample Geology: | Ps | | Ps | | Ps | |
| | | | | | | Sample Date: | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.011 | 3 | N/A | Yes | mg/kg | 10 | | 0.002 | UJ | 0.0023 | UJ |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | 3 | N/A | Yes | mg/kg | 14 | | 0.002 | UJ | 0.0023 | UJ |
| Acenaphthene | 83-32-9 | < LOQ | 3 | N/A | Yes | mg/kg | 0.32 | J+ | 0.0011 | UJ | 0.0012 | UJ |
| Acenaphthylene | 208-96-8 | 0.013 | 3 | N/A | Yes | mg/kg | 0.32 | J+ | 0.0011 | UJ | 0.0012 | UJ |
| Anthracene | 120-12-7 | 0.0052 | 3 | N/A | Yes | mg/kg | 0.32 | J+ | 0.0043 | UJ | 0.0049 | UJ |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 3 | N/A | Yes | mg/kg | 0.75 | | 0.0043 | UJ | 0.0026 | J- |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 3 | N/A | Yes | mg/kg | 0.38 | | 0.0043 | UJ | 0.0019 | J- |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 3 | N/A | Yes | mg/kg | 0.46 | | 0.0067 | UJ | 0.0065 | J- |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 3 | N/A | Yes | mg/kg | 0.28 | J | 0.0067 | UJ | 0.0075 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 3 | N/A | Yes | mg/kg | 0.32 | J+ | 0.0043 | UJ | 0.0049 | UJ |
| Chrysene | 218-01-9 | 0.081 | 3 | N/A | Yes | mg/kg | 0.91 | | 0.0043 | UJ | 0.0057 | J- |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 3 | N/A | No | mg/kg | 0.22 | U | 0.0067 | UJ | 0.0075 | UJ |
| Fluoranthene | 206-44-0 | 0.15 | 3 | N/A | Yes | mg/kg | 0.66 | | 0.0043 | UJ | 0.0049 | UJ |
| Fluorene | 86-73-7 | 0.015 | 3 | N/A | Yes | mg/kg | 0.17 | J | 0.0027 | UJ | 0.003 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 3 | N/A | Yes | mg/kg | 0.11 | J | 0.0067 | UJ | 0.0075 | UJ |
| Naphthalene | 91-20-3 | 0.012 | 3 | N/A | Yes | mg/kg | 9.2 | | 0.01 | J+ | 0.011 | J+ |
| Phenanthrene | 85-01-8 | 0.086 | 3 | N/A | Yes | mg/kg | 5.3 | | 0.0067 | UJ | 0.0075 | UJ |
| Pyrene | 129-00-0 | 0.14 | 3 | N/A | Yes | mg/kg | 0.98 | | 0.0067 | UJ | 0.0075 | UJ |
| Metals (Total) | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 3 | N/A | No | mg/kg | 2600 | | 4700 | | 5900 | |
| Antimony | 7440-36-0 | 0.15 | 3 | N/A | Yes | mg/kg | 0.24 | J | 0.17 | J+ | 0.1 | U |
| Arsenic | 7440-38-2 | 21 | 3 | N/A | No | mg/kg | 19 | | 2.8 | | 3.3 | |
| Barium | 7440-39-3 | 100 | 3 | N/A | No | mg/kg | 43 | | 39 | | 43 | |
| Beryllium | 7440-41-7 | 0.56 | 3 | N/A | Yes | mg/kg | 0.75 | J+ | 0.46 | J+ | 0.54 | J+ |
| Cadmium | 7440-43-9 | 0.16 | 3 | N/A | Yes | mg/kg | 0.38 | | 0.029 | J | 0.09 | J+ |
| Calcium | 7440-70-2 | 110000 | 3 | N/A | No | mg/kg | 16000 | | 29000 | | 55000 | |
| Chromium | 7440-47-3 | 11 | 3 | N/A | No | mg/kg | 6 | | 6.5 | | 9.3 | |
| Cobalt | 7440-48-4 | 8.3 | 3 | N/A | No | mg/kg | 4.2 | | 3.9 | | 6.1 | |
| Copper | 7440-50-8 | 28 | 3 | N/A | No | mg/kg | 22 | | 14 | | 13 | |
| Iron | 7439-89-6 | 24000 | 3 | N/A | No | mg/kg | 13000 | | 10000 | | 14000 | |
| Lead | 7439-92-1 | 33 | 3 | N/A | No | mg/kg | 18 | | 3 | | 5.3 | |
| Magnesium | 7439-95-4 | 6300 | 3 | N/A | Yes | mg/kg | 2900 | | 6300 | | 15000 | |
| Manganese | 7439-96-5 | 1700 | 3 | N/A | No | mg/kg | 270 | | 440 | | 400 | |
| Mercury | 7439-97-6 | 0.056 | 3 | N/A | Yes | mg/kg | 0.093 | | 0.017 | U | 0.017 | U |
| Nickel | 7440-02-0 | 13 | 3 | N/A | No | mg/kg | 9.2 | | 8.3 | | 13 | |
| Potassium | 7440-09-7 | 1100 | 3 | N/A | No | mg/kg | 640 | | 760 | | 1000 | |
| Selenium | 7782-49-2 | 0.51 | 3 | N/A | Yes | mg/kg | 0.98 | | 0.36 | U | 0.36 | U |
| Silver | 7440-22-4 | < LOQ | 3 | N/A | No | mg/kg | 0.9 | U | 0.56 | U | 0.65 | U |
| Sodium | 7440-23-5 | < LOQ | 3 | N/A | Yes | mg/kg | 750 | J+ | 460 | J+ | 540 | J+ |
| Thallium | 7440-28-0 | 0.12 | 3 | N/A | Yes | mg/kg | 0.34 | | 0.09 | J+ | 0.09 | J+ |
| Vanadium | 7440-62-2 | 17 | 3 | N/A | No | mg/kg | 10 | | 9.8 | | 12 | |
| Zinc | 7440-66-6 | 57 | 3 | N/A | Yes | mg/kg | 58 | | 19 | | 25 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-53
Site to Background Sample Comparison - Area of Concern 5 (Coal Storage Area), Shallow Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | Sample Location: | NYOW-05-006 | NYOW-05-008 | | NYOW-05-010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-05-WL006-A | NYOW-05-WL008-A | | NYOW-05-WL010-A | |
| | | | | | | | Sample Type: | N | N | | N | |
| | | | | | | | Sample Date: | 2021-01-11 | 2021-01-11 | | 2021-01-12 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.05 | 3 | N/A | Yes | µg/L | 0.047 | UJ | 0.048 | U | 0.21 | J- |
| 2-Methylnaphthalene | 91-57-6 | 0.063 | 3 | N/A | Yes | µg/L | 0.058 | UJ | 0.06 | U | 0.22 | J- |
| Acenaphthene | 83-32-9 | < LOQ | 3 | N/A | No | µg/L | 0.014 | UJ | 0.014 | U | 0.012 | UJ |
| Acenaphthylene | 208-96-8 | 0.25 | 3 | N/A | No | µg/L | 0.023 | UJ | 0.024 | U | 0.021 | UJ |
| Anthracene | 120-12-7 | 0.13 | 3 | N/A | No | µg/L | 0.12 | UJ | 0.12 | U | 0.1 | UJ |
| Benzo(a)anthracene | 56-55-3 | < LOQ | 3 | N/A | No | µg/L | 0.12 | UJ | 0.12 | U | 0.1 | UJ |
| Benzo(a)pyrene | 50-32-8 | < LOQ | 3 | N/A | No | µg/L | 0.058 | UJ | 0.06 | UJ | 0.051 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | < LOQ | 3 | N/A | No | µg/L | 0.12 | UJ | 0.12 | UJ | 0.1 | UJ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.14 | 3 | N/A | No | µg/L | 0.12 | UJ | 0.12 | UJ | 0.1 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 0.21 | 3 | N/A | No | µg/L | 0.058 | UJ | 0.06 | UJ | 0.051 | UJ |
| Chrysene | 218-01-9 | < LOQ | 3 | N/A | No | µg/L | 0.12 | UJ | 0.12 | U | 0.1 | UJ |
| Dibenz(a,h)anthracene | 53-70-3 | < LOQ | 3 | N/A | No | µg/L | 0.12 | UJ | 0.12 | UJ | 0.1 | UJ |
| Fluoranthene | 206-44-0 | 0.13 | 3 | N/A | No | µg/L | 0.12 | UJ | 0.12 | U | 0.1 | UJ |
| Fluorene | 86-73-7 | 0.05 | 3 | N/A | No | µg/L | 0.047 | UJ | 0.048 | U | 0.041 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | < LOQ | 3 | N/A | No | µg/L | 0.12 | UJ | 0.12 | UJ | 0.1 | UJ |
| Naphthalene | 91-20-3 | 0.063 | 3 | N/A | Yes | µg/L | 0.039 | J- | 0.06 | U | 0.17 | J- |
| Phenanthrene | 85-01-8 | < LOQ | 3 | N/A | Yes | µg/L | 0.12 | UJ | 0.12 | U | 0.28 | J- |
| Pyrene | 129-00-0 | 0.13 | 3 | N/A | No | µg/L | 0.12 | UJ | 0.12 | U | 0.1 | UJ |
| Metals (Dissolved) | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 1300 | 3 | N/A | No | µg/L | 70 | U | 70 | U | 70 | U |
| Antimony | 7440-36-0 | N/A | 3 | N/A | No | µg/L | 1 | U | 1 | U | 6 | J+ |
| Arsenic | 7440-38-2 | < LOQ | 3 | N/A | Yes | µg/L | 1.6 | J | 0.9 | J | 7.1 | |
| Barium | 7440-39-3 | 280 | 3 | N/A | No | µg/L | 140 | | 38 | | 160 | |
| Beryllium | 7440-41-7 | 0.5 | 3 | N/A | No | µg/L | 0.5 | U | 0.5 | U | 0.5 | U |
| Cadmium | 7440-43-9 | N/A | 3 | N/A | No | µg/L | 1.8 | U | 1.8 | U | 1.8 | U |
| Calcium | 7440-70-2 | 160000 | 3 | N/A | No | µg/L | 83000 | | 140000 | | 48000 | |
| Chromium | 7440-47-3 | < LOQ | 3 | N/A | No | µg/L | 1.8 | U | 1.8 | U | 1.8 | U |
| Cobalt | 7440-48-4 | 4 | 3 | N/A | No | µg/L | 0.84 | J | 1.1 | | 0.69 | J |
| Copper | 7440-50-8 | < LOQ | 3 | N/A | No | µg/L | 10 | U | 10 | U | 10 | U |
| Iron | 7439-89-6 | 4900 | 3 | N/A | No | µg/L | 2500 | | 3400 | | 750 | |
| Lead | 7439-92-1 | < LOQ | 3 | N/A | No | µg/L | 0.7 | U | 0.7 | U | 0.7 | U |
| Magnesium | 7439-95-4 | 75000 | 3 | N/A | No | µg/L | 56000 | | 33000 | | 22000 | |
| Manganese | 7439-96-5 | 2600 | 3 | N/A | No | µg/L | 440 | | 290 | | 220 | |
| Mercury | 7439-97-6 | N/A | 3 | N/A | No | µg/L | 0.08 | U | 0.08 | U | 0.08 | U |
| Nickel | 7440-02-0 | < LOQ | 3 | N/A | Yes | µg/L | 8 | U | 8 | U | 40 | J+ |
| Potassium | 7440-09-7 | 9900 | 3 | N/A | No | µg/L | 8200 | | 2600 | J | 7800 | |
| Selenium | 7782-49-2 | N/A | 3 | N/A | No | µg/L | 19 | U | 19 | U | 19 | U |
| Silver | 7440-22-4 | 5 | 3 | N/A | No | µg/L | 5 | U | 5 | U | 5 | U |
| Sodium | 7440-23-5 | 140000 | 3 | N/A | No | µg/L | 38000 | | 18000 | | 20000 | |
| Thallium | 7440-28-0 | N/A | 3 | N/A | No | µg/L | 0.2 | U | 0.2 | U | 0.2 | U |
| Vanadium | 7440-62-2 | < LOQ | 3 | N/A | No | µg/L | 4 | U | 4 | U | 4 | U |
| Zinc | 7440-66-6 | 15 | 3 | N/A | No | µg/L | 15 | U | 15 | U | 15 | U |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-54
Site to Background Sample Comparison - Area of Concern 5 (Electric Substation), Surface Soil (0 - 1 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: NYOW-05-013<br>Sample Name: NYOW-05-SL013-A<br>Sample Type: N<br>Sample Depth (feet): 0 - 1<br>Sample Geology: Psc<br>Sample Date: 2021-01-13 | | Sample Location: NYOW-05-014<br>Sample Name: NYOW-05-SL014-A<br>Sample Type: N<br>Sample Depth (feet): 0 - 1<br>Sample Geology: Psc<br>Sample Date: 2021-01-13 | | Sample Location: NYOW-05-015<br>Sample Name: NYOW-05-SL015-A<br>Sample Type: N<br>Sample Depth (feet): 0 - 1<br>Sample Geology: Psc<br>Sample Date: 2021-01-13 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 3 | N/A | No | mg/kg | 0.012 | J+ | 0.011 | J+ | 0.011 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 3 | N/A | No | mg/kg | 0.0019 | J | 0.0029 | J | 0.0094 | J |
| Acenaphthene | 83-32-9 | < LOQ | 3 | N/A | Yes | mg/kg | 0.0012 | U | 0.0011 | U | 0.011 | J+ |
| Acenaphthylene | 208-96-8 | 0.01 | 3 | N/A | Yes | mg/kg | 0.0012 | U | 0.011 | J+ | 0.011 | J+ |
| Anthracene | 120-12-7 | 0.048 | 3 | N/A | No | mg/kg | 0.012 | J+ | 0.011 | J+ | 0.011 | J+ |
| Benzo(a)anthracene | 56-55-3 | 0.14 | 3 | N/A | No | mg/kg | 0.012 | | 0.013 | | 0.018 | |
| Benzo(a)pyrene | 50-32-8 | 0.15 | 3 | N/A | No | mg/kg | 0.012 | J- | 0.017 | J- | 0.065 | J- |
| Benzo(b)fluoranthene | 205-99-2 | 0.18 | 3 | N/A | No | mg/kg | 0.019 | | 0.024 | | 0.072 | |
| Benzo(g,h,i)perylene | 191-24-2 | 0.095 | 3 | N/A | No | mg/kg | 0.0098 | J- | 0.012 | J- | 0.049 | J- |
| Benzo(k)fluoranthene | 207-08-9 | 0.08 | 3 | N/A | No | mg/kg | 0.0074 | J | 0.01 | J | 0.027 | |
| Chrysene | 218-01-9 | 0.14 | 3 | N/A | No | mg/kg | 0.015 | | 0.018 | | 0.026 | |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 3 | N/A | No | mg/kg | 0.0078 | UJ | 0.0032 | J- | 0.013 | J- |
| Fluoranthene | 206-44-0 | 0.24 | 3 | N/A | No | mg/kg | 0.019 | | 0.022 | | 0.031 | |
| Fluorene | 86-73-7 | 0.015 | 3 | N/A | No | mg/kg | 0.0031 | U | 0.0029 | U | 0.011 | J+ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.11 | 3 | N/A | No | mg/kg | 0.011 | J- | 0.013 | J- | 0.055 | J- |
| Naphthalene | 91-20-3 | 0.012 | 3 | N/A | No | mg/kg | 0.0033 | J | 0.0029 | J | 0.0075 | J |
| Phenanthrene | 85-01-8 | 0.17 | 3 | N/A | No | mg/kg | 0.0084 | J | 0.0099 | J | 0.018 | |
| Pyrene | 129-00-0 | 0.22 | 3 | N/A | No | mg/kg | 0.017 | | 0.02 | | 0.029 | |
| **Metals (Total)** | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 3 | N/A | Yes | mg/kg | 5500 | | 6600 | | 5400 | |
| Antimony | 7440-36-0 | 0.15 | 3 | N/A | No | mg/kg | 0.096 | J | 0.13 | J | 0.12 | J |
| Arsenic | 7440-38-2 | 4.7 | 3 | N/A | Yes | mg/kg | 4.3 | | 4.9 | | 4.3 | |
| Barium | 7440-39-3 | 100 | 3 | N/A | No | mg/kg | 43 | | 51 | | 48 | |
| Beryllium | 7440-41-7 | < LOQ | 3 | N/A | Yes | mg/kg | 0.47 | J+ | 0.57 | J+ | 0.57 | J+ |
| Cadmium | 7440-43-9 | 0.38 | 3 | N/A | Yes | mg/kg | 0.14 | | 0.11 | | 0.39 | |
| Calcium | 7440-70-2 | 120000 | 3 | N/A | No | mg/kg | 30000 | | 37000 | | 35000 | |
| Chromium | 7440-47-3 | 11 | 3 | N/A | No | mg/kg | 8.4 | | 9.6 | | 7.9 | |
| Cobalt | 7440-48-4 | 5.5 | 3 | N/A | Yes | mg/kg | 6.1 | | 9.3 | | 5.6 | |
| Copper | 7440-50-8 | 13 | 3 | N/A | Yes | mg/kg | 16 | | 21 | | 16 | |
| Iron | 7439-89-6 | 14000 | 3 | N/A | Yes | mg/kg | 17000 | | 18000 | | 15000 | |
| Lead | 7439-92-1 | 9.8 | 3 | N/A | Yes | mg/kg | 7.9 | | 13 | | 7.6 | |
| Magnesium | 7439-95-4 | 2000 | 3 | N/A | Yes | mg/kg | 11000 | | 12000 | | 9800 | |
| Manganese | 7439-96-5 | 520 | 3 | N/A | Yes | mg/kg | 590 | | 660 | | 630 | |
| Mercury | 7439-97-6 | 0.19 | 3 | N/A | No | mg/kg | 0.029 | | 0.026 | | 0.026 | |
| Nickel | 7440-02-0 | 9.7 | 3 | N/A | Yes | mg/kg | 12 | | 15 | | 12 | |
| Potassium | 7440-09-7 | 1200 | 3 | N/A | No | mg/kg | 870 | | 850 | | 810 | |
| Selenium | 7782-49-2 | 0.51 | 3 | N/A | Yes | mg/kg | 0.59 | J+ | 0.54 | J+ | 0.42 | J+ |
| Silver | 7440-22-4 | < LOQ | 3 | N/A | No | mg/kg | 0.56 | U | 0.68 | U | 0.69 | U |
| Sodium | 7440-23-5 | < LOQ | 3 | N/A | No | mg/kg | 93 | U | 570 | U | 110 | U |
| Thallium | 7440-28-0 | 0.11 | 3 | N/A | No | mg/kg | 0.12 | U | 0.11 | U | 0.085 | U |
| Vanadium | 7440-62-2 | 14 | 3 | N/A | No | mg/kg | 14 | | 14 | | 12 | |
| Zinc | 7440-66-6 | 23 | 3 | N/A | Yes | mg/kg | 35 | | 40 | | 33 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-55
Site to Background Sample Comparison - Area of Concern 5 (Electric Substation), Subsurface Soil (1 - 5 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Location: | NYOW-05-013 | | NYOW-05-014 | | NYOW-05-015 | |
| | | | | | | Sample Name: | NYOW-05-PH013-B | | NYOW-05-PH014-B | | NYOW-05-PH015-B | |
| | | | | | | Sample Type: | N | | N | | N | |
| | | | | | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | | | Sample Geology: | Psc | | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 3 | N/A | No | mg/kg | 0.01 | J+ | 0.0022 | U | 0.01 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 3 | N/A | No | mg/kg | 0.01 | J+ | 0.011 | J+ | 0.01 | J+ |
| Acenaphthene | 83-32-9 | < LOQ | 3 | N/A | No | mg/kg | 0.0011 | U | 0.0012 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 3 | N/A | No | mg/kg | 0.0011 | U | 0.0012 | U | 0.01 | J+ |
| Anthracene | 120-12-7 | 0.048 | 3 | N/A | No | mg/kg | 0.01 | J+ | 0.0047 | U | 0.0045 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 3 | N/A | No | mg/kg | 0.01 | J+ | 0.0047 | U | 0.01 | J+ |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 3 | N/A | No | mg/kg | 0.01 | J+ | 0.0047 | UJ | 0.01 | J+ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 3 | N/A | No | mg/kg | 0.015 | | 0.003 | J | 0.0081 | J |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 3 | N/A | No | mg/kg | 0.01 | J+ | 0.0072 | UJ | 0.01 | J+ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 3 | N/A | No | mg/kg | 0.01 | J+ | 0.0047 | U | 0.0045 | U |
| Chrysene | 218-01-9 | 0.081 | 3 | N/A | No | mg/kg | 0.015 | | 0.0023 | J | 0.0066 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 3 | N/A | No | mg/kg | 0.0069 | UJ | 0.0072 | UJ | 0.0069 | UJ |
| Fluoranthene | 206-44-0 | 0.15 | 3 | N/A | No | mg/kg | 0.015 | | 0.0047 | U | 0.0085 | J |
| Fluorene | 86-73-7 | 0.015 | 3 | N/A | No | mg/kg | 0.0028 | U | 0.0029 | U | 0.0027 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 3 | N/A | No | mg/kg | 0.01 | J+ | 0.0072 | UJ | 0.01 | J+ |
| Naphthalene | 91-20-3 | 0.012 | 3 | N/A | No | mg/kg | 0.01 | J+ | 0.011 | J+ | 0.01 | J+ |
| Phenanthrene | 85-01-8 | 0.012 | 3 | N/A | No | mg/kg | 0.01 | | 0.0072 | U | 0.0046 | J |
| Pyrene | 129-00-0 | 0.14 | 3 | N/A | No | mg/kg | 0.013 | | 0.0072 | U | 0.0071 | J |
| Metals (Total) | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 3 | N/A | Yes | mg/kg | 5800 | | 10000 | | 7300 | |
| Antimony | 7440-36-0 | 0.15 | 3 | N/A | Yes | mg/kg | 0.21 | J+ | 0.18 | J+ | 0.21 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 3 | N/A | Yes | mg/kg | 5.5 | | 4.9 | | 4.8 | |
| Barium | 7440-39-3 | 100 | 3 | N/A | No | mg/kg | 51 | | 59 | | 50 | |
| Beryllium | 7440-41-7 | < LOQ | 3 | N/A | No | mg/kg | 0.27 | J | 0.47 | J | 0.35 | J |
| Cadmium | 7440-43-9 | 0.16 | 3 | N/A | Yes | mg/kg | 0.38 | | 0.054 | J | 0.046 | J |
| Calcium | 7440-70-2 | 120000 | 3 | N/A | No | mg/kg | 51000 | | 82000 | | 73000 | |
| Chromium | 7440-47-3 | 11 | 3 | N/A | Yes | mg/kg | 8.3 | | 15 | | 10 | |
| Cobalt | 7440-48-4 | 5.5 | 3 | N/A | Yes | mg/kg | 5.9 | | 6.2 | | 6.3 | |
| Copper | 7440-50-8 | 13 | 3 | N/A | Yes | mg/kg | 74 | | 15 | | 16 | |
| Iron | 7439-89-6 | 14000 | 3 | N/A | Yes | mg/kg | 19000 | | 18000 | | 16000 | |
| Lead | 7439-92-1 | 6.3 | 3 | N/A | Yes | mg/kg | 8.5 | | 7.8 | | 10 | |
| Magnesium | 7439-95-4 | 35000 | 3 | N/A | No | mg/kg | 14000 | | 17000 | | 26000 | |
| Manganese | 7439-96-5 | 520 | 3 | N/A | Yes | mg/kg | 870 | | 330 | | 670 | |
| Mercury | 7439-97-6 | 0.027 | 3 | N/A | Yes | mg/kg | 0.035 | | 0.013 | J | 0.024 | |
| Nickel | 7440-02-0 | 9.7 | 3 | N/A | Yes | mg/kg | 12 | | 16 | | 13 | |
| Potassium | 7440-09-7 | 1200 | 3 | N/A | Yes | mg/kg | 830 | | 1300 | | 900 | |
| Selenium | 7782-49-2 | 0.51 | 3 | N/A | No | mg/kg | 0.47 | J+ | 0.41 | J+ | 0.48 | J+ |
| Silver | 7440-22-4 | < LOQ | 3 | N/A | No | mg/kg | 0.53 | U | 0.58 | U | 0.58 | U |
| Sodium | 7440-23-5 | < LOQ | 3 | N/A | No | mg/kg | 88 | U | 480 | U | 480 | U |
| Thallium | 7440-28-0 | 0.11 | 3 | N/A | No | mg/kg | 0.094 | U | 0.096 | | 0.096 | U |
| Vanadium | 7440-62-2 | 14 | 3 | N/A | Yes | mg/kg | 13 | | 17 | | 14 | |
| Zinc | 7440-66-6 | 23 | 3 | N/A | Yes | mg/kg | 42 | | 35 | | 29 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-56
Site to Background Sample Comparison - Area of Concern 5 (Electric Substation), Subsurface Soil (5 - 10 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-013 | | NYOW-05-014 | | NYOW-05-015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-PH013-C | | NYOW-05-PH014-C | | NYOW-05-PH015-C | |
| | | | | | | Sample Type: | C | | N | | N | |
| | | | | | | Sample Depth (feet): | 5 - 10 | | 5 - 10 | | 5 - 10 | |
| | | | | | | Sample Geology: | Psc | | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 3 | N/A | No | mg/kg | 0.0021 | U | 0.0023 | U | 0.011 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 3 | N/A | No | mg/kg | 0.0021 | U | 0.0023 | U | 0.011 | J+ |
| Acenaphthene | 83-32-9 | < LOQ | 3 | N/A | No | mg/kg | 0.0011 | U | 0.0012 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 3 | N/A | No | mg/kg | 0.0011 | U | 0.0012 | U | 0.0012 | U |
| Anthracene | 120-12-7 | 0.048 | 3 | N/A | No | mg/kg | 0.0046 | U | 0.0049 | U | 0.0047 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 3 | N/A | No | mg/kg | 0.0046 | U | 0.0049 | U | 0.0047 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 3 | N/A | No | mg/kg | 0.0046 | UJ | 0.0049 | UJ | 0.0019 | J- |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 3 | N/A | No | mg/kg | 0.0071 | U | 0.003 | J | 0.0035 | J |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 3 | N/A | No | mg/kg | 0.0071 | UJ | 0.0075 | UJ | 0.0073 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 3 | N/A | No | mg/kg | 0.0046 | U | 0.0049 | U | 0.0047 | U |
| Chrysene | 218-01-9 | 0.081 | 3 | N/A | No | mg/kg | 0.0046 | U | 0.0044 | J | 0.0032 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 3 | N/A | No | mg/kg | 0.0071 | UJ | 0.0075 | UJ | 0.0073 | UJ |
| Fluoranthene | 206-44-0 | 0.15 | 3 | N/A | No | mg/kg | 0.0046 | U | 0.0049 | U | 0.0043 | J |
| Fluorene | 86-73-7 | 0.015 | 3 | N/A | No | mg/kg | 0.0028 | U | 0.003 | U | 0.0029 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 3 | N/A | No | mg/kg | 0.0071 | UJ | 0.0075 | UJ | 0.0073 | UJ |
| Naphthalene | 91-20-3 | 0.012 | 3 | N/A | No | mg/kg | 0.0021 | U | 0.011 | J+ | 0.011 | J+ |
| Phenanthrene | 85-01-8 | 0.012 | 3 | N/A | No | mg/kg | 0.0071 | U | 0.011 | J+ | 0.011 | J+ |
| Pyrene | 129-00-0 | 0.14 | 3 | N/A | No | mg/kg | 0.0071 | U | 0.0025 | J | 0.0035 | J |
| Metals (Total) | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 3 | N/A | Yes | mg/kg | 11000 | | 6600 | | 6600 | |
| Antimony | 7440-36-0 | 0.15 | 3 | N/A | Yes | mg/kg | 0.23 | J+ | 0.17 | J+ | 0.19 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 3 | N/A | Yes | mg/kg | 3.9 | | 2.9 | | 8.6 | |
| Barium | 7440-39-3 | 100 | 3 | N/A | No | mg/kg | 82 | | 36 | | 59 | |
| Beryllium | 7440-41-7 | 0.56 | 3 | N/A | No | mg/kg | 0.49 | | 0.31 | J | 0.34 | J |
| Cadmium | 7440-43-9 | 0.31 | 3 | N/A | No | mg/kg | 0.052 | J | 0.059 | J | 0.16 | |
| Calcium | 7440-70-2 | 71000 | 3 | N/A | No | mg/kg | 69000 | | 58000 | | 49000 | |
| Chromium | 7440-47-3 | 11 | 3 | N/A | Yes | mg/kg | 16 | | 11 | | 12 | |
| Cobalt | 7440-48-4 | 5.5 | 3 | N/A | Yes | mg/kg | 9 | | 7.3 | | 7.1 | |
| Copper | 7440-50-8 | 13 | 3 | N/A | Yes | mg/kg | 19 | | 16 | | 18 | |
| Iron | 7439-89-6 | 14000 | 3 | N/A | Yes | mg/kg | 20000 | | 15000 | | 16000 | |
| Lead | 7439-92-1 | 6.3 | 3 | N/A | Yes | mg/kg | 8.5 | | 6.9 | | 9 | |
| Magnesium | 7439-95-4 | 27000 | 3 | N/A | No | mg/kg | 20000 | | 24000 | | 19000 | |
| Manganese | 7439-96-5 | 520 | 3 | N/A | No | mg/kg | 490 | | 460 | | 490 | |
| Mercury | 7439-97-6 | 0.027 | 3 | N/A | No | mg/kg | 0.014 | J | 0.011 | J | 0.026 | |
| Nickel | 7440-02-0 | 9.7 | 3 | N/A | Yes | mg/kg | 20 | | 15 | | 15 | |
| Potassium | 7440-09-7 | 1200 | 3 | N/A | Yes | mg/kg | 1600 | | 1100 | | 1000 | |
| Selenium | 7782-49-2 | 0.51 | 3 | N/A | No | mg/kg | 0.34 | U | 0.46 | J+ | 0.44 | J+ |
| Silver | 7440-22-4 | < LOQ | 3 | N/A | No | mg/kg | 0.53 | U | 0.62 | U | 0.67 | U |
| Sodium | 7440-23-5 | < LOQ | 3 | N/A | No | mg/kg | 440 | U | 520 | U | 110 | U |
| Thallium | 7440-28-0 | 0.11 | 3 | N/A | No | mg/kg | 0.085 | U | 0.092 | U | 0.089 | U |
| Vanadium | 7440-62-2 | 14 | 3 | N/A | Yes | mg/kg | 20 | | 13 | | 14 | |
| Zinc | 7440-66-6 | 23 | 3 | N/A | Yes | mg/kg | 40 | | 30 | | 31 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-57
Site to Background Sample Comparison - Area of Concern 5 (Electric Substation), Total Soil (0 - 5 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Location: | NYOW-05-013 | | NYOW-05-014 | | NYOW-05-015 | | NYOW-05-013 | | NYOW-05-014 | | NYOW-05-015 | |
| | | | | | | Sample Name: | NYOW-05-SL013-A | | NYOW-05-SL014-A | | NYOW-05-SL015-A | | NYOW-05-PH013-B | | NYOW-05-PH014-B | | NYOW-05-PH015-B | |
| | | | | | | Sample Type: | N | | N | | N | | N | | N | | N | |
| | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 6 | N/A | No | mg/kg | 0.012 | J+ | 0.011 | J+ | 0.011 | J+ | 0.01 | J+ | 0.0022 | U | 0.01 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 6 | N/A | No | mg/kg | 0.0019 | J | 0.0029 | J | 0.0094 | J | 0.01 | J+ | 0.011 | J+ | 0.01 | J+ |
| Acenaphthene | 83-32-9 | < LOQ | 6 | N/A | Yes | mg/kg | 0.0012 | U | 0.0011 | U | 0.011 | J+ | 0.0011 | U | 0.0012 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 6 | N/A | Yes | mg/kg | 0.0012 | U | 0.011 | J+ | 0.011 | J+ | 0.0011 | U | 0.0012 | U | 0.01 | J+ |
| Anthracene | 120-12-7 | 0.048 | 6 | N/A | No | mg/kg | 0.012 | J+ | 0.011 | J+ | 0.011 | J+ | 0.01 | J+ | 0.0047 | U | 0.0045 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 6 | N/A | No | mg/kg | 0.012 | | 0.013 | | 0.018 | | 0.01 | J+ | 0.0047 | U | 0.01 | J+ |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 6 | N/A | No | mg/kg | 0.012 | J- | 0.017 | J- | 0.065 | J- | 0.01 | J+ | 0.0047 | UJ | 0.01 | J+ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 6 | N/A | No | mg/kg | 0.019 | | 0.024 | | 0.072 | | 0.015 | | 0.003 | J | 0.0081 | J |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 6 | N/A | No | mg/kg | 0.0098 | J- | 0.012 | J- | 0.049 | J- | 0.01 | J+ | 0.0072 | UJ | 0.01 | J+ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 6 | N/A | No | mg/kg | 0.0074 | J | 0.01 | J | 0.027 | | 0.01 | J+ | 0.0047 | U | 0.0045 | U |
| Chrysene | 218-01-9 | 0.081 | 6 | N/A | No | mg/kg | 0.015 | | 0.018 | | 0.026 | | 0.015 | | 0.0023 | J | 0.0066 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 6 | N/A | No | mg/kg | 0.0078 | UJ | 0.0032 | J- | 0.013 | J- | 0.0069 | UJ | 0.0072 | UJ | 0.0069 | UJ |
| Fluoranthene | 206-44-0 | 0.15 | 6 | N/A | No | mg/kg | 0.019 | | 0.022 | | 0.031 | | 0.015 | | 0.0047 | U | 0.0085 | J |
| Fluorene | 86-73-7 | 0.015 | 6 | N/A | No | mg/kg | 0.0031 | U | 0.0029 | U | 0.011 | J+ | 0.0028 | U | 0.0029 | U | 0.0027 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 6 | N/A | No | mg/kg | 0.011 | J- | 0.013 | J- | 0.055 | J- | 0.01 | J+ | 0.0072 | UJ | 0.01 | J+ |
| Naphthalene | 91-20-3 | 0.012 | 6 | N/A | No | mg/kg | 0.0033 | J | 0.0029 | J | 0.0075 | J | 0.01 | J+ | 0.011 | J+ | 0.01 | J+ |
| Phenanthrene | 85-01-8 | 0.012 | 6 | N/A | Yes | mg/kg | 0.0084 | J | 0.0099 | J | 0.018 | | 0.01 | | 0.0072 | U | 0.0046 | J |
| Pyrene | 129-00-0 | 0.14 | 6 | N/A | No | mg/kg | 0.017 | | 0.02 | | 0.029 | | 0.013 | | 0.0072 | U | 0.0071 | J |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 6 | N/A | Yes | mg/kg | 5500 | | 6600 | | 5400 | | 5800 | | 10000 | | 7300 | |
| Antimony | 7440-36-0 | 0.15 | 6 | N/A | Yes | mg/kg | 0.096 | J | 0.13 | J | 0.12 | J | 0.21 | J+ | 0.18 | J+ | 0.21 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 6 | N/A | Yes | mg/kg | 4.3 | | 4.9 | | 4.3 | | 5.5 | | 4.9 | | 4.8 | |
| Barium | 7440-39-3 | 100 | 6 | N/A | No | mg/kg | 43 | | 51 | | 48 | | 51 | | 59 | | 50 | |
| Beryllium | 7440-41-7 | < LOQ | 6 | N/A | Yes | mg/kg | 0.47 | J+ | 0.57 | J+ | 0.57 | J+ | 0.27 | J | 0.47 | J | 0.35 | J |
| Cadmium | 7440-43-9 | 0.16 | 6 | N/A | Yes | mg/kg | 0.14 | | 0.11 | | 0.39 | | 0.38 | | 0.054 | J | 0.046 | J |
| Calcium | 7440-70-2 | 120000 | 6 | N/A | No | mg/kg | 30000 | | 37000 | | 35000 | | 51000 | | 82000 | | 73000 | |
| Chromium | 7440-47-3 | 11 | 6 | N/A | Yes | mg/kg | 8.4 | | 9.6 | | 7.9 | | 8.3 | | 15 | | 10 | |
| Cobalt | 7440-48-4 | 5.5 | 6 | N/A | Yes | mg/kg | 6.1 | | 9.3 | | 5.6 | | 5.9 | | 6.2 | | 6.3 | |
| Copper | 7440-50-8 | 13 | 6 | N/A | Yes | mg/kg | 16 | | 21 | | 16 | | 74 | | 15 | | 16 | |
| Iron | 7439-89-6 | 14000 | 6 | N/A | Yes | mg/kg | 17000 | | 18000 | | 15000 | | 19000 | | 18000 | | 16000 | |
| Lead | 7439-92-1 | 6.3 | 6 | N/A | Yes | mg/kg | 7.9 | | 13 | | 7.6 | | 8.5 | | 7.8 | | 10 | |
| Magnesium | 7439-95-4 | 2000 | 6 | N/A | Yes | mg/kg | 11000 | | 12000 | | 9800 | | 14000 | | 17000 | | 26000 | |
| Manganese | 7439-96-5 | 520 | 6 | N/A | Yes | mg/kg | 590 | | 660 | | 630 | | 870 | | 330 | | 670 | |
| Mercury | 7439-97-6 | 0.027 | 6 | N/A | Yes | mg/kg | 0.029 | | 0.026 | | 0.026 | | 0.035 | | 0.013 | J | 0.024 | |
| Nickel | 7440-02-0 | 9.7 | 6 | N/A | Yes | mg/kg | 12 | | 15 | | 12 | | 12 | | 16 | | 13 | |
| Potassium | 7440-09-7 | 1200 | 6 | N/A | Yes | mg/kg | 870 | | 850 | | 810 | | 830 | | 1300 | | 900 | |
| Selenium | 7782-49-2 | 0.51 | 6 | N/A | Yes | mg/kg | 0.59 | J+ | 0.54 | J+ | 0.42 | J+ | 0.47 | J+ | 0.41 | J+ | 0.48 | J+ |
| Silver | 7440-22-4 | < LOQ | 6 | N/A | No | mg/kg | 0.56 | U | 0.68 | U | 0.69 | U | 0.53 | U | 0.58 | U | 0.58 | U |
| Sodium | 7440-23-5 | < LOQ | 6 | N/A | No | mg/kg | 93 | U | 570 | U | 110 | U | 88 | U | 480 | U | 480 | U |
| Thallium | 7440-28-0 | 0.11 | 6 | N/A | No | mg/kg | 0.12 | U | 0.11 | U | 0.085 | U | 0.094 | U | 0.096 | | 0.096 | U |
| Vanadium | 7440-62-2 | 14 | 6 | N/A | Yes | mg/kg | 14 | | 14 | | 12 | | 13 | | 17 | | 14 | |
| Zinc | 7440-66-6 | 23 | 6 | N/A | Yes | mg/kg | 35 | | 40 | | 33 | | 42 | | 35 | | 29 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-58
Site to Background Sample Comparison - Area of Concern 5 (Electric Substation), Total Soil (0 - 10 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Location: | NYOW-05-013 | | NYOW-05-014 | | NYOW-05-015 | | NYOW-05-013 | | NYOW-05-014 | | NYOW-05-015 | | NYOW-05-013 | | NYOW-05-014 | | NYOW-05-015 | |
| | | | | | | Sample Name: | NYOW-05-SL013-A | | NYOW-05-SL014-A | | NYOW-05-SL015-A | | NYOW-05-PH013-B | | NYOW-05-PH014-B | | NYOW-05-PH015-B | | NYOW-05-PH013-C | | NYOW-05-PH014-C | | NYOW-05-PH015-C | |
| | | | | | | Sample Type: | N | | N | | N | | N | | N | | N | | C | | N | | N | |
| | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 5 - 10 | | 5 - 10 | | 5 - 10 | |
| | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 9 | N/A | No | mg/kg | 0.012 | J+ | 0.011 | J+ | 0.011 | J+ | 0.01 | J+ | 0.0022 | U | 0.01 | J+ | 0.0021 | U | 0.0023 | U | 0.011 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 9 | N/A | No | mg/kg | 0.0019 | J | 0.0029 | J | 0.0094 | J | 0.01 | J+ | 0.011 | J+ | 0.01 | J+ | 0.0021 | U | 0.0023 | U | 0.011 | J+ |
| Acenaphthene | 83-32-9 | < LOQ | 9 | N/A | Yes | mg/kg | 0.0012 | U | 0.0011 | U | 0.011 | J+ | 0.0011 | U | 0.0012 | U | 0.0011 | U | 0.0011 | U | 0.0012 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 9 | N/A | Yes | mg/kg | 0.0012 | U | 0.011 | J+ | 0.011 | J+ | 0.0011 | U | 0.0012 | U | 0.01 | J+ | 0.0011 | U | 0.0012 | U | 0.0012 | U |
| Anthracene | 120-12-7 | 0.048 | 9 | N/A | No | mg/kg | 0.012 | J+ | 0.011 | J+ | 0.011 | J+ | 0.01 | J+ | 0.0047 | U | 0.0045 | U | 0.0046 | U | 0.0049 | U | 0.0047 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 9 | N/A | No | mg/kg | 0.012 | | 0.013 | | 0.018 | | 0.01 | J+ | 0.0047 | U | 0.01 | J+ | 0.0046 | U | 0.0049 | U | 0.0047 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 9 | N/A | No | mg/kg | 0.012 | J- | 0.017 | J- | 0.065 | J- | 0.01 | J+ | 0.0047 | UJ | 0.01 | J+ | 0.0046 | UJ | 0.0049 | UJ | 0.0019 | J- |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 9 | N/A | No | mg/kg | 0.019 | | 0.024 | | 0.072 | | 0.015 | | 0.003 | J | 0.0081 | J | 0.0071 | U | 0.003 | J | 0.0035 | J |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 9 | N/A | No | mg/kg | 0.0098 | J- | 0.012 | J- | 0.049 | J- | 0.01 | J+ | 0.0072 | UJ | 0.01 | J+ | 0.0071 | UJ | 0.0075 | UJ | 0.0073 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 9 | N/A | No | mg/kg | 0.0074 | J | 0.01 | J | 0.027 | | 0.01 | J+ | 0.0047 | U | 0.0045 | U | 0.0046 | U | 0.0049 | U | 0.0047 | U |
| Chrysene | 218-01-9 | 0.081 | 9 | N/A | No | mg/kg | 0.015 | | 0.018 | | 0.026 | | 0.015 | | 0.0023 | J | 0.0066 | J | 0.0046 | U | 0.0044 | J | 0.0032 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 9 | N/A | No | mg/kg | 0.0078 | UJ | 0.0032 | J- | 0.013 | J- | 0.0069 | UJ | 0.0072 | UJ | 0.0069 | UJ | 0.0071 | UJ | 0.0075 | UJ | 0.0073 | UJ |
| Fluoranthene | 206-44-0 | 0.15 | 9 | N/A | No | mg/kg | 0.019 | | 0.022 | | 0.031 | | 0.015 | | 0.0047 | U | 0.0085 | J | 0.0046 | U | 0.0049 | U | 0.0043 | J |
| Fluorene | 86-73-7 | 0.015 | 9 | N/A | No | mg/kg | 0.0031 | U | 0.0029 | U | 0.011 | J+ | 0.0028 | U | 0.0029 | U | 0.0027 | U | 0.0028 | U | 0.003 | U | 0.0029 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 9 | N/A | No | mg/kg | 0.011 | J- | 0.013 | J- | 0.055 | J- | 0.01 | J+ | 0.0072 | UJ | 0.01 | J+ | 0.0071 | UJ | 0.0075 | UJ | 0.0073 | UJ |
| Naphthalene | 91-20-3 | 0.012 | 9 | N/A | No | mg/kg | 0.0033 | J | 0.0029 | J | 0.0075 | J | 0.01 | J+ | 0.011 | J+ | 0.01 | J+ | 0.0021 | U | 0.011 | J+ | 0.011 | J+ |
| Phenanthrene | 85-01-8 | 0.012 | 9 | N/A | Yes | mg/kg | 0.0084 | J | 0.0099 | J | 0.018 | | 0.01 | | 0.0072 | U | 0.0046 | J | 0.0071 | U | 0.011 | J+ | 0.011 | J+ |
| Pyrene | 129-00-0 | 0.14 | 9 | N/A | No | mg/kg | 0.017 | | 0.02 | | 0.029 | | 0.013 | | 0.0072 | U | 0.0071 | J | 0.0071 | U | 0.0025 | J | 0.0035 | J |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 9 | N/A | Yes | mg/kg | 5500 | | 6600 | | 5400 | | 5800 | | 10000 | | 7300 | | 11000 | | 6600 | | 6600 | |
| Antimony | 7440-36-0 | 0.15 | 9 | N/A | Yes | mg/kg | 0.096 | J | 0.13 | J | 0.12 | J | 0.21 | J+ | 0.18 | J+ | 0.21 | J+ | 0.23 | J+ | 0.17 | J+ | 0.19 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 9 | N/A | Yes | mg/kg | 4.3 | | 4.9 | | 4.3 | | 5.5 | | 4.9 | | 4.8 | | 3.9 | | 2.9 | | 8.6 | |
| Barium | 7440-39-3 | 100 | 9 | N/A | No | mg/kg | 43 | | 51 | | 48 | | 51 | | 59 | | 50 | | 82 | | 36 | | 59 | |
| Beryllium | 7440-41-7 | 0.56 | 9 | N/A | Yes | mg/kg | 0.47 | J+ | 0.57 | J+ | 0.57 | J+ | 0.27 | J | 0.47 | J | 0.35 | J | 0.49 | | 0.31 | J | 0.34 | J |
| Cadmium | 7440-43-9 | 0.16 | 9 | N/A | Yes | mg/kg | 0.14 | | 0.11 | | 0.39 | | 0.38 | | 0.054 | J | 0.046 | J | 0.052 | J | 0.059 | J | 0.16 | |
| Calcium | 7440-70-2 | 71000 | 9 | N/A | Yes | mg/kg | 30000 | | 37000 | | 35000 | | 51000 | | 82000 | | 73000 | | 69000 | | 58000 | | 49000 | |
| Chromium | 7440-47-3 | 11 | 9 | N/A | Yes | mg/kg | 8.4 | | 9.6 | | 7.9 | | 8.3 | | 15 | | 10 | | 16 | | 11 | | 12 | |
| Cobalt | 7440-48-4 | 5.5 | 9 | N/A | Yes | mg/kg | 6.1 | | 9.3 | | 5.6 | | 5.9 | | 6.2 | | 6.3 | | 9 | | 7.3 | | 7.1 | |
| Copper | 7440-50-8 | 13 | 9 | N/A | Yes | mg/kg | 16 | | 21 | | 16 | | 74 | | 15 | | 16 | | 19 | | 16 | | 18 | |
| Iron | 7439-89-6 | 14000 | 9 | N/A | Yes | mg/kg | 17000 | | 18000 | | 15000 | | 19000 | | 18000 | | 16000 | | 20000 | | 15000 | | 16000 | |
| Lead | 7439-92-1 | 6.3 | 9 | N/A | Yes | mg/kg | 7.9 | | 13 | | 7.6 | | 8.5 | | 7.8 | | 10 | | 8.5 | | 6.9 | | 9 | |
| Magnesium | 7439-95-4 | 2000 | 9 | N/A | Yes | mg/kg | 11000 | | 12000 | | 9800 | | 14000 | | 17000 | | 26000 | | 20000 | | 24000 | | 19000 | |
| Manganese | 7439-96-5 | 520 | 9 | N/A | Yes | mg/kg | 590 | | 660 | | 630 | | 870 | | 330 | | 670 | | 490 | | 460 | | 490 | |
| Mercury | 7439-97-6 | 0.027 | 9 | N/A | Yes | mg/kg | 0.029 | | 0.026 | | 0.026 | | 0.035 | | 0.013 | J | 0.024 | | 0.014 | J | 0.011 | J | 0.026 | |
| Nickel | 7440-02-0 | 9.7 | 9 | N/A | Yes | mg/kg | 12 | | 15 | | 12 | | 12 | | 16 | | 13 | | 20 | | 15 | | 15 | |
| Potassium | 7440-09-7 | 1200 | 9 | N/A | Yes | mg/kg | 870 | | 850 | | 810 | | 830 | | 1300 | | 900 | | 1600 | | 1100 | | 1000 | |
| Selenium | 7782-49-2 | 0.51 | 9 | N/A | Yes | mg/kg | 0.59 | J+ | 0.54 | J+ | 0.42 | J+ | 0.47 | J+ | 0.41 | J+ | 0.48 | J+ | 0.34 | U | 0.46 | J+ | 0.44 | J+ |
| Silver | 7440-22-4 | < LOQ | 9 | N/A | No | mg/kg | 0.56 | U | 0.68 | U | 0.69 | U | 0.53 | U | 0.58 | U | 0.58 | U | 0.53 | U | 0.62 | U | 0.67 | U |
| Sodium | 7440-23-5 | < LOQ | 9 | N/A | No | mg/kg | 93 | U | 570 | U | 110 | U | 88 | U | 480 | U | 480 | U | 440 | U | 520 | U | 110 | U |
| Thallium | 7440-28-0 | 0.11 | 9 | N/A | No | mg/kg | 0.12 | U | 0.11 | U | 0.085 | U | 0.094 | U | 0.096 | | 0.096 | U | 0.085 | U | 0.092 | U | 0.089 | U |
| Vanadium | 7440-62-2 | 14 | 9 | N/A | Yes | mg/kg | 14 | | 14 | | 12 | | 13 | | 17 | | 14 | | 20 | | 13 | | 14 | |
| Zinc | 7440-66-6 | 23 | 9 | N/A | Yes | mg/kg | 35 | | 40 | | 33 | | 42 | | 35 | | 29 | | 40 | | 30 | | 31 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-59
Site to Background Sample Comparison - Area of Concern 5 (Electric Substation), Surface Soil (0 - 1 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-011 | | NYOW-05-012 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-SL011-A | | NYOW-05-SL012-A | |
| | | | | | | Sample Type: | N | | N | |
| | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | |
| | | | | | | Sample Geology: | Ps | | Ps | |
| | | | | | | Sample Date: | 2021-01-13 | | 2021-01-13 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.011 | 2 | N/A | Yes | mg/kg | 0.011 | J+ | 0.012 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | 2 | N/A | Yes | mg/kg | 0.018 | | 0.003 | J |
| Acenaphthene | 83-32-9 | < LOQ | 2 | N/A | Yes | mg/kg | 0.011 | J+ | 0.0012 | U |
| Acenaphthylene | 208-96-8 | 0.053 | 2 | N/A | No | mg/kg | 0.011 | J+ | 0.0012 | U |
| Anthracene | 120-12-7 | 0.033 | 2 | N/A | No | mg/kg | 0.011 | J+ | 0.012 | J+ |
| Benzo(a)anthracene | 56-55-3 | 0.14 | 2 | N/A | No | mg/kg | 0.0098 | J | 0.012 | |
| Benzo(a)pyrene | 50-32-8 | 0.15 | 2 | N/A | No | mg/kg | 0.011 | J- | 0.013 | J- |
| Benzo(b)fluoranthene | 205-99-2 | 0.18 | 2 | N/A | No | mg/kg | 0.02 | | 0.023 | |
| Benzo(g,h,i)perylene | 191-24-2 | 0.095 | 2 | N/A | No | mg/kg | 0.0083 | J- | 0.013 | J- |
| Benzo(k)fluoranthene | 207-08-9 | 0.08 | 2 | N/A | No | mg/kg | 0.0072 | J | 0.0084 | J |
| Chrysene | 218-01-9 | 0.14 | 2 | N/A | No | mg/kg | 0.014 | | 0.017 | |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 2 | N/A | No | mg/kg | 0.0073 | UJ | 0.0077 | UJ |
| Fluoranthene | 206-44-0 | 0.24 | 2 | N/A | No | mg/kg | 0.02 | | 0.025 | |
| Fluorene | 86-73-7 | 0.015 | 2 | N/A | No | mg/kg | 0.011 | J+ | 0.0031 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.11 | 2 | N/A | No | mg/kg | 0.0096 | J- | 0.013 | J- |
| Naphthalene | 91-20-3 | 0.012 | 2 | N/A | Yes | mg/kg | 0.015 | | 0.0052 | J |
| Phenanthrene | 85-01-8 | 0.086 | 2 | N/A | No | mg/kg | 0.0091 | J | 0.0094 | J |
| Pyrene | 129-00-0 | 0.22 | 2 | N/A | No | mg/kg | 0.019 | | 0.024 | |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 10000 | 2 | N/A | No | mg/kg | 8200 | | 6500 | |
| Antimony | 7440-36-0 | 0.15 | 2 | N/A | Yes | mg/kg | 0.19 | | 0.17 | |
| Arsenic | 7440-38-2 | 21 | 2 | N/A | No | mg/kg | 5.2 | | 5.9 | |
| Barium | 7440-39-3 | 100 | 2 | N/A | No | mg/kg | 62 | | 66 | |
| Beryllium | 7440-41-7 | < LOQ | 2 | N/A | Yes | mg/kg | 0.55 | J+ | 0.49 | J+ |
| Cadmium | 7440-43-9 | 0.38 | 2 | N/A | No | mg/kg | 0.14 | | 0.14 | |
| Calcium | 7440-70-2 | 120000 | 2 | N/A | No | mg/kg | 17000 | | 20000 | |
| Chromium | 7440-47-3 | 11 | 2 | N/A | No | mg/kg | 10 | | 8.5 | |
| Cobalt | 7440-48-4 | 8.3 | 2 | N/A | No | mg/kg | 7.1 | | 7 | |
| Copper | 7440-50-8 | 28 | 2 | N/A | No | mg/kg | 25 | | 24 | |
| Iron | 7439-89-6 | 24000 | 2 | N/A | No | mg/kg | 22000 | | 21000 | |
| Lead | 7439-92-1 | 320 | 2 | N/A | No | mg/kg | 12 | | 24 | |
| Magnesium | 7439-95-4 | 6300 | 2 | N/A | Yes | mg/kg | 6800 | | 7900 | |
| Manganese | 7439-96-5 | 1700 | 2 | N/A | No | mg/kg | 1100 | | 1200 | |
| Mercury | 7439-97-6 | 0.19 | 2 | N/A | Yes | mg/kg | 0.085 | | 0.23 | |
| Nickel | 7440-02-0 | 13 | 2 | N/A | Yes | mg/kg | 15 | | 12 | |
| Potassium | 7440-09-7 | 1100 | 2 | N/A | No | mg/kg | 770 | | 770 | |
| Selenium | 7782-49-2 | 0.51 | 2 | N/A | No | mg/kg | 0.46 | J+ | 0.47 | J+ |
| Silver | 7440-22-4 | < LOQ | 2 | N/A | No | mg/kg | 0.67 | U | 0.58 | U |
| Sodium | 7440-23-5 | < LOQ | 2 | N/A | No | mg/kg | 110 | U | 97 | U |
| Thallium | 7440-28-0 | 0.12 | 2 | N/A | Yes | mg/kg | 0.12 | | 0.14 | |
| Vanadium | 7440-62-2 | 21 | 2 | N/A | No | mg/kg | 16 | | 15 | |
| Zinc | 7440-66-6 | 57 | 2 | N/A | No | mg/kg | 42 | | 49 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-60
Site to Background Sample Comparison - Area of Concern 5 (Electric Substation), Subsurface Soil (1 - 5 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-011 | | NYOW-05-012 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-PH011-B | | NYOW-05-PH012-B | |
| | | | | | | Sample Type: | N | | N | |
| | | | | | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | |
| | | | | | | Sample Geology: | Ps | | Ps | |
| | | | | | | Sample Date: | 2021-01-13 | | 2021-01-13 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | < LOQ | 2 | N/A | No | mg/kg | 0.0023 | U | 0.0023 | U |
| 2-Methylnaphthalene | 91-57-6 | < LOQ | 2 | N/A | Yes | mg/kg | 0.0023 | U | 0.012 | J+ |
| Acenaphthene | 83-32-9 | < LOQ | 2 | N/A | No | mg/kg | 0.0012 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | 0.013 | 2 | N/A | No | mg/kg | 0.0012 | U | 0.0012 | U |
| Anthracene | 120-12-7 | 0.0052 | 2 | N/A | No | mg/kg | 0.0049 | U | 0.005 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 2 | N/A | No | mg/kg | 0.0049 | U | 0.005 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 2 | N/A | No | mg/kg | 0.0049 | UJ | 0.005 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 2 | N/A | No | mg/kg | 0.0076 | U | 0.0077 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 2 | N/A | No | mg/kg | 0.0076 | UJ | 0.0077 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 2 | N/A | No | mg/kg | 0.0049 | U | 0.005 | U |
| Chrysene | 218-01-9 | 0.081 | 2 | N/A | No | mg/kg | 0.0049 | U | 0.003 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 2 | N/A | No | mg/kg | 0.0076 | UJ | 0.0077 | UJ |
| Fluoranthene | 206-44-0 | 0.15 | 2 | N/A | No | mg/kg | 0.0026 | J | 0.005 | U |
| Fluorene | 86-73-7 | 0.015 | 2 | N/A | No | mg/kg | 0.003 | U | 0.0031 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 2 | N/A | No | mg/kg | 0.0076 | UJ | 0.0077 | UJ |
| Naphthalene | 91-20-3 | 0.012 | 2 | N/A | No | mg/kg | 0.011 | J+ | 0.012 | J+ |
| Phenanthrene | 85-01-8 | 0.086 | 2 | N/A | No | mg/kg | 0.0076 | U | 0.0077 | U |
| Pyrene | 129-00-0 | 0.14 | 2 | N/A | No | mg/kg | 0.0026 | J | 0.0077 | U |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 2 | N/A | Yes | mg/kg | 8900 | J | 18000 | |
| Antimony | 7440-36-0 | 0.15 | 2 | N/A | Yes | mg/kg | 0.21 | J+ | 0.17 | J+ |
| Arsenic | 7440-38-2 | 21 | 2 | N/A | No | mg/kg | 4.4 | | 5 | |
| Barium | 7440-39-3 | 100 | 2 | N/A | Yes | mg/kg | 46 | | 110 | |
| Beryllium | 7440-41-7 | < LOQ | 2 | N/A | Yes | mg/kg | 0.43 | J | 0.83 | |
| Cadmium | 7440-43-9 | 0.16 | 2 | N/A | No | mg/kg | 0.078 | J | 0.061 | J |
| Calcium | 7440-70-2 | 120000 | 2 | N/A | No | mg/kg | 23000 | J | 47000 | |
| Chromium | 7440-47-3 | 11 | 2 | N/A | Yes | mg/kg | 14 | | 25 | |
| Cobalt | 7440-48-4 | 8.3 | 2 | N/A | Yes | mg/kg | 9.7 | | 13 | |
| Copper | 7440-50-8 | 28 | 2 | N/A | No | mg/kg | 21 | | 25 | |
| Iron | 7439-89-6 | 24000 | 2 | N/A | Yes | mg/kg | 19000 | J | 27000 | |
| Lead | 7439-92-1 | 33 | 2 | N/A | No | mg/kg | 8.4 | | 9.4 | |
| Magnesium | 7439-95-4 | 35000 | 2 | N/A | No | mg/kg | 8600 | J+ | 12000 | |
| Manganese | 7439-96-5 | 1700 | 2 | N/A | No | mg/kg | 760 | | 600 | |
| Mercury | 7439-97-6 | 0.056 | 2 | N/A | Yes | mg/kg | 0.03 | | 0.099 | |
| Nickel | 7440-02-0 | 13 | 2 | N/A | Yes | mg/kg | 20 | | 29 | |
| Potassium | 7440-09-7 | 1100 | 2 | N/A | Yes | mg/kg | 1100 | J+ | 3300 | |
| Selenium | 7782-49-2 | 0.51 | 2 | N/A | No | mg/kg | 0.49 | J+ | 0.45 | J+ |
| Silver | 7440-22-4 | < LOQ | 2 | N/A | No | mg/kg | 0.61 | U | 0.61 | U |
| Sodium | 7440-23-5 | < LOQ | 2 | N/A | No | mg/kg | 510 | U | 510 | U |
| Thallium | 7440-28-0 | 0.12 | 2 | N/A | Yes | mg/kg | 0.099 | U | 0.16 | |
| Vanadium | 7440-62-2 | 17 | 2 | N/A | Yes | mg/kg | 16 | | 31 | |
| Zinc | 7440-66-6 | 57 | 2 | N/A | No | mg/kg | 35 | | 56 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-61
Site to Background Sample Comparison - Area of Concern 5 (Electric Substation), Subsurface Soil (5 - 10 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-011 | | NYOW-05-012 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-PH011-C | | NYOW-05-PH012-C | |
| | | | | | | Sample Type: | N | | N | |
| | | | | | | Sample Depth (feet): | 5 - 10 | | 5 - 10 | |
| | | | | | | Sample Geology: | Ps | | Ps | |
| | | | | | | Sample Date: | 2021-01-13 | | 2021-01-13 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | < LOQ | 2 | N/A | No | mg/kg | 0.0023 | U | 0.0022 | U |
| 2-Methylnaphthalene | 91-57-6 | < LOQ | 2 | N/A | No | mg/kg | 0.0023 | U | 0.0022 | U |
| Acenaphthene | 83-32-9 | < LOQ | 2 | N/A | No | mg/kg | 0.0012 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | 0.013 | 2 | N/A | No | mg/kg | 0.0012 | U | 0.0012 | U |
| Anthracene | 120-12-7 | 0.0052 | 2 | N/A | No | mg/kg | 0.0051 | U | 0.0048 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 2 | N/A | No | mg/kg | 0.024 | | 0.0048 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 2 | N/A | No | mg/kg | 0.032 | J- | 0.0048 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 2 | N/A | No | mg/kg | 0.05 | | 0.0074 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 2 | N/A | No | mg/kg | 0.023 | J- | 0.0074 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 2 | N/A | No | mg/kg | 0.021 | | 0.0048 | U |
| Chrysene | 218-01-9 | 0.081 | 2 | N/A | No | mg/kg | 0.04 | | 0.0067 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 2 | N/A | No | mg/kg | 0.012 | J+ | 0.0074 | UJ |
| Fluoranthene | 206-44-0 | 0.15 | 2 | N/A | No | mg/kg | 0.041 | | 0.0048 | U |
| Fluorene | 86-73-7 | 0.015 | 2 | N/A | No | mg/kg | 0.0031 | U | 0.003 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 2 | N/A | No | mg/kg | 0.029 | J- | 0.0074 | UJ |
| Naphthalene | 91-20-3 | 0.012 | 2 | N/A | No | mg/kg | 0.012 | J+ | 0.011 | J+ |
| Phenanthrene | 85-01-8 | 0.086 | 2 | N/A | No | mg/kg | 0.012 | J+ | 0.011 | J+ |
| Pyrene | 129-00-0 | 0.14 | 2 | N/A | No | mg/kg | 0.039 | | 0.0074 | U |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 2 | N/A | Yes | mg/kg | 15000 | | 17000 | |
| Antimony | 7440-36-0 | 0.15 | 2 | N/A | Yes | mg/kg | 0.19 | J+ | 0.23 | J+ |
| Arsenic | 7440-38-2 | 21 | 2 | N/A | No | mg/kg | 8.1 | | 4.1 | |
| Barium | 7440-39-3 | 100 | 2 | N/A | Yes | mg/kg | 98 | | 110 | |
| Beryllium | 7440-41-7 | 0.56 | 2 | N/A | Yes | mg/kg | 0.67 | | 0.81 | |
| Cadmium | 7440-43-9 | 0.31 | 2 | N/A | No | mg/kg | 0.072 | J | 0.053 | J |
| Calcium | 7440-70-2 | 110000 | 2 | N/A | No | mg/kg | 45000 | | 46000 | |
| Chromium | 7440-47-3 | 11 | 2 | N/A | Yes | mg/kg | 20 | | 24 | |
| Cobalt | 7440-48-4 | 8.3 | 2 | N/A | Yes | mg/kg | 10 | | 11 | |
| Copper | 7440-50-8 | 28 | 2 | N/A | No | mg/kg | 25 | | 25 | |
| Iron | 7439-89-6 | 24000 | 2 | N/A | Yes | mg/kg | 25000 | | 26000 | |
| Lead | 7439-92-1 | 33 | 2 | N/A | No | mg/kg | 8.8 | | 9.1 | |
| Magnesium | 7439-95-4 | 27000 | 2 | N/A | No | mg/kg | 16000 | | 13000 | |
| Manganese | 7439-96-5 | 1700 | 2 | N/A | No | mg/kg | 470 | | 510 | |
| Mercury | 7439-97-6 | 0.056 | 2 | N/A | No | mg/kg | 0.016 | J | 0.022 | |
| Nickel | 7440-02-0 | 13 | 2 | N/A | Yes | mg/kg | 22 | | 27 | |
| Potassium | 7440-09-7 | 1800 | 2 | N/A | Yes | mg/kg | 2500 | | 3400 | |
| Selenium | 7782-49-2 | 0.51 | 2 | N/A | No | mg/kg | 0.44 | U | 0.39 | U |
| Silver | 7440-22-4 | < LOQ | 2 | N/A | No | mg/kg | 0.7 | U | 0.68 | U |
| Sodium | 7440-23-5 | < LOQ | 2 | N/A | No | mg/kg | 590 | U | 560 | U |
| Thallium | 7440-28-0 | 0.12 | 2 | N/A | Yes | mg/kg | 0.18 | | 0.15 | |
| Vanadium | 7440-62-2 | 17 | 2 | N/A | Yes | mg/kg | 28 | | 32 | |
| Zinc | 7440-66-6 | 57 | 2 | N/A | No | mg/kg | 50 | | 55 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-62
Site to Background Sample Comparison - Area of Concern 5 (Electric Substation), Total Soil (0 - 5 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: / Sample Name: / Sample Type: / Sample Depth (feet): / Sample Geology: / Sample Date: | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | NYOW-05-011 / NYOW-05-SL011-A / N / 0 - 1 / Ps / 2021-01-13 | | NYOW-05-012 / NYOW-05-SL012-A / N / 0 - 1 / Ps / 2021-01-13 | | NYOW-05-011 / NYOW-05-PH011-B / N / 1 - 5 / Ps / 2021-01-13 | | NYOW-05-012 / NYOW-05-PH012-B / N / 1 - 5 / Ps / 2021-01-13 | |
| | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.011 | 4 | N/A | Yes | mg/kg | 0.011 | J+ | 0.012 | J+ | 0.0023 | U | 0.0023 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | 4 | N/A | Yes | mg/kg | 0.018 | | 0.003 | J | 0.0023 | U | 0.012 | J+ |
| Acenaphthene | 83-32-9 | < LOQ | 4 | N/A | Yes | mg/kg | 0.011 | J+ | 0.0012 | U | 0.0012 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | 0.013 | 4 | N/A | No | mg/kg | 0.011 | J+ | 0.0012 | U | 0.0012 | U | 0.0012 | U |
| Anthracene | 120-12-7 | 0.0052 | 4 | N/A | Yes | mg/kg | 0.011 | J+ | 0.012 | J+ | 0.0049 | U | 0.005 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 4 | N/A | No | mg/kg | 0.0098 | J | 0.012 | | 0.0049 | U | 0.005 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 4 | N/A | No | mg/kg | 0.011 | J- | 0.013 | J- | 0.0049 | UJ | 0.005 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 4 | N/A | No | mg/kg | 0.02 | | 0.023 | | 0.0076 | U | 0.0077 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 4 | N/A | No | mg/kg | 0.0083 | J- | 0.013 | J- | 0.0076 | UJ | 0.0077 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 4 | N/A | No | mg/kg | 0.0072 | J | 0.0084 | J | 0.0049 | U | 0.005 | U |
| Chrysene | 218-01-9 | 0.081 | 4 | N/A | No | mg/kg | 0.014 | | 0.017 | | 0.0049 | U | 0.003 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 4 | N/A | No | mg/kg | 0.0073 | UJ | 0.0077 | UJ | 0.0076 | UJ | 0.0077 | UJ |
| Fluoranthene | 206-44-0 | 0.15 | 4 | N/A | No | mg/kg | 0.02 | | 0.025 | | 0.0026 | J | 0.005 | U |
| Fluorene | 86-73-7 | 0.015 | 4 | N/A | No | mg/kg | 0.011 | J+ | 0.0031 | U | 0.003 | U | 0.0031 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 4 | N/A | No | mg/kg | 0.0096 | J- | 0.013 | J- | 0.0076 | UJ | 0.0077 | UJ |
| Naphthalene | 91-20-3 | 0.012 | 4 | N/A | Yes | mg/kg | 0.015 | | 0.0052 | J | 0.011 | J+ | 0.012 | J+ |
| Phenanthrene | 85-01-8 | 0.086 | 4 | N/A | No | mg/kg | 0.0091 | J | 0.0094 | J | 0.0076 | U | 0.0077 | U |
| Pyrene | 129-00-0 | 0.14 | 4 | N/A | No | mg/kg | 0.019 | | 0.024 | | 0.0026 | J | 0.0077 | U |
| **Metals (Total)** | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 4 | N/A | Yes | mg/kg | 8200 | | 6500 | | 8900 | J | 18000 | |
| Antimony | 7440-36-0 | 0.15 | 4 | N/A | Yes | mg/kg | 0.19 | | 0.17 | | 0.21 | J+ | 0.17 | J+ |
| Arsenic | 7440-38-2 | 21 | 4 | N/A | No | mg/kg | 5.2 | | 5.9 | | 4.4 | | 5 | |
| Barium | 7440-39-3 | 100 | 4 | N/A | Yes | mg/kg | 62 | | 66 | | 46 | | 110 | |
| Beryllium | 7440-41-7 | < LOQ | 4 | N/A | Yes | mg/kg | 0.55 | J+ | 0.49 | J+ | 0.43 | J | 0.83 | |
| Cadmium | 7440-43-9 | 0.16 | 4 | N/A | No | mg/kg | 0.14 | | 0.14 | | 0.078 | J | 0.061 | J |
| Calcium | 7440-70-2 | 120000 | 4 | N/A | No | mg/kg | 17000 | | 20000 | | 23000 | J | 47000 | |
| Chromium | 7440-47-3 | 11 | 4 | N/A | Yes | mg/kg | 10 | | 8.5 | | 14 | | 25 | |
| Cobalt | 7440-48-4 | 8.3 | 4 | N/A | Yes | mg/kg | 7.1 | | 7 | | 9.7 | | 13 | |
| Copper | 7440-50-8 | 28 | 4 | N/A | No | mg/kg | 25 | | 24 | | 21 | | 25 | |
| Iron | 7439-89-6 | 24000 | 4 | N/A | Yes | mg/kg | 22000 | | 21000 | | 19000 | J | 27000 | |
| Lead | 7439-92-1 | 33 | 4 | N/A | No | mg/kg | 12 | | 24 | | 8.4 | | 9.4 | |
| Magnesium | 7439-95-4 | 6300 | 4 | N/A | Yes | mg/kg | 6800 | | 7900 | | 8600 | J+ | 12000 | |
| Manganese | 7439-96-5 | 1700 | 4 | N/A | No | mg/kg | 1100 | | 1200 | | 760 | | 600 | |
| Mercury | 7439-97-6 | 0.056 | 4 | N/A | Yes | mg/kg | 0.085 | | 0.23 | | 0.03 | | 0.099 | |
| Nickel | 7440-02-0 | 13 | 4 | N/A | Yes | mg/kg | 15 | | 12 | | 20 | | 29 | |
| Potassium | 7440-09-7 | 1100 | 4 | N/A | Yes | mg/kg | 770 | | 770 | | 1100 | J+ | 3300 | |
| Selenium | 7782-49-2 | 0.51 | 4 | N/A | No | mg/kg | 0.46 | J+ | 0.47 | J+ | 0.49 | J+ | 0.45 | J+ |
| Silver | 7440-22-4 | < LOQ | 4 | N/A | No | mg/kg | 0.67 | U | 0.58 | U | 0.61 | U | 0.61 | U |
| Sodium | 7440-23-5 | < LOQ | 4 | N/A | No | mg/kg | 110 | U | 97 | U | 510 | U | 510 | U |
| Thallium | 7440-28-0 | 0.12 | 4 | N/A | Yes | mg/kg | 0.12 | | 0.14 | | 0.099 | U | 0.16 | |
| Vanadium | 7440-62-2 | 17 | 4 | N/A | Yes | mg/kg | 16 | | 15 | | 16 | | 31 | |
| Zinc | 7440-66-6 | 57 | 4 | N/A | No | mg/kg | 42 | | 49 | | 35 | | 56 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-63
Site to Background Sample Comparison - Area of Concern 5 (Electric Substation), Total Soil (0 - 10 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: NYOW-05-011<br>Sample Name: NYOW-05-SL011-A<br>Sample Type: N<br>Sample Depth (feet): 0 - 1<br>Sample Geology: Ps<br>Sample Date: 2021-01-13 | | Sample Location: NYOW-05-012<br>Sample Name: NYOW-05-SL012-A<br>Sample Type: N<br>Sample Depth (feet): 0 - 1<br>Sample Geology: Ps<br>Sample Date: 2021-01-13 | | Sample Location: NYOW-05-011<br>Sample Name: NYOW-05-PH011-B<br>Sample Type: N<br>Sample Depth (feet): 1 - 5<br>Sample Geology: Ps<br>Sample Date: 2021-01-13 | | Sample Location: NYOW-05-012<br>Sample Name: NYOW-05-PH012-B<br>Sample Type: N<br>Sample Depth (feet): 1 - 5<br>Sample Geology: Ps<br>Sample Date: 2021-01-13 | | Sample Location: NYOW-05-011<br>Sample Name: NYOW-05-PH011-C<br>Sample Type: N<br>Sample Depth (feet): 5 - 10<br>Sample Geology: Ps<br>Sample Date: 2021-01-13 | | Sample Location: NYOW-05-012<br>Sample Name: NYOW-05-PH012-C<br>Sample Type: N<br>Sample Depth (feet): 5 - 10<br>Sample Geology: Ps<br>Sample Date: 2021-01-13 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.011 | 6 | N/A | Yes | mg/kg | 0.011 | J+ | 0.012 | J+ | 0.0023 | U | 0.0023 | U | 0.0023 | U | 0.0022 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | 6 | N/A | Yes | mg/kg | 0.018 | | 0.003 | J | 0.0023 | U | 0.012 | J+ | 0.0023 | U | 0.0022 | U |
| Acenaphthene | 83-32-9 | < LOQ | 6 | N/A | Yes | mg/kg | 0.011 | J+ | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | 0.013 | 6 | N/A | No | mg/kg | 0.011 | J+ | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U |
| Anthracene | 120-12-7 | 0.0052 | 6 | N/A | Yes | mg/kg | 0.011 | J+ | 0.012 | J+ | 0.0049 | U | 0.005 | U | 0.0051 | U | 0.0048 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 6 | N/A | No | mg/kg | 0.0098 | J | 0.012 | | 0.0049 | U | 0.005 | U | 0.024 | | 0.0048 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 6 | N/A | No | mg/kg | 0.011 | J- | 0.013 | J- | 0.0049 | UJ | 0.005 | UJ | 0.032 | J- | 0.0048 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 6 | N/A | No | mg/kg | 0.02 | | 0.023 | | 0.0076 | U | 0.0077 | U | 0.05 | | 0.0074 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 6 | N/A | No | mg/kg | 0.0083 | J- | 0.013 | J- | 0.0076 | UJ | 0.0077 | UJ | 0.023 | J- | 0.0074 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 6 | N/A | No | mg/kg | 0.0072 | J | 0.0084 | J | 0.0049 | U | 0.005 | U | 0.021 | | 0.0048 | U |
| Chrysene | 218-01-9 | 0.081 | 6 | N/A | No | mg/kg | 0.014 | | 0.017 | | 0.0049 | U | 0.003 | J | 0.04 | | 0.0067 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 6 | N/A | No | mg/kg | 0.0073 | UJ | 0.0077 | UJ | 0.0076 | UJ | 0.0077 | UJ | 0.012 | J+ | 0.0074 | UJ |
| Fluoranthene | 206-44-0 | 0.15 | 6 | N/A | No | mg/kg | 0.02 | | 0.025 | | 0.0026 | J | 0.005 | U | 0.041 | | 0.0048 | U |
| Fluorene | 86-73-7 | 0.015 | 6 | N/A | No | mg/kg | 0.011 | J+ | 0.0031 | U | 0.003 | U | 0.0031 | U | 0.0031 | U | 0.003 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 6 | N/A | No | mg/kg | 0.0096 | J- | 0.013 | J- | 0.0076 | UJ | 0.0077 | UJ | 0.029 | J- | 0.0074 | UJ |
| Naphthalene | 91-20-3 | 0.012 | 6 | N/A | Yes | mg/kg | 0.015 | | 0.0052 | J | 0.011 | J+ | 0.012 | J+ | 0.012 | J+ | 0.011 | J+ |
| Phenanthrene | 85-01-8 | 0.086 | 6 | N/A | No | mg/kg | 0.0091 | J | 0.0094 | J | 0.0076 | U | 0.0077 | U | 0.012 | J+ | 0.011 | J+ |
| Pyrene | 129-00-0 | 0.14 | 6 | N/A | No | mg/kg | 0.019 | | 0.024 | | 0.0026 | J | 0.0077 | U | 0.039 | | 0.0074 | U |
| **Metals (Total)** | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 6 | N/A | Yes | mg/kg | 8200 | | 6500 | | 8900 | J | 18000 | | 15000 | | 17000 | |
| Antimony | 7440-36-0 | 0.15 | 6 | N/A | Yes | mg/kg | 0.19 | | 0.17 | | 0.21 | J+ | 0.17 | J+ | 0.19 | J+ | 0.23 | J+ |
| Arsenic | 7440-38-2 | 21 | 6 | N/A | No | mg/kg | 5.2 | | 5.9 | | 4.4 | | 5 | | 8.1 | | 4.1 | |
| Barium | 7440-39-3 | 100 | 6 | N/A | Yes | mg/kg | 62 | | 66 | | 46 | | 110 | | 98 | | 110 | |
| Beryllium | 7440-41-7 | 0.56 | 6 | N/A | Yes | mg/kg | 0.55 | J+ | 0.49 | J+ | 0.43 | J | 0.83 | | 0.67 | | 0.81 | |
| Cadmium | 7440-43-9 | 0.16 | 6 | N/A | No | mg/kg | 0.14 | | 0.14 | | 0.078 | J | 0.061 | J | 0.072 | J | 0.053 | J |
| Calcium | 7440-70-2 | 110000 | 6 | N/A | No | mg/kg | 17000 | | 20000 | | 23000 | J | 47000 | | 45000 | | 46000 | |
| Chromium | 7440-47-3 | 11 | 6 | N/A | Yes | mg/kg | 10 | | 8.5 | | 14 | | 25 | | 20 | | 24 | |
| Cobalt | 7440-48-4 | 8.3 | 6 | N/A | Yes | mg/kg | 7.1 | | 7 | | 9.7 | | 13 | | 10 | | 11 | |
| Copper | 7440-50-8 | 28 | 6 | N/A | No | mg/kg | 25 | | 24 | | 21 | | 25 | | 25 | | 25 | |
| Iron | 7439-89-6 | 24000 | 6 | N/A | Yes | mg/kg | 22000 | | 21000 | | 19000 | J | 27000 | | 25000 | | 26000 | |
| Lead | 7439-92-1 | 33 | 6 | N/A | No | mg/kg | 12 | | 24 | | 8.4 | | 9.4 | | 8.8 | | 9.1 | |
| Magnesium | 7439-95-4 | 6300 | 6 | N/A | Yes | mg/kg | 6800 | | 7900 | | 8600 | J+ | 12000 | | 16000 | | 13000 | |
| Manganese | 7439-96-5 | 1700 | 6 | N/A | No | mg/kg | 1100 | | 1200 | | 760 | | 600 | | 470 | | 510 | |
| Mercury | 7439-97-6 | 0.056 | 6 | N/A | Yes | mg/kg | 0.085 | | 0.23 | | 0.03 | | 0.099 | | 0.016 | J | 0.022 | |
| Nickel | 7440-02-0 | 13 | 6 | N/A | Yes | mg/kg | 15 | | 12 | | 20 | | 29 | | 22 | | 27 | |
| Potassium | 7440-09-7 | 1100 | 6 | N/A | Yes | mg/kg | 770 | | 770 | | 1100 | J+ | 3300 | | 2500 | | 3400 | |
| Selenium | 7782-49-2 | 0.51 | 6 | N/A | No | mg/kg | 0.46 | J+ | 0.47 | J+ | 0.49 | J+ | 0.45 | J+ | 0.44 | U | 0.39 | U |
| Silver | 7440-22-4 | < LOQ | 6 | N/A | No | mg/kg | 0.67 | U | 0.58 | U | 0.61 | U | 0.61 | U | 0.7 | U | 0.68 | U |
| Sodium | 7440-23-5 | < LOQ | 6 | N/A | No | mg/kg | 110 | U | 97 | U | 510 | U | 510 | U | 590 | U | 560 | U |
| Thallium | 7440-28-0 | 0.12 | 6 | N/A | Yes | mg/kg | 0.12 | | 0.14 | | 0.099 | U | 0.16 | | 0.18 | | 0.15 | |
| Vanadium | 7440-62-2 | 17 | 6 | N/A | Yes | mg/kg | 16 | | 15 | | 16 | | 31 | | 28 | | 32 | |
| Zinc | 7440-66-6 | 57 | 6 | N/A | No | mg/kg | 42 | | 49 | | 35 | | 56 | | 50 | | 55 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-64
Site to Background Sample Comparison - Area of Concern 5 (Electric Substation Area), Shallow Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-012 | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-WL012-A | |
| | | | | | | Sample Type: | C | |
| | | | | | | Sample Date: | 2021-01-14 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.05 | 1 | N/A | No | µg/L | 0.039 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.063 | 1 | N/A | No | µg/L | 0.049 | U |
| Acenaphthene | 83-32-9 | < LOQ | 1 | N/A | No | µg/L | 0.012 | U |
| Acenaphthylene | 208-96-8 | 0.25 | 1 | N/A | No | µg/L | 0.02 | U |
| Anthracene | 120-12-7 | 0.13 | 1 | N/A | No | µg/L | 0.099 | U |
| Benzo(a)anthracene | 56-55-3 | < LOQ | 1 | N/A | No | µg/L | 0.099 | U |
| Benzo(a)pyrene | 50-32-8 | < LOQ | 1 | N/A | No | µg/L | 0.049 | U |
| Benzo(b)fluoranthene | 205-99-2 | < LOQ | 1 | N/A | No | µg/L | 0.099 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.14 | 1 | N/A | No | µg/L | 0.099 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.21 | 1 | N/A | No | µg/L | 0.049 | U |
| Chrysene | 218-01-9 | < LOQ | 1 | N/A | No | µg/L | 0.099 | U |
| Dibenz(a,h)anthracene | 53-70-3 | < LOQ | 1 | N/A | No | µg/L | 0.099 | UJ |
| Fluoranthene | 206-44-0 | 0.13 | 1 | N/A | No | µg/L | 0.099 | U |
| Fluorene | 86-73-7 | 0.05 | 1 | N/A | No | µg/L | 0.039 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | < LOQ | 1 | N/A | No | µg/L | 0.099 | U |
| Naphthalene | 91-20-3 | 0.063 | 1 | N/A | Yes | µg/L | 0.14 | J |
| Phenanthrene | 85-01-8 | < LOQ | 1 | N/A | No | µg/L | 0.099 | U |
| Pyrene | 129-00-0 | 0.13 | 1 | N/A | No | µg/L | 0.099 | U |
| Metals (Dissolved) | | | | | | | | |
| Aluminum | 7429-90-5 | 1300 | 1 | N/A | No | µg/L | 70 | U |
| Antimony | 7440-36-0 | N/A | 1 | N/A | No | µg/L | 1 | U |
| Arsenic | 7440-38-2 | < LOQ | 1 | N/A | Yes | µg/L | 5 | J+ |
| Barium | 7440-39-3 | 280 | 1 | N/A | No | µg/L | 210 | |
| Beryllium | 7440-41-7 | 0.5 | 1 | N/A | No | µg/L | 0.5 | U |
| Cadmium | 7440-43-9 | N/A | 1 | N/A | No | µg/L | 1.8 | U |
| Calcium | 7440-70-2 | 160000 | 1 | N/A | No | µg/L | 95000 | |
| Chromium | 7440-47-3 | < LOQ | 1 | N/A | No | µg/L | 1.8 | U |
| Cobalt | 7440-48-4 | 4 | 1 | N/A | No | µg/L | 1 | J+ |
| Copper | 7440-50-8 | < LOQ | 1 | N/A | No | µg/L | 10 | U |
| Iron | 7439-89-6 | 4900 | 1 | N/A | No | µg/L | 680 | J |
| Lead | 7439-92-1 | < LOQ | 1 | N/A | No | µg/L | 0.7 | U |
| Magnesium | 7439-95-4 | 75000 | 1 | N/A | No | µg/L | 60000 | |
| Manganese | 7439-96-5 | 2600 | 1 | N/A | No | µg/L | 170 | |
| Mercury | 7439-97-6 | N/A | 1 | N/A | No | µg/L | 0.08 | U |
| Nickel | 7440-02-0 | < LOQ | 1 | N/A | No | µg/L | 8 | U |
| Potassium | 7440-09-7 | 9900 | 1 | N/A | Yes | µg/L | 12000 | |
| Selenium | 7782-49-2 | N/A | 1 | N/A | No | µg/L | 19 | U |
| Silver | 7440-22-4 | 5 | 1 | N/A | No | µg/L | 5 | U |
| Sodium | 7440-23-5 | 140000 | 1 | N/A | No | µg/L | 68000 | |
| Thallium | 7440-28-0 | N/A | 1 | N/A | No | µg/L | 0.2 | U |
| Vanadium | 7440-62-2 | < LOQ | 1 | N/A | No | µg/L | 4 | U |
| Zinc | 7440-66-6 | 15 | 1 | N/A | No | µg/L | 15 | U |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-65
Site to Background Sample Comparison - Area of Concern 5 (Possible Dump Area), Surface Soil (0 - 1 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-001 | | NYOW-05-003 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-SL001-A | | NYOW-05-SL003-A | |
| | | | | | | Sample Type: | N | | N | |
| | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | |
| | | | | | | Sample Geology: | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-01-12 | | 2021-01-12 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 2 | N/A | Yes | mg/kg | 0.0021 | U | 0.065 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 2 | N/A | Yes | mg/kg | 0.0021 | U | 0.087 | J+ |
| Acenaphthene | 83-32-9 | < LOQ | 2 | N/A | No | mg/kg | 0.0011 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 2 | N/A | No | mg/kg | 0.0011 | U | 0.0012 | U |
| Anthracene | 120-12-7 | 0.048 | 2 | N/A | No | mg/kg | 0.0045 | U | 0.005 | U |
| Benzo(a)anthracene | 56-55-3 | 0.14 | 2 | N/A | No | mg/kg | 0.0024 | J | 0.0065 | J |
| Benzo(a)pyrene | 50-32-8 | 0.15 | 2 | N/A | No | mg/kg | 0.0045 | U | 0.0042 | J |
| Benzo(b)fluoranthene | 205-99-2 | 0.18 | 2 | N/A | No | mg/kg | 0.0069 | U | 0.0076 | J |
| Benzo(g,h,i)perylene | 191-24-2 | 0.095 | 2 | N/A | No | mg/kg | 0.0069 | U | 0.0031 | J |
| Benzo(k)fluoranthene | 207-08-9 | 0.08 | 2 | N/A | No | mg/kg | 0.0045 | U | 0.012 | J+ |
| Chrysene | 218-01-9 | 0.14 | 2 | N/A | No | mg/kg | 0.0035 | J | 0.0092 | J+ |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 2 | N/A | No | mg/kg | 0.0069 | U | 0.0077 | U |
| Fluoranthene | 206-44-0 | 0.24 | 2 | N/A | No | mg/kg | 0.0049 | J | 0.0091 | J+ |
| Fluorene | 86-73-7 | 0.015 | 2 | N/A | No | mg/kg | 0.0028 | U | 0.012 | J+ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.11 | 2 | N/A | No | mg/kg | 0.0069 | U | 0.0025 | J |
| Naphthalene | 91-20-3 | 0.012 | 2 | N/A | Yes | mg/kg | 0.0018 | J | 0.065 | J+ |
| Phenanthrene | 85-01-8 | 0.17 | 2 | N/A | No | mg/kg | 0.003 | J | 0.034 | J+ |
| Pyrene | 129-00-0 | 0.22 | 2 | N/A | No | mg/kg | 0.0042 | J | 0.011 | J+ |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 2 | N/A | No | mg/kg | 5000 | | 4400 | J |
| Antimony | 7440-36-0 | 0.15 | 2 | N/A | Yes | mg/kg | 0.12 | J | 0.18 | J |
| Arsenic | 7440-38-2 | 4.7 | 2 | N/A | Yes | mg/kg | 4.6 | | 6.8 | J+ |
| Barium | 7440-39-3 | 100 | 2 | N/A | No | mg/kg | 30 | | 32 | |
| Beryllium | 7440-41-7 | < LOQ | 2 | N/A | Yes | mg/kg | 0.55 | J+ | 0.42 | J+ |
| Cadmium | 7440-43-9 | 0.38 | 2 | N/A | No | mg/kg | 0.072 | J | 0.15 | |
| Calcium | 7440-70-2 | 120000 | 2 | N/A | No | mg/kg | 100000 | | 25000 | J |
| Chromium | 7440-47-3 | 11 | 2 | N/A | No | mg/kg | 6.4 | | 5.5 | J- |
| Cobalt | 7440-48-4 | 5.5 | 2 | N/A | No | mg/kg | 4.1 | | 3.6 | J- |
| Copper | 7440-50-8 | 13 | 2 | N/A | Yes | mg/kg | 23 | | 20 | |
| Iron | 7439-89-6 | 14000 | 2 | N/A | No | mg/kg | 12000 | | 11000 | J |
| Lead | 7439-92-1 | 9.8 | 2 | N/A | Yes | mg/kg | 4.6 | | 11 | J- |
| Magnesium | 7439-95-4 | 2000 | 2 | N/A | Yes | mg/kg | 11000 | | 4900 | J |
| Manganese | 7439-96-5 | 520 | 2 | N/A | Yes | mg/kg | 710 | | 400 | J- |
| Mercury | 7439-97-6 | 0.19 | 2 | N/A | No | mg/kg | 0.016 | J | 0.031 | |
| Nickel | 7440-02-0 | 9.7 | 2 | N/A | No | mg/kg | 8.1 | | 8.3 | J- |
| Potassium | 7440-09-7 | 1200 | 2 | N/A | No | mg/kg | 810 | | 580 | |
| Selenium | 7782-49-2 | 0.51 | 2 | N/A | No | mg/kg | 0.15 | J | 0.27 | J |
| Silver | 7440-22-4 | < LOQ | 2 | N/A | No | mg/kg | 0.67 | U | 0.5 | U |
| Sodium | 7440-23-5 | < LOQ | 2 | N/A | Yes | mg/kg | 550 | J+ | 420 | J+ |
| Thallium | 7440-28-0 | 0.11 | 2 | N/A | Yes | mg/kg | 0.091 | U | 0.12 | |
| Vanadium | 7440-62-2 | 14 | 2 | N/A | No | mg/kg | 10 | | 9.9 | |
| Zinc | 7440-66-6 | 23 | 2 | N/A | Yes | mg/kg | 29 | | 35 | J- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-66
Site to Background Sample Comparison - Area of Concern 5 (Possible Dump Area), Surface Soil (0 - 1 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: NYOW-05-002<br>Sample Name: NYOW-05-SL002-A<br>Sample Type: C<br>Sample Depth (feet): 0 - 1<br>Sample Geology: Ps<br>Sample Date: 2021-01-12 | | Sample Location: NYOW-05-004<br>Sample Name: NYOW-05-SL004-A<br>Sample Type: N<br>Sample Depth (feet): 0 - 1<br>Sample Geology: Ps<br>Sample Date: 2021-01-12 | | Sample Location: NYOW-05-005<br>Sample Name: NYOW-05-SL005-A<br>Sample Type: N<br>Sample Depth (feet): 0 - 1<br>Sample Geology: Ps<br>Sample Date: 2021-01-12 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.011 | 3 | N/A | Yes | mg/kg | 0.01 | | 0.069 | | 0.29 | |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | 3 | N/A | Yes | mg/kg | 0.013 | | 0.09 | | 0.37 | |
| Acenaphthene | 83-32-9 | < LOQ | 3 | N/A | Yes | mg/kg | 0.011 | J+ | 0.0011 | U | 0.012 | U |
| Acenaphthylene | 208-96-8 | 0.053 | 3 | N/A | No | mg/kg | 0.0012 | U | 0.0099 | J+ | 0.012 | U |
| Anthracene | 120-12-7 | 0.033 | 3 | N/A | No | mg/kg | 0.018 | J | 0.0032 | J | 0.047 | U |
| Benzo(a)anthracene | 56-55-3 | 0.14 | 3 | N/A | No | mg/kg | 0.02 | J | 0.012 | | 0.042 | J |
| Benzo(a)pyrene | 50-32-8 | 0.15 | 3 | N/A | No | mg/kg | 0.016 | J | 0.012 | | 0.034 | J |
| Benzo(b)fluoranthene | 205-99-2 | 0.18 | 3 | N/A | No | mg/kg | 0.022 | J | 0.019 | | 0.058 | J |
| Benzo(g,h,i)perylene | 191-24-2 | 0.095 | 3 | N/A | No | mg/kg | 0.016 | J | 0.0088 | J | 0.072 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.08 | 3 | N/A | No | mg/kg | 0.011 | J+ | 0.0099 | J+ | 0.047 | U |
| Chrysene | 218-01-9 | 0.14 | 3 | N/A | No | mg/kg | 0.021 | J | 0.025 | | 0.056 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 3 | N/A | No | mg/kg | 0.0077 | U | 0.0066 | U | 0.072 | U |
| Fluoranthene | 206-44-0 | 0.24 | 3 | N/A | No | mg/kg | 0.051 | J | 0.023 | | 0.069 | J |
| Fluorene | 86-73-7 | 0.015 | 3 | N/A | No | mg/kg | 0.011 | J+ | 0.0099 | J+ | 0.029 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.11 | 3 | N/A | No | mg/kg | 0.011 | J | 0.0085 | J | 0.072 | U |
| Naphthalene | 91-20-3 | 0.012 | 3 | N/A | Yes | mg/kg | 0.01 | | 0.071 | | 0.29 | |
| Phenanthrene | 85-01-8 | 0.086 | 3 | N/A | Yes | mg/kg | 0.046 | J | 0.044 | | 0.16 | |
| Pyrene | 129-00-0 | 0.22 | 3 | N/A | No | mg/kg | 0.045 | J | 0.023 | | 0.068 | J |
| **Metals (Total)** | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 10000 | 3 | N/A | No | mg/kg | 6000 | | 4200 | | 3800 | |
| Antimony | 7440-36-0 | 0.15 | 3 | N/A | Yes | mg/kg | 0.12 | J | 0.076 | J | 1 | |
| Arsenic | 7440-38-2 | 21 | 3 | N/A | No | mg/kg | 5.1 | | 4.3 | | 6.9 | |
| Barium | 7440-39-3 | 100 | 3 | N/A | No | mg/kg | 40 | | 31 | | 76 | |
| Beryllium | 7440-41-7 | < LOQ | 3 | N/A | Yes | mg/kg | 0.47 | J+ | 0.54 | J+ | 0.56 | J+ |
| Cadmium | 7440-43-9 | 0.38 | 3 | N/A | Yes | mg/kg | 0.33 | | 0.076 | | 4.3 | |
| Calcium | 7440-70-2 | 120000 | 3 | N/A | No | mg/kg | 15000 | J | 95000 | | 13000 | |
| Chromium | 7440-47-3 | 11 | 3 | N/A | Yes | mg/kg | 7.9 | | 5 | | 13 | |
| Cobalt | 7440-48-4 | 8.3 | 3 | N/A | No | mg/kg | 4.7 | | 6.7 | | 4.3 | |
| Copper | 7440-50-8 | 28 | 3 | N/A | Yes | mg/kg | 18 | | 32 | | 110 | |
| Iron | 7439-89-6 | 24000 | 3 | N/A | No | mg/kg | 15000 | | 15000 | | 22000 | |
| Lead | 7439-92-1 | 320 | 3 | N/A | No | mg/kg | 9.3 | | 8.3 | | 200 | |
| Magnesium | 7439-95-4 | 6300 | 3 | N/A | Yes | mg/kg | 4400 | J | 28000 | | 3000 | |
| Manganese | 7439-96-5 | 1700 | 3 | N/A | No | mg/kg | 520 | | 780 | | 450 | |
| Mercury | 7439-97-6 | 0.19 | 3 | N/A | No | mg/kg | 0.059 | | 0.0078 | J | 0.14 | |
| Nickel | 7440-02-0 | 13 | 3 | N/A | Yes | mg/kg | 8.3 | | 9.9 | | 18 | |
| Potassium | 7440-09-7 | 1100 | 3 | N/A | No | mg/kg | 890 | | 760 | | 550 | |
| Selenium | 7782-49-2 | 0.51 | 3 | N/A | No | mg/kg | 0.49 | | 0.13 | J | 0.47 | |
| Silver | 7440-22-4 | < LOQ | 3 | N/A | Yes | mg/kg | 0.56 | U | 0.64 | U | 1.7 | J+ |
| Sodium | 7440-23-5 | < LOQ | 3 | N/A | Yes | mg/kg | 470 | J+ | 540 | J+ | 560 | J+ |
| Thallium | 7440-28-0 | 0.12 | 3 | N/A | Yes | mg/kg | 0.094 | U | 0.075 | U | 0.15 | |
| Vanadium | 7440-62-2 | 21 | 3 | N/A | No | mg/kg | 14 | | 7.9 | | 10 | |
| Zinc | 7440-66-6 | 57 | 3 | N/A | Yes | mg/kg | 35 | | 28 | | 690 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-67
Site to Background Sample Comparison - Area of Concern 5 (Possible Dump Area), Subsurface Soil (1 - 5 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-001 | | NYOW-05-003 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-PH001-B | | NYOW-05-PH003-B | |
| | | | | | | Sample Type: | N | | N | |
| | | | | | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | |
| | | | | | | Sample Geology: | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-01-12 | | 2021-01-12 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 2 | N/A | No | mg/kg | 0.0023 | U | 0.012 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 2 | N/A | No | mg/kg | 0.0023 | U | 0.012 | J+ |
| Acenaphthene | 83-32-9 | < LOQ | 2 | N/A | No | mg/kg | 0.0012 | U | 0.0013 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 2 | N/A | No | mg/kg | 0.0012 | U | 0.0013 | U |
| Anthracene | 120-12-7 | 0.048 | 2 | N/A | No | mg/kg | 0.005 | U | 0.0052 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 2 | N/A | No | mg/kg | 0.005 | U | 0.0052 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 2 | N/A | No | mg/kg | 0.005 | U | 0.0052 | U |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 2 | N/A | No | mg/kg | 0.0077 | U | 0.008 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 2 | N/A | No | mg/kg | 0.0077 | U | 0.008 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 2 | N/A | No | mg/kg | 0.005 | U | 0.0052 | U |
| Chrysene | 218-01-9 | 0.081 | 2 | N/A | No | mg/kg | 0.005 | U | 0.012 | J+ |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 2 | N/A | No | mg/kg | 0.0077 | U | 0.008 | U |
| Fluoranthene | 206-44-0 | 0.15 | 2 | N/A | No | mg/kg | 0.012 | J+ | 0.0052 | U |
| Fluorene | 86-73-7 | 0.015 | 2 | N/A | No | mg/kg | 0.0031 | U | 0.0032 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 2 | N/A | No | mg/kg | 0.0077 | U | 0.008 | U |
| Naphthalene | 91-20-3 | 0.012 | 2 | N/A | No | mg/kg | 0.0023 | U | 0.012 | J+ |
| Phenanthrene | 85-01-8 | 0.012 | 2 | N/A | No | mg/kg | 0.0077 | U | 0.008 | U |
| Pyrene | 129-00-0 | 0.14 | 2 | N/A | No | mg/kg | 0.0077 | U | 0.008 | U |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 2 | N/A | Yes | mg/kg | 6600 | | 19000 | J |
| Antimony | 7440-36-0 | 0.15 | 2 | N/A | Yes | mg/kg | 0.099 | U | 0.26 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 2 | N/A | No | mg/kg | 3.9 | | 4.5 | J |
| Barium | 7440-39-3 | 100 | 2 | N/A | Yes | mg/kg | 68 | | 110 | J |
| Beryllium | 7440-41-7 | < LOQ | 2 | N/A | Yes | mg/kg | 0.19 | J | 0.77 | |
| Cadmium | 7440-43-9 | 0.16 | 2 | N/A | No | mg/kg | 0.081 | J | 0.073 | J |
| Calcium | 7440-70-2 | 120000 | 2 | N/A | No | mg/kg | 29000 | | 43000 | J |
| Chromium | 7440-47-3 | 11 | 2 | N/A | Yes | mg/kg | 11 | | 25 | |
| Cobalt | 7440-48-4 | 5.5 | 2 | N/A | Yes | mg/kg | 4.1 | | 9 | |
| Copper | 7440-50-8 | 13 | 2 | N/A | Yes | mg/kg | 13 | | 18 | |
| Iron | 7439-89-6 | 14000 | 2 | N/A | Yes | mg/kg | 13000 | | 24000 | J |
| Lead | 7439-92-1 | 6.3 | 2 | N/A | Yes | mg/kg | 5.8 | | 7.9 | |
| Magnesium | 7439-95-4 | 35000 | 2 | N/A | No | mg/kg | 4800 | | 10000 | J- |
| Manganese | 7439-96-5 | 520 | 2 | N/A | Yes | mg/kg | 1000 | | 450 | J |
| Mercury | 7439-97-6 | 0.027 | 2 | N/A | Yes | mg/kg | 0.054 | | 0.018 | J |
| Nickel | 7440-02-0 | 9.7 | 2 | N/A | Yes | mg/kg | 7.6 | | 25 | |
| Potassium | 7440-09-7 | 1200 | 2 | N/A | Yes | mg/kg | 550 | | 3700 | J+ |
| Selenium | 7782-49-2 | 0.51 | 2 | N/A | No | mg/kg | 0.48 | J+ | 0.49 | J+ |
| Silver | 7440-22-4 | < LOQ | 2 | N/A | No | mg/kg | 0.52 | U | 0.55 | U |
| Sodium | 7440-23-5 | < LOQ | 2 | N/A | Yes | mg/kg | 430 | J+ | 460 | J+ |
| Thallium | 7440-28-0 | 0.11 | 2 | N/A | Yes | mg/kg | 0.097 | U | 0.2 | J |
| Vanadium | 7440-62-2 | 14 | 2 | N/A | Yes | mg/kg | 15 | | 31 | |
| Zinc | 7440-66-6 | 23 | 2 | N/A | Yes | mg/kg | 23 | | 52 | J- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-68
Site to Background Sample Comparison - Area of Concern 5 (Possible Dump Area), Subsurface Soil (1 - 5 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-002 | | NYOW-05-004 | | NYOW-05-005 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-PH002-B | | NYOW-05-PH004-B | | NYOW-05-PH005-B | |
| | | | | | | Sample Type: | N | | N | | N | |
| | | | | | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | | | Sample Geology: | Ps | | Ps | | Ps | |
| | | | | | | Sample Date: | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | < LOQ | 3 | N/A | Yes | mg/kg | 0.0021 | U | 0.0023 | U | 0.012 | J+ |
| 2-Methylnaphthalene | 91-57-6 | < LOQ | 3 | N/A | Yes | mg/kg | 0.0021 | U | 0.0023 | U | 0.012 | J+ |
| Acenaphthene | 83-32-9 | < LOQ | 3 | N/A | No | mg/kg | 0.0011 | U | 0.0012 | U | 0.0013 | U |
| Acenaphthylene | 208-96-8 | 0.013 | 3 | N/A | No | mg/kg | 0.0011 | U | 0.0012 | U | 0.0013 | U |
| Anthracene | 120-12-7 | 0.0052 | 3 | N/A | No | mg/kg | 0.0045 | U | 0.0049 | U | 0.0051 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 3 | N/A | No | mg/kg | 0.0045 | U | 0.011 | J+ | 0.0051 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 3 | N/A | No | mg/kg | 0.0045 | U | 0.0049 | U | 0.0051 | U |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 3 | N/A | No | mg/kg | 0.0069 | U | 0.0076 | U | 0.0079 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 3 | N/A | No | mg/kg | 0.0069 | U | 0.0076 | U | 0.0079 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 3 | N/A | No | mg/kg | 0.0045 | U | 0.0049 | U | 0.0051 | U |
| Chrysene | 218-01-9 | 0.081 | 3 | N/A | No | mg/kg | 0.0045 | U | 0.011 | J+ | 0.012 | J+ |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 3 | N/A | No | mg/kg | 0.0069 | U | 0.0076 | U | 0.0079 | U |
| Fluoranthene | 206-44-0 | 0.15 | 3 | N/A | No | mg/kg | 0.0045 | U | 0.011 | J+ | 0.0051 | U |
| Fluorene | 86-73-7 | 0.015 | 3 | N/A | No | mg/kg | 0.0028 | U | 0.003 | U | 0.0032 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 3 | N/A | No | mg/kg | 0.0069 | U | 0.0076 | U | 0.0079 | U |
| Naphthalene | 91-20-3 | 0.012 | 3 | N/A | No | mg/kg | 0.01 | J+ | 0.011 | J+ | 0.012 | J+ |
| Phenanthrene | 85-01-8 | 0.086 | 3 | N/A | No | mg/kg | 0.0069 | U | 0.011 | J+ | 0.0079 | U |
| Pyrene | 129-00-0 | 0.14 | 3 | N/A | No | mg/kg | 0.0069 | U | 0.011 | J+ | 0.0079 | U |
| Metals (Total) | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 3 | N/A | Yes | mg/kg | 4900 | | 3200 | | 8600 | |
| Antimony | 7440-36-0 | 0.15 | 3 | N/A | Yes | mg/kg | 0.19 | J+ | 0.091 | U | 0.19 | J+ |
| Arsenic | 7440-38-2 | 21 | 3 | N/A | No | mg/kg | 6.4 | | 3.6 | | 6.2 | |
| Barium | 7440-39-3 | 100 | 3 | N/A | No | mg/kg | 29 | | 18 | | 48 | |
| Beryllium | 7440-41-7 | < LOQ | 3 | N/A | No | mg/kg | 0.19 | J | 0.11 | J | 0.37 | J |
| Cadmium | 7440-43-9 | 0.16 | 3 | N/A | No | mg/kg | 0.063 | J | 0.036 | J | 0.12 | |
| Calcium | 7440-70-2 | 120000 | 3 | N/A | No | mg/kg | 3500 | | 39000 | | 16000 | |
| Chromium | 7440-47-3 | 11 | 3 | N/A | Yes | mg/kg | 13 | J | 4.9 | | 11 | |
| Cobalt | 7440-48-4 | 8.3 | 3 | N/A | No | mg/kg | 8.3 | | 2.9 | | 6.1 | |
| Copper | 7440-50-8 | 28 | 3 | N/A | No | mg/kg | 16 | J | 10 | | 19 | |
| Iron | 7439-89-6 | 24000 | 3 | N/A | No | mg/kg | 20000 | | 9100 | | 18000 | |
| Lead | 7439-92-1 | 33 | 3 | N/A | No | mg/kg | 4 | J | 3.4 | | 6 | |
| Magnesium | 7439-95-4 | 35000 | 3 | N/A | No | mg/kg | 3600 | | 19000 | | 5300 | |
| Manganese | 7439-96-5 | 1700 | 3 | N/A | No | mg/kg | 410 | | 320 | | 630 | |
| Mercury | 7439-97-6 | 0.056 | 3 | N/A | No | mg/kg | 0.013 | J | 0.02 | | 0.019 | J |
| Nickel | 7440-02-0 | 13 | 3 | N/A | Yes | mg/kg | 11 | J | 5.1 | | 14 | |
| Potassium | 7440-09-7 | 1100 | 3 | N/A | Yes | mg/kg | 760 | | 690 | | 1300 | |
| Selenium | 7782-49-2 | 0.51 | 3 | N/A | Yes | mg/kg | 0.39 | U | 0.4 | U | 0.6 | J+ |
| Silver | 7440-22-4 | < LOQ | 3 | N/A | No | mg/kg | 2.9 | U | 0.6 | U | 0.58 | U |
| Sodium | 7440-23-5 | < LOQ | 3 | N/A | Yes | mg/kg | 480 | J+ | 500 | J+ | 480 | J+ |
| Thallium | 7440-28-0 | 0.12 | 3 | N/A | No | mg/kg | 0.097 | U | 0.1 | U | 0.12 | U |
| Vanadium | 7440-62-2 | 17 | 3 | N/A | Yes | mg/kg | 24 | | 9.7 | | 16 | |
| Zinc | 7440-66-6 | 57 | 3 | N/A | No | mg/kg | 21 | J | 12 | | 52 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-69
Site to Background Sample Comparison - Area of Concern 5 (Possible Dump Area), Subsurface Soil (5 - 10 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-001 | | NYOW-05-003 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-PH001-C | | NYOW-05-PH003-C | |
| | | | | | | Sample Type: | C | | N | |
| | | | | | | Sample Depth (feet): | 5 - 10 | | 5 - 10 | |
| | | | | | | Sample Geology: | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-01-12 | | 2021-01-12 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 2 | N/A | No | mg/kg | 0.002 | U | 0.0025 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 2 | N/A | No | mg/kg | 0.002 | U | 0.0025 | U |
| Acenaphthene | 83-32-9 | < LOQ | 2 | N/A | No | mg/kg | 0.0011 | U | 0.0013 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 2 | N/A | No | mg/kg | 0.0011 | U | 0.0013 | U |
| Anthracene | 120-12-7 | 0.048 | 2 | N/A | No | mg/kg | 0.0044 | U | 0.0054 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 2 | N/A | No | mg/kg | 0.01 | J+ | 0.012 | J+ |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 2 | N/A | No | mg/kg | 0.0044 | U | 0.012 | J+ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 2 | N/A | No | mg/kg | 0.01 | J+ | 0.012 | J+ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 2 | N/A | No | mg/kg | 0.0068 | U | 0.012 | J+ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 2 | N/A | No | mg/kg | 0.0044 | U | 0.0054 | U |
| Chrysene | 218-01-9 | 0.081 | 2 | N/A | No | mg/kg | 0.01 | J+ | 0.012 | J+ |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 2 | N/A | No | mg/kg | 0.0068 | U | 0.0083 | U |
| Fluoranthene | 206-44-0 | 0.15 | 2 | N/A | No | mg/kg | 0.01 | J+ | 0.012 | J+ |
| Fluorene | 86-73-7 | 0.015 | 2 | N/A | No | mg/kg | 0.0027 | U | 0.0033 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 2 | N/A | No | mg/kg | 0.0068 | U | 0.0083 | U |
| Naphthalene | 91-20-3 | 0.012 | 2 | N/A | No | mg/kg | 0.002 | U | 0.012 | J+ |
| Phenanthrene | 85-01-8 | 0.012 | 2 | N/A | No | mg/kg | 0.01 | J+ | 0.0083 | U |
| Pyrene | 129-00-0 | 0.14 | 2 | N/A | No | mg/kg | 0.0088 | J | 0.0044 | J |
| Metals (Total) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 2 | N/A | Yes | mg/kg | 13000 | J | 18000 | |
| Antimony | 7440-36-0 | 0.15 | 2 | N/A | Yes | mg/kg | 0.2 | J | 0.13 | J |
| Arsenic | 7440-38-2 | 4.7 | 2 | N/A | Yes | mg/kg | 3.1 | J | 5 | |
| Barium | 7440-39-3 | 100 | 2 | N/A | Yes | mg/kg | 75 | J | 110 | |
| Beryllium | 7440-41-7 | 0.56 | 2 | N/A | Yes | mg/kg | 0.53 | | 0.77 | |
| Cadmium | 7440-43-9 | 0.31 | 2 | N/A | No | mg/kg | 0.093 | J+ | 0.1 | J+ |
| Calcium | 7440-70-2 | 71000 | 2 | N/A | No | mg/kg | 54000 | | 42000 | |
| Chromium | 7440-47-3 | 11 | 2 | N/A | Yes | mg/kg | 18 | J | 24 | |
| Cobalt | 7440-48-4 | 5.5 | 2 | N/A | Yes | mg/kg | 10 | J | 12 | |
| Copper | 7440-50-8 | 13 | 2 | N/A | Yes | mg/kg | 19 | | 21 | |
| Iron | 7439-89-6 | 14000 | 2 | N/A | Yes | mg/kg | 23000 | J | 27000 | |
| Lead | 7439-92-1 | 6.3 | 2 | N/A | Yes | mg/kg | 8 | | 8.6 | |
| Magnesium | 7439-95-4 | 27000 | 2 | N/A | No | mg/kg | 18000 | J | 10000 | |
| Manganese | 7439-96-5 | 520 | 2 | N/A | No | mg/kg | 440 | | 490 | |
| Mercury | 7439-97-6 | 0.027 | 2 | N/A | No | mg/kg | 0.021 | J+ | 0.023 | J+ |
| Nickel | 7440-02-0 | 9.7 | 2 | N/A | Yes | mg/kg | 22 | | 27 | |
| Potassium | 7440-09-7 | 1200 | 2 | N/A | Yes | mg/kg | 3100 | J | 4200 | |
| Selenium | 7782-49-2 | 0.51 | 2 | N/A | No | mg/kg | 0.46 | J+ | 0.51 | J+ |
| Silver | 7440-22-4 | < LOQ | 2 | N/A | No | mg/kg | 0.61 | U | 0.58 | U |
| Sodium | 7440-23-5 | < LOQ | 2 | N/A | Yes | mg/kg | 510 | J+ | 480 | J+ |
| Thallium | 7440-28-0 | 0.11 | 2 | N/A | Yes | mg/kg | 0.16 | | 0.19 | |
| Vanadium | 7440-62-2 | 14 | 2 | N/A | Yes | mg/kg | 25 | J | 34 | |
| Zinc | 7440-66-6 | 23 | 2 | N/A | Yes | mg/kg | 41 | | 50 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-70
Site to Background Sample Comparison - Area of Concern 5 (Possible Dump Area), Subsurface Soil (5 - 10 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-002 | | NYOW-05-004 | | NYOW-05-005 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-PH002-C | | NYOW-05-PH004-C | | NYOW-05-PH005-C | |
| | | | | | | Sample Type: | N | | N | | N | |
| | | | | | | Sample Depth (feet): | 5 - 10 | | 5 - 10 | | 5 - 10 | |
| | | | | | | Sample Geology: | Ps | | Ps | | Ps | |
| | | | | | | Sample Date: | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | < LOQ | 3 | N/A | Yes | mg/kg | 0.01 | J+ | 0.0024 | U | 0.0021 | U |
| 2-Methylnaphthalene | 91-57-6 | < LOQ | 3 | N/A | Yes | mg/kg | 0.01 | J+ | 0.0024 | U | 0.0021 | U |
| Acenaphthene | 83-32-9 | < LOQ | 3 | N/A | No | mg/kg | 0.0011 | U | 0.0013 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | 0.013 | 3 | N/A | No | mg/kg | 0.0011 | U | 0.0013 | U | 0.0011 | U |
| Anthracene | 120-12-7 | 0.0052 | 3 | N/A | No | mg/kg | 0.0045 | U | 0.0052 | U | 0.0046 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 3 | N/A | No | mg/kg | 0.0045 | U | 0.0052 | U | 0.011 | J+ |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 3 | N/A | No | mg/kg | 0.0045 | U | 0.0052 | U | 0.011 | J+ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 3 | N/A | No | mg/kg | 0.007 | U | 0.012 | J+ | 0.011 | J+ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 3 | N/A | No | mg/kg | 0.007 | U | 0.008 | U | 0.0071 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 3 | N/A | No | mg/kg | 0.0045 | U | 0.0052 | U | 0.0046 | U |
| Chrysene | 218-01-9 | 0.081 | 3 | N/A | No | mg/kg | 0.0045 | U | 0.0052 | U | 0.011 | J+ |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 3 | N/A | No | mg/kg | 0.007 | U | 0.008 | U | 0.0071 | U |
| Fluoranthene | 206-44-0 | 0.15 | 3 | N/A | No | mg/kg | 0.0045 | U | 0.012 | J+ | 0.011 | J+ |
| Fluorene | 86-73-7 | 0.015 | 3 | N/A | No | mg/kg | 0.0028 | U | 0.0032 | U | 0.0029 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 3 | N/A | No | mg/kg | 0.007 | U | 0.008 | U | 0.0071 | U |
| Naphthalene | 91-20-3 | 0.012 | 3 | N/A | No | mg/kg | 0.01 | J+ | 0.0024 | U | 0.011 | J+ |
| Phenanthrene | 85-01-8 | 0.086 | 3 | N/A | No | mg/kg | 0.007 | U | 0.012 | J+ | 0.0071 | U |
| Pyrene | 129-00-0 | 0.14 | 3 | N/A | No | mg/kg | 0.007 | U | 0.012 | | 0.0024 | J |
| Metals (Total) | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 3 | N/A | Yes | mg/kg | 5100 | | 20000 | | 6600 | |
| Antimony | 7440-36-0 | 0.15 | 3 | N/A | Yes | mg/kg | 0.078 | U | 0.21 | | 0.1 | U |
| Arsenic | 7440-38-2 | 21 | 3 | N/A | No | mg/kg | 13 | | 9 | | 5.5 | |
| Barium | 7440-39-3 | 100 | 3 | N/A | Yes | mg/kg | 39 | | 140 | | 50 | |
| Beryllium | 7440-41-7 | 0.56 | 3 | N/A | Yes | mg/kg | 0.19 | J | 0.8 | | 0.62 | J |
| Cadmium | 7440-43-9 | 0.31 | 3 | N/A | No | mg/kg | 0.094 | J+ | 0.11 | J+ | 0.1 | J+ |
| Calcium | 7440-70-2 | 110000 | 3 | N/A | No | mg/kg | 40000 | | 48000 | | 4800 | |
| Chromium | 7440-47-3 | 11 | 3 | N/A | Yes | mg/kg | 6.8 | | 27 | | 10 | J |
| Cobalt | 7440-48-4 | 8.3 | 3 | N/A | Yes | mg/kg | 4.8 | | 15 | | 6.4 | |
| Copper | 7440-50-8 | 28 | 3 | N/A | No | mg/kg | 9.6 | | 25 | | 17 | J |
| Iron | 7439-89-6 | 24000 | 3 | N/A | Yes | mg/kg | 12000 | | 29000 | | 19000 | |
| Lead | 7439-92-1 | 33 | 3 | N/A | No | mg/kg | 2.6 | | 9.4 | | 4 | |
| Magnesium | 7439-95-4 | 27000 | 3 | N/A | No | mg/kg | 7100 | | 12000 | | 4300 | |
| Manganese | 7439-96-5 | 1700 | 3 | N/A | No | mg/kg | 360 | | 730 | | 440 | |
| Mercury | 7439-97-6 | 0.056 | 3 | N/A | No | mg/kg | 0.02 | J+ | 0.025 | J+ | 0.021 | J+ |
| Nickel | 7440-02-0 | 13 | 3 | N/A | Yes | mg/kg | 9.5 | | 32 | | 14 | J |
| Potassium | 7440-09-7 | 1800 | 3 | N/A | Yes | mg/kg | 1200 | | 4400 | | 1000 | J |
| Selenium | 7782-49-2 | 0.51 | 3 | N/A | No | mg/kg | 0.47 | J+ | 0.44 | U | 0.41 | U |
| Silver | 7440-22-4 | < LOQ | 3 | N/A | No | mg/kg | 0.56 | U | 0.58 | U | 2.5 | U |
| Sodium | 7440-23-5 | < LOQ | 3 | N/A | Yes | mg/kg | 470 | J+ | 480 | J+ | 420 | U |
| Thallium | 7440-28-0 | 0.12 | 3 | N/A | Yes | mg/kg | 0.11 | | 0.2 | | 0.1 | U |
| Vanadium | 7440-62-2 | 17 | 3 | N/A | Yes | mg/kg | 10 | | 37 | | 16 | |
| Zinc | 7440-66-6 | 57 | 3 | N/A | No | mg/kg | 17 | | 57 | | 26 | J |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-71
Site to Background Sample Comparison - Area of Concern 5 (Possible Dump Area), Total Soil (0 - 5 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: NYOW-05-001<br>Sample Name: NYOW-05-SL001-A<br>Sample Type: N<br>Sample Depth (feet): 0 - 1<br>Sample Geology: Psc<br>Sample Date: 2021-01-12 | | Sample Location: NYOW-05-003<br>Sample Name: NYOW-05-SL003-A<br>Sample Type: N<br>Sample Depth (feet): 0 - 1<br>Sample Geology: Psc<br>Sample Date: 2021-01-12 | | Sample Location: NYOW-05-001<br>Sample Name: NYOW-05-PH001-B<br>Sample Type: N<br>Sample Depth (feet): 1 - 5<br>Sample Geology: Psc<br>Sample Date: 2021-01-12 | | Sample Location: NYOW-05-003<br>Sample Name: NYOW-05-PH003-B<br>Sample Type: N<br>Sample Depth (feet): 1 - 5<br>Sample Geology: Psc<br>Sample Date: 2021-01-12 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 4 | N/A | Yes | mg/kg | 0.0021 | U | 0.065 | J+ | 0.0023 | U | 0.012 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 4 | N/A | Yes | mg/kg | 0.0021 | U | 0.087 | J+ | 0.0023 | U | 0.012 | J+ |
| Acenaphthene | 83-32-9 | < LOQ | 4 | N/A | No | mg/kg | 0.0011 | U | 0.0012 | U | 0.0012 | U | 0.0013 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 4 | N/A | No | mg/kg | 0.0011 | U | 0.0012 | U | 0.0012 | U | 0.0013 | U |
| Anthracene | 120-12-7 | 0.048 | 4 | N/A | No | mg/kg | 0.0045 | U | 0.005 | U | 0.005 | U | 0.0052 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 4 | N/A | No | mg/kg | 0.0024 | J | 0.0065 | J | 0.005 | U | 0.0052 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 4 | N/A | No | mg/kg | 0.0045 | U | 0.0042 | J | 0.005 | U | 0.0052 | U |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 4 | N/A | No | mg/kg | 0.0069 | U | 0.0076 | J | 0.0077 | U | 0.008 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 4 | N/A | No | mg/kg | 0.0069 | U | 0.0031 | J | 0.0077 | U | 0.008 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 4 | N/A | No | mg/kg | 0.0045 | U | 0.012 | J+ | 0.005 | U | 0.0052 | U |
| Chrysene | 218-01-9 | 0.081 | 4 | N/A | No | mg/kg | 0.0035 | J | 0.0092 | J+ | 0.005 | U | 0.012 | J+ |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 4 | N/A | No | mg/kg | 0.0069 | U | 0.0077 | U | 0.0077 | U | 0.008 | U |
| Fluoranthene | 206-44-0 | 0.15 | 4 | N/A | No | mg/kg | 0.0049 | J | 0.0091 | J+ | 0.012 | J+ | 0.0052 | U |
| Fluorene | 86-73-7 | 0.015 | 4 | N/A | No | mg/kg | 0.0028 | U | 0.012 | J+ | 0.0031 | U | 0.0032 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 4 | N/A | No | mg/kg | 0.0069 | U | 0.0025 | J | 0.0077 | U | 0.008 | U |
| Naphthalene | 91-20-3 | 0.012 | 4 | N/A | Yes | mg/kg | 0.0018 | J | 0.065 | J+ | 0.0023 | U | 0.012 | J+ |
| Phenanthrene | 85-01-8 | 0.012 | 4 | N/A | Yes | mg/kg | 0.003 | J | 0.034 | J+ | 0.0077 | U | 0.008 | U |
| Pyrene | 129-00-0 | 0.14 | 4 | N/A | No | mg/kg | 0.0042 | J | 0.011 | J+ | 0.0077 | U | 0.008 | U |
| **Metals (Total)** | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 4 | N/A | Yes | mg/kg | 5000 | | 4400 | J | 6600 | | 19000 | J |
| Antimony | 7440-36-0 | 0.15 | 4 | N/A | Yes | mg/kg | 0.12 | J | 0.18 | J | 0.099 | U | 0.26 | J+ |
| Arsenic | 7440-38-2 | 4.7 | 4 | N/A | Yes | mg/kg | 4.6 | | 6.8 | J+ | 3.9 | | 4.5 | J |
| Barium | 7440-39-3 | 100 | 4 | N/A | Yes | mg/kg | 30 | | 32 | | 68 | | 110 | J |
| Beryllium | 7440-41-7 | < LOQ | 4 | N/A | Yes | mg/kg | 0.55 | J+ | 0.42 | J+ | 0.19 | J | 0.77 | |
| Cadmium | 7440-43-9 | 0.16 | 4 | N/A | No | mg/kg | 0.072 | J | 0.15 | | 0.081 | J | 0.073 | J |
| Calcium | 7440-70-2 | 120000 | 4 | N/A | No | mg/kg | 100000 | | 25000 | J | 29000 | | 43000 | J |
| Chromium | 7440-47-3 | 11 | 4 | N/A | Yes | mg/kg | 6.4 | | 5.5 | J- | 11 | | 25 | |
| Cobalt | 7440-48-4 | 5.5 | 4 | N/A | Yes | mg/kg | 4.1 | | 3.6 | J- | 4.1 | | 9 | |
| Copper | 7440-50-8 | 13 | 4 | N/A | Yes | mg/kg | 23 | | 20 | | 13 | | 18 | |
| Iron | 7439-89-6 | 14000 | 4 | N/A | Yes | mg/kg | 12000 | | 11000 | J | 13000 | | 24000 | J |
| Lead | 7439-92-1 | 6.3 | 4 | N/A | Yes | mg/kg | 4.6 | | 11 | J- | 5.8 | | 7.9 | |
| Magnesium | 7439-95-4 | 2000 | 4 | N/A | Yes | mg/kg | 11000 | | 4900 | J | 4800 | | 10000 | J- |
| Manganese | 7439-96-5 | 520 | 4 | N/A | Yes | mg/kg | 710 | | 400 | J- | 1000 | | 450 | J |
| Mercury | 7439-97-6 | 0.027 | 4 | N/A | Yes | mg/kg | 0.016 | J | 0.031 | | 0.054 | | 0.018 | J |
| Nickel | 7440-02-0 | 9.7 | 4 | N/A | Yes | mg/kg | 8.1 | | 8.3 | J- | 7.6 | | 25 | |
| Potassium | 7440-09-7 | 1200 | 4 | N/A | Yes | mg/kg | 810 | | 580 | | 550 | | 3700 | J+ |
| Selenium | 7782-49-2 | 0.51 | 4 | N/A | No | mg/kg | 0.15 | J | 0.27 | J | 0.48 | J+ | 0.49 | J+ |
| Silver | 7440-22-4 | < LOQ | 4 | N/A | No | mg/kg | 0.67 | U | 0.5 | U | 0.52 | U | 0.55 | U |
| Sodium | 7440-23-5 | < LOQ | 4 | N/A | Yes | mg/kg | 550 | J+ | 420 | J+ | 430 | J+ | 460 | J+ |
| Thallium | 7440-28-0 | 0.11 | 4 | N/A | Yes | mg/kg | 0.091 | U | 0.12 | | 0.097 | U | 0.2 | J |
| Vanadium | 7440-62-2 | 14 | 4 | N/A | Yes | mg/kg | 10 | | 9.9 | | 15 | | 31 | |
| Zinc | 7440-66-6 | 23 | 4 | N/A | Yes | mg/kg | 29 | | 35 | J- | 23 | | 52 | J- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-72
Site to Background Sample Comparison - Area of Concern 5 (Possible Dump Area), Total Soil (0 - 5 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: NYOW-05-002<br>Sample Name: NYOW-05-SL002-A<br>Sample Type: C<br>Sample Depth (feet): 0 - 1<br>Sample Geology: Ps<br>Sample Date: 2021-01-12 | | Sample Location: NYOW-05-004<br>Sample Name: NYOW-05-SL004-A<br>Sample Type: N<br>Sample Depth (feet): 0 - 1<br>Sample Geology: Ps<br>Sample Date: 2021-01-12 | | Sample Location: NYOW-05-005<br>Sample Name: NYOW-05-SL005-A<br>Sample Type: N<br>Sample Depth (feet): 0 - 1<br>Sample Geology: Ps<br>Sample Date: 2021-01-12 | | Sample Location: NYOW-05-002<br>Sample Name: NYOW-05-PH002-B<br>Sample Type: N<br>Sample Depth (feet): 1 - 5<br>Sample Geology: Ps<br>Sample Date: 2021-01-12 | | Sample Location: NYOW-05-004<br>Sample Name: NYOW-05-PH004-B<br>Sample Type: N<br>Sample Depth (feet): 1 - 5<br>Sample Geology: Ps<br>Sample Date: 2021-01-12 | | Sample Location: NYOW-05-005<br>Sample Name: NYOW-05-PH005-B<br>Sample Type: N<br>Sample Depth (feet): 1 - 5<br>Sample Geology: Ps<br>Sample Date: 2021-01-12 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.011 | 6 | N/A | Yes | mg/kg | 0.01 | | 0.069 | | 0.29 | | 0.0021 | U | 0.0023 | U | 0.012 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | 6 | N/A | Yes | mg/kg | 0.013 | | 0.09 | | 0.37 | | 0.0021 | U | 0.0023 | U | 0.012 | J+ |
| Acenaphthene | 83-32-9 | < LOQ | 6 | N/A | Yes | mg/kg | 0.011 | J+ | 0.0011 | U | 0.012 | U | 0.0011 | U | 0.0012 | U | 0.0013 | U |
| Acenaphthylene | 208-96-8 | 0.013 | 6 | N/A | No | mg/kg | 0.0012 | U | 0.0099 | J+ | 0.012 | U | 0.0011 | U | 0.0012 | U | 0.0013 | U |
| Anthracene | 120-12-7 | 0.0052 | 6 | N/A | Yes | mg/kg | 0.018 | J | 0.0032 | J | 0.047 | U | 0.0045 | U | 0.0049 | U | 0.0051 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 6 | N/A | No | mg/kg | 0.02 | J | 0.012 | | 0.042 | J | 0.0045 | U | 0.011 | J+ | 0.0051 | U |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 6 | N/A | No | mg/kg | 0.016 | J | 0.012 | | 0.034 | J | 0.0045 | U | 0.0049 | U | 0.0051 | U |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 6 | N/A | No | mg/kg | 0.022 | J | 0.019 | | 0.058 | J | 0.0069 | U | 0.0076 | U | 0.0079 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 6 | N/A | No | mg/kg | 0.016 | J | 0.0088 | J | 0.072 | U | 0.0069 | U | 0.0076 | U | 0.0079 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 6 | N/A | No | mg/kg | 0.011 | J+ | 0.0099 | J+ | 0.047 | U | 0.0045 | U | 0.0049 | U | 0.0051 | U |
| Chrysene | 218-01-9 | 0.081 | 6 | N/A | No | mg/kg | 0.021 | J | 0.025 | | 0.056 | J | 0.0045 | U | 0.011 | J+ | 0.012 | J+ |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 6 | N/A | No | mg/kg | 0.0077 | U | 0.0066 | U | 0.072 | U | 0.0069 | U | 0.0076 | U | 0.0079 | U |
| Fluoranthene | 206-44-0 | 0.15 | 6 | N/A | No | mg/kg | 0.051 | J | 0.023 | | 0.069 | J | 0.0045 | U | 0.011 | J+ | 0.0051 | U |
| Fluorene | 86-73-7 | 0.015 | 6 | N/A | No | mg/kg | 0.011 | J+ | 0.0099 | J+ | 0.029 | U | 0.0028 | U | 0.003 | U | 0.0032 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 6 | N/A | No | mg/kg | 0.011 | J | 0.0085 | J | 0.072 | U | 0.0069 | U | 0.0076 | U | 0.0079 | U |
| Naphthalene | 91-20-3 | 0.012 | 6 | N/A | Yes | mg/kg | 0.01 | | 0.071 | | 0.29 | | 0.01 | J+ | 0.011 | J+ | 0.012 | J+ |
| Phenanthrene | 85-01-8 | 0.086 | 6 | N/A | Yes | mg/kg | 0.046 | J | 0.044 | | 0.16 | | 0.0069 | U | 0.011 | J+ | 0.0079 | U |
| Pyrene | 129-00-0 | 0.14 | 6 | N/A | No | mg/kg | 0.045 | J | 0.023 | | 0.068 | J | 0.0069 | U | 0.011 | J+ | 0.0079 | U |
| **Metals (Total)** | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 6 | N/A | Yes | mg/kg | 6000 | | 4200 | | 3800 | | 4900 | | 3200 | | 8600 | |
| Antimony | 7440-36-0 | 0.15 | 6 | N/A | Yes | mg/kg | 0.12 | J | 0.076 | J | 1 | | 0.19 | J+ | 0.091 | U | 0.19 | J+ |
| Arsenic | 7440-38-2 | 21 | 6 | N/A | No | mg/kg | 5.1 | | 4.3 | | 6.9 | | 6.4 | | 3.6 | | 6.2 | |
| Barium | 7440-39-3 | 100 | 6 | N/A | No | mg/kg | 40 | | 31 | | 76 | | 29 | | 18 | | 48 | |
| Beryllium | 7440-41-7 | < LOQ | 6 | N/A | Yes | mg/kg | 0.47 | J+ | 0.54 | J+ | 0.56 | J+ | 0.19 | J | 0.11 | J | 0.37 | J |
| Cadmium | 7440-43-9 | 0.16 | 6 | N/A | Yes | mg/kg | 0.33 | | 0.076 | | 4.3 | | 0.063 | J | 0.036 | J | 0.12 | |
| Calcium | 7440-70-2 | 120000 | 6 | N/A | No | mg/kg | 15000 | J | 95000 | | 13000 | | 3500 | | 39000 | | 16000 | |
| Chromium | 7440-47-3 | 11 | 6 | N/A | Yes | mg/kg | 7.9 | | 5 | | 13 | | 13 | J | 4.9 | | 11 | |
| Cobalt | 7440-48-4 | 8.3 | 6 | N/A | No | mg/kg | 4.7 | | 6.7 | | 4.3 | | 8.3 | | 2.9 | | 6.1 | |
| Copper | 7440-50-8 | 28 | 6 | N/A | Yes | mg/kg | 18 | | 32 | | 110 | | 16 | J | 10 | | 19 | |
| Iron | 7439-89-6 | 24000 | 6 | N/A | No | mg/kg | 15000 | | 15000 | | 22000 | | 20000 | | 9100 | | 18000 | |
| Lead | 7439-92-1 | 33 | 6 | N/A | Yes | mg/kg | 9.3 | | 8.3 | | 200 | | 4 | J | 3.4 | | 6 | |
| Magnesium | 7439-95-4 | 6300 | 6 | N/A | Yes | mg/kg | 4400 | J | 28000 | | 3000 | | 3600 | | 19000 | | 5300 | |
| Manganese | 7439-96-5 | 1700 | 6 | N/A | No | mg/kg | 520 | | 780 | | 450 | | 410 | | 320 | | 630 | |
| Mercury | 7439-97-6 | 0.056 | 6 | N/A | Yes | mg/kg | 0.059 | | 0.0078 | J | 0.14 | | 0.013 | J | 0.02 | | 0.019 | J |
| Nickel | 7440-02-0 | 13 | 6 | N/A | Yes | mg/kg | 8.3 | | 9.9 | | 18 | | 11 | J | 5.1 | | 14 | |
| Potassium | 7440-09-7 | 1100 | 6 | N/A | Yes | mg/kg | 890 | | 760 | | 550 | | 760 | | 690 | | 1300 | |
| Selenium | 7782-49-2 | 0.51 | 6 | N/A | Yes | mg/kg | 0.49 | | 0.13 | J | 0.47 | | 0.39 | U | 0.4 | U | 0.6 | J+ |
| Silver | 7440-22-4 | < LOQ | 6 | N/A | Yes | mg/kg | 0.56 | U | 0.64 | U | 1.7 | J+ | 2.9 | U | 0.6 | U | 0.58 | U |
| Sodium | 7440-23-5 | < LOQ | 6 | N/A | Yes | mg/kg | 470 | J+ | 540 | J+ | 560 | J+ | 480 | J+ | 500 | J+ | 480 | J+ |
| Thallium | 7440-28-0 | 0.12 | 6 | N/A | Yes | mg/kg | 0.094 | U | 0.075 | U | 0.15 | | 0.097 | U | 0.1 | U | 0.12 | U |
| Vanadium | 7440-62-2 | 17 | 6 | N/A | Yes | mg/kg | 14 | | 7.9 | | 10 | | 24 | | 9.7 | | 16 | |
| Zinc | 7440-66-6 | 57 | 6 | N/A | Yes | mg/kg | 35 | | 28 | | 690 | | 21 | J | 12 | | 52 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-73
Site to Background Sample Comparison - Area of Concern 5 (Possible Dump Area), Total Soil (0 - 10 ft bgs, Psc)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-001 | | NYOW-05-003 | | NYOW-05-001 | | NYOW-05-003 | | NYOW-05-001 | | NYOW-05-003 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-SL001-A | | NYOW-05-SL003-A | | NYOW-05-PH001-B | | NYOW-05-PH003-B | | NYOW-05-PH001-C | | NYOW-05-PH003-C | |
| | | | | | | Sample Type: | N | | N | | N | | N | | C | | N | |
| | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 5 - 10 | | 5 - 10 | |
| | | | | | | Sample Geology: | Psc | | Psc | | Psc | | Psc | | Psc | | Psc | |
| | | | | | | Sample Date: | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.014 | 6 | N/A | Yes | mg/kg | 0.0021 | U | 0.065 | J+ | 0.0023 | U | 0.012 | J+ | 0.002 | U | 0.0025 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.014 | 6 | N/A | Yes | mg/kg | 0.0021 | U | 0.087 | J+ | 0.0023 | U | 0.012 | J+ | 0.002 | U | 0.0025 | U |
| Acenaphthene | 83-32-9 | < LOQ | 6 | N/A | No | mg/kg | 0.0011 | U | 0.0012 | U | 0.0012 | U | 0.0013 | U | 0.0011 | U | 0.0013 | U |
| Acenaphthylene | 208-96-8 | 0.01 | 6 | N/A | No | mg/kg | 0.0011 | U | 0.0012 | U | 0.0012 | U | 0.0013 | U | 0.0011 | U | 0.0013 | U |
| Anthracene | 120-12-7 | 0.048 | 6 | N/A | No | mg/kg | 0.0045 | U | 0.005 | U | 0.005 | U | 0.0052 | U | 0.0044 | U | 0.0054 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 6 | N/A | No | mg/kg | 0.0024 | J | 0.0065 | J | 0.005 | U | 0.0052 | U | 0.01 | J+ | 0.012 | J+ |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 6 | N/A | No | mg/kg | 0.0045 | U | 0.0042 | J | 0.005 | U | 0.0052 | U | 0.0044 | U | 0.012 | J+ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 6 | N/A | No | mg/kg | 0.0069 | U | 0.0076 | J | 0.0077 | U | 0.008 | U | 0.01 | J+ | 0.012 | J+ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 6 | N/A | No | mg/kg | 0.0069 | U | 0.0031 | J | 0.0077 | U | 0.008 | U | 0.0068 | U | 0.012 | J+ |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 6 | N/A | No | mg/kg | 0.0045 | U | 0.012 | J+ | 0.005 | U | 0.0052 | U | 0.0044 | U | 0.0054 | U |
| Chrysene | 218-01-9 | 0.081 | 6 | N/A | No | mg/kg | 0.0035 | J | 0.0092 | J+ | 0.005 | U | 0.012 | J+ | 0.01 | J+ | 0.012 | J+ |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 6 | N/A | No | mg/kg | 0.0069 | U | 0.0077 | U | 0.0077 | U | 0.008 | U | 0.0068 | U | 0.0083 | U |
| Fluoranthene | 206-44-0 | 0.15 | 6 | N/A | No | mg/kg | 0.0049 | J | 0.0091 | J+ | 0.012 | J+ | 0.0052 | U | 0.01 | J+ | 0.012 | J+ |
| Fluorene | 86-73-7 | 0.015 | 6 | N/A | No | mg/kg | 0.0028 | U | 0.012 | J+ | 0.0031 | U | 0.0032 | U | 0.0027 | U | 0.0033 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 6 | N/A | No | mg/kg | 0.0069 | U | 0.0025 | J | 0.0077 | U | 0.008 | U | 0.0068 | U | 0.0083 | U |
| Naphthalene | 91-20-3 | 0.012 | 6 | N/A | Yes | mg/kg | 0.0018 | J | 0.065 | J+ | 0.0023 | U | 0.012 | J+ | 0.002 | U | 0.012 | J+ |
| Phenanthrene | 85-01-8 | 0.012 | 6 | N/A | Yes | mg/kg | 0.003 | J | 0.034 | J+ | 0.0077 | U | 0.008 | U | 0.01 | J+ | 0.0083 | U |
| Pyrene | 129-00-0 | 0.14 | 6 | N/A | No | mg/kg | 0.0042 | J | 0.011 | J+ | 0.0077 | U | 0.008 | U | 0.0088 | J | 0.0044 | J |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 6500 | 6 | N/A | Yes | mg/kg | 5000 | | 4400 | J | 6600 | | 19000 | J | 13000 | J | 18000 | |
| Antimony | 7440-36-0 | 0.15 | 6 | N/A | Yes | mg/kg | 0.12 | J | 0.18 | J | 0.099 | U | 0.26 | J+ | 0.2 | J | 0.13 | J |
| Arsenic | 7440-38-2 | 4.7 | 6 | N/A | Yes | mg/kg | 4.6 | | 6.8 | J+ | 3.9 | | 4.5 | J | 3.1 | J | 5 | |
| Barium | 7440-39-3 | 100 | 6 | N/A | Yes | mg/kg | 30 | | 32 | | 68 | | 110 | J | 75 | J | 110 | |
| Beryllium | 7440-41-7 | 0.56 | 6 | N/A | Yes | mg/kg | 0.55 | J+ | 0.42 | J+ | 0.19 | J | 0.77 | | 0.53 | | 0.77 | |
| Cadmium | 7440-43-9 | 0.16 | 6 | N/A | No | mg/kg | 0.072 | J | 0.15 | | 0.081 | J | 0.073 | J | 0.093 | J+ | 0.1 | J+ |
| Calcium | 7440-70-2 | 71000 | 6 | N/A | Yes | mg/kg | 100000 | | 25000 | J | 29000 | | 43000 | J | 54000 | | 42000 | |
| Chromium | 7440-47-3 | 11 | 6 | N/A | Yes | mg/kg | 6.4 | | 5.5 | J- | 11 | | 25 | | 18 | J | 24 | |
| Cobalt | 7440-48-4 | 5.5 | 6 | N/A | Yes | mg/kg | 4.1 | | 3.6 | J- | 4.1 | | 9 | | 10 | J | 12 | |
| Copper | 7440-50-8 | 13 | 6 | N/A | Yes | mg/kg | 23 | | 20 | | 13 | | 18 | | 19 | | 21 | |
| Iron | 7439-89-6 | 14000 | 6 | N/A | Yes | mg/kg | 12000 | | 11000 | J | 13000 | | 24000 | J | 23000 | J | 27000 | |
| Lead | 7439-92-1 | 6.3 | 6 | N/A | Yes | mg/kg | 4.6 | | 11 | J- | 5.8 | | 7.9 | | 8 | | 8.6 | |
| Magnesium | 7439-95-4 | 2000 | 6 | N/A | Yes | mg/kg | 11000 | | 4900 | J | 4800 | | 10000 | J- | 18000 | J | 10000 | |
| Manganese | 7439-96-5 | 520 | 6 | N/A | Yes | mg/kg | 710 | | 400 | J- | 1000 | | 450 | J | 440 | | 490 | |
| Mercury | 7439-97-6 | 0.027 | 6 | N/A | Yes | mg/kg | 0.016 | J | 0.031 | | 0.054 | | 0.018 | J | 0.021 | J+ | 0.023 | J+ |
| Nickel | 7440-02-0 | 9.7 | 6 | N/A | Yes | mg/kg | 8.1 | | 8.3 | J- | 7.6 | | 25 | | 22 | | 27 | |
| Potassium | 7440-09-7 | 1200 | 6 | N/A | Yes | mg/kg | 810 | | 580 | | 550 | | 3700 | J+ | 3100 | J | 4200 | |
| Selenium | 7782-49-2 | 0.51 | 6 | N/A | No | mg/kg | 0.15 | J | 0.27 | J | 0.48 | J+ | 0.49 | J+ | 0.46 | J+ | 0.51 | J+ |
| Silver | 7440-22-4 | < LOQ | 6 | N/A | No | mg/kg | 0.67 | U | 0.5 | U | 0.52 | U | 0.55 | U | 0.61 | U | 0.58 | U |
| Sodium | 7440-23-5 | < LOQ | 6 | N/A | Yes | mg/kg | 550 | J+ | 420 | J+ | 430 | J+ | 460 | J+ | 510 | J+ | 480 | J+ |
| Thallium | 7440-28-0 | 0.11 | 6 | N/A | Yes | mg/kg | 0.091 | U | 0.12 | | 0.097 | U | 0.2 | J | 0.16 | | 0.19 | |
| Vanadium | 7440-62-2 | 14 | 6 | N/A | Yes | mg/kg | 10 | | 9.9 | | 15 | | 31 | | 25 | J | 34 | |
| Zinc | 7440-66-6 | 23 | 6 | N/A | Yes | mg/kg | 29 | | 35 | J- | 23 | | 52 | J- | 41 | | 50 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-74
Site to Background Sample Comparison - Area of Concern 5 (Possible Dump Area), Total Soil (0 - 10 ft bgs, Ps)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Sample Location: | NYOW-05-002 | | NYOW-05-004 | | NYOW-05-005 | | NYOW-05-002 | | NYOW-05-004 | | NYOW-05-005 | | NYOW-05-002 | | NYOW-05-004 | | NYOW-05-005 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sample Name: | NYOW-05-SL002-A | | NYOW-05-SL004-A | | NYOW-05-SL005-A | | NYOW-05-PH002-B | | NYOW-05-PH004-B | | NYOW-05-PH005-B | | NYOW-05-PH002-C | | NYOW-05-PH004-C | | NYOW-05-PH005-C | |
| | | | | | | | Sample Type: | C | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 5 - 10 | | 5 - 10 | | 5 - 10 | |
| | | | | | | | Sample Geology: | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | | Ps | |
| | | | | | | | Sample Date: | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | |
| | | | | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.011 | 9 | N/A | Yes | mg/kg | | 0.01 | | 0.069 | | 0.29 | | 0.0021 | U | 0.0023 | U | 0.012 | J+ | 0.01 | J+ | 0.0024 | U | 0.0021 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | 9 | N/A | Yes | mg/kg | | 0.013 | | 0.09 | | 0.37 | | 0.0021 | U | 0.0023 | U | 0.012 | J+ | 0.01 | J+ | 0.0024 | U | 0.0021 | U |
| Acenaphthene | 83-32-9 | < LOQ | 9 | N/A | Yes | mg/kg | | 0.011 | J+ | 0.0011 | U | 0.012 | U | 0.0011 | U | 0.0012 | U | 0.0013 | U | 0.0011 | U | 0.0013 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | 0.013 | 9 | N/A | No | mg/kg | | 0.0012 | U | 0.0099 | J+ | 0.012 | U | 0.0011 | U | 0.0012 | U | 0.0013 | U | 0.0011 | U | 0.0013 | U | 0.0011 | U |
| Anthracene | 120-12-7 | 0.0052 | 9 | N/A | Yes | mg/kg | | 0.018 | J | 0.0032 | J | 0.047 | U | 0.0045 | U | 0.0049 | U | 0.0051 | U | 0.0045 | U | 0.0052 | U | 0.0046 | U |
| Benzo(a)anthracene | 56-55-3 | 0.089 | 9 | N/A | No | mg/kg | | 0.02 | J | 0.012 | | 0.042 | J | 0.0045 | U | 0.011 | J+ | 0.0051 | U | 0.0045 | U | 0.0052 | U | 0.011 | J+ |
| Benzo(a)pyrene | 50-32-8 | 0.09 | 9 | N/A | No | mg/kg | | 0.016 | J | 0.012 | | 0.034 | J | 0.0045 | U | 0.0049 | U | 0.0051 | U | 0.0045 | U | 0.0052 | U | 0.011 | J+ |
| Benzo(b)fluoranthene | 205-99-2 | 0.099 | 9 | N/A | No | mg/kg | | 0.022 | J | 0.019 | | 0.058 | J | 0.0069 | U | 0.0076 | U | 0.0079 | U | 0.007 | U | 0.012 | J+ | 0.011 | J+ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.05 | 9 | N/A | No | mg/kg | | 0.016 | J | 0.0088 | J | 0.072 | U | 0.0069 | U | 0.0076 | U | 0.0079 | U | 0.007 | U | 0.008 | U | 0.0071 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.046 | 9 | N/A | No | mg/kg | | 0.011 | J+ | 0.0099 | J+ | 0.047 | U | 0.0045 | U | 0.0049 | U | 0.0051 | U | 0.0045 | U | 0.0052 | U | 0.0046 | U |
| Chrysene | 218-01-9 | 0.081 | 9 | N/A | No | mg/kg | | 0.021 | J | 0.025 | | 0.056 | J | 0.0045 | U | 0.011 | J+ | 0.012 | J+ | 0.0045 | U | 0.0052 | U | 0.011 | J+ |
| Dibenz(a,h)anthracene | 53-70-3 | 0.015 | 9 | N/A | No | mg/kg | | 0.0077 | U | 0.0066 | U | 0.072 | U | 0.0069 | U | 0.0076 | U | 0.0079 | U | 0.007 | U | 0.008 | U | 0.0071 | U |
| Fluoranthene | 206-44-0 | 0.15 | 9 | N/A | No | mg/kg | | 0.051 | J | 0.023 | | 0.069 | J | 0.0045 | U | 0.011 | J+ | 0.0051 | U | 0.0045 | U | 0.012 | J+ | 0.011 | J+ |
| Fluorene | 86-73-7 | 0.015 | 9 | N/A | No | mg/kg | | 0.011 | J+ | 0.0099 | J+ | 0.029 | U | 0.0028 | U | 0.003 | U | 0.0032 | U | 0.0028 | U | 0.0032 | U | 0.0029 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.058 | 9 | N/A | No | mg/kg | | 0.011 | J | 0.0085 | J | 0.072 | U | 0.0069 | U | 0.0076 | U | 0.0079 | U | 0.007 | U | 0.008 | U | 0.0071 | U |
| Naphthalene | 91-20-3 | 0.012 | 9 | N/A | Yes | mg/kg | | 0.01 | | 0.071 | | 0.29 | | 0.01 | J+ | 0.011 | J+ | 0.012 | J+ | 0.01 | J+ | 0.0024 | U | 0.011 | J+ |
| Phenanthrene | 85-01-8 | 0.086 | 9 | N/A | Yes | mg/kg | | 0.046 | J | 0.044 | | 0.16 | | 0.0069 | U | 0.011 | J+ | 0.0079 | U | 0.007 | U | 0.012 | J+ | 0.0071 | U |
| Pyrene | 129-00-0 | 0.14 | 9 | N/A | No | mg/kg | | 0.045 | J | 0.023 | | 0.068 | J | 0.0069 | U | 0.011 | J+ | 0.0079 | U | 0.007 | U | 0.012 | | 0.0024 | J |
| **Metals (Total)** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 8400 | 9 | N/A | Yes | mg/kg | | 6000 | | 4200 | | 3800 | | 4900 | | 3200 | | 8600 | | 5100 | | 20000 | | 6600 | |
| Antimony | 7440-36-0 | 0.15 | 9 | N/A | Yes | mg/kg | | 0.12 | J | 0.076 | J | 1 | | 0.19 | J+ | 0.091 | U | 0.19 | J+ | 0.078 | U | 0.21 | | 0.1 | U |
| Arsenic | 7440-38-2 | 21 | 9 | N/A | No | mg/kg | | 5.1 | | 4.3 | | 6.9 | | 6.4 | | 3.6 | | 6.2 | | 13 | | 9 | | 5.5 | |
| Barium | 7440-39-3 | 100 | 9 | N/A | Yes | mg/kg | | 40 | | 31 | | 76 | | 29 | | 18 | | 48 | | 39 | | 140 | | 50 | |
| Beryllium | 7440-41-7 | 0.56 | 9 | N/A | Yes | mg/kg | | 0.47 | J+ | 0.54 | J+ | 0.56 | J+ | 0.19 | J | 0.11 | J | 0.37 | J | 0.19 | J | 0.8 | | 0.62 | J |
| Cadmium | 7440-43-9 | 0.16 | 9 | N/A | Yes | mg/kg | | 0.33 | | 0.076 | | 4.3 | | 0.063 | J | 0.036 | J | 0.12 | | 0.094 | J+ | 0.11 | J+ | 0.1 | J+ |
| Calcium | 7440-70-2 | 110000 | 9 | N/A | No | mg/kg | | 15000 | J | 95000 | | 13000 | | 3500 | | 39000 | | 16000 | | 40000 | | 48000 | | 4800 | |
| Chromium | 7440-47-3 | 11 | 9 | N/A | Yes | mg/kg | | 7.9 | | 5 | | 13 | | 13 | J | 4.9 | | 11 | | 6.8 | | 27 | | 10 | J |
| Cobalt | 7440-48-4 | 8.3 | 9 | N/A | Yes | mg/kg | | 4.7 | | 6.7 | | 4.3 | | 8.3 | | 2.9 | | 6.1 | | 4.8 | | 15 | | 6.4 | |
| Copper | 7440-50-8 | 28 | 9 | N/A | Yes | mg/kg | | 18 | | 32 | | 110 | | 16 | J | 10 | | 19 | | 9.6 | | 25 | | 17 | J |
| Iron | 7439-89-6 | 24000 | 9 | N/A | Yes | mg/kg | | 15000 | | 15000 | | 22000 | | 20000 | | 9100 | | 18000 | | 12000 | | 29000 | | 19000 | |
| Lead | 7439-92-1 | 33 | 9 | N/A | Yes | mg/kg | | 9.3 | | 8.3 | | 200 | | 4 | J | 3.4 | | 6 | | 2.6 | | 9.4 | | 4 | |
| Magnesium | 7439-95-4 | 6300 | 9 | N/A | Yes | mg/kg | | 4400 | J | 28000 | | 3000 | | 3600 | | 19000 | | 5300 | | 7100 | | 12000 | | 4300 | |
| Manganese | 7439-96-5 | 1700 | 9 | N/A | No | mg/kg | | 520 | | 780 | | 450 | | 410 | | 320 | | 630 | | 360 | | 730 | | 440 | |
| Mercury | 7439-97-6 | 0.056 | 9 | N/A | Yes | mg/kg | | 0.059 | | 0.0078 | J | 0.14 | | 0.013 | J | 0.02 | | 0.019 | J | 0.02 | J+ | 0.025 | J+ | 0.021 | J+ |
| Nickel | 7440-02-0 | 13 | 9 | N/A | Yes | mg/kg | | 8.3 | | 9.9 | | 18 | | 11 | J | 5.1 | | 14 | | 9.5 | | 32 | | 14 | J |
| Potassium | 7440-09-7 | 1100 | 9 | N/A | Yes | mg/kg | | 890 | | 760 | | 550 | | 760 | | 690 | | 1300 | | 1200 | | 4400 | | 1000 | J |
| Selenium | 7782-49-2 | 0.51 | 9 | N/A | Yes | mg/kg | | 0.49 | | 0.13 | J | 0.47 | | 0.39 | U | 0.4 | U | 0.6 | J+ | 0.47 | J+ | 0.44 | U | 0.41 | U |
| Silver | 7440-22-4 | < LOQ | 9 | N/A | Yes | mg/kg | | 0.56 | U | 0.64 | U | 1.7 | J+ | 2.9 | U | 0.6 | U | 0.58 | U | 0.56 | U | 0.58 | U | 2.5 | U |
| Sodium | 7440-23-5 | < LOQ | 9 | N/A | Yes | mg/kg | | 470 | J+ | 540 | J+ | 560 | J+ | 480 | J+ | 500 | J+ | 480 | J+ | 470 | J+ | 480 | J+ | 420 | U |
| Thallium | 7440-28-0 | 0.12 | 9 | N/A | Yes | mg/kg | | 0.094 | U | 0.075 | U | 0.15 | | 0.097 | U | 0.1 | U | 0.12 | U | 0.11 | | 0.2 | | 0.1 | U |
| Vanadium | 7440-62-2 | 17 | 9 | N/A | Yes | mg/kg | | 14 | | 7.9 | | 10 | | 24 | | 9.7 | | 16 | | 10 | | 37 | | 16 | |
| Zinc | 7440-66-6 | 57 | 9 | N/A | Yes | mg/kg | | 35 | | 28 | | 690 | | 21 | J | 12 | | 52 | | 17 | | 57 | | 26 | J |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

Geology

| | |
|---|---|
| Psc | Lacustrine Silt and Clay |
| Ps | Sorted Sand and Gravel |
| Pd | Diamicton (Till) |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

Table I-75
Site to Background Sample Comparison - Area of Concern 5 (Possible Dump Area), Shallow Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | Sample Location: | NYOW-05-001 | | NYOW-05-004 | | NYOW-05-005 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Sample Name: | NYOW-05-WL001-A | | NYOW-05-WL004-A | | NYOW-05-WL005-A | |
| | | | | | | Sample Type: | N | | C | | N | |
| | | | | | | Sample Date: | 2021-01-13 | | 2021-01-14 | | 2021-01-14 | |
| Analyte | CASRN | Background Threshold Value (BTV)[1] | Site-Related Sample Size | % > BTV | Potential for Site-Related Release[2] | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.05 | 3 | N/A | No | µg/L | 0.044 | U | 0.039 | U | 0.041 | U |
| 2-Methylnaphthalene | 91-57-6 | 0.063 | 3 | N/A | Yes | µg/L | 0.055 | U | 0.11 | J+ | 0.051 | U |
| Acenaphthene | 83-32-9 | < LOQ | 3 | N/A | No | µg/L | 0.013 | U | 0.012 | U | 0.012 | U |
| Acenaphthylene | 208-96-8 | 0.25 | 3 | N/A | No | µg/L | 0.022 | U | 0.02 | U | 0.021 | U |
| Anthracene | 120-12-7 | 0.13 | 3 | N/A | No | µg/L | 0.11 | U | 0.098 | U | 0.1 | U |
| Benzo(a)anthracene | 56-55-3 | < LOQ | 3 | N/A | No | µg/L | 0.11 | U | 0.098 | U | 0.1 | U |
| Benzo(a)pyrene | 50-32-8 | < LOQ | 3 | N/A | No | µg/L | 0.055 | UJ | 0.049 | U | 0.051 | U |
| Benzo(b)fluoranthene | 205-99-2 | < LOQ | 3 | N/A | Yes | µg/L | 0.11 | U | 0.098 | U | 0.1 | J+ |
| Benzo(g,h,i)perylene | 191-24-2 | 0.14 | 3 | N/A | No | µg/L | 0.11 | UJ | 0.098 | U | 0.1 | U |
| Benzo(k)fluoranthene | 207-08-9 | 0.21 | 3 | N/A | No | µg/L | 0.055 | U | 0.049 | U | 0.1 | J+ |
| Chrysene | 218-01-9 | < LOQ | 3 | N/A | Yes | µg/L | 0.11 | U | 0.098 | U | 0.1 | J+ |
| Dibenz(a,h)anthracene | 53-70-3 | < LOQ | 3 | N/A | No | µg/L | 0.11 | UJ | 0.098 | UJ | 0.1 | UJ |
| Fluoranthene | 206-44-0 | 0.13 | 3 | N/A | No | µg/L | 0.11 | U | 0.098 | U | 0.1 | J+ |
| Fluorene | 86-73-7 | 0.05 | 3 | N/A | No | µg/L | 0.044 | U | 0.039 | U | 0.041 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | < LOQ | 3 | N/A | No | µg/L | 0.11 | UJ | 0.098 | U | 0.1 | U |
| Naphthalene | 91-20-3 | 0.063 | 3 | N/A | Yes | µg/L | 0.055 | U | 0.15 | J+ | 0.14 | J+ |
| Phenanthrene | 85-01-8 | < LOQ | 3 | N/A | Yes | µg/L | 0.11 | U | 0.098 | U | 0.1 | J+ |
| Pyrene | 129-00-0 | 0.13 | 3 | N/A | No | µg/L | 0.11 | U | 0.098 | U | 0.1 | J+ |
| Metals (Dissolved) | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 1300 | 3 | N/A | No | µg/L | 300 | J+ | 70 | U | 70 | U |
| Antimony | 7440-36-0 | N/A | 3 | N/A | No | µg/L | 6 | U | 1 | U | 1 | U |
| Arsenic | 7440-38-2 | < LOQ | 3 | N/A | Yes | µg/L | 2 | J | 6 | | 0.53 | J |
| Barium | 7440-39-3 | 280 | 3 | N/A | No | µg/L | 42 | | 110 | | 130 | |
| Beryllium | 7440-41-7 | 0.5 | 3 | N/A | No | µg/L | 0.5 | U | 0.5 | U | 0.5 | U |
| Cadmium | 7440-43-9 | N/A | 3 | N/A | No | µg/L | 1.8 | U | 1.8 | U | 1.8 | U |
| Calcium | 7440-70-2 | 160000 | 3 | N/A | No | µg/L | 34000 | | 52000 | | 100000 | |
| Chromium | 7440-47-3 | < LOQ | 3 | N/A | No | µg/L | 1.8 | U | 1.8 | U | 1.8 | U |
| Cobalt | 7440-48-4 | 4 | 3 | N/A | No | µg/L | 0.17 | J | 0.61 | J | 1 | |
| Copper | 7440-50-8 | < LOQ | 3 | N/A | No | µg/L | 10 | U | 10 | U | 10 | U |
| Iron | 7439-89-6 | 4900 | 3 | N/A | No | µg/L | 85 | U | 1300 | | 940 | |
| Lead | 7439-92-1 | < LOQ | 3 | N/A | No | µg/L | 0.7 | U | 0.7 | U | 0.7 | U |
| Magnesium | 7439-95-4 | 75000 | 3 | N/A | No | µg/L | 14000 | | 38000 | | 32000 | |
| Manganese | 7439-96-5 | 2600 | 3 | N/A | No | µg/L | 120 | | 500 | | 2600 | |
| Mercury | 7439-97-6 | N/A | 3 | N/A | No | µg/L | 0.08 | U | 0.08 | U | 0.08 | U |
| Nickel | 7440-02-0 | < LOQ | 3 | N/A | Yes | µg/L | 8 | U | 40 | J+ | 8 | U |
| Potassium | 7440-09-7 | 9900 | 3 | N/A | No | µg/L | 3200 | | 6200 | | 5600 | |
| Selenium | 7782-49-2 | N/A | 3 | N/A | No | µg/L | 19 | U | 19 | U | 19 | U |
| Silver | 7440-22-4 | 5 | 3 | N/A | No | µg/L | 5 | U | 5 | U | 5 | U |
| Sodium | 7440-23-5 | 140000 | 3 | N/A | No | µg/L | 25000 | | 16000 | | 100000 | |
| Thallium | 7440-28-0 | N/A | 3 | N/A | No | µg/L | 1 | U | 0.2 | U | 0.2 | U |
| Vanadium | 7440-62-2 | < LOQ | 3 | N/A | No | µg/L | 4 | U | 4 | U | 4 | U |
| Zinc | 7440-66-6 | 15 | 3 | N/A | No | µg/L | 15 | U | 15 | U | 15 | U |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
LOQ = Limit of Quantitation
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
% = Percent

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > BTV |

(1) See Subsection 5.4.1 for BTV determination steps.

(2) The analyte is considered potentially related to a site release if the sample size is greater than 20 and detections exceed the BTV in more than 5% of samples. For sample sizes less than or equal to 20, a single exceedance of the BTV was used to determine the potential for a site release.

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
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R – The presence or absence of the analyte cannot be substantiated by the data provided.

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# APPENDIX J

# Human Health Screening Level Comparisons

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# APPENDIX J.1

# Human Health Sample by Sample Screening – Groundwater

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Table J.1-1
Human Health Sample by Sample Screening[1] - AOC 1, Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Location: | NYOW-01-001 | | NYOW-01-005 | | NYOW-01-006 | | NYOW-01-006 | | NYOW-01-018 | | NYOW-01-019 | | NYOW-01-021 | | NYOW-01-022 | | NYOW-01-022 | | NYOW-01-023 | |
| | | | | Sample Name: | NYOW-01-WL001-A | | NYOW-01-WL005-A | | NYOW-01-WL006-A | | NYOW-01-WL006-B | | NYOW-01-WL018-A | | NYOW-01-WL019-A | | NYOW-01-WL021-A | | NYOW-01-WL022-A | | NYOW-01-WL022-A_R | | NYOW-01-WL023-A | |
| | | | | Sample Type: | N | | C | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | | | Sample Date: | 2021-04-12 | | 2021-04-12 | | 2021-04-08 | | 2021-04-08 | | 2021-04-12 | | 2021-04-08 | | 2021-04-09 | | 2021-04-09 | | 2021-05-14 | | 2021-04-09 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Metals (Dissolved) | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 0.052 | EPA (2022) | µg/L | 5 | J+ | 5 | J+ | -- | -- | 5 | J+ | 1 | U | 5 | J+ | 5 | J+ | 5 | J+ | -- | -- | 5 | J+ |
| Barium | 7440-39-3 | 380 | EPA (2022) | µg/L | 38 | | 210 | | -- | -- | 250 | | 89 | | 170 | | 330 | | 690 | | -- | -- | 150 | |
| Chromium | 7440-47-3 | 2200 | EPA (2022) | µg/L | 10 | J+ | 10 | J+ | -- | -- | 1.8 | U | 1.8 | U | 1.8 | U | 1.8 | U | 10 | J+ | -- | -- | 10 | J+ |
| Copper | 7440-50-8 | 80 | EPA (2022) | µg/L | 10 | U | 15 | J+ | -- | -- | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U | -- | -- | 15 | J+ |
| Iron | 7439-89-6 | 1400 | EPA (2022) | µg/L | 1300 | | 4300 | J | -- | -- | 15000 | | 92 | J | 8500 | | 96 | J | 220 | | -- | -- | 3200 | |
| Lead | 7439-92-1 | 15 | EPA (2022) | µg/L | 3 | J+ | 3 | J+ | -- | -- | 0.7 | U | 0.7 | U | 0.7 | U | 3 | J+ | 0.7 | U | -- | -- | 3 | J+ |
| Manganese | 7439-96-5 | 43 | EPA (2022) | µg/L | 1300 | | 990 | | -- | -- | 770 | | 320 | | 2900 | | 500 | | 2000 | | -- | -- | 1200 | |
| Nickel | 7440-02-0 | 39 | EPA (2022) | µg/L | 8 | U | 40 | J+ | -- | -- | 8 | U | 40 | J+ | 8 | U | 8 | U | 40 | J+ | -- | -- | 40 | J+ |
| Vanadium | 7440-62-2 | 8.6 | EPA (2022) | µg/L | 4 | U | 15 | J+ | -- | -- | 15 | J+ | 4 | U | 15 | J+ | 4 | U | 15 | J+ | -- | -- | 15 | J+ |
| Zinc | 7440-66-6 | 600 | EPA (2022) | µg/L | 150 | J+ | 150 | J+ | -- | -- | 15 | U | 15 | U | 15 | U | 15 | U | 15 | U | -- | -- | 150 | J+ |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
µg/L = microgram per liter
(1) See Section 4.0 for data reduction steps.

Legend
ND — Not detected at the LOD
Detect — Detected result
Detect — Detected result > SL

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Tapwater RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.1-1
Human Health Sample by Sample Screening[1] - AOC 1, Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-023 | | NYOW-01-024 | |
|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-WL023-A_R | | NYOW-01-WL024-A | |
| | | | | Sample Type: | N | | N | |
| | | | | Sample Depth (feet): | 0 - 10 | | 0 - 10 | |
| | | | | Sample Date: | 2021-05-14 | | 2021-04-12 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier |
| Metals (Dissolved) | | | | | | | | |
| Arsenic | 7440-38-2 | 0.052 | EPA (2022) | µg/L | -- | -- | 1 | U |
| Barium | 7440-39-3 | 380 | EPA (2022) | µg/L | -- | -- | 76 | |
| Chromium | 7440-47-3 | 2200 | EPA (2022) | µg/L | -- | -- | 1.8 | U |
| Copper | 7440-50-8 | 80 | EPA (2022) | µg/L | -- | -- | 10 | U |
| Iron | 7439-89-6 | 1400 | EPA (2022) | µg/L | -- | -- | 36 | J |
| Lead | 7439-92-1 | 15 | EPA (2022) | µg/L | -- | -- | 0.7 | U |
| Manganese | 7439-96-5 | 43 | EPA (2022) | µg/L | -- | -- | 1200 | |
| Nickel | 7440-02-0 | 39 | EPA (2022) | µg/L | -- | -- | 8 | U |
| Vanadium | 7440-62-2 | 8.6 | EPA (2022) | µg/L | -- | -- | 4 | U |
| Zinc | 7440-66-6 | 600 | EPA (2022) | µg/L | -- | -- | 15 | U |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
µg/L = microgram per liter
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Tapwater RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).
New York State Groundwater Standards, 6 NYCRR Part 703.5. Last updated March 2021.
(https://www.dec.ny.gov/chemical/23853.html)

Table J.1-2
Human Health Sample by Sample Screening[1] - AOC 3, Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | Sample Location: | | NYOW-03-002 | | NYOW-03-007 | | NYOW-03-009 | | NYOW-03-010 | | NYOW-03-013 | | NYOW-03-014 | | NYOW-03-015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Sample Name: | | NYOW-03-WL002-A | | NYOW-03-WL007-A | | NYOW-03-WL009-A | | NYOW-03-WL010-A | | NYOW-03-WL013-A | | NYOW-03-WL014-A | | NYOW-03-WL015-A | |
| | | | | | Sample Type: | | N | | N | | N | | N | | C | | N | | N | |
| | | | | | Sample Depth (feet): | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | | | | Sample Date: | | 2021-04-02 | | 2021-04-02 | | 2021-04-07 | | 2021-04-02 | | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | |
| Analyte | CASRN | SL | SL Reference | Units | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | |
| Acetone | 67-64-1 | 1800 | EPA (2022) | µg/L | | 10 | J- | 4.3 | J | 6.4 | U | 5 | J- | 6.4 | U | 6.4 | U | 6.4 | U |
| Benzene | 71-43-2 | 0.46 | EPA (2022) | µg/L | | 1 | J+ | 0.4 | U | 0.4 | U | 1 | J+ | 0.4 | U | 0.4 | U | 0.4 | U |
| m,p-Xylene | 179601-23-1 | 19 | EPA (2022) | µg/L | | 0.8 | UJ | 0.8 | U | 0.8 | U | 2 | J+ | 0.8 | U | 0.8 | U | 0.8 | U |
| Toluene | 108-88-3 | 110 | EPA (2022) | µg/L | | 0.4 | UJ | 3 | | 0.4 | U | 0.56 | J- | 0.4 | U | 0.4 | U | 0.4 | U |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | |
| 4-Nitroaniline | 100-01-6 | 3.8 | EPA (2022) | µg/L | | 11 | UJ | 19 | UJ | 10 | UJ | 10 | U | 9.7 | UJ | 11 | UJ | 51 | J+ |
| Benzaldehyde | 100-52-7 | 19 | EPA (2022) | µg/L | | 11 | J+ | 3.8 | UJ | 2 | UJ | 2.1 | UJ | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ |
| Caprolactam | 105-60-2 | 990 | EPA (2022) | µg/L | | 11 | J+ | 3.8 | UJ | 2 | UJ | 2.1 | UJ | 1.9 | UJ | 2.1 | UJ | 2.1 | UJ |
| Metals (Dissolved) | | | | | | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 0.052 | EPA (2022) | µg/L | | 5 | J+ | 5 | J+ | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Cobalt | 7440-48-4 | 0.6 | EPA (2022) | µg/L | | 5.1 | | 0.82 | J | 0.35 | U | 1.6 | | 0.43 | J | 0.4 | J | 0.44 | J |
| Lead | 7439-92-1 | 15 | EPA (2022) | µg/L | | 0.7 | U | 0.7 | U | 0.7 | U | 3 | J+ | 3 | J+ | 3 | J+ | 3 | J+ |
| Manganese | 7439-96-5 | 43 | EPA (2022) | µg/L | | 11000 | | 260 | | 7.7 | J | 530 | | 29 | J | 280 | | 2200 | |
| Nickel | 7440-02-0 | 39 | EPA (2022) | µg/L | | 40 | J+ | 8 | U | 8 | U | 40 | J+ | 8 | U | 40 | J+ | 40 | J+ |
| Vanadium | 7440-62-2 | 8.6 | EPA (2022) | µg/L | | 4 | U | 15 | J+ | 15 | J+ | 15 | J+ | 15 | J+ | 15 | J+ | 15 | J+ |
| Zinc | 7440-66-6 | 600 | EPA (2022) | µg/L | | 15 | U | 15 | U | 150 | J+ | 15 | U | 15 | U | 15 | U | 15 | U |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
µg/L = microgram per liter
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Tapwater RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

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Table J.1-3
Human Health Sample by Sample Screening[1] - AOC 5 (Boiler House Area), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-016 | | NYOW-05-017-1 | | NYOW-05-019 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-WL016-A | | NYOW-05-WL017-1-A | | NYOW-05-WL019-A | |
| | | | | Sample Type: | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | | | Sample Date: | 2021-01-15 | | 2021-01-15 | | 2021-01-15 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | |
| Caprolactam | 105-60-2 | 990 | EPA (2022) | µg/L | 2.1 | UJ | 2.1 | UJ | 9.9 | J+ |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 1.1 | EPA (2022) | µg/L | 0.042 | J | 0.068 | J- | 0.19 | J- |
| 2-Methylnaphthalene | 91-57-6 | 3.6 | EPA (2022) | µg/L | 0.054 | UJ | 0.11 | J- | 0.2 | J- |
| Acenaphthene | 83-32-9 | 53 | EPA (2022) | µg/L | 0.013 | UJ | 0.013 | UJ | 0.1 | J+ |
| Anthracene | 120-12-7 | 180 | EPA (2022) | µg/L | 0.11 | UJ | 0.11 | UJ | 0.1 | J+ |
| Benzo(a)anthracene | 56-55-3 | 0.03 | EPA (2022) | µg/L | 0.063 | J | 0.11 | UJ | 0.31 | J- |
| Benzo(a)pyrene | 50-32-8 | 0.025 | EPA (2022) | µg/L | 0.056 | J | 0.055 | UJ | 0.31 | J- |
| Benzo(b)fluoranthene | 205-99-2 | 0.25 | EPA (2022) | µg/L | 0.085 | J | 0.11 | UJ | 0.44 | J- |
| Benzo(g,h,i)perylene | 191-24-2 | 12 | EPA (2022) | µg/L | 0.049 | J | 0.11 | UJ | 0.17 | J- |
| Benzo(k)fluoranthene | 207-08-9 | 2.5 | EPA (2022) | µg/L | 0.04 | J | 0.055 | UJ | 0.22 | J- |
| Chrysene | 218-01-9 | 25 | EPA (2022) | µg/L | 0.092 | J | 0.11 | UJ | 0.35 | J- |
| Dibenz(a,h)anthracene | 53-70-3 | 0.025 | EPA (2022) | µg/L | 0.11 | UJ | 0.11 | UJ | 0.1 | J+ |
| Fluoranthene | 206-44-0 | 80 | EPA (2022) | µg/L | 0.11 | J | 0.11 | UJ | 0.6 | J- |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.25 | EPA (2022) | µg/L | 0.045 | J | 0.11 | UJ | 0.21 | J- |
| Naphthalene | 91-20-3 | 0.12 | EPA (2022) | µg/L | 0.13 | J | 0.18 | J | 0.23 | J |
| Phenanthrene | 85-01-8 | 180 | EPA (2022) | µg/L | 0.11 | J | 0.11 | J- | 0.42 | J- |
| Pyrene | 129-00-0 | 12 | EPA (2022) | µg/L | 0.11 | J | 0.11 | UJ | 0.48 | J- |
| Metals (Dissolved) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 2000 | EPA (2022) | µg/L | 300 | J+ | 300 | J+ | 300 | J+ |
| Antimony | 7440-36-0 | 0.78 | EPA (2022) | µg/L | 6 | J+ | 6 | J+ | 6 | J+ |
| Arsenic | 7440-38-2 | 0.052 | EPA (2022) | µg/L | 9 | | 2.9 | J | 140 | |
| Barium | 7440-39-3 | 380 | EPA (2022) | µg/L | 150 | | 84 | | 23 | |
| Cobalt | 7440-48-4 | 0.6 | EPA (2022) | µg/L | 1 | J+ | 1 | J+ | 1 | J+ |
| Iron | 7439-89-6 | 1400 | EPA (2022) | µg/L | 100 | | 85 | U | 85 | U |
| Manganese | 7439-96-5 | 43 | EPA (2022) | µg/L | 170 | | 29 | | 3.9 | J |
| Vanadium | 7440-62-2 | 8.6 | EPA (2022) | µg/L | 4 | U | 4 | U | 15 | J+ |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
µg/L = microgram per liter

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources

EPA Tapwater RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

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Table J.1-4
Human Health Sample by Sample Screening[1] - AOC 5 (Coal Aggregate Bins), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-024 | | NYOW-05-025 | |
|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-WL024-A | | NYOW-05-WL025-A | |
| | | | | Sample Type: | N | | N | |
| | | | | Sample Depth (feet): | 0 - 10 | | 0 - 10 | |
| | | | | Sample Date: | 2021-01-11 | | 2021-01-12 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | |
| Phenol | 108-95-2 | 580 | EPA (2022) | µg/L | 2.6 | UJ | 11 | J+ |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 1.1 | EPA (2022) | µg/L | 0.63 | J- | 0.041 | UJ |
| 2-Methylnaphthalene | 91-57-6 | 3.6 | EPA (2022) | µg/L | 0.89 | J- | 0.051 | UJ |
| Chrysene | 218-01-9 | 25 | EPA (2022) | µg/L | 0.13 | UJ | 0.1 | J+ |
| Naphthalene | 91-20-3 | 0.12 | EPA (2022) | µg/L | 0.97 | J- | 0.051 | UJ |
| Phenanthrene | 85-01-8 | 180 | EPA (2022) | µg/L | 0.24 | J- | 0.1 | UJ |
| Metals (Dissolved) | | | | | | | | |
| Aluminum | 7429-90-5 | 2000 | EPA (2022) | µg/L | 2100 | | 36 | J |
| Arsenic | 7440-38-2 | 0.052 | EPA (2022) | µg/L | 5 | J+ | 5 | J+ |
| Barium | 7440-39-3 | 380 | EPA (2022) | µg/L | 130 | | 55 | |
| Chromium | 7440-47-3 | 2200 | EPA (2022) | µg/L | 12 | | 0.52 | J |
| Cobalt | 7440-48-4 | 0.6 | EPA (2022) | µg/L | 3.7 | | 1.3 | |
| Copper | 7440-50-8 | 80 | EPA (2022) | µg/L | 15 | J+ | 10 | U |
| Iron | 7439-89-6 | 1400 | EPA (2022) | µg/L | 6300 | | 100 | U |
| Lead | 7439-92-1 | 15 | EPA (2022) | µg/L | 3 | J+ | 0.7 | U |
| Manganese | 7439-96-5 | 43 | EPA (2022) | µg/L | 1200 | | 1200 | |
| Nickel | 7440-02-0 | 39 | EPA (2022) | µg/L | 40 | J+ | 40 | J+ |
| Vanadium | 7440-62-2 | 8.6 | EPA (2022) | µg/L | 15 | J+ | 4 | U |
| Zinc | 7440-66-6 | 600 | EPA (2022) | µg/L | 150 | J+ | 15 | U |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
µg/L = microgram per liter
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Tapwater Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

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Table J.1-5
Human Health Sample by Sample Screening[1] - AOC 5 (Coal Storage Area), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | Sample Location: | | NYOW-05-006 | | NYOW-05-008 | | NYOW-05-010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Sample Name: | | NYOW-05-WL006-A | | NYOW-05-WL008-A | | NYOW-05-WL010-A | |
| | | | | | Sample Type: | | N | | N | | N | |
| | | | | | Sample Depth (feet): | | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | | | | Sample Date: | | 2021-01-11 | | 2021-01-11 | | 2021-01-12 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 1.1 | EPA (2022) | µg/L | 0.047 | UJ | 0.048 | U | 0.21 | J- |
| 2-Methylnaphthalene | 91-57-6 | 3.6 | EPA (2022) | µg/L | 0.058 | UJ | 0.06 | U | 0.22 | J- |
| Naphthalene | 91-20-3 | 0.12 | EPA (2022) | µg/L | 0.039 | J- | 0.06 | U | 0.17 | J- |
| Phenanthrene | 85-01-8 | 180 | EPA (2022) | µg/L | 0.12 | UJ | 0.12 | U | 0.28 | J- |
| Metals (Dissolved) | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.78 | EPA (2022) | µg/L | 1 | U | 1 | U | 6 | J+ |
| Arsenic | 7440-38-2 | 0.052 | EPA (2022) | µg/L | 1.6 | J | 0.9 | J | 7.1 | |
| Barium | 7440-39-3 | 380 | EPA (2022) | µg/L | 140 | | 38 | | 160 | |
| Cobalt | 7440-48-4 | 0.6 | EPA (2022) | µg/L | 0.84 | J | 1.1 | | 0.69 | J |
| Iron | 7439-89-6 | 1400 | EPA (2022) | µg/L | 2500 | | 3400 | | 750 | |
| Manganese | 7439-96-5 | 43 | EPA (2022) | µg/L | 440 | | 290 | | 220 | |
| Nickel | 7440-02-0 | 39 | EPA (2022) | µg/L | 8 | U | 8 | U | 40 | J+ |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
µg/L = microgram per liter

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources

EPA Tapwater Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

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Table J.1-6
Human Health Sample by Sample Screening[1] - AOC 5 (Electric Substation), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-012 | |
|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-WL012-A | |
| | | | | Sample Type: | C | |
| | | | | Sample Depth (feet): | 0 - 10 | |
| | | | | Sample Date: | 2021-01-14 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | |
| Naphthalene | 91-20-3 | 0.12 | EPA (2022) | µg/L | 0.14 | J |
| Metals (Dissolved) | | | | | | |
| Arsenic | 7440-38-2 | 0.052 | EPA (2022) | µg/L | 5 | J+ |
| Barium | 7440-39-3 | 380 | EPA (2022) | µg/L | 210 | |
| Cobalt | 7440-48-4 | 0.6 | EPA (2022) | µg/L | 1 | J+ |
| Iron | 7439-89-6 | 1400 | EPA (2022) | µg/L | 680 | J |
| Manganese | 7439-96-5 | 43 | EPA (2022) | µg/L | 170 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
µg/L = microgram per liter

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).

SL Sources

EPA Tapwater RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.

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Table J.1-7
Human Health Sample by Sample Screening[1] - AOC 5 (Possible Dump Area), Groundwater
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Location: | NYOW-05-001 | | NYOW-05-004 | | NYOW-05-005 | |
| | | | | Sample Name: | NYOW-05-WL001-A | | NYOW-05-WL004-A | | NYOW-05-WL005-A | |
| | | | | Sample Type: | N | | C | | N | |
| | | | | Sample Depth (feet): | 0 - 10 | | 0 - 10 | | 0 - 10 | |
| | | | | Sample Date: | 2021-01-13 | | 2021-01-14 | | 2021-01-14 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | |
| 1,2,3-Trichlorobenzene | 87-61-6 | 0.7 | EPA (2022) | µg/L | 0.8 | U | 1 | J+ | 0.8 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | 3.6 | EPA (2022) | µg/L | 0.055 | U | 0.11 | J+ | 0.051 | U |
| Benzo(b)fluoranthene | 205-99-2 | 0.25 | EPA (2022) | µg/L | 0.11 | U | 0.098 | U | 0.1 | J+ |
| Benzo(k)fluoranthene | 207-08-9 | 2.5 | EPA (2022) | µg/L | 0.055 | U | 0.049 | U | 0.1 | J+ |
| Chrysene | 218-01-9 | 25 | EPA (2022) | µg/L | 0.11 | U | 0.098 | U | 0.1 | J+ |
| Fluoranthene | 206-44-0 | 80 | EPA (2022) | µg/L | 0.11 | U | 0.098 | U | 0.1 | J+ |
| Naphthalene | 91-20-3 | 0.12 | EPA (2022) | µg/L | 0.055 | U | 0.15 | J+ | 0.14 | J+ |
| Phenanthrene | 85-01-8 | 180 | EPA (2022) | µg/L | 0.11 | U | 0.098 | U | 0.1 | J+ |
| Pyrene | 129-00-0 | 12 | EPA (2022) | µg/L | 0.11 | U | 0.098 | U | 0.1 | J+ |
| Metals (Dissolved) | | | | | | | | | | |
| Aluminum | 7429-90-5 | 2000 | EPA (2022) | µg/L | 300 | J+ | 70 | U | 70 | U |
| Arsenic | 7440-38-2 | 0.052 | EPA (2022) | µg/L | 2 | J | 6 | | 0.53 | J |
| Barium | 7440-39-3 | 380 | EPA (2022) | µg/L | 42 | | 110 | | 130 | |
| Cobalt | 7440-48-4 | 0.6 | EPA (2022) | µg/L | 0.17 | J | 0.61 | J | 1 | |
| Iron | 7439-89-6 | 1400 | EPA (2022) | µg/L | 85 | U | 1300 | | 940 | |
| Manganese | 7439-96-5 | 43 | EPA (2022) | µg/L | 120 | | 500 | | 2600 | |
| Nickel | 7440-02-0 | 39 | EPA (2022) | µg/L | 8 | U | 40 | J+ | 8 | U |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
µg/L = microgram per liter

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

(1) See Section 4.0 for data reduction steps.

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).

SL Sources

EPA Tapwater Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

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# APPENDIX J.2

# Human Health Sample by Sample Screening – Soil

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Table J.2-1
Human Health Sample by Sample Screening - AOC 1, Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-002 | | NYOW-01-002 | | NYOW-01-002 | | NYOW-01-005 | | NYOW-01-005 | | NYOW-01-005 | | NYOW-01-007 | | NYOW-01-009 | | NYOW-01-011 | | NYOW-01-013 | | NYOW-01-015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL002-A | | NYOW-01-PH002-B | | NYOW-01-PH002-C | | NYOW-01-SL005-A | | NYOW-01-PH005-B | | NYOW-01-PH005-C | | NYOW-01-SL007-A | | NYOW-01-SL009-A | | NYOW-01-SL011-A | | NYOW-01-SL013-A | | NYOW-01-SL015-A | |
| | | | | Sample Type: | N | | N | | C | | C | | C | | C | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-09 | | 2021-04-09 | | 2021-04-09 | | 2021-04-08 | | 2021-04-08 | | 2021-04-08 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-14 | | 2021-04-02 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 13 | EPA (2022) | mg/kg | 0.16 | UJ | 0.16 | UJ | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | 11000 | | 7000 | | 4300 | | 6400 | | 3400 | | 2100 | | 6500 | | 3900 | | 4200 | | 4600 | | 7900 | |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | 0.16 | J- | 0.17 | J+ | 0.15 | J+ | 0.11 | J | 0.081 | U | 0.11 | U | 0.23 | J | 0.19 | J | 0.13 | J | 0.13 | J | 0.17 | J |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | 4.2 | | 3.7 | | 3.7 | | 4 | | 3.7 | | 2.1 | | 5.7 | | 4.7 | | 2.4 | | 4.8 | | 4.9 | |
| Barium | 7440-39-3 | 1500 | EPA (2022) | mg/kg | 81 | | 41 | | 24 | | 46 | J+ | 31 | J+ | 17 | J+ | 86 | | 72 | | 32 | | 39 | | 61 | |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | 0.48 | J+ | 0.4 | J+ | 0.38 | J+ | 0.47 | J+ | 0.4 | J+ | 0.42 | J+ | 0.72 | J+ | 0.56 | J+ | 0.52 | J+ | 0.57 | J+ | 0.52 | J+ |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | 0.17 | | 0.092 | J | 0.083 | J+ | 0.13 | | 0.039 | J | 0.093 | J+ | 0.37 | | 0.19 | | 0.32 | | 0.14 | | 0.31 | |
| Chromium | 7440-47-3 | 12000 | EPA (2022) | mg/kg | 11 | J- | 8.4 | | 5.5 | | 7 | | 6.2 | | 3.4 | | 9.3 | | 5.4 | | 5 | | 6.8 | | 9.9 | |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | 7.3 | | 5.9 | J | 5.5 | | 4.6 | | 3.8 | | 2.2 | | 5.7 | | 3.9 | | 3.7 | | 6.4 | | 7.6 | |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | 21 | | 19 | | 16 | | 11 | | 10 | | 6.8 | | 21 | | 15 | | 23 | | 80 | | 22 | |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | 17000 | | 16000 | | 11000 | | 13000 | | 9600 | | 6800 | | 16000 | | 10000 | | 9100 | | 14000 | | 17000 | J |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | 29 | | 14 | | 5.9 | | 11 | | 3.3 | | 2.7 | | 37 | | 23 | | 7.6 | | 14 | | 10 | |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | 1400 | J | 550 | | 430 | | 550 | | 340 | | 290 | | 450 | | 1100 | | 740 | | 580 | | 710 | |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | 0.039 | | 0.015 | J | 0.016 | U | 0.053 | | 0.017 | U | 0.018 | U | 0.073 | | 0.019 | J | 0.032 | | 0.038 | | 0.021 | J |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | 12 | | 11 | J | 7.5 | | 8 | | 6.9 | | 3.8 | | 12 | | 7.3 | | 6.9 | | 9.1 | | 12 | |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | 0.4 | J+ | 0.47 | J+ | 0.33 | U | 0.49 | J+ | 0.33 | U | 0.37 | U | 0.77 | J+ | 0.55 | J+ | 0.54 | J+ | 0.59 | J+ | 0.49 | J+ |
| Silver | 7440-22-4 | 39 | EPA (2022) | mg/kg | 1.4 | J+ | 1.2 | J+ | 1.1 | J+ | 0.56 | U | 0.48 | U | 0.51 | U | 2.2 | J+ | 1.7 | J+ | 1.6 | J+ | 0.69 | U | 0.63 | U |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | 20 | | 16 | | 10 | | 12 | | 9.3 | | 6.8 | | 15 | | 11 | | 8.8 | | 10 | | 16 | |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | 52 | | 40 | | 21 | | 180 | J | 32 | | 18 | | 110 | | 57 | | 55 | | 38 | | 39 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-1
Human Health Sample by Sample Screening - AOC 1, Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-015 | | NYOW-01-015 | | NYOW-01-016 | | NYOW-01-016 | | NYOW-01-016 | | NYOW-01-018 | | NYOW-01-018 | | NYOW-01-018 | | NYOW-01-019 | | NYOW-01-019 | | NYOW-01-019 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-PH015-B | | NYOW-01-PH015-C | | NYOW-01-SL016-A | | NYOW-01-PH016-B | | NYOW-01-PH016-C | | NYOW-01-SL018-A | | NYOW-01-PH018-B | | NYOW-01-PH018-C | | NYOW-01-SL019-A | | NYOW-01-PH019-B | | NYOW-01-PH019-C | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | C | | N | | C | |
| | | | | Sample Depth (feet): | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | | Sample Date: | 2021-04-02 | | 2021-04-02 | | 2021-04-02 | | 2021-04-02 | | 2021-04-02 | | 2021-04-08 | | 2021-04-08 | | 2021-04-08 | | 2021-04-06 | | 2021-04-06 | | 2021-04-06 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 13 | EPA (2022) | mg/kg | 0.16 | U | 0.15 | U | 0.16 | U | 0.15 | U | 0.16 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.14 | U | 0.15 | UJ | 0.16 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | 6100 | | 5700 | | 6500 | | 5300 | | 4800 | | 5100 | | 4900 | | 3000 | | 4000 | J | 4900 | | 3600 | |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | 0.18 | J+ | 0.19 | J+ | 0.15 | J | 0.16 | J+ | 0.19 | J+ | 0.082 | J | 0.17 | J+ | 0.084 | U | 0.095 | J | 0.11 | UJ | 0.17 | J+ |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | 6.6 | | 7.7 | | 5.2 | | 7.6 | | 6.1 | | 4.7 | | 6 | | 3.7 | | 3.9 | | 2.8 | | 4.3 | |
| Barium | 7440-39-3 | 1500 | EPA (2022) | mg/kg | 50 | | 44 | | 55 | | 55 | | 45 | | 40 | J+ | 40 | J+ | 29 | J+ | 25 | J | 43 | J- | 31 | |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | 0.36 | J+ | 0.4 | J+ | 0.44 | J+ | 0.41 | J+ | 0.43 | J+ | 0.4 | J+ | 0.42 | J+ | 0.49 | J+ | 0.45 | J+ | 0.43 | J+ | 0.5 | J+ |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | 0.013 | J | 0.082 | J+ | 0.13 | | 0.1 | | 0.08 | J+ | 0.058 | J | 0.044 | J | 0.099 | J+ | 0.058 | J | 0.04 | J | 0.076 | J+ |
| Chromium | 7440-47-3 | 12000 | EPA (2022) | mg/kg | 7.4 | | 7.2 | | 8.6 | | 10 | | 6.7 | | 6.1 | | 6.3 | | 4.6 | | 6.4 | J | 6.8 | J- | 5.2 | |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | 13 | | 11 | | 4.5 | | 5.7 | | 8.5 | | 4.9 | | 5.4 | | 4.5 | | 3.4 | J | 5 | J- | 4.6 | |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | 26 | | 26 | | 14 | | 26 | | 100 | | 13 | | 15 | | 11 | | 14 | J | 13 | | 24 | J |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | 14000 | J | 15000 | J | 12000 | J | 20000 | J | 14000 | J | 12000 | | 15000 | | 10000 | | 10000 | | 13000 | J | 11000 | |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | 8.8 | | 9.1 | | 14 | | 40 | | 7.1 | | 6.1 | | 5.9 | | 3.3 | | 4.2 | J | 3.2 | J- | 3.7 | |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | 460 | | 540 | | 450 | | 850 | | 580 | | 420 | | 610 | | 420 | | 320 | | 260 | J- | 450 | |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | 0.015 | J | 0.019 | J+ | 0.015 | J | 0.013 | J | 0.019 | J+ | 0.018 | J | 0.012 | J | 0.02 | J+ | 0.017 | J | 0.018 | U | 0.016 | U |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | 13 | | 12 | | 8.2 | | 13 | | 11 | | 8.3 | | 9 | | 6.6 | | 8.1 | J | 9.7 | J- | 7.6 | |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | 0.39 | U | 0.41 | J+ | 0.49 | J+ | 0.4 | U | 0.32 | U | 0.48 | J+ | 0.35 | U | 0.4 | U | 0.43 | J+ | 0.39 | J+ | 0.38 | J+ |
| Silver | 7440-22-4 | 39 | EPA (2022) | mg/kg | 1.1 | J+ | 1.2 | J+ | 0.53 | U | 1.2 | J+ | 1.3 | J+ | 0.47 | U | 0.5 | U | 0.58 | U | 0.53 | U | 0.52 | UJ | 0.6 | U |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | 11 | | 11 | | 13 | | 12 | | 9.5 | | 11 | | 11 | | 7.6 | | 8.4 | J | 10 | J- | 7.7 | |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | 25 | | 26 | | 40 | | 130 | | 29 | | 11 | | 12 | | 19 | | 22 | | 18 | J- | 21 | J |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-1
Human Health Sample by Sample Screening - AOC 1, Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-020 | | NYOW-01-020 | | NYOW-01-020 | | NYOW-01-021 | | NYOW-01-021 | | NYOW-01-021 | | NYOW-01-022 | | NYOW-01-022 | | NYOW-01-022 | | NYOW-01-023 | | NYOW-01-023 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL020-A | | NYOW-01-PH020-B | | NYOW-01-PH020-C | | NYOW-01-SL021-A | | NYOW-01-PH021-B | | NYOW-01-PH021-C | | NYOW-01-SL022-A | | NYOW-01-PH022-B | | NYOW-01-PH022-C | | NYOW-01-SL023-A | | NYOW-01-PH023-B | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-04-06 | | 2021-04-06 | | 2021-04-06 | | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | | 2021-04-02 | | 2021-04-02 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 13 | EPA (2022) | mg/kg | 0.16 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | 5800 | | 5000 | | 7400 | | 6400 | | 3400 | | 4500 | | 7800 | | 5800 | | 6000 | | 6000 | | 5500 | |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | 0.14 | J | 0.2 | J+ | 0.15 | J+ | 0.15 | J | 0.093 | U | 0.097 | U | 0.18 | | 0.19 | J+ | 0.18 | J+ | 0.13 | J | 0.19 | J+ |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | 6.9 | | 7.9 | | 7 | | 4.5 | | 2.1 | | 3.7 | | 4.7 | | 4.9 | | 4.6 | | 4.7 | | 4.2 | |
| Barium | 7440-39-3 | 1500 | EPA (2022) | mg/kg | 43 | | 39 | | 53 | | 51 | | 35 | | 58 | | 61 | | 260 | | 73 | | 40 | | 35 | |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | 0.53 | J+ | 0.44 | J+ | 0.46 | J+ | 0.43 | J+ | 0.51 | J+ | 0.41 | J+ | 0.53 | J+ | 0.12 | U | 0.41 | J+ | 0.46 | J+ | 0.44 | J+ |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | 0.13 | | 0.078 | J | 0.088 | J+ | 0.14 | | 0.058 | J | 0.097 | J+ | 0.65 | | 0.34 | | 0.095 | J+ | 0.79 | | 0.079 | J |
| Chromium | 7440-47-3 | 12000 | EPA (2022) | mg/kg | 7.5 | | 6.7 | | 9.5 | | 7.9 | | 4.6 | | 9.1 | | 9.3 | | 6.7 | | 9.6 | | 7.2 | | 7.9 | J- |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | 9.4 | | 10 | | 11 | | 6.2 | | 2.9 | | 4.9 | | 6 | | 12 | | 6.9 | | 5.9 | | 9.7 | J- |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | 28 | | 27 | | 19 | | 20 | | 7.2 | | 12 | | 24 | | 11 | | 13 | | 28 | | 39 | J- |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | 17000 | | 15000 | | 16000 | | 15000 | | 8300 | | 11000 | | 18000 | | 22000 | | 15000 | | 14000 | J | 14000 | J |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | 19 | | 13 | | 7.9 | | 12 | | 3.8 | | 3.4 | | 30 | | 6.9 | | 6.2 | | 7.2 | | 7.3 | J- |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | 600 | | 550 | | 450 | | 590 | J | 230 | | 380 | | 500 | | 7000 | | 570 | | 620 | | 510 | |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | 0.02 | J | 0.019 | U | 0.015 | U | 0.032 | | 0.048 | | 0.015 | U | 0.046 | | 0.032 | | 0.017 | U | 0.017 | J | 0.022 | |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | 12 | | 11 | | 15 | | 9.3 | | 4.9 | | 9 | | 12 | | 7.2 | | 11 | | 8.8 | | 12 | J- |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | 0.57 | J+ | 0.57 | J+ | 0.44 | J+ | 0.53 | J+ | 0.44 | U | 0.39 | U | 0.44 | J+ | 0.41 | J+ | 0.48 | J+ | 0.56 | J+ | 0.45 | J+ |
| Silver | 7440-22-4 | 39 | EPA (2022) | mg/kg | 0.64 | U | 0.53 | U | 0.56 | U | 0.52 | U | 0.61 | U | 0.49 | U | 0.63 | U | 1.5 | J+ | 0.49 | U | 0.55 | U | 0.52 | UJ |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | 11 | | 10 | | 12 | | 12 | | 8.3 | | 9.4 | | 14 | | 19 | | 12 | | 12 | | 15 | J |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | 44 | | 37 | | 29 | | 28 | J | 81 | | 33 | | 27 | | 110 | | 28 | | 44 | | 31 | J- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-1
Human Health Sample by Sample Screening - AOC 1, Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-023 | | NYOW-01-024 | | NYOW-01-024 | | NYOW-01-024 | | NYOW-01-025 | | NYOW-01-026 | | NYOW-01-027 | | NYOW-01-028 | | NYOW-01-029 | | NYOW-01-030 | | NYOW-01-031 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-PH023-C | | NYOW-01-SL024-A | | NYOW-01-PH024-B | | NYOW-01-PH024-C | | NYOW-01-SL025-A | | NYOW-01-SL026-A | | NYOW-01-SL027-A | | NYOW-01-SL028-A | | NYOW-01-SL029-A | | NYOW-01-SL030-A | | NYOW-01-SL031-A | |
| | | | | Sample Type: | C | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-02 | | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 13 | EPA (2022) | mg/kg | 0.15 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | UJ | 0.23 | J+ | 0.16 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | 4800 | | 4400 | | 5300 | | 5000 | | 5100 | | 4200 | | 6800 | | 4500 | | 6900 | | 6800 | | 6500 | |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | 0.2 | J+ | 0.1 | J | 0.16 | J+ | 0.19 | J+ | 0.11 | J | 0.34 | | 0.11 | J | 0.56 | | 0.18 | J | 0.16 | J | 0.42 | |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | 3.1 | | 4 | | 4.3 | | 5.5 | | 8.7 | | 3.3 | | 5 | | 5.1 | | 11 | | 4.5 | | 4.8 | |
| Barium | 7440-39-3 | 1500 | EPA (2022) | mg/kg | 47 | | 37 | | 37 | | 30 | | 61 | | 83 | | 52 | | 120 | | 96 | | 58 | | 44 | |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | 0.38 | J+ | 0.6 | J+ | 0.5 | J+ | 0.46 | J+ | 0.55 | J+ | 0.87 | J+ | 0.47 | J+ | 0.63 | J+ | 0.51 | J+ | 0.47 | J+ | 0.45 | J+ |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | 0.083 | J+ | 0.058 | J | 0.11 | | 0.086 | J+ | 0.053 | J | 0.51 | | 0.2 | | 0.53 | | 0.29 | | 0.49 | | 0.23 | |
| Chromium | 7440-47-3 | 12000 | EPA (2022) | mg/kg | 6.6 | | 5.4 | | 6.9 | | 6.7 | | 6.5 | | 10 | | 8.1 | | 18 | | 10 | | 9.8 | | 9.2 | |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | 4.8 | J | 4.8 | | 4.6 | | 5.5 | | 7.4 | | 4.2 | | 6.5 | | 4.5 | | 8.3 | | 5.8 | | 8 | |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | 15 | | 13 | | 14 | | 20 | | 22 | | 20 | | 24 | | 24 | | 24 | | 21 | | 22 | |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | 10000 | J | 12000 | | 12000 | | 14000 | | 17000 | | 9600 | | 18000 | | 12000 | | 26000 | | 16000 | | 18000 | |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | 3.1 | | 5.9 | | 6.4 | | 4.8 | | 11 | | 54 | | 14 | | 72 | | 26 | | 21 | | 18 | |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | 280 | | 450 | | 420 | | 490 | | 510 | | 950 | | 770 | | 550 | | 1000 | | 540 | | 760 | |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | 0.019 | J+ | 0.018 | U | 0.026 | | 0.017 | U | 0.013 | J | 0.26 | | 0.042 | | 0.76 | | 0.056 | | 0.053 | | 0.14 | |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | 9.3 | J | 7.1 | | 7.7 | | 9.4 | | 11 | | 9.2 | | 12 | | 11 | | 13 | | 11 | | 13 | |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | 0.33 | U | 0.45 | J+ | 0.45 | J+ | 0.43 | J+ | 0.4 | U | 0.85 | J+ | 0.43 | J+ | 0.7 | J+ | 0.6 | J+ | 0.51 | J+ | 0.43 | J+ |
| Silver | 7440-22-4 | 39 | EPA (2022) | mg/kg | 0.46 | U | 0.72 | U | 0.6 | U | 0.55 | U | 1.7 | J+ | 2.6 | J+ | 0.56 | U | 1.9 | J+ | 1.5 | J+ | 0.56 | U | 1.3 | J+ |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | 9.5 | | 9.5 | | 11 | | 9.8 | | 11 | | 13 | | 15 | | 14 | | 16 | | 13 | | 14 | |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | 17 | | 41 | | 26 | | 30 | | 29 | | 170 | | 56 | | 120 | | 60 | | 85 | | 51 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-1
Human Health Sample by Sample Screening - AOC 1, Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-032 | | NYOW-01-033 | | NYOW-01-034 | | NYOW-01-035 | | NYOW-01-036 | | NYOW-01-037 | | NYOW-01-038 | | NYOW-01-039 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL032-A | | NYOW-01-SL033-A | | NYOW-01-SL034-A | | NYOW-01-SL035-A | | NYOW-01-SL036-A | | NYOW-01-SL037-A | | NYOW-01-SL038-A | | NYOW-01-SL039-A | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-13 | | 2021-04-13 | | 2021-04-14 | | 2021-04-14 | | 2021-04-14 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 13 | EPA (2022) | mg/kg | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | UJ | 0.15 | U | 0.15 | U | 0.16 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | 6600 | | 7800 | | 2000 | | 6900 | | 5700 | | 6100 | | 5400 | | 8000 | |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | 0.23 | | 0.17 | J | 0.41 | | 0.24 | J | 0.31 | | 0.17 | J | 0.091 | J | 0.31 | |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | 7.1 | | 5.7 | | 3.7 | | 7.8 | | 5.6 | | 3.6 | | 4.7 | | 4.1 | |
| Barium | 7440-39-3 | 1500 | EPA (2022) | mg/kg | 58 | | 49 | | 41 | | 67 | | 62 | | 42 | | 37 | | 40 | |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | 0.55 | J+ | 0.51 | J+ | 0.52 | U | 0.57 | J+ | 0.58 | J+ | 0.67 | J+ | 0.5 | J+ | 0.67 | U |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | 0.28 | | 0.26 | | 0.57 | | 0.37 | | 0.25 | | 0.45 | | 0.14 | | 0.16 | |
| Chromium | 7440-47-3 | 12000 | EPA (2022) | mg/kg | 9.8 | | 8.5 | | 18 | | 9.2 | | 14 | | 7.6 | | 6.3 | | 11 | J |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | 8.6 | | 6.4 | | 3.9 | | 9.4 | | 8.4 | | 5.7 | | 5.5 | | 4.5 | |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | 33 | | 20 | | 19 | | 32 | | 33 | | 21 | | 14 | | 19 | |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | 17000 | | 17000 | | 6000 | | 20000 | | 18000 | | 15000 | | 13000 | | 13000 | |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | 23 | | 17 | | 200 | | 31 | | 44 | | 21 | | 6.8 | | 39 | |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | 740 | | 680 | | 270 | | 1000 | | 830 | | 640 | | 470 | | 410 | |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | 0.052 | | 0.06 | | 0.096 | | 0.078 | | 0.085 | | 0.062 | | 0.022 | | 0.037 | |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | 12 | | 12 | | 7.4 | | 12 | | 13 | | 11 | | 9 | | 8.4 | |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | 0.56 | J+ | 0.45 | J+ | 0.61 | J+ | 0.49 | J+ | 0.54 | J+ | 0.59 | J+ | 0.55 | J+ | 0.45 | J+ |
| Silver | 7440-22-4 | 39 | EPA (2022) | mg/kg | 0.66 | U | 0.61 | U | 1.6 | J+ | 0.68 | U | 0.7 | U | 0.8 | U | 1.5 | J+ | 0.67 | U |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | 15 | | 14 | | 7.2 | | 14 | | 13 | | 13 | | 12 | | 14 | |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | 75 | | 53 | | 110 | | 64 | | 55 | | 87 | | 39 | | 39 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-2
Human Health Sample by Sample Screening - AOC 3, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-03-001 | | NYOW-03-001 | | NYOW-03-002 | | NYOW-03-002 | | NYOW-03-003 | | NYOW-03-003 | | NYOW-03-004 | | NYOW-03-004 | | NYOW-03-005 | | NYOW-03-005 | | NYOW-03-005 | | NYOW-03-006 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-03-SL001-A | | NYOW-03-PH001-B | | NYOW-03-SL002-A | | NYOW-03-PH002-B | | NYOW-03-SL003-A | | NYOW-03-PH003-B | | NYOW-03-SL004-A | | NYOW-03-PH004-B | | NYOW-03-SL005-A | | NYOW-03-PH005-B | | NYOW-03-PH005-B_R | | NYOW-03-SL006-A | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | | C | | N | | C | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | |
| | | | | Sample Date: | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-04-01 | | 2021-04-01 | | 2021-05-04 | | 2021-04-01 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 2700 | EPA (2022) | mg/kg | -- | -- | 0.012 | U | -- | -- | 0.012 | U | -- | -- | 0.013 | U | -- | -- | 0.013 | U | -- | -- | -- | -- | 0.012 | UJ | -- | -- |
| Acetone | 67-64-1 | 7000 | EPA (2022) | mg/kg | -- | -- | 0.065 | U | -- | -- | 0.069 | U | -- | -- | 0.075 | U | -- | -- | 0.072 | U | -- | -- | -- | -- | 0.083 | | -- | -- |
| Cumene | 98-82-8 | 190 | EPA (2022) | mg/kg | -- | -- | 0.0045 | U | -- | -- | 0.0048 | U | -- | -- | 0.0052 | U | -- | -- | 0.005 | U | -- | -- | -- | -- | 0.0048 | U | -- | -- |
| Toluene | 108-88-3 | 490 | EPA (2022) | mg/kg | -- | -- | 0.00072 | U | -- | -- | 0.00076 | U | -- | -- | 0.00083 | U | -- | -- | 0.0008 | U | -- | -- | -- | -- | 0.0048 | J+ | -- | -- |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 170 | EPA (2022) | mg/kg | 0.45 | J+ | 0.21 | UJ | 0.22 | UJ | 0.2 | UJ | 0.22 | UJ | 0.21 | UJ | 0.49 | J+ | 0.22 | UJ | 0.21 | UJ | 0.22 | U | 0.2 | UJ | 0.49 | J+ |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | 39 | EPA (2022) | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ | 0.082 | UJ |
| Carbazole | 86-74-8 | 240 | EPA (2022) | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ | 0.082 | UJ |
| Cresols, m- & p- | cresols-m,p | 130 | EPA (2022) | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | U | 0.086 | U | 0.083 | U | 0.086 | U | 0.078 | U | 0.082 | UJ |
| Dibenzofuran | 132-64-9 | 7.8 | EPA (2022) | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ | 0.086 | U | 0.078 | UJ | 0.082 | UJ |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 18 | EPA (2022) | mg/kg | 0.0027 | U | 0.0024 | U | 0.0026 | U | 0.0024 | U | 0.0026 | U | 0.0025 | U | 0.0027 | J | 0.0024 | U | 0.0041 | J | 0.018 | J | -- | -- | 0.0009 | J |
| 2-Methylnaphthalene | 91-57-6 | 24 | EPA (2022) | mg/kg | 0.0014 | J | 0.0024 | U | 0.0021 | J | 0.0024 | U | 0.0026 | U | 0.0025 | U | 0.0031 | J | 0.0024 | U | 0.0037 | J | 0.016 | J | -- | -- | 0.0011 | J |
| Acenaphthene | 83-32-9 | 360 | EPA (2022) | mg/kg | 0.0015 | U | 0.0013 | U | 0.0018 | J | 0.0013 | U | 0.0014 | U | 0.0013 | U | 0.0016 | U | 0.0013 | U | 0.0061 | J | 0.0013 | U | -- | -- | 0.0012 | U |
| Acenaphthylene | 208-96-8 | 360 | EPA (2022) | mg/kg | 0.0015 | U | 0.0013 | U | 0.0055 | J | 0.0013 | U | 0.0014 | U | 0.0013 | U | 0.0016 | U | 0.0013 | U | 0.1 | | 0.04 | J | -- | -- | 0.0078 | J |
| Anthracene | 120-12-7 | 1800 | EPA (2022) | mg/kg | 0.0042 | J | 0.0053 | U | 0.0049 | J | 0.0052 | U | 0.0055 | U | 0.0053 | U | 0.008 | J | 0.0052 | U | 0.094 | | 0.065 | J- | -- | -- | 0.0061 | J |
| Benzo(a)anthracene | 56-55-3 | 1.1 | EPA (2022) | mg/kg | 0.02 | | 0.0053 | U | 0.028 | | 0.0052 | U | 0.0032 | J | 0.0053 | U | 0.018 | | 0.0052 | U | 0.33 | | 0.43 | J | -- | -- | 0.035 | J |
| Benzo(a)pyrene | 50-32-8 | 0.11 | EPA (2022) | mg/kg | 0.022 | | 0.0053 | U | 0.033 | | 0.0052 | U | 0.0047 | J | 0.0053 | U | 0.019 | | 0.0052 | U | 0.28 | | 1.3 | J | -- | -- | 0.038 | J |
| Benzo(b)fluoranthene | 205-99-2 | 1.1 | EPA (2022) | mg/kg | 0.034 | | 0.0081 | U | 0.044 | | 0.0079 | U | 0.0062 | J | 0.0082 | U | 0.029 | J- | 0.0079 | U | 0.32 | | 1.9 | J | -- | -- | 0.052 | J |
| Benzo(g,h,i)perylene | 191-24-2 | 180 | EPA (2022) | mg/kg | 0.013 | J | 0.0081 | U | 0.018 | | 0.0079 | U | 0.003 | J | 0.0082 | U | 0.014 | J- | 0.0079 | U | 0.19 | | 0.82 | J | -- | -- | 0.022 | J |
| Benzo(k)fluoranthene | 207-08-9 | 11 | EPA (2022) | mg/kg | 0.012 | J | 0.0053 | U | 0.016 | | 0.0052 | U | 0.0055 | U | 0.0053 | U | 0.01 | J | 0.0052 | U | 0.14 | | 0.84 | J | -- | -- | 0.019 | J |
| Chrysene | 218-01-9 | 110 | EPA (2022) | mg/kg | 0.024 | | 0.0053 | U | 0.034 | | 0.0052 | U | 0.0044 | J | 0.0053 | U | 0.022 | | 0.0052 | U | 0.29 | | 1.2 | J | -- | -- | 0.037 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.11 | EPA (2022) | mg/kg | 0.0091 | U | 0.0081 | U | 0.0085 | U | 0.0079 | U | 0.0085 | U | 0.0082 | U | 0.0098 | U | 0.0079 | U | 0.046 | | 0.29 | J- | -- | -- | 0.0078 | U |
| Fluoranthene | 206-44-0 | 240 | EPA (2022) | mg/kg | 0.04 | | 0.0053 | U | 0.062 | | 0.0052 | U | 0.007 | J | 0.0053 | U | 0.042 | | 0.0052 | U | 0.56 | | 0.19 | J- | -- | -- | 0.059 | J |
| Fluorene | 86-73-7 | 240 | EPA (2022) | mg/kg | 0.0036 | U | 0.0033 | U | 0.0023 | J | 0.0032 | U | 0.0034 | U | 0.0033 | U | 0.0054 | J | 0.0032 | U | 0.037 | | 0.005 | J | -- | -- | 0.0031 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 1.1 | EPA (2022) | mg/kg | 0.016 | | 0.0081 | U | 0.021 | | 0.0079 | U | 0.0085 | U | 0.0082 | U | 0.017 | J- | 0.0079 | U | 0.21 | | 1 | J | -- | -- | 0.026 | J |
| Naphthalene | 91-20-3 | 2 | EPA (2022) | mg/kg | 0.0027 | U | 0.0024 | U | 0.0024 | J | 0.012 | J+ | 0.0026 | U | 0.0025 | U | 0.0055 | J | 0.0024 | U | 0.0064 | J | 0.012 | J+ | -- | -- | 0.0016 | J |
| Phenanthrene | 85-01-8 | 1800 | EPA (2022) | mg/kg | 0.018 | | 0.0081 | U | 0.027 | | 0.0079 | U | 0.0036 | J | 0.0082 | U | 0.031 | | 0.0079 | U | 0.31 | | 0.05 | J- | -- | -- | 0.015 | |
| Pyrene | 129-00-0 | 180 | EPA (2022) | mg/kg | 0.033 | | 0.0081 | U | 0.054 | | 0.0079 | U | 0.006 | J | 0.0082 | U | 0.034 | | 0.0079 | U | 0.4 | | 0.26 | J- | -- | -- | 0.054 | J |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.24 | EPA (2022) | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.0082 | UJ | 0.086 | J+ | -- | -- | 0.0078 | UJ |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | 3200 | | 7600 | | 5000 | | 6300 | | 9100 | | 6300 | | 8500 | | 4500 | | 7200 | | 7200 | | -- | -- | 9500 | |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | 0.14 | J | 0.09 | U | 0.14 | J | 0.097 | U | 0.11 | U | 0.17 | J+ | 0.21 | J | 0.18 | J+ | 0.13 | J | 0.2 | J+ | -- | -- | 0.11 | J |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | 3 | | 1.6 | | 2 | | 2.4 | | 2.1 | | 2.1 | | 2.4 | J | 2.4 | | 3.9 | | 5.7 | | -- | -- | 3.1 | |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | 0.49 | J+ | 0.12 | J | 0.64 | J+ | 0.26 | J | 0.58 | J+ | 0.25 | J | 0.62 | J+ | 0.18 | J | 0.48 | J+ | 0.25 | J | -- | -- | 0.53 | J+ |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | 0.15 | | 0.038 | J | 0.17 | | 0.065 | J | 0.087 | J | 0.058 | J | 0.15 | J | 0.053 | J | 0.099 | | 0.13 | | -- | -- | 0.35 | J |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | 0.54 | J | 2.8 | | 1.2 | J | 3.3 | | 1.7 | | 3.9 | | 1.6 | | 3.6 | | 4.2 | | 3.1 | | -- | -- | 7.2 | |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | 3.8 | J | 5.8 | | 4 | J | 7.8 | | 4.3 | J | 9.4 | | 4.4 | J | 9.2 | | 11 | | 9.2 | | -- | -- | 12 | |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | 4400 | | 8000 | | 5500 | | 9100 | | 7300 | | 11000 | | 8200 | | 9300 | | 10000 | | 13000 | | -- | -- | 21000 | |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | 9.9 | J+ | 3.3 | J+ | 9.9 | J+ | 2.7 | J+ | 7.1 | J+ | 3.5 | J+ | 13 | J- | 2.8 | | 11 | | 16 | | -- | -- | 23 | |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | 48 | | 69 | | 93 | | 220 | | 48 | | 330 | | 65 | J- | 560 | | 480 | J | 210 | J | -- | -- | 550 | J |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | 0.048 | | 0.037 | | 0.049 | | 0.011 | J | 0.047 | | 0.018 | U | 0.088 | | 0.009 | J | 0.034 | | 0.037 | | -- | -- | 0.061 | |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | 1.4 | J | 7.7 | | 2.9 | J | 6.4 | | 3.3 | J | 8.6 | | 3.3 | J | 7.1 | | 8.7 | | 7.5 | | -- | -- | 13 | |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | 0.3 | J | 0.51 | J+ | 0.38 | J | 0.43 | J+ | 0.36 | J | 0.44 | U | 0.61 | J | 0.43 | U | 0.25 | J | 0.46 | J+ | -- | -- | 0.35 | J |
| Silver | 7440-22-4 | 39 | EPA (2022) | mg/kg | 0.59 | U | 0.56 | U | 0.77 | U | 0.5 | U | 0.69 | U | 0.51 | U | 0.75 | U | 0.53 | U | 0.58 | U | 0.57 | U | -- | -- | 0.64 | U |
| Thallium | 7440-28-0 | 0.078 | EPA (2022) | mg/kg | 0.11 | U | 0.1 | U | 0.098 | U | 0.087 | U | 0.1 | U | 0.11 | U | 0.12 | UJ | 0.11 | U | 0.11 | | 0.14 | | -- | -- | 0.12 | |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | 5.9 | | 9.9 | | 8.3 | | 10 | | 11 | | 12 | | 12 | | 10 | | 15 | | 14 | | -- | -- | 17 | |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | 12 | | 19 | | 21 | | 17 | | 22 | | 22 | | 23 | | 20 | | 24 | | 34 | | -- | -- | 56 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
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LOD = Limit of Detection
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(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-2
Human Health Sample by Sample Screening - AOC 3, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-03-006 | | NYOW-03-006 | | NYOW-03-007 | | NYOW-03-007 | | NYOW-03-007 | | NYOW-03-008 | | NYOW-03-008 | | NYOW-03-008 | | NYOW-03-008 | | NYOW-03-009 | | NYOW-03-009 | | NYOW-03-009 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-03-PH006-B | | NYOW-03-PH006-B_R | | NYOW-03-SL007-A | | NYOW-03-PH007-B | | NYOW-03-PH007-B_R | | NYOW-03-SL008-A | | NYOW-03-SL008-A_R | | NYOW-03-PH008-B | | NYOW-03-PH008-B_R | | NYOW-03-SL009-A | | NYOW-03-SL009-A_R | | NYOW-03-PH009-B | |
| | | | | Sample Type: | N | | C | | N | | N | | N | | N | | C | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-04-01 | | 2021-05-04 | | 2021-04-01 | | 2021-04-01 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 2700 | EPA (2022) | mg/kg | -- | -- | 0.005 | J- | -- | -- | -- | -- | 0.011 | UJ | -- | -- | -- | -- | 0.013 | U | -- | -- | -- | -- | -- | -- | 0.013 | U |
| Acetone | 67-64-1 | 7000 | EPA (2022) | mg/kg | -- | -- | 0.077 | J | -- | -- | -- | -- | 0.064 | U | -- | -- | -- | -- | 0.075 | UJ | -- | -- | -- | -- | -- | -- | 0.071 | UJ |
| Cumene | 98-82-8 | 190 | EPA (2022) | mg/kg | -- | -- | 0.0051 | U | -- | -- | -- | -- | 0.0045 | U | -- | -- | -- | -- | 0.0052 | U | -- | -- | -- | -- | -- | -- | 0.0049 | U |
| Toluene | 108-88-3 | 490 | EPA (2022) | mg/kg | -- | -- | 0.0051 | J+ | -- | -- | -- | -- | 0.00072 | U | -- | -- | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- | 0.00079 | U |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 170 | EPA (2022) | mg/kg | 0.21 | U | 0.42 | J+ | 0.2 | U | 0.21 | U | 0.2 | U | | R | 0.2 | U | | R | 0.2 | UJ | | R | 0.24 | U | | R |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | 39 | EPA (2022) | mg/kg | 0.084 | U | 0.085 | UJ | 0.079 | U | 0.083 | U | 0.078 | UJ | | R | 0.14 | J | | R | 0.08 | UJ | | R | 0.093 | U | | R |
| Carbazole | 86-74-8 | 240 | EPA (2022) | mg/kg | 0.084 | U | 0.085 | U | 0.045 | J | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | 0.093 | U | | R |
| Cresols, m- & p- | cresols-m,p | 130 | EPA (2022) | mg/kg | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | 0.093 | U | | R |
| Dibenzofuran | 132-64-9 | 7.8 | EPA (2022) | mg/kg | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R | 0.077 | U | | R | 0.08 | UJ | | R | 0.093 | U | | R |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 18 | EPA (2022) | mg/kg | 0.0026 | U | -- | -- | 0.026 | J+ | 0.00077 | J | -- | -- | 0.3 | J+ | -- | -- | 0.00092 | J | -- | -- | 0.011 | J | -- | -- | 0.0023 | UJ |
| 2-Methylnaphthalene | 91-57-6 | 24 | EPA (2022) | mg/kg | 0.0026 | U | -- | -- | 0.031 | J+ | 0.00074 | J | -- | -- | 0.21 | J+ | -- | -- | 0.0024 | U | -- | -- | 0.012 | J | -- | -- | 0.0023 | UJ |
| Acenaphthene | 83-32-9 | 360 | EPA (2022) | mg/kg | 0.0014 | U | -- | -- | 0.029 | J+ | 0.011 | J+ | -- | -- | 0.23 | J+ | -- | -- | 0.012 | U | -- | -- | 0.014 | U | -- | -- | 0.0013 | UJ |
| Acenaphthylene | 208-96-8 | 360 | EPA (2022) | mg/kg | 0.0014 | U | -- | -- | 0.77 | | 0.0097 | J | -- | -- | 1.6 | | -- | -- | 0.018 | | -- | -- | 0.09 | J- | -- | -- | 0.012 | UJ |
| Anthracene | 120-12-7 | 1800 | EPA (2022) | mg/kg | 0.0056 | U | -- | -- | 0.35 | J+ | 0.0055 | J | -- | -- | 1.5 | | -- | -- | 0.0063 | J | -- | -- | 0.047 | J- | -- | -- | 0.0051 | UJ |
| Benzo(a)anthracene | 56-55-3 | 1.1 | EPA (2022) | mg/kg | 0.0056 | U | -- | -- | 2 | | 0.013 | | -- | -- | 4.5 | | -- | -- | 0.014 | | -- | -- | 0.14 | J- | -- | -- | 0.0051 | UJ |
| Benzo(a)pyrene | 50-32-8 | 0.11 | EPA (2022) | mg/kg | 0.0056 | U | -- | -- | 2.3 | | 0.018 | | -- | -- | 4.4 | | -- | -- | 0.018 | | -- | -- | 0.15 | J- | -- | -- | 0.0051 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | 1.1 | EPA (2022) | mg/kg | 0.0086 | U | -- | -- | 2.6 | | 0.027 | | -- | -- | 4.7 | | -- | -- | 0.022 | | -- | -- | 0.23 | J- | -- | -- | 0.0078 | UJ |
| Benzo(g,h,i)perylene | 191-24-2 | 180 | EPA (2022) | mg/kg | 0.0086 | U | -- | -- | 1.2 | | 0.012 | | -- | -- | 2.1 | | -- | -- | 0.0094 | J | -- | -- | 0.098 | J- | -- | -- | 0.0078 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 11 | EPA (2022) | mg/kg | 0.0056 | U | -- | -- | 1 | | 0.0082 | J | -- | -- | 1.9 | | -- | -- | 0.0084 | J | -- | -- | 0.094 | J- | -- | -- | 0.0051 | UJ |
| Chrysene | 218-01-9 | 110 | EPA (2022) | mg/kg | 0.0056 | U | -- | -- | 2 | | 0.016 | | -- | -- | 3.3 | | -- | -- | 0.013 | | -- | -- | 0.16 | J- | -- | -- | 0.0051 | UJ |
| Dibenz(a,h)anthracene | 53-70-3 | 0.11 | EPA (2022) | mg/kg | 0.0086 | U | -- | -- | 0.35 | J+ | 0.0076 | U | -- | -- | 0.69 | | -- | -- | 0.0056 | J | -- | -- | 0.026 | | -- | -- | 0.0078 | UJ |
| Fluoranthene | 206-44-0 | 240 | EPA (2022) | mg/kg | 0.0056 | U | -- | -- | 3.2 | | 0.017 | | -- | -- | 6.8 | | -- | -- | 0.018 | | -- | -- | 0.28 | J- | -- | -- | 0.0051 | UJ |
| Fluorene | 86-73-7 | 240 | EPA (2022) | mg/kg | 0.0035 | U | -- | -- | 0.12 | J+ | 0.0015 | J | -- | -- | 1.4 | | -- | -- | 0.0052 | J | -- | -- | 0.031 | J- | -- | -- | 0.0031 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 1.1 | EPA (2022) | mg/kg | 0.0086 | U | -- | -- | 1.7 | | 0.012 | | -- | -- | 3.1 | | -- | -- | 0.012 | | -- | -- | 0.11 | J- | -- | -- | 0.0078 | UJ |
| Naphthalene | 91-20-3 | 2 | EPA (2022) | mg/kg | 0.0026 | U | -- | -- | 0.054 | J+ | 0.011 | J+ | -- | -- | 0.11 | J+ | -- | -- | 0.012 | J+ | -- | -- | 0.015 | | -- | -- | 0.0023 | UJ |
| Phenanthrene | 85-01-8 | 1800 | EPA (2022) | mg/kg | 0.0086 | U | -- | -- | 1.4 | | 0.007 | J | -- | -- | 6.7 | | -- | -- | 0.014 | | -- | -- | 0.2 | J- | -- | -- | 0.0078 | UJ |
| Pyrene | 129-00-0 | 180 | EPA (2022) | mg/kg | 0.0086 | U | -- | -- | 3.6 | | 0.02 | | -- | -- | 7 | | -- | -- | 0.021 | | -- | -- | 0.23 | J- | -- | -- | 0.0078 | UJ |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.24 | EPA (2022) | mg/kg | 0.0086 | UJ | -- | -- | 0.0077 | UJ | 0.0083 | UJ | -- | -- | 0.069 | J+ | -- | -- | 0.0073 | U | -- | -- | 0.0084 | U | -- | -- | 0.0079 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | 8200 | | -- | -- | 8200 | | 6600 | | -- | -- | 5600 | | -- | -- | 6400 | J | -- | -- | 11000 | | -- | -- | 9300 | |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | 0.24 | J+ | -- | -- | 0.36 | | 0.2 | J+ | -- | -- | 0.31 | | -- | -- | 0.16 | J+ | -- | -- | 0.17 | J | -- | -- | 0.2 | J+ |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | 5.9 | | -- | -- | 4.4 | | 4.3 | | -- | -- | 4.3 | | -- | -- | 1.9 | | -- | -- | 2.3 | | -- | -- | 2.6 | |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | 0.47 | J | -- | -- | 0.54 | J+ | 0.35 | J | -- | -- | 0.47 | J+ | -- | -- | 0.23 | J- | -- | -- | 0.61 | J+ | -- | -- | 0.34 | J |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | 0.092 | J | -- | -- | 0.26 | | 0.064 | J | -- | -- | 0.27 | | -- | -- | 0.083 | J | -- | -- | 0.22 | | -- | -- | 0.051 | J |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | 7.3 | | -- | -- | 8 | | 7 | | -- | -- | 4.7 | | -- | -- | 3.4 | J- | -- | -- | 2.6 | J- | -- | -- | 5.1 | |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | 20 | | -- | -- | 26 | | 20 | | -- | -- | 13 | | -- | -- | 6.4 | J- | -- | -- | 4.9 | J- | -- | -- | 11 | |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | 23000 | | -- | -- | 20000 | | 17000 | | -- | -- | 12000 | | -- | -- | 8700 | J | -- | -- | 12000 | | -- | -- | 12000 | |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | 25 | | -- | -- | 54 | | 25 | | -- | -- | 3.4 | | -- | -- | 6.5 | J- | -- | -- | 7.6 | J- | -- | -- | 4.3 | |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | 500 | J | -- | -- | 480 | J | 520 | J | -- | -- | 400 | | -- | -- | 160 | J- | -- | -- | 120 | J+ | -- | -- | 380 | |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | 0.032 | | -- | -- | 0.16 | | 0.039 | | -- | -- | 0.05 | | -- | -- | 0.023 | | -- | -- | 0.058 | | -- | -- | 0.024 | |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | 20 | | -- | -- | 18 | | 17 | | -- | -- | 10 | | -- | -- | 6.7 | J- | -- | -- | 5.4 | J- | -- | -- | 9.9 | |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | 0.6 | J+ | -- | -- | 0.29 | J | 0.53 | J+ | -- | -- | 0.2 | J | -- | -- | 0.45 | J+ | -- | -- | 0.36 | J | -- | -- | 0.58 | J+ |
| Silver | 7440-22-4 | 39 | EPA (2022) | mg/kg | 0.61 | U | -- | -- | 0.65 | U | 0.52 | U | -- | -- | 0.57 | U | -- | -- | 0.55 | UJ | -- | -- | 0.73 | UJ | -- | -- | 0.57 | U |
| Thallium | 7440-28-0 | 0.078 | EPA (2022) | mg/kg | 0.14 | | -- | -- | 0.17 | | 0.18 | | -- | -- | 0.11 | | -- | -- | 0.068 | J | -- | -- | 0.1 | J | -- | -- | 0.063 | J |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | 15 | | -- | -- | 14 | | 11 | | -- | -- | 10 | | -- | -- | 10 | J- | -- | -- | 16 | J- | -- | -- | 15 | |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | 41 | | -- | -- | 81 | | 34 | | -- | -- | 60 | | -- | -- | 25 | J- | -- | -- | 22 | J | -- | -- | 21 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-2
Human Health Sample by Sample Screening - AOC 3, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Location: | NYOW-03-009 | | NYOW-03-010 | | NYOW-03-010 | | NYOW-03-011 | | NYOW-03-011 | | NYOW-03-012 | | NYOW-03-012 | | NYOW-03-013 | | NYOW-03-013 | | NYOW-03-013 | | NYOW-03-013 | | NYOW-03-014 | |
| | | | | Sample Name: | NYOW-03-PH009-B_R | | NYOW-03-SL010-A | | NYOW-03-PH010-B | | NYOW-03-SL011-A | | NYOW-03-PH011-B | | NYOW-03-SL012-A | | NYOW-03-PH012-B | | NYOW-03-SL013-A | | NYOW-03-SL013-A_R | | NYOW-03-PH013-B | | NYOW-03-PH013-B_R | | NYOW-03-SL014-A | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | C | | C | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | |
| | | | | Sample Date: | 2021-05-04 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 2700 | EPA (2022) | mg/kg | -- | -- | -- | -- | 0.0077 | J | -- | -- | 0.015 | U | -- | -- | 0.013 | U | -- | -- | -- | -- | 0.013 | U | -- | -- | -- | -- |
| Acetone | 67-64-1 | 7000 | EPA (2022) | mg/kg | -- | -- | -- | -- | 0.036 | J | -- | -- | 0.083 | U | -- | -- | 0.075 | U | -- | -- | -- | -- | 0.073 | UJ | -- | -- | -- | -- |
| Cumene | 98-82-8 | 190 | EPA (2022) | mg/kg | -- | -- | -- | -- | 0.0059 | | -- | -- | 0.0058 | U | -- | -- | 0.0052 | U | -- | -- | -- | -- | 0.0051 | U | -- | -- | -- | -- |
| Toluene | 108-88-3 | 490 | EPA (2022) | mg/kg | -- | -- | -- | -- | 0.00077 | U | -- | -- | 0.00093 | U | -- | -- | 0.00084 | U | -- | -- | -- | -- | 0.00081 | U | -- | -- | -- | -- |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 170 | EPA (2022) | mg/kg | 0.2 | U | 0.21 | UJ | 0.19 | UJ | 0.22 | UJ | 0.2 | UJ | 0.39 | J+ | 0.18 | UJ | | R | 0.21 | U | | R | 0.2 | UJ | | R |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | 39 | EPA (2022) | mg/kg | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.079 | UJ | 0.071 | U | | R | 0.082 | U | | R | 0.079 | UJ | | R |
| Carbazole | 86-74-8 | 240 | EPA (2022) | mg/kg | 0.08 | U | 0.083 | U | 0.075 | U | 0.55 | | 0.079 | U | 0.12 | J- | 0.071 | U | | R | 0.082 | U | | R | 0.079 | UJ | | R |
| Cresols, m- & p- | cresols-m,p | 130 | EPA (2022) | mg/kg | 0.08 | U | 0.083 | U | 0.075 | U | 0.086 | U | 0.079 | U | 0.39 | J+ | 0.071 | U | | R | 0.082 | U | | R | 0.079 | U | | R |
| Dibenzofuran | 132-64-9 | 7.8 | EPA (2022) | mg/kg | 0.08 | U | 0.083 | U | 0.075 | U | 0.42 | J+ | 0.079 | U | 0.39 | J+ | 0.071 | U | | R | 0.082 | U | | R | 0.079 | UJ | | R |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 18 | EPA (2022) | mg/kg | -- | -- | 0.027 | J | 0.046 | U | 0.049 | U | 0.0024 | U | 0.025 | J- | 0.0044 | J | 0.0011 | J | -- | -- | 0.0025 | U | -- | -- | 0.01 | J |
| 2-Methylnaphthalene | 91-57-6 | 24 | EPA (2022) | mg/kg | -- | -- | 0.035 | J | 0.046 | U | 0.049 | U | 0.0024 | U | 0.028 | J- | 0.0043 | J | 0.0019 | J | -- | -- | 0.0025 | U | -- | -- | 0.012 | J |
| Acenaphthene | 83-32-9 | 360 | EPA (2022) | mg/kg | -- | -- | 0.026 | U | 0.024 | U | 0.026 | U | 0.012 | J+ | 0.018 | J- | 0.01 | J+ | 0.0013 | U | -- | -- | 0.0013 | U | -- | -- | 0.012 | U |
| Acenaphthylene | 208-96-8 | 360 | EPA (2022) | mg/kg | -- | -- | 0.49 | | 0.024 | U | 0.29 | | 0.0029 | J | 0.39 | J- | 0.037 | | 0.02 | J | -- | -- | 0.013 | U | -- | -- | 0.12 | |
| Anthracene | 120-12-7 | 1800 | EPA (2022) | mg/kg | -- | -- | 0.17 | J | 0.099 | U | 0.092 | J | 0.0025 | J | 0.15 | J- | 0.016 | | 0.021 | J | -- | -- | 0.0054 | U | -- | -- | 0.08 | J |
| Benzo(a)anthracene | 56-55-3 | 1.1 | EPA (2022) | mg/kg | -- | -- | 0.58 | | 0.099 | U | 0.32 | | 0.022 | | 0.64 | J- | 0.061 | | 0.056 | J | -- | -- | 0.0054 | U | -- | -- | 0.26 | |
| Benzo(a)pyrene | 50-32-8 | 0.11 | EPA (2022) | mg/kg | -- | -- | 0.84 | | 0.099 | U | 0.44 | | 0.031 | | 0.76 | J- | 0.056 | | 0.065 | J | -- | -- | 0.0054 | U | -- | -- | 0.26 | |
| Benzo(b)fluoranthene | 205-99-2 | 1.1 | EPA (2022) | mg/kg | -- | -- | 1 | | 0.15 | U | 0.56 | | 0.055 | | 1.1 | J- | 0.081 | | 0.12 | J | -- | -- | 0.0084 | U | -- | -- | 0.37 | |
| Benzo(g,h,i)perylene | 191-24-2 | 180 | EPA (2022) | mg/kg | -- | -- | 0.52 | | 0.15 | U | 0.28 | | 0.023 | | 0.34 | J- | 0.031 | J | 0.052 | J | -- | -- | 0.0084 | U | -- | -- | 0.15 | |
| Benzo(k)fluoranthene | 207-08-9 | 11 | EPA (2022) | mg/kg | -- | -- | 0.43 | | 0.099 | U | 0.24 | J | 0.019 | | 0.35 | J- | 0.037 | | 0.037 | J | -- | -- | 0.0054 | U | -- | -- | 0.16 | |
| Chrysene | 218-01-9 | 110 | EPA (2022) | mg/kg | -- | -- | 0.73 | | 0.099 | U | 0.42 | | 0.034 | | 0.72 | J- | 0.066 | | 0.074 | J | -- | -- | 0.0054 | U | -- | -- | 0.27 | |
| Dibenz(a,h)anthracene | 53-70-3 | 0.11 | EPA (2022) | mg/kg | -- | -- | 0.14 | J | 0.15 | U | 0.081 | J | 0.0063 | J | 0.097 | J- | 0.01 | | 0.0093 | J | -- | -- | 0.0084 | U | -- | -- | 0.05 | J |
| Fluoranthene | 206-44-0 | 240 | EPA (2022) | mg/kg | -- | -- | 1.1 | | 0.099 | U | 0.56 | | 0.06 | | 1.5 | J- | 0.16 | | 0.093 | J | -- | -- | 0.0054 | U | -- | -- | 0.45 | |
| Fluorene | 86-73-7 | 240 | EPA (2022) | mg/kg | -- | -- | 0.077 | J | 0.061 | U | 0.033 | J | 0.0013 | J | 0.092 | J- | 0.016 | J | 0.0023 | J | -- | -- | 0.0033 | U | -- | -- | 0.039 | J |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 1.1 | EPA (2022) | mg/kg | -- | -- | 0.6 | | 0.15 | U | 0.34 | | 0.035 | | 0.64 | J- | 0.04 | | 0.053 | | -- | -- | 0.0084 | U | -- | -- | 0.19 | |
| Naphthalene | 91-20-3 | 2 | EPA (2022) | mg/kg | -- | -- | 0.042 | J | 0.046 | U | 0.049 | U | 0.0024 | U | 0.052 | J- | 0.01 | J+ | 0.0029 | J | -- | -- | 0.0025 | U | -- | -- | 0.008 | J |
| Phenanthrene | 85-01-8 | 1800 | EPA (2022) | mg/kg | -- | -- | 0.45 | | 0.15 | U | 0.24 | J | 0.022 | | 0.71 | J- | 0.11 | J | 0.014 | J | -- | -- | 0.0084 | U | -- | -- | 0.29 | |
| Pyrene | 129-00-0 | 180 | EPA (2022) | mg/kg | -- | -- | 1.1 | | 0.15 | U | 0.64 | | 0.048 | | 1.1 | J- | 0.11 | | 0.082 | | -- | -- | 0.0084 | U | -- | -- | 0.44 | |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.24 | EPA (2022) | mg/kg | -- | -- | 0.079 | J+ | 0.0075 | U | 0.0089 | U | 0.074 | J+ | 0.0077 | U | 0.0072 | U | 0.078 | J+ | -- | -- | 0.0078 | U | -- | -- | 0.007 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | -- | -- | 5500 | | 7900 | | 5900 | | 6100 | | 8500 | | 5000 | | 6100 | | -- | -- | 9100 | | -- | -- | 4400 | |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | -- | -- | 0.19 | J | 0.16 | J+ | 0.16 | J | 0.22 | J+ | 0.18 | J | 0.15 | J+ | 0.095 | J | -- | -- | 0.2 | J+ | -- | -- | 0.13 | J |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | -- | -- | 2.5 | | 2.4 | | 2.4 | | 4.8 | | 2.8 | | 3 | | 2.3 | | -- | -- | 2.2 | | -- | -- | 2.7 | |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | -- | -- | 0.46 | J+ | 0.28 | J | 0.56 | J+ | 0.48 | | 0.43 | J+ | 0.4 | J | 0.45 | J+ | -- | -- | 0.31 | J | -- | -- | 0.49 | J+ |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | -- | -- | 0.15 | | 0.087 | J | 0.2 | | 0.035 | J | 0.3 | | 0.089 | J | 0.053 | J | -- | -- | 0.081 | J | -- | -- | 0.22 | |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | -- | -- | 4.1 | | 4.3 | | 4.2 | | 10 | | 6 | | 7.5 | | 3.9 | | -- | -- | 4.7 | | -- | -- | 4.1 | |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | -- | -- | 12 | | 7.6 | | 13 | | 29 | | 18 | | 18 | | 9.5 | | -- | -- | 8.9 | | -- | -- | 19 | |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | -- | -- | 12000 | | 10000 | | 11000 | | 20000 | | 15000 | | 16000 | | 11000 | | -- | -- | 11000 | | -- | -- | 10000 | |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | -- | -- | 21 | J+ | 8.3 | J+ | 11 | J+ | 56 | | 23 | | 38 | J | 3.9 | | -- | -- | 4.7 | | -- | -- | 18 | |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | -- | -- | 340 | | 320 | | 370 | | 450 | | 650 | | 440 | | 350 | | -- | -- | 300 | | -- | -- | 420 | |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | -- | -- | 0.04 | | 0.034 | | 0.033 | | 0.047 | | 0.022 | J | 0.045 | | 0.016 | J | -- | -- | 0.023 | | -- | -- | 0.025 | |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | -- | -- | 9.5 | | 10 | | 9.2 | | 24 | | 13 | | 17 | | 7.9 | | -- | -- | 9.7 | | -- | -- | 9.8 | |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | -- | -- | 0.23 | J | 0.52 | J+ | 0.24 | J | 0.54 | J+ | 0.33 | J | 0.39 | J+ | 0.15 | J | -- | -- | 0.52 | J+ | -- | -- | 0.2 | J |
| Silver | 7440-22-4 | 39 | EPA (2022) | mg/kg | -- | -- | 1.4 | J+ | 0.52 | U | 0.67 | U | 1.4 | J+ | 0.51 | U | 1.2 | J+ | 0.54 | U | -- | -- | 0.6 | U | -- | -- | 0.59 | U |
| Thallium | 7440-28-0 | 0.078 | EPA (2022) | mg/kg | -- | -- | 0.094 | U | 0.1 | U | 0.1 | U | 0.49 | | 0.09 | | 0.15 | J | 0.054 | J | -- | -- | 0.061 | J | -- | -- | 0.09 | |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | -- | -- | 11 | | 12 | | 12 | | 7.9 | | 16 | | 7.4 | | 12 | | -- | -- | 14 | | -- | -- | 11 | |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | -- | -- | 36 | | 25 | | 36 | | 18 | | 44 | | 17 | | 23 | | -- | -- | 23 | | -- | -- | 55 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-2
Human Health Sample by Sample Screening - AOC 3, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-03-014 | | NYOW-03-014 | | NYOW-03-014 | | NYOW-03-015 | | NYOW-03-015 | | NYOW-03-015 | | NYOW-03-015 | | NYOW-03-016 | | NYOW-03-016 | | NYOW-03-016 | | NYOW-03-017 | | NYOW-03-017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-03-SL014-A_R | | NYOW-03-PH014-B | | NYOW-03-PH014-B_R | | NYOW-03-SL015-A | | NYOW-03-SL015-A_R | | NYOW-03-PH015-B | | NYOW-03-PH015-B_R | | NYOW-03-SL016-A | | NYOW-03-PH016-B | | NYOW-03-PH016-B_R | | NYOW-03-PH017-B | | NYOW-03-PH017-B_R | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | Sample Date: | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-01 | | 2021-04-01 | | 2021-05-04 | | 2021-04-01 | | 2021-05-04 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 2700 | EPA (2022) | mg/kg | -- | -- | 0.013 | U | -- | -- | -- | -- | -- | -- | 0.013 | U | -- | -- | -- | -- | -- | -- | 0.0049 | J- | -- | -- | 0.0057 | J- |
| Acetone | 67-64-1 | 7000 | EPA (2022) | mg/kg | -- | -- | 0.074 | UJ | -- | -- | -- | -- | -- | -- | 0.072 | UJ | -- | -- | -- | -- | -- | -- | 0.099 | | -- | -- | 0.12 | |
| Cumene | 98-82-8 | 190 | EPA (2022) | mg/kg | -- | -- | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.005 | U | -- | -- | -- | -- | -- | -- | 0.0048 | U | -- | -- | 0.0046 | U |
| Toluene | 108-88-3 | 490 | EPA (2022) | mg/kg | -- | -- | 0.00082 | U | -- | -- | -- | -- | -- | -- | 0.0008 | U | -- | -- | -- | -- | -- | -- | 0.0048 | J+ | -- | -- | 0.0046 | J+ |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 170 | EPA (2022) | mg/kg | 0.2 | U | | R | 0.21 | U | | R | 0.47 | J+ | | R | 0.21 | UJ | 0.19 | U | 0.21 | U | 0.2 | U | -- | -- | -- | -- |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | 39 | EPA (2022) | mg/kg | 0.077 | U | | R | 0.082 | U | | R | 3.4 | J- | | R | 0.081 | UJ | 0.076 | U | 0.082 | U | 0.08 | U | -- | -- | -- | -- |
| Carbazole | 86-74-8 | 240 | EPA (2022) | mg/kg | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U | 0.082 | U | 0.08 | U | -- | -- | -- | -- |
| Cresols, m- & p- | cresols-m,p | 130 | EPA (2022) | mg/kg | 0.077 | U | | R | 0.082 | U | | R | 0.096 | U | | R | 0.081 | U | 0.076 | U | 0.082 | U | 0.08 | U | -- | -- | -- | -- |
| Dibenzofuran | 132-64-9 | 7.8 | EPA (2022) | mg/kg | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U | 0.082 | U | 0.08 | U | -- | -- | -- | -- |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 18 | EPA (2022) | mg/kg | -- | -- | 0.0024 | U | -- | -- | 0.65 | | -- | -- | 0.00065 | J | -- | -- | 0.0023 | J | 0.0022 | U | -- | -- | -- | -- | -- | -- |
| 2-Methylnaphthalene | 91-57-6 | 24 | EPA (2022) | mg/kg | -- | -- | 0.0024 | U | -- | -- | 1 | | -- | -- | 0.00085 | J | -- | -- | 0.0024 | J | 0.0022 | U | -- | -- | -- | -- | -- | -- |
| Acenaphthene | 83-32-9 | 360 | EPA (2022) | mg/kg | -- | -- | 0.0013 | U | -- | -- | 4.3 | | -- | -- | 0.0013 | U | -- | -- | 0.0012 | J | 0.0012 | U | -- | -- | -- | -- | -- | -- |
| Acenaphthylene | 208-96-8 | 360 | EPA (2022) | mg/kg | -- | -- | 0.012 | U | -- | -- | 1.1 | | -- | -- | 0.012 | U | -- | -- | 0.02 | | 0.0012 | U | -- | -- | -- | -- | -- | -- |
| Anthracene | 120-12-7 | 1800 | EPA (2022) | mg/kg | -- | -- | 0.0021 | J | -- | -- | 8.2 | | -- | -- | 0.0065 | J | -- | -- | 0.0082 | J | 0.0048 | U | -- | -- | -- | -- | -- | -- |
| Benzo(a)anthracene | 56-55-3 | 1.1 | EPA (2022) | mg/kg | -- | -- | 0.0037 | J | -- | -- | 5.3 | | -- | -- | 0.019 | | -- | -- | 0.046 | | 0.0025 | J | -- | -- | -- | -- | -- | -- |
| Benzo(a)pyrene | 50-32-8 | 0.11 | EPA (2022) | mg/kg | -- | -- | 0.0039 | J | -- | -- | 3.2 | | -- | -- | 0.019 | | -- | -- | 0.056 | | 0.0027 | J | -- | -- | -- | -- | -- | -- |
| Benzo(b)fluoranthene | 205-99-2 | 1.1 | EPA (2022) | mg/kg | -- | -- | 0.0061 | J | -- | -- | 4.9 | | -- | -- | 0.031 | | -- | -- | 0.075 | | 0.004 | J | -- | -- | -- | -- | -- | -- |
| Benzo(g,h,i)perylene | 191-24-2 | 180 | EPA (2022) | mg/kg | -- | -- | 0.0081 | U | -- | -- | 1.3 | | -- | -- | 0.01 | J | -- | -- | 0.035 | | 0.0074 | U | -- | -- | -- | -- | -- | -- |
| Benzo(k)fluoranthene | 207-08-9 | 11 | EPA (2022) | mg/kg | -- | -- | 0.0027 | J | -- | -- | 1.7 | | -- | -- | 0.0099 | J | -- | -- | 0.027 | | 0.0048 | U | -- | -- | -- | -- | -- | -- |
| Chrysene | 218-01-9 | 110 | EPA (2022) | mg/kg | -- | -- | 0.0044 | J | -- | -- | 4.9 | | -- | -- | 0.02 | | -- | -- | 0.052 | | 0.0028 | J | -- | -- | -- | -- | -- | -- |
| Dibenz(a,h)anthracene | 53-70-3 | 0.11 | EPA (2022) | mg/kg | -- | -- | 0.0081 | U | -- | -- | 0.44 | | -- | -- | 0.0082 | U | -- | -- | 0.0077 | U | 0.0074 | U | -- | -- | -- | -- | -- | -- |
| Fluoranthene | 206-44-0 | 240 | EPA (2022) | mg/kg | -- | -- | 0.0075 | J | -- | -- | 20 | | -- | -- | 0.029 | | -- | -- | 0.078 | | 0.0047 | J | -- | -- | -- | -- | -- | -- |
| Fluorene | 86-73-7 | 240 | EPA (2022) | mg/kg | -- | -- | 0.0014 | J | -- | -- | 4.3 | | -- | -- | 0.0017 | J | -- | -- | 0.0022 | J | 0.003 | U | -- | -- | -- | -- | -- | -- |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 1.1 | EPA (2022) | mg/kg | -- | -- | 0.0028 | J | -- | -- | 1.7 | | -- | -- | 0.012 | | -- | -- | 0.043 | | 0.0074 | U | -- | -- | -- | -- | -- | -- |
| Naphthalene | 91-20-3 | 2 | EPA (2022) | mg/kg | -- | -- | 0.0024 | U | -- | -- | 0.78 | | -- | -- | 0.012 | J+ | -- | -- | 0.0025 | J | 0.0022 | U | -- | -- | -- | -- | -- | -- |
| Phenanthrene | 85-01-8 | 1800 | EPA (2022) | mg/kg | -- | -- | 0.0052 | J | -- | -- | 27 | | -- | -- | 0.012 | | -- | -- | 0.022 | | 0.0074 | U | -- | -- | -- | -- | -- | -- |
| Pyrene | 129-00-0 | 180 | EPA (2022) | mg/kg | -- | -- | 0.0059 | J | -- | -- | 16 | | -- | -- | 0.029 | | -- | -- | 0.075 | | 0.0039 | J | -- | -- | -- | -- | -- | -- |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.24 | EPA (2022) | mg/kg | -- | -- | 0.0075 | U | -- | -- | 0.1 | J+ | -- | -- | 0.0082 | U | -- | -- | 0.0076 | UJ | 0.0081 | UJ | -- | -- | -- | -- | -- | -- |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | -- | -- | 10000 | | -- | -- | 6100 | | -- | -- | 11000 | | -- | -- | 7300 | | 9200 | | -- | -- | -- | -- | -- | -- |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | -- | -- | 0.19 | J+ | -- | -- | 0.24 | J | -- | -- | 0.24 | J+ | -- | -- | 0.3 | | 0.17 | J+ | -- | -- | -- | -- | -- | -- |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | -- | -- | 3 | | -- | -- | 3.8 | | -- | -- | 3.7 | | -- | -- | 3.6 | | 1.5 | | -- | -- | -- | -- | -- | -- |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | -- | -- | 0.38 | J | -- | -- | 0.73 | J+ | -- | -- | 0.36 | J | -- | -- | 0.46 | J+ | 0.18 | J | -- | -- | -- | -- | -- | -- |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | -- | -- | 0.083 | J | -- | -- | 0.49 | | -- | -- | 0.11 | | -- | -- | 0.55 | | 0.055 | J | -- | -- | -- | -- | -- | -- |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | -- | -- | 5.3 | | -- | -- | 3.8 | | -- | -- | 6.3 | | -- | -- | 6 | | 3 | | -- | -- | -- | -- | -- | -- |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | -- | -- | 13 | | -- | -- | 21 | | -- | -- | 9.8 | | -- | -- | 28 | | 6.8 | | -- | -- | -- | -- | -- | -- |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | -- | -- | 14000 | | -- | -- | 11000 | | -- | -- | 14000 | | -- | -- | 19000 | | 10000 | | -- | -- | -- | -- | -- | -- |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | -- | -- | 10 | | -- | -- | 28 | | -- | -- | 8.8 | | -- | -- | 38 | | 7.1 | | -- | -- | -- | -- | -- | -- |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | -- | -- | 420 | | -- | -- | 340 | | -- | -- | 370 | | -- | -- | 560 | J | 210 | J | -- | -- | -- | -- | -- | -- |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | -- | -- | 0.036 | | -- | -- | 0.059 | | -- | -- | 0.034 | | -- | -- | 0.045 | | 0.035 | | -- | -- | -- | -- | -- | -- |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | -- | -- | 10 | | -- | -- | 8.8 | | -- | -- | 9.8 | | -- | -- | 11 | | 6.5 | | -- | -- | -- | -- | -- | -- |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | -- | -- | 0.55 | J+ | -- | -- | 0.31 | J | -- | -- | 0.45 | J+ | -- | -- | 0.29 | J | 0.43 | J+ | -- | -- | -- | -- | -- | -- |
| Silver | 7440-22-4 | 39 | EPA (2022) | mg/kg | -- | -- | 0.63 | U | -- | -- | 0.88 | U | -- | -- | 0.59 | U | -- | -- | 1.4 | J+ | 0.62 | U | -- | -- | -- | -- | -- | -- |
| Thallium | 7440-28-0 | 0.078 | EPA (2022) | mg/kg | -- | -- | 0.073 | J | -- | -- | 0.11 | J | -- | -- | 0.083 | J | -- | -- | 0.13 | | 0.042 | J | -- | -- | -- | -- | -- | -- |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | -- | -- | 16 | | -- | -- | 14 | | -- | -- | 16 | | -- | -- | 16 | | 14 | | -- | -- | -- | -- | -- | -- |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | -- | -- | 33 | | -- | -- | 85 | | -- | -- | 28 | | -- | -- | 50 | | 25 | | -- | -- | -- | -- | -- | -- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-2
Human Health Sample by Sample Screening - AOC 3, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-03-018 | | NYOW-03-018 | |
|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-03-PH018-B | | NYOW-03-PH018-B_R | |
| | | | | Sample Type: | N | | N | |
| | | | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | |
| | | | | Sample Date: | 2021-04-01 | | 2021-05-04 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 2700 | EPA (2022) | mg/kg | -- | -- | 0.03 | J- |
| Acetone | 67-64-1 | 7000 | EPA (2022) | mg/kg | -- | -- | 0.32 | |
| Cumene | 98-82-8 | 190 | EPA (2022) | mg/kg | -- | -- | 0.0058 | U |
| Toluene | 108-88-3 | 490 | EPA (2022) | mg/kg | -- | -- | 0.00092 | U |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | |
| Benzaldehyde | 100-52-7 | 170 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | 39 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Carbazole | 86-74-8 | 240 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Cresols, m- & p- | cresols-m,p | 130 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Dibenzofuran | 132-64-9 | 7.8 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 18 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| 2-Methylnaphthalene | 91-57-6 | 24 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Acenaphthene | 83-32-9 | 360 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Acenaphthylene | 208-96-8 | 360 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Anthracene | 120-12-7 | 1800 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Benzo(a)anthracene | 56-55-3 | 1.1 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Benzo(a)pyrene | 50-32-8 | 0.11 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Benzo(b)fluoranthene | 205-99-2 | 1.1 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Benzo(g,h,i)perylene | 191-24-2 | 180 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Benzo(k)fluoranthene | 207-08-9 | 11 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Chrysene | 218-01-9 | 110 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Dibenz(a,h)anthracene | 53-70-3 | 0.11 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Fluoranthene | 206-44-0 | 240 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Fluorene | 86-73-7 | 240 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 1.1 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Naphthalene | 91-20-3 | 2 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Phenanthrene | 85-01-8 | 1800 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Pyrene | 129-00-0 | 180 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.24 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Metals (Total) | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Silver | 7440-22-4 | 39 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Thallium | 7440-28-0 | 0.078 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | -- | -- | -- | -- |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | -- | -- | -- | -- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-3
Human Health Sample by Sample Screening - AOC 5 (Boiler House), Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Location: | NYOW-05-016 | | NYOW-05-016 | | NYOW-05-016 | | NYOW-05-017-1 | | NYOW-05-017-1 | | NYOW-05-017-1 | | NYOW-05-018 | | NYOW-05-018 | | NYOW-05-018 | | NYOW-05-019 | | NYOW-05-019 | |
| | | | | Sample Name: | NYOW-05-SL016-A | | NYOW-05-PH016-B | | NYOW-05-PH016-C | | NYOW-05-SL017-1-A | | NYOW-05-PH017-1-B | | NYOW-05-PH017-1-C | | NYOW-05-SL018-A | | NYOW-05-PH018-B | | NYOW-05-PH018-C | | NYOW-05-SL019-A | | NYOW-05-PH019-B | |
| | | | | Sample Type: | N | | N | | N | | C | | C | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 6 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-11 | | 2021-01-11 | | 2021-01-11 | | 2021-01-11 | | 2021-01-11 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 18 | EPA (2022) | mg/kg | 0.012 | J+ | 0.0021 | U | 0.0023 | U | 0.002 | U | 0.0022 | U | 0.0022 | UJ | 0.0023 | UJ | 0.011 | J+ | 0.13 | | 0.01 | J+ | 0.0022 | UJ |
| 2-Methylnaphthalene | 91-57-6 | 24 | EPA (2022) | mg/kg | 0.012 | J+ | 0.0021 | U | 0.0023 | U | 0.01 | J+ | 0.0022 | U | 0.0022 | UJ | 0.0023 | UJ | 0.011 | J+ | 0.16 | | 0.01 | J+ | 0.0022 | UJ |
| Acenaphthene | 83-32-9 | 360 | EPA (2022) | mg/kg | 0.0013 | U | 0.0011 | U | 0.0012 | U | 0.0011 | U | 0.0011 | U | 0.0012 | UJ | 0.0012 | UJ | 0.0012 | U | 0.012 | J+ | 0.0011 | UJ | 0.0012 | UJ |
| Acenaphthylene | 208-96-8 | 360 | EPA (2022) | mg/kg | 0.012 | J+ | 0.0011 | U | 0.0012 | U | 0.01 | J+ | 0.0011 | U | 0.0012 | UJ | 0.0012 | UJ | 0.0012 | U | 0.012 | J+ | 0.0011 | UJ | 0.0012 | UJ |
| Anthracene | 120-12-7 | 1800 | EPA (2022) | mg/kg | 0.012 | J+ | 0.0046 | U | 0.0049 | U | 0.01 | J+ | 0.0047 | U | 0.0048 | UJ | 0.005 | UJ | 0.0049 | U | 0.012 | J+ | 0.0044 | UJ | 0.0047 | UJ |
| Benzo(a)anthracene | 56-55-3 | 1.1 | EPA (2022) | mg/kg | 0.031 | | 0.0046 | U | 0.0049 | U | 0.024 | | 0.0047 | U | 0.0048 | UJ | 0.0067 | J- | 0.011 | J+ | 0.042 | | 0.01 | J- | 0.0047 | UJ |
| Benzo(a)pyrene | 50-32-8 | 0.11 | EPA (2022) | mg/kg | 0.029 | | 0.0046 | U | 0.0049 | U | 0.024 | | 0.0047 | U | 0.0048 | UJ | 0.0061 | J- | 0.011 | J+ | 0.033 | | 0.01 | J- | 0.0047 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | 1.1 | EPA (2022) | mg/kg | 0.04 | | 0.0071 | U | 0.0076 | U | 0.035 | | 0.0072 | U | 0.0074 | UJ | 0.01 | J- | 0.011 | J+ | 0.048 | | 0.016 | J- | 0.011 | J+ |
| Benzo(g,h,i)perylene | 191-24-2 | 180 | EPA (2022) | mg/kg | 0.02 | | 0.0071 | U | 0.0076 | U | 0.017 | | 0.0072 | U | 0.0074 | UJ | 0.0076 | UJ | 0.011 | J+ | 0.024 | | 0.0075 | J- | 0.0073 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 11 | EPA (2022) | mg/kg | 0.016 | | 0.0046 | U | 0.0049 | U | 0.012 | | 0.0047 | U | 0.0048 | UJ | 0.0034 | J- | 0.011 | J+ | 0.016 | | 0.0055 | J- | 0.0047 | UJ |
| Chrysene | 218-01-9 | 110 | EPA (2022) | mg/kg | 0.034 | | 0.0046 | U | 0.0046 | J | 0.027 | | 0.0047 | U | 0.0048 | UJ | 0.0085 | J- | 0.0066 | J | 0.06 | | 0.012 | J- | 0.0023 | J- |
| Dibenz(a,h)anthracene | 53-70-3 | 0.11 | EPA (2022) | mg/kg | 0.012 | J+ | 0.0071 | U | 0.0076 | U | 0.01 | J+ | 0.0072 | U | 0.0074 | UJ | 0.0076 | UJ | 0.0075 | U | 0.012 | J+ | 0.0068 | UJ | 0.0073 | UJ |
| Fluoranthene | 206-44-0 | 240 | EPA (2022) | mg/kg | 0.056 | | 0.0046 | U | 0.0049 | U | 0.045 | | 0.0047 | U | 0.0048 | UJ | 0.013 | J- | 0.01 | J | 0.063 | | 0.017 | J- | 0.0033 | J- |
| Fluorene | 86-73-7 | 240 | EPA (2022) | mg/kg | 0.0032 | U | 0.0028 | U | 0.003 | U | 0.01 | J+ | 0.0029 | U | 0.003 | UJ | 0.0031 | UJ | 0.003 | U | 0.012 | J+ | 0.0027 | UJ | 0.0029 | UJ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 1.1 | EPA (2022) | mg/kg | 0.023 | | 0.0071 | U | 0.0076 | U | 0.02 | | 0.0072 | U | 0.0074 | UJ | 0.005 | J- | 0.011 | J+ | 0.024 | | 0.0085 | J- | 0.0073 | UJ |
| Naphthalene | 91-20-3 | 2 | EPA (2022) | mg/kg | 0.012 | J+ | 0.0021 | U | 0.0023 | U | 0.01 | J+ | 0.0022 | U | 0.0022 | UJ | 0.0023 | UJ | 0.011 | J+ | 0.1 | | 0.01 | J+ | 0.011 | J+ |
| Phenanthrene | 85-01-8 | 1800 | EPA (2022) | mg/kg | 0.019 | | 0.0071 | U | 0.0076 | U | 0.019 | | 0.0072 | U | 0.0074 | UJ | 0.0058 | J- | 0.011 | J+ | 0.12 | | 0.0061 | J- | 0.0073 | UJ |
| Pyrene | 129-00-0 | 180 | EPA (2022) | mg/kg | 0.055 | | 0.0071 | U | 0.0076 | U | 0.042 | | 0.0072 | U | 0.0074 | UJ | 0.013 | J- | 0.0099 | J | 0.067 | | 0.016 | J- | 0.0031 | J- |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | 6200 | | 9000 | | 9100 | | 5600 | | 9900 | | 11000 | | 5200 | | 5900 | | 8100 | | 5300 | | 5100 | |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | 0.2 | J+ | 0.19 | J+ | 0.12 | J | 0.17 | J+ | 0.18 | J+ | 0.15 | J | 0.22 | J+ | 0.16 | J+ | 0.2 | | 0.16 | J+ | 0.16 | J+ |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | 25 | | 12 | | 16 | | 6.3 | | 4.6 | | 4.2 | | 5.8 | | 9.5 | | 6.8 | | 5.8 | | 6.5 | |
| Barium | 7440-39-3 | 1500 | EPA (2022) | mg/kg | 53 | | 69 | | 73 | | 56 | | 68 | | 96 | | 53 | | 53 | | 53 | | 41 | | 52 | |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | 0.46 | J+ | 0.39 | J | 0.41 | J | 0.46 | J+ | 0.44 | J | 0.43 | J | 0.4 | J+ | 0.27 | J | 0.39 | J | 0.42 | J+ | 0.21 | J |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | 0.038 | J | 0.025 | J | 0.056 | J | 0.066 | J | 0.063 | J | 0.051 | J | 0.09 | J | 0.14 | | 0.1 | | 0.086 | | 0.039 | J |
| Chromium | 7440-47-3 | 12000 | EPA (2022) | mg/kg | 8.8 | | 12 | | 13 | | 7.5 | | 14 | | 15 | | 7.4 | | 8.4 | | 12 | | 7.2 | | 6.8 | |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | 5.8 | | 7.8 | | 7.9 | | 5.9 | | 8.2 | | 8.5 | | 5 | | 5.5 | | 6.7 | | 4.7 | | 5.3 | |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | 20 | | 16 | | 20 | | 19 | | 17 | | 18 | | 16 | | 17 | | 20 | | 14 | | 22 | |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | 15000 | | 20000 | | 19000 | | 18000 | | 18000 | | 19000 | | 15000 | | 16000 | | 17000 | | 14000 | | 16000 | |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | 7.5 | | 5.5 | | 6.5 | | 7.7 | | 7.5 | | 7.3 | | 7.6 | | 7.8 | | 13 | | 6.4 | | 6.3 | |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | 630 | | 390 | | 460 | | 710 | | 480 | | 590 | | 670 | | 670 | | 520 | | 490 | | 750 | |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | 0.033 | | 0.015 | U | 0.017 | U | 0.021 | U | 0.016 | U | 0.017 | U | 0.0075 | J | 0.015 | U | 0.2 | | 0.054 | | 0.015 | J |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | 11 | | 16 | | 16 | | 12 | | 18 | | 20 | | 10 | | 11 | | 14 | | 9.6 | | 11 | |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | 0.34 | U | 0.31 | U | 0.35 | U | 0.45 | J+ | 0.38 | U | 0.41 | J+ | 0.5 | J+ | 0.45 | J+ | 0.49 | J+ | 0.37 | J+ | 0.5 | J+ |
| Thallium | 7440-28-0 | 0.078 | EPA (2022) | mg/kg | 0.086 | U | 0.078 | U | 0.096 | | 0.1 | | 0.13 | | 0.083 | U | 0.099 | U | 0.14 | | 0.13 | | 0.073 | U | 0.099 | U |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | 13 | | 18 | | 19 | | 13 | | 19 | | 19 | | 12 | | 13 | | 15 | | 11 | | 11 | |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | 31 | | 31 | | 32 | | 28 | | 37 | | 38 | | 25 | | 26 | | 83 | | 25 | | 22 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-3
Human Health Sample by Sample Screening - AOC 5 (Boiler House), Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-019 | | NYOW-05-020 | | NYOW-05-020 | | NYOW-05-020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-PH019-C | | NYOW-05-SL020-A | | NYOW-05-PH020-B | | NYOW-05-PH020-C | |
| | | | | Sample Type: | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | | Sample Date: | 2021-01-11 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 18 | EPA (2022) | mg/kg | 0.0023 | U | 0.0022 | UJ | 0.012 | J+ | 0.0021 | U |
| 2-Methylnaphthalene | 91-57-6 | 24 | EPA (2022) | mg/kg | 0.0023 | U | 0.011 | J+ | 0.012 | J+ | 0.0015 | J |
| Acenaphthene | 83-32-9 | 360 | EPA (2022) | mg/kg | 0.0012 | U | 0.0012 | UJ | 0.0013 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | 360 | EPA (2022) | mg/kg | 0.0012 | U | 0.0012 | UJ | 0.0013 | U | 0.0011 | U |
| Anthracene | 120-12-7 | 1800 | EPA (2022) | mg/kg | 0.0051 | U | 0.0048 | UJ | 0.012 | J+ | 0.0046 | U |
| Benzo(a)anthracene | 56-55-3 | 1.1 | EPA (2022) | mg/kg | 0.0051 | U | 0.0076 | J- | 0.012 | J+ | 0.0046 | U |
| Benzo(a)pyrene | 50-32-8 | 0.11 | EPA (2022) | mg/kg | 0.0051 | U | 0.0079 | J- | 0.012 | J+ | 0.0046 | U |
| Benzo(b)fluoranthene | 205-99-2 | 1.1 | EPA (2022) | mg/kg | 0.0078 | U | 0.012 | J- | 0.012 | J+ | 0.0071 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 180 | EPA (2022) | mg/kg | 0.0078 | U | 0.0061 | J- | 0.012 | J+ | 0.0071 | U |
| Benzo(k)fluoranthene | 207-08-9 | 11 | EPA (2022) | mg/kg | 0.0051 | U | 0.0044 | J- | 0.012 | J+ | 0.0046 | U |
| Chrysene | 218-01-9 | 110 | EPA (2022) | mg/kg | 0.0051 | U | 0.0091 | J- | 0.015 | | 0.004 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.11 | EPA (2022) | mg/kg | 0.0078 | U | 0.0074 | UJ | 0.008 | U | 0.0071 | U |
| Fluoranthene | 206-44-0 | 240 | EPA (2022) | mg/kg | 0.0031 | J | 0.013 | J- | 0.02 | | 0.0046 | U |
| Fluorene | 86-73-7 | 240 | EPA (2022) | mg/kg | 0.0031 | U | 0.003 | UJ | 0.012 | J+ | 0.0028 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 1.1 | EPA (2022) | mg/kg | 0.0078 | U | 0.0064 | J- | 0.012 | J+ | 0.0071 | U |
| Naphthalene | 91-20-3 | 2 | EPA (2022) | mg/kg | 0.0014 | J | 0.011 | J+ | 0.012 | J+ | 0.0029 | J |
| Phenanthrene | 85-01-8 | 1800 | EPA (2022) | mg/kg | 0.0078 | U | 0.0051 | J- | 0.012 | J+ | 0.0071 | U |
| Pyrene | 129-00-0 | 180 | EPA (2022) | mg/kg | 0.0027 | J | 0.012 | J- | 0.017 | | 0.0023 | J |
| Metals (Total) | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | 9100 | | 5100 | J+ | 6300 | J+ | 10000 | J+ |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | 0.16 | J | 0.18 | J+ | 0.21 | J+ | 0.11 | U |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | 40 | | 4.8 | | 5.1 | | 3.7 | |
| Barium | 7440-39-3 | 1500 | EPA (2022) | mg/kg | 48 | | 49 | | 44 | | 130 | |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | 0.36 | J | 0.41 | J+ | 0.27 | J | 0.46 | |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | 0.098 | | 0.055 | J | 0.083 | J | 0.056 | J |
| Chromium | 7440-47-3 | 12000 | EPA (2022) | mg/kg | 12 | | 7.9 | | 9.5 | | 16 | |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | 7.8 | | 5.3 | | 6.3 | | 7.9 | |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | 17 | | 20 | | 17 | | 18 | |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | 17000 | | 15000 | | 15000 | | 19000 | |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | 7.1 | | 7.5 | | 28 | | 8.1 | |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | 460 | | 710 | | 480 | | 450 | |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | 0.045 | | 0.014 | J | 0.048 | | 0.017 | U |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | 17 | | 11 | | 14 | | 17 | |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | 0.44 | J+ | 0.41 | J+ | 0.48 | J+ | 0.42 | U |
| Thallium | 7440-28-0 | 0.078 | EPA (2022) | mg/kg | 0.71 | | 0.061 | J | 0.099 | | 0.098 | J |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | 16 | | 12 | | 13 | | 18 | |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | 34 | | 27 | | 150 | | 37 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-4
Human Health Sample by Sample Screening - AOC 5 (Coal Aggregate Bins), Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-021 | | NYOW-05-021 | | NYOW-05-021 | | NYOW-05-022 | | NYOW-05-022 | | NYOW-05-022 | | NYOW-05-023 | | NYOW-05-023 | | NYOW-05-023 | | NYOW-05-024 | | NYOW-05-024 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL021-A | | NYOW-05-PH021-B | | NYOW-05-PH021-C | | NYOW-05-SL022-A | | NYOW-05-PH022-B | | NYOW-05-PH022-C | | NYOW-05-SL023-A | | NYOW-05-PH023-B | | NYOW-05-PH023-C | | NYOW-05-SL024-A | | NYOW-05-PH024-B | |
| | | | | Sample Type: | N | | N | | N | | N | | C | | N | | C | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dibenzofuran | 132-64-9 | 7.8 | EPA (2022) | mg/kg | -- | -- | 0.079 | U | 0.079 | U | -- | -- | 0.073 | U | 0.077 | U | -- | -- | 0.076 | U | 0.074 | U | -- | -- | 0.38 | J+ |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 18 | EPA (2022) | mg/kg | 1.8 | | 0.014 | | 0.0022 | UJ | 0.0054 | J | 0.0021 | UJ | 0.0021 | U | 2.3 | | 0.008 | J | 0.0022 | U | 7.4 | | 0.083 | J- |
| 2-Methylnaphthalene | 91-57-6 | 24 | EPA (2022) | mg/kg | 2.5 | | 0.019 | | 0.0022 | UJ | 0.0071 | J | 0.0018 | J | 0.0021 | U | 3.2 | | 0.012 | | 0.0022 | U | 10 | | 0.13 | J- |
| Acenaphthene | 83-32-9 | 360 | EPA (2022) | mg/kg | 0.013 | U | 0.0012 | U | 0.0012 | UJ | 0.0013 | U | 0.0011 | UJ | 0.0011 | U | 0.065 | J- | 0.0011 | U | 0.0012 | U | 0.056 | U | 0.0013 | UJ |
| Acenaphthylene | 208-96-8 | 360 | EPA (2022) | mg/kg | 0.054 | J | 0.011 | J+ | 0.0012 | UJ | 0.0036 | J | 0.011 | J+ | 0.0011 | U | 0.37 | | 0.011 | J+ | 0.0012 | U | 0.056 | U | 0.0013 | UJ |
| Anthracene | 120-12-7 | 1800 | EPA (2022) | mg/kg | 0.062 | J | 0.011 | J+ | 0.0048 | UJ | 0.0036 | J | 0.0045 | UJ | 0.0046 | U | 0.22 | J | 0.011 | J+ | 0.0048 | U | 0.23 | U | 0.0051 | UJ |
| Benzo(a)anthracene | 56-55-3 | 1.1 | EPA (2022) | mg/kg | 0.21 | | 0.011 | | 0.0048 | UJ | 0.019 | | 0.0026 | J | 0.011 | J+ | 0.39 | | 0.016 | | 0.0048 | U | 0.44 | J | 0.0081 | J- |
| Benzo(a)pyrene | 50-32-8 | 0.11 | EPA (2022) | mg/kg | 0.12 | | 0.0096 | J | 0.0048 | UJ | 0.022 | | 0.0029 | J | 0.011 | J+ | 0.79 | | 0.016 | | 0.0048 | U | 0.18 | J | 0.006 | J- |
| Benzo(b)fluoranthene | 205-99-2 | 1.1 | EPA (2022) | mg/kg | 0.21 | | 0.02 | | 0.0074 | UJ | 0.034 | | 0.0055 | J | 0.011 | J+ | 1.4 | | 0.027 | | 0.0073 | U | 0.28 | J | 0.011 | J- |
| Benzo(g,h,i)perylene | 191-24-2 | 180 | EPA (2022) | mg/kg | 0.13 | | 0.012 | | 0.0074 | UJ | 0.022 | | 0.017 | J | 0.011 | J+ | 4.7 | | 0.046 | | 0.0073 | U | 0.35 | U | 0.0053 | J- |
| Benzo(k)fluoranthene | 207-08-9 | 11 | EPA (2022) | mg/kg | 0.063 | J | 0.011 | J+ | 0.0048 | UJ | 0.012 | | 0.0045 | UJ | 0.011 | J+ | 0.4 | | 0.011 | J+ | 0.0048 | U | 0.23 | U | 0.012 | J+ |
| Chrysene | 218-01-9 | 110 | EPA (2022) | mg/kg | 0.25 | | 0.016 | | 0.0048 | UJ | 0.024 | | 0.004 | J | 0.011 | J+ | 1.1 | | 0.025 | | 0.0048 | U | 0.57 | | 0.011 | J- |
| Dibenz(a,h)anthracene | 53-70-3 | 0.11 | EPA (2022) | mg/kg | 0.081 | U | 0.0076 | U | 0.0074 | UJ | 0.0047 | J | 0.0069 | UJ | 0.0071 | U | 0.88 | | 0.011 | J+ | 0.0073 | U | 0.35 | U | 0.0078 | UJ |
| Fluoranthene | 206-44-0 | 240 | EPA (2022) | mg/kg | 0.31 | | 0.019 | | 0.0048 | UJ | 0.034 | | 0.0043 | J | 0.011 | J+ | 0.32 | | 0.03 | | 0.0048 | U | 0.46 | J | 0.012 | J- |
| Fluorene | 86-73-7 | 240 | EPA (2022) | mg/kg | 0.031 | J | 0.003 | U | 0.003 | UJ | 0.0013 | J | 0.0028 | UJ | 0.0029 | U | 0.041 | J- | 0.011 | J+ | 0.0029 | U | 0.11 | J | 0.012 | J+ |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 1.1 | EPA (2022) | mg/kg | 0.11 | J | 0.011 | | 0.0074 | UJ | 0.026 | | 0.013 | J | 0.011 | J+ | 3.4 | | 0.035 | | 0.0073 | U | 0.35 | U | 0.0052 | J- |
| Naphthalene | 91-20-3 | 2 | EPA (2022) | mg/kg | 1.8 | | 0.019 | | 0.011 | J+ | 0.009 | J | 0.0039 | J | 0.011 | J+ | 2.6 | | 0.02 | | 0.011 | J+ | 7.1 | | 0.11 | J- |
| Phenanthrene | 85-01-8 | 1800 | EPA (2022) | mg/kg | 0.98 | | 0.013 | | 0.0074 | UJ | 0.014 | | 0.0069 | UJ | 0.0071 | U | 1.1 | | 0.022 | | 0.0073 | U | 3.9 | | 0.034 | J- |
| Pyrene | 129-00-0 | 180 | EPA (2022) | mg/kg | 0.34 | | 0.018 | | 0.0074 | UJ | 0.031 | | 0.004 | J | 0.011 | J+ | 0.41 | | 0.027 | | 0.0073 | U | 0.73 | | 0.012 | J- |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | 5700 | J+ | 8800 | J+ | 5900 | J+ | 8000 | J+ | 5400 | J+ | 7100 | J+ | 4000 | J+ | 6900 | J+ | 6900 | J+ | 1400 | J+ | 6500 | J+ |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | 0.25 | | 0.21 | | 0.21 | J+ | 0.15 | J | 0.15 | | 0.16 | J+ | 0.33 | | 0.17 | J | 0.21 | J+ | 0.19 | J | 0.095 | J |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | 10 | | 7.4 | | 3.3 | | 5.4 | | 5.8 | | 5.8 | | 13 | | 6.9 | | 3.5 | | 16 | | 6.3 | |
| Barium | 7440-39-3 | 1500 | EPA (2022) | mg/kg | 52 | | 78 | | 75 | | 54 | J+ | 41 | | 45 | | 37 | | 51 | | 45 | | 27 | | 48 | |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | 0.42 | J | 0.44 | J+ | 0.61 | J+ | 0.39 | J- | 0.39 | J+ | 0.46 | J+ | 0.29 | J | 0.47 | J+ | 0.5 | J+ | 0.63 | | 0.54 | J+ |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | 0.25 | | 0.25 | | 0.036 | J | 0.15 | | 0.14 | | 0.1 | | 0.37 | | 0.21 | | 0.038 | J | 0.11 | J | 0.1 | |
| Chromium | 7440-47-3 | 12000 | EPA (2022) | mg/kg | 8.3 | | 9.9 | | 8.5 | | 13 | J- | 7 | | 9.8 | | 8.2 | | 7.7 | | 10 | | 5.8 | | 8.6 | |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | 6.4 | | 9 | | 6.3 | | 7.5 | J- | 5 | | 7.3 | | 4.9 | | 6.3 | | 6.4 | | 1.8 | | 6 | |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | 20 | | 34 | | 19 | | 22 | | 22 | | 17 | | 17 | | 20 | | 18 | | 10 | | 24 | |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | 17000 | | 31000 | | 18000 | | 21000 | J | 19000 | | 16000 | | 13000 | | 20000 | | 16000 | | 11000 | | 20000 | |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | 21 | | 18 | | 14 | | 8.6 | J- | 11 | J | 5.8 | | 17 | | 15 | | 6.6 | | 8.9 | | 8.8 | |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | 650 | | 2400 | | 1100 | J | 660 | J | 920 | | 490 | | 420 | | 910 | | 610 | | 110 | | 820 | |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | 0.11 | | 0.084 | | 0.023 | J+ | 0.03 | | 0.032 | | 0.016 | U | 0.077 | | 0.076 | | 0.022 | J+ | 0.064 | | 0.033 | |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | 13 | | 14 | | 13 | | 15 | | 9.4 | | 15 | | 12 | | 10 | | 14 | | 6.1 | | 11 | |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | 0.9 | | 0.54 | J+ | 0.34 | UJ | 0.22 | J | 0.46 | J+ | 0.46 | J+ | 0.65 | | 0.55 | J+ | 0.45 | U | 0.83 | | 0.43 | J+ |
| Thallium | 7440-28-0 | 0.078 | EPA (2022) | mg/kg | 0.18 | | 0.12 | | 0.082 | J | 0.11 | U | 0.092 | U | 0.092 | U | 0.24 | | 0.11 | U | 0.11 | U | 0.26 | | 0.087 | U |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | 15 | | 18 | | 16 | | 17 | | 12 | | 14 | | 11 | | 15 | | 13 | | 7.6 | | 14 | |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | 55 | | 66 | | 44 | J+ | 36 | J- | 29 | | 28 | | 54 | | 37 | | 29 | | 16 | | 30 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-4
Human Health Sample by Sample Screening - AOC 5 (Coal Aggregate Bins), Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-024 | | NYOW-05-025 | | NYOW-05-025 | | NYOW-05-025 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-PH024-C | | NYOW-05-SL025-A | | NYOW-05-PH025-B | | NYOW-05-PH025-C | |
| | | | | Sample Type: | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | | Sample Date: | 2021-01-08 | | 2021-01-11 | | 2021-01-11 | | 2021-01-11 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| Dibenzofuran | 132-64-9 | 7.8 | EPA (2022) | mg/kg | 0.073 | U | -- | -- | 0.076 | U | 0.079 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 18 | EPA (2022) | mg/kg | 0.011 | J+ | 0.077 | | 0.0022 | J | 0.0023 | U |
| 2-Methylnaphthalene | 91-57-6 | 24 | EPA (2022) | mg/kg | 0.011 | J+ | 0.089 | | 0.0028 | J | 0.0023 | U |
| Acenaphthene | 83-32-9 | 360 | EPA (2022) | mg/kg | 0.0012 | UJ | 0.0013 | U | 0.0013 | U | 0.0013 | U |
| Acenaphthylene | 208-96-8 | 360 | EPA (2022) | mg/kg | 0.0012 | UJ | 0.0081 | J | 0.0013 | U | 0.0013 | U |
| Anthracene | 120-12-7 | 1800 | EPA (2022) | mg/kg | 0.0048 | UJ | 0.0048 | J | 0.0052 | U | 0.0051 | U |
| Benzo(a)anthracene | 56-55-3 | 1.1 | EPA (2022) | mg/kg | 0.0048 | UJ | 0.019 | J+ | 0.0025 | J | 0.0051 | U |
| Benzo(a)pyrene | 50-32-8 | 0.11 | EPA (2022) | mg/kg | 0.0048 | UJ | 0.023 | | 0.0032 | J | 0.0051 | U |
| Benzo(b)fluoranthene | 205-99-2 | 1.1 | EPA (2022) | mg/kg | 0.0074 | UJ | 0.059 | | 0.0067 | J | 0.0078 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 180 | EPA (2022) | mg/kg | 0.0074 | UJ | 0.065 | | 0.011 | J | 0.0078 | U |
| Benzo(k)fluoranthene | 207-08-9 | 11 | EPA (2022) | mg/kg | 0.0048 | UJ | 0.014 | | 0.0052 | U | 0.0051 | U |
| Chrysene | 218-01-9 | 110 | EPA (2022) | mg/kg | 0.0048 | UJ | 0.04 | J+ | 0.0062 | J | 0.0051 | U |
| Dibenz(a,h)anthracene | 53-70-3 | 0.11 | EPA (2022) | mg/kg | 0.0074 | UJ | 0.012 | | 0.0079 | U | 0.0078 | U |
| Fluoranthene | 206-44-0 | 240 | EPA (2022) | mg/kg | 0.0048 | UJ | 0.029 | J+ | 0.0048 | J | 0.0051 | U |
| Fluorene | 86-73-7 | 240 | EPA (2022) | mg/kg | 0.003 | UJ | 0.0021 | J | 0.0032 | U | 0.0031 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 1.1 | EPA (2022) | mg/kg | 0.0074 | UJ | 0.05 | | 0.01 | J | 0.0078 | U |
| Naphthalene | 91-20-3 | 2 | EPA (2022) | mg/kg | 0.011 | J+ | 0.063 | | 0.0027 | J | 0.0023 | U |
| Phenanthrene | 85-01-8 | 1800 | EPA (2022) | mg/kg | 0.0074 | UJ | 0.057 | | 0.0041 | J | 0.0078 | U |
| Pyrene | 129-00-0 | 180 | EPA (2022) | mg/kg | 0.0074 | UJ | 0.029 | J+ | 0.0041 | J | 0.0078 | U |
| Metals (Total) | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | 6100 | J+ | 5600 | | 9000 | | 9000 | |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | 0.16 | J+ | 0.16 | J | 0.16 | J | 0.21 | J+ |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | 4.1 | | 4.6 | | 5.4 | | 9.7 | |
| Barium | 7440-39-3 | 1500 | EPA (2022) | mg/kg | 48 | | 34 | | 66 | | 61 | |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | 0.4 | J+ | 0.28 | J- | 2.3 | J+ | 0.41 | J+ |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | 0.021 | J | 0.1 | J | 0.11 | | 0.086 | J |
| Chromium | 7440-47-3 | 12000 | EPA (2022) | mg/kg | 9.2 | | 8.6 | J- | 11 | | 13 | |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | 5.4 | | 5.2 | J- | 7.6 | | 7.5 | |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | 14 | | 14 | | 21 | | 18 | |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | 14000 | | 14000 | | 24000 | | 20000 | |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | 4.7 | | 8.9 | J- | 11 | | 7.3 | |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | 480 | | 410 | J | 1100 | | 480 | |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | 0.017 | U | 0.026 | | 0.051 | | 0.023 | J+ |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | 11 | | 11 | J- | 14 | | 17 | |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | 0.35 | U | 0.31 | J | 0.42 | J+ | 0.44 | J+ |
| Thallium | 7440-28-0 | 0.078 | EPA (2022) | mg/kg | 0.088 | U | 0.12 | | 0.11 | | 0.1 | |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | 12 | | 13 | | 17 | | 17 | |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | 22 | | 34 | J- | 36 | | 33 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-5
Human Health Sample by Sample Screening - AOC 5 (Coal Storage Area), Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Location: | NYOW-05-006 | | NYOW-05-006 | | NYOW-05-006 | | NYOW-05-007 | | NYOW-05-007 | | NYOW-05-007 | | NYOW-05-008 | | NYOW-05-008 | | NYOW-05-008 | | NYOW-05-009 | | NYOW-05-009 | |
| | | | | Sample Name: | NYOW-05-SL006-A | | NYOW-05-PH006-B | | NYOW-05-PH006-C | | NYOW-05-SL007-A | | NYOW-05-PH007-B | | NYOW-05-PH007-C | | NYOW-05-SL008-A | | NYOW-05-PH008-B | | NYOW-05-PH008-C | | NYOW-05-SL009-A | | NYOW-05-PH009-B | |
| | | | | Sample Type: | N | | N | | N | | N | | C | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 18 | EPA (2022) | mg/kg | 5.7 | | 0.0024 | U | 0.0023 | U | 10 | | 0.002 | UJ | 0.0023 | UJ | 6 | | 0.01 | J+ | 0.011 | J+ | 0.12 | | 0.0023 | U |
| 2-Methylnaphthalene | 91-57-6 | 24 | EPA (2022) | mg/kg | 7.7 | | 0.0024 | U | 0.011 | J+ | 14 | | 0.002 | UJ | 0.0023 | UJ | 4.8 | | 0.01 | J+ | 0.011 | J+ | 0.086 | | 0.0023 | U |
| Acenaphthene | 83-32-9 | 360 | EPA (2022) | mg/kg | 0.037 | U | 0.0013 | U | 0.0012 | U | 0.32 | J+ | 0.0011 | UJ | 0.0012 | UJ | 0.34 | J+ | 0.0011 | U | 0.0012 | U | 0.0016 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | 360 | EPA (2022) | mg/kg | 0.35 | J+ | 0.0013 | U | 0.0012 | U | 0.32 | J+ | 0.0011 | UJ | 0.0012 | UJ | 0.34 | J+ | 0.0011 | U | 0.0012 | U | 0.015 | J+ | 0.0012 | U |
| Anthracene | 120-12-7 | 1800 | EPA (2022) | mg/kg | 0.35 | J+ | 0.0052 | U | 0.005 | U | 0.32 | J+ | 0.0043 | UJ | 0.0049 | UJ | 0.34 | J+ | 0.0045 | U | 0.0049 | U | 0.0066 | U | 0.0049 | U |
| Benzo(a)anthracene | 56-55-3 | 1.1 | EPA (2022) | mg/kg | 0.27 | J | 0.0052 | U | 0.005 | U | 0.75 | | 0.0043 | UJ | 0.0026 | J- | 0.61 | | 0.0045 | U | 0.0049 | U | 0.044 | | 0.0049 | U |
| Benzo(a)pyrene | 50-32-8 | 0.11 | EPA (2022) | mg/kg | 0.12 | J | 0.0052 | U | 0.005 | U | 0.38 | | 0.0043 | UJ | 0.0019 | J- | 0.31 | J | 0.0045 | U | 0.0049 | U | 0.032 | | 0.0049 | U |
| Benzo(b)fluoranthene | 205-99-2 | 1.1 | EPA (2022) | mg/kg | 0.19 | J | 0.008 | U | 0.0076 | U | 0.46 | | 0.0067 | UJ | 0.0065 | J- | 0.43 | | 0.0069 | U | 0.0076 | U | 0.1 | | 0.0076 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 180 | EPA (2022) | mg/kg | 0.23 | U | 0.008 | U | 0.0076 | U | 0.28 | J | 0.0067 | UJ | 0.0075 | UJ | 0.25 | J | 0.0069 | U | 0.0076 | U | 0.027 | | 0.0076 | U |
| Benzo(k)fluoranthene | 207-08-9 | 11 | EPA (2022) | mg/kg | 0.15 | U | 0.0052 | U | 0.005 | U | 0.32 | J+ | 0.0043 | UJ | 0.0049 | UJ | 0.34 | J+ | 0.0045 | U | 0.0049 | U | 0.015 | J+ | 0.0049 | U |
| Chrysene | 218-01-9 | 110 | EPA (2022) | mg/kg | 0.35 | | 0.0052 | U | 0.005 | U | 0.91 | | 0.0043 | UJ | 0.0057 | J- | 1 | | 0.0045 | U | 0.0049 | U | 0.31 | | 0.0049 | U |
| Dibenz(a,h)anthracene | 53-70-3 | 0.11 | EPA (2022) | mg/kg | 0.23 | U | 0.008 | U | 0.0076 | U | 0.22 | U | 0.0067 | UJ | 0.0075 | UJ | 0.23 | U | 0.0069 | U | 0.0076 | U | 0.018 | | 0.0076 | U |
| Fluoranthene | 206-44-0 | 240 | EPA (2022) | mg/kg | 0.32 | J | 0.0052 | U | 0.005 | U | 0.66 | | 0.0043 | UJ | 0.0049 | UJ | 0.76 | | 0.0045 | U | 0.0049 | U | 0.1 | | 0.0049 | U |
| Fluorene | 86-73-7 | 240 | EPA (2022) | mg/kg | 0.096 | J | 0.0032 | U | 0.003 | U | 0.17 | J | 0.0027 | UJ | 0.003 | UJ | 0.26 | J | 0.0028 | U | 0.003 | U | 0.03 | | 0.003 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 1.1 | EPA (2022) | mg/kg | 0.23 | U | 0.008 | U | 0.0076 | U | 0.11 | J | 0.0067 | UJ | 0.0075 | UJ | 0.08 | J | 0.0069 | U | 0.0076 | U | 0.019 | | 0.0076 | U |
| Naphthalene | 91-20-3 | 2 | EPA (2022) | mg/kg | 5.6 | | 0.0024 | U | 0.011 | J+ | 9.2 | | 0.01 | J+ | 0.011 | J+ | 2 | | 0.01 | J+ | 0.011 | J+ | 0.039 | | 0.0023 | U |
| Phenanthrene | 85-01-8 | 1800 | EPA (2022) | mg/kg | 2.3 | | 0.008 | U | 0.0076 | U | 5.3 | | 0.0067 | UJ | 0.0075 | UJ | 4.2 | | 0.0069 | U | 0.0076 | U | 0.34 | | 0.0076 | U |
| Pyrene | 129-00-0 | 180 | EPA (2022) | mg/kg | 0.45 | | 0.008 | U | 0.0076 | U | 0.98 | | 0.0067 | UJ | 0.0075 | UJ | 0.99 | | 0.0069 | U | 0.0076 | U | 0.13 | | 0.0076 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | 2500 | J+ | 5400 | J+ | 5900 | J+ | 2600 | | 4700 | | 5900 | | 2700 | | 6500 | | 8200 | | 2800 | | 3600 | |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | 0.32 | | 0.17 | J+ | 0.085 | U | 0.24 | J | 0.17 | J+ | 0.1 | U | 0.46 | | 0.16 | J+ | 0.21 | J+ | 0.16 | J | 0.087 | U |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | 24 | | 3.9 | | 4 | | 19 | | 2.8 | | 3.3 | | 12 | | 4 | | 5.8 | | 9.7 | | 5.1 | |
| Barium | 7440-39-3 | 1500 | EPA (2022) | mg/kg | 34 | | 46 | | 48 | | 43 | | 39 | | 43 | | 37 | | 36 | | 59 | | 45 | | 37 | |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | 0.68 | J+ | 0.43 | J+ | 0.49 | J+ | 0.75 | J+ | 0.46 | J+ | 0.54 | J+ | 0.59 | J+ | 0.42 | J+ | 0.42 | J+ | 0.67 | J+ | 0.5 | J+ |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | 0.23 | | 0.17 | | 0.08 | J+ | 0.38 | | 0.029 | J | 0.09 | J+ | 0.21 | | 0.04 | J | 0.11 | J+ | 0.19 | | 0.038 | J |
| Chromium | 7440-47-3 | 12000 | EPA (2022) | mg/kg | 7.2 | | 7.2 | | 8.8 | | 6 | | 6.5 | | 9.3 | | 6.6 | | 8.9 | | 12 | | 6 | | 5 | |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | 6.6 | | 4.8 | | 6.5 | | 4.2 | | 3.9 | | 6.1 | | 2.1 | | 4.9 | | 7.4 | | 2.4 | | 3.5 | |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | 22 | | 13 | | 13 | | 22 | | 14 | | 13 | | 9.8 | | 19 | | 16 | | 7.4 | | 9.3 | |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | 16000 | | 16000 | | 19000 | | 13000 | | 10000 | | 14000 | | 12000 | | 14000 | | 18000 | | 8100 | | 9500 | |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | 21 | | 7.2 | | 4.6 | | 18 | | 3 | | 5.3 | | 18 | | 4.7 | | 5.7 | | 13 | | 3.1 | |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | 320 | | 630 | | 780 | | 270 | | 440 | | 400 | | 110 | | 360 | | 510 | | 330 | | 340 | |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | 0.086 | | 0.031 | | 0.016 | U | 0.093 | | 0.017 | U | 0.017 | U | 0.19 | | 0.015 | U | 0.016 | U | 0.1 | | 0.017 | U |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | 13 | | 8.2 | | 13 | | 9.2 | | 8.3 | | 13 | | 4.9 | | 11 | | 16 | | 5.4 | | 5.5 | |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | 1 | | 0.46 | J+ | 0.32 | U | 0.98 | | 0.36 | U | 0.36 | U | 1.5 | | 0.38 | U | 0.43 | U | 0.64 | J | 0.39 | U |
| Thallium | 7440-28-0 | 0.078 | EPA (2022) | mg/kg | 0.34 | | 0.092 | U | 0.08 | U | 0.34 | | 0.09 | J+ | 0.09 | J+ | 0.6 | | 0.094 | J+ | 0.11 | J+ | 0.24 | | 0.096 | J+ |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | 12 | | 13 | | 12 | | 10 | | 9.8 | | 12 | | 15 | | 13 | | 17 | | 11 | | 8.7 | |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | 44 | | 24 | | 23 | | 58 | | 19 | | 25 | | 35 | | 23 | | 29 | | 28 | | 15 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-5
Human Health Sample by Sample Screening - AOC 5 (Coal Storage Area), Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-009 | | NYOW-05-010 | | NYOW-05-010 | | NYOW-05-010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-PH009-C | | NYOW-05-SL010-A | | NYOW-05-PH010-B | | NYOW-05-PH010-C | |
| | | | | Sample Type: | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | | Sample Date: | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 18 | EPA (2022) | mg/kg | 0.0022 | U | 0.039 | J- | 0.0021 | U | 0.0021 | U |
| 2-Methylnaphthalene | 91-57-6 | 24 | EPA (2022) | mg/kg | 0.0022 | U | 0.017 | | 0.0021 | U | 0.0021 | U |
| Acenaphthene | 83-32-9 | 360 | EPA (2022) | mg/kg | 0.0012 | U | 0.012 | J+ | 0.0011 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | 360 | EPA (2022) | mg/kg | 0.0012 | U | 0.012 | J+ | 0.0011 | U | 0.0011 | U |
| Anthracene | 120-12-7 | 1800 | EPA (2022) | mg/kg | 0.0049 | U | 0.005 | U | 0.0045 | U | 0.011 | J+ |
| Benzo(a)anthracene | 56-55-3 | 1.1 | EPA (2022) | mg/kg | 0.0049 | U | 0.036 | | 0.0045 | U | 0.019 | |
| Benzo(a)pyrene | 50-32-8 | 0.11 | EPA (2022) | mg/kg | 0.0049 | U | 0.014 | | 0.0045 | U | 0.011 | |
| Benzo(b)fluoranthene | 205-99-2 | 1.1 | EPA (2022) | mg/kg | 0.0075 | U | 0.06 | J- | 0.01 | J+ | 0.039 | |
| Benzo(g,h,i)perylene | 191-24-2 | 180 | EPA (2022) | mg/kg | 0.0075 | U | 0.016 | | 0.0069 | U | 0.011 | |
| Benzo(k)fluoranthene | 207-08-9 | 11 | EPA (2022) | mg/kg | 0.0049 | U | 0.012 | J+ | 0.0045 | U | 0.012 | |
| Chrysene | 218-01-9 | 110 | EPA (2022) | mg/kg | 0.0049 | U | 0.18 | J- | 0.0045 | U | 0.036 | |
| Dibenz(a,h)anthracene | 53-70-3 | 0.11 | EPA (2022) | mg/kg | 0.0075 | U | 0.013 | | 0.0069 | U | 0.011 | J+ |
| Fluoranthene | 206-44-0 | 240 | EPA (2022) | mg/kg | 0.0049 | U | 0.044 | | 0.0045 | U | 0.023 | |
| Fluorene | 86-73-7 | 240 | EPA (2022) | mg/kg | 0.003 | U | 0.012 | | 0.0027 | U | 0.0028 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 1.1 | EPA (2022) | mg/kg | 0.0075 | U | 0.0069 | J | 0.0069 | U | 0.012 | |
| Naphthalene | 91-20-3 | 2 | EPA (2022) | mg/kg | 0.011 | J+ | 0.017 | J- | 0.0021 | U | 0.0021 | U |
| Phenanthrene | 85-01-8 | 1800 | EPA (2022) | mg/kg | 0.0075 | U | 0.16 | J- | 0.0069 | U | 0.011 | J+ |
| Pyrene | 129-00-0 | 180 | EPA (2022) | mg/kg | 0.0075 | U | 0.068 | J- | 0.0069 | U | 0.023 | |
| Metals (Total) | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | 2000 | | 4800 | J | 5600 | | 7000 | |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | 0.1 | U | 0.11 | UJ | 0.2 | J+ | 0.18 | J+ |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | 6.2 | | 4.5 | | 26 | | 79 | |
| Barium | 7440-39-3 | 1500 | EPA (2022) | mg/kg | 28 | | 65 | | 110 | | 76 | |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | 0.44 | J+ | 0.47 | J+ | 0.53 | J+ | 0.46 | J+ |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | 0.086 | J+ | 0.11 | | 0.026 | J | 0.095 | J+ |
| Chromium | 7440-47-3 | 12000 | EPA (2022) | mg/kg | 3.8 | | 7.2 | | 7.3 | | 9.8 | |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | 2.7 | | 3.4 | | 8 | | 8.4 | |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | 11 | | 5.3 | | 27 | | 15 | |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | 8500 | | 14000 | | 25000 | | 26000 | |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | 2.4 | | 4.2 | | 4.5 | | 4.3 | |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | 320 | | 400 | J- | 870 | | 480 | |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | 0.018 | U | 0.11 | | 0.016 | U | 0.017 | U |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | 5 | | 5.7 | | 14 | | 16 | |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | 0.34 | U | 0.4 | J | 0.38 | U | 0.38 | U |
| Thallium | 7440-28-0 | 0.078 | EPA (2022) | mg/kg | 0.086 | J+ | 0.18 | | 0.096 | J+ | 0.095 | J+ |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | 5.9 | | 15 | | 13 | | 11 | |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | 11 | | 14 | | 27 | | 21 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-6
Human Health Sample by Sample Screening - AOC 5 (Electric Substation), Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Location: | NYOW-05-011 | | NYOW-05-011 | | NYOW-05-011 | | NYOW-05-012 | | NYOW-05-012 | | NYOW-05-012 | | NYOW-05-013 | | NYOW-05-013 | | NYOW-05-013 | | NYOW-05-014 | | NYOW-05-014 | |
| | | | | Sample Name: | NYOW-05-SL011-A | | NYOW-05-PH011-B | | NYOW-05-PH011-C | | NYOW-05-SL012-A | | NYOW-05-PH012-B | | NYOW-05-PH012-C | | NYOW-05-SL013-A | | NYOW-05-PH013-B | | NYOW-05-PH013-C | | NYOW-05-SL014-A | | NYOW-05-PH014-B | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | C | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 18 | EPA (2022) | mg/kg | 0.011 | J+ | 0.0023 | U | 0.0023 | U | 0.012 | J+ | 0.0023 | U | 0.0022 | U | 0.012 | J+ | 0.01 | J+ | 0.0021 | U | 0.011 | J+ | 0.0022 | U |
| 2-Methylnaphthalene | 91-57-6 | 24 | EPA (2022) | mg/kg | 0.018 | | 0.0023 | U | 0.0023 | U | 0.003 | J | 0.012 | J+ | 0.0022 | U | 0.0019 | J | 0.01 | J+ | 0.0021 | U | 0.0029 | J | 0.011 | J+ |
| Acenaphthene | 83-32-9 | 360 | EPA (2022) | mg/kg | 0.011 | J+ | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0011 | U | 0.0011 | U | 0.0011 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | 360 | EPA (2022) | mg/kg | 0.011 | J+ | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0011 | U | 0.0011 | U | 0.011 | J+ | 0.0012 | U |
| Anthracene | 120-12-7 | 1800 | EPA (2022) | mg/kg | 0.011 | J+ | 0.0049 | U | 0.0051 | U | 0.012 | J+ | 0.005 | U | 0.0048 | U | 0.012 | J+ | 0.01 | J+ | 0.0046 | U | 0.011 | J+ | 0.0047 | U |
| Benzo(a)anthracene | 56-55-3 | 1.1 | EPA (2022) | mg/kg | 0.0098 | J | 0.0049 | U | 0.024 | | 0.012 | | 0.005 | U | 0.0048 | U | 0.012 | | 0.01 | J+ | 0.0046 | U | 0.013 | | 0.0047 | U |
| Benzo(a)pyrene | 50-32-8 | 0.11 | EPA (2022) | mg/kg | 0.011 | J- | 0.0049 | UJ | 0.032 | J- | 0.013 | J- | 0.005 | UJ | 0.0048 | UJ | 0.012 | J- | 0.01 | J+ | 0.0046 | UJ | 0.017 | J- | 0.0047 | UJ |
| Benzo(b)fluoranthene | 205-99-2 | 1.1 | EPA (2022) | mg/kg | 0.02 | | 0.0076 | U | 0.05 | | 0.023 | | 0.0077 | U | 0.0074 | U | 0.019 | | 0.015 | | 0.0071 | U | 0.024 | | 0.003 | J |
| Benzo(g,h,i)perylene | 191-24-2 | 180 | EPA (2022) | mg/kg | 0.0083 | J- | 0.0076 | UJ | 0.023 | J- | 0.013 | J- | 0.0077 | UJ | 0.0074 | UJ | 0.0098 | J- | 0.01 | J+ | 0.0071 | UJ | 0.012 | J- | 0.0072 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 11 | EPA (2022) | mg/kg | 0.0072 | J | 0.0049 | U | 0.021 | | 0.0084 | J | 0.005 | U | 0.0048 | U | 0.0074 | J | 0.01 | J+ | 0.0046 | U | 0.01 | J | 0.0047 | U |
| Chrysene | 218-01-9 | 110 | EPA (2022) | mg/kg | 0.014 | | 0.0049 | U | 0.04 | | 0.017 | | 0.003 | J | 0.0067 | J | 0.015 | | 0.015 | | 0.0046 | U | 0.018 | | 0.0023 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.11 | EPA (2022) | mg/kg | 0.0073 | UJ | 0.0076 | UJ | 0.012 | J+ | 0.0077 | UJ | 0.0077 | UJ | 0.0074 | UJ | 0.0078 | UJ | 0.0069 | UJ | 0.0071 | UJ | 0.0032 | J- | 0.0072 | UJ |
| Fluoranthene | 206-44-0 | 240 | EPA (2022) | mg/kg | 0.02 | | 0.0026 | J | 0.041 | | 0.025 | | 0.005 | U | 0.0048 | U | 0.019 | | 0.015 | | 0.0046 | U | 0.022 | | 0.0047 | U |
| Fluorene | 86-73-7 | 240 | EPA (2022) | mg/kg | 0.011 | J+ | 0.003 | U | 0.0031 | U | 0.0031 | U | 0.0031 | U | 0.003 | U | 0.0031 | U | 0.0028 | U | 0.0028 | U | 0.0029 | U | 0.0029 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 1.1 | EPA (2022) | mg/kg | 0.0096 | J- | 0.0076 | UJ | 0.029 | J- | 0.013 | J- | 0.0077 | UJ | 0.0074 | UJ | 0.011 | J- | 0.01 | J+ | 0.0071 | UJ | 0.013 | J- | 0.0072 | UJ |
| Naphthalene | 91-20-3 | 2 | EPA (2022) | mg/kg | 0.015 | | 0.011 | J+ | 0.012 | J+ | 0.0052 | J | 0.012 | J+ | 0.011 | J+ | 0.0033 | J | 0.01 | J+ | 0.0021 | U | 0.0029 | J | 0.011 | J+ |
| Phenanthrene | 85-01-8 | 1800 | EPA (2022) | mg/kg | 0.0091 | J | 0.0076 | U | 0.012 | J+ | 0.0094 | J | 0.0077 | U | 0.011 | J+ | 0.0084 | J | 0.01 | | 0.0071 | U | 0.0099 | J | 0.0072 | U |
| Pyrene | 129-00-0 | 180 | EPA (2022) | mg/kg | 0.019 | | 0.0026 | J | 0.039 | | 0.024 | | 0.0077 | U | 0.0074 | U | 0.017 | | 0.013 | | 0.0071 | U | 0.02 | | 0.0072 | U |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.24 | EPA (2022) | mg/kg | 0.0068 | U | -- | -- | -- | -- | 0.029 | J | -- | -- | -- | -- | 0.16 | | -- | -- | -- | -- | 0.013 | J | -- | -- |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | 8200 | | 8900 | J | 15000 | | 6500 | | 18000 | | 17000 | | 5500 | | 5800 | | 11000 | | 6600 | | 10000 | |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | 0.19 | | 0.21 | J+ | 0.19 | J+ | 0.17 | | 0.17 | J+ | 0.23 | J+ | 0.096 | J | 0.21 | J+ | 0.23 | J+ | 0.13 | J | 0.18 | J+ |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | 5.2 | | 4.4 | | 8.1 | | 5.9 | | 5 | | 4.1 | | 4.3 | | 5.5 | | 3.9 | | 4.9 | | 4.9 | |
| Barium | 7440-39-3 | 1500 | EPA (2022) | mg/kg | 62 | | 46 | | 98 | | 66 | | 110 | | 110 | | 43 | | 51 | | 82 | | 51 | | 59 | |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | 0.55 | J+ | 0.43 | J | 0.67 | | 0.49 | J+ | 0.83 | | 0.81 | | 0.47 | J+ | 0.27 | J | 0.49 | | 0.57 | J+ | 0.47 | J |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | 0.14 | | 0.078 | J | 0.072 | J | 0.14 | | 0.061 | J | 0.053 | J | 0.14 | | 0.38 | | 0.052 | J | 0.11 | | 0.054 | J |
| Chromium | 7440-47-3 | 12000 | EPA (2022) | mg/kg | 10 | | 14 | | 20 | | 8.5 | | 25 | | 24 | | 8.4 | | 8.3 | | 16 | | 9.6 | | 15 | |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | 7.1 | | 9.7 | | 10 | | 7 | | 13 | | 11 | | 6.1 | | 5.9 | | 9 | | 9.3 | | 6.2 | |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | 25 | | 21 | | 25 | | 24 | | 25 | | 25 | | 16 | | 74 | | 19 | | 21 | | 15 | |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | 22000 | | 19000 | J | 25000 | | 21000 | | 27000 | | 26000 | | 17000 | | 19000 | | 20000 | | 18000 | | 18000 | |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | 12 | | 8.4 | | 8.8 | | 24 | | 9.4 | | 9.1 | | 7.9 | | 8.5 | | 8.5 | | 13 | | 7.8 | |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | 1100 | | 760 | | 470 | | 1200 | | 600 | | 510 | | 590 | | 870 | | 490 | | 660 | | 330 | |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | 0.085 | | 0.03 | | 0.016 | J | 0.23 | | 0.099 | | 0.022 | | 0.029 | | 0.035 | | 0.014 | J | 0.026 | | 0.013 | J |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | 15 | | 20 | | 22 | | 12 | | 29 | | 27 | | 12 | | 12 | | 20 | | 15 | | 16 | |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | 0.46 | J+ | 0.49 | J+ | 0.44 | U | 0.47 | J+ | 0.45 | J+ | 0.39 | U | 0.59 | J+ | 0.47 | J+ | 0.34 | U | 0.54 | J+ | 0.41 | J+ |
| Thallium | 7440-28-0 | 0.078 | EPA (2022) | mg/kg | 0.12 | | 0.099 | U | 0.18 | | 0.14 | | 0.16 | | 0.15 | | 0.12 | U | 0.094 | U | 0.085 | U | 0.11 | U | 0.096 | |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | 16 | | 16 | | 28 | | 15 | | 31 | | 32 | | 14 | | 13 | | 20 | | 14 | | 17 | |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | 42 | | 35 | | 50 | | 49 | | 56 | | 55 | | 35 | | 42 | | 40 | | 40 | | 35 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-6
Human Health Sample by Sample Screening - AOC 5 (Electric Substation), Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-014 | | NYOW-05-015 | | NYOW-05-015 | | NYOW-05-015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-PH014-C | | NYOW-05-SL015-A | | NYOW-05-PH015-B | | NYOW-05-PH015-C | |
| | | | | Sample Type: | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | | Sample Date: | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 18 | EPA (2022) | mg/kg | 0.0023 | U | 0.011 | J+ | 0.01 | J+ | 0.011 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 24 | EPA (2022) | mg/kg | 0.0023 | U | 0.0094 | J | 0.01 | J+ | 0.011 | J+ |
| Acenaphthene | 83-32-9 | 360 | EPA (2022) | mg/kg | 0.0012 | U | 0.011 | J+ | 0.0011 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | 360 | EPA (2022) | mg/kg | 0.0012 | U | 0.011 | J+ | 0.01 | J+ | 0.0012 | U |
| Anthracene | 120-12-7 | 1800 | EPA (2022) | mg/kg | 0.0049 | U | 0.011 | J+ | 0.0045 | U | 0.0047 | U |
| Benzo(a)anthracene | 56-55-3 | 1.1 | EPA (2022) | mg/kg | 0.0049 | U | 0.018 | | 0.01 | J+ | 0.0047 | U |
| Benzo(a)pyrene | 50-32-8 | 0.11 | EPA (2022) | mg/kg | 0.0049 | UJ | 0.065 | J- | 0.01 | J+ | 0.0019 | J- |
| Benzo(b)fluoranthene | 205-99-2 | 1.1 | EPA (2022) | mg/kg | 0.003 | J | 0.072 | | 0.0081 | J | 0.0035 | J |
| Benzo(g,h,i)perylene | 191-24-2 | 180 | EPA (2022) | mg/kg | 0.0075 | UJ | 0.049 | J- | 0.01 | J+ | 0.0073 | UJ |
| Benzo(k)fluoranthene | 207-08-9 | 11 | EPA (2022) | mg/kg | 0.0049 | U | 0.027 | | 0.0045 | U | 0.0047 | U |
| Chrysene | 218-01-9 | 110 | EPA (2022) | mg/kg | 0.0044 | J | 0.026 | | 0.0066 | J | 0.0032 | J |
| Dibenz(a,h)anthracene | 53-70-3 | 0.11 | EPA (2022) | mg/kg | 0.0075 | UJ | 0.013 | J- | 0.0069 | UJ | 0.0073 | UJ |
| Fluoranthene | 206-44-0 | 240 | EPA (2022) | mg/kg | 0.0049 | U | 0.031 | | 0.0085 | J | 0.0043 | J |
| Fluorene | 86-73-7 | 240 | EPA (2022) | mg/kg | 0.003 | U | 0.011 | J+ | 0.0027 | U | 0.0029 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 1.1 | EPA (2022) | mg/kg | 0.0075 | UJ | 0.055 | J- | 0.01 | J+ | 0.0073 | UJ |
| Naphthalene | 91-20-3 | 2 | EPA (2022) | mg/kg | 0.011 | J+ | 0.0075 | J | 0.01 | J+ | 0.011 | J+ |
| Phenanthrene | 85-01-8 | 1800 | EPA (2022) | mg/kg | 0.011 | J+ | 0.018 | | 0.0046 | J | 0.011 | J+ |
| Pyrene | 129-00-0 | 180 | EPA (2022) | mg/kg | 0.0025 | J | 0.029 | | 0.0071 | J | 0.0035 | J |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.24 | EPA (2022) | mg/kg | -- | -- | 0.0042 | J | -- | -- | -- | -- |
| Metals (Total) | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | 6600 | | 5400 | | 7300 | | 6600 | |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | 0.17 | J+ | 0.12 | J | 0.21 | J+ | 0.19 | J+ |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | 2.9 | | 4.3 | | 4.8 | | 8.6 | |
| Barium | 7440-39-3 | 1500 | EPA (2022) | mg/kg | 36 | | 48 | | 50 | | 59 | |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | 0.31 | J | 0.57 | J+ | 0.35 | J | 0.34 | J |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | 0.059 | J | 0.39 | | 0.046 | J | 0.16 | |
| Chromium | 7440-47-3 | 12000 | EPA (2022) | mg/kg | 11 | | 7.9 | | 10 | | 12 | |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | 7.3 | | 5.6 | | 6.3 | | 7.1 | |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | 16 | | 16 | | 16 | | 18 | |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | 15000 | | 15000 | | 16000 | | 16000 | |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | 6.9 | | 7.6 | | 10 | | 9 | |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | 460 | | 630 | | 670 | | 490 | |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | 0.011 | J | 0.026 | | 0.024 | | 0.026 | |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | 15 | | 12 | | 13 | | 15 | |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | 0.46 | J+ | 0.42 | J+ | 0.48 | J+ | 0.44 | J+ |
| Thallium | 7440-28-0 | 0.078 | EPA (2022) | mg/kg | 0.092 | U | 0.085 | U | 0.096 | U | 0.089 | U |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | 13 | | 12 | | 14 | | 14 | |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | 30 | | 33 | | 29 | | 31 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-7
Human Health Sample by Sample Screening - AOC 5 (Possible Dump Area), Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-001 | | NYOW-05-001 | | NYOW-05-001 | | NYOW-05-002 | | NYOW-05-002 | | NYOW-05-002 | | NYOW-05-003 | | NYOW-05-003 | | NYOW-05-003 | | NYOW-05-004 | | NYOW-05-004 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL001-A | | NYOW-05-PH001-B | | NYOW-05-PH001-C | | NYOW-05-SL002-A | | NYOW-05-PH002-B | | NYOW-05-PH002-C | | NYOW-05-SL003-A | | NYOW-05-PH003-B | | NYOW-05-PH003-C | | NYOW-05-SL004-A | | NYOW-05-PH004-B | |
| | | | | Sample Type: | N | | N | | C | | C | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 2700 | EPA (2022) | mg/kg | -- | -- | 0.016 | J+ | 0.01 | U | -- | -- | 0.01 | U | 0.011 | U | -- | -- | 0.019 | J+ | 0.012 | U | -- | -- | 0.01 | U |
| Acetone | 67-64-1 | 7000 | EPA (2022) | mg/kg | -- | -- | 0.069 | | 0.058 | U | -- | -- | 0.057 | U | 0.06 | U | -- | -- | 0.069 | U | 0.068 | U | -- | -- | 0.058 | U |
| Benzene | 71-43-2 | 1.2 | EPA (2022) | mg/kg | -- | -- | 0.00033 | U | 0.00032 | U | -- | -- | 0.004 | J+ | 0.00033 | U | -- | -- | 0.00038 | U | 0.00038 | U | -- | -- | 0.00032 | U |
| Toluene | 108-88-3 | 490 | EPA (2022) | mg/kg | -- | -- | 0.00066 | U | 0.00064 | U | -- | -- | 0.004 | J+ | 0.00066 | U | -- | -- | 0.00076 | U | 0.00075 | U | -- | -- | 0.00065 | U |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 170 | EPA (2022) | mg/kg | 0.35 | J+ | 0.19 | UJ | 0.19 | UJ | 0.2 | UJ | 0.19 | UJ | 0.19 | UJ | 0.19 | U | 0.21 | UJ | 0.21 | UJ | 0.18 | UJ | 0.19 | UJ |
| Dibenzofuran | 132-64-9 | 7.8 | EPA (2022) | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.37 | J+ | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| Di-n-butyl phthalate | 84-74-2 | 630 | EPA (2022) | mg/kg | 0.071 | U | 0.076 | U | 0.075 | U | 0.078 | UJ | 0.075 | U | 0.075 | U | 0.076 | UJ | 0.085 | UJ | 0.084 | U | 0.072 | U | 0.076 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 18 | EPA (2022) | mg/kg | 0.0021 | U | 0.0023 | U | 0.002 | U | 0.01 | | 0.0021 | U | 0.01 | J+ | 0.065 | J+ | 0.012 | J+ | 0.0025 | U | 0.069 | | 0.0023 | U |
| 2-Methylnaphthalene | 91-57-6 | 24 | EPA (2022) | mg/kg | 0.0021 | U | 0.0023 | U | 0.002 | U | 0.013 | | 0.0021 | U | 0.01 | J+ | 0.087 | J+ | 0.012 | J+ | 0.0025 | U | 0.09 | | 0.0023 | U |
| Acenaphthene | 83-32-9 | 360 | EPA (2022) | mg/kg | 0.0011 | U | 0.0012 | U | 0.0011 | U | 0.011 | J+ | 0.0011 | U | 0.0011 | U | 0.0012 | U | 0.0013 | U | 0.0013 | U | 0.0011 | U | 0.0012 | U |
| Acenaphthylene | 208-96-8 | 360 | EPA (2022) | mg/kg | 0.0011 | U | 0.0012 | U | 0.0011 | U | 0.0012 | U | 0.0011 | U | 0.0011 | U | 0.0012 | U | 0.0013 | U | 0.0013 | U | 0.0099 | J+ | 0.0012 | U |
| Anthracene | 120-12-7 | 1800 | EPA (2022) | mg/kg | 0.0045 | U | 0.005 | U | 0.0044 | U | 0.018 | J | 0.0045 | U | 0.0045 | U | 0.005 | U | 0.0052 | U | 0.0054 | U | 0.0032 | J | 0.0049 | U |
| Benzo(a)anthracene | 56-55-3 | 1.1 | EPA (2022) | mg/kg | 0.0024 | J | 0.005 | U | 0.01 | J+ | 0.02 | J | 0.0045 | U | 0.0045 | U | 0.0065 | J | 0.0052 | U | 0.012 | J+ | 0.012 | | 0.011 | J+ |
| Benzo(a)pyrene | 50-32-8 | 0.11 | EPA (2022) | mg/kg | 0.0045 | U | 0.005 | U | 0.0044 | U | 0.016 | J | 0.0045 | U | 0.0045 | U | 0.0042 | J | 0.0052 | U | 0.012 | J+ | 0.012 | | 0.0049 | U |
| Benzo(b)fluoranthene | 205-99-2 | 1.1 | EPA (2022) | mg/kg | 0.0069 | U | 0.0077 | U | 0.01 | J+ | 0.022 | J | 0.0069 | U | 0.007 | U | 0.0076 | J | 0.008 | U | 0.012 | J+ | 0.019 | | 0.0076 | U |
| Benzo(g,h,i)perylene | 191-24-2 | 180 | EPA (2022) | mg/kg | 0.0069 | U | 0.0077 | U | 0.0068 | U | 0.016 | J | 0.0069 | U | 0.007 | U | 0.0031 | J | 0.008 | U | 0.012 | J+ | 0.0088 | J | 0.0076 | U |
| Benzo(k)fluoranthene | 207-08-9 | 11 | EPA (2022) | mg/kg | 0.0045 | U | 0.005 | U | 0.0044 | U | 0.011 | J+ | 0.0045 | U | 0.0045 | U | 0.012 | J+ | 0.0052 | U | 0.0054 | U | 0.0099 | J+ | 0.0049 | U |
| Chrysene | 218-01-9 | 110 | EPA (2022) | mg/kg | 0.0035 | J | 0.005 | U | 0.01 | J+ | 0.021 | J | 0.0045 | U | 0.0045 | U | 0.0092 | J+ | 0.012 | J+ | 0.012 | J+ | 0.025 | | 0.011 | J+ |
| Fluoranthene | 206-44-0 | 240 | EPA (2022) | mg/kg | 0.0049 | J | 0.012 | J+ | 0.01 | J+ | 0.051 | J | 0.0045 | U | 0.0045 | U | 0.0091 | J+ | 0.0052 | U | 0.012 | J+ | 0.023 | | 0.011 | J+ |
| Fluorene | 86-73-7 | 240 | EPA (2022) | mg/kg | 0.0028 | U | 0.0031 | U | 0.0027 | U | 0.011 | J+ | 0.0028 | U | 0.0028 | U | 0.012 | J+ | 0.0032 | U | 0.0033 | U | 0.0099 | J+ | 0.003 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 1.1 | EPA (2022) | mg/kg | 0.0069 | U | 0.0077 | U | 0.0068 | U | 0.011 | J | 0.0069 | U | 0.007 | U | 0.0025 | J | 0.008 | U | 0.0083 | U | 0.0085 | J | 0.0076 | U |
| Naphthalene | 91-20-3 | 2 | EPA (2022) | mg/kg | 0.0018 | J | 0.0023 | U | 0.002 | U | 0.01 | | 0.01 | J+ | 0.01 | J+ | 0.065 | J+ | 0.012 | J+ | 0.012 | J+ | 0.071 | | 0.011 | J+ |
| Phenanthrene | 85-01-8 | 1800 | EPA (2022) | mg/kg | 0.003 | J | 0.0077 | U | 0.01 | J+ | 0.046 | J | 0.0069 | U | 0.007 | U | 0.034 | J+ | 0.008 | U | 0.0083 | U | 0.044 | | 0.011 | J+ |
| Pyrene | 129-00-0 | 180 | EPA (2022) | mg/kg | 0.0042 | J | 0.0077 | U | 0.0088 | J | 0.045 | J | 0.0069 | U | 0.007 | U | 0.011 | J+ | 0.008 | U | 0.0044 | J | 0.023 | | 0.011 | J+ |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | 5000 | | 6600 | | 13000 | J | 6000 | | 4900 | | 5100 | | 4400 | J | 19000 | J | 18000 | | 4200 | | 3200 | |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | 0.12 | J | 0.099 | U | 0.2 | J | 0.12 | J | 0.19 | J+ | 0.078 | U | 0.18 | J | 0.26 | J+ | 0.13 | J | 0.076 | J | 0.091 | U |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | 4.6 | | 3.9 | | 3.1 | J | 5.1 | | 6.4 | | 13 | | 6.8 | J+ | 4.5 | J | 5 | | 4.3 | | 3.6 | |
| Barium | 7440-39-3 | 1500 | EPA (2022) | mg/kg | 30 | | 68 | | 75 | J | 40 | | 29 | | 39 | | 32 | | 110 | J | 110 | | 31 | | 18 | |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | 0.55 | J+ | 0.19 | J | 0.53 | | 0.47 | J+ | 0.19 | J | 0.19 | J | 0.42 | J+ | 0.77 | | 0.77 | | 0.54 | J+ | 0.11 | J |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | 0.072 | J | 0.081 | J | 0.093 | J+ | 0.33 | | 0.063 | J | 0.094 | J+ | 0.15 | | 0.073 | J | 0.1 | J+ | 0.076 | | 0.036 | J |
| Chromium | 7440-47-3 | 12000 | EPA (2022) | mg/kg | 6.4 | | 11 | | 18 | J | 7.9 | | 13 | J | 6.8 | | 5.5 | J- | 25 | | 24 | | 5 | | 4.9 | |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | 4.1 | | 4.1 | | 10 | J | 4.7 | | 8.3 | | 4.8 | | 3.6 | J- | 9 | | 12 | | 6.7 | | 2.9 | |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | 23 | | 13 | | 19 | | 18 | | 16 | J | 9.6 | | 20 | | 18 | | 21 | | 32 | | 10 | |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | 12000 | | 13000 | | 23000 | J | 15000 | | 20000 | | 12000 | | 11000 | J | 24000 | J | 27000 | | 15000 | | 9100 | |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | 4.6 | | 5.8 | | 8 | | 9.3 | | 4 | J | 2.6 | | 11 | J- | 7.9 | | 8.6 | | 8.3 | | 3.4 | |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | 710 | | 1000 | | 440 | | 520 | | 410 | | 360 | | 400 | J- | 450 | J | 490 | | 780 | | 320 | |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | 0.016 | J | 0.054 | | 0.021 | J+ | 0.059 | | 0.013 | J | 0.02 | J+ | 0.031 | | 0.018 | J | 0.023 | J+ | 0.0078 | J | 0.02 | |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | 8.1 | | 7.6 | | 22 | | 8.3 | | 11 | J | 9.5 | | 8.3 | J- | 25 | | 27 | | 9.9 | | 5.1 | |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | 0.15 | J | 0.48 | J+ | 0.46 | J+ | 0.49 | | 0.39 | U | 0.47 | J+ | 0.27 | J | 0.49 | J+ | 0.51 | J+ | 0.13 | J | 0.4 | U |
| Silver | 7440-22-4 | 39 | EPA (2022) | mg/kg | 0.67 | U | 0.52 | U | 0.61 | U | 0.56 | U | 2.9 | U | 0.56 | U | 0.5 | U | 0.55 | U | 0.58 | U | 0.64 | U | 0.6 | U |
| Thallium | 7440-28-0 | 0.078 | EPA (2022) | mg/kg | 0.091 | U | 0.097 | U | 0.16 | | 0.094 | U | 0.097 | U | 0.11 | | 0.12 | | 0.2 | J | 0.19 | | 0.075 | U | 0.1 | U |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | 10 | | 15 | | 25 | J | 14 | | 24 | | 10 | | 9.9 | | 31 | | 34 | | 7.9 | | 9.7 | |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | 29 | | 23 | | 41 | | 35 | | 21 | J | 17 | | 35 | J- | 52 | J- | 50 | | 28 | | 12 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend
ND — Not detected at the LOD
Detect — Detected result
Detect — Detected result > SL

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

Table J.2-7
Human Health Sample by Sample Screening - AOC 5 (Possible Dump Area), Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-004 | | NYOW-05-005 | | NYOW-05-005 | | NYOW-05-005 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-PH004-C | | NYOW-05-SL005-A | | NYOW-05-PH005-B | | NYOW-05-PH005-C | |
| | | | | Sample Type: | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 5 - 10 | | 0 - 1 | | 1 - 5 | | 5 - 10 | |
| | | | | Sample Date: | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 2700 | EPA (2022) | mg/kg | 0.011 | U | -- | -- | 0.011 | U | 0.011 | U |
| Acetone | 67-64-1 | 7000 | EPA (2022) | mg/kg | 0.063 | U | -- | -- | 0.063 | U | 0.063 | U |
| Benzene | 71-43-2 | 1.2 | EPA (2022) | mg/kg | 0.00035 | U | -- | -- | 0.00035 | U | 0.00035 | U |
| Toluene | 108-88-3 | 490 | EPA (2022) | mg/kg | 0.0007 | U | -- | -- | 0.0007 | U | 0.0007 | U |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 170 | EPA (2022) | mg/kg | 0.2 | UJ | 0.2 | UJ | 0.2 | UJ | 0.19 | UJ |
| Dibenzofuran | 132-64-9 | 7.8 | EPA (2022) | mg/kg | 0.079 | U | 0.39 | J+ | 0.08 | U | 0.077 | U |
| Di-n-butyl phthalate | 84-74-2 | 630 | EPA (2022) | mg/kg | 0.079 | U | 0.39 | | 0.08 | U | 0.077 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 18 | EPA (2022) | mg/kg | 0.0024 | U | 0.29 | | 0.012 | J+ | 0.0021 | U |
| 2-Methylnaphthalene | 91-57-6 | 24 | EPA (2022) | mg/kg | 0.0024 | U | 0.37 | | 0.012 | J+ | 0.0021 | U |
| Acenaphthene | 83-32-9 | 360 | EPA (2022) | mg/kg | 0.0013 | U | 0.012 | U | 0.0013 | U | 0.0011 | U |
| Acenaphthylene | 208-96-8 | 360 | EPA (2022) | mg/kg | 0.0013 | U | 0.012 | U | 0.0013 | U | 0.0011 | U |
| Anthracene | 120-12-7 | 1800 | EPA (2022) | mg/kg | 0.0052 | U | 0.047 | U | 0.0051 | U | 0.0046 | U |
| Benzo(a)anthracene | 56-55-3 | 1.1 | EPA (2022) | mg/kg | 0.0052 | U | 0.042 | J | 0.0051 | U | 0.011 | J+ |
| Benzo(a)pyrene | 50-32-8 | 0.11 | EPA (2022) | mg/kg | 0.0052 | U | 0.034 | J | 0.0051 | U | 0.011 | J+ |
| Benzo(b)fluoranthene | 205-99-2 | 1.1 | EPA (2022) | mg/kg | 0.012 | J+ | 0.058 | J | 0.0079 | U | 0.011 | J+ |
| Benzo(g,h,i)perylene | 191-24-2 | 180 | EPA (2022) | mg/kg | 0.008 | U | 0.072 | U | 0.0079 | U | 0.0071 | U |
| Benzo(k)fluoranthene | 207-08-9 | 11 | EPA (2022) | mg/kg | 0.0052 | U | 0.047 | U | 0.0051 | U | 0.0046 | U |
| Chrysene | 218-01-9 | 110 | EPA (2022) | mg/kg | 0.0052 | U | 0.056 | J | 0.012 | J+ | 0.011 | J+ |
| Fluoranthene | 206-44-0 | 240 | EPA (2022) | mg/kg | 0.012 | J+ | 0.069 | J | 0.0051 | U | 0.011 | J+ |
| Fluorene | 86-73-7 | 240 | EPA (2022) | mg/kg | 0.0032 | U | 0.029 | U | 0.0032 | U | 0.0029 | U |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 1.1 | EPA (2022) | mg/kg | 0.008 | U | 0.072 | U | 0.0079 | U | 0.0071 | U |
| Naphthalene | 91-20-3 | 2 | EPA (2022) | mg/kg | 0.0024 | U | 0.29 | | 0.012 | J+ | 0.011 | J+ |
| Phenanthrene | 85-01-8 | 1800 | EPA (2022) | mg/kg | 0.012 | J+ | 0.16 | | 0.0079 | U | 0.0071 | U |
| Pyrene | 129-00-0 | 180 | EPA (2022) | mg/kg | 0.012 | | 0.068 | J | 0.0079 | U | 0.0024 | J |
| Metals (Total) | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 7700 | EPA (2022) | mg/kg | 20000 | | 3800 | | 8600 | | 6600 | |
| Antimony | 7440-36-0 | 3.1 | EPA (2022) | mg/kg | 0.21 | | 1 | | 0.19 | J+ | 0.1 | U |
| Arsenic | 7440-38-2 | 0.68 | EPA (2022) | mg/kg | 9 | | 6.9 | | 6.2 | | 5.5 | |
| Barium | 7440-39-3 | 1500 | EPA (2022) | mg/kg | 140 | | 76 | | 48 | | 50 | |
| Beryllium | 7440-41-7 | 16 | EPA (2022) | mg/kg | 0.8 | | 0.56 | J+ | 0.37 | J | 0.62 | J |
| Cadmium | 7440-43-9 | 0.71 | EPA (2022) | mg/kg | 0.11 | J+ | 4.3 | | 0.12 | | 0.1 | J+ |
| Chromium | 7440-47-3 | 12000 | EPA (2022) | mg/kg | 27 | | 13 | | 11 | | 10 | J |
| Cobalt | 7440-48-4 | 2.3 | EPA (2022) | mg/kg | 15 | | 4.3 | | 6.1 | | 6.4 | |
| Copper | 7440-50-8 | 310 | EPA (2022) | mg/kg | 25 | | 110 | | 19 | | 17 | J |
| Iron | 7439-89-6 | 5500 | EPA (2022) | mg/kg | 29000 | | 22000 | | 18000 | | 19000 | |
| Lead | 7439-92-1 | 400 | EPA (2022) | mg/kg | 9.4 | | 200 | | 6 | | 4 | |
| Manganese | 7439-96-5 | 180 | EPA (2022) | mg/kg | 730 | | 450 | | 630 | | 440 | |
| Mercury | 7439-97-6 | 1.1 | EPA (2022) | mg/kg | 0.025 | J+ | 0.14 | | 0.019 | J | 0.021 | J+ |
| Nickel | 7440-02-0 | 150 | EPA (2022) | mg/kg | 32 | | 18 | | 14 | | 14 | J |
| Selenium | 7782-49-2 | 39 | EPA (2022) | mg/kg | 0.44 | U | 0.47 | | 0.6 | J+ | 0.41 | U |
| Silver | 7440-22-4 | 39 | EPA (2022) | mg/kg | 0.58 | U | 1.7 | J+ | 0.58 | U | 2.5 | U |
| Thallium | 7440-28-0 | 0.078 | EPA (2022) | mg/kg | 0.2 | | 0.15 | | 0.12 | U | 0.1 | U |
| Vanadium | 7440-62-2 | 39 | EPA (2022) | mg/kg | 37 | | 10 | | 16 | | 16 | |
| Zinc | 7440-66-6 | 2300 | EPA (2022) | mg/kg | 57 | | 690 | | 52 | | 26 | J |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
EPA = Environmental Protection Agency
LOD = Limit of Detection
mg/kg = millgram per kilogram
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
RSL = Regional Screening Level
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD.
However, the associated numerical value is approximate.

SL Sources
EPA Residential Soil RSL, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1.
(https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).

# APPENDIX J.3

# Human Health Screening Summary – Groundwater

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Table J.3-1
Human Health Screening Summary – Area of Concern 1, Shallow Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Groundwater |
| Exposure Medium: | Groundwater |
| Exposure Point: | Shallow Groundwater |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Metals (Dissolved) | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 5 | J+ | 5 | J+ | µg/L | Multiple Locations | 0 - 10 | 7/9 | 78% | -- | -- | -- | 1 – 1 | 5 | MDC | 0.052 | | T-RSL | 10 | MCL | Yes | MDC > SL |
| Barium | 7440-39-3 | 38 | | 690 | | µg/L | NYOW-01-022 (2021-04-09) | 0 - 10 | 9/9 | 100% | 220 | 170 | 200 | 2 – 2 | 690 | MDC | 380 | | T-RSL | 2000 | MCL | Yes | MDC > SL |
| Chromium | 7440-47-3 | 10 | J+ | 10 | J+ | µg/L | Multiple Locations | 0 - 10 | 4/9 | 44% | -- | -- | -- | 1.8 – 1.8 | 10 | MDC | 2200 | | T-RSL | 100 | MCL | No | MDC ≤ SL |
| Copper | 7440-50-8 | 15 | J+ | 15 | J+ | µg/L | Multiple Locations | 0 - 10 | 2/9 | 22% | -- | -- | -- | 10 – 10 | 15 | MDC | 80 | | T-RSL | 1300 | MCL | No | MDC ≤ SL |
| Iron | 7439-89-6 | 36 | J | 15000 | | µg/L | NYOW-01-006 (2021-04-08) | 0 - 10 | 9/9 | 100% | 3600 | 1300 | 5100 | 85 – 85 | 15000 | MDC | 1400 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 3 | J+ | 3 | J+ | µg/L | Multiple Locations | 0 - 10 | 4/9 | 44% | -- | -- | -- | 0.7 – 0.7 | 3 | MDC | 15 | | T-RSL | 15 | MCL | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 320 | | 2900 | | µg/L | NYOW-01-019 (2021-04-08) | 0 - 10 | 9/9 | 100% | 1200 | 1200 | 790 | 4 – 4 | 2900 | MDC | 43 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Nickel | 7440-02-0 | 40 | J+ | 40 | J+ | µg/L | Multiple Locations | 0 - 10 | 4/9 | 44% | -- | -- | -- | 8 – 8 | 40 | MDC | 39 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Vanadium | 7440-62-2 | 15 | J+ | 15 | J+ | µg/L | Multiple Locations | 0 - 10 | 5/9 | 56% | -- | -- | -- | 4 – 4 | 15 | MDC | 8.6 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Zinc | 7440-66-6 | 150 | J+ | 150 | J+ | µg/L | Multiple Locations | 0 - 10 | 3/9 | 33% | -- | -- | -- | 15 – 15 | 150 | MDC | 600 | | T-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
T-RSL = EPA Tapwater Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
MCL = EPA Maximum Contaminant Levels (MCLs) - National Primary Drinking Water Regulations, EPA 816-F-09-004, May 2009 (https://www.epa.gov/sites/default/files/2016-06/documents/npwdr_complete_table.pdf)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.3-2
Human Health Screening Summary – Area of Concern 3, Shallow Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Groundwater |
| Exposure Medium: | Groundwater |
| Exposure Point: | Shallow Groundwater |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | | |
| Acetone | 67-64-1 | 4.3 | J | 10 | J- | µg/L | NYOW-03-002 (2021-04-02) | 0 - 10 | 3/7 | 43% | 5.4 | 6.4 | 1.9 | 6.4 – 6.4 | 10 | MDC | 1800 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Benzene | 71-43-2 | 1 | J+ | 1 | J+ | µg/L | Multiple Locations | 0 - 10 | 2/7 | 29% | -- | -- | -- | 0.4 – 0.4 | 1 | MDC | 0.46 | | T-RSL | 5 | MCL | Yes | MDC > SL |
| m,p-Xylene | 179601-23-1 | 2 | J+ | 2 | J+ | µg/L | NYOW-03-010 (2021-04-02) | 0 - 10 | 1/7 | 14% | -- | -- | -- | 0.8 – 0.8 | 2 | MDC | 19 | * | T-RSL | 10000 | MCL | No | MDC ≤ SL |
| Toluene | 108-88-3 | 0.56 | J- | 3 | | µg/L | NYOW-03-007 (2021-04-02) | 0 - 10 | 2/7 | 29% | 0.79 | 0.4 | 0.9 | 0.4 – 0.4 | 3 | MDC | 110 | | T-RSL | 1000 | MCL | No | MDC ≤ SL |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | |
| 4-Nitroaniline | 100-01-6 | 51 | J+ | 51 | J+ | µg/L | NYOW-03-015 (2021-04-07) | 0 - 10 | 1/7 | 14% | -- | -- | -- | 9.7 – 19 | 51 | MDC | 3.8 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Benzaldehyde | 100-52-7 | 11 | J+ | 11 | J+ | µg/L | NYOW-03-002 (2021-04-02) | 0 - 10 | 1/7 | 14% | -- | -- | -- | 1.9 – 3.8 | 11 | MDC | 19 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Caprolactam | 105-60-2 | 11 | J+ | 11 | J+ | µg/L | NYOW-03-002 (2021-04-02) | 0 - 10 | 1/7 | 14% | -- | -- | -- | 1.9 – 3.8 | 11 | MDC | 990 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Dissolved) | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 5 | J+ | 5 | J+ | µg/L | Multiple Locations | 0 - 10 | 2/7 | 29% | -- | -- | -- | 1 – 1 | 5 | MDC | 0.052 | | T-RSL | 10 | MCL | Yes | MDC > SL |
| Cobalt | 7440-48-4 | 0.4 | J | 5.1 | | µg/L | NYOW-03-002 (2021-04-02) | 0 - 10 | 6/7 | 86% | 1.3 | 0.44 | 1.6 | 0.35 – 0.35 | 5.1 | MDC | 0.6 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 3 | J+ | 3 | J+ | µg/L | Multiple Locations | 0 - 10 | 4/7 | 57% | -- | -- | -- | 0.7 – 0.7 | 3 | MDC | 15 | | T-RSL | 15 | MCL | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 7.7 | J | 11000 | | µg/L | NYOW-03-002 (2021-04-02) | 0 - 10 | 7/7 | 100% | 2000 | 280 | 4000 | 4 – 4 | 11000 | MDC | 43 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Nickel | 7440-02-0 | 40 | J+ | 40 | J+ | µg/L | Multiple Locations | 0 - 10 | 4/7 | 57% | -- | -- | -- | 8 – 8 | 40 | MDC | 39 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Vanadium | 7440-62-2 | 15 | J+ | 15 | J+ | µg/L | Multiple Locations | 0 - 10 | 6/7 | 86% | -- | -- | -- | 4 – 4 | 15 | MDC | 8.6 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Zinc | 7440-66-6 | 150 | J+ | 150 | J+ | µg/L | NYOW-03-009 (2021-04-07) | 0 - 10 | 1/7 | 14% | -- | -- | -- | 15 – 15 | 150 | MDC | 600 | | T-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
T-RSL = EPA Tapwater Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
NYS = New York State Groundwater Standards, 6 NYCRR Part 703.5. Last updated March 2021. (https://www.dec.ny.gov/chemical/23853.html)
MCL = EPA Maximum Contaminant Levels (MCLs) - National Primary Drinking Water Regulations, EPA 816-F-09-004, May 2009 (https://www.epa.gov/sites/default/files/2016-06/documents/npwdr_complete_table.pdf)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.3-3
Human Health Screening Summary – Area of Concern 5 (Boiler House), Shallow Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Shallow Groundwater

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | |
| Caprolactam | 105-60-2 | 9.9 | J+ | 9.9 | J+ | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 2 – 2.1 | 9.9 | MDC | 990 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.042 | J | 0.19 | J- | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 3/3 | 100% | 0.1 | 0.068 | 0.079 | 0.041 – 0.044 | 0.19 | MDC | 1.1 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| 2-Methylnaphthalene | 91-57-6 | 0.11 | J- | 0.2 | J- | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 2/3 | 67% | 0.12 | 0.11 | 0.06 | 0.051 – 0.055 | 0.2 | MDC | 3.6 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthene | 83-32-9 | 0.1 | J+ | 0.1 | J+ | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 0.012 – 0.013 | 0.1 | MDC | 53 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Anthracene | 120-12-7 | 0.1 | J+ | 0.1 | J+ | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 0.1 – 0.11 | 0.1 | MDC | 180 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(a)anthracene | 56-55-3 | 0.063 | J | 0.31 | J- | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 2/3 | 67% | 0.15 | 0.11 | 0.12 | 0.1 – 0.11 | 0.31 | MDC | 0.03 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Benzo(a)pyrene | 50-32-8 | 0.056 | J | 0.31 | J- | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 2/3 | 67% | 0.14 | 0.056 | 0.12 | 0.051 – 0.055 | 0.31 | MDC | 0.025 | | T-RSL | 0.2 | MCL | Yes | MDC > MCL |
| Benzo(b)fluoranthene | 205-99-2 | 0.085 | J | 0.44 | J- | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 2/3 | 67% | 0.2 | 0.11 | 0.17 | 0.1 – 0.11 | 0.44 | MDC | 0.25 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Benzo(g,h,i)perylene | 191-24-2 | 0.049 | J | 0.17 | J- | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 2/3 | 67% | 0.089 | 0.11 | 0.057 | 0.1 – 0.11 | 0.17 | MDC | 12 | * | T-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(k)fluoranthene | 207-08-9 | 0.04 | J | 0.22 | J- | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 2/3 | 67% | 0.1 | 0.055 | 0.085 | 0.051 – 0.055 | 0.22 | MDC | 2.5 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Chrysene | 218-01-9 | 0.092 | J | 0.35 | J- | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 2/3 | 67% | 0.18 | 0.11 | 0.12 | 0.1 – 0.11 | 0.35 | MDC | 25 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Dibenz(a,h)anthracene | 53-70-3 | 0.1 | J+ | 0.1 | J+ | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 0.1 – 0.11 | 0.1 | MDC | 0.025 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Fluoranthene | 206-44-0 | 0.11 | J | 0.6 | J- | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 2/3 | 67% | 0.27 | 0.11 | 0.23 | 0.1 – 0.11 | 0.6 | MDC | 80 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.045 | J | 0.21 | J- | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 2/3 | 67% | 0.1 | 0.11 | 0.078 | 0.1 – 0.11 | 0.21 | MDC | 0.25 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Naphthalene | 91-20-3 | 0.13 | J | 0.23 | J | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 3/3 | 100% | 0.18 | 0.18 | 0.05 | 0.051 – 0.055 | 0.23 | MDC | 0.12 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Phenanthrene | 85-01-8 | 0.11 | J- | 0.42 | J- | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 3/3 | 100% | 0.21 | 0.11 | 0.18 | 0.1 – 0.11 | 0.42 | MDC | 180 | * | T-RSL | N/A | -- | No | MDC ≤ SL |
| Pyrene | 129-00-0 | 0.11 | J | 0.48 | J- | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 2/3 | 67% | 0.23 | 0.11 | 0.17 | 0.1 – 0.11 | 0.48 | MDC | 12 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Dissolved) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 300 | J+ | 300 | J+ | µg/L | Multiple Locations | 0 - 10 | 3/3 | 100% | -- | -- | -- | 70 – 70 | 300 | MDC | 2000 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Antimony | 7440-36-0 | 6 | J+ | 6 | J+ | µg/L | Multiple Locations | 0 - 10 | 3/3 | 100% | -- | -- | -- | 1 – 1 | 6 | MDC | 0.78 | | T-RSL | 6 | MCL | Yes | MDC > SL |
| Arsenic | 7440-38-2 | 2.9 | J | 140 | | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 3/3 | 100% | 51 | 9 | 77 | 1 – 1 | 140 | MDC | 0.052 | | T-RSL | 10 | MCL | Yes | MDC > MCL |
| Barium | 7440-39-3 | 23 | | 150 | | µg/L | NYOW-05-016 (2021-01-15) | 0 - 10 | 3/3 | 100% | 86 | 84 | 64 | 2 – 2 | 150 | MDC | 380 | | T-RSL | 2000 | MCL | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 1 | J+ | 1 | J+ | µg/L | Multiple Locations | 0 - 10 | 3/3 | 100% | -- | -- | -- | 0.35 – 0.35 | 1 | MDC | 0.6 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Iron | 7439-89-6 | 100 | | 100 | | µg/L | NYOW-05-016 (2021-01-15) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 85 – 85 | 100 | MDC | 1400 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 3.9 | J | 170 | | µg/L | NYOW-05-016 (2021-01-15) | 0 - 10 | 3/3 | 100% | 68 | 29 | 90 | 4 – 4 | 170 | MDC | 43 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Vanadium | 7440-62-2 | 15 | J+ | 15 | J+ | µg/L | NYOW-05-019 (2021-01-15) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 4 – 4 | 15 | MDC | 8.6 | | T-RSL | N/A | -- | Yes | MDC > SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
T-RSL = EPA Tapwater Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
NYS = New York State Groundwater Standards, 6 NYCRR Part 703.5. Last updated March 2021. (https://www.dec.ny.gov/chemical/23853.html)
MCL = EPA Maximum Contaminant Levels (MCLs) - National Primary Drinking Water Regulations, EPA 816-F-09-004, May 2009 (https://www.epa.gov/sites/default/files/2016-06/documents/npwdr_complete_table.pdf)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.3-4
Human Health Screening Summary – Area of Concern 5 (Coal Aggregate Bins), Shallow Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Shallow Groundwater

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | |
| Phenol | 108-95-2 | 11 | J+ | 11 | J+ | µg/L | NYOW-05-025 (2021-01-12) | 0 - 10 | 1/2 | 50% | -- | -- | -- | 2.1 – 2.6 | 11 | MDC | 580 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.63 | J- | 0.63 | J- | µg/L | NYOW-05-024 (2021-01-11) | 0 - 10 | 1/2 | 50% | -- | -- | -- | 0.041 – 0.053 | 0.63 | MDC | 1.1 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| 2-Methylnaphthalene | 91-57-6 | 0.89 | J- | 0.89 | J- | µg/L | NYOW-05-024 (2021-01-11) | 0 - 10 | 1/2 | 50% | -- | -- | -- | 0.051 – 0.066 | 0.89 | MDC | 3.6 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Chrysene | 218-01-9 | 0.1 | J+ | 0.1 | J+ | µg/L | NYOW-05-025 (2021-01-12) | 0 - 10 | 1/2 | 50% | -- | -- | -- | 0.1 – 0.13 | 0.1 | MDC | 25 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Naphthalene | 91-20-3 | 0.97 | J- | 0.97 | J- | µg/L | NYOW-05-024 (2021-01-11) | 0 - 10 | 1/2 | 50% | -- | -- | -- | 0.051 – 0.066 | 0.97 | MDC | 0.12 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Phenanthrene | 85-01-8 | 0.24 | J- | 0.24 | J- | µg/L | NYOW-05-024 (2021-01-11) | 0 - 10 | 1/2 | 50% | -- | -- | -- | 0.1 – 0.13 | 0.24 | MDC | 180 | * | T-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Dissolved) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 36 | J | 2100 | | µg/L | NYOW-05-024 (2021-01-11) | 0 - 10 | 2/2 | 100% | 1100 | 1100 | -- | 70 – 70 | 2100 | MDC | 2000 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Arsenic | 7440-38-2 | 5 | J+ | 5 | J+ | µg/L | Multiple Locations | 0 - 10 | 2/2 | 100% | -- | -- | -- | 1 – 1 | 5 | MDC | 0.052 | | T-RSL | 10 | MCL | Yes | MDC > SL |
| Barium | 7440-39-3 | 55 | | 130 | | µg/L | NYOW-05-024 (2021-01-11) | 0 - 10 | 2/2 | 100% | 93 | 93 | -- | 2 – 2 | 130 | MDC | 380 | | T-RSL | 2000 | MCL | No | MDC ≤ SL |
| Chromium | 7440-47-3 | 0.52 | J | 12 | | µg/L | NYOW-05-024 (2021-01-11) | 0 - 10 | 2/2 | 100% | 6.3 | 6.3 | -- | 1.8 – 1.8 | 12 | MDC | 2200 | | T-RSL | 100 | MCL | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 1.3 | | 3.7 | | µg/L | NYOW-05-024 (2021-01-11) | 0 - 10 | 2/2 | 100% | 2.5 | 2.5 | -- | 0.35 – 0.35 | 3.7 | MDC | 0.6 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 15 | J+ | 15 | J+ | µg/L | NYOW-05-024 (2021-01-11) | 0 - 10 | 1/2 | 50% | -- | -- | -- | 10 – 10 | 15 | MDC | 80 | | T-RSL | 1300 | MCL | No | MDC ≤ SL |
| Iron | 7439-89-6 | 6300 | | 6300 | | µg/L | NYOW-05-024 (2021-01-11) | 0 - 10 | 1/2 | 50% | -- | -- | -- | 85 – 85 | 6300 | MDC | 1400 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 3 | J+ | 3 | J+ | µg/L | NYOW-05-024 (2021-01-11) | 0 - 10 | 1/2 | 50% | -- | -- | -- | 0.7 – 0.7 | 3 | MDC | 15 | | T-RSL | 15 | MCL | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 1200 | | 1200 | | µg/L | Multiple Locations | 0 - 10 | 2/2 | 100% | -- | -- | -- | 4 – 4 | 1200 | MDC | 43 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Nickel | 7440-02-0 | 40 | J+ | 40 | J+ | µg/L | Multiple Locations | 0 - 10 | 2/2 | 100% | -- | -- | -- | 8 – 8 | 40 | MDC | 39 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Vanadium | 7440-62-2 | 15 | J+ | 15 | J+ | µg/L | NYOW-05-024 (2021-01-11) | 0 - 10 | 1/2 | 50% | -- | -- | -- | 4 – 4 | 15 | MDC | 8.6 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Zinc | 7440-66-6 | 150 | J+ | 150 | J+ | µg/L | NYOW-05-024 (2021-01-11) | 0 - 10 | 1/2 | 50% | -- | -- | -- | 15 – 15 | 150 | MDC | 600 | | T-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
T-RSL = EPA Tapwater Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
NYS = New York State Groundwater Standards, 6 NYCRR Part 703.5. Last updated March 2021. (https://www.dec.ny.gov/chemical/23853.html)
MCL = EPA Maximum Contaminant Levels (MCLs) - National Primary Drinking Water Regulations, EPA 816-F-09-004, May 2009 (https://www.epa.gov/sites/default/files/2016-06/documents/npwdr_complete_table.pdf)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.3-5
Human Health Screening Summary – Area of Concern 5 (Coal Storage Area), Shallow Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Groundwater |
| Exposure Medium: | Groundwater |
| Exposure Point: | Shallow Groundwater |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.21 | J- | 0.21 | J- | µg/L | NYOW-05-010 (2021-01-12) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 0.041 – 0.048 | 0.21 | MDC | 1.1 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| 2-Methylnaphthalene | 91-57-6 | 0.22 | J- | 0.22 | J- | µg/L | NYOW-05-010 (2021-01-12) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 0.051 – 0.06 | 0.22 | MDC | 3.6 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Naphthalene | 91-20-3 | 0.039 | J- | 0.17 | J- | µg/L | NYOW-05-010 (2021-01-12) | 0 - 10 | 2/3 | 67% | 0.083 | 0.06 | 0.062 | 0.051 – 0.06 | 0.17 | MDC | 0.12 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Phenanthrene | 85-01-8 | 0.28 | J- | 0.28 | J- | µg/L | NYOW-05-010 (2021-01-12) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 0.1 – 0.12 | 0.28 | MDC | 180 | * | T-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Dissolved) | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 6 | J+ | 6 | J+ | µg/L | NYOW-05-010 (2021-01-12) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 1 – 1 | 6 | MDC | 0.78 | | T-RSL | 6 | MCL | Yes | MDC > SL |
| Arsenic | 7440-38-2 | 0.9 | J | 7.1 | | µg/L | NYOW-05-010 (2021-01-12) | 0 - 10 | 3/3 | 100% | 3.2 | 1.6 | 3.4 | 1 – 1 | 7.1 | MDC | 0.052 | | T-RSL | 10 | MCL | Yes | MDC > SL |
| Barium | 7440-39-3 | 38 | | 160 | | µg/L | NYOW-05-010 (2021-01-12) | 0 - 10 | 3/3 | 100% | 110 | 140 | 65 | 2 – 2 | 160 | MDC | 380 | | T-RSL | 2000 | MCL | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 0.69 | J | 1.1 | | µg/L | NYOW-05-008 (2021-01-11) | 0 - 10 | 3/3 | 100% | 0.88 | 0.84 | 0.21 | 0.35 – 0.35 | 1.1 | MDC | 0.6 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Iron | 7439-89-6 | 750 | | 3400 | | µg/L | NYOW-05-008 (2021-01-11) | 0 - 10 | 3/3 | 100% | 2200 | 2500 | 1300 | 85 – 85 | 3400 | MDC | 1400 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Manganese | 7439-96-5 | 220 | | 440 | | µg/L | NYOW-05-006 (2021-01-11) | 0 - 10 | 3/3 | 100% | 320 | 290 | 110 | 4 – 4 | 440 | MDC | 43 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Nickel | 7440-02-0 | 40 | J+ | 40 | J+ | µg/L | NYOW-05-010 (2021-01-12) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 8 – 8 | 40 | MDC | 39 | | T-RSL | N/A | -- | Yes | MDC > SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
T-RSL = EPA Tapwater Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
NYS = New York State Groundwater Standards, 6 NYCRR Part 703.5. Last updated March 2021. (https://www.dec.ny.gov/chemical/23853.html)
MCL = EPA Maximum Contaminant Levels (MCLs) - National Primary Drinking Water Regulations, EPA 816-F-09-004, May 2009 (https://www.epa.gov/sites/default/files/2016-06/documents/npwdr_complete_table.pdf)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.3-6
Human Health Screening Summary – Area of Concern 5 (Electric Substation), Shallow Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Groundwater |
| Exposure Medium: | Groundwater |
| Exposure Point: | Shallow Groundwater |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| Naphthalene | 91-20-3 | 0.14 | J | 0.14 | J | µg/L | NYOW-05-012 (2021-01-14) | 0 - 10 | 1/1 | 100% | -- | -- | -- | 0.049 – 0.049 | 0.14 | MDC | 0.12 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Metals (Dissolved) | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 5 | J+ | 5 | J+ | µg/L | NYOW-05-012 (2021-01-14) | 0 - 10 | 1/1 | 100% | -- | -- | -- | 1 – 1 | 5 | MDC | 0.052 | | T-RSL | 10 | MCL | Yes | MDC > SL |
| Barium | 7440-39-3 | 210 | | 210 | | µg/L | NYOW-05-012 (2021-01-14) | 0 - 10 | 1/1 | 100% | -- | -- | -- | 2 – 2 | 210 | MDC | 380 | | T-RSL | 2000 | MCL | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 1 | J+ | 1 | J+ | µg/L | NYOW-05-012 (2021-01-14) | 0 - 10 | 1/1 | 100% | -- | -- | -- | 0.35 – 0.35 | 1 | MDC | 0.6 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Iron | 7439-89-6 | 680 | J | 680 | J | µg/L | NYOW-05-012 (2021-01-14) | 0 - 10 | 1/1 | 100% | -- | -- | -- | 85 – 85 | 680 | MDC | 1400 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 170 | | 170 | | µg/L | NYOW-05-012 (2021-01-14) | 0 - 10 | 1/1 | 100% | -- | -- | -- | 4 – 4 | 170 | MDC | 43 | | T-RSL | N/A | -- | Yes | MDC > SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
T-RSL = EPA Tapwater Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
NYS = New York State Groundwater Standards, 6 NYCRR Part 703.5. Last updated March 2021. (https://www.dec.ny.gov/chemical/23853.html)
MCL = EPA Maximum Contaminant Levels (MCLs) - National Primary Drinking Water Regulations, EPA 816-F-09-004, May 2009 (https://www.epa.gov/sites/default/files/2016-06/documents/npwdr_complete_table.pdf)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.3-7
Human Health Screening Summary – Area of Concern 5 (Possible Dump Area), Shallow Groundwater
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Groundwater |
| Exposure Medium: | Groundwater |
| Exposure Point: | Shallow Groundwater |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2,3-Trichlorobenzene | 87-61-6 | 1 | J+ | 1 | J+ | µg/L | NYOW-05-004 (2021-01-14) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 0.8 – 0.8 | 1 | MDC | 0.7 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | 91-57-6 | 0.11 | J+ | 0.11 | J+ | µg/L | NYOW-05-004 (2021-01-14) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 0.051 – 0.055 | 0.11 | MDC | 3.6 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(b)fluoranthene | 205-99-2 | 0.1 | J+ | 0.1 | J+ | µg/L | NYOW-05-005 (2021-01-14) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 0.098 – 0.11 | 0.1 | MDC | 0.25 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(k)fluoranthene | 207-08-9 | 0.1 | J+ | 0.1 | J+ | µg/L | NYOW-05-005 (2021-01-14) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 0.049 – 0.055 | 0.1 | MDC | 2.5 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Chrysene | 218-01-9 | 0.1 | J+ | 0.1 | J+ | µg/L | NYOW-05-005 (2021-01-14) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 0.098 – 0.11 | 0.1 | MDC | 25 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Fluoranthene | 206-44-0 | 0.1 | J+ | 0.1 | J+ | µg/L | NYOW-05-005 (2021-01-14) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 0.098 – 0.11 | 0.1 | MDC | 80 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Naphthalene | 91-20-3 | 0.14 | J+ | 0.15 | J+ | µg/L | NYOW-05-004 (2021-01-14) | 0 - 10 | 2/3 | 67% | 0.12 | 0.14 | 0.043 | 0.049 – 0.055 | 0.15 | MDC | 0.12 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Phenanthrene | 85-01-8 | 0.1 | J+ | 0.1 | J+ | µg/L | NYOW-05-005 (2021-01-14) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 0.098 – 0.11 | 0.1 | MDC | 180 | * | T-RSL | N/A | -- | No | MDC ≤ SL |
| Pyrene | 129-00-0 | 0.1 | J+ | 0.1 | J+ | µg/L | NYOW-05-005 (2021-01-14) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 0.098 – 0.11 | 0.1 | MDC | 12 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Dissolved) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 300 | J+ | 300 | J+ | µg/L | NYOW-05-001 (2021-01-13) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 70 – 70 | 300 | MDC | 2000 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 0.53 | J | 6 | | µg/L | NYOW-05-004 (2021-01-14) | 0 - 10 | 3/3 | 100% | 2.8 | 2 | 2.8 | 1 – 1 | 6 | MDC | 0.052 | | T-RSL | 10 | MCL | Yes | MDC > SL |
| Barium | 7440-39-3 | 42 | | 130 | | µg/L | NYOW-05-005 (2021-01-14) | 0 - 10 | 3/3 | 100% | 94 | 110 | 46 | 2 – 2 | 130 | MDC | 380 | | T-RSL | 2000 | MCL | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 0.17 | J | 1 | | µg/L | NYOW-05-005 (2021-01-14) | 0 - 10 | 3/3 | 100% | 0.59 | 0.61 | 0.42 | 0.35 – 0.35 | 1 | MDC | 0.6 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Iron | 7439-89-6 | 940 | | 1300 | | µg/L | NYOW-05-004 (2021-01-14) | 0 - 10 | 2/3 | 67% | 780 | 940 | 510 | 85 – 85 | 1300 | MDC | 1400 | | T-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 120 | | 2600 | | µg/L | NYOW-05-005 (2021-01-14) | 0 - 10 | 3/3 | 100% | 1100 | 500 | 1300 | 4 – 4 | 2600 | MDC | 43 | | T-RSL | N/A | -- | Yes | MDC > SL |
| Nickel | 7440-02-0 | 40 | J+ | 40 | J+ | µg/L | NYOW-05-004 (2021-01-14) | 0 - 10 | 1/3 | 33% | -- | -- | -- | 8 – 8 | 40 | MDC | 39 | | T-RSL | N/A | -- | Yes | MDC > SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
T-RSL = EPA Tapwater Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
NYS = New York State Groundwater Standards, 6 NYCRR Part 703.5. Last updated March 2021. (https://www.dec.ny.gov/chemical/23853.html)
MCL = EPA Maximum Contaminant Levels (MCLs) - National Primary Drinking Water Regulations, EPA 816-F-09-004, May 2009 (https://www.epa.gov/sites/default/files/2016-06/documents/npwdr_complete_table.pdf)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

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# APPENDIX J.4

# Human Health Screening Summary – Soil

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Table J.4-1
Human Health Screening Summary – Area of Concern 1, Surface Soil (0 - 1 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Surface Soil (0 - 1 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Explosives | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.23 | J+ | 0.23 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 1/30 | 3% | -- | -- | -- | 0.14 – 0.16 | 0.23 | MDC | 13 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 2000 | | 11000 | | mg/kg | NYOW-01-002 (2021-04-09) | 0 - 1 | 30/30 | 100% | 6000 | 6300 | 1700 | 4.7 – 10 | 11000 | MDC | 7700 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Antimony | 7440-36-0 | 0.082 | J | 0.56 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 30/30 | 100% | 0.2 | 0.17 | 0.11 | 0.084 – 0.16 | 0.56 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 2.4 | | 11 | | mg/kg | NYOW-01-029 (2021-04-13) | 0 - 1 | 30/30 | 100% | 5.1 | 4.7 | 1.7 | 0.16 – 0.34 | 11 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Barium | 7440-39-3 | 25 | J | 120 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 30/30 | 100% | 56 | 52 | 21 | 0.71 – 1.6 | 120 | MDC | 1500 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Beryllium | 7440-41-7 | 0.4 | J+ | 0.87 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 28/30 | 93% | 0.53 | 0.52 | 0.095 | 0.095 – 0.67 | 0.87 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cadmium | 7440-43-9 | 0.053 | J | 0.79 | | mg/kg | NYOW-01-023 (2021-04-02) | 0 - 1 | 30/30 | 100% | 0.28 | 0.24 | 0.19 | 0.028 – 0.059 | 0.79 | MDC | 0.71 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Chromium | 7440-47-3 | 5 | | 18 | | mg/kg | Multiple Locations | 0 - 1 | 30/30 | 100% | 9 | 8.6 | 3.2 | 0.32 – 2.2 | 18 | MDC | 12000 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 3.4 | J | 9.4 | | mg/kg | Multiple Locations | 0 - 1 | 30/30 | 100% | 6 | 5.9 | 1.7 | 0.16 – 0.35 | 9.4 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 11 | | 80 | | mg/kg | NYOW-01-013 (2021-04-14) | 0 - 1 | 30/30 | 100% | 23 | 21 | 12 | 0.63 – 1.4 | 80 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 6000 | | 26000 | | mg/kg | NYOW-01-029 (2021-04-13) | 0 - 1 | 30/30 | 100% | 15000 | 15000 | 3900 | 16 – 35 | 26000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 4.2 | J | 200 | | mg/kg | NYOW-01-034 (2021-04-14) | 0 - 1 | 30/30 | 100% | 28 | 19 | 36 | 0.63 – 4.5 | 200 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 270 | | 1400 | J | mg/kg | NYOW-01-002 (2021-04-09) | 0 - 1 | 30/30 | 100% | 650 | 600 | 250 | 0.32 – 0.69 | 1400 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Mercury | 7439-97-6 | 0.013 | J | 0.76 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 29/30 | 97% | 0.076 | 0.041 | 0.14 | 0.016 – 0.03 | 0.76 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Nickel | 7440-02-0 | 6.9 | | 13 | | mg/kg | Multiple Locations | 0 - 1 | 30/30 | 100% | 10 | 11 | 2 | 0.36 – 0.78 | 13 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Selenium | 7782-49-2 | 0.4 | J+ | 0.85 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 29/30 | 97% | 0.53 | 0.52 | 0.1 | 0.32 – 0.68 | 0.85 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Silver | 7440-22-4 | 1.3 | J+ | 2.6 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 11/30 | 37% | 0.93 | 0.69 | 0.64 | 0.47 – 1 | 2.6 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Zinc | 7440-66-6 | 11 | | 180 | J | mg/kg | NYOW-01-005 (2021-04-08) | 0 - 1 | 30/30 | 100% | 63 | 53 | 40 | 1.2 – 2.6 | 180 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-2
Human Health Screening Summary – Area of Concern 1, Total Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source | Potential ARAR [2] | Source | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Explosives | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.23 | J+ | 0.23 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 1/41 | 2% | -- | -- | -- | 0.14 – 0.16 | 0.23 | MDC | 13 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 2000 | | 11000 | | mg/kg | NYOW-01-002 (2021-04-09) | 0 - 1 | 41/41 | 100% | 5800 | 5800 | 1600 | 4.4 – 10 | 11000 | MDC | 7700 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Antimony | 7440-36-0 | 0.082 | J | 0.56 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 38/41 | 93% | 0.19 | 0.17 | 0.1 | 0.078 – 0.16 | 0.56 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 2.1 | | 11 | | mg/kg | NYOW-01-029 (2021-04-13) | 0 - 1 | 41/41 | 100% | 5.1 | 4.7 | 1.7 | 0.16 – 0.34 | 11 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Barium | 7440-39-3 | 25 | J | 260 | | mg/kg | NYOW-01-022 (2021-04-07) | 1 - 5 | 41/41 | 100% | 57 | 46 | 38 | 0.65 – 1.6 | 260 | MDC | 1500 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Beryllium | 7440-41-7 | 0.36 | J+ | 0.87 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 38/41 | 93% | 0.5 | 0.5 | 0.11 | 0.087 – 0.67 | 0.87 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cadmium | 7440-43-9 | 0.013 | J | 0.79 | | mg/kg | NYOW-01-023 (2021-04-02) | 0 - 1 | 41/41 | 100% | 0.23 | 0.16 | 0.19 | 0.027 – 0.059 | 0.79 | MDC | 0.71 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Chromium | 7440-47-3 | 4.6 | | 18 | | mg/kg | Multiple Locations | 0 - 1 | 41/41 | 100% | 8.5 | 7.9 | 2.9 | 0.29 – 2.2 | 18 | MDC | 12000 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 2.9 | | 13 | | mg/kg | NYOW-01-015 (2021-04-02) | 1 - 5 | 41/41 | 100% | 6.3 | 5.8 | 2.3 | 0.15 – 0.35 | 13 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 7.2 | | 80 | | mg/kg | NYOW-01-013 (2021-04-14) | 0 - 1 | 41/41 | 100% | 22 | 21 | 12 | 0.58 – 1.4 | 80 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 6000 | | 26000 | | mg/kg | NYOW-01-029 (2021-04-13) | 0 - 1 | 41/41 | 100% | 15000 | 15000 | 3900 | 15 – 35 | 26000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 3.2 | J- | 200 | | mg/kg | NYOW-01-034 (2021-04-14) | 0 - 1 | 41/41 | 100% | 23 | 14 | 32 | 0.58 – 4.5 | 200 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 230 | | 7000 | | mg/kg | NYOW-01-022 (2021-04-07) | 1 - 5 | 41/41 | 100% | 770 | 550 | 1000 | 0.29 – 3.9 | 7000 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Mercury | 7439-97-6 | 0.012 | J | 0.76 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 37/41 | 90% | 0.061 | 0.032 | 0.12 | 0.015 – 0.03 | 0.76 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Nickel | 7440-02-0 | 4.9 | | 13 | | mg/kg | Multiple Locations | 0 - 1 | 41/41 | 100% | 10 | 11 | 2.2 | 0.33 – 0.78 | 13 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Selenium | 7782-49-2 | 0.39 | J+ | 0.85 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 35/41 | 85% | 0.5 | 0.49 | 0.11 | 0.31 – 0.68 | 0.85 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Silver | 7440-22-4 | 1.1 | J+ | 2.6 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 15/41 | 37% | 0.88 | 0.67 | 0.59 | 0.44 – 1 | 2.6 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Vanadium | 7440-62-2 | 7.2 | | 20 | | mg/kg | NYOW-01-002 (2021-04-09) | 0 - 1 | 41/41 | 100% | 13 | 12 | 2.8 | 0.25 – 0.61 | 20 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Zinc | 7440-66-6 | 11 | | 180 | J | mg/kg | NYOW-01-005 (2021-04-08) | 0 - 1 | 41/41 | 100% | 59 | 44 | 40 | 1.1 – 2.6 | 180 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-3
Human Health Screening Summary – Area of Concern 1, Total Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 10 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Explosives | | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.23 | J+ | 0.23 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 1/52 | 2% | -- | -- | -- | 0.14 – 0.16 | 0.23 | MDC | 13 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 2000 | | 11000 | | mg/kg | NYOW-01-002 (2021-04-09) | 0 - 1 | 52/52 | 100% | 5500 | 5500 | 1600 | 4.4 – 10 | 11000 | MDC | 7700 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Antimony | 7440-36-0 | 0.082 | J | 0.56 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 46/52 | 88% | 0.18 | 0.17 | 0.092 | 0.076 – 0.16 | 0.56 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 2.1 | | 11 | | mg/kg | NYOW-01-029 (2021-04-13) | 0 - 1 | 52/52 | 100% | 5 | 4.7 | 1.7 | 0.15 – 0.34 | 11 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Beryllium | 7440-41-7 | 0.36 | J+ | 0.87 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 49/52 | 94% | 0.48 | 0.47 | 0.11 | 0.087 – 0.67 | 0.87 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cadmium | 7440-43-9 | 0.013 | J | 0.79 | | mg/kg | NYOW-01-023 (2021-04-02) | 0 - 1 | 52/52 | 100% | 0.2 | 0.13 | 0.18 | 0.027 – 0.059 | 0.79 | MDC | 0.71 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Chromium | 7440-47-3 | 3.4 | | 18 | | mg/kg | Multiple Locations | 0 - 1 | 52/52 | 100% | 8.1 | 7.5 | 2.8 | 0.29 – 2.2 | 18 | MDC | 12000 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 2.2 | | 13 | | mg/kg | NYOW-01-015 (2021-04-02) | 1 - 5 | 52/52 | 100% | 6.3 | 5.7 | 2.4 | 0.15 – 0.35 | 13 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 6.8 | | 100 | | mg/kg | NYOW-01-016 (2021-04-02) | 5 - 10 | 52/52 | 100% | 22 | 20 | 15 | 0.58 – 1.4 | 100 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 6000 | | 26000 | | mg/kg | NYOW-01-029 (2021-04-13) | 0 - 1 | 52/52 | 100% | 14000 | 14000 | 3800 | 15 – 35 | 26000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 2.7 | | 200 | | mg/kg | NYOW-01-034 (2021-04-14) | 0 - 1 | 52/52 | 100% | 19 | 11 | 29 | 0.58 – 4.5 | 200 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 230 | | 7000 | | mg/kg | NYOW-01-022 (2021-04-07) | 1 - 5 | 52/52 | 100% | 700 | 550 | 920 | 0.29 – 3.9 | 7000 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Mercury | 7439-97-6 | 0.012 | J | 0.76 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 41/52 | 79% | 0.051 | 0.021 | 0.11 | 0.015 – 0.03 | 0.76 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Nickel | 7440-02-0 | 3.8 | | 15 | | mg/kg | NYOW-01-020 (2021-04-06) | 5 - 10 | 52/52 | 100% | 9.9 | 9.6 | 2.4 | 0.33 – 0.78 | 15 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Selenium | 7782-49-2 | 0.38 | J+ | 0.85 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 40/52 | 77% | 0.47 | 0.45 | 0.12 | 0.31 – 0.68 | 0.85 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Silver | 7440-22-4 | 1.1 | J+ | 2.6 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 18/52 | 35% | 0.83 | 0.64 | 0.56 | 0.44 – 1 | 2.6 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Vanadium | 7440-62-2 | 6.8 | | 20 | | mg/kg | NYOW-01-002 (2021-04-09) | 0 - 1 | 52/52 | 100% | 12 | 12 | 2.8 | 0.25 – 0.61 | 20 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Zinc | 7440-66-6 | 11 | | 180 | J | mg/kg | NYOW-01-005 (2021-04-08) | 0 - 1 | 52/52 | 100% | 52 | 39 | 38 | 1.1 – 2.6 | 180 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-4
Human Health Screening Summary – Area of Concern 3, Surface Soil (0 - 1 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Surface Soil (0 - 1 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 0.39 | J+ | 0.49 | J+ | mg/kg | Multiple Locations | 0 - 1 | 5/16 | 31% | 0.27 | 0.22 | 0.13 | 0.19 – 0.25 | 0.49 | MDC | 170 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | 0.14 | J | 3.4 | J- | mg/kg | NYOW-03-015 (2021-05-04) | 0 - 1 | 2/16 | 13% | 0.29 | 0.084 | 0.8 | 0.076 – 0.099 | 3.4 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Carbazole | 86-74-8 | 0.045 | J | 0.55 | | mg/kg | NYOW-03-011 (2021-03-31) | 0 - 1 | 3/16 | 19% | 0.081 | 0.084 | 0.12 | 0.076 – 0.099 | 0.55 | MDC | 240 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cresols, m- & p- | cresols-m,p | 0.39 | J+ | 0.39 | J+ | mg/kg | NYOW-03-012 (2021-03-31) | 0 - 1 | 1/16 | 6% | -- | -- | -- | 0.076 – 0.099 | 0.39 | MDC | 130 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Dibenzofuran | 132-64-9 | 0.39 | J+ | 0.42 | J+ | mg/kg | NYOW-03-011 (2021-03-31) | 0 - 1 | 2/16 | 13% | 0.12 | 0.084 | 0.11 | 0.076 – 0.099 | 0.42 | MDC | 7.8 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.0009 | J | 0.65 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 12/16 | 75% | 0.067 | 0.0071 | 0.17 | 0.0022 – 0.049 | 0.65 | MDC | 18 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| 2-Methylnaphthalene | 91-57-6 | 0.0011 | J | 1 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 14/16 | 88% | 0.085 | 0.0079 | 0.24 | 0.0022 – 0.049 | 1 | MDC | 24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthene | 83-32-9 | 0.0012 | J | 4.3 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 7/16 | 44% | 0.29 | 0.0091 | 1 | 0.0012 – 0.026 | 4.3 | MDC | 360 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthylene | 208-96-8 | 0.0055 | J | 1.6 | | mg/kg | NYOW-03-008 (2021-04-05) | 0 - 1 | 13/16 | 81% | 0.31 | 0.095 | 0.46 | 0.0012 – 0.048 | 1.6 | MDC | 360 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Anthracene | 120-12-7 | 0.0042 | J | 8.2 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 15/16 | 94% | 0.67 | 0.064 | 2 | 0.0049 – 0.75 | 8.2 | MDC | 1800 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(a)anthracene | 56-55-3 | 0.0032 | J | 5.3 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 16/16 | 100% | 0.89 | 0.2 | 1.6 | 0.005 – 0.19 | 5.3 | MDC | 1.1 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Benzo(a)pyrene | 50-32-8 | 0.0047 | J | 4.4 | | mg/kg | NYOW-03-008 (2021-04-05) | 0 - 1 | 16/16 | 100% | 0.8 | 0.21 | 1.3 | 0.005 – 0.19 | 4.4 | MDC | 0.11 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Benzo(b)fluoranthene | 205-99-2 | 0.0062 | J | 4.9 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 16/16 | 100% | 1 | 0.28 | 1.6 | 0.0077 – 0.3 | 4.9 | MDC | 1.1 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Benzo(g,h,i)perylene | 191-24-2 | 0.003 | J | 2.1 | | mg/kg | NYOW-03-008 (2021-04-05) | 0 - 1 | 16/16 | 100% | 0.4 | 0.12 | 0.61 | 0.0077 – 0.3 | 2.1 | MDC | 180 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(k)fluoranthene | 207-08-9 | 0.01 | J | 1.9 | | mg/kg | NYOW-03-008 (2021-04-05) | 0 - 1 | 15/16 | 94% | 0.38 | 0.12 | 0.59 | 0.005 – 0.19 | 1.9 | MDC | 11 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Chrysene | 218-01-9 | 0.0044 | J | 4.9 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 16/16 | 100% | 0.82 | 0.22 | 1.4 | 0.005 – 0.19 | 4.9 | MDC | 110 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Dibenz(a,h)anthracene | 53-70-3 | 0.0093 | J | 0.69 | | mg/kg | NYOW-03-008 (2021-04-05) | 0 - 1 | 10/16 | 63% | 0.12 | 0.036 | 0.19 | 0.0075 – 0.29 | 0.69 | MDC | 0.11 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Fluoranthene | 206-44-0 | 0.007 | J | 20 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 16/16 | 100% | 2.2 | 0.37 | 5.1 | 0.005 – 0.75 | 20 | MDC | 240 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Fluorene | 86-73-7 | 0.0022 | J | 4.3 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 13/16 | 81% | 0.38 | 0.032 | 1.1 | 0.003 – 0.12 | 4.3 | MDC | 240 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.016 | | 3.1 | | mg/kg | NYOW-03-008 (2021-04-05) | 0 - 1 | 15/16 | 94% | 0.55 | 0.15 | 0.85 | 0.0077 – 0.3 | 3.1 | MDC | 1.1 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Naphthalene | 91-20-3 | 0.0016 | J | 0.78 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 13/16 | 81% | 0.068 | 0.0072 | 0.19 | 0.0022 – 0.049 | 0.78 | MDC | 2 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Phenanthrene | 85-01-8 | 0.0036 | J | 27 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 16/16 | 100% | 2.3 | 0.22 | 6.8 | 0.0077 – 1.2 | 27 | MDC | 1800 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Pyrene | 129-00-0 | 0.006 | J | 16 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 16/16 | 100% | 1.9 | 0.32 | 4.2 | 0.0077 – 1.2 | 16 | MDC | 180 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.069 | J+ | 0.1 | J+ | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 4/12 | 33% | 0.032 | 0.0083 | 0.036 | 0.007 – 0.01 | 0.1 | MDC | 0.24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 3200 | | 11000 | | mg/kg | NYOW-03-009 (2021-04-05) | 0 - 1 | 16/16 | 100% | 6900 | 6700 | 2100 | 5.1 – 8.8 | 11000 | MDC | 7700 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Antimony | 7440-36-0 | 0.095 | J | 0.36 | | mg/kg | NYOW-03-007 (2021-04-01) | 0 - 1 | 15/16 | 94% | 0.19 | 0.17 | 0.077 | 0.082 – 0.16 | 0.36 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Beryllium | 7440-41-7 | 0.43 | J+ | 0.73 | J+ | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 16/16 | 100% | 0.53 | 0.51 | 0.084 | 0.1 – 0.18 | 0.73 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cadmium | 7440-43-9 | 0.053 | J | 0.55 | | mg/kg | NYOW-03-016 (2021-04-01) | 0 - 1 | 16/16 | 100% | 0.23 | 0.21 | 0.14 | 0.028 – 0.053 | 0.55 | MDC | 0.71 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 0.54 | J | 8 | | mg/kg | NYOW-03-007 (2021-04-01) | 0 - 1 | 16/16 | 100% | 4 | 4.1 | 2.1 | 0.17 – 0.29 | 8 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 3.8 | J | 28 | | mg/kg | NYOW-03-016 (2021-04-01) | 0 - 1 | 16/16 | 100% | 13 | 12 | 7.8 | 0.68 – 1.2 | 28 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 4400 | | 21000 | | mg/kg | NYOW-03-006 (2021-04-01) | 0 - 1 | 16/16 | 100% | 12000 | 11000 | 4800 | 17 – 29 | 21000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 3.4 | | 54 | | mg/kg | NYOW-03-007 (2021-04-01) | 0 - 1 | 16/16 | 100% | 18 | 12 | 14 | 0.68 – 1.2 | 54 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 48 | | 650 | | mg/kg | NYOW-03-012 (2021-03-31) | 0 - 1 | 16/16 | 100% | 330 | 360 | 200 | 0.34 – 0.59 | 650 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Nickel | 7440-02-0 | 1.4 | J | 18 | | mg/kg | NYOW-03-007 (2021-04-01) | 0 - 1 | 16/16 | 100% | 8.5 | 9 | 4.4 | 0.38 – 0.66 | 18 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Selenium | 7782-49-2 | 0.15 | J | 0.61 | J | mg/kg | NYOW-03-004 (2021-03-31) | 0 - 1 | 16/16 | 100% | 0.3 | 0.3 | 0.11 | 0.33 – 0.6 | 0.61 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Silver | 7440-22-4 | 1.4 | J+ | 1.4 | J+ | mg/kg | Multiple Locations | 0 - 1 | 2/16 | 13% | -- | -- | -- | 0.51 – 0.88 | 1.4 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Thallium | 7440-28-0 | 0.054 | J | 0.17 | | mg/kg | NYOW-03-007 (2021-04-01) | 0 - 1 | 10/16 | 63% | 0.098 | 0.11 | 0.029 | 0.0081 – 0.12 | 0.17 | MDC | 0.078 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Vanadium | 7440-62-2 | 5.9 | | 17 | | mg/kg | NYOW-03-006 (2021-04-01) | 0 - 1 | 16/16 | 100% | 13 | 12 | 3.1 | 0.3 – 0.51 | 17 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Zinc | 7440-66-6 | 12 | | 85 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 16/16 | 100% | 41 | 36 | 22 | 1.3 – 2.2 | 85 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-5
Human Health Screening Summary – Area of Concern 3, Total Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 0.0049 | J- | 0.03 | J- | mg/kg | NYOW-03-018 (2021-05-04) | 1 - 5 | 5/18 | 28% | 0.0072 | 0.013 | 0.0056 | 0.011 – 0.015 | 0.03 | MDC | 2700 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acetone | 67-64-1 | 0.036 | J | 0.32 | | mg/kg | NYOW-03-018 (2021-05-04) | 1 - 5 | 6/18 | 33% | 0.065 | 0.075 | 0.067 | 0.064 – 0.083 | 0.32 | MDC | 7000 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cumene | 98-82-8 | 0.0059 | | 0.0059 | | mg/kg | NYOW-03-010 (2021-03-31) | 1 - 5 | 1/18 | 6% | -- | -- | -- | 0.0045 – 0.0058 | 0.0059 | MDC | 190 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Toluene | 108-88-3 | 0.0046 | J+ | 0.0051 | J+ | mg/kg | NYOW-03-006 (2021-05-04) | 1 - 5 | 4/18 | 22% | 0.0016 | 0.00083 | 0.0017 | 0.00072 – 0.00093 | 0.0051 | MDC | 490 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 0.39 | J+ | 0.49 | J+ | mg/kg | Multiple Locations | 0 - 1 | 6/36 | 17% | 0.23 | 0.21 | 0.1 | 0.18 – 0.25 | 0.49 | MDC | 170 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | 0.14 | J | 3.4 | J- | mg/kg | NYOW-03-015 (2021-05-04) | 0 - 1 | 2/36 | 6% | 0.17 | 0.082 | 0.55 | 0.071 – 0.099 | 3.4 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Carbazole | 86-74-8 | 0.045 | J | 0.55 | | mg/kg | NYOW-03-011 (2021-03-31) | 0 - 1 | 3/36 | 8% | 0.061 | 0.082 | 0.084 | 0.071 – 0.099 | 0.55 | MDC | 240 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cresols, m- & p- | cresols-m,p | 0.39 | J+ | 0.39 | J+ | mg/kg | NYOW-03-012 (2021-03-31) | 0 - 1 | 1/36 | 3% | -- | -- | -- | 0.071 – 0.099 | 0.39 | MDC | 130 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Dibenzofuran | 132-64-9 | 0.39 | J+ | 0.42 | J+ | mg/kg | NYOW-03-011 (2021-03-31) | 0 - 1 | 2/36 | 6% | 0.09 | 0.082 | 0.077 | 0.071 – 0.099 | 0.42 | MDC | 7.8 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.00065 | J | 0.65 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 17/32 | 53% | 0.035 | 0.0026 | 0.12 | 0.002 – 0.049 | 0.65 | MDC | 18 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| 2-Methylnaphthalene | 91-57-6 | 0.00074 | J | 1 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 18/32 | 56% | 0.044 | 0.0025 | 0.18 | 0.002 – 0.049 | 1 | MDC | 24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthene | 83-32-9 | 0.0012 | J | 4.3 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 10/32 | 31% | 0.15 | 0.0016 | 0.75 | 0.0011 – 0.026 | 4.3 | MDC | 360 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthylene | 208-96-8 | 0.0029 | J | 1.6 | | mg/kg | NYOW-03-008 (2021-04-05) | 0 - 1 | 18/32 | 56% | 0.16 | 0.013 | 0.36 | 0.0011 – 0.048 | 1.6 | MDC | 360 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Anthracene | 120-12-7 | 0.0021 | J | 8.2 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 22/32 | 69% | 0.34 | 0.0064 | 1.4 | 0.0043 – 0.75 | 8.2 | MDC | 1800 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(a)anthracene | 56-55-3 | 0.0025 | J | 5.3 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 24/32 | 75% | 0.47 | 0.025 | 1.2 | 0.0043 – 0.19 | 5.3 | MDC | 1.1 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Benzo(a)pyrene | 50-32-8 | 0.0027 | J | 4.4 | | mg/kg | NYOW-03-008 (2021-04-05) | 0 - 1 | 24/32 | 75% | 0.45 | 0.032 | 1 | 0.0043 – 0.19 | 4.4 | MDC | 0.11 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Benzo(b)fluoranthene | 205-99-2 | 0.004 | J | 4.9 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 24/32 | 75% | 0.57 | 0.048 | 1.2 | 0.0067 – 0.3 | 4.9 | MDC | 1.1 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Benzo(g,h,i)perylene | 191-24-2 | 0.003 | J | 2.1 | | mg/kg | NYOW-03-008 (2021-04-05) | 0 - 1 | 22/32 | 69% | 0.23 | 0.02 | 0.47 | 0.0067 – 0.3 | 2.1 | MDC | 180 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(k)fluoranthene | 207-08-9 | 0.0027 | J | 1.9 | | mg/kg | NYOW-03-008 (2021-04-05) | 0 - 1 | 22/32 | 69% | 0.22 | 0.018 | 0.47 | 0.0043 – 0.19 | 1.9 | MDC | 11 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Chrysene | 218-01-9 | 0.0028 | J | 4.9 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 24/32 | 75% | 0.45 | 0.034 | 1.1 | 0.0043 – 0.19 | 4.9 | MDC | 110 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Dibenz(a,h)anthracene | 53-70-3 | 0.0056 | J | 0.69 | | mg/kg | NYOW-03-008 (2021-04-05) | 0 - 1 | 14/32 | 44% | 0.074 | 0.0086 | 0.15 | 0.0067 – 0.29 | 0.69 | MDC | 0.11 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Fluoranthene | 206-44-0 | 0.0047 | J | 20 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 24/32 | 75% | 1.1 | 0.06 | 3.6 | 0.0043 – 0.75 | 20 | MDC | 240 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Fluorene | 86-73-7 | 0.0013 | J | 4.3 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 20/32 | 63% | 0.19 | 0.0035 | 0.78 | 0.0027 – 0.12 | 4.3 | MDC | 240 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.0028 | J | 3.1 | | mg/kg | NYOW-03-008 (2021-04-05) | 0 - 1 | 22/32 | 69% | 0.31 | 0.024 | 0.67 | 0.0067 – 0.3 | 3.1 | MDC | 1.1 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Phenanthrene | 85-01-8 | 0.0036 | J | 27 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 23/32 | 72% | 1.2 | 0.02 | 4.8 | 0.0067 – 1.2 | 27 | MDC | 1800 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Pyrene | 129-00-0 | 0.0039 | J | 16 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 24/32 | 75% | 0.98 | 0.051 | 3 | 0.0067 – 1.2 | 16 | MDC | 180 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.069 | J+ | 0.1 | J+ | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 6/24 | 25% | 0.026 | 0.0082 | 0.032 | 0.007 – 0.01 | 0.1 | MDC | 0.24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 3200 | | 11000 | | mg/kg | Multiple Locations | 1 - 5 | 32/32 | 100% | 7200 | 7200 | 2000 | 4.8 – 8.8 | 11000 | MDC | 7700 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Antimony | 7440-36-0 | 0.095 | J | 0.36 | | mg/kg | NYOW-03-007 (2021-04-01) | 0 - 1 | 29/32 | 91% | 0.18 | 0.18 | 0.063 | 0.073 – 0.16 | 0.36 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 1.5 | | 5.9 | | mg/kg | NYOW-03-006 (2021-04-01) | 1 - 5 | 32/32 | 100% | 3 | 2.7 | 1.1 | 0.16 – 0.3 | 5.9 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Beryllium | 7440-41-7 | 0.12 | J | 0.73 | J+ | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 32/32 | 100% | 0.42 | 0.46 | 0.15 | 0.095 – 0.18 | 0.73 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 0.54 | J | 10 | | mg/kg | NYOW-03-011 (2021-03-31) | 1 - 5 | 32/32 | 100% | 4.5 | 4.2 | 2.1 | 0.16 – 0.29 | 10 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 3.8 | J | 29 | | mg/kg | NYOW-03-011 (2021-03-31) | 1 - 5 | 32/32 | 100% | 12 | 10 | 7.1 | 0.64 – 1.2 | 29 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 4400 | | 23000 | | mg/kg | NYOW-03-006 (2021-04-01) | 1 - 5 | 32/32 | 100% | 12000 | 11000 | 4500 | 16 – 29 | 23000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 2.7 | J+ | 56 | | mg/kg | NYOW-03-011 (2021-03-31) | 1 - 5 | 32/32 | 100% | 16 | 10 | 14 | 0.64 – 1.2 | 56 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 48 | | 650 | | mg/kg | NYOW-03-012 (2021-03-31) | 0 - 1 | 32/32 | 100% | 340 | 360 | 170 | 0.32 – 0.59 | 650 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Mercury | 7439-97-6 | 0.009 | J | 0.16 | | mg/kg | NYOW-03-007 (2021-04-01) | 0 - 1 | 31/32 | 97% | 0.041 | 0.037 | 0.027 | 0.015 – 0.025 | 0.16 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Nickel | 7440-02-0 | 1.4 | J | 24 | | mg/kg | NYOW-03-011 (2021-03-31) | 1 - 5 | 32/32 | 100% | 9.8 | 9.4 | 5 | 0.36 – 0.66 | 24 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Selenium | 7782-49-2 | 0.15 | J | 0.61 | J | mg/kg | NYOW-03-004 (2021-03-31) | 0 - 1 | 30/32 | 94% | 0.39 | 0.41 | 0.13 | 0.32 – 0.6 | 0.61 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Silver | 7440-22-4 | 1.2 | J+ | 1.4 | J+ | mg/kg | Multiple Locations | 0 - 1 | 4/32 | 13% | 0.61 | 0.6 | 0.28 | 0.48 – 0.88 | 1.4 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Thallium | 7440-28-0 | 0.042 | J | 0.49 | | mg/kg | NYOW-03-011 (2021-03-31) | 1 - 5 | 21/32 | 66% | 0.1 | 0.1 | 0.078 | 0.0079 – 0.12 | 0.49 | MDC | 0.078 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Vanadium | 7440-62-2 | 5.9 | | 17 | | mg/kg | NYOW-03-006 (2021-04-01) | 0 - 1 | 32/32 | 100% | 12 | 12 | 2.9 | 0.28 – 0.51 | 17 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Zinc | 7440-66-6 | 12 | | 85 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 32/32 | 100% | 33 | 25 | 18 | 1.2 – 2.2 | 85 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-6
Human Health Screening Summary – Area of Concern 5 (Boiler House), Surface Soil (0 - 1 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| Acenaphthylene | 208-96-8 | 0.01 | J+ | 0.012 | J+ | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 2/5 | 40% | 0.0051 | 0.0012 | 0.0049 | 0.0011 – 0.0013 | 0.012 | MDC | 360 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.16 | J+ | 0.22 | J+ | mg/kg | NYOW-05-018 (2021-01-11) | 0 - 1 | 5/5 | 100% | 0.19 | 0.18 | 0.024 | 0.079 – 0.11 | 0.22 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 4.8 | | 25 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 5/5 | 100% | 9.5 | 5.8 | 8.7 | 0.15 – 0.2 | 25 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Beryllium | 7440-41-7 | 0.4 | J+ | 0.46 | J+ | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 0.43 | 0.42 | 0.028 | 0.095 – 0.11 | 0.46 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 4.7 | | 5.9 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 0 - 1 | 5/5 | 100% | 5.3 | 5.3 | 0.51 | 0.16 – 0.18 | 5.9 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 14 | | 20 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 18 | 19 | 2.7 | 0.63 – 0.74 | 20 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 14000 | | 18000 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 0 - 1 | 5/5 | 100% | 15000 | 15000 | 1500 | 16 – 18 | 18000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Manganese | 7439-96-5 | 490 | | 710 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 640 | 670 | 91 | 0.32 – 0.37 | 710 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Nickel | 7440-02-0 | 9.6 | | 12 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 0 - 1 | 5/5 | 100% | 11 | 11 | 0.94 | 0.36 – 0.41 | 12 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Zinc | 7440-66-6 | 25 | | 31 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 5/5 | 100% | 27 | 27 | 2.5 | 1.2 – 1.4 | 31 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-7
Human Health Screening Summary – Area of Concern 5 (Boiler House), Total Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source | Potential ARAR [2] | Source | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.01 | J+ | 0.012 | J+ | mg/kg | Multiple Locations | 0 - 1 | 4/10 | 40% | 0.0057 | 0.0023 | 0.0046 | 0.002 – 0.0024 | 0.012 | MDC | 18 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthylene | 208-96-8 | 0.01 | J+ | 0.012 | J+ | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 2/10 | 20% | 0.0031 | 0.0012 | 0.004 | 0.0011 – 0.0013 | 0.012 | MDC | 360 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Anthracene | 120-12-7 | 0.01 | J+ | 0.012 | J+ | mg/kg | Multiple Locations | 0 - 1 | 3/10 | 30% | 0.0065 | 0.0049 | 0.0032 | 0.0044 – 0.0052 | 0.012 | MDC | 1800 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Phenanthrene | 85-01-8 | 0.0051 | J- | 0.019 | | mg/kg | Multiple Locations | 0 - 1 | 7/10 | 70% | 0.0095 | 0.0073 | 0.0053 | 0.0067 – 0.008 | 0.019 | MDC | 1800 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 5100 | | 9900 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 1 - 5 | 10/10 | 100% | 6400 | 5800 | 1700 | 4.7 – 5.7 | 9900 | MDC | 7700 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Antimony | 7440-36-0 | 0.16 | J+ | 0.22 | J+ | mg/kg | NYOW-05-018 (2021-01-11) | 0 - 1 | 10/10 | 100% | 0.18 | 0.18 | 0.022 | 0.078 – 0.11 | 0.22 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 4.6 | | 25 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 10/10 | 100% | 8.5 | 6.1 | 6.2 | 0.15 – 0.2 | 25 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Beryllium | 7440-41-7 | 0.21 | J | 0.46 | J+ | mg/kg | Multiple Locations | 0 - 1 | 10/10 | 100% | 0.37 | 0.41 | 0.089 | 0.095 – 0.11 | 0.46 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Chromium | 7440-47-3 | 6.8 | | 14 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 1 - 5 | 10/10 | 100% | 9 | 8.2 | 2.3 | 0.32 – 0.38 | 14 | MDC | 12000 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 4.7 | | 8.2 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 1 - 5 | 10/10 | 100% | 6 | 5.7 | 1.2 | 0.16 – 0.19 | 8.2 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 14 | | 22 | | mg/kg | NYOW-05-019 (2021-01-11) | 1 - 5 | 10/10 | 100% | 18 | 17 | 2.4 | 0.63 – 0.76 | 22 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 14000 | | 20000 | | mg/kg | NYOW-05-016 (2021-01-14) | 1 - 5 | 10/10 | 100% | 16000 | 16000 | 1900 | 16 – 19 | 20000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 5.5 | | 28 | | mg/kg | NYOW-05-020 (2021-01-08) | 1 - 5 | 10/10 | 100% | 9.2 | 7.5 | 6.7 | 0.63 – 0.76 | 28 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 390 | | 750 | | mg/kg | NYOW-05-019 (2021-01-11) | 1 - 5 | 10/10 | 100% | 600 | 650 | 130 | 0.32 – 0.38 | 750 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Mercury | 7439-97-6 | 0.0075 | J | 0.054 | | mg/kg | NYOW-05-019 (2021-01-11) | 0 - 1 | 6/10 | 60% | 0.022 | 0.016 | 0.016 | 0.015 – 0.021 | 0.054 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Nickel | 7440-02-0 | 9.6 | | 18 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 1 - 5 | 10/10 | 100% | 12 | 11 | 2.8 | 0.35 – 0.43 | 18 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Thallium | 7440-28-0 | 0.061 | J | 0.14 | | mg/kg | NYOW-05-018 (2021-01-11) | 1 - 5 | 5/10 | 50% | 0.084 | 0.099 | 0.03 | 0.0082 – 0.099 | 0.14 | MDC | 0.078 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Vanadium | 7440-62-2 | 11 | | 19 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 1 - 5 | 10/10 | 100% | 14 | 13 | 2.8 | 0.28 – 0.33 | 19 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Zinc | 7440-66-6 | 22 | | 150 | | mg/kg | NYOW-05-020 (2021-01-08) | 1 - 5 | 10/10 | 100% | 40 | 28 | 39 | 1.2 – 1.4 | 150 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-8
Human Health Screening Summary – Area of Concern 5 (Boiler House), Total Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 10 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.01 | J+ | 0.13 | | mg/kg | NYOW-05-018 (2021-01-11) | 5 - 6 | 5/15 | 33% | 0.013 | 0.0023 | 0.032 | 0.002 – 0.0024 | 0.13 | MDC | 18 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| 2-Methylnaphthalene | 91-57-6 | 0.0015 | J | 0.16 | | mg/kg | NYOW-05-018 (2021-01-11) | 5 - 6 | 8/15 | 53% | 0.016 | 0.0023 | 0.039 | 0.002 – 0.0024 | 0.16 | MDC | 24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthene | 83-32-9 | 0.012 | J+ | 0.012 | J+ | mg/kg | NYOW-05-018 (2021-01-11) | 5 - 6 | 1/15 | 7% | -- | -- | -- | 0.0011 – 0.0013 | 0.012 | MDC | 360 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthylene | 208-96-8 | 0.01 | J+ | 0.012 | J+ | mg/kg | Multiple Locations | 5 - 6 | 3/15 | 20% | 0.0032 | 0.0012 | 0.0041 | 0.0011 – 0.0013 | 0.012 | MDC | 360 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Anthracene | 120-12-7 | 0.01 | J+ | 0.012 | J+ | mg/kg | Multiple Locations | 0 - 1 | 4/15 | 27% | 0.0063 | 0.0049 | 0.0032 | 0.0044 – 0.0052 | 0.012 | MDC | 1800 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Naphthalene | 91-20-3 | 0.0014 | J | 0.1 | | mg/kg | NYOW-05-018 (2021-01-11) | 5 - 6 | 10/15 | 67% | 0.013 | 0.01 | 0.024 | 0.002 – 0.0024 | 0.1 | MDC | 2 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Phenanthrene | 85-01-8 | 0.0051 | J- | 0.12 | | mg/kg | NYOW-05-018 (2021-01-11) | 5 - 6 | 8/15 | 53% | 0.016 | 0.0074 | 0.028 | 0.0067 – 0.008 | 0.12 | MDC | 1800 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 5100 | | 11000 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 5 - 10 | 15/15 | 100% | 7400 | 6300 | 2100 | 4.7 – 5.7 | 11000 | MDC | 7700 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Antimony | 7440-36-0 | 0.12 | J | 0.22 | J+ | mg/kg | NYOW-05-018 (2021-01-11) | 0 - 1 | 14/15 | 93% | 0.17 | 0.17 | 0.03 | 0.078 – 0.11 | 0.22 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 3.7 | | 40 | | mg/kg | NYOW-05-019 (2021-01-11) | 5 - 10 | 15/15 | 100% | 10 | 6.3 | 10 | 0.15 – 0.21 | 40 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Barium | 7440-39-3 | 41 | | 130 | | mg/kg | NYOW-05-020 (2021-01-08) | 5 - 10 | 15/15 | 100% | 63 | 53 | 23 | 0.71 – 0.85 | 130 | MDC | 1500 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Chromium | 7440-47-3 | 6.8 | | 16 | | mg/kg | NYOW-05-020 (2021-01-08) | 5 - 10 | 15/15 | 100% | 11 | 9.5 | 3.1 | 0.32 – 0.38 | 16 | MDC | 12000 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 4.7 | | 8.5 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 5 - 10 | 15/15 | 100% | 6.6 | 6.3 | 1.3 | 0.16 – 0.19 | 8.5 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 14 | | 22 | | mg/kg | NYOW-05-019 (2021-01-11) | 1 - 5 | 15/15 | 100% | 18 | 18 | 2.1 | 0.63 – 0.76 | 22 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 14000 | | 20000 | | mg/kg | NYOW-05-016 (2021-01-14) | 1 - 5 | 15/15 | 100% | 17000 | 17000 | 1900 | 16 – 19 | 20000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 5.5 | | 28 | | mg/kg | NYOW-05-020 (2021-01-08) | 1 - 5 | 15/15 | 100% | 8.9 | 7.5 | 5.5 | 0.63 – 0.76 | 28 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 390 | | 750 | | mg/kg | NYOW-05-019 (2021-01-11) | 1 - 5 | 15/15 | 100% | 560 | 520 | 120 | 0.32 – 0.38 | 750 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Mercury | 7439-97-6 | 0.0075 | J | 0.2 | | mg/kg | NYOW-05-018 (2021-01-11) | 5 - 6 | 8/15 | 53% | 0.033 | 0.017 | 0.047 | 0.015 – 0.021 | 0.2 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Nickel | 7440-02-0 | 9.6 | | 20 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 5 - 10 | 15/15 | 100% | 14 | 14 | 3.3 | 0.35 – 0.43 | 20 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Thallium | 7440-28-0 | 0.061 | J | 0.71 | | mg/kg | NYOW-05-019 (2021-01-11) | 5 - 10 | 9/15 | 60% | 0.13 | 0.099 | 0.16 | 0.0082 – 0.099 | 0.71 | MDC | 0.078 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Vanadium | 7440-62-2 | 11 | | 19 | | mg/kg | Multiple Locations | 5 - 10 | 15/15 | 100% | 15 | 13 | 3.1 | 0.28 – 0.33 | 19 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Zinc | 7440-66-6 | 22 | | 150 | | mg/kg | NYOW-05-020 (2021-01-08) | 1 - 5 | 15/15 | 100% | 42 | 31 | 33 | 1.2 – 1.4 | 150 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-9
Human Health Screening Summary – Area of Concern 5 (Coal Aggregate Bins), Surface Soil (0 - 1 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Surface Soil (0 - 1 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.0054 | J | 7.4 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 2.3 | 1.8 | 3 | 0.0023 – 0.1 | 7.4 | MDC | 18 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| 2-Methylnaphthalene | 91-57-6 | 0.0071 | J | 10 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 3.2 | 2.5 | 4.1 | 0.0023 – 0.1 | 10 | MDC | 24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthene | 83-32-9 | 0.065 | J- | 0.065 | J- | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.0013 – 0.056 | 0.065 | MDC | 360 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthylene | 208-96-8 | 0.0036 | J | 0.37 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 4/5 | 80% | 0.092 | 0.054 | 0.14 | 0.0013 – 0.056 | 0.37 | MDC | 360 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Anthracene | 120-12-7 | 0.0036 | J | 0.22 | J | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 4/5 | 80% | 0.073 | 0.062 | 0.088 | 0.0051 – 0.23 | 0.22 | MDC | 1800 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(a)anthracene | 56-55-3 | 0.019 | J+ | 0.44 | J | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.22 | 0.21 | 0.2 | 0.0051 – 0.23 | 0.44 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(a)pyrene | 50-32-8 | 0.022 | | 0.79 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.23 | 0.12 | 0.32 | 0.0051 – 0.23 | 0.79 | MDC | 0.11 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Benzo(b)fluoranthene | 205-99-2 | 0.034 | | 1.4 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.4 | 0.21 | 0.57 | 0.0078 – 0.35 | 1.4 | MDC | 1.1 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Benzo(g,h,i)perylene | 191-24-2 | 0.022 | | 4.7 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 4/5 | 80% | 1 | 0.13 | 1.9 | 0.0078 – 0.35 | 4.7 | MDC | 180 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(k)fluoranthene | 207-08-9 | 0.012 | | 0.4 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 4/5 | 80% | 0.1 | 0.063 | 0.15 | 0.0051 – 0.23 | 0.4 | MDC | 11 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Chrysene | 218-01-9 | 0.024 | | 1.1 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.4 | 0.25 | 0.45 | 0.0051 – 0.23 | 1.1 | MDC | 110 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Dibenz(a,h)anthracene | 53-70-3 | 0.0047 | J | 0.88 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 3/5 | 60% | 0.18 | 0.081 | 0.35 | 0.0078 – 0.35 | 0.88 | MDC | 0.11 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Fluoranthene | 206-44-0 | 0.029 | J+ | 0.46 | J | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.23 | 0.31 | 0.19 | 0.0051 – 0.23 | 0.46 | MDC | 240 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Fluorene | 86-73-7 | 0.0013 | J | 0.11 | J | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.037 | 0.031 | 0.044 | 0.0031 – 0.14 | 0.11 | MDC | 240 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.026 | | 3.4 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 4/5 | 80% | 0.73 | 0.11 | 1.3 | 0.0078 – 0.35 | 3.4 | MDC | 1.1 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Naphthalene | 91-20-3 | 0.009 | J | 7.1 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 2.3 | 1.8 | 2.9 | 0.0023 – 0.1 | 7.1 | MDC | 2 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Phenanthrene | 85-01-8 | 0.014 | | 3.9 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 1.2 | 0.98 | 1.6 | 0.0078 – 0.35 | 3.9 | MDC | 1800 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Pyrene | 129-00-0 | 0.029 | J+ | 0.73 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.31 | 0.34 | 0.29 | 0.0078 – 0.35 | 0.73 | MDC | 180 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 1400 | J+ | 8000 | J+ | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 4900 | 5600 | 2400 | 6.1 – 7.8 | 8000 | MDC | 7700 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Antimony | 7440-36-0 | 0.15 | J | 0.33 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.22 | 0.19 | 0.075 | 0.088 – 0.13 | 0.33 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 4.6 | | 16 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 9.8 | 10 | 4.9 | 0.21 – 0.26 | 16 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Beryllium | 7440-41-7 | 0.28 | J- | 0.63 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.4 | 0.39 | 0.14 | 0.12 – 0.16 | 0.63 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Chromium | 7440-47-3 | 5.8 | | 13 | J- | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 8.8 | 8.3 | 2.6 | 0.41 – 0.52 | 13 | MDC | 12000 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 1.8 | | 7.5 | J- | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 5.2 | 5.2 | 2.1 | 0.2 – 0.26 | 7.5 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 10 | | 22 | | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 17 | 17 | 4.8 | 0.82 – 1 | 22 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 11000 | | 21000 | J | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 15000 | 14000 | 3900 | 20 – 26 | 21000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 8.6 | J- | 21 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 5/5 | 100% | 13 | 8.9 | 5.8 | 0.82 – 1 | 21 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 110 | | 660 | J | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 450 | 420 | 220 | 0.41 – 0.52 | 660 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Nickel | 7440-02-0 | 6.1 | | 15 | | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 11 | 12 | 3.3 | 0.46 – 0.58 | 15 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Selenium | 7782-49-2 | 0.22 | J | 0.9 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.58 | 0.65 | 0.31 | 0.41 – 0.51 | 0.9 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Thallium | 7440-28-0 | 0.12 | | 0.26 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 4/5 | 80% | 0.18 | 0.18 | 0.061 | 0.01 – 0.11 | 0.26 | MDC | 0.078 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Vanadium | 7440-62-2 | 7.6 | | 17 | | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 13 | 13 | 3.6 | 0.36 – 0.45 | 17 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Zinc | 7440-66-6 | 16 | | 55 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 5/5 | 100% | 39 | 36 | 16 | 1.5 – 1.9 | 55 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-10
Human Health Screening Summary – Area of Concern 5 (Coal Aggregate Bins), Total Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source | Potential ARAR [2] | Source | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | |
| Dibenzofuran | 132-64-9 | 0.38 | J+ | 0.38 | J+ | mg/kg | NYOW-05-024 (2021-01-08) | 1 - 5 | 1/5 | 20% | -- | -- | -- | 0.073 – 0.079 | 0.38 | MDC | 7.8 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.0022 | J | 7.4 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 9/10 | 90% | 1.2 | 0.046 | 2.2 | 0.0021 – 0.1 | 7.4 | MDC | 18 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| 2-Methylnaphthalene | 91-57-6 | 0.0018 | J | 10 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 10/10 | 100% | 1.6 | 0.054 | 3.2 | 0.0021 – 0.1 | 10 | MDC | 24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthene | 83-32-9 | 0.065 | J- | 0.065 | J- | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 1/10 | 10% | -- | -- | -- | 0.0011 – 0.056 | 0.065 | MDC | 360 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthylene | 208-96-8 | 0.0036 | J | 0.37 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 7/10 | 70% | 0.048 | 0.011 | 0.11 | 0.0011 – 0.056 | 0.37 | MDC | 360 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Anthracene | 120-12-7 | 0.0036 | J | 0.22 | J | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 6/10 | 60% | 0.036 | 0.0081 | 0.067 | 0.0045 – 0.23 | 0.22 | MDC | 1800 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(a)anthracene | 56-55-3 | 0.0025 | J | 0.44 | J | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.11 | 0.018 | 0.17 | 0.0045 – 0.23 | 0.44 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(a)pyrene | 50-32-8 | 0.0029 | J | 0.79 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.12 | 0.019 | 0.24 | 0.0045 – 0.23 | 0.79 | MDC | 0.11 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Benzo(b)fluoranthene | 205-99-2 | 0.0055 | J | 1.4 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.21 | 0.031 | 0.43 | 0.0069 – 0.35 | 1.4 | MDC | 1.1 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Benzo(g,h,i)perylene | 191-24-2 | 0.0053 | J- | 4.7 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 9/10 | 90% | 0.51 | 0.034 | 1.4 | 0.0069 – 0.35 | 4.7 | MDC | 180 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(k)fluoranthene | 207-08-9 | 0.011 | J+ | 0.4 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 7/10 | 70% | 0.055 | 0.012 | 0.12 | 0.0045 – 0.23 | 0.4 | MDC | 11 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Chrysene | 218-01-9 | 0.004 | J | 1.1 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.21 | 0.025 | 0.36 | 0.0045 – 0.23 | 1.1 | MDC | 110 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Dibenz(a,h)anthracene | 53-70-3 | 0.0047 | J | 0.88 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 4/10 | 40% | 0.094 | 0.0095 | 0.26 | 0.0069 – 0.35 | 0.88 | MDC | 0.11 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Fluoranthene | 206-44-0 | 0.0043 | J | 0.46 | J | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.12 | 0.03 | 0.17 | 0.0045 – 0.23 | 0.46 | MDC | 240 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Fluorene | 86-73-7 | 0.0013 | J | 0.11 | J | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 7/10 | 70% | 0.021 | 0.0071 | 0.032 | 0.0028 – 0.14 | 0.11 | MDC | 240 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.0052 | J- | 3.4 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 9/10 | 90% | 0.37 | 0.031 | 1 | 0.0069 – 0.35 | 3.4 | MDC | 1.1 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Naphthalene | 91-20-3 | 0.0027 | J | 7.1 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 10/10 | 100% | 1.2 | 0.042 | 2.3 | 0.0021 – 0.1 | 7.1 | MDC | 2 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Phenanthrene | 85-01-8 | 0.0041 | J | 3.9 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 9/10 | 90% | 0.61 | 0.028 | 1.2 | 0.0069 – 0.35 | 3.9 | MDC | 1800 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Pyrene | 129-00-0 | 0.004 | J | 0.73 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.16 | 0.028 | 0.25 | 0.0069 – 0.35 | 0.73 | MDC | 180 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 1400 | J+ | 9000 | | mg/kg | NYOW-05-025 (2021-01-11) | 1 - 5 | 10/10 | 100% | 6100 | 6100 | 2300 | 4.6 – 28 | 9000 | MDC | 7700 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Antimony | 7440-36-0 | 0.095 | J | 0.33 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.19 | 0.17 | 0.065 | 0.083 – 0.13 | 0.33 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 4.6 | | 16 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 10/10 | 100% | 8.1 | 6.6 | 3.8 | 0.17 – 0.26 | 16 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Beryllium | 7440-41-7 | 0.28 | J- | 2.3 | J+ | mg/kg | NYOW-05-025 (2021-01-11) | 1 - 5 | 10/10 | 100% | 0.62 | 0.43 | 0.6 | 0.093 – 0.55 | 2.3 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cadmium | 7440-43-9 | 0.1 | | 0.37 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.18 | 0.15 | 0.089 | 0.029 – 0.045 | 0.37 | MDC | 0.71 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Chromium | 7440-47-3 | 5.8 | | 13 | J- | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 10/10 | 100% | 8.8 | 8.5 | 2.1 | 0.31 – 0.52 | 13 | MDC | 12000 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 1.8 | | 9 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 6 | 6.2 | 2 | 0.15 – 0.26 | 9 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 10 | | 34 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 20 | 21 | 6.4 | 0.62 – 1 | 34 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 11000 | | 31000 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 19000 | 20000 | 5800 | 15 – 92 | 31000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 8.6 | J- | 21 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 10/10 | 100% | 13 | 11 | 4.6 | 0.62 – 1 | 21 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 110 | | 2400 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 840 | 740 | 620 | 0.31 – 3.5 | 2400 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Mercury | 7439-97-6 | 0.026 | | 0.11 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.058 | 0.058 | 0.028 | 0.016 – 0.022 | 0.11 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Nickel | 7440-02-0 | 6.1 | | 15 | | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 10/10 | 100% | 12 | 12 | 2.7 | 0.35 – 0.58 | 15 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Selenium | 7782-49-2 | 0.22 | J | 0.9 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.53 | 0.5 | 0.21 | 0.33 – 0.51 | 0.9 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Thallium | 7440-28-0 | 0.11 | | 0.26 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 6/10 | 60% | 0.14 | 0.12 | 0.062 | 0.0083 – 0.11 | 0.26 | MDC | 0.078 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Vanadium | 7440-62-2 | 7.6 | | 18 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 14 | 15 | 3.2 | 0.27 – 0.45 | 18 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Zinc | 7440-66-6 | 16 | | 66 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 39 | 36 | 15 | 1.2 – 1.9 | 66 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-11
Human Health Screening Summary – Area of Concern 5 (Coal Aggregate Bins), Total Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 10 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | |
| Dibenzofuran | 132-64-9 | 0.38 | J+ | 0.38 | J+ | mg/kg | NYOW-05-024 (2021-01-08) | 1 - 5 | 1/10 | 10% | -- | -- | -- | 0.073 – 0.079 | 0.38 | MDC | 7.8 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.0022 | J | 7.4 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 10/15 | 67% | 0.78 | 0.008 | 1.9 | 0.0021 – 0.1 | 7.4 | MDC | 18 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| 2-Methylnaphthalene | 91-57-6 | 0.0018 | J | 10 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 11/15 | 73% | 1.1 | 0.011 | 2.6 | 0.0021 – 0.1 | 10 | MDC | 24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthene | 83-32-9 | 0.065 | J- | 0.065 | J- | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 1/15 | 7% | -- | -- | -- | 0.0011 – 0.056 | 0.065 | MDC | 360 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthylene | 208-96-8 | 0.0036 | J | 0.37 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 7/15 | 47% | 0.032 | 0.0036 | 0.091 | 0.0011 – 0.056 | 0.37 | MDC | 360 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Anthracene | 120-12-7 | 0.0036 | J | 0.22 | J | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 6/15 | 40% | 0.024 | 0.0051 | 0.056 | 0.0045 – 0.23 | 0.22 | MDC | 1800 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(a)anthracene | 56-55-3 | 0.0025 | J | 0.44 | J | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 11/15 | 73% | 0.076 | 0.011 | 0.14 | 0.0045 – 0.23 | 0.44 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(a)pyrene | 50-32-8 | 0.0029 | J | 0.79 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 11/15 | 73% | 0.08 | 0.0096 | 0.2 | 0.0045 – 0.23 | 0.79 | MDC | 0.11 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Benzo(b)fluoranthene | 205-99-2 | 0.0055 | J | 1.4 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 11/15 | 73% | 0.14 | 0.011 | 0.35 | 0.0069 – 0.35 | 1.4 | MDC | 1.1 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Benzo(g,h,i)perylene | 191-24-2 | 0.0053 | J- | 4.7 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 10/15 | 67% | 0.34 | 0.012 | 1.2 | 0.0069 – 0.35 | 4.7 | MDC | 180 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(k)fluoranthene | 207-08-9 | 0.011 | J+ | 0.4 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 8/15 | 53% | 0.038 | 0.011 | 0.098 | 0.0045 – 0.23 | 0.4 | MDC | 11 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Chrysene | 218-01-9 | 0.004 | J | 1.1 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 11/15 | 73% | 0.14 | 0.011 | 0.3 | 0.0045 – 0.23 | 1.1 | MDC | 110 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Dibenz(a,h)anthracene | 53-70-3 | 0.0047 | J | 0.88 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 4/15 | 27% | 0.064 | 0.0078 | 0.22 | 0.0069 – 0.35 | 0.88 | MDC | 0.11 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Fluoranthene | 206-44-0 | 0.0043 | J | 0.46 | J | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 11/15 | 73% | 0.083 | 0.012 | 0.14 | 0.0045 – 0.23 | 0.46 | MDC | 240 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Fluorene | 86-73-7 | 0.0013 | J | 0.11 | J | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 7/15 | 47% | 0.015 | 0.003 | 0.028 | 0.0028 – 0.14 | 0.11 | MDC | 240 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.0052 | J- | 3.4 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 10/15 | 67% | 0.25 | 0.011 | 0.84 | 0.0069 – 0.35 | 3.4 | MDC | 1.1 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Naphthalene | 91-20-3 | 0.0027 | J | 7.1 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 14/15 | 93% | 0.79 | 0.011 | 1.8 | 0.0021 – 0.1 | 7.1 | MDC | 2 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Phenanthrene | 85-01-8 | 0.0041 | J | 3.9 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 9/15 | 60% | 0.41 | 0.013 | 1 | 0.0069 – 0.35 | 3.9 | MDC | 1800 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Pyrene | 129-00-0 | 0.004 | J | 0.73 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 11/15 | 73% | 0.11 | 0.012 | 0.21 | 0.0069 – 0.35 | 0.73 | MDC | 180 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 1400 | J+ | 9000 | | mg/kg | Multiple Locations | 1 - 5 | 15/15 | 100% | 6400 | 6500 | 2000 | 4.6 – 28 | 9000 | MDC | 7700 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Antimony | 7440-36-0 | 0.095 | J | 0.33 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 15/15 | 100% | 0.19 | 0.17 | 0.054 | 0.08 – 0.13 | 0.33 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 3.3 | | 16 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 15/15 | 100% | 7.1 | 5.8 | 3.6 | 0.17 – 0.26 | 16 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Beryllium | 7440-41-7 | 0.28 | J- | 2.3 | J+ | mg/kg | NYOW-05-025 (2021-01-11) | 1 - 5 | 15/15 | 100% | 0.57 | 0.44 | 0.49 | 0.093 – 0.55 | 2.3 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cadmium | 7440-43-9 | 0.021 | J | 0.37 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 15/15 | 100% | 0.14 | 0.11 | 0.095 | 0.029 – 0.045 | 0.37 | MDC | 0.71 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Chromium | 7440-47-3 | 5.8 | | 13 | | mg/kg | Multiple Locations | 5 - 10 | 15/15 | 100% | 9.2 | 8.6 | 2 | 0.31 – 0.52 | 13 | MDC | 12000 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 1.8 | | 9 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 15/15 | 100% | 6.2 | 6.3 | 1.7 | 0.15 – 0.26 | 9 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 10 | | 34 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 15/15 | 100% | 19 | 19 | 5.4 | 0.62 – 1 | 34 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 11000 | | 31000 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 15/15 | 100% | 18000 | 18000 | 4900 | 15 – 92 | 31000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 4.7 | | 21 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 15/15 | 100% | 11 | 8.9 | 4.8 | 0.62 – 1 | 21 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 110 | | 2400 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 15/15 | 100% | 770 | 650 | 530 | 0.31 – 3.5 | 2400 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Mercury | 7439-97-6 | 0.022 | J+ | 0.11 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 13/15 | 87% | 0.046 | 0.032 | 0.029 | 0.016 – 0.022 | 0.11 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Nickel | 7440-02-0 | 6.1 | | 17 | | mg/kg | NYOW-05-025 (2021-01-11) | 5 - 10 | 15/15 | 100% | 12 | 13 | 2.7 | 0.35 – 0.58 | 17 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Selenium | 7782-49-2 | 0.22 | J | 0.9 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 12/15 | 80% | 0.47 | 0.45 | 0.19 | 0.33 – 0.51 | 0.9 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Thallium | 7440-28-0 | 0.082 | J | 0.26 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 8/15 | 53% | 0.12 | 0.11 | 0.057 | 0.0083 – 0.11 | 0.26 | MDC | 0.078 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Vanadium | 7440-62-2 | 7.6 | | 18 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 15/15 | 100% | 14 | 14 | 2.8 | 0.27 – 0.45 | 18 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Zinc | 7440-66-6 | 16 | | 66 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 15/15 | 100% | 37 | 34 | 13 | 1.2 – 1.9 | 66 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-12
Human Health Screening Summary – Area of Concern 5 (Coal Storage Area), Surface Soil (0 - 1 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Surface Soil (0 - 1 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.039 | J- | 10 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 4.4 | 5.7 | 4.3 | 0.0023 – 0.069 | 10 | MDC | 18 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| 2-Methylnaphthalene | 91-57-6 | 0.017 | | 14 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 5.3 | 4.8 | 5.8 | 0.0023 – 0.069 | 14 | MDC | 24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthene | 83-32-9 | 0.012 | J+ | 0.34 | J+ | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 3/5 | 60% | 0.14 | 0.037 | 0.16 | 0.0012 – 0.037 | 0.34 | MDC | 360 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthylene | 208-96-8 | 0.012 | J+ | 0.35 | J+ | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.21 | 0.32 | 0.18 | 0.0012 – 0.037 | 0.35 | MDC | 360 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Anthracene | 120-12-7 | 0.32 | J+ | 0.35 | J+ | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 3/5 | 60% | 0.2 | 0.32 | 0.16 | 0.005 – 0.15 | 0.35 | MDC | 1800 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(a)anthracene | 56-55-3 | 0.036 | | 0.75 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.34 | 0.27 | 0.33 | 0.005 – 0.15 | 0.75 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(a)pyrene | 50-32-8 | 0.014 | | 0.38 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.17 | 0.12 | 0.17 | 0.005 – 0.15 | 0.38 | MDC | 0.11 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Benzo(b)fluoranthene | 205-99-2 | 0.06 | J- | 0.46 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.25 | 0.19 | 0.19 | 0.0078 – 0.23 | 0.46 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(g,h,i)perylene | 191-24-2 | 0.016 | | 0.28 | J | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 4/5 | 80% | 0.12 | 0.23 | 0.12 | 0.0078 – 0.23 | 0.28 | MDC | 180 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(k)fluoranthene | 207-08-9 | 0.012 | J+ | 0.34 | J+ | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 4/5 | 80% | 0.14 | 0.15 | 0.16 | 0.005 – 0.15 | 0.34 | MDC | 11 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Chrysene | 218-01-9 | 0.18 | J- | 1 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.55 | 0.35 | 0.38 | 0.005 – 0.15 | 1 | MDC | 110 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Dibenz(a,h)anthracene | 53-70-3 | 0.013 | | 0.018 | | mg/kg | NYOW-05-009 (2021-01-07) | 0 - 1 | 2/5 | 40% | 0.016 | 0.22 | 0.0025 | 0.0078 – 0.23 | 0.018 | MDC | 0.11 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Fluoranthene | 206-44-0 | 0.044 | | 0.76 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.38 | 0.32 | 0.32 | 0.005 – 0.15 | 0.76 | MDC | 240 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Fluorene | 86-73-7 | 0.012 | | 0.26 | J | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.11 | 0.096 | 0.1 | 0.0031 – 0.093 | 0.26 | MDC | 240 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Naphthalene | 91-20-3 | 0.017 | J- | 9.2 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 3.4 | 2 | 4 | 0.0023 – 0.069 | 9.2 | MDC | 2 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Phenanthrene | 85-01-8 | 0.16 | J- | 5.3 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 2.5 | 2.3 | 2.3 | 0.0078 – 0.23 | 5.3 | MDC | 1800 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Pyrene | 129-00-0 | 0.068 | J- | 0.99 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.52 | 0.45 | 0.45 | 0.0078 – 0.23 | 0.99 | MDC | 180 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.16 | J | 0.46 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 4/5 | 80% | 0.26 | 0.24 | 0.12 | 0.11 – 0.16 | 0.46 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 4.5 | | 24 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/5 | 100% | 14 | 12 | 7.7 | 0.21 – 0.34 | 24 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Beryllium | 7440-41-7 | 0.47 | J+ | 0.75 | J+ | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.63 | 0.67 | 0.11 | 0.11 – 0.18 | 0.75 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 2.1 | | 6.6 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/5 | 100% | 3.7 | 3.4 | 1.8 | 0.19 – 0.3 | 6.6 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 5.3 | | 22 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 13 | 9.8 | 8.1 | 0.76 – 1.2 | 22 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 8100 | | 16000 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/5 | 100% | 13000 | 13000 | 2900 | 19 – 30 | 16000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 4.2 | | 21 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/5 | 100% | 15 | 18 | 6.6 | 0.76 – 1.2 | 21 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Nickel | 7440-02-0 | 4.9 | | 13 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/5 | 100% | 7.6 | 5.7 | 3.4 | 0.43 – 0.67 | 13 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Selenium | 7782-49-2 | 0.4 | J | 1.5 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.9 | 0.98 | 0.42 | 0.43 – 0.68 | 1.5 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Thallium | 7440-28-0 | 0.18 | | 0.6 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.34 | 0.34 | 0.16 | 0.011 – 0.017 | 0.6 | MDC | 0.078 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Vanadium | 7440-62-2 | 10 | | 15 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 13 | 12 | 2.3 | 0.33 – 0.52 | 15 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Zinc | 7440-66-6 | 14 | | 58 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 36 | 35 | 17 | 1.4 – 2.2 | 58 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-13
Human Health Screening Summary – Area of Concern 5 (Coal Storage Area), Total Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source | Potential ARAR [2] | Source | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.01 | J+ | 10 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 6/10 | 60% | 2.2 | 0.025 | 3.5 | 0.002 – 0.069 | 10 | MDC | 18 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| 2-Methylnaphthalene | 91-57-6 | 0.01 | J+ | 14 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 6/10 | 60% | 2.7 | 0.014 | 4.6 | 0.002 – 0.069 | 14 | MDC | 24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthene | 83-32-9 | 0.012 | J+ | 0.34 | J+ | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 3/10 | 30% | 0.068 | 0.0015 | 0.13 | 0.0011 – 0.037 | 0.34 | MDC | 360 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthylene | 208-96-8 | 0.012 | J+ | 0.35 | J+ | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/10 | 50% | 0.1 | 0.0067 | 0.15 | 0.0011 – 0.037 | 0.35 | MDC | 360 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Anthracene | 120-12-7 | 0.32 | J+ | 0.35 | J+ | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 3/10 | 30% | 0.1 | 0.0051 | 0.15 | 0.0043 – 0.15 | 0.35 | MDC | 1800 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(a)anthracene | 56-55-3 | 0.036 | | 0.75 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/10 | 50% | 0.17 | 0.021 | 0.27 | 0.0043 – 0.15 | 0.75 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(a)pyrene | 50-32-8 | 0.014 | | 0.38 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/10 | 50% | 0.088 | 0.0096 | 0.13 | 0.0043 – 0.15 | 0.38 | MDC | 0.11 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Benzo(b)fluoranthene | 205-99-2 | 0.01 | J+ | 0.46 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 6/10 | 60% | 0.13 | 0.035 | 0.17 | 0.0067 – 0.23 | 0.46 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(g,h,i)perylene | 191-24-2 | 0.016 | | 0.28 | J | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 4/10 | 40% | 0.062 | 0.012 | 0.1 | 0.0067 – 0.23 | 0.28 | MDC | 180 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(k)fluoranthene | 207-08-9 | 0.012 | J+ | 0.34 | J+ | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 4/10 | 40% | 0.072 | 0.0086 | 0.13 | 0.0043 – 0.15 | 0.34 | MDC | 11 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Chrysene | 218-01-9 | 0.18 | J- | 1 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 5/10 | 50% | 0.28 | 0.093 | 0.36 | 0.0043 – 0.15 | 1 | MDC | 110 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Dibenz(a,h)anthracene | 53-70-3 | 0.013 | | 0.018 | | mg/kg | NYOW-05-009 (2021-01-07) | 0 - 1 | 2/10 | 20% | 0.0092 | 0.011 | 0.0042 | 0.0067 – 0.23 | 0.018 | MDC | 0.11 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Fluoranthene | 206-44-0 | 0.044 | | 0.76 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 5/10 | 50% | 0.19 | 0.025 | 0.28 | 0.0043 – 0.15 | 0.76 | MDC | 240 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Fluorene | 86-73-7 | 0.012 | | 0.26 | J | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 5/10 | 50% | 0.058 | 0.0076 | 0.085 | 0.0027 – 0.093 | 0.26 | MDC | 240 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.0069 | J | 0.11 | J | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 4/10 | 40% | 0.028 | 0.0078 | 0.037 | 0.0067 – 0.23 | 0.11 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Naphthalene | 91-20-3 | 0.01 | J+ | 9.2 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 7/10 | 70% | 1.7 | 0.014 | 3 | 0.002 – 0.069 | 9.2 | MDC | 2 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Phenanthrene | 85-01-8 | 0.16 | J- | 5.3 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/10 | 50% | 1.2 | 0.084 | 1.9 | 0.0067 – 0.23 | 5.3 | MDC | 1800 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Pyrene | 129-00-0 | 0.068 | J- | 0.99 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 5/10 | 50% | 0.27 | 0.038 | 0.38 | 0.0067 – 0.23 | 0.99 | MDC | 180 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.16 | J+ | 0.46 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 8/10 | 80% | 0.21 | 0.17 | 0.11 | 0.079 – 0.16 | 0.46 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 2.8 | | 26 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 10/10 | 100% | 11 | 7.4 | 8.8 | 0.18 – 0.34 | 26 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Barium | 7440-39-3 | 34 | | 110 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 10/10 | 100% | 49 | 41 | 23 | 0.75 – 1.3 | 110 | MDC | 1500 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Beryllium | 7440-41-7 | 0.42 | J+ | 0.75 | J+ | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 10/10 | 100% | 0.55 | 0.52 | 0.12 | 0.1 – 0.18 | 0.75 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cadmium | 7440-43-9 | 0.026 | J | 0.38 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 10/10 | 100% | 0.14 | 0.14 | 0.12 | 0.032 – 0.059 | 0.38 | MDC | 0.71 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 2.1 | | 8 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 10/10 | 100% | 4.4 | 4.1 | 1.8 | 0.17 – 0.3 | 8 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 5.3 | | 27 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 10/10 | 100% | 15 | 14 | 7.3 | 0.66 – 1.2 | 27 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 8100 | | 25000 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 10/10 | 100% | 14000 | 14000 | 4800 | 17 – 30 | 25000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 3 | | 21 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 10/10 | 100% | 9.7 | 6 | 7.1 | 0.66 – 1.2 | 21 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 110 | | 870 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 10/10 | 100% | 410 | 350 | 210 | 0.33 – 0.6 | 870 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Mercury | 7439-97-6 | 0.031 | | 0.19 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 6/10 | 60% | 0.067 | 0.059 | 0.056 | 0.015 – 0.025 | 0.19 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Nickel | 7440-02-0 | 4.9 | | 14 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 10/10 | 100% | 8.5 | 8.3 | 3.3 | 0.37 – 0.67 | 14 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Selenium | 7782-49-2 | 0.4 | J | 1.5 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 6/10 | 60% | 0.64 | 0.43 | 0.37 | 0.36 – 0.68 | 1.5 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Thallium | 7440-28-0 | 0.09 | J+ | 0.6 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 9/10 | 90% | 0.22 | 0.14 | 0.16 | 0.009 – 0.092 | 0.6 | MDC | 0.078 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Vanadium | 7440-62-2 | 8.7 | | 15 | | mg/kg | Multiple Locations | 0 - 1 | 10/10 | 100% | 12 | 13 | 2.2 | 0.29 – 0.52 | 15 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Zinc | 7440-66-6 | 14 | | 58 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 10/10 | 100% | 29 | 26 | 14 | 1.2 – 2.2 | 58 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-14
Human Health Screening Summary – Area of Concern 5 (Coal Storage Area), Total Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 10 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.01 | J+ | 10 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 7/15 | 47% | 1.5 | 0.0024 | 3 | 0.002 – 0.069 | 10 | MDC | 18 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| 2-Methylnaphthalene | 91-57-6 | 0.01 | J+ | 14 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 8/15 | 53% | 1.8 | 0.01 | 3.9 | 0.002 – 0.069 | 14 | MDC | 24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthene | 83-32-9 | 0.012 | J+ | 0.34 | J+ | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 3/15 | 20% | 0.046 | 0.0012 | 0.11 | 0.0011 – 0.037 | 0.34 | MDC | 360 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthylene | 208-96-8 | 0.012 | J+ | 0.35 | J+ | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/15 | 33% | 0.07 | 0.0012 | 0.13 | 0.0011 – 0.037 | 0.35 | MDC | 360 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Anthracene | 120-12-7 | 0.011 | J+ | 0.35 | J+ | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 4/15 | 27% | 0.071 | 0.005 | 0.13 | 0.0043 – 0.15 | 0.35 | MDC | 1800 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(a)anthracene | 56-55-3 | 0.0026 | J- | 0.75 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 7/15 | 47% | 0.12 | 0.005 | 0.23 | 0.0043 – 0.15 | 0.75 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(a)pyrene | 50-32-8 | 0.0019 | J- | 0.38 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 7/15 | 47% | 0.059 | 0.005 | 0.12 | 0.0043 – 0.15 | 0.38 | MDC | 0.11 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Benzo(b)fluoranthene | 205-99-2 | 0.0065 | J- | 0.46 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 8/15 | 53% | 0.089 | 0.008 | 0.15 | 0.0067 – 0.23 | 0.46 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(g,h,i)perylene | 191-24-2 | 0.011 | | 0.28 | J | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/15 | 33% | 0.044 | 0.0076 | 0.087 | 0.0067 – 0.23 | 0.28 | MDC | 180 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzo(k)fluoranthene | 207-08-9 | 0.012 | J+ | 0.34 | J+ | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 5/15 | 33% | 0.05 | 0.005 | 0.11 | 0.0043 – 0.15 | 0.34 | MDC | 11 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Chrysene | 218-01-9 | 0.0057 | J- | 1 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 7/15 | 47% | 0.19 | 0.0052 | 0.32 | 0.0043 – 0.15 | 1 | MDC | 110 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Dibenz(a,h)anthracene | 53-70-3 | 0.011 | J+ | 0.018 | | mg/kg | NYOW-05-009 (2021-01-07) | 0 - 1 | 3/15 | 20% | 0.0085 | 0.0076 | 0.0035 | 0.0067 – 0.23 | 0.018 | MDC | 0.11 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Fluoranthene | 206-44-0 | 0.023 | | 0.76 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 6/15 | 40% | 0.13 | 0.005 | 0.24 | 0.0043 – 0.15 | 0.76 | MDC | 240 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Fluorene | 86-73-7 | 0.012 | | 0.26 | J | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 5/15 | 33% | 0.04 | 0.003 | 0.075 | 0.0027 – 0.093 | 0.26 | MDC | 240 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.0069 | J | 0.11 | J | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/15 | 33% | 0.021 | 0.0076 | 0.031 | 0.0067 – 0.23 | 0.11 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Naphthalene | 91-20-3 | 0.01 | J+ | 9.2 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 11/15 | 73% | 1.1 | 0.011 | 2.6 | 0.002 – 0.069 | 9.2 | MDC | 2 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Phenanthrene | 85-01-8 | 0.011 | J+ | 5.3 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 6/15 | 40% | 0.83 | 0.0076 | 1.7 | 0.0067 – 0.23 | 5.3 | MDC | 1800 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Pyrene | 129-00-0 | 0.023 | | 0.99 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 6/15 | 40% | 0.18 | 0.0076 | 0.34 | 0.0067 – 0.23 | 0.99 | MDC | 180 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 2000 | | 8200 | | mg/kg | NYOW-05-008 (2021-01-07) | 5 - 10 | 15/15 | 100% | 4700 | 4800 | 1900 | 5 – 9 | 8200 | MDC | 7700 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Antimony | 7440-36-0 | 0.16 | J+ | 0.46 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 10/15 | 67% | 0.18 | 0.17 | 0.1 | 0.079 – 0.16 | 0.46 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 2.8 | | 79 | | mg/kg | NYOW-05-010 (2021-01-07) | 5 - 10 | 15/15 | 100% | 14 | 5.8 | 20 | 0.16 – 0.34 | 79 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Barium | 7440-39-3 | 28 | | 110 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 15/15 | 100% | 50 | 43 | 21 | 0.75 – 1.3 | 110 | MDC | 1500 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Beryllium | 7440-41-7 | 0.42 | J+ | 0.75 | J+ | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 15/15 | 100% | 0.52 | 0.49 | 0.1 | 0.1 – 0.18 | 0.75 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cadmium | 7440-43-9 | 0.026 | J | 0.38 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 15/15 | 100% | 0.13 | 0.095 | 0.096 | 0.028 – 0.059 | 0.38 | MDC | 0.71 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Chromium | 7440-47-3 | 3.8 | | 12 | | mg/kg | NYOW-05-008 (2021-01-07) | 5 - 10 | 15/15 | 100% | 7.4 | 7.2 | 2.1 | 0.33 – 0.6 | 12 | MDC | 12000 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 2.1 | | 8.4 | | mg/kg | NYOW-05-010 (2021-01-07) | 5 - 10 | 15/15 | 100% | 5 | 4.8 | 2.1 | 0.17 – 0.3 | 8.4 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 5.3 | | 27 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 15/15 | 100% | 14 | 13 | 5.9 | 0.66 – 1.2 | 27 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 8100 | | 26000 | | mg/kg | NYOW-05-010 (2021-01-07) | 5 - 10 | 15/15 | 100% | 15000 | 14000 | 5400 | 17 – 30 | 26000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 2.4 | | 21 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 15/15 | 100% | 7.9 | 4.7 | 6.3 | 0.66 – 1.2 | 21 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 110 | | 870 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 15/15 | 100% | 440 | 400 | 200 | 0.33 – 0.6 | 870 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Mercury | 7439-97-6 | 0.031 | | 0.19 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 6/15 | 40% | 0.05 | 0.017 | 0.052 | 0.015 – 0.025 | 0.19 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Nickel | 7440-02-0 | 4.9 | | 16 | | mg/kg | Multiple Locations | 5 - 10 | 15/15 | 100% | 9.9 | 9.2 | 4.1 | 0.37 – 0.67 | 16 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Selenium | 7782-49-2 | 0.4 | J | 1.5 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 6/15 | 40% | 0.53 | 0.39 | 0.35 | 0.32 – 0.68 | 1.5 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Thallium | 7440-28-0 | 0.086 | J+ | 0.6 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 13/15 | 87% | 0.18 | 0.096 | 0.14 | 0.0086 – 0.092 | 0.6 | MDC | 0.078 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Vanadium | 7440-62-2 | 5.9 | | 17 | | mg/kg | NYOW-05-008 (2021-01-07) | 5 - 10 | 15/15 | 100% | 12 | 12 | 2.7 | 0.29 – 0.52 | 17 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Zinc | 7440-66-6 | 11 | | 58 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 15/15 | 100% | 26 | 24 | 12 | 1.2 – 2.2 | 58 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-15
Human Health Screening Summary – Area of Concern 5 (Electric Substation), Surface Soil (0 - 1 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.011 | J+ | 0.012 | J+ | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 0.011 | 0.011 | 0.00055 | 0.0021 – 0.0023 | 0.012 | MDC | 18 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| 2-Methylnaphthalene | 91-57-6 | 0.0019 | J | 0.018 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.007 | 0.003 | 0.0068 | 0.0021 – 0.0023 | 0.018 | MDC | 24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthene | 83-32-9 | 0.011 | J+ | 0.011 | J+ | mg/kg | Multiple Locations | 0 - 1 | 2/5 | 40% | -- | -- | -- | 0.0011 – 0.0012 | 0.011 | MDC | 360 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthylene | 208-96-8 | 0.011 | J+ | 0.011 | J+ | mg/kg | Multiple Locations | 0 - 1 | 3/5 | 60% | -- | -- | -- | 0.0011 – 0.0012 | 0.011 | MDC | 360 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Naphthalene | 91-20-3 | 0.0029 | J | 0.015 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.0068 | 0.0052 | 0.0049 | 0.0021 – 0.0023 | 0.015 | MDC | 2 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.0042 | J | 0.16 | | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 4/5 | 80% | 0.042 | 0.013 | 0.06 | 0.0068 – 0.0079 | 0.16 | MDC | 0.24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 5400 | | 8200 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 5/5 | 100% | 6400 | 6500 | 1100 | 5.6 – 6.9 | 8200 | MDC | 7700 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Antimony | 7440-36-0 | 0.096 | J | 0.19 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.14 | 0.13 | 0.038 | 0.081 – 0.11 | 0.19 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 4.3 | | 5.9 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 4.9 | 4.9 | 0.67 | 0.17 – 0.24 | 5.9 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Beryllium | 7440-41-7 | 0.47 | J+ | 0.57 | J+ | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 0.53 | 0.55 | 0.047 | 0.11 – 0.14 | 0.57 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cadmium | 7440-43-9 | 0.11 | | 0.39 | | mg/kg | NYOW-05-015 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.18 | 0.14 | 0.12 | 0.03 – 0.041 | 0.39 | MDC | 0.71 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 5.6 | | 9.3 | | mg/kg | NYOW-05-014 (2021-01-13) | 0 - 1 | 5/5 | 100% | 7 | 7 | 1.4 | 0.19 – 0.23 | 9.3 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 16 | | 25 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 5/5 | 100% | 20 | 21 | 4.3 | 0.75 – 0.92 | 25 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 15000 | | 22000 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 5/5 | 100% | 19000 | 18000 | 2900 | 19 – 23 | 22000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 7.6 | | 24 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 13 | 12 | 6.7 | 0.75 – 0.92 | 24 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 590 | | 1200 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 840 | 660 | 290 | 0.37 – 0.46 | 1200 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Mercury | 7439-97-6 | 0.026 | | 0.23 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.079 | 0.029 | 0.088 | 0.016 – 0.017 | 0.23 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Nickel | 7440-02-0 | 12 | | 15 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 13 | 12 | 1.6 | 0.42 – 0.52 | 15 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Selenium | 7782-49-2 | 0.42 | J+ | 0.59 | J+ | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.5 | 0.47 | 0.068 | 0.34 – 0.47 | 0.59 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Thallium | 7440-28-0 | 0.12 | | 0.14 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 2/5 | 40% | 0.1 | 0.12 | 0.023 | 0.0092 – 0.12 | 0.14 | MDC | 0.078 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Zinc | 7440-66-6 | 33 | | 49 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 40 | 40 | 6.3 | 1.4 – 1.7 | 49 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-16
Human Health Screening Summary – Area of Concern 5 (Electric Substation), Total Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source | Potential ARAR [2] | Source | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.01 | J+ | 0.012 | J+ | mg/kg | Multiple Locations | 0 - 1 | 7/10 | 70% | 0.0084 | 0.011 | 0.0041 | 0.0021 – 0.0023 | 0.012 | MDC | 18 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| 2-Methylnaphthalene | 91-57-6 | 0.0019 | J | 0.018 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 9/10 | 90% | 0.008 | 0.0097 | 0.0051 | 0.0021 – 0.0023 | 0.018 | MDC | 24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthene | 83-32-9 | 0.011 | J+ | 0.011 | J+ | mg/kg | Multiple Locations | 0 - 1 | 2/10 | 20% | -- | -- | -- | 0.0011 – 0.0012 | 0.011 | MDC | 360 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthylene | 208-96-8 | 0.01 | J+ | 0.011 | J+ | mg/kg | Multiple Locations | 0 - 1 | 4/10 | 40% | 0.005 | 0.0012 | 0.0047 | 0.0011 – 0.0012 | 0.011 | MDC | 360 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Anthracene | 120-12-7 | 0.01 | J+ | 0.012 | J+ | mg/kg | Multiple Locations | 0 - 1 | 6/10 | 60% | 0.0085 | 0.011 | 0.0033 | 0.0045 – 0.0051 | 0.012 | MDC | 1800 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Naphthalene | 91-20-3 | 0.0029 | J | 0.015 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 10/10 | 100% | 0.0088 | 0.01 | 0.004 | 0.0021 – 0.0023 | 0.015 | MDC | 2 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Phenanthrene | 85-01-8 | 0.0046 | J | 0.018 | | mg/kg | NYOW-05-015 (2021-01-13) | 0 - 1 | 7/10 | 70% | 0.0083 | 0.0088 | 0.004 | 0.0069 – 0.0078 | 0.018 | MDC | 1800 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.0042 | J | 0.16 | | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 4/5 | 80% | 0.042 | 0.013 | 0.06 | 0.0068 – 0.0079 | 0.16 | MDC | 0.24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 5400 | | 18000 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 8200 | 7000 | 3800 | 5.3 – 6.9 | 18000 | MDC | 7700 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Antimony | 7440-36-0 | 0.096 | J | 0.21 | J+ | mg/kg | Multiple Locations | 1 - 5 | 10/10 | 100% | 0.17 | 0.18 | 0.041 | 0.081 – 0.11 | 0.21 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 4.3 | | 5.9 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 10/10 | 100% | 4.9 | 4.9 | 0.52 | 0.17 – 0.24 | 5.9 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Barium | 7440-39-3 | 43 | | 110 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 59 | 51 | 19 | 0.79 – 1 | 110 | MDC | 1500 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Beryllium | 7440-41-7 | 0.27 | J | 0.83 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 0.5 | 0.48 | 0.15 | 0.11 – 0.14 | 0.83 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cadmium | 7440-43-9 | 0.046 | J | 0.39 | | mg/kg | NYOW-05-015 (2021-01-13) | 0 - 1 | 10/10 | 100% | 0.15 | 0.13 | 0.13 | 0.029 – 0.041 | 0.39 | MDC | 0.71 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Chromium | 7440-47-3 | 7.9 | | 25 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 12 | 9.8 | 5.3 | 0.35 – 0.46 | 25 | MDC | 12000 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 5.6 | | 13 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 7.6 | 6.7 | 2.4 | 0.18 – 0.23 | 13 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 15 | | 74 | | mg/kg | NYOW-05-013 (2021-01-13) | 1 - 5 | 10/10 | 100% | 25 | 21 | 18 | 0.7 – 0.92 | 74 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 15000 | | 27000 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 19000 | 19000 | 3500 | 18 – 23 | 27000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 7.6 | | 24 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 10/10 | 100% | 11 | 9 | 5 | 0.7 – 0.92 | 24 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 330 | | 1200 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 10/10 | 100% | 740 | 670 | 260 | 0.35 – 0.46 | 1200 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Mercury | 7439-97-6 | 0.013 | J | 0.23 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 10/10 | 100% | 0.06 | 0.03 | 0.066 | 0.015 – 0.018 | 0.23 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Nickel | 7440-02-0 | 12 | | 29 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 16 | 14 | 5.4 | 0.39 – 0.52 | 29 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Selenium | 7782-49-2 | 0.41 | J+ | 0.59 | J+ | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 10/10 | 100% | 0.48 | 0.47 | 0.054 | 0.33 – 0.47 | 0.59 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Thallium | 7440-28-0 | 0.096 | | 0.16 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 4/10 | 40% | 0.1 | 0.1 | 0.026 | 0.0083 – 0.12 | 0.16 | MDC | 0.078 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Vanadium | 7440-62-2 | 12 | | 31 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 16 | 15 | 5.4 | 0.31 – 0.4 | 31 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Zinc | 7440-66-6 | 29 | | 56 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 40 | 38 | 8.1 | 1.3 – 1.7 | 56 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-17
Human Health Screening Summary – Area of Concern 5 (Electric Substation), Total Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 10 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.01 | J+ | 0.012 | J+ | mg/kg | Multiple Locations | 0 - 1 | 8/15 | 53% | 0.0069 | 0.01 | 0.0045 | 0.0021 – 0.0023 | 0.012 | MDC | 18 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| 2-Methylnaphthalene | 91-57-6 | 0.0019 | J | 0.018 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 10/15 | 67% | 0.0066 | 0.003 | 0.0051 | 0.0021 – 0.0023 | 0.018 | MDC | 24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthene | 83-32-9 | 0.011 | J+ | 0.011 | J+ | mg/kg | Multiple Locations | 0 - 1 | 2/15 | 13% | -- | -- | -- | 0.0011 – 0.0012 | 0.011 | MDC | 360 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthylene | 208-96-8 | 0.01 | J+ | 0.011 | J+ | mg/kg | Multiple Locations | 0 - 1 | 4/15 | 27% | 0.0037 | 0.0012 | 0.0043 | 0.0011 – 0.0012 | 0.011 | MDC | 360 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Anthracene | 120-12-7 | 0.01 | J+ | 0.012 | J+ | mg/kg | Multiple Locations | 0 - 1 | 6/15 | 40% | 0.0072 | 0.005 | 0.0033 | 0.0045 – 0.0051 | 0.012 | MDC | 1800 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Naphthalene | 91-20-3 | 0.0029 | J | 0.015 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 14/15 | 93% | 0.009 | 0.011 | 0.0037 | 0.0021 – 0.0023 | 0.015 | MDC | 2 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Phenanthrene | 85-01-8 | 0.0046 | J | 0.018 | | mg/kg | NYOW-05-015 (2021-01-13) | 0 - 1 | 11/15 | 73% | 0.0089 | 0.0094 | 0.0037 | 0.0069 – 0.0078 | 0.018 | MDC | 1800 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.0042 | J | 0.16 | | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 4/5 | 80% | 0.042 | 0.013 | 0.06 | 0.0068 – 0.0079 | 0.16 | MDC | 0.24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 5400 | | 18000 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 15/15 | 100% | 9200 | 7300 | 4200 | 5.3 – 7 | 18000 | MDC | 7700 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Antimony | 7440-36-0 | 0.096 | J | 0.23 | J+ | mg/kg | Multiple Locations | 5 - 10 | 15/15 | 100% | 0.18 | 0.19 | 0.039 | 0.081 – 0.12 | 0.23 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 2.9 | | 8.6 | | mg/kg | NYOW-05-015 (2021-01-13) | 5 - 10 | 15/15 | 100% | 5.1 | 4.9 | 1.5 | 0.17 – 0.24 | 8.6 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Barium | 7440-39-3 | 36 | | 110 | | mg/kg | Multiple Locations | 1 - 5 | 15/15 | 100% | 65 | 59 | 24 | 0.79 – 1.1 | 110 | MDC | 1500 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Beryllium | 7440-41-7 | 0.27 | J | 0.83 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 15/15 | 100% | 0.51 | 0.49 | 0.17 | 0.11 – 0.14 | 0.83 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cadmium | 7440-43-9 | 0.046 | J | 0.39 | | mg/kg | NYOW-05-015 (2021-01-13) | 0 - 1 | 15/15 | 100% | 0.13 | 0.078 | 0.11 | 0.029 – 0.041 | 0.39 | MDC | 0.71 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Chromium | 7440-47-3 | 7.9 | | 25 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 15/15 | 100% | 13 | 11 | 5.7 | 0.35 – 0.47 | 25 | MDC | 12000 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 5.6 | | 13 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 15/15 | 100% | 8 | 7.1 | 2.2 | 0.18 – 0.23 | 13 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 15 | | 74 | | mg/kg | NYOW-05-013 (2021-01-13) | 1 - 5 | 15/15 | 100% | 24 | 21 | 14 | 0.7 – 0.94 | 74 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 15000 | | 27000 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 15/15 | 100% | 20000 | 19000 | 3900 | 18 – 23 | 27000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 6.9 | | 24 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 15/15 | 100% | 10 | 8.8 | 4.2 | 0.7 – 0.94 | 24 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 330 | | 1200 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 15/15 | 100% | 660 | 600 | 240 | 0.35 – 0.47 | 1200 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Mercury | 7439-97-6 | 0.011 | J | 0.23 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 15/15 | 100% | 0.046 | 0.026 | 0.057 | 0.015 – 0.018 | 0.23 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Nickel | 7440-02-0 | 12 | | 29 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 15/15 | 100% | 17 | 15 | 5.5 | 0.39 – 0.53 | 29 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Selenium | 7782-49-2 | 0.41 | J+ | 0.59 | J+ | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 12/15 | 80% | 0.45 | 0.46 | 0.066 | 0.33 – 0.47 | 0.59 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Thallium | 7440-28-0 | 0.096 | | 0.18 | | mg/kg | NYOW-05-011 (2021-01-13) | 5 - 10 | 6/15 | 40% | 0.11 | 0.099 | 0.032 | 0.0083 – 0.12 | 0.18 | MDC | 0.078 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Vanadium | 7440-62-2 | 12 | | 32 | | mg/kg | NYOW-05-012 (2021-01-13) | 5 - 10 | 15/15 | 100% | 18 | 15 | 6.7 | 0.31 – 0.41 | 32 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Zinc | 7440-66-6 | 29 | | 56 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 15/15 | 100% | 40 | 40 | 8.8 | 1.3 – 1.8 | 56 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-18
Human Health Screening Summary – Area of Concern 5 (Possible Dump Area), Surface Soil (0 - 1 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Surface Soil (0 - 1 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 0.35 | J+ | 0.35 | J+ | mg/kg | NYOW-05-001 (2021-01-12) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.18 – 0.2 | 0.35 | MDC | 170 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Dibenzofuran | 132-64-9 | 0.37 | J+ | 0.39 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 2/5 | 40% | 0.2 | 0.078 | 0.15 | 0.071 – 0.079 | 0.39 | MDC | 7.8 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Di-n-butyl phthalate | 84-74-2 | 0.39 | | 0.39 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.071 – 0.079 | 0.39 | MDC | 630 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.01 | | 0.29 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 4/5 | 80% | 0.087 | 0.065 | 0.11 | 0.002 – 0.022 | 0.29 | MDC | 18 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | | 0.37 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 4/5 | 80% | 0.11 | 0.087 | 0.13 | 0.002 – 0.022 | 0.37 | MDC | 24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthene | 83-32-9 | 0.011 | J+ | 0.011 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.0011 – 0.012 | 0.011 | MDC | 360 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Naphthalene | 91-20-3 | 0.0018 | J | 0.29 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.088 | 0.065 | 0.12 | 0.002 – 0.022 | 0.29 | MDC | 2 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Phenanthrene | 85-01-8 | 0.003 | J | 0.16 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.057 | 0.044 | 0.06 | 0.0066 – 0.072 | 0.16 | MDC | 1800 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.076 | J | 1 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.3 | 0.12 | 0.39 | 0.089 – 0.1 | 1 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 4.3 | | 6.9 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 5.5 | 5.1 | 1.2 | 0.15 – 0.19 | 6.9 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Beryllium | 7440-41-7 | 0.42 | J+ | 0.56 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.51 | 0.54 | 0.061 | 0.1 – 0.13 | 0.56 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cadmium | 7440-43-9 | 0.072 | J | 4.3 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.99 | 0.15 | 1.9 | 0.026 – 0.033 | 4.3 | MDC | 0.71 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Chromium | 7440-47-3 | 5 | | 13 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 7.6 | 6.4 | 3.2 | 0.34 – 0.44 | 13 | MDC | 12000 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Copper | 7440-50-8 | 18 | | 110 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 41 | 23 | 39 | 0.67 – 0.89 | 110 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Lead | 7439-92-1 | 4.6 | | 200 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 47 | 9.3 | 86 | 0.67 – 0.89 | 200 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 400 | J- | 780 | | mg/kg | NYOW-05-004 (2021-01-12) | 0 - 1 | 5/5 | 100% | 570 | 520 | 170 | 0.34 – 0.44 | 780 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Nickel | 7440-02-0 | 8.1 | | 18 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 11 | 8.3 | 4.2 | 0.38 – 0.5 | 18 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Silver | 7440-22-4 | 1.7 | J+ | 1.7 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.5 – 0.67 | 1.7 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Thallium | 7440-28-0 | 0.12 | | 0.15 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 2/5 | 40% | 0.099 | 0.094 | 0.031 | 0.0089 – 0.094 | 0.15 | MDC | 0.078 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Zinc | 7440-66-6 | 28 | | 690 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 160 | 35 | 290 | 1.3 – 1.7 | 690 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-19
Human Health Screening Summary – Area of Concern 5 (Possible Dump Area), Total Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Total Soil (0 - 5 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source | Potential ARAR [2] | Source | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 0.016 | J+ | 0.019 | J+ | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 2/5 | 40% | 0.013 | 0.011 | 0.0038 | 0.01 – 0.012 | 0.019 | MDC | 2700 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acetone | 67-64-1 | 0.069 | | 0.069 | | mg/kg | NYOW-05-001 (2021-01-12) | 1 - 5 | 1/5 | 20% | -- | -- | -- | 0.057 – 0.069 | 0.069 | MDC | 7000 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzene | 71-43-2 | 0.004 | J+ | 0.004 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 1 - 5 | 1/5 | 20% | -- | -- | -- | 0.00032 – 0.00038 | 0.004 | MDC | 1.2 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Toluene | 108-88-3 | 0.004 | J+ | 0.004 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 1 - 5 | 1/5 | 20% | -- | -- | -- | 0.00064 – 0.00076 | 0.004 | MDC | 490 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 0.35 | J+ | 0.35 | J+ | mg/kg | NYOW-05-001 (2021-01-12) | 0 - 1 | 1/10 | 10% | -- | -- | -- | 0.18 – 0.21 | 0.35 | MDC | 170 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Dibenzofuran | 132-64-9 | 0.37 | J+ | 0.39 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 2/10 | 20% | 0.13 | 0.077 | 0.12 | 0.071 – 0.085 | 0.39 | MDC | 7.8 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Di-n-butyl phthalate | 84-74-2 | 0.39 | | 0.39 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/10 | 10% | -- | -- | -- | 0.071 – 0.085 | 0.39 | MDC | 630 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.01 | | 0.29 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 6/10 | 60% | 0.047 | 0.011 | 0.085 | 0.002 – 0.022 | 0.29 | MDC | 18 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| 2-Methylnaphthalene | 91-57-6 | 0.012 | J+ | 0.37 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 6/10 | 60% | 0.059 | 0.012 | 0.11 | 0.002 – 0.022 | 0.37 | MDC | 24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthene | 83-32-9 | 0.011 | J+ | 0.011 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 0 - 1 | 1/10 | 10% | -- | -- | -- | 0.0011 – 0.012 | 0.011 | MDC | 360 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Anthracene | 120-12-7 | 0.0032 | J | 0.018 | J | mg/kg | NYOW-05-002 (2021-01-12) | 0 - 1 | 2/10 | 20% | 0.0048 | 0.005 | 0.0047 | 0.0043 – 0.047 | 0.018 | MDC | 1800 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Naphthalene | 91-20-3 | 0.0018 | J | 0.29 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 9/10 | 90% | 0.049 | 0.012 | 0.084 | 0.002 – 0.022 | 0.29 | MDC | 2 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Phenanthrene | 85-01-8 | 0.003 | J | 0.16 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 6/10 | 60% | 0.031 | 0.0095 | 0.046 | 0.0066 – 0.072 | 0.16 | MDC | 1800 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 3200 | | 19000 | J | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 6600 | 5000 | 4600 | 5 – 29 | 19000 | MDC | 7700 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Antimony | 7440-36-0 | 0.076 | J | 1 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 8/10 | 80% | 0.23 | 0.15 | 0.26 | 0.089 – 0.13 | 1 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 3.6 | | 6.9 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 5.2 | 4.9 | 1.2 | 0.15 – 0.24 | 6.9 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Barium | 7440-39-3 | 18 | | 110 | J | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 48 | 36 | 28 | 0.75 – 1 | 110 | MDC | 1500 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Beryllium | 7440-41-7 | 0.11 | J | 0.77 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 0.42 | 0.45 | 0.21 | 0.1 – 0.13 | 0.77 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cadmium | 7440-43-9 | 0.036 | J | 4.3 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 0.53 | 0.079 | 1.3 | 0.026 – 0.042 | 4.3 | MDC | 0.71 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Chromium | 7440-47-3 | 4.9 | | 25 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 10 | 9.5 | 6.1 | 0.34 – 1.9 | 25 | MDC | 12000 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 2.9 | | 9 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 5.4 | 4.5 | 2.1 | 0.17 – 0.95 | 9 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 10 | | 110 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 28 | 19 | 29 | 0.67 – 3.8 | 110 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 9100 | | 24000 | J | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 16000 | 15000 | 4900 | 17 – 95 | 24000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 3.4 | | 200 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 26 | 7 | 61 | 0.67 – 3.8 | 200 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 320 | | 1000 | | mg/kg | NYOW-05-001 (2021-01-12) | 1 - 5 | 10/10 | 100% | 570 | 490 | 210 | 0.34 – 1.9 | 1000 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Mercury | 7439-97-6 | 0.0078 | J | 0.14 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 0.038 | 0.02 | 0.04 | 0.015 – 0.019 | 0.14 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Nickel | 7440-02-0 | 5.1 | | 25 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 12 | 9.1 | 6 | 0.38 – 2.1 | 25 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Selenium | 7782-49-2 | 0.13 | J | 0.6 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 1 - 5 | 8/10 | 80% | 0.35 | 0.44 | 0.17 | 0.3 – 0.48 | 0.6 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Silver | 7440-22-4 | 1.7 | J+ | 1.7 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/10 | 10% | -- | -- | -- | 0.5 – 2.9 | 1.7 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Thallium | 7440-28-0 | 0.12 | | 0.2 | J | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 3/10 | 30% | 0.1 | 0.099 | 0.042 | 0.0089 – 0.12 | 0.2 | MDC | 0.078 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Vanadium | 7440-62-2 | 7.9 | | 31 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 15 | 12 | 7.4 | 0.29 – 1.7 | 31 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Zinc | 7440-66-6 | 12 | | 690 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 98 | 32 | 210 | 1.3 – 7.1 | 690 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

Table J.4-20
Human Health Screening Summary – Area of Concern 5 (Possible Dump Area), Total Soil (0 - 10 ft bgs)
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 10 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Screening Level [2, 3] | | Source [2] | Potential ARAR [2] | Source [2] | COPC (Yes/No) | Rationale for Selection/Deletion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 0.016 | J+ | 0.019 | J+ | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 2/10 | 20% | 0.012 | 0.011 | 0.0031 | 0.01 – 0.012 | 0.019 | MDC | 2700 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acetone | 67-64-1 | 0.069 | | 0.069 | | mg/kg | NYOW-05-001 (2021-01-12) | 1 - 5 | 1/10 | 10% | -- | -- | -- | 0.057 – 0.069 | 0.069 | MDC | 7000 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Benzene | 71-43-2 | 0.004 | J+ | 0.004 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 1 - 5 | 1/10 | 10% | -- | -- | -- | 0.00032 – 0.00038 | 0.004 | MDC | 1.2 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Toluene | 108-88-3 | 0.004 | J+ | 0.004 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 1 - 5 | 1/10 | 10% | -- | -- | -- | 0.00064 – 0.00076 | 0.004 | MDC | 490 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 0.35 | J+ | 0.35 | J+ | mg/kg | NYOW-05-001 (2021-01-12) | 0 - 1 | 1/15 | 7% | -- | -- | -- | 0.18 – 0.21 | 0.35 | MDC | 170 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Dibenzofuran | 132-64-9 | 0.37 | J+ | 0.39 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 2/15 | 13% | 0.11 | 0.077 | 0.11 | 0.071 – 0.085 | 0.39 | MDC | 7.8 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Di-n-butyl phthalate | 84-74-2 | 0.39 | | 0.39 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/15 | 7% | -- | -- | -- | 0.071 – 0.085 | 0.39 | MDC | 630 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.01 | J+ | 0.29 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 7/15 | 47% | 0.032 | 0.0025 | 0.072 | 0.002 – 0.022 | 0.29 | MDC | 18 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| 2-Methylnaphthalene | 91-57-6 | 0.01 | J+ | 0.37 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 7/15 | 47% | 0.041 | 0.0025 | 0.093 | 0.002 – 0.022 | 0.37 | MDC | 24 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Acenaphthene | 83-32-9 | 0.011 | J+ | 0.011 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 0 - 1 | 1/15 | 7% | -- | -- | -- | 0.0011 – 0.012 | 0.011 | MDC | 360 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Anthracene | 120-12-7 | 0.0032 | J | 0.018 | J | mg/kg | NYOW-05-002 (2021-01-12) | 0 - 1 | 2/15 | 13% | 0.0043 | 0.005 | 0.0038 | 0.0043 – 0.047 | 0.018 | MDC | 1800 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Naphthalene | 91-20-3 | 0.0018 | J | 0.29 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 12/15 | 80% | 0.035 | 0.011 | 0.071 | 0.002 – 0.022 | 0.29 | MDC | 2 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Phenanthrene | 85-01-8 | 0.003 | J | 0.16 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 8/15 | 53% | 0.023 | 0.0083 | 0.04 | 0.0066 – 0.072 | 0.16 | MDC | 1800 | * | R-RSL | N/A | -- | No | MDC ≤ SL |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | 7429-90-5 | 3200 | | 20000 | | mg/kg | NYOW-05-004 (2021-01-12) | 5 - 10 | 15/15 | 100% | 8600 | 6000 | 5900 | 5 – 29 | 20000 | MDC | 7700 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Antimony | 7440-36-0 | 0.076 | J | 1 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 11/15 | 73% | 0.2 | 0.13 | 0.22 | 0.078 – 0.13 | 1 | MDC | 3.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Arsenic | 7440-38-2 | 3.1 | J | 13 | | mg/kg | NYOW-05-002 (2021-01-12) | 5 - 10 | 15/15 | 100% | 5.9 | 5.1 | 2.5 | 0.15 – 0.24 | 13 | MDC | 0.68 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Barium | 7440-39-3 | 18 | | 140 | | mg/kg | NYOW-05-004 (2021-01-12) | 5 - 10 | 15/15 | 100% | 60 | 48 | 36 | 0.75 – 3.8 | 140 | MDC | 1500 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Beryllium | 7440-41-7 | 0.11 | J | 0.8 | | mg/kg | NYOW-05-004 (2021-01-12) | 5 - 10 | 15/15 | 100% | 0.47 | 0.53 | 0.23 | 0.1 – 0.51 | 0.8 | MDC | 16 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cadmium | 7440-43-9 | 0.036 | J | 4.3 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 15/15 | 100% | 0.39 | 0.094 | 1.1 | 0.026 – 0.042 | 4.3 | MDC | 0.71 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Chromium | 7440-47-3 | 4.9 | | 27 | | mg/kg | NYOW-05-004 (2021-01-12) | 5 - 10 | 15/15 | 100% | 13 | 11 | 7.5 | 0.34 – 1.9 | 27 | MDC | 12000 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Cobalt | 7440-48-4 | 2.9 | | 15 | | mg/kg | NYOW-05-004 (2021-01-12) | 5 - 10 | 15/15 | 100% | 6.8 | 6.1 | 3.5 | 0.17 – 0.95 | 15 | MDC | 2.3 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Copper | 7440-50-8 | 9.6 | | 110 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 15/15 | 100% | 25 | 19 | 24 | 0.67 – 3.8 | 110 | MDC | 310 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Iron | 7439-89-6 | 9100 | | 29000 | | mg/kg | NYOW-05-004 (2021-01-12) | 5 - 10 | 15/15 | 100% | 18000 | 18000 | 6100 | 17 – 95 | 29000 | MDC | 5500 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Lead | 7439-92-1 | 2.6 | | 200 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 15/15 | 100% | 20 | 7.9 | 50 | 0.67 – 3.8 | 200 | MDC | 400 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Manganese | 7439-96-5 | 320 | | 1000 | | mg/kg | NYOW-05-001 (2021-01-12) | 1 - 5 | 15/15 | 100% | 540 | 450 | 190 | 0.34 – 1.9 | 1000 | MDC | 180 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Mercury | 7439-97-6 | 0.0078 | J | 0.14 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 15/15 | 100% | 0.033 | 0.021 | 0.033 | 0.015 – 0.019 | 0.14 | MDC | 1.1 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Nickel | 7440-02-0 | 5.1 | | 32 | | mg/kg | NYOW-05-004 (2021-01-12) | 5 - 10 | 15/15 | 100% | 15 | 11 | 8.3 | 0.38 – 2.1 | 32 | MDC | 150 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Selenium | 7782-49-2 | 0.13 | J | 0.6 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 1 - 5 | 11/15 | 73% | 0.35 | 0.46 | 0.17 | 0.3 – 0.48 | 0.6 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Silver | 7440-22-4 | 1.7 | J+ | 1.7 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/15 | 7% | -- | -- | -- | 0.5 – 2.9 | 1.7 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Thallium | 7440-28-0 | 0.11 | | 0.2 | | mg/kg | Multiple Locations | 5 - 10 | 7/15 | 47% | 0.12 | 0.11 | 0.049 | 0.0089 – 0.12 | 0.2 | MDC | 0.078 | | R-RSL | N/A | -- | Yes | MDC > SL |
| Vanadium | 7440-62-2 | 7.9 | | 37 | | mg/kg | NYOW-05-004 (2021-01-12) | 5 - 10 | 15/15 | 100% | 18 | 15 | 9.8 | 0.29 – 1.7 | 37 | MDC | 39 | | R-RSL | N/A | -- | No | MDC ≤ SL |
| Zinc | 7440-66-6 | 12 | | 690 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 15/15 | 100% | 78 | 35 | 170 | 1.3 – 7.1 | 690 | MDC | 2300 | | R-RSL | N/A | -- | No | MDC ≤ SL |

Notes:
% = Percent
ARAR = Applicable or Relevant and Appropriate Requirement
CASRN = Chemical Abstracts Service Registry Number
COPC = Chemical of Potential Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) Site data screened against:
R-RSL = EPA Residential Soil Regional Screening Level, November 2022 - Target Cancer Risk = 1E-06, Target Hazard Quotient = 0.1. (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)
(3) An asterisk,'*', indicates surrogate toxicity information was used to derive a screening level (see Tables 5-10 through 5-15).

# APPENDIX K

# Resource Receptor Inventory

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# ECOLOGICAL RESOURCE RECEPTOR INVENTORY

## FORMER NEW YORK ORDNANCE WORKS
## FORMERLY USED DEFENSE SITE
## BALDWINSVILLE, NEW YORK

**FUDS Project Number C02NY0290**
**Contract Number W912WJ-19-D-0001**
**Delivery Order W912WJ19F0056**

**December 2022**

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**Figure 2-2** Former NYOW – AOC 3 Former Landfill Area Wetlands and Sampling Locations

**Figure 2-3** Former NYOW – AOC 4 Former Bunker Area Wetlands and Sampling Locations

**Figure 2-4** Former NYOW – AOC 5 Former Power Plant Area Wetlands, Candidate Vernal Pool, and Sampling Locations

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**Table 2-1** Potential Bird Species

**Table 2-2** Potential Mammal Species

**Table 2-3** Potential Reptile and Amphibian Species

## LIST OF ATTACHMENTS

**Attachment A** National Wetland Inventory (NWI) Maps

**Attachment B** Nature Explorer Database Results

**Attachment C** USFWS IPaC Resource Tool Output

# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| AOC | Area of Concern |
| BERA | Baseline Ecological Risk Assessment |
| Bluestone | Bluestone Environmental Group Inc. |
| COPECs | Contaminants of Potential Ecological Concern |
| IPaC | Information for Planning and Consultation |
| NYNHD | New York Natural Heritage Database |
| NYOW | New York Ordinance Works |
| NYS | New York State |
| NYSDEC | New York State Department of Environmental Conservation |
| PDT | Project Development Team |
| PFO | Palustrine Forested Wetland |
| PFO/PEM | Palustrine Forested Wetland/ Palustrine Emergent Wetland |
| RI | Remedial Investigation |
| SLERA | Screening Level Ecological Risk Assessment |
| USACE | United States Army Corps of Engineers |
| USFWS | United States Fish and Wildlife Service |

# 1.0 INTRODUCTION

The objectives of this Ecological Resource Receptor Inventory are to provide a brief description of habitat conditions at each area of concern (AOC) involved in the Phase 1 ecological risk screening process, a list of potential receptors observed or expected (based on habitat association) at each AOC, and discussion of species and habitats of special concern located within or near the AOCs of interest. This information will be used to determine appropriate receptors or receptor groups that will be considered for evaluation in the Phase 1 ecological screening process and if needed, the subsequent Screening Level Ecological Risk Assessment (SLERA). Information about ecological receptors and habitat conditions was collected from a variety of sources including:

- *Three Rivers Wildlife Management Plan* [New York State Department of Environmental Conservation (NYSDEC), 2018a];
- New York Natural Heritage Database (NYNHD) (NYNHD, 2022), the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) (USFWS, 2022a);
- USFWS National Wetland Inventory database search (USFWS, 2022b);
- *Wetland Delineation and Vernal Pool Survey* (Bluestone, 2020);
- Correspondence with Ms. Bonnie Parton (wildlife biologist – Three Rivers Wildlife Management Area) (NYSDEC, 2022a); and
- Numerous field observations at each AOC.

If required, a SLERA will be conducted to evaluate risks to ecological receptors resulting from exposure to site-related contaminants present in soil and, if suggested by the phased groundwater assessment, surface water, pore water, and sediment. This evaluation will be guided by historical information, but only analytical data to be collected as part of the current remedial investigation (RI) will be used to assess potential ecological risk. A SLERA will be based on reasonable, protective assumptions about the potential for ecological receptors to be exposed to, and to be adversely affected by, contaminants of potential ecological concern (COPECs) in the various media affected by the site. At the completion of the SLERA, the Project Development Team (PDT) will review the results and determine if a Baseline Ecological Risk Assessment (BERA) is warranted and what additional data collection activities are suitable.

# 2.0 ECOLOGICAL SETTING

The ecological risk screening will focus on terrestrial habitat types within AOC 1 (Ammonium Picrate Area), AOC 4 (Bunker Area), AOC 5 (Former Power Plant Area). These three areas were the primary AOCs of ecological concern as determined by the PDT, however, AOC 3 (Former Landfill) which is located under an existing parking lot will also be assessed. Due to the limited area and low-quality ecological habitat at AOC 3, surface soils will not be considered an ecological exposure medium. As part of the Phase 1 Risk Screening process groundwater information collected at each AOC will be evaluated to determine if the potential exists for groundwater discharge into nearby wetlands. If groundwater discharge is considered possible, the Phase 1 Screening will identify associated data gaps that may include a recommendation to collect pore water, surface water, and sediment samples and these data will be incorporated into future ecological risk evaluations.

A brief description of habitats and potential ecological receptors is provided in the following sections. When available, the flora and fauna information provided is based on species that have been observed in and around the Site or that are expected to occur in this region or local habitat based on available species distribution data. Lists of protected species and habitats of concern in the vicinity of New York Ordnance Works (NYOW) AOCs is also provided. The potential receptors identified below are meant only to represent species broadly typical of this habitat type. These species may not necessarily occur within any AOC because of regional and local factors that affect species distribution. Sources of information used to provide descriptions of the ecological setting include:

- Notes from site visits by PDT members, field sampling events and wetland/vernal pool associated site visits;
- New York Natural Heritage Database Search for the Town of Lysander – New York Nature Explorer (NYNHD, 2022);
- *Habitat Management Plan for the Three Rivers Wildlife Management Area* (WMA) 2018-2027 (NYSDEC, 2018a);
- *New England Wildlife: Habitat, Natural History, and Distribution* (DeGraff and Yamasaki, 2001);
- *Three Rivers Bird Conservation Area* (NYSDEC, 2018b);
- US Fish and Wildlife National Wetlands Inventory (USFWS, 2022b);
- *Wetland Delineation and Vernal Pool Survey Report* (Bluestone, 2020); and
- Communications with Ms. Bonnie Parton, wildlife biologist, NYSDEC (NYSDEC, 2022a).

## 2.1 AOC-SPECIFIC HABITAT DESCRIPTIONS

The following discussion provides a description of terrestrial and wetland habitat conditions observed during site visits, wetland habitats within or near AOCs 1, 3, 4 and 5 as identified in the National Wetlands Inventory Database (USFWS, 2022b) and the Wetland Delineation and Vernal Pool Survey (Bluestone, 2020) and additional wildlife and habitats of concern identified in the New York Natural Heritage Database for the town of Lysander (NYNHD, 2022).

### 2.1.1 Terrestrial Habitat

#### *2.1.1.1 AOC 1 – Ammonium Picrate Area*

The Ammonium Picrate Area (AOC 1) is rectangular in shape and is roughly 72.6 acres (see **Figure 2-1**). The terrestrial habitat present is comprised of secondary growth eastern deciduous forest. The forest is dominated by eastern cottonwood (*Populis deltoides*), silver maple (*Acer saccharinum*), green ash (*Fraxinus pennsylvanica*) red maple *(Acer rubrum)*, red oak (*Quercus rubra*), gray birch (*Betula populifolia)*, black cherry (*Prunus serotina*), sweetgum (*Liquidambar styraciflua*), butternut hickory (*Carya coriformis*), tulip tree (*Lirodenendron tulipifera*) and sassafras (*Sassafras albidum*). The understory shrubs are dominated by osier dogwood (*Cornus sericea*), multiflora rose (*Rosa multifora*), Morrow's honeysuckle (*Lonicera morrow*), northern spicebush (*Lindera benzoin*), arrowwood viburnum (*Viburnum dentatum*), black willow (*Salix nigra*) and American hornbeam (*Carpinus caroliniaina*). The herbaceous stratum is dominated by sensitive fern (*Onoclea sensibilis*), garlic mustard (*Alliaria petiolatarough*), rough horsetail (*Equisetum hyemale*), creeping jenny (*Lysimachia nummularia*) and various goldenrod species (Solidago sp.). The AOC 1 has maintained trails and recreational grassy areas interspersed throughout western portion of the Site and is bordered by residential properties to the south and a cleared electric transmission right-of-way to the north.

#### *2.1.1.2 AOC 3-Former Landfill*

The Former Landfill (AOC 3) is a roughly 3.6-acre area dominated by a parking lot and small wooded area to the north. It is not a terrestrial area of concern for surface soil exposure and the vegetated portions are dominated by silver maple, and wild cherry (*Prunus serotina*) along the stream bank (See **Figure 2-2**). The shrub layer is comprised of thickets of blackberry (*Rubus sp*.) multiflora rose and Morrow's honeysuckle. The herbaceous layer of the floodplain wetland is dominated by common reed (*Phragmites australis*), jewelweed (*Impatiens capensis*) and soft rush (*Juncus effuses*).

#### *2.1.1.3 AOC 4 – Bunker Area*

The Bunker Area (AOC 4) is a roughly 104-acre parcel located within the Three Rivers WMA. The bunkers are covered with grass and at most places are periodically managed to discourage the rooting of trees and shrubs on top of the bunkers. A heavily vegetated drainage ditch runs parallel to the road in front of each bunker. Terrestrial habitat bordering Igloo Road and associated bunkers consists primarily of grassy fields and northern deciduous forest (see **Figure 2-3**).

Grass fields are located predominantly along the northern portion of the Bunker Area although smaller grass field patches occur around each of the bunkers. The extent of grass maintenance around the bunkers is limited. Dominant vegetation observed in the grass fields are the herbaceous plants including various grass species (e.g., sweetgrass, bluestem), broomsedge (Andropogon virginicus), common milkweed (Asclepias syriaca), goldenrod, common ragweed (Ambrosia artemisiifolia), mullein (Verbascum spp.), asters (Aster spp.), oxeye daisy (Leucanthemum vulgare), rudbeckia (Rudbeckia spp.), crown vetch (Securigera varia), thistles (Cirsium spp.), and yarrow (Achillea millefolium) among others. Saplings, shrubs, and vines of various sizes (though most appear to be early successional) include arrowwood viburnum (*Viburnum dentatum*), maple leaf viburnum (*Viburnum acerifolium*), smooth sumac (*Rhus glabra*), pin cherry (*Prunus pensylvanica*), gray birch (*Betula populifolia*), red maple, and sweet gum (*Liquidambar styraciflua*).

Eastern deciduous woodlands border the AOC 4 to the north and east; second growth forest of similar composition is located between the two bunker rows except at the northern end. The southeastern site border is a mix of maintained grassy areas and deciduous forest.

Characteristic trees and shrubs observed included red maple, quaking aspen (*Populus tremuloides*), gray birch, red oak, sweet gum, poplar (*Populus spp*.), sassafras, pin cherry, black cherry, eastern white pine (*Pinus strobus*), arrowwood, New York ironweed (*Vernonia noveboracensis*), smooth sumac, maple leaf viburnum, greenbrier (*Smilax spp*.), and oriental bittersweet (*Celastrus orbiculatus*).

#### *2.1.1.4 AOC 5 – Former Power Plant Area*

The Former Power Plant Area (AOC 5) is a roughly 9.3-acre area. AOC 5 is divided into and upland deciduous forest to the east and an extensive forested wetland to the west (see **Figure 2-4**). The forested overstory is dominated by green ash, butternut hickory and red maple. The shrub and herbaceous understory is moderately dense in most areas and is dominated by buckthorn (*Rhamnus cathaitica*), American hornbeam (*Carpus caroliniana*), northern spicebush, red osier dogwood (*Cornus sericea*), Morrow's honeysuckle, Canadian goldenrod (Solidago sempervirens), creeping Jenny (*Lysimachia nummularia*) and multiflora rose.

### 2.1.2 Wetland Habitat

A wetland delineation and vernal pool survey was performed at AOC 1, 3 and 5 in 2020, the results of these field investigations are presented in the *Wetland Delineation and Vernal Pool Survey Report* (Bluestone, 2020). No formal wetland delineation was performed for AOC 4.

There are several forested wetland areas scattered throughout AOC 1, with the majority located in the lower elevation areas adjacent to residential properties. In total, 17.33 acres of Palustrine Forested Wetland (PFO) were identified across four areas. The largest wetland area (Wetland 1C, 10.81 acres) was identified along the northeast basal plain, with pockets of upland hills, between former Dryer Houses 29 and 31. Wetland 1B was identified along the southern portion of the basal plain, between former Dryer Houses 27 and 28. The remaining two wetlands were delineated along the second terrace (Wetlands 1A and 1F). See **Figure 2-1** for locations of wetlands and candidate vernal pools and proposed sampling locations at AOC 1.

In total, 0.26 acres of Palustrine Forested Wetland/Palustrine Emergent Wetland (PFO/PEM) were identified within AOC 3, just north of the parking lot along the stream's floodplain. See **Figure 2-2** for locations of delineated wetlands and proposed sampling locations at AOC 3The only wetland areas associated with AOC 3 are closely associated with the unnamed stream and the northern stream bank.

Roughly 50% (the whole western side) of AOC 5 consists of a forested wetland habitat (see **Figure 2-2**). Similar to AOC 1, AOC 5 has highly mosaic microtopography throughout and an extensive network of drainage ditches from its previous land use. Therefore, wetland boundaries had to be averaged to mappable lines. This means in some areas there are many small wetland depressions and upland mounds on both sides of the boundary. The western portion of AOC 5 was confirmed to have 3.35 acres of PFO wetlands, which likely extends westward beyond the AOC boundary. See **Figure 2-4** for locations of wetlands and candidate vernal pools and proposed sampling locations at AOC 5.

Based on the results of the wetland delineation efforts and vernal pool assessments, approximately 20.44 wetland acres were delineated across the AOCs 1, 3 and 5. Based on the observations of the field teams,

vernal pool resources do not warrant additional consideration as unique or exceptional resources. However, the pools were all found to occur within, or to have nexus to, areas that are probable Jurisdictional Wetlands as defined and regulated by United States Army Corps of Engineers (USACE) under the Clean Water Act.

NYSDEC regulates wetlands that are 12.4 acres (5 hectares) or larger. The NYSDEC Freshwater Wetlands Act protects wetlands smaller than this if they are considered of unusual local importance. None of the wetlands delineated at the NYOW AOCs are larger than 12.4 acres; none are identified as part of a state-mapped New York State (NYS) freshwater wetland; and none contain features of unusual local importance.

According to the National Wetlands Inventory Map managed (see **Appendix K, Attachment A** and **Figure 2-3**), there is a small Palustrine Emergent Wetland in the southwestern portion on the site and two small, Palustrine Forested Wetlands adjacent to western AOC 4 boundary. There are also several larger Palustrine Forested Wetland and Palustrine Emergent Wetland areas west of AOC 4 and numerous smaller Palustrine Forested Wetlands south and east of AOC 4.

## 2.2 WILDLIFE

**Tables 2-1, 2-2 and 2-3** provide species lists for representative vertebrate species that potentially inhabit or utilize AOC 1, 3, 4 and 5. The lists contain species observed on the during site visits, prior wildlife surveys, or are based on known habitat/species associations for this area of northcentral New York. A list of potential wildlife species was obtained from *Checklist of Amphibians, Reptiles, Birds, and Mammals of New York* (NYSDEC, 2019). Species/habitat associations for species other than those previously observed were determined using professional judgement and information presented in *New England Wildlife: Habitat, Natural History and Distribution* (DeGraaf and Yamasaki, 2001). These lists are not intended to be comprehensive, rather they represent species most likely to be present at sometime during their lifecycle.

### 2.2.1 Species and Habitats of Special Concern

The following discussion provides lists of species and habitats of special concern accumulated from several sources including local species accounts and state and federal database searches. The most detailed information available was for AOC 4 which is located in the Three Rivers WMA. No site-specific accounts of species or habitats of concern are available for AOCs 1,3 and 5, however, based on habitat conditions present at those AOCs it is not likely that any species of concern would substantially utilize these areas during their life cycle.

The Three Rivers WMA, where AOC 4 is located, is identified as a NYS Bird Conservation Area (NYSDEC, 2018c). There are several known species of birds that are listed as endangered, threatened, or of special concern that may be present at Three Rivers WMA including:

- American bittern (*Botaurus lentiginosus),* special concern
- Bald eagle (*Haliaeetus leucocephalus*), threatened
- Cerulean warbler (*Dendroica cerulea)*, special concern
- Common nighthawk (*Chordeiles minor)*, special concern
- Common tern (*Sterna hirundo)*, threatened
- Cooper's hawk (*Accipiter cooperii),* special concern
- Eastern whip-poor-will (*Caprimulgus vociferus)*, special concern

- Golden-winged warbler (*Vermivora chrysoptera*), special concern
- Grasshopper sparrow (*Ammodramus savannarum)*, special concern
- Henslow's sparrow (*Ammodramus henslowii),* threatened
- Horned lark (*Eremophila alpestris)*, special concern
- Least bittern (*Ixobrychus exilis)*, threatened
- Northern goshawk (*Accipiter gentilis)*, special concern
- Northern harrier (*Circus cyaneus)*, threatened
- Osprey (*Pandion haliaetus*), special concern
- Peregrine falcon (*Falco peregrinus)*, endangered
- Pied-billed grebe (*Podilymbus podiceps)*, threatened
- Red-headed woodpecker (*Melanerpes erythrocephalus*), special concern
- Red-shouldered hawk (*Buteo lineatus)*, special concern
- Sedge wren (*Cistothorus platensis)*, threatened
- Sharp-skinned hawk (*Accipiter striatus)*, special concern
- Upland sandpiper (*Bartramia longicauda)*, threatened
- Vesper sparrow (*Pooecetes gramineus),* special concern
- Yellow-breasted chat (*Icteria virens*), special concern

Mammals of conservation concern at Three Rivers WMA include the Indiana bat (*Myotis sodalis),* endangered; Northern long-eared bat (*Myotis septentrionalis),* threatened; small-footed bat (*Myotis leibii),* special concern; and the Tricolored bat (*Perimyotis subflavus*) special concern. According to Ms. Bonnie Parton (NYSDEC), the northern long-eared bat and the tricolored bat were detected near AOC 4 in 2019 (NYSDEC, 2022a).

Amphibians and reptiles of special concern include the Jefferson salamander (*Ambystoma jeffersonianum)* and wood turtle (*Clemmys insculpta)*.

### 2.2.2 New York Natural Heritage Database

The Nature Explorer is the NYNHD (NYNHD, 2022) online tool for identifying animals, plants, and habitats in areas of interest. Users may choose a county, town, or watershed, or may specify their own location on a map, and receive a list of the animals, plants, and natural communities that have been found there. Users may also choose a specific animal, plant, or natural community type, and receive a list of the counties, towns, or watersheds where it has been found.

Included in NYDEC Nature Explorer are the rare plants, rare animals, and significant natural communities (such as forests, wetlands, and other habitat types) documented by the NYNHD; birds documented during the second NYS Breeding Bird Atlas from 2000 to 2005; and reptiles and amphibians documented during the NYS Herp Atlas from 1990 to 1999.

The NYSDEC Nature Explorer identified the Red-headed Woodpecker (*Melanerpes erythrocephalus*) as a species of special concern for the town of Lysander.

The NYSDEC Nature Explorer also identified two endangered plants in the Lysander Area (NYSDEC, 2022c): Carey's Smartweed (*Persicaria careyi*) and Creeping Juniper (*Juniperus horizontalis*). Neither of these species in expected in the AOCs under evaluation. Two habitats of concern: floodplain forest and

silver maple-ash swamp were also identified. The information obtained from the Nature Explorer website is provided in Attachment B.

### 2.2.3 U.S. Fish and Wildlife Service IPaC

The USFWS IPaC database was queried for Onondaga County, New York. Results of this query identified the following protected species: Indiana Bat (Endangered), Northern Long-eared Bat (Threatened), and Monarch Butterfly (Candidate). (See **Attachment C**).

# 3.0 REFERENCES

Bluestone Environmental Group (Bluestone). June 2020. Remedial Investigation/Feasibility Study Wetland Delineation and Vernal Pool Survey.

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United States Fish and Wildlife Service (USFWS). 2022b. National Wetlands Inventory. *https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper*.

# FIGURES

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## Legend

**AOC 1 Sample Locations (2021)**

- Temporary Well and Co-located Surface/Subsurface Soil
- Surface/Subsurface Soil
- Surface Soil
- Extent of Observed Fill

**Historic Site Features (Approx.)**

- Ammonium Picrate Building
- Ammonium Picrate Magazine
- Change House
- Dryer House
- Former Acid Tank (Not FUDS-Eligible)
- Historical Site Feature
- Laboratory Building
- Candidate Vernal Pool (May 2020)
- Former Wastewater Ditch
- Stream
- Wetland (May 2020)
- USFWS NWI Wetland
- NYS Freshwater Wetland 100-ft Buffer
- NYS Freshwater Wetland

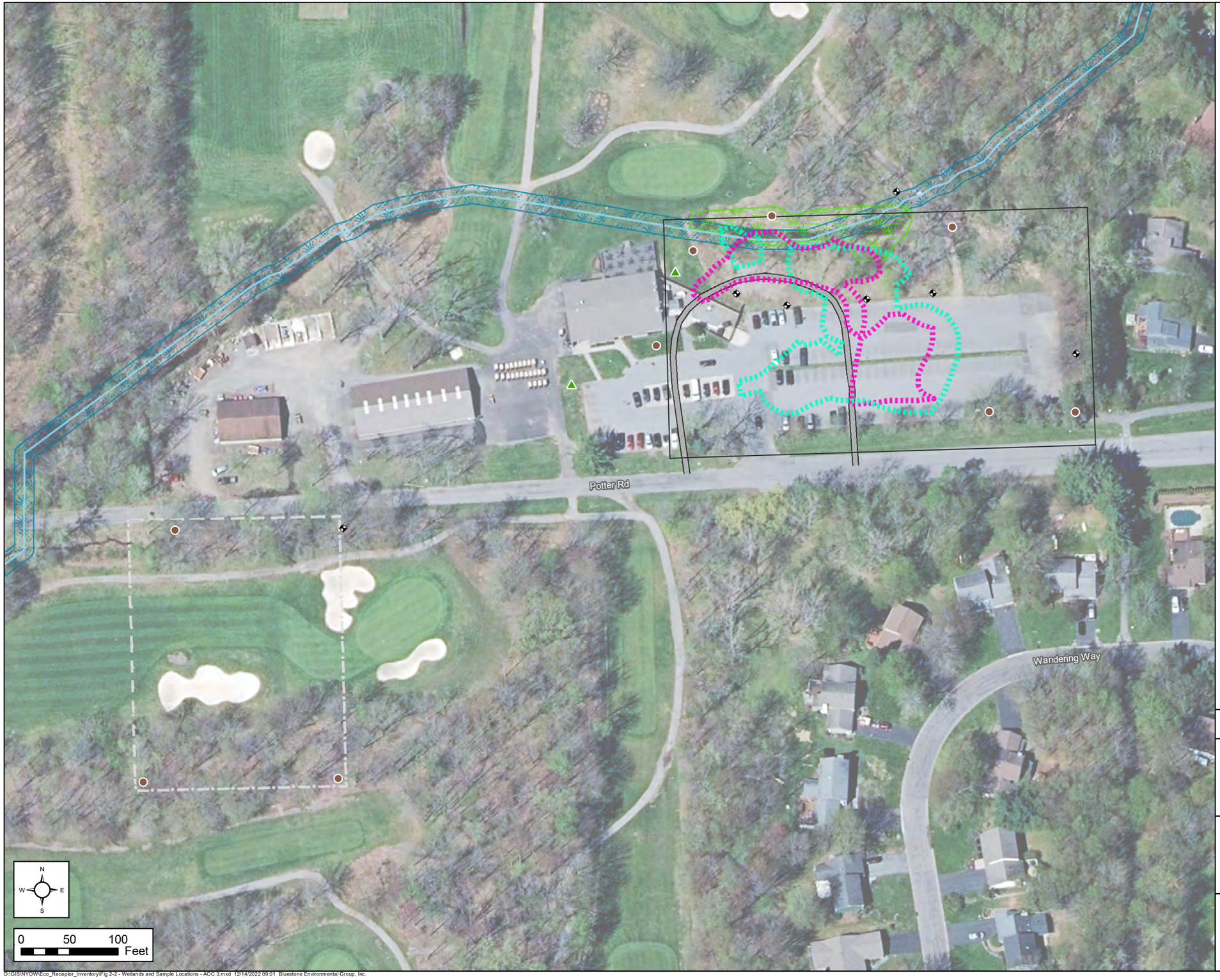
1. Historic site features - Site history brochure by RFC, undated
2. Local groundwater flow direction determined by monitoring well gauging in May 2021.
3. Candidate vernal pools and wetlands delineated in May 2020 by WRS.
4. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
5. NHD flowline - USGS, 2019
6. NWI wetlands - USFWS, 1981
7. NYS freshwater wetlands, Onondaga Co. - NYSDEC, 2010
8. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 2-1**

# Former NYOW - AOC 1 Former Ammonium Picrate Area Wetlands, Candidate Vernal Pools, and Sampling Locations

**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\Eco_Receptor_Inventory\Fig 2-1 - Wetlands and Sample Locations - AOC 1.mxd 12/14/2022 08:58 Bluestone Environmental Group, Inc.




## Legend

**AOC 3 Sample Locations (2021)**

- Temporary Well and Co-located Surface/Subsurface Soil
- Surface/Subsurface Soil
- Vapor Intrusion

**Historic Site Features**

- August 1944 Dumping Extent
- Former Open Storage Area
- June 1949 Dumping Extent
- Former Landfill and Area of Concern
- Former U-Road

- Stream
- Wetland (May 2020)
- USFWS NWI Wetland

1. Historic Site Features - NYOW Historical Photographic Analysis FINAL Report prepared by USACE Army Geospatial Center, Nov. 2019
2. Local groundwater flow direction determined by monitoring well gauging in May 2021
3. Wetlands delineated in May 2020 by WRS
4. NHD flowline - USGS, 2019
5. NWI wetlands - USFWS, 1981
6. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 2-2**

# Former NYOW - AOC 3 Former Landfill Area Wetlands and Sampling Locations

**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

D:\GIS\NYOW\Eco_Receptor_Inventory\Fig 2-2 - Wetlands and Sample Locations - AOC 3.mxd 12/14/2022 09:01 Bluestone Environmental Group, Inc.

W Igloo Rd
E Igloo Rd
E Igloo Rd
Sixty Rd
W Igloo Rd
Potter Rd
1
2
3
4
5
6
7
8
9
10
11
12
13
14
N
W
E
S
0 200 400 Feet

## Legend

**AOC 4 Sample Locations (2021)**

- Temporary Well and Co-located Surface/Subsurface Soil
- Subsurface Soil at Outlet
- Subsurface Soil in Swale
- Existing Bunker Number / ISM Decision Unit
- Former Bunker Number
- Pre-Existing Monitoring Well (NYSDEC, 1990)
- DPT Transect
- Staging Area
- ISM Decision Unit (0.5 acre)
- Former Wastewater Ditch
- Stream
- USFWS NWI Wetland
- NYS Freshwater Wetland 100-ft Buffer
- NYS Freshwater Wetland
- Swallow-wort Locations as of Jan 2021

1. Pre-existing monitoring wells - NYSDEC, 1990
2. Former wastewater ditches - RFC, undated; Dames & Moore, 1981
3. NHD flowline - USGS, 2019
4. NWI wetlands - USFWS, 1981
5. NYS freshwater wetlands, Onondaga Co. - NYSDEC, 2010
6. Swallow-wort mapping provided by NYSDEC in Jan. 2021.
7. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

**Figure 2-3**

# Former NYOW - AOC 4 Former Bunker Area Wetlands and Sampling Locations

**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

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## Legend

**AOC 5 Sample Locations (2020)**

- Temporary Well and Co-located Surface/Subsurface Soil
- Surface/Subsurface Soil
- Area of Concern (approx.)

**Historic Site Features**

- Drainage Ditch
- Railroad
- Road
- Road - Track
- Aboveground Storage Tank (AST)
- Coal Aggregate Bin (CAB)
- Coal Storage (Eroded)
- Boiler House
- Electric Substation
- Possible Dump
- Pipeline
- Candidate Vernal Pool (May 2020)
- Former Wastewater Ditch
- Wetland (May 2020)
- USFWS NWI Wetland

1. Historic site features provided by USACE in 2019.
2. Former wastewater ditch - RFC, undated; Dames & Moore, 1981
3. Wetland delineation - WRS, May 2020
4. NWI wetlands - USFWS, 1981
5. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery.

**Figure 2-4**

# Former NYOW - AOC5 Former Power Plant Area Wetlands, Candidate Vernal Pool, and Sampling Locations

**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

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# TABLES

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**Table 2-1**
**Potential Bird Species**

| | | |
|---|---|---|
| Alder flycatcher *(Empidonax alnorum)* | Eastern wood-pewee *(Contopus virens)* | Scarlet tanager *(Piranga olivacea)* |
| American crow *(Corvus brachyrhynchos)* | Field sparrow *(Spizella pusilla)* | Song sparrow *(Melospiza melodia)* |
| American goldfinch *(Setophaga ruticilla)* | Great blue heron *(Ardea Herodias)* | Tufted titmouse *(Baeolophus bicolor)* |
| American redstart *(Setophaga ruticilla)* | Great crested flycatcher *(Myiarchus crinitus)* | Veery (*Catharus fuscescens)* |
| American robin *(Turdus migratorius)* | Gray catbird *(Dumetella carolinensis)* | White-breasted nuthatch *(Sitta carolinensis)* |
| Baltimore oriole *(Icterus galbula)* | Hairy woodpecker *(Leuconotopicus villosus)* | Willow flycatcher *(Empidonax traillii)* |
| Black-capped chickadee *(Poecile atricapillus)* | House wren *(Troglodytes aedon)* | Wood thrush *(Hylocichla mustelina)* |
| Brown-headed cowbird *(Molothrus ater)* | Indigo bunting *(Passerina cyanea)* | Yellow warbler *(Setophaga petechia)* |
| Blue-headed vireo *(Vireo solitarius)* | Least flycatcher *(Empidonax minimus)* | Yellow-shafted flicker *(Colaptes auratus)* |
| Blue jay *(Cyanocitta cristata)* | Mourning dove *(Zenaida macroura)* | Yellow-throated vireo *(Vireo flavifrons)* |
| Bobolink *(Dolichonyx oryzivorus)* | Northern cardinal *(Cardinalis cardinalis)* | Red-tailed hawk *(Buteo jamaicensis)* |
| Brown creeper *(Certhia americana)* | Northern waterthrush *(Parkesia noveboracensis)* | Broad-winged hawk *(Buteo platypterus)* |
| Blue-winged warbler *(Vermivora cyanoptera)* | Ovenbird *(Seiurus aurocapilla)* | Screech owl *(Megascops)* |
| Cedar waxwing *(Bombycilla cedrorum)* | Rose-breasted grosbeak *(Pheucticus Iudovicianus)* | Great-horned owl (*Bubo virginianus)* |
| Cerulean warbler *(Setophaga cerulea)* | Red-eyed vireo *(Vireo olivaceus)* | Barred owl *(Strix varia)* |
| Common yellowthroat *(Geothlypis trichas)* | Red-winged blackbird *(Agelaius phoeniceus)* | |

**Table 2-2**
**Potential Mammal Species**

| | | |
|---|---|---|
| Virginia opossum<br>*(Didelphis virginiana)* | Northern long-eared bat<br>(*Myotis septentrionalis*) | New England cottontail<br>*(Sylvilagus transitionalis)* |
| Long-tailed shrew<br>*(Sorex dispar)* | Long-tailed weasel<br>*(Mustela frenata)* | Tri-colored bat<br>*(Perimyotis subflavus)* |
| Northern short-tailed shrew<br>*(Blarina brevicauda)* | American mink<br>*(Neovison vison)* | Eastern cottontail<br>*(Sylvilagus floridanus)* |
| Northern least shrew<br>*(Cryptotis parva)* | North American river otter<br>*(Lontra canadensis)* | Striped skunk<br>*(Mephitis mephitis)* |
| Eastern mole<br>*(Scalopus aquaticus)* | White-tailed deer<br>*(Odocoileus virginianus)* | Woodland jumping mouse<br>*(Napaeozapus insignis)* |
| Star-nosed mole<br>*(Condylura cristata)* | Eastern chipmunk<br>*(Tamias striatus)* | American black bear<br>*(Ursus americanus)* |
| Little brown myotis<br>*(Myotis lucifugus)* | Woodchuck<br>*(Marmota monax)* | Brown rat<br>*(Rattus norvegicus)* |
| Tricolored bat<br>*(Perimyotis subflavus)* | Eastern gray squirrel<br>*(Sciurus carolinensis)* | Gray fox<br>*(Urocyon cinereoargenteus)* |
| Big brown bat<br>*(Eptesicus fuscus)* | Red squirrel<br>(*Sciurus vulgaris)* | Southern red-backed vole<br>*(Myodes gapperi)* |
| Eastern red bat<br>*(Lasiurus borealis)* | Northern flying squirrel<br>*(Glaucomys sabrinus)* | Red fox<br>*(Vulpes vulpes)* |
| Hoary bat<br>*(Lasiurus cinereus)* | White-footed Mouse<br>*(Peromyscus leucopus)* | North American deer mouse<br>*(Peromyscus maniculatus)* |
| Indiana bat<br>( *Myotis sodalis*) | Racoon<br>*(Procyon lotor)* | Coyote<br>*(Canis latrans* |

**Table 2-3**
**Potential Reptile and Amphibian Species**

| | | |
|---|---|---|
| Spotted Salamander *(Ambystoma maculatum)* | Wood Turtle *(Glyptemys insculpta)* | Northern Copperhead *(Agkistrodon contortrix mokasen)* |
| Eastern Red-spotted Newt *(Notophthalmus viridescens)* | Eastern Box Turtle *(Terrapene carolina carolina)* | Eastern Milk Snake *(Lampropeltis Triangulum)* |
| Eastern Red-backed Salamander *(Plethodon cinereus)* | Painted Turtle *(Chrysemys picta)* | Pickerel Frog *(Lithobates palustris)* |
| Eastern American Toad *(Anaxyrus americanus)* | Common Five-lined Skink *(Plestiodon fasciatus)* | Smooth Green snake *(Opheodrys vernalis)* |
| Gray Treefrog *(Dryophytes versicolor)* | Northern Red-bellied Snake *(Storeria occipitomaculata occipitomaculata)* | Northern Leopard Frog *(Lithobates pippiens)* |
| Spring Peeper *(Pseudacris crucifer)* | Eastern Garter snake *(Thamnophis sirtalis sirtalis)* | Northern Black Racer *(Coluber constrictor)* |
| Northern Green Frog *(Rana clamitans melanota)* | Eastern Hog-nosed Snake *(Heterodon platirhinos)* | Wood Frog *(Lithobates sylvaticus)* |
| American Bullfrog *(Lithobates catesbeianus)* | Northern Ring-necked Snake *(Diadophis punctatus edwardsii)* | |

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# ATTACHMENTS

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# ATTACHMENT A

# National Wetland Inventory (NWI) Maps

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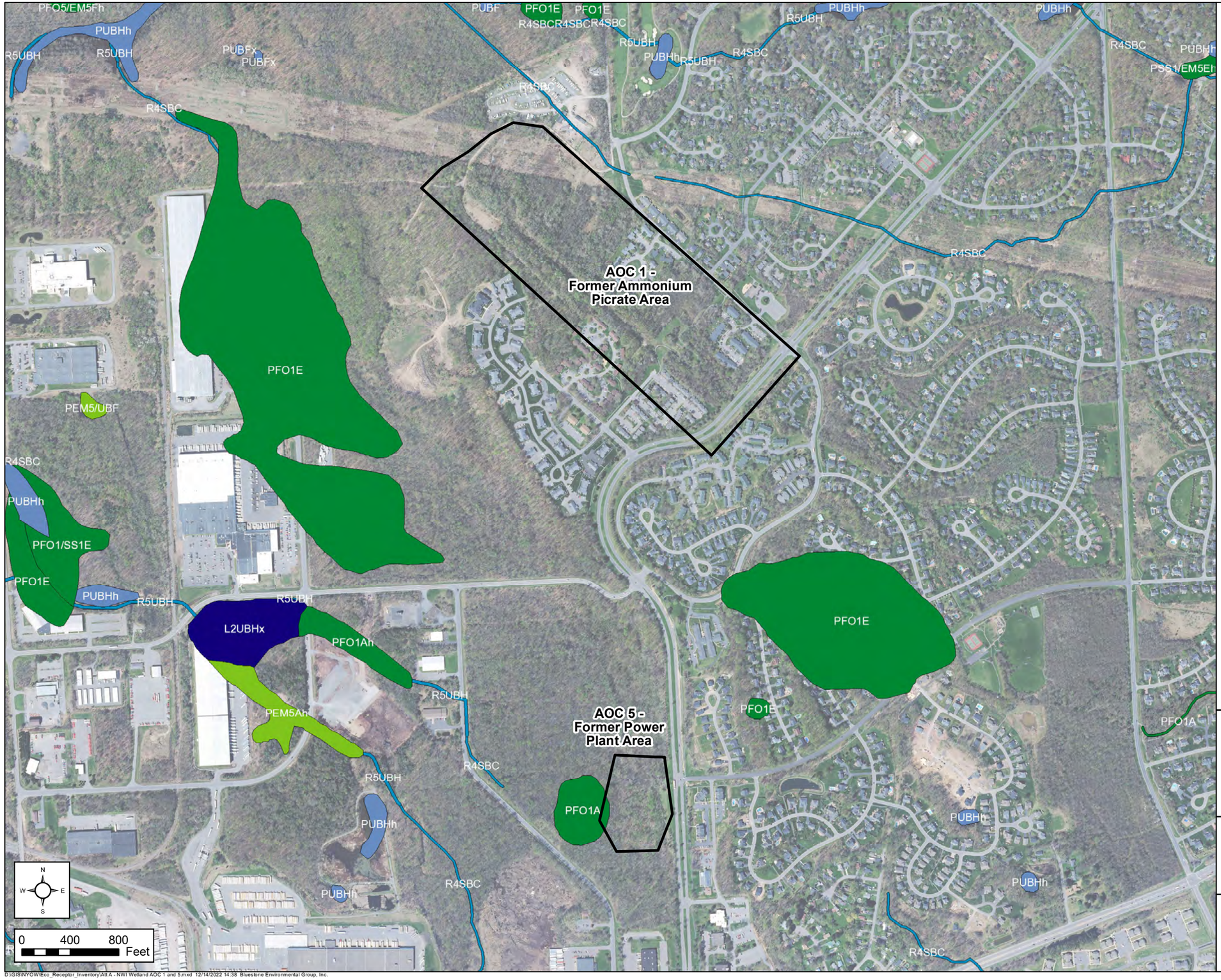



D:\GIS\NYOW\Eco_Receptor_Inventory\Att A - NWI Wetland AOC 1 and 5.mxd 12/14/2022 14:38 Bluestone Environmental Group, Inc.

**Legend**

- Area of Concern (AOC)

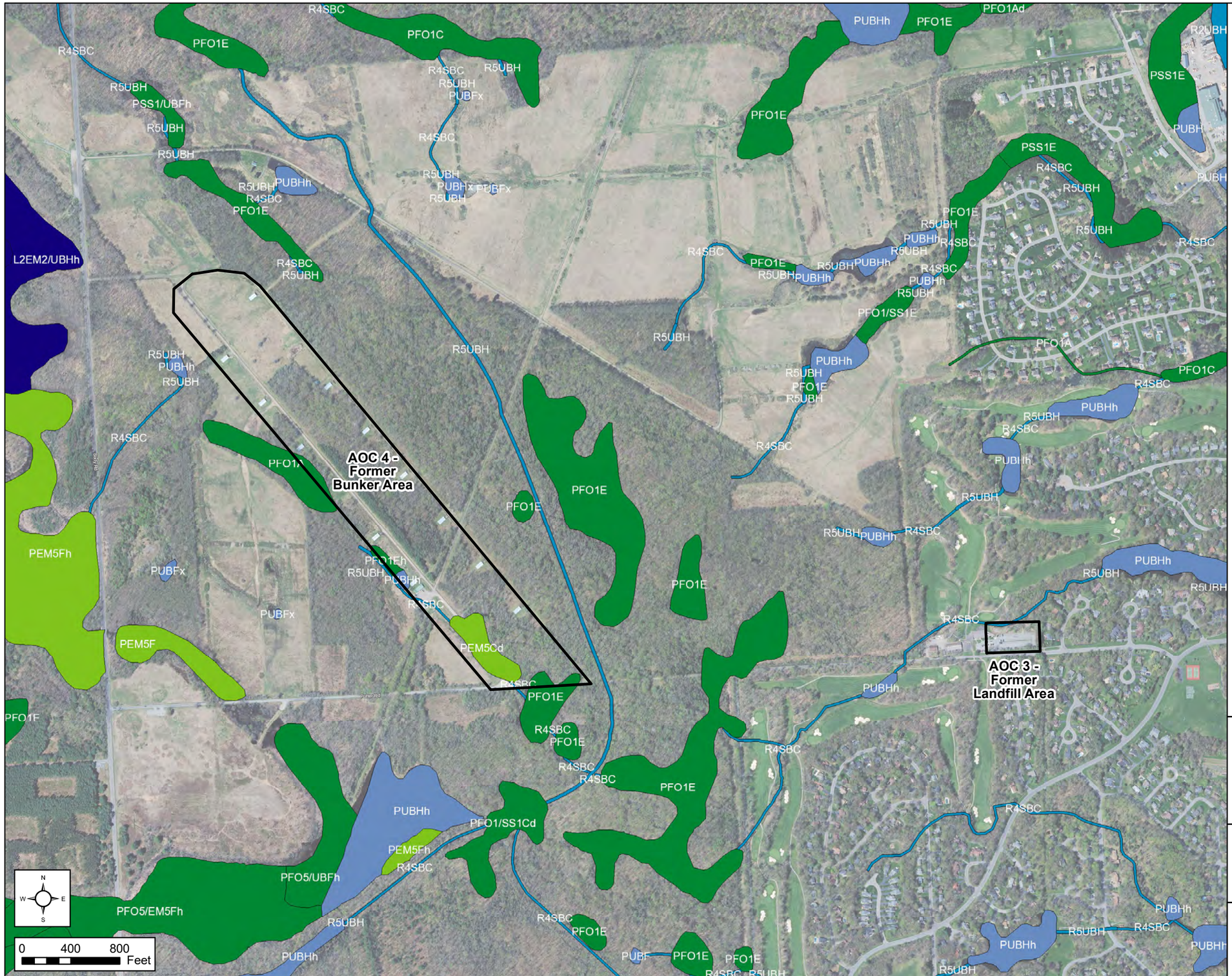
**NWI Wetlands**

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

1. NWI wetlands - USFWS, 1981. Accessed 14 Dec 2022.
2. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

# Former NYOW AOCs 1 and 5 NWI Wetlands

**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**




**Legend**

- Area of Concern (AOC)

**NWI Wetlands**

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

1. NWI wetlands - USFWS, 1981. Accessed 14 Dec 2022.
2. Basemap: NYS ITS GIS Program Office 2018 Orthoimagery

# Former NYOW AOCs 3 and 4 NWI Wetlands

**Former New York Ordnance Works**
**Baldwinsville, New York**
**December 2022**

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# ATTACHMENT B

# Nature Explorer Database Results

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**Attachment B - Nature Explorer Database Results**

| Common Name | Scientific Name | Location | Type | Group | Subgroup | Distribution Status | Year Last Documented | State Protection Status | Federal Protection Status | State Conservation Rank | Global Conservation Rank | Non Native | Common | Restricted |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Red-headed Woodpecker | *Melanerpes erythrocephalus* | Lysander | Animal | Birds | Woodpeckers | Recently Confirmed | 2012 | Special Concern | | S2?B | G5 | FALSE | FALSE | FALSE |
| Blackchin Shiner | *Notropis heterodon* | Lysander | Animal | Fish | Minnows Shiners Suckers | Historically Confirmed | 1935 | | | S2 | G5 | FALSE | FALSE | FALSE |
| Fragile Papershell | *Leptodea fragilis* | Lysander | Animal | Mussels and Clams | Freshwater Mussels | Recently Confirmed | 2012 | | | S2S3 | G5 | FALSE | FALSE | FALSE |
| Pink Heelsplitter | *Potamilus alatus* | Lysander | Animal | Mussels and Clams | Freshwater Mussels | Recently Confirmed | 2012 | | | S2 | G5 | FALSE | FALSE | FALSE |
| Wabash Pigtoe | *Fusconaia flava* | Lysander | Animal | Mussels and Clams | Freshwater Mussels | Recently Confirmed | 2012 | | | S2 | G5 | FALSE | FALSE | FALSE |
| Carey's Smartweed | *Persicaria careyi* | Lysander | Plant | Flowering Plants | Other Flowering Plants | Historically Confirmed | 1851 | Endangered | | S1S2 | G4 | FALSE | FALSE | FALSE |
| Creeping Juniper | *Juniperus horizontalis* | Lysander | Plant | Conifers | Conifers | Possible but not Confirmed | 1924 | Endangered | | S1 | G5 | FALSE | FALSE | FALSE |
| Floodplain Forest | Floodplain forest | Lysander | Natural Community | Freshwater Nontidal Wetlands | Forested Mineral Soil Wetlands | Recently Confirmed | 1997 | | | S2S3 | G3G4 | FALSE | FALSE | FALSE |
| Silver Maple-Ash Swamp | Silver maple-ash swamp | Lysander | Natural Community | Freshwater Nontidal Wetlands | Forested Mineral Soil Wetlands | Recently Confirmed | 1994 | | | S3 | G4 | FALSE | FALSE | FALSE |

**Notes:**

S2?B = Imperiled Breeding population

G3G4 = Vulnerable or Apparently secure (unclear)

G4 = Apparently secure

G5 = Definitely secure

S1 = Critically imperiled

S1S2 = Critically imperiled or Imperiled ( unclear)

S2 = Imperiled

S2S3 = Imperiled or Vulnerable (unclear)

S3 = Vulnerable

Source: New York Nature Explorer - dec.ny.gov/natureexplore/app/

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# ATTACHMENT C
# USFWS IPaC Resource Tool Output

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**IPaC** **U.S. Fish & Wildlife Service**

# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

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## Location

Onondaga County, New York

## Local office

New York Ecological Services Field Office

(607) 753-9334
(607) 753-9699
fw5es_nyfo@fws.gov

3817 Luker Road
Cortland, NY 13045-9385

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# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

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2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

# Mammals

| NAME | STATUS |
|---|---|
| Indiana Bat Myotis sodalis<br>Wherever found<br>There is **final** critical habitat for this species. The location of the critical habitat is not available.<br>https://ecos.fws.gov/ecp/species/5949 | Endangered |
| Northern Long-eared Bat Myotis septentrionalis<br>Wherever found<br>No critical habitat has been designated for this species.<br>https://ecos.fws.gov/ecp/species/9045 | Threatened |

# Insects

| NAME | STATUS |
|---|---|
| Monarch Butterfly Danaus plexippus<br>Wherever found<br>No critical habitat has been designated for this species.<br>https://ecos.fws.gov/ecp/species/9743 | Candidate |

# Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

# Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

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Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

**The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location.** To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

| NAME | BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS |
|---|---|

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ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle Haliaeetus leucocephalus — Breeds Dec 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1626

Black-billed Cuckoo Coccyzus erythropthalmus — Breeds May 15 to Oct 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9399

Blue-winged Warbler Vermivora pinus — Breeds May 1 to Jun 30
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Bobolink Dolichonyx oryzivorus — Breeds May 20 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Canada Warbler Cardellina canadensis — Breeds May 20 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Cerulean Warbler Dendroica cerulea — Breeds Apr 20 to Jul 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/2974

Eastern Whip-poor-will Antrostomus vociferus — Breeds May 1 to Aug 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Evening Grosbeak Coccothraustes vespertinus — Breeds May 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

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Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Golden-winged Warbler Vermivora chrysoptera — Breeds May 1 to Jul 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8745

Lesser Yellowlegs Tringa flavipes — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9679

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

Red-headed Woodpecker Melanerpes erythrocephalus — Breeds May 10 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Wood Thrush Hylocichla mustelina — Breeds May 10 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

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# Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

**Probability of Presence** (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

**Breeding Season** (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

**Survey Effort** (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

**No Data** (–)
A week is marked as having no data if there were no survey events for that week.

**Survey Timeframe**
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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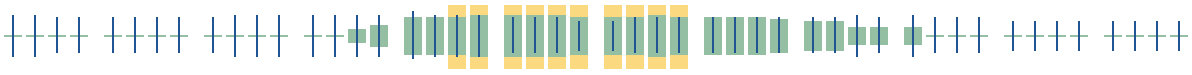
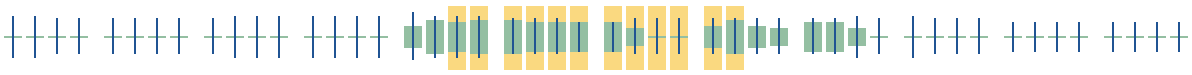
Bobolink BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

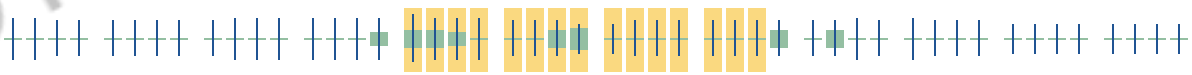


Canada Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



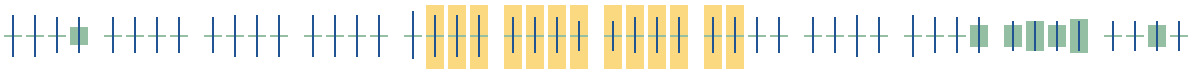
Cerulean Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Eastern Whip-poor-will BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

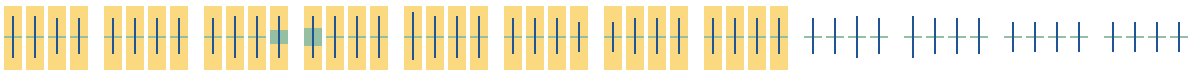


NOT FOR CONSULTATION

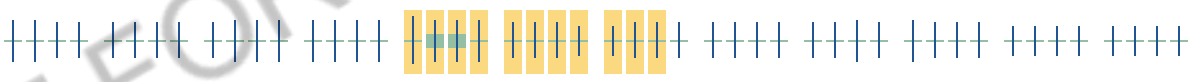
Evening Grosbeak BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Golden Eagle Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Golden-winged Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



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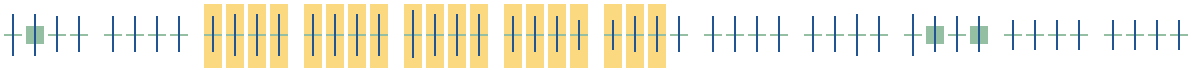
Lesser Yellowlegs BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Long-eared Owl BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



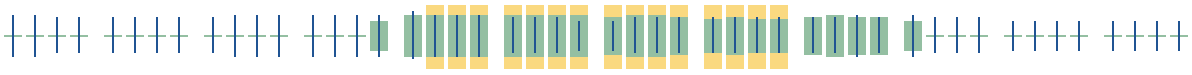
NOT FOR CONSULTATION

SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Red-headed Woodpecker BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Short-billed Dowitcher BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Wood Thrush BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the migratory birds potentially occurring in my specified location?**

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

**What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

**How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?**

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To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

**What are the levels of concern for migratory birds?**

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

**Details about birds that are potentially affected by offshore projects**

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

**What if I have eagles on my list?**

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

**Proper Interpretation and Use of Your Migratory Bird Report**

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The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

NOT FOR CONSULTATION

# Coastal Barrier Resources System

Projects within the John H. Chafee Coastal Barrier Resources System (CBRS) may be subject to the restrictions on federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local Ecological Services Field Office or visit the CBRA Consultations website. The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

THERE ARE NO KNOWN COASTAL BARRIERS AT THIS LOCATION.

**Data limitations**

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the official CBRS maps. The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation

**Data exclusions**

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be

subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact CBRA@fws.gov.

# Facilities

## National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

## Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

# Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

**Data limitations**

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

NOT FOR CONSULTATION

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

### Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

### Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

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# APPENDIX L

# Ecological Screening Level Comparisons

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# APPENDIX L.1

# Plant Sample by Sample Screening – Soil

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Table L.1-1
Plant Sample by Sample Screening - AOC 1, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-002 | | NYOW-01-002 | | NYOW-01-005 | | NYOW-01-005 | | NYOW-01-007 | | NYOW-01-009 | | NYOW-01-011 | | NYOW-01-013 | | NYOW-01-015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL002-A | | NYOW-01-PH002-B | | NYOW-01-SL005-A | | NYOW-01-PH005-B | | NYOW-01-SL007-A | | NYOW-01-SL009-A | | NYOW-01-SL011-A | | NYOW-01-SL013-A | | NYOW-01-SL015-A | |
| | | | | Sample Type: | N | | N | | C | | C | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-09 | | 2021-04-09 | | 2021-04-08 | | 2021-04-08 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-14 | | 2021-04-02 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 2 | QAPP Appendix A.1 - Soil | mg/kg | 0.16 | UJ | 0.16 | UJ | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 5 | EPA Region 4 Soil | mg/kg | 0.16 | J- | 0.17 | J+ | 0.11 | J | 0.081 | U | 0.23 | J | 0.19 | J | 0.13 | J | 0.13 | J | 0.17 | J |
| Arsenic | 7440-38-2 | 18 | EPA Ecological SSLs | mg/kg | 4.2 | | 3.7 | | 4 | | 3.7 | | 5.7 | | 4.7 | | 2.4 | | 4.8 | | 4.9 | |
| Barium | 7440-39-3 | 110 | EPA Region 4 Soil | mg/kg | 81 | | 41 | | 46 | J+ | 31 | J+ | 86 | | 72 | | 32 | | 39 | | 61 | |
| Beryllium | 7440-41-7 | 2.5 | EPA Region 4 Soil | mg/kg | 0.48 | J+ | 0.4 | J+ | 0.47 | J+ | 0.4 | J+ | 0.72 | J+ | 0.56 | J+ | 0.52 | J+ | 0.57 | J+ | 0.52 | J+ |
| Cadmium | 7440-43-9 | 32 | EPA Ecological SSLs | mg/kg | 0.17 | | 0.092 | J | 0.13 | | 0.039 | J | 0.37 | | 0.19 | | 0.32 | | 0.14 | | 0.31 | |
| Chromium | 7440-47-3 | 0.35 | EPA Region 4 Soil | mg/kg | 11 | J- | 8.4 | | 7 | | 6.2 | | 9.3 | | 5.4 | | 5 | | 6.8 | | 9.9 | |
| Cobalt | 7440-48-4 | 13 | EPA Ecological SSLs | mg/kg | 7.3 | | 5.9 | J | 4.6 | | 3.8 | | 5.7 | | 3.9 | | 3.7 | | 6.4 | | 7.6 | |
| Copper | 7440-50-8 | 70 | EPA Ecological SSLs | mg/kg | 21 | | 19 | | 11 | | 10 | | 21 | | 15 | | 23 | | 80 | | 22 | |
| Lead | 7439-92-1 | 120 | EPA Ecological SSLs | mg/kg | 29 | | 14 | | 11 | | 3.3 | | 37 | | 23 | | 7.6 | | 14 | | 10 | |
| Manganese | 7439-96-5 | 220 | EPA Ecological SSLs | mg/kg | 1400 | J | 550 | | 550 | | 340 | | 450 | | 1100 | | 740 | | 580 | | 710 | |
| Mercury | 7439-97-6 | 0.3 | EPA Region 4 Soil | mg/kg | 0.039 | | 0.015 | J | 0.053 | | 0.017 | U | 0.073 | | 0.019 | J | 0.032 | | 0.038 | | 0.021 | J |
| Nickel | 7440-02-0 | 38 | EPA Ecological SSLs | mg/kg | 12 | | 11 | J | 8 | | 6.9 | | 12 | | 7.3 | | 6.9 | | 9.1 | | 12 | |
| Selenium | 7782-49-2 | 0.52 | EPA Ecological SSLs | mg/kg | 0.4 | J+ | 0.47 | J+ | 0.49 | J+ | 0.33 | U | 0.77 | J+ | 0.55 | J+ | 0.54 | J+ | 0.59 | J+ | 0.49 | J+ |
| Silver | 7440-22-4 | 560 | EPA Ecological SSLs | mg/kg | 1.4 | J+ | 1.2 | J+ | 0.56 | U | 0.48 | U | 2.2 | J+ | 1.7 | J+ | 1.6 | J+ | 0.69 | U | 0.63 | U |
| Vanadium | 7440-62-2 | 60 | EPA Region 4 Soil | mg/kg | 20 | | 16 | | 12 | | 9.3 | | 15 | | 11 | | 8.8 | | 10 | | 16 | |
| Zinc | 7440-66-6 | 160 | EPA Ecological SSLs | mg/kg | 52 | | 40 | | 180 | J | 32 | | 110 | | 57 | | 55 | | 38 | | 39 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.1-1
Plant Sample by Sample Screening - AOC 1, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-015 | | NYOW-01-016 | | NYOW-01-016 | | NYOW-01-018 | | NYOW-01-018 | | NYOW-01-019 | | NYOW-01-019 | | NYOW-01-020 | | NYOW-01-020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-PH015-B | | NYOW-01-SL016-A | | NYOW-01-PH016-B | | NYOW-01-SL018-A | | NYOW-01-PH018-B | | NYOW-01-SL019-A | | NYOW-01-PH019-B | | NYOW-01-SL020-A | | NYOW-01-PH020-B | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | C | | N | | N | | N | |
| | | | | Sample Depth (feet): | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-04-02 | | 2021-04-02 | | 2021-04-02 | | 2021-04-08 | | 2021-04-08 | | 2021-04-06 | | 2021-04-06 | | 2021-04-06 | | 2021-04-06 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 2 | QAPP Appendix A.1 - Soil | mg/kg | 0.16 | U | 0.16 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.14 | U | 0.15 | UJ | 0.16 | U | 0.15 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 5 | EPA Region 4 Soil | mg/kg | 0.18 | J+ | 0.15 | J | 0.16 | J+ | 0.082 | J | 0.17 | J+ | 0.095 | J | 0.11 | UJ | 0.14 | J | 0.2 | J+ |
| Arsenic | 7440-38-2 | 18 | EPA Ecological SSLs | mg/kg | 6.6 | | 5.2 | | 7.6 | | 4.7 | | 6 | | 3.9 | | 2.8 | | 6.9 | | 7.9 | |
| Barium | 7440-39-3 | 110 | EPA Region 4 Soil | mg/kg | 50 | | 55 | | 55 | | 40 | J+ | 40 | J+ | 25 | J | 43 | J- | 43 | | 39 | |
| Beryllium | 7440-41-7 | 2.5 | EPA Region 4 Soil | mg/kg | 0.36 | J+ | 0.44 | J+ | 0.41 | J+ | 0.4 | J+ | 0.42 | J+ | 0.45 | J+ | 0.43 | J+ | 0.53 | J+ | 0.44 | J+ |
| Cadmium | 7440-43-9 | 32 | EPA Ecological SSLs | mg/kg | 0.013 | J | 0.13 | | 0.1 | | 0.058 | J | 0.044 | J | 0.058 | J | 0.04 | J | 0.13 | | 0.078 | J |
| Chromium | 7440-47-3 | 0.35 | EPA Region 4 Soil | mg/kg | 7.4 | | 8.6 | | 10 | | 6.1 | | 6.3 | | 6.4 | J | 6.8 | J- | 7.5 | | 6.7 | |
| Cobalt | 7440-48-4 | 13 | EPA Ecological SSLs | mg/kg | 13 | | 4.5 | | 5.7 | | 4.9 | | 5.4 | | 3.4 | J | 5 | J- | 9.4 | | 10 | |
| Copper | 7440-50-8 | 70 | EPA Ecological SSLs | mg/kg | 26 | | 14 | | 26 | | 13 | | 15 | | 14 | J | 13 | | 28 | | 27 | |
| Lead | 7439-92-1 | 120 | EPA Ecological SSLs | mg/kg | 8.8 | | 14 | | 40 | | 6.1 | | 5.9 | | 4.2 | J | 3.2 | J- | 19 | | 13 | |
| Manganese | 7439-96-5 | 220 | EPA Ecological SSLs | mg/kg | 460 | | 450 | | 850 | | 420 | | 610 | | 320 | | 260 | J- | 600 | | 550 | |
| Mercury | 7439-97-6 | 0.3 | EPA Region 4 Soil | mg/kg | 0.015 | J | 0.015 | J | 0.013 | J | 0.018 | J | 0.012 | J | 0.017 | J | 0.018 | U | 0.02 | J | 0.019 | U |
| Nickel | 7440-02-0 | 38 | EPA Ecological SSLs | mg/kg | 13 | | 8.2 | | 13 | | 8.3 | | 9 | | 8.1 | J | 9.7 | J- | 12 | | 11 | |
| Selenium | 7782-49-2 | 0.52 | EPA Ecological SSLs | mg/kg | 0.39 | U | 0.49 | J+ | 0.4 | U | 0.48 | J+ | 0.35 | U | 0.43 | J+ | 0.39 | J+ | 0.57 | J+ | 0.57 | J+ |
| Silver | 7440-22-4 | 560 | EPA Ecological SSLs | mg/kg | 1.1 | J+ | 0.53 | U | 1.2 | J+ | 0.47 | U | 0.5 | U | 0.53 | U | 0.52 | UJ | 0.64 | U | 0.53 | U |
| Vanadium | 7440-62-2 | 60 | EPA Region 4 Soil | mg/kg | 11 | | 13 | | 12 | | 11 | | 11 | | 8.4 | J | 10 | J- | 11 | | 10 | |
| Zinc | 7440-66-6 | 160 | EPA Ecological SSLs | mg/kg | 25 | | 40 | | 130 | | 11 | | 12 | | 22 | | 18 | J- | 44 | | 37 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.1-1
Plant Sample by Sample Screening - AOC 1, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-021 | | NYOW-01-021 | | NYOW-01-022 | | NYOW-01-022 | | NYOW-01-023 | | NYOW-01-023 | | NYOW-01-024 | | NYOW-01-024 | | NYOW-01-025 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL021-A | | NYOW-01-PH021-B | | NYOW-01-SL022-A | | NYOW-01-PH022-B | | NYOW-01-SL023-A | | NYOW-01-PH023-B | | NYOW-01-SL024-A | | NYOW-01-PH024-B | | NYOW-01-SL025-A | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | | 2021-04-02 | | 2021-04-02 | | 2021-04-07 | | 2021-04-07 | | 2021-04-13 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 2 | QAPP Appendix A.1 - Soil | mg/kg | 0.15 | U | 0.16 | U | 0.16 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.16 | UJ |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 5 | EPA Region 4 Soil | mg/kg | 0.15 | J | 0.093 | U | 0.18 | | 0.19 | J+ | 0.13 | J | 0.19 | J+ | 0.1 | J | 0.16 | J+ | 0.11 | J |
| Arsenic | 7440-38-2 | 18 | EPA Ecological SSLs | mg/kg | 4.5 | | 2.1 | | 4.7 | | 4.9 | | 4.7 | | 4.2 | | 4 | | 4.3 | | 8.7 | |
| Barium | 7440-39-3 | 110 | EPA Region 4 Soil | mg/kg | 51 | | 35 | | 61 | | 260 | | 40 | | 35 | | 37 | | 37 | | 61 | |
| Beryllium | 7440-41-7 | 2.5 | EPA Region 4 Soil | mg/kg | 0.43 | J+ | 0.51 | J+ | 0.53 | J+ | 0.12 | U | 0.46 | J+ | 0.44 | J+ | 0.6 | J+ | 0.5 | J+ | 0.55 | J+ |
| Cadmium | 7440-43-9 | 32 | EPA Ecological SSLs | mg/kg | 0.14 | | 0.058 | J | 0.65 | | 0.34 | | 0.79 | | 0.079 | J | 0.058 | J | 0.11 | | 0.053 | J |
| Chromium | 7440-47-3 | 0.35 | EPA Region 4 Soil | mg/kg | 7.9 | | 4.6 | | 9.3 | | 6.7 | | 7.2 | | 7.9 | J- | 5.4 | | 6.9 | | 6.5 | |
| Cobalt | 7440-48-4 | 13 | EPA Ecological SSLs | mg/kg | 6.2 | | 2.9 | | 6 | | 12 | | 5.9 | | 9.7 | J- | 4.8 | | 4.6 | | 7.4 | |
| Copper | 7440-50-8 | 70 | EPA Ecological SSLs | mg/kg | 20 | | 7.2 | | 24 | | 11 | | 28 | | 39 | J- | 13 | | 14 | | 22 | |
| Lead | 7439-92-1 | 120 | EPA Ecological SSLs | mg/kg | 12 | | 3.8 | | 30 | | 6.9 | | 7.2 | | 7.3 | J- | 5.9 | | 6.4 | | 11 | |
| Manganese | 7439-96-5 | 220 | EPA Ecological SSLs | mg/kg | 590 | J | 230 | | 500 | | 7000 | | 620 | | 510 | | 450 | | 420 | | 510 | |
| Mercury | 7439-97-6 | 0.3 | EPA Region 4 Soil | mg/kg | 0.032 | | 0.048 | | 0.046 | | 0.032 | | 0.017 | J | 0.022 | | 0.018 | U | 0.026 | | 0.013 | J |
| Nickel | 7440-02-0 | 38 | EPA Ecological SSLs | mg/kg | 9.3 | | 4.9 | | 12 | | 7.2 | | 8.8 | | 12 | J- | 7.1 | | 7.7 | | 11 | |
| Selenium | 7782-49-2 | 0.52 | EPA Ecological SSLs | mg/kg | 0.53 | J+ | 0.44 | U | 0.44 | J+ | 0.41 | J+ | 0.56 | J+ | 0.45 | J+ | 0.45 | J+ | 0.45 | J+ | 0.4 | U |
| Silver | 7440-22-4 | 560 | EPA Ecological SSLs | mg/kg | 0.52 | U | 0.61 | U | 0.63 | U | 1.5 | J+ | 0.55 | U | 0.52 | UJ | 0.72 | U | 0.6 | U | 1.7 | J+ |
| Vanadium | 7440-62-2 | 60 | EPA Region 4 Soil | mg/kg | 12 | | 8.3 | | 14 | | 19 | | 12 | | 15 | J | 9.5 | | 11 | | 11 | |
| Zinc | 7440-66-6 | 160 | EPA Ecological SSLs | mg/kg | 28 | J | 81 | | 27 | | 110 | | 44 | | 31 | J- | 41 | | 26 | | 29 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.1-1
Plant Sample by Sample Screening - AOC 1, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-026 | | NYOW-01-027 | | NYOW-01-028 | | NYOW-01-029 | | NYOW-01-030 | | NYOW-01-031 | | NYOW-01-032 | | NYOW-01-033 | | NYOW-01-034 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL026-A | | NYOW-01-SL027-A | | NYOW-01-SL028-A | | NYOW-01-SL029-A | | NYOW-01-SL030-A | | NYOW-01-SL031-A | | NYOW-01-SL032-A | | NYOW-01-SL033-A | | NYOW-01-SL034-A | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-14 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 2 | QAPP Appendix A.1 - Soil | mg/kg | 0.23 | J+ | 0.16 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 5 | EPA Region 4 Soil | mg/kg | 0.34 | | 0.11 | J | 0.56 | | 0.18 | J | 0.16 | J | 0.42 | | 0.23 | | 0.17 | J | 0.41 | |
| Arsenic | 7440-38-2 | 18 | EPA Ecological SSLs | mg/kg | 3.3 | | 5 | | 5.1 | | 11 | | 4.5 | | 4.8 | | 7.1 | | 5.7 | | 3.7 | |
| Barium | 7440-39-3 | 110 | EPA Region 4 Soil | mg/kg | 83 | | 52 | | 120 | | 96 | | 58 | | 44 | | 58 | | 49 | | 41 | |
| Beryllium | 7440-41-7 | 2.5 | EPA Region 4 Soil | mg/kg | 0.87 | J+ | 0.47 | J+ | 0.63 | J+ | 0.51 | J+ | 0.47 | J+ | 0.45 | J+ | 0.55 | J+ | 0.51 | J+ | 0.52 | U |
| Cadmium | 7440-43-9 | 32 | EPA Ecological SSLs | mg/kg | 0.51 | | 0.2 | | 0.53 | | 0.29 | | 0.49 | | 0.23 | | 0.28 | | 0.26 | | 0.57 | |
| Chromium | 7440-47-3 | 0.35 | EPA Region 4 Soil | mg/kg | 10 | | 8.1 | | 18 | | 10 | | 9.8 | | 9.2 | | 9.8 | | 8.5 | | 18 | |
| Cobalt | 7440-48-4 | 13 | EPA Ecological SSLs | mg/kg | 4.2 | | 6.5 | | 4.5 | | 8.3 | | 5.8 | | 8 | | 8.6 | | 6.4 | | 3.9 | |
| Copper | 7440-50-8 | 70 | EPA Ecological SSLs | mg/kg | 20 | | 24 | | 24 | | 24 | | 21 | | 22 | | 33 | | 20 | | 19 | |
| Lead | 7439-92-1 | 120 | EPA Ecological SSLs | mg/kg | 54 | | 14 | | 72 | | 26 | | 21 | | 18 | | 23 | | 17 | | 200 | |
| Manganese | 7439-96-5 | 220 | EPA Ecological SSLs | mg/kg | 950 | | 770 | | 550 | | 1000 | | 540 | | 760 | | 740 | | 680 | | 270 | |
| Mercury | 7439-97-6 | 0.3 | EPA Region 4 Soil | mg/kg | 0.26 | | 0.042 | | 0.76 | | 0.056 | | 0.053 | | 0.14 | | 0.052 | | 0.06 | | 0.096 | |
| Nickel | 7440-02-0 | 38 | EPA Ecological SSLs | mg/kg | 9.2 | | 12 | | 11 | | 13 | | 11 | | 13 | | 12 | | 12 | | 7.4 | |
| Selenium | 7782-49-2 | 0.52 | EPA Ecological SSLs | mg/kg | 0.85 | J+ | 0.43 | J+ | 0.7 | J+ | 0.6 | J+ | 0.51 | J+ | 0.43 | J+ | 0.56 | J+ | 0.45 | J+ | 0.61 | J+ |
| Silver | 7440-22-4 | 560 | EPA Ecological SSLs | mg/kg | 2.6 | J+ | 0.56 | U | 1.9 | J+ | 1.5 | J+ | 0.56 | U | 1.3 | J+ | 0.66 | U | 0.61 | U | 1.6 | J+ |
| Vanadium | 7440-62-2 | 60 | EPA Region 4 Soil | mg/kg | 13 | | 15 | | 14 | | 16 | | 13 | | 14 | | 15 | | 14 | | 7.2 | |
| Zinc | 7440-66-6 | 160 | EPA Ecological SSLs | mg/kg | 170 | | 56 | | 120 | | 60 | | 85 | | 51 | | 75 | | 53 | | 110 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.1-1
Plant Sample by Sample Screening - AOC 1, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-035 | | NYOW-01-036 | | NYOW-01-037 | | NYOW-01-038 | | NYOW-01-039 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL035-A | | NYOW-01-SL036-A | | NYOW-01-SL037-A | | NYOW-01-SL038-A | | NYOW-01-SL039-A | |
| | | | | Sample Type: | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-14 | | 2021-04-14 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 2 | QAPP Appendix A.1 - Soil | mg/kg | 0.16 | U | 0.16 | UJ | 0.15 | U | 0.15 | U | 0.16 | U |
| Metals (Total) | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 5 | EPA Region 4 Soil | mg/kg | 0.24 | J | 0.31 | | 0.17 | J | 0.091 | J | 0.31 | |
| Arsenic | 7440-38-2 | 18 | EPA Ecological SSLs | mg/kg | 7.8 | | 5.6 | | 3.6 | | 4.7 | | 4.1 | |
| Barium | 7440-39-3 | 110 | EPA Region 4 Soil | mg/kg | 67 | | 62 | | 42 | | 37 | | 40 | |
| Beryllium | 7440-41-7 | 2.5 | EPA Region 4 Soil | mg/kg | 0.57 | J+ | 0.58 | J+ | 0.67 | J+ | 0.5 | J+ | 0.67 | U |
| Cadmium | 7440-43-9 | 32 | EPA Ecological SSLs | mg/kg | 0.37 | | 0.25 | | 0.45 | | 0.14 | | 0.16 | |
| Chromium | 7440-47-3 | 0.35 | EPA Region 4 Soil | mg/kg | 9.2 | | 14 | | 7.6 | | 6.3 | | 11 | J |
| Cobalt | 7440-48-4 | 13 | EPA Ecological SSLs | mg/kg | 9.4 | | 8.4 | | 5.7 | | 5.5 | | 4.5 | |
| Copper | 7440-50-8 | 70 | EPA Ecological SSLs | mg/kg | 32 | | 33 | | 21 | | 14 | | 19 | |
| Lead | 7439-92-1 | 120 | EPA Ecological SSLs | mg/kg | 31 | | 44 | | 21 | | 6.8 | | 39 | |
| Manganese | 7439-96-5 | 220 | EPA Ecological SSLs | mg/kg | 1000 | | 830 | | 640 | | 470 | | 410 | |
| Mercury | 7439-97-6 | 0.3 | EPA Region 4 Soil | mg/kg | 0.078 | | 0.085 | | 0.062 | | 0.022 | | 0.037 | |
| Nickel | 7440-02-0 | 38 | EPA Ecological SSLs | mg/kg | 12 | | 13 | | 11 | | 9 | | 8.4 | |
| Selenium | 7782-49-2 | 0.52 | EPA Ecological SSLs | mg/kg | 0.49 | J+ | 0.54 | J+ | 0.59 | J+ | 0.55 | J+ | 0.45 | J+ |
| Silver | 7440-22-4 | 560 | EPA Ecological SSLs | mg/kg | 0.68 | U | 0.7 | U | 0.8 | U | 1.5 | J+ | 0.67 | U |
| Vanadium | 7440-62-2 | 60 | EPA Region 4 Soil | mg/kg | 14 | | 13 | | 13 | | 12 | | 14 | |
| Zinc | 7440-66-6 | 160 | EPA Ecological SSLs | mg/kg | 64 | | 55 | | 87 | | 39 | | 39 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.1-2
Plant Sample by Sample Screening - AOC 3, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-03-001 | | NYOW-03-001 | | NYOW-03-002 | | NYOW-03-002 | | NYOW-03-003 | | NYOW-03-003 | | NYOW-03-004 | | NYOW-03-004 | | NYOW-03-005 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-03-SL001-A | | NYOW-03-PH001-B | | NYOW-03-SL002-A | | NYOW-03-PH002-B | | NYOW-03-SL003-A | | NYOW-03-PH003-B | | NYOW-03-SL004-A | | NYOW-03-PH004-B | | NYOW-03-SL005-A | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | |
| | | | | Sample Date: | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-04-01 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | |
| Toluene | 108-88-3 | 200 | EPA Region 4 Soil | mg/kg | -- | -- | 0.00072 | U | -- | -- | 0.00076 | U | -- | -- | 0.00083 | U | -- | -- | 0.0008 | U | -- | -- |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | |
| Cresols, m- & p- | cresols-m,p | 0.69 | EPA Region 4 Soil | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | U | 0.086 | U | 0.083 | U |
| Dibenzofuran | 132-64-9 | 6.1 | EPA Region 4 Soil | mg/kg | 0.091 | U | 0.082 | U | 0.088 | U | 0.08 | U | 0.085 | U | 0.083 | U | 0.099 | UJ | 0.086 | UJ | 0.083 | UJ |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 1 | EPA Region 4 Soil | mg/kg | 0.0027 | U | 0.0024 | U | 0.0026 | U | 0.0024 | U | 0.0026 | U | 0.0025 | U | 0.0027 | J | 0.0024 | U | 0.0041 | J |
| 2-Methylnaphthalene | 91-57-6 | 1 | EPA Region 4 Soil | mg/kg | 0.0014 | J | 0.0024 | U | 0.0021 | J | 0.0024 | U | 0.0026 | U | 0.0025 | U | 0.0031 | J | 0.0024 | U | 0.0037 | J |
| Acenaphthene | 83-32-9 | 0.25 | EPA Region 4 Soil | mg/kg | 0.0015 | U | 0.0013 | U | 0.0018 | J | 0.0013 | U | 0.0014 | U | 0.0013 | U | 0.0016 | U | 0.0013 | U | 0.0061 | J |
| Anthracene | 120-12-7 | 6.8 | EPA Region 4 Soil | mg/kg | 0.0042 | J | 0.0053 | U | 0.0049 | J | 0.0052 | U | 0.0055 | U | 0.0053 | U | 0.008 | J | 0.0052 | U | 0.094 | |
| Benzo(a)anthracene | 56-55-3 | 18 | EPA Region 4 Soil | mg/kg | 0.02 | | 0.0053 | U | 0.028 | | 0.0052 | U | 0.0032 | J | 0.0053 | U | 0.018 | | 0.0052 | U | 0.33 | |
| Benzo(b)fluoranthene | 205-99-2 | 18 | EPA Region 4 Soil | mg/kg | 0.034 | | 0.0081 | U | 0.044 | | 0.0079 | U | 0.0062 | J | 0.0082 | U | 0.029 | J- | 0.0079 | U | 0.32 | |
| Benzo(k)fluoranthene | 207-08-9 | 18 | EPA Region 4 Soil | mg/kg | 0.012 | J | 0.0053 | U | 0.016 | | 0.0052 | U | 0.0055 | U | 0.0053 | U | 0.01 | J | 0.0052 | U | 0.14 | |
| Naphthalene | 91-20-3 | 1 | EPA Region 4 Soil | mg/kg | 0.0027 | U | 0.0024 | U | 0.0024 | J | 0.012 | J+ | 0.0026 | U | 0.0025 | U | 0.0055 | J | 0.0024 | U | 0.0064 | J |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 40 | EPA Region 4 Soil | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.0082 | UJ |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 5 | EPA Region 4 Soil | mg/kg | 0.14 | J | 0.09 | U | 0.14 | J | 0.097 | U | 0.11 | U | 0.17 | J+ | 0.21 | J | 0.18 | J+ | 0.13 | J |
| Arsenic | 7440-38-2 | 18 | EPA Ecological SSLs | mg/kg | 3 | | 1.6 | | 2 | | 2.4 | | 2.1 | | 2.1 | | 2.4 | J | 2.4 | | 3.9 | |
| Beryllium | 7440-41-7 | 2.5 | EPA Region 4 Soil | mg/kg | 0.49 | J+ | 0.12 | J | 0.64 | J+ | 0.26 | J | 0.58 | J+ | 0.25 | J | 0.62 | J+ | 0.18 | J | 0.48 | J+ |
| Cadmium | 7440-43-9 | 32 | EPA Ecological SSLs | mg/kg | 0.15 | | 0.038 | J | 0.17 | | 0.065 | J | 0.087 | J | 0.058 | J | 0.15 | J | 0.053 | J | 0.099 | |
| Cobalt | 7440-48-4 | 13 | EPA Ecological SSLs | mg/kg | 0.54 | J | 2.8 | | 1.2 | J | 3.3 | | 1.7 | | 3.9 | | 1.6 | | 3.6 | | 4.2 | |
| Copper | 7440-50-8 | 70 | EPA Ecological SSLs | mg/kg | 3.8 | J | 5.8 | | 4 | J | 7.8 | | 4.3 | J | 9.4 | | 4.4 | J | 9.2 | | 11 | |
| Lead | 7439-92-1 | 120 | EPA Ecological SSLs | mg/kg | 9.9 | J+ | 3.3 | J+ | 9.9 | J+ | 2.7 | J+ | 7.1 | J+ | 3.5 | J+ | 13 | J- | 2.8 | | 11 | |
| Manganese | 7439-96-5 | 220 | EPA Ecological SSLs | mg/kg | 48 | | 69 | | 93 | | 220 | | 48 | | 330 | | 65 | J- | 560 | | 480 | J |
| Mercury | 7439-97-6 | 0.3 | EPA Region 4 Soil | mg/kg | 0.048 | | 0.037 | | 0.049 | | 0.011 | J | 0.047 | | 0.018 | U | 0.088 | | 0.009 | J | 0.034 | |
| Nickel | 7440-02-0 | 38 | EPA Ecological SSLs | mg/kg | 1.4 | J | 7.7 | | 2.9 | J | 6.4 | | 3.3 | J | 8.6 | | 3.3 | J | 7.1 | | 8.7 | |
| Selenium | 7782-49-2 | 0.52 | EPA Ecological SSLs | mg/kg | 0.3 | J | 0.51 | J+ | 0.38 | J | 0.43 | J+ | 0.36 | J | 0.44 | U | 0.61 | J | 0.43 | U | 0.25 | J |
| Silver | 7440-22-4 | 560 | EPA Ecological SSLs | mg/kg | 0.59 | U | 0.56 | U | 0.77 | U | 0.5 | U | 0.69 | U | 0.51 | U | 0.75 | U | 0.53 | U | 0.58 | U |
| Thallium | 7440-28-0 | 0.05 | EPA Region 4 Soil | mg/kg | 0.11 | U | 0.1 | U | 0.098 | U | 0.087 | U | 0.1 | U | 0.11 | U | 0.12 | UJ | 0.11 | U | 0.11 | |
| Vanadium | 7440-62-2 | 60 | EPA Region 4 Soil | mg/kg | 5.9 | | 9.9 | | 8.3 | | 10 | | 11 | | 12 | | 12 | | 10 | | 15 | |
| Zinc | 7440-66-6 | 160 | EPA Ecological SSLs | mg/kg | 12 | | 19 | | 21 | | 17 | | 22 | | 22 | | 23 | | 20 | | 24 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
EPA Region 5 RCRA Soil ESLs: EPA Region 5 Resource Conservation and Recovery Act Soil Ecological Screening Levels (2003).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.1-2
Plant Sample by Sample Screening - AOC 3, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-03-005 | | NYOW-03-005 | | NYOW-03-006 | | NYOW-03-006 | | NYOW-03-006 | | NYOW-03-007 | | NYOW-03-007 | | NYOW-03-007 | | NYOW-03-008 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-03-PH005-B | | NYOW-03-PH005-B_R | | NYOW-03-SL006-A | | NYOW-03-PH006-B | | NYOW-03-PH006-B_R | | NYOW-03-SL007-A | | NYOW-03-PH007-B | | NYOW-03-PH007-B_R | | NYOW-03-SL008-A | |
| | | | | Sample Type: | C | | N | | C | | N | | C | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-01 | | 2021-05-04 | | 2021-04-01 | | 2021-04-01 | | 2021-05-04 | | 2021-04-01 | | 2021-04-01 | | 2021-05-04 | | 2021-04-05 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | |
| Toluene | 108-88-3 | 200 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0048 | J+ | -- | -- | -- | -- | 0.0051 | J+ | -- | -- | -- | -- | 0.00072 | U | -- | -- |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | |
| Cresols, m- & p- | cresols-m,p | 0.69 | EPA Region 4 Soil | mg/kg | 0.086 | U | 0.078 | U | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R |
| Dibenzofuran | 132-64-9 | 6.1 | EPA Region 4 Soil | mg/kg | 0.086 | U | 0.078 | UJ | 0.082 | UJ | 0.084 | U | 0.085 | U | 0.079 | U | 0.083 | U | 0.078 | U | | R |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 1 | EPA Region 4 Soil | mg/kg | 0.018 | J | -- | -- | 0.0009 | J | 0.0026 | U | -- | -- | 0.026 | J+ | 0.00077 | J | -- | -- | 0.3 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 1 | EPA Region 4 Soil | mg/kg | 0.016 | J | -- | -- | 0.0011 | J | 0.0026 | U | -- | -- | 0.031 | J+ | 0.00074 | J | -- | -- | 0.21 | J+ |
| Acenaphthene | 83-32-9 | 0.25 | EPA Region 4 Soil | mg/kg | 0.0013 | U | -- | -- | 0.0012 | U | 0.0014 | U | -- | -- | 0.029 | J+ | 0.011 | J+ | -- | -- | 0.23 | J+ |
| Anthracene | 120-12-7 | 6.8 | EPA Region 4 Soil | mg/kg | 0.065 | J- | -- | -- | 0.0061 | J | 0.0056 | U | -- | -- | 0.35 | J+ | 0.0055 | J | -- | -- | 1.5 | |
| Benzo(a)anthracene | 56-55-3 | 18 | EPA Region 4 Soil | mg/kg | 0.43 | J | -- | -- | 0.035 | J | 0.0056 | U | -- | -- | 2 | | 0.013 | | -- | -- | 4.5 | |
| Benzo(b)fluoranthene | 205-99-2 | 18 | EPA Region 4 Soil | mg/kg | 1.9 | J | -- | -- | 0.052 | J | 0.0086 | U | -- | -- | 2.6 | | 0.027 | | -- | -- | 4.7 | |
| Benzo(k)fluoranthene | 207-08-9 | 18 | EPA Region 4 Soil | mg/kg | 0.84 | J | -- | -- | 0.019 | J | 0.0056 | U | -- | -- | 1 | | 0.0082 | J | -- | -- | 1.9 | |
| Naphthalene | 91-20-3 | 1 | EPA Region 4 Soil | mg/kg | 0.012 | J+ | -- | -- | 0.0016 | J | 0.0026 | U | -- | -- | 0.054 | J+ | 0.011 | J+ | -- | -- | 0.11 | J+ |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 40 | EPA Region 4 Soil | mg/kg | 0.086 | J+ | -- | -- | 0.0078 | UJ | 0.0086 | UJ | -- | -- | 0.0077 | UJ | 0.0083 | UJ | -- | -- | 0.069 | J+ |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 5 | EPA Region 4 Soil | mg/kg | 0.2 | J+ | -- | -- | 0.11 | J | 0.24 | J+ | -- | -- | 0.36 | | 0.2 | J+ | -- | -- | 0.31 | |
| Arsenic | 7440-38-2 | 18 | EPA Ecological SSLs | mg/kg | 5.7 | | -- | -- | 3.1 | | 5.9 | | -- | -- | 4.4 | | 4.3 | | -- | -- | 4.3 | |
| Beryllium | 7440-41-7 | 2.5 | EPA Region 4 Soil | mg/kg | 0.25 | J | -- | -- | 0.53 | J+ | 0.47 | J | -- | -- | 0.54 | J+ | 0.35 | J | -- | -- | 0.47 | J+ |
| Cadmium | 7440-43-9 | 32 | EPA Ecological SSLs | mg/kg | 0.13 | | -- | -- | 0.35 | J | 0.092 | J | -- | -- | 0.26 | | 0.064 | J | -- | -- | 0.27 | |
| Cobalt | 7440-48-4 | 13 | EPA Ecological SSLs | mg/kg | 3.1 | | -- | -- | 7.2 | | 7.3 | | -- | -- | 8 | | 7 | | -- | -- | 4.7 | |
| Copper | 7440-50-8 | 70 | EPA Ecological SSLs | mg/kg | 9.2 | | -- | -- | 12 | | 20 | | -- | -- | 26 | | 20 | | -- | -- | 13 | |
| Lead | 7439-92-1 | 120 | EPA Ecological SSLs | mg/kg | 16 | | -- | -- | 23 | | 25 | | -- | -- | 54 | | 25 | | -- | -- | 3.4 | |
| Manganese | 7439-96-5 | 220 | EPA Ecological SSLs | mg/kg | 210 | J | -- | -- | 550 | J | 500 | J | -- | -- | 480 | J | 520 | J | -- | -- | 400 | |
| Mercury | 7439-97-6 | 0.3 | EPA Region 4 Soil | mg/kg | 0.037 | | -- | -- | 0.061 | | 0.032 | | -- | -- | 0.16 | | 0.039 | | -- | -- | 0.05 | |
| Nickel | 7440-02-0 | 38 | EPA Ecological SSLs | mg/kg | 7.5 | | -- | -- | 13 | | 20 | | -- | -- | 18 | | 17 | | -- | -- | 10 | |
| Selenium | 7782-49-2 | 0.52 | EPA Ecological SSLs | mg/kg | 0.46 | J+ | -- | -- | 0.35 | J | 0.6 | J+ | -- | -- | 0.29 | J | 0.53 | J+ | -- | -- | 0.2 | J |
| Silver | 7440-22-4 | 560 | EPA Ecological SSLs | mg/kg | 0.57 | U | -- | -- | 0.64 | U | 0.61 | U | -- | -- | 0.65 | U | 0.52 | U | -- | -- | 0.57 | U |
| Thallium | 7440-28-0 | 0.05 | EPA Region 4 Soil | mg/kg | 0.14 | | -- | -- | 0.12 | | 0.14 | | -- | -- | 0.17 | | 0.18 | | -- | -- | 0.11 | |
| Vanadium | 7440-62-2 | 60 | EPA Region 4 Soil | mg/kg | 14 | | -- | -- | 17 | | 15 | | -- | -- | 14 | | 11 | | -- | -- | 10 | |
| Zinc | 7440-66-6 | 160 | EPA Ecological SSLs | mg/kg | 34 | | -- | -- | 56 | | 41 | | -- | -- | 81 | | 34 | | -- | -- | 60 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions

J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources

EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
EPA Region 5 RCRA Soil ESLs: EPA Region 5 Resource Conservation and Recovery Act Soil Ecological Screening Levels (2003).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.1-2
Plant Sample by Sample Screening - AOC 3, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-03-008 | | NYOW-03-008 | | NYOW-03-008 | | NYOW-03-009 | | NYOW-03-009 | | NYOW-03-009 | | NYOW-03-009 | | NYOW-03-010 | | NYOW-03-010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-03-SL008-A_R | | NYOW-03-PH008-B | | NYOW-03-PH008-B_R | | NYOW-03-SL009-A | | NYOW-03-SL009-A_R | | NYOW-03-PH009-B | | NYOW-03-PH009-B_R | | NYOW-03-SL010-A | | NYOW-03-PH010-B | |
| | | | | Sample Type: | C | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-03-31 | | 2021-03-31 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | |
| Toluene | 108-88-3 | 200 | EPA Region 4 Soil | mg/kg | -- | -- | 0.00084 | U | -- | -- | -- | -- | -- | -- | 0.00079 | U | -- | -- | -- | -- | 0.00077 | U |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | |
| Cresols, m- & p- | cresols-m,p | 0.69 | EPA Region 4 Soil | mg/kg | 0.077 | U | | R | 0.08 | UJ | | R | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U |
| Dibenzofuran | 132-64-9 | 6.1 | EPA Region 4 Soil | mg/kg | 0.077 | U | | R | 0.08 | UJ | | R | 0.093 | U | | R | 0.08 | U | 0.083 | U | 0.075 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 1 | EPA Region 4 Soil | mg/kg | -- | -- | 0.00092 | J | -- | -- | 0.011 | J | -- | -- | 0.0023 | UJ | -- | -- | 0.027 | J | 0.046 | U |
| 2-Methylnaphthalene | 91-57-6 | 1 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0024 | U | -- | -- | 0.012 | J | -- | -- | 0.0023 | UJ | -- | -- | 0.035 | J | 0.046 | U |
| Acenaphthene | 83-32-9 | 0.25 | EPA Region 4 Soil | mg/kg | -- | -- | 0.012 | U | -- | -- | 0.014 | U | -- | -- | 0.0013 | UJ | -- | -- | 0.026 | U | 0.024 | U |
| Anthracene | 120-12-7 | 6.8 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0063 | J | -- | -- | 0.047 | J- | -- | -- | 0.0051 | UJ | -- | -- | 0.17 | J | 0.099 | U |
| Benzo(a)anthracene | 56-55-3 | 18 | EPA Region 4 Soil | mg/kg | -- | -- | 0.014 | | -- | -- | 0.14 | J- | -- | -- | 0.0051 | UJ | -- | -- | 0.58 | | 0.099 | U |
| Benzo(b)fluoranthene | 205-99-2 | 18 | EPA Region 4 Soil | mg/kg | -- | -- | 0.022 | | -- | -- | 0.23 | J- | -- | -- | 0.0078 | UJ | -- | -- | 1 | | 0.15 | U |
| Benzo(k)fluoranthene | 207-08-9 | 18 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0084 | J | -- | -- | 0.094 | J- | -- | -- | 0.0051 | UJ | -- | -- | 0.43 | | 0.099 | U |
| Naphthalene | 91-20-3 | 1 | EPA Region 4 Soil | mg/kg | -- | -- | 0.012 | J+ | -- | -- | 0.015 | | -- | -- | 0.0023 | UJ | -- | -- | 0.042 | J | 0.046 | U |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 40 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0073 | U | -- | -- | 0.0084 | U | -- | -- | 0.0079 | U | -- | -- | 0.079 | J+ | 0.0075 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 5 | EPA Region 4 Soil | mg/kg | -- | -- | 0.16 | J+ | -- | -- | 0.17 | J | -- | -- | 0.2 | J+ | -- | -- | 0.19 | J | 0.16 | J+ |
| Arsenic | 7440-38-2 | 18 | EPA Ecological SSLs | mg/kg | -- | -- | 1.9 | | -- | -- | 2.3 | | -- | -- | 2.6 | | -- | -- | 2.5 | | 2.4 | |
| Beryllium | 7440-41-7 | 2.5 | EPA Region 4 Soil | mg/kg | -- | -- | 0.23 | J- | -- | -- | 0.61 | J+ | -- | -- | 0.34 | J | -- | -- | 0.46 | J+ | 0.28 | J |
| Cadmium | 7440-43-9 | 32 | EPA Ecological SSLs | mg/kg | -- | -- | 0.083 | J | -- | -- | 0.22 | | -- | -- | 0.051 | J | -- | -- | 0.15 | | 0.087 | J |
| Cobalt | 7440-48-4 | 13 | EPA Ecological SSLs | mg/kg | -- | -- | 3.4 | J- | -- | -- | 2.6 | J- | -- | -- | 5.1 | | -- | -- | 4.1 | | 4.3 | |
| Copper | 7440-50-8 | 70 | EPA Ecological SSLs | mg/kg | -- | -- | 6.4 | J- | -- | -- | 4.9 | J- | -- | -- | 11 | | -- | -- | 12 | | 7.6 | |
| Lead | 7439-92-1 | 120 | EPA Ecological SSLs | mg/kg | -- | -- | 6.5 | J- | -- | -- | 7.6 | J- | -- | -- | 4.3 | | -- | -- | 21 | J+ | 8.3 | J+ |
| Manganese | 7439-96-5 | 220 | EPA Ecological SSLs | mg/kg | -- | -- | 160 | J- | -- | -- | 120 | J+ | -- | -- | 380 | | -- | -- | 340 | | 320 | |
| Mercury | 7439-97-6 | 0.3 | EPA Region 4 Soil | mg/kg | -- | -- | 0.023 | | -- | -- | 0.058 | | -- | -- | 0.024 | | -- | -- | 0.04 | | 0.034 | |
| Nickel | 7440-02-0 | 38 | EPA Ecological SSLs | mg/kg | -- | -- | 6.7 | J- | -- | -- | 5.4 | J- | -- | -- | 9.9 | | -- | -- | 9.5 | | 10 | |
| Selenium | 7782-49-2 | 0.52 | EPA Ecological SSLs | mg/kg | -- | -- | 0.45 | J+ | -- | -- | 0.36 | J | -- | -- | 0.58 | J+ | -- | -- | 0.23 | J | 0.52 | J+ |
| Silver | 7440-22-4 | 560 | EPA Ecological SSLs | mg/kg | -- | -- | 0.55 | UJ | -- | -- | 0.73 | UJ | -- | -- | 0.57 | U | -- | -- | 1.4 | J+ | 0.52 | U |
| Thallium | 7440-28-0 | 0.05 | EPA Region 4 Soil | mg/kg | -- | -- | 0.068 | J | -- | -- | 0.1 | J | -- | -- | 0.063 | J | -- | -- | 0.094 | U | 0.1 | U |
| Vanadium | 7440-62-2 | 60 | EPA Region 4 Soil | mg/kg | -- | -- | 10 | J- | -- | -- | 16 | J- | -- | -- | 15 | | -- | -- | 11 | | 12 | |
| Zinc | 7440-66-6 | 160 | EPA Ecological SSLs | mg/kg | -- | -- | 25 | J- | -- | -- | 22 | J | -- | -- | 21 | | -- | -- | 36 | | 25 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
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R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
EPA Region 5 RCRA Soil ESLs: EPA Region 5 Resource Conservation and Recovery Act Soil Ecological Screening Levels (2003).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.1-2
Plant Sample by Sample Screening - AOC 3, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-03-011 | | NYOW-03-011 | | NYOW-03-012 | | NYOW-03-012 | | NYOW-03-013 | | NYOW-03-013 | | NYOW-03-013 | | NYOW-03-013 | | NYOW-03-014 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-03-SL011-A | | NYOW-03-PH011-B | | NYOW-03-SL012-A | | NYOW-03-PH012-B | | NYOW-03-SL013-A | | NYOW-03-SL013-A_R | | NYOW-03-PH013-B | | NYOW-03-PH013-B_R | | NYOW-03-SL014-A | |
| | | | | Sample Type: | N | | N | | N | | C | | C | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | |
| | | | | Sample Date: | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-03-31 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | |
| Toluene | 108-88-3 | 200 | EPA Region 4 Soil | mg/kg | -- | -- | 0.00093 | U | -- | -- | 0.00084 | U | -- | -- | -- | -- | 0.00081 | U | -- | -- | -- | -- |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | |
| Cresols, m- & p- | cresols-m,p | 0.69 | EPA Region 4 Soil | mg/kg | 0.086 | U | 0.079 | U | 0.39 | J+ | 0.071 | U | | R | 0.082 | U | | R | 0.079 | U | | R |
| Dibenzofuran | 132-64-9 | 6.1 | EPA Region 4 Soil | mg/kg | 0.42 | J+ | 0.079 | U | 0.39 | J+ | 0.071 | U | | R | 0.082 | U | | R | 0.079 | UJ | | R |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 1 | EPA Region 4 Soil | mg/kg | 0.049 | U | 0.0024 | U | 0.025 | J- | 0.0044 | J | 0.0011 | J | -- | -- | 0.0025 | U | -- | -- | 0.01 | J |
| 2-Methylnaphthalene | 91-57-6 | 1 | EPA Region 4 Soil | mg/kg | 0.049 | U | 0.0024 | U | 0.028 | J- | 0.0043 | J | 0.0019 | J | -- | -- | 0.0025 | U | -- | -- | 0.012 | J |
| Acenaphthene | 83-32-9 | 0.25 | EPA Region 4 Soil | mg/kg | 0.026 | U | 0.012 | J+ | 0.018 | J- | 0.01 | J+ | 0.0013 | U | -- | -- | 0.0013 | U | -- | -- | 0.012 | U |
| Anthracene | 120-12-7 | 6.8 | EPA Region 4 Soil | mg/kg | 0.092 | J | 0.0025 | J | 0.15 | J- | 0.016 | | 0.021 | J | -- | -- | 0.0054 | U | -- | -- | 0.08 | J |
| Benzo(a)anthracene | 56-55-3 | 18 | EPA Region 4 Soil | mg/kg | 0.32 | | 0.022 | | 0.64 | J- | 0.061 | | 0.056 | J | -- | -- | 0.0054 | U | -- | -- | 0.26 | |
| Benzo(b)fluoranthene | 205-99-2 | 18 | EPA Region 4 Soil | mg/kg | 0.56 | | 0.055 | | 1.1 | J- | 0.081 | | 0.12 | J | -- | -- | 0.0084 | U | -- | -- | 0.37 | |
| Benzo(k)fluoranthene | 207-08-9 | 18 | EPA Region 4 Soil | mg/kg | 0.24 | J | 0.019 | | 0.35 | J- | 0.037 | | 0.037 | J | -- | -- | 0.0054 | U | -- | -- | 0.16 | |
| Naphthalene | 91-20-3 | 1 | EPA Region 4 Soil | mg/kg | 0.049 | U | 0.0024 | U | 0.052 | J- | 0.01 | J+ | 0.0029 | J | -- | -- | 0.0025 | U | -- | -- | 0.008 | J |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 40 | EPA Region 4 Soil | mg/kg | 0.0089 | U | 0.074 | J+ | 0.0077 | U | 0.0072 | U | 0.078 | J+ | -- | -- | 0.0078 | U | -- | -- | 0.007 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 5 | EPA Region 4 Soil | mg/kg | 0.16 | J | 0.22 | J+ | 0.18 | J | 0.15 | J+ | 0.095 | J | -- | -- | 0.2 | J+ | -- | -- | 0.13 | J |
| Arsenic | 7440-38-2 | 18 | EPA Ecological SSLs | mg/kg | 2.4 | | 4.8 | | 2.8 | | 3 | | 2.3 | | -- | -- | 2.2 | | -- | -- | 2.7 | |
| Beryllium | 7440-41-7 | 2.5 | EPA Region 4 Soil | mg/kg | 0.56 | J+ | 0.48 | | 0.43 | J+ | 0.4 | J | 0.45 | J+ | -- | -- | 0.31 | J | -- | -- | 0.49 | J+ |
| Cadmium | 7440-43-9 | 32 | EPA Ecological SSLs | mg/kg | 0.2 | | 0.035 | J | 0.3 | | 0.089 | J | 0.053 | J | -- | -- | 0.081 | J | -- | -- | 0.22 | |
| Cobalt | 7440-48-4 | 13 | EPA Ecological SSLs | mg/kg | 4.2 | | 10 | | 6 | | 7.5 | | 3.9 | | -- | -- | 4.7 | | -- | -- | 4.1 | |
| Copper | 7440-50-8 | 70 | EPA Ecological SSLs | mg/kg | 13 | | 29 | | 18 | | 18 | | 9.5 | | -- | -- | 8.9 | | -- | -- | 19 | |
| Lead | 7439-92-1 | 120 | EPA Ecological SSLs | mg/kg | 11 | J+ | 56 | | 23 | | 38 | J | 3.9 | | -- | -- | 4.7 | | -- | -- | 18 | |
| Manganese | 7439-96-5 | 220 | EPA Ecological SSLs | mg/kg | 370 | | 450 | | 650 | | 440 | | 350 | | -- | -- | 300 | | -- | -- | 420 | |
| Mercury | 7439-97-6 | 0.3 | EPA Region 4 Soil | mg/kg | 0.033 | | 0.047 | | 0.022 | J | 0.045 | | 0.016 | J | -- | -- | 0.023 | | -- | -- | 0.025 | |
| Nickel | 7440-02-0 | 38 | EPA Ecological SSLs | mg/kg | 9.2 | | 24 | | 13 | | 17 | | 7.9 | | -- | -- | 9.7 | | -- | -- | 9.8 | |
| Selenium | 7782-49-2 | 0.52 | EPA Ecological SSLs | mg/kg | 0.24 | J | 0.54 | J+ | 0.33 | J | 0.39 | J+ | 0.15 | J | -- | -- | 0.52 | J+ | -- | -- | 0.2 | J |
| Silver | 7440-22-4 | 560 | EPA Ecological SSLs | mg/kg | 0.67 | U | 1.4 | J+ | 0.51 | U | 1.2 | J+ | 0.54 | U | -- | -- | 0.6 | U | -- | -- | 0.59 | U |
| Thallium | 7440-28-0 | 0.05 | EPA Region 4 Soil | mg/kg | 0.1 | U | 0.49 | | 0.09 | | 0.15 | J | 0.054 | J | -- | -- | 0.061 | J | -- | -- | 0.09 | |
| Vanadium | 7440-62-2 | 60 | EPA Region 4 Soil | mg/kg | 12 | | 7.9 | | 16 | | 7.4 | | 12 | | -- | -- | 14 | | -- | -- | 11 | |
| Zinc | 7440-66-6 | 160 | EPA Ecological SSLs | mg/kg | 36 | | 18 | | 44 | | 17 | | 23 | | -- | -- | 23 | | -- | -- | 55 | |

Notes

-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions

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EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
EPA Region 5 RCRA Soil ESLs: EPA Region 5 Resource Conservation and Recovery Act Soil Ecological Screening Levels (2003).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.1-2
Plant Sample by Sample Screening - AOC 3, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-03-014 | | NYOW-03-014 | | NYOW-03-014 | | NYOW-03-015 | | NYOW-03-015 | | NYOW-03-015 | | NYOW-03-015 | | NYOW-03-016 | | NYOW-03-016 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-03-SL014-A_R | | NYOW-03-PH014-B | | NYOW-03-PH014-B_R | | NYOW-03-SL015-A | | NYOW-03-SL015-A_R | | NYOW-03-PH015-B | | NYOW-03-PH015-B_R | | NYOW-03-SL016-A | | NYOW-03-PH016-B | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-01 | | 2021-04-01 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | |
| Toluene | 108-88-3 | 200 | EPA Region 4 Soil | mg/kg | -- | -- | 0.00082 | U | -- | -- | -- | -- | -- | -- | 0.0008 | U | -- | -- | -- | -- | -- | -- |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | |
| Cresols, m- & p- | cresols-m,p | 0.69 | EPA Region 4 Soil | mg/kg | 0.077 | U | | R | 0.082 | U | | R | 0.096 | U | | R | 0.081 | U | 0.076 | U | 0.082 | U |
| Dibenzofuran | 132-64-9 | 6.1 | EPA Region 4 Soil | mg/kg | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U | 0.082 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 1 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0024 | U | -- | -- | 0.65 | | -- | -- | 0.00065 | J | -- | -- | 0.0023 | J | 0.0022 | U |
| 2-Methylnaphthalene | 91-57-6 | 1 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0024 | U | -- | -- | 1 | | -- | -- | 0.00085 | J | -- | -- | 0.0024 | J | 0.0022 | U |
| Acenaphthene | 83-32-9 | 0.25 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0013 | U | -- | -- | 4.3 | | -- | -- | 0.0013 | U | -- | -- | 0.0012 | J | 0.0012 | U |
| Anthracene | 120-12-7 | 6.8 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0021 | J | -- | -- | 8.2 | | -- | -- | 0.0065 | J | -- | -- | 0.0082 | J | 0.0048 | U |
| Benzo(a)anthracene | 56-55-3 | 18 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0037 | J | -- | -- | 5.3 | | -- | -- | 0.019 | | -- | -- | 0.046 | | 0.0025 | J |
| Benzo(b)fluoranthene | 205-99-2 | 18 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0061 | J | -- | -- | 4.9 | | -- | -- | 0.031 | | -- | -- | 0.075 | | 0.004 | J |
| Benzo(k)fluoranthene | 207-08-9 | 18 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0027 | J | -- | -- | 1.7 | | -- | -- | 0.0099 | J | -- | -- | 0.027 | | 0.0048 | U |
| Naphthalene | 91-20-3 | 1 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0024 | U | -- | -- | 0.78 | | -- | -- | 0.012 | J+ | -- | -- | 0.0025 | J | 0.0022 | U |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 40 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0075 | U | -- | -- | 0.1 | J+ | -- | -- | 0.0082 | U | -- | -- | 0.0076 | UJ | 0.0081 | UJ |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 5 | EPA Region 4 Soil | mg/kg | -- | -- | 0.19 | J+ | -- | -- | 0.24 | J | -- | -- | 0.24 | J+ | -- | -- | 0.3 | | 0.17 | J+ |
| Arsenic | 7440-38-2 | 18 | EPA Ecological SSLs | mg/kg | -- | -- | 3 | | -- | -- | 3.8 | | -- | -- | 3.7 | | -- | -- | 3.6 | | 1.5 | |
| Beryllium | 7440-41-7 | 2.5 | EPA Region 4 Soil | mg/kg | -- | -- | 0.38 | J | -- | -- | 0.73 | J+ | -- | -- | 0.36 | J | -- | -- | 0.46 | J+ | 0.18 | J |
| Cadmium | 7440-43-9 | 32 | EPA Ecological SSLs | mg/kg | -- | -- | 0.083 | J | -- | -- | 0.49 | | -- | -- | 0.11 | | -- | -- | 0.55 | | 0.055 | J |
| Cobalt | 7440-48-4 | 13 | EPA Ecological SSLs | mg/kg | -- | -- | 5.3 | | -- | -- | 3.8 | | -- | -- | 6.3 | | -- | -- | 6 | | 3 | |
| Copper | 7440-50-8 | 70 | EPA Ecological SSLs | mg/kg | -- | -- | 13 | | -- | -- | 21 | | -- | -- | 9.8 | | -- | -- | 28 | | 6.8 | |
| Lead | 7439-92-1 | 120 | EPA Ecological SSLs | mg/kg | -- | -- | 10 | | -- | -- | 28 | | -- | -- | 8.8 | | -- | -- | 38 | | 7.1 | |
| Manganese | 7439-96-5 | 220 | EPA Ecological SSLs | mg/kg | -- | -- | 420 | | -- | -- | 340 | | -- | -- | 370 | | -- | -- | 560 | J | 210 | J |
| Mercury | 7439-97-6 | 0.3 | EPA Region 4 Soil | mg/kg | -- | -- | 0.036 | | -- | -- | 0.059 | | -- | -- | 0.034 | | -- | -- | 0.045 | | 0.035 | |
| Nickel | 7440-02-0 | 38 | EPA Ecological SSLs | mg/kg | -- | -- | 10 | | -- | -- | 8.8 | | -- | -- | 9.8 | | -- | -- | 11 | | 6.5 | |
| Selenium | 7782-49-2 | 0.52 | EPA Ecological SSLs | mg/kg | -- | -- | 0.55 | J+ | -- | -- | 0.31 | J | -- | -- | 0.45 | J+ | -- | -- | 0.29 | J | 0.43 | J+ |
| Silver | 7440-22-4 | 560 | EPA Ecological SSLs | mg/kg | -- | -- | 0.63 | U | -- | -- | 0.88 | U | -- | -- | 0.59 | U | -- | -- | 1.4 | J+ | 0.62 | U |
| Thallium | 7440-28-0 | 0.05 | EPA Region 4 Soil | mg/kg | -- | -- | 0.073 | J | -- | -- | 0.11 | J | -- | -- | 0.083 | J | -- | -- | 0.13 | | 0.042 | J |
| Vanadium | 7440-62-2 | 60 | EPA Region 4 Soil | mg/kg | -- | -- | 16 | | -- | -- | 14 | | -- | -- | 16 | | -- | -- | 16 | | 14 | |
| Zinc | 7440-66-6 | 160 | EPA Ecological SSLs | mg/kg | -- | -- | 33 | | -- | -- | 85 | | -- | -- | 28 | | -- | -- | 50 | | 25 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
EPA Region 5 RCRA Soil ESLs: EPA Region 5 Resource Conservation and Recovery Act Soil Ecological Screening Levels (2003).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.1-2
Plant Sample by Sample Screening - AOC 3, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-03-016 | | NYOW-03-017 | | NYOW-03-017 | | NYOW-03-018 | | NYOW-03-018 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-03-PH016-B_R | | NYOW-03-PH017-B | | NYOW-03-PH017-B_R | | NYOW-03-PH018-B | | NYOW-03-PH018-B_R | |
| | | | | Sample Type: | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | Sample Date: | 2021-05-04 | | 2021-04-01 | | 2021-05-04 | | 2021-04-01 | | 2021-05-04 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | |
| Toluene | 108-88-3 | 200 | EPA Region 4 Soil | mg/kg | 0.0048 | J+ | -- | -- | 0.0046 | J+ | -- | -- | 0.00092 | U |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | |
| Cresols, m- & p- | cresols-m,p | 0.69 | EPA Region 4 Soil | mg/kg | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- |
| Dibenzofuran | 132-64-9 | 6.1 | EPA Region 4 Soil | mg/kg | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 1 | EPA Region 4 Soil | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2-Methylnaphthalene | 91-57-6 | 1 | EPA Region 4 Soil | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Acenaphthene | 83-32-9 | 0.25 | EPA Region 4 Soil | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Anthracene | 120-12-7 | 6.8 | EPA Region 4 Soil | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzo(a)anthracene | 56-55-3 | 18 | EPA Region 4 Soil | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzo(b)fluoranthene | 205-99-2 | 18 | EPA Region 4 Soil | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzo(k)fluoranthene | 207-08-9 | 18 | EPA Region 4 Soil | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Naphthalene | 91-20-3 | 1 | EPA Region 4 Soil | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 40 | EPA Region 4 Soil | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals (Total) | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 5 | EPA Region 4 Soil | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Arsenic | 7440-38-2 | 18 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | 7440-41-7 | 2.5 | EPA Region 4 Soil | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Cadmium | 7440-43-9 | 32 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Cobalt | 7440-48-4 | 13 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Copper | 7440-50-8 | 70 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Lead | 7439-92-1 | 120 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Manganese | 7439-96-5 | 220 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury | 7439-97-6 | 0.3 | EPA Region 4 Soil | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nickel | 7440-02-0 | 38 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Selenium | 7782-49-2 | 0.52 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silver | 7440-22-4 | 560 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Thallium | 7440-28-0 | 0.05 | EPA Region 4 Soil | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | 7440-62-2 | 60 | EPA Region 4 Soil | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Zinc | 7440-66-6 | 160 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
EPA Region 5 RCRA Soil ESLs: EPA Region 5 Resource Conservation and Recovery Act Soil Ecological Screening Levels (2003).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.1-3
Plant Sample by Sample Screening - AOC 5 (Boiler House, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | SL | SL Reference | Units | Sample Location: | NYOW-05-016 | NYOW-05-016 | NYOW-05-017-1 | NYOW-05-017-1 | NYOW-05-018 | NYOW-05-018 | NYOW-05-019 | NYOW-05-019 | NYOW-05-020 | NYOW-05-020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Sample Name: | NYOW-05-SL016-A | NYOW-05-PH016-B | NYOW-05-SL017-1-A | NYOW-05-PH017-1-B | NYOW-05-SL018-A | NYOW-05-PH018-B | NYOW-05-SL019-A | NYOW-05-PH019-B | NYOW-05-SL020-A | NYOW-05-PH020-B |
| | | | | | Sample Type: | N | N | C | C | N | N | N | N | N | N |
| | | | | | Sample Depth (feet): | 0 - 1 | 1 - 5 | 0 - 1 | 1 - 5 | 0 - 1 | 1 - 5 | 0 - 1 | 1 - 5 | 0 - 1 | 1 - 5 |
| | | | | | Sample Date: | 2021-01-14 | 2021-01-14 | 2021-01-14 | 2021-01-14 | 2021-01-11 | 2021-01-11 | 2021-01-11 | 2021-01-11 | 2021-01-08 | 2021-01-08 |
| | | | | | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 1 | EPA Region 4 Soil | mg/kg | 0.012 | J+ | 0.0021 | U | 0.002 | U | 0.0022 | U | 0.0023 | UJ | 0.011 | J+ | 0.01 | J+ | 0.0022 | UJ | 0.0022 | UJ | 0.012 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 1 | EPA Region 4 Soil | mg/kg | 0.012 | J+ | 0.0021 | U | 0.01 | J+ | 0.0022 | U | 0.0023 | UJ | 0.011 | J+ | 0.01 | J+ | 0.0022 | UJ | 0.011 | J+ | 0.012 | J+ |
| Anthracene | 120-12-7 | 6.8 | EPA Region 4 Soil | mg/kg | 0.012 | J+ | 0.0046 | U | 0.01 | J+ | 0.0047 | U | 0.005 | UJ | 0.0049 | U | 0.0044 | UJ | 0.0047 | UJ | 0.0048 | UJ | 0.012 | J+ |
| Benzo(a)anthracene | 56-55-3 | 18 | EPA Region 4 Soil | mg/kg | 0.031 | | 0.0046 | U | 0.024 | | 0.0047 | U | 0.0067 | J- | 0.011 | J+ | 0.01 | J- | 0.0047 | UJ | 0.0076 | J- | 0.012 | J+ |
| Benzo(b)fluoranthene | 205-99-2 | 18 | EPA Region 4 Soil | mg/kg | 0.04 | | 0.0071 | U | 0.035 | | 0.0072 | U | 0.01 | J- | 0.011 | J+ | 0.016 | J- | 0.011 | J+ | 0.012 | J- | 0.012 | J+ |
| Benzo(k)fluoranthene | 207-08-9 | 18 | EPA Region 4 Soil | mg/kg | 0.016 | | 0.0046 | U | 0.012 | | 0.0047 | U | 0.0034 | J- | 0.011 | J+ | 0.0055 | J- | 0.0047 | UJ | 0.0044 | J- | 0.012 | J+ |
| Naphthalene | 91-20-3 | 1 | EPA Region 4 Soil | mg/kg | 0.012 | J+ | 0.0021 | U | 0.01 | J+ | 0.0022 | U | 0.0023 | UJ | 0.011 | J+ | 0.01 | J+ | 0.011 | J+ | 0.011 | J+ | 0.012 | J+ |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 5 | EPA Region 4 Soil | mg/kg | 0.2 | J+ | 0.19 | J+ | 0.17 | J+ | 0.18 | J+ | 0.22 | J+ | 0.16 | J+ | 0.16 | J+ | 0.16 | J+ | 0.18 | J+ | 0.21 | J+ |
| Arsenic | 7440-38-2 | 18 | EPA Ecological SSLs | mg/kg | 25 | | 12 | | 6.3 | | 4.6 | | 5.8 | | 9.5 | | 5.8 | | 6.5 | | 4.8 | | 5.1 | |
| Barium | 7440-39-3 | 110 | EPA Region 4 Soil | mg/kg | 53 | | 69 | | 56 | | 68 | | 53 | | 53 | | 41 | | 52 | | 49 | | 44 | |
| Beryllium | 7440-41-7 | 2.5 | EPA Region 4 Soil | mg/kg | 0.46 | J+ | 0.39 | J | 0.46 | J+ | 0.44 | J | 0.4 | J+ | 0.27 | J | 0.42 | J+ | 0.21 | J | 0.41 | J+ | 0.27 | J |
| Cadmium | 7440-43-9 | 32 | EPA Ecological SSLs | mg/kg | 0.038 | J | 0.025 | J | 0.066 | J | 0.063 | J | 0.09 | J | 0.14 | | 0.086 | | 0.039 | J | 0.055 | J | 0.083 | J |
| Chromium | 7440-47-3 | 0.35 | EPA Region 4 Soil | mg/kg | 8.8 | | 12 | | 7.5 | | 14 | | 7.4 | | 8.4 | | 7.2 | | 6.8 | | 7.9 | | 9.5 | |
| Cobalt | 7440-48-4 | 13 | EPA Ecological SSLs | mg/kg | 5.8 | | 7.8 | | 5.9 | | 8.2 | | 5 | | 5.5 | | 4.7 | | 5.3 | | 5.3 | | 6.3 | |
| Copper | 7440-50-8 | 70 | EPA Ecological SSLs | mg/kg | 20 | | 16 | | 19 | | 17 | | 16 | | 17 | | 14 | | 22 | | 20 | | 17 | |
| Lead | 7439-92-1 | 120 | EPA Ecological SSLs | mg/kg | 7.5 | | 5.5 | | 7.7 | | 7.5 | | 7.6 | | 7.8 | | 6.4 | | 6.3 | | 7.5 | | 28 | |
| Manganese | 7439-96-5 | 220 | EPA Ecological SSLs | mg/kg | 630 | | 390 | | 710 | | 480 | | 670 | | 670 | | 490 | | 750 | | 710 | | 480 | |
| Mercury | 7439-97-6 | 0.3 | EPA Region 4 Soil | mg/kg | 0.033 | | 0.015 | U | 0.021 | U | 0.016 | U | 0.0075 | J | 0.015 | U | 0.054 | | 0.015 | J | 0.014 | J | 0.048 | |
| Nickel | 7440-02-0 | 38 | EPA Ecological SSLs | mg/kg | 11 | | 16 | | 12 | | 18 | | 10 | | 11 | | 9.6 | | 11 | | 11 | | 14 | |
| Selenium | 7782-49-2 | 0.52 | EPA Ecological SSLs | mg/kg | 0.34 | U | 0.31 | U | 0.45 | J+ | 0.38 | U | 0.5 | J+ | 0.45 | J+ | 0.37 | J+ | 0.5 | J+ | 0.41 | J+ | 0.48 | J+ |
| Thallium | 7440-28-0 | 0.05 | EPA Region 4 Soil | mg/kg | 0.086 | U | 0.078 | U | 0.1 | | 0.13 | | 0.099 | U | 0.14 | | 0.073 | U | 0.099 | U | 0.061 | J | 0.099 | |
| Vanadium | 7440-62-2 | 60 | EPA Region 4 Soil | mg/kg | 13 | | 18 | | 13 | | 19 | | 12 | | 13 | | 11 | | 11 | | 12 | | 13 | |
| Zinc | 7440-66-6 | 160 | EPA Ecological SSLs | mg/kg | 31 | | 31 | | 28 | | 37 | | 25 | | 26 | | 25 | | 22 | | 27 | | 150 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
EPA Region 5 RCRA Soil ESLs: EPA Region 5 Resource Conservation and Recovery Act Soil Ecological Screening Levels (2003).

Table L.1-4
Plant Sample by Sample Screening - AOC 5 (Coal Aggregate Bins), Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-021 | | NYOW-05-021 | | NYOW-05-022 | | NYOW-05-022 | | NYOW-05-023 | | NYOW-05-023 | | NYOW-05-024 | | NYOW-05-024 | | NYOW-05-025 | | NYOW-05-025 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL021-A | | NYOW-05-PH021-B | | NYOW-05-SL022-A | | NYOW-05-PH022-B | | NYOW-05-SL023-A | | NYOW-05-PH023-B | | NYOW-05-SL024-A | | NYOW-05-PH024-B | | NYOW-05-SL025-A | | NYOW-05-PH025-B | |
| | | | | Sample Type: | N | | N | | N | | C | | C | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-11 | | 2021-01-11 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | |
| Dibenzofuran | 132-64-9 | 6.1 | EPA Region 4 Soil | mg/kg | -- | -- | 0.079 | U | -- | -- | 0.073 | U | -- | -- | 0.076 | U | -- | -- | 0.38 | J+ | -- | -- | 0.076 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 1 | EPA Region 4 Soil | mg/kg | 1.8 | | 0.014 | | 0.0054 | J | 0.0021 | UJ | 2.3 | | 0.008 | J | 7.4 | | 0.083 | J- | 0.077 | | 0.0022 | J |
| 2-Methylnaphthalene | 91-57-6 | 1 | EPA Region 4 Soil | mg/kg | 2.5 | | 0.019 | | 0.0071 | J | 0.0018 | J | 3.2 | | 0.012 | | 10 | | 0.13 | J- | 0.089 | | 0.0028 | J |
| Acenaphthene | 83-32-9 | 0.25 | EPA Region 4 Soil | mg/kg | 0.013 | U | 0.0012 | U | 0.0013 | U | 0.0011 | UJ | 0.065 | J- | 0.0011 | U | 0.056 | U | 0.0013 | UJ | 0.0013 | U | 0.0013 | U |
| Anthracene | 120-12-7 | 6.8 | EPA Region 4 Soil | mg/kg | 0.062 | J | 0.011 | J+ | 0.0036 | J | 0.0045 | UJ | 0.22 | J | 0.011 | J+ | 0.23 | U | 0.0051 | UJ | 0.0048 | J | 0.0052 | U |
| Benzo(a)anthracene | 56-55-3 | 18 | EPA Region 4 Soil | mg/kg | 0.21 | | 0.011 | | 0.019 | | 0.0026 | J | 0.39 | | 0.016 | | 0.44 | J | 0.0081 | J- | 0.019 | J+ | 0.0025 | J |
| Benzo(b)fluoranthene | 205-99-2 | 18 | EPA Region 4 Soil | mg/kg | 0.21 | | 0.02 | | 0.034 | | 0.0055 | J | 1.4 | | 0.027 | | 0.28 | J | 0.011 | J- | 0.059 | | 0.0067 | J |
| Benzo(k)fluoranthene | 207-08-9 | 18 | EPA Region 4 Soil | mg/kg | 0.063 | J | 0.011 | J+ | 0.012 | | 0.0045 | UJ | 0.4 | | 0.011 | J+ | 0.23 | U | 0.012 | J+ | 0.014 | | 0.0052 | U |
| Naphthalene | 91-20-3 | 1 | EPA Region 4 Soil | mg/kg | 1.8 | | 0.019 | | 0.009 | J | 0.0039 | J | 2.6 | | 0.02 | | 7.1 | | 0.11 | J- | 0.063 | | 0.0027 | J |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 5 | EPA Region 4 Soil | mg/kg | 0.25 | | 0.21 | | 0.15 | J | 0.15 | | 0.33 | | 0.17 | J | 0.19 | J | 0.095 | J | 0.16 | J | 0.16 | J |
| Arsenic | 7440-38-2 | 18 | EPA Ecological SSLs | mg/kg | 10 | | 7.4 | | 5.4 | | 5.8 | | 13 | | 6.9 | | 16 | | 6.3 | | 4.6 | | 5.4 | |
| Barium | 7440-39-3 | 110 | EPA Region 4 Soil | mg/kg | 52 | | 78 | | 54 | J+ | 41 | | 37 | | 51 | | 27 | | 48 | | 34 | | 66 | |
| Beryllium | 7440-41-7 | 2.5 | EPA Region 4 Soil | mg/kg | 0.42 | J | 0.44 | J+ | 0.39 | J- | 0.39 | J+ | 0.29 | J | 0.47 | J+ | 0.63 | | 0.54 | J+ | 0.28 | J- | 2.3 | J+ |
| Cadmium | 7440-43-9 | 32 | EPA Ecological SSLs | mg/kg | 0.25 | | 0.25 | | 0.15 | | 0.14 | | 0.37 | | 0.21 | | 0.11 | J | 0.1 | | 0.1 | J | 0.11 | |
| Chromium | 7440-47-3 | 0.35 | EPA Region 4 Soil | mg/kg | 8.3 | | 9.9 | | 13 | J- | 7 | | 8.2 | | 7.7 | | 5.8 | | 8.6 | | 8.6 | J- | 11 | |
| Cobalt | 7440-48-4 | 13 | EPA Ecological SSLs | mg/kg | 6.4 | | 9 | | 7.5 | J- | 5 | | 4.9 | | 6.3 | | 1.8 | | 6 | | 5.2 | J- | 7.6 | |
| Copper | 7440-50-8 | 70 | EPA Ecological SSLs | mg/kg | 20 | | 34 | | 22 | | 22 | | 17 | | 20 | | 10 | | 24 | | 14 | | 21 | |
| Lead | 7439-92-1 | 120 | EPA Ecological SSLs | mg/kg | 21 | | 18 | | 8.6 | J- | 11 | J | 17 | | 15 | | 8.9 | | 8.8 | | 8.9 | J- | 11 | |
| Manganese | 7439-96-5 | 220 | EPA Ecological SSLs | mg/kg | 650 | | 2400 | | 660 | J | 920 | | 420 | | 910 | | 110 | | 820 | | 410 | J | 1100 | |
| Mercury | 7439-97-6 | 0.3 | EPA Region 4 Soil | mg/kg | 0.11 | | 0.084 | | 0.03 | | 0.032 | | 0.077 | | 0.076 | | 0.064 | | 0.033 | | 0.026 | | 0.051 | |
| Nickel | 7440-02-0 | 38 | EPA Ecological SSLs | mg/kg | 13 | | 14 | | 15 | | 9.4 | | 12 | | 10 | | 6.1 | | 11 | | 11 | J- | 14 | |
| Selenium | 7782-49-2 | 0.52 | EPA Ecological SSLs | mg/kg | 0.9 | | 0.54 | J+ | 0.22 | J | 0.46 | J+ | 0.65 | | 0.55 | J+ | 0.83 | | 0.43 | J+ | 0.31 | J | 0.42 | J+ |
| Thallium | 7440-28-0 | 0.05 | EPA Region 4 Soil | mg/kg | 0.18 | | 0.12 | | 0.11 | U | 0.092 | U | 0.24 | | 0.11 | U | 0.26 | | 0.087 | U | 0.12 | | 0.11 | |
| Vanadium | 7440-62-2 | 60 | EPA Region 4 Soil | mg/kg | 15 | | 18 | | 17 | | 12 | | 11 | | 15 | | 7.6 | | 14 | | 13 | | 17 | |
| Zinc | 7440-66-6 | 160 | EPA Ecological SSLs | mg/kg | 55 | | 66 | | 36 | J- | 29 | | 54 | | 37 | | 16 | | 30 | | 34 | J- | 36 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
EPA Region 5 RCRA Soil ESLs: EPA Region 5 Resource Conservation and Recovery Act Soil Ecological Screening Levels (2003).

Table L.1-5
Plant Sample by Sample Screening - AOC 5 (Coal Storage Area), Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-006 | | NYOW-05-006 | | NYOW-05-007 | | NYOW-05-007 | | NYOW-05-008 | | NYOW-05-008 | | NYOW-05-009 | | NYOW-05-009 | | NYOW-05-010 | | NYOW-05-010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL006-A | | NYOW-05-PH006-B | | NYOW-05-SL007-A | | NYOW-05-PH007-B | | NYOW-05-SL008-A | | NYOW-05-PH008-B | | NYOW-05-SL009-A | | NYOW-05-PH009-B | | NYOW-05-SL010-A | | NYOW-05-PH010-B | |
| | | | | Sample Type: | N | | N | | N | | C | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-08 | | 2021-01-08 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 1 | EPA Region 4 Soil | mg/kg | 5.7 | | 0.0024 | U | 10 | | 0.002 | UJ | 6 | | 0.01 | J+ | 0.12 | | 0.0023 | U | 0.039 | J- | 0.0021 | U |
| 2-Methylnaphthalene | 91-57-6 | 1 | EPA Region 4 Soil | mg/kg | 7.7 | | 0.0024 | U | 14 | | 0.002 | UJ | 4.8 | | 0.01 | J+ | 0.086 | | 0.0023 | U | 0.017 | | 0.0021 | U |
| Acenaphthene | 83-32-9 | 0.25 | EPA Region 4 Soil | mg/kg | 0.037 | U | 0.0013 | U | 0.32 | J+ | 0.0011 | UJ | 0.34 | J+ | 0.0011 | U | 0.0016 | U | 0.0012 | U | 0.012 | J+ | 0.0011 | U |
| Anthracene | 120-12-7 | 6.8 | EPA Region 4 Soil | mg/kg | 0.35 | J+ | 0.0052 | U | 0.32 | J+ | 0.0043 | UJ | 0.34 | J+ | 0.0045 | U | 0.0066 | U | 0.0049 | U | 0.005 | U | 0.0045 | U |
| Benzo(a)anthracene | 56-55-3 | 18 | EPA Region 4 Soil | mg/kg | 0.27 | J | 0.0052 | U | 0.75 | | 0.0043 | UJ | 0.61 | | 0.0045 | U | 0.044 | | 0.0049 | U | 0.036 | | 0.0045 | U |
| Benzo(b)fluoranthene | 205-99-2 | 18 | EPA Region 4 Soil | mg/kg | 0.19 | J | 0.008 | U | 0.46 | | 0.0067 | UJ | 0.43 | | 0.0069 | U | 0.1 | | 0.0076 | U | 0.06 | J- | 0.01 | J+ |
| Benzo(k)fluoranthene | 207-08-9 | 18 | EPA Region 4 Soil | mg/kg | 0.15 | U | 0.0052 | U | 0.32 | J+ | 0.0043 | UJ | 0.34 | J+ | 0.0045 | U | 0.015 | J+ | 0.0049 | U | 0.012 | J+ | 0.0045 | U |
| Naphthalene | 91-20-3 | 1 | EPA Region 4 Soil | mg/kg | 5.6 | | 0.0024 | U | 9.2 | | 0.01 | J+ | 2 | | 0.01 | J+ | 0.039 | | 0.0023 | U | 0.017 | J- | 0.0021 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 5 | EPA Region 4 Soil | mg/kg | 0.32 | | 0.17 | J+ | 0.24 | J | 0.17 | J+ | 0.46 | | 0.16 | J+ | 0.16 | J | 0.087 | U | 0.11 | UJ | 0.2 | J+ |
| Arsenic | 7440-38-2 | 18 | EPA Ecological SSLs | mg/kg | 24 | | 3.9 | | 19 | | 2.8 | | 12 | | 4 | | 9.7 | | 5.1 | | 4.5 | | 26 | |
| Barium | 7440-39-3 | 110 | EPA Region 4 Soil | mg/kg | 34 | | 46 | | 43 | | 39 | | 37 | | 36 | | 45 | | 37 | | 65 | | 110 | |
| Beryllium | 7440-41-7 | 2.5 | EPA Region 4 Soil | mg/kg | 0.68 | J+ | 0.43 | J+ | 0.75 | J+ | 0.46 | J+ | 0.59 | J+ | 0.42 | J+ | 0.67 | J+ | 0.5 | J+ | 0.47 | J+ | 0.53 | J+ |
| Cadmium | 7440-43-9 | 32 | EPA Ecological SSLs | mg/kg | 0.23 | | 0.17 | | 0.38 | | 0.029 | J | 0.21 | | 0.04 | J | 0.19 | | 0.038 | J | 0.11 | | 0.026 | J |
| Chromium | 7440-47-3 | 0.35 | EPA Region 4 Soil | mg/kg | 7.2 | | 7.2 | | 6 | | 6.5 | | 6.6 | | 8.9 | | 6 | | 5 | | 7.2 | | 7.3 | |
| Cobalt | 7440-48-4 | 13 | EPA Ecological SSLs | mg/kg | 6.6 | | 4.8 | | 4.2 | | 3.9 | | 2.1 | | 4.9 | | 2.4 | | 3.5 | | 3.4 | | 8 | |
| Copper | 7440-50-8 | 70 | EPA Ecological SSLs | mg/kg | 22 | | 13 | | 22 | | 14 | | 9.8 | | 19 | | 7.4 | | 9.3 | | 5.3 | | 27 | |
| Lead | 7439-92-1 | 120 | EPA Ecological SSLs | mg/kg | 21 | | 7.2 | | 18 | | 3 | | 18 | | 4.7 | | 13 | | 3.1 | | 4.2 | | 4.5 | |
| Manganese | 7439-96-5 | 220 | EPA Ecological SSLs | mg/kg | 320 | | 630 | | 270 | | 440 | | 110 | | 360 | | 330 | | 340 | | 400 | J- | 870 | |
| Mercury | 7439-97-6 | 0.3 | EPA Region 4 Soil | mg/kg | 0.086 | | 0.031 | | 0.093 | | 0.017 | U | 0.19 | | 0.015 | U | 0.1 | | 0.017 | U | 0.11 | | 0.016 | U |
| Nickel | 7440-02-0 | 38 | EPA Ecological SSLs | mg/kg | 13 | | 8.2 | | 9.2 | | 8.3 | | 4.9 | | 11 | | 5.4 | | 5.5 | | 5.7 | | 14 | |
| Selenium | 7782-49-2 | 0.52 | EPA Ecological SSLs | mg/kg | 1 | | 0.46 | J+ | 0.98 | | 0.36 | U | 1.5 | | 0.38 | U | 0.64 | J | 0.39 | U | 0.4 | J | 0.38 | U |
| Thallium | 7440-28-0 | 0.05 | EPA Region 4 Soil | mg/kg | 0.34 | | 0.092 | U | 0.34 | | 0.09 | J+ | 0.6 | | 0.094 | J+ | 0.24 | | 0.096 | J+ | 0.18 | | 0.096 | J+ |
| Vanadium | 7440-62-2 | 60 | EPA Region 4 Soil | mg/kg | 12 | | 13 | | 10 | | 9.8 | | 15 | | 13 | | 11 | | 8.7 | | 15 | | 13 | |
| Zinc | 7440-66-6 | 160 | EPA Ecological SSLs | mg/kg | 44 | | 24 | | 58 | | 19 | | 35 | | 23 | | 28 | | 15 | | 14 | | 27 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
EPA Region 5 RCRA Soil ESLs: EPA Region 5 Resource Conservation and Recovery Act Soil Ecological Screening Levels (2003).

Table L.1-6
Plant Sample by Sample Screening - AOC 5 (Electric Substation), Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-011 | | NYOW-05-011 | | NYOW-05-012 | | NYOW-05-012 | | NYOW-05-013 | | NYOW-05-013 | | NYOW-05-014 | | NYOW-05-014 | | NYOW-05-015 | | NYOW-05-015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL011-A | | NYOW-05-PH011-B | | NYOW-05-SL012-A | | NYOW-05-PH012-B | | NYOW-05-SL013-A | | NYOW-05-PH013-B | | NYOW-05-SL014-A | | NYOW-05-PH014-B | | NYOW-05-SL015-A | | NYOW-05-PH015-B | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 1 | EPA Region 4 Soil | mg/kg | 0.011 | J+ | 0.0023 | U | 0.012 | J+ | 0.0023 | U | 0.012 | J+ | 0.01 | J+ | 0.011 | J+ | 0.0022 | U | 0.011 | J+ | 0.01 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 1 | EPA Region 4 Soil | mg/kg | 0.018 | | 0.0023 | U | 0.003 | J | 0.012 | J+ | 0.0019 | J | 0.01 | J+ | 0.0029 | J | 0.011 | J+ | 0.0094 | J | 0.01 | J+ |
| Acenaphthene | 83-32-9 | 0.25 | EPA Region 4 Soil | mg/kg | 0.011 | J+ | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0012 | U | 0.0011 | U | 0.0011 | U | 0.0012 | U | 0.011 | J+ | 0.0011 | U |
| Anthracene | 120-12-7 | 6.8 | EPA Region 4 Soil | mg/kg | 0.011 | J+ | 0.0049 | U | 0.012 | J+ | 0.005 | U | 0.012 | J+ | 0.01 | J+ | 0.011 | J+ | 0.0047 | U | 0.011 | J+ | 0.0045 | U |
| Benzo(a)anthracene | 56-55-3 | 18 | EPA Region 4 Soil | mg/kg | 0.0098 | J | 0.0049 | U | 0.012 | | 0.005 | U | 0.012 | | 0.01 | J+ | 0.013 | | 0.0047 | U | 0.018 | | 0.01 | J+ |
| Benzo(b)fluoranthene | 205-99-2 | 18 | EPA Region 4 Soil | mg/kg | 0.02 | | 0.0076 | U | 0.023 | | 0.0077 | U | 0.019 | | 0.015 | | 0.024 | | 0.003 | J | 0.072 | | 0.0081 | J |
| Benzo(k)fluoranthene | 207-08-9 | 18 | EPA Region 4 Soil | mg/kg | 0.0072 | J | 0.0049 | U | 0.0084 | J | 0.005 | U | 0.0074 | J | 0.01 | J+ | 0.01 | J | 0.0047 | U | 0.027 | | 0.0045 | U |
| Naphthalene | 91-20-3 | 1 | EPA Region 4 Soil | mg/kg | 0.015 | | 0.011 | J+ | 0.0052 | J | 0.012 | J+ | 0.0033 | J | 0.01 | J+ | 0.0029 | J | 0.011 | J+ | 0.0075 | J | 0.01 | J+ |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 40 | EPA Region 4 Soil | mg/kg | 0.0068 | U | -- | -- | 0.029 | J | -- | -- | 0.16 | | -- | -- | 0.013 | J | -- | -- | 0.0042 | J | -- | -- |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 5 | EPA Region 4 Soil | mg/kg | 0.19 | | 0.21 | J+ | 0.17 | | 0.17 | J+ | 0.096 | J | 0.21 | J+ | 0.13 | J | 0.18 | J+ | 0.12 | J | 0.21 | J+ |
| Arsenic | 7440-38-2 | 18 | EPA Ecological SSLs | mg/kg | 5.2 | | 4.4 | | 5.9 | | 5 | | 4.3 | | 5.5 | | 4.9 | | 4.9 | | 4.3 | | 4.8 | |
| Barium | 7440-39-3 | 110 | EPA Region 4 Soil | mg/kg | 62 | | 46 | | 66 | | 110 | | 43 | | 51 | | 51 | | 59 | | 48 | | 50 | |
| Beryllium | 7440-41-7 | 2.5 | EPA Region 4 Soil | mg/kg | 0.55 | J+ | 0.43 | J | 0.49 | J+ | 0.83 | | 0.47 | J+ | 0.27 | J | 0.57 | J+ | 0.47 | J | 0.57 | J+ | 0.35 | J |
| Cadmium | 7440-43-9 | 32 | EPA Ecological SSLs | mg/kg | 0.14 | | 0.078 | J | 0.14 | | 0.061 | J | 0.14 | | 0.38 | | 0.11 | | 0.054 | J | 0.39 | | 0.046 | J |
| Chromium | 7440-47-3 | 0.35 | EPA Region 4 Soil | mg/kg | 10 | | 14 | | 8.5 | | 25 | | 8.4 | | 8.3 | | 9.6 | | 15 | | 7.9 | | 10 | |
| Cobalt | 7440-48-4 | 13 | EPA Ecological SSLs | mg/kg | 7.1 | | 9.7 | | 7 | | 13 | | 6.1 | | 5.9 | | 9.3 | | 6.2 | | 5.6 | | 6.3 | |
| Copper | 7440-50-8 | 70 | EPA Ecological SSLs | mg/kg | 25 | | 21 | | 24 | | 25 | | 16 | | 74 | | 21 | | 15 | | 16 | | 16 | |
| Lead | 7439-92-1 | 120 | EPA Ecological SSLs | mg/kg | 12 | | 8.4 | | 24 | | 9.4 | | 7.9 | | 8.5 | | 13 | | 7.8 | | 7.6 | | 10 | |
| Manganese | 7439-96-5 | 220 | EPA Ecological SSLs | mg/kg | 1100 | | 760 | | 1200 | | 600 | | 590 | | 870 | | 660 | | 330 | | 630 | | 670 | |
| Mercury | 7439-97-6 | 0.3 | EPA Region 4 Soil | mg/kg | 0.085 | | 0.03 | | 0.23 | | 0.099 | | 0.029 | | 0.035 | | 0.026 | | 0.013 | J | 0.026 | | 0.024 | |
| Nickel | 7440-02-0 | 38 | EPA Ecological SSLs | mg/kg | 15 | | 20 | | 12 | | 29 | | 12 | | 12 | | 15 | | 16 | | 12 | | 13 | |
| Selenium | 7782-49-2 | 0.52 | EPA Ecological SSLs | mg/kg | 0.46 | J+ | 0.49 | J+ | 0.47 | J+ | 0.45 | J+ | 0.59 | J+ | 0.47 | J+ | 0.54 | J+ | 0.41 | J+ | 0.42 | J+ | 0.48 | J+ |
| Thallium | 7440-28-0 | 0.05 | EPA Region 4 Soil | mg/kg | 0.12 | | 0.099 | U | 0.14 | | 0.16 | | 0.12 | U | 0.094 | U | 0.11 | U | 0.096 | | 0.085 | U | 0.096 | U |
| Vanadium | 7440-62-2 | 60 | EPA Region 4 Soil | mg/kg | 16 | | 16 | | 15 | | 31 | | 14 | | 13 | | 14 | | 17 | | 12 | | 14 | |
| Zinc | 7440-66-6 | 160 | EPA Ecological SSLs | mg/kg | 42 | | 35 | | 49 | | 56 | | 35 | | 42 | | 40 | | 35 | | 33 | | 29 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
EPA Region 5 RCRA Soil ESLs: EPA Region 5 Resource Conservation and Recovery Act Soil Ecological Screening Levels (2003).

Table L.1-7
Plant Sample by Sample Screening - AOC 5 (Possible Dump Area), Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-001 | | NYOW-05-001 | | NYOW-05-002 | | NYOW-05-002 | | NYOW-05-003 | | NYOW-05-003 | | NYOW-05-004 | | NYOW-05-004 | | NYOW-05-005 | | NYOW-05-005 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL001-A | | NYOW-05-PH001-B | | NYOW-05-SL002-A | | NYOW-05-PH002-B | | NYOW-05-SL003-A | | NYOW-05-PH003-B | | NYOW-05-SL004-A | | NYOW-05-PH004-B | | NYOW-05-SL005-A | | NYOW-05-PH005-B | |
| | | | | Sample Type: | N | | N | | C | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 200 | EPA Region 4 Soil | mg/kg | -- | -- | 0.00033 | U | -- | -- | 0.004 | J+ | -- | -- | 0.00038 | U | -- | -- | 0.00032 | U | -- | -- | 0.00035 | U |
| Toluene | 108-88-3 | 200 | EPA Region 4 Soil | mg/kg | -- | -- | 0.00066 | U | -- | -- | 0.004 | J+ | -- | -- | 0.00076 | U | -- | -- | 0.00065 | U | -- | -- | 0.0007 | U |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | |
| Dibenzofuran | 132-64-9 | 6.1 | EPA Region 4 Soil | mg/kg | 0.071 | U | 0.076 | U | 0.078 | UJ | 0.075 | U | 0.37 | J+ | 0.085 | UJ | 0.072 | U | 0.076 | U | 0.39 | J+ | 0.08 | U |
| Di-n-butyl phthalate | 84-74-2 | 160 | EPA Region 4 Soil | mg/kg | 0.071 | U | 0.076 | U | 0.078 | UJ | 0.075 | U | 0.076 | UJ | 0.085 | UJ | 0.072 | U | 0.076 | U | 0.39 | | 0.08 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 1 | EPA Region 4 Soil | mg/kg | 0.0021 | U | 0.0023 | U | 0.01 | | 0.0021 | U | 0.065 | J+ | 0.012 | J+ | 0.069 | | 0.0023 | U | 0.29 | | 0.012 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 1 | EPA Region 4 Soil | mg/kg | 0.0021 | U | 0.0023 | U | 0.013 | | 0.0021 | U | 0.087 | J+ | 0.012 | J+ | 0.09 | | 0.0023 | U | 0.37 | | 0.012 | J+ |
| Acenaphthene | 83-32-9 | 0.25 | EPA Region 4 Soil | mg/kg | 0.0011 | U | 0.0012 | U | 0.011 | J+ | 0.0011 | U | 0.0012 | U | 0.0013 | U | 0.0011 | U | 0.0012 | U | 0.012 | U | 0.0013 | U |
| Anthracene | 120-12-7 | 6.8 | EPA Region 4 Soil | mg/kg | 0.0045 | U | 0.005 | U | 0.018 | J | 0.0045 | U | 0.005 | U | 0.0052 | U | 0.0032 | J | 0.0049 | U | 0.047 | U | 0.0051 | U |
| Benzo(a)anthracene | 56-55-3 | 18 | EPA Region 4 Soil | mg/kg | 0.0024 | J | 0.005 | U | 0.02 | J | 0.0045 | U | 0.0065 | J | 0.0052 | U | 0.012 | | 0.011 | J+ | 0.042 | J | 0.0051 | U |
| Benzo(b)fluoranthene | 205-99-2 | 18 | EPA Region 4 Soil | mg/kg | 0.0069 | U | 0.0077 | U | 0.022 | J | 0.0069 | U | 0.0076 | J | 0.008 | U | 0.019 | | 0.0076 | U | 0.058 | J | 0.0079 | U |
| Benzo(k)fluoranthene | 207-08-9 | 18 | EPA Region 4 Soil | mg/kg | 0.0045 | U | 0.005 | U | 0.011 | J+ | 0.0045 | U | 0.012 | J+ | 0.0052 | U | 0.0099 | J+ | 0.0049 | U | 0.047 | U | 0.0051 | U |
| Naphthalene | 91-20-3 | 1 | EPA Region 4 Soil | mg/kg | 0.0018 | J | 0.0023 | U | 0.01 | | 0.01 | J+ | 0.065 | J+ | 0.012 | J+ | 0.071 | | 0.011 | J+ | 0.29 | | 0.012 | J+ |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 5 | EPA Region 4 Soil | mg/kg | 0.12 | J | 0.099 | U | 0.12 | J | 0.19 | J+ | 0.18 | J | 0.26 | J+ | 0.076 | J | 0.091 | U | 1 | | 0.19 | J+ |
| Arsenic | 7440-38-2 | 18 | EPA Ecological SSLs | mg/kg | 4.6 | | 3.9 | | 5.1 | | 6.4 | | 6.8 | J+ | 4.5 | J | 4.3 | | 3.6 | | 6.9 | | 6.2 | |
| Barium | 7440-39-3 | 110 | EPA Region 4 Soil | mg/kg | 30 | | 68 | | 40 | | 29 | | 32 | | 110 | J | 31 | | 18 | | 76 | | 48 | |
| Beryllium | 7440-41-7 | 2.5 | EPA Region 4 Soil | mg/kg | 0.55 | J+ | 0.19 | J | 0.47 | J+ | 0.19 | J | 0.42 | J+ | 0.77 | | 0.54 | J+ | 0.11 | J | 0.56 | J+ | 0.37 | J |
| Cadmium | 7440-43-9 | 32 | EPA Ecological SSLs | mg/kg | 0.072 | J | 0.081 | J | 0.33 | | 0.063 | J | 0.15 | | 0.073 | J | 0.076 | | 0.036 | J | 4.3 | | 0.12 | |
| Chromium | 7440-47-3 | 0.35 | EPA Region 4 Soil | mg/kg | 6.4 | | 11 | | 7.9 | | 13 | J | 5.5 | J- | 25 | | 5 | | 4.9 | | 13 | | 11 | |
| Cobalt | 7440-48-4 | 13 | EPA Ecological SSLs | mg/kg | 4.1 | | 4.1 | | 4.7 | | 8.3 | | 3.6 | J- | 9 | | 6.7 | | 2.9 | | 4.3 | | 6.1 | |
| Copper | 7440-50-8 | 70 | EPA Ecological SSLs | mg/kg | 23 | | 13 | | 18 | | 16 | J | 20 | | 18 | | 32 | | 10 | | 110 | | 19 | |
| Lead | 7439-92-1 | 120 | EPA Ecological SSLs | mg/kg | 4.6 | | 5.8 | | 9.3 | | 4 | J | 11 | J- | 7.9 | | 8.3 | | 3.4 | | 200 | | 6 | |
| Manganese | 7439-96-5 | 220 | EPA Ecological SSLs | mg/kg | 710 | | 1000 | | 520 | | 410 | | 400 | J- | 450 | J | 780 | | 320 | | 450 | | 630 | |
| Mercury | 7439-97-6 | 0.3 | EPA Region 4 Soil | mg/kg | 0.016 | J | 0.054 | | 0.059 | | 0.013 | J | 0.031 | | 0.018 | J | 0.0078 | J | 0.02 | | 0.14 | | 0.019 | J |
| Nickel | 7440-02-0 | 38 | EPA Ecological SSLs | mg/kg | 8.1 | | 7.6 | | 8.3 | | 11 | J | 8.3 | J- | 25 | | 9.9 | | 5.1 | | 18 | | 14 | |
| Selenium | 7782-49-2 | 0.52 | EPA Ecological SSLs | mg/kg | 0.15 | J | 0.48 | J+ | 0.49 | | 0.39 | U | 0.27 | J | 0.49 | J+ | 0.13 | J | 0.4 | U | 0.47 | | 0.6 | J+ |
| Silver | 7440-22-4 | 560 | EPA Ecological SSLs | mg/kg | 0.67 | U | 0.52 | U | 0.56 | U | 2.9 | U | 0.5 | U | 0.55 | U | 0.64 | U | 0.6 | U | 1.7 | J+ | 0.58 | U |
| Thallium | 7440-28-0 | 0.05 | EPA Region 4 Soil | mg/kg | 0.091 | U | 0.097 | U | 0.094 | U | 0.097 | U | 0.12 | | 0.2 | J | 0.075 | U | 0.1 | U | 0.15 | | 0.12 | U |
| Vanadium | 7440-62-2 | 60 | EPA Region 4 Soil | mg/kg | 10 | | 15 | | 14 | | 24 | | 9.9 | | 31 | | 7.9 | | 9.7 | | 10 | | 16 | |
| Zinc | 7440-66-6 | 160 | EPA Ecological SSLs | mg/kg | 29 | | 23 | | 35 | | 21 | J | 35 | J- | 52 | J- | 28 | | 12 | | 690 | | 52 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
EPA Region 5 RCRA Soil ESLs: EPA Region 5 Resource Conservation and Recovery Act Soil Ecological Screening Levels (2003).

# APPENDIX L.2

# Soil Invertebrate Sample by Sample Screening – Soil

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Table L.2-1
Soil Invertebrate Sample by Sample Screening - AOC 1, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-002 | | NYOW-01-002 | | NYOW-01-005 | | NYOW-01-005 | | NYOW-01-007 | | NYOW-01-009 | | NYOW-01-011 | | NYOW-01-013 | | NYOW-01-015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL002-A | | NYOW-01-PH002-B | | NYOW-01-SL005-A | | NYOW-01-PH005-B | | NYOW-01-SL007-A | | NYOW-01-SL009-A | | NYOW-01-SL011-A | | NYOW-01-SL013-A | | NYOW-01-SL015-A | |
| | | | | Sample Type: | N | | N | | C | | C | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-09 | | 2021-04-09 | | 2021-04-08 | | 2021-04-08 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-14 | | 2021-04-02 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.015 | QAPP Appendix A.1 - Soil | mg/kg | 0.16 | UJ | 0.16 | UJ | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 78 | EPA Ecological SSLs | mg/kg | 0.16 | J- | 0.17 | J+ | 0.11 | J | 0.081 | U | 0.23 | J | 0.19 | J | 0.13 | J | 0.13 | J | 0.17 | J |
| Arsenic | 7440-38-2 | 6.8 | EPA Region 4 Soil | mg/kg | 4.2 | | 3.7 | | 4 | | 3.7 | | 5.7 | | 4.7 | | 2.4 | | 4.8 | | 4.9 | |
| Barium | 7440-39-3 | 330 | EPA Ecological SSLs | mg/kg | 81 | | 41 | | 46 | J+ | 31 | J+ | 86 | | 72 | | 32 | | 39 | | 61 | |
| Beryllium | 7440-41-7 | 40 | EPA Ecological SSLs | mg/kg | 0.48 | J+ | 0.4 | J+ | 0.47 | J+ | 0.4 | J+ | 0.72 | J+ | 0.56 | J+ | 0.52 | J+ | 0.57 | J+ | 0.52 | J+ |
| Cadmium | 7440-43-9 | 140 | EPA Ecological SSLs | mg/kg | 0.17 | | 0.092 | J | 0.13 | | 0.039 | J | 0.37 | | 0.19 | | 0.32 | | 0.14 | | 0.31 | |
| Chromium | 7440-47-3 | 0.34 | EPA Region 4 Soil | mg/kg | 11 | J- | 8.4 | | 7 | | 6.2 | | 9.3 | | 5.4 | | 5 | | 6.8 | | 9.9 | |
| Copper | 7440-50-8 | 80 | EPA Ecological SSLs | mg/kg | 21 | | 19 | | 11 | | 10 | | 21 | | 15 | | 23 | | 80 | | 22 | |
| Lead | 7439-92-1 | 1700 | EPA Ecological SSLs | mg/kg | 29 | | 14 | | 11 | | 3.3 | | 37 | | 23 | | 7.6 | | 14 | | 10 | |
| Manganese | 7439-96-5 | 450 | EPA Ecological SSLs | mg/kg | 1400 | J | 550 | | 550 | | 340 | | 450 | | 1100 | | 740 | | 580 | | 710 | |
| Mercury | 7439-97-6 | 0.05 | EPA Region 4 Soil | mg/kg | 0.039 | | 0.015 | J | 0.053 | | 0.017 | U | 0.073 | | 0.019 | J | 0.032 | | 0.038 | | 0.021 | J |
| Nickel | 7440-02-0 | 280 | EPA Ecological SSLs | mg/kg | 12 | | 11 | J | 8 | | 6.9 | | 12 | | 7.3 | | 6.9 | | 9.1 | | 12 | |
| Selenium | 7782-49-2 | 4.1 | EPA Ecological SSLs | mg/kg | 0.4 | J+ | 0.47 | J+ | 0.49 | J+ | 0.33 | U | 0.77 | J+ | 0.55 | J+ | 0.54 | J+ | 0.59 | J+ | 0.49 | J+ |
| Zinc | 7440-66-6 | 120 | EPA Ecological SSLs | mg/kg | 52 | | 40 | | 180 | J | 32 | | 110 | | 57 | | 55 | | 38 | | 39 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.2-1
Soil Invertebrate Sample by Sample Screening - AOC 1, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-015 | | NYOW-01-016 | | NYOW-01-016 | | NYOW-01-018 | | NYOW-01-018 | | NYOW-01-019 | | NYOW-01-019 | | NYOW-01-020 | | NYOW-01-020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-PH015-B | | NYOW-01-SL016-A | | NYOW-01-PH016-B | | NYOW-01-SL018-A | | NYOW-01-PH018-B | | NYOW-01-SL019-A | | NYOW-01-PH019-B | | NYOW-01-SL020-A | | NYOW-01-PH020-B | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | C | | N | | N | | N | |
| | | | | Sample Depth (feet): | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-04-02 | | 2021-04-02 | | 2021-04-02 | | 2021-04-08 | | 2021-04-08 | | 2021-04-06 | | 2021-04-06 | | 2021-04-06 | | 2021-04-06 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.015 | QAPP Appendix A.1 - Soil | mg/kg | 0.16 | U | 0.16 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.14 | U | 0.15 | UJ | 0.16 | U | 0.15 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 78 | EPA Ecological SSLs | mg/kg | 0.18 | J+ | 0.15 | J | 0.16 | J+ | 0.082 | J | 0.17 | J+ | 0.095 | J | 0.11 | UJ | 0.14 | J | 0.2 | J+ |
| Arsenic | 7440-38-2 | 6.8 | EPA Region 4 Soil | mg/kg | 6.6 | | 5.2 | | 7.6 | | 4.7 | | 6 | | 3.9 | | 2.8 | | 6.9 | | 7.9 | |
| Barium | 7440-39-3 | 330 | EPA Ecological SSLs | mg/kg | 50 | | 55 | | 55 | | 40 | J+ | 40 | J+ | 25 | J | 43 | J- | 43 | | 39 | |
| Beryllium | 7440-41-7 | 40 | EPA Ecological SSLs | mg/kg | 0.36 | J+ | 0.44 | J+ | 0.41 | J+ | 0.4 | J+ | 0.42 | J+ | 0.45 | J+ | 0.43 | J+ | 0.53 | J+ | 0.44 | J+ |
| Cadmium | 7440-43-9 | 140 | EPA Ecological SSLs | mg/kg | 0.013 | J | 0.13 | | 0.1 | | 0.058 | J | 0.044 | J | 0.058 | J | 0.04 | J | 0.13 | | 0.078 | J |
| Chromium | 7440-47-3 | 0.34 | EPA Region 4 Soil | mg/kg | 7.4 | | 8.6 | | 10 | | 6.1 | | 6.3 | | 6.4 | J | 6.8 | J- | 7.5 | | 6.7 | |
| Copper | 7440-50-8 | 80 | EPA Ecological SSLs | mg/kg | 26 | | 14 | | 26 | | 13 | | 15 | | 14 | J | 13 | | 28 | | 27 | |
| Lead | 7439-92-1 | 1700 | EPA Ecological SSLs | mg/kg | 8.8 | | 14 | | 40 | | 6.1 | | 5.9 | | 4.2 | J | 3.2 | J- | 19 | | 13 | |
| Manganese | 7439-96-5 | 450 | EPA Ecological SSLs | mg/kg | 460 | | 450 | | 850 | | 420 | | 610 | | 320 | | 260 | J- | 600 | | 550 | |
| Mercury | 7439-97-6 | 0.05 | EPA Region 4 Soil | mg/kg | 0.015 | J | 0.015 | J | 0.013 | J | 0.018 | J | 0.012 | J | 0.017 | J | 0.018 | U | 0.02 | J | 0.019 | U |
| Nickel | 7440-02-0 | 280 | EPA Ecological SSLs | mg/kg | 13 | | 8.2 | | 13 | | 8.3 | | 9 | | 8.1 | J | 9.7 | J- | 12 | | 11 | |
| Selenium | 7782-49-2 | 4.1 | EPA Ecological SSLs | mg/kg | 0.39 | U | 0.49 | J+ | 0.4 | U | 0.48 | J+ | 0.35 | U | 0.43 | J+ | 0.39 | J+ | 0.57 | J+ | 0.57 | J+ |
| Zinc | 7440-66-6 | 120 | EPA Ecological SSLs | mg/kg | 25 | | 40 | | 130 | | 11 | | 12 | | 22 | | 18 | J- | 44 | | 37 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.2-1
Soil Invertebrate Sample by Sample Screening - AOC 1, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-021 | | NYOW-01-021 | | NYOW-01-022 | | NYOW-01-022 | | NYOW-01-023 | | NYOW-01-023 | | NYOW-01-024 | | NYOW-01-024 | | NYOW-01-025 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL021-A | | NYOW-01-PH021-B | | NYOW-01-SL022-A | | NYOW-01-PH022-B | | NYOW-01-SL023-A | | NYOW-01-PH023-B | | NYOW-01-SL024-A | | NYOW-01-PH024-B | | NYOW-01-SL025-A | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | | 2021-04-02 | | 2021-04-02 | | 2021-04-07 | | 2021-04-07 | | 2021-04-13 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.015 | QAPP Appendix A.1 - Soil | mg/kg | 0.15 | U | 0.16 | U | 0.16 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.16 | UJ |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 78 | EPA Ecological SSLs | mg/kg | 0.15 | J | 0.093 | U | 0.18 | | 0.19 | J+ | 0.13 | J | 0.19 | J+ | 0.1 | J | 0.16 | J+ | 0.11 | J |
| Arsenic | 7440-38-2 | 6.8 | EPA Region 4 Soil | mg/kg | 4.5 | | 2.1 | | 4.7 | | 4.9 | | 4.7 | | 4.2 | | 4 | | 4.3 | | 8.7 | |
| Barium | 7440-39-3 | 330 | EPA Ecological SSLs | mg/kg | 51 | | 35 | | 61 | | 260 | | 40 | | 35 | | 37 | | 37 | | 61 | |
| Beryllium | 7440-41-7 | 40 | EPA Ecological SSLs | mg/kg | 0.43 | J+ | 0.51 | J+ | 0.53 | J+ | 0.12 | U | 0.46 | J+ | 0.44 | J+ | 0.6 | J+ | 0.5 | J+ | 0.55 | J+ |
| Cadmium | 7440-43-9 | 140 | EPA Ecological SSLs | mg/kg | 0.14 | | 0.058 | J | 0.65 | | 0.34 | | 0.79 | | 0.079 | J | 0.058 | J | 0.11 | | 0.053 | J |
| Chromium | 7440-47-3 | 0.34 | EPA Region 4 Soil | mg/kg | 7.9 | | 4.6 | | 9.3 | | 6.7 | | 7.2 | | 7.9 | J- | 5.4 | | 6.9 | | 6.5 | |
| Copper | 7440-50-8 | 80 | EPA Ecological SSLs | mg/kg | 20 | | 7.2 | | 24 | | 11 | | 28 | | 39 | J- | 13 | | 14 | | 22 | |
| Lead | 7439-92-1 | 1700 | EPA Ecological SSLs | mg/kg | 12 | | 3.8 | | 30 | | 6.9 | | 7.2 | | 7.3 | J- | 5.9 | | 6.4 | | 11 | |
| Manganese | 7439-96-5 | 450 | EPA Ecological SSLs | mg/kg | 590 | J | 230 | | 500 | | 7000 | | 620 | | 510 | | 450 | | 420 | | 510 | |
| Mercury | 7439-97-6 | 0.05 | EPA Region 4 Soil | mg/kg | 0.032 | | 0.048 | | 0.046 | | 0.032 | | 0.017 | J | 0.022 | | 0.018 | U | 0.026 | | 0.013 | J |
| Nickel | 7440-02-0 | 280 | EPA Ecological SSLs | mg/kg | 9.3 | | 4.9 | | 12 | | 7.2 | | 8.8 | | 12 | J- | 7.1 | | 7.7 | | 11 | |
| Selenium | 7782-49-2 | 4.1 | EPA Ecological SSLs | mg/kg | 0.53 | J+ | 0.44 | U | 0.44 | J+ | 0.41 | J+ | 0.56 | J+ | 0.45 | J+ | 0.45 | J+ | 0.45 | J+ | 0.4 | U |
| Zinc | 7440-66-6 | 120 | EPA Ecological SSLs | mg/kg | 28 | J | 81 | | 27 | | 110 | | 44 | | 31 | J- | 41 | | 26 | | 29 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.2-1
Soil Invertebrate Sample by Sample Screening - AOC 1, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-026 | | NYOW-01-027 | | NYOW-01-028 | | NYOW-01-029 | | NYOW-01-030 | | NYOW-01-031 | | NYOW-01-032 | | NYOW-01-033 | | NYOW-01-034 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL026-A | | NYOW-01-SL027-A | | NYOW-01-SL028-A | | NYOW-01-SL029-A | | NYOW-01-SL030-A | | NYOW-01-SL031-A | | NYOW-01-SL032-A | | NYOW-01-SL033-A | | NYOW-01-SL034-A | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-14 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.015 | QAPP Appendix A.1 - Soil | mg/kg | 0.23 | J+ | 0.16 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 78 | EPA Ecological SSLs | mg/kg | 0.34 | | 0.11 | J | 0.56 | | 0.18 | J | 0.16 | J | 0.42 | | 0.23 | | 0.17 | J | 0.41 | |
| Arsenic | 7440-38-2 | 6.8 | EPA Region 4 Soil | mg/kg | 3.3 | | 5 | | 5.1 | | 11 | | 4.5 | | 4.8 | | 7.1 | | 5.7 | | 3.7 | |
| Barium | 7440-39-3 | 330 | EPA Ecological SSLs | mg/kg | 83 | | 52 | | 120 | | 96 | | 58 | | 44 | | 58 | | 49 | | 41 | |
| Beryllium | 7440-41-7 | 40 | EPA Ecological SSLs | mg/kg | 0.87 | J+ | 0.47 | J+ | 0.63 | J+ | 0.51 | J+ | 0.47 | J+ | 0.45 | J+ | 0.55 | J+ | 0.51 | J+ | 0.52 | U |
| Cadmium | 7440-43-9 | 140 | EPA Ecological SSLs | mg/kg | 0.51 | | 0.2 | | 0.53 | | 0.29 | | 0.49 | | 0.23 | | 0.28 | | 0.26 | | 0.57 | |
| Chromium | 7440-47-3 | 0.34 | EPA Region 4 Soil | mg/kg | 10 | | 8.1 | | 18 | | 10 | | 9.8 | | 9.2 | | 9.8 | | 8.5 | | 18 | |
| Copper | 7440-50-8 | 80 | EPA Ecological SSLs | mg/kg | 20 | | 24 | | 24 | | 24 | | 21 | | 22 | | 33 | | 20 | | 19 | |
| Lead | 7439-92-1 | 1700 | EPA Ecological SSLs | mg/kg | 54 | | 14 | | 72 | | 26 | | 21 | | 18 | | 23 | | 17 | | 200 | |
| Manganese | 7439-96-5 | 450 | EPA Ecological SSLs | mg/kg | 950 | | 770 | | 550 | | 1000 | | 540 | | 760 | | 740 | | 680 | | 270 | |
| Mercury | 7439-97-6 | 0.05 | EPA Region 4 Soil | mg/kg | 0.26 | | 0.042 | | 0.76 | | 0.056 | | 0.053 | | 0.14 | | 0.052 | | 0.06 | | 0.096 | |
| Nickel | 7440-02-0 | 280 | EPA Ecological SSLs | mg/kg | 9.2 | | 12 | | 11 | | 13 | | 11 | | 13 | | 12 | | 12 | | 7.4 | |
| Selenium | 7782-49-2 | 4.1 | EPA Ecological SSLs | mg/kg | 0.85 | J+ | 0.43 | J+ | 0.7 | J+ | 0.6 | J+ | 0.51 | J+ | 0.43 | J+ | 0.56 | J+ | 0.45 | J+ | 0.61 | J+ |
| Zinc | 7440-66-6 | 120 | EPA Ecological SSLs | mg/kg | 170 | | 56 | | 120 | | 60 | | 85 | | 51 | | 75 | | 53 | | 110 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
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R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.2-1
Soil Invertebrate Sample by Sample Screening - AOC 1, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-035 | | NYOW-01-036 | | NYOW-01-037 | | NYOW-01-038 | | NYOW-01-039 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL035-A | | NYOW-01-SL036-A | | NYOW-01-SL037-A | | NYOW-01-SL038-A | | NYOW-01-SL039-A | |
| | | | | Sample Type: | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-14 | | 2021-04-14 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.015 | QAPP Appendix A.1 - Soil | mg/kg | 0.16 | U | 0.16 | UJ | 0.15 | U | 0.15 | U | 0.16 | U |
| Metals (Total) | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 78 | EPA Ecological SSLs | mg/kg | 0.24 | J | 0.31 | | 0.17 | J | 0.091 | J | 0.31 | |
| Arsenic | 7440-38-2 | 6.8 | EPA Region 4 Soil | mg/kg | 7.8 | | 5.6 | | 3.6 | | 4.7 | | 4.1 | |
| Barium | 7440-39-3 | 330 | EPA Ecological SSLs | mg/kg | 67 | | 62 | | 42 | | 37 | | 40 | |
| Beryllium | 7440-41-7 | 40 | EPA Ecological SSLs | mg/kg | 0.57 | J+ | 0.58 | J+ | 0.67 | J+ | 0.5 | J+ | 0.67 | U |
| Cadmium | 7440-43-9 | 140 | EPA Ecological SSLs | mg/kg | 0.37 | | 0.25 | | 0.45 | | 0.14 | | 0.16 | |
| Chromium | 7440-47-3 | 0.34 | EPA Region 4 Soil | mg/kg | 9.2 | | 14 | | 7.6 | | 6.3 | | 11 | J |
| Copper | 7440-50-8 | 80 | EPA Ecological SSLs | mg/kg | 32 | | 33 | | 21 | | 14 | | 19 | |
| Lead | 7439-92-1 | 1700 | EPA Ecological SSLs | mg/kg | 31 | | 44 | | 21 | | 6.8 | | 39 | |
| Manganese | 7439-96-5 | 450 | EPA Ecological SSLs | mg/kg | 1000 | | 830 | | 640 | | 470 | | 410 | |
| Mercury | 7439-97-6 | 0.05 | EPA Region 4 Soil | mg/kg | 0.078 | | 0.085 | | 0.062 | | 0.022 | | 0.037 | |
| Nickel | 7440-02-0 | 280 | EPA Ecological SSLs | mg/kg | 12 | | 13 | | 11 | | 9 | | 8.4 | |
| Selenium | 7782-49-2 | 4.1 | EPA Ecological SSLs | mg/kg | 0.49 | J+ | 0.54 | J+ | 0.59 | J+ | 0.55 | J+ | 0.45 | J+ |
| Zinc | 7440-66-6 | 120 | EPA Ecological SSLs | mg/kg | 64 | | 55 | | 87 | | 39 | | 39 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.2-2
Soil Invertebrate Sample by Sample Screening - AOC 3, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | SL | SL Reference | Units | Sample Location: | NYOW-03-001 | NYOW-03-001 | NYOW-03-002 | NYOW-03-002 | NYOW-03-003 | NYOW-03-003 | NYOW-03-004 | NYOW-03-004 | NYOW-03-005 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Sample Name: | NYOW-03-SL001-A | NYOW-03-PH001-B | NYOW-03-SL002-A | NYOW-03-PH002-B | NYOW-03-SL003-A | NYOW-03-PH003-B | NYOW-03-SL004-A | NYOW-03-PH004-B | NYOW-03-SL005-A |
| | | | | | Sample Type: | N | N | N | N | N | N | N | N | N |
| | | | | | Sample Depth (feet): | 0 - 1 | 1 - 5 | 0 - 1 | 1 - 5 | 0 - 1 | 1 - 5 | 0 - 1 | 1 - 5 | 0 - 1 |
| | | | | | Sample Date: | 2021-03-31 | 2021-03-31 | 2021-03-31 | 2021-03-31 | 2021-03-31 | 2021-03-31 | 2021-03-31 | 2021-03-31 | 2021-04-01 |
| | | | | | | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier |
| **Volatile Organic Compounds (VOCs)** | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 1 | EPA Region 4 Soil | mg/kg | -- -- | 0.012 U | -- -- | 0.012 U | -- -- | 0.013 U | -- -- | 0.013 U | -- -- | |
| Acetone | 67-64-1 | 0.04 | EPA Region 4 Soil | mg/kg | -- -- | 0.065 U | -- -- | 0.069 U | -- -- | 0.075 U | -- -- | 0.072 U | -- -- | |
| Cumene | 98-82-8 | 0.04 | EPA Region 4 Soil | mg/kg | -- -- | 0.0045 U | -- -- | 0.0048 U | -- -- | 0.0052 U | -- -- | 0.005 U | -- -- | |
| Toluene | 108-88-3 | 0.15 | EPA Region 4 Soil | mg/kg | -- -- | 0.00072 U | -- -- | 0.00076 U | -- -- | 0.00083 U | -- -- | 0.0008 U | -- -- | |
| **Semi-Volatile Organic Compounds (SVOCs)** | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 0.002 | EPA Region 4 Soil | mg/kg | 0.45 J+ | 0.21 UJ | 0.22 UJ | 0.2 UJ | 0.22 UJ | 0.21 UJ | 0.49 J+ | 0.22 UJ | 0.21 UJ | |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | 8.4 | EPA Region 4 Soil | mg/kg | 0.091 U | 0.082 U | 0.088 U | 0.08 U | 0.085 U | 0.083 U | 0.099 UJ | 0.086 UJ | 0.083 UJ | |
| Carbazole | 86-74-8 | 0.07 | EPA Region 4 Soil | mg/kg | 0.091 U | 0.082 U | 0.088 U | 0.08 U | 0.085 U | 0.083 U | 0.099 UJ | 0.086 UJ | 0.083 UJ | |
| Cresols, m- & p- | cresols-m,p | 0.08 | EPA Region 4 Soil | mg/kg | 0.091 U | 0.082 U | 0.088 U | 0.08 U | 0.085 U | 0.083 U | 0.099 U | 0.086 U | 0.083 U | |
| Dibenzofuran | 132-64-9 | 0.15 | EPA Region 4 Soil | mg/kg | 0.091 U | 0.082 U | 0.088 U | 0.08 U | 0.085 U | 0.083 U | 0.099 UJ | 0.086 UJ | 0.083 UJ | |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 18 | EPA Ecological SSLs | mg/kg | 0.18 | 0.062 U | 0.26 | 0.06 U | 0.04 | 0.062 U | 0.17 | 0.06 U | 2.2 | |
| Low Molecular Weight PAHs | N/A | 29 | EPA Ecological SSLs | mg/kg | 0.071 | 0.032 U | 0.11 | 0.022 | 0.021 | 0.032 U | 0.1 | 0.031 U | 1.1 | |
| **Polychlorinated Biphenyls (PCBs)** | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.33 | EPA Region 4 Soil | mg/kg | -- -- | -- -- | -- -- | -- -- | -- -- | -- -- | -- -- | -- -- | 0.0082 UJ | |
| **Metals (Total)** | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 78 | EPA Ecological SSLs | mg/kg | 0.14 J | 0.09 U | 0.14 J | 0.097 U | 0.11 U | 0.17 J+ | 0.21 J | 0.18 J+ | 0.13 J | |
| Arsenic | 7440-38-2 | 6.8 | EPA Region 4 Soil | mg/kg | 3 | 1.6 | 2 | 2.4 | 2.1 | 2.1 | 2.4 J | 2.4 | 3.9 | |
| Beryllium | 7440-41-7 | 40 | EPA Ecological SSLs | mg/kg | 0.49 J+ | 0.12 J | 0.64 J+ | 0.26 J | 0.58 J+ | 0.25 J | 0.62 J+ | 0.18 J | 0.48 J+ | |
| Cadmium | 7440-43-9 | 140 | EPA Ecological SSLs | mg/kg | 0.15 | 0.038 J | 0.17 | 0.065 J | 0.087 J | 0.058 J | 0.15 J | 0.053 J | 0.099 | |
| Copper | 7440-50-8 | 80 | EPA Ecological SSLs | mg/kg | 3.8 J | 5.8 | 4 J | 7.8 | 4.3 J | 9.4 | 4.4 J | 9.2 | 11 | |
| Lead | 7439-92-1 | 1700 | EPA Ecological SSLs | mg/kg | 9.9 J+ | 3.3 J+ | 9.9 J+ | 2.7 J+ | 7.1 J+ | 3.5 J+ | 13 J- | 2.8 | 11 | |
| Manganese | 7439-96-5 | 450 | EPA Ecological SSLs | mg/kg | 48 | 69 | 93 | 220 | 48 | 330 | 65 J- | 560 | 480 J | |
| Mercury | 7439-97-6 | 0.05 | EPA Region 4 Soil | mg/kg | 0.048 | 0.037 | 0.049 | 0.011 J | 0.047 | 0.018 U | 0.088 | 0.009 J | 0.034 | |
| Nickel | 7440-02-0 | 280 | EPA Ecological SSLs | mg/kg | 1.4 J | 7.7 | 2.9 J | 6.4 | 3.3 J | 8.6 | 3.3 J | 7.1 | 8.7 | |
| Selenium | 7782-49-2 | 4.1 | EPA Ecological SSLs | mg/kg | 0.3 J | 0.51 J+ | 0.38 J | 0.43 J+ | 0.36 J | 0.44 U | 0.61 J | 0.43 U | 0.25 J | |
| Zinc | 7440-66-6 | 120 | EPA Ecological SSLs | mg/kg | 12 | 19 | 21 | 17 | 22 | 22 | 23 | 20 | 24 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
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SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.2-2
Soil Invertebrate Sample by Sample Screening - AOC 3, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | SL | SL Reference | Units | Sample Location: | NYOW-03-005 | NYOW-03-005 | NYOW-03-006 | NYOW-03-006 | NYOW-03-006 | NYOW-03-007 | NYOW-03-007 | NYOW-03-007 | NYOW-03-008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Sample Name: | NYOW-03-PH005-B | NYOW-03-PH005-B_R | NYOW-03-SL006-A | NYOW-03-PH006-B | NYOW-03-PH006-B_R | NYOW-03-SL007-A | NYOW-03-PH007-B | NYOW-03-PH007-B_R | NYOW-03-SL008-A |
| | | | | | Sample Type: | C | N | C | N | C | N | N | N | N |
| | | | | | Sample Depth (feet): | 1 - 5 | 1 - 5 | 0 - 1 | 1 - 5 | 1 - 5 | 0 - 1 | 1 - 5 | 1 - 5 | 0 - 1 |
| | | | | | Sample Date: | 2021-04-01 | 2021-05-04 | 2021-04-01 | 2021-04-01 | 2021-05-04 | 2021-04-01 | 2021-04-01 | 2021-05-04 | 2021-04-05 |
| | | | | | | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier |
| **Volatile Organic Compounds (VOCs)** | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 1 | EPA Region 4 Soil | mg/kg | -- | -- | 0.012 UJ | -- | -- | -- | 0.005 J- | -- | -- | -- | -- | 0.011 UJ | -- | -- |
| Acetone | 67-64-1 | 0.04 | EPA Region 4 Soil | mg/kg | -- | -- | 0.083 | -- | -- | -- | 0.077 J | -- | -- | -- | -- | 0.064 U | -- | -- |
| Cumene | 98-82-8 | 0.04 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0048 U | -- | -- | -- | 0.0051 U | -- | -- | -- | -- | 0.0045 U | -- | -- |
| Toluene | 108-88-3 | 0.15 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0048 J+ | -- | -- | -- | 0.0051 J+ | -- | -- | -- | -- | 0.00072 U | -- | -- |
| **Semi-Volatile Organic Compounds (SVOCs)** | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 0.002 | EPA Region 4 Soil | mg/kg | 0.22 | U | 0.2 UJ | 0.49 | J+ | 0.21 U | 0.42 | J+ | 0.2 U | 0.21 U | 0.2 U | | R |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | 8.4 | EPA Region 4 Soil | mg/kg | 0.086 | U | 0.078 UJ | 0.082 | UJ | 0.084 U | 0.085 | UJ | 0.079 U | 0.083 U | 0.078 UJ | | R |
| Carbazole | 86-74-8 | 0.07 | EPA Region 4 Soil | mg/kg | 0.086 | U | 0.078 UJ | 0.082 | UJ | 0.084 U | 0.085 | U | 0.045 J | 0.083 U | 0.078 U | | R |
| Cresols, m- & p- | cresols-m,p | 0.08 | EPA Region 4 Soil | mg/kg | 0.086 | U | 0.078 U | 0.082 | UJ | 0.084 U | 0.085 | U | 0.079 U | 0.083 U | 0.078 U | | R |
| Dibenzofuran | 132-64-9 | 0.15 | EPA Region 4 Soil | mg/kg | 0.086 | U | 0.078 UJ | 0.082 | UJ | 0.084 U | 0.085 | U | 0.079 U | 0.083 U | 0.078 U | | R |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 18 | EPA Ecological SSLs | mg/kg | 8 | | -- -- | 0.29 | | 0.065 U | -- | -- | 17 | 0.13 | -- | -- | 32 | |
| Low Molecular Weight PAHs | N/A | 29 | EPA Ecological SSLs | mg/kg | 0.4 | | -- -- | 0.094 | | 0.034 U | -- | -- | 6 | 0.064 | -- | -- | 19 | |
| **Polychlorinated Biphenyls (PCBs)** | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.33 | EPA Region 4 Soil | mg/kg | 0.086 | J+ | -- -- | 0.0078 | UJ | 0.0086 UJ | -- | -- | 0.0077 UJ | 0.0083 UJ | -- | -- | 0.069 | J+ |
| **Metals (Total)** | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 78 | EPA Ecological SSLs | mg/kg | 0.2 | J+ | -- -- | 0.11 | J | 0.24 J+ | -- | -- | 0.36 | 0.2 J+ | -- | -- | 0.31 | |
| Arsenic | 7440-38-2 | 6.8 | EPA Region 4 Soil | mg/kg | 5.7 | | -- -- | 3.1 | | 5.9 | -- | -- | 4.4 | 4.3 | -- | -- | 4.3 | |
| Beryllium | 7440-41-7 | 40 | EPA Ecological SSLs | mg/kg | 0.25 | J | -- -- | 0.53 | J+ | 0.47 J | -- | -- | 0.54 J+ | 0.35 J | -- | -- | 0.47 | J+ |
| Cadmium | 7440-43-9 | 140 | EPA Ecological SSLs | mg/kg | 0.13 | | -- -- | 0.35 | J | 0.092 J | -- | -- | 0.26 | 0.064 J | -- | -- | 0.27 | |
| Copper | 7440-50-8 | 80 | EPA Ecological SSLs | mg/kg | 9.2 | | -- -- | 12 | | 20 | -- | -- | 26 | 20 | -- | -- | 13 | |
| Lead | 7439-92-1 | 1700 | EPA Ecological SSLs | mg/kg | 16 | | -- -- | 23 | | 25 | -- | -- | 54 | 25 | -- | -- | 3.4 | |
| Manganese | 7439-96-5 | 450 | EPA Ecological SSLs | mg/kg | 210 | J | -- -- | 550 | J | 500 J | -- | -- | 480 J | 520 J | -- | -- | 400 | |
| Mercury | 7439-97-6 | 0.05 | EPA Region 4 Soil | mg/kg | 0.037 | | -- -- | 0.061 | | 0.032 | -- | -- | 0.16 | 0.039 | -- | -- | 0.05 | |
| Nickel | 7440-02-0 | 280 | EPA Ecological SSLs | mg/kg | 7.5 | | -- -- | 13 | | 20 | -- | -- | 18 | 17 | -- | -- | 10 | |
| Selenium | 7782-49-2 | 4.1 | EPA Ecological SSLs | mg/kg | 0.46 | J+ | -- -- | 0.35 | J | 0.6 J+ | -- | -- | 0.29 J | 0.53 J+ | -- | -- | 0.2 | J |
| Zinc | 7440-66-6 | 120 | EPA Ecological SSLs | mg/kg | 34 | | -- -- | 56 | | 41 | -- | -- | 81 | 34 | -- | -- | 60 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.2-2
Soil Invertebrate Sample by Sample Screening - AOC 3, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | SL | SL Reference | Units | Sample Location: | NYOW-03-008 | NYOW-03-008 | NYOW-03-008 | NYOW-03-009 | NYOW-03-009 | NYOW-03-009 | NYOW-03-009 | NYOW-03-010 | NYOW-03-010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Sample Name: | NYOW-03-SL008-A_R | NYOW-03-PH008-B | NYOW-03-PH008-B_R | NYOW-03-SL009-A | NYOW-03-SL009-A_R | NYOW-03-PH009-B | NYOW-03-PH009-B_R | NYOW-03-SL010-A | NYOW-03-PH010-B |
| | | | | | Sample Type: | C | N | N | N | N | N | N | N | N |
| | | | | | Sample Depth (feet): | 0 - 1 | 1 - 5 | 1 - 5 | 0 - 1 | 0 - 1 | 1 - 5 | 1 - 5 | 0 - 1 | 1 - 5 |
| | | | | | Sample Date: | 2021-05-04 | 2021-04-05 | 2021-05-04 | 2021-04-05 | 2021-05-04 | 2021-04-05 | 2021-05-04 | 2021-03-31 | 2021-03-31 |
| | | | | | | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier |
| **Volatile Organic Compounds (VOCs)** | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 1 | EPA Region 4 Soil | mg/kg | -- -- | 0.013 U | -- -- | -- -- | -- -- | 0.013 U | -- -- | -- -- | -- -- | 0.0077 J |
| Acetone | 67-64-1 | 0.04 | EPA Region 4 Soil | mg/kg | -- -- | 0.075 UJ | -- -- | -- -- | -- -- | 0.071 UJ | -- -- | -- -- | -- -- | 0.036 J |
| Cumene | 98-82-8 | 0.04 | EPA Region 4 Soil | mg/kg | -- -- | 0.0052 U | -- -- | -- -- | -- -- | 0.0049 U | -- -- | -- -- | -- -- | 0.0059 |
| Toluene | 108-88-3 | 0.15 | EPA Region 4 Soil | mg/kg | -- -- | 0.00084 U | -- -- | -- -- | -- -- | 0.00079 U | -- -- | -- -- | -- -- | 0.00077 U |
| **Semi-Volatile Organic Compounds (SVOCs)** | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 0.002 | EPA Region 4 Soil | mg/kg | 0.2 U | R | 0.2 UJ | R | 0.24 U | R | 0.2 U | 0.21 UJ | 0.19 UJ | |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | 8.4 | EPA Region 4 Soil | mg/kg | 0.14 J | R | 0.08 UJ | R | 0.093 U | R | 0.08 U | 0.083 U | 0.075 U | |
| Carbazole | 86-74-8 | 0.07 | EPA Region 4 Soil | mg/kg | 0.077 U | R | 0.08 UJ | R | 0.093 U | R | 0.08 U | 0.083 U | 0.075 U | |
| Cresols, m- & p- | cresols-m,p | 0.08 | EPA Region 4 Soil | mg/kg | 0.077 U | R | 0.08 UJ | R | 0.093 U | R | 0.08 U | 0.083 U | 0.075 U | |
| Dibenzofuran | 132-64-9 | 0.15 | EPA Region 4 Soil | mg/kg | 0.077 U | R | 0.08 UJ | R | 0.093 U | R | 0.08 U | 0.083 U | 0.075 U | |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 18 | EPA Ecological SSLs | mg/kg | -- -- | 0.12 | -- -- | 1.2 | -- -- | 0.059 U | -- -- | 5.9 | 1.1 U | |
| Low Molecular Weight PAHs | N/A | 29 | EPA Ecological SSLs | mg/kg | -- -- | 0.079 | -- -- | 0.7 | -- -- | 0.041 U | -- -- | 2.4 | 0.6 U | |
| **Polychlorinated Biphenyls (PCBs)** | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.33 | EPA Region 4 Soil | mg/kg | -- -- | 0.0073 U | -- -- | 0.0084 U | -- -- | 0.0079 U | -- -- | 0.079 J+ | 0.0075 U | |
| **Metals (Total)** | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 78 | EPA Ecological SSLs | mg/kg | -- -- | 0.16 J+ | -- -- | 0.17 J | -- -- | 0.2 J+ | -- -- | 0.19 J | 0.16 J+ | |
| Arsenic | 7440-38-2 | 6.8 | EPA Region 4 Soil | mg/kg | -- -- | 1.9 | -- -- | 2.3 | -- -- | 2.6 | -- -- | 2.5 | 2.4 | |
| Beryllium | 7440-41-7 | 40 | EPA Ecological SSLs | mg/kg | -- -- | 0.23 J- | -- -- | 0.61 J+ | -- -- | 0.34 J | -- -- | 0.46 J+ | 0.28 J | |
| Cadmium | 7440-43-9 | 140 | EPA Ecological SSLs | mg/kg | -- -- | 0.083 J | -- -- | 0.22 | -- -- | 0.051 J | -- -- | 0.15 | 0.087 J | |
| Copper | 7440-50-8 | 80 | EPA Ecological SSLs | mg/kg | -- -- | 6.4 J- | -- -- | 4.9 J- | -- -- | 11 | -- -- | 12 | 7.6 | |
| Lead | 7439-92-1 | 1700 | EPA Ecological SSLs | mg/kg | -- -- | 6.5 J- | -- -- | 7.6 J- | -- -- | 4.3 | -- -- | 21 J+ | 8.3 J+ | |
| Manganese | 7439-96-5 | 450 | EPA Ecological SSLs | mg/kg | -- -- | 160 J- | -- -- | 120 J+ | -- -- | 380 | -- -- | 340 | 320 | |
| Mercury | 7439-97-6 | 0.05 | EPA Region 4 Soil | mg/kg | -- -- | 0.023 | -- -- | 0.058 | -- -- | 0.024 | -- -- | 0.04 | 0.034 | |
| Nickel | 7440-02-0 | 280 | EPA Ecological SSLs | mg/kg | -- -- | 6.7 J- | -- -- | 5.4 J- | -- -- | 9.9 | -- -- | 9.5 | 10 | |
| Selenium | 7782-49-2 | 4.1 | EPA Ecological SSLs | mg/kg | -- -- | 0.45 J+ | -- -- | 0.36 J | -- -- | 0.58 J+ | -- -- | 0.23 J | 0.52 J+ | |
| Zinc | 7440-66-6 | 120 | EPA Ecological SSLs | mg/kg | -- -- | 25 J- | -- -- | 22 J | -- -- | 21 | -- -- | 36 | 25 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.2-2
Soil Invertebrate Sample by Sample Screening - AOC 3, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| Analyte | CASRN | SL | SL Reference | Units | Sample Location: | NYOW-03-011 | NYOW-03-011 | NYOW-03-012 | NYOW-03-012 | NYOW-03-013 | NYOW-03-013 | NYOW-03-013 | NYOW-03-013 | NYOW-03-013 | NYOW-03-014 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Sample Name: | NYOW-03-SL011-A | NYOW-03-PH011-B | NYOW-03-SL012-A | NYOW-03-PH012-B | NYOW-03-SL013-A | NYOW-03-SL013-A_R | NYOW-03-PH013-B | NYOW-03-PH013-B_R | NYOW-03-SL014-A | |
| | | | | | Sample Type: | N | N | N | C | C | N | N | N | N | |
| | | | | | Sample Depth (feet): | 0 - 1 | 1 - 5 | 0 - 1 | 1 - 5 | 0 - 1 | 0 - 1 | 1 - 5 | 1 - 5 | 0 - 1 | |
| | | | | | Sample Date: | 2021-03-31 | 2021-03-31 | 2021-03-31 | 2021-03-31 | 2021-04-05 | 2021-05-04 | 2021-04-05 | 2021-05-04 | 2021-04-05 | |
| | | | | | | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | Result / Qualifier | |
| **Volatile Organic Compounds (VOCs)** | | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 1 | EPA Region 4 Soil | mg/kg | -- | -- | 0.015 U | -- | -- | 0.013 U | -- | -- | -- | -- | 0.013 U | -- | -- | -- | -- |
| Acetone | 67-64-1 | 0.04 | EPA Region 4 Soil | mg/kg | -- | -- | 0.083 U | -- | -- | 0.075 U | -- | -- | -- | -- | 0.073 UJ | -- | -- | -- | -- |
| Cumene | 98-82-8 | 0.04 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0058 U | -- | -- | 0.0052 U | -- | -- | -- | -- | 0.0051 U | -- | -- | -- | -- |
| Toluene | 108-88-3 | 0.15 | EPA Region 4 Soil | mg/kg | -- | -- | 0.00093 U | -- | -- | 0.00084 U | -- | -- | -- | -- | 0.00081 U | -- | -- | -- | -- |
| **Semi-Volatile Organic Compounds (SVOCs)** | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 0.002 | EPA Region 4 Soil | mg/kg | 0.22 | UJ | 0.2 UJ | 0.39 | J+ | 0.18 UJ | | R | 0.21 U | | R | 0.2 UJ | | R |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | 8.4 | EPA Region 4 Soil | mg/kg | 0.086 | U | 0.079 U | 0.079 | UJ | 0.071 U | | R | 0.082 U | | R | 0.079 UJ | | R |
| Carbazole | 86-74-8 | 0.07 | EPA Region 4 Soil | mg/kg | 0.55 | | 0.079 U | 0.12 | J- | 0.071 U | | R | 0.082 U | | R | 0.079 UJ | | R |
| Cresols, m- & p- | cresols-m,p | 0.08 | EPA Region 4 Soil | mg/kg | 0.086 | U | 0.079 U | 0.39 | J+ | 0.071 U | | R | 0.082 U | | R | 0.079 U | | R |
| Dibenzofuran | 132-64-9 | 0.15 | EPA Region 4 Soil | mg/kg | 0.42 | J+ | 0.079 U | 0.39 | J+ | 0.071 U | | R | 0.082 U | | R | 0.079 UJ | | R |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 18 | EPA Ecological SSLs | mg/kg | 3.3 | | 0.27 | 5.8 | | 0.49 | 0.54 | | -- | -- | 0.064 U | -- | -- | 2.2 | |
| Low Molecular Weight PAHs | N/A | 29 | EPA Ecological SSLs | mg/kg | 1.3 | | 0.1 | 3 | | 0.36 | 0.16 | | -- | -- | 0.044 U | -- | -- | 1 | |
| **Polychlorinated Biphenyls (PCBs)** | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.33 | EPA Region 4 Soil | mg/kg | 0.0089 | U | 0.074 J+ | 0.0077 | U | 0.0072 U | 0.078 | J+ | -- | -- | 0.0078 U | -- | -- | 0.007 | U |
| **Metals (Total)** | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 78 | EPA Ecological SSLs | mg/kg | 0.16 | J | 0.22 J+ | 0.18 | J | 0.15 J+ | 0.095 | J | -- | -- | 0.2 J+ | -- | -- | 0.13 | J |
| Arsenic | 7440-38-2 | 6.8 | EPA Region 4 Soil | mg/kg | 2.4 | | 4.8 | 2.8 | | 3 | 2.3 | | -- | -- | 2.2 | -- | -- | 2.7 | |
| Beryllium | 7440-41-7 | 40 | EPA Ecological SSLs | mg/kg | 0.56 | J+ | 0.48 | 0.43 | J+ | 0.4 J | 0.45 | J+ | -- | -- | 0.31 J | -- | -- | 0.49 | J+ |
| Cadmium | 7440-43-9 | 140 | EPA Ecological SSLs | mg/kg | 0.2 | | 0.035 J | 0.3 | | 0.089 J | 0.053 | J | -- | -- | 0.081 J | -- | -- | 0.22 | |
| Copper | 7440-50-8 | 80 | EPA Ecological SSLs | mg/kg | 13 | | 29 | 18 | | 18 | 9.5 | | -- | -- | 8.9 | -- | -- | 19 | |
| Lead | 7439-92-1 | 1700 | EPA Ecological SSLs | mg/kg | 11 | J+ | 56 | 23 | | 38 J | 3.9 | | -- | -- | 4.7 | -- | -- | 18 | |
| Manganese | 7439-96-5 | 450 | EPA Ecological SSLs | mg/kg | 370 | | 450 | 650 | | 440 | 350 | | -- | -- | 300 | -- | -- | 420 | |
| Mercury | 7439-97-6 | 0.05 | EPA Region 4 Soil | mg/kg | 0.033 | | 0.047 | 0.022 | J | 0.045 | 0.016 | J | -- | -- | 0.023 | -- | -- | 0.025 | |
| Nickel | 7440-02-0 | 280 | EPA Ecological SSLs | mg/kg | 9.2 | | 24 | 13 | | 17 | 7.9 | | -- | -- | 9.7 | -- | -- | 9.8 | |
| Selenium | 7782-49-2 | 4.1 | EPA Ecological SSLs | mg/kg | 0.24 | J | 0.54 J+ | 0.33 | J | 0.39 J+ | 0.15 | J | -- | -- | 0.52 J+ | -- | -- | 0.2 | J |
| Zinc | 7440-66-6 | 120 | EPA Ecological SSLs | mg/kg | 36 | | 18 | 44 | | 17 | 23 | | -- | -- | 23 | -- | -- | 55 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.2-2
Soil Invertebrate Sample by Sample Screening - AOC 3, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-03-014 | | NYOW-03-014 | | NYOW-03-014 | | NYOW-03-015 | | NYOW-03-015 | | NYOW-03-015 | | NYOW-03-015 | | NYOW-03-016 | | NYOW-03-016 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-03-SL014-A_R | | NYOW-03-PH014-B | | NYOW-03-PH014-B_R | | NYOW-03-SL015-A | | NYOW-03-SL015-A_R | | NYOW-03-PH015-B | | NYOW-03-PH015-B_R | | NYOW-03-SL016-A | | NYOW-03-PH016-B | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 1 - 5 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-05 | | 2021-05-04 | | 2021-04-01 | | 2021-04-01 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| **Volatile Organic Compounds (VOCs)** | | | | | | | | | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 1 | EPA Region 4 Soil | mg/kg | -- | -- | 0.013 | U | -- | -- | -- | -- | -- | -- | 0.013 | U | -- | -- | -- | -- | -- | -- |
| Acetone | 67-64-1 | 0.04 | EPA Region 4 Soil | mg/kg | -- | -- | 0.074 | UJ | -- | -- | -- | -- | -- | -- | 0.072 | UJ | -- | -- | -- | -- | -- | -- |
| Cumene | 98-82-8 | 0.04 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0051 | U | -- | -- | -- | -- | -- | -- | 0.005 | U | -- | -- | -- | -- | -- | -- |
| Toluene | 108-88-3 | 0.15 | EPA Region 4 Soil | mg/kg | -- | -- | 0.00082 | U | -- | -- | -- | -- | -- | -- | 0.0008 | U | -- | -- | -- | -- | -- | -- |
| **Semi-Volatile Organic Compounds (SVOCs)** | | | | | | | | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 0.002 | EPA Region 4 Soil | mg/kg | 0.2 | U | | R | 0.21 | U | | R | 0.47 | J+ | | R | 0.21 | UJ | 0.19 | U | 0.21 | U |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | 8.4 | EPA Region 4 Soil | mg/kg | 0.077 | U | | R | 0.082 | U | | R | 3.4 | J- | | R | 0.081 | UJ | 0.076 | U | 0.082 | U |
| Carbazole | 86-74-8 | 0.07 | EPA Region 4 Soil | mg/kg | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U | 0.082 | U |
| Cresols, m- & p- | cresols-m,p | 0.08 | EPA Region 4 Soil | mg/kg | 0.077 | U | | R | 0.082 | U | | R | 0.096 | U | | R | 0.081 | U | 0.076 | U | 0.082 | U |
| Dibenzofuran | 132-64-9 | 0.15 | EPA Region 4 Soil | mg/kg | 0.077 | U | | R | 0.082 | U | | R | 0.096 | UJ | | R | 0.081 | UJ | 0.076 | U | 0.082 | U |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 18 | EPA Ecological SSLs | mg/kg | -- | -- | 0.038 | | -- | -- | 39 | | -- | -- | 0.16 | | -- | -- | 0.42 | | 0.029 | |
| Low Molecular Weight PAHs | N/A | 29 | EPA Ecological SSLs | mg/kg | -- | -- | 0.025 | | -- | -- | 67 | | -- | -- | 0.066 | | -- | -- | 0.14 | | 0.015 | |
| **Polychlorinated Biphenyls (PCBs)** | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.33 | EPA Region 4 Soil | mg/kg | -- | -- | 0.0075 | U | -- | -- | 0.1 | J+ | -- | -- | 0.0082 | U | -- | -- | 0.0076 | UJ | 0.0081 | UJ |
| **Metals (Total)** | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 78 | EPA Ecological SSLs | mg/kg | -- | -- | 0.19 | J+ | -- | -- | 0.24 | J | -- | -- | 0.24 | J+ | -- | -- | 0.3 | | 0.17 | J+ |
| Arsenic | 7440-38-2 | 6.8 | EPA Region 4 Soil | mg/kg | -- | -- | 3 | | -- | -- | 3.8 | | -- | -- | 3.7 | | -- | -- | 3.6 | | 1.5 | |
| Beryllium | 7440-41-7 | 40 | EPA Ecological SSLs | mg/kg | -- | -- | 0.38 | J | -- | -- | 0.73 | J+ | -- | -- | 0.36 | J | -- | -- | 0.46 | J+ | 0.18 | J |
| Cadmium | 7440-43-9 | 140 | EPA Ecological SSLs | mg/kg | -- | -- | 0.083 | J | -- | -- | 0.49 | | -- | -- | 0.11 | | -- | -- | 0.55 | | 0.055 | J |
| Copper | 7440-50-8 | 80 | EPA Ecological SSLs | mg/kg | -- | -- | 13 | | -- | -- | 21 | | -- | -- | 9.8 | | -- | -- | 28 | | 6.8 | |
| Lead | 7439-92-1 | 1700 | EPA Ecological SSLs | mg/kg | -- | -- | 10 | | -- | -- | 28 | | -- | -- | 8.8 | | -- | -- | 38 | | 7.1 | |
| Manganese | 7439-96-5 | 450 | EPA Ecological SSLs | mg/kg | -- | -- | 420 | | -- | -- | 340 | | -- | -- | 370 | | -- | -- | 560 | J | 210 | J |
| Mercury | 7439-97-6 | 0.05 | EPA Region 4 Soil | mg/kg | -- | -- | 0.036 | | -- | -- | 0.059 | | -- | -- | 0.034 | | -- | -- | 0.045 | | 0.035 | |
| Nickel | 7440-02-0 | 280 | EPA Ecological SSLs | mg/kg | -- | -- | 10 | | -- | -- | 8.8 | | -- | -- | 9.8 | | -- | -- | 11 | | 6.5 | |
| Selenium | 7782-49-2 | 4.1 | EPA Ecological SSLs | mg/kg | -- | -- | 0.55 | J+ | -- | -- | 0.31 | J | -- | -- | 0.45 | J+ | -- | -- | 0.29 | J | 0.43 | J+ |
| Zinc | 7440-66-6 | 120 | EPA Ecological SSLs | mg/kg | -- | -- | 33 | | -- | -- | 85 | | -- | -- | 28 | | -- | -- | 50 | | 25 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.2-2
Soil Invertebrate Sample by Sample Screening - AOC 3, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-03-016 | | NYOW-03-017 | | NYOW-03-017 | | NYOW-03-018 | | NYOW-03-018 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-03-PH016-B_R | | NYOW-03-PH017-B | | NYOW-03-PH017-B_R | | NYOW-03-PH018-B | | NYOW-03-PH018-B_R | |
| | | | | Sample Type: | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | | 1 - 5 | |
| | | | | Sample Date: | 2021-05-04 | | 2021-04-01 | | 2021-05-04 | | 2021-04-01 | | 2021-05-04 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 1 | EPA Region 4 Soil | mg/kg | 0.0049 | J- | -- | -- | 0.0057 | J- | -- | -- | 0.03 | J- |
| Acetone | 67-64-1 | 0.04 | EPA Region 4 Soil | mg/kg | 0.099 | | -- | -- | 0.12 | | -- | -- | 0.32 | |
| Cumene | 98-82-8 | 0.04 | EPA Region 4 Soil | mg/kg | 0.0048 | U | -- | -- | 0.0046 | U | -- | -- | 0.0058 | U |
| Toluene | 108-88-3 | 0.15 | EPA Region 4 Soil | mg/kg | 0.0048 | J+ | -- | -- | 0.0046 | J+ | -- | -- | 0.00092 | U |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 0.002 | EPA Region 4 Soil | mg/kg | 0.2 | U | -- | -- | -- | -- | -- | -- | -- | -- |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | 8.4 | EPA Region 4 Soil | mg/kg | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbazole | 86-74-8 | 0.07 | EPA Region 4 Soil | mg/kg | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- |
| Cresols, m- & p- | cresols-m,p | 0.08 | EPA Region 4 Soil | mg/kg | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- |
| Dibenzofuran | 132-64-9 | 0.15 | EPA Region 4 Soil | mg/kg | 0.08 | U | -- | -- | -- | -- | -- | -- | -- | -- |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 18 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Low Molecular Weight PAHs | N/A | 29 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.33 | EPA Region 4 Soil | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals (Total) | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 78 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Arsenic | 7440-38-2 | 6.8 | EPA Region 4 Soil | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | 7440-41-7 | 40 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Cadmium | 7440-43-9 | 140 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Copper | 7440-50-8 | 80 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Lead | 7439-92-1 | 1700 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Manganese | 7439-96-5 | 450 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury | 7439-97-6 | 0.05 | EPA Region 4 Soil | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nickel | 7440-02-0 | 280 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Selenium | 7782-49-2 | 4.1 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Zinc | 7440-66-6 | 120 | EPA Ecological SSLs | mg/kg | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.2-3
Soil Invertebrate Sample by Sample Screening - AOC 5 (Boiler House, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-016 | | NYOW-05-016 | | NYOW-05-017-1 | | NYOW-05-017-1 | | NYOW-05-018 | | NYOW-05-018 | | NYOW-05-019 | | NYOW-05-019 | | NYOW-05-020 | | NYOW-05-020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL016-A | | NYOW-05-PH016-B | | NYOW-05-SL017-1-A | | NYOW-05-PH017-1-B | | NYOW-05-SL018-A | | NYOW-05-PH018-B | | NYOW-05-SL019-A | | NYOW-05-PH019-B | | NYOW-05-SL020-A | | NYOW-05-PH020-B | |
| | | | | Sample Type: | N | | N | | C | | C | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-11 | | 2021-01-11 | | 2021-01-11 | | 2021-01-11 | | 2021-01-08 | | 2021-01-08 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 18 | EPA Ecological SSLs | mg/kg | 0.26 | | 0.054 | U | 0.21 | | 0.055 | U | 0.063 | | 0.089 | | 0.091 | | 0.033 | | 0.071 | | 0.11 | |
| Low Molecular Weight PAHs | N/A | 29 | EPA Ecological SSLs | mg/kg | 0.14 | | 0.028 | U | 0.12 | | 0.028 | U | 0.027 | | 0.059 | | 0.058 | | 0.023 | | 0.046 | | 0.095 | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 78 | EPA Ecological SSLs | mg/kg | 0.2 | J+ | 0.19 | J+ | 0.17 | J+ | 0.18 | J+ | 0.22 | J+ | 0.16 | J+ | 0.16 | J+ | 0.16 | J+ | 0.18 | J+ | 0.21 | J+ |
| Arsenic | 7440-38-2 | 6.8 | EPA Region 4 Soil | mg/kg | 25 | | 12 | | 6.3 | | 4.6 | | 5.8 | | 9.5 | | 5.8 | | 6.5 | | 4.8 | | 5.1 | |
| Barium | 7440-39-3 | 330 | EPA Ecological SSLs | mg/kg | 53 | | 69 | | 56 | | 68 | | 53 | | 53 | | 41 | | 52 | | 49 | | 44 | |
| Beryllium | 7440-41-7 | 40 | EPA Ecological SSLs | mg/kg | 0.46 | J+ | 0.39 | J | 0.46 | J+ | 0.44 | J | 0.4 | J+ | 0.27 | J | 0.42 | J+ | 0.21 | J | 0.41 | J+ | 0.27 | J |
| Cadmium | 7440-43-9 | 140 | EPA Ecological SSLs | mg/kg | 0.038 | J | 0.025 | J | 0.066 | J | 0.063 | J | 0.09 | J | 0.14 | | 0.086 | | 0.039 | J | 0.055 | J | 0.083 | J |
| Chromium | 7440-47-3 | 0.34 | EPA Region 4 Soil | mg/kg | 8.8 | | 12 | | 7.5 | | 14 | | 7.4 | | 8.4 | | 7.2 | | 6.8 | | 7.9 | | 9.5 | |
| Copper | 7440-50-8 | 80 | EPA Ecological SSLs | mg/kg | 20 | | 16 | | 19 | | 17 | | 16 | | 17 | | 14 | | 22 | | 20 | | 17 | |
| Lead | 7439-92-1 | 1700 | EPA Ecological SSLs | mg/kg | 7.5 | | 5.5 | | 7.7 | | 7.5 | | 7.6 | | 7.8 | | 6.4 | | 6.3 | | 7.5 | | 28 | |
| Manganese | 7439-96-5 | 450 | EPA Ecological SSLs | mg/kg | 630 | | 390 | | 710 | | 480 | | 670 | | 670 | | 490 | | 750 | | 710 | | 480 | |
| Mercury | 7439-97-6 | 0.05 | EPA Region 4 Soil | mg/kg | 0.033 | | 0.015 | U | 0.021 | U | 0.016 | U | 0.0075 | J | 0.015 | U | 0.054 | | 0.015 | J | 0.014 | J | 0.048 | |
| Nickel | 7440-02-0 | 280 | EPA Ecological SSLs | mg/kg | 11 | | 16 | | 12 | | 18 | | 10 | | 11 | | 9.6 | | 11 | | 11 | | 14 | |
| Selenium | 7782-49-2 | 4.1 | EPA Ecological SSLs | mg/kg | 0.34 | U | 0.31 | U | 0.45 | J+ | 0.38 | U | 0.5 | J+ | 0.45 | J+ | 0.37 | J+ | 0.5 | J+ | 0.41 | J+ | 0.48 | J+ |
| Zinc | 7440-66-6 | 120 | EPA Ecological SSLs | mg/kg | 31 | | 31 | | 28 | | 37 | | 25 | | 26 | | 25 | | 22 | | 27 | | 150 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).

Table L.2-4
Soil Invertebrate Sample by Sample Screening - AOC 5 (Coal Aggregate Bins), Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-021 | | NYOW-05-021 | | NYOW-05-022 | | NYOW-05-022 | | NYOW-05-023 | | NYOW-05-023 | | NYOW-05-024 | | NYOW-05-024 | | NYOW-05-025 | | NYOW-05-025 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL021-A | | NYOW-05-PH021-B | | NYOW-05-SL022-A | | NYOW-05-PH022-B | | NYOW-05-SL023-A | | NYOW-05-PH023-B | | NYOW-05-SL024-A | | NYOW-05-PH024-B | | NYOW-05-SL025-A | | NYOW-05-PH025-B | |
| | | | | Sample Type: | N | | N | | N | | C | | C | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-11 | | 2021-01-11 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | |
| Dibenzofuran | 132-64-9 | 0.15 | EPA Region 4 Soil | mg/kg | -- | -- | 0.079 | U | -- | -- | 0.073 | U | -- | -- | 0.076 | U | -- | -- | 0.38 | J+ | -- | -- | 0.076 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 18 | EPA Ecological SSLs | mg/kg | 1.5 | | 0.12 | | 0.19 | | 0.056 | | 13 | | 0.21 | | 3 | | 0.076 | | 0.31 | | 0.051 | |
| Low Molecular Weight PAHs | N/A | 29 | EPA Ecological SSLs | mg/kg | 7.6 | | 0.11 | | 0.079 | | 0.03 | | 10 | | 0.13 | | 29 | | 0.39 | | 0.33 | | 0.024 | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 78 | EPA Ecological SSLs | mg/kg | 0.25 | | 0.21 | | 0.15 | J | 0.15 | | 0.33 | | 0.17 | J | 0.19 | J | 0.095 | J | 0.16 | J | 0.16 | J |
| Arsenic | 7440-38-2 | 6.8 | EPA Region 4 Soil | mg/kg | 10 | | 7.4 | | 5.4 | | 5.8 | | 13 | | 6.9 | | 16 | | 6.3 | | 4.6 | | 5.4 | |
| Barium | 7440-39-3 | 330 | EPA Ecological SSLs | mg/kg | 52 | | 78 | | 54 | J+ | 41 | | 37 | | 51 | | 27 | | 48 | | 34 | | 66 | |
| Beryllium | 7440-41-7 | 40 | EPA Ecological SSLs | mg/kg | 0.42 | J | 0.44 | J+ | 0.39 | J- | 0.39 | J+ | 0.29 | J | 0.47 | J+ | 0.63 | | 0.54 | J+ | 0.28 | J- | 2.3 | J+ |
| Cadmium | 7440-43-9 | 140 | EPA Ecological SSLs | mg/kg | 0.25 | | 0.25 | | 0.15 | | 0.14 | | 0.37 | | 0.21 | | 0.11 | J | 0.1 | | 0.1 | J | 0.11 | |
| Chromium | 7440-47-3 | 0.34 | EPA Region 4 Soil | mg/kg | 8.3 | | 9.9 | | 13 | J- | 7 | | 8.2 | | 7.7 | | 5.8 | | 8.6 | | 8.6 | J- | 11 | |
| Copper | 7440-50-8 | 80 | EPA Ecological SSLs | mg/kg | 20 | | 34 | | 22 | | 22 | | 17 | | 20 | | 10 | | 24 | | 14 | | 21 | |
| Lead | 7439-92-1 | 1700 | EPA Ecological SSLs | mg/kg | 21 | | 18 | | 8.6 | J- | 11 | J | 17 | | 15 | | 8.9 | | 8.8 | | 8.9 | J- | 11 | |
| Manganese | 7439-96-5 | 450 | EPA Ecological SSLs | mg/kg | 650 | | 2400 | | 660 | J | 920 | | 420 | | 910 | | 110 | | 820 | | 410 | J | 1100 | |
| Mercury | 7439-97-6 | 0.05 | EPA Region 4 Soil | mg/kg | 0.11 | | 0.084 | | 0.03 | | 0.032 | | 0.077 | | 0.076 | | 0.064 | | 0.033 | | 0.026 | | 0.051 | |
| Nickel | 7440-02-0 | 280 | EPA Ecological SSLs | mg/kg | 13 | | 14 | | 15 | | 9.4 | | 12 | | 10 | | 6.1 | | 11 | | 11 | J- | 14 | |
| Selenium | 7782-49-2 | 4.1 | EPA Ecological SSLs | mg/kg | 0.9 | | 0.54 | J+ | 0.22 | J | 0.46 | J+ | 0.65 | | 0.55 | J+ | 0.83 | | 0.43 | J+ | 0.31 | J | 0.42 | J+ |
| Zinc | 7440-66-6 | 120 | EPA Ecological SSLs | mg/kg | 55 | | 66 | | 36 | J- | 29 | | 54 | | 37 | | 16 | | 30 | | 34 | J- | 36 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).

Table L.2-5
Soil Invertebrate Sample by Sample Screening - AOC 5 (Coal Storage Area), Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-006 | | NYOW-05-006 | | NYOW-05-007 | | NYOW-05-007 | | NYOW-05-008 | | NYOW-05-008 | | NYOW-05-009 | | NYOW-05-009 | | NYOW-05-010 | | NYOW-05-010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL006-A | | NYOW-05-PH006-B | | NYOW-05-SL007-A | | NYOW-05-PH007-B | | NYOW-05-SL008-A | | NYOW-05-PH008-B | | NYOW-05-SL009-A | | NYOW-05-PH009-B | | NYOW-05-SL010-A | | NYOW-05-PH010-B | |
| | | | | Sample Type: | N | | N | | N | | C | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-08 | | 2021-01-08 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 18 | EPA Ecological SSLs | mg/kg | 1.9 | | 0.061 | U | 4.3 | | 0.051 | U | 4.1 | | 0.053 | U | 0.69 | | 0.058 | U | 0.41 | | 0.046 | |
| Low Molecular Weight PAHs | N/A | 29 | EPA Ecological SSLs | mg/kg | 22 | | 0.031 | U | 40 | | 0.019 | | 19 | | 0.037 | | 0.73 | | 0.03 | U | 0.32 | | 0.027 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 78 | EPA Ecological SSLs | mg/kg | 0.32 | | 0.17 | J+ | 0.24 | J | 0.17 | J+ | 0.46 | | 0.16 | J+ | 0.16 | J | 0.087 | U | 0.11 | UJ | 0.2 | J+ |
| Arsenic | 7440-38-2 | 6.8 | EPA Region 4 Soil | mg/kg | 24 | | 3.9 | | 19 | | 2.8 | | 12 | | 4 | | 9.7 | | 5.1 | | 4.5 | | 26 | |
| Barium | 7440-39-3 | 330 | EPA Ecological SSLs | mg/kg | 34 | | 46 | | 43 | | 39 | | 37 | | 36 | | 45 | | 37 | | 65 | | 110 | |
| Beryllium | 7440-41-7 | 40 | EPA Ecological SSLs | mg/kg | 0.68 | J+ | 0.43 | J+ | 0.75 | J+ | 0.46 | J+ | 0.59 | J+ | 0.42 | J+ | 0.67 | J+ | 0.5 | J+ | 0.47 | J+ | 0.53 | J+ |
| Cadmium | 7440-43-9 | 140 | EPA Ecological SSLs | mg/kg | 0.23 | | 0.17 | | 0.38 | | 0.029 | J | 0.21 | | 0.04 | J | 0.19 | | 0.038 | J | 0.11 | | 0.026 | J |
| Chromium | 7440-47-3 | 0.34 | EPA Region 4 Soil | mg/kg | 7.2 | | 7.2 | | 6 | | 6.5 | | 6.6 | | 8.9 | | 6 | | 5 | | 7.2 | | 7.3 | |
| Copper | 7440-50-8 | 80 | EPA Ecological SSLs | mg/kg | 22 | | 13 | | 22 | | 14 | | 9.8 | | 19 | | 7.4 | | 9.3 | | 5.3 | | 27 | |
| Lead | 7439-92-1 | 1700 | EPA Ecological SSLs | mg/kg | 21 | | 7.2 | | 18 | | 3 | | 18 | | 4.7 | | 13 | | 3.1 | | 4.2 | | 4.5 | |
| Manganese | 7439-96-5 | 450 | EPA Ecological SSLs | mg/kg | 320 | | 630 | | 270 | | 440 | | 110 | | 360 | | 330 | | 340 | | 400 | J- | 870 | |
| Mercury | 7439-97-6 | 0.05 | EPA Region 4 Soil | mg/kg | 0.086 | | 0.031 | | 0.093 | | 0.017 | U | 0.19 | | 0.015 | U | 0.1 | | 0.017 | U | 0.11 | | 0.016 | U |
| Nickel | 7440-02-0 | 280 | EPA Ecological SSLs | mg/kg | 13 | | 8.2 | | 9.2 | | 8.3 | | 4.9 | | 11 | | 5.4 | | 5.5 | | 5.7 | | 14 | |
| Selenium | 7782-49-2 | 4.1 | EPA Ecological SSLs | mg/kg | 1 | | 0.46 | J+ | 0.98 | | 0.36 | U | 1.5 | | 0.38 | U | 0.64 | J | 0.39 | U | 0.4 | J | 0.38 | U |
| Zinc | 7440-66-6 | 120 | EPA Ecological SSLs | mg/kg | 44 | | 24 | | 58 | | 19 | | 35 | | 23 | | 28 | | 15 | | 14 | | 27 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend
ND — Not detected at the LOD
Detect — Detected result
Detect — Detected result > SL

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).

Table L.2-6
Soil Invertebrate Sample by Sample Screening - AOC 5 (Electric Substation), Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-011 | | NYOW-05-011 | | NYOW-05-012 | | NYOW-05-012 | | NYOW-05-013 | | NYOW-05-013 | | NYOW-05-014 | | NYOW-05-014 | | NYOW-05-015 | | NYOW-05-015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL011-A | | NYOW-05-PH011-B | | NYOW-05-SL012-A | | NYOW-05-PH012-B | | NYOW-05-SL013-A | | NYOW-05-PH013-B | | NYOW-05-SL014-A | | NYOW-05-PH014-B | | NYOW-05-SL015-A | | NYOW-05-PH015-B | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 18 | EPA Ecological SSLs | mg/kg | 0.11 | | 0.023 | | 0.13 | | 0.027 | | 0.11 | | 0.1 | | 0.13 | | 0.024 | | 0.35 | | 0.072 | |
| Low Molecular Weight PAHs | N/A | 29 | EPA Ecological SSLs | mg/kg | 0.12 | | 0.023 | | 0.071 | | 0.032 | | 0.06 | | 0.068 | | 0.073 | | 0.03 | | 0.12 | | 0.056 | |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.33 | EPA Region 4 Soil | mg/kg | 0.0068 | U | -- | -- | 0.029 | J | -- | -- | 0.16 | | -- | -- | 0.013 | J | -- | -- | 0.0042 | J | -- | -- |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 78 | EPA Ecological SSLs | mg/kg | 0.19 | | 0.21 | J+ | 0.17 | | 0.17 | J+ | 0.096 | J | 0.21 | J+ | 0.13 | J | 0.18 | J+ | 0.12 | J | 0.21 | J+ |
| Arsenic | 7440-38-2 | 6.8 | EPA Region 4 Soil | mg/kg | 5.2 | | 4.4 | | 5.9 | | 5 | | 4.3 | | 5.5 | | 4.9 | | 4.9 | | 4.3 | | 4.8 | |
| Barium | 7440-39-3 | 330 | EPA Ecological SSLs | mg/kg | 62 | | 46 | | 66 | | 110 | | 43 | | 51 | | 51 | | 59 | | 48 | | 50 | |
| Beryllium | 7440-41-7 | 40 | EPA Ecological SSLs | mg/kg | 0.55 | J+ | 0.43 | J | 0.49 | J+ | 0.83 | | 0.47 | J+ | 0.27 | J | 0.57 | J+ | 0.47 | J | 0.57 | J+ | 0.35 | J |
| Cadmium | 7440-43-9 | 140 | EPA Ecological SSLs | mg/kg | 0.14 | | 0.078 | J | 0.14 | | 0.061 | J | 0.14 | | 0.38 | | 0.11 | | 0.054 | J | 0.39 | | 0.046 | J |
| Chromium | 7440-47-3 | 0.34 | EPA Region 4 Soil | mg/kg | 10 | | 14 | | 8.5 | | 25 | | 8.4 | | 8.3 | | 9.6 | | 15 | | 7.9 | | 10 | |
| Copper | 7440-50-8 | 80 | EPA Ecological SSLs | mg/kg | 25 | | 21 | | 24 | | 25 | | 16 | | 74 | | 21 | | 15 | | 16 | | 16 | |
| Lead | 7439-92-1 | 1700 | EPA Ecological SSLs | mg/kg | 12 | | 8.4 | | 24 | | 9.4 | | 7.9 | | 8.5 | | 13 | | 7.8 | | 7.6 | | 10 | |
| Manganese | 7439-96-5 | 450 | EPA Ecological SSLs | mg/kg | 1100 | | 760 | | 1200 | | 600 | | 590 | | 870 | | 660 | | 330 | | 630 | | 670 | |
| Mercury | 7439-97-6 | 0.05 | EPA Region 4 Soil | mg/kg | 0.085 | | 0.03 | | 0.23 | | 0.099 | | 0.029 | | 0.035 | | 0.026 | | 0.013 | J | 0.026 | | 0.024 | |
| Nickel | 7440-02-0 | 280 | EPA Ecological SSLs | mg/kg | 15 | | 20 | | 12 | | 29 | | 12 | | 12 | | 15 | | 16 | | 12 | | 13 | |
| Selenium | 7782-49-2 | 4.1 | EPA Ecological SSLs | mg/kg | 0.46 | J+ | 0.49 | J+ | 0.47 | J+ | 0.45 | J+ | 0.59 | J+ | 0.47 | J+ | 0.54 | J+ | 0.41 | J+ | 0.42 | J+ | 0.48 | J+ |
| Zinc | 7440-66-6 | 120 | EPA Ecological SSLs | mg/kg | 42 | | 35 | | 49 | | 56 | | 35 | | 42 | | 40 | | 35 | | 33 | | 29 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).

Table L.2-7
Soil Invertebrate Sample by Sample Screening - AOC 5 (Possible Dump Area), Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-001 | | NYOW-05-001 | | NYOW-05-002 | | NYOW-05-002 | | NYOW-05-003 | | NYOW-05-003 | | NYOW-05-004 | | NYOW-05-004 | | NYOW-05-005 | | NYOW-05-005 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL001-A | | NYOW-05-PH001-B | | NYOW-05-SL002-A | | NYOW-05-PH002-B | | NYOW-05-SL003-A | | NYOW-05-PH003-B | | NYOW-05-SL004-A | | NYOW-05-PH004-B | | NYOW-05-SL005-A | | NYOW-05-PH005-B | |
| | | | | Sample Type: | N | | N | | C | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 1 | EPA Region 4 Soil | mg/kg | -- | -- | 0.016 | J+ | -- | -- | 0.01 | U | -- | -- | 0.019 | J+ | -- | -- | 0.01 | U | -- | -- | 0.011 | U |
| Acetone | 67-64-1 | 0.04 | EPA Region 4 Soil | mg/kg | -- | -- | 0.069 | | -- | -- | 0.057 | U | -- | -- | 0.069 | U | -- | -- | 0.058 | U | -- | -- | 0.063 | U |
| Benzene | 71-43-2 | 0.12 | EPA Region 4 Soil | mg/kg | -- | -- | 0.00033 | U | -- | -- | 0.004 | J+ | -- | -- | 0.00038 | U | -- | -- | 0.00032 | U | -- | -- | 0.00035 | U |
| Toluene | 108-88-3 | 0.15 | EPA Region 4 Soil | mg/kg | -- | -- | 0.00066 | U | -- | -- | 0.004 | J+ | -- | -- | 0.00076 | U | -- | -- | 0.00065 | U | -- | -- | 0.0007 | U |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 0.002 | EPA Region 4 Soil | mg/kg | 0.35 | J+ | 0.19 | UJ | 0.2 | UJ | 0.19 | UJ | 0.19 | U | 0.21 | UJ | 0.18 | UJ | 0.19 | UJ | 0.2 | UJ | 0.2 | UJ |
| Dibenzofuran | 132-64-9 | 0.15 | EPA Region 4 Soil | mg/kg | 0.071 | U | 0.076 | U | 0.078 | UJ | 0.075 | U | 0.37 | J+ | 0.085 | UJ | 0.072 | U | 0.076 | U | 0.39 | J+ | 0.08 | U |
| Di-n-butyl phthalate | 84-74-2 | 0.22 | EPA Region 4 Soil | mg/kg | 0.071 | U | 0.076 | U | 0.078 | UJ | 0.075 | U | 0.076 | UJ | 0.085 | UJ | 0.072 | U | 0.076 | U | 0.39 | | 0.08 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 18 | EPA Ecological SSLs | mg/kg | 0.03 | | 0.059 | U | 0.17 | | 0.053 | U | 0.061 | | 0.054 | | 0.13 | | 0.062 | | 0.44 | | 0.053 | |
| Low Molecular Weight PAHs | N/A | 29 | EPA Ecological SSLs | mg/kg | 0.017 | | 0.022 | | 0.17 | | 0.019 | | 0.28 | | 0.044 | | 0.32 | | 0.04 | | 1.2 | | 0.044 | |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1268 (Aroclor 1268) | 11100-14-4 | 0.33 | EPA Region 4 Soil | mg/kg | 0.0069 | U | 0.0071 | U | 0.0072 | U | 0.0073 | U | 0.0076 | U | 0.0086 | U | 0.0073 | U | 0.0073 | U | 0.0073 | U | 0.0077 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 78 | EPA Ecological SSLs | mg/kg | 0.12 | J | 0.099 | U | 0.12 | J | 0.19 | J+ | 0.18 | J | 0.26 | J+ | 0.076 | J | 0.091 | U | 1 | | 0.19 | J+ |
| Arsenic | 7440-38-2 | 6.8 | EPA Region 4 Soil | mg/kg | 4.6 | | 3.9 | | 5.1 | | 6.4 | | 6.8 | J+ | 4.5 | J | 4.3 | | 3.6 | | 6.9 | | 6.2 | |
| Barium | 7440-39-3 | 330 | EPA Ecological SSLs | mg/kg | 30 | | 68 | | 40 | | 29 | | 32 | | 110 | J | 31 | | 18 | | 76 | | 48 | |
| Beryllium | 7440-41-7 | 40 | EPA Ecological SSLs | mg/kg | 0.55 | J+ | 0.19 | J | 0.47 | J+ | 0.19 | J | 0.42 | J+ | 0.77 | | 0.54 | J+ | 0.11 | J | 0.56 | J+ | 0.37 | J |
| Cadmium | 7440-43-9 | 140 | EPA Ecological SSLs | mg/kg | 0.072 | J | 0.081 | J | 0.33 | | 0.063 | J | 0.15 | | 0.073 | J | 0.076 | | 0.036 | J | 4.3 | | 0.12 | |
| Chromium | 7440-47-3 | 0.34 | EPA Region 4 Soil | mg/kg | 6.4 | | 11 | | 7.9 | | 13 | J | 5.5 | J- | 25 | | 5 | | 4.9 | | 13 | | 11 | |
| Copper | 7440-50-8 | 80 | EPA Ecological SSLs | mg/kg | 23 | | 13 | | 18 | | 16 | J | 20 | | 18 | | 32 | | 10 | | 110 | | 19 | |
| Lead | 7439-92-1 | 1700 | EPA Ecological SSLs | mg/kg | 4.6 | | 5.8 | | 9.3 | | 4 | J | 11 | J- | 7.9 | | 8.3 | | 3.4 | | 200 | | 6 | |
| Manganese | 7439-96-5 | 450 | EPA Ecological SSLs | mg/kg | 710 | | 1000 | | 520 | | 410 | | 400 | J- | 450 | J | 780 | | 320 | | 450 | | 630 | |
| Mercury | 7439-97-6 | 0.05 | EPA Region 4 Soil | mg/kg | 0.016 | J | 0.054 | | 0.059 | | 0.013 | J | 0.031 | | 0.018 | J | 0.0078 | J | 0.02 | | 0.14 | | 0.019 | J |
| Nickel | 7440-02-0 | 280 | EPA Ecological SSLs | mg/kg | 8.1 | | 7.6 | | 8.3 | | 11 | J | 8.3 | J- | 25 | | 9.9 | | 5.1 | | 18 | | 14 | |
| Selenium | 7782-49-2 | 4.1 | EPA Ecological SSLs | mg/kg | 0.15 | J | 0.48 | J+ | 0.49 | | 0.39 | U | 0.27 | J | 0.49 | J+ | 0.13 | J | 0.4 | U | 0.47 | | 0.6 | J+ |
| Zinc | 7440-66-6 | 120 | EPA Ecological SSLs | mg/kg | 29 | | 23 | | 35 | | 21 | J | 35 | J- | 52 | J- | 28 | | 12 | | 690 | | 52 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
R – The presence or absence of the analyte cannot be substantiated by the data provided.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).

# APPENDIX L.3

# Bird Sample by Sample Screening – Soil

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Table L.3-1
Bird Sample by Sample Screening - AOC 1, Soil (0 - 1 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-002 | | NYOW-01-005 | | NYOW-01-007 | | NYOW-01-009 | | NYOW-01-011 | | NYOW-01-013 | | NYOW-01-015 | | NYOW-01-016 | | NYOW-01-018 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL002-A | | NYOW-01-SL005-A | | NYOW-01-SL007-A | | NYOW-01-SL009-A | | NYOW-01-SL011-A | | NYOW-01-SL013-A | | NYOW-01-SL015-A | | NYOW-01-SL016-A | | NYOW-01-SL018-A | |
| | | | | Sample Type: | N | | C | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-09 | | 2021-04-08 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-14 | | 2021-04-02 | | 2021-04-02 | | 2021-04-08 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 7.5 | EPA Region 4 Soil | mg/kg | 0.16 | UJ | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.15 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 43 | EPA Ecological SSLs | mg/kg | 4.2 | | 4 | | 5.7 | | 4.7 | | 2.4 | | 4.8 | | 4.9 | | 5.2 | | 4.7 | |
| Barium | 7440-39-3 | 820 | EPA Region 4 Soil | mg/kg | 81 | | 46 | J+ | 86 | | 72 | | 32 | | 39 | | 61 | | 55 | | 40 | J+ |
| Cadmium | 7440-43-9 | 0.77 | EPA Ecological SSLs | mg/kg | 0.17 | | 0.13 | | 0.37 | | 0.19 | | 0.32 | | 0.14 | | 0.31 | | 0.13 | | 0.058 | J |
| Chromium | 7440-47-3 | 26 | EPA Ecological SSLs | mg/kg | 11 | J- | 7 | | 9.3 | | 5.4 | | 5 | | 6.8 | | 9.9 | | 8.6 | | 6.1 | |
| Cobalt | 7440-48-4 | 120 | EPA Ecological SSLs | mg/kg | 7.3 | | 4.6 | | 5.7 | | 3.9 | | 3.7 | | 6.4 | | 7.6 | | 4.5 | | 4.9 | |
| Copper | 7440-50-8 | 28 | EPA Ecological SSLs | mg/kg | 21 | | 11 | | 21 | | 15 | | 23 | | 80 | | 22 | | 14 | | 13 | |
| Lead | 7439-92-1 | 11 | EPA Ecological SSLs | mg/kg | 29 | | 11 | | 37 | | 23 | | 7.6 | | 14 | | 10 | | 14 | | 6.1 | |
| Manganese | 7439-96-5 | 4300 | EPA Ecological SSLs | mg/kg | 1400 | J | 550 | | 450 | | 1100 | | 740 | | 580 | | 710 | | 450 | | 420 | |
| Mercury | 7439-97-6 | 0.013 | EPA Region 4 Soil | mg/kg | 0.039 | | 0.053 | | 0.073 | | 0.019 | J | 0.032 | | 0.038 | | 0.021 | J | 0.015 | J | 0.018 | J |
| Nickel | 7440-02-0 | 210 | EPA Ecological SSLs | mg/kg | 12 | | 8 | | 12 | | 7.3 | | 6.9 | | 9.1 | | 12 | | 8.2 | | 8.3 | |
| Selenium | 7782-49-2 | 1.2 | EPA Ecological SSLs | mg/kg | 0.4 | J+ | 0.49 | J+ | 0.77 | J+ | 0.55 | J+ | 0.54 | J+ | 0.59 | J+ | 0.49 | J+ | 0.49 | J+ | 0.48 | J+ |
| Silver | 7440-22-4 | 4.2 | EPA Ecological SSLs | mg/kg | 1.4 | J+ | 0.56 | U | 2.2 | J+ | 1.7 | J+ | 1.6 | J+ | 0.69 | U | 0.63 | U | 0.53 | U | 0.47 | U |
| Zinc | 7440-66-6 | 46 | EPA Ecological SSLs | mg/kg | 52 | | 180 | J | 110 | | 57 | | 55 | | 38 | | 39 | | 40 | | 11 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).

Table L.3-1
Bird Sample by Sample Screening - AOC 1, Soil (0 - 1 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-019 | | NYOW-01-020 | | NYOW-01-021 | | NYOW-01-022 | | NYOW-01-023 | | NYOW-01-024 | | NYOW-01-025 | | NYOW-01-026 | | NYOW-01-027 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL019-A | | NYOW-01-SL020-A | | NYOW-01-SL021-A | | NYOW-01-SL022-A | | NYOW-01-SL023-A | | NYOW-01-SL024-A | | NYOW-01-SL025-A | | NYOW-01-SL026-A | | NYOW-01-SL027-A | |
| | | | | Sample Type: | C | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-06 | | 2021-04-06 | | 2021-04-07 | | 2021-04-07 | | 2021-04-02 | | 2021-04-07 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 7.5 | EPA Region 4 Soil | mg/kg | 0.14 | U | 0.16 | U | 0.15 | U | 0.16 | U | 0.15 | U | 0.15 | U | 0.16 | UJ | 0.23 | J+ | 0.16 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 43 | EPA Ecological SSLs | mg/kg | 3.9 | | 6.9 | | 4.5 | | 4.7 | | 4.7 | | 4 | | 8.7 | | 3.3 | | 5 | |
| Barium | 7440-39-3 | 820 | EPA Region 4 Soil | mg/kg | 25 | J | 43 | | 51 | | 61 | | 40 | | 37 | | 61 | | 83 | | 52 | |
| Cadmium | 7440-43-9 | 0.77 | EPA Ecological SSLs | mg/kg | 0.058 | J | 0.13 | | 0.14 | | 0.65 | | 0.79 | | 0.058 | J | 0.053 | J | 0.51 | | 0.2 | |
| Chromium | 7440-47-3 | 26 | EPA Ecological SSLs | mg/kg | 6.4 | J | 7.5 | | 7.9 | | 9.3 | | 7.2 | | 5.4 | | 6.5 | | 10 | | 8.1 | |
| Cobalt | 7440-48-4 | 120 | EPA Ecological SSLs | mg/kg | 3.4 | J | 9.4 | | 6.2 | | 6 | | 5.9 | | 4.8 | | 7.4 | | 4.2 | | 6.5 | |
| Copper | 7440-50-8 | 28 | EPA Ecological SSLs | mg/kg | 14 | J | 28 | | 20 | | 24 | | 28 | | 13 | | 22 | | 20 | | 24 | |
| Lead | 7439-92-1 | 11 | EPA Ecological SSLs | mg/kg | 4.2 | J | 19 | | 12 | | 30 | | 7.2 | | 5.9 | | 11 | | 54 | | 14 | |
| Manganese | 7439-96-5 | 4300 | EPA Ecological SSLs | mg/kg | 320 | | 600 | | 590 | J | 500 | | 620 | | 450 | | 510 | | 950 | | 770 | |
| Mercury | 7439-97-6 | 0.013 | EPA Region 4 Soil | mg/kg | 0.017 | J | 0.02 | J | 0.032 | | 0.046 | | 0.017 | J | 0.018 | U | 0.013 | J | 0.26 | | 0.042 | |
| Nickel | 7440-02-0 | 210 | EPA Ecological SSLs | mg/kg | 8.1 | J | 12 | | 9.3 | | 12 | | 8.8 | | 7.1 | | 11 | | 9.2 | | 12 | |
| Selenium | 7782-49-2 | 1.2 | EPA Ecological SSLs | mg/kg | 0.43 | J+ | 0.57 | J+ | 0.53 | J+ | 0.44 | J+ | 0.56 | J+ | 0.45 | J+ | 0.4 | U | 0.85 | J+ | 0.43 | J+ |
| Silver | 7440-22-4 | 4.2 | EPA Ecological SSLs | mg/kg | 0.53 | U | 0.64 | U | 0.52 | U | 0.63 | U | 0.55 | U | 0.72 | U | 1.7 | J+ | 2.6 | J+ | 0.56 | U |
| Zinc | 7440-66-6 | 46 | EPA Ecological SSLs | mg/kg | 22 | | 44 | | 28 | J | 27 | | 44 | | 41 | | 29 | | 170 | | 56 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).

Table L.3-1
Bird Sample by Sample Screening - AOC 1, Soil (0 - 1 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-028 | | NYOW-01-029 | | NYOW-01-030 | | NYOW-01-031 | | NYOW-01-032 | | NYOW-01-033 | | NYOW-01-034 | | NYOW-01-035 | | NYOW-01-036 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL028-A | | NYOW-01-SL029-A | | NYOW-01-SL030-A | | NYOW-01-SL031-A | | NYOW-01-SL032-A | | NYOW-01-SL033-A | | NYOW-01-SL034-A | | NYOW-01-SL035-A | | NYOW-01-SL036-A | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-14 | | 2021-04-14 | | 2021-04-14 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 7.5 | EPA Region 4 Soil | mg/kg | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | UJ |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 43 | EPA Ecological SSLs | mg/kg | 5.1 | | 11 | | 4.5 | | 4.8 | | 7.1 | | 5.7 | | 3.7 | | 7.8 | | 5.6 | |
| Barium | 7440-39-3 | 820 | EPA Region 4 Soil | mg/kg | 120 | | 96 | | 58 | | 44 | | 58 | | 49 | | 41 | | 67 | | 62 | |
| Cadmium | 7440-43-9 | 0.77 | EPA Ecological SSLs | mg/kg | 0.53 | | 0.29 | | 0.49 | | 0.23 | | 0.28 | | 0.26 | | 0.57 | | 0.37 | | 0.25 | |
| Chromium | 7440-47-3 | 26 | EPA Ecological SSLs | mg/kg | 18 | | 10 | | 9.8 | | 9.2 | | 9.8 | | 8.5 | | 18 | | 9.2 | | 14 | |
| Cobalt | 7440-48-4 | 120 | EPA Ecological SSLs | mg/kg | 4.5 | | 8.3 | | 5.8 | | 8 | | 8.6 | | 6.4 | | 3.9 | | 9.4 | | 8.4 | |
| Copper | 7440-50-8 | 28 | EPA Ecological SSLs | mg/kg | 24 | | 24 | | 21 | | 22 | | 33 | | 20 | | 19 | | 32 | | 33 | |
| Lead | 7439-92-1 | 11 | EPA Ecological SSLs | mg/kg | 72 | | 26 | | 21 | | 18 | | 23 | | 17 | | 200 | | 31 | | 44 | |
| Manganese | 7439-96-5 | 4300 | EPA Ecological SSLs | mg/kg | 550 | | 1000 | | 540 | | 760 | | 740 | | 680 | | 270 | | 1000 | | 830 | |
| Mercury | 7439-97-6 | 0.013 | EPA Region 4 Soil | mg/kg | 0.76 | | 0.056 | | 0.053 | | 0.14 | | 0.052 | | 0.06 | | 0.096 | | 0.078 | | 0.085 | |
| Nickel | 7440-02-0 | 210 | EPA Ecological SSLs | mg/kg | 11 | | 13 | | 11 | | 13 | | 12 | | 12 | | 7.4 | | 12 | | 13 | |
| Selenium | 7782-49-2 | 1.2 | EPA Ecological SSLs | mg/kg | 0.7 | J+ | 0.6 | J+ | 0.51 | J+ | 0.43 | J+ | 0.56 | J+ | 0.45 | J+ | 0.61 | J+ | 0.49 | J+ | 0.54 | J+ |
| Silver | 7440-22-4 | 4.2 | EPA Ecological SSLs | mg/kg | 1.9 | J+ | 1.5 | J+ | 0.56 | U | 1.3 | J+ | 0.66 | U | 0.61 | U | 1.6 | J+ | 0.68 | U | 0.7 | U |
| Zinc | 7440-66-6 | 46 | EPA Ecological SSLs | mg/kg | 120 | | 60 | | 85 | | 51 | | 75 | | 53 | | 110 | | 64 | | 55 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).

Table L.3-1
Bird Sample by Sample Screening - AOC 1, Soil (0 - 1 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-037 | | NYOW-01-038 | | NYOW-01-039 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL037-A | | NYOW-01-SL038-A | | NYOW-01-SL039-A | |
| | | | | Sample Type: | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | |
| Picric acid | 88-89-1 | 7.5 | EPA Region 4 Soil | mg/kg | 0.15 | U | 0.15 | U | 0.16 | U |
| Metals (Total) | | | | | | | | | | |
| Arsenic | 7440-38-2 | 43 | EPA Ecological SSLs | mg/kg | 3.6 | | 4.7 | | 4.1 | |
| Barium | 7440-39-3 | 820 | EPA Region 4 Soil | mg/kg | 42 | | 37 | | 40 | |
| Cadmium | 7440-43-9 | 0.77 | EPA Ecological SSLs | mg/kg | 0.45 | | 0.14 | | 0.16 | |
| Chromium | 7440-47-3 | 26 | EPA Ecological SSLs | mg/kg | 7.6 | | 6.3 | | 11 | J |
| Cobalt | 7440-48-4 | 120 | EPA Ecological SSLs | mg/kg | 5.7 | | 5.5 | | 4.5 | |
| Copper | 7440-50-8 | 28 | EPA Ecological SSLs | mg/kg | 21 | | 14 | | 19 | |
| Lead | 7439-92-1 | 11 | EPA Ecological SSLs | mg/kg | 21 | | 6.8 | | 39 | |
| Manganese | 7439-96-5 | 4300 | EPA Ecological SSLs | mg/kg | 640 | | 470 | | 410 | |
| Mercury | 7439-97-6 | 0.013 | EPA Region 4 Soil | mg/kg | 0.062 | | 0.022 | | 0.037 | |
| Nickel | 7440-02-0 | 210 | EPA Ecological SSLs | mg/kg | 11 | | 9 | | 8.4 | |
| Selenium | 7782-49-2 | 1.2 | EPA Ecological SSLs | mg/kg | 0.59 | J+ | 0.55 | J+ | 0.45 | J+ |
| Silver | 7440-22-4 | 4.2 | EPA Ecological SSLs | mg/kg | 0.8 | U | 1.5 | J+ | 0.67 | U |
| Zinc | 7440-66-6 | 46 | EPA Ecological SSLs | mg/kg | 87 | | 39 | | 39 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend
ND – Not detected at the LOD
Detect – Detected result
Detect – Detected result > SL

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).

Table L.3-2
Bird Sample by Sample Screening - AOC 5 (Boiler House, Soil (0 - 1 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-016 | | NYOW-05-017-1 | | NYOW-05-018 | | NYOW-05-019 | | NYOW-05-020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL016-A | | NYOW-05-SL017-1-A | | NYOW-05-SL018-A | | NYOW-05-SL019-A | | NYOW-05-SL020-A | |
| | | | | Sample Type: | N | | C | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-01-14 | | 2021-01-14 | | 2021-01-11 | | 2021-01-11 | | 2021-01-08 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 3.4 | EPA Region 4 Soil | mg/kg | 0.012 | J+ | 0.002 | U | 0.0023 | UJ | 0.01 | J+ | 0.0022 | UJ |
| 2-Methylnaphthalene | 91-57-6 | 3.4 | EPA Region 4 Soil | mg/kg | 0.012 | J+ | 0.01 | J+ | 0.0023 | UJ | 0.01 | J+ | 0.011 | J+ |
| Benzo(a)anthracene | 56-55-3 | 0.73 | EPA Region 4 Soil | mg/kg | 0.031 | | 0.024 | | 0.0067 | J- | 0.01 | J- | 0.0076 | J- |
| Naphthalene | 91-20-3 | 3.4 | EPA Region 4 Soil | mg/kg | 0.012 | J+ | 0.01 | J+ | 0.0023 | UJ | 0.01 | J+ | 0.011 | J+ |
| Pyrene | 129-00-0 | 33 | EPA Region 4 Soil | mg/kg | 0.055 | | 0.042 | | 0.013 | J- | 0.016 | J- | 0.012 | J- |
| Metals (Total) | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 43 | EPA Ecological SSLs | mg/kg | 25 | | 6.3 | | 5.8 | | 5.8 | | 4.8 | |
| Barium | 7440-39-3 | 820 | EPA Region 4 Soil | mg/kg | 53 | | 56 | | 53 | | 41 | | 49 | |
| Cadmium | 7440-43-9 | 0.77 | EPA Ecological SSLs | mg/kg | 0.038 | J | 0.066 | J | 0.09 | J | 0.086 | | 0.055 | J |
| Chromium | 7440-47-3 | 26 | EPA Ecological SSLs | mg/kg | 8.8 | | 7.5 | | 7.4 | | 7.2 | | 7.9 | |
| Cobalt | 7440-48-4 | 120 | EPA Ecological SSLs | mg/kg | 5.8 | | 5.9 | | 5 | | 4.7 | | 5.3 | |
| Copper | 7440-50-8 | 28 | EPA Ecological SSLs | mg/kg | 20 | | 19 | | 16 | | 14 | | 20 | |
| Lead | 7439-92-1 | 11 | EPA Ecological SSLs | mg/kg | 7.5 | | 7.7 | | 7.6 | | 6.4 | | 7.5 | |
| Manganese | 7439-96-5 | 4300 | EPA Ecological SSLs | mg/kg | 630 | | 710 | | 670 | | 490 | | 710 | |
| Mercury | 7439-97-6 | 0.013 | EPA Region 4 Soil | mg/kg | 0.033 | | 0.021 | U | 0.0075 | J | 0.054 | | 0.014 | J |
| Nickel | 7440-02-0 | 210 | EPA Ecological SSLs | mg/kg | 11 | | 12 | | 10 | | 9.6 | | 11 | |
| Selenium | 7782-49-2 | 1.2 | EPA Ecological SSLs | mg/kg | 0.34 | U | 0.45 | J+ | 0.5 | J+ | 0.37 | J+ | 0.41 | J+ |
| Thallium | 7440-28-0 | 4.5 | EPA Region 4 Soil | mg/kg | 0.086 | U | 0.1 | | 0.099 | U | 0.073 | U | 0.061 | J |
| Vanadium | 7440-62-2 | 7.8 | EPA Ecological SSLs | mg/kg | 13 | | 13 | | 12 | | 11 | | 12 | |
| Zinc | 7440-66-6 | 46 | EPA Ecological SSLs | mg/kg | 31 | | 28 | | 25 | | 25 | | 27 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).

Table L.3-3
Bird Sample by Sample Screening - AOC 5 (Coal Aggregate Bins), Soil (0 - 1 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-021 | | NYOW-05-022 | | NYOW-05-023 | | NYOW-05-024 | | NYOW-05-025 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL021-A | | NYOW-05-SL022-A | | NYOW-05-SL023-A | | NYOW-05-SL024-A | | NYOW-05-SL025-A | |
| | | | | Sample Type: | N | | N | | C | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-11 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 3.4 | EPA Region 4 Soil | mg/kg | 1.8 | | 0.0054 | J | 2.3 | | 7.4 | | 0.077 | |
| 2-Methylnaphthalene | 91-57-6 | 3.4 | EPA Region 4 Soil | mg/kg | 2.5 | | 0.0071 | J | 3.2 | | 10 | | 0.089 | |
| Benzo(a)anthracene | 56-55-3 | 0.73 | EPA Region 4 Soil | mg/kg | 0.21 | | 0.019 | | 0.39 | | 0.44 | J | 0.019 | J+ |
| Naphthalene | 91-20-3 | 3.4 | EPA Region 4 Soil | mg/kg | 1.8 | | 0.009 | J | 2.6 | | 7.1 | | 0.063 | |
| Pyrene | 129-00-0 | 33 | EPA Region 4 Soil | mg/kg | 0.34 | | 0.031 | | 0.41 | | 0.73 | | 0.029 | J+ |
| Metals (Total) | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 43 | EPA Ecological SSLs | mg/kg | 10 | | 5.4 | | 13 | | 16 | | 4.6 | |
| Barium | 7440-39-3 | 820 | EPA Region 4 Soil | mg/kg | 52 | | 54 | J+ | 37 | | 27 | | 34 | |
| Cadmium | 7440-43-9 | 0.77 | EPA Ecological SSLs | mg/kg | 0.25 | | 0.15 | | 0.37 | | 0.11 | J | 0.1 | J |
| Chromium | 7440-47-3 | 26 | EPA Ecological SSLs | mg/kg | 8.3 | | 13 | J- | 8.2 | | 5.8 | | 8.6 | J- |
| Cobalt | 7440-48-4 | 120 | EPA Ecological SSLs | mg/kg | 6.4 | | 7.5 | J- | 4.9 | | 1.8 | | 5.2 | J- |
| Copper | 7440-50-8 | 28 | EPA Ecological SSLs | mg/kg | 20 | | 22 | | 17 | | 10 | | 14 | |
| Lead | 7439-92-1 | 11 | EPA Ecological SSLs | mg/kg | 21 | | 8.6 | J- | 17 | | 8.9 | | 8.9 | J- |
| Manganese | 7439-96-5 | 4300 | EPA Ecological SSLs | mg/kg | 650 | | 660 | J | 420 | | 110 | | 410 | J |
| Mercury | 7439-97-6 | 0.013 | EPA Region 4 Soil | mg/kg | 0.11 | | 0.03 | | 0.077 | | 0.064 | | 0.026 | |
| Nickel | 7440-02-0 | 210 | EPA Ecological SSLs | mg/kg | 13 | | 15 | | 12 | | 6.1 | | 11 | J- |
| Selenium | 7782-49-2 | 1.2 | EPA Ecological SSLs | mg/kg | 0.9 | | 0.22 | J | 0.65 | | 0.83 | | 0.31 | J |
| Thallium | 7440-28-0 | 4.5 | EPA Region 4 Soil | mg/kg | 0.18 | | 0.11 | U | 0.24 | | 0.26 | | 0.12 | |
| Vanadium | 7440-62-2 | 7.8 | EPA Ecological SSLs | mg/kg | 15 | | 17 | | 11 | | 7.6 | | 13 | |
| Zinc | 7440-66-6 | 46 | EPA Ecological SSLs | mg/kg | 55 | | 36 | J- | 54 | | 16 | | 34 | J- |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).

Table L.3-4
Bird Sample by Sample Screening - AOC 5 (Coal Storage Area), Soil (0 - 1 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-006 | | NYOW-05-007 | | NYOW-05-008 | | NYOW-05-009 | | NYOW-05-010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL006-A | | NYOW-05-SL007-A | | NYOW-05-SL008-A | | NYOW-05-SL009-A | | NYOW-05-SL010-A | |
| | | | | Sample Type: | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-01-08 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 3.4 | EPA Region 4 Soil | mg/kg | 5.7 | | 10 | | 6 | | 0.12 | | 0.039 | J- |
| 2-Methylnaphthalene | 91-57-6 | 3.4 | EPA Region 4 Soil | mg/kg | 7.7 | | 14 | | 4.8 | | 0.086 | | 0.017 | |
| Benzo(a)anthracene | 56-55-3 | 0.73 | EPA Region 4 Soil | mg/kg | 0.27 | J | 0.75 | | 0.61 | | 0.044 | | 0.036 | |
| Naphthalene | 91-20-3 | 3.4 | EPA Region 4 Soil | mg/kg | 5.6 | | 9.2 | | 2 | | 0.039 | | 0.017 | J- |
| Pyrene | 129-00-0 | 33 | EPA Region 4 Soil | mg/kg | 0.45 | | 0.98 | | 0.99 | | 0.13 | | 0.068 | J- |
| Metals (Total) | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 43 | EPA Ecological SSLs | mg/kg | 24 | | 19 | | 12 | | 9.7 | | 4.5 | |
| Barium | 7440-39-3 | 820 | EPA Region 4 Soil | mg/kg | 34 | | 43 | | 37 | | 45 | | 65 | |
| Cadmium | 7440-43-9 | 0.77 | EPA Ecological SSLs | mg/kg | 0.23 | | 0.38 | | 0.21 | | 0.19 | | 0.11 | |
| Chromium | 7440-47-3 | 26 | EPA Ecological SSLs | mg/kg | 7.2 | | 6 | | 6.6 | | 6 | | 7.2 | |
| Cobalt | 7440-48-4 | 120 | EPA Ecological SSLs | mg/kg | 6.6 | | 4.2 | | 2.1 | | 2.4 | | 3.4 | |
| Copper | 7440-50-8 | 28 | EPA Ecological SSLs | mg/kg | 22 | | 22 | | 9.8 | | 7.4 | | 5.3 | |
| Lead | 7439-92-1 | 11 | EPA Ecological SSLs | mg/kg | 21 | | 18 | | 18 | | 13 | | 4.2 | |
| Manganese | 7439-96-5 | 4300 | EPA Ecological SSLs | mg/kg | 320 | | 270 | | 110 | | 330 | | 400 | J- |
| Mercury | 7439-97-6 | 0.013 | EPA Region 4 Soil | mg/kg | 0.086 | | 0.093 | | 0.19 | | 0.1 | | 0.11 | |
| Nickel | 7440-02-0 | 210 | EPA Ecological SSLs | mg/kg | 13 | | 9.2 | | 4.9 | | 5.4 | | 5.7 | |
| Selenium | 7782-49-2 | 1.2 | EPA Ecological SSLs | mg/kg | 1 | | 0.98 | | 1.5 | | 0.64 | J | 0.4 | J |
| Thallium | 7440-28-0 | 4.5 | EPA Region 4 Soil | mg/kg | 0.34 | | 0.34 | | 0.6 | | 0.24 | | 0.18 | |
| Vanadium | 7440-62-2 | 7.8 | EPA Ecological SSLs | mg/kg | 12 | | 10 | | 15 | | 11 | | 15 | |
| Zinc | 7440-66-6 | 46 | EPA Ecological SSLs | mg/kg | 44 | | 58 | | 35 | | 28 | | 14 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).

Table L.3-5
Bird Sample by Sample Screening - AOC 5 (Electric Substation), Soil (0 - 1 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-011 | | NYOW-05-012 | | NYOW-05-013 | | NYOW-05-014 | | NYOW-05-015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL011-A | | NYOW-05-SL012-A | | NYOW-05-SL013-A | | NYOW-05-SL014-A | | NYOW-05-SL015-A | |
| | | | | Sample Type: | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 3.4 | EPA Region 4 Soil | mg/kg | 0.011 | J+ | 0.012 | J+ | 0.012 | J+ | 0.011 | J+ | 0.011 | J+ |
| 2-Methylnaphthalene | 91-57-6 | 3.4 | EPA Region 4 Soil | mg/kg | 0.018 | | 0.003 | J | 0.0019 | J | 0.0029 | J | 0.0094 | J |
| Benzo(a)anthracene | 56-55-3 | 0.73 | EPA Region 4 Soil | mg/kg | 0.0098 | J | 0.012 | | 0.012 | | 0.013 | | 0.018 | |
| Naphthalene | 91-20-3 | 3.4 | EPA Region 4 Soil | mg/kg | 0.015 | | 0.0052 | J | 0.0033 | J | 0.0029 | J | 0.0075 | J |
| Pyrene | 129-00-0 | 33 | EPA Region 4 Soil | mg/kg | 0.019 | | 0.024 | | 0.017 | | 0.02 | | 0.029 | |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.041 | EPA Region 4 Soil | mg/kg | 0.0068 | U | 0.029 | J | 0.16 | | 0.013 | J | 0.0042 | J |
| Metals (Total) | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 43 | EPA Ecological SSLs | mg/kg | 5.2 | | 5.9 | | 4.3 | | 4.9 | | 4.3 | |
| Barium | 7440-39-3 | 820 | EPA Region 4 Soil | mg/kg | 62 | | 66 | | 43 | | 51 | | 48 | |
| Cadmium | 7440-43-9 | 0.77 | EPA Ecological SSLs | mg/kg | 0.14 | | 0.14 | | 0.14 | | 0.11 | | 0.39 | |
| Chromium | 7440-47-3 | 26 | EPA Ecological SSLs | mg/kg | 10 | | 8.5 | | 8.4 | | 9.6 | | 7.9 | |
| Cobalt | 7440-48-4 | 120 | EPA Ecological SSLs | mg/kg | 7.1 | | 7 | | 6.1 | | 9.3 | | 5.6 | |
| Copper | 7440-50-8 | 28 | EPA Ecological SSLs | mg/kg | 25 | | 24 | | 16 | | 21 | | 16 | |
| Lead | 7439-92-1 | 11 | EPA Ecological SSLs | mg/kg | 12 | | 24 | | 7.9 | | 13 | | 7.6 | |
| Manganese | 7439-96-5 | 4300 | EPA Ecological SSLs | mg/kg | 1100 | | 1200 | | 590 | | 660 | | 630 | |
| Mercury | 7439-97-6 | 0.013 | EPA Region 4 Soil | mg/kg | 0.085 | | 0.23 | | 0.029 | | 0.026 | | 0.026 | |
| Nickel | 7440-02-0 | 210 | EPA Ecological SSLs | mg/kg | 15 | | 12 | | 12 | | 15 | | 12 | |
| Selenium | 7782-49-2 | 1.2 | EPA Ecological SSLs | mg/kg | 0.46 | J+ | 0.47 | J+ | 0.59 | J+ | 0.54 | J+ | 0.42 | J+ |
| Thallium | 7440-28-0 | 4.5 | EPA Region 4 Soil | mg/kg | 0.12 | | 0.14 | | 0.12 | U | 0.11 | U | 0.085 | U |
| Vanadium | 7440-62-2 | 7.8 | EPA Ecological SSLs | mg/kg | 16 | | 15 | | 14 | | 14 | | 12 | |
| Zinc | 7440-66-6 | 46 | EPA Ecological SSLs | mg/kg | 42 | | 49 | | 35 | | 40 | | 33 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend
ND — Not detected at the LOD
Detect — Detected result
Detect — Detected result > SL

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).

Table L.3-6
Bird Sample by Sample Screening - AOC 5 (Possible Dump Area), Soil (0 - 1 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-001 | | NYOW-05-002 | | NYOW-05-003 | | NYOW-05-004 | | NYOW-05-005 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL001-A | | NYOW-05-SL002-A | | NYOW-05-SL003-A | | NYOW-05-SL004-A | | NYOW-05-SL005-A | |
| | | | | Sample Type: | N | | C | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | |
| Di-n-butyl phthalate | 84-74-2 | 0.011 | EPA Region 4 Soil | mg/kg | 0.071 | U | 0.078 | UJ | 0.076 | UJ | 0.072 | U | 0.39 | |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 3.4 | EPA Region 4 Soil | mg/kg | 0.0021 | U | 0.01 | | 0.065 | J+ | 0.069 | | 0.29 | |
| 2-Methylnaphthalene | 91-57-6 | 3.4 | EPA Region 4 Soil | mg/kg | 0.0021 | U | 0.013 | | 0.087 | J+ | 0.09 | | 0.37 | |
| Benzo(a)anthracene | 56-55-3 | 0.73 | EPA Region 4 Soil | mg/kg | 0.0024 | J | 0.02 | J | 0.0065 | J | 0.012 | | 0.042 | J |
| Naphthalene | 91-20-3 | 3.4 | EPA Region 4 Soil | mg/kg | 0.0018 | J | 0.01 | | 0.065 | J+ | 0.071 | | 0.29 | |
| Pyrene | 129-00-0 | 33 | EPA Region 4 Soil | mg/kg | 0.0042 | J | 0.045 | J | 0.011 | J+ | 0.023 | | 0.068 | J |
| Metals (Total) | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 43 | EPA Ecological SSLs | mg/kg | 4.6 | | 5.1 | | 6.8 | J+ | 4.3 | | 6.9 | |
| Barium | 7440-39-3 | 820 | EPA Region 4 Soil | mg/kg | 30 | | 40 | | 32 | | 31 | | 76 | |
| Cadmium | 7440-43-9 | 0.77 | EPA Ecological SSLs | mg/kg | 0.072 | J | 0.33 | | 0.15 | | 0.076 | | 4.3 | |
| Chromium | 7440-47-3 | 26 | EPA Ecological SSLs | mg/kg | 6.4 | | 7.9 | | 5.5 | J- | 5 | | 13 | |
| Cobalt | 7440-48-4 | 120 | EPA Ecological SSLs | mg/kg | 4.1 | | 4.7 | | 3.6 | J- | 6.7 | | 4.3 | |
| Copper | 7440-50-8 | 28 | EPA Ecological SSLs | mg/kg | 23 | | 18 | | 20 | | 32 | | 110 | |
| Lead | 7439-92-1 | 11 | EPA Ecological SSLs | mg/kg | 4.6 | | 9.3 | | 11 | J- | 8.3 | | 200 | |
| Manganese | 7439-96-5 | 4300 | EPA Ecological SSLs | mg/kg | 710 | | 520 | | 400 | J- | 780 | | 450 | |
| Mercury | 7439-97-6 | 0.013 | EPA Region 4 Soil | mg/kg | 0.016 | J | 0.059 | | 0.031 | | 0.0078 | J | 0.14 | |
| Nickel | 7440-02-0 | 210 | EPA Ecological SSLs | mg/kg | 8.1 | | 8.3 | | 8.3 | J- | 9.9 | | 18 | |
| Selenium | 7782-49-2 | 1.2 | EPA Ecological SSLs | mg/kg | 0.15 | J | 0.49 | | 0.27 | J | 0.13 | J | 0.47 | |
| Silver | 7440-22-4 | 4.2 | EPA Ecological SSLs | mg/kg | 0.67 | U | 0.56 | U | 0.5 | U | 0.64 | U | 1.7 | J+ |
| Thallium | 7440-28-0 | 4.5 | EPA Region 4 Soil | mg/kg | 0.091 | U | 0.094 | U | 0.12 | | 0.075 | U | 0.15 | |
| Vanadium | 7440-62-2 | 7.8 | EPA Ecological SSLs | mg/kg | 10 | | 14 | | 9.9 | | 7.9 | | 10 | |
| Zinc | 7440-66-6 | 46 | EPA Ecological SSLs | mg/kg | 29 | | 35 | | 35 | J- | 28 | | 690 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend
ND — Not detected at the LOD
Detect — Detected result
Detect — Detected result > SL

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).

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# APPENDIX L.4

# Mammal Sample by Sample Screening – Soil

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Table L.4-1
Mammal Sample by Sample Screening - AOC 1, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-002 | | NYOW-01-002 | | NYOW-01-005 | | NYOW-01-005 | | NYOW-01-007 | | NYOW-01-009 | | NYOW-01-011 | | NYOW-01-013 | | NYOW-01-015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL002-A | | NYOW-01-PH002-B | | NYOW-01-SL005-A | | NYOW-01-PH005-B | | NYOW-01-SL007-A | | NYOW-01-SL009-A | | NYOW-01-SL011-A | | NYOW-01-SL013-A | | NYOW-01-SL015-A | |
| | | | | Sample Type: | N | | N | | C | | C | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-09 | | 2021-04-09 | | 2021-04-08 | | 2021-04-08 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-14 | | 2021-04-02 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.0061 | QAPP Appendix A.1 - Soil | mg/kg | 0.16 | UJ | 0.16 | UJ | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.27 | EPA Ecological SSLs | mg/kg | 0.16 | J- | 0.17 | J+ | 0.11 | J | 0.081 | U | 0.23 | J | 0.19 | J | 0.13 | J | 0.13 | J | 0.17 | J |
| Arsenic | 7440-38-2 | 46 | EPA Ecological SSLs | mg/kg | 4.2 | | 3.7 | | 4 | | 3.7 | | 5.7 | | 4.7 | | 2.4 | | 4.8 | | 4.9 | |
| Barium | 7440-39-3 | 2000 | EPA Ecological SSLs | mg/kg | 81 | | 41 | | 46 | J+ | 31 | J+ | 86 | | 72 | | 32 | | 39 | | 61 | |
| Beryllium | 7440-41-7 | 21 | EPA Ecological SSLs | mg/kg | 0.48 | J+ | 0.4 | J+ | 0.47 | J+ | 0.4 | J+ | 0.72 | J+ | 0.56 | J+ | 0.52 | J+ | 0.57 | J+ | 0.52 | J+ |
| Cadmium | 7440-43-9 | 0.36 | EPA Ecological SSLs | mg/kg | 0.17 | | 0.092 | J | 0.13 | | 0.039 | J | 0.37 | | 0.19 | | 0.32 | | 0.14 | | 0.31 | |
| Chromium | 7440-47-3 | 34 | EPA Ecological SSLs | mg/kg | 11 | J- | 8.4 | | 7 | | 6.2 | | 9.3 | | 5.4 | | 5 | | 6.8 | | 9.9 | |
| Cobalt | 7440-48-4 | 230 | EPA Ecological SSLs | mg/kg | 7.3 | | 5.9 | J | 4.6 | | 3.8 | | 5.7 | | 3.9 | | 3.7 | | 6.4 | | 7.6 | |
| Copper | 7440-50-8 | 49 | EPA Ecological SSLs | mg/kg | 21 | | 19 | | 11 | | 10 | | 21 | | 15 | | 23 | | 80 | | 22 | |
| Lead | 7439-92-1 | 56 | EPA Ecological SSLs | mg/kg | 29 | | 14 | | 11 | | 3.3 | | 37 | | 23 | | 7.6 | | 14 | | 10 | |
| Manganese | 7439-96-5 | 4000 | EPA Ecological SSLs | mg/kg | 1400 | J | 550 | | 550 | | 340 | | 450 | | 1100 | | 740 | | 580 | | 710 | |
| Mercury | 7439-97-6 | 1.7 | EPA Region 4 Soil | mg/kg | 0.039 | | 0.015 | J | 0.053 | | 0.017 | U | 0.073 | | 0.019 | J | 0.032 | | 0.038 | | 0.021 | J |
| Nickel | 7440-02-0 | 130 | EPA Ecological SSLs | mg/kg | 12 | | 11 | J | 8 | | 6.9 | | 12 | | 7.3 | | 6.9 | | 9.1 | | 12 | |
| Selenium | 7782-49-2 | 0.63 | EPA Ecological SSLs | mg/kg | 0.4 | J+ | 0.47 | J+ | 0.49 | J+ | 0.33 | U | 0.77 | J+ | 0.55 | J+ | 0.54 | J+ | 0.59 | J+ | 0.49 | J+ |
| Silver | 7440-22-4 | 14 | EPA Ecological SSLs | mg/kg | 1.4 | J+ | 1.2 | J+ | 0.56 | U | 0.48 | U | 2.2 | J+ | 1.7 | J+ | 1.6 | J+ | 0.69 | U | 0.63 | U |
| Vanadium | 7440-62-2 | 280 | EPA Ecological SSLs | mg/kg | 20 | | 16 | | 12 | | 9.3 | | 15 | | 11 | | 8.8 | | 10 | | 16 | |
| Zinc | 7440-66-6 | 79 | EPA Ecological SSLs | mg/kg | 52 | | 40 | | 180 | J | 32 | | 110 | | 57 | | 55 | | 38 | | 39 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.4-1
Mammal Sample by Sample Screening - AOC 1, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-015 | | NYOW-01-016 | | NYOW-01-016 | | NYOW-01-018 | | NYOW-01-018 | | NYOW-01-019 | | NYOW-01-019 | | NYOW-01-020 | | NYOW-01-020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-PH015-B | | NYOW-01-SL016-A | | NYOW-01-PH016-B | | NYOW-01-SL018-A | | NYOW-01-PH018-B | | NYOW-01-SL019-A | | NYOW-01-PH019-B | | NYOW-01-SL020-A | | NYOW-01-PH020-B | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | C | | N | | N | | N | |
| | | | | Sample Depth (feet): | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-04-02 | | 2021-04-02 | | 2021-04-02 | | 2021-04-08 | | 2021-04-08 | | 2021-04-06 | | 2021-04-06 | | 2021-04-06 | | 2021-04-06 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.0061 | QAPP Appendix A.1 - Soil | mg/kg | 0.16 | U | 0.16 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.14 | U | 0.15 | UJ | 0.16 | U | 0.15 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.27 | EPA Ecological SSLs | mg/kg | 0.18 | J+ | 0.15 | J | 0.16 | J+ | 0.082 | J | 0.17 | J+ | 0.095 | J | 0.11 | UJ | 0.14 | J | 0.2 | J+ |
| Arsenic | 7440-38-2 | 46 | EPA Ecological SSLs | mg/kg | 6.6 | | 5.2 | | 7.6 | | 4.7 | | 6 | | 3.9 | | 2.8 | | 6.9 | | 7.9 | |
| Barium | 7440-39-3 | 2000 | EPA Ecological SSLs | mg/kg | 50 | | 55 | | 55 | | 40 | J+ | 40 | J+ | 25 | J | 43 | J- | 43 | | 39 | |
| Beryllium | 7440-41-7 | 21 | EPA Ecological SSLs | mg/kg | 0.36 | J+ | 0.44 | J+ | 0.41 | J+ | 0.4 | J+ | 0.42 | J+ | 0.45 | J+ | 0.43 | J+ | 0.53 | J+ | 0.44 | J+ |
| Cadmium | 7440-43-9 | 0.36 | EPA Ecological SSLs | mg/kg | 0.013 | J | 0.13 | | 0.1 | | 0.058 | J | 0.044 | J | 0.058 | J | 0.04 | J | 0.13 | | 0.078 | J |
| Chromium | 7440-47-3 | 34 | EPA Ecological SSLs | mg/kg | 7.4 | | 8.6 | | 10 | | 6.1 | | 6.3 | | 6.4 | J | 6.8 | J- | 7.5 | | 6.7 | |
| Cobalt | 7440-48-4 | 230 | EPA Ecological SSLs | mg/kg | 13 | | 4.5 | | 5.7 | | 4.9 | | 5.4 | | 3.4 | J | 5 | J- | 9.4 | | 10 | |
| Copper | 7440-50-8 | 49 | EPA Ecological SSLs | mg/kg | 26 | | 14 | | 26 | | 13 | | 15 | | 14 | J | 13 | | 28 | | 27 | |
| Lead | 7439-92-1 | 56 | EPA Ecological SSLs | mg/kg | 8.8 | | 14 | | 40 | | 6.1 | | 5.9 | | 4.2 | J | 3.2 | J- | 19 | | 13 | |
| Manganese | 7439-96-5 | 4000 | EPA Ecological SSLs | mg/kg | 460 | | 450 | | 850 | | 420 | | 610 | | 320 | | 260 | J- | 600 | | 550 | |
| Mercury | 7439-97-6 | 1.7 | EPA Region 4 Soil | mg/kg | 0.015 | J | 0.015 | J | 0.013 | J | 0.018 | J | 0.012 | J | 0.017 | J | 0.018 | U | 0.02 | J | 0.019 | U |
| Nickel | 7440-02-0 | 130 | EPA Ecological SSLs | mg/kg | 13 | | 8.2 | | 13 | | 8.3 | | 9 | | 8.1 | J | 9.7 | J- | 12 | | 11 | |
| Selenium | 7782-49-2 | 0.63 | EPA Ecological SSLs | mg/kg | 0.39 | U | 0.49 | J+ | 0.4 | U | 0.48 | J+ | 0.35 | U | 0.43 | J+ | 0.39 | J+ | 0.57 | J+ | 0.57 | J+ |
| Silver | 7440-22-4 | 14 | EPA Ecological SSLs | mg/kg | 1.1 | J+ | 0.53 | U | 1.2 | J+ | 0.47 | U | 0.5 | U | 0.53 | U | 0.52 | UJ | 0.64 | U | 0.53 | U |
| Vanadium | 7440-62-2 | 280 | EPA Ecological SSLs | mg/kg | 11 | | 13 | | 12 | | 11 | | 11 | | 8.4 | J | 10 | J- | 11 | | 10 | |
| Zinc | 7440-66-6 | 79 | EPA Ecological SSLs | mg/kg | 25 | | 40 | | 130 | | 11 | | 12 | | 22 | | 18 | J- | 44 | | 37 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.4-1
Mammal Sample by Sample Screening - AOC 1, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-021 | | NYOW-01-021 | | NYOW-01-022 | | NYOW-01-022 | | NYOW-01-023 | | NYOW-01-023 | | NYOW-01-024 | | NYOW-01-024 | | NYOW-01-025 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL021-A | | NYOW-01-PH021-B | | NYOW-01-SL022-A | | NYOW-01-PH022-B | | NYOW-01-SL023-A | | NYOW-01-PH023-B | | NYOW-01-SL024-A | | NYOW-01-PH024-B | | NYOW-01-SL025-A | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | | 2021-04-07 | | 2021-04-02 | | 2021-04-02 | | 2021-04-07 | | 2021-04-07 | | 2021-04-13 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.0061 | QAPP Appendix A.1 - Soil | mg/kg | 0.15 | U | 0.16 | U | 0.16 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.15 | U | 0.16 | UJ |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.27 | EPA Ecological SSLs | mg/kg | 0.15 | J | 0.093 | U | 0.18 | | 0.19 | J+ | 0.13 | J | 0.19 | J+ | 0.1 | J | 0.16 | J+ | 0.11 | J |
| Arsenic | 7440-38-2 | 46 | EPA Ecological SSLs | mg/kg | 4.5 | | 2.1 | | 4.7 | | 4.9 | | 4.7 | | 4.2 | | 4 | | 4.3 | | 8.7 | |
| Barium | 7440-39-3 | 2000 | EPA Ecological SSLs | mg/kg | 51 | | 35 | | 61 | | 260 | | 40 | | 35 | | 37 | | 37 | | 61 | |
| Beryllium | 7440-41-7 | 21 | EPA Ecological SSLs | mg/kg | 0.43 | J+ | 0.51 | J+ | 0.53 | J+ | 0.12 | U | 0.46 | J+ | 0.44 | J+ | 0.6 | J+ | 0.5 | J+ | 0.55 | J+ |
| Cadmium | 7440-43-9 | 0.36 | EPA Ecological SSLs | mg/kg | 0.14 | | 0.058 | J | 0.65 | | 0.34 | | 0.79 | | 0.079 | J | 0.058 | J | 0.11 | | 0.053 | J |
| Chromium | 7440-47-3 | 34 | EPA Ecological SSLs | mg/kg | 7.9 | | 4.6 | | 9.3 | | 6.7 | | 7.2 | | 7.9 | J- | 5.4 | | 6.9 | | 6.5 | |
| Cobalt | 7440-48-4 | 230 | EPA Ecological SSLs | mg/kg | 6.2 | | 2.9 | | 6 | | 12 | | 5.9 | | 9.7 | J- | 4.8 | | 4.6 | | 7.4 | |
| Copper | 7440-50-8 | 49 | EPA Ecological SSLs | mg/kg | 20 | | 7.2 | | 24 | | 11 | | 28 | | 39 | J- | 13 | | 14 | | 22 | |
| Lead | 7439-92-1 | 56 | EPA Ecological SSLs | mg/kg | 12 | | 3.8 | | 30 | | 6.9 | | 7.2 | | 7.3 | J- | 5.9 | | 6.4 | | 11 | |
| Manganese | 7439-96-5 | 4000 | EPA Ecological SSLs | mg/kg | 590 | J | 230 | | 500 | | 7000 | | 620 | | 510 | | 450 | | 420 | | 510 | |
| Mercury | 7439-97-6 | 1.7 | EPA Region 4 Soil | mg/kg | 0.032 | | 0.048 | | 0.046 | | 0.032 | | 0.017 | J | 0.022 | | 0.018 | U | 0.026 | | 0.013 | J |
| Nickel | 7440-02-0 | 130 | EPA Ecological SSLs | mg/kg | 9.3 | | 4.9 | | 12 | | 7.2 | | 8.8 | | 12 | J- | 7.1 | | 7.7 | | 11 | |
| Selenium | 7782-49-2 | 0.63 | EPA Ecological SSLs | mg/kg | 0.53 | J+ | 0.44 | U | 0.44 | J+ | 0.41 | J+ | 0.56 | J+ | 0.45 | J+ | 0.45 | J+ | 0.45 | J+ | 0.4 | U |
| Silver | 7440-22-4 | 14 | EPA Ecological SSLs | mg/kg | 0.52 | U | 0.61 | U | 0.63 | U | 1.5 | J+ | 0.55 | U | 0.52 | UJ | 0.72 | U | 0.6 | U | 1.7 | J+ |
| Vanadium | 7440-62-2 | 280 | EPA Ecological SSLs | mg/kg | 12 | | 8.3 | | 14 | | 19 | | 12 | | 15 | J | 9.5 | | 11 | | 11 | |
| Zinc | 7440-66-6 | 79 | EPA Ecological SSLs | mg/kg | 28 | J | 81 | | 27 | | 110 | | 44 | | 31 | J- | 41 | | 26 | | 29 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.4-1
Mammal Sample by Sample Screening - AOC 1, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-026 | | NYOW-01-027 | | NYOW-01-028 | | NYOW-01-029 | | NYOW-01-030 | | NYOW-01-031 | | NYOW-01-032 | | NYOW-01-033 | | NYOW-01-034 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL026-A | | NYOW-01-SL027-A | | NYOW-01-SL028-A | | NYOW-01-SL029-A | | NYOW-01-SL030-A | | NYOW-01-SL031-A | | NYOW-01-SL032-A | | NYOW-01-SL033-A | | NYOW-01-SL034-A | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | | 2021-04-14 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.0061 | QAPP Appendix A.1 - Soil | mg/kg | 0.23 | J+ | 0.16 | U | 0.15 | U | 0.15 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U | 0.16 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.27 | EPA Ecological SSLs | mg/kg | 0.34 | | 0.11 | J | 0.56 | | 0.18 | J | 0.16 | J | 0.42 | | 0.23 | | 0.17 | J | 0.41 | |
| Arsenic | 7440-38-2 | 46 | EPA Ecological SSLs | mg/kg | 3.3 | | 5 | | 5.1 | | 11 | | 4.5 | | 4.8 | | 7.1 | | 5.7 | | 3.7 | |
| Barium | 7440-39-3 | 2000 | EPA Ecological SSLs | mg/kg | 83 | | 52 | | 120 | | 96 | | 58 | | 44 | | 58 | | 49 | | 41 | |
| Beryllium | 7440-41-7 | 21 | EPA Ecological SSLs | mg/kg | 0.87 | J+ | 0.47 | J+ | 0.63 | J+ | 0.51 | J+ | 0.47 | J+ | 0.45 | J+ | 0.55 | J+ | 0.51 | J+ | 0.52 | U |
| Cadmium | 7440-43-9 | 0.36 | EPA Ecological SSLs | mg/kg | 0.51 | | 0.2 | | 0.53 | | 0.29 | | 0.49 | | 0.23 | | 0.28 | | 0.26 | | 0.57 | |
| Chromium | 7440-47-3 | 34 | EPA Ecological SSLs | mg/kg | 10 | | 8.1 | | 18 | | 10 | | 9.8 | | 9.2 | | 9.8 | | 8.5 | | 18 | |
| Cobalt | 7440-48-4 | 230 | EPA Ecological SSLs | mg/kg | 4.2 | | 6.5 | | 4.5 | | 8.3 | | 5.8 | | 8 | | 8.6 | | 6.4 | | 3.9 | |
| Copper | 7440-50-8 | 49 | EPA Ecological SSLs | mg/kg | 20 | | 24 | | 24 | | 24 | | 21 | | 22 | | 33 | | 20 | | 19 | |
| Lead | 7439-92-1 | 56 | EPA Ecological SSLs | mg/kg | 54 | | 14 | | 72 | | 26 | | 21 | | 18 | | 23 | | 17 | | 200 | |
| Manganese | 7439-96-5 | 4000 | EPA Ecological SSLs | mg/kg | 950 | | 770 | | 550 | | 1000 | | 540 | | 760 | | 740 | | 680 | | 270 | |
| Mercury | 7439-97-6 | 1.7 | EPA Region 4 Soil | mg/kg | 0.26 | | 0.042 | | 0.76 | | 0.056 | | 0.053 | | 0.14 | | 0.052 | | 0.06 | | 0.096 | |
| Nickel | 7440-02-0 | 130 | EPA Ecological SSLs | mg/kg | 9.2 | | 12 | | 11 | | 13 | | 11 | | 13 | | 12 | | 12 | | 7.4 | |
| Selenium | 7782-49-2 | 0.63 | EPA Ecological SSLs | mg/kg | 0.85 | J+ | 0.43 | J+ | 0.7 | J+ | 0.6 | J+ | 0.51 | J+ | 0.43 | J+ | 0.56 | J+ | 0.45 | J+ | 0.61 | J+ |
| Silver | 7440-22-4 | 14 | EPA Ecological SSLs | mg/kg | 2.6 | J+ | 0.56 | U | 1.9 | J+ | 1.5 | J+ | 0.56 | U | 1.3 | J+ | 0.66 | U | 0.61 | U | 1.6 | J+ |
| Vanadium | 7440-62-2 | 280 | EPA Ecological SSLs | mg/kg | 13 | | 15 | | 14 | | 16 | | 13 | | 14 | | 15 | | 14 | | 7.2 | |
| Zinc | 7440-66-6 | 79 | EPA Ecological SSLs | mg/kg | 170 | | 56 | | 120 | | 60 | | 85 | | 51 | | 75 | | 53 | | 110 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.4-1
Mammal Sample by Sample Screening - AOC 1, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-01-035 | | NYOW-01-036 | | NYOW-01-037 | | NYOW-01-038 | | NYOW-01-039 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-01-SL035-A | | NYOW-01-SL036-A | | NYOW-01-SL037-A | | NYOW-01-SL038-A | | NYOW-01-SL039-A | |
| | | | | Sample Type: | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | | 0 - 1 | |
| | | | | Sample Date: | 2021-04-14 | | 2021-04-14 | | 2021-04-13 | | 2021-04-13 | | 2021-04-13 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Explosives | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.0061 | QAPP Appendix A.1 - Soil | mg/kg | 0.16 | U | 0.16 | UJ | 0.15 | U | 0.15 | U | 0.16 | U |
| Metals (Total) | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.27 | EPA Ecological SSLs | mg/kg | 0.24 | J | 0.31 | | 0.17 | J | 0.091 | J | 0.31 | |
| Arsenic | 7440-38-2 | 46 | EPA Ecological SSLs | mg/kg | 7.8 | | 5.6 | | 3.6 | | 4.7 | | 4.1 | |
| Barium | 7440-39-3 | 2000 | EPA Ecological SSLs | mg/kg | 67 | | 62 | | 42 | | 37 | | 40 | |
| Beryllium | 7440-41-7 | 21 | EPA Ecological SSLs | mg/kg | 0.57 | J+ | 0.58 | J+ | 0.67 | J+ | 0.5 | J+ | 0.67 | U |
| Cadmium | 7440-43-9 | 0.36 | EPA Ecological SSLs | mg/kg | 0.37 | | 0.25 | | 0.45 | | 0.14 | | 0.16 | |
| Chromium | 7440-47-3 | 34 | EPA Ecological SSLs | mg/kg | 9.2 | | 14 | | 7.6 | | 6.3 | | 11 | J |
| Cobalt | 7440-48-4 | 230 | EPA Ecological SSLs | mg/kg | 9.4 | | 8.4 | | 5.7 | | 5.5 | | 4.5 | |
| Copper | 7440-50-8 | 49 | EPA Ecological SSLs | mg/kg | 32 | | 33 | | 21 | | 14 | | 19 | |
| Lead | 7439-92-1 | 56 | EPA Ecological SSLs | mg/kg | 31 | | 44 | | 21 | | 6.8 | | 39 | |
| Manganese | 7439-96-5 | 4000 | EPA Ecological SSLs | mg/kg | 1000 | | 830 | | 640 | | 470 | | 410 | |
| Mercury | 7439-97-6 | 1.7 | EPA Region 4 Soil | mg/kg | 0.078 | | 0.085 | | 0.062 | | 0.022 | | 0.037 | |
| Nickel | 7440-02-0 | 130 | EPA Ecological SSLs | mg/kg | 12 | | 13 | | 11 | | 9 | | 8.4 | |
| Selenium | 7782-49-2 | 0.63 | EPA Ecological SSLs | mg/kg | 0.49 | J+ | 0.54 | J+ | 0.59 | J+ | 0.55 | J+ | 0.45 | J+ |
| Silver | 7440-22-4 | 14 | EPA Ecological SSLs | mg/kg | 0.68 | U | 0.7 | U | 0.8 | U | 1.5 | J+ | 0.67 | U |
| Vanadium | 7440-62-2 | 280 | EPA Ecological SSLs | mg/kg | 14 | | 13 | | 13 | | 12 | | 14 | |
| Zinc | 7440-66-6 | 79 | EPA Ecological SSLs | mg/kg | 64 | | 55 | | 87 | | 39 | | 39 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
QAPP Appendix A.1 - Soil: UFP QAPP, Former New York Ordnance Works, FUDS Property Number C02NY0290, Baldwinsville, New York. December 2020. Prepared by Bluestone Environmental Group.

Table L.4-2
Mammal Sample by Sample Screening - AOC 5 (Boiler House, Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-016 | | NYOW-05-016 | | NYOW-05-017-1 | | NYOW-05-017-1 | | NYOW-05-018 | | NYOW-05-018 | | NYOW-05-019 | | NYOW-05-019 | | NYOW-05-020 | | NYOW-05-020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL016-A | | NYOW-05-PH016-B | | NYOW-05-SL017-1-A | | NYOW-05-PH017-1-B | | NYOW-05-SL018-A | | NYOW-05-PH018-B | | NYOW-05-SL019-A | | NYOW-05-PH019-B | | NYOW-05-SL020-A | | NYOW-05-PH020-B | |
| | | | | Sample Type: | N | | N | | C | | C | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-14 | | 2021-01-11 | | 2021-01-11 | | 2021-01-11 | | 2021-01-11 | | 2021-01-08 | | 2021-01-08 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 1.1 | EPA Ecological SSLs | mg/kg | 0.26 | | 0.054 | U | 0.21 | | 0.055 | U | 0.063 | | 0.089 | | 0.091 | | 0.033 | | 0.071 | | 0.11 | |
| Low Molecular Weight PAHs | N/A | 100 | EPA Ecological SSLs | mg/kg | 0.14 | | 0.028 | U | 0.12 | | 0.028 | U | 0.027 | | 0.059 | | 0.058 | | 0.023 | | 0.046 | | 0.095 | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.27 | EPA Ecological SSLs | mg/kg | 0.2 | J+ | 0.19 | J+ | 0.17 | J+ | 0.18 | J+ | 0.22 | J+ | 0.16 | J+ | 0.16 | J+ | 0.16 | J+ | 0.18 | J+ | 0.21 | J+ |
| Arsenic | 7440-38-2 | 46 | EPA Ecological SSLs | mg/kg | 25 | | 12 | | 6.3 | | 4.6 | | 5.8 | | 9.5 | | 5.8 | | 6.5 | | 4.8 | | 5.1 | |
| Barium | 7440-39-3 | 2000 | EPA Ecological SSLs | mg/kg | 53 | | 69 | | 56 | | 68 | | 53 | | 53 | | 41 | | 52 | | 49 | | 44 | |
| Beryllium | 7440-41-7 | 21 | EPA Ecological SSLs | mg/kg | 0.46 | J+ | 0.39 | J | 0.46 | J+ | 0.44 | J | 0.4 | J+ | 0.27 | J | 0.42 | J+ | 0.21 | J | 0.41 | J+ | 0.27 | J |
| Cadmium | 7440-43-9 | 0.36 | EPA Ecological SSLs | mg/kg | 0.038 | J | 0.025 | J | 0.066 | J | 0.063 | J | 0.09 | J | 0.14 | | 0.086 | | 0.039 | J | 0.055 | J | 0.083 | J |
| Chromium | 7440-47-3 | 34 | EPA Ecological SSLs | mg/kg | 8.8 | | 12 | | 7.5 | | 14 | | 7.4 | | 8.4 | | 7.2 | | 6.8 | | 7.9 | | 9.5 | |
| Cobalt | 7440-48-4 | 230 | EPA Ecological SSLs | mg/kg | 5.8 | | 7.8 | | 5.9 | | 8.2 | | 5 | | 5.5 | | 4.7 | | 5.3 | | 5.3 | | 6.3 | |
| Copper | 7440-50-8 | 49 | EPA Ecological SSLs | mg/kg | 20 | | 16 | | 19 | | 17 | | 16 | | 17 | | 14 | | 22 | | 20 | | 17 | |
| Lead | 7439-92-1 | 56 | EPA Ecological SSLs | mg/kg | 7.5 | | 5.5 | | 7.7 | | 7.5 | | 7.6 | | 7.8 | | 6.4 | | 6.3 | | 7.5 | | 28 | |
| Manganese | 7439-96-5 | 4000 | EPA Ecological SSLs | mg/kg | 630 | | 390 | | 710 | | 480 | | 670 | | 670 | | 490 | | 750 | | 710 | | 480 | |
| Mercury | 7439-97-6 | 1.7 | EPA Region 4 Soil | mg/kg | 0.033 | | 0.015 | U | 0.021 | U | 0.016 | U | 0.0075 | J | 0.015 | U | 0.054 | | 0.015 | J | 0.014 | J | 0.048 | |
| Nickel | 7440-02-0 | 130 | EPA Ecological SSLs | mg/kg | 11 | | 16 | | 12 | | 18 | | 10 | | 11 | | 9.6 | | 11 | | 11 | | 14 | |
| Selenium | 7782-49-2 | 0.63 | EPA Ecological SSLs | mg/kg | 0.34 | U | 0.31 | U | 0.45 | J+ | 0.38 | U | 0.5 | J+ | 0.45 | J+ | 0.37 | J+ | 0.5 | J+ | 0.41 | J+ | 0.48 | J+ |
| Thallium | 7440-28-0 | 0.42 | EPA Region 4 Soil | mg/kg | 0.086 | U | 0.078 | U | 0.1 | | 0.13 | | 0.099 | U | 0.14 | | 0.073 | U | 0.099 | U | 0.061 | J | 0.099 | |
| Vanadium | 7440-62-2 | 280 | EPA Ecological SSLs | mg/kg | 13 | | 18 | | 13 | | 19 | | 12 | | 13 | | 11 | | 11 | | 12 | | 13 | |
| Zinc | 7440-66-6 | 79 | EPA Ecological SSLs | mg/kg | 31 | | 31 | | 28 | | 37 | | 25 | | 26 | | 25 | | 22 | | 27 | | 150 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
EPA Region 5 RCRA Soil ESLs: EPA Region 5 Resource Conservation and Recovery Act Soil Ecological Screening Levels (2003).

Table L.4-3
Mammal Sample by Sample Screening - AOC 5 (Coal Aggregate Bins), Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-021 | | NYOW-05-021 | | NYOW-05-022 | | NYOW-05-022 | | NYOW-05-023 | | NYOW-05-023 | | NYOW-05-024 | | NYOW-05-024 | | NYOW-05-025 | | NYOW-05-025 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL021-A | | NYOW-05-PH021-B | | NYOW-05-SL022-A | | NYOW-05-PH022-B | | NYOW-05-SL023-A | | NYOW-05-PH023-B | | NYOW-05-SL024-A | | NYOW-05-PH024-B | | NYOW-05-SL025-A | | NYOW-05-PH025-B | |
| | | | | Sample Type: | N | | N | | N | | C | | C | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-08 | | 2021-01-11 | | 2021-01-11 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 1.1 | EPA Ecological SSLs | mg/kg | 1.5 | | 0.12 | | 0.19 | | 0.056 | | 13 | | 0.21 | | 3 | | 0.076 | | 0.31 | | 0.051 | |
| Low Molecular Weight PAHs | N/A | 100 | EPA Ecological SSLs | mg/kg | 7.6 | | 0.11 | | 0.079 | | 0.03 | | 10 | | 0.13 | | 29 | | 0.39 | | 0.33 | | 0.024 | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.27 | EPA Ecological SSLs | mg/kg | 0.25 | | 0.21 | | 0.15 | J | 0.15 | | 0.33 | | 0.17 | J | 0.19 | J | 0.095 | J | 0.16 | J | 0.16 | J |
| Arsenic | 7440-38-2 | 46 | EPA Ecological SSLs | mg/kg | 10 | | 7.4 | | 5.4 | | 5.8 | | 13 | | 6.9 | | 16 | | 6.3 | | 4.6 | | 5.4 | |
| Barium | 7440-39-3 | 2000 | EPA Ecological SSLs | mg/kg | 52 | | 78 | | 54 | J+ | 41 | | 37 | | 51 | | 27 | | 48 | | 34 | | 66 | |
| Beryllium | 7440-41-7 | 21 | EPA Ecological SSLs | mg/kg | 0.42 | J | 0.44 | J+ | 0.39 | J- | 0.39 | J+ | 0.29 | J | 0.47 | J+ | 0.63 | | 0.54 | J+ | 0.28 | J- | 2.3 | J+ |
| Cadmium | 7440-43-9 | 0.36 | EPA Ecological SSLs | mg/kg | 0.25 | | 0.25 | | 0.15 | | 0.14 | | 0.37 | | 0.21 | | 0.11 | J | 0.1 | | 0.1 | J | 0.11 | |
| Chromium | 7440-47-3 | 34 | EPA Ecological SSLs | mg/kg | 8.3 | | 9.9 | | 13 | J- | 7 | | 8.2 | | 7.7 | | 5.8 | | 8.6 | | 8.6 | J- | 11 | |
| Cobalt | 7440-48-4 | 230 | EPA Ecological SSLs | mg/kg | 6.4 | | 9 | | 7.5 | J- | 5 | | 4.9 | | 6.3 | | 1.8 | | 6 | | 5.2 | J- | 7.6 | |
| Copper | 7440-50-8 | 49 | EPA Ecological SSLs | mg/kg | 20 | | 34 | | 22 | | 22 | | 17 | | 20 | | 10 | | 24 | | 14 | | 21 | |
| Lead | 7439-92-1 | 56 | EPA Ecological SSLs | mg/kg | 21 | | 18 | | 8.6 | J- | 11 | J | 17 | | 15 | | 8.9 | | 8.8 | | 8.9 | J- | 11 | |
| Manganese | 7439-96-5 | 4000 | EPA Ecological SSLs | mg/kg | 650 | | 2400 | | 660 | J | 920 | | 420 | | 910 | | 110 | | 820 | | 410 | J | 1100 | |
| Mercury | 7439-97-6 | 1.7 | EPA Region 4 Soil | mg/kg | 0.11 | | 0.084 | | 0.03 | | 0.032 | | 0.077 | | 0.076 | | 0.064 | | 0.033 | | 0.026 | | 0.051 | |
| Nickel | 7440-02-0 | 130 | EPA Ecological SSLs | mg/kg | 13 | | 14 | | 15 | | 9.4 | | 12 | | 10 | | 6.1 | | 11 | | 11 | J- | 14 | |
| Selenium | 7782-49-2 | 0.63 | EPA Ecological SSLs | mg/kg | 0.9 | | 0.54 | J+ | 0.22 | J | 0.46 | J+ | 0.65 | | 0.55 | J+ | 0.83 | | 0.43 | J+ | 0.31 | J | 0.42 | J+ |
| Thallium | 7440-28-0 | 0.42 | EPA Region 4 Soil | mg/kg | 0.18 | | 0.12 | | 0.11 | U | 0.092 | U | 0.24 | | 0.11 | U | 0.26 | | 0.087 | U | 0.12 | | 0.11 | |
| Vanadium | 7440-62-2 | 280 | EPA Ecological SSLs | mg/kg | 15 | | 18 | | 17 | | 12 | | 11 | | 15 | | 7.6 | | 14 | | 13 | | 17 | |
| Zinc | 7440-66-6 | 79 | EPA Ecological SSLs | mg/kg | 55 | | 66 | | 36 | J- | 29 | | 54 | | 37 | | 16 | | 30 | | 34 | J- | 36 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
EPA Region 5 RCRA Soil ESLs: EPA Region 5 Resource Conservation and Recovery Act Soil Ecological Screening Levels (2003).

Table L.4-4
Mammal Sample by Sample Screening - AOC 5 (Coal Storage Area), Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-006 | | NYOW-05-006 | | NYOW-05-007 | | NYOW-05-007 | | NYOW-05-008 | | NYOW-05-008 | | NYOW-05-009 | | NYOW-05-009 | | NYOW-05-010 | | NYOW-05-010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL006-A | | NYOW-05-PH006-B | | NYOW-05-SL007-A | | NYOW-05-PH007-B | | NYOW-05-SL008-A | | NYOW-05-PH008-B | | NYOW-05-SL009-A | | NYOW-05-PH009-B | | NYOW-05-SL010-A | | NYOW-05-PH010-B | |
| | | | | Sample Type: | N | | N | | N | | C | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-08 | | 2021-01-08 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | | 2021-01-07 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 1.1 | EPA Ecological SSLs | mg/kg | 1.9 | | 0.061 | U | 4.3 | | 0.051 | U | 4.1 | | 0.053 | U | 0.69 | | 0.058 | U | 0.41 | | 0.046 | |
| Low Molecular Weight PAHs | N/A | 100 | EPA Ecological SSLs | mg/kg | 22 | | 0.031 | U | 40 | | 0.019 | | 19 | | 0.037 | | 0.73 | | 0.03 | U | 0.32 | | 0.027 | U |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.27 | EPA Ecological SSLs | mg/kg | 0.32 | | 0.17 | J+ | 0.24 | J | 0.17 | J+ | 0.46 | | 0.16 | J+ | 0.16 | J | 0.087 | U | 0.11 | UJ | 0.2 | J+ |
| Arsenic | 7440-38-2 | 46 | EPA Ecological SSLs | mg/kg | 24 | | 3.9 | | 19 | | 2.8 | | 12 | | 4 | | 9.7 | | 5.1 | | 4.5 | | 26 | |
| Barium | 7440-39-3 | 2000 | EPA Ecological SSLs | mg/kg | 34 | | 46 | | 43 | | 39 | | 37 | | 36 | | 45 | | 37 | | 65 | | 110 | |
| Beryllium | 7440-41-7 | 21 | EPA Ecological SSLs | mg/kg | 0.68 | J+ | 0.43 | J+ | 0.75 | J+ | 0.46 | J+ | 0.59 | J+ | 0.42 | J+ | 0.67 | J+ | 0.5 | J+ | 0.47 | J+ | 0.53 | J+ |
| Cadmium | 7440-43-9 | 0.36 | EPA Ecological SSLs | mg/kg | 0.23 | | 0.17 | | 0.38 | | 0.029 | J | 0.21 | | 0.04 | J | 0.19 | | 0.038 | J | 0.11 | | 0.026 | J |
| Chromium | 7440-47-3 | 34 | EPA Ecological SSLs | mg/kg | 7.2 | | 7.2 | | 6 | | 6.5 | | 6.6 | | 8.9 | | 6 | | 5 | | 7.2 | | 7.3 | |
| Cobalt | 7440-48-4 | 230 | EPA Ecological SSLs | mg/kg | 6.6 | | 4.8 | | 4.2 | | 3.9 | | 2.1 | | 4.9 | | 2.4 | | 3.5 | | 3.4 | | 8 | |
| Copper | 7440-50-8 | 49 | EPA Ecological SSLs | mg/kg | 22 | | 13 | | 22 | | 14 | | 9.8 | | 19 | | 7.4 | | 9.3 | | 5.3 | | 27 | |
| Lead | 7439-92-1 | 56 | EPA Ecological SSLs | mg/kg | 21 | | 7.2 | | 18 | | 3 | | 18 | | 4.7 | | 13 | | 3.1 | | 4.2 | | 4.5 | |
| Manganese | 7439-96-5 | 4000 | EPA Ecological SSLs | mg/kg | 320 | | 630 | | 270 | | 440 | | 110 | | 360 | | 330 | | 340 | | 400 | J- | 870 | |
| Mercury | 7439-97-6 | 1.7 | EPA Region 4 Soil | mg/kg | 0.086 | | 0.031 | | 0.093 | | 0.017 | U | 0.19 | | 0.015 | U | 0.1 | | 0.017 | U | 0.11 | | 0.016 | U |
| Nickel | 7440-02-0 | 130 | EPA Ecological SSLs | mg/kg | 13 | | 8.2 | | 9.2 | | 8.3 | | 4.9 | | 11 | | 5.4 | | 5.5 | | 5.7 | | 14 | |
| Selenium | 7782-49-2 | 0.63 | EPA Ecological SSLs | mg/kg | 1 | | 0.46 | J+ | 0.98 | | 0.36 | U | 1.5 | | 0.38 | U | 0.64 | J | 0.39 | U | 0.4 | J | 0.38 | U |
| Thallium | 7440-28-0 | 0.42 | EPA Region 4 Soil | mg/kg | 0.34 | | 0.092 | U | 0.34 | | 0.09 | J+ | 0.6 | | 0.094 | J+ | 0.24 | | 0.096 | J+ | 0.18 | | 0.096 | J+ |
| Vanadium | 7440-62-2 | 280 | EPA Ecological SSLs | mg/kg | 12 | | 13 | | 10 | | 9.8 | | 15 | | 13 | | 11 | | 8.7 | | 15 | | 13 | |
| Zinc | 7440-66-6 | 79 | EPA Ecological SSLs | mg/kg | 44 | | 24 | | 58 | | 19 | | 35 | | 23 | | 28 | | 15 | | 14 | | 27 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend
ND — Not detected at the LOD
Detect — Detected result
Detect — Detected result > SL

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
EPA Region 5 RCRA Soil ESLs: EPA Region 5 Resource Conservation and Recovery Act Soil Ecological Screening Levels (2003).

Table L.4-5
Mammal Sample by Sample Screening - AOC 5 (Electric Substation), Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-011 | | NYOW-05-011 | | NYOW-05-012 | | NYOW-05-012 | | NYOW-05-013 | | NYOW-05-013 | | NYOW-05-014 | | NYOW-05-014 | | NYOW-05-015 | | NYOW-05-015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL011-A | | NYOW-05-PH011-B | | NYOW-05-SL012-A | | NYOW-05-PH012-B | | NYOW-05-SL013-A | | NYOW-05-PH013-B | | NYOW-05-SL014-A | | NYOW-05-PH014-B | | NYOW-05-SL015-A | | NYOW-05-PH015-B | |
| | | | | Sample Type: | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | | 2021-01-13 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 1.1 | EPA Ecological SSLs | mg/kg | 0.11 | | 0.023 | | 0.13 | | 0.027 | | 0.11 | | 0.1 | | 0.13 | | 0.024 | | 0.35 | | 0.072 | |
| Low Molecular Weight PAHs | N/A | 100 | EPA Ecological SSLs | mg/kg | 0.12 | | 0.023 | | 0.071 | | 0.032 | | 0.06 | | 0.068 | | 0.073 | | 0.03 | | 0.12 | | 0.056 | |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.371 | EPA Region 4 Soil | mg/kg | 0.0068 | U | -- | -- | 0.029 | J | -- | -- | 0.16 | | -- | -- | 0.013 | J | -- | -- | 0.0042 | J | -- | -- |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.27 | EPA Ecological SSLs | mg/kg | 0.19 | | 0.21 | J+ | 0.17 | | 0.17 | J+ | 0.096 | J | 0.21 | J+ | 0.13 | J | 0.18 | J+ | 0.12 | J | 0.21 | J+ |
| Arsenic | 7440-38-2 | 46 | EPA Ecological SSLs | mg/kg | 5.2 | | 4.4 | | 5.9 | | 5 | | 4.3 | | 5.5 | | 4.9 | | 4.9 | | 4.3 | | 4.8 | |
| Barium | 7440-39-3 | 2000 | EPA Ecological SSLs | mg/kg | 62 | | 46 | | 66 | | 110 | | 43 | | 51 | | 51 | | 59 | | 48 | | 50 | |
| Beryllium | 7440-41-7 | 21 | EPA Ecological SSLs | mg/kg | 0.55 | J+ | 0.43 | J | 0.49 | J+ | 0.83 | | 0.47 | J+ | 0.27 | J | 0.57 | J+ | 0.47 | J | 0.57 | J+ | 0.35 | J |
| Cadmium | 7440-43-9 | 0.36 | EPA Ecological SSLs | mg/kg | 0.14 | | 0.078 | J | 0.14 | | 0.061 | J | 0.14 | | 0.38 | | 0.11 | | 0.054 | J | 0.39 | | 0.046 | J |
| Chromium | 7440-47-3 | 34 | EPA Ecological SSLs | mg/kg | 10 | | 14 | | 8.5 | | 25 | | 8.4 | | 8.3 | | 9.6 | | 15 | | 7.9 | | 10 | |
| Cobalt | 7440-48-4 | 230 | EPA Ecological SSLs | mg/kg | 7.1 | | 9.7 | | 7 | | 13 | | 6.1 | | 5.9 | | 9.3 | | 6.2 | | 5.6 | | 6.3 | |
| Copper | 7440-50-8 | 49 | EPA Ecological SSLs | mg/kg | 25 | | 21 | | 24 | | 25 | | 16 | | 74 | | 21 | | 15 | | 16 | | 16 | |
| Lead | 7439-92-1 | 56 | EPA Ecological SSLs | mg/kg | 12 | | 8.4 | | 24 | | 9.4 | | 7.9 | | 8.5 | | 13 | | 7.8 | | 7.6 | | 10 | |
| Manganese | 7439-96-5 | 4000 | EPA Ecological SSLs | mg/kg | 1100 | | 760 | | 1200 | | 600 | | 590 | | 870 | | 660 | | 330 | | 630 | | 670 | |
| Mercury | 7439-97-6 | 1.7 | EPA Region 4 Soil | mg/kg | 0.085 | | 0.03 | | 0.23 | | 0.099 | | 0.029 | | 0.035 | | 0.026 | | 0.013 | J | 0.026 | | 0.024 | |
| Nickel | 7440-02-0 | 130 | EPA Ecological SSLs | mg/kg | 15 | | 20 | | 12 | | 29 | | 12 | | 12 | | 15 | | 16 | | 12 | | 13 | |
| Selenium | 7782-49-2 | 0.63 | EPA Ecological SSLs | mg/kg | 0.46 | J+ | 0.49 | J+ | 0.47 | J+ | 0.45 | J+ | 0.59 | J+ | 0.47 | J+ | 0.54 | J+ | 0.41 | J+ | 0.42 | J+ | 0.48 | J+ |
| Thallium | 7440-28-0 | 0.42 | EPA Region 4 Soil | mg/kg | 0.12 | | 0.099 | U | 0.14 | | 0.16 | | 0.12 | U | 0.094 | U | 0.11 | U | 0.096 | | 0.085 | U | 0.096 | U |
| Vanadium | 7440-62-2 | 280 | EPA Ecological SSLs | mg/kg | 16 | | 16 | | 15 | | 31 | | 14 | | 13 | | 14 | | 17 | | 12 | | 14 | |
| Zinc | 7440-66-6 | 79 | EPA Ecological SSLs | mg/kg | 42 | | 35 | | 49 | | 56 | | 35 | | 42 | | 40 | | 35 | | 33 | | 29 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
EPA Region 5 RCRA Soil ESLs: EPA Region 5 Resource Conservation and Recovery Act Soil Ecological Screening Levels (2003).

Table L.4-6
Mammal Sample by Sample Screening - AOC 5 (Possible Dump Area), Soil (0 - 5 ft bgs)
Phase 1 Risk Screening and Data Gap Analysis
Former New York Ordnance Works, Baldwinsville, New York

| | | | | Sample Location: | NYOW-05-001 | | NYOW-05-001 | | NYOW-05-002 | | NYOW-05-002 | | NYOW-05-003 | | NYOW-05-003 | | NYOW-05-004 | | NYOW-05-004 | | NYOW-05-005 | | NYOW-05-005 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sample Name: | NYOW-05-SL001-A | | NYOW-05-PH001-B | | NYOW-05-SL002-A | | NYOW-05-PH002-B | | NYOW-05-SL003-A | | NYOW-05-PH003-B | | NYOW-05-SL004-A | | NYOW-05-PH004-B | | NYOW-05-SL005-A | | NYOW-05-PH005-B | |
| | | | | Sample Type: | N | | N | | C | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Depth (feet): | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | | 0 - 1 | | 1 - 5 | |
| | | | | Sample Date: | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | | 2021-01-12 | |
| Analyte | CASRN | SL | SL Reference | Units | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier | Result | Qualifier |
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 350 | EPA Region 4 Soil | mg/kg | -- | -- | 0.016 | J+ | -- | -- | 0.01 | U | -- | -- | 0.019 | J+ | -- | -- | 0.01 | U | -- | -- | 0.011 | U |
| Acetone | 67-64-1 | 1.2 | EPA Region 4 Soil | mg/kg | -- | -- | 0.069 | | -- | -- | 0.057 | U | -- | -- | 0.069 | U | -- | -- | 0.058 | U | -- | -- | 0.063 | U |
| Benzene | 71-43-2 | 24 | EPA Region 4 Soil | mg/kg | -- | -- | 0.00033 | U | -- | -- | 0.004 | J+ | -- | -- | 0.00038 | U | -- | -- | 0.00032 | U | -- | -- | 0.00035 | U |
| Toluene | 108-88-3 | 23 | EPA Region 4 Soil | mg/kg | -- | -- | 0.00066 | U | -- | -- | 0.004 | J+ | -- | -- | 0.00076 | U | -- | -- | 0.00065 | U | -- | -- | 0.0007 | U |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 120 | EPA Region 4 Soil | mg/kg | 0.35 | J+ | 0.19 | UJ | 0.2 | UJ | 0.19 | UJ | 0.19 | U | 0.21 | UJ | 0.18 | UJ | 0.19 | UJ | 0.2 | UJ | 0.2 | UJ |
| Di-n-butyl phthalate | 84-74-2 | 180 | EPA Region 4 Soil | mg/kg | 0.071 | U | 0.076 | U | 0.078 | UJ | 0.075 | U | 0.076 | UJ | 0.085 | UJ | 0.072 | U | 0.076 | U | 0.39 | | 0.08 | U |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 1.1 | EPA Ecological SSLs | mg/kg | 0.03 | | 0.059 | U | 0.17 | | 0.053 | U | 0.061 | | 0.054 | | 0.13 | | 0.062 | | 0.44 | | 0.053 | |
| Low Molecular Weight PAHs | N/A | 100 | EPA Ecological SSLs | mg/kg | 0.017 | | 0.022 | | 0.17 | | 0.019 | | 0.28 | | 0.044 | | 0.32 | | 0.04 | | 1.2 | | 0.044 | |
| Metals (Total) | | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.27 | EPA Ecological SSLs | mg/kg | 0.12 | J | 0.099 | U | 0.12 | J | 0.19 | J+ | 0.18 | J | 0.26 | J+ | 0.076 | J | 0.091 | U | 1 | | 0.19 | J+ |
| Arsenic | 7440-38-2 | 46 | EPA Ecological SSLs | mg/kg | 4.6 | | 3.9 | | 5.1 | | 6.4 | | 6.8 | J+ | 4.5 | J | 4.3 | | 3.6 | | 6.9 | | 6.2 | |
| Barium | 7440-39-3 | 2000 | EPA Ecological SSLs | mg/kg | 30 | | 68 | | 40 | | 29 | | 32 | | 110 | J | 31 | | 18 | | 76 | | 48 | |
| Beryllium | 7440-41-7 | 21 | EPA Ecological SSLs | mg/kg | 0.55 | J+ | 0.19 | J | 0.47 | J+ | 0.19 | J | 0.42 | J+ | 0.77 | | 0.54 | J+ | 0.11 | J | 0.56 | J+ | 0.37 | J |
| Cadmium | 7440-43-9 | 0.36 | EPA Ecological SSLs | mg/kg | 0.072 | J | 0.081 | J | 0.33 | | 0.063 | J | 0.15 | | 0.073 | J | 0.076 | | 0.036 | J | 4.3 | | 0.12 | |
| Chromium | 7440-47-3 | 34 | EPA Ecological SSLs | mg/kg | 6.4 | | 11 | | 7.9 | | 13 | J | 5.5 | J- | 25 | | 5 | | 4.9 | | 13 | | 11 | |
| Cobalt | 7440-48-4 | 230 | EPA Ecological SSLs | mg/kg | 4.1 | | 4.1 | | 4.7 | | 8.3 | | 3.6 | J- | 9 | | 6.7 | | 2.9 | | 4.3 | | 6.1 | |
| Copper | 7440-50-8 | 49 | EPA Ecological SSLs | mg/kg | 23 | | 13 | | 18 | | 16 | J | 20 | | 18 | | 32 | | 10 | | 110 | | 19 | |
| Lead | 7439-92-1 | 56 | EPA Ecological SSLs | mg/kg | 4.6 | | 5.8 | | 9.3 | | 4 | J | 11 | J- | 7.9 | | 8.3 | | 3.4 | | 200 | | 6 | |
| Manganese | 7439-96-5 | 4000 | EPA Ecological SSLs | mg/kg | 710 | | 1000 | | 520 | | 410 | | 400 | J- | 450 | J | 780 | | 320 | | 450 | | 630 | |
| Mercury | 7439-97-6 | 1.7 | EPA Region 4 Soil | mg/kg | 0.016 | J | 0.054 | | 0.059 | | 0.013 | J | 0.031 | | 0.018 | J | 0.0078 | J | 0.02 | | 0.14 | | 0.019 | J |
| Nickel | 7440-02-0 | 130 | EPA Ecological SSLs | mg/kg | 8.1 | | 7.6 | | 8.3 | | 11 | J | 8.3 | J- | 25 | | 9.9 | | 5.1 | | 18 | | 14 | |
| Selenium | 7782-49-2 | 0.63 | EPA Ecological SSLs | mg/kg | 0.15 | J | 0.48 | J+ | 0.49 | | 0.39 | U | 0.27 | J | 0.49 | J+ | 0.13 | J | 0.4 | U | 0.47 | | 0.6 | J+ |
| Silver | 7440-22-4 | 14 | EPA Ecological SSLs | mg/kg | 0.67 | U | 0.52 | U | 0.56 | U | 2.9 | U | 0.5 | U | 0.55 | U | 0.64 | U | 0.6 | U | 1.7 | J+ | 0.58 | U |
| Thallium | 7440-28-0 | 0.42 | EPA Region 4 Soil | mg/kg | 0.091 | U | 0.097 | U | 0.094 | U | 0.097 | U | 0.12 | | 0.2 | J | 0.075 | U | 0.1 | U | 0.15 | | 0.12 | U |
| Vanadium | 7440-62-2 | 280 | EPA Ecological SSLs | mg/kg | 10 | | 15 | | 14 | | 24 | | 9.9 | | 31 | | 7.9 | | 9.7 | | 10 | | 16 | |
| Zinc | 7440-66-6 | 79 | EPA Ecological SSLs | mg/kg | 29 | | 23 | | 35 | | 21 | J | 35 | J- | 52 | J- | 28 | | 12 | | 690 | | 52 | |

Notes
-- = Not Evaluated
C = Combined Primary/Field Duplicate Sample
CASRN = Chemical Abstracts Service Registry Number
LOD = Limit of Detection
N/A = Not Applicable
N = Primary Sample
ND = Non-Detect or Not Detected
SL = Screening Level
(1) See Section 4.0 for data reduction steps.

Legend

| | |
|---|---|
| ND | Not detected at the LOD |
| Detect | Detected result |
| Detect | Detected result > SL |

Qualifier Definitions
J – The reported result was an estimated value (+/- indicates a positive/negative bias).
U – The analyte was not detected and was reported as less than the limit of detection (LOD).
UJ – The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

SL Sources
EPA Ecological SSLs: Environmental Protection Agency (various dates) Ecological Soil Screening Levels.
EPA Region 4 Soil: EPA Region 4 Ecological Risk Assessment Supplemental Guidance – Soil Screening Values for Hazardous Waste Sites (2018).
EPA Region 5 RCRA Soil ESLs: EPA Region 5 Resource Conservation and Recovery Act Soil Ecological Screening Levels (2003).

# APPENDIX L.5

# Ecological Screening Summary – Plants

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Table L.5-1
Ecological Screening Summary – Area of Concern 1, Surface Soil (0 - 1 ft bgs), Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Explosives | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.23 | J+ | 0.23 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 1/30 | 3% | -- | -- | -- | 0.14 – 0.16 | 0.23 | MDC | 2 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.082 | J | 0.56 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 30/30 | 100% | 0.2 | 0.17 | 0.11 | 0.084 – 0.16 | 0.56 | MDC | 5 | No |
| Arsenic | 7440-38-2 | 2.4 | | 11 | | mg/kg | NYOW-01-029 (2021-04-13) | 0 - 1 | 30/30 | 100% | 5.1 | 4.7 | 1.7 | 0.16 – 0.34 | 11 | MDC | 18 | No |
| Barium | 7440-39-3 | 25 | J | 120 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 30/30 | 100% | 56 | 52 | 21 | 0.71 – 1.6 | 120 | MDC | 110 | Yes |
| Beryllium | 7440-41-7 | 0.4 | J+ | 0.87 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 28/30 | 93% | 0.53 | 0.52 | 0.095 | 0.095 – 0.67 | 0.87 | MDC | 2.5 | No |
| Cadmium | 7440-43-9 | 0.053 | J | 0.79 | | mg/kg | NYOW-01-023 (2021-04-02) | 0 - 1 | 30/30 | 100% | 0.28 | 0.24 | 0.19 | 0.028 – 0.059 | 0.79 | MDC | 32 | No |
| Chromium | 7440-47-3 | 5 | | 18 | | mg/kg | Multiple Locations | 0 - 1 | 30/30 | 100% | 9 | 8.6 | 3.2 | 0.32 – 2.2 | 18 | MDC | 0.35 | Yes |
| Cobalt | 7440-48-4 | 3.4 | J | 9.4 | | mg/kg | Multiple Locations | 0 - 1 | 30/30 | 100% | 6 | 5.9 | 1.7 | 0.16 – 0.35 | 9.4 | MDC | 13 | No |
| Copper | 7440-50-8 | 11 | | 80 | | mg/kg | NYOW-01-013 (2021-04-14) | 0 - 1 | 30/30 | 100% | 23 | 21 | 12 | 0.63 – 1.4 | 80 | MDC | 70 | Yes |
| Lead | 7439-92-1 | 4.2 | J | 200 | | mg/kg | NYOW-01-034 (2021-04-14) | 0 - 1 | 30/30 | 100% | 28 | 19 | 36 | 0.63 – 4.5 | 200 | MDC | 120 | Yes |
| Manganese | 7439-96-5 | 270 | | 1400 | J | mg/kg | NYOW-01-002 (2021-04-09) | 0 - 1 | 30/30 | 100% | 650 | 600 | 250 | 0.32 – 0.69 | 1400 | MDC | 220 | Yes |
| Mercury | 7439-97-6 | 0.013 | J | 0.76 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 29/30 | 97% | 0.076 | 0.041 | 0.14 | 0.016 – 0.03 | 0.76 | MDC | 0.3 | Yes |
| Nickel | 7440-02-0 | 6.9 | | 13 | | mg/kg | Multiple Locations | 0 - 1 | 30/30 | 100% | 10 | 11 | 2 | 0.36 – 0.78 | 13 | MDC | 38 | No |
| Selenium | 7782-49-2 | 0.4 | J+ | 0.85 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 29/30 | 97% | 0.53 | 0.52 | 0.1 | 0.32 – 0.68 | 0.85 | MDC | 0.52 | Yes |
| Silver | 7440-22-4 | 1.3 | J+ | 2.6 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 11/30 | 37% | 0.93 | 0.69 | 0.64 | 0.47 – 1 | 2.6 | MDC | 560 | No |
| Zinc | 7440-66-6 | 11 | | 180 | J | mg/kg | NYOW-01-005 (2021-04-08) | 0 - 1 | 30/30 | 100% | 63 | 53 | 40 | 1.2 – 2.6 | 180 | MDC | 160 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.1 for screening level determination steps.

Table L.5-2
Ecological Screening Summary – Area of Concern 1, Total Soil (0 - 5 ft bgs), Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Explosives | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.23 | J+ | 0.23 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 1/41 | 2% | -- | -- | -- | 0.14 – 0.16 | 0.23 | MDC | 2 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.082 | J | 0.56 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 38/41 | 93% | 0.19 | 0.17 | 0.1 | 0.078 – 0.16 | 0.56 | MDC | 5 | No |
| Arsenic | 7440-38-2 | 2.1 | | 11 | | mg/kg | NYOW-01-029 (2021-04-13) | 0 - 1 | 41/41 | 100% | 5.1 | 4.7 | 1.7 | 0.16 – 0.34 | 11 | MDC | 18 | No |
| Barium | 7440-39-3 | 25 | J | 260 | | mg/kg | NYOW-01-022 (2021-04-07) | 1 - 5 | 41/41 | 100% | 57 | 46 | 38 | 0.65 – 1.6 | 260 | MDC | 110 | Yes |
| Beryllium | 7440-41-7 | 0.36 | J+ | 0.87 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 38/41 | 93% | 0.5 | 0.5 | 0.11 | 0.087 – 0.67 | 0.87 | MDC | 2.5 | No |
| Cadmium | 7440-43-9 | 0.013 | J | 0.79 | | mg/kg | NYOW-01-023 (2021-04-02) | 0 - 1 | 41/41 | 100% | 0.23 | 0.16 | 0.19 | 0.027 – 0.059 | 0.79 | MDC | 32 | No |
| Chromium | 7440-47-3 | 4.6 | | 18 | | mg/kg | Multiple Locations | 0 - 1 | 41/41 | 100% | 8.5 | 7.9 | 2.9 | 0.29 – 2.2 | 18 | MDC | 0.35 | Yes |
| Cobalt | 7440-48-4 | 2.9 | | 13 | | mg/kg | NYOW-01-015 (2021-04-02) | 1 - 5 | 41/41 | 100% | 6.3 | 5.8 | 2.3 | 0.15 – 0.35 | 13 | MDC | 13 | No |
| Copper | 7440-50-8 | 7.2 | | 80 | | mg/kg | NYOW-01-013 (2021-04-14) | 0 - 1 | 41/41 | 100% | 22 | 21 | 12 | 0.58 – 1.4 | 80 | MDC | 70 | Yes |
| Lead | 7439-92-1 | 3.2 | J- | 200 | | mg/kg | NYOW-01-034 (2021-04-14) | 0 - 1 | 41/41 | 100% | 23 | 14 | 32 | 0.58 – 4.5 | 200 | MDC | 120 | Yes |
| Manganese | 7439-96-5 | 230 | | 7000 | | mg/kg | NYOW-01-022 (2021-04-07) | 1 - 5 | 41/41 | 100% | 770 | 550 | 1000 | 0.29 – 3.9 | 7000 | MDC | 220 | Yes |
| Mercury | 7439-97-6 | 0.012 | J | 0.76 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 37/41 | 90% | 0.061 | 0.032 | 0.12 | 0.015 – 0.03 | 0.76 | MDC | 0.3 | Yes |
| Nickel | 7440-02-0 | 4.9 | | 13 | | mg/kg | Multiple Locations | 0 - 1 | 41/41 | 100% | 10 | 11 | 2.2 | 0.33 – 0.78 | 13 | MDC | 38 | No |
| Selenium | 7782-49-2 | 0.39 | J+ | 0.85 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 35/41 | 85% | 0.5 | 0.49 | 0.11 | 0.31 – 0.68 | 0.85 | MDC | 0.52 | Yes |
| Silver | 7440-22-4 | 1.1 | J+ | 2.6 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 15/41 | 37% | 0.88 | 0.67 | 0.59 | 0.44 – 1 | 2.6 | MDC | 560 | No |
| Vanadium | 7440-62-2 | 7.2 | | 20 | | mg/kg | NYOW-01-002 (2021-04-09) | 0 - 1 | 41/41 | 100% | 13 | 12 | 2.8 | 0.25 – 0.61 | 20 | MDC | 60 | No |
| Zinc | 7440-66-6 | 11 | | 180 | J | mg/kg | NYOW-01-005 (2021-04-08) | 0 - 1 | 41/41 | 100% | 59 | 44 | 40 | 1.1 – 2.6 | 180 | MDC | 160 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.1 for screening level determination steps.

Table L.5-3
Ecological Screening Summary – Area of Concern 3, Total Soil (0 - 5 ft bgs), Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Total Soil (0 - 5 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | |
| Toluene | 108-88-3 | 0.0046 | J+ | 0.0051 | J+ | mg/kg | NYOW-03-006 (2021-05-04) | 1 - 5 | 4/18 | 22% | 0.0016 | 0.00083 | 0.0017 | 0.00072 – 0.00093 | 0.0051 | MDC | 200 | No |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | |
| Cresols, m- & p- | cresols-m,p | 0.39 | J+ | 0.39 | J+ | mg/kg | NYOW-03-012 (2021-03-31) | 0 - 1 | 1/36 | 3% | -- | -- | -- | 0.071 – 0.099 | 0.39 | MDC | 0.69 | No |
| Dibenzofuran | 132-64-9 | 0.39 | J+ | 0.42 | J+ | mg/kg | NYOW-03-011 (2021-03-31) | 0 - 1 | 2/36 | 6% | 0.09 | 0.082 | 0.077 | 0.071 – 0.099 | 0.42 | MDC | 6.1 | No |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.00065 | J | 0.65 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 17/32 | 53% | 0.035 | 0.0026 | 0.12 | 0.002 – 0.049 | 0.65 | MDC | 1 | No |
| 2-Methylnaphthalene | 91-57-6 | 0.00074 | J | 1 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 18/32 | 56% | 0.044 | 0.0025 | 0.18 | 0.002 – 0.049 | 1 | MDC | 1 | No |
| Acenaphthene | 83-32-9 | 0.0012 | J | 4.3 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 10/32 | 31% | 0.15 | 0.0016 | 0.75 | 0.0011 – 0.026 | 4.3 | MDC | 0.25 | Yes |
| Anthracene | 120-12-7 | 0.0021 | J | 8.2 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 22/32 | 69% | 0.34 | 0.0064 | 1.4 | 0.0043 – 0.75 | 8.2 | MDC | 6.8 | Yes |
| Benzo(a)anthracene | 56-55-3 | 0.0025 | J | 5.3 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 24/32 | 75% | 0.47 | 0.025 | 1.2 | 0.0043 – 0.19 | 5.3 | MDC | 18 | No |
| Benzo(b)fluoranthene | 205-99-2 | 0.004 | J | 4.9 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 24/32 | 75% | 0.57 | 0.048 | 1.2 | 0.0067 – 0.3 | 4.9 | MDC | 18 | No |
| Benzo(k)fluoranthene | 207-08-9 | 0.0027 | J | 1.9 | | mg/kg | NYOW-03-008 (2021-04-05) | 0 - 1 | 22/32 | 69% | 0.22 | 0.018 | 0.47 | 0.0043 – 0.19 | 1.9 | MDC | 18 | No |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.069 | J+ | 0.1 | J+ | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 6/24 | 25% | 0.026 | 0.0082 | 0.032 | 0.007 – 0.01 | 0.1 | MDC | 40 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.095 | J | 0.36 | | mg/kg | NYOW-03-007 (2021-04-01) | 0 - 1 | 29/32 | 91% | 0.18 | 0.18 | 0.063 | 0.073 – 0.16 | 0.36 | MDC | 5 | No |
| Arsenic | 7440-38-2 | 1.5 | | 5.9 | | mg/kg | NYOW-03-006 (2021-04-01) | 1 - 5 | 32/32 | 100% | 3 | 2.7 | 1.1 | 0.16 – 0.3 | 5.9 | MDC | 18 | No |
| Beryllium | 7440-41-7 | 0.12 | J | 0.73 | J+ | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 32/32 | 100% | 0.42 | 0.46 | 0.15 | 0.095 – 0.18 | 0.73 | MDC | 2.5 | No |
| Cobalt | 7440-48-4 | 0.54 | J | 10 | | mg/kg | NYOW-03-011 (2021-03-31) | 1 - 5 | 32/32 | 100% | 4.5 | 4.2 | 2.1 | 0.16 – 0.29 | 10 | MDC | 13 | No |
| Copper | 7440-50-8 | 3.8 | J | 29 | | mg/kg | NYOW-03-011 (2021-03-31) | 1 - 5 | 32/32 | 100% | 12 | 10 | 7.1 | 0.64 – 1.2 | 29 | MDC | 70 | No |
| Lead | 7439-92-1 | 2.7 | J+ | 56 | | mg/kg | NYOW-03-011 (2021-03-31) | 1 - 5 | 32/32 | 100% | 16 | 10 | 14 | 0.64 – 1.2 | 56 | MDC | 120 | No |
| Manganese | 7439-96-5 | 48 | | 650 | | mg/kg | NYOW-03-012 (2021-03-31) | 0 - 1 | 32/32 | 100% | 340 | 360 | 170 | 0.32 – 0.59 | 650 | MDC | 220 | Yes |
| Mercury | 7439-97-6 | 0.009 | J | 0.16 | | mg/kg | NYOW-03-007 (2021-04-01) | 0 - 1 | 31/32 | 97% | 0.041 | 0.037 | 0.027 | 0.015 – 0.025 | 0.16 | MDC | 0.3 | No |
| Nickel | 7440-02-0 | 1.4 | J | 24 | | mg/kg | NYOW-03-011 (2021-03-31) | 1 - 5 | 32/32 | 100% | 9.8 | 9.4 | 5 | 0.36 – 0.66 | 24 | MDC | 38 | No |
| Selenium | 7782-49-2 | 0.15 | J | 0.61 | J | mg/kg | NYOW-03-004 (2021-03-31) | 0 - 1 | 30/32 | 94% | 0.39 | 0.41 | 0.13 | 0.32 – 0.6 | 0.61 | MDC | 0.52 | Yes |
| Silver | 7440-22-4 | 1.2 | J+ | 1.4 | J+ | mg/kg | Multiple Locations | 0 - 1 | 4/32 | 13% | 0.61 | 0.6 | 0.28 | 0.48 – 0.88 | 1.4 | MDC | 560 | No |
| Thallium | 7440-28-0 | 0.042 | J | 0.49 | | mg/kg | NYOW-03-011 (2021-03-31) | 1 - 5 | 21/32 | 66% | 0.1 | 0.1 | 0.078 | 0.0079 – 0.12 | 0.49 | MDC | 0.05 | Yes |
| Vanadium | 7440-62-2 | 5.9 | | 17 | | mg/kg | NYOW-03-006 (2021-04-01) | 0 - 1 | 32/32 | 100% | 12 | 12 | 2.9 | 0.28 – 0.51 | 17 | MDC | 60 | No |
| Zinc | 7440-66-6 | 12 | | 85 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 32/32 | 100% | 33 | 25 | 18 | 1.2 – 2.2 | 85 | MDC | 160 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.1 for screening level determination steps.

Table L.5-4
Ecological Screening Summary – Area of Concern 5 (Boiler House), Surface Soil (0 - 1 ft bgs), Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.16 | J+ | 0.22 | J+ | mg/kg | NYOW-05-018 (2021-01-11) | 0 - 1 | 5/5 | 100% | 0.19 | 0.18 | 0.024 | 0.079 – 0.11 | 0.22 | MDC | 5 | No |
| Arsenic | 7440-38-2 | 4.8 | | 25 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 5/5 | 100% | 9.5 | 5.8 | 8.7 | 0.15 – 0.2 | 25 | MDC | 18 | Yes |
| Beryllium | 7440-41-7 | 0.4 | J+ | 0.46 | J+ | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 0.43 | 0.42 | 0.028 | 0.095 – 0.11 | 0.46 | MDC | 2.5 | No |
| Cobalt | 7440-48-4 | 4.7 | | 5.9 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 0 - 1 | 5/5 | 100% | 5.3 | 5.3 | 0.51 | 0.16 – 0.18 | 5.9 | MDC | 13 | No |
| Copper | 7440-50-8 | 14 | | 20 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 18 | 19 | 2.7 | 0.63 – 0.74 | 20 | MDC | 70 | No |
| Manganese | 7439-96-5 | 490 | | 710 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 640 | 670 | 91 | 0.32 – 0.37 | 710 | MDC | 220 | Yes |
| Nickel | 7440-02-0 | 9.6 | | 12 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 0 - 1 | 5/5 | 100% | 11 | 11 | 0.94 | 0.36 – 0.41 | 12 | MDC | 38 | No |
| Zinc | 7440-66-6 | 25 | | 31 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 5/5 | 100% | 27 | 27 | 2.5 | 1.2 – 1.4 | 31 | MDC | 160 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.1 for screening level determination steps.

Table L.5-5
Ecological Screening Summary – Area of Concern 5 (Boiler House), Total Soil (0 - 5 ft bgs), Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.01 | J+ | 0.012 | J+ | mg/kg | Multiple Locations | 0 - 1 | 4/10 | 40% | 0.0057 | 0.0023 | 0.0046 | 0.002 – 0.0024 | 0.012 | MDC | 1 | No |
| Anthracene | 120-12-7 | 0.01 | J+ | 0.012 | J+ | mg/kg | Multiple Locations | 0 - 1 | 3/10 | 30% | 0.0065 | 0.0049 | 0.0032 | 0.0044 – 0.0052 | 0.012 | MDC | 6.8 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.16 | J+ | 0.22 | J+ | mg/kg | NYOW-05-018 (2021-01-11) | 0 - 1 | 10/10 | 100% | 0.18 | 0.18 | 0.022 | 0.078 – 0.11 | 0.22 | MDC | 5 | No |
| Arsenic | 7440-38-2 | 4.6 | | 25 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 10/10 | 100% | 8.5 | 6.1 | 6.2 | 0.15 – 0.2 | 25 | MDC | 18 | Yes |
| Beryllium | 7440-41-7 | 0.21 | J | 0.46 | J+ | mg/kg | Multiple Locations | 0 - 1 | 10/10 | 100% | 0.37 | 0.41 | 0.089 | 0.095 – 0.11 | 0.46 | MDC | 2.5 | No |
| Chromium | 7440-47-3 | 6.8 | | 14 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 1 - 5 | 10/10 | 100% | 9 | 8.2 | 2.3 | 0.32 – 0.38 | 14 | MDC | 0.35 | Yes |
| Cobalt | 7440-48-4 | 4.7 | | 8.2 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 1 - 5 | 10/10 | 100% | 6 | 5.7 | 1.2 | 0.16 – 0.19 | 8.2 | MDC | 13 | No |
| Copper | 7440-50-8 | 14 | | 22 | | mg/kg | NYOW-05-019 (2021-01-11) | 1 - 5 | 10/10 | 100% | 18 | 17 | 2.4 | 0.63 – 0.76 | 22 | MDC | 70 | No |
| Lead | 7439-92-1 | 5.5 | | 28 | | mg/kg | NYOW-05-020 (2021-01-08) | 1 - 5 | 10/10 | 100% | 9.2 | 7.5 | 6.7 | 0.63 – 0.76 | 28 | MDC | 120 | No |
| Manganese | 7439-96-5 | 390 | | 750 | | mg/kg | NYOW-05-019 (2021-01-11) | 1 - 5 | 10/10 | 100% | 600 | 650 | 130 | 0.32 – 0.38 | 750 | MDC | 220 | Yes |
| Mercury | 7439-97-6 | 0.0075 | J | 0.054 | | mg/kg | NYOW-05-019 (2021-01-11) | 0 - 1 | 6/10 | 60% | 0.022 | 0.016 | 0.016 | 0.015 – 0.021 | 0.054 | MDC | 0.3 | No |
| Nickel | 7440-02-0 | 9.6 | | 18 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 1 - 5 | 10/10 | 100% | 12 | 11 | 2.8 | 0.35 – 0.43 | 18 | MDC | 38 | No |
| Thallium | 7440-28-0 | 0.061 | J | 0.14 | | mg/kg | NYOW-05-018 (2021-01-11) | 1 - 5 | 5/10 | 50% | 0.084 | 0.099 | 0.03 | 0.0082 – 0.099 | 0.14 | MDC | 0.05 | Yes |
| Vanadium | 7440-62-2 | 11 | | 19 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 1 - 5 | 10/10 | 100% | 14 | 13 | 2.8 | 0.28 – 0.33 | 19 | MDC | 60 | No |
| Zinc | 7440-66-6 | 22 | | 150 | | mg/kg | NYOW-05-020 (2021-01-08) | 1 - 5 | 10/10 | 100% | 40 | 28 | 39 | 1.2 – 1.4 | 150 | MDC | 160 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.1 for screening level determination steps.

Table L.5-6
Ecological Screening Summary – Area of Concern 5 (Coal Aggregate Bins), Surface Soil (0 - 1 ft bgs), Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.0054 | J | 7.4 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 2.3 | 1.8 | 3 | 0.0023 – 0.1 | 7.4 | MDC | 1 | Yes |
| 2-Methylnaphthalene | 91-57-6 | 0.0071 | J | 10 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 3.2 | 2.5 | 4.1 | 0.0023 – 0.1 | 10 | MDC | 1 | Yes |
| Acenaphthene | 83-32-9 | 0.065 | J- | 0.065 | J- | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.0013 – 0.056 | 0.065 | MDC | 0.25 | No |
| Anthracene | 120-12-7 | 0.0036 | J | 0.22 | J | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 4/5 | 80% | 0.073 | 0.062 | 0.088 | 0.0051 – 0.23 | 0.22 | MDC | 6.8 | No |
| Benzo(a)anthracene | 56-55-3 | 0.019 | J+ | 0.44 | J | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.22 | 0.21 | 0.2 | 0.0051 – 0.23 | 0.44 | MDC | 18 | No |
| Benzo(b)fluoranthene | 205-99-2 | 0.034 | | 1.4 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.4 | 0.21 | 0.57 | 0.0078 – 0.35 | 1.4 | MDC | 18 | No |
| Benzo(k)fluoranthene | 207-08-9 | 0.012 | | 0.4 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 4/5 | 80% | 0.1 | 0.063 | 0.15 | 0.0051 – 0.23 | 0.4 | MDC | 18 | No |
| Naphthalene | 91-20-3 | 0.009 | J | 7.1 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 2.3 | 1.8 | 2.9 | 0.0023 – 0.1 | 7.1 | MDC | 1 | Yes |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.15 | J | 0.33 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.22 | 0.19 | 0.075 | 0.088 – 0.13 | 0.33 | MDC | 5 | No |
| Arsenic | 7440-38-2 | 4.6 | | 16 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 9.8 | 10 | 4.9 | 0.21 – 0.26 | 16 | MDC | 18 | No |
| Beryllium | 7440-41-7 | 0.28 | J- | 0.63 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.4 | 0.39 | 0.14 | 0.12 – 0.16 | 0.63 | MDC | 2.5 | No |
| Chromium | 7440-47-3 | 5.8 | | 13 | J- | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 8.8 | 8.3 | 2.6 | 0.41 – 0.52 | 13 | MDC | 0.35 | Yes |
| Cobalt | 7440-48-4 | 1.8 | | 7.5 | J- | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 5.2 | 5.2 | 2.1 | 0.2 – 0.26 | 7.5 | MDC | 13 | No |
| Copper | 7440-50-8 | 10 | | 22 | | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 17 | 17 | 4.8 | 0.82 – 1 | 22 | MDC | 70 | No |
| Lead | 7439-92-1 | 8.6 | J- | 21 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 5/5 | 100% | 13 | 8.9 | 5.8 | 0.82 – 1 | 21 | MDC | 120 | No |
| Manganese | 7439-96-5 | 110 | | 660 | J | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 450 | 420 | 220 | 0.41 – 0.52 | 660 | MDC | 220 | Yes |
| Nickel | 7440-02-0 | 6.1 | | 15 | | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 11 | 12 | 3.3 | 0.46 – 0.58 | 15 | MDC | 38 | No |
| Selenium | 7782-49-2 | 0.22 | J | 0.9 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.58 | 0.65 | 0.31 | 0.41 – 0.51 | 0.9 | MDC | 0.52 | Yes |
| Thallium | 7440-28-0 | 0.12 | | 0.26 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 4/5 | 80% | 0.18 | 0.18 | 0.061 | 0.01 – 0.11 | 0.26 | MDC | 0.05 | Yes |
| Vanadium | 7440-62-2 | 7.6 | | 17 | | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 13 | 13 | 3.6 | 0.36 – 0.45 | 17 | MDC | 60 | No |
| Zinc | 7440-66-6 | 16 | | 55 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 5/5 | 100% | 39 | 36 | 16 | 1.5 – 1.9 | 55 | MDC | 160 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.1 for screening level determination steps.

Table L.5-7
Ecological Screening Summary – Area of Concern 5 (Coal Aggregate Bins), Total Soil (0 - 5 ft bgs), Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | |
| Dibenzofuran | 132-64-9 | 0.38 | J+ | 0.38 | J+ | mg/kg | NYOW-05-024 (2021-01-08) | 1 - 5 | 1/5 | 20% | -- | -- | -- | 0.073 – 0.079 | 0.38 | MDC | 6.1 | No |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.0022 | J | 7.4 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 9/10 | 90% | 1.2 | 0.046 | 2.2 | 0.0021 – 0.1 | 7.4 | MDC | 1 | Yes |
| 2-Methylnaphthalene | 91-57-6 | 0.0018 | J | 10 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 10/10 | 100% | 1.6 | 0.054 | 3.2 | 0.0021 – 0.1 | 10 | MDC | 1 | Yes |
| Acenaphthene | 83-32-9 | 0.065 | J- | 0.065 | J- | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 1/10 | 10% | -- | -- | -- | 0.0011 – 0.056 | 0.065 | MDC | 0.25 | No |
| Anthracene | 120-12-7 | 0.0036 | J | 0.22 | J | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 6/10 | 60% | 0.036 | 0.0081 | 0.067 | 0.0045 – 0.23 | 0.22 | MDC | 6.8 | No |
| Benzo(a)anthracene | 56-55-3 | 0.0025 | J | 0.44 | J | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.11 | 0.018 | 0.17 | 0.0045 – 0.23 | 0.44 | MDC | 18 | No |
| Benzo(b)fluoranthene | 205-99-2 | 0.0055 | J | 1.4 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.21 | 0.031 | 0.43 | 0.0069 – 0.35 | 1.4 | MDC | 18 | No |
| Benzo(k)fluoranthene | 207-08-9 | 0.011 | J+ | 0.4 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 7/10 | 70% | 0.055 | 0.012 | 0.12 | 0.0045 – 0.23 | 0.4 | MDC | 18 | No |
| Naphthalene | 91-20-3 | 0.0027 | J | 7.1 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 10/10 | 100% | 1.2 | 0.042 | 2.3 | 0.0021 – 0.1 | 7.1 | MDC | 1 | Yes |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.095 | J | 0.33 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.19 | 0.17 | 0.065 | 0.083 – 0.13 | 0.33 | MDC | 5 | No |
| Arsenic | 7440-38-2 | 4.6 | | 16 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 10/10 | 100% | 8.1 | 6.6 | 3.8 | 0.17 – 0.26 | 16 | MDC | 18 | No |
| Beryllium | 7440-41-7 | 0.28 | J- | 2.3 | J+ | mg/kg | NYOW-05-025 (2021-01-11) | 1 - 5 | 10/10 | 100% | 0.62 | 0.43 | 0.6 | 0.093 – 0.55 | 2.3 | MDC | 2.5 | No |
| Cadmium | 7440-43-9 | 0.1 | | 0.37 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.18 | 0.15 | 0.089 | 0.029 – 0.045 | 0.37 | MDC | 32 | No |
| Chromium | 7440-47-3 | 5.8 | | 13 | J- | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 10/10 | 100% | 8.8 | 8.5 | 2.1 | 0.31 – 0.52 | 13 | MDC | 0.35 | Yes |
| Cobalt | 7440-48-4 | 1.8 | | 9 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 6 | 6.2 | 2 | 0.15 – 0.26 | 9 | MDC | 13 | No |
| Copper | 7440-50-8 | 10 | | 34 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 20 | 21 | 6.4 | 0.62 – 1 | 34 | MDC | 70 | No |
| Lead | 7439-92-1 | 8.6 | J- | 21 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 10/10 | 100% | 13 | 11 | 4.6 | 0.62 – 1 | 21 | MDC | 120 | No |
| Manganese | 7439-96-5 | 110 | | 2400 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 840 | 740 | 620 | 0.31 – 3.5 | 2400 | MDC | 220 | Yes |
| Mercury | 7439-97-6 | 0.026 | | 0.11 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.058 | 0.058 | 0.028 | 0.016 – 0.022 | 0.11 | MDC | 0.3 | No |
| Nickel | 7440-02-0 | 6.1 | | 15 | | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 10/10 | 100% | 12 | 12 | 2.7 | 0.35 – 0.58 | 15 | MDC | 38 | No |
| Selenium | 7782-49-2 | 0.22 | J | 0.9 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.53 | 0.5 | 0.21 | 0.33 – 0.51 | 0.9 | MDC | 0.52 | Yes |
| Thallium | 7440-28-0 | 0.11 | | 0.26 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 6/10 | 60% | 0.14 | 0.12 | 0.062 | 0.0083 – 0.11 | 0.26 | MDC | 0.05 | Yes |
| Vanadium | 7440-62-2 | 7.6 | | 18 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 14 | 15 | 3.2 | 0.27 – 0.45 | 18 | MDC | 60 | No |
| Zinc | 7440-66-6 | 16 | | 66 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 39 | 36 | 15 | 1.2 – 1.9 | 66 | MDC | 160 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.1 for screening level determination steps.

Table L.5-8
Ecological Screening Summary – Area of Concern 5 (Electric Substation), Surface Soil (0 - 1 ft bgs), Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.011 | J+ | 0.012 | J+ | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 0.011 | 0.011 | 0.00055 | 0.0021 – 0.0023 | 0.012 | MDC | 1 | No |
| 2-Methylnaphthalene | 91-57-6 | 0.0019 | J | 0.018 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.007 | 0.003 | 0.0068 | 0.0021 – 0.0023 | 0.018 | MDC | 1 | No |
| Acenaphthene | 83-32-9 | 0.011 | J+ | 0.011 | J+ | mg/kg | Multiple Locations | 0 - 1 | 2/5 | 40% | -- | -- | -- | 0.0011 – 0.0012 | 0.011 | MDC | 0.25 | No |
| Naphthalene | 91-20-3 | 0.0029 | J | 0.015 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.0068 | 0.0052 | 0.0049 | 0.0021 – 0.0023 | 0.015 | MDC | 1 | No |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.0042 | J | 0.16 | | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 4/5 | 80% | 0.042 | 0.013 | 0.06 | 0.0068 – 0.0079 | 0.16 | MDC | 40 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.096 | J | 0.19 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.14 | 0.13 | 0.038 | 0.081 – 0.11 | 0.19 | MDC | 5 | No |
| Arsenic | 7440-38-2 | 4.3 | | 5.9 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 4.9 | 4.9 | 0.67 | 0.17 – 0.24 | 5.9 | MDC | 18 | No |
| Beryllium | 7440-41-7 | 0.47 | J+ | 0.57 | J+ | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 0.53 | 0.55 | 0.047 | 0.11 – 0.14 | 0.57 | MDC | 2.5 | No |
| Cadmium | 7440-43-9 | 0.11 | | 0.39 | | mg/kg | NYOW-05-015 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.18 | 0.14 | 0.12 | 0.03 – 0.041 | 0.39 | MDC | 32 | No |
| Cobalt | 7440-48-4 | 5.6 | | 9.3 | | mg/kg | NYOW-05-014 (2021-01-13) | 0 - 1 | 5/5 | 100% | 7 | 7 | 1.4 | 0.19 – 0.23 | 9.3 | MDC | 13 | No |
| Copper | 7440-50-8 | 16 | | 25 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 5/5 | 100% | 20 | 21 | 4.3 | 0.75 – 0.92 | 25 | MDC | 70 | No |
| Lead | 7439-92-1 | 7.6 | | 24 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 13 | 12 | 6.7 | 0.75 – 0.92 | 24 | MDC | 120 | No |
| Manganese | 7439-96-5 | 590 | | 1200 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 840 | 660 | 290 | 0.37 – 0.46 | 1200 | MDC | 220 | Yes |
| Mercury | 7439-97-6 | 0.026 | | 0.23 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.079 | 0.029 | 0.088 | 0.016 – 0.017 | 0.23 | MDC | 0.3 | No |
| Nickel | 7440-02-0 | 12 | | 15 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 13 | 12 | 1.6 | 0.42 – 0.52 | 15 | MDC | 38 | No |
| Selenium | 7782-49-2 | 0.42 | J+ | 0.59 | J+ | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.5 | 0.47 | 0.068 | 0.34 – 0.47 | 0.59 | MDC | 0.52 | Yes |
| Thallium | 7440-28-0 | 0.12 | | 0.14 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 2/5 | 40% | 0.1 | 0.12 | 0.023 | 0.0092 – 0.12 | 0.14 | MDC | 0.05 | Yes |
| Zinc | 7440-66-6 | 33 | | 49 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 40 | 40 | 6.3 | 1.4 – 1.7 | 49 | MDC | 160 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.1 for screening level determination steps.

Table L.5-9
Ecological Screening Summary – Area of Concern 5 (Electric Substation), Total Soil (0 - 5 ft bgs), Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.01 | J+ | 0.012 | J+ | mg/kg | Multiple Locations | 0 - 1 | 7/10 | 70% | 0.0084 | 0.011 | 0.0041 | 0.0021 – 0.0023 | 0.012 | MDC | 1 | No |
| 2-Methylnaphthalene | 91-57-6 | 0.0019 | J | 0.018 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 9/10 | 90% | 0.008 | 0.0097 | 0.0051 | 0.0021 – 0.0023 | 0.018 | MDC | 1 | No |
| Acenaphthene | 83-32-9 | 0.011 | J+ | 0.011 | J+ | mg/kg | Multiple Locations | 0 - 1 | 2/10 | 20% | -- | -- | -- | 0.0011 – 0.0012 | 0.011 | MDC | 0.25 | No |
| Anthracene | 120-12-7 | 0.01 | J+ | 0.012 | J+ | mg/kg | Multiple Locations | 0 - 1 | 6/10 | 60% | 0.0085 | 0.011 | 0.0033 | 0.0045 – 0.0051 | 0.012 | MDC | 6.8 | No |
| Naphthalene | 91-20-3 | 0.0029 | J | 0.015 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 10/10 | 100% | 0.0088 | 0.01 | 0.004 | 0.0021 – 0.0023 | 0.015 | MDC | 1 | No |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.0042 | J | 0.16 | | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 4/5 | 80% | 0.042 | 0.013 | 0.06 | 0.0068 – 0.0079 | 0.16 | MDC | 40 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.096 | J | 0.21 | J+ | mg/kg | Multiple Locations | 1 - 5 | 10/10 | 100% | 0.17 | 0.18 | 0.041 | 0.081 – 0.11 | 0.21 | MDC | 5 | No |
| Arsenic | 7440-38-2 | 4.3 | | 5.9 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 10/10 | 100% | 4.9 | 4.9 | 0.52 | 0.17 – 0.24 | 5.9 | MDC | 18 | No |
| Barium | 7440-39-3 | 43 | | 110 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 59 | 51 | 19 | 0.79 – 1 | 110 | MDC | 110 | No |
| Beryllium | 7440-41-7 | 0.27 | J | 0.83 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 0.5 | 0.48 | 0.15 | 0.11 – 0.14 | 0.83 | MDC | 2.5 | No |
| Cadmium | 7440-43-9 | 0.046 | J | 0.39 | | mg/kg | NYOW-05-015 (2021-01-13) | 0 - 1 | 10/10 | 100% | 0.15 | 0.13 | 0.13 | 0.029 – 0.041 | 0.39 | MDC | 32 | No |
| Chromium | 7440-47-3 | 7.9 | | 25 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 12 | 9.8 | 5.3 | 0.35 – 0.46 | 25 | MDC | 0.35 | Yes |
| Cobalt | 7440-48-4 | 5.6 | | 13 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 7.6 | 6.7 | 2.4 | 0.18 – 0.23 | 13 | MDC | 13 | No |
| Copper | 7440-50-8 | 15 | | 74 | | mg/kg | NYOW-05-013 (2021-01-13) | 1 - 5 | 10/10 | 100% | 25 | 21 | 18 | 0.7 – 0.92 | 74 | MDC | 70 | Yes |
| Lead | 7439-92-1 | 7.6 | | 24 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 10/10 | 100% | 11 | 9 | 5 | 0.7 – 0.92 | 24 | MDC | 120 | No |
| Manganese | 7439-96-5 | 330 | | 1200 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 10/10 | 100% | 740 | 670 | 260 | 0.35 – 0.46 | 1200 | MDC | 220 | Yes |
| Mercury | 7439-97-6 | 0.013 | J | 0.23 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 10/10 | 100% | 0.06 | 0.03 | 0.066 | 0.015 – 0.018 | 0.23 | MDC | 0.3 | No |
| Nickel | 7440-02-0 | 12 | | 29 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 16 | 14 | 5.4 | 0.39 – 0.52 | 29 | MDC | 38 | No |
| Selenium | 7782-49-2 | 0.41 | J+ | 0.59 | J+ | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 10/10 | 100% | 0.48 | 0.47 | 0.054 | 0.33 – 0.47 | 0.59 | MDC | 0.52 | Yes |
| Thallium | 7440-28-0 | 0.096 | | 0.16 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 4/10 | 40% | 0.1 | 0.1 | 0.026 | 0.0083 – 0.12 | 0.16 | MDC | 0.05 | Yes |
| Vanadium | 7440-62-2 | 12 | | 31 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 16 | 15 | 5.4 | 0.31 – 0.4 | 31 | MDC | 60 | No |
| Zinc | 7440-66-6 | 29 | | 56 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 40 | 38 | 8.1 | 1.3 – 1.7 | 56 | MDC | 160 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.1 for screening level determination steps.

Table L.5-10
Ecological Screening Summary – Area of Concern 5 (Possible Dump Area), Surface Soil (0 - 1 ft bgs), Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | |
| Dibenzofuran | 132-64-9 | 0.37 | J+ | 0.39 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 2/5 | 40% | 0.2 | 0.078 | 0.15 | 0.071 – 0.079 | 0.39 | MDC | 6.1 | No |
| Di-n-butyl phthalate | 84-74-2 | 0.39 | | 0.39 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.071 – 0.079 | 0.39 | MDC | 160 | No |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.01 | | 0.29 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 4/5 | 80% | 0.087 | 0.065 | 0.11 | 0.002 – 0.022 | 0.29 | MDC | 1 | No |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | | 0.37 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 4/5 | 80% | 0.11 | 0.087 | 0.13 | 0.002 – 0.022 | 0.37 | MDC | 1 | No |
| Acenaphthene | 83-32-9 | 0.011 | J+ | 0.011 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.0011 – 0.012 | 0.011 | MDC | 0.25 | No |
| Naphthalene | 91-20-3 | 0.0018 | J | 0.29 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.088 | 0.065 | 0.12 | 0.002 – 0.022 | 0.29 | MDC | 1 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.076 | J | 1 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.3 | 0.12 | 0.39 | 0.089 – 0.1 | 1 | MDC | 5 | No |
| Arsenic | 7440-38-2 | 4.3 | | 6.9 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 5.5 | 5.1 | 1.2 | 0.15 – 0.19 | 6.9 | MDC | 18 | No |
| Beryllium | 7440-41-7 | 0.42 | J+ | 0.56 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.51 | 0.54 | 0.061 | 0.1 – 0.13 | 0.56 | MDC | 2.5 | No |
| Cadmium | 7440-43-9 | 0.072 | J | 4.3 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.99 | 0.15 | 1.9 | 0.026 – 0.033 | 4.3 | MDC | 32 | No |
| Chromium | 7440-47-3 | 5 | | 13 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 7.6 | 6.4 | 3.2 | 0.34 – 0.44 | 13 | MDC | 0.35 | Yes |
| Copper | 7440-50-8 | 18 | | 110 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 41 | 23 | 39 | 0.67 – 0.89 | 110 | MDC | 70 | Yes |
| Lead | 7439-92-1 | 4.6 | | 200 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 47 | 9.3 | 86 | 0.67 – 0.89 | 200 | MDC | 120 | Yes |
| Manganese | 7439-96-5 | 400 | J- | 780 | | mg/kg | NYOW-05-004 (2021-01-12) | 0 - 1 | 5/5 | 100% | 570 | 520 | 170 | 0.34 – 0.44 | 780 | MDC | 220 | Yes |
| Nickel | 7440-02-0 | 8.1 | | 18 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 11 | 8.3 | 4.2 | 0.38 – 0.5 | 18 | MDC | 38 | No |
| Silver | 7440-22-4 | 1.7 | J+ | 1.7 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.5 – 0.67 | 1.7 | MDC | 560 | No |
| Thallium | 7440-28-0 | 0.12 | | 0.15 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 2/5 | 40% | 0.099 | 0.094 | 0.031 | 0.0089 – 0.094 | 0.15 | MDC | 0.05 | Yes |
| Zinc | 7440-66-6 | 28 | | 690 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 160 | 35 | 290 | 1.3 – 1.7 | 690 | MDC | 160 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.1 for screening level determination steps.

Table L.5-11
Ecological Screening Summary – Area of Concern 5 (Possible Dump Area), Total Soil (0 - 5 ft bgs), Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 0.016 | J+ | 0.019 | J+ | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 2/5 | 40% | 0.013 | 0.011 | 0.0038 | 0.01 – 0.012 | 0.019 | MDC | N/A | Yes |
| Acetone | 67-64-1 | 0.069 | | 0.069 | | mg/kg | NYOW-05-001 (2021-01-12) | 1 - 5 | 1/5 | 20% | -- | -- | -- | 0.057 – 0.069 | 0.069 | MDC | N/A | Yes |
| Benzene | 71-43-2 | 0.004 | J+ | 0.004 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 1 - 5 | 1/5 | 20% | -- | -- | -- | 0.00032 – 0.00038 | 0.004 | MDC | 200 | No |
| Toluene | 108-88-3 | 0.004 | J+ | 0.004 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 1 - 5 | 1/5 | 20% | -- | -- | -- | 0.00064 – 0.00076 | 0.004 | MDC | 200 | No |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | |
| Dibenzofuran | 132-64-9 | 0.37 | J+ | 0.39 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 2/10 | 20% | 0.13 | 0.077 | 0.12 | 0.071 – 0.085 | 0.39 | MDC | 6.1 | No |
| Di-n-butyl phthalate | 84-74-2 | 0.39 | | 0.39 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/10 | 10% | -- | -- | -- | 0.071 – 0.085 | 0.39 | MDC | 160 | No |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.01 | | 0.29 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 6/10 | 60% | 0.047 | 0.011 | 0.085 | 0.002 – 0.022 | 0.29 | MDC | 1 | No |
| 2-Methylnaphthalene | 91-57-6 | 0.012 | J+ | 0.37 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 6/10 | 60% | 0.059 | 0.012 | 0.11 | 0.002 – 0.022 | 0.37 | MDC | 1 | No |
| Acenaphthene | 83-32-9 | 0.011 | J+ | 0.011 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 0 - 1 | 1/10 | 10% | -- | -- | -- | 0.0011 – 0.012 | 0.011 | MDC | 0.25 | No |
| Anthracene | 120-12-7 | 0.0032 | J | 0.018 | J | mg/kg | NYOW-05-002 (2021-01-12) | 0 - 1 | 2/10 | 20% | 0.0048 | 0.005 | 0.0047 | 0.0043 – 0.047 | 0.018 | MDC | 6.8 | No |
| Naphthalene | 91-20-3 | 0.0018 | J | 0.29 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 9/10 | 90% | 0.049 | 0.012 | 0.084 | 0.002 – 0.022 | 0.29 | MDC | 1 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.076 | J | 1 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 8/10 | 80% | 0.23 | 0.15 | 0.26 | 0.089 – 0.13 | 1 | MDC | 5 | No |
| Arsenic | 7440-38-2 | 3.6 | | 6.9 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 5.2 | 4.9 | 1.2 | 0.15 – 0.24 | 6.9 | MDC | 18 | No |
| Barium | 7440-39-3 | 18 | | 110 | J | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 48 | 36 | 28 | 0.75 – 1 | 110 | MDC | 110 | No |
| Beryllium | 7440-41-7 | 0.11 | J | 0.77 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 0.42 | 0.45 | 0.21 | 0.1 – 0.13 | 0.77 | MDC | 2.5 | No |
| Cadmium | 7440-43-9 | 0.036 | J | 4.3 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 0.53 | 0.079 | 1.3 | 0.026 – 0.042 | 4.3 | MDC | 32 | No |
| Chromium | 7440-47-3 | 4.9 | | 25 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 10 | 9.5 | 6.1 | 0.34 – 1.9 | 25 | MDC | 0.35 | Yes |
| Cobalt | 7440-48-4 | 2.9 | | 9 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 5.4 | 4.5 | 2.1 | 0.17 – 0.95 | 9 | MDC | 13 | No |
| Copper | 7440-50-8 | 10 | | 110 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 28 | 19 | 29 | 0.67 – 3.8 | 110 | MDC | 70 | Yes |
| Lead | 7439-92-1 | 3.4 | | 200 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 26 | 7 | 61 | 0.67 – 3.8 | 200 | MDC | 120 | Yes |
| Manganese | 7439-96-5 | 320 | | 1000 | | mg/kg | NYOW-05-001 (2021-01-12) | 1 - 5 | 10/10 | 100% | 570 | 490 | 210 | 0.34 – 1.9 | 1000 | MDC | 220 | Yes |
| Mercury | 7439-97-6 | 0.0078 | J | 0.14 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 0.038 | 0.02 | 0.04 | 0.015 – 0.019 | 0.14 | MDC | 0.3 | No |
| Nickel | 7440-02-0 | 5.1 | | 25 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 12 | 9.1 | 6 | 0.38 – 2.1 | 25 | MDC | 38 | No |
| Selenium | 7782-49-2 | 0.13 | J | 0.6 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 1 - 5 | 8/10 | 80% | 0.35 | 0.44 | 0.17 | 0.3 – 0.48 | 0.6 | MDC | 0.52 | Yes |
| Silver | 7440-22-4 | 1.7 | J+ | 1.7 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/10 | 10% | -- | -- | -- | 0.5 – 2.9 | 1.7 | MDC | 560 | No |
| Thallium | 7440-28-0 | 0.12 | | 0.2 | J | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 3/10 | 30% | 0.1 | 0.099 | 0.042 | 0.0089 – 0.12 | 0.2 | MDC | 0.05 | Yes |
| Vanadium | 7440-62-2 | 7.9 | | 31 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 15 | 12 | 7.4 | 0.29 – 1.7 | 31 | MDC | 60 | No |
| Zinc | 7440-66-6 | 12 | | 690 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 98 | 32 | 210 | 1.3 – 7.1 | 690 | MDC | 160 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.1 for screening level determination steps.

Table L.5-12
Ecological Screening Summary – Area of Concern 5 (Possible Dump Area), Surface Soil (0 - 1 ft bgs), Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | |
| Dibenzofuran | 132-64-9 | 0.37 | J+ | 0.39 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 2/5 | 40% | 0.2 | 0.078 | 0.15 | 0.071 – 0.079 | 0.39 | MDC | 6.1 | No |
| Di-n-butyl phthalate | 84-74-2 | 0.39 | | 0.39 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.071 – 0.079 | 0.39 | MDC | 160 | No |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.01 | | 0.29 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 4/5 | 80% | 0.087 | 0.065 | 0.11 | 0.002 – 0.022 | 0.29 | MDC | 1 | No |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | | 0.37 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 4/5 | 80% | 0.11 | 0.087 | 0.13 | 0.002 – 0.022 | 0.37 | MDC | 1 | No |
| Acenaphthene | 83-32-9 | 0.011 | J+ | 0.011 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.0011 – 0.012 | 0.011 | MDC | 0.25 | No |
| Anthracene | 120-12-7 | 0.0032 | J | 0.018 | J | mg/kg | NYOW-05-002 (2021-01-12) | 0 - 1 | 2/5 | 40% | 0.0069 | 0.005 | 0.0064 | 0.0043 – 0.047 | 0.018 | MDC | 6.8 | No |
| Benzo(a)anthracene | 56-55-3 | 0.0024 | J | 0.042 | J | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.017 | 0.012 | 0.016 | 0.0043 – 0.047 | 0.042 | MDC | 18 | No |
| Benzo(b)fluoranthene | 205-99-2 | 0.0076 | J | 0.058 | J | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 4/5 | 80% | 0.023 | 0.019 | 0.019 | 0.0066 – 0.072 | 0.058 | MDC | 18 | No |
| Benzo(k)fluoranthene | 207-08-9 | 0.0099 | J+ | 0.012 | J+ | mg/kg | NYOW-05-003 (2021-01-12) | 0 - 1 | 3/5 | 60% | 0.0094 | 0.011 | 0.0029 | 0.0043 – 0.047 | 0.012 | MDC | 18 | No |
| Naphthalene | 91-20-3 | 0.0018 | J | 0.29 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.088 | 0.065 | 0.12 | 0.002 – 0.022 | 0.29 | MDC | 1 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.076 | J | 1 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.3 | 0.12 | 0.39 | 0.089 – 0.1 | 1 | MDC | 5 | No |
| Arsenic | 7440-38-2 | 4.3 | | 6.9 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 5.5 | 5.1 | 1.2 | 0.15 – 0.19 | 6.9 | MDC | 18 | No |
| Barium | 7440-39-3 | 30 | | 76 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 42 | 32 | 20 | 0.75 – 1 | 76 | MDC | 110 | No |
| Beryllium | 7440-41-7 | 0.42 | J+ | 0.56 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.51 | 0.54 | 0.061 | 0.1 – 0.13 | 0.56 | MDC | 2.5 | No |
| Cadmium | 7440-43-9 | 0.072 | J | 4.3 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.99 | 0.15 | 1.9 | 0.026 – 0.033 | 4.3 | MDC | 32 | No |
| Chromium | 7440-47-3 | 5 | | 13 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 7.6 | 6.4 | 3.2 | 0.34 – 0.44 | 13 | MDC | 0.35 | Yes |
| Cobalt | 7440-48-4 | 3.6 | J- | 6.7 | | mg/kg | NYOW-05-004 (2021-01-12) | 0 - 1 | 5/5 | 100% | 4.7 | 4.3 | 1.2 | 0.17 – 0.22 | 6.7 | MDC | 13 | No |
| Copper | 7440-50-8 | 18 | | 110 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 41 | 23 | 39 | 0.67 – 0.89 | 110 | MDC | 70 | Yes |
| Lead | 7439-92-1 | 4.6 | | 200 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 47 | 9.3 | 86 | 0.67 – 0.89 | 200 | MDC | 120 | Yes |
| Manganese | 7439-96-5 | 400 | J- | 780 | | mg/kg | NYOW-05-004 (2021-01-12) | 0 - 1 | 5/5 | 100% | 570 | 520 | 170 | 0.34 – 0.44 | 780 | MDC | 220 | Yes |
| Mercury | 7439-97-6 | 0.0078 | J | 0.14 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.051 | 0.031 | 0.054 | 0.015 – 0.018 | 0.14 | MDC | 0.3 | No |
| Nickel | 7440-02-0 | 8.1 | | 18 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 11 | 8.3 | 4.2 | 0.38 – 0.5 | 18 | MDC | 38 | No |
| Selenium | 7782-49-2 | 0.13 | J | 0.49 | | mg/kg | NYOW-05-002 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.3 | 0.27 | 0.17 | 0.3 – 0.38 | 0.49 | MDC | 0.52 | No |
| Silver | 7440-22-4 | 1.7 | J+ | 1.7 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.5 – 0.67 | 1.7 | MDC | 560 | No |
| Thallium | 7440-28-0 | 0.12 | | 0.15 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 2/5 | 40% | 0.099 | 0.094 | 0.031 | 0.0089 – 0.094 | 0.15 | MDC | 0.05 | Yes |
| Vanadium | 7440-62-2 | 7.9 | | 14 | | mg/kg | NYOW-05-002 (2021-01-12) | 0 - 1 | 5/5 | 100% | 10 | 10 | 2.2 | 0.29 – 0.39 | 14 | MDC | 60 | No |
| Zinc | 7440-66-6 | 28 | | 690 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 160 | 35 | 290 | 1.3 – 1.7 | 690 | MDC | 160 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.1 for screening level determination steps.

Table L.5-13
Ecological Screening Summary – Area of Concern 5 (Possible Dump Area), Total Soil (0 - 5 ft bgs), Plants
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Total Soil (0 - 5 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | |
| Benzene | 71-43-2 | 0.004 | J+ | 0.004 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 1 - 5 | 1/5 | 20% | -- | -- | -- | 0.00032 – 0.00038 | 0.004 | MDC | 200 | No |
| Toluene | 108-88-3 | 0.004 | J+ | 0.004 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 1 - 5 | 1/5 | 20% | -- | -- | -- | 0.00064 – 0.00076 | 0.004 | MDC | 200 | No |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | |
| Dibenzofuran | 132-64-9 | 0.37 | J+ | 0.39 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 2/10 | 20% | 0.13 | 0.077 | 0.12 | 0.071 – 0.085 | 0.39 | MDC | 6.1 | No |
| Di-n-butyl phthalate | 84-74-2 | 0.39 | | 0.39 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/10 | 10% | -- | -- | -- | 0.071 – 0.085 | 0.39 | MDC | 160 | No |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.01 | | 0.29 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 6/10 | 60% | 0.047 | 0.011 | 0.085 | 0.002 – 0.022 | 0.29 | MDC | 1 | No |
| 2-Methylnaphthalene | 91-57-6 | 0.012 | J+ | 0.37 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 6/10 | 60% | 0.059 | 0.012 | 0.11 | 0.002 – 0.022 | 0.37 | MDC | 1 | No |
| Acenaphthene | 83-32-9 | 0.011 | J+ | 0.011 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 0 - 1 | 1/10 | 10% | -- | -- | -- | 0.0011 – 0.012 | 0.011 | MDC | 0.25 | No |
| Anthracene | 120-12-7 | 0.0032 | J | 0.018 | J | mg/kg | NYOW-05-002 (2021-01-12) | 0 - 1 | 2/10 | 20% | 0.0048 | 0.005 | 0.0047 | 0.0043 – 0.047 | 0.018 | MDC | 6.8 | No |
| Benzo(a)anthracene | 56-55-3 | 0.0024 | J | 0.042 | J | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 6/10 | 60% | 0.01 | 0.0059 | 0.012 | 0.0043 – 0.047 | 0.042 | MDC | 18 | No |
| Benzo(b)fluoranthene | 205-99-2 | 0.0076 | J | 0.058 | J | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 4/10 | 40% | 0.015 | 0.0078 | 0.015 | 0.0066 – 0.072 | 0.058 | MDC | 18 | No |
| Benzo(k)fluoranthene | 207-08-9 | 0.0099 | J+ | 0.012 | J+ | mg/kg | NYOW-05-003 (2021-01-12) | 0 - 1 | 3/10 | 30% | 0.0067 | 0.0052 | 0.0031 | 0.0043 – 0.047 | 0.012 | MDC | 18 | No |
| Naphthalene | 91-20-3 | 0.0018 | J | 0.29 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 9/10 | 90% | 0.049 | 0.012 | 0.084 | 0.002 – 0.022 | 0.29 | MDC | 1 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.076 | J | 1 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 8/10 | 80% | 0.23 | 0.15 | 0.26 | 0.089 – 0.13 | 1 | MDC | 5 | No |
| Arsenic | 7440-38-2 | 3.6 | | 6.9 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 5.2 | 4.9 | 1.2 | 0.15 – 0.24 | 6.9 | MDC | 18 | No |
| Barium | 7440-39-3 | 18 | | 110 | J | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 48 | 36 | 28 | 0.75 – 1 | 110 | MDC | 110 | No |
| Beryllium | 7440-41-7 | 0.11 | J | 0.77 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 0.42 | 0.45 | 0.21 | 0.1 – 0.13 | 0.77 | MDC | 2.5 | No |
| Cadmium | 7440-43-9 | 0.036 | J | 4.3 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 0.53 | 0.079 | 1.3 | 0.026 – 0.042 | 4.3 | MDC | 32 | No |
| Chromium | 7440-47-3 | 4.9 | | 25 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 10 | 9.5 | 6.1 | 0.34 – 1.9 | 25 | MDC | 0.35 | Yes |
| Cobalt | 7440-48-4 | 2.9 | | 9 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 5.4 | 4.5 | 2.1 | 0.17 – 0.95 | 9 | MDC | 13 | No |
| Copper | 7440-50-8 | 10 | | 110 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 28 | 19 | 29 | 0.67 – 3.8 | 110 | MDC | 70 | Yes |
| Lead | 7439-92-1 | 3.4 | | 200 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 26 | 7 | 61 | 0.67 – 3.8 | 200 | MDC | 120 | Yes |
| Manganese | 7439-96-5 | 320 | | 1000 | | mg/kg | NYOW-05-001 (2021-01-12) | 1 - 5 | 10/10 | 100% | 570 | 490 | 210 | 0.34 – 1.9 | 1000 | MDC | 220 | Yes |
| Mercury | 7439-97-6 | 0.0078 | J | 0.14 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 0.038 | 0.02 | 0.04 | 0.015 – 0.019 | 0.14 | MDC | 0.3 | No |
| Nickel | 7440-02-0 | 5.1 | | 25 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 12 | 9.1 | 6 | 0.38 – 2.1 | 25 | MDC | 38 | No |
| Selenium | 7782-49-2 | 0.13 | J | 0.6 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 1 - 5 | 8/10 | 80% | 0.35 | 0.44 | 0.17 | 0.3 – 0.48 | 0.6 | MDC | 0.52 | Yes |
| Silver | 7440-22-4 | 1.7 | J+ | 1.7 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/10 | 10% | -- | -- | -- | 0.5 – 2.9 | 1.7 | MDC | 560 | No |
| Thallium | 7440-28-0 | 0.12 | | 0.2 | J | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 3/10 | 30% | 0.1 | 0.099 | 0.042 | 0.0089 – 0.12 | 0.2 | MDC | 0.05 | Yes |
| Vanadium | 7440-62-2 | 7.9 | | 31 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 15 | 12 | 7.4 | 0.29 – 1.7 | 31 | MDC | 60 | No |
| Zinc | 7440-66-6 | 12 | | 690 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 98 | 32 | 210 | 1.3 – 7.1 | 690 | MDC | 160 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.1 for screening level determination steps.

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# APPENDIX L.6

# Ecological Screening Summary – Soil Invertebrates

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Table L.6-1
Ecological Screening Summary – Area of Concern 1, Surface Soil (0 - 1 ft bgs), Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Explosives | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.23 | J+ | 0.23 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 1/30 | 3% | -- | -- | -- | 0.14 – 0.16 | 0.23 | MDC | 0.015 | Yes |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.082 | J | 0.56 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 30/30 | 100% | 0.2 | 0.17 | 0.11 | 0.084 – 0.16 | 0.56 | MDC | 78 | No |
| Arsenic | 7440-38-2 | 2.4 | | 11 | | mg/kg | NYOW-01-029 (2021-04-13) | 0 - 1 | 30/30 | 100% | 5.1 | 4.7 | 1.7 | 0.16 – 0.34 | 11 | MDC | 6.8 | Yes |
| Barium | 7440-39-3 | 25 | J | 120 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 30/30 | 100% | 56 | 52 | 21 | 0.71 – 1.6 | 120 | MDC | 330 | No |
| Beryllium | 7440-41-7 | 0.4 | J+ | 0.87 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 28/30 | 93% | 0.53 | 0.52 | 0.095 | 0.095 – 0.67 | 0.87 | MDC | 40 | No |
| Cadmium | 7440-43-9 | 0.053 | J | 0.79 | | mg/kg | NYOW-01-023 (2021-04-02) | 0 - 1 | 30/30 | 100% | 0.28 | 0.24 | 0.19 | 0.028 – 0.059 | 0.79 | MDC | 140 | No |
| Chromium | 7440-47-3 | 5 | | 18 | | mg/kg | Multiple Locations | 0 - 1 | 30/30 | 100% | 9 | 8.6 | 3.2 | 0.32 – 2.2 | 18 | MDC | 0.34 | Yes |
| Copper | 7440-50-8 | 11 | | 80 | | mg/kg | NYOW-01-013 (2021-04-14) | 0 - 1 | 30/30 | 100% | 23 | 21 | 12 | 0.63 – 1.4 | 80 | MDC | 80 | No |
| Lead | 7439-92-1 | 4.2 | J | 200 | | mg/kg | NYOW-01-034 (2021-04-14) | 0 - 1 | 30/30 | 100% | 28 | 19 | 36 | 0.63 – 4.5 | 200 | MDC | 1700 | No |
| Manganese | 7439-96-5 | 270 | | 1400 | J | mg/kg | NYOW-01-002 (2021-04-09) | 0 - 1 | 30/30 | 100% | 650 | 600 | 250 | 0.32 – 0.69 | 1400 | MDC | 450 | Yes |
| Mercury | 7439-97-6 | 0.013 | J | 0.76 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 29/30 | 97% | 0.076 | 0.041 | 0.14 | 0.016 – 0.03 | 0.76 | MDC | 0.05 | Yes |
| Nickel | 7440-02-0 | 6.9 | | 13 | | mg/kg | Multiple Locations | 0 - 1 | 30/30 | 100% | 10 | 11 | 2 | 0.36 – 0.78 | 13 | MDC | 280 | No |
| Selenium | 7782-49-2 | 0.4 | J+ | 0.85 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 29/30 | 97% | 0.53 | 0.52 | 0.1 | 0.32 – 0.68 | 0.85 | MDC | 4.1 | No |
| Zinc | 7440-66-6 | 11 | | 180 | J | mg/kg | NYOW-01-005 (2021-04-08) | 0 - 1 | 30/30 | 100% | 63 | 53 | 40 | 1.2 – 2.6 | 180 | MDC | 120 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.2 for screening level determination steps.

Table L.6-2
Ecological Screening Summary – Area of Concern 1, Total Soil (0 - 5 ft bgs), Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Explosives | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.23 | J+ | 0.23 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 1/41 | 2% | -- | -- | -- | 0.14 – 0.16 | 0.23 | MDC | 0.015 | Yes |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.082 | J | 0.56 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 38/41 | 93% | 0.19 | 0.17 | 0.1 | 0.078 – 0.16 | 0.56 | MDC | 78 | No |
| Arsenic | 7440-38-2 | 2.1 | | 11 | | mg/kg | NYOW-01-029 (2021-04-13) | 0 - 1 | 41/41 | 100% | 5.1 | 4.7 | 1.7 | 0.16 – 0.34 | 11 | MDC | 6.8 | Yes |
| Barium | 7440-39-3 | 25 | J | 260 | | mg/kg | NYOW-01-022 (2021-04-07) | 1 - 5 | 41/41 | 100% | 57 | 46 | 38 | 0.65 – 1.6 | 260 | MDC | 330 | No |
| Beryllium | 7440-41-7 | 0.36 | J+ | 0.87 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 38/41 | 93% | 0.5 | 0.5 | 0.11 | 0.087 – 0.67 | 0.87 | MDC | 40 | No |
| Cadmium | 7440-43-9 | 0.013 | J | 0.79 | | mg/kg | NYOW-01-023 (2021-04-02) | 0 - 1 | 41/41 | 100% | 0.23 | 0.16 | 0.19 | 0.027 – 0.059 | 0.79 | MDC | 140 | No |
| Chromium | 7440-47-3 | 4.6 | | 18 | | mg/kg | Multiple Locations | 0 - 1 | 41/41 | 100% | 8.5 | 7.9 | 2.9 | 0.29 – 2.2 | 18 | MDC | 0.34 | Yes |
| Copper | 7440-50-8 | 7.2 | | 80 | | mg/kg | NYOW-01-013 (2021-04-14) | 0 - 1 | 41/41 | 100% | 22 | 21 | 12 | 0.58 – 1.4 | 80 | MDC | 80 | No |
| Lead | 7439-92-1 | 3.2 | J- | 200 | | mg/kg | NYOW-01-034 (2021-04-14) | 0 - 1 | 41/41 | 100% | 23 | 14 | 32 | 0.58 – 4.5 | 200 | MDC | 1700 | No |
| Manganese | 7439-96-5 | 230 | | 7000 | | mg/kg | NYOW-01-022 (2021-04-07) | 1 - 5 | 41/41 | 100% | 770 | 550 | 1000 | 0.29 – 3.9 | 7000 | MDC | 450 | Yes |
| Mercury | 7439-97-6 | 0.012 | J | 0.76 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 37/41 | 90% | 0.061 | 0.032 | 0.12 | 0.015 – 0.03 | 0.76 | MDC | 0.05 | Yes |
| Nickel | 7440-02-0 | 4.9 | | 13 | | mg/kg | Multiple Locations | 0 - 1 | 41/41 | 100% | 10 | 11 | 2.2 | 0.33 – 0.78 | 13 | MDC | 280 | No |
| Selenium | 7782-49-2 | 0.39 | J+ | 0.85 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 35/41 | 85% | 0.5 | 0.49 | 0.11 | 0.31 – 0.68 | 0.85 | MDC | 4.1 | No |
| Zinc | 7440-66-6 | 11 | | 180 | J | mg/kg | NYOW-01-005 (2021-04-08) | 0 - 1 | 41/41 | 100% | 59 | 44 | 40 | 1.1 – 2.6 | 180 | MDC | 120 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.2 for screening level determination steps.

Table L.6-3
Ecological Screening Summary – Area of Concern 3, Total Soil (0 - 5 ft bgs), Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 0.0049 | J- | 0.03 | J- | mg/kg | NYOW-03-018 (2021-05-04) | 1 - 5 | 5/18 | 28% | 0.0072 | 0.013 | 0.0056 | 0.011 – 0.015 | 0.03 | MDC | 1 | No |
| Acetone | 67-64-1 | 0.036 | J | 0.32 | | mg/kg | NYOW-03-018 (2021-05-04) | 1 - 5 | 6/18 | 33% | 0.065 | 0.075 | 0.067 | 0.064 – 0.083 | 0.32 | MDC | 0.04 | Yes |
| Cumene | 98-82-8 | 0.0059 | | 0.0059 | | mg/kg | NYOW-03-010 (2021-03-31) | 1 - 5 | 1/18 | 6% | -- | -- | -- | 0.0045 – 0.0058 | 0.0059 | MDC | 0.04 | No |
| Toluene | 108-88-3 | 0.0046 | J+ | 0.0051 | J+ | mg/kg | NYOW-03-006 (2021-05-04) | 1 - 5 | 4/18 | 22% | 0.0016 | 0.00083 | 0.0017 | 0.00072 – 0.00093 | 0.0051 | MDC | 0.15 | No |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 0.39 | J+ | 0.49 | J+ | mg/kg | Multiple Locations | 0 - 1 | 6/36 | 17% | 0.23 | 0.21 | 0.1 | 0.18 – 0.25 | 0.49 | MDC | 0.002 | Yes |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | 0.14 | J | 3.4 | J- | mg/kg | NYOW-03-015 (2021-05-04) | 0 - 1 | 2/36 | 6% | 0.17 | 0.082 | 0.55 | 0.071 – 0.099 | 3.4 | MDC | 8.4 | No |
| Carbazole | 86-74-8 | 0.045 | J | 0.55 | | mg/kg | NYOW-03-011 (2021-03-31) | 0 - 1 | 3/36 | 8% | 0.061 | 0.082 | 0.084 | 0.071 – 0.099 | 0.55 | MDC | 0.07 | Yes |
| Cresols, m- & p- | cresols-m,p | 0.39 | J+ | 0.39 | J+ | mg/kg | NYOW-03-012 (2021-03-31) | 0 - 1 | 1/36 | 3% | -- | -- | -- | 0.071 – 0.099 | 0.39 | MDC | 0.08 | Yes |
| Dibenzofuran | 132-64-9 | 0.39 | J+ | 0.42 | J+ | mg/kg | NYOW-03-011 (2021-03-31) | 0 - 1 | 2/36 | 6% | 0.09 | 0.082 | 0.077 | 0.071 – 0.099 | 0.42 | MDC | 0.15 | Yes |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.029 | | 39 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 24/32 | 75% | 3.8 | 0.27 | 8.9 | N/A | 39 | MDC | 18 | Yes |
| Low Molecular Weight PAHs | N/A | 0.015 | | 67 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 25/32 | 78% | 3.2 | 0.1 | 12 | N/A | 67 | MDC | 29 | Yes |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.069 | J+ | 0.1 | J+ | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 6/24 | 25% | 0.026 | 0.0082 | 0.032 | 0.007 – 0.01 | 0.1 | MDC | 0.33 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.095 | J | 0.36 | | mg/kg | NYOW-03-007 (2021-04-01) | 0 - 1 | 29/32 | 91% | 0.18 | 0.18 | 0.063 | 0.073 – 0.16 | 0.36 | MDC | 78 | No |
| Arsenic | 7440-38-2 | 1.5 | | 5.9 | | mg/kg | NYOW-03-006 (2021-04-01) | 1 - 5 | 32/32 | 100% | 3 | 2.7 | 1.1 | 0.16 – 0.3 | 5.9 | MDC | 6.8 | No |
| Beryllium | 7440-41-7 | 0.12 | J | 0.73 | J+ | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 32/32 | 100% | 0.42 | 0.46 | 0.15 | 0.095 – 0.18 | 0.73 | MDC | 40 | No |
| Copper | 7440-50-8 | 3.8 | J | 29 | | mg/kg | NYOW-03-011 (2021-03-31) | 1 - 5 | 32/32 | 100% | 12 | 10 | 7.1 | 0.64 – 1.2 | 29 | MDC | 80 | No |
| Lead | 7439-92-1 | 2.7 | J+ | 56 | | mg/kg | NYOW-03-011 (2021-03-31) | 1 - 5 | 32/32 | 100% | 16 | 10 | 14 | 0.64 – 1.2 | 56 | MDC | 1700 | No |
| Manganese | 7439-96-5 | 48 | | 650 | | mg/kg | NYOW-03-012 (2021-03-31) | 0 - 1 | 32/32 | 100% | 340 | 360 | 170 | 0.32 – 0.59 | 650 | MDC | 450 | Yes |
| Mercury | 7439-97-6 | 0.009 | J | 0.16 | | mg/kg | NYOW-03-007 (2021-04-01) | 0 - 1 | 31/32 | 97% | 0.041 | 0.037 | 0.027 | 0.015 – 0.025 | 0.16 | MDC | 0.05 | Yes |
| Nickel | 7440-02-0 | 1.4 | J | 24 | | mg/kg | NYOW-03-011 (2021-03-31) | 1 - 5 | 32/32 | 100% | 9.8 | 9.4 | 5 | 0.36 – 0.66 | 24 | MDC | 280 | No |
| Selenium | 7782-49-2 | 0.15 | J | 0.61 | J | mg/kg | NYOW-03-004 (2021-03-31) | 0 - 1 | 30/32 | 94% | 0.39 | 0.41 | 0.13 | 0.32 – 0.6 | 0.61 | MDC | 4.1 | No |
| Zinc | 7440-66-6 | 12 | | 85 | | mg/kg | NYOW-03-015 (2021-04-05) | 0 - 1 | 32/32 | 100% | 33 | 25 | 18 | 1.2 – 2.2 | 85 | MDC | 120 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.2 for screening level determination steps.

Table L.6-4
Ecological Screening Summary – Area of Concern 5 (Boiler House), Surface Soil (0 - 1 ft bgs), Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.063 | | 0.26 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 5/5 | 100% | 0.14 | 0.091 | 0.09 | N/A | 0.26 | MDC | 18 | No |
| Low Molecular Weight PAHs | N/A | 0.027 | | 0.14 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 5/5 | 100% | 0.078 | 0.058 | 0.049 | N/A | 0.14 | MDC | 29 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.16 | J+ | 0.22 | J+ | mg/kg | NYOW-05-018 (2021-01-11) | 0 - 1 | 5/5 | 100% | 0.19 | 0.18 | 0.024 | 0.079 – 0.11 | 0.22 | MDC | 78 | No |
| Arsenic | 7440-38-2 | 4.8 | | 25 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 5/5 | 100% | 9.5 | 5.8 | 8.7 | 0.15 – 0.2 | 25 | MDC | 6.8 | Yes |
| Beryllium | 7440-41-7 | 0.4 | J+ | 0.46 | J+ | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 0.43 | 0.42 | 0.028 | 0.095 – 0.11 | 0.46 | MDC | 40 | No |
| Copper | 7440-50-8 | 14 | | 20 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 18 | 19 | 2.7 | 0.63 – 0.74 | 20 | MDC | 80 | No |
| Manganese | 7439-96-5 | 490 | | 710 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 640 | 670 | 91 | 0.32 – 0.37 | 710 | MDC | 450 | Yes |
| Nickel | 7440-02-0 | 9.6 | | 12 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 0 - 1 | 5/5 | 100% | 11 | 11 | 0.94 | 0.36 – 0.41 | 12 | MDC | 280 | No |
| Zinc | 7440-66-6 | 25 | | 31 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 5/5 | 100% | 27 | 27 | 2.5 | 1.2 – 1.4 | 31 | MDC | 120 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.2 for screening level determination steps.

Table L.6-5
Ecological Screening Summary – Area of Concern 5 (Boiler House), Total Soil (0 - 5 ft bgs), Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Total Soil (0 - 5 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.033 | | 0.26 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 8/10 | 80% | 0.099 | 0.08 | 0.073 | N/A | 0.26 | MDC | 18 | No |
| Low Molecular Weight PAHs | N/A | 0.023 | | 0.14 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 8/10 | 80% | 0.062 | 0.052 | 0.04 | N/A | 0.14 | MDC | 29 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.16 | J+ | 0.22 | J+ | mg/kg | NYOW-05-018 (2021-01-11) | 0 - 1 | 10/10 | 100% | 0.18 | 0.18 | 0.022 | 0.078 – 0.11 | 0.22 | MDC | 78 | No |
| Arsenic | 7440-38-2 | 4.6 | | 25 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 10/10 | 100% | 8.5 | 6.1 | 6.2 | 0.15 – 0.2 | 25 | MDC | 6.8 | Yes |
| Beryllium | 7440-41-7 | 0.21 | J | 0.46 | J+ | mg/kg | Multiple Locations | 0 - 1 | 10/10 | 100% | 0.37 | 0.41 | 0.089 | 0.095 – 0.11 | 0.46 | MDC | 40 | No |
| Chromium | 7440-47-3 | 6.8 | | 14 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 1 - 5 | 10/10 | 100% | 9 | 8.2 | 2.3 | 0.32 – 0.38 | 14 | MDC | 0.34 | Yes |
| Copper | 7440-50-8 | 14 | | 22 | | mg/kg | NYOW-05-019 (2021-01-11) | 1 - 5 | 10/10 | 100% | 18 | 17 | 2.4 | 0.63 – 0.76 | 22 | MDC | 80 | No |
| Lead | 7439-92-1 | 5.5 | | 28 | | mg/kg | NYOW-05-020 (2021-01-08) | 1 - 5 | 10/10 | 100% | 9.2 | 7.5 | 6.7 | 0.63 – 0.76 | 28 | MDC | 1700 | No |
| Manganese | 7439-96-5 | 390 | | 750 | | mg/kg | NYOW-05-019 (2021-01-11) | 1 - 5 | 10/10 | 100% | 600 | 650 | 130 | 0.32 – 0.38 | 750 | MDC | 450 | Yes |
| Mercury | 7439-97-6 | 0.0075 | J | 0.054 | | mg/kg | NYOW-05-019 (2021-01-11) | 0 - 1 | 6/10 | 60% | 0.022 | 0.016 | 0.016 | 0.015 – 0.021 | 0.054 | MDC | 0.05 | Yes |
| Nickel | 7440-02-0 | 9.6 | | 18 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 1 - 5 | 10/10 | 100% | 12 | 11 | 2.8 | 0.35 – 0.43 | 18 | MDC | 280 | No |
| Zinc | 7440-66-6 | 22 | | 150 | | mg/kg | NYOW-05-020 (2021-01-08) | 1 - 5 | 10/10 | 100% | 40 | 28 | 39 | 1.2 – 1.4 | 150 | MDC | 120 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.2 for screening level determination steps.

Table L.6-6
Ecological Screening Summary – Area of Concern 5 (Coal Aggregate Bins), Surface Soil (0 - 1 ft bgs), Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.19 | | 13 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 5/5 | 100% | 3.6 | 1.5 | 5.4 | N/A | 13 | MDC | 18 | No |
| Low Molecular Weight PAHs | N/A | 0.079 | | 29 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 9.4 | 7.6 | 12 | N/A | 29 | MDC | 29 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.15 | J | 0.33 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.22 | 0.19 | 0.075 | 0.088 – 0.13 | 0.33 | MDC | 78 | No |
| Arsenic | 7440-38-2 | 4.6 | | 16 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 9.8 | 10 | 4.9 | 0.21 – 0.26 | 16 | MDC | 6.8 | Yes |
| Beryllium | 7440-41-7 | 0.28 | J- | 0.63 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.4 | 0.39 | 0.14 | 0.12 – 0.16 | 0.63 | MDC | 40 | No |
| Chromium | 7440-47-3 | 5.8 | | 13 | J- | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 8.8 | 8.3 | 2.6 | 0.41 – 0.52 | 13 | MDC | 0.34 | Yes |
| Copper | 7440-50-8 | 10 | | 22 | | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 17 | 17 | 4.8 | 0.82 – 1 | 22 | MDC | 80 | No |
| Lead | 7439-92-1 | 8.6 | J- | 21 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 5/5 | 100% | 13 | 8.9 | 5.8 | 0.82 – 1 | 21 | MDC | 1700 | No |
| Manganese | 7439-96-5 | 110 | | 660 | J | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 450 | 420 | 220 | 0.41 – 0.52 | 660 | MDC | 450 | Yes |
| Nickel | 7440-02-0 | 6.1 | | 15 | | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 11 | 12 | 3.3 | 0.46 – 0.58 | 15 | MDC | 280 | No |
| Selenium | 7782-49-2 | 0.22 | J | 0.9 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.58 | 0.65 | 0.31 | 0.41 – 0.51 | 0.9 | MDC | 4.1 | No |
| Zinc | 7440-66-6 | 16 | | 55 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 5/5 | 100% | 39 | 36 | 16 | 1.5 – 1.9 | 55 | MDC | 120 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.2 for screening level determination steps.

Table L.6-7
Ecological Screening Summary – Area of Concern 5 (Coal Aggregate Bins), Total Soil (0 - 5 ft bgs), Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | |
| Dibenzofuran | 132-64-9 | 0.38 | J+ | 0.38 | J+ | mg/kg | NYOW-05-024 (2021-01-08) | 1 - 5 | 1/5 | 20% | -- | -- | -- | 0.073 – 0.079 | 0.38 | MDC | 0.15 | Yes |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.051 | | 13 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 10/10 | 100% | 1.9 | 0.2 | 4 | N/A | 13 | MDC | 18 | No |
| Low Molecular Weight PAHs | N/A | 0.024 | | 29 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 10/10 | 100% | 4.8 | 0.23 | 9.3 | N/A | 29 | MDC | 29 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.095 | J | 0.33 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.19 | 0.17 | 0.065 | 0.083 – 0.13 | 0.33 | MDC | 78 | No |
| Arsenic | 7440-38-2 | 4.6 | | 16 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 10/10 | 100% | 8.1 | 6.6 | 3.8 | 0.17 – 0.26 | 16 | MDC | 6.8 | Yes |
| Beryllium | 7440-41-7 | 0.28 | J- | 2.3 | J+ | mg/kg | NYOW-05-025 (2021-01-11) | 1 - 5 | 10/10 | 100% | 0.62 | 0.43 | 0.6 | 0.093 – 0.55 | 2.3 | MDC | 40 | No |
| Cadmium | 7440-43-9 | 0.1 | | 0.37 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.18 | 0.15 | 0.089 | 0.029 – 0.045 | 0.37 | MDC | 140 | No |
| Chromium | 7440-47-3 | 5.8 | | 13 | J- | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 10/10 | 100% | 8.8 | 8.5 | 2.1 | 0.31 – 0.52 | 13 | MDC | 0.34 | Yes |
| Copper | 7440-50-8 | 10 | | 34 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 20 | 21 | 6.4 | 0.62 – 1 | 34 | MDC | 80 | No |
| Lead | 7439-92-1 | 8.6 | J- | 21 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 10/10 | 100% | 13 | 11 | 4.6 | 0.62 – 1 | 21 | MDC | 1700 | No |
| Manganese | 7439-96-5 | 110 | | 2400 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 840 | 740 | 620 | 0.31 – 3.5 | 2400 | MDC | 450 | Yes |
| Mercury | 7439-97-6 | 0.026 | | 0.11 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.058 | 0.058 | 0.028 | 0.016 – 0.022 | 0.11 | MDC | 0.05 | Yes |
| Nickel | 7440-02-0 | 6.1 | | 15 | | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 10/10 | 100% | 12 | 12 | 2.7 | 0.35 – 0.58 | 15 | MDC | 280 | No |
| Selenium | 7782-49-2 | 0.22 | J | 0.9 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.53 | 0.5 | 0.21 | 0.33 – 0.51 | 0.9 | MDC | 4.1 | No |
| Zinc | 7440-66-6 | 16 | | 66 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 39 | 36 | 15 | 1.2 – 1.9 | 66 | MDC | 120 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.2 for screening level determination steps.

Table L.6-8
Ecological Screening Summary – Area of Concern 5 (Coal Storage Area), Surface Soil (0 - 1 ft bgs), Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.41 | | 4.3 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 2.3 | 1.9 | 1.8 | N/A | 4.3 | MDC | 18 | No |
| Low Molecular Weight PAHs | N/A | 0.32 | | 40 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 16 | 19 | 17 | N/A | 40 | MDC | 29 | Yes |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.16 | J | 0.46 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 4/5 | 80% | 0.26 | 0.24 | 0.12 | 0.11 – 0.16 | 0.46 | MDC | 78 | No |
| Arsenic | 7440-38-2 | 4.5 | | 24 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/5 | 100% | 14 | 12 | 7.7 | 0.21 – 0.34 | 24 | MDC | 6.8 | Yes |
| Beryllium | 7440-41-7 | 0.47 | J+ | 0.75 | J+ | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.63 | 0.67 | 0.11 | 0.11 – 0.18 | 0.75 | MDC | 40 | No |
| Copper | 7440-50-8 | 5.3 | | 22 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 13 | 9.8 | 8.1 | 0.76 – 1.2 | 22 | MDC | 80 | No |
| Lead | 7439-92-1 | 4.2 | | 21 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/5 | 100% | 15 | 18 | 6.6 | 0.76 – 1.2 | 21 | MDC | 1700 | No |
| Nickel | 7440-02-0 | 4.9 | | 13 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/5 | 100% | 7.6 | 5.7 | 3.4 | 0.43 – 0.67 | 13 | MDC | 280 | No |
| Selenium | 7782-49-2 | 0.4 | J | 1.5 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.9 | 0.98 | 0.42 | 0.43 – 0.68 | 1.5 | MDC | 4.1 | No |
| Zinc | 7440-66-6 | 14 | | 58 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 36 | 35 | 17 | 1.4 – 2.2 | 58 | MDC | 120 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.2 for screening level determination steps.

Table L.6-9
Ecological Screening Summary – Area of Concern 5 (Coal Storage Area), Total Soil (0 - 5 ft bgs), Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Total Soil (0 - 5 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.046 | | 4.3 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 6/10 | 60% | 1.2 | 0.24 | 1.6 | N/A | 4.3 | MDC | 18 | No |
| Low Molecular Weight PAHs | N/A | 0.019 | | 40 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 7/10 | 70% | 8.2 | 0.18 | 13 | N/A | 40 | MDC | 29 | Yes |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.16 | J+ | 0.46 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 8/10 | 80% | 0.21 | 0.17 | 0.11 | 0.079 – 0.16 | 0.46 | MDC | 78 | No |
| Arsenic | 7440-38-2 | 2.8 | | 26 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 10/10 | 100% | 11 | 7.4 | 8.8 | 0.18 – 0.34 | 26 | MDC | 6.8 | Yes |
| Barium | 7440-39-3 | 34 | | 110 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 10/10 | 100% | 49 | 41 | 23 | 0.75 – 1.3 | 110 | MDC | 330 | No |
| Beryllium | 7440-41-7 | 0.42 | J+ | 0.75 | J+ | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 10/10 | 100% | 0.55 | 0.52 | 0.12 | 0.1 – 0.18 | 0.75 | MDC | 40 | No |
| Cadmium | 7440-43-9 | 0.026 | J | 0.38 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 10/10 | 100% | 0.14 | 0.14 | 0.12 | 0.032 – 0.059 | 0.38 | MDC | 140 | No |
| Copper | 7440-50-8 | 5.3 | | 27 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 10/10 | 100% | 15 | 14 | 7.3 | 0.66 – 1.2 | 27 | MDC | 80 | No |
| Lead | 7439-92-1 | 3 | | 21 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 10/10 | 100% | 9.7 | 6 | 7.1 | 0.66 – 1.2 | 21 | MDC | 1700 | No |
| Manganese | 7439-96-5 | 110 | | 870 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 10/10 | 100% | 410 | 350 | 210 | 0.33 – 0.6 | 870 | MDC | 450 | Yes |
| Mercury | 7439-97-6 | 0.031 | | 0.19 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 6/10 | 60% | 0.067 | 0.059 | 0.056 | 0.015 – 0.025 | 0.19 | MDC | 0.05 | Yes |
| Nickel | 7440-02-0 | 4.9 | | 14 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 10/10 | 100% | 8.5 | 8.3 | 3.3 | 0.37 – 0.67 | 14 | MDC | 280 | No |
| Selenium | 7782-49-2 | 0.4 | J | 1.5 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 6/10 | 60% | 0.64 | 0.43 | 0.37 | 0.36 – 0.68 | 1.5 | MDC | 4.1 | No |
| Zinc | 7440-66-6 | 14 | | 58 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 10/10 | 100% | 29 | 26 | 14 | 1.2 – 2.2 | 58 | MDC | 120 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.2 for screening level determination steps.

Table L.6-10
Ecological Screening Summary – Area of Concern 5 (Electric Substation), Surface Soil (0 - 1 ft bgs), Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.11 | | 0.35 | | mg/kg | NYOW-05-015 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.17 | 0.13 | 0.1 | N/A | 0.35 | MDC | 18 | No |
| Low Molecular Weight PAHs | N/A | 0.06 | | 0.12 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 0.089 | 0.073 | 0.029 | N/A | 0.12 | MDC | 29 | No |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.0042 | J | 0.16 | | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 4/5 | 80% | 0.042 | 0.013 | 0.06 | 0.0068 – 0.0079 | 0.16 | MDC | 0.33 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.096 | J | 0.19 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.14 | 0.13 | 0.038 | 0.081 – 0.11 | 0.19 | MDC | 78 | No |
| Arsenic | 7440-38-2 | 4.3 | | 5.9 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 4.9 | 4.9 | 0.67 | 0.17 – 0.24 | 5.9 | MDC | 6.8 | No |
| Beryllium | 7440-41-7 | 0.47 | J+ | 0.57 | J+ | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 0.53 | 0.55 | 0.047 | 0.11 – 0.14 | 0.57 | MDC | 40 | No |
| Cadmium | 7440-43-9 | 0.11 | | 0.39 | | mg/kg | NYOW-05-015 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.18 | 0.14 | 0.12 | 0.03 – 0.041 | 0.39 | MDC | 140 | No |
| Copper | 7440-50-8 | 16 | | 25 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 5/5 | 100% | 20 | 21 | 4.3 | 0.75 – 0.92 | 25 | MDC | 80 | No |
| Lead | 7439-92-1 | 7.6 | | 24 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 13 | 12 | 6.7 | 0.75 – 0.92 | 24 | MDC | 1700 | No |
| Manganese | 7439-96-5 | 590 | | 1200 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 840 | 660 | 290 | 0.37 – 0.46 | 1200 | MDC | 450 | Yes |
| Mercury | 7439-97-6 | 0.026 | | 0.23 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.079 | 0.029 | 0.088 | 0.016 – 0.017 | 0.23 | MDC | 0.05 | Yes |
| Nickel | 7440-02-0 | 12 | | 15 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 13 | 12 | 1.6 | 0.42 – 0.52 | 15 | MDC | 280 | No |
| Selenium | 7782-49-2 | 0.42 | J+ | 0.59 | J+ | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.5 | 0.47 | 0.068 | 0.34 – 0.47 | 0.59 | MDC | 4.1 | No |
| Zinc | 7440-66-6 | 33 | | 49 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 40 | 40 | 6.3 | 1.4 – 1.7 | 49 | MDC | 120 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.2 for screening level determination steps.

Table L.6-11
Ecological Screening Summary – Area of Concern 5 (Electric Substation), Total Soil (0 - 5 ft bgs), Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.023 | | 0.35 | | mg/kg | NYOW-05-015 (2021-01-13) | 0 - 1 | 10/10 | 100% | 0.11 | 0.11 | 0.095 | N/A | 0.35 | MDC | 18 | No |
| Low Molecular Weight PAHs | N/A | 0.023 | | 0.12 | | mg/kg | Multiple Locations | 0 - 1 | 10/10 | 100% | 0.065 | 0.064 | 0.034 | N/A | 0.12 | MDC | 29 | No |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.0042 | J | 0.16 | | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 4/5 | 80% | 0.042 | 0.013 | 0.06 | 0.0068 – 0.0079 | 0.16 | MDC | 0.33 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.096 | J | 0.21 | J+ | mg/kg | Multiple Locations | 1 - 5 | 10/10 | 100% | 0.17 | 0.18 | 0.041 | 0.081 – 0.11 | 0.21 | MDC | 78 | No |
| Arsenic | 7440-38-2 | 4.3 | | 5.9 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 10/10 | 100% | 4.9 | 4.9 | 0.52 | 0.17 – 0.24 | 5.9 | MDC | 6.8 | No |
| Barium | 7440-39-3 | 43 | | 110 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 59 | 51 | 19 | 0.79 – 1 | 110 | MDC | 330 | No |
| Beryllium | 7440-41-7 | 0.27 | J | 0.83 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 0.5 | 0.48 | 0.15 | 0.11 – 0.14 | 0.83 | MDC | 40 | No |
| Cadmium | 7440-43-9 | 0.046 | J | 0.39 | | mg/kg | NYOW-05-015 (2021-01-13) | 0 - 1 | 10/10 | 100% | 0.15 | 0.13 | 0.13 | 0.029 – 0.041 | 0.39 | MDC | 140 | No |
| Chromium | 7440-47-3 | 7.9 | | 25 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 12 | 9.8 | 5.3 | 0.35 – 0.46 | 25 | MDC | 0.34 | Yes |
| Copper | 7440-50-8 | 15 | | 74 | | mg/kg | NYOW-05-013 (2021-01-13) | 1 - 5 | 10/10 | 100% | 25 | 21 | 18 | 0.7 – 0.92 | 74 | MDC | 80 | No |
| Lead | 7439-92-1 | 7.6 | | 24 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 10/10 | 100% | 11 | 9 | 5 | 0.7 – 0.92 | 24 | MDC | 1700 | No |
| Manganese | 7439-96-5 | 330 | | 1200 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 10/10 | 100% | 740 | 670 | 260 | 0.35 – 0.46 | 1200 | MDC | 450 | Yes |
| Mercury | 7439-97-6 | 0.013 | J | 0.23 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 10/10 | 100% | 0.06 | 0.03 | 0.066 | 0.015 – 0.018 | 0.23 | MDC | 0.05 | Yes |
| Nickel | 7440-02-0 | 12 | | 29 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 16 | 14 | 5.4 | 0.39 – 0.52 | 29 | MDC | 280 | No |
| Selenium | 7782-49-2 | 0.41 | J+ | 0.59 | J+ | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 10/10 | 100% | 0.48 | 0.47 | 0.054 | 0.33 – 0.47 | 0.59 | MDC | 4.1 | No |
| Zinc | 7440-66-6 | 29 | | 56 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 40 | 38 | 8.1 | 1.3 – 1.7 | 56 | MDC | 120 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.2 for screening level determination steps.

Table L.6-12
Ecological Screening Summary – Area of Concern 5 (Possible Dump Area), Surface Soil (0 - 1 ft bgs), Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 0.35 | J+ | 0.35 | J+ | mg/kg | NYOW-05-001 (2021-01-12) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.18 – 0.2 | 0.35 | MDC | 0.002 | Yes |
| Dibenzofuran | 132-64-9 | 0.37 | J+ | 0.39 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 2/5 | 40% | 0.2 | 0.078 | 0.15 | 0.071 – 0.079 | 0.39 | MDC | 0.15 | Yes |
| Di-n-butyl phthalate | 84-74-2 | 0.39 | | 0.39 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.071 – 0.079 | 0.39 | MDC | 0.22 | Yes |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.03 | | 0.44 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.17 | 0.13 | 0.16 | N/A | 0.44 | MDC | 18 | No |
| Low Molecular Weight PAHs | N/A | 0.017 | | 1.2 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.4 | 0.28 | 0.46 | N/A | 1.2 | MDC | 29 | No |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | |
| PCB-1268 (Aroclor 1268) | 11100-14-4 | N/A | | N/A | | mg/kg | N/A | N/A | 0/5 | 0% | -- | -- | -- | 0.0069 – 0.0076 | 0.075 | LOQ | 0.33 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.076 | J | 1 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.3 | 0.12 | 0.39 | 0.089 – 0.1 | 1 | MDC | 78 | No |
| Arsenic | 7440-38-2 | 4.3 | | 6.9 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 5.5 | 5.1 | 1.2 | 0.15 – 0.19 | 6.9 | MDC | 6.8 | Yes |
| Beryllium | 7440-41-7 | 0.42 | J+ | 0.56 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.51 | 0.54 | 0.061 | 0.1 – 0.13 | 0.56 | MDC | 40 | No |
| Cadmium | 7440-43-9 | 0.072 | J | 4.3 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.99 | 0.15 | 1.9 | 0.026 – 0.033 | 4.3 | MDC | 140 | No |
| Chromium | 7440-47-3 | 5 | | 13 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 7.6 | 6.4 | 3.2 | 0.34 – 0.44 | 13 | MDC | 0.34 | Yes |
| Copper | 7440-50-8 | 18 | | 110 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 41 | 23 | 39 | 0.67 – 0.89 | 110 | MDC | 80 | Yes |
| Lead | 7439-92-1 | 4.6 | | 200 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 47 | 9.3 | 86 | 0.67 – 0.89 | 200 | MDC | 1700 | No |
| Manganese | 7439-96-5 | 400 | J- | 780 | | mg/kg | NYOW-05-004 (2021-01-12) | 0 - 1 | 5/5 | 100% | 570 | 520 | 170 | 0.34 – 0.44 | 780 | MDC | 450 | Yes |
| Nickel | 7440-02-0 | 8.1 | | 18 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 11 | 8.3 | 4.2 | 0.38 – 0.5 | 18 | MDC | 280 | No |
| Zinc | 7440-66-6 | 28 | | 690 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 160 | 35 | 290 | 1.3 – 1.7 | 690 | MDC | 120 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.2 for screening level determination steps.

Table L.6-13
Ecological Screening Summary – Area of Concern 5 (Possible Dump Area), Total Soil (0 - 5 ft bgs), Soil Invertebrates
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Total Soil (0 - 5 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 0.016 | J+ | 0.019 | J+ | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 2/5 | 40% | 0.013 | 0.011 | 0.0038 | 0.01 – 0.012 | 0.019 | MDC | 1 | No |
| Acetone | 67-64-1 | 0.069 | | 0.069 | | mg/kg | NYOW-05-001 (2021-01-12) | 1 - 5 | 1/5 | 20% | -- | -- | -- | 0.057 – 0.069 | 0.069 | MDC | 0.04 | Yes |
| Benzene | 71-43-2 | 0.004 | J+ | 0.004 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 1 - 5 | 1/5 | 20% | -- | -- | -- | 0.00032 – 0.00038 | 0.004 | MDC | 0.12 | No |
| Toluene | 108-88-3 | 0.004 | J+ | 0.004 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 1 - 5 | 1/5 | 20% | -- | -- | -- | 0.00064 – 0.00076 | 0.004 | MDC | 0.15 | No |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 0.35 | J+ | 0.35 | J+ | mg/kg | NYOW-05-001 (2021-01-12) | 0 - 1 | 1/10 | 10% | -- | -- | -- | 0.18 – 0.21 | 0.35 | MDC | 0.002 | Yes |
| Dibenzofuran | 132-64-9 | 0.37 | J+ | 0.39 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 2/10 | 20% | 0.13 | 0.077 | 0.12 | 0.071 – 0.085 | 0.39 | MDC | 0.15 | Yes |
| Di-n-butyl phthalate | 84-74-2 | 0.39 | | 0.39 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/10 | 10% | -- | -- | -- | 0.071 – 0.085 | 0.39 | MDC | 0.22 | Yes |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.03 | | 0.44 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 8/10 | 80% | 0.11 | 0.06 | 0.12 | N/A | 0.44 | MDC | 18 | No |
| Low Molecular Weight PAHs | N/A | 0.017 | | 1.2 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 0.22 | 0.044 | 0.36 | N/A | 1.2 | MDC | 29 | No |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | |
| PCB-1268 (Aroclor 1268) | 11100-14-4 | N/A | | N/A | | mg/kg | N/A | N/A | 0/10 | 0% | -- | -- | -- | 0.0069 – 0.0086 | 0.085 | LOQ | 0.33 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.076 | J | 1 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 8/10 | 80% | 0.23 | 0.15 | 0.26 | 0.089 – 0.13 | 1 | MDC | 78 | No |
| Arsenic | 7440-38-2 | 3.6 | | 6.9 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 5.2 | 4.9 | 1.2 | 0.15 – 0.24 | 6.9 | MDC | 6.8 | Yes |
| Barium | 7440-39-3 | 18 | | 110 | J | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 48 | 36 | 28 | 0.75 – 1 | 110 | MDC | 330 | No |
| Beryllium | 7440-41-7 | 0.11 | J | 0.77 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 0.42 | 0.45 | 0.21 | 0.1 – 0.13 | 0.77 | MDC | 40 | No |
| Cadmium | 7440-43-9 | 0.036 | J | 4.3 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 0.53 | 0.079 | 1.3 | 0.026 – 0.042 | 4.3 | MDC | 140 | No |
| Chromium | 7440-47-3 | 4.9 | | 25 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 10 | 9.5 | 6.1 | 0.34 – 1.9 | 25 | MDC | 0.34 | Yes |
| Copper | 7440-50-8 | 10 | | 110 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 28 | 19 | 29 | 0.67 – 3.8 | 110 | MDC | 80 | Yes |
| Lead | 7439-92-1 | 3.4 | | 200 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 26 | 7 | 61 | 0.67 – 3.8 | 200 | MDC | 1700 | No |
| Manganese | 7439-96-5 | 320 | | 1000 | | mg/kg | NYOW-05-001 (2021-01-12) | 1 - 5 | 10/10 | 100% | 570 | 490 | 210 | 0.34 – 1.9 | 1000 | MDC | 450 | Yes |
| Mercury | 7439-97-6 | 0.0078 | J | 0.14 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 0.038 | 0.02 | 0.04 | 0.015 – 0.019 | 0.14 | MDC | 0.05 | Yes |
| Nickel | 7440-02-0 | 5.1 | | 25 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 12 | 9.1 | 6 | 0.38 – 2.1 | 25 | MDC | 280 | No |
| Selenium | 7782-49-2 | 0.13 | J | 0.6 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 1 - 5 | 8/10 | 80% | 0.35 | 0.44 | 0.17 | 0.3 – 0.48 | 0.6 | MDC | 4.1 | No |
| Zinc | 7440-66-6 | 12 | | 690 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 98 | 32 | 210 | 1.3 – 7.1 | 690 | MDC | 120 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.2 for screening level determination steps.

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# APPENDIX L.7

# Ecological Screening Summary – Birds

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Table L.7-1
Ecological Screening Summary – Area of Concern 1, Surface Soil (0 - 1 ft bgs), Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Explosives | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.23 | J+ | 0.23 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 1/30 | 3% | -- | -- | -- | 0.14 – 0.16 | 0.23 | MDC | 7.5 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 2.4 | | 11 | | mg/kg | NYOW-01-029 (2021-04-13) | 0 - 1 | 30/30 | 100% | 5.1 | 4.7 | 1.7 | 0.16 – 0.34 | 11 | MDC | 43 | No |
| Barium | 7440-39-3 | 25 | J | 120 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 30/30 | 100% | 56 | 52 | 21 | 0.71 – 1.6 | 120 | MDC | 820 | No |
| Cadmium | 7440-43-9 | 0.053 | J | 0.79 | | mg/kg | NYOW-01-023 (2021-04-02) | 0 - 1 | 30/30 | 100% | 0.28 | 0.24 | 0.19 | 0.028 – 0.059 | 0.79 | MDC | 0.77 | Yes |
| Chromium | 7440-47-3 | 5 | | 18 | | mg/kg | Multiple Locations | 0 - 1 | 30/30 | 100% | 9 | 8.6 | 3.2 | 0.32 – 2.2 | 18 | MDC | 26 | No |
| Cobalt | 7440-48-4 | 3.4 | J | 9.4 | | mg/kg | Multiple Locations | 0 - 1 | 30/30 | 100% | 6 | 5.9 | 1.7 | 0.16 – 0.35 | 9.4 | MDC | 120 | No |
| Copper | 7440-50-8 | 11 | | 80 | | mg/kg | NYOW-01-013 (2021-04-14) | 0 - 1 | 30/30 | 100% | 23 | 21 | 12 | 0.63 – 1.4 | 80 | MDC | 28 | Yes |
| Lead | 7439-92-1 | 4.2 | J | 200 | | mg/kg | NYOW-01-034 (2021-04-14) | 0 - 1 | 30/30 | 100% | 28 | 19 | 36 | 0.63 – 4.5 | 200 | MDC | 11 | Yes |
| Manganese | 7439-96-5 | 270 | | 1400 | J | mg/kg | NYOW-01-002 (2021-04-09) | 0 - 1 | 30/30 | 100% | 650 | 600 | 250 | 0.32 – 0.69 | 1400 | MDC | 4300 | No |
| Mercury | 7439-97-6 | 0.013 | J | 0.76 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 29/30 | 97% | 0.076 | 0.041 | 0.14 | 0.016 – 0.03 | 0.76 | MDC | 0.013 | Yes |
| Nickel | 7440-02-0 | 6.9 | | 13 | | mg/kg | Multiple Locations | 0 - 1 | 30/30 | 100% | 10 | 11 | 2 | 0.36 – 0.78 | 13 | MDC | 210 | No |
| Selenium | 7782-49-2 | 0.4 | J+ | 0.85 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 29/30 | 97% | 0.53 | 0.52 | 0.1 | 0.32 – 0.68 | 0.85 | MDC | 1.2 | No |
| Silver | 7440-22-4 | 1.3 | J+ | 2.6 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 11/30 | 37% | 0.93 | 0.69 | 0.64 | 0.47 – 1 | 2.6 | MDC | 4.2 | No |
| Zinc | 7440-66-6 | 11 | | 180 | J | mg/kg | NYOW-01-005 (2021-04-08) | 0 - 1 | 30/30 | 100% | 63 | 53 | 40 | 1.2 – 2.6 | 180 | MDC | 46 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.3 for screening level determination steps.

Table L.7-2
Ecological Screening Summary – Area of Concern 5 (Boiler House), Surface Soil (0 - 1 ft bgs), Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 4.8 | | 25 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 5/5 | 100% | 9.5 | 5.8 | 8.7 | 0.15 – 0.2 | 25 | MDC | 43 | No |
| Cobalt | 7440-48-4 | 4.7 | | 5.9 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 0 - 1 | 5/5 | 100% | 5.3 | 5.3 | 0.51 | 0.16 – 0.18 | 5.9 | MDC | 120 | No |
| Copper | 7440-50-8 | 14 | | 20 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 18 | 19 | 2.7 | 0.63 – 0.74 | 20 | MDC | 28 | No |
| Manganese | 7439-96-5 | 490 | | 710 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 640 | 670 | 91 | 0.32 – 0.37 | 710 | MDC | 4300 | No |
| Nickel | 7440-02-0 | 9.6 | | 12 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 0 - 1 | 5/5 | 100% | 11 | 11 | 0.94 | 0.36 – 0.41 | 12 | MDC | 210 | No |
| Zinc | 7440-66-6 | 25 | | 31 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 5/5 | 100% | 27 | 27 | 2.5 | 1.2 – 1.4 | 31 | MDC | 46 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.3 for screening level determination steps.

Table L.7-3
Ecological Screening Summary – Area of Concern 5 (Coal Aggregate Bins), Surface Soil (0 - 1 ft bgs), Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.0054 | J | 7.4 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 2.3 | 1.8 | 3 | 0.0023 – 0.1 | 7.4 | MDC | 3.4 | Yes |
| 2-Methylnaphthalene | 91-57-6 | 0.0071 | J | 10 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 3.2 | 2.5 | 4.1 | 0.0023 – 0.1 | 10 | MDC | 3.4 | Yes |
| Benzo(a)anthracene | 56-55-3 | 0.019 | J+ | 0.44 | J | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.22 | 0.21 | 0.2 | 0.0051 – 0.23 | 0.44 | MDC | 0.73 | No |
| Naphthalene | 91-20-3 | 0.009 | J | 7.1 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 2.3 | 1.8 | 2.9 | 0.0023 – 0.1 | 7.1 | MDC | 3.4 | Yes |
| Pyrene | 129-00-0 | 0.029 | J+ | 0.73 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.31 | 0.34 | 0.29 | 0.0078 – 0.35 | 0.73 | MDC | 33 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 4.6 | | 16 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 9.8 | 10 | 4.9 | 0.21 – 0.26 | 16 | MDC | 43 | No |
| Chromium | 7440-47-3 | 5.8 | | 13 | J- | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 8.8 | 8.3 | 2.6 | 0.41 – 0.52 | 13 | MDC | 26 | No |
| Cobalt | 7440-48-4 | 1.8 | | 7.5 | J- | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 5.2 | 5.2 | 2.1 | 0.2 – 0.26 | 7.5 | MDC | 120 | No |
| Copper | 7440-50-8 | 10 | | 22 | | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 17 | 17 | 4.8 | 0.82 – 1 | 22 | MDC | 28 | No |
| Lead | 7439-92-1 | 8.6 | J- | 21 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 5/5 | 100% | 13 | 8.9 | 5.8 | 0.82 – 1 | 21 | MDC | 11 | Yes |
| Manganese | 7439-96-5 | 110 | | 660 | J | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 450 | 420 | 220 | 0.41 – 0.52 | 660 | MDC | 4300 | No |
| Nickel | 7440-02-0 | 6.1 | | 15 | | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 11 | 12 | 3.3 | 0.46 – 0.58 | 15 | MDC | 210 | No |
| Selenium | 7782-49-2 | 0.22 | J | 0.9 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.58 | 0.65 | 0.31 | 0.41 – 0.51 | 0.9 | MDC | 1.2 | No |
| Thallium | 7440-28-0 | 0.12 | | 0.26 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 4/5 | 80% | 0.18 | 0.18 | 0.061 | 0.01 – 0.11 | 0.26 | MDC | 4.5 | No |
| Vanadium | 7440-62-2 | 7.6 | | 17 | | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 13 | 13 | 3.6 | 0.36 – 0.45 | 17 | MDC | 7.8 | Yes |
| Zinc | 7440-66-6 | 16 | | 55 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 5/5 | 100% | 39 | 36 | 16 | 1.5 – 1.9 | 55 | MDC | 46 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.3 for screening level determination steps.

Table L.7-4
Ecological Screening Summary – Area of Concern 5 (Coal Storage Area), Surface Soil (0 - 1 ft bgs), Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.039 | J- | 10 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 4.4 | 5.7 | 4.3 | 0.0023 – 0.069 | 10 | MDC | 3.4 | Yes |
| 2-Methylnaphthalene | 91-57-6 | 0.017 | | 14 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 5.3 | 4.8 | 5.8 | 0.0023 – 0.069 | 14 | MDC | 3.4 | Yes |
| Benzo(a)anthracene | 56-55-3 | 0.036 | | 0.75 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.34 | 0.27 | 0.33 | 0.005 – 0.15 | 0.75 | MDC | 0.73 | Yes |
| Naphthalene | 91-20-3 | 0.017 | J- | 9.2 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 3.4 | 2 | 4 | 0.0023 – 0.069 | 9.2 | MDC | 3.4 | Yes |
| Pyrene | 129-00-0 | 0.068 | J- | 0.99 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.52 | 0.45 | 0.45 | 0.0078 – 0.23 | 0.99 | MDC | 33 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 4.5 | | 24 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/5 | 100% | 14 | 12 | 7.7 | 0.21 – 0.34 | 24 | MDC | 43 | No |
| Cobalt | 7440-48-4 | 2.1 | | 6.6 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/5 | 100% | 3.7 | 3.4 | 1.8 | 0.19 – 0.3 | 6.6 | MDC | 120 | No |
| Copper | 7440-50-8 | 5.3 | | 22 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 13 | 9.8 | 8.1 | 0.76 – 1.2 | 22 | MDC | 28 | No |
| Lead | 7439-92-1 | 4.2 | | 21 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/5 | 100% | 15 | 18 | 6.6 | 0.76 – 1.2 | 21 | MDC | 11 | Yes |
| Nickel | 7440-02-0 | 4.9 | | 13 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/5 | 100% | 7.6 | 5.7 | 3.4 | 0.43 – 0.67 | 13 | MDC | 210 | No |
| Selenium | 7782-49-2 | 0.4 | J | 1.5 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.9 | 0.98 | 0.42 | 0.43 – 0.68 | 1.5 | MDC | 1.2 | Yes |
| Thallium | 7440-28-0 | 0.18 | | 0.6 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.34 | 0.34 | 0.16 | 0.011 – 0.017 | 0.6 | MDC | 4.5 | No |
| Vanadium | 7440-62-2 | 10 | | 15 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 13 | 12 | 2.3 | 0.33 – 0.52 | 15 | MDC | 7.8 | Yes |
| Zinc | 7440-66-6 | 14 | | 58 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 36 | 35 | 17 | 1.4 – 2.2 | 58 | MDC | 46 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.3 for screening level determination steps.

Table L.7-5
Ecological Screening Summary – Area of Concern 5 (Electric Substation), Surface Soil (0 - 1 ft bgs), Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.011 | J+ | 0.012 | J+ | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 0.011 | 0.011 | 0.00055 | 0.0021 – 0.0023 | 0.012 | MDC | 3.4 | No |
| 2-Methylnaphthalene | 91-57-6 | 0.0019 | J | 0.018 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.007 | 0.003 | 0.0068 | 0.0021 – 0.0023 | 0.018 | MDC | 3.4 | No |
| Naphthalene | 91-20-3 | 0.0029 | J | 0.015 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.0068 | 0.0052 | 0.0049 | 0.0021 – 0.0023 | 0.015 | MDC | 3.4 | No |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.0042 | J | 0.16 | | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 4/5 | 80% | 0.042 | 0.013 | 0.06 | 0.0068 – 0.0079 | 0.16 | MDC | 0.041 | Yes |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 4.3 | | 5.9 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 4.9 | 4.9 | 0.67 | 0.17 – 0.24 | 5.9 | MDC | 43 | No |
| Cadmium | 7440-43-9 | 0.11 | | 0.39 | | mg/kg | NYOW-05-015 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.18 | 0.14 | 0.12 | 0.03 – 0.041 | 0.39 | MDC | 0.77 | No |
| Cobalt | 7440-48-4 | 5.6 | | 9.3 | | mg/kg | NYOW-05-014 (2021-01-13) | 0 - 1 | 5/5 | 100% | 7 | 7 | 1.4 | 0.19 – 0.23 | 9.3 | MDC | 120 | No |
| Copper | 7440-50-8 | 16 | | 25 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 5/5 | 100% | 20 | 21 | 4.3 | 0.75 – 0.92 | 25 | MDC | 28 | No |
| Lead | 7439-92-1 | 7.6 | | 24 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 13 | 12 | 6.7 | 0.75 – 0.92 | 24 | MDC | 11 | Yes |
| Manganese | 7439-96-5 | 590 | | 1200 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 840 | 660 | 290 | 0.37 – 0.46 | 1200 | MDC | 4300 | No |
| Mercury | 7439-97-6 | 0.026 | | 0.23 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.079 | 0.029 | 0.088 | 0.016 – 0.017 | 0.23 | MDC | 0.013 | Yes |
| Nickel | 7440-02-0 | 12 | | 15 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 13 | 12 | 1.6 | 0.42 – 0.52 | 15 | MDC | 210 | No |
| Selenium | 7782-49-2 | 0.42 | J+ | 0.59 | J+ | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.5 | 0.47 | 0.068 | 0.34 – 0.47 | 0.59 | MDC | 1.2 | No |
| Thallium | 7440-28-0 | 0.12 | | 0.14 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 2/5 | 40% | 0.1 | 0.12 | 0.023 | 0.0092 – 0.12 | 0.14 | MDC | 4.5 | No |
| Zinc | 7440-66-6 | 33 | | 49 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 40 | 40 | 6.3 | 1.4 – 1.7 | 49 | MDC | 46 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.3 for screening level determination steps.

Table L.7-6
Ecological Screening Summary – Area of Concern 5 (Possible Dump Area), Surface Soil (0 - 1 ft bgs), Birds
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Surface Soil (0 - 1 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | |
| Di-n-butyl phthalate | 84-74-2 | 0.39 | | 0.39 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.071 – 0.079 | 0.39 | MDC | 0.011 | Yes |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| 1-Methylnaphthalene | 90-12-0 | 0.01 | | 0.29 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 4/5 | 80% | 0.087 | 0.065 | 0.11 | 0.002 – 0.022 | 0.29 | MDC | 3.4 | No |
| 2-Methylnaphthalene | 91-57-6 | 0.013 | | 0.37 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 4/5 | 80% | 0.11 | 0.087 | 0.13 | 0.002 – 0.022 | 0.37 | MDC | 3.4 | No |
| Naphthalene | 91-20-3 | 0.0018 | J | 0.29 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.088 | 0.065 | 0.12 | 0.002 – 0.022 | 0.29 | MDC | 3.4 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Arsenic | 7440-38-2 | 4.3 | | 6.9 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 5.5 | 5.1 | 1.2 | 0.15 – 0.19 | 6.9 | MDC | 43 | No |
| Cadmium | 7440-43-9 | 0.072 | J | 4.3 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.99 | 0.15 | 1.9 | 0.026 – 0.033 | 4.3 | MDC | 0.77 | Yes |
| Chromium | 7440-47-3 | 5 | | 13 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 7.6 | 6.4 | 3.2 | 0.34 – 0.44 | 13 | MDC | 26 | No |
| Copper | 7440-50-8 | 18 | | 110 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 41 | 23 | 39 | 0.67 – 0.89 | 110 | MDC | 28 | Yes |
| Lead | 7439-92-1 | 4.6 | | 200 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 47 | 9.3 | 86 | 0.67 – 0.89 | 200 | MDC | 11 | Yes |
| Manganese | 7439-96-5 | 400 | J- | 780 | | mg/kg | NYOW-05-004 (2021-01-12) | 0 - 1 | 5/5 | 100% | 570 | 520 | 170 | 0.34 – 0.44 | 780 | MDC | 4300 | No |
| Nickel | 7440-02-0 | 8.1 | | 18 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 11 | 8.3 | 4.2 | 0.38 – 0.5 | 18 | MDC | 210 | No |
| Silver | 7440-22-4 | 1.7 | J+ | 1.7 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.5 – 0.67 | 1.7 | MDC | 4.2 | No |
| Thallium | 7440-28-0 | 0.12 | | 0.15 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 2/5 | 40% | 0.099 | 0.094 | 0.031 | 0.0089 – 0.094 | 0.15 | MDC | 4.5 | No |
| Zinc | 7440-66-6 | 28 | | 690 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 160 | 35 | 290 | 1.3 – 1.7 | 690 | MDC | 46 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.3 for screening level determination steps.

# APPENDIX L.8

# Ecological Screening Summary – Mammals

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Table L.8-1
Ecological Screening Summary – Area of Concern 1, Surface Soil (0 - 1 ft bgs), Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Explosives | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.23 | J+ | 0.23 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 1/30 | 3% | -- | -- | -- | 0.14 – 0.16 | 0.23 | MDC | 0.0061 | Yes |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.082 | J | 0.56 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 30/30 | 100% | 0.2 | 0.17 | 0.11 | 0.084 – 0.16 | 0.56 | MDC | 0.27 | Yes |
| Arsenic | 7440-38-2 | 2.4 | | 11 | | mg/kg | NYOW-01-029 (2021-04-13) | 0 - 1 | 30/30 | 100% | 5.1 | 4.7 | 1.7 | 0.16 – 0.34 | 11 | MDC | 46 | No |
| Barium | 7440-39-3 | 25 | J | 120 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 30/30 | 100% | 56 | 52 | 21 | 0.71 – 1.6 | 120 | MDC | 2000 | No |
| Beryllium | 7440-41-7 | 0.4 | J+ | 0.87 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 28/30 | 93% | 0.53 | 0.52 | 0.095 | 0.095 – 0.67 | 0.87 | MDC | 21 | No |
| Cadmium | 7440-43-9 | 0.053 | J | 0.79 | | mg/kg | NYOW-01-023 (2021-04-02) | 0 - 1 | 30/30 | 100% | 0.28 | 0.24 | 0.19 | 0.028 – 0.059 | 0.79 | MDC | 0.36 | Yes |
| Chromium | 7440-47-3 | 5 | | 18 | | mg/kg | Multiple Locations | 0 - 1 | 30/30 | 100% | 9 | 8.6 | 3.2 | 0.32 – 2.2 | 18 | MDC | 34 | No |
| Cobalt | 7440-48-4 | 3.4 | J | 9.4 | | mg/kg | Multiple Locations | 0 - 1 | 30/30 | 100% | 6 | 5.9 | 1.7 | 0.16 – 0.35 | 9.4 | MDC | 230 | No |
| Copper | 7440-50-8 | 11 | | 80 | | mg/kg | NYOW-01-013 (2021-04-14) | 0 - 1 | 30/30 | 100% | 23 | 21 | 12 | 0.63 – 1.4 | 80 | MDC | 49 | Yes |
| Lead | 7439-92-1 | 4.2 | J | 200 | | mg/kg | NYOW-01-034 (2021-04-14) | 0 - 1 | 30/30 | 100% | 28 | 19 | 36 | 0.63 – 4.5 | 200 | MDC | 56 | Yes |
| Manganese | 7439-96-5 | 270 | | 1400 | J | mg/kg | NYOW-01-002 (2021-04-09) | 0 - 1 | 30/30 | 100% | 650 | 600 | 250 | 0.32 – 0.69 | 1400 | MDC | 4000 | No |
| Mercury | 7439-97-6 | 0.013 | J | 0.76 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 29/30 | 97% | 0.076 | 0.041 | 0.14 | 0.016 – 0.03 | 0.76 | MDC | 1.7 | No |
| Nickel | 7440-02-0 | 6.9 | | 13 | | mg/kg | Multiple Locations | 0 - 1 | 30/30 | 100% | 10 | 11 | 2 | 0.36 – 0.78 | 13 | MDC | 130 | No |
| Selenium | 7782-49-2 | 0.4 | J+ | 0.85 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 29/30 | 97% | 0.53 | 0.52 | 0.1 | 0.32 – 0.68 | 0.85 | MDC | 0.63 | Yes |
| Silver | 7440-22-4 | 1.3 | J+ | 2.6 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 11/30 | 37% | 0.93 | 0.69 | 0.64 | 0.47 – 1 | 2.6 | MDC | 14 | No |
| Zinc | 7440-66-6 | 11 | | 180 | J | mg/kg | NYOW-01-005 (2021-04-08) | 0 - 1 | 30/30 | 100% | 63 | 53 | 40 | 1.2 – 2.6 | 180 | MDC | 79 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.4 for screening level determination steps.

Table L.8-2
Ecological Screening Summary – Area of Concern 1, Total Soil (0 - 5 ft bgs), Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Explosives | | | | | | | | | | | | | | | | | | |
| Picric acid | 88-89-1 | 0.23 | J+ | 0.23 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 1/41 | 2% | -- | -- | -- | 0.14 – 0.16 | 0.23 | MDC | 0.0061 | Yes |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.082 | J | 0.56 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 38/41 | 93% | 0.19 | 0.17 | 0.1 | 0.078 – 0.16 | 0.56 | MDC | 0.27 | Yes |
| Arsenic | 7440-38-2 | 2.1 | | 11 | | mg/kg | NYOW-01-029 (2021-04-13) | 0 - 1 | 41/41 | 100% | 5.1 | 4.7 | 1.7 | 0.16 – 0.34 | 11 | MDC | 46 | No |
| Barium | 7440-39-3 | 25 | J | 260 | | mg/kg | NYOW-01-022 (2021-04-07) | 1 - 5 | 41/41 | 100% | 57 | 46 | 38 | 0.65 – 1.6 | 260 | MDC | 2000 | No |
| Beryllium | 7440-41-7 | 0.36 | J+ | 0.87 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 38/41 | 93% | 0.5 | 0.5 | 0.11 | 0.087 – 0.67 | 0.87 | MDC | 21 | No |
| Cadmium | 7440-43-9 | 0.013 | J | 0.79 | | mg/kg | NYOW-01-023 (2021-04-02) | 0 - 1 | 41/41 | 100% | 0.23 | 0.16 | 0.19 | 0.027 – 0.059 | 0.79 | MDC | 0.36 | Yes |
| Chromium | 7440-47-3 | 4.6 | | 18 | | mg/kg | Multiple Locations | 0 - 1 | 41/41 | 100% | 8.5 | 7.9 | 2.9 | 0.29 – 2.2 | 18 | MDC | 34 | No |
| Cobalt | 7440-48-4 | 2.9 | | 13 | | mg/kg | NYOW-01-015 (2021-04-02) | 1 - 5 | 41/41 | 100% | 6.3 | 5.8 | 2.3 | 0.15 – 0.35 | 13 | MDC | 230 | No |
| Copper | 7440-50-8 | 7.2 | | 80 | | mg/kg | NYOW-01-013 (2021-04-14) | 0 - 1 | 41/41 | 100% | 22 | 21 | 12 | 0.58 – 1.4 | 80 | MDC | 49 | Yes |
| Lead | 7439-92-1 | 3.2 | J- | 200 | | mg/kg | NYOW-01-034 (2021-04-14) | 0 - 1 | 41/41 | 100% | 23 | 14 | 32 | 0.58 – 4.5 | 200 | MDC | 56 | Yes |
| Manganese | 7439-96-5 | 230 | | 7000 | | mg/kg | NYOW-01-022 (2021-04-07) | 1 - 5 | 41/41 | 100% | 770 | 550 | 1000 | 0.29 – 3.9 | 7000 | MDC | 4000 | Yes |
| Mercury | 7439-97-6 | 0.012 | J | 0.76 | | mg/kg | NYOW-01-028 (2021-04-13) | 0 - 1 | 37/41 | 90% | 0.061 | 0.032 | 0.12 | 0.015 – 0.03 | 0.76 | MDC | 1.7 | No |
| Nickel | 7440-02-0 | 4.9 | | 13 | | mg/kg | Multiple Locations | 0 - 1 | 41/41 | 100% | 10 | 11 | 2.2 | 0.33 – 0.78 | 13 | MDC | 130 | No |
| Selenium | 7782-49-2 | 0.39 | J+ | 0.85 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 35/41 | 85% | 0.5 | 0.49 | 0.11 | 0.31 – 0.68 | 0.85 | MDC | 0.63 | Yes |
| Silver | 7440-22-4 | 1.1 | J+ | 2.6 | J+ | mg/kg | NYOW-01-026 (2021-04-13) | 0 - 1 | 15/41 | 37% | 0.88 | 0.67 | 0.59 | 0.44 – 1 | 2.6 | MDC | 14 | No |
| Vanadium | 7440-62-2 | 7.2 | | 20 | | mg/kg | NYOW-01-002 (2021-04-09) | 0 - 1 | 41/41 | 100% | 13 | 12 | 2.8 | 0.25 – 0.61 | 20 | MDC | 280 | No |
| Zinc | 7440-66-6 | 11 | | 180 | J | mg/kg | NYOW-01-005 (2021-04-08) | 0 - 1 | 41/41 | 100% | 59 | 44 | 40 | 1.1 – 2.6 | 180 | MDC | 79 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.4 for screening level determination steps.

Table L.8-3
Ecological Screening Summary – Area of Concern 5 (Boiler House), Surface Soil (0 - 1 ft bgs), Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.063 | | 0.26 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 5/5 | 100% | 0.14 | 0.091 | 0.09 | N/A | 0.26 | MDC | 1.1 | No |
| Low Molecular Weight PAHs | N/A | 0.027 | | 0.14 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 5/5 | 100% | 0.078 | 0.058 | 0.049 | N/A | 0.14 | MDC | 100 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.16 | J+ | 0.22 | J+ | mg/kg | NYOW-05-018 (2021-01-11) | 0 - 1 | 5/5 | 100% | 0.19 | 0.18 | 0.024 | 0.079 – 0.11 | 0.22 | MDC | 0.27 | No |
| Arsenic | 7440-38-2 | 4.8 | | 25 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 5/5 | 100% | 9.5 | 5.8 | 8.7 | 0.15 – 0.2 | 25 | MDC | 46 | No |
| Beryllium | 7440-41-7 | 0.4 | J+ | 0.46 | J+ | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 0.43 | 0.42 | 0.028 | 0.095 – 0.11 | 0.46 | MDC | 21 | No |
| Cobalt | 7440-48-4 | 4.7 | | 5.9 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 0 - 1 | 5/5 | 100% | 5.3 | 5.3 | 0.51 | 0.16 – 0.18 | 5.9 | MDC | 230 | No |
| Copper | 7440-50-8 | 14 | | 20 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 18 | 19 | 2.7 | 0.63 – 0.74 | 20 | MDC | 49 | No |
| Manganese | 7439-96-5 | 490 | | 710 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 640 | 670 | 91 | 0.32 – 0.37 | 710 | MDC | 4000 | No |
| Nickel | 7440-02-0 | 9.6 | | 12 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 0 - 1 | 5/5 | 100% | 11 | 11 | 0.94 | 0.36 – 0.41 | 12 | MDC | 130 | No |
| Zinc | 7440-66-6 | 25 | | 31 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 5/5 | 100% | 27 | 27 | 2.5 | 1.2 – 1.4 | 31 | MDC | 79 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.4 for screening level determination steps.

Table L.8-4
Ecological Screening Summary – Area of Concern 5 (Boiler House), Total Soil (0 - 5 ft bgs), Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Total Soil (0 - 5 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.033 | | 0.26 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 8/10 | 80% | 0.099 | 0.08 | 0.073 | N/A | 0.26 | MDC | 1.1 | No |
| Low Molecular Weight PAHs | N/A | 0.023 | | 0.14 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 8/10 | 80% | 0.062 | 0.052 | 0.04 | N/A | 0.14 | MDC | 100 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.16 | J+ | 0.22 | J+ | mg/kg | NYOW-05-018 (2021-01-11) | 0 - 1 | 10/10 | 100% | 0.18 | 0.18 | 0.022 | 0.078 – 0.11 | 0.22 | MDC | 0.27 | No |
| Arsenic | 7440-38-2 | 4.6 | | 25 | | mg/kg | NYOW-05-016 (2021-01-14) | 0 - 1 | 10/10 | 100% | 8.5 | 6.1 | 6.2 | 0.15 – 0.2 | 25 | MDC | 46 | No |
| Beryllium | 7440-41-7 | 0.21 | J | 0.46 | J+ | mg/kg | Multiple Locations | 0 - 1 | 10/10 | 100% | 0.37 | 0.41 | 0.089 | 0.095 – 0.11 | 0.46 | MDC | 21 | No |
| Chromium | 7440-47-3 | 6.8 | | 14 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 1 - 5 | 10/10 | 100% | 9 | 8.2 | 2.3 | 0.32 – 0.38 | 14 | MDC | 34 | No |
| Cobalt | 7440-48-4 | 4.7 | | 8.2 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 1 - 5 | 10/10 | 100% | 6 | 5.7 | 1.2 | 0.16 – 0.19 | 8.2 | MDC | 230 | No |
| Copper | 7440-50-8 | 14 | | 22 | | mg/kg | NYOW-05-019 (2021-01-11) | 1 - 5 | 10/10 | 100% | 18 | 17 | 2.4 | 0.63 – 0.76 | 22 | MDC | 49 | No |
| Lead | 7439-92-1 | 5.5 | | 28 | | mg/kg | NYOW-05-020 (2021-01-08) | 1 - 5 | 10/10 | 100% | 9.2 | 7.5 | 6.7 | 0.63 – 0.76 | 28 | MDC | 56 | No |
| Manganese | 7439-96-5 | 390 | | 750 | | mg/kg | NYOW-05-019 (2021-01-11) | 1 - 5 | 10/10 | 100% | 600 | 650 | 130 | 0.32 – 0.38 | 750 | MDC | 4000 | No |
| Mercury | 7439-97-6 | 0.0075 | J | 0.054 | | mg/kg | NYOW-05-019 (2021-01-11) | 0 - 1 | 6/10 | 60% | 0.022 | 0.016 | 0.016 | 0.015 – 0.021 | 0.054 | MDC | 1.7 | No |
| Nickel | 7440-02-0 | 9.6 | | 18 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 1 - 5 | 10/10 | 100% | 12 | 11 | 2.8 | 0.35 – 0.43 | 18 | MDC | 130 | No |
| Thallium | 7440-28-0 | 0.061 | J | 0.14 | | mg/kg | NYOW-05-018 (2021-01-11) | 1 - 5 | 5/10 | 50% | 0.084 | 0.099 | 0.03 | 0.0082 – 0.099 | 0.14 | MDC | 0.42 | No |
| Vanadium | 7440-62-2 | 11 | | 19 | | mg/kg | NYOW-05-017-1 (2021-01-14) | 1 - 5 | 10/10 | 100% | 14 | 13 | 2.8 | 0.28 – 0.33 | 19 | MDC | 280 | No |
| Zinc | 7440-66-6 | 22 | | 150 | | mg/kg | NYOW-05-020 (2021-01-08) | 1 - 5 | 10/10 | 100% | 40 | 28 | 39 | 1.2 – 1.4 | 150 | MDC | 79 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.4 for screening level determination steps.

Table L.8-5
Ecological Screening Summary – Area of Concern 5 (Coal Aggregate Bins), Surface Soil (0 - 1 ft bgs), Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Surface Soil (0 - 1 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.19 | | 13 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 5/5 | 100% | 3.6 | 1.5 | 5.4 | N/A | 13 | MDC | 1.1 | Yes |
| Low Molecular Weight PAHs | N/A | 0.079 | | 29 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 9.4 | 7.6 | 12 | N/A | 29 | MDC | 100 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.15 | J | 0.33 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.22 | 0.19 | 0.075 | 0.088 – 0.13 | 0.33 | MDC | 0.27 | Yes |
| Arsenic | 7440-38-2 | 4.6 | | 16 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 9.8 | 10 | 4.9 | 0.21 – 0.26 | 16 | MDC | 46 | No |
| Beryllium | 7440-41-7 | 0.28 | J- | 0.63 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.4 | 0.39 | 0.14 | 0.12 – 0.16 | 0.63 | MDC | 21 | No |
| Chromium | 7440-47-3 | 5.8 | | 13 | J- | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 8.8 | 8.3 | 2.6 | 0.41 – 0.52 | 13 | MDC | 34 | No |
| Cobalt | 7440-48-4 | 1.8 | | 7.5 | J- | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 5.2 | 5.2 | 2.1 | 0.2 – 0.26 | 7.5 | MDC | 230 | No |
| Copper | 7440-50-8 | 10 | | 22 | | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 17 | 17 | 4.8 | 0.82 – 1 | 22 | MDC | 49 | No |
| Lead | 7439-92-1 | 8.6 | J- | 21 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 5/5 | 100% | 13 | 8.9 | 5.8 | 0.82 – 1 | 21 | MDC | 56 | No |
| Manganese | 7439-96-5 | 110 | | 660 | J | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 450 | 420 | 220 | 0.41 – 0.52 | 660 | MDC | 4000 | No |
| Nickel | 7440-02-0 | 6.1 | | 15 | | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 11 | 12 | 3.3 | 0.46 – 0.58 | 15 | MDC | 130 | No |
| Selenium | 7782-49-2 | 0.22 | J | 0.9 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 5/5 | 100% | 0.58 | 0.65 | 0.31 | 0.41 – 0.51 | 0.9 | MDC | 0.63 | Yes |
| Thallium | 7440-28-0 | 0.12 | | 0.26 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 4/5 | 80% | 0.18 | 0.18 | 0.061 | 0.01 – 0.11 | 0.26 | MDC | 0.42 | No |
| Vanadium | 7440-62-2 | 7.6 | | 17 | | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 5/5 | 100% | 13 | 13 | 3.6 | 0.36 – 0.45 | 17 | MDC | 280 | No |
| Zinc | 7440-66-6 | 16 | | 55 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 5/5 | 100% | 39 | 36 | 16 | 1.5 – 1.9 | 55 | MDC | 79 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.4 for screening level determination steps.

Table L.8-6
Ecological Screening Summary – Area of Concern 5 (Coal Aggregate Bins), Total Soil (0 - 5 ft bgs), Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.051 | | 13 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 10/10 | 100% | 1.9 | 0.2 | 4 | N/A | 13 | MDC | 1.1 | Yes |
| Low Molecular Weight PAHs | N/A | 0.024 | | 29 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 10/10 | 100% | 4.8 | 0.23 | 9.3 | N/A | 29 | MDC | 100 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.095 | J | 0.33 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.19 | 0.17 | 0.065 | 0.083 – 0.13 | 0.33 | MDC | 0.27 | Yes |
| Arsenic | 7440-38-2 | 4.6 | | 16 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 10/10 | 100% | 8.1 | 6.6 | 3.8 | 0.17 – 0.26 | 16 | MDC | 46 | No |
| Beryllium | 7440-41-7 | 0.28 | J- | 2.3 | J+ | mg/kg | NYOW-05-025 (2021-01-11) | 1 - 5 | 10/10 | 100% | 0.62 | 0.43 | 0.6 | 0.093 – 0.55 | 2.3 | MDC | 21 | No |
| Cadmium | 7440-43-9 | 0.1 | | 0.37 | | mg/kg | NYOW-05-023 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.18 | 0.15 | 0.089 | 0.029 – 0.045 | 0.37 | MDC | 0.36 | Yes |
| Chromium | 7440-47-3 | 5.8 | | 13 | J- | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 10/10 | 100% | 8.8 | 8.5 | 2.1 | 0.31 – 0.52 | 13 | MDC | 34 | No |
| Cobalt | 7440-48-4 | 1.8 | | 9 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 6 | 6.2 | 2 | 0.15 – 0.26 | 9 | MDC | 230 | No |
| Copper | 7440-50-8 | 10 | | 34 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 20 | 21 | 6.4 | 0.62 – 1 | 34 | MDC | 49 | No |
| Lead | 7439-92-1 | 8.6 | J- | 21 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 10/10 | 100% | 13 | 11 | 4.6 | 0.62 – 1 | 21 | MDC | 56 | No |
| Manganese | 7439-96-5 | 110 | | 2400 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 840 | 740 | 620 | 0.31 – 3.5 | 2400 | MDC | 4000 | No |
| Mercury | 7439-97-6 | 0.026 | | 0.11 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.058 | 0.058 | 0.028 | 0.016 – 0.022 | 0.11 | MDC | 1.7 | No |
| Nickel | 7440-02-0 | 6.1 | | 15 | | mg/kg | NYOW-05-022 (2021-01-08) | 0 - 1 | 10/10 | 100% | 12 | 12 | 2.7 | 0.35 – 0.58 | 15 | MDC | 130 | No |
| Selenium | 7782-49-2 | 0.22 | J | 0.9 | | mg/kg | NYOW-05-021 (2021-01-08) | 0 - 1 | 10/10 | 100% | 0.53 | 0.5 | 0.21 | 0.33 – 0.51 | 0.9 | MDC | 0.63 | Yes |
| Thallium | 7440-28-0 | 0.11 | | 0.26 | | mg/kg | NYOW-05-024 (2021-01-08) | 0 - 1 | 6/10 | 60% | 0.14 | 0.12 | 0.062 | 0.0083 – 0.11 | 0.26 | MDC | 0.42 | No |
| Vanadium | 7440-62-2 | 7.6 | | 18 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 14 | 15 | 3.2 | 0.27 – 0.45 | 18 | MDC | 280 | No |
| Zinc | 7440-66-6 | 16 | | 66 | | mg/kg | NYOW-05-021 (2021-01-08) | 1 - 5 | 10/10 | 100% | 39 | 36 | 15 | 1.2 – 1.9 | 66 | MDC | 79 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.4 for screening level determination steps.

Table L.8-7
Ecological Screening Summary – Area of Concern 5 (Coal Storage Area), Surface Soil (0 - 1 ft bgs), Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.41 | | 4.3 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 2.3 | 1.9 | 1.8 | N/A | 4.3 | MDC | 1.1 | Yes |
| Low Molecular Weight PAHs | N/A | 0.32 | | 40 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 16 | 19 | 17 | N/A | 40 | MDC | 100 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.16 | J | 0.46 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 4/5 | 80% | 0.26 | 0.24 | 0.12 | 0.11 – 0.16 | 0.46 | MDC | 0.27 | Yes |
| Arsenic | 7440-38-2 | 4.5 | | 24 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/5 | 100% | 14 | 12 | 7.7 | 0.21 – 0.34 | 24 | MDC | 46 | No |
| Beryllium | 7440-41-7 | 0.47 | J+ | 0.75 | J+ | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.63 | 0.67 | 0.11 | 0.11 – 0.18 | 0.75 | MDC | 21 | No |
| Cobalt | 7440-48-4 | 2.1 | | 6.6 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/5 | 100% | 3.7 | 3.4 | 1.8 | 0.19 – 0.3 | 6.6 | MDC | 230 | No |
| Copper | 7440-50-8 | 5.3 | | 22 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 13 | 9.8 | 8.1 | 0.76 – 1.2 | 22 | MDC | 49 | No |
| Lead | 7439-92-1 | 4.2 | | 21 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/5 | 100% | 15 | 18 | 6.6 | 0.76 – 1.2 | 21 | MDC | 56 | No |
| Nickel | 7440-02-0 | 4.9 | | 13 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 5/5 | 100% | 7.6 | 5.7 | 3.4 | 0.43 – 0.67 | 13 | MDC | 130 | No |
| Selenium | 7782-49-2 | 0.4 | J | 1.5 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.9 | 0.98 | 0.42 | 0.43 – 0.68 | 1.5 | MDC | 0.63 | Yes |
| Thallium | 7440-28-0 | 0.18 | | 0.6 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 5/5 | 100% | 0.34 | 0.34 | 0.16 | 0.011 – 0.017 | 0.6 | MDC | 0.42 | Yes |
| Vanadium | 7440-62-2 | 10 | | 15 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 13 | 12 | 2.3 | 0.33 – 0.52 | 15 | MDC | 280 | No |
| Zinc | 7440-66-6 | 14 | | 58 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 5/5 | 100% | 36 | 35 | 17 | 1.4 – 2.2 | 58 | MDC | 79 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.4 for screening level determination steps.

Table L.8-8
Ecological Screening Summary – Area of Concern 5 (Coal Storage Area), Total Soil (0 - 5 ft bgs), Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Total Soil (0 - 5 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.046 | | 4.3 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 6/10 | 60% | 1.2 | 0.24 | 1.6 | N/A | 4.3 | MDC | 1.1 | Yes |
| Low Molecular Weight PAHs | N/A | 0.019 | | 40 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 7/10 | 70% | 8.2 | 0.18 | 13 | N/A | 40 | MDC | 100 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.16 | J+ | 0.46 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 8/10 | 80% | 0.21 | 0.17 | 0.11 | 0.079 – 0.16 | 0.46 | MDC | 0.27 | Yes |
| Arsenic | 7440-38-2 | 2.8 | | 26 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 10/10 | 100% | 11 | 7.4 | 8.8 | 0.18 – 0.34 | 26 | MDC | 46 | No |
| Barium | 7440-39-3 | 34 | | 110 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 10/10 | 100% | 49 | 41 | 23 | 0.75 – 1.3 | 110 | MDC | 2000 | No |
| Beryllium | 7440-41-7 | 0.42 | J+ | 0.75 | J+ | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 10/10 | 100% | 0.55 | 0.52 | 0.12 | 0.1 – 0.18 | 0.75 | MDC | 21 | No |
| Cadmium | 7440-43-9 | 0.026 | J | 0.38 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 10/10 | 100% | 0.14 | 0.14 | 0.12 | 0.032 – 0.059 | 0.38 | MDC | 0.36 | Yes |
| Cobalt | 7440-48-4 | 2.1 | | 8 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 10/10 | 100% | 4.4 | 4.1 | 1.8 | 0.17 – 0.3 | 8 | MDC | 230 | No |
| Copper | 7440-50-8 | 5.3 | | 27 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 10/10 | 100% | 15 | 14 | 7.3 | 0.66 – 1.2 | 27 | MDC | 49 | No |
| Lead | 7439-92-1 | 3 | | 21 | | mg/kg | NYOW-05-006 (2021-01-08) | 0 - 1 | 10/10 | 100% | 9.7 | 6 | 7.1 | 0.66 – 1.2 | 21 | MDC | 56 | No |
| Manganese | 7439-96-5 | 110 | | 870 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 10/10 | 100% | 410 | 350 | 210 | 0.33 – 0.6 | 870 | MDC | 4000 | No |
| Mercury | 7439-97-6 | 0.031 | | 0.19 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 6/10 | 60% | 0.067 | 0.059 | 0.056 | 0.015 – 0.025 | 0.19 | MDC | 1.7 | No |
| Nickel | 7440-02-0 | 4.9 | | 14 | | mg/kg | NYOW-05-010 (2021-01-07) | 1 - 5 | 10/10 | 100% | 8.5 | 8.3 | 3.3 | 0.37 – 0.67 | 14 | MDC | 130 | No |
| Selenium | 7782-49-2 | 0.4 | J | 1.5 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 6/10 | 60% | 0.64 | 0.43 | 0.37 | 0.36 – 0.68 | 1.5 | MDC | 0.63 | Yes |
| Thallium | 7440-28-0 | 0.09 | J+ | 0.6 | | mg/kg | NYOW-05-008 (2021-01-07) | 0 - 1 | 9/10 | 90% | 0.22 | 0.14 | 0.16 | 0.009 – 0.092 | 0.6 | MDC | 0.42 | Yes |
| Vanadium | 7440-62-2 | 8.7 | | 15 | | mg/kg | Multiple Locations | 0 - 1 | 10/10 | 100% | 12 | 13 | 2.2 | 0.29 – 0.52 | 15 | MDC | 280 | No |
| Zinc | 7440-66-6 | 14 | | 58 | | mg/kg | NYOW-05-007 (2021-01-07) | 0 - 1 | 10/10 | 100% | 29 | 26 | 14 | 1.2 – 2.2 | 58 | MDC | 79 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.4 for screening level determination steps.

Table L.8-9
Ecological Screening Summary – Area of Concern 5 (Electric Substation), Surface Soil (0 - 1 ft bgs), Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Surface Soil (0 - 1 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.11 | | 0.35 | | mg/kg | NYOW-05-015 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.17 | 0.13 | 0.1 | N/A | 0.35 | MDC | 1.1 | No |
| Low Molecular Weight PAHs | N/A | 0.06 | | 0.12 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 0.089 | 0.073 | 0.029 | N/A | 0.12 | MDC | 100 | No |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.0042 | J | 0.16 | | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 4/5 | 80% | 0.042 | 0.013 | 0.06 | 0.0068 – 0.0079 | 0.16 | MDC | 0.371 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.096 | J | 0.19 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.14 | 0.13 | 0.038 | 0.081 – 0.11 | 0.19 | MDC | 0.27 | No |
| Arsenic | 7440-38-2 | 4.3 | | 5.9 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 4.9 | 4.9 | 0.67 | 0.17 – 0.24 | 5.9 | MDC | 46 | No |
| Beryllium | 7440-41-7 | 0.47 | J+ | 0.57 | J+ | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 0.53 | 0.55 | 0.047 | 0.11 – 0.14 | 0.57 | MDC | 21 | No |
| Cadmium | 7440-43-9 | 0.11 | | 0.39 | | mg/kg | NYOW-05-015 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.18 | 0.14 | 0.12 | 0.03 – 0.041 | 0.39 | MDC | 0.36 | Yes |
| Cobalt | 7440-48-4 | 5.6 | | 9.3 | | mg/kg | NYOW-05-014 (2021-01-13) | 0 - 1 | 5/5 | 100% | 7 | 7 | 1.4 | 0.19 – 0.23 | 9.3 | MDC | 230 | No |
| Copper | 7440-50-8 | 16 | | 25 | | mg/kg | NYOW-05-011 (2021-01-13) | 0 - 1 | 5/5 | 100% | 20 | 21 | 4.3 | 0.75 – 0.92 | 25 | MDC | 49 | No |
| Lead | 7439-92-1 | 7.6 | | 24 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 13 | 12 | 6.7 | 0.75 – 0.92 | 24 | MDC | 56 | No |
| Manganese | 7439-96-5 | 590 | | 1200 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 840 | 660 | 290 | 0.37 – 0.46 | 1200 | MDC | 4000 | No |
| Mercury | 7439-97-6 | 0.026 | | 0.23 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.079 | 0.029 | 0.088 | 0.016 – 0.017 | 0.23 | MDC | 1.7 | No |
| Nickel | 7440-02-0 | 12 | | 15 | | mg/kg | Multiple Locations | 0 - 1 | 5/5 | 100% | 13 | 12 | 1.6 | 0.42 – 0.52 | 15 | MDC | 130 | No |
| Selenium | 7782-49-2 | 0.42 | J+ | 0.59 | J+ | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 5/5 | 100% | 0.5 | 0.47 | 0.068 | 0.34 – 0.47 | 0.59 | MDC | 0.63 | No |
| Thallium | 7440-28-0 | 0.12 | | 0.14 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 2/5 | 40% | 0.1 | 0.12 | 0.023 | 0.0092 – 0.12 | 0.14 | MDC | 0.42 | No |
| Zinc | 7440-66-6 | 33 | | 49 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 5/5 | 100% | 40 | 40 | 6.3 | 1.4 – 1.7 | 49 | MDC | 79 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.4 for screening level determination steps.

Table L.8-10
Ecological Screening Summary – Area of Concern 5 (Electric Substation), Total Soil (0 - 5 ft bgs), Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.023 | | 0.35 | | mg/kg | NYOW-05-015 (2021-01-13) | 0 - 1 | 10/10 | 100% | 0.11 | 0.11 | 0.095 | N/A | 0.35 | MDC | 1.1 | No |
| Low Molecular Weight PAHs | N/A | 0.023 | | 0.12 | | mg/kg | Multiple Locations | 0 - 1 | 10/10 | 100% | 0.065 | 0.064 | 0.034 | N/A | 0.12 | MDC | 100 | No |
| Polychlorinated Biphenyls (PCBs) | | | | | | | | | | | | | | | | | | |
| PCB-1260 (Aroclor 1260) | 11096-82-5 | 0.0042 | J | 0.16 | | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 4/5 | 80% | 0.042 | 0.013 | 0.06 | 0.0068 – 0.0079 | 0.16 | MDC | 0.371 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.096 | J | 0.21 | J+ | mg/kg | Multiple Locations | 1 - 5 | 10/10 | 100% | 0.17 | 0.18 | 0.041 | 0.081 – 0.11 | 0.21 | MDC | 0.27 | No |
| Arsenic | 7440-38-2 | 4.3 | | 5.9 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 10/10 | 100% | 4.9 | 4.9 | 0.52 | 0.17 – 0.24 | 5.9 | MDC | 46 | No |
| Barium | 7440-39-3 | 43 | | 110 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 59 | 51 | 19 | 0.79 – 1 | 110 | MDC | 2000 | No |
| Beryllium | 7440-41-7 | 0.27 | J | 0.83 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 0.5 | 0.48 | 0.15 | 0.11 – 0.14 | 0.83 | MDC | 21 | No |
| Cadmium | 7440-43-9 | 0.046 | J | 0.39 | | mg/kg | NYOW-05-015 (2021-01-13) | 0 - 1 | 10/10 | 100% | 0.15 | 0.13 | 0.13 | 0.029 – 0.041 | 0.39 | MDC | 0.36 | Yes |
| Chromium | 7440-47-3 | 7.9 | | 25 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 12 | 9.8 | 5.3 | 0.35 – 0.46 | 25 | MDC | 34 | No |
| Cobalt | 7440-48-4 | 5.6 | | 13 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 7.6 | 6.7 | 2.4 | 0.18 – 0.23 | 13 | MDC | 230 | No |
| Copper | 7440-50-8 | 15 | | 74 | | mg/kg | NYOW-05-013 (2021-01-13) | 1 - 5 | 10/10 | 100% | 25 | 21 | 18 | 0.7 – 0.92 | 74 | MDC | 49 | Yes |
| Lead | 7439-92-1 | 7.6 | | 24 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 10/10 | 100% | 11 | 9 | 5 | 0.7 – 0.92 | 24 | MDC | 56 | No |
| Manganese | 7439-96-5 | 330 | | 1200 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 10/10 | 100% | 740 | 670 | 260 | 0.35 – 0.46 | 1200 | MDC | 4000 | No |
| Mercury | 7439-97-6 | 0.013 | J | 0.23 | | mg/kg | NYOW-05-012 (2021-01-13) | 0 - 1 | 10/10 | 100% | 0.06 | 0.03 | 0.066 | 0.015 – 0.018 | 0.23 | MDC | 1.7 | No |
| Nickel | 7440-02-0 | 12 | | 29 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 16 | 14 | 5.4 | 0.39 – 0.52 | 29 | MDC | 130 | No |
| Selenium | 7782-49-2 | 0.41 | J+ | 0.59 | J+ | mg/kg | NYOW-05-013 (2021-01-13) | 0 - 1 | 10/10 | 100% | 0.48 | 0.47 | 0.054 | 0.33 – 0.47 | 0.59 | MDC | 0.63 | No |
| Thallium | 7440-28-0 | 0.096 | | 0.16 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 4/10 | 40% | 0.1 | 0.1 | 0.026 | 0.0083 – 0.12 | 0.16 | MDC | 0.42 | No |
| Vanadium | 7440-62-2 | 12 | | 31 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 16 | 15 | 5.4 | 0.31 – 0.4 | 31 | MDC | 280 | No |
| Zinc | 7440-66-6 | 29 | | 56 | | mg/kg | NYOW-05-012 (2021-01-13) | 1 - 5 | 10/10 | 100% | 40 | 38 | 8.1 | 1.3 – 1.7 | 56 | MDC | 79 | No |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.4 for screening level determination steps.

Table L.8-11
Ecological Screening Summary – Area of Concern 5 (Possible Dump Area), Surface Soil (0 - 1 ft bgs), Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

| | |
|---|---|
| Scenario Timeframe: | Current and Future |
| Medium: | Soil |
| Exposure Medium: | Soil |
| Exposure Point: | Surface Soil (0 - 1 ft bgs) |

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 0.35 | J+ | 0.35 | J+ | mg/kg | NYOW-05-001 (2021-01-12) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.18 – 0.2 | 0.35 | MDC | 120 | No |
| Di-n-butyl phthalate | 84-74-2 | 0.39 | | 0.39 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.071 – 0.079 | 0.39 | MDC | 180 | No |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.03 | | 0.44 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.17 | 0.13 | 0.16 | N/A | 0.44 | MDC | 1.1 | No |
| Low Molecular Weight PAHs | N/A | 0.017 | | 1.2 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.4 | 0.28 | 0.46 | N/A | 1.2 | MDC | 100 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.076 | J | 1 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.3 | 0.12 | 0.39 | 0.089 – 0.1 | 1 | MDC | 0.27 | Yes |
| Arsenic | 7440-38-2 | 4.3 | | 6.9 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 5.5 | 5.1 | 1.2 | 0.15 – 0.19 | 6.9 | MDC | 46 | No |
| Beryllium | 7440-41-7 | 0.42 | J+ | 0.56 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.51 | 0.54 | 0.061 | 0.1 – 0.13 | 0.56 | MDC | 21 | No |
| Cadmium | 7440-43-9 | 0.072 | J | 4.3 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 0.99 | 0.15 | 1.9 | 0.026 – 0.033 | 4.3 | MDC | 0.36 | Yes |
| Chromium | 7440-47-3 | 5 | | 13 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 7.6 | 6.4 | 3.2 | 0.34 – 0.44 | 13 | MDC | 34 | No |
| Copper | 7440-50-8 | 18 | | 110 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 41 | 23 | 39 | 0.67 – 0.89 | 110 | MDC | 49 | Yes |
| Lead | 7439-92-1 | 4.6 | | 200 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 47 | 9.3 | 86 | 0.67 – 0.89 | 200 | MDC | 56 | Yes |
| Manganese | 7439-96-5 | 400 | J- | 780 | | mg/kg | NYOW-05-004 (2021-01-12) | 0 - 1 | 5/5 | 100% | 570 | 520 | 170 | 0.34 – 0.44 | 780 | MDC | 4000 | No |
| Nickel | 7440-02-0 | 8.1 | | 18 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 11 | 8.3 | 4.2 | 0.38 – 0.5 | 18 | MDC | 130 | No |
| Silver | 7440-22-4 | 1.7 | J+ | 1.7 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/5 | 20% | -- | -- | -- | 0.5 – 0.67 | 1.7 | MDC | 14 | No |
| Thallium | 7440-28-0 | 0.12 | | 0.15 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 2/5 | 40% | 0.099 | 0.094 | 0.031 | 0.0089 – 0.094 | 0.15 | MDC | 0.42 | No |
| Zinc | 7440-66-6 | 28 | | 690 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 5/5 | 100% | 160 | 35 | 290 | 1.3 – 1.7 | 690 | MDC | 79 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
mg/kg = milligram per kilogram
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.4 for screening level determination steps.

Table L.8-12
Ecological Screening Summary – Area of Concern 5 (Possible Dump Area), Total Soil (0 - 5 ft bgs), Mammals
Phase 1 Risk Screening and Data Gaps Analysis
Former New York Ordnance Works, Baldwinsville, NY

Scenario Timeframe: Current and Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Total Soil (0 - 5 ft bgs)

| Chemical | CASRN | Minimum Detected Concentration | | Maximum Detected Concentration | | Units | Location of Maximum | Depth (ft bgs) | Detection Frequency | | Mean [1] | Median [1] | Standard Deviation [1] | Range of LODs | Exposure Point Concentration (EPC) | | Receptor-Specific Screening Value[2] | Phase 1 COPEC for Receptor Category? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organic Compounds (VOCs) | | | | | | | | | | | | | | | | | | |
| 2-Butanone (MEK) | 78-93-3 | 0.016 | J+ | 0.019 | J+ | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 2/5 | 40% | 0.013 | 0.011 | 0.0038 | 0.01 – 0.012 | 0.019 | MDC | 350 | No |
| Acetone | 67-64-1 | 0.069 | | 0.069 | | mg/kg | NYOW-05-001 (2021-01-12) | 1 - 5 | 1/5 | 20% | -- | -- | -- | 0.057 – 0.069 | 0.069 | MDC | 1.2 | No |
| Benzene | 71-43-2 | 0.004 | J+ | 0.004 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 1 - 5 | 1/5 | 20% | -- | -- | -- | 0.00032 – 0.00038 | 0.004 | MDC | 24 | No |
| Toluene | 108-88-3 | 0.004 | J+ | 0.004 | J+ | mg/kg | NYOW-05-002 (2021-01-12) | 1 - 5 | 1/5 | 20% | -- | -- | -- | 0.00064 – 0.00076 | 0.004 | MDC | 23 | No |
| Semi-Volatile Organic Compounds (SVOCs) | | | | | | | | | | | | | | | | | | |
| Benzaldehyde | 100-52-7 | 0.35 | J+ | 0.35 | J+ | mg/kg | NYOW-05-001 (2021-01-12) | 0 - 1 | 1/10 | 10% | -- | -- | -- | 0.18 – 0.21 | 0.35 | MDC | 120 | No |
| Di-n-butyl phthalate | 84-74-2 | 0.39 | | 0.39 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/10 | 10% | -- | -- | -- | 0.071 – 0.085 | 0.39 | MDC | 180 | No |
| Polycyclic Aromatic Hydrocarbons (PAHs) | | | | | | | | | | | | | | | | | | |
| High Molecular Weight PAHs | N/A | 0.03 | | 0.44 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 8/10 | 80% | 0.11 | 0.06 | 0.12 | N/A | 0.44 | MDC | 1.1 | No |
| Low Molecular Weight PAHs | N/A | 0.017 | | 1.2 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 0.22 | 0.044 | 0.36 | N/A | 1.2 | MDC | 100 | No |
| Metals (Total) | | | | | | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.076 | J | 1 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 8/10 | 80% | 0.23 | 0.15 | 0.26 | 0.089 – 0.13 | 1 | MDC | 0.27 | Yes |
| Arsenic | 7440-38-2 | 3.6 | | 6.9 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 5.2 | 4.9 | 1.2 | 0.15 – 0.24 | 6.9 | MDC | 46 | No |
| Barium | 7440-39-3 | 18 | | 110 | J | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 48 | 36 | 28 | 0.75 – 1 | 110 | MDC | 2000 | No |
| Beryllium | 7440-41-7 | 0.11 | J | 0.77 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 0.42 | 0.45 | 0.21 | 0.1 – 0.13 | 0.77 | MDC | 21 | No |
| Cadmium | 7440-43-9 | 0.036 | J | 4.3 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 0.53 | 0.079 | 1.3 | 0.026 – 0.042 | 4.3 | MDC | 0.36 | Yes |
| Chromium | 7440-47-3 | 4.9 | | 25 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 10 | 9.5 | 6.1 | 0.34 – 1.9 | 25 | MDC | 34 | No |
| Cobalt | 7440-48-4 | 2.9 | | 9 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 5.4 | 4.5 | 2.1 | 0.17 – 0.95 | 9 | MDC | 230 | No |
| Copper | 7440-50-8 | 10 | | 110 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 28 | 19 | 29 | 0.67 – 3.8 | 110 | MDC | 49 | Yes |
| Lead | 7439-92-1 | 3.4 | | 200 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 26 | 7 | 61 | 0.67 – 3.8 | 200 | MDC | 56 | Yes |
| Manganese | 7439-96-5 | 320 | | 1000 | | mg/kg | NYOW-05-001 (2021-01-12) | 1 - 5 | 10/10 | 100% | 570 | 490 | 210 | 0.34 – 1.9 | 1000 | MDC | 4000 | No |
| Mercury | 7439-97-6 | 0.0078 | J | 0.14 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 0.038 | 0.02 | 0.04 | 0.015 – 0.019 | 0.14 | MDC | 1.7 | No |
| Nickel | 7440-02-0 | 5.1 | | 25 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 12 | 9.1 | 6 | 0.38 – 2.1 | 25 | MDC | 130 | No |
| Selenium | 7782-49-2 | 0.13 | J | 0.6 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 1 - 5 | 8/10 | 80% | 0.35 | 0.44 | 0.17 | 0.3 – 0.48 | 0.6 | MDC | 0.63 | No |
| Silver | 7440-22-4 | 1.7 | J+ | 1.7 | J+ | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 1/10 | 10% | -- | -- | -- | 0.5 – 2.9 | 1.7 | MDC | 14 | No |
| Thallium | 7440-28-0 | 0.12 | | 0.2 | J | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 3/10 | 30% | 0.1 | 0.099 | 0.042 | 0.0089 – 0.12 | 0.2 | MDC | 0.42 | No |
| Vanadium | 7440-62-2 | 7.9 | | 31 | | mg/kg | NYOW-05-003 (2021-01-12) | 1 - 5 | 10/10 | 100% | 15 | 12 | 7.4 | 0.29 – 1.7 | 31 | MDC | 280 | No |
| Zinc | 7440-66-6 | 12 | | 690 | | mg/kg | NYOW-05-005 (2021-01-12) | 0 - 1 | 10/10 | 100% | 98 | 32 | 210 | 1.3 – 7.1 | 690 | MDC | 79 | Yes |

Notes:
% = Percent
CASRN = Chemical Abstracts Service Registry Number
COPEC = Chemical of Potential Ecological Concern
ft bgs = feet below gound surface
J = Estimated Concentration (+/- indicates a positive/negative bias)
LOD = Limit of Detection
LOQ = Limit of Quantitation
MDC = Maximum Detected Concentration
N/A = Not Applicable
ND = Non-Detect or Not Detected
USEPA = United States Environmental Protection Agency
(1) Summary statistics were only evaluated for chemicals with at least two distinct detects.
(2) See Appendix L.4 for screening level determination steps.

**Coal Evaluation Meeting Minutes**

# NYOW FUDS - Coal Evaluation Discussion Meeting Minutes

**Meeting Date:** 8/4/2025 2:00 PM
**Location:** Microsoft Teams Meeting
**Link to Outlook Item:** *click here*
**Invitation Message**
**Participants**

- Greenberg, Grace I CIV USARMY CENAE (USA) (Meeting Organizer)
- Lapite, Constance D CIV USARMY CENAE (USA)
- Bond, Jayne-Anne CIV USARMY CEHNC (USA) (Accepted in Outlook)
- Hoeger, Glenn C CIV USARMY CEHNC (USA) (Accepted in Outlook)
- Bernhardt, Richard R CIV USARMY CEHNC (USA) (Accepted in Outlook)
- Roberts, Walter C CIV USARMY CEHNC (USA) (Accepted in Outlook)
- Sullivan, Heather L CIV USARMY CENAE (USA) (Accepted in Outlook)
- Martin, Amanda K CIV USARMY CENAE (USA) (Accepted in Outlook)
- Rupp, Julia M CIV USARMY CENAE (USA) (Accepted in Outlook)
- Brammer, Dean D CIV USARMY CENAE (USA) (Tentative in Outlook)

AGENDA

- Question from PDT to EMCX about Evaluation of Coal Microscopy Sampling

NOTES

- Grace started call with summary of Questions about coal microscopy sampling at NYOW. Grace explained that we do not know if the PAHs detected in the sample are a result of the coal particulates or PAHs that have leached from the coal to the soil. Therefore, the plan was to eliminate samples that are defined as having “heavy” or “very heavy” coal presence from the risk assessment because it is our understanding that coal is not a hazardous substance and cannot be remediated under CERCLA/ FUDs.
- Walter Roberts indicated he is not familiar with microscopy. Grace and Rick provide an explanation.
- EMCX indicated that they do not understand why we are doing coal microscopy, as we cannot eliminate soil samples from the risk assessment based on coal particulate content because the risk assessment should evaluate the exposure matrix. Walter Roberts says we legally cannot eliminate the samples. He used the example: change "Coal" to "lead based paint" left in the ground. Rick and Glenn said we're essentially dealing with soil, which is a viable exposure medium.
- Amanda indicated this is contradictory to the comments received previously from EMCX on both the Phase 1 RI QAPP and Phase 2 RI QAPP over the past five years.
    - EMCX asked who the reviewer was, and Amanda indicated Tom Georgian. EMCX indicated that Tom is now retired, we won't receive these types of comments anymore, and that they don't agree with Tom's previous comments
    - EMCX said Tom was driven by statistics. Constance said he was also driven by preventing remediation activities where not truly necessary.
    - Amanda indicated that a change in direction at this late stage is incredibly frustrating, because we’ve already spent 9 months going back and forth with EMCX on the Phase 2 RI QAPP, and this issue was previously resolved - but now we’re still not aligned on the approach for the coal microscopy. Meanwhile, the Contractor is expected to finalize the QAPP by the end of this week so the field team can begin work today (Monday, August 4). The coal microscopy sampling is scheduled for a couple of weeks out.

    - Walter said we cannot generalize for EMCX input because he is EMCX and has not reviewed this document/ Site.
    - Heather provided an example of the types of comments provided by Tom regarding coal. She indicated there were 46 comments on the Phase 2 RI QAPP and they were all consistent. One of Tom's comments was: "Present valid well-defined decision criteria on how the proposed sampling results will be used to distinguish metal and PAH contamination in coal at AOC 5 EUs/DUs from metal and PAH contamination absorbed to soils at AOC 5 EUs/DUs. Alternatively, remove the proposed chemical soil analyses for PAHs and metals."
    - EMCX reiterated they do not agree with Tom and that we should document that a decision was made on this day, by these people, in a memo for the record
- Glenn stated this is a similar scenario to site with clay target fragments, for which they used a sieve analysis and found increasing particle size correlates with PAH concentrations versus increasing particle size inverse to PAH concentrations. They found decreasing PAH concentrations as you went to finer fractions indicates the PAHs were less from leaching, more from the particles of clay targets themselves. Glenn indicated he believes the adherable fraction is the risk driver, so the EMCX directed the PDT that the exposure medium is the driver, regardless of whether it is coal or not, if there are PAHs that cause risk in the adherable fraction (i.e., 250 micron or less), it has to be remediated.
    - Grace asked: what about larger particles that will eventually weather in the future to the adherable fraction? Eventually, this could cause a risk in the future. She noted that the PAH concentrations in the two smaller areas of AOC 5 are elevated enough to trigger an unacceptable risk. Glenn acknowledged that point and then noted that it may be more practical to remediate, especially for a smaller site, instead of going through this process of trying to distinguish what's leaching from the coal using other methods like the sieving process.
    - We did not sieve the Phase 1 RI data and are not planning to sieve the Phase 2 RI data. Amanda indicated that we cannot add additional analyses at this point. Julie reiterated this point and asked what else the EMCX would recommend using the data already planned for collection. Glenn indicated he does not have any other ideas.
- EMCX clarified that we remediate CERCLA releases from DoD activities that pose an unacceptable risk. If those releases are from/associated with the coal, then we remediate. We can remediate soil that is mixed with coal particulates, if there are CERCLA contaminants in the media (combined soil/ coal particulate mix) that pose risk, even though we don't know if the elevated concentrations of CERCLA contaminants are attributable to coal particles or leaching of coal. Additionally, we would remediate coal alone (not mixed with soil), if it posed a risk. Coal itself is not automatically considered a hazardous substance.
- Rick asked how deep NAE evaluates surface soil.
    - Amanda said 0-1 ft bgs based on NY guidance.
    - Constance pointed out that PAHs are tightly bound in the coal matrix so less likely to leach.
    - Grace pointed out that the site is currently a grassy, undeveloped field surrounded by forested area. From the site visit, there are no coal piles, and she could not tell that coal was stored there (i.e., did not see large pieces of coal). Constance pointed out that the analyses show particles too small to be visually identified (e.g. around 100 micron and up to 200 ish, from what I can see), but later clarified that does not mean there are not larger particles there. The point is there are particles of coal present that are at least this small.
    - Rick said that suggests we're essentially dealing with soil, which is a viable exposure medium.
- Walter indicated the PDT should elevate comments to division and HQ if they do not agree. Heather indicated that we did elevate these comments multiple times to both division and HQ, had multiple lengthy resolution calls between PDT and EMCX, involved EMCX management, and

presented issues with the EMCX review of this QAPP (but not necessarily this specific topic) at the FUDS Focus Review

- Constance asked the team is there is value in collecting this data for the RI and may help with any potential remedial action - Amanda agreed.
- EMCX indicated that “the PDT needs to convince itself” of the path forward
- Rick said he isn't experienced with coal sites so this conversation was very educational.
- Grace stated that since the coal particles could be an exposure medium, we will include it in the risk assessment to determine if the area warrants remediation. And since the Phase 1 RI data showed elevated concentrations that could warrant an actional risk, we will likely remediate these small areas.
- Walter chimed in, in closing, that we do not remediate coal because it is not a hazardous substance. We remediate CERCLA releases from DoD activities that pose an unacceptable risk, no matter what that medium they are in.

# Appendix B Human Health Risk Assessment Work Plan

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Attachment 1 Exposure Assumption Values Used for Daily Intake Calculations

## LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| µg/m$^3$ | micrograms per cubic meter |
| 2,4-DNP | 2,4-dinitrophenol |
| 2,4-DNCB | 2,4-dinitrochlorobenzene |
| 95% UCL | 95 percent upper confidence limit on the arithmetic mean |
| µg/L | micrograms per liter |
| ADD | average daily dose |
| AOC | area of concern |
| ATSDR | Agency for Toxic Substances and Disease Registry |
| bgs | below ground surface |
| BHHRA | baseline human health risk assessment |
| BTV | background threshold value |
| CAS | Chemical Abstracts Service |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act |
| CFR | Code of Federal Regulations |
| COC | contaminants of concern |
| COPC | contaminants of potential concern |
| CSF | cancer slope factor |
| CSM | conceptual site model |
| DoD | Department of Defense |
| DU | decision unit |
| EC | exposure concentration |
| ELCR | excess lifetime cancer risk |
| EMCX | Environmental and Munitions Center of Expertise |
| EPC | exposure point concentration |
| ft | feet |
| FUDS | Formerly Used Defense Site |
| HEAST | Health Effects Assessment Summary Tables |
| HI | hazard index |
| HQ | hazard quotient |

| | |
|---|---|
| IRIS | Integrated Risk Information System |
| ISM | incremental sampling methodology |
| IUR | inhalation unit risk |
| LADD | lifetime average daily dose |
| LOD | limit of detection |
| mg/kg | milligrams per kilogram |
| mg/kg-day | milligrams of contaminant per kilogram of body weight per day |
| $mg/m^3$ | milligrams per cubic meter |
| NCP | National Contingency Plan |
| NYOW | New York Ordnance Works |
| NYSDEC | New York State Department of Environmental Conservation |
| PAH | polycyclic aromatic hydrocarbons |
| PEF | particulate emission factor |
| PDT | project delivery team |
| PPRTV | Provisional Peer Reviewed Toxicity Value |
| RAGS | Risk Assessment Guidance for Superfund |
| RAIS | Risk Assessment Information System |
| RBA | relative bioavailability factor |
| RfC | reference concentration |
| RfD | reference dose |
| RI | remedial investigation |
| RLs | reporting limits |
| RME | reasonable maximum exposure |
| RSL | Regional Screening Level |
| SVOC | semi-volatile organic compound |
| TAL | target analyte list |
| UFP-QAPP | Uniform Federal Policy-Quality Assurance Project Plan |
| USACE | United States Army Corps of Engineers |
| USEPA | United States Environmental Protection Agency |
| VOC | volatile organic compound |

# 1.0 INTRODUCTION

This Baseline Human Health Risk Assessment (BHHRA) Work Plan in support of the Phase 2 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Remedial Investigation (RI) at the New York Ordnance Works (NYOW) Formerly Used Defense Site (FUDS) in Baldwinsville, New York (hereafter referred to as the "Site"). The former NYOW is located in Onondaga County, New York, near the Finger Lakes, about one-mile northeast of the Village of Baldwinsville and approximately 13 miles north of Syracuse, New York. Portions of the Site are currently owned by the Radisson Community, the State of New York, and private owners.

A Phase 1 RI was initiated and completed by Bluestone Environmental, Inc. (Bluestone) in 2021 at the former NYOW Site. The Phase 1 RI investigated four areas of concern (AOCs); AOC 1 – Former Ammonium Picrate Building Area; AOC 3 – Former Landfill Area; AOC 4 – Former Bunker Area; and AOC 5 – Former Power Plant. The Phase 2 RI includes the same four AOCs.

As part of the Phase 2 RI, a BHHRA for these AOCs is required. The BHHRA will be performed to assess whether potential unacceptable health risks are present if people are exposed to CERCLA constituents in soil, groundwater, hydric soils, surface water, or sediment related to historical Department of Defense (DoD) activities, and then to determine if remedial measures are needed.

This BHHRA Work Plan has been prepared as a planning step for conducting the BHHRA to address requirements of CERCLA and the National Contingency Plan (NCP) 40 Code of Federal Regulations (CFR) Part 300 (United States Environmental Protection Agency [USEPA], 1988) and is included as Appendix B of the Phase 2 Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP). Because this work plan is included as an appendix to the Phase 2 UFP-QAPP, detailed information describing the Site characteristics, operational history, physical setting, and summaries of the previous investigations are not included in the Appendix, but rather the reader is referred to the Phase 2 UFP-QAPP.

## 1.1 OBJECTIVES AND REGULATORY FRAMEWORK

The purpose of the Work Plan is to document the methods and procedures for evaluating potential human health risks associated with exposure to contaminants of potential concern (COPCs) identified in environmental media associated with each of the AOCs identified at the Site.

The BHHRA will be conducted in accordance with CERCLA requirements and consistent with USEPA and USACE risk assessment guidance and all applicable New York State Department of Environmental Conservation (NYSDEC) requirements as appropriate.

The BHHRA will be performed in general accordance with USEPA guidance including, but not limited to the following documents:

- Risk Assessment Guidance for Superfund (RAGS). Volume 1: Human Health Evaluation Manual
    - Part A, Baseline Risk Assessment, Interim Final, (USEPA, 1989)
    - Part D, Standardized Planning, Reporting and Review of Superfund Risk Assessments, (USEPA, 2002a)

    - Part E, Supplemental Guidance for Dermal Risk Assessment, (USEPA, 2004)
    - Part F, Supplemental Guidance for Inhalation Risk Assessment, Final, (USEPA, 2009)
- Guidance for Data Usability in Risk Assessment (USEPA, 1992)
- Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002b)
- Exposure Factors Handbook: 2011 Edition (USEPA, 2011) and recent updates
- OSWER Directive 9283.1-42. Determining Groundwater Exposure Point Concentrations, Supplemental Guidance (USEPA, 2014a)
- OSWER Directive 9200.1-120. Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors. Attachment 1. Recommended Default Exposure Factors, (USEPA, 2014b)
- Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24 (USEPA, 2002c)
- Human Health Toxicity Values in Superfund Risk Assessments (USEPA, 2003)
- Guidelines for Carcinogen Risk Assessment, Final (USEPA, 2005a)
- Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005b)
- Updated Residential Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities (USEPA, 2024a)

### 1.2 WORK PLAN ORGANIZATION

This Work Plan includes the following components:

- **Section 1, Introduction.** Provides the scope, objectives, and regulatory framework of the Work Plan.
- **Section 2, BHHRA Approach.** Provides an overview of the process and methods that will be used to conduct the BHHRA, including:
    - **Hazard Identification.** Provides details on the methods used for data compilation and evaluation, selection of data to be considered in the BHHRA, summarization of the analytical data considered for the BHHRA, and selection of COPCs for quantitative evaluation.
    - **Preliminary Conceptual Site Model and Exposure Assessment.** Describes the preliminary conceptual site model and identifies the exposure assumptions and receptor- specific exposure parameters for the BHHRA exposure assessment.
    - **Toxicity Assessment.** Provides a description of the types of toxicological information and provides the toxicity criteria that will be used to evaluate exposure to COPCs.
    - **Risk Characterization and Uncertainty Assessment.** Describes the process that will be used to integrate the information from the exposure assessment and toxicity assessment to characterize the human health risk posed by the Site in the BHHRA.
- **Section 3, References.** Provides a list of references used in the preparation of this document.

## 2.0 BASELINE HUMAN HEALTH RISK ASSESSMENT APPROACH

USEPA uses risk assessment as a tool to evaluate the likelihood and degree of chemical exposure and the possible adverse health effects associated with such exposure. The BHHRA will be conducted using reasonable but conservative exposure and dose-response assumptions to characterize the range of potential Site risks and Site-specific exposure information will be incorporated, when available, to reduce the uncertainty in the risk characterization for the Site. The overall approach entails the use of discrete samples to demonstrate no actionable risks for each AOC. If risks are unacceptable for a given AOC, the risk assessment may be refined or potentially areas where further investigations are warranted may be identified.

The risk assessment will be conducted by completing a four-step process: hazard identification, exposure assessment, toxicity assessment, and risk characterization. Key aspects of the BHHRA methods are summarized here and described in more detail in the following subsections below.

- **Hazard Identification.** The purpose of the hazard identification process is to summarize data and identify COPCs to be evaluated in the HHRA. The hazard identification step enables the chemicals detected in each medium to be divided into two groups: (1) chemicals that have negligible potential for adverse effects to humans and therefore do not need to be evaluated further; and (2) chemicals that have potential for adverse effects to humans and therefore require further evaluation - these are the COPCs.
- **Preliminary Conceptual Site Model (CSM) and Exposure Assessment.** The preliminary CSM identifies the way a human population may be exposed to constituents at a site, guides data collection and analysis, and ultimately facilitates the calculation of media-specific exposure point concentrations (EPCs) for each contaminant of concern. The objective of the exposure assessment is to estimate the magnitude, frequency, duration, and routes of current and reasonably anticipated future exposure to COPCs associated with the Site. The extent of a receptor's exposure is estimated by identifying exposure scenarios that describe the potential pathways of exposure to COPCs and the specific activities and behaviors of individuals that might lead to contact with COPCs in the environment. The exposure assessment is based on the potential receptors, exposure pathways, described in the CSM.
- **Toxicity Assessment.** The toxicity assessment determines the relationship between the magnitude of exposure to a COPC and the nature and magnitude of adverse health effects that may result from such exposure. Adverse effects are classified by USEPA as potentially carcinogenic or noncarcinogenic (i.e., potential health effects other than cancer). Toxicity criteria will be selected following USEPA policy and guidance.

**Risk Characterization** The risk characterization combines the results of the exposure assessment and toxicity assessment to calculate cancer risks and noncancer health hazards. The risk characterization will convey the nature of potential risks present at the Site in quantitative and qualitative terms and will

evaluate uncertainties and variability in the findings in order to provide an understanding of the strengths and potential uncertainties of the calculated risks and hazards.

## 2.1 HAZARD IDENTIFICATION

This section provides details on the procedures that will be used to complete the Hazard Identification step of the BHHRA. The hazard identification includes the data compilation, data evaluation, processing and summarization of analytical data considered in the BHHRA, and selection of COPCs.

### 2.1.1 Data Compilation

Historical chemistry data are available for the Site from reports ranging from 1981 through 2008. During preparation of the Phase 1 UFP-QAPP (USACE, 2020), it was determined that those data are of limited use due to issues associated with their age (e.g., comparability with recently collected data). Therefore, only data collected during the Phase 1 and Phase 2 RI field efforts will be considered for the BHHRA.

Phase 1 RI data were collected in 2021 and include analytical results for soil and groundwater samples collected at AOC 1, AOC 3, AOC 4, AOC 5, and background locations. All work was completed in accordance with applicable Federal, State, and local regulations, as well as industry standards and best management practices. In general, samples were collected and analyzed in accordance with the Final Uniform UFP-QAPP (USACE, 2020), with any deviations noted in the RI Phase 1 Field Reports (USACE, 2021 and 2022). Field documents, field data, and laboratory data were loaded into and managed within the Formerly Used Defense Sites Chemical (FUDSChem) database. With the exception of incremental sampling methodology (ISM) samples collected from surface soil (0 to 1 feet below ground surface [ft bgs]) in the bunker aprons of AOC 4, all samples collected were discrete soil samples collected from 0 to 10 ft bgs (i.e., 0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs). Table 2.1-1 summarizes the data available from the Phase 1 field efforts, including the number of samples per medium (and depth interval for soils) and analyses conducted.

**Table 2.1-1: Available Data from Phase 1**

| Area Sampled | Number of Samples per Medium | | | | Analyses |
|---|---|---|---|---|---|
| | Soil (0-1 ft bgs) | Soil (1-5 ft bgs) | Soil (5-10 ft bgs) | Groundwater | |
| AOC 1 | 30 | 11 | 11 | NA[(a)] | 2,4-DNP, 2,4-DNCB, picric acid, inorganics |
| AOC 3 | 16 | 18 | None | NA[(a)] | VOCs, SVOCs, picric acid, PAHs, Aroclors, inorganics |
| AOC 4 – Discrete | 16 | 85 | 16 | NA[(a)] | 2,4-DNP, 2,4-DNCB, picric acid |
| AOC 4 - ISM | NA[(a)] | None | None | | |
| AOC 5 | 25 | 25 | 25 | NA[(a)] | VOCs, SVOCs, PAHs, Aroclors, inorganics |
| Background | 45 | 45 | 45 | NA[(a)] | PAHs and inorganics |

Notes:

(a) Data were obtained during the Phase 1 field investigations; however, these data have been determined to be not useful for risk assessment purposes and will therefore not be included in the BHHRA. See text narrative for why these data were eliminated from the BHHRA.

Acronyms:

2,4-DNCB = 2,4-dinitrochlorobenzene
2,4-DNP = 2,4-dinitrophenol
AOC = area of concern
ft bgs = feet below ground surface
ISM = incremental sampling methodology
NA = not applicable
PAHs = polycyclic aromatic hydrocarbons
SVOCs = semivolatile organic compounds
VOCs = volatile organic compounds

The ISM approach at AOC 4 was selected for sampling around the ammonium picrate bunkers at AOC 4 to generate a versatile data suite that could be applied to risk-based objectives and provide opportunities to evaluate total concentrations of any contaminants. Based on the assessment of data quality indicators (DQIs) that was performed as part of the Phase 1 Risk Screening and Data Gap Analysis, the ISM data at AOC 4 was determined to have data usability issues. The results of the data usability assessment and screening comparisons at AOC 4 indicated the following issues with the ISM data (Bluestone, 2023):

- 2,4-dinitrochlorobenzene (2,4-DNCB) in ISM surface soil had low bias attributable to low surrogate recoveries for 33 of 34 samples (97%). 2,4-Dinitrophenol (2,4-DNP) had low bias attributable to low surrogate recoveries for 27 of 29 samples (93%). Picric acid had low bias attributable to low surrogate and matrix spike recoveries at a frequency of 9 of 36 samples (25%). The uniformly low bias of results reported as non-detect represents a data gap within the bunker areas at AOC 4.
- For ISM Decision Unit (DU) 1, all three replicates had results rejected for low bias of 2,4-DNP based on low matrix spike/matrix spike duplicate (MS/MSD) recoveries. For ISM DU 5, one replicate had results rejected for 2,4-DNCB and 2,4-DNP due to holding time exceedances. For ISM DU 9, all three replicates had results rejected for low bias of 2,4-DNP due to an MSD that did not recover. For DU 10, one replicate had the result for 2,4-DNCB rejected based on a low surrogate recovery. Three valid ISM replicates are considered necessary to provide information regarding the reproducibility and heterogeneity of the data; therefore, the lack of three valid replicates represent a data gap within the bunker areas at AOC 4.

The Phase 2 field effort includes a discrete surface soil sampling program in all of the DUs of AOC 4 for 2,4-DNCB and 2,4-DNP in surface soil to address the low bias that is prevalent in the analytical data seemingly due to using ISM sample processing. The Phase 2 sampling also includes analysis of picric acid from the samples for confirmation of ISM sampling results. Obtaining these data should meet the Phase 1 objectives of determining presence/absence and characterizing a potential source area.

Grab groundwater samples were collected from temporary groundwater monitoring wells that were not developed prior to sampling during the Phase 1 investigation. Temporary wells can result in concentrations both above and below the corresponding data from a permanent monitoring well; therefore, the groundwater data may not be representative of groundwater conditions. The effect of the well installation technique on the reported groundwater concentrations cannot be assessed during data validation. Additionally, temporary wells provide only limited hydrogeologic information; therefore, they are not sufficient to fully evaluate hydrogeologic conditions and aquifer characteristics. Lastly, the HHRA requires the use of total, not dissolved metals concentrations. Therefore, groundwater data from Phase 1 field investigations will not be used in the BHHRA. Installation of permanent monitoring wells along with well development will be performed during the Phase 2 investigation. As such, Phase 2 groundwater data will be the only groundwater data utilized in the BHHRA.

For Phase 2 of the RI, additional investigations into the nature and extent, investigations into potential impacts to additional media (i.e., surface water, porewater, hydric soils, and sediment), and Site-

hydrogeological conditions (e.g., groundwater flow) are planned as detailed in Worksheet #15 of the Phase 2 UFP-QAPP. Table 2.1-2 summarizes the number of proposed samples per medium (and depth interval for soils) that will be available from the Phase 2 field effort for use in the BHHRA.

**Table 2.1-2: Proposed Available Data from Phase 2**

| Area Sampled | Number of Samples per Medium | | | | | | Analyses |
|---|---|---|---|---|---|---|---|
| | Soil (0-1 ft bgs) | Soil (1-5 ft bgs) | Soil (5-10 ft bgs) | Groundwater[(a)] | Sediment or Hydric Soils[(b)] (0-1 ft bgs) | Surface Water | |
| AOC 1 | 16 | 16 | 16 | 20 | 12 | None | 2,4-DNP, 2,4-DNCB, picric acid, TAL metals |
| AOC 3 | 7 | 7 | 7 | 14 | 16 | 16 | VOCs, SVOCs, PAHs, Aroclors, picric acid, TAL metals |
| AOC 4 – Discrete | 60 | None | None | None | None | None | 2,4-DNP, 2,4-DNCB, picric acid |
| AOC 5 | 25 | 25 | 25 | 20 | 5 | None | PAHs and TAL metals, Aroclors[(c)] |
| Background | None | None | None | 12 | 8 (hydric soils) 16 (stream sediment) | 16 | PAHs and TAL metals |

Notes:
(a) Includes semiannual sampling for one year.
(b) Samples from AOC 1 and AOC 5 will be collected in the wetlands area and are considered hydric soil samples. Samples collected from AOC 3 are sediment samples associated with a stream.
(c) Aroclors only proposed for soils from the electric substation and for groundwater from the electric substation, possible dump and two wells downgradient of the substation.

Acronyms:
2,4-DNCB = 2,4-dinitrochlorobenzene
2,4-DNP = 2,4-dinitrophenol
AOC = area of concern
ft bgs = feet below ground surface
ISM = incremental sampling methodology
PAHs = polycyclic aromatic hydrocarbons
SVOCs = semivolatile organic compounds
TAL = target analyte list
VOCs = volatile organic compounds

Except for the ISM data and groundwater data obtained from temporary groundwater wells during the Phase 1 field investigation, all of the analytical data generated from the Phase 1 and Phase 2 field efforts will be considered for quantitative evaluation in the BHHRA as appropriate (See Section 2.1.2). As contaminants present in the environment may have originated from sources within each AOC, each AOC will be thought of as a separate exposure area for evaluating risk. Phase 1 and Phase 2 data will be combined as a single dataset to select COPCs within each AOC. The ISM data from AOC 4 may be used qualitatively to support the presence or absence of COPCs (i.e., 2,4-DNP, 2,4-DNCB, and picric acid) in AOC 4 as part of the risk characterization and uncertainty sections of the BHHRA.

Although the type of environmental sampling performed in the Phase 1 and Phase 2 field efforts may have differed (e.g., biased versus random sampling), all the samples are discrete samples and can be used to represent potential exposures. All discrete samples from the Phase 1 and Phase 2 sampling events will be

combined to provide better spatial coverage of the exposure areas. Although "bias" sampling will be used to evaluate risks, the data will be used to show the absence of actionable risk based on the low concentrations observed in the Phase I data. If risks are unacceptable, exposure and subsequent risks will be refined. Uncertainties associated with combining the datasets for the BHHRA and the impact it has on risk will be addressed in the uncertainty section.

### 2.1.2 Data Evaluation

The data evaluation and selection of data for quantitative use in the BHHRA will be conducted to identify data that are: (1) representative of existing (and to the extent possible, reasonably foreseeable) conditions related to current and potential future use and the associated receptor exposure scenarios; and (2) "usable" (that is, of sufficient quality) for BHHRA purposes, consistent with the Data Evaluation Chapter of the USEPA RAGS, Volume 1, Part A (USEPA, 1989) and the associated Guidance for Data Usability in Risk Assessment (USEPA, 1992a). Analytical data collected during Phase 1 and Phase 2 of the RI and deemed usable following data validation and according to the project-specific UFP-QAPPs will be evaluated in the BHHRA.

The data evaluation will include an assessment of the analyte specific limits of detection (LODs). Achieved LODs are a major issue affecting data usability for risk (USEPA, 1992a). If the LOD is higher than concentrations known to cause toxicity or adverse effects to human receptors, the actual contaminant concentration cannot be quantified, and risks cannot be evaluated. Because some contaminants cause human health effects at low levels, there may be cases where the LOD is higher than concentrations known to cause toxicity or adverse effects to human receptors. Therefore, a qualitative evaluation of the LOD for nondetect constituents will be performed as part of the preliminary COPC screening. These analytes will be discussed in the uncertainty section with respect to any historical use, analytical, or toxicological reasons as to why the analyte may be a COPC.

### 2.1.3 Processing and Summarization of Analytical Data Considered in the BHHRA

Summary statistics will be compiled for each medium and exposure area, by COPC, including minimum and maximum detected concentrations, frequency of detection, range of reporting limits for non-detects, and arithmetic mean concentrations.

Values reported as estimated (i.e., "J" qualified data) will be used at the concentration reported. Data rejected during the data usability evaluation (i.e., "R" qualified data) will be excluded from the dataset and will not be evaluated further in the BHHRA. Nondetected values (i.e., "U" qualified data) will be evaluated at their reporting limit (i.e., LOD), unless otherwise described.

Prior to summarizing the analytical data, the data will be processed and simplified, eliminating duplication for field sample/field duplicate pairs. This process identifies a single result for each parameter within each sampling location/event for use in the data summary. For sample locations in which a duplicate sample has also been collected, use of duplicate results will be resolved as follows:

- For each field sample/field duplicate sample pair, if one was a detection and the other was a non-detect, the detected concentration will be selected for use in the risk assessment.

- For each field sample/field duplicate sample pair, if each analytical result was a non-detect then the lower of the two Reporting Limits (RLs) from the two analyses will be selected for use in the risk assessment.
- For each field sample/field duplicate sample pair, if each analytical result was a detection, then the arithmetic mean of the detects will be calculated and used in the risk assessment.

### 2.1.4 Selection of Contaminants of Potential Concern

COPCs for the combined Phase 1 and Phase 2 data will be identified consistent with the screening methodology used in the Phase 1 Risk Screening and Data Gaps Analysis (Bluestone, 2023). The Phase 1 Risk Screening approach was developed in conjunction with the NYOW Site USACE project delivery team (PDT) and Environmental and Munitions Center of Expertise (EMCX).

The identification of COPCs is based on a compilation of usable data for the exposure media identified as being associated with the potentially complete exposure pathways. Screening of COPCs will be performed for soil, groundwater, hydric soils, sediment, and surface water by AOC. The general screening methodology is summarized below but as stated previously, will be consistent with the screening methodology used in the Phase 1 Risk Screening and Data Gaps Analysis (Bluestone, 2023).

1. As stated in the Phase 1 Risk Screening and Data Gaps Analysis (Bluestone, 2023), the essential and generally nontoxic "macro elements," calcium, magnesium, potassium, and sodium will not be considered COPCs.
2. Concentrations of chemicals detected in the environmental medium will be compared to medium-specific background threshold values (BTVs) for those analytes having BTVs (e.g., PAHs and metals). A conclusion of a potential site-related release will be made if the maximum concentration for site data sets with ≤ 20 samples is greater than the BTV or if more than 5% of the results for site data sets > 20 samples are greater than the BTV. Soil BTVs were developed for use in the phased site assessment process as described in the Phase 1 Risk Screening and Data Gaps Analysis (Bluestone, 2023). These soil BTVs will be used in the screening of the Phase 2 RI data. Development of new BTVs following methodology in the Phase 1 Risk Screening and Data Gaps Analysis (Bluestone, 2023) will be provided for background data collected during the Phase 2 investigation (new background data will include groundwater, surface water, hydric soils, and sediment). Given how BTVs are defined (i.e., the null hypothesis is that the site concentrations are consistent with background concentrations), false positives (Type I error or the incorrect rejection of the null hypothesis) overestimate contamination and false negatives (Type II error or failure to reject the null hypothesis) underestimate contamination. BTVs typically control false positives only. From a statistical perspective, results greater than BTVs demonstrate likely site-related releases but results less than BTVs are inconclusive. PDT concurrence will be requested prior to eliminating contaminants less than BTVs from further evaluation in the BHHRA. Hypothesis testing for centrality can simultaneously control Type I and Type II errors for background comparisons and although not currently scoped as part of the BHHRA, may be an option as an additional risk refinement if warranted. The uncertainty associated with using BTVs

to screen the data for selection of COPCs will be addressed in the Uncertainty Analysis in the BHHRA.

3. For those chemicals exceeding BTVs and for those chemicals without BTVs, maximum concentrations will be compared to USEPA risk-based values at a target hazard quotient (HQ) of 0.1 or a target cancer risk of $1\times10^{-6}$ (whichever is lower) as follows:

    a. For screening soil, hydric soils, and sediment data, the screening levels will be based on current USEPA RSLs for residential soils as well as USEPA's 2024 guidance for lead which recommends an updated residential soil lead RSL of 200 mg/kg (USEPA, 2024a).

    b. For groundwater data, the screening levels will be based on current USEPA RSLs for tap water. In addition, for VOCs that are detected in groundwater, concentrations also will be compared to USEPA Vapor Intrusion Screening Levels (VISL, USEPA, 2022).

    c. For surface water data, screening levels will be calculated using USEPA's RSL calculator for a recreational receptor's exposure to surface water using the exposure parameters for incidental ingestion and dermal contact with COPCs in surface water for a trespasser/visitor scenario listed in Table A2.2-3 of Attachment 1.

Chemicals with maximum detected concentrations greater than their respective screening level are retained as COPCs; maximum concentrations detected less than the screening level are not selected as a COPC.

The Phase 1 groundwater data screened in the Phase 1 Risk Screening and Data Gaps Analysis (Bluestone Environmental Group, 2023) consisted of grab groundwater samples collected from temporary groundwater monitoring wells that were not developed prior to sampling during the Phase 1 investigation. Temporary wells can result in concentrations both above and below the corresponding data from a permanent monitoring well; therefore, the Phase 1 groundwater data may not be representative of groundwater conditions. Therefore, groundwater data from Phase 1 field investigations will not be used in the BHHRA. Installation of permanent monitoring wells along with well development will be performed during the Phase 2 investigation; the Phase 2 data will be the only groundwater data utilized in the BHHRA. The Phase 2 groundwater data will be screened using the methodology in the Phase 1 Risk Screening and Data Gaps Analysis (Bluestone Environmental Group, 2023). Table 2.1-3 summarizes the Phase 1 soil COPCs by AOC. The results of the Phase 1 groundwater screening also are provided in Table 2.1-3. Note that the groundwater COPCs have been designated as preliminary because the Phase 1 groundwater data were collected from temporary wells. The number and types of COPCs that may be identified in groundwater collected from permanent monitoring wells during the Phase 2 investigation may be different than the preliminary groundwater COPCs listed in Table 2.1-3.

**Table 2.1-3: Phase 1 COPCs**

| AOC 1 | | AOC 3 | | AOC 4 | | AOC 5 | |
|---|---|---|---|---|---|---|---|
| **Soil** | **Preliminary GW (a)** | **Soil** | **Preliminary GW (a)** | **Soil** | **Preliminary GW (a)** | **Soil** | **Preliminary GW (a)** |
| Aluminum<br>Arsenic<br>Cadmium<br>Cobalt<br>Iron<br>Manganese | Aluminum<br>Barium<br>Iron<br>Manganese<br>Nickel<br>Vanadium | Benz(a)anthracene<br>Benzo(b)pyrene<br>Benzo(b)fluoranthene<br>Dibenz(a,h)anthracene<br>Indeno(1,2,3-cd)pyrene<br>Aluminum<br>Arsenic<br>Cobalt<br>Iron<br>Manganese<br>Thallium | Benzene<br>4-Nitroaniline<br>Arsenic<br>Cobalt<br>Manganese<br>Nickel<br>Vanadium | (a) | (b) | Benzo(b)pyrene<br>Benzo(b)fluoranthene<br>Dibenz(a,h)anthracene<br>Indeno(1,2,3-cd)pyrene<br>Naphthalene<br>Aluminum<br>Arsenic<br>Cadmium<br>Cobalt<br>Iron<br>Manganese<br>Thallium | Benz(a)anthracene<br>Benzo(b)pyrene<br>Benzo(b)fluoranthene<br>Dibenz(a,h)anthracene<br>Naphthalene<br>1,2,3-Trichloropropane<br>Antimony<br>Arsenic<br>Cobalt<br>Iron<br>Manganese<br>Nickel<br>Vanadium |

Notes:

(a) The groundwater COPCs have been designated as preliminary because the Phase 1 groundwater data were collected from temporary wells may not be representative of groundwater conditions. Installation of permanent monitoring wells along with well development will be performed during the Phase 2 investigation. Groundwater collected from permanent monitoring wells will be used to identify COPCs for the BHHRA.

(b) Nondetect for picric acid, 2,4-dinitrochlorobenzene, and 2,4-dintirophenol; Reporting limits less than residential USEPA RSL with HQ=0.1.

(c) Nondetect for picric acid, 2,4-dinitrochlorobenzene, and 2,4-dintirophenol; Reporting limits less than residential USEPA RSL with HQ=0.1 for picric acid. The other reporting limits for 2,4-dinitrochlorobenzene and 2,4-dinitrophenol were greater than RSL adjusted for HQ of 0.1; however, reporting limits were less than RSL at HQ of 1.

Acronyms:
AOC = area of concern
GW = groundwater
HQ = hazard quotient
RSL = regional screening level

Comparison of nondetect LODs to screening levels will be performed as part of the COPC selection process and will follow methodology used in the Phase 1 Risk Screening and Data Gaps Analysis (Bluestone, 2023).

## 2.2 PRELIMINARY CONCEPTUAL SITE MODEL AND EXPOSURE ASSESSMENT

As defined in Engineer Manual 200-1-12 - Environmental Quality, Conceptual Site Models (USACE, 2023), a CSM describes sources of possible DoD-impacts, as well as complete, potentially complete, or incomplete human and ecological exposure pathways; current, determined, or reasonably anticipated future use of property; and human and ecological potential receptors. A CSM is an iterative planning and communication tool that provides a structure to summarize and display information and to identify additional information needed to develop technically sound decisions; therefore, data collected as part of the Phase 2 RI will be used to revise these CSMs as appropriate.

The purpose of the exposure assessment is to estimate the magnitude and frequency of potential human exposure to COPCs present in media of interest at each exposure area. The exposure assessment is based on the CSM.

### 2.2.1 Preliminary CSM

The preliminary CSM identifies contaminant sources, release mechanisms, affected media, transport routes, current and future land use and human receptors, and associated exposure scenarios. These preliminary CSMs were constructed based on what is currently known about the Site in general and what is known specifically with regard to each of the AOCs based on historical and Phase 1 RI data collected. The general and specific information used to construct the CSMs are provided in Worksheet #10 of the UFP-QAPP. The potential receptors, exposure media, exposure routes, and rational for selection or exclusion of exposures that have been considered relevant for each of the AOCs for the BHHRA are listed in Table 2.2-1. The preliminary CSMs developed for each of the AOCs based on information provided in Worksheet #10 of the Phase 2 UFP-QAPP and Table 2.2-1, are presented here in Figures 2.2-1 through 2.2-4. The AOC-specific CSMs also were informed by the COPCs identified in the Phase 1 Risk Screening and Data Gaps Analysis (Bluestone, 2023). These preliminary CSMs may be revised based on risk screening results of the combined Phase 1 and Phase 2 RI data.

### 2.2.2 Exposure Assessment

The first step in the exposure assessment process is determining potential receptors (i.e., people who may contact the impacted environmental media of interest). The exposure assessment is based on the receptor scenarios that define the conditions of exposure to Site-related COPCs. The extent of a receptor's exposure is estimated by identifying exposure scenarios that describe the potential pathways of exposure to COPCs that might lead to contact with COPCs in the environment.

All likely exposure scenarios that could exist under the intended current and potential future use of the Site are considered in this BHHRA. Exposure scenarios are identified by evaluating potential receptors and exposure pathways. Receptors may be exposed to COPCs either directly, through activities that result in contact with contaminated environmental media (e.g., digging in contaminated soil), or indirectly, as a result of COPC migration to locations where contact with receptors can occur (e.g., fugitive dust). An exposure pathway defines the most probable pathway in which a receptor may come into contact with contaminated media. In order for an exposure pathway to be complete, the following four elements must be present: (1) a source and mechanism of COPC release; (2) a retention or transport medium; (3) a point of contact between the human receptor and the medium; and (4) a route of exposure for the potential human receptor at the contact point.

The exposure pathway must be complete from the source of COPCs in the environment to human receptors in order for COPC intake to occur. If all exposure pathways are incomplete for human receptors, no COPC intake occurs, and no human health effects are associated with Site-related COPCs.

Each receptor may be evaluated for one or more exposure points, and receptors exposed to soil may be evaluated for exposure to 0-1 ft soils under current conditions, 0-5 ft for excavation activities, or 0-10 ft soils under future conditions assuming regrading and redevelopment of the site.

Potential receptors identified across AOCs include the following:

- On-Site Current and Future Trespasser/Visitor (including golf course users and recreational visitors);
- On-Site Current and Future Outdoor Maintenance Worker;
- On-Site Future Utility Worker;
- On-Site Future Construction Worker;
- On-Site Future Resident;
- On-Site Future Commercial Worker; and
- On-Site Resident or Off-Site Nearby Resident utilizing private groundwater wells for potable water.

**Table 2.2-1. Receptor Selection and Exposure Pathways**

| Scenario Timeframe | Medium | Exposure Medium | Exposure Point | Receptor Population (a) | Receptor Age | Exposure Route (b) | Type of Analysis | Rationale for Selection or Exclusion of Exposure Pathway (c) |
|---|---|---|---|---|---|---|---|---|
| **Current and/or Future** | **Soil** | **Surface Soil (0-1 ft)** | AOC 1 | Current Trespasser/Visitor | Adolescent | Ingestion/Dermal/Inhalation | Quantitative | This AOC is in primarily residential area where there are paved walking paths and grassy areas between homes and wooded areas containing the old loading ramps, storage bunkers, and loading dock structures. Activities of adolescents in these unrestricted open areas may lead to exposure to COPCs in surface soil. Similarly, outdoor workers performing grounds maintenance in these areas may lead to exposure to COPCs in surface soil. See potential future exposure to mixed subsurface soil below. |
| | | | | Current Outdoor Maintenance Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | |
| | | | AOC 3 | Current/Future Trespasser/Visitor | Adolescent | Ingestion/Dermal/Inhalation | Quantitative | AOC 3 is a golf course. While golfers are present in this AOC, visitors (golfers) are typically not exposed to soils while golfing. Therefore, only trespassers are expected to be exposed to soils. Activities of adolescents in the open areas may lead to exposure to COPCs in surface soil. Similarly, outdoor workers performing grounds maintenance in these areas may lead to exposure to COPCs in surface soil. Current and future exposures are expected to be the same as there would be no heavy construction which would bring soil from below 1 ft bgs to the surface during regrading. |
| | | | | Current/Future Outdoor Maintenance Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | |
| | | | AOC 4 | Current/Future Trespasser/Visitor | Adolescent | Ingestion/Dermal/Inhalation | None (c) | This AOC is currently located within Three Rivers Wildlife Management Area (WMA). Several of the remaining bunkers are used for equipment and vehicle storage. Activities of adolescents in these unrestricted open areas may lead to exposure to COPCs in surface soil. Similarly, outdoor workers performing grounds maintenance in these areas may lead to exposure to COPCs in surface soil. The Phase 1 soil sampling did not identify any COPCs. Therefore, although there are potential receptors who may come into contact with surface soil, there are no COPCs identified for the soil. Exposure routes and analysis may change depending on the results of the Phase 2 sampling effort. Note that current and future exposures are expected to be the same as there are no heavy construction activities planned for the AOC that would bring soils greater than 1 ft to the surface. |
| | | | | Current/Future Outdoor Maintenance Worker | Adult | Ingestion/Dermal/Inhalation | None (c) | |
| | | | AOC 5 | Current Trespasser/Visitor | Adolescent | Ingestion/Dermal/Inhalation | Quantitative | This AOC is mostly an uninhabited wooded area west of a residential area. Activities of adolescents in these unrestricted open areas may lead to exposure to COPCs in surface soil. Similarly, outdoor workers performing grounds maintenance in these areas may lead to exposure to COPCs in surface soil. See potential future exposure to mixed subsurface soil below. |
| | | | | Current Outdoor Maintenance Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | |
| **Future** | **Soil** | **Surface and Subsurface Soil (0-5 ft)** | AOC 1 | Future Utility Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | Underground utilities are common in residential and commercial areas, and often are located around roads and the areas between the roads and buildings. The residential area of AOC 1 contains underground utilities, and future development would need installation of utilities. Thus, it is assumed that soil from the surface to 5 ft bgs could be excavated, mixed, and used to regrade the Site while installing or repairing utility lines. |
| | | | AOC 3 | Future Utility Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | Underground utilities are common in residential and commercial areas, and often are located around roads and the areas between the roads and buildings. As a developed commercial area (i.e., golf course), utilities are assumed to be present at AOC 3. Thus, it is assumed that soil from the surface to 5 ft bgs could be excavated, mixed, and used to regrade the Site while installing or repairing utility lines. |

| Scenario Timeframe | Medium | Exposure Medium | Exposure Point | Receptor Population (a) | Receptor Age | Exposure Route (b) | Type of Analysis | Rationale for Selection or Exclusion of Exposure Pathway (c) |
|---|---|---|---|---|---|---|---|---|
| **Future** | **Soil** | **Surface and Subsurface Soil (0-5 ft)** | AOC 4 | Future Utility Worker | Adult | None | None | AOC 4 located in Three Rivers Wildlife Management Area, an undeveloped, natural environment. No utility lines are present in AOC 4, nor are utility lines expected to be installed in the future. |
| | | | AOC 5 | Future Utility Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | Underground utilities are common in residential and commercial areas, and often are located around roads and the areas between the roads and buildings. AOC 5 is slated for future redevelopment, either as commercial or multiple residential housing. As such, utility lines are expected to be installed in the future. Thus, it is assumed that soil from the surface to 5 ft bgs could be excavated, mixed, and used to regrade the Site while installing or repairing utility lines. |
| **Future** | **Soil** | **Surface and Subsurface Soil (0-10 ft)** | AOC 1 | Future Resident | Adult | Ingestion/Dermal/Inhalation | Quantitative | This AOC is in primarily residential area in the Radisson Community which is a planned development that consists of homes, a large Corporate Park, and a wide range of recreational, educational, cultural, shopping, and community services. Although homes are not currently built on areas of potential impacts; homes or commercial structures may in the future be built on those potential areas of impact if results of the RI indicated those areas are not impacted. Therefore, future residential, commercial and construction worker exposure scenarios have been included. Soils at depth are assumed to be mixed with surface soil such that exposure to soils for future scenario entails contact with soils from 0-10 ft being as this interval would be used to regrade the Site. The future scenario for the trespasser/visitor and outdoor maintenance worker assumes contact with soils after regrading of the Site occurs so that exposure is to COPCs in 0-10 ft bgs interval. |
| | | | | | Child | Ingestion/Dermal/Inhalation | Quantitative | |
| | | | | Future Trespasser/Visitor | Adolescent | Ingestion/Dermal/Inhalation | Quantitative | |
| | | | | Future Outdoor Maintenance Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | |
| | | | | Future Construction Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | |
| | | | AOC 3 | Future Resident | Adult | None | None | This AOC is a former landfill located within the golf course property. Future residential homes or commercial structures will not be constructed over the golf course or areas of the golf course. Therefore, residents, commercial workers, and construction workers will not be exposed to COPCs in subsurface soil in the future. |
| | | | | | Child | None | None | |
| | | | | Future Commercial Worker | Adult | None | None | |
| | | | | Future Construction Worker | Adult | None | None | |
| | | | AOC 4 | Future Resident | Adult | None | None | AOC 4 located in Three Rivers Wildlife Management Area; no future development is expected. Therefore, residents, commercial workers, and construction workers will not be exposure to COPCs in subsurface soil in the future. |
| | | | | | Child | None | None | |
| | | | | Future Commercial Worker | Adult | None | None | |
| | | | | Future Construction Worker | Adult | None | None | |
| | | | AOC 5 | Future Trespasser/Visitor | Adolescent | Ingestion/Dermal/Inhalation | Quantitative | This AOC will be developed in the future and based on current surrounding land use future redevelopment may include residential and/or commercial settings. Therefore, residents, commercial workers, and construction workers may be exposure to COPCs in subsurface soil in the future. Soils at depth are assumed to be mixed with surface soil such that exposure to soils for future scenario entails contact with soils from 0-10 ft being as this interval would be excavated during construction, mixed, and used to regrade the Site. The future scenario for the trespasser/visitor and outdoor maintenance worker assumes contact with soils after regrading of the Site occurs so that exposure is to COPCs in 0-10 ft bgs interval. |
| | | | | Future Outdoor Maintenance Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | |
| | | | | Future Resident | Adult | Ingestion/Dermal/Inhalation | Quantitative | |
| | | | | | Child | Ingestion/Dermal/Inhalation | Quantitative | |
| | | | | Future Commercial Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | |
| | | | | Future Construction Worker | Adult | Ingestion/Dermal/Inhalation | Quantitative | |

| Scenario Timeframe | Medium | Exposure Medium | Exposure Point | Receptor Population (a) | Receptor Age | Exposure Route (b) | Type of Analysis | Rationale for Selection or Exclusion of Exposure Pathway (c) |
|---|---|---|---|---|---|---|---|---|
| **Future** | **Groundwater (g)** | **On-Site Groundwater** | AOC 1 | Future Resident | Adult | Ingestion/Dermal | Quantitative | Groundwater on-Site is not currently used as a drinking water source and potable water is supplied by the Onondaga County Water Authority; therefore, a groundwater potable use scenario for the on-Site future residents will not be included. Regardless, hypothetical future potable use of groundwater will be evaluated for AOCs 1 and 5 because there are no current restrictions in place that preclude this use. There are no VOCs among contaminants of potential concern at this AOC; therefore, groundwater exposure via vapor intrusion and/or inhalation of volatiles from groundwater are considered incomplete exposure pathways. |
| | | | | | Child | Ingestion/Dermal | Quantitative | |
| **Future** | **Groundwater (g)** | **On-Site Groundwater** | | Future Utility Worker | Adult | Dermal | Quantitative | The water table is anticipated to be encountered between 2 to 13 ft bgs in the source areas; therefore, utility workers and construction workers are likely to encounter groundwater during excavation activities. Metals were identified as COPCs in the Phase I data; therefore, inhalation exposure is not associated with groundwater and excavation activities. The groundwater ingestion pathway for the future utility and construction workers is an insignificant exposure pathway which will not be quantitatively evaluated in the risk assessment but will be addressed as part of the uncertainty evaluation. |
| | | | | Future Construction Worker | Adult | Dermal | Quantitative | |
| | | | AOC 3 | Future Maintenance Worker | Adult | Ingestion/Dermal | Qualitative | These receptors are evaluated for potential exposure to groundwater under a hypothetical future scenario where a well is installed at the golf course and used as a source for potable water for a water fountain. The maintenance worker will be evaluated qualitatively using the results of the evaluation for the future golfer as a more highly exposed receptor (ingestion while golfing versus incidental ingesting during irrigation). The golfer will be evaluated using the same exposure assumptions as for an adult visitor. |
| | | | | Future Golfer | Adult | Ingestion/Dermal | Quantitative | |
| | | | | Future Utility Worker | Adult | Dermal | Quantitative | The water table is anticipated to be encountered between 2 to 13 ft bgs in the source areas; therefore, utility workers are likely to encounter groundwater during excavation activities. COPCs from the Phase I data include primarily metals, 4-nitroaniline, and benzene. Inhalation is not a significant exposure pathway associated with inorganics, and volatilization of benzene outdoors is not expected to be significant and therefore will not be evaluated. The groundwater ingestion pathway has been deemed insignificant as the amount of water incidentally ingested is going to be de minimis. No major construction is expected in this former landfill area; therefore, construction workers are not included as a potential receptor to groundwater. |
| | | | | Future Construction Worker | Adult | None | None | |
| | | | AOC 4 | Future Recreational Visitor | Adult | Ingestion/Dermal | Quantitative | This receptor is evaluated for potential exposure to groundwater, under a hypothetical future scenario where a well is installed at the Three Rivers Wildlife Management Area and used as a source for potable water for a water fountain. |
| | | | | | Child | Ingestion/Dermal | Quantitative | |
| | | | | Future Utility Worker | Adult | None | None | AOC 4 located in Three Rivers Wildlife Management Area; no future development is expected so exposure to groundwater while excavating is not expected for these potential receptors. |
| | | | | Future Construction Worker | Adult | None | None | |

| Scenario Timeframe | Medium | Exposure Medium | Exposure Point | Receptor Population (a) | Receptor Age | Exposure Route (b) | Type of Analysis | Rationale for Selection or Exclusion of Exposure Pathway (c) |
|---|---|---|---|---|---|---|---|---|
| **Future** | **Groundwater (g)** | **On-Site Groundwater** | AOC 5 | Future Resident | Adult | Ingestion/Dermal | Quantitative | Groundwater on-Site is not currently used as a drinking water source and potable water is supplied by the Onondaga County Water Authority; therefore, a groundwater potable use scenario for the on-Site future residents will not be included. Regardless, hypothetical future potable use of groundwater will be evaluated for AOCs 1 and 5 because there are no current restrictions in place that preclude this use. There are no VOCs among contaminants of potential concern at this AOC; therefore, groundwater exposure via vapor intrusion and/or inhalation of volatiles from groundwater are considered incomplete exposure pathways. |
| | | | | | Child | Ingestion/Dermal | Quantitative | |
| | | | | Future Utility Worker | Adult | Dermal | Quantitative | The water table is anticipated to be encountered between 2 to 13 feet bgs in the source areas; therefore, utility workers and construction workers are likely to encounter groundwater during excavation activities. COPCs from the Phase I data include primarily metals and SVOCs; therefore, inhalation of outdoor air is not a significant exposure pathway and will not be evaluated. The groundwater ingestion pathway for the future utility and construction workers is an insignificant exposure pathway which will not be quantitatively evaluated in the risk assessment but will be addressed as part of the uncertainty evaluation. |
| | | | | Future Construction Worker | Adult | Dermal | Quantitative | |
| **Current and Future** | **Groundwater (g)** | **Off-Site Groundwater** | Nearby AOC 1 | Current/Future Resident | Adult | Ingestion/Dermal | Quantitative | There are multiple private wells in the area as per the well survey. Will evaluate groundwater exposure as potable water exposures to current and future nearby residents. There are no VOCs among contaminants of potential concern at this AOC; therefore, groundwater exposure via vapor intrusion and/or inhalation of volatiles from groundwater are considered incomplete exposure pathways. |
| | | | | | Child | Ingestion/Dermal | Quantitative | |
| | | | Nearby AOC 3 | Current/Future Resident | Adult | Ingestion/Dermal | Quantitative | There are multiple private wells in the area as per the well survey. Will evaluate groundwater exposure as potable water exposures to current and future nearby residents. Benzene was the only VOC detected in groundwater, but the maximum detected benzene concentration is below the USEPA Vapor Intrusion Screening Level (VISL, USEPA, 2022) for groundwater set to a target cancer risk of 1E-06 and a hazard quotient (HQ) of 0.1; therefore, the inhalation of volatiles exposure route has been designated as potentially complete but insignificant and will not be quantitatively evaluated. |
| | | | | | Child | Ingestion/Dermal | Quantitative | |
| | | | Nearby AOC 4 | Current/Future Resident | Adult | Ingestion/Dermal | None (d) | There are multiple private wells in the area as per the well survey. However, chemicals of potential concern were not identified based on the Phase 1 groundwater analytical results. Therefore, this exposure pathway is considered insignificant and will not be evaluated in the BHHRA. Groundwater sampling is not being performed as part of Phase 2 investigation. |
| | | | | | Child | Ingestion/Dermal | None (d) | |
| | | | Nearby AOC 5 | Current/Future Resident | Adult | Ingestion/Dermal | Quantitative | There are multiple private wells in the area as per the well survey. Will evaluate groundwater exposure as potable water exposures to current and future nearby residents. There is no groundwater USEPA Vapor Intrusion Screening Level (VISL, USEPA, 2022) for 1,2,3-trichlorobenzene because this chemical does not have sufficient inhalation toxicity information. However, the maximum detected 1,2,3-trichlorobenzene concentration is below the 1,2,4-trichlorobenzene VISL (used as a surrogate) for groundwater set to a target risk level of 1E-06 and a hazard quotient of 0.1. Therefore, inhalation exposure is assumed to be insignificant. |
| | | | | | Child | Ingestion/Dermal | Quantitative | |

| Scenario Timeframe | Medium | Exposure Medium | Exposure Point | Receptor Population (a) | Receptor Age | Exposure Route (b) | Type of Analysis | Rationale for Selection or Exclusion of Exposure Pathway (c) |
|---|---|---|---|---|---|---|---|---|
| **Current and Future** | **Surface Water (Unnamed Stream)** | **Surface Water (e)** | AOC 3 | Current/Future Trespasser/Visitor | Adolescent | Ingestion/Dermal | Quantitative | This AOC is a golf course and as such access to the stream is not restricted. Adolescents may come in contact with the stream while walking or as part of their outdoor activities. Should VOCs be detected in surface water during the Phase 2 field effort, inhalation of volatiles is assumed to be an insignificant exposure due to ambient air mixing and wind dispersal. |
| | **Sediment (Unnamed Stream)** | **Sediment (e)** | AOC 3 | Current/Future Trespasser/Visitor | Adolescent | Ingestion/Dermal | Quantitative | |
| | **Hydric Soils (from Wetland Areas)** | **Hydric Soils (f)** | AOC 1 | Current/Future Trespasser/Visitor | Adolescent | Ingestion/Dermal | Quantitative | This AOC is in primarily residential area where there are paved walking paths and grassy areas between homes and wooded areas. Adolescents may come in contact with the hydric soils while walking or as part of their outdoor activities. |
| | | | AOC 5 | Current/Future Trespasser/Visitor | Adolescent | Ingestion/Dermal | Quantitative | This AOC is currently undeveloped and there are no restrictions preventing adolescents from traversing the area and coming into contact with COPCs in hydric soils of the wetland areas. |

**Notes:**

(a) Note that trespassers and visitors could be any age, but an adolescent was selected as the receptor because they are more sensitive (higher exposure frequencies than a child and higher dose than an adult).

(b) For soil exposures, inhalation assessed as volatile or soil derived dust (i.e., ambient air).

(c) The AOC-specific CSMs were informed by site-specific information and the COPCs identified in the Phase 1 Risk Screening and Data Gaps Analysis (Bluestone, 2023). These potential receptors and exposure pathways may be revised based on risk screening results of the Phase 2 RI data.

(d) Phase 1 analytical results were nondetect which indicates exposure to environmental medium at this AOC would be insignificant. The receptors and potential exposure pathways will be revisited after completion of the Phase 2 field effort.

(e) Surface water and sediment samples are planned during the Phase 2 investigation for the unnamed stream located north of AOC 3. Should VOCs be detected in surface water, inhalation of volatiles is assumed to be an insignificant exposure due to ambient air mixing and wind dispersal.

(f) Discrete surface soil sampling of hydric soils from wetland areas are planned for the Phase 2 investigation. Standing surface water is not present at the wetlands; therefore, surface water samples will not be collected, and hydric soil samples will be evaluated under a sediment exposure scenario.

(g) Other pathways associated with non-potable groundwater exposures, such as vapor intrusion or via inhalation of vapor in ambient air, have been determined to be incomplete because VOCs were not detected in groundwater or insignificant as concentrations of VOCs detected in groundwater were less than the USEPA Vapor Intrusion Screening Level as reported in the Phase 1 Risk Screening and Data Gaps Analysis (Bluestone, 2023). For now, these groundwater inhalation routes of exposure are not included in the preliminary CSMs; however, these exposure pathways will be revisited based on the Phase 2 field investigation results.

**Acronyms:**

AOC = area of concern

bgs = below ground surface

cont'd = continued

COPC = contaminant of potential concern

ft = feet

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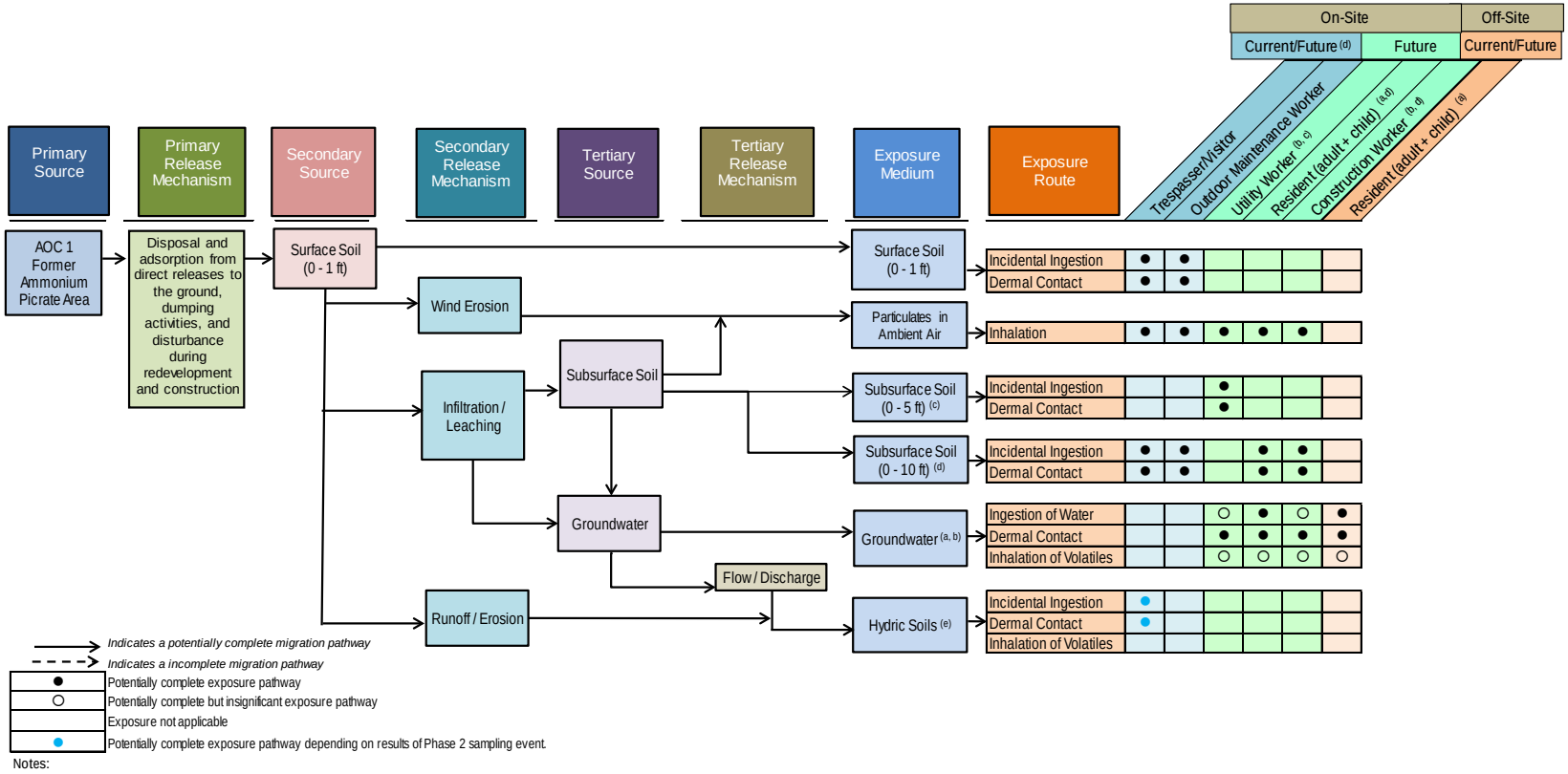



Notes:

(a) Groundwater on-site is not currently used as a drinking water source and potable water is supplied by the Onondaga County Water Authority; however, no restrictions are in place preventing groundwater use in the area as drinking water. Therefore, ingestion and dermal exposures to groundwater used as a drinking water resource is considered potentially complete pathways for the hypothetical residents. In addition, some residences in the surrounding area may have private groundwater wells and no restrictions are in place preventing groundwater use in the area as drinking water. Therefore, ingestion and dermal exposures to groundwater used as a drinking water resource is considered potentially complete pathways for the hypothetical residents. There are no VOCs among contaminants of potential concern at this AOC; therefore, groundwater exposure via vapor intrusion and/or inhalation of volatiles from groundwater are considered incomplete exposure pathways.

(b) The water table is anticipated to be encountered between 2 to 13 ft bgs in the source areas; therefore, utility workers and construction workers are likely to encounter groundwater during an excavation on-Site. The groundwater ingestion pathway has been deemed insignificant as the amount of water incidentally ingested is going to be de minimis. The inhalation of volatiles exposure route is deemed complete but insignificant due to ambient air mixing and wind dispersal and will not be quantitatively evaluated.

(c) Utility workers are assumed to install or repair utility lines such that incidental ingestion, dermal contact, and inhalation exposure to COPCs that are present between surface and 5 ft bgs may potentially occur. The soil is assumed to be placed back in the hole once work has been completed.

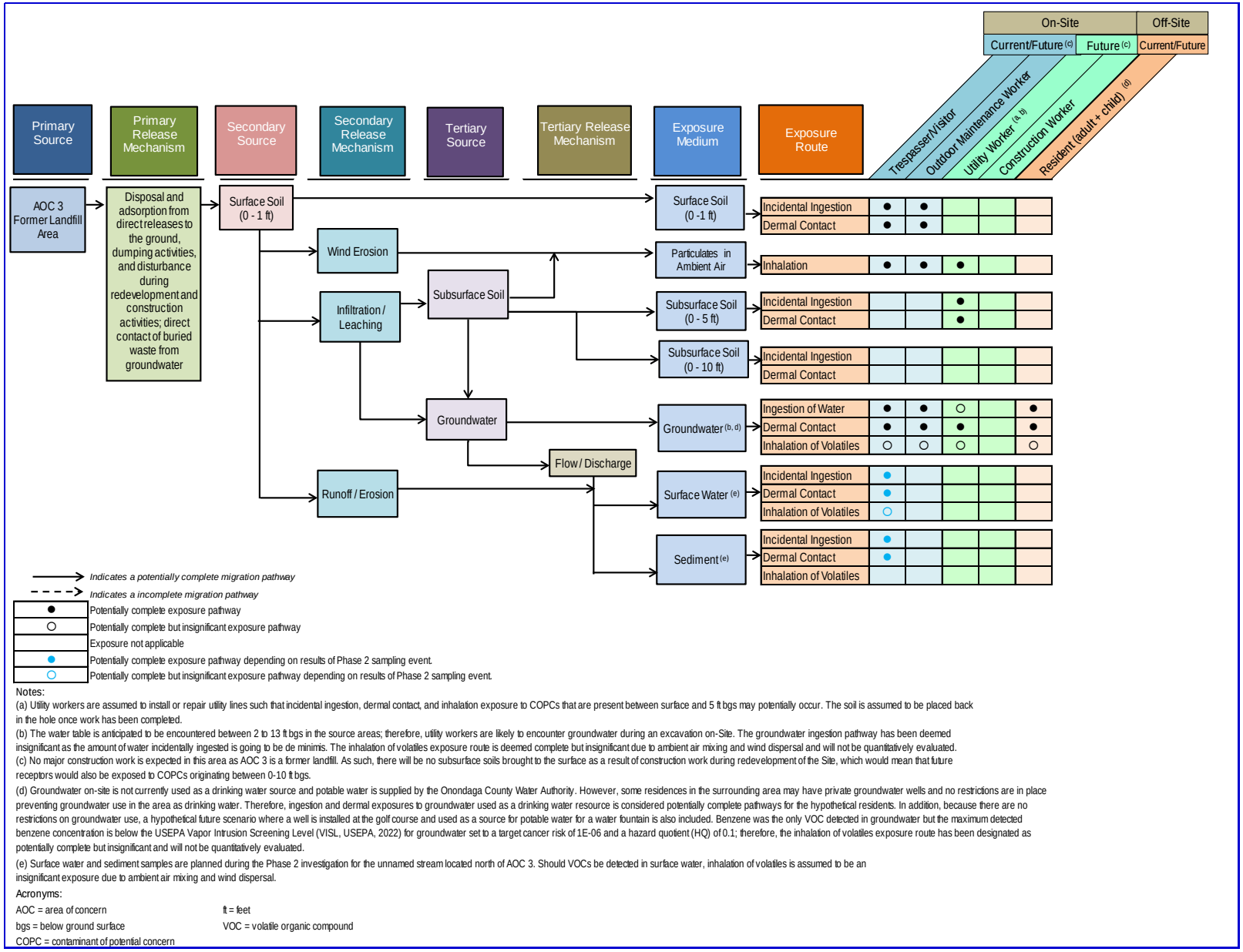
(d) Construction worker is assumed to be exposed to soil within the 0-10 ft bgs interval. It is assumed that subsurface soils are brought to the surface as a result of construction work during redevelopment of the Site, which would mean that future receptors would also be exposed to COPCs in the 0-10 ft range as it is assumed that subsurface soils are brought to the surface, mixed amd used to regrade the Site during redevelopment activities.

(e) Discrete surface soil sampling of hydric soils from wetland areas are planned for the Phase 2 investigation. Standing surface water is not present at the wetlands; therefore, surface water samples will not be collected and hydric soil samples will be evaluated under a sediment exposure scenario.

Acronyms:

AOC = area of concern
bgs = below ground surface
COPC = contaminant of potential concern
ft = feet
VOC = volatile organic compound

**Figure 2.2-1. Conceptual Site Model for AOC 1**




Notes:

(a) Utility workers are assumed to install or repair utility lines such that incidental ingestion, dermal contact, and inhalation exposure to COPCs that are present between surface and 5 ft bgs may potentially occur. The soil is assumed to be placed back in the hole once work has been completed.

(b) The water table is anticipated to be encountered between 2 to 13 ft bgs in the source areas; therefore, utility workers are likely to encounter groundwater during an excavation on-Site. The groundwater ingestion pathway has been deemed insignificant as the amount of water incidentally ingested is going to be de minimis. The inhalation of volatiles exposure route is deemed complete but insignificant due to ambient air mixing and wind dispersal and will not be quantitatively evaluated.

(c) No major construction work is expected in this area as AOC 3 is a former landfill. As such, there will be no subsurface soils brought to the surface as a result of construction work during redevelopment of the Site, which would mean that future receptors would also be exposed to COPCs originating between 0-10 ft bgs.

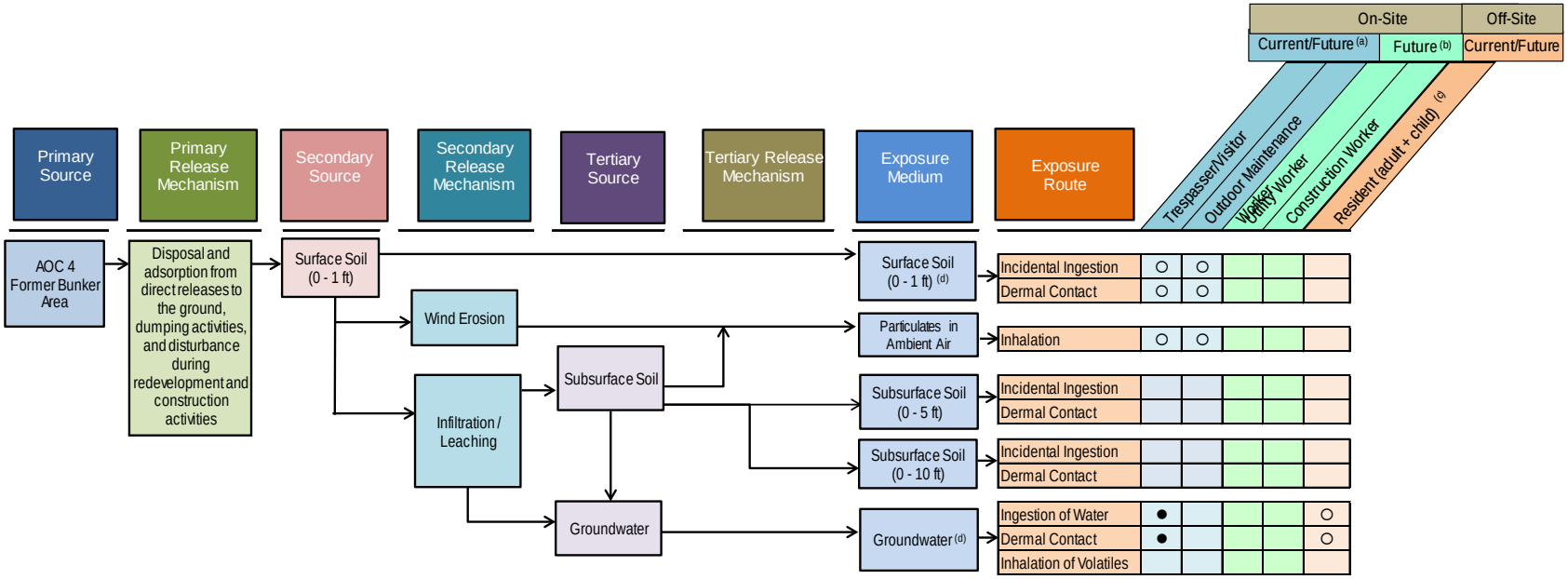
(d) Groundwater on-site is not currently used as a drinking water source and potable water is supplied by the Onondaga County Water Authority. However, some residences in the surrounding area may have private groundwater wells and no restrictions are in place preventing groundwater use in the area as drinking water. Therefore, ingestion and dermal exposures to groundwater used as a drinking water resource is considered potentially complete pathways for the hypothetical residents. In addition, because there are no restrictions on groundwater use, a hypothetical future scenario where a well is installed at the golf course and used as a source for potable water for a water fountain is also included. Benzene was the only VOC detected in groundwater but the maximum detected benzene concentration is below the USEPA Vapor Intrusion Screening Level (VISL, USEPA, 2022) for groundwater set to a target cancer risk of 1E-06 and a hazard quotient (HQ) of 0.1; therefore, the inhalation of volatiles exposure route has been designated as potentially complete but insignificant and will not be quantitatively evaluated.

(e) Surface water and sediment samples are planned during the Phase 2 investigation for the unnamed stream located north of AOC 3. Should VOCs be detected in surface water, inhalation of volatiles is assumed to be an insignificant exposure due to ambient air mixing and wind dispersal.

Acronyms:

AOC = area of concern
bgs = below ground surface
COPC = contaminant of potential concern
ft = feet
VOC = volatile organic compound

**Figure 2.2-2. Conceptual Site Model for AOC 3**




Notes:

(a) AOC 4 is located within the Three Rivers State Wildlife Management Area. Current and future use of this area is wildlife management with remaining bunkers used for maintenance equipment and vehicle storage. The only potential current and future receptors are trespasser/visitor and outdoor maintenance worker to COCPs remaining in surface soil. In addition, because use of groundwater is not restricted, it is assumed that in the future, a drinking water fountain could be installed which uses site groundwater as a source, and that visitors could be exposed to groundwater from the drinking fountain via ingestion and dermal contact.

(b) There are no plans for future development thus, no future utility or construction work likely to occur in this AOC.

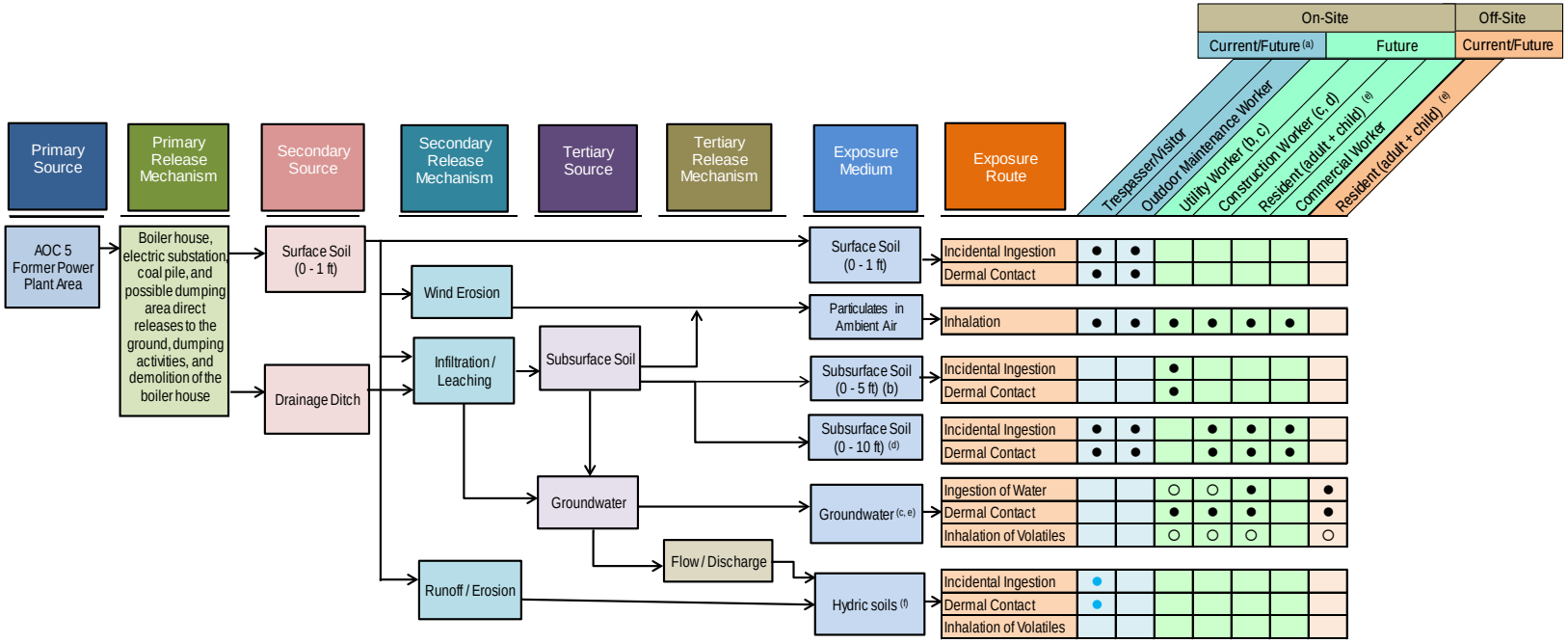
(c) Groundwater on-site is not currently used as a drinking water source; however, some residences in the surrounding area may have private groundwater wells and no restrictions are in place preventing groundwater use in the area as drinking water. Therefore, ingestion and dermal exposures to groundwater used as a drinking water resource is considered potentially complete pathways for the hypothetical residents. For on-site visitors (recreational), groundwater exposure will be evaluated assuming that a well is installed on-site and used as a source of water for a drinking fountain. There are no VOCs among contaminants of concern; therefore, groundwater exposure via vapor intrusion and/or inhalation of volatiles from groundwater used as drinking water by current or future nearby residents are not considered applicable pathways.

(d) Soil and groundwater samples collected in Phase 1 were nondetect for 2,4-DNCB, 2,4-DNP, and picric acid; therefore, although exposure to surface soil and groundwater may occur, exposures are deemed insignificant. Surface soil sampling during Phase 2 may result in a revised CSM depending on the analytical results.

Acronyms:

2,4-DNP = 2,4-dinitrophenol
2,4-DNCB = 2,4-dinitrochlorobenzene
AOC = area of concern
bgs = below ground surface
COPC = contaminant of potential concern
ft = feet
VOC = volatile organic compound

**Figure 2.2-3. Conceptual Site Model for AOC 4**




*Indicates a potentially complete migration pathway*

| | |
|---|---|
| ● | Potentially complete exposure pathway |
| ○ | Potentially complete but insignificant exposure pathway |
| | Exposure not applicable |
| ● | Potentially complete exposure pathway depending on results of Phase 2 sampling event. |

Notes:

(a) Current soil exposures assume no intrusive activities and exposures are associated with COPCs in the surface soil. For future soil exposures, it is assumed that subsurface soils are brought to the surface as a result of construction work during redevelopment of the Site, which would mean that future receptors would be exposed to COPCs in the 0-10 ft range as it is assumed that subsurface soils are brought to the surface and mixed during redevelopment regrading activities.

(b) Utility worker is assumed to be exposed to soil within the 0-5 ft bgs interval while installing or repairing utility lines. The soil is assumed to be placed back in the hole once work has been completed.

(c) The water table is anticipated to be encountered between 2 to 13 ft bgs in the source areas; therefore, utility workers and construction workers are likely to encounter groundwater during an excavation on-Site. The groundwater ingestion pathway has been deemed insignificant as the amount of water incidentally ingested is going to be de minimis.The inhalation of volatiles exposure route is deemed complete but insignificant due to ambient air mixing and wind dispersal.

(d) Construction worker is assumed to be exposure to soil within the 0-10 ft bgs interval. Soils at depth are assumed to be mixed with surface soil such that exposure to soils for a future scenario entails contact with soils from 0-10 ft being as this interval would be used to

(e) Groundwater on-site is not currently used as a drinking water source; however, some residences in the surrounding area may have private groundwater wells and no restrictions are in place preventing groundwater use in the area as drinking water. Therefore, ingestion and dermal exposures to groundwater used as a drinking water resource is considered potentially complete pathways for the hypothetical residents. There is no groundwater USEPA Vapor Intrusion Screening Level (VISL, USEPA, 2022) for 1,2,3-trichlorobenzene because this chemical does not have sufficient inhalation toxicity information. However, the maximum detected 1,2,3-trichlorobenzene concentration is below the 1,2,4-trichlorobenzene VISL(used as a surrogate) for groundwater set to a target risk level of 1E-06 and a hazard quotient of 0.1. Therefore, inhalation exposure is assumed to be insignificant.

(f) Discrete surface soil sampling of hydric soils from wetland areas are planned for the Phase 2 investigation. Standing surface water is not present at the wetlands; therefore, surface water samples will not be collected and hydric soil samples will be evaluated under a sediment exposure scenario.

Acronyms:

AOC = area of concern

bgs = below ground surface

COPC = contaminant of potential concern

ft = feet

**Figure 2.2-4. Conceptual Site Model for AOC 5**

Based on results of screening the Phase 1 data and identification of preliminary COPCs, human receptors may be exposed to media at the AOCs through the following exposure pathways and routes of exposure:

- Direct contact with soil (incidental ingestion and dermal contact);
- Inhalation of volatiles and fugitive dust from soil;
- Incidental ingestion and dermal contact with groundwater during utility, construction, or maintenance work or during recreational activities;
- Direct contact with hydric soils (incidental ingestion and dermal contact);
- Direct contact with sediment (incidental ingestion and dermal contact);
- Direct contact with surface water (incidental ingestion and dermal contact); and
- Ingestion and dermal contact with groundwater during potable use.

Note that other pathways associated with non-potable groundwater exposures, such as vapor intrusion or via inhalation of vapor in ambient air, have been determined to be incomplete because VOCs were not detected in groundwater or insignificant as concentrations of VOCs detected in groundwater were less than the USEPA Vapor Intrusion Screening Level as reported in the Phase 1 Risk Screening and Data Gaps Analysis (Bluestone, 2023). For now, these groundwater inhalation routes of exposure are not included in the preliminary CSMs; however, these exposure pathways will be revisited based on the Phase 2 field investigation results.

A description of the selected current and potential future likely receptors for exposure to COPCs in the various media at the Site are described here.

**Current/Future Trespasser/Visitor (AOCs 1, 3, 4, and 5):** This receptor is assumed to be a long-term receptor, either a neighborhood community member adult or an adolescent 7 to 16 years of age, who is exposed to COPCs present in the environment of the uninhabited areas (e.g., wooded, stream) of the Site or in areas where recreational activities could occur (e.g., open fields and the golf course). This receptor is assumed to come into direct contact with COPCs present in surface soil (i.e., 0 – 1 ft bgs), hydric soils, sediment, or surface water as they wander around the Site. Exposures for this receptor would be very similar to exposures a recreational visitor may experience as they also would be exposed to COPCs in surface soil (i.e., 0 – 1 ft bgs), sediment, or surface water associated with open fields and the golf course. As such, a Trespasser/Visitor receptor encompasses exposures a recreational receptor would encounter.

At AOC 3, a golf course user will also be evaluated for potential exposure to groundwater, under a hypothetical future scenario where a well is installed at the golf course and used as a source for irrigation water.

At AOC 4, a recreational visitor will also be evaluated for potential exposure to groundwater, under a hypothetical future scenario where a well is installed and used as a source for potable water for a water fountain.

**Current/Future Outdoor Maintenance Worker (AOCs 1, 3, 4, and 5):** This is a long-term receptor exposed during the workday who is a full-time employee working on-Site and spends most of the workday conducting maintenance activities outdoors. The activities for this receptor (e.g., moderate digging, landscaping) typically involve on-Site exposure to surface soils. The current scenario assumes exposure to COPCs present in the surface soil (i.e., 0 – 1 ft bgs). For this scenario in the future, it is assumed that soil from the surface down to 10 ft bgs could be excavated, mixed, and used to regrade the Site such that exposure to COPCs that were present between surface and 10 ft bgs have now been placed at the surface.

At AOC 3, a maintenance worker will also be evaluated for potential exposure to groundwater, under a hypothetical future scenario where a well is installed at the golf course and used as a source for irrigation water.

**Future Utility Worker (AOCs 1, 3, and 5):** This is a short-term receptor exposed during a typical eight-hour workday. Where installation or repair of water lines, gas line, sanitary sewer lines, etc. would be performed over an extended period but where in most cases it would not require multiple visits to the site once the utility line was repaired or installed. For this scenario, it is assumed that soil from the surface down to 5 ft bgs could be excavated, mixed, and used to regrade the Site while installing or repairing utility lines (e.g., water lines, gas line, sanitary sewer lines) such that exposure to COPCs that are present between surface and 5 ft bgs is a potential possibility for this receptor. Direct contact with COPCs in groundwater, which ranges from 2 ft to 13 ft bgs, also is expected to occur.

**Future Construction Worker (AOCs 1 and 5):** This is a short-term receptor exposed during a typical eight-hour workday. For this scenario, it is assumed that soil from the surface down to 10 ft bgs could be excavated, mixed, and used to regrade the Site such that exposure to COPCs that are present between surface and 10 ft bgs is a potential possibility for the construction receptor. Direct contact with COPCs in groundwater is expected to occur for the construction worker because groundwater is present at depths ranging between 2 ft and 13 ft bgs.

**Future On-Site Resident (AOCs 1 and 5):** AOC 1 is in a primarily residential area in the Radisson Community which is a planned development that consists of homes, a large Corporate Park, and a wide range of recreational, educational, cultural, shopping, and community services. Although homes are not currently built on areas of potential impacts; homes may in the future be built on those potential areas of impact if results of the RI indicated those areas are not impacted. Similarly, future redevelopment of AOC 5 may include residential dwellings.

This is a long-term receptor. The residential receptor is defined as child and adult individuals who spend most, if not all, of the day at home (USEPA, 2024b). The future residential receptor may have exposure to contaminants originating from soil and groundwater. For this scenario in the future, it is assumed that soil from the surface down to 10 ft bgs could be excavated, mixed, and used to regrade the Site such that exposure to COPCs that were present between surface and 10 ft bgs have now been placed at the surface. No potable wells are currently located on the Site or near the source areas. Potable water is supplied to communities in Onondaga County by the Onondaga County Water Authority. Regardless, hypothetical future potable use of groundwater will be evaluated for AOCs 1 and 5 because there are no current

restrictions in place that preclude this use. Other pathways associated with nonpotable groundwater exposures, such as vapor intrusion or via inhalation of vapor in ambient air, have been determined to be incomplete because VOCs were not detected in groundwater or insignificant as concentrations of VOCs detected in groundwater were less than the USEPA Vapor Intrusion Screening Level as reported in the Phase 1 Risk Screening and Data Gaps Analysis (Bluestone, 2023). For now, these groundwater inhalation routes of exposure are not included in the preliminary CSMs; however, these exposure pathways will be revisited based on the Phase 2 field investigation results.

**Future Commercial Worker (AOC 5)**. AOC 5 also may be developed in the future for commercial use. Currently, AOC 5 is mostly wooded therefore a considerable amount of construction, excavation and dirt moving will be needed to build offices buildings. This is a long-term receptor. Commercial workers are individuals who work mostly inside a building (e.g., office workers) and possibly a limited amount outdoors. Redevelopment of an area for commercial use assumes there will be major construction activities that have to occur such that soil from the surface down to 10 ft bgs could be excavated, mixed, and used to regrade the Site. Therefore, it is assumed that exposure to COPCs that were present between surface and 10 ft bgs have now been placed at the surface and available for contact. Potable water is supplied to communities in Onondaga County by the Onondaga County Water Authority. Therefore, exposure to COPCs in groundwater via a drinking water use exposure scenario will not be included. Other pathways associated with non-potable groundwater exposures, such as vapor intrusion or via inhalation of vapor in ambient air, have been determined to be incomplete because VOCs were not detected in groundwater or insignificant as concentrations of VOCs detected in groundwater were less than the USEPA Vapor Intrusion Screening Level as reported in the Phase 1 Risk Screening and Data Gaps Analysis (Bluestone, 2023). For now, these groundwater inhalation routes of exposure are not included in the preliminary CSMs; however, these exposure pathways will be revisited based on the Phase 2 field investigation results.

**Current and Future Off-Site Resident (AOCs 1, 3, 4, and 5):** This is a long-term receptor. The residential receptor is defined as child and adult individuals who spend most, if not all, of the day at home (USEPA, 2024b). Some residences in the surrounding area may have private groundwater wells and no restrictions are in place preventing groundwater use in the area as drinking water. Therefore, ingestion and dermal exposures to groundwater used as a drinking water resource is considered potentially complete pathways for an off-Site nearby resident. Other pathways associated with groundwater exposures, such as vapor intrusion or via inhalation of vapor in ambient air, have been determined to be incomplete because VOCs were not detected in groundwater or insignificant as concentrations of VOCs detected in groundwater were less than the USEPA Vapor Intrusion Screening Level as reported in the Phase 1 Risk Screening and Data Gaps Analysis (Bluestone, 2023). For now, these groundwater inhalation routes of exposure are not included in the preliminary CSMs; however, these exposure pathways will be revisited based on the Phase 2 field investigation results.

#### 2.2.2.1 Exposure Points

Potential exposure points are identified based on current and anticipated future use and the relationship of use to the presence of contaminated media. A location is identified as an exposure point if a human might contact (e.g., ingest) a contaminated medium (e.g., surface soil) at that location. Exposure points have been identified based on the information used to construct the preliminary CSMs. Further refinement of exposure points will be conducted upon receipt of the full data set; however, anticipated exposure points per medium are discussed below.

Hypothetical future potable use of groundwater may be evaluated within the current property boundaries in a hypothetical future residential use scenario. If multiple groundwater plumes are identified, groundwater will be evaluated separately for each groundwater plume following USEPA groundwater guidance (USEPA, 2014a).

Exposure points are anticipated to include the following. However, these assumptions may change as a result of data collected as part of the Phase 2 RI field investigations:

**AOC 1**: soil (0 - 1 ft bgs, 1 - 5 ft bgs, 5-10 ft bgs), groundwater, hydric soils (from the wetlands area)

**AOC 3**: soil (0 - 1 ft bgs, 1 - 5 ft bgs, 5-10 ft bgs), groundwater, sediment, and surface water

**AOC 4**: soil (0 - 1 ft bgs, 1 - 5 ft bgs, 5-10 ft bgs), groundwater

**AOC 5**: soil (0 - 1 ft bgs, 1 - 5 ft bgs, 5-10 ft bgs), groundwater, hydric soils (from the wetlands area)

#### 2.2.2.2 Estimating Exposure Point Concentrations

Estimates of COPC concentrations at points of potential exposure are necessary for evaluating COPC intake by potentially exposed receptors. The COPC concentrations in the exposure medium at the exposure point are termed the exposure point concentrations (EPCs). An EPC is determined for all impacted media in the identified AOCs. The EPC will be calculated for each of the COPCs within each of the AOCs based on both Phase 1 and Phase 2 analytical data.

USEPA guidance (USEPA, 1989; 1992b) recommends using the average concentration to represent "a reasonable estimate of the concentration likely to be contacted over time" and "because of the uncertainty associated with estimating the true arithmetic average concentration at a site". Therefore, the 95 percent upper confidence limit (95% UCL) on the arithmetic average will be used as the EPC where data are sufficient to calculate the 95% UCL.

Unless otherwise stated, calculation of the EPC will be conducted following guidance provided by USEPA (2002b), using distribution shift tests to determine the underlying population distribution. Specifically, EPCs will be calculated using the most recent version of USEPA ProUCL software (ProUCL 5.2: USEPA, 2022a), which calculates a 95% UCL on the arithmetic mean of the analytical results. The Kaplan-Meier method or Regression on Order Statistics method are used by ProUCL where nondetects are present. The best-fitting data distribution (i.e., normal, gamma, log-normal, or non-parametric [no distribution]) is determined within ProUCL, and generally the statistics appropriate for that distribution are applied to calculate the 95% UCL.

The UCL recommended by ProUCL based on the most appropriate statistical fit (whether 95%, 97.5%, or 99%) will be used in the EPC selection process. The EPCs will generally be expressed as the lower of the 95% UCL and the maximum detected concentration. EPC tables (RAGS Part D Table 3s) will be prepared for each medium and exposure point by AOC. ProUCL outputs documenting the 95% UCL calculations will be included in an appendix. Based on ProUCL guidance recommending a minimum of 10 observations to compute UCLs for discrete datasets (USEPA, 2022b) and professional judgement, UCLs will be calculated where at least six detected results are available. In cases where data sets have fewer than six detections, the maximum detected concentration will be used as the EPC. These recommendations are provided for the purpose of calculating a meaningful UCL. The BHHRA will address the uncertainty associated with calculating EPCs based on a small sample size if relevant. EPCs will be calculated for each COPC in each medium in each of the AOCs and will be used to estimate exposures for each receptor identified in each of the AOCs.

Soil EPCs will be calculated for surface soil (0-1 ft bgs) or combined surface and sub-surface soil (e.g., 0-5 ft bgs or 0-10 ft bgs) as needed to evaluate current or potential future Site conditions for each of the exposure areas and receptors.

Groundwater EPCs to evaluate a hypothetical potable use will be evaluated from the "core of the plume" or multiple cores, per USEPA GW EPC Directive (USEPA, 2014a). The core of the plume will be identified using the full RI dataset (Phase 1 and Phase 2) in the BHHRA. The core will be identified based on concentration gradients detected on-Site and hydrogeologist interpretations of flow dynamics. Groundwater EPCs will also be calculated using the site-wide groundwater dataset. For each COPC, the higher EPC from the two datasets will be selected as the final EPC and will be carried forward into the quantitative risk estimates as a conservative approach. In accordance with USEPA guidance (2014a, 2022b), UCLs will be calculated for each groundwater COPC where at least 10 samples are available and at least six detected concentrations are observed. The EPCs will be calculated as the lower of the UCL and the maximum detected result. Additionally, if less than three wells are within the core of the plume, the maximum detected concentration will be used as the EPC for the dataset representing the core of the plume (USEPA 2014a). Groundwater EPCs will be calculated based on the flow fields. The BHHRA will address the uncertainty associated with small sample size in groundwater datasets as necessary.

Hydric soils, sediment, and surface water EPCs will be calculated as the lower of the 95% UCL and the maximum detected result. Similar to soil, UCLs will be calculated where at least six detected results are available. In cases where data sets have fewer than six detections, the maximum detected concentration will be used as the EPC.

The EPCs for ambient outdoor air resulting from wind suspension of contaminated soil will be calculated by multiplying the 95% UCL of COPC in soil by a particulate emission factor (PEF) for each soil depth. Detailed calculations showing the derivation of outdoor air concentrations will be provided in the BHHRA.

#### 2.2.2.3 Chemical Intake Estimates

Estimates of exposure are based on the EPCs, scenario-specific assumptions, and receptor-specific intake parameters. Exposure estimates (intakes) will be calculated for a reasonable maximum exposure (RME)

scenario for each receptor and exposure pathway. The exposure parameters for each receptor have been selected to represent the RME scenario. The RME represents the highest exposure reasonably expected to occur and is calculated using the EPC and the RME exposure parameters. Site-specific exposure parameters and professional judgement will be used when appropriate. When not appropriate or available, USEPA-recommended default exposure parameters (e.g., body weight, soil ingestion rate, frequency of exposure, duration of exposure) obtained from Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors. Attachment 1. Recommended Default Exposure Factors (USEPA, 2014b) will be used.

For each receptor, the exposure (or dose) will be estimated for each COPC via each exposure pathway by which the receptor is assumed to be exposed. Exposure dose equations combine the estimates of COPC concentration in the environmental medium of interest with assumptions regarding the type and magnitude of each receptor's potential exposure to provide a numerical estimate of the exposure dose. The exposure dose or daily intake is defined as the amount of COPC taken into the receptor and is expressed in units of milligrams of COPC per kilogram of body weight per day (mg/kg-day). In accordance with USEPA guidance addressing the inhalation pathway (USEPA, 2009), inhalation exposures are not derived in terms of intake, but rather in terms of exposure concentrations (ECs) in air expressed as mass per unit volume.

The specific exposure parameters and equations used to calculate doses/intakes for soil, groundwater, hydric soils, sediment, and surface water are provided in Table A2.2-1 through Table A2.2-4 in Attachment 1. These tables identify the exposure profiles for each of the receptors, including proposed exposure parameter values used to calculate the daily intake calculations for each of the receptors and exposure pathways.

The relative bioavailability factor (RBA) for soil ingestion for arsenic will be set at 0.6, while the RBA for other COPCs will be set at 1 (USEPA, 2012; USEPA 2024b).

Soil dermal absorption will be evaluated per the methodology in the USEPA dermal guidance (EPA, 2004). Specific equations and exposure parameters for the dermally absorbed dose are provided in Tables A2.2-1 and A2.2-3 in Attachment 1. COPC specific dermal absorption factors will be obtained from the current USEPA RSL Tables.

Similarly, USEPA guidance (2004) will be used to assess dermal exposure to COPCs in water (e.g., surface water and groundwater). Dermal exposure to water differentiates between organic and inorganic COPC s. Specific equations and exposure parameters for the dermally absorbed dose are provided in Tables A2.2-2 and A2.2-4 in Attachment 1. COPC specific parameters needed to assess dermal exposure to water will be obtained from the current USEPA RSL Tables.

#### 2.2.2.4 Intake for Mutagenic COPCs

The carcinogenic PAHs [benz(a)anthracene, benzo(b)pyrene, benzo(b)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene] identified as preliminary COPCs in the Phase 1 data screening operate by a mutagenic mode of action for carcinogenesis. There is reason to surmise that

some COPCs with a mutagenic mode of action, which would be expected to cause irreversible changes to DNA, would exhibit a greater effect in early-life versus later-life exposure (USEPA, 2005b). Thus, cancer risk to children according to USEPA's cancer guidelines (USEPA, 2005a; 2005b) include both early-life exposures that may result in the occurrence of cancer during childhood and early-life exposures that may contribute to cancers later in life. Therefore, in keeping with this guidance, separate cancer risk equations especially for children are presented for the mutagenic COPCs. Intake equations for the residential child receptor are as follows:

Incidental Ingestion of Soil/Hydric Soils/Sediment

$$\mathrm{CDI}_{\mathrm{res-sol-mu-ing}}\left(\frac{\mathrm{mg}}{\mathrm{kg}}-\mathrm{day}\right)=\frac{\mathrm{C}_{\mathrm{soil}}\left(\frac{\mathrm{mg}}{\mathrm{kg}}\right)\times\mathrm{EF}_{\mathrm{r}}\left(\frac{350\mathrm{days}}{\mathrm{year}}\right)\times\mathrm{IFSM}_{\mathrm{adj}}\left(\frac{476.67\ \mathrm{mg}-\mathrm{year}}{\mathrm{Kg}-\mathrm{day}}\right)\times\left(\frac{10^{-6}\mathrm{Kg}}{\mathrm{mg}}\right)}{\mathrm{AT}_{\mathrm{r}}\left(\frac{365\ \mathrm{days}}{\mathrm{year}}\times\mathrm{LT}\ (70\ \mathrm{years})\right)} \quad (2\text{-}1)$$

where:

$$IFSM_{adj-}\left(\frac{476.67\ \mathrm{mg}-\mathrm{Year}}{\mathrm{Kg}-\mathrm{day}}\right)=\frac{\mathrm{ED}_{0-2}(\mathrm{yr})\times\mathrm{IRS}_{\mathrm{c}}\left(\frac{200\ \mathrm{mg}}{\mathrm{day}}\right)\times 10}{\mathrm{BW}_{\mathrm{c}}(15\ \mathrm{kg})}+\frac{\mathrm{ED}_{2-6}(\mathrm{yr})\times\mathrm{IRS}_{\mathrm{c}}\left(\frac{200\ \mathrm{mg}}{\mathrm{day}}\right)\times 3}{\mathrm{BW}_{\mathrm{c}}(15\ \mathrm{kg})}+\frac{\mathrm{CD}_{6-16}(\mathrm{yr})\times\mathrm{IRS}_{\mathrm{a}}\left(\frac{100\ \mathrm{mg}}{\mathrm{day}}\right)\times 3}{\mathrm{BW}_{\mathrm{a}}(80\ \mathrm{kg})}+\frac{\mathrm{CD}_{16-26}(\mathrm{yr})\times\mathrm{IRS}_{\mathrm{a}}\left(\frac{100\ \mathrm{mg}}{\mathrm{day}}\right)\times 1}{\mathrm{BW}_{\mathrm{a}}(80\ \mathrm{kg})} \quad (2\text{-}2)$$

Inhalation of Particulates Emitted from Soil

$$\mathrm{CDI}_{\mathrm{res-sol-mu-inh}}\left(\frac{\mu\mathrm{g}}{\mathrm{m}^3}\right)=\mathrm{C}_{\mathrm{soil}}\left(\frac{\mathrm{mg}}{\mathrm{kg}}\right)\times\mathrm{EF}_{\mathrm{r}}\left(\frac{350\mathrm{days}}{\mathrm{year}}\right)\times\mathrm{ET}_{\mathrm{res}}\left(\frac{24\ \mathrm{hours}}{\mathrm{day}}\right)\times\left(\frac{1\ \mathrm{day}}{24\ \mathrm{hours}}\right)\times\frac{\left(\begin{matrix}(\mathrm{ED}_{0-2}(\mathrm{yrs})\times 10)+ & (\mathrm{ED}_{2-6}(\mathrm{yrs})\times 3)+\\ (\mathrm{ED}_{6-16}(\mathrm{yrs})\times 3)+ & (\mathrm{ED}_{16-26}(\mathrm{yrs})\times 1)\end{matrix}\right)\times\left(\frac{1}{\mathrm{VF}_{\mathrm{s}}\left(\frac{\mathrm{m}^3}{\mathrm{kg}}\right)}+\frac{1}{\mathrm{PEF}_{\mathrm{w}}\left(\frac{\mathrm{m}^3}{\mathrm{kg}}\right)}\right)}{\mathrm{AT}_{\mathrm{r}}\left(\frac{365\ \mathrm{days}}{\mathrm{year}}\times\mathrm{LT}(70\ \mathrm{years})\right)\times\left(\frac{1\ \mathrm{mg}}{1000\mu\mathrm{g}}\right)} \quad (2\text{-}3)$$

Dermal Contact with Soil/Hydric Soils/Sediment

$$\mathrm{CDI}_{\mathrm{res-sol-mu-der}}\left(\frac{\mathrm{mg}}{\mathrm{kg}}-\mathrm{day}\right)=\frac{\mathrm{C}_{\mathrm{soil}}\left(\frac{\mathrm{mg}}{\mathrm{kg}}\right)\times\mathrm{EF}_{\mathrm{r}}\left(\frac{350\mathrm{days}}{\mathrm{year}}\right)\times\mathrm{DFSM}_{\mathrm{adj}}\left(\frac{1358.85\ \mathrm{mg}-\mathrm{Year}}{\mathrm{Kg}-\mathrm{day}}\right)\times\mathrm{ABS}_{\mathrm{d}}*\left(\frac{10^{-6}\mathrm{kg}}{\mathrm{mg}}\right)}{\mathrm{AT}_{\mathrm{r}}\left(\frac{365\ \mathrm{days}}{\mathrm{year}}\times\mathrm{LT}\ (70\ \mathrm{years})\right)} \quad (2\text{-}4)$$

where:

$$\begin{aligned}\mathrm{DFSM_{adj}}\left(\frac{1358.85\ \mathrm{mg-Year}}{\mathrm{Kg-day}}\right) &= \frac{\mathrm{ED_{0-2}(yr)}\times\ \mathrm{AF_C}\left(\frac{0.2\ \mathrm{mg}}{\mathrm{cm^2}}\right)\times \mathrm{SA_C}\left(\frac{2690\mathrm{cm^2}}{\mathrm{day}}\right)\times 10}{\mathrm{BW_C(15\ kg)}} \\ &+ \frac{\mathrm{ED_{2-6}(yr)}\times\ \mathrm{AF_C}\left(\frac{0.2\ \mathrm{mg}}{\mathrm{cm^2}}\right)\times \mathrm{SA_C}\left(\frac{2690\mathrm{cm^2}}{\mathrm{day}}\right)\times 3}{\mathrm{BW_C(15\ kg)}} \\ &+ \frac{\mathrm{ED_{6-16}(yr)}\times\ \mathrm{AF_a}\left(\frac{0.07\ \mathrm{mg}}{\mathrm{cm^2}}\right)\times \mathrm{SA_a}\left(\frac{6032\mathrm{cm^2}}{\mathrm{day}}\right)\times 3}{\mathrm{BW_a(80\ kg)}} \\ &+ \frac{\mathrm{ED_{16-26}(yr)}\times\ \mathrm{AF_a}\left(\frac{0.07\ \mathrm{mg}}{\mathrm{cm^2}}\right)\times \mathrm{SA_a}\left(\frac{6032\mathrm{cm^2}}{\mathrm{day}}\right)\times 1}{\mathrm{BW_a(80\ kg)}}\end{aligned} \quad (2\text{-}5)$$

Ingestion of Water

$$\mathrm{CDI_{water-mu-ing}}\left(\frac{\mathrm{mg}}{\mathrm{kg}}-\mathrm{day}\right)=\frac{\mathrm{C_{water}}\left(\frac{\mathrm{mg}}{\mathrm{L}}\right)\times \mathrm{IFWM_{res-adj}}\left(\frac{1019.9\ \mathrm{L}}{\mathrm{kg}}\right)}{\mathrm{AT_{res}}\left(\frac{365\ \mathrm{days}}{\mathrm{year}}\times \mathrm{LT\ (70\ years)}\right)} \quad (2\text{-}6)$$

and:

$$\begin{aligned}\mathrm{IFWM_{res-adj}}\left(\frac{1019.9\ \mathrm{L}}{\mathrm{kg}}\right) &= \frac{\mathrm{ED_{0-2}(2\ yr)}\times \mathrm{EF_{0-2}}\left(\frac{350\ \mathrm{days}}{\mathrm{year}}\right)\times \mathrm{IRW_{0-2}}\left(\frac{0.78\ \mathrm{L}}{\mathrm{day}}\right)\times 10}{\mathrm{BW_{child}(15\ kg)}} \\ &+ \frac{\mathrm{ED_{2-6}(4\ yr)}\times \mathrm{EF_{2-6}}\left(\frac{350\ \mathrm{days}}{\mathrm{year}}\right)\times \mathrm{IRW_{2-6}}\left(\frac{0.78\ \mathrm{L}}{\mathrm{day}}\right)\times 3}{\mathrm{BW_{child}(15\ kg)}} \\ &+ \frac{\mathrm{ED_{6-16}(10\ yr)}\times \mathrm{EF_{6-16}}\left(\frac{350\ \mathrm{days}}{\mathrm{year}}\right)\times \mathrm{IRW_{6-16}}\left(\frac{2.5\ \mathrm{L}}{\mathrm{day}}\right)\times 3}{\mathrm{BW_{adult}(80\ kg)}} \\ &+ \frac{\mathrm{ED_{16-26}(10\ yr)}\times \mathrm{EF_{16-26}}\left(\frac{350\ \mathrm{days}}{\mathrm{year}}\right)\times \mathrm{IRW_{16-26}}\left(\frac{2.5\ \mathrm{L}}{\mathrm{day}}\right)\times 1}{\mathrm{BW_{adult}(80\ kg)}}\end{aligned} \quad (2\text{-}7)$$

Dermal Contact with Water

$$\begin{aligned}\mathrm{CDI_{water-mu-der}}\left(\frac{\mathrm{mg}}{\mathrm{kg}}-\mathrm{day}\right) &= \frac{\mathrm{DA_{event}}\left(\frac{\mu\mathrm{g}}{\mathrm{cm^2-event}}\right)\times\left(\frac{0.001\ \mathrm{mg}}{\mu\mathrm{g}}\right)\times \mathrm{DFWM_{adj}}\left(\frac{8{,}191{,}633\ \mathrm{cm^2-event}}{\mathrm{kg}}\right)}{\mathrm{AT_{res}}\left(\frac{365\ \mathrm{days}}{\mathrm{year}}\times \mathrm{LT\ (70\ years)}\right)}\end{aligned} \quad (2\text{-}8)$$

where:

$$\mathrm{DFWM_{adj}}\left(\frac{8{,}191{,}633\ \mathrm{cm^2}-\mathrm{event}}{\mathrm{kg}}\right)$$
$$=\frac{\mathrm{EV_{0-2}}\left(\frac{1\ \mathrm{event}}{\mathrm{year}}\right)\times\ \mathrm{EF_{0-2}}\left(\frac{350\ \mathrm{days}}{\mathrm{year}}\right)\times\mathrm{ED_{0-2}}(2\ \mathrm{years})\times\mathrm{SA_{0-2}}(6{,}365\ \mathrm{cm^2})\times 10}{\mathrm{BW_{child}}(15\ \mathrm{kg})}$$
$$+\frac{\mathrm{EV_{2-6}}\left(\frac{1\ \mathrm{event}}{\mathrm{year}}\right)\times\ \mathrm{EF_{2-6}}\left(\frac{350\ \mathrm{days}}{\mathrm{year}}\right)\times\mathrm{ED_{2-6}}(4\ \mathrm{years})\times\mathrm{SA_{2-6}}(6{,}365\ \mathrm{cm^2})\times 3}{\mathrm{BW_{child}}(15\ \mathrm{kg})}$$
$$+\frac{\mathrm{EV_{6-16}}\left(\frac{1\ \mathrm{event}}{\mathrm{year}}\right)\times\ \mathrm{EF_{6-16}}\left(\frac{350\ \mathrm{days}}{\mathrm{year}}\right)\times\mathrm{ED_{6-16}}(10\ \mathrm{years})\times\mathrm{SA_{6-16}}(19{,}652\ \mathrm{cm^2})\times 3}{\mathrm{BW_{adult}}(80\ \mathrm{kg})}$$
$$+\frac{\mathrm{EV_{16-26}}\left(\frac{1\ \mathrm{event}}{\mathrm{year}}\right)\times\ \mathrm{EF_{16-26}}\left(\frac{350\ \mathrm{days}}{\mathrm{year}}\right)\times\mathrm{ED_{16-26}}(10\ \mathrm{years})\times\mathrm{SA_{16-26}}(19{,}652\ \mathrm{cm^2})\times 1}{\mathrm{BW_{adult}}(80\ \mathrm{kg})}$$

and:

$$\mathrm{ET_{event-res-adj}}\left(\frac{0.6708\ \mathrm{hours}}{\mathrm{event}}\right)$$
$$=\frac{\begin{array}{c}\mathrm{ET_{0-2}}\left(\frac{0.54\ \mathrm{hour}}{\mathrm{event}}\right)\times\ \mathrm{ED_{0-2}}(2\ \mathrm{years})+\mathrm{ET_{2-6}}\left(\frac{0.54\ \mathrm{hour}}{\mathrm{event}}\right)\times\ \mathrm{ED_{2-6}}(4\ \mathrm{years})+\\ \mathrm{ET_{6-16}}\left(\frac{0.71\ \mathrm{hour}}{\mathrm{event}}\right)\times\mathrm{ED_{6-16}}(10\ \mathrm{years})+\mathrm{ET_{16-26}}\left(\frac{0.71\ \mathrm{hour}}{\mathrm{event}}\right)\times\mathrm{ED_{16-26}}(10\ \mathrm{years})\end{array}}{\mathrm{ED_{0-2}}(2\ \mathrm{years})+\ \mathrm{ED_{2-6}}(4\ \mathrm{years})+\mathrm{ED_{6-16}}(10\ \mathrm{years})+\mathrm{ED_{16-26}}(10\ \mathrm{years})} \quad (2\text{-}10)$$

and:

$$\mathrm{DA_{event}}\left(\frac{\mu\mathrm{g}}{\mathrm{cm^2}-\mathrm{event}}\right)$$
$$=\mathrm{C_{water}}\left(\frac{\mathrm{mg}}{\mathrm{L}}\right)\times\mathrm{K_p}\left(\frac{\mathrm{cm}}{\mathrm{hour}}\right)\times\left(\frac{\mathrm{L}}{1{,}000\ \mathrm{cm^3}}\right)\times\mathrm{ET_{event-res-adj}}\left[\frac{0.6708\ \mathrm{hours}}{\mathrm{event}}\right] \quad (2\text{-}11)$$

where:

| | | |
|---|---|---|
| $AF_{0\text{-}2}$ | = | skin adherence factor - ages 0-2 years (mg/cm$^2$) |
| $AF_{2\text{-}6}$ | = | skin adherence factor - ages 2-6 years (mg/cm$^2$) |
| $AF_{6\text{-}16}$ | = | skin adherence factor - ages 6-16 years (mg/cm$^2$) |
| $AF_{16\text{-}26}$ | = | skin adherence factor - ages 16-26 years (mg/cm$^2$) |
| $AF_{res\text{-}a}$ | = | skin adherence factor - adult (mg/cm$^2$) |
| $AF_{res\text{-}c}$ | = | skin adherence factor - child (mg/cm$^2$) |
| $AT_{res}$ | = | residential exposure averaging time (years) |
| $BW_{adult}$ | = | body weight for an adult (kg) |

$BW_{child}$ = body weight for a child (kg)

$CDI_{water\text{-}mu\text{-}ing}$ = water ingestion (mg/kg-day)

$C_{water}$ = COPC concentration in water (mg/L)

$DA_{event}$ = absorbed dose per event ($\mu g/cm^2$ – event)

$DFS_{res\text{-}adj}$ = age-adjusted soil dermal factor (mg/kg)

$DFSM_{res\text{-}adj}$ = age-adjusted soil dermal factor (mg/kg)

$DFWM_{adj}$ = water dermal contact factor- age-adjusted ($cm^2$– event/kg)

$ED_{0\text{-}2}$ = exposure duration – ages 0-2 years (years)

$ED_{2\text{-}6}$ = exposure duration – ages 2-6 years (years)

$ED_{6\text{-}16}$ = exposure duration – ages 6-16 years (years)

$ED_{16\text{-}26}$ = exposure duration – ages 16-26 years (years)

$EF_{0\text{-}2}$ = exposure frequency – ages 0-2 years (days/year)

$EF_{2\text{-}6}$ = exposure frequency – ages 2-6 years (days/year)

$EF_{6\text{-}16}$ = exposure frequency – ages 6-16 years (days/year)

$EF_{16\text{-}26}$ = exposure frequency – ages 16-26 years (days/year)

$ET_{0\text{-}2}$ = exposure time – ages 0-2 years (hours/event)

$ET_{2\text{-}6}$ = exposure time – ages 2-6 years (hours/event)

$ET_{6\text{-}16}$ = exposure time – ages 6-16 years (hours/event)

$ET_{16\text{-}26}$ = exposure time – ages 16-26 years (hours/event)

$ET_{event\text{-}res\text{-}adj}$ = water exposure time – age-adjusted (hours/event)

$EV_{0\text{-}2}$ = exposure event – ages 0-2 years (events/day)

$EV_{2\text{-}6}$ = exposure event – ages 2-6 years (events/day)

$EV_{6\text{-}16}$ = exposure event – ages 6-16 years (events/day)

$EV_{16\text{-}26}$ = exposure event – ages 16-26 years (events/day)

$IFWM_{adj}$ = ingestion rate - age-adjusted (L/kg)

$IFS_{res\text{-}adj}$ = age-adjusted soil ingestion factor (mg/kg)

$IFSM_{res\text{-}adj}$ = age-adjusted soil ingestion factor (mg/kg)

$IRS_{0\text{-}2}$ = soil intake rate - ages 2-6 years (mg/day)

$IRS_{2\text{-}6}$ = soil intake rate – ages 2-6 years (mg/day)

| | | |
|---|---|---|
| $IRS_{6-16}$ | = | soil intake rate – ages 6-16 years (mg/day) |
| $IRS_{16-26}$ | = | soil intake rate – ages 16-26 years (mg/day) |
| $IRS_{res-a}$ | = | soil intake rate - adult (mg/day) |
| $IRS_{res-c}$ | = | soil intake rate – child (mg/day) |
| PEF | = | particulate emission factor ($m^3$/kg) |
| $SA_{0-2}$ | = | skin surface area - ages 2-6 years ($cm^2$/day) |
| $SA_{2-6}$ | = | skin surface area – ages 2-6 years ($cm^2$/day) |
| $SA_{6-16}$ | = | skin surface area – ages 6-16 years ($cm^2$/day) |
| $SA_{16-26}$ | = | skin surface area – ages 16-26 years ($cm^2$/day) |
| $SA_{res-a}$ | = | skin surface area – adult) ($cm^2$/day) |
| $SA_{res-c}$ | = | skin surface area – child) ($cm^2$/day) |
| VF | = | volatilization factor ($m^3$/kg) |
| cm | = | centimeter |
| $cm^2$ | = | square centimeters |
| $cm^3$ | = | cubic centimeters |
| L | = | liter |
| LT | = | lifetime |
| mg | = | milligram |
| kg | = | kilogram |
| Kp | = | dermal permeability constant (cm/hour) |
| µg | = | microgram |

If additional mutagenic COPCs are identified based on the combined Phase 1 and Phase 2 data, the intake estimates for those COPCs will also follow this methodology.

Calculated COPC intakes for each receptor and COPC will be provided in the receptor-specific risk and hazard calculation RAGS Part D tables.

## 2.3 TOXICITY ASSESSMENT

The purpose of the toxicity assessment (dose-response assessment) is to identify the types of adverse health effects a COPC may potentially cause, and to define the relationship between the dose of a COPC and the likelihood or magnitude of an adverse effect (response) (USEPA, 1989). Adverse effects are classified by USEPA as potentially carcinogenic or noncarcinogenic (i.e., potential health effects other than cancer). For purposes of the BHHRA, COPCs are classified into two broad categories: noncarcinogens and

carcinogens. Toxicity studies with laboratory animals or human epidemiological studies provide the data used to develop toxicity values (e.g., oral cancer slope factor [CSF], inhalation unit risk [IUR], oral reference dose [RfD] and inhalation reference concentration [RfC]). Dose-response relationships are defined by the USEPA for oral and inhalation exposure. In the absence of toxicological data and established values for the dermal route of exposure, oral toxicity values are used to assess dermal exposures, with appropriate adjustment for differences in absorption (USEPA, 2004).

### 2.3.1 Carcinogens

Potential carcinogenic effects are expressed as the probability that an individual will develop cancer over a lifetime based on the exposure assumptions used in the risk assessment. The CSF is a plausible upper bound estimate of carcinogenic potency used to calculate cancer risk from exposure to carcinogens, by relating estimates of lifetime average COPC intake to the incremental probability of an individual developing cancer over a lifetime. CSFs are derived based on an analysis of the animal and/or human data to determine the most appropriate model to use in the extrapolation from animal to humans or direct use of human epidemiological studies (USEPA, 2005a). The CSF is protective and assumes that exposure to any concentration of a carcinogen has the potential to produce an increased risk. The CSFs developed by USEPA are plausible upper-bound estimates, which means that USEPA is reasonably confident that the actual cancer risk will not exceed the estimated risk calculated using the CSF. The CSF is expressed in units of $(mg/kg\text{-}day)^{-1}$; the higher the CSF, the greater the carcinogenic potential. Oral CSFs are divided by the gastrointestinal absorption factor to calculate the dermal CSF. For organic COPCs, gastrointestinal absorption is relatively high; therefore, the absorption factor is 1. For inorganic COPCs, the absorption factor will be obtained from the current USEPA RSL Tables. The IUR is an estimate of the increased cancer risk from inhalation exposure to a concentration of 1 $\mu g/m^3$ for a lifetime (USEPA, 2009). The IUR can be multiplied by an estimate of lifetime exposure (in $\mu g/m^3$) to estimate the lifetime cancer risk.

USEPA's current carcinogen risk assessment guidelines (USEPA, 2005a) emphasize mode of action data, and recognize that some carcinogens may act nonlinearly. Therefore, it is recognized that some carcinogens may have a threshold dose below which effects would not be seen. Cancer risks from exposure to multiple carcinogens and multiple pathways are assumed to be additive (USEPA, 1986; 2000).

Several potentially carcinogenic PAHs were identified as preliminary COPCs for the Site. Carcinogenic PAHs will be evaluated for toxicity based on their relative potency factors, relative to benzo(a)pyrene (USEPA, 1993).

Some carcinogenic COPCs (e.g., PAHs) operate through a mutagenic mode of action, for which USEPA assumes that early-life exposures to these mutagenic COPCs may result in higher carcinogenic risks compared to exposures that occur later in life (USEPA, 2005a). USEPA recommends that dimensionless ADAF be considered when risk to mutagenic COPCs is characterized (USEPA, 2005b). To account for the COPCs that are considered carcinogenic by mutagenic mode of action, age-adjusted exposure parameters used for the age groupings, per USEPA guidance, will be provided (See Section 2.2.2.4). As indicated by USEPA (2005b), and as shown in the intake equations for mutagenic COPCs (Section 2.2.2.4), the following age-dependent adjustment factors (ADAFs) will be applied to mutagenic COPCs in the BHHRA:

- Age <2: ADAF = 10
- Age 2<16: ADAF = 3
- Age ≥16: ADAF = 1

An assessment for early-life exposure also will be conducted for the adolescent using an ADAF of 3, which corresponds to the USEPA age interval of 6 to <16 years (USEPA, 2005b). It should be noted that the ADAFs in the intake equations in Section 2.2.2.4 are typically applied to the toxicity of CSFs. However, mathematically, applying it to the intake is suitable and mimics what is done for the USEPA RSLs.

### 2.3.2 Noncarcinogens

Noncarcinogenic health effects will be evaluated using RfDs developed by USEPA. An RfD is an estimate of a daily oral exposure for a given duration to the human population (including susceptible subgroups) that is likely to be without an appreciable risk of adverse health effects over a lifetime (USEPA's Integrated Risk Information System [IRIS] definition). RfDs are expressed in milligrams of contaminant per kilogram of body weight per day (mg/kg-day). The RfD is a health-based criterion based on the assumption that thresholds exist for noncancer health effects (e.g., liver or kidney damage) over a length of time of exposure (e.g., chronic). Oral RfDs are multiplied by the gastrointestinal absorption factor to calculate the dermal RfD. For organic COPCs, gastrointestinal absorption is relatively high; therefore, the absorption factor is 1. For inorganic COPCs, the absorption factor will be obtained from the current USEPA RSL Tables. Similarly, RfCs are estimates (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. The RfC is expressed in units of milligrams of a chemical per cubic meter of air ($mg/m^3$). Exposure to a COPC below its RfC, even over a long period of time, is not expected to have any negative effect on health.

### 2.3.3 Toxicity Selection

Toxicity criteria will be selected according to the USEPA Office of Solid Waste and Emergency Response (OSWER) Directive 9285.7-53 (2003), which recommends a hierarchy of human health toxicity values for use in risk assessments at Superfund sites as well as the more recent Office of Land and Emergency Management (OLEM) memorandum for which sets recommendations for using chronic or subchronic noncancer values for Superfund risk assessments (USEPA, 2021). The USEPA Superfund hierarchy of sources of toxicity values includes three tiers as follows: (1) USEPA's IRIS; (2) USEPA's Provisional Peer-Reviewed Toxicity Values (PPRTVs); and (3) other sources of information, such as toxicity values from the California EPA and the Agency for Toxic Substances and Disease Registry (ATSDR) minimal risk levels for noncarcinogenic constituents. Tier 2 and Tier 3 toxicity values selected for use in the BHHRA will be obtained from current USEPA Regional Screening Level tables.

Oral toxicity criteria (CSFs and RfDs) will be used to assess dermal exposures in the absence of route-specific dermal CSFs and RfDs (USEPA, 1989). The dermal RfD will be derived by multiplying the COPC - specific oral absorption factor and oral RfD. Similarly, the dermal CSF will be derived by dividing the oral SF by the oral absorption factor.

Noncancer RfDs and RfCs may differ depending on the length of human exposure. Subchronic exposures are defined as lasting for at least 2 weeks but less than seven years, and chronic exposures are defined as lasting seven years or more (USEPA, 2023). The exposure scenario for utility and construction workers, for whom exposure is assumed to last 1 year, is the only exposure scenario that will be evaluated in the BHHRA for which chronic exposure assumptions are not used. In USEPA's soil screening-level guidance (USEPA, 2002c), the Science Advisory Board indicates that, although a conservative assumption, a child scenario with 6 years of exposure can be paired with a chronic RfD. This will be used in those cases where the COPC does not have a subchronic value. Subchronic oral and inhalation noncarcinogenic toxicity values and metadata will be obtained from the Risk Assessment Information System (RAIS) Chemical Toxicity Database (accessed at https://rais.ornl.gov/index.html). For those cases where a subchronic toxicity value does not exist, the chronic value will be used.

Toxicity criteria are summarized in Tables 2.3-1 through 2.3-4 for the preliminary COPCs identified from the Phase 1 data screening process (Table 2.1-3). Additional toxicity information, including, target organ/critical effect, weight of evidence classifications, uncertainty factors, and other relevant information for the COPCs also have been included in these tables. Toxicity for additional COPCs identified during screening of the combined Phase 1 and Phase 2 RI data will be selected as described here.

Note that when no toxicity value is available for a COPC, a value for another chemical will be assigned based on chemical or structural similarity, as appropriate, as denoted in the Tables 2.3-1 through 2.3-4. The uncertainty associated with surrogate assumptions will be addressed in the uncertainty analysis as part of the risk characterization (Section 2.4).

## 2.4 RISK CHARACTERIZATION AND UNCERTAINTY ASSESSMENT

The risk characterization combines the exposure assessment and toxicity values to calculate the total estimated carcinogenic risk and noncarcinogenic hazard for COPCs for each potential exposure pathway considered in the BHHRA (USEPA, 1989). Risk calculations will be performed in accordance with USEPA protocol. All calculations will be documented in RAGS D tables. Cancer risk and non-cancer hazard calculations will be documented in RAGS D Tables 7s and cumulative risks in RAGS D Table 9s.

### 2.4.1 Carcinogenic Risk Characterization

The purpose of carcinogenic risk characterization is to estimate the upper-bound likelihood, over and above the background cancer rate, that a receptor will develop cancer in his or her lifetime as a result of exposure to a chemical in environmental media at the Site. This likelihood is a function of the dose of a chemical and CSF for that chemical. The Excess Lifetime Cancer Risk (ELCR) is the likelihood over and above the background cancer rate. The risk value is expressed as a probability (e.g., $1x10^{-6}$ or one in one million) and is calculated as the product of the estimated lifetime average daily exposure (i.e., lifetime average daily dose, LADD) and the CSF. The following equation and parameters are used to evaluate the ELCR for each COPC and each exposure pathway:

$$ELCR = LADD \times CSF \qquad (2\text{-}12)$$

Where:

ELCR = excess lifetime cancer risk (unitless)

LADD = lifetime average daily dose (mg/kg-day)

CSF = cancer slope factor $(mg/kg\text{-}day)^{-1}$

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## Table 2.3-1: Noncancer Oral and Dermal Toxicity Values for the Preliminary COPCs

| Chemical of Potential Concern | CAS Number | Chronic Oral RfD (mg/kg-day) | Chronic RfD Source[1] | Oral Absorption for Dermal[2] | Chronic Dermal RfD (mg/kg-day) | Primary Target Organ System(s)[3] | Modifying/ Uncertainty Factors[3] | Chronic RfD Target Organ(s) Source[3] / Date | | Subchronic Oral RfD (mg/kg-day) | Subchronic RfD Source[1] | Subchronic Dermal RfD (mg/kg-day) | Subchronic RfD Primary Target Organ System(s)[3] | Modifying/ Uncertainty Factors[3] | RfD Target Organ(s) Source[3] / Date | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2,3-Trichloropropane | 96-18-4 | 4.00E-03 | I | 1 | 4.00E-03 | Hepatic | 300 | I | 11/13/2024 | 3.00E-02 | A | 3.00E-02 | Hematological | 100 | RAIS | 11/13/2024 |
| Benzene | 71-43-2 | 4.00E-03 | I | 1 | 4.00E-03 | Immune | 300 | I | 11/13/2024 | 1.00E-02 | P | 1.00E-02 | Hematologic | 100 | RAIS | 11/13/2024 |
| 2,4-Dinitrochlorobenzene (surrogate is 2,4-dinitrotoluene) | 97-00-7 | 2.00E-03 | I | 1 | 2.00E-03 | Nervous, hepatic, hematologic | 100 | I | 11/13/2024 | 7.00E-03 | A | 7.00E-03 | Hematological | 100 | RAIS | 11/13/2024 |
| 2,4-Dinitrophenol | 51-28-5 | 2.00E-03 | I | 1 | 2.00E-03 | Ocular | 1000 | I | 11/13/2024 | 2.00E-02 | P | 2.00E-02 | Ocular | 100 | RAIS | 11/13/2024 |
| Benz[a]anthracene | 56-55-3 | NA | NA | 1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Benzo[b]fluoranthene | 205-99-2 | NA | NA | 1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Benzo[k]fluoranthene | 207-08-9 | NA | NA | 1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Benzo(a)pyrene | 50-32-8 | 3.00E-04 | I | 1 | 3.00E-04 | Developmental | 300 | I | 11/13/2024 | NA | NA | NA | NA | NA | NA | NA |
| Chrysene | 218-01-9 | NA | NA | 1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Dibenz(a,h)anthracene | 53-70-3 | NA | NA | 1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | NA | NA | 1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Naphthalene | 91-20-3 | 2.00E-02 | I | 1 | 2.00E-02 | Other (decreased body weights) | 3000 | I | 11/13/2024 | 6.00E-01 | A | 6.00E-01 | Neurological | 90 | RAIS | 11/13/2024 |
| Picric Acid | 88-89-1 | 2.00E-03 | P | 1 | 2.00E-03 | Hematologic | 300 | P | 11/13/2024 | 6.00E-03 | P | 6.00E-03 | Hematologic | 300 | RAIS | 11/13/2024 |
| Aluminum | 7429-90-5 | 1.00E+00 | P | 1 | 1.00E+00 | Developmental | 100 | P | 11/13/2024 | 1.00E+00 | A | 1.00E+00 | Neurological | 100 | RAIS | 11/13/2024 |
| Arsenic | 7440-38-2 | 6.00E-05 | I | 1 | 6.00E-05 | Endocrine, Cardiovascular | 3 | I | 1/13/2025 | 3.00E-04 | A | 3.00E-04 | Dermal | 3 | A | 11/13/2024 |
| Barium | 7440-39-3 | 2.00E-01 | I | 0.07 | 1.40E-02 | Urinary | 300 | I | 11/13/2024 | 2.00E-01 | A | 1.40E-02 | Urinary | 100 | RAIS | 11/13/2024 |
| Cadmium (diet) (6) | 7440-43-9 | 1.00E-04 | A | 0.025 | 2.50E-06 | Musculoskeletal and Urinary | 10 | A | 11/13/2024 | 5.00E-04 | A | 1.25E-05 | Musculoskeletal | 100 | RAIS | 11/13/2024 |
| Cobalt | 7440-48-4 | 3.00E-04 | P | 1 | 3.00E-04 | Decreased iodine uptake | 3000 | P | 11/13/2024 | 3.00E-03 | P | 3.00E-03 | thyroid | 300 | RAIS | 11/13/2024 |
| Iron | 7439-89-6 | 7.00E-01 | P | 1 | 7.00E-01 | Gastrointestinal | 2 | P | 11/13/2024 | 7.00E-01 | P | 7.00E-01 | Gastrointestinal | 1.5 | RAIS | 11/13/2024 |
| Manganese (non-diet) (5) | 7439-96-5 | 2.40E-02 | I | 0.04 | 9.60E-04 | Nervous | 1 | I | 11/13/2024 | 1.40E-01 | H | 5.60E-03 | Nervous | 1 | RAIS | 11/13/2024 |
| Nickel (soluble salts) | 7440-02-0 | 2.00E-02 | I | 0.04 | 8.00E-04 | Other (decreased body and organ weights) | 300 | I | 11/13/2024 | 2.00E-02 | H | 8.00E-04 | Other | 300 | RAIS | 11/13/2024 |
| Thallium (soluble salts) | 7440-28-0 | 1.00E-05 | P | 1 | 1.00E-05 | Dermal (skin, hair) | 3000 | P | 11/13/2024 | 5.00E-05 | X | 5.00E-05 | Dermal (skin) | 1000 | RAIS | 11/13/2024 |
| Vanadium (4) | 7440-62-2 | 5.00E-03 | I | 0.026 | 1.30E-04 | Dermal (hair) | 100 | I | 11/13/2024 | 1.00E-02 | A | 2.60E-04 | Urinary | 300 | RAIS | 11/13/2024 |

Notes:

(1) Sources of toxicity values: I = IRIS; P = PPRTV; A = ATSDR; X = PPRTV Screening Level; H = HEAST; RAIS = Risk Assessment Information System; S = SCREEN (USEPA PPRTV Appendix Screening Levels).

(2) USEPA RSL Table dated November 2024 (USEPA, 2024b).

(3) Target organs and modifying/uncertainty factors were obtained from the sources listed and from USEPA's Integrated Risk Information System at https://www.epa.gov/iris/iris-descriptions-organssystems.

(4) The oral RfD toxicity value for vanadium is derived from the IRIS oral RfD for vanadium pentoxide by factoring out the molecular weight (MW) of the oxide ion. Vanadium pentoxide (V205) has a molecular weight of 181.88. The two atoms of vanadium contribute 56% of the MW. Vanadium pentoxide's oral RfD of 9E-03 mg/kg-day multiplied by 56% gives a vanadium oral RfD of 5.04E-03 mg/kg-day (USEPA, 2024b).

(5) The IRIS RfD (0.14 mg/kg-day) includes manganese from all sources, including diet. The author of the IRIS assessment for manganese recommended that the dietary contribution from the normal U.S. diet (an upper limit of 5 mg/day) be subtracted when evaluating non-food (e.g., drinking water or soil) exposures to manganese, leading to a RfD of 0.071 mg/kg-day for non-food items. The explanatory text in IRIS further recommends using a modifying factor of 3 when calculating risks associated with non-food sources due to a number of uncertainties that are discussed in the IRIS file for manganese, leading to a RfD of 0.024 mg/kg-day (USEPA, 2024b).

(6) The chronic MRL from ATSDR as the Cadmium RfD instead of the IRIS value in response to an USEPA memo "Recommendations on the Use of Chronic or Subchronic Noncancer Values for Superfund Human Health Risk Assessments" released in May 2021; this memo recommends using lower tier toxicity values that are more recent, credible, and relevant than the values that would be automatically selected from the RSL toxicity hierarchy. In this memo, it was recommended that the ATSDR chronic RfD of 1E-04 mg/kg-day from 2012 be used over the IRIS values (5E-04 and 1E-03 mg/kg-day for water and diet, respectively) from 1989 (USEPA, 2024b).

Acronyms:

ATSDR = Agency for Toxic Substances and Disease Registry
CAS = Chemical Abstracts Service
CNS = central nervous system
USEPA = U.S. Environmental Protection Agency
GI = gastrointestinal
IRIS = Integrated Risk Information System
mg/kg-day = milligrams per kilogram per day
NA = not available
PPRTV = Provisional Peer-Reviewed Toxicity Value
RfD = reference dose
RSL = regional screening level
SDH = sorbitol dehydrogenase

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## Table 2.3-2: Noncancer Inhalation Toxicity Values for the Preliminary COPCs

| Chemical of Potential Concern | CAS Number | Chronic Inhalation RfC ($mg/m^3$) | RfC Source (1) | Chronic RfC Primary Target Organ(s)(2) | Modifying/ Uncertainty Factors(2) | RfC: Target Organ(s) Source(s)(2) / Dates | | Subchronic Inhalation RfC ($mg/m^3$) | Subchronic RfC Source(1) | Subchronic RfC Primary Target Organ(s)(2) | Modifying/ Uncertainty Factors(2) | Subchronic RfC: Target Organ(s) Source(1) / Date | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2,3-Trichloropropane | 96-18-4 | 3.00E-04 | I | Respiratory | 3000 | I | 11/13/2024 | NA | NA | NA | NA | NA | NA |
| Benzene | 71-43-2 | 3.00E-02 | I | Immune | 300 | I | 11/13/2024 | 8.00E-02 | P | Blood | 100 | RAIS | 11/13/2024 |
| 2,4-Dinitrochlorobenzene (surrogate is 2,4-dinitrotoluene) | 97-00-7 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-Dinitrophenol | 51-28-5 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Benz[a]anthracene | 56-55-3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Benzo[b]fluoranthene | 205-99-2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Benzo[k]fluoranthene | 207-08-9 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Benzo(a)pyrene | 50-32-8 | 2.00E-06 | I | Developmental | 3000 | I | 11/13/2024 | NA | NA | NA | NA | NA | NA |
| Chrysene | 218-01-9 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Dibenz(a,h)anthracene | 53-70-3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Naphthalene | 91-20-3 | 3.00E-03 | I | Nervous, respiratory | 3000 | I | 11/13/2024 | NA | NA | NA | NA | NA | NA |
| Picric Acid | 88-89-1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Aluminum | 7429-90-5 | 5.00E-03 | P | Nervous | 300 | P | 11/13/2024 | NA | NA | NA | NA | NA | NA |
| Arsenic | 7440-38-2 | 1.50E-05 | C | Reproductive; cardiovascular; nervous; respiratory; dermal | NA | C | 11/13/2024 | NA | NA | NA | NA | NA | NA |
| Barium | 7440-39-3 | 5.00E-04 | H | Developmental | 1000 | H | 11/13/2024 | 5.00E-03 | H | Develop-mental | 100 | RAIS | 11/13/2024 |
| Cadmium (diet) | 7440-43-9 | 1.00E-05 | A | Respiratory; Urinary | 9 | A | 11/13/2024 | 9.00E-04 | P | Urinary | NA | RAIS | 11/13/2024 |
| Cobalt | 7440-48-4 | 6.00E-06 | P | Other | 300 | P | 11/13/2024 | 2.00E-05 | P | Respiratory | 100 | RAIS | 11/13/2024 |

## Table 2.3-2: Noncancer Inhalation Toxicity Values for the Preliminary COPCs (continued)

| Chemical of Potential Concern | CAS Number | Chronic Inhalation RfC ($mg/m^3$) | RfC Source (1) | Chronic RfC Primary Target Organ(s)(2) | Modifying/ Uncertainty Factors(2) | RfC: Target Organ(s) Source(s)(2) / Dates | | Subchronic Inhalation RfC ($mg/m^3$) | Subchronic RfC Source(1) | Subchronic RfC Primary Target Organ(s)(2) | Modifying/ Uncertainty Factors(2) | Subchronic RfC: Target Organ(s) Source(1) / Date | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron | 7439-89-6 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Manganese (non-diet) | 7439-96-5 | 5.00E-05 | I | Nervous | 1000 | I | 11/13/2024 | NA | NA | NA | NA | NA | NA |
| Nickel (soluble salts) | 7440-02-0 | 1.00E-05 | A | Respiratory | 100 | A | 11/13/2024 | NA | NA | NA | NA | NA | NA |
| Thallium (soluble salts) | 7440-28-0 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Vanadium | 7440-62-2 | 1.00E-04 | A | Respiratory | 30 | A | 11/13/2024 | NA | NA | NA | NA | NA | NA |

Notes:
(1) Sources of toxicity values: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; RAIS = Risk Assessment Information System
(2) Target organs and modifying/uncertainty factors were obtained from the sources listed and from USEPA's Integrated Risk Information System at https://www.epa.gov/iris/iris-descriptions-organssystems.

Acronyms:
ATSDR = Agency for Toxic Substances and Disease Registry
Cal EPA = California Environmental Protection Agency
CAS = Chemical Abstracts Service
USEPA = U.S. Environmental Protection Agency
HEAST = health effects assessment summary tables
IRIS = Integrated Risk Information System
$mg/m^3$ = microgram per cubic meters
NA= not available
OEHHA = Cal EPA Office of Environmental Health Hazard Assessment
PPRTV = Provisional Peer-Reviewed Toxicity Value
RFC = reference concentration
RSL = regional screening level

## Table 2.3-3: Oral and Dermal Cancer Toxicity Values for the Preliminary COPCs

| Chemical of Potential Concern | CAS Number | Oral CSF (per mg/kg-day) | Oral Absorption for Dermal[1] | Dermal CSF (per mg/kg-day) | Mutagen[1] | Weight of Evidence/ Cancer Guideline Description[2] | Oral CSF | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Source[3] | Date |
| 1,2,3-Trichloropropane | 96-18-4 | 3.00E+01 | 1 | 3.00E+01 | Yes | Likely to be carcinogenic to humans | I | 11/13/2024 |
| Benzene | 71-43-2 | 5.50E-02 | 1 | 5.50E-02 | No | A (Human carcinogen) | I | 11/13/2024 |
| 2,4-Dinitrochlorobenzene (surrogate is 2,4-dinitrotoluene) | 97-00-7 | 3.10E-01 | 1 | 3.10E-01 | No | Not classified | C | 11/13/2024 |
| 2,4-Dinitorophenol | 51-28-5 | NA | 1 | NA | NA | NA | NA | 11/13/2024 |
| Benz[a]anthracene | 56-55-3 | 1.00E-01 | 1 | 1.00E-01 | Yes | B2 (Probable human carcinogen) | E | 11/13/2024 |
| Benzo[b]fluoranthene | 205-99-2 | 1.00E-01 | 1 | 1.00E-01 | Yes | B2 (Probable human carcinogen) | E | 11/13/2024 |
| Benzo[k]fluoranthene | 207-08-9 | 1.00E-02 | 1 | 1.00E-02 | Yes | B2 (Probable human carcinogen) | E | 11/13/2024 |
| Benzo(a)pyrene | 50-32-8 | 1.00E+00 | 1 | 1.00E+00 | Yes | Carcinogenic to humans | I | 11/13/2024 |
| Chrysene | 218-01-9 | 1.00E-03 | 1 | 1.00E-03 | Yes | B2 (Probable human carcinogen) | E | 11/13/2024 |
| Dibenz(a,h)anthracene | 53-70-3 | 1.00E+00 | 1 | 1.00E+00 | Yes | B2 (Probable human carcinogen) | E | 11/13/2024 |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 1.00E-01 | 1 | 1.00E-01 | Yes | B2 (Probable human carcinogen) | E | 11/13/2024 |
| Naphthalene | 91-20-3 | 1.20E-01 | 1 | 1.20E-01 | No | C (Possible human carcinogen) | C | 11/13/2024 |
| Picric Acid | 88-89-1 | NA | 1 | NA | NA | NA | NA | NA |
| Aluminum | 7429-90-5 | NA | 1 | NA | NA | NA | NA | NA |
| Arsenic | 7440-38-2 | 3.20E+01 | 1 | 3.20E+01 | No | Carcinogenic to humans) | I | 1/13/2025 |
| Barium | 7440-39-3 | NA | 0.07 | NA | No | D (Not classifiable as to human carcinogenicity) | I | 11/13/2024 |
| Cadmium (diet) | 7440-43-9 | NA | 0.025 | NA | No | NA | NA | NA |
| Cobalt | 7440-48-4 | NA | 1 | NA | NA | NA | NA | NA |
| Iron | 7439-89-6 | NA | 1 | NA | NA | NA | NA | NA |
| Manganese (non-diet) | 7439-96-5 | NA | 0.04 | NA | NA | D (Not classifiable as to human carcinogenicity) | NA | 11/13/2024 |
| Nickel (soluble salts) | 7440-02-0 | NA | 0.04 | NA | NA | NA | I | 11/13/2024 |
| Thallium (soluble salts) | 7440-28-0 | NA | 1 | NA | NA | NA | NA | NA |
| Vanadium | 7440-62-2 | NA | 0.026 | NA | NA | NA | NA | NA |

Notes:
(1) Values were obtained from USEPA's November 2024 RSL Table (USEPA, 2024b).
(2) Weight of evidence/cancer guideline descriptions were generated from the USEPA IRIS.
(3) Sources of toxicity values: I = IRIS; P = PPRTV; C = Cal EPA; E = relative potency factor.
Acronyms:

ATSDR = Agency for Toxic Substances and Disease Registry
Cal EPA = California Environmental Protection Agency
CAS = Chemical Abstracts Service
CSF = cancer slope factor
HEAST = Health Effects Assessment Summary Tables
IRIS = Integrated Risk Information System
mg/kg-day = milligrams per kilogram per day
NA = not available
PPRTV = Provisional Peer-Reviewed Toxicity Value
RSL = regional screening level
USEPA = U.S. Environmental Protection Agency

## Table 2.3-4: Inhalation Cancer Toxicity Values for the Preliminary COPCs

| Chemical of Potential Concern | CAS Number | Inhalation Unit Risk ($\mu g/m^3)^{-1}$ | Weight of Evidence/ Cancer Guideline Description[1] | Inhalation Unit Risk | |
|---|---|---|---|---|---|
| | | | | Source[2] | Date |
| 1,2,3-Trichloropropane | 96-18-4 | NA | NA | I | 11/13/2024 |
| Benzene | 71-43-2 | 7.8E-06 | A (Human carcinogen) | I | 11/13/2024 |
| 2,4-Dinitrochlorobenzene (surrogate is 2,4-dinitrotoluene) | 97-00-7 | 8.9E-05 | Not classified | C | 11/13/2024 |
| 2,4-Dinitrophenol | 51-28-5 | NA | NA | NA | NA |
| Benz[a]anthracene | 56-55-3 | 6.0E-05 | B2 (Probable human carcinogen) | E | 11/13/2024 |
| Benzo[b]fluoranthene | 205-99-2 | 6.0E-05 | B2 (Probable human carcinogen) | E | 11/13/2024 |
| Benzo[k]fluoranthene | 207-08-9 | 6.0E-06 | B2 (Probable human carcinogen) | E | 11/13/2024 |
| Benzo(a)pyrene | 50-32-8 | 6.0E-04 | Carcinogenic to humans | I | 11/13/2024 |
| Chrysene | 218-01-9 | 6.0E-07 | B2 (Probable human carcinogen) | E | 11/13/2024 |
| Dibenz(a,h)anthracene | 53-70-3 | 6.0E-04 | B2 (Probable human carcinogen) | E | 11/13/2024 |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 6.0E-05 | B2 (Probable human carcinogen) | E | 11/13/2024 |
| Naphthalene | 91-20-3 | 3.4E-05 | B2 (Probable human carcinogen) | C | 11/13/2024 |
| Picric Acid | 88-89-1 | NA | NA | NA | NA |
| Aluminum | 7429-90-5 | NA | NA | NA | NA |
| Arsenic | 7440-38-2 | 4.3E-03 | Carcinogenic to humans | I | 1/13/2025 |
| Barium | 7440-39-3 | NA | Carcinogenic potential cannot be determined | I | 11/13/2024 |
| Cadmium (diet) | 7440-43-9 | 1.8E-03 | B1 (Probable human carcinogen) | I | 11/13/2024 |
| Cobalt | 7440-48-4 | 9.0E-03 | B1 (Probable human carcinogen) | P | 11/13/2024 |
| Iron | 7439-89-6 | NA | NA | NA | NA |
| Manganese (non-diet) | 7439-96-5 | NA | D (Not classifiable as to human carcinogenicity) | NA | 11/13/2024 |
| Nickel (soluble salts) | 7440-02-0 | 2.6E-04 | NA | C | 11/13/2024 |
| Thallium (soluble salts) | 7440-28-0 | NA | NA | NA | NA |
| Vanadium | 7440-62-2 | NA | NA | NA | NA |

Notes:
(1) Weight of evidence/cancer guideline descriptions were generated from the USEPA IRIS.
(2) Sources of toxicity values: RSL Table Key: I = IRIS; P = PPRTV; C = Cal EPA; E = relative potency factor
Acronyms:
$\mu g/m^3$ = microgram per cubic meters
CalEPA = California Environmental Protection Agency
CAS = Chemical Abstracts Service
USEPA = U.S. Environmental Protection Agency
IRIS = Integrated Risk Information System
NA = not available
PPRTV = Provisional Peer-Reviewed Toxicity Value
RSL = regional screening level

For inhalation exposures, the ELCR is calculated using the following equation adapted from RAGS Part F (USEPA, 2009):

$$ELCR = EC_{air} \times IUR\ (mg/kg\text{-}day)^{-1} \quad (2\text{-}13)$$

Where:

ELCR = excess lifetime cancer risk (unitless)

$EC_{air}$ = exposure concentration in air ($\mu g/m^3$)

IUR = inhalation unit risk [$(\mu g/m^3)^{-1}$]

The potential carcinogenic risk for each exposure pathway is calculated for each receptor. In current regulatory risk assessments, it is assumed that cancer risks are additive. Risk estimates from different exposure pathways are summed across pathways and COPCs to estimate the total incremental cancer risk for each receptor. The sum of the cancer risk estimates for each receptor will be compared with the USEPA's generally acceptable risk management range of $1\times10^{-6}$ to $1\times10^{-4}$. Cancer risks that are less than the acceptable USEPA risk range will be assumed to indicate that no adverse health effects are predicted from exposures, whereas cancer risks above the upper risk management range of $1\times10^{-4}$, generally require action. A USEPA directive (USEPA, 1991) provides additional guidance on the role of the BHHRA in supporting risk management decisions and evaluating whether a response action is necessary.

### 2.4.2 Noncarcinogenic Hazard Characterization

The potential for exposure to a COPC resulting in potentially adverse noncarcinogenic health effects will be estimated for each receptor by comparing the average daily dose (ADD) for each COPC with the RfD for that COPC. The resulting ratio, which is unitless, is the HQ for that COPC. The HQ is calculated using the following equation:

$$HQ = \frac{ADD}{RfD} \quad (2\text{-}14)$$

Where:

HQ = hazard quotient (unitless)

ADD = average daily dose via the specified exposure route, noncancer (mg/kg-day)

RfD = reference dose (mg/kg-day)

For inhalation exposures, the noncancer HQ is calculated using the following equation adapted from RAGS Part F (USEPA, 2009):

$$HQ = \frac{EC_{air}}{RfC} \quad (2\text{-}15)$$

Where:

HQ = hazard quotient (unitless)

$EC_{air}$ = exposure concentration in air ($mg/m^3$)

RfC = reference concentration ($mg/m^3$)

To evaluate the effects of exposure via multiple exposure pathways for a receptor, the exposure pathway-specific HQs are summed for each COPC to determine a noncancer hazard index (HI) using the following equation:

$$HI = HQ_1 + HQ_2 + \cdots + HQ_i \qquad (2\text{-}16)$$

Where:

HI = hazard index (unitless)

$HQ_i$ = hazard quotient for specified exposure route (unitless)

When the HQ is less than or equal to 1, the RfD/RfC has not been exceeded, and no adverse noncarcinogenic effects are expected. If the HQ is greater than 1, there may be a potential for adverse noncarcinogenic health effects to occur; however, the magnitude of the HQ is not directly equated to a probability or effect level.

Summing the HQs for each individual COPC identifies the total HI for each exposure pathway. Furthermore, the total site HI is calculated for each potential receptor by summing the HIs for each pathway associated with the receptor. Where the total site HI is greater than 1 for any receptor, then the HQs will be segregated by target organ (i.e., hepatic, renal, respiratory, cardiovascular, gastrointestinal, hematological, musculoskeletal, dermal, and ocular effects) or critical effect (e.g., neurotoxicity, developmental toxicity, reproductive toxicity).

If any of the separate HI values exceed 1, adverse noncarcinogenic health effects are possible. If the total segregated HI is less than 1, it indicates that adverse noncarcinogenic health effects are unlikely. If the total segregated HI is greater than 1, it indicates that adverse health effects are possible.

### 2.4.3 Uncertainty Analysis

The process of evaluating cancer risks and noncancer health hazards involves multiple steps. Inherent in each step of the process are uncertainties that ultimately affect the final calculated cancer risks and noncancer health hazard estimates. Uncertainties may exist in areas including environmental contaminant concentration data, selection of COPCs, derivation of toxicity values, and estimation of potential Site exposures. As such, the risk characterization for the BHHRA will contain an uncertainty section to address the significant sources of uncertainty in the four risk assessment steps (hazard identification and data collection/evaluation, exposure assessment, toxicity assessment, and risk characterization). These identified uncertainties will be qualitatively discussed, including the strengths, limitations, and uncertainties inherent in key scientific issues and science policy choices. This section accounts for sources of uncertainty in the various components of the risk assessment analysis in order to provide a full understanding of the accuracy and reliability of calculated risks and hazards. An understanding of the strengths and potential uncertainties of the risk assessment provides the risk manager with additional information for consideration in the risk management decision.

The uncertainty associated with using BTVs to screen the data for selection of COPCs will be addressed in the uncertainty analysis as necessary to assist in distinguishing site contamination from naturally occurring and/or anthropogenic background. For those COPCs that are naturally or anthropogenically occurring that contribute to excess cancer risk and/or noncancer hazard for which site-specific background data exist, further evaluation, potentially, in the form of hypothesis testing may be an option as an additional risk refinement should the PDT determine the need for further evaluation. Guidance from USEPA's Role of Background in the CERCLA Cleanup Program (USEPA, 2002e) and Comparing Background and Chemical Concentration in Soil for CERCLA Sites (USEPA, 2002f) will be followed to assess background contribution to overall risk as a part of the uncertainty analysis.

Potential risks will be estimated using the analytical results from the combined Phase 1 and Phase 2 datasets, which include biased and unbiased samples. In accordance with USEPA guidance (USEPA 1989, 2002b), any potential bias in the EPC estimates should be identified in the BHHRA. The potential impact the biased sampling results have on the estimated EPCs and risk estimates will be evaluated in the uncertainty analysis. If the estimated risks for an exposure area exceed acceptable levels, the sample locations and analytical results that are based on a biased sampling approach will be reviewed to determine their impact on the quantitative risk estimates. The uncertainty assessment may include recalculating potential risks for the risk drivers (COPCs that contribute the most risk) using a refined dataset that excludes biased samples, recalculates EPCs (i.e., volume-weight or area weight EPCs), and/or evaluating smaller exposure areas that are defined based on sample-specific risks. Sample-by-sample risk estimates are useful in determining if there are potentially localized areas of elevated concentrations that may pose an unacceptable risk to receptors, and they also address the uncertainty of potentially underestimating risks associated with evaluating the entire AOC as one exposure area.

If unacceptable risks are identified after refining the risks and reducing the overall uncertainty, the risk drivers will be identified as chemicals of concern (COC) that may warrant remediation.

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## 3.0 REFERENCES


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**Attachment 1**

**Exposure Assumption Values Used for Daily Intake Calculations**

TABLE A2.2-1
Exposure Assumption Values Used For Daily Intake Calculations (RAGS D: Table 4)
Reasonable Maximum Exposure - Soil
Supplemental Human Health Risk Assessment
New York Ordnance Works

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil and Fugitive Dust

| Exposure Route | Receptor | Receptor Age | Parameter Code | Parameter Definition | Parameter Value | Units | Rationale | Reference | Intake Equation / Model Name |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion | Resident | Child (0-6 years) | $C_{Soil}$ | Chemical Concentration in Soil | chemical-specific | mg/kg | See Table 3 Series | | The equation for Chronic Daily Intake (mg/kg-day) from ingestion is shown below $Intake = \frac{C_{soil} \times IR \times FI \times RBA \times EF \times ED \times CF1}{BW \times AT}$ Source: RAGS Part A, Exhibit 6-14 (USEPA, 1989) Arsenic RBA is 0.6; RBA for other chemicals is 1 (USEPA 2012, USEPA 2024) |
| | | | IR | Ingestion Rate of Soil | 200 | mg/day | Default child (0-6 years) value | USEPA, 2014 | |
| | | | FI | Fraction Ingested | 1 | unitless | Assumed 100% exposure is from Site | Assumption | |
| | | | RBA | Relative Bioavailability in Soil | chemical-specific | unitless | Chemical-specific | USEPA, 2024 | |
| | | | EF | Exposure Frequency | 350 | days/year | Default days spent at home | USEPA, 2014 | |
| | | | ED | Exposure Duration | 6 | year | Resident child default | USEPA, 2014 | |
| | | | BW | Body Weight | 15 | kg | Default child (0-6 years) value | USEPA, 2014 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2014 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 2,190 | day | ED x 365 d/yr | USEPA, 2014 | |
| | | | CF1 | Conversion Factor | 1.0E-06 | kg/mg | - | - | |
| | | Adult | $C_{Soil}$ | Chemical Concentration in Soil | chemical-specific | mg/kg | See Table 3 Series | | The equation for Chronic Daily Intake (mg/kg-day) from ingestion is shown below $Intake = \frac{C_{soil} \times IR \times FI \times RBA \times EF \times ED \times CF1}{BW \times AT}$ Source: RAGS Part A, Exhibit 6-14 (USEPA, 1989) Arsenic RBA is 0.6; RBA for other chemicals is 1 (USEPA 2012, USEPA 2024) |
| | | | IR | Ingestion Rate of Soil | 100 | mg/day | Default adult | USEPA, 2014 | |
| | | | FI | Fraction Ingested | 1 | unitless | Assumed 100% exposure is from Site | Assumption | |
| | | | RBA | Relative Bioavailability in Soil | chemical-specific | unitless | Chemical-specific | USEPA, 2024 | |
| | | | EF | Exposure Frequency | 350 | days/year | Default days spent at home | USEPA, 2014 | |
| | | | ED | Exposure Duration | 20 | year | Resident adult default | USEPA, 2014 | |
| | | | BW | Body Weight | 80 | kg | Default adult | USEPA, 2014 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2014 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 7,300 | day | ED x 365 d/yr | USEPA, 2014 | |
| | | | CF1 | Conversion Factor | 1.0E-06 | kg/mg | - | - | |
| | Commercial Worker | Adult | $C_{Soil}$ | Chemical Concentration in Soil | chemical-specific | mg/kg | See Table 3 Series | | The equation for Chronic Daily Intake (mg/kg-day) from ingestion is shown below $Intake = \frac{C_{soil} \times IR \times FI \times RBA \times EF \times ED \times CF1}{BW \times AT}$ Source: RAGS Part A, Exhibit 6-14 (USEPA, 1989) Arsenic RBA is 0.6; RBA for other chemicals is 1 (USEPA 2012, USEPA 2024) |
| | | | IR | Ingestion Rate of Soil | 50 | mg/day | Default indoor worker | USEPA, 2014 | |
| | | | FI | Fraction Ingested | 1 | unitless | Assumed 100% exposure is from Site | Assumption | |
| | | | RBA | Relative Bioavailability in Soil | chemical-specific | unitless | Chemical-specific | USEPA, 2024 | |
| | | | EF | Exposure Frequency | 250 | days/year | Default worker | USEPA, 2014 | |
| | | | ED | Exposure Duration | 25 | year | Default worker | USEPA, 2014 | |
| | | | BW | Body Weight | 80 | kg | Default adult | USEPA, 2014 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2014 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 9,125 | day | ED x 365 d/yr | USEPA, 2014 | |
| | | | CF1 | Conversion Factor | 1.0E-06 | kg/mg | - | - | |
| | Trespasser/ Visitor | Adolescent (7-16 years) | $C_{Soil}$ | Chemical Concentration in Soil | chemical-specific | mg/kg | See Table 3 Series | | The equation for Chronic Daily Intake (mg/kg-day) from ingestion is shown below $Intake = \frac{C_{soil} \times IR \times FI \times RBA \times EF \times ED \times CF1}{BW \times AT}$ Source: RAGS Part A, Exhibit 6-14 (USEPA, 1989) Arsenic RBA is 0.6; RBA for other chemicals is 1 (USEPA 2012, USEPA 2024) |
| | | | IR | Ingestion Rate of Soil | 100 | mg/day | Use of adult value | USEPA, 2014; 2018; 2024 | |
| | | | FI | Fraction Ingested | 0.5 - 1 | unitless | Fraction will be determined depending on whether exposure is to soil only, or to soil and hydric soil. The sum of the fraction for soil and hydric soil will be set equal to 1 (e.g., 0.5 for soil, 0.5 for hydric soil) | Assumption | |
| | | | RBA | Relative Bioavailability in Soil | chemical-specific | unitless | Chemical-specific | USEPA, 2024 | |
| | | | EF | Exposure Frequency | 48 | days/year | 2 days/week, 6 months/year (warmer months of April-September) | Assumption | |
| | | | ED | Exposure Duration | 10 | year | Value based on age range | USEPA, 2018 | |
| | | | BW | Body Weight | 45 | kg | Adolescent (7-16 years) weight | USEPA, 2018 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2014 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 3,650 | day | Exposure duration (10 years x 365 days) | USEPA, 2014 | |
| | | | CF1 | Conversion Factor | 1.0E-06 | kg/mg | - | - | |

TABLE A2.2-1
Exposure Assumption Values Used For Daily Intake Calculations (RAGS D: Table 4)
Reasonable Maximum Exposure - Soil
Supplemental Human Health Risk Assessment
New York Ordnance Works

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil and Fugitive Dust

| Exposure Route | Receptor | Receptor Age | Parameter Code | Parameter Definition | Parameter Value | Units | Rationale | Reference | Intake Equation / Model Name |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion (cont'd) | Outdoor Maintenace Worker | Adult | $C_{Soil}$ | Chemical Concentration in Soil | chemical-specific | mg/kg | See Table 3 Series | | The equation for Chronic Daily Intake (mg/kg-day) from ingestion is shown below $Intake = \frac{C_{soil} \times IR \times FI \times RBA \times EF \times ED \times CF1}{BW \times AT}$ Source: RAGS Part A, Exhibit 6-14 (USEPA, 1989) Arsenic RBA is 0.6; RBA for other chemicals is 1 (USEPA 2012, USEPA 2024) |
| | | | IR | Ingestion Rate of Soil | 100 | mg/day | Default outdoor worker ingestion rate | USEPA, 2014 | |
| | | | FI | Fraction Ingested | 1 | unitless | Assumed 100% exposure is from Site | Assumption | |
| | | | RBA | Relative Bioavailability in Soil | chemical-specific | unitless | Chemical-specific | USEPA, 2024 | |
| | | | EF | Exposure Frequency | 225 | days/year | Default outdoor worker value | USEPA, 2014 | |
| | | | ED | Exposure Duration | 25 | year | Default outdoor worker value | USEPA, 2014 | |
| | | | BW | Body Weight | 80 | kg | Default adult value | USEPA, 2014 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2014 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 365 | day | ED x 365 d/yr | USEPA, 2014 | |
| | | | CF1 | Conversion Factor | 1.0E-06 | kg/mg | - | - | |
| | Utility Worker | Adult | $C_{Soil}$ | Chemical Concentration in Soil | chemical-specific | mg/kg | See Table 3 Series | | The equation for Chronic Daily Intake (mg/kg-day) from ingestion is shown below $Intake = \frac{C_{soil} \times IR \times FI \times RBA \times EF \times ED \times CF1}{BW \times AT}$ Source: RAGS Part A, Exhibit 6-14 (USEPA, 1989) Arsenic RBA is 0.6; RBA for other chemicals is 1 (USEPA 2012, USEPA 2024) |
| | | | IR | Ingestion Rate of Soil | 100 | mg/day | Default outdoor worker ingestion rate | USEPA, 2014 | |
| | | | FI | Fraction Ingested | 1 | unitless | Assumed 100% exposure is from Site | Assumption | |
| | | | RBA | Relative Bioavailability in Soil | chemical-specific | unitless | Chemical-specific | USEPA, 2024 | |
| | | | EF | Exposure Frequency | 30 | days/year | 5 days/week for 6 weeks | Assumption | |
| | | | ED | Exposure Duration | 25 | year | Default outdoor worker value | USEPA, 2014 | |
| | | | BW | Body Weight | 80 | kg | Default worker value | USEPA, 2014 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2002 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 365 | day | ED x 365 d/yr | USEPA, 2002 | |
| | | | CF1 | Conversion Factor | 1.0E-06 | kg/mg | - | - | |
| | Construction Worker | Adult | $C_{Soil}$ | Chemical Concentration in Soil | chemical-specific | mg/kg | See Table 3 Series | | The equation for Chronic Daily Intake (mg/kg-day) from ingestion is shown below $Intake = \frac{C_{soil} \times IR \times FI \times RBA \times EF \times ED \times CF1}{BW \times AT}$ Source: RAGS Part A, Exhibit 6-14 (USEPA, 1989) Arsenic RBA is 0.6; RBA for other chemicals is 1 (USEPA 2012, USEPA 2024) |
| | | | IR | Ingestion Rate of Soil | 330 | mg/day | Default construction worker ingestion rate | USEPA, 2002 | |
| | | | FI | Fraction Ingested | 1 | unitless | Assumed 100% exposure is from Site | Assumption | |
| | | | RBA | Relative Bioavailability in Soil | chemical-specific | unitless | Chemical-specific | USEPA, 2024 | |
| | | | EF | Exposure Frequency | 250 | days/year | Construction worker default | USEPA, 2002 | |
| | | | ED | Exposure Duration | 1 | year | Construction worker default | USEPA, 2002 | |
| | | | BW | Body Weight | 80 | kg | Default worker value | USEPA, 2014 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2002 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 365 | day | ED x 365 d/yr | USEPA, 2002 | |
| | | | CF1 | Conversion Factor | 1.0E-06 | kg/mg | - | - | |
| Dermal Contact | Resident | Child (0-6 years) | $C_{Soil}$ | Chemical Concentration In Soil | chemical-specific | mg/kg | See Table 3 Series | | The equation for Dermally Absorbed Dose (DAD) (mg/kg-day) from dermal is shown below $DAD = \frac{DA_{event} \times EF \times ED \times EV \times SA}{BW \times AT}$ Where $DA_{event}$ = $DA_{event} = C_{soil} \times CF \times AF \times ABS_d$ Source: RAGS Part E, Equation 3.11 and Equation 3.12 (USEPA, 2004) |
| | | | AF | Adherence Factor | 0.2 | mg/cm²-event | Default child (0-6 years) value | USEPA, 2014 | |
| | | | $ABS_d$ | Absorption Factor | chemical-specific | unitless | Chemical-Specific inputs in HHRA | USEPA, 2004 | |
| | | | SA | Available Skin Surface Area | 2,373 | $cm^2$ | Default child (0-6 years) value | USEPA, 2014 | |
| | | | EV | Event Frequency per Day | 1 | event/day | - | USEPA, 2004 | |
| | | | EF | Exposure Frequency | 350 | days/year | Default days spent at home | USEPA, 2014 | |
| | | | ED | Exposure Duration | 6 | year | Default based on age range | USEPA, 2014 | |
| | | | BW | Body Weight | 15 | kg | Default child (0-6 years) value | USEPA, 2014 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2014 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 2,190 | day | ED x 365 d/yr | USEPA, 2014 | |
| | | | CF | Conversion Factor | 1.0E-06 | kg/mg | - | - | |

TABLE A2.2-1
Exposure Assumption Values Used For Daily Intake Calculations (RAGS D: Table 4)
Reasonable Maximum Exposure - Soil
Supplemental Human Health Risk Assessment
New York Ordnance Works

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil and Fugitive Dust

| Exposure Route | Receptor | Receptor Age | Parameter Code | Parameter Definition | Parameter Value | Units | Rationale | Reference | Intake Equation / Model Name |
|---|---|---|---|---|---|---|---|---|---|
| Dermal Contact Cont'd | Resident | Adult | CS | Chemical Concentration In Soil | chemical-specific | mg/kg | See Table 3 Series | | The equation for Dermally Absorbed Dose (DAD) |
| | | | AF | Adherence Factor | 0.07 | mg/cm²-event | Default adult value | USEPA, 2014 | (mg/kg-day) from dermal is shown below |
| | | | $ABS_d$ | Absorption Factor | chemical-specific | unitless | Chemical-Specific inputs in HHRA | USEPA, 2004 | $DAD = \frac{DA_{event} \times EF \times ED \times EV \times SA}{BW \times AT}$ |
| | | | SA | Available Skin Surface Area | 6,032 | $cm^2$ | Default adult value | USEPA, 2014 | |
| | | | EV | Event Frequency per Day | 1 | event/day | - | USEPA, 2004 | Where $DA_{event}$ = |
| | | | EF | Exposure Frequency | 350 | days/year | Default days spent at home | USEPA, 2014 | |
| | | | ED | Exposure Duration | 20 | year | Default based on age range | USEPA, 2014 | $DA_{event} = C_{soil} \times CF \times AF \times ABS_d$ |
| | | | BW | Body Weight | 80 | kg | Default adult (6-26 years) value | USEPA, 2014 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2014 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 7,300 | day | ED x 365 d/yr | USEPA, 2014 | Source: RAGS Part E, Equation 3.11 and |
| | | | CF | Conversion Factor | 1.0E-06 | kg/mg | - | - | Equation 3.12 (USEPA, 2004) |
| | Commercial Worker | Adult | CS | Chemical Concentration In Soil | chemical-specific | mg/kg | See Table 3 Series | | The equation for Dermally Absorbed Dose (DAD) |
| | | | AF | Adherence Factor | 0.12 | mg/cm²-event | Default worker value | USEPA, 2014 | (mg/kg-day) from dermal is shown below |
| | | | $ABS_d$ | Absorption Factor | chemical-specific | unitless | Chemical-Specific inputs in HHRA | USEPA, 2004 | $DAD = \frac{DA_{event} \times EF \times ED \times EV \times SA}{BW \times AT}$ |
| | | | SA | Available Skin Surface Area | 3,527 | $cm^2$ | Default adult value | USEPA, 2014 | |
| | | | EV | Event Frequency per Day | 1 | event/day | - | USEPA, 2004 | Where $DA_{event}$ = |
| | | | EF | Exposure Frequency | 250 | days/year | Default days spent at home | USEPA, 2014 | |
| | | | ED | Exposure Duration | 25 | year | Default based on age range | USEPA, 2014 | $DA_{event} = C_{soil} \times CF \times AF \times ABS_d$ |
| | | | BW | Body Weight | 80 | kg | Default adult (6-26 years) value | USEPA, 2014 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2014 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 9,125 | day | ED x 365 d/yr | USEPA, 2014 | Source: RAGS Part E, Equation 3.11 and |
| | | | CF | Conversion Factor | 1.0E-06 | kg/mg | - | - | Equation 3.12 (USEPA, 2004) |
| | Trespasser/ Visitor | Adolescent (7-16 years) | $C_{Soil}$ | Chemical Concentration In Soil | chemical-specific | mg/kg | See Table 3 Series | | The equation for Dermally Absorbed Dose (DAD) |
| | | | AF | Adherence Factor | 0.07 | mg/cm²-event | Default adolescent (7-16 years) value | USEPA, 2014; 2018 | (mg/kg-day) from dermal is shown below |
| | | | $ABS_d$ | Absorption Factor | chemical-specific | unitless | Chemical-Specific inputs in HHRA | USEPA, 2004 | $DAD = \frac{DA_{event} \times EF \times ED \times EV \times SA}{BW \times AT}$ |
| | | | SA | Available Skin Surface Area | 4,675 | $cm^2$ | Value derived by averaging mean surface area body parts for face, forearms, hands, lower legs, and feet. Surface area of the face assumed to be 1/3 that of the head, forearms assumed to represent 45% of the arms, and lower legs assumed to represent 40% of the legs (Table 7-2 in 2011 EFH). | USEPA, 2011 | |
| | | | EV | Event Frequency per Day | 1 | event/day | - | USEPA, 2004 | |
| | | | EF | Exposure Frequency | 48 | days/year | 2 days/week, 6 months/year (warmer months of April-September) | Assumption | Where $DA_{event}$ = |
| | | | ED | Exposure Duration | 10 | year | Value based on age range | Assumption | |
| | | | BW | Body Weight | 45 | kg | Adolescent (7-16 years) weight | USEPA, 2018 | $DA_{event} = C_{soil} \times CF \times AF \times ABS_d$ |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2014 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 3,650 | day | ED x 365 d/yr | USEPA, 2014 | Source: RAGS Part E, Equation 3.11 and |
| | | | CF | Conversion Factor | 1.0E-06 | kg/mg | - | - | Equation 3.12 (USEPA, 2004) |

TABLE A2.2-1
Exposure Assumption Values Used For Daily Intake Calculations (RAGS D: Table 4)
Reasonable Maximum Exposure - Soil
Supplemental Human Health Risk Assessment
New York Ordnance Works

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil and Fugitive Dust

| Exposure Route | Receptor | Receptor Age | Parameter Code | Parameter Definition | Parameter Value | Units | Rationale | Reference | Intake Equation / Model Name |
|---|---|---|---|---|---|---|---|---|---|
| Dermal Contact Cont'd | Outdoor Maintenance Worker | Adult | $C_{Soil}$ | Chemical Concentration In Soil | chemical-specific | mg/kg | See Table 3 Series | | The equation for Dermally Absorbed Dose (DAD) |
| | | | AF | Adherence Factor | 0.12 | mg/cm²-event | Default worker value | USEPA, 2014 | (mg/kg-day) from dermal is shown below |
| | | | $ABS_d$ | Absorption Factor | chemical-specific | unitless | Chemical-Specific inputs in HHRA | USEPA, 2004 | $DAD = \frac{DA_{event} \times EF \times ED \times EV \times SA}{BW \times AT}$ |
| | | | SA | Available Skin Surface Area | 3,527 | $cm^2$ | Defaults worker value | USEPA, 2014 | |
| | | | EV | Event Frequency per Day | 1 | event/day | - | USEPA, 2004 | Where $DA_{event}$ = |
| | | | EF | Exposure Frequency | 225 | days/year | Default worker value | USEPA, 2014 | |
| | | | ED | Exposure Duration | 25 | year | Default based on age range | USEPA, 2014 | $DA_{event} = C_{soil} \times CF \times AF \times ABS_d$ |
| | | | BW | Body Weight | 80 | kg | Default worker value | USEPA, 2014 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2014 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 9,125 | day | ED x 365 d/yr | USEPA, 2014 | Source: RAGS Part E, Equation 3.11 and |
| | | | CF | Conversion Factor | 1.0E-06 | kg/mg | - | - | Equation 3.12 (USEPA, 2004) |
| | Utility Worker | Adult | $C_{Soil}$ | Chemical Concentration In Soil | chemical-specific | mg/kg | See Table 3 Series | | The equation for Dermally Absorbed Dose (DAD) |
| | | | AF | Adherence Factor | 0.3 | mg/cm²-event | Default construction worker adherence factor | USEPA, 2002 | (mg/kg-day) from dermal is shown below |
| | | | $ABS_d$ | Absorption Factor | chemical-specific | unitless | Chemical-Specific inputs in HHRA | USEPA, 2004 | $DAD = \frac{DA_{event} \times EF \times ED \times EV \times SA}{BW \times AT}$ |
| | | | SA | Available Skin Surface Area | 3,527 | $cm^2$ | Default worker skin surface area | USEPA, 2014 | |
| | | | EV | Event Frequency per Day | 1 | event/day | - | USEPA, 2004 | |
| | | | EF | Exposure Frequency | 30 | days/year | 5 days/week for 6 weeks | Assumption | Where $DA_{event}$ = |
| | | | ED | Exposure Duration | 25 | year | Default outdoor worker value | USEPA, 2014 | $DA_{event} = C_{soil} \times CF \times AF \times ABS_d$ |
| | | | BW | Body Weight | 80 | kg | Default worker value | USEPA, 2014 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2002 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 365 | day | ED x 365 d/yr | USEPA, 2002 | Source: RAGS Part E, Equation 3.11 and |
| | | | CF | Conversion Factor | 1.0E-06 | kg/mg | - | - | Equation 3.12 (USEPA,2004) |
| | Construction Worker | Adult | $C_{Soil}$ | Chemical Concentration In Soil | chemical-specific | mg/kg | See Table 3 Series | | The equation for Dermally Absorbed Dose (DAD) |
| | | | AF | Adherence Factor | 0.3 | mg/cm²-event | Default construction worker adherence factor | USEPA, 2002 | (mg/kg-day) from dermal is shown below |
| | | | $ABS_d$ | Absorption Factor | chemical-specific | unitless | Chemical-Specific inputs in HHRA | USEPA, 2004 | $DAD = \frac{DA_{event} \times EF \times ED \times EV \times SA}{BW \times AT}$ |
| | | | SA | Available Skin Surface Area | 3,527 | $cm^2$ | Default worker skin surface area | USEPA, 2014 | |
| | | | EV | Event Frequency per Day | 1 | event/day | - | USEPA, 2004 | |
| | | | EF | Exposure Frequency | 250 | days/year | Construction worker default | USEPA, 2002 | Where $DA_{event}$ = |
| | | | ED | Exposure Duration | 1 | year | Construction worker default | USEPA, 2002 | |
| | | | BW | Body Weight | 80 | kg | Default worker value | USEPA, 2014 | $DA_{event} = C_{soil} \times CF \times AF \times ABS_d$ |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2002 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 365 | day | ED x 365 d/yr | USEPA, 2002 | Source: RAGS Part E, Equation 3.11 and |
| | | | CF | Conversion Factor | 1.0E-06 | kg/mg | - | - | Equation 3.12 (USEPA,2004) |
| Dust Inhalation | Resident | Child (0-6 years) | $C_{Soil}$ | Chemical Concentration in Soil | chemical-specific | mg/kg | See Table 3 Series | | The calculation for Average Daily Exposure |
| | | | $CA_{air}$ | Concentration in Air | calculated using PEF | $ug/m^3$ | - | Calculated from soil | (ADE) ($ug/m^3$) is shown below: |
| | | | EF | Exposure Frequency | 350 | days/year | Default days spent at home | USEPA, 2014 | $ADE = \frac{CA_{air} \times ED \times EF \times ET}{AT \times 24(hr)}$ |
| | | | ED | Exposure Duration | 6 | year | Default based on age range | USEPA, 2014 | |
| | | | ET | Exposure Time | 24 | hour/day | Default for residential soil exposure | USEPA, 2014 | Source: RAGS Part F, Equation 8 (USEPA, 2009) |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2014 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 2,190 | day | ED x 365 d/yr | USEPA, 2014 | $CA_{air} = \frac{CS_{soil} \times 1000\,(ug/mg)}{PEF}$ |
| | | | PEF | Particulate Emission Factor | 1.36E+09 | $m^3/kg$ | Default | USEPA, 2002 | |

TABLE A2.2-1
Exposure Assumption Values Used For Daily Intake Calculations (RAGS D: Table 4)
Reasonable Maximum Exposure - Soil
Supplemental Human Health Risk Assessment
New York Ordnance Works

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil and Fugitive Dust

| Exposure Route | Receptor | Receptor Age | Parameter Code | Parameter Definition | Parameter Value | Units | Rationale | Reference | Intake Equation / Model Name |
|---|---|---|---|---|---|---|---|---|---|
| Dust Inhalation Cont'd | Resident | Adult | CS | Chemical Concentration in Soil | chemical-specific | mg/kg | See Table 3 Series | | The calculation for Average Daily Exposure (ADE) (ug/m$^3$) is shown below: $ADE = \frac{CA_{air} \times ED \times EF \times ET}{AT \times 24(hr)}$ Source: RAGS Part F, Equation 8 (USEPA, 2009) $CA_{air} = \frac{CS_{soil} \times 1000\ (ug/mg)}{PEF}$ |
| | | | $CA_{air}$ | Concentration in Air | calculated using PEF | ug/m$^3$ | - | Calculated from soil | |
| | | | EF | Exposure Frequency | 350 | days/year | Default days spent at home | USEPA, 2014 | |
| | | | ED | Exposure Duration | 20 | year | Default based on age range | USEPA, 2014 | |
| | | | ET | Exposure Time | 24 | hour/day | Default for residential soil exposure | USEPA, 2014 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2014 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 7,300 | day | ED x 365 d/yr | USEPA, 2014 | |
| | | | PEF | Particulate Emission Factor | 1.36E+09 | m$^3$/kg | Default | USEPA, 2002 | |
| | Commercial Worker | Adult | CS | Chemical Concentration in Soil | chemical-specific | mg/kg | See Table 3 Series | | The calculation for Average Daily Exposure (ADE) (ug/m$^3$) is shown below: $ADE = \frac{CA_{air} \times ED \times EF \times ET}{AT \times 24(hr)}$ Source: RAGS Part F, Equation 8 (USEPA, 2009) $CA_{air} = \frac{CS_{soil} \times 1000\ (ug/mg)}{PEF}$ |
| | | | $CA_{air}$ | Concentration in Air | calculated using PEF | ug/m$^3$ | - | Calculated from soil | |
| | | | EF | Exposure Frequency | 250 | days/year | Default days spent at home | USEPA, 2014 | |
| | | | ED | Exposure Duration | 25 | year | Default based on age range | USEPA, 2014 | |
| | | | ET | Exposure Time | 8 | hour/day | Default for residential soil exposure | USEPA, 2014 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2014 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 9,125 | day | ED x 365 d/yr | USEPA, 2014 | |
| | | | PEF | Particulate Emission Factor | 1.36E+09 | m$^3$/kg | Default | USEPA, 2002 | |
| | Trespasser/ Visitor | Adolescent (7-16 years) | $C_{Soil}$ | Chemical Concentration in Soil | chemical-specific | mg/kg | See Table 3 Series | | The calculation for Average Daily Exposure (ADE) (ug/m$^3$) is shown below: $ADE = \frac{CA_{air} \times ED \times EF \times ET}{AT \times 24(hr)}$ Source: RAGS Part F, Equation 8 (USEPA, 2009) $CA_{air} = \frac{CS_{soil} \times 1000\ (ug/mg)}{PEF}$ |
| | | | $CA_{air}$ | Concentration in Air | calculated using PEF | ug/m$^3$ | - | Calculated from soil | |
| | | | EF | Exposure Frequency | 48 | days/year | 2 days/week, 6 months/year (warmer months of April-September) | Assumption | |
| | | | ED | Exposure Duration | 10 | year | Value based on age range | Assumption | |
| | | | ET | Exposure Time | 3 | hour/day | Site specific for visitor soil exposure | Assumption | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2014 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 3,650 | day | Exposure duration (10 years x 365 days) | USEPA, 2014 | |
| | | | PEF | Particulate Emission Factor | 1.36E+09 | m$^3$/kg | Default | USEPA, 2002 | |
| | Outdoor Maintenace Worker | Adult | $C_{Soil}$ | Chemical Concentration in Soil | chemical-specific | mg/kg | See Table 3 Series | | The calculation for Average Daily Exposure (ADE) (ug/m$^3$) is shown below: $ADE = \frac{CA_{air} \times ED \times EF \times ET}{AT \times 24(hr)}$ Source: RAGS Part F, Equation 8 (USEPA, 2009) $CA_{air} = \frac{CS_{soil} \times 1000\ (ug/mg)}{PEF}$ |
| | | | $CA_{air}$ | Concentration in Air | calculated using PEF | ug/m$^3$ | - | Calculated from soil | |
| | | | EF | Exposure Frequency | 225 | days/year | Default outdoor worker value | USEPA, 2014 | |
| | | | ED | Exposure Duration | 25 | year | Default based on age range | USEPA, 2014 | |
| | | | ET | Exposure Time | 8 | hour/day | Default outdoor worker value | USEPA, 2014 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2014 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 9,125 | day | ED x 365 d/yr | USEPA, 2014 | |
| | | | PEF | Particulate Emission Factor | 1.36E+09 | m$^3$/kg | Default | USEPA, 2002 | |

TABLE A2.2-1
Exposure Assumption Values Used For Daily Intake Calculations (RAGS D: Table 4)
Reasonable Maximum Exposure - Soil
Supplemental Human Health Risk Assessment
New York Ordnance Works

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil and Fugitive Dust

| Exposure Route | Receptor | Receptor Age | Parameter Code | Parameter Definition | Parameter Value | Units | Rationale | Reference | Intake Equation / Model Name |
|---|---|---|---|---|---|---|---|---|---|
| Dust Inhalation Cont'd | Utility Worker | Adult | $C_{Soil}$ | Chemical Concentration in Soil | chemical-specific | mg/kg | See Table 3 Series | | The calculation for Average Daily Exposure (ADE) (ug/m$^3$) is shown below: $ADE = \frac{CA_{air} \times ED \times EF \times ET}{AT \times 24(hr)}$ Source: RAGS Part F, Equation 8 (USEPA, 2009) $CA_{air} = \frac{CS_{soil} \times 1000\ (ug\ /\ mg\ )}{PEF}$ |
| | | | $CA_{air}$ | Concentration in Air | calculated using PEF | ug/m$^3$ | - | Calculated from soil | |
| | | | EF | Exposure Frequency | 30 | days/year | 5 days/week for 6 weeks | Assumption | |
| | | | ED | Exposure Duration | 25 | year | Default outdoor worker value | USEPA, 2014 | |
| | | | ET | Exposure Time | 8 | hour/day | Default work day | USEPA, 2014 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2002 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 365 | day | ED x 365 d/yr | USEPA, 2002 | |
| | | | PEF | Particulate Emission Factor | 1.36E+09 | m$^3$/kg | Default | USEPA, 2002 | |
| | Construction Worker | Adult | $C_{Soil}$ | Chemical Concentration in Soil | chemical-specific | mg/kg | See Table 3 Series | | The calculation for Average Daily Exposure (ADE) (ug/m$^3$) is shown below: $ADE = \frac{CA_{air} \times ED \times EF \times ET}{AT \times 24(hr)}$ Source: RAGS Part F, Equation 8 (USEPA, 2009) $CA_{air} = \frac{CS_{soil} \times 1000\ (ug\ /\ mg\ )}{PEF}$ |
| | | | $CA_{air}$ | Concentration in Air | calculated using PEF | ug/m$^3$ | - | Calculated from soil | |
| | | | EF | Exposure Frequency | 250 | days/year | Construction worker default | USEPA, 2002 | |
| | | | ED | Exposure Duration | 1 | year | Construction worker default | USEPA, 2002 | |
| | | | ET | Exposure Time | 8 | hour/day | Default work day | USEPA, 2014 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2002 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 365 | day | ED x 365 d/yr | USEPA, 2002 | |
| | | | PEF | Particulate Emission Factor | 1.36E+09 | m$^3$/kg | Default | USEPA, 2002 | |

Acronyms:
ug/m$^3$ - micrograms per cubic meter
cm$^2$ - square centimeters
kg - kilograms
m$^3$/kg - cubic meters per kilogram
mg/kg - milligrams per kilogram
mg/m$^3$ - milligrams per cubic meter
mg/day - milligrams per day
kg/mg - kilograms per milligram
mg/cm$^2$-event - milligrams per square centimeter per event

References:
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USEPA, 2018. USEPA Region 4 Human Health Risk Assessment Supplemental Guidance Update. March.
USEPA, 2024. Regional Screening Levels (RSLs) - User's Guide. November.

Notes:
1. Soil exposure is not evaluated for a golfer for AOC 3 because they are assumed not to perform any intrusive activity and would only conduct the equivalent of passive recreational activity (i.e., walking).

Table A2.2-2
Exposure Assumption Values Used For Daily Intake Calculations (RAGS D: Table 4)
Reasonable Maximum Exposure - Groundwater
Baseline Human Health Risk Assessment Work Plan
New York Ordnance Works

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

| Exposure Route | Receptor | Receptor Age | Parameter Code | Parameter Definition | Value | Units | Rationale | Reference | Intake Equation / Model Name |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion | Resident | Child (0-6 years) | CW | Chemical Concentration in Groundwater | chemical-specific | mg/L | See Table 3 Series | USEPA, 2014b | The calculation for Intake (mg/kg-day) is shown below: $Intake = \frac{CW \times IR \times EF \times ED}{BW \times AT}$ Source: RAGS Part A, Exhibit 6-11 (USEPA, 1989) |
| | | | IR | Ingestion Rate | 0.78 | L/day | Default residential value | USEPA, 2014a | |
| | | | EF | Exposure Frequency | 350 | days/year | Default residential value | USEPA, 2014a | |
| | | | ED | Exposure Duration | 6 | year | Default residential value | USEPA, 2014a | |
| | | | BW | Body Weight | 15 | kg | Default child body weight | USEPA, 2014a | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | days | Lifetime (70 years x 365 days) | | |
| | | | AT-N | Averaging Time (Non-Cancer) | 2,190 | days | ED x 365 d/yr | | |
| | | Adult | CW | Chemical Concentration in Groundwater | chemical-specific | mg/L | See Table 3 Series | USEPA, 2014b | The calculation for Intake (mg/kg-day) is shown below: $Intake = \frac{CW \times IR \times EF \times ED}{BW \times AT}$ Source: RAGS Part A, Exhibit 6-11 (USEPA, 1989) |
| | | | IR | Ingestion Rate | 2.5 | L/day | Default residential value | USEPA, 2014a | |
| | | | EF | Exposure Frequency | 350 | days/year | Default residential value | USEPA, 2014a | |
| | | | ED | Exposure Duration | 20 | year | Default residential value | USEPA, 2014a | |
| | | | BW | Body Weight | 80 | kg | Default adult body weight | USEPA, 2014a | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | days | Lifetime (70 years x 365 days) | | |
| | | | AT-N | Averaging Time (Non-Cancer) | 7,300 | days | ED x 365 d/yr | | |
| | Visitor | Child (0-6 years) | CW | Chemical Concentration in Groundwater | chemical-specific | mg/L | See Table 3 Series | USEPA, 2014b | The calculation for Intake (mg/kg-day) is shown below: $Intake = \frac{CW \times IR \times EF \times ED}{BW \times AT}$ Source: RAGS Part A, Exhibit 6-11 (USEPA, 1989) |
| | | | IR | Ingestion Rate | 0.195 | L/day | Assumes use of drinking water fountain for 1/4 of total water consumed per day | Assumption | |
| | | | EF | Exposure Frequency | 72 | days/year | 3 days/week for 6 warmer months of the year | Assumption | |
| | | | ED | Exposure Duration | 6 | year | Age range | USEPA, 2014a | |
| | | | BW | Body Weight | 15 | kg | Default child body weight | USEPA, 2014a | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | days | Lifetime (70 years x 365 days) | | |
| | | | AT-N | Averaging Time (Non-Cancer) | 2,190 | days | ED x 365 d/yr | | |
| | | Adult | CW | Chemical Concentration in Groundwater | chemical-specific | mg/L | See Table 3 Series | USEPA, 2014b | The calculation for Intake (mg/kg-day) is shown below: $Intake = \frac{CW \times IR \times EF \times ED}{BW \times AT}$ Source: RAGS Part A, Exhibit 6-11 (USEPA, 1989) |
| | | | IR | Ingestion Rate | 0.625 | L/day | Assumes use of drinking water fountain for 1/4 of total water consumed per day | Assumption | |
| | | | EF | Exposure Frequency | 72 | days/year | 3 days/week for 6 warmer months of the year | Assumption | |
| | | | ED | Exposure Duration | 20 | year | Default adult | USEPA, 2014a | |
| | | | BW | Body Weight | 80 | kg | Default adult body weight | USEPA, 2014a | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | days | Lifetime (70 years x 365 days) | | |
| | | | AT-N | Averaging Time (Non-Cancer) | 7,300 | days | ED x 365 d/yr | | |

Table A2.2-2
Exposure Assumption Values Used For Daily Intake Calculations (RAGS D: Table 4)
Reasonable Maximum Exposure - Groundwater
Baseline Human Health Risk Assessment Work Plan
New York Ordnance Works

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

| Exposure Route | Receptor | Receptor Age | Parameter Code | Parameter Definition | Value | Units | Rationale | Reference | Intake Equation / Model Name |
|---|---|---|---|---|---|---|---|---|---|
| Dermal | Resident | Child (0-6 years) | CW | Chemical Concentration in Groundwater | chemical-specific | mg/L | See Table 3 Series | USEPA, 2014b | The calculation for Intake (mg/kg-day) is shown below: $DAD = \frac{DA_{event} \times EV \times EF \times ED \times SA}{BW \times AT}$ |
| | | | SA | Skin Surface Area Available for Contact | 6,365 | $cm^2$ | Default residential value; whole body | USEPA, 2014a | |
| | | | CF | Conversion Factor | 0.001 | $L/cm^3$ | -- | | |
| | | | EF | Exposure Frequency | 350 | days/year | Default residential value | USEPA, 2014a | Dermally absorbed dose (mg/kg-day) = |
| | | | ED | Exposure Duration | 6 | year | Default residential value | USEPA, 2014a | $DA_{event}$ ($mg/cm^2$-event) - Inorganics= PC x CW x CF x ET |
| | | | ET | Exposure Time | 0.54 | hour/event | Default residential value | USEPA, 2014a | $DA_{event}$ ($mg/cm^2$-event) - Organics= |
| | | | EV | Event Frequency | 1 | event/day | -- | USEPA, 2004 | ET < t* = |
| | | | BW | Body Weight | 15 | kg | Default child body weight | USEPA, 2014a | 2 x FA x PC x Cw x CF x SQRT(6 x $T_{event}$ x ET / π) |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | days | Lifetime (70 years x 365 days) | USEPA, 2014a | |
| | | | AT-N | Averaging Time (Non-Cancer) | 2,190 | days | ED x 365 d/yr | USEPA, 2014a | ET > t* = |
| | | | PC | Permeability Constant | chemical-specific | cm/hr | | USEPA, 2004; 2024 | FA x PC x CW x CF x (ET/(1+B)+2 x $T_{event}$t x ((1+3 x B+3+$B^2$)/(1+B)$^2$) |
| | | | FA | Fraction Absorbed | chemical-specific | dimensionless | | USEPA, 2004; 2024 | where t* is time to reach steady state (hour). |
| | | | $T_{event}$ | Lag Time | chemical-specific | hr/event | | USEPA, 2004; 2024 | |
| | | | B | Constant | chemical-specific | dimensionless | | USEPA, 2004; 2024 | Source: RAGS Part E, Equations 3.1-3.4 (USEPA, 2004) |
| | | Adult | CW | Chemical Concentration in Groundwater | chemical-specific | mg/L | See Table 3 Series | USEPA, 2014b | The calculation for Intake (mg/kg-day) is shown below: |
| | | | SA | Skin Surface Area Available for Contact | 19,652 | $cm^2$ | Default Residential; whole body | USEPA, 2014a | Dermally absorbed dose (mg/kg-day) = |
| | | | CF | Conversion Factor | 0.001 | $L/cm^3$ | -- | USEPA, 2014a | $DAD = \frac{DA_{event} \times EV \times EF \times ED \times SA}{BW \times AT}$ |
| | | | EF | Exposure Frequency | 350 | days/year | Default residential value | USEPA, 2014a | |
| | | | ED | Exposure Duration | 20 | year | Default residential value | USEPA, 2014a | $DA_{event}$ ($mg/cm^2$-event) - Inorganics= PC x CW x CF x ET |
| | | | ET | Exposure Time | 0.71 | hour/event | Default Residential | USEPA, 2014a | $DA_{event}$ ($mg/cm^2$-event) - Organics= |
| | | | EV | Event Frequency | 1 | event/day | -- | USEPA, 2004 | ET < t* = |
| | | | BW | Body Weight | 80 | kg | Default adult body weight | USEPA, 2014a | 2 x FA x PC x Cw x CF x SQRT(6 x $T_{event}$ x ET / π) |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | days | Lifetime (70 years x 365 days) | USEPA, 2014a | |
| | | | AT-N | Averaging Time (Non-Cancer) | 7,300 | days | ED x 365 d/yr | USEPA, 2014a | ET > t* = |
| | | | PC | Permeability Constant | chemical-specific | cm/hr | | USEPA, 2004; 2024 | FA x PC x CW x CF x (ET/(1+B)+2 x $T_{event}$t x ((1+3 x B+3+$B^2$)/(1+B)$^2$) |
| | | | FA | Fraction Absorbed | chemical-specific | dimensionless | | USEPA, 2004; 2024 | where t* is time to reach steady state (hour). |
| | | | $T_{event}$ | Lag Time | chemical-specific | hr/event | | USEPA, 2004; 2024 | |
| | | | B | Constant | chemical-specific | dimensionless | | USEPA, 2004; 2024 | Source: RAGS Part E, Equations 3.1-3.4 (USEPA, 2004) |

Table A2.2-2
Exposure Assumption Values Used For Daily Intake Calculations (RAGS D: Table 4)
Reasonable Maximum Exposure - Groundwater
Baseline Human Health Risk Assessment Work Plan
New York Ordnance Works

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

| Exposure Route | Receptor | Receptor Age | Parameter Code | Parameter Definition | Value | Units | Rationale | Reference | Intake Equation / Model Name |
|---|---|---|---|---|---|---|---|---|---|
| Dermal | Visitor | Child | CW | Chemical Concentration in Groundwater | chemical-specific | mg/L | See Table 3 Series | USEPA, 2014b | The calculation for Intake (mg/kg-day) is shown below: |
| cont'd | | (0-6 years) | SA | Skin Surface Area Available for Contact | 459 | $cm^2$ | Average of 0-6 yr old child male and female, face (1/3 of head) and hands | USEPA, 2011 (Table 7-2) | $DAD = \frac{DA_{event} \times EV \times EF \times ED \times SA}{BW \times AT}$ |
| | | | CF | Conversion Factor | 0.001 | $L/cm^3$ | -- | | |
| | | | EF | Exposure Frequency | 72 | days/year | 3 days/week for 6 warmer months of the year | Assumption | Dermally absorbed dose (mg/kg-day) = |
| | | | ED | Exposure Duration | 6 | year | Age range | USEPA, 2014a | $DA_{event}$ ($mg/cm^2$-event) - Inorganics= PC x CW x CF x ET |
| | | | ET | Exposure Time | 0.25 | hour/event | Assumption for water fountain | Assumption | $DA_{event}$ ($mg/cm^2$-event) - Organics= |
| | | | EV | Event Frequency | 2 | event/day | -- | Assumption | ET < t* = |
| | | | BW | Body Weight | 15 | kg | Default child body weight | USEPA, 2014a | 2 x FA x PC x Cw x CF x SQRT(6 x $T_{event}$ x ET / $\pi$) |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | days | Lifetime (70 years x 365 days) | USEPA, 2014a | |
| | | | AT-N | Averaging Time (Non-Cancer) | 2,190 | days | ED x 365 d/yr | USEPA, 2014a | ET > t* = |
| | | | PC | Permeability Constant | chemical-specific | cm/hr | | USEPA, 2004; 2024 | FA x PC x CW x CF x (ET/(1+B)+2 x $T_{even}$t x ((1+3 x B+3+$B^2$)/(1+B)$^2$) |
| | | | FA | Fraction Absorbed | chemical-specific | dimensionless | | USEPA, 2004; 2024 | where t* is time to reach steady state (hour). |
| | | | $T_{event}$ | Lag Time | chemical-specific | hr/event | | USEPA, 2004; 2024 | |
| | | | B | Constant | chemical-specific | dimensionless | | USEPA, 2004; 2024 | Source: RAGS Part E, Equations 3.1-3.4 (USEPA, 2004) |
| | Adult | | CW | Chemical Concentration in Groundwater | chemical-specific | mg/L | See Table 3 Series | USEPA, 2014b | The calculation for Intake (mg/kg-day) is shown below: |
| | | | SA | Skin Surface Area Available for Contact | 1,397 | $cm^2$ | Average of adult males and females, face (1/3 of head) and hands | USEPA, 2011 (Table 7-2) | Dermally absorbed dose (mg/kg-day) = |
| | | | CF | Conversion Factor | 0.001 | $L/cm^3$ | -- | USEPA, 2014a | $DAD = \frac{DA_{event} \times EV \times EF \times ED \times SA}{BW \times AT}$ |
| | | | EF | Exposure Frequency | 72 | days/year | 3 days/week for 6 warmer months of the year | Assumption | |
| | | | ED | Exposure Duration | 20 | year | Default adult | USEPA, 2014a | $DA_{event}$ ($mg/cm^2$-event) - Inorganics= PC x CW x CF x ET |
| | | | ET | Exposure Time | 0.25 | hour/event | Assumption for water fountain | Assumption | $DA_{event}$ ($mg/cm^2$-event) - Organics= |
| | | | EV | Event Frequency | 2 | event/day | -- | Assumption | ET < t* = |
| | | | BW | Body Weight | 80 | kg | Default adult body weight | USEPA, 2014a | 2 x FA x PC x Cw x CF x SQRT(6 x $T_{event}$ x ET / $\pi$) |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | days | Lifetime (70 years x 365 days) | USEPA, 2014a | |
| | | | AT-N | Averaging Time (Non-Cancer) | 7,300 | days | ED x 365 d/yr | USEPA, 2014a | ET > t* = |
| | | | PC | Permeability Constant | chemical-specific | cm/hr | | USEPA, 2004; 2024 | FA x PC x CW x CF x (ET/(1+B)+2 x $T_{even}$t x ((1+3 x B+3+$B^2$)/(1+B)$^2$) |
| | | | FA | Fraction Absorbed | chemical-specific | dimensionless | | USEPA, 2004; 2024 | where t* is time to reach steady state (hour). |
| | | | $T_{event}$ | Lag Time | chemical-specific | hr/event | | USEPA, 2004; 2024 | |
| | | | B | Constant | chemical-specific | dimensionless | | USEPA, 2004; 2024 | Source: RAGS Part E, Equations 3.1-3.4 (USEPA, 2004) |

Table A2.2-2
Exposure Assumption Values Used For Daily Intake Calculations (RAGS D: Table 4)
Reasonable Maximum Exposure - Groundwater
Baseline Human Health Risk Assessment Work Plan
New York Ordnance Works

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

| Exposure Route | Receptor | Receptor Age | Parameter Code | Parameter Definition | Value | Units | Rationale | Reference | Intake Equation / Model Name |
|---|---|---|---|---|---|---|---|---|---|
| Dermal | Utility | Adult | CW | Chemical Concentration in Groundwater | chemical-specific | mg/L | See Table 3 Series | USEPA, 2014b | The calculation for Intake (mg/kg-day) is shown below: |
| cont'd | Worker | | SA | Skin Surface Area Available for Contact | 4,653 | $cm^2$ | average of adult males and females forearms, hands, lower legs | USEPA, 2011 (Table 7-2) | $DAD = \frac{DA_{event} \times EV \times EF \times ED \times SA}{BW \times AT}$ |
| | | | CF | Conversion Factor | 0.001 | $L/cm^3$ | -- | USEPA, 2014a | |
| | | | EF | Exposure Frequency | 30 | days/year | 5 days/week for 6 weeks | Assumption | Dermally absorbed dose (mg/kg-day) = |
| | | | ED | Exposure Duration | 25 | year | Default outdoor worker value | USEPA, 2014 | $DA_{event}$ ($mg/cm^2$-event) - Inorganics= PC x CW x CF x ET |
| | | | ET | Exposure Time | 8 | hour/event | Assume 8-hour work day | Assumption | $DA_{event}$ ($mg/cm^2$-event) - Organics= |
| | | | EV | Event Frequency | 1 | event/day | -- | USEPA, 2004 | ET < t* = |
| | | | BW | Body Weight | 80 | kg | Default adult body weight | USEPA, 2014a | 2 x FA x PC x Cw x CF x SQRT(6 x $T_{event}$ x ET / π) |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | days | Lifetime (70 years x 365 days) | USEPA, 2014a | |
| | | | AT-N | Averaging Time (Non-Cancer) | 9,125 | days | ED x 365 d/yr | USEPA, 2014a | ET > t* = |
| | | | PC | Permeability Constant | chemical-specific | cm/hr | | USEPA, 2004; 2024 | FA x PC x CW x CF x (ET/(1+B)+2 x $T_{even}$t x ((1+3 x B+3+$B^2$)/(1+B)$^2$) |
| | | | FA | Fraction Absorbed | chemical-specific | dimensionless | | USEPA, 2004; 2024 | where t* is time to reach steady state (hour). |
| | | | $T_{event}$ | Lag Time | chemical-specific | hr/event | | USEPA, 2004; 2024 | |
| | | | B | Constant | chemical-specific | dimensionless | | USEPA, 2004; 2024 | Source: RAGS Part E, Equations 3.1-3.4 (USEPA, 2004) |
| | Construction Worker | Adult | CW | Chemical Concentration in Groundwater | chemical-specific | mg/L | See Table 3 Series | USEPA, 2014b | The calculation for Intake (mg/kg-day) is shown below: |
| | | | SA | Skin Surface Area Available for Contact | 4,653 | $cm^2$ | average of adult males and females forearms, hands, lower legs | USEPA, 2011 (Table 7-2) | $DAD = \frac{DA_{event} \times EV \times EF \times ED \times SA}{BW \times AT}$ |
| | | | CF | Conversion Factor | 0.001 | $L/cm^3$ | -- | USEPA, 2014a | |
| | | | EF | Exposure Frequency | 250 | days/year | Construction worker default | USEPA, 2002 | Dermally absorbed dose (mg/kg-day) = |
| | | | ED | Exposure Duration | 1 | year | Default | USEPA, 2002 (Exhibit 5-1) | $DA_{event}$ ($mg/cm^2$-event) - Inorganics= PC x CW x CF x ET |
| | | | ET | Exposure Time | 8 | hour/event | Assume 8-hour work day | Assumption | $DA_{event}$ ($mg/cm^2$-event) - Organics= |
| | | | EV | Event Frequency | 1 | event/day | -- | USEPA, 2004 | ET < t* = |
| | | | BW | Body Weight | 80 | kg | Default adult body weight | USEPA, 2014a | 2 x FA x PC x Cw x CF x SQRT(6 x $T_{event}$ x ET / π) |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | days | Lifetime (70 years x 365 days) | USEPA, 2014a | |
| | | | AT-N | Averaging Time (Non-Cancer) | 365 | days | ED x 365 d/yr | USEPA, 2014a | ET > t* = |
| | | | PC | Permeability Constant | chemical-specific | cm/hr | | USEPA, 2004; 2023 | FA x PC x CW x CF x (ET/(1+B)+2 x $T_{even}$t x ((1+3 x B+3+$B^2$)/(1+B)$^2$) |
| | | | FA | Fraction Absorbed | chemical-specific | dimensionless | | USEPA, 2004; 2023 | where t* is time to reach steady state (hour). |
| | | | $T_{event}$ | Lag Time | chemical-specific | hr/event | | USEPA, 2004; 2023 | |
| | | | B | Constant | chemical-specific | dimensionless | | USEPA, 2004; 2023 | Source: RAGS Part E, Equations 3.1-3.4 (USEPA, 2004) |

Table A2.2-2
Exposure Assumption Values Used For Daily Intake Calculations (RAGS D: Table 4)
Reasonable Maximum Exposure - Groundwater
Baseline Human Health Risk Assessment Work Plan
New York Ordnance Works

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

| Exposure Route | Receptor | Receptor Age | Parameter Code | Parameter Definition | Value | Units | Rationale | Reference | Intake Equation / Model Name |
|---|---|---|---|---|---|---|---|---|---|

Acronyms:
$cm^2$ - square centimeters
$cm^3$ - cubic centimeters
d/yr - days per year
kg - kilogram
L - liter
L/day - liters per day
mg/L - milligram per liter
$L/cm^3$ -liters per cubic centimeters
cm/hr - centimeters per hour
hr/event - hours per event

References:
USEPA, 1989. Risk Assessment Guidance for Superfund (RAGS) Volume I Human Health Evaluation Manual (Part A): EPA/540/1-89/002.
USEPA, 2002. "Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites." OSWER 9355.4-24. December.
USEPA, 2004. RAGs Volume 1, Human Health Evaluation Manual, Part E: Supplemental Guidance for Dermal Risk Assessment, EPA/540/R/99/005, July 2004.
USEPA, 2011. Exposure Factors Handbook: 2011 Edition. U.S. Environmental Protection Agency Office of Research and Development.
USEPA, 2014a. OSWER Directive 9200.1-120. Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors. Attachment 1. Recommended Default Exposure Factors.
USEPA, 2014b. OSWER Directive 9283.1-42. Determining Groundwater Exposure Point Concentrations, Supplemental Guidance. February.
USEPA, 2019. Update for Chapter 3 of the Exposure Factors Handbook, Ingestion of Water and Other Select Liquids. Office of Research and Development. EPA/600/R-18/259F. February.
USEPA, 2024. Regional Screening Levels (RSLs) - User's Guide. November.

Table A2.2-3
Exposure Assumption Values Used For Daily Intake Calculations (RAGS D: Table 4)
Reasonable Maximum Exposure - Surface Water
Baseline Human Health Risk Assessment Work Plan
New York Ordnance Works

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water

| Exposure Route | Receptor | Receptor Age | Parameter Code | Parameter Definition | Value | Units | Rationale | Reference | Intake Equation / Model Name |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion | Trespasser | Adolescent (7-16 years) | CW | Chemical Concentration in Surface Water | chemical-specific | mg/L | See Table 3 Series | | The calculation for Intake is shown below: $Intake = \frac{CW \times IR \times EF \times ED}{BW \times AT}$ |
| | | | IR | Ingestion Rate | 0.01 | L/day | 1/10th the amount ingested while swimming, upper percentile estimate for ages 21+ years | USEPA, 2019 (Table 3-7) | |
| | | | EF | Exposure Frequency | 48 | days/year | 2 days/week, 6 months/year (warmer months of April-September) | Assumption | |
| | | | ED | Exposure Duration | 10 | year | Default based on age range | USEPA, 2014 | |
| | | | BW | Body Weight | 45 | kg | Adolescent (7-16 years) weight | USEPA, 2018 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2014 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 3,650 | day | ED x 365 d/yr | Assumption | Source: RAGS Part A, Exhibit 6-11 (USEPA, 1989) |
| Dermal | Trespasser | Adolescent (7-16 years) | CW | Chemical Concentration in Surface Water | chemical-specific | mg/L | See Table 3 Series | | The calculation for Intake (mg/kg-day) is shown below: $DAD = \frac{DA_{event} \times EV \times EF \times ED \times SA}{BW \times AT}$ |
| | | | SA | Skin Surface Area Available for Contact | 4,675 | $cm^2$ | Value derived by averaging mean surface area body parts for face, forearms, hands, lower legs, and feet. Surface area of the face assumed to be 1/3 that of the head, forearms assumed to represent 45% of the arms, and lower legs assumed to represent 40% of the legs (Table 7-2 in 2011 EFH). | USEPA, 2011 | |
| | | | CF | Conversion Factor | 0.001 | $L/cm^3$ | -- | | Dermally absorbed dose (mg/kg-day) = $DA_{event}$ ($mg/cm^2$-event) - Inorganics= PC x CW x CF x ET |
| | | | EF | Exposure Frequency | 48 | days/year | 2 days/week, 6 months/year (warmer months of April-September) | Assumption | |
| | | | ED | Exposure Duration | 10 | year | Default based on age range | USEPA, 2014 | $DA_{event}$ ($mg/cm^2$-event) - Organics= |
| | | | $t_{event}$ | Exposure Time | 2 | hour/event | Assumes playing aound outside in the creek for 2 hours | Assumption | ET < t* = |
| | | | EV | Event Frequency | 1 | event/day | -- | USEPA, 2004 | 2 x FA x PC x Cw x CF x SQRT(6 x $T_{event}$ x ET / π) |
| | | | BW | Body Weight | 45 | kg | Adolescent (7-16 years) weight | USEPA, 2018 | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | days | Lifetime (70 years x 365 days) | USEPA, 2014 | |
| | | | AT-N | Averaging Time (Non-Cancer) | 3,650 | days | ED x 365 d/yr | USEPA, 2014 | ET > t* = |
| | | | PC | Permeability Constant | chemical-specific | cm/hr | | USEPA, 2004; 2024 | FA x PC x CW x CF x (ET/(1+B)+2 x $T_{event}$t x ((1+3 x B+3+$B^2$)/(1+B)$^2$) |
| | | | FA | Fraction Absorbed | chemical-specific | dimensionless | | USEPA, 2004; 2024 | where t* is time to reach steady state (hour). |
| | | | $T_{event}$ | Lag Time | chemical-specific | hr/event | | USEPA, 2004; 2024 | |
| | | | B | Constant | chemical-specific | dimensionless | | USEPA, 2004; 2024 | Source: RAGS Part E, Equations 3.1-3.4 (USEPA, 2004) |

Acronyms:
kg - kilograms
$L/cm^3$ - liters per cubic centimeters
L/day - Liters per day
mg/L - milligram/Liter
$cm^2$ - square centimeters
cm/hr - centimeters per hour
hr/event - hours per event

References:

USEPA, 1989. Risk Assessment Guidance for Superfund (RAGS) Volume I Human Health Evaluation Manual (Part A): EPA/540/1-89/002.
USEPA, 2004. RAGs Volume 1, Human Health Evaluation Manual, Part E: Supplemental Guidance for Dermal Risk Assessment, EPA/540/R/99/005, July 2004.
USEPA 2011. Exposure Factors Handbook: 2011 Edition. EPA/600/R-090/052F. Office of Research and Development, Washington, DC, National Center for Environmental Assessment. September.
USEPA, 2014. OSWER Directive 9200.1-120. Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors. Attachment 1. Recommended Default Exposure Factors.
USEPA, 2018. USEPA Region 4 Human Health Risk Assessment Supplemental Guidance Update. March.
USEPA, 2019. Update for Chapter 3 of the Exposure Factors Handbook, Ingestion of Water and Other Select Liquids. Office of Research and Development. EPA/600/R-18/259F. February.
USEPA, 2024. Regional Screening Levels (RSLs) - User's Guide. November.

Table A2.2-4
Exposure Assumption Values Used For Daily Intake Calculations (RAGS D: Table 4)
Reasonable Maximum Exposure - Sediment and Hydric Soils
Baseline Human Health Risk Assessment Work Plan
New York Ordnance Works

Scenario Timeframe: Current/Future
Medium: Sediment and Hydric Soils
Exposure Medium: Sediment and Hydric Soils

| Exposure Route | Receptor | Receptor Age | Parameter Code | Parameter Definition | Value | Units | Rationale/ Location | Reference | Intake Equation / Model Name |
|---|---|---|---|---|---|---|---|---|---|
| Ingestion | Trespasser | Adolescent (7-16 years) | $C_{sed}$ | Chemical Concentration in Sediment | chemical-specific | mg/kg | See Table 3 Series | | The equation for Chronic Daily Intake (mg/kg-day) from ingestion is shown below |
| | | | IR | Ingestion Rate of Sediment | 100 | mg/day | Use of adult value | USEPA, 2014; 2018; 2024 | |
| | | | FI | Fraction Ingested | 0.5 - 1 | unitless | For receptors exposed to hydric soil, it is assumed that this exposure will constitute a portion of the total exposure to soil and hydric soil. The sum of the fraction for soil and hydric soil will be set equal to 1 (e.g., 0.5 for soil, 0.5 for hydric soil) | Assumption | |
| | | | RBA | Relative Bioavailability in Soil | chemical-specific | unitless | Chemical-specific | USEPA, 2024 | |
| | | | EF | Exposure Frequency | 48 | days/year | 2 days/week, 6 months/year (warmer months of April-September) | Assumption | $Intake = \frac{C_{sed} \times IR \times FI \times RBA \times EF \times ED \times CF1}{BW \times AT}$ |
| | | | ED | Exposure Duration | 10 | year | Value based on age range | Assumption | |
| | | | BW | Body Weight | 45 | kg | Adolescent (7-16 years) weight | Assumption | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2014 | Source: RAGS Part A, Exhibit 6-14 (USEPA, 1989) |
| | | | AT-N | Averaging Time (Non-Cancer) | 3,650 | day | Exposure duration (10 years x 365 days) | USEPA, 2014 | Arsenic RBA is 0.6; RBA for other chemicals is 1 (USEPA 2012, USEPA 2024) |
| | | | CF1 | Conversion Factor | 1.0E-06 | kg/mg | - | | |
| Dermal Contact | Trespasser | Adolescent (7-16 years) | $C_{Sed}$ | Chemical Concentration in Sediment | chemical-specific | mg/kg | See Table 3 Series | | The equation for Dermally Absorbed Dose (DAD) (mg/kg-day) from dermal is shown below |
| | | | AF | Adherence Factor | 0.2 | mg/cm²-event | Adherence factor for a child resident used to be conservative | USEPA, 2014 | |
| | | | $ABS_d$ | Absorption Factor | chemical-specific | unitless | Chemical-Specific inputs in BHHRA | USEPA, 2004 | |
| | | | SA | Available Skin Surface Area | 4,675 | $cm^2$ | Value derived by averaging mean surface area body parts for face, forearms, hands, lower legs, and feet. Surface area of the face assumed to be 1/3 that of the head, forearms assumed to represent 45% of the arms, and lower legs assumed to represent 40% of the legs (Table 7-2 in 2011 EFH). | USEPA, 2011 | $DAD = \frac{DA_{event} \times EF \times ED \times EV \times SA}{BW \times AT}$ |
| | | | EV | Event Frequency per Day | 1 | event/day | - | Assumption | |
| | | | EF | Exposure Frequency | 48 | days/year | 2 days/week, 6 months/year (warmer months of April-September) | Assumption | Where $DA_{event}$ = |
| | | | ED | Exposure Duration | 10 | year | Value based on age range | Assumption | $DA_{event} = C_{sed} \times CF \times AF \times ABS_d$ |
| | | | BW | Body Weight | 45 | kg | Adolescent (7-16 years) weight | Assumption | |
| | | | AT-C | Averaging Time (Cancer) | 25,550 | day | Lifetime (70 years x 365 days) | USEPA, 2014 | Source: RAGS Part E, Equation 3.11 and Equation 3.12 (USEPA,2004) |
| | | | AT-N | Averaging Time (Non-Cancer) | 3,650 | day | Exposure duration (10 years x 365 days) | USEPA, 2014 | |
| | | | CF | Conversion Factor | 1.0E-06 | kg/mg | - | | |

Acronyms:
$cm^2$ - square centimeters
kg - kilograms
$mg/cm^2$-event - milligram per centimeter squared per event.
mg/kg - milligrams per kilogram
mg/day - milligrams per day

References:

USEPA, 1989. Risk Assessment Guidance for Superfund (RAGS) Volume I Human Health Evaluation Manual (Part A): EPA/540/1-89/002.
USEPA, 2004. "Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.
USEPA 2011. Exposure Factors Handbook: 2011 Edition. EPA/600/R-090/052F. Office of Research and Development, Washington, DC, National Center for Environmental Assessment. September.
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USEPA, 2014. OSWER Directive 9200.1-120. Attachment 1. Recommended Default Exposure Factors.
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USEPA, 2024. Regional Screening Levels (RSLs) - User's Guide. November.

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# Appendix C Ecological Risk Assessment Work Plan

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**Appendix C Screening Ecological Risk Assessment Work Plan**

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**REVISED DRAFT**

# SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT WORK PLAN

## CERCLA Remedial Investigation at the New York Ordnance Works Formerly Used Defense Site

## Baldwinsville, New York

***Prepared for:***

**U.S. Army Corps of Engineers**
**New England District**

***Prepared by:***

**WSP USA Federal Programs**

**April 2025**

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## LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| AOC | Area of Concern |
| AUF | area use factor |
| bgs | below ground surface |
| BTAG | Biological Technical Assistance Group |
| BERA | Baseline Ecological Risk Assessment |
| BTV | background threshold value |
| bw-day | body weight per day |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act |
| COPEC | contaminants of potential ecological concern |
| CSM | conceptual site model |
| DNCB | 2,4-dinitrochlorobenzene |
| DU | decision unit |
| ECOSAR | Ecological Structure Activity Relationships |
| Eco-SSL | ecological soil screening level |
| EPC | exposure point concentrations |
| ERA | ecological risk assessment |
| ERAGs | ecological risk assessment guidance |
| ESL | ecological screening level |
| EU | exposure unit |
| ft | feet |
| HMW | high molecular weight |
| HQ | hazard quotient |
| ISM | incremental sampling methodology |
| LANL | Los Alamos National Laboratory |
| LMW | low molecular weight |
| LOAEL | lowest observed adverse effect level |
| LOQ | limit of quantification |
| mg/kg | milligrams per kilogram |
| NOAEL | no observed adverse effect level |
| PAH | polyaromatic hydrocarbon |
| PAL | project action limits |
| RCRA | Resource Conservation and Recovery Act |
| RI | remedial investigation |
| RSLERA | Refined Screening Level Ecological Risk Assessment |
| SLERA | Screening Level Ecological Risk Assessment |
| SMDP | Scientific Management Decision Point |
| TRV | toxicity reference value |

| | |
|---|---|
| UCL | upper confidence limit |
| UFP-QAPP | Uniform Federal Policy for Quality Assurance Project Plans |
| USEPA | United States Environmental Protection Agency |
| WSP | WSP USA Federal Programs Inc. |

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## 1.0 INTRODUCTION

WSP USA Federal Programs Inc. (WSP) has prepared this Screening Level Ecological Risk Assessment (SLERA) Work Plan in support of the Phase 2 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Remedial Investigation (RI) at the New York Ordnance Works Formerly Used Defense Site (FUDS) in Baldwinsville, New York (hereafter referred to as the "Site"). The former New York Ordnance Works is located in Onondaga County, New York, near the Finger Lakes, about 1 mile northeast of the Village of Baldwinsville and approximately 13 miles north of Syracuse, New York. Portions of the Site are currently owned by the Radisson Community, the State of New York, and private owners.

The RI includes the following Areas of Concern (AOCs):

- AOC 1 – Former Ammonium Picrate area
- AOC 3 – Former Landfill area
- AOC 4 – Former Bunker area
- AOC 5 – Former Power Plant area, which includes five subareas (Boiler House, Coal Storage Area, Sub Station, Possible Dump, and the Coal Aggregate Bins Area)

As part of the Phase 2 RI, a SLERA for these AOCs is required. Because the SLERA is an inherently conservative process and contaminants of potential ecological concern (COPEC) are likely to be identified in the SLERA, an United States Environmental Protection Agency (USEPA) Ecological Risk Assessment Guidance Step 3A Refined SLERA (RSLERA) has been included in this workplan to support Scientific Management Decision Point (SMDP) discussions. Generally, the term SLERA is used to refer to the overall evaluation, and individual Ecological Risk Assessment Guidance components (i.e., Steps 1, 2, and 3A) are identified when referring to specific components. Although the RSLERA is typically considered to be the initial step of the Baseline Ecological Risk Assessment (BERA) (Step 3), this Work Plan follows the U.S. Army Corps of Engineers New England Division (NAE) practice of incorporating the refinements as part of Step 2 of the SLERA. Incorporation of refinements at this stage allows some of the conservatism of the SLERA to be mitigated and provides a technically defensible justification for focusing the BERA to only those receptors for which uncertainty associated with risk findings at the conclusion of Steps 2 indicates further evaluation is required. From a technical perspective, this does not impact the robustness of the risk evaluation and strengthens the risk conclusions for the SMDP at the end of Step 2.

This SLERA Work Plan has been prepared as a planning step for conducting the SLERA to address requirements of CERCLA and the National Contingency Plan, 40 Code of Federal Regulations Part 300 (USEPA, 1988), and is included as Appendix C of the Phase 2 Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP). Detailed information describing the Site characteristics, operational history, physical setting, and summaries of the previous investigations are not included in the SLERA Work Plan, and the reader is referred to particular worksheets in the Phase 2 UFP-QAPP.

## 1.1 PURPOSE AND SCOPE OF WORK

The purpose of the SLERA Work Plan is to document the methods and procedures for evaluating potential ecological risks associated with receptor exposure to COPECs identified in environmental media associated with each of the AOCs identified at the Site. The ecological receptors selected for this SLERA include terrestrial plants, terrestrial invertebrates, wildlife, aquatic life (e.g., sediment- and surface water-dwelling organisms), threatened and endangered species, and wetlands or other sensitive habitats associated with the four AOCs.

The SLERA will be conducted in general accordance with CERCLA requirements and is consistent with USEPA guidance including the following:

- Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments (USEPA, 1997)
- Guidelines for Ecological Risk Assessment (USEPA, 1998)
- The Role of Screening-Level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments (USEPA, 2001).

Other guidance documents, including the U.S. Army Corps of Engineers Conceptual Site Models (2012) and Standard Scopes for ERAs (USACE, 2016), will also be considered.

## 1.2 OBJECTIVES

The primary objective of the SLERA/RSLERA is to assess whether potential unacceptable ecological impacts are likely associated with exposure to CERCLA constituents in soil, surface water, porewater, or sediment related to historical Department of Defense (DoD) activities to support a determination whether ecological concerns can be ruled out or if additional ecological evaluation is needed. The overall approach entails the use of discrete samples to demonstrate no actionable risks for each AOC. If risks are unacceptable for a given AOC, the risk assessment may be refined or potentially areas where further investigations are warranted may be identified. These objectives will be met by implementing the process described in the SLERA and RSLERA flow charts presented in the Phase 1 Risk Screening and Data Gaps Analysis report (see Figures 5-1 and 5-2, respectively, in Appendix A). The SLERA/RSLERA report will be included as an appendix to the RI report.

## 1.3 WORK PLAN ORGANIZATION

This Work Plan includes the following components:

- **Section 1, Introduction.** Provides the scope, objectives, regulatory framework of the Work Plan, and Work Plan organization.
- **Section 2, SLERA Data Sources.** Describes the analytical datasets available to support the SLERA along with data reduction and processing steps.
- **Section 3, Problem Formulation – Introduction.** Describes the environmental setting. Based on the preliminary COPECs identified in Phase 1, provides details regarding the preliminary conceptual site model (CSM) that summarizes contamination sources, contaminant migration

pathways, potential exposure pathways for each identified receptor group. Develops assessment and measurement endpoints and risk questions.

- **Section 4, Problem Formulation – Step 1: Screening Level Ecological Effects Evaluation.** Describes the nature of the hazards posed by contaminants and development of media screening levels, wildlife toxicity reference values (TRVs), and how hazards will be quantified.
- **Section 5, Problem Formulation – Step 2: Screening Level Exposure and Risk Calculation.** Describes community receptors, wildlife receptors, quantifying wildlife exposures.
- **Section 6, Step 3A – Refined Problem Formulation/Risk Characterization**. Provides overview of the Step 3A refinement process including CSM, assessment and measurement endpoints, exposure point concentrations (EPCs), and refined effect concentrations.
- **Section 7, Conclusions/Uncertainty Analysis**. Provides a summary of SLERA/RSLERA findings, their sensitivities and key uncertainties that should be considered in decision making.
- **Section 8, References.** Provides a list of references used in the preparation of this document.

## 2.0 SLERA DATA SOURCES

Available analytical data for soil samples collected at all AOCs and aquatic media (surface water, porewater, and sediment) will be evaluated in the SLERA. Site groundwater analytical data will not be evaluated other than to determine whether sampling of downgradient aquatic habitats may be warranted. Although most ecological exposure occurs in the top 2 feet (ft) of soil, subsurface soil (i.e., 1 to 5 ft below ground surface [bgs]) will be used in the SLERA to evaluate potential exposures to burrowing mammals and deep-rooted plants. Historical chemistry data are available for the Site from reports dating from 1981 through 2008. During preparation of the Phase 1 UFP-QAPP (USACE, 2020), it was determined that those data are of limited use due to issues associated with their age with limited relevance to evaluating current exposures. Therefore, only data collected during the Phase 1 and Phase 2 RI field efforts will be considered for the SLERA, and a tiered approach will be used in the evaluation to screen and integrate these two datasets. Although most of the Phase 1 dataset is considered to be biased, the majority of the Phase 2 sampling program will result in unbiased data because sampling locations were selected using a spatially balanced statistical design approach. While the combination of these datasets will represent conservative exposure estimates, some of which can be considered "worse case," the risk assessment will be conducted using a tiered approach that incorporates refinements to reduce overall uncertainties.

### 2.1 PHASE 1 SAMPLING DATA

Phase 1 RI data were collected in 2021 and include analytical results for soil and groundwater samples collected at AOC 1, AOC 3, AOC 4, AOC 5, and background locations. All work was completed in accordance with applicable Federal, State, and local regulations, as well as industry standards and best management practices. In general, samples were collected and analyzed in accordance with the Final Uniform UFP-QAPP (USACE, 2020), with any deviations noted in the RI Phase 1 Field Reports (USACE, 2021 and 2022). Field documents, field data, and laboratory data were loaded into and managed within the FUDS Chemical database. With the exception of incremental sampling methodology samples collected from surface soil (0 to 1 ft bgs) in the bunker aprons of AOC 4, all samples collected were discrete soil samples collected from 0 to 10 ft bgs (i.e., 0 to 1 ft bgs, 1 to 5 ft bgs, and 5 to 10 ft bgs). Table 2-1 summarizes the data available from the Phase 1 field efforts, including the number of samples per medium (and depth interval for soils) and analyses conducted.

### 2.2 PHASE 2 SAMPLING DATA

For Phase 2 of the RI, additional investigations into the nature and extent, investigations into potential impacts to additional media (i.e., surface water, porewater, and sediment), and site-hydrogeological conditions (e.g., groundwater flow) are planned as detailed in the Phase 2 UFP-QAPP. Table 2-2 summarizes the number of proposed samples per medium (and depth interval for soils) that will be available for use from the Phase 2 field effort.

## 2.3 REVIEW, EVALUATION AND PRESENTATION OF ANALYTICAL DATA

Chemical analytical data associated with all previous and ongoing investigations will be reviewed and evaluated for quality, usefulness, and uncertainty. Data identified as being of acceptable quality for use in the SLERA will be summarized in a manner that presents the pertinent information to be applied in the SLERA. For example, soil samples from AOC 4 were collected using incremental sampling methodology (ISM). Given the low bias attributable to low surrogate recoveries for multiple samples, the uniformly low bias of results reported as nondetect was identified as a data gap (USACE, 2022). Phase 2 soil will be collected to confirm the ISM results, and these data will be used to assess risks for AOC 4. The analytical data may have qualifiers from the analytical laboratory quality control or data validation process that reflect the level of confidence in the data. Some of the more common qualifiers and their meanings are as follows (USEPA, 2002a):

- U – Chemical was analyzed for but not detected; the associated value is the sample quantitation limit.
- J – Value is estimated, probably below the contract-required quantitation limit.
- R – Quality control indicates that the data are unusable (chemical may or may not be present).
- B – Concentration of chemical in sample is not sufficiently higher than concentration in the blank (using the 5-times/10-times rule).

Validated data with "J" qualifiers are used in the risk assessment; data assigned "R" and "B" qualifiers following data validation are not. "U"-qualified data (nondetects) will be estimated to be equal to the reporting limit. Analytical data from field duplicates and parent sample results will be combined to yield one result for use in the generation of mean (and Step 3A upper confidence limit [UCL]) concentrations, as follows:

- Use the average of the field duplicate and parent sample if both are positive detections or if both are nondetects.
- Use the detected value if one sample is a positive detection and the other is a nondetect.

Polyaromatic hydrocarbon (PAH) data will be evaluated both as individual chemicals and as total concentrations for chemical subgroups. Total concentrations will be defined as the sum of the detected concentrations of individual chemicals within that chemical group. For the screening evaluation for PAHs, the totals will be calculated and presented assuming a value of half the limit of detection for non-detected results for individual analytes. Total concentrations will be calculated for the following groups:

- Total low molecular weight (LMW) PAHs – sum of acenaphthylene, acenaphthene, anthracene, fluorene, fluoranthene, naphthalene, methylnaphthalene, and phenanthrene
- Total high molecular weight (HMW) PAHs – sum of pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene
- Total PAHs – sum of each of the analytes listed above for total LMW and HMW PAHs

For each combination of AOC, medium and sampling depth (soil only), available data will be statistically summarized and the following information tabulated: analyte, detection frequency, range of detections or sample limits of quantification (LOQs), location of maximum concentration of LOQ, EPC, ecological screening level (ESL), maximum hazard quotient (HQ), number of samples exceeding ESL, preliminary COPEC (Y/N) and category. Preliminary COPEC categories will include: 1 – detected and HQ>=1; 2 – nondetect and maximum LOQ >= ESL; 3 – detected but no ESL; and 4 – nondetect and no ESL.

## 3.0 PROBLEM FORMULATION – INTRODUCTION

The problem formulation component is a systematic planning and scoping process that establishes the goals, breadth, and focus of the ERA (USEPA 1997, 1998). The problem formulation identifies the:

- Environmental setting and the COPECs known or suspected at the Site;
- Chemical fate and transport mechanisms and contaminated media relevant to the Site;
- Likely ecological receptors;
- Potentially complete exposure pathways (source to receptor); and,
- Assessment and measurement endpoints to focus the assessment.

The Phase 1 Risk Screening and Data Gap Analysis report (USACE, 2023a,b) presents the current problem formulation understanding including the current ecological CSM (Section 3.6). According to the toxicological basis of the ESLs, some receptors will be evaluated as ecological communities (i.e., community specific), while others are evaluated as individual populations or individuals of a species (i.e., receptor specific).

### 3.1 SITE SETTING

This section provides details necessary to understand the potential hazards posed by the Site, along with environmental conditions and the ecosystem (habitats, receptors) present. The SLERA will present a detailed ecological description of each AOC, including a listing of the habitat types, water bodies, flora and fauna assemblages and wetlands present at or near each AOC. Much of this information has been presented in the Phase I reports and will be reviewed and updated as necessary. Resources such as the New York Natural Heritage Database Nature Exposure online tool and the U.S. Fish and Wildlife Service Information for Planning and Consultation database will be required to confirm Phase 1 information including status of special interest species such as bat populations, including the following federally listed endangered mammal species: the Indiana bat (*Myotis sodalis*) and the northern long-eared bat (*M. septentrionalis*). The tricolored bat (*Perimyotis subflavus*) is also proposed to be listed as an endangered species (USFWS, 2022a) and updated information is necessary to determine whether any of these species warrant special consideration in the SLERA.

Prior to preparing the SLERA, a WSP ecologist will conduct a site visit at the AOCs to corroborate information described in the Phase I and to confirm identification of the representative wildlife receptors discussed in Section 3.5. The site visit will also focus on gaining a better understanding of the importance of glacial geology and impacts on topography, soil substrates, and surficial hydrology.

### 3.2 CONTAMINANT SOURCES/MIGRATION PATHWAYS

The primary contaminant sources are the historical activities at the individual AOCs that resulted in the release of contaminants to surface soils (secondary sources) from disposal, burning, and spillage/leakage. Subsequent migration led to contamination of additional downgradient media, including subsurface soil and groundwater (tertiary media) (Figures 3-1 through 3-4). The fate and transport of site-related constituents released into the environment depends on the physicochemical properties of the constituents and environmental media, and the physical characteristics of the migration pathway. The

primary constituent migration pathways from site sources to ecological exposure areas may include overland stormwater runoff associated with precipitation events and infiltration/leaching to groundwater and subsequent discharge to surface water (as evaluated using analytical data for sediment and pore water). Constituents may partition in various environmental media, such as surface water, sediment, and soil, and this affects the potential ecological risks posed to terrestrial and aquatic receptors.

The potential need to assess aquatic exposures in AOCs 1, 4, and 5, will be determined during the Phase 2 study based on review of upgradient soil and/or groundwater data and the determination that a complete migration pathway to aquatic habitat potentially exists (see Figures 3-1, 3-3, and 3-4).

### 3.3 PRELIMINARY COPECS

Table 3-1 summarizes the preliminary COPECs that were identified during the Phase 1 study based on risk screening using soil screening levels for terrestrial plants, terrestrial invertebrates, birds, and mammals. Note that target energetic material-related analytes (picric acid, 2,4-dinitrochlorobenzene [DNCB], and 2,4-dintirophenol) were not detected in Phase 1 surface soils collected at AOC 4. However, due to analytical uncertainty associated with the ISM composite data, additional discrete sampling will be conducted in Phase 2 to verify that these analytes are not COPECs.

### 3.4 SITE RELATED CONTAMINANTS

Section 5.3 of the Phase 1 Risk Screening and Data Gaps Analysis report (USACE, 2023a,b) established a process for categorizing chemical analytes with regard to whether they are likely present in Site media as a result of historical DoD-related activities. As outlined in Figure 5-1 in the Phase 1 Risk Screening and Data Gaps Analysis report (see Appendix A), the following steps were conducted to identify the SLERA dataset that were then screened against conservative benchmarks:

- Analytes related to former DoD activity
- Data of sufficient quality and quantity available
- Site concentrations not consistent with background conditions (including evaluation of PAH ratios and pyrogenic/petrogenic categorization)
- Nature, detection frequency, magnitude, and spatial distribution consistent with a potential source area or release

With respect to evaluating background consistency, soil (and groundwater) samples were collected from areas believed to be unimpacted by historical activities and analyzed for PAHs and metals during Phase 1. Site-specific background threshold values (BTVs) established in the Phase 1 Risk Screening (USACE, 2023a, b) will be used as a first line of evidence to determine whether concentrations detected in site media are attributable to background levels. Comparison to the site-specific BTVs is based on the null hypothesis that the site concentrations are consistent with background concentrations. If comparison to the site-specific BTVs indicates the likelihood of false positives (Type I error or the incorrect rejection of the null hypothesis), either single- or two-sample hypothesis testing may be considered for PAH and/or inorganic analytes as an additional risk refinement. The statewide background values (NYSDEC, 2006) will also be used as a supporting line of evidence in the site-to-background comparisons.

During Phase 2, background samples will be collected from hydric soils (Psc geological unit), sediment, surface water, and pore water media and analyzed for PAHs and metals. Following the statistical analytical procedures used in Phase 1, BTVs will be calculated for hydric soils, sediment, surface water, and pore water and compared with the maximum concentrations in AOC 1 and AOC 5 hydric soil datasets and AOC 3 surface water, pore water, and sediment datasets. Analytes consistent with background (i.e., maximum concentration < BTV) will be eliminated from the ESL screening process. Additional analyses will be conducted for soils in AOC 5 to help differentiate impacts related to historical sources related to coal storage and aggregate bins. Consistent with Phase 1 (USACE, 2023b) analyses, field observations during Phase 2 sampling, a pyrogenic/petrogenic PAH evaluation of the Phase 2 PAH data, and microscopic analysis to detect the presence of coal particles will be used as lines of evidence to identify DoD-related COPECs.

Preliminary COPECs were established using Phase 1 data. The process used in Phase 1 to determine whether analytes are associated with historical activities at the AOCs will also be conducted using the combined Phase 1 and 2 COPEC datasets (see Section 4.1.1). Consistent with the Phase 1 screening process, essential nutrients (calcium, iron, magnesium, potassium, and sodium) will not be identified as COPECs, as they are not related to DoD-related releases. These analytes are necessary for metabolic processes in organisms and at naturally occurring concentrations, receptors can regulate uptake and metabolism of these elements. Conclusions regarding site-related status of detected analytes (including Phase 1 conclusions based on detection frequencies and spatial distribution) will also be reevaluated. The Phase 1 conclusions regarding analytes without ESLs or non-detected analytes with LOQs exceeding project action limits will also be reassessed.

### 3.5 ECOLOGICAL RECEPTORS

Ecological receptors were identified in the Phase 1 Risk Screening and Data Gaps Analysis report (included in Appendix A) based on consideration of available habitat conditions and information obtained from site visits by the Project Delivery Team (PDT) members, observations noted during field sampling events, and a wetland delineation and vernal pool survey (USACE, 2020). In addition, various online resources were queried and state resource personnel contacted. This information was compiled in a Resource Receptor Inventory (Appendix K; USACE, 2023) and was used to identify ecological receptor groups with the potential for adverse effects resulting from exposure to contaminants at the Site (Figures 3-1 through 3-4). Table 3-2 summarizes the types of receptors and level of organization (i.e., community or population) that will be evaluated in the SLERA and provides specifics regarding the AOCs and exposure media (and depths) where those potential exposures will be evaluated. Community-level receptors are defined for specific media to encompass the range of non-wildlife organisms that may be present in a given habitat. For terrestrial habitat, the plant community consist of all rooted vascular plants (ranging from annuals to woody perennial species) and soil invertebrates include various insects, oligochaetes (earthworms), isopods (e.g., woodlice) and chilopods (e.g., centipedes). Terrestrial plants and invertebrates are assumed to be exposed to COPECs in both surface and subsurface (1 to 5 ft bgs) soils. The AOC 3 stream potentially provides aquatic habitat for both pelagic organisms (including insects, amphibians, fish and aquatic plants) and benthic organisms (e.g., oligochaetes, insect larvae, and rooted vascular plants). These two

community-level receptors are assumed to be exposed to COPECs in surface water and sediment/porewater, respectively.

The representative wildlife include both mammal and avian species that were selected based on known or likely occurrence at the Site (see USACE, 2023a,b). In addition, the selected bird and mammal species represent all trophic categories (i.e., herbivores, omnivores, carnivores) anticipated for exposed wildlife receptors. In general, wildlife receptors were preferentially selected to include animals that reflect more conservative exposures (e.g., low body weight, higher soil ingestion rates) appropriate for meeting the SLERA objectives (see Section 1.2). Wildlife receptors at AOCs 1, 4, and 5 are assumed to be exposed to COPECs in surface, soil whereas only burrowing mammals are assumed to be exposed to subsurface (1 to 5 ft bgs) at all AOCs. Although AOC 4 is located within the Three Rivers State Wildlife Management Area, no migration pathway to aquatic habitat is considered likely. As a result, only evaluation of terrestrial endpoints is currently planned; however, this understanding may be revised following review of the Phase 2 groundwater dataset.

### 3.6 PRELIMINARY CONCEPTUAL SITE MODEL

The preliminary ecological CSMs for AOCs 1, 3, 4, and 5 developed in the Phase 1 Risk Screening and Data Gaps Analysis report (USACE, 2023a,b) are presented in Figures 3-1 through 3-4, respectively. For all four AOCs, the principal release mechanisms were historical activities, including dumping that resulted in direct release of contaminated materials to soil and subsequent soil infiltration/leaching that impacted subsurface soils and groundwater. Subsequent discharge of contaminated groundwater to downgradient aquatic habitat (AOC 3) could result in potential ecological exposures to sediment, pore water, and surface water. This latter pathway may also be complete at AOCs 1, 4, and 5 and potentially affected aquatic habitat may be sampled following evaluation of the Phase 2 groundwater data and release mechanisms associated with soil and groundwater.

The CSM also identify potential exposure pathways, including incidental ingestion and dermal/direct contact and receptor categories as discussed in Section 3.5. Note that the Phase 1 CSMs do not include a contaminated prey consumption pathway. The SLERA/RSLERA will also evaluate this pathway using wildlife exposure models that include prey types, ingestion rates, and estimated analyte concentrations in consumed prey. The CSMs will be revised, as necessary following screening of the Phase 2 data and refinement of exposure and effects assumptions in Step 3A.

### 3.7 ASSESSMENT/MEASUREMENT ENDPOINTS/RISK QUESTIONS

According to the USEPA (1998), assessment endpoints are formal expressions of the environmental value or ecological resource to be protected. Assessment endpoints most often describe the environmental effects that drive decision-making, such as reduction of key populations or disruption of biological community structure. Typically, assessment endpoints and receptors are selected for their potential exposure, sensitivity, ecological significance, economic importance, societal relevance, and are generally associated with sensitive populations, communities, or trophic guilds. The assessment endpoints proposed for this SLERA seek to maintain healthy communities/populations of flora and fauna within and around the Site.

Key assessment endpoints for supporting healthy populations typically involve minimizing adverse effects to survival, growth, and reproduction. Because the assessment endpoints cannot be measured directly, a set of surrogate endpoints (known as measurement endpoints or measures of effect) are generally selected that relate to the assessment endpoints and have measurable attributes (e.g., comparison of media concentrations to screening levels) (USEPA 1997, 1998). These measures of effect provide a quantitative metric for evaluating potential effects of COPECs on the ecological components chosen as the assessment endpoints. The measurement endpoints for this evaluation are represented by the HQs, which are intended to quantify potential impacts (or lack of impacts) at the appropriate level of ecological organizations (i.e., population or community). The measurement endpoint is closely linked to the assessment endpoint (healthy populations or communities), and the necessary inferences that can be made (i.e., one can infer the "healthiness" of the population). Where an estimated exposure level or dose is less than the corresponding ESL or TRV (i.e., HQ less than 1), effects on populations or communities of biota are not expected; however, where an estimated exposure level is greater than the corresponding criterion (i.e., HQ greater than 1), harmful effects on populations or communities of biota may or may not occur and further study or response actions may be required.

Based on the preliminary ecological CSMs and site characteristics, assessment endpoints, model species, measurement endpoints, and risk questions were selected for the SLERA. These are presented in Table 3-3.

## 4.0 PROBLEM FORMULATION – STEP 1: SCREENING LEVEL ECOLOGICAL EFFECTS EVALUATION

As specified in the Ecological Risk Assessment Guidance for Superfund, the ecological effects evaluation is part of Step 1 of the SLERA. Protective ESLs are developed for both community-level receptors and wildlife, and chronic no observed adverse effect levels (NOAELs) are also derived for specific wildlife receptors. Conservative media-based ESLs were identified for inorganic and organic analytes detected in soil, sediment, surface water, and porewater for the preliminary evaluation of the potential risks to community-level receptors from exposure to site COPECs. The ESLs and their sources are described below by media. This is followed by a discussion of the wildlife TRVs selected for the initial evaluation of potential risks to wildlife receptors from oral exposure to site COPECs in soils and food/prey tissue.

### 4.1 MEDIA SCREENING LEVELS

Consistent with the screening approach utilized in Phase 1, ESLs were developed for soil, sediment, and aqueous media using datasets compiled by the USEPA and the Los Alamos National Laboratory (LANL). A hierarchical approach was used to preference rank the selected datasets as described in the subsections below for each exposure medium, and the lower of the selected ecological-based values were compared to screening levels protective of human health to identify risk-based project action limits that are presented in the QAPP Worksheet #15.

Media-based ESLs will be used to identify preliminary COPECs for both terrestrial and aquatic community receptors and to identify analytes requiring wildlife exposure modeling in Step 2. As part of the screening process, the ESL sources listed below will be checked to verify that the values used are current.

Soil COPECs have already been identified in Phase 1 (Table 3-1), and a phased process will be used to screen soil analytes in the SLERA. The phased SLERA steps include the following:

1. Use Equation 1 (see Section 4.3), screen media-specific maximum analyte concentrations using the combined Phase 1 and 2 data subsets for each AOC and assessment endpoint receptor specific ESLs (Attachment C.2). For analytes that exceed (or lack) ESLs, compare inorganic and PAH data to appropriate background BTVs, evaluate detection frequencies, exceedance magnitude and spatial distribution, advance all analytes and receptors that cannot be eliminated and update the CSM.
2. For wildlife receptors identified in Step 2 (see Section 4.3), rescreen using Equation 2, maximum analyte concentrations and conservative exposure parameters (Table 5-1) and NOAEL TRVs (Table 4-1).

Phase 1 did not evaluate surface water, sediment, or porewater media, and wildlife exposures to contaminants in these media are not included in the current CSM. Therefore, the screening process will consist of just a single step:

1. Use Equation 1 (see Section 4.3), screen media-specific maximum analyte concentrations and ecological ESLs specific to aquatic and benthic community endpoints (Attachment C.2), compare inorganic and PAH data to appropriate background BTVs, evaluate detection frequencies, exceedance magnitude and spatial distribution, advance all analytes and receptors that cannot be eliminated and update CSM.

Analytes that are not eliminated in the above steps will be evaluated in the RSLERA.

### 4.1.1 Soil

Following an assessment of data usability, the first phase will compare maximum detected concentrations in the validated Phase 2 analytical dataset to the lowest available ESLs presented in Attachment C.2-1. The data for all analytes that are not eliminated in either the Phase 1 or initial Phase 2 risk screenings will then be combined for evaluation in the second phase. Consistent with the Phase 1 risk screening process, the maximum analyte concentrations will be compared to receptor-specific ESLs for terrestrial plants, terrestrial invertebrates, and wildlife receptors in the second phase as described in Sections 4 and 5. Note that the Phase 1 wildlife ESLs were not based on Site-specific exposure assumptions, which will be utilized in Phase 2. Preliminary soil ESLs were selected using the following hierarchy:

1. EPA ecological soil screening levels (Eco-SSLs) (USEPA, 2003a) – the lowest values available for plants, soil invertebrates, birds and mammals were selected.
2. Region 4 Ecological Risk Assessment Supplemental Guidance (USEPA, 2018a) – the lowest value available for plants, soil invertebrates, birds and mammals was selected.
3. EPA Region 5 Resource Conservation and Recovery Act (RCRA) ecological SLs (USEPA, 2003b) – the majority of values are based on small mammal exposure models.
4. LANL EcoRisk screening levels (Intellus, 2024) – the lowest no-effect level values available for plants, soil invertebrates, birds and mammals were selected.

Available soil ESLs for the analytical groups specified in Table 2-2 and the selected ESLs for each analyte are presented in Attachment C-2. Eco-SSL values are available for a majority of the inorganics as well as for LMW and HMW PAHs; whereas the EPA Region 4 compilation was the source for nearly all organic analytes, including 2,4-dinitrophenol (used to develop a surrogate-based value for picric acid as described in Attachment C-1). Finally, the USEPA Region 5 ESL (based on exposure to the masked shrew [*Sorex cinereus*]) for 2,4-dinitrotoluene was used to develop a surrogate value for dinitrochlorobenzene as discussed in Attachment C. Selected preliminary soil ESLs are presented in Attachment C, Table C.2-1.

Following the initial screening of the soil datasets, all analytes that exceed the conservative ESLs and those analytes lacking ESLs will be carried forward to a second screening step. At this point, community-specific ESLs will be identified for terrestrial plants and soil invertebrates for contaminants in surface soil.

Terrestrial Plants. Most of the phytotoxicity ESLs are sourced from the USEPA Region 4 soil ESLs (USEPA, 2018a). Phytotoxicity ESLs were generally only available for metals, some PAHs, some semi-volatile organic compounds, some pesticides, and total polychlorinated biphenyls. The USEPA's Eco-SSLs (USEPA, 2007), ORNL's benchmarks for plants (Efroymson et al., 1997a), and the LANL's no-effect ESLs (Intellus, 2024) will be the primary resources used to identify plant community ESLs. USEPA's Screening Level Ecological Risk Protocol for Hazardous Waste Combustion Facilities (1999a), and the National Oceanic and Atmospheric Administration ESLs (Buchman, 2008) will be reviewed for benchmarks for analytes not included in the primary sources listed above.

Terrestrial Invertebrates. Most of the soil invertebrate ESLs are also sourced from the USEPA Region 4 soil ESLs (USEPA, 2018a). The primary sources utilized by USEPA Region 4 for the soil invertebrate ESLs are the USEPA's Eco-SSLs (USEPA, 2007a), the LANL's no-effect ecological ESLs (Intellus, 2024), and the Ecological Structure Activity Relationship (ECOSAR) and Region 4 soil model which coupled water quality ESLs in ECOSAR with equilibrium partitioning theory to derive soil ESLs.

Wildlife. Wildlife-specific ESLs will be primarily sourced from the USEPA Region 4 soil ESLs (USEPA, 2018) along with Eco-SSLs, EPA Region 5 RCRA ESLs (USEPA, 2003b) and the LANL's no-effect ESLs (Intellus, 2024). Wildlife exposure modeling for the representative wildlife species identified in Table 3-3 will then be performed for all soil analytes that exceed either avian or mammal-specific ESLs.

### 4.1.2 Sediment

Sediment ESLs for the benthic community associated with the creek at AOC 3 will be selected using the following hierarchy: (1) Region 4 Ecological Risk Assessment Supplemental Guidance (USEPA, 2018b), (2) USEPA Region 3 Biological Technical Assistance Group (BTAG) Screening Benchmarks (USEPA, 2006) (3) USEPA Region 5 ESLs (USEPA, 2003b), and (4) LANL EcoRisk screening levels (Intellus, 2024). Table C.2-2 (Attachment C) summarizes the information in these reference sources and identifies sediment ESLs.

### 4.1.3 Surface Water

Aqueous ESLs for screening analytes detected in AOC 3 surface water and porewater analytes will be identified using the following hierarchy: (1) USEPA National Recommended Water Quality Criteria (current), (2) Region 4 Ecological Risk Assessment Supplemental Guidance (USEPA, 2018a), (3) USEPA Region 3 BTAG Screening Benchmarks (USEPA, 2006), (4) USEPA Region 5 RCRA ESLs (2003b), and (5) LANL EcoRisk screening levels (Intellus, 2024). Table C.2-3 (Attachment C) summarizes the information in these reference sources and identifies surface water/pore water ESLs.

## 4.2 WILDLIFE TRVS

To evaluate the potential for adverse effects to mammal and bird wildlife receptors exposed to COPECs at the Site, estimated exposures (as an ingested dose) are compared to TRVs. A TRV is defined as a daily dose of a chemical expressed in milligrams per kilogram (mg/kg) of body weight per day (bw-day). The TRV may be represented as a dose associated with the NOAEL or the lowest observed adverse effect level (LOAEL). Because NOAELs are associated with no effects in a test study, it is uncertain whether they are close to or far below the threshold value at which effects would first be observed. LOAELs therefore serve to bound

the range of NOAELs, and the threshold of toxic effects is assumed to fall between the NOAEL and the LOAEL. Typically, chronic NOAELs or LOAELs are used with endpoints that target effects on reproduction, growth, and/or survival. These endpoints are intended to be protective of populations of wildlife receptors rather than individual animals. In accordance with USEPA Region 3 guidance, TRVs will be determined for any detected COPEC listed in Table 4-2 ("Important Bioaccumulative Compounds" in USEPA [2000]). Additionally, if the maximum concentration for a COPEC exceeded an ESL for community-level receptors, then a TRV will be developed (if possible). Both NOAEL and LOAEL TRVs are discussed here, although the SLERA (Steps 1 and 2) will compare wildlife doses based on maximum exposure concentrations to NOAEL TRVs only. LOAEL TRVS, along with NOAEL TRVs, will be used in the refined risk characterization in Step 3A.

The sources for the TRVs for wildlife indicator species include the USEPA Eco-SSLs (USEPA, 2005a–f, 2006b, 2007b–f, 2008), Toxicological Benchmarks for Wildlife (Sample et al., 1996), USEPA Screening Level Ecological Risk Assessment Protocol for Hazardous Combustion Waste Facilities (1999a), and other scientific literature as necessary and appropriate. Each of these sources and the corresponding TRVs are discussed in more detail in the following paragraphs. TRVs presented in the Eco-SSL documents were derived in a transparent, systematic manner by a multi-stakeholder workgroup consisting of federal, state, consulting, industry, and academic participants led by the USEPA's Office of Superfund Remediation and Technology Innovation (USEPA, 2005i). For many of the NOAEL TRVs where the Eco-SSLs were used as the primary source, the selected NOAEL is the highest bounded NOAEL for growth, reproduction, or survival below the lowest bounded LOAEL for the same endpoints. This is true for antimony, arsenic, cadmium, copper, lead, nickel, selenium, vanadium, LMW PAHs, and HMW PAHs for mammals, and copper, lead, selenium, vanadium for birds. For some NOAEL TRVs, the indicated value is the geometric mean of the TRV values presented for growth, reproduction, and/or mortality endpoints. TRVs developed in this manner include barium, chromium, cobalt, manganese, and zinc for mammals, and cadmium, chromium, hexavalent chromium, cobalt, manganese, nickel, zinc for birds. TRVs for COPECs without Eco-SSLs were based on single studies with growth, reproduction, or mortality endpoints as presented in Sample et al. (1996) and USEPA (1999a).

Extrapolation factors (e.g., 0.1–- LOAEL to NOAEL or 10 -NOAEL to LOAEL) may be used if either a NOAEL or LOAEL is not available (the latter for consideration in Step 3A). Table 4-1 summarizes TRVs for various analytes that will likely need to be evaluated in the SLERA. Additional TRVs will be developed as necessary using the sources described above. A brief summary of the critical effect, test species, source of the TRV, and a short explanation of the derivation process based on the indicated source are provided for each set of values. As noted above, only the NOAEL TRVs will be used in Step 2. A qualitative discussion of the uncertainty associated with the data gaps associated with analytes lacking wildlife TRVs (e.g., bird value for antimony in Table 4-1) will be provided in the Uncertainty Analysis (Section 7).

### 4.3 SCREENING LEVEL RISK ESTIMATION

Section 4.1.1 describes the phased screening approach that will be conducted to reduce the number of Phase 2 soil analytes prior to combining with the data for ecological COPECs previously identified in Phase1. For the SLERA, potential risks posed by site-related chemicals will be determined using the HQ

approach where an HQ was calculated for each chemical and measurement receptor/community pair. For community-level receptors the HQ is the ratio of a potential exposure level to the applicable toxicity-based ESL as reflected in the following equation:

$$HQ = {}^{C_{media}}/_{ESL} \qquad \text{Equation 1}$$

where:

HQ = hazard quotient

$C_{media}$ = maximum concentration in surface water, pore water, soil, and sediment (mg/kg or mg/L).

ESL = Ecological screening level protective of terrestrial plants, terrestrial invertebrates, benthic invertebrates, or aquatic life

Potential risks to wildlife receptors will be characterized by comparing the total calculated ingested dose with the NOAEL TRVs derived from the literature for each endpoint species. Specifically, HQs will be calculated by dividing the total dose (total estimated exposure) by the NOAEL, as shown in the following equation:

$$HQ = {}^{EE_{total}}/_{NOAEL} \qquad \text{Equation 2}$$

where:

HQ = hazard quotient

$EE_{total}$ = Total estimated exposure (mg/kg bw-day)

NOAEL = No observed adverse effect level (mg/kg bw-day).

For a given receptor/chemical pair, an HQ less than 1 suggests negligible potential risk. Conversely, an HQ greater than or equal to 1 suggests that a potential risk may exist, and further evaluation is warranted.

# 5.0 PROBLEM FORMULATION – STEP 2: SCREENING LEVEL EXPOSURE AND RISK CALCULATION

The abiotic screening process includes a comparison of the maximum concentrations of contaminants detected in surface soil, sediment, surface water, and pore water to the respective ESLs discussed in Section 5.1. There are three possible outcomes; the treatment of these outcomes is as follows:

- Outcome 1: The detected contaminant's maximum concentration is below an accepted screening level threshold. These contaminants are considered to present negligible risk for a particular exposure pathway and are eliminated as COPECs.
- Outcome 2: Contaminant is detected at concentrations exceeding its screening threshold (i.e., HQ >1). These contaminants may present potential risks to ecological receptors and are carried forward to Step 3A of the risk assessment.
- Outcome 3: For community-based exposure pathways, a contaminant is detected but no acceptable screening threshold is available. These contaminants are retained for further evaluation and/or discussion in the Step 3A uncertainty analysis.

Analytes will be eliminated from the screening process if not detected at a given exposure point (i.e., AOC), or are essential nutrients (calcium, iron, magnesium, potassium, and sodium). Additionally, aluminum will be eliminated as a soil COPEC. According to the USEPA Eco-SSL document for aluminum (USEPA, 2003a), aluminum is identified as a COPEC only at sites where the soil pH is less than 5.5.

## 5.1 COMMUNITY RECEPTORS

COPECs for the terrestrial-plant community will be selected by comparing maximum contaminant concentrations in surface (0 to 1 ft bgs) and subsurface soil (1 to 5 ft bgs) with the selected soil ESLs for effects on plants. COPECs for the soil-invertebrate community will be selected by comparing maximum contaminant concentrations in surface and subsurface (1 to 5 ft bgs only) soils with ESLs for effects on soil fauna.

COPECs for the aquatic community (including plants, fish, amphibians, and invertebrates [both pelagic and demersal]) will be selected by comparing maximum contaminant concentrations in surface water, pore water, and sediment samples with chronic criteria and standards and other relevant ESLs for the protection of aquatic life.

In addition to screening ESLs for community receptors against maximum concentrations, ESLs will also be compared to analyte concentrations on a sample-by-sample basis and spatial patterns in any identified exceedances evaluated.

## 5.2 WILDLIFE RECEPTORS

Chemical exposure doses will be calculated as the sum of exposures from diet and incidental soil ingestion. Dietary exposure was estimated using the following equation:

$$EE_{diet} = C_f * IR_{f-BW} * AUF * ED \qquad \text{Equation 3}$$

where:

$EE_{diet}$ = Estimated exposure from diet (mg/kg bw-day)
$C_f$ = Contaminant concentration in food (mg/kg, dry weight)
$IR_{f\text{-}BW}$ = Body-weight normalized food ingestion rate (kg dry weight/kg bw/day)
AUF = Area use factor (unitless)
ED = Exposure duration (unitless)

Table 5-1 summarizes wildlife exposure parameters for the six representative wildlife species, and Table 5-2 summarizes contaminant uptake factors used to estimate contaminant transfer between soil and wildlife dietary components including plants, soil invertebrates, and small mammal tissue. Values are provided for individual PAHs and potential inorganic COPECs; additional uptake factors will be developed as necessary once the preliminary wildlife COPECs are identified.

Wildlife exposure to chemicals through incidental soil ingestion will be estimated in a manner similar to that used for dietary exposure, as shown in the following equation:

$$EE_{soil} = C_s * IR_{s-BW} * AUF * ED \qquad \text{Equation 4}$$

where:

$EE_{soil}$ = Estimated exposure from incidental soil ingestion (mg/kg bw-day)
$C_s$ = Contaminant concentration in soil (mg/kg, dry weight)
$IR_{s\text{-}BW}$ = Body-weight normalized soil ingestion rate (kg dry weight/kg bw/day)
AUF = Area use factor (unitless)
ED = Exposure duration (unitless)

For all wildlife exposure pathways, the area use factor (AUF) and exposure duration will be assumed to be 1 (no exposure adjustment) for the SLERA. In addition, the dietary component anticipated to contribute the largest dose will be assumed to represent 100% of a receptor's diet.

The total exposure for a receptor is calculated as the sum of the exposure from diet and incidental soil ingestion as represented by the following equation:

$$EE_{total} = EE_{diet} + EE_{soil} \qquad \text{Equation 5}$$

where:

$EE_{total}$ = Total estimated exposure (mg/kg bw-day)

$EE_{diet}$ = Estimated exposure from diet (mg/kg bw-day)

$EE_{soil}$ = Estimated exposure from incidental soil ingestion (mg/kg bw-day)

Wildlife exposures will be estimated separately for each AOC, assuming their exposure area or exposure unit (EU) is the same as the AOC. Potential risks posed by site-related chemicals will be determined by calculating an HQ for each chemical for each endpoint species using Equation 2 (Section 4.3), and the findings will be summarized by AOC and media.

## 6.0 STEP 3A – REFINED PROBLEM FORMULATION/RISK CHARACTERIZATION

The primary objective of Step 3A is to further refine the list of COPECs identified in the SLERA using less conservative and more realistic assumptions. Additionally, the Step 3A evaluation may incorporate (USEPA, 2001) consideration of background, frequency and magnitude of detection, and varied diet components (for wildlife receptors). By bracketing the HQ estimates for receptors/COPECs that exceed ESLs used in Steps 1 and 2, this additional evaluation is intended to support the SMDP considerations.

The focus of Step 3 is on the preliminary COPECs that are identified based on HQs exceeding 1, and those analytes for which ESLs or TRVs are unavailable, the latter being evaluated along with other SLERA uncertainties. In the SLERA Steps 1 and 2, maximum concentrations detected in soil, sediment, surface water, and sediment porewater will have been compared to ESLs for community receptors. In addition, maximum concentrations of detected analytes detected in soil will have been evaluated through use of food chain exposure models that incorporated conservative life history and exposure parameters for modeled receptor species. In general, similar methods will be used in the Step 3A evaluation to refine the list of COPECs identified in the SLERA; however, where possible, less conservative and more realistic assumptions will be employed in the refinement step.

In Step 3A, the EPCs for the various media will be primarily based on the 95% UCL rather than the maximum concentration assumed for each medium in the SLERA; maximum concentrations will only be used if the 95% UCL estimates are greater. The 95% UCL represents a more realistic yet conservative EPC for populations of wildlife receptors and communities. The 95% UCL values will be determined using the USEPA statistical software package ProUCL Version 5.2 (USEPA, 2022c,d). ProUCL uses Kaplan-Meier methods for handling datasets with nondetects and multiple detection limits for the same compound in different samples in the calculation of UCLs. The input data sets for ProUCL identify nondetects and these are assigned the limit of detection and the 95% UCL considers the dataset distribution in calculating the 95% UCL estimates.

The assessment and measurement endpoints are largely the same in Step 3A. The primary differences are inherent in the EPCs and TRVs used for each measurement endpoint:

- The 95% UCL concentrations for the various COPECs will be used for comparison to community-level ESLs and for the wildlife receptor dose calculations.
- The estimated exposure doses for wildlife receptors will be compared with NOAEL and LOAEL TRVs.
- Evaluation of selected ESLs and TRVs used in Step 2 and potential identification of less conservative values including LOAELs that are more appropriate for Site flora and fauna.
- Consideration of contaminant bioavailability using supplemental parameters for soil (cation-exchange capacity, total organic carbon, and pH), sediment (total organic carbon, grain size) and surface water (dissolved oxygen, pH, and turbidity).

## 6.1 COMMUNITY ENDPOINTS

In addition to quantifying exposures with 95% UCL rather than maximum concentrations, the specific studies used to derive the ESLs for the community endpoints will be reviewed and if other less conservative values may be appropriate, these will also be used to estimate HQs in Step 3A to evaluate the sensitivity of available options. Also, additional surrogate compounds may also be considered to support the evaluation of uncertainties associated with COPECs that lack ESLs.

## 6.2 WILDLIFE

The screening level risk estimation is designed to evaluate risks from exposure to media within an AOC, defined as the EU for all receptors, to demonstrate that there are no actionable risks. The biased data, collected from areas of impact or anticipated impact within these AOCs, will be used conservatively to represent high-end exposure estimates for a given AOC. Although AOC 5 contains multiple decision units (DUs), the entire AOC will initially be identified as the EU.

Refinements from the Step 1 and Step 2 exposure estimates incorporate relevant site-specific factors into the evaluation of potential ecological risks. To refine the COPEC list for wildlife, the wildlife exposure assumptions will be revised to reflect the length of time the wildlife receptor would be expected to be exposed (exposure duration) at the Site, and to reflect the percentage of the receptor's home range within the impacted areas or AUF. AUF adjustments require estimates of home range or foraging range relative to the footprint for the areas of impacted soils. Thus, the extent of soil with detected COPECs at AOCs 1, 4, and 5 will be divided by the estimated home range of each representative wildlife receptor (Table 4-1) and the adjusted AUFs will be used in the Step 3A exposure modeling. The sensitivity of this parameter on the risk estimates for AOC 5 will be evaluated by calculating an overall AUF as well as assuming only exposure to a given DU. Although the assessment endpoints for wildlife receptors are primarily population-level focused, the refinement evaluation will also consider receptors with AUFs smaller than DUs (e.g., voles). For these receptors, a sample-by-sample comparison of COPECs to ESLs will be conducted to assess the importance of the spatial heterogeneity on ecological exposures and potential risks in an AOC or subarea. For wildlife receptors with AUFs larger than a given EU/DU, the sensitivity evaluation will also consider the effect of assuming combined exposures to multiple AOCs/EUs using area-weighted 95% UCL estimates. The appropriateness of aggregating exposures within AOC 5 and the likelihood of exposures to multiple AOCs by wide-ranging wildlife receptors will be assessed during the ecological site visit.

Dietary exposures for the robin and raccoon will be adjusted in the Step 3A evaluation to represent the varied diets of these receptors. The TRVs discussed in Section 4.2 and will also be used in Step 3A; however, as with the community endpoint assessment, alternative values may also be evaluated. In addition, the estimated daily doses for chemicals calculated for each receptor are compared with both the NOAEL and LOAEL-based TRVs.

## 7.0 CONCLUSIONS/UNCERTAINTY ANALYSIS

The refinement step findings will be summarized by AOC, environmental media and receptors categories, and conclusions regarding the assessment endpoints risk questions provided. In addition, the SLERA/RSLERA will include an updated CSM, a refined list of COPECs, and receptors potentially at risk.

The process of evaluating potential ecological risks involves various assumptions and multiple steps, and uncertainties are inherent in each step that may ultimately affect the final hazard estimates. Accordingly, the SLERA/RSLERA will include an uncertainty section to address the significant sources of uncertainty in the following assessment components: data collection/evaluation, problem formulation, exposure assessment, effects assessment, and risk characterization. The uncertainties will be qualitatively discussed, including the strengths and limitations of the available information used in the SLERA, to provide a robust understanding of the accuracy and reliability of the hazard estimates. In addition to the environmental contaminant concentration data evaluated in the SLERA/RSLERA, important uncertainties may be associated with any of the key lines of evidence (LOE) used in the refinement phase. These will be described so that the degree of associated confidence and potential biases are understood. The Figure 5-2 RSLERA flow chart in the Phase 1 Risk Screening and Data Gaps report (USACE, 2023a) identifies key LOE, which include the following:

- Data – sampling/measurement error, distribution (outliers, spatial).
- Toxicity – endpoint relevance, test species similarity to selected representative species. Similarity between test organism and presumed site exposures, dataset robustness, uncertainty factor magnitude.
- Exposure – ingestion rates, dietary preferences, soil ingestion rates, contaminant bioavailability (including supplemental parameters), prey tissue uptake factors, foraging range, and seasonal presence.
- Risk – magnitude and frequence of ESL/TRV exceedances, comparison with background conditions.

As summarized in Exhibit 11-1 in the QAPP, the combined Phase 1 and 2 datasets will include both biased and unbiased data and the potential impacts of using the biased data will be also evaluated for cases where potential risks are identified. One approach to be considered will be calculate HQs for these COPECs with and without consideration of the biased data. Similarly, while various types of data were collected at AOC 4 (ISM, discrete, and confirmation samples), the ISM data will not be used to assess risks due to the uncertainty in the dataset. The uncertainties associated with excluding this dataset from the risk evaluation and how it impacts the overall risk conclusions will be evaluated.

Along with these factors, the uncertainty analysis will also consider potential adverse effects associated with analytes and ecological receptors without toxicity values (e.g., reptiles/amphibians) as well as the potential for adverse effects to species of special concern (e.g., bats).

At the completion of the SLERA, the PDT will review the results and determine whether a BERA (or remedial action to address ecological concerns) is warranted or not.

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**TABLES**

**Table 2-1: Available Analytical Data from Phase 1**

| Area Sampled | Number of Samples per Medium | | | | Analyses |
|---|---|---|---|---|---|
| | Soil (0-1 ft bgs) | Soil (1-5 ft bgs) | Soil (5-10 ft bgs) | Groundwater | |
| AOC 1 | 30 | 11 | 11 | 10 | 2,4-DNP, DNCB, picric acid, inorganics |
| AOC 3 | 16 | 18 | None | 7 | VOCs, SVOCs, picric acid, PAHs, Aroclors, inorganics |
| AOC 4 - Discrete | 16 | 85 | 16 | 16 | 2,4-DNP, DNCB, picric acid |
| AOC 4 - ISM | 36 | None | None | | |
| AOC 5 | 25 | 25 | 25 | 12 | VOCs, SVOCs, PAHs, Aroclors, inorganics |
| Background | 45 | 45 | 45 | 9 | PAHs and inorganics |

Acronyms:
2,4-DNP = 2,4-dinitrophenol
AOC = area of concern
DNCB = 2,4-dinitrochlorobenzene
ft bgs = feet below ground surface
ISM = incremental sampling methodology
PAHs = polycyclic aromatic hydrocarbons
SVOCs = semivolatile organic compounds
VOCs = volatile organic compounds

**Table 2-2: Proposed Available Data from Phase 2**

| Area Sampled | Number of Samples per Medium[(a)] | | | | | | Analyses[d] |
|---|---|---|---|---|---|---|---|
| | Soil (0-1 ft bgs) | Soil (1-5 ft bgs) | Soil (5-10 ft bgs) | Surface Water[(b)] | Pore Water[(b)] | Sediment[(b,c)] (0-1 ft bgs) | |
| AOC 1 | 16 | 16 | 16 | None | None | 12 | 2,4-DNP, DNCB, picric acid, TAL metals |
| AOC 3 | 7 | 7 | 7 | 16 | 16 | 16 | VOCs, SVOCs, PAHs, Aroclors, picric acid, TAL metals |
| AOC 4- discrete | 60 | None | None | None | None | None | 2,4-DNP, DNCB, picric acid |
| AOC 5 | 25 | 25 | 25 | None | None | 5 | PAHs and TAL metals |
| Background | None | None | None | 16 | None | 8 (hydric)<br>16 (stream sediment) | PAHs and TAL metals |

Notes:

(a) Although groundwater data will also be collected in Phase II, the medium will not be evaluated in the SLERA, rather analytical data for downgradient ecological exposure media (i.e., surface water, porewater and sediment) will be evaluated pending evaluation of this potential migration pathway for AOCs 1, 4 and 5. In addition, no ecological exposure to contaminants detected in the 5-10 ft bgs soil interval is assumed in the SLERA.

(a) Includes semiannual sampling for one year.

(b) Sediment samples from AOC 1 and AOC 5 will be collected in the wetlands area and are considered hydric samples.

(c) Geochemical parameters will also be collected.

Acronyms:

2,4-DNP = 2,4-dinitrophenol

AOC = area of concern

DNCB = 2,4-dinitrochlorobenzene

ft bgs = feet below ground surface

PAHs = polycyclic aromatic hydrocarbons

SVOCs = semivolatile organic compounds

TAL = target analyte list

VOCs = volatile organic compounds

**Table 2-3: Combined Phase 1 and 2 Datasets**

| Area Sampled | Number of Samples per Medium[a] | | | | | | Analyses[d] |
|---|---|---|---|---|---|---|---|
| | Soil (0-1 ft bgs) | Soil (1-5 ft bgs) | Soil (5-10 ft bgs) | Surface Water[b] | Pore Water[b] | Sediment[b,c] (0-1 ft bgs) | |
| AOC 1 | 46 | 27 | 27 | None | None | 12 | 2,4-DNP, DNCB, picric acid, TAL metals |
| AOC 3 | 23 | 25 | 7 | 16 | 16 | 16 | VOCs, SVOCs, PAHs, Aroclors, picric acid, TAL metals |
| AOC 4- discrete | 76 | 85 | 16 | None | None | None | 2,4-DNP, DNCB, picric acid |
| AOC 4 - ISM | 36 | None | None | | | | |
| AOC 5 | 50 | 50 | 50 | None | None | 5 | PAHs and TAL metals |
| Background | 45 | 45 | 45 | 16 | None | 8 (hydric)<br>16 (stream sediment) | PAHs and TAL metals |

Notes:

(b) Although groundwater data will also be collected in Phase II, the medium will not be evaluated in the SLERA, rather analytical data for downgradient ecological exposure media (i.e., surface water, porewater and sediment) will be evaluated pending evaluation of this potential migration pathway for AOCs 1, 4 and 5. In addition, no ecological exposure to contaminants detected in the 5-10 ft bgs soil interval is assumed in the SLERA.

(c) Includes Phase 2 semiannual sampling for one year.

(d) Phase 2 sediment samples from AOC 1 and AOC 5 will be collected in the wetlands area and are considered hydric samples.

(e) Geochemical parameters also available.

Acronyms:

2,4-DNP = 2,4-dinitrophenol

AOC = area of concern

DNCB = 2,4-dinitrochlorobenzene

ft bgs = feet below ground surface

PAHs = polycyclic aromatic hydrocarbons

SVOCs = semivolatile organic compounds

TAL = target analyte list

VOCs = volatile organic compounds

**Table 3-1: Phase 1 Surface and Subsurface Soil COPECs[a]**

| AOC 1 | AOC 3[b] | AOC 4 | AOC 5 | |
|---|---|---|---|---|
| **Picric Acid[2,4]** | Acetone[2] | None[c] | Acetone[1,2] | **Antimony[4]** |
| **Antimony[4]** | Benzaldehyde[2] | | Benzaldehyde[2] | Arsenic[1,2] |
| Arsenic[2] | Carbazole[2] | | Dibenzofurans[2] | **Cadmium[3,4]** |
| Barium[1] | Cresols (m&p)[2] | | **Di-n-butyl-phthalate[2,3]** | Chromium[1,2] |
| **Cadmium[3,4]** | Dibenzofurans[2] | | Acenaphthene[1] | **Copper[1,2,3,4]** |
| Chromium[1,2] | Acenaphthene[1] | | **Benzo(a)anthracene[3]** | **Lead[1,3,4]** |
| **Copper[1,3,4]** | Anthracene[1] | | **1-Methylnaphthalene[1,3]** | Manganese[1,2] |
| **Lead[1,3,4]** | LMW PAHs[2] | | **2-Methylnaphthalene[1,3]** | **Mercury[2,3]** |
| **Manganese[1,2,4]** | HMW PAHs[2] | | **Naphthalene[1,3]** | **Selenium[1,3,4]** |
| **Mercury[1,2,3]** | Manganese[1,2] | | LMW PAHs[2] | **Thallium[1,4]** |
| **Selenium[1,4]** | Mercury[2] | | **HMW PAHs[4]** | **Vanadium[3]** |
| **Zinc[1,2,3,4]** | Selenium[1] | | **Aroclor-1260[1,3]** | **Zinc[1,2,3,4]** |
| | Thallium[1] | | | |

Notes:

(a) Phase I analytes with maximum concentrations exceeding screening levels. Superscript numbers indicate type of screening levels exceeded: [1] terrestrial plants, [2] terrestrial invertebrates, [3] birds, and [4] mammals (**bolded analytes** are preliminary wildlife soil COPECs).

(b) Based on screening of subsurface soil data only (i.e., no wildlife screening).

(c) Nondetect for picric acid, 2,4-dinitrochlorobenzene, and 2,4-dintirophenol.

Acronyms:

AOC = area of concern

LMW PAHs = Low Molecular Weight Polycyclic Aromatic Hydrocarbons

HMW PAHs = High Molecular Weight Polycyclic Aromatic Hydrocarbons

**Table 3-2: Ecological Receptors[a]**

| Level of Organization | Receptor Type | Trophic Level | AOC | Exposure Media[b] | Selected Representative Taxa |
|---|---|---|---|---|---|
| Community | Terrestrial Plants | Producer | 1, 3[c], 4, 5 | Soil (0-1 ft, 1-5 ft) | All plant species that obtain nutrients primarily from soil |
| Community | Terrestrial Invertebrates | Various | 1, 3[c], 4, 5 | Soil (0-1 ft, 1-5 ft bgs) | All soil invertebrates (e.g., earthworms, insect larvae, arthropods, isopods) |
| Population | Small Mammal | Herbivorous | 1, 3[c], 4, 5 | Soil (0-1 ft bgs) | Meadow vole (*Microtus pennsylvanicus*) |
| Population | Small Mammal | Omnivorous | 1, 3[c], 4, 5 | Soil (0-1 ft bgs) | Northern short-tailed shrew (*Blarina brevicauda*) |
| Population | Medium Mammal | Carnivorous | 1, 3[c], 4, 5 | Soil (0-1 ft, 1-5 ft) | Red fox (*Vulpes vulpes*) |
| Population | Medium Mammal | Omnivorous | 1, 4, 5 | Soil (0-1 ft bgs) | Raccoon (*Procyon lotor*) |
| Population | Small Bird | Herbivorous | 1, 3[c], 4, 5 | Soil (0-1 ft bgs) | Mourning dove (*Zenaida macroura*) |
| Population | Small Bird | Omnivorous | 1, 3[c], 4, 5 | Soil (0-1 ft bgs) | American robin (*Turdus migratorius*) |
| Community | Aquatic Organisms[d] | Various | 3[d] | Water column; Pore water | Aggregate community components (i.e., fish, aquatic invertebrates, aquatic plants) |
| Community | Benthic Invertebrates[d] | Various | 3[d] | Sediment (0-0.5 ft bss); Pore water | Aggregate community components |

Note:

(a) The Phase 1 analysis concluded that large herbivorous mammals (e.g., deer) and carnivorous birds (e.g., owls, hawks) occur in the vicinity of the individual AOCs and that exposure pathways are potentially complete; however, these pathways were determined to be insignificant due to the wide-ranging foraging behavior of these receptors.

(b) Surface soils (i.e., 0-1 ft bgs) include both terrestrial and "hydric" soils; the latter will be collected at both AOCs 1 and 5.

(c) No ecological exposure to surface soils at AOC3; however, burrowing mammals (e.g., red fox) could be exposed to subsurface soils.

(d) Aquatic organisms including benthic invertebrates may be exposed to contaminants in discharging groundwater downgradient of AOCs 1, 4 and 5. If so, analytical data for aquatic media will be collected and evaluated in the SLERA.

**Table 3-3: Assessment Endpoints, Representative Species, Risk Questions and Measurement Endpoints Screening Level Ecological Risk Assessment**

| Assessment Endpoint | Community or Population Attribute | Level of Organization | Model Species | Risk Question | Measure/ Exposure Route | Measurement Endpoint/ Analysis Approach |
|---|---|---|---|---|---|---|
| **TERRESTRIAL RECEPTORS** | | | | | | |
| **Terrestrial Plants** | | | | | | |
| Protection of terrestrial plant communities from the toxic effects (on survival, reproduction, and growth) of COPECs in surface soils. | Plants provide structure and function to the terrestrial habitat. Plants are primary producers and form the basis of the food web for most consumers; adverse effects on the plant community could reduce the quantity and quality of food available to higher-trophic-level consumers. Plants also reduce soil erosion and provide nesting and cover for wildlife. | Local Community | All plants that obtain nutrients primarily from soil. | Are contaminant concentrations in surface soil greater than screening levels for effects on survival, growth, or reproduction of plants such that the terrestrial plant community is impacted? | Measure contaminant levels in surface soil. Direct exposure to soil. | Compare soil contaminant concentrations (maxima) with soil screening levels for effects on plants. For refinement: use central tendency concentrations and both NOAEL and LOAEL ESLs if available, evaluate impact of outliers if present, background risk estimates, contaminant bioavailability and magnitude/spatial distribution and ESL exceedance frequencies. |
| **Terrestrial Invertebrates** | | | | | | |
| Protection of soil invertebrate communities from the toxic effects (on survival, growth, and reproduction) of COPECs in surface soils. | The terrestrial soil invertebrate community is typically diverse taxonomically, morphologically and physiologically, and are often numerically abundant. Soil invertebrates play an important role in ecosystem functions such as nutrient cycling and organic matter processing, soil formation and stabilization, maintenance of soil porosity, control of microbial communities and enhancement of microbial biochemical ecosystem functions, seed dispersion, pest and disease control, natural attenuation of pollutants. Soil invertebrates represent an important food source for upper trophic level birds, mammals, and reptiles. | Local Community | All soil invertebrates (e.g., earthworms, insect larvae, arthropods) | Are contaminant concentrations in surface soil greater than screening levels for effects on survival, growth, or reproduction of soil invertebrates such that the terrestrial invertebrate community is impacted? | Measure contaminant levels in surface soil. Direct exposure to soil. | Compare soil contaminant concentrations with soil screening levels for effects on soil invertebrates. For refinement: use central tendency concentrations and both NOAEL and LOAEL ESLs if available, evaluate impact of outliers if present, background risk estimates, contaminant bioavailability and magnitude/spatial distribution and ESL exceedance frequencies. |

**Table 3-3: Assessment Endpoints, Representative Species, Risk Questions and Measurement Endpoints Screening Level Ecological Risk Assessment**

| Assessment Endpoint | Community or Population Attribute | Level of Organization | Model Species | Risk Question | Measure/ Exposure Route | Measurement Endpoint/ Analysis Approach |
|---|---|---|---|---|---|---|
| **Terrestrial Mammals and Birds** | | | | | | |
| Herbivores - Protection of herbivorous mammal and bird populations from the toxic effects (on survival, growth, or reproduction) of site-related chemicals present in plant tissue and soil. | Herbivorous birds and mammals play an important role in the transfer of energy and nutrients from plants to animals. These animals forage primarily on vegetation (thereby contributing to a balanced vegetative community), and provide food for upper-trophic-level consumers. Herbivores are also important for seed dispersal and pollination and dispersal of lichens and fungi. Adverse effects on these primary consumers could reduce the amount of food available to higher-trophic-level consumers. Small herbivorous mammals have a high potential for direct exposure to soil COPECs. | Local Populations | Meadow vole, mourning dove. | Does the daily dose of contaminants received from ingestion of soil and food items (i.e., vegetation) exceed TRVs protective of survival, growth, or reproduction of mammals or birds? | Measure contaminant levels in surface soil. Incidental ingestion of soil and ingestion of site vegetation. | Modeled dose from ingestion of surface soil and food items (vegetation) compared with literature-based TRVs. Estimate concentrations in plant tissue using soil-to-plant uptake factors. For refinement: use central tendency concentrations and both NOAEL and LOAEL TRVs if available and site- and receptor-specific exposure parameters (spatial/temporal use factors), evaluate impact of outliers if present, background risk estimates, contaminant bioavailability and magnitude/spatial distribution and TRV exceedance frequencies. |
| Insectivores/Invertivores - Protection of insectivorous/invertivorous mammal and bird populations from the toxic effects (on survival, growth, or reproduction) of site-related chemicals present in invertebrate tissue and soil. | Invertivorous birds and mammals represent an energy and nutrient pathway between soil invertebrates and plants (that may be in direct contact with soil COPECs) and upper trophic level receptors. Additionally, insectivorous vertebrates regulate insect population size, diversity, and species abundance. These animals provide food for upper-trophic-level consumers. Adverse effects on these secondary consumers could reduce the amount of food available to higher-trophic-level consumers and could impact the population density of lower trophic levels. | Local Populations | Northern short-tailed shrew, American robin | Does the daily dose of contaminants received from ingestion of soil and food items (i.e., invertebrates) exceed TRVs protective of survival, growth, or reproduction of mammals or birds? | Measure contaminant levels in surface soil. Incidental ingestion of soil and ingestion of site invertebrates. | Modeled dose from ingestion of surface soil and food items (invertebrates) compared with literature-based TRVs. Estimate concentrations in invertebrate tissue using soil-to-invertebrate uptake factors. For refinement: use central tendency concentrations and both NOAEL and LOAEL TRVs if available and site- and receptor-specific exposure parameters (spatial/temporal use factors), evaluate impact of outliers if present, background risk estimates, contaminant bioavailability and magnitude/spatial distribution and TRV exceedance frequencies. |

**Table 3-3: Assessment Endpoints, Representative Species, Risk Questions and Measurement Endpoints Screening Level Ecological Risk Assessment**

| Assessment Endpoint | Community or Population Attribute | Level of Organization | Model Species | Risk Question | Measure/ Exposure Route | Measurement Endpoint/ Analysis Approach |
|---|---|---|---|---|---|---|
| Carnivores - Protection of carnivorous mammal and bird populations from the toxic effects (on survival, growth, or reproduction) of site-related chemicals present in animal tissue and soil. | Carnivorous birds and mammals are important consumers that rely primarily on terrestrial vertebrates for prey. Adverse effects on these top predators would be undesirable because the loss of top predators can lead to disruption of lower trophic levels (density, abundance, diversity). | Local Populations | Red fox | Does the daily dose of contaminants received from ingestion of soil and food items (i.e., small mammals) exceed TRVs protective of survival, growth, or reproduction of mammals or birds? | Measure contaminant levels in surface soil. Incidental ingestion of soil and ingestion of small mammal prey. | Modeled dose from ingestion of surface soil and food items (small mammals) compared with literature-based TRVs. Estimate concentrations in prey tissue using soil-to-mammal uptake factors. For refinement: use central tendency concentrations and both NOAEL and LOAEL TRVs if available and site- and receptor-specific exposure parameters (spatial/temporal use factors), evaluate impact of outliers if present, background risk estimates, contaminant bioavailability and magnitude/spatial distribution and TRV exceedance frequencies. |
| Omnivores - Protection of the omnivorous mammal populations from the toxic effects (on survival, growth, or reproduction) of site-related chemicals present in plants, invertebrate and fish tissue, soil, and sediment. | Omnivorous mammals consume plant and animal tissue from several trophic levels, linking energy pathways between upper trophic level carnivorous receptors (i.e., bobcat, mountain lion) and community-level receptors (fish, invertebrates) and small mammals. Adverse effects on these secondary consumers could reduce the amount of food available to higher-trophic-level consumers and could impact the population density of lower trophic levels. | Local Populations | Raccoon | Does the daily dose of contaminants received from ingestion of soil and food items (i.e., invertebrates, plants, fish) exceed TRVs protective of survival, growth, or reproduction of mammals? | Measure contaminant levels in surface soil. Incidental ingestion of soiland ingestion of sediment and soil invertebrates, aquatic and terrestrial plants, and fish. | Modeled dose from ingestion of surface soil and food items (invertebrates, fish, plants) compared with literature-based TRVs. Estimate concentrations in food items using literature-based uptake factors. For refinement: use central tendency concentrations and both NOAEL and LOAEL TRVs if available and site- and receptor-specific exposure parameters (spatial/temporal use factors), evaluate impact of outliers if present, background risk estimates, contaminant bioavailability and magnitude/spatial distribution and TRV exceedance frequencies. |

**Table 3-3: Assessment Endpoints, Representative Species, Risk Questions and Measurement Endpoints Screening Level Ecological Risk Assessment**

| Assessment Endpoint | Community or Population Attribute | Level of Organization | Model Species | Risk Question | Measure/ Exposure Route | Measurement Endpoint/ Analysis Approach |
|---|---|---|---|---|---|---|
| **AQUATIC RECEPTORS** | | | | | | |
| **Aquatic Community** | | | | | | |
| Protection of aquatic organisms from the toxic effects (on survival, growth, or reproduction) of COPECs in surface water, pore water, and sediment. | Aquatic communities provide a variety of processes in aquatic ecosystems, including oxygen production, substrate stabilization, nutrient cycling, improved water quality, and phytoplankton reduction. | Local Communities | Aggregate Community Components | Are contaminant concentrations in surface water, pore water, or sediment sufficient to cause adverse effects on the survival, growth, or reproduction of aquatic organisms in the water column? | Measure contaminant concentrations in the water column and pore water. Direct exposure COPECs in surface water and porewater. | Compare surface water and pore water contaminant concentrations with water quality standards and applicable screening levels. For refinement: use central tendency concentrations and both NOAEL and LOAEL ESLs if available, evaluate impact of outliers if present, background risk estimates, contaminant bioavailability and magnitude/spatial distribution and ESL exceedance frequencies. |
| **Benthic Macroinvertebrates** | | | | | | |
| Protection of benthic macroinvertebrate communities from the toxic effects (on survival, growth, or reproduction) of COPECs in sediment and pore water. | The benthic macroinvertebrate community plays a key role in ecosystem functions such as nutrient cycling, sediment bioturbation, and organic matter processing, and is a food resource for fisheries, other macroinvertebrates (e.g., crayfish), and riparian animals. | Local Communities | Aggregate Community Components | Are contaminant concentrations in sediment or pore water sufficient to cause adverse effects on the survival and growth, or reproduction of benthic invertebrates? | Contaminant concentrations in sediment and pore water. Direct exposure to sediment and pore water. | Compare sediment and pore water contaminant concentrations to sediment screening levels for effects on benthic macroinvertebrates. For refinement: use central tendency concentrations and both NOAEL and LOAEL ESLs if available, evaluate impact of outliers if present, background risk estimates, contaminant bioavailability and magnitude/spatial distribution and ESL exceedance frequencies. |

**Kev:**
COPEC = constituent of potential ecological concern
ERA = ecological risk assessment
ESL - ecological screening level
LOAEL = lowest observed adverse effect leve
NOAEL = no observed adverse effect level
TRV = toxicity reference value

**Table 4-1: Wildlife Toxicity Reference Values Screening Level Ecological Risk Assessment**

| Analyte | Category | NOAEL[a] | Endpoint | LOAEL[a] | Endpoint | Test Taxa | Notes | Source[b] |
|---|---|---|---|---|---|---|---|---|
| Antimony | Birds | NA | NA | NA | NA | NA | NA | - |
| Antimony | Mammals | 0.059 | Reproduction | 0.59 | Reproduction | rat | Highest bounded NOAEL (0.059 mg/kg-d) for growth or reproduction below the lowest bounded LOAEL (0.59 mg/kg-d) for growth or reproduction from 20 laboratory toxicity studies. | 1 |
| Arsenic | Birds | 2.24 | Reproduction and growth | 3.55 | Growth | chicken | Lowest NOAEL for growth, reproduction, or survival from six laboratory toxicity studies. Lowest LOAEL for growth, reproduction, or survival greater than selected NOAEL. | 2 |
| Arsenic | Mammals | 1.04 | Growth | 1.66 | Growth | dog | Highest bounded NOAEL for growth, reproduction, or survival less than lowest bounded LOAEL for growth, reproduction, or survival from 43 laboratory toxicity studies (with a NOAEL endpoint). The LOAEL is the paired value from the same study. | 2 |
| Barium | Birds | 20.8 | Survival | 41.7 | Survival | chicken | NOAEL and LOAEL from Sample et al. (1996). 4-week diet study using barium hydroxide. | 3 |
| Barium | Mammals | 63.8 | Reproduction, growth, and survival | 121 | Growth | mouse & rat (N) rat (L) | Geometric mean NOAEL for growth, reproduction, and survival from 11 laboratory toxicity studies. Lowest bounded LOAEL for reproduction, growth, or survival greater than geometric mean NOAEL. | 3 |
| Cadmium | Birds | 1.47 | Reproduction and growth | 6.34 | Reproduction and growth | multiple | Geometric mean NOAEL for growth and reproduction from 20 laboratory toxicity studies. LOAEL is the geometric mean for growth and reproduction from 27 laboratory toxicity studies. | 4 |
| Cadmium | Mammals | 0.77 | Growth | 7.7 | Growth | rat | The NOAEL is the highest bounded NOAEL below the lowest bounded LOAEL for reproduction, growth, or survival. LOAEL is the paired value from the same study. | 4 |
| Chromium | Birds | 2.66 | Reproduction and growth | 15.6 | Reproduction and growth | multiple | Geometric mean NOAEL for growth and reproduction from 12 laboratory toxicity studies (with a NOAEL endpoint). LOAEL is the geometric mean for growth and reproduction and growth from 4 laboratory toxicity studies. | 5 |
| Chromium | Mammals | 2.4 | Growth | 9.62 | Reproduction | multiple (N) mouse (L) | Geometric mean NOAEL for growth from 9 studies with trivalent chromium. LOAEL is the lowest value for reproduction above the geometric mean NOAEL value. | 5 |
| Hexavalent Chromium | Birds | 0.402 | Reproduction | 4.02 | Reproduction | chicken | LOAEL based on a 32-week diet study using potassium dichromate. NOAEL is a factor of 10 below the LOAEL. This was also the only avian LOAEL provided in Appendix 5.2 of USEPA (2008a) for hexavalent chromium. | 6 |
| Hexavalent Chromium | Mammals | 9.24 | Reproduction and growth | 37.4 | Reproduction and growth | multiple | Geometric mean NOAEL for growth and reproduction from 21 laboratory toxicity studies. LOAEL is the geometric mean for growth and reproduction from 23 laboratory toxicity studies. | 5 |
| Copper | Birds | 4.05 | Reproduction | 12.1 | Reproduction | chicken | Highest bounded NOAEL for reproduction, growth, or survival lower than the lowest bounded LOAEL for reproduction, growth, or survival (4.68 mg/kg-day). LOAEL is the paired value from the same study. | 7 |
| Copper | Mammals | 5.6 | Reproduction | 9.34 | Reproduction | pig | Highest bounded NOAEL for reproduction, growth, or survival (5.6 mg/kg-day) lower than the lowest bounded LOAEL for reproduction, growth, or survival (6.79 mg/kg-day). LOAEL is the paired value from the same study. | 7 |

**Table 4-1: Wildlife Toxicity Reference Values Screening Level Ecological Risk Assessment**

| Analyte | Category | NOAEL[a] | Endpoint | LOAEL[a] | Endpoint | Test Taxa | Notes | Source[b] |
|---|---|---|---|---|---|---|---|---|
| Lead | Birds | 1.63 | Reproduction | 3.26 | Reproduction | chicken | Highest bounded NOAEL (1.63 mg/kg-d) for growth, reproduction, or survival lower than the lowest bounded LOAEL (1.94 mg/kg-d) for growth, reproduction, or survival. LOAEL is the paired value from the same study. | 8 |
| Lead | Mammals | 4.7 | Growth | 8.9 | Growth | rat | Highest bounded NOAEL (4.7 mg/kg-d) for growth, reproduction, or survival lower than the lowest bounded LOAEL (5 mg/kg-d) for growth, reproduction, or survival. LOAEL is the paired value from the same study. | 8 |
| Manganese | Birds | 179 | Reproduction and Growth | 348 | Growth | multiple (N) chicken (L) | Geometric mean NOAEL for reproduction and growth. Lowest bounded LOAEL for reproduction or growth greater than geometric mean NOAEL. | 9 |
| Manganese | Mammals | 51.5 | Reproduction and Growth | 65 | Growth | multiple (N) cattle (L) | Geometric mean NOAEL for reproduction and growth. Lowest bounded LOAEL for reproduction or growth greater than geometric mean NOAEL. | 9 |
| Mercury | Birds | 0.45 | Reproduction | 0.9 | Reproduction | Japanese quail | One-year diet study using mercuric chloride. Reduced fertility and hatchability. | 10 |
| Mercury | Mammals | 1 | Reproduction | 10 | Reproduction | mink | 6-month diet study using mercuric chloride. Reduced kit weight. LOAEL is estimated as a factor of 10 above the NOAEL. | 10 |
| Selenium | Birds | 0.29 | Survival | 0.579 | Survival | chicken | Highest bounded NOAEL for reproduction, growth, or survival below lowest bounded LOAEL for reproduction, growth, or survival. LOAEL is the paired value from the same study. | 11 |
| Selenium | Mammals | 0.143 | Growth | 0.215 | Growth | pig | Highest bounded NOAEL for reproduction, growth, or survival below lowest bounded LOAEL for reproduction, growth, or survival. LOAEL is the paired value from the same study. | 11 |
| Thallium | Birds | 0.35 | Survival | 3.5 | Survival | starling | Based on an $LD_{50}$ of 35 adjusted using an uncertainty factor of 0.01 for the NOAEL. | 12 |
| Thallium | Mammals | 0.0074 | Reproduction | 0.074 | Reproduction | rat | Based on an 60 day dietary subchronic LOAEL exposure that resulted in reduced sperm motility adjusted using uncertainty factors of 0.01 to estimate a chronic NOAEL. | 12 |
| Vanadium | Birds | 0.344 | Growth | 0.688 | Reproduction | chicken | Highest bounded NOAEL (0.344 mg/kg-d) for growth, reproduction, or survival less than lowest bounded LOAEL (0.413 mg/kg-d) for reproduction, growth, or survival. LOAEL is the paired value from the same study. | 13 |
| Vanadium | Mammals | 4.16 | Reproduction | 8.31 | Reproduction | mouse | Highest bounded NOAEL (4.16 mg/kg-d) for growth or reproduction less than lowest bounded LOAEL (5.11 mg/kg-d) for growth, reproduction, or survival. LOAEL is the paired value from the same study. | 13 |
| Zinc | Birds | 66.1 | Reproduction and growth | 171 | Reproduction and growth | multiple | Geometric mean NOAEL and LOAEL for reproduction and growth. | 14 |

**Table 4-1: Wildlife Toxicity Reference Values Screening Level Ecological Risk Assessment**

| Analyte | Category | NOAEL[a] | Endpoint | LOAEL[a] | Endpoint | Test Taxa | Notes | Source[b] |
|---|---|---|---|---|---|---|---|---|
| Zinc | Mammals | 75.4 | Reproduction and growth | 297 | Reproduction and growth | multiple | Geometric mean NOAEL and LOAEL for reproduction and growth. | 14 |
| Total LMW PAHs | Birds | 8.45 | Growth | 34.6 | Growth | Japanese quail | 14-week study using naphthalene. | 15 |
| Total LMW PAHs | Mammals | 65.6 | Growth | 110 | Growth | rat (N) & mouse (L) | Highest bounded NOAEL (65.5 mg/kg-d) below the lowest bounded LOAEL (110 mg/kg-d) for reproduction, growth, or survival. | 16 |
| Total HMW PAHs | Birds | 2 | Growth | 20 | Growth | European starling | From Appendix 5.2 for 7,12-dimethylbenz(a)anthracene. | 16 |
| Total HMW PAHs | Mammals | 0.615 | Survival | 3.07 | Survival | mouse | Highest bounded NOAEL (0.615 mg/kg-day) below the lowest bounded LOAEL (3.07 mg/kg-day) for reproduction, growth, or survival. LOAEL is the paired value from the same study. | 16 |
| Picric Acid | Birds | 1.5 | Survival | 7.5 | Survival | Japanese quail | Selected ingestion TRVs for DNAN (surrogate) based on female $LD_{50}$ value with 100- and 20-fold uncertainty factors applied for $TRV_{low}$ and $TRV_{high}$, respectively. | 17 |
| Picric Acid | Mammals | 2 | Survival | 10 | Survival | rat | Selected ingestion TRVs based on female $LD_{50}$ value with 100- and 20-fold uncertainty factors applied for NOAEL and LOAEL, respectively. Autopsy suggested that mortality was due to severe blood acidosis. | 18 |

**Notes:**

a. Units are mg/kg-BW/day.

b. Source references

1. USEPA (2005a)
2. USEPA(2005b)
3. USEPA (2005c)
4. USEPA (2005d)
5. USEPA (2008a)
6. Asmatullah et al. (1999) as referenced in WTAMU (2022)
7. USEPA (2007b)
8. USEPA (2005e)
9. USEPA (2007c)
10. Sample et al. (1996)
11. USEPA (2007d)
12. Schafer (1972) as referenced in USEPA (1999).
13. USEPA (2005f)
14. USEPA (2007e)
15. Klasing et al. (2007) as referenced in WTAMU (2022)
16. USEPA (2007f)
17. USAPHC (2020)
18. USAPHC (2019)

**Table 5-1: Wildlife Exposure Parameters Screening Level Ecological Risk Assessment**

| Species | Trophic Category | Assumed Diet | Home Range (ha) | Area Use Factor (AUF) (unitless) [g] | Exposure Duration (ED) (unitless) | Fraction Soil in Dry Diet | Body Weight (kg) | Food IR (kg dw/kg BW/d) | Fraction Soil in Diet | Soil IR (kg dw/kg BW/d) |
|---|---|---|---|---|---|---|---|---|---|---|
| Mourning Dove[a] | SB herbivore | 100% plant seeds | 2500 | 1 | 1 | | 0.13 | 0.067 | 0.14 | 0.0093 |
| American Robin[b] | SB omnivore | 50% soil invertebrates and 50% terrestrial plants. 100% soil invertebrates assumed for SLERA. | 0.42 | 1 | 1 | 0.10 | 0.077 | 0.16 | 0.052 | 0.0084 |
| Meadow Vole[c] | SM herbivore | 100% herbaceous plants | 0.037 | 1 | 1 | | 0.044 | 0.21 | 0.024 | 0.0050 |
| Raccoon[d] | MM omnivore | 40% terrestrial plants, 5% terrestrial invertebrates, and 5% small mammals. 100% terrestrial invertebrates assumed for SLERA. | 156 | 1 | 1 | | 5.8 | 0.027 | 0.094 | 0.0025 |
| Short-Tailed Shrew[e] | SM carnivore | 100% soil invertebrates | 0.39 | 1 | 1 | 0.13 | 0.015 | 0.16 | 0.030 | 0.0048 |
| Red Fox[f] | MM carnivore | 100% small mammals | 504 | 1 | 1 | | 4.7 | 0.037 | 0.028 | 0.0010 |

**Key:**
AUF = area use factor
BW = body weight
d = day
dw = dry weight
ED = exposure duration
FI = food ingestion
g/day = grams per day
ha = hectare

**Key (Continued):**
IR = Ingestion rate
kg = kilogram
kg/d = kilograms per day
km = kilometer
L/kg = Liters per kilogram
PF = Problem Formulation
SLERA = Screening Level Ecological Risk Assessment
wt = weight

**Notes:**

a. Body weight average of averages for males and females for eastern race (Otis et al. 2020). Food ingestion rate based on allometric equation for all birds from Nagy 2001: FI (g/day) = 0.638 wt ^ (0.685). Diet comprised primarily of seeds of herbaceous plants or agricultural crops (Otis et al. 2020). Percent soil in diet based on the 90th percentile value from USEPA (2007a), Table 3. Dove home range from Baskett et al. (1993).

b. Body weight from Clench and Leberman (1978) as cited in USEPA (1993b). Food ingestion rate based on allometric equation for all birds from Nagy 2001: FI (g/day) = 0.638 wt ^ (0.685). Diet comprised of 50% fruits and 50% earthworms (conservatively simplified from Wheelwright 1986 for the Eastern US; as cited in from USEPA 1993b). Percent soil in diet based on value for American Woodcock (10.4%) in Beyer et al. (1994) assuming a diet of 50% invertebrates (10.4 x 0.5). Robin home range from Pitts (1984) as cited in USEPA (1993b).

c. Adult body weight from Reich (1981). Food ingestion rate based on allometric equation for herbivorous mammals from Nagy (2001): FI (g/day) = 0.859 wt ^ (0.628). Diet comprised primarily of grasses, sedges, and herbaceous plants (Reich 1981). Percent soil in diet from Beyer et al. (1994). Home range for females from Ostfeld, et al. (1988) as referenced in USEPA (1993b).

d. Body weight mean of adult values for studies in Illinois, Missouri, and Alabama as provided in USEPA (1993b). Food ingestion rate based on allometric equation for omnivorous mammals from Nagy 2001: FI (g/day) = 0.432 wt ^ (0.678). Raccoons assumed to forage in the river and in terrestrial areas so AUF based on combined areas of impacted soils (on and off-site and river). Combined diet simplified from information from Tabatabai and Kennedy (1988) and Tyson (1950) as referenced in USEPA (1993b). Percent sediment or soil in diet from Beyer et al. (1994). Home range based on Michigan riparian area study by Stuewer (1943) as provided in USEPA (1993b).

e. Body weight from Schlesinger and Potter (1974) as cited in USEPA (1993b). Food ingestion rate based on allometric equation for all mammals from Nagy 2001: FI (g/day) = 0.323 wt ^ (0.744). Diet comprised primarily of invertebrates (earthworms, slugs, arthropods, insects) (Whitaker and Ferraro (1963) and Hamilton (1941), as referenced in USEPA (1993b)). Small mammals and vegetation are also consumed but diet assumed to be 100% invertebrates to be conservative. Percent soil in diet based on the 90th percentile value from USEPA (2007a), Table 3. Shrew home range from Platt (1976) as referenced in USEPA (1993b).

f. Adult body weight from average for averages of males and females from Storm et al. 1976 as cited in USEPA (1993b). Food ingestion rate based on allometric equation for carnivorous mammals from Nagy 2001: FI (g/day) = 0.153 wt ^ (0.834). Diet assumed to be 100% small mammals although birds, arthropods and plants can comprise approximately 34% of the total diet on average (Knable 1974 as referenced in USEPA 1993b). Percent soil in diet from Beyer et al. (1994). Average home range for males and females in Minnesota and Wisconsin (USEPA 1993b).

g. No adjustment for AUF and ED for the SLERA (values of 1 assumed). Values the Step 3a refinement will be calculated based on spatial extent of soil samples in the SLERA dataset for each AOC.

**Table 5-2: Soil Contaminant Uptake to Terrestrial Plants, Soil Invertebrates and Small Mammal Tissue Screening Level Ecological Risk**

| Analyte[a] | Soil-to-Plant Uptake | Source[b] | Soil-to-Invertebrate Uptake | Source[b] | Soil-to-Mammal Uptake | Source[b] |
|---|---|---|---|---|---|---|
| Antimony | $\ln(C_p) = 0.938 * \ln(C_s) - 3.233$ | 1 | $C_i = C_s$ | 1 | $C_m = 0.001 * 50 * C_d$ | 1 |
| Arsenic | $C_p = 0.03725 * C_s$ | 1 | $\ln(Ci) = 0.706 * \ln(Cs) - 1.421$ | 1 | $\ln(C_m) = 0.8188 * \ln(C_s) -$ | 1 |
| Barium | $C_p = 0.156 * C_s$ | 1 | $Ci = 0.091 * Cs$ | 1 | $C_m = 0.00015 * 50 * C_d$ | 1 |
| Cadmium | $\ln(C_p) = 0.546 * \ln(C_s) - 0.475$ | 1 | $\ln(Ci) = 0.795 * \ln(Cs) + 2.114$ | 1 | $\ln(C_m) = 0.4723 * \ln(C_s) -$ | 1 |
| Chromium | $C_p = 0.041 * C_s$ | 1 | $Ci = 0.306 * Cs$ | 1 | $\ln(C_m) = 0.7338 * \ln(C_s) -$ | 1 |
| Copper | $\ln(C_p) = 0.394 * \ln(C_s) + 0.668$ | 1 | $Ci = 0.515 * Cs$ | 1 | $\ln(C_m) = 0.1444 * \ln(C_s) +$ | 1 |
| Lead | $\ln(C_p) = 0.561 * \ln(C_s) - 1.328$ | 1 | $\ln(Ci) = 0.807 * \ln(Cs) - 0.218$ | 1 | $\ln(C_m) = 0.4422 * \ln(C_s) +$ | 1 |
| Manganese | $C_p = 0.079 * C_s$ | 1 | $\ln(Ci) = 0.682 * \ln(Cs) - 0.809$ | 1 | $C_m = 0.0205 * C_s$ | 1 |
| Mercury | $\ln(C_p) = 0.544 * \ln(C_s) - 0.996$ | 2 | $\ln(Ci) = 0.0781 * \ln(Cs) +$ | 7 | $C_m = 0.192 * C_s$ | 1 |
| Selenium | $\ln(C_p) = 1.104 * \ln(C_s) - 0.677$ | 1 | $\ln(Ci) = 0.733 * \ln(Cs) - 0.075$ | 1 | $C_m = 0.004 * C_s$ | 1 |
| Thallium | $C_p = 0.004 * C_s$ | 3 | $Ci = 0.263 * Cs$ | 8 | $C_m = 0.1227 * C_s$ | 9 |
| Vanadium | $C_p = 0.00485 * C_s$ | 1 | $Ci = 0.042 * Cs$ | 1 | $C_m = 0.0123 * C_s$ | 1 |
| Zinc | $\ln(C_p) = 0.554 * \ln(C_s) + 1.575$ | 1 | $\ln(Ci) = 0.328 * \ln(Cs) + 4.449$ | 1 | $\ln(C_m) = 0.0706 * \ln(C_s) +$ | 1 |
| Acenaphthene | $\ln(C_p) = 0.4544 * \ln(C_s) - 1.3205$ | 4 | $Ci = 3.04 * Cs$ | 4 | $C_m = 0$ | 4 |
| Acenaphthylene | $\ln(C_p) = 0.4544 * \ln(C_s) - 1.3205$ | 4 | $Ci = 3.04 * Cs$ | 4 | $C_m = 0$ | 4 |
| Anthracene | $\ln(C_p) = 0.4544 * \ln(C_s) - 1.3205$ | 4 | $Ci = 3.04 * Cs$ | 4 | $C_m = 0$ | 4 |
| Naphthalene | $\ln(C_p) = 0.4544 * \ln(C_s) - 1.3205$ | 4 | $Ci = 3.04 * Cs$ | 4 | $C_m = 0$ | 4 |
| Naphthalene[1- | $\ln(C_p) = 0.4544 * \ln(C_s) - 1.3205$ | 4 | $Ci = 3.04 * Cs$ | 4 | $C_m = 0$ | 4 |
| Naphthalene[2- | $\ln(C_p) = 0.4544 * \ln(C_s) - 1.3205$ | 4 | $Ci = 3.04 * Cs$ | 4 | $C_m = 0$ | 4 |
| Phenanthrene | $\ln(C_p) = 0.4544 * \ln(C_s) - 1.3205$ | 4 | $Ci = 3.04 * Cs$ | 4 | $C_m = 0$ | 4 |
| LMW PAHs | $\ln(C_p) = 0.4544 * \ln(C_s) - 1.3205$ | 1 | $Ci = 3.04 * Cs$ | 1 | $C_m = 0$ | 1 |
| Benzo(a)anthracene | $\ln(C_p) = 0.9469 * \ln(C_s) - 1.7026$ | 5 | $Ci = 2.6 * Cs$ | 5 | $C_m = 0$ | 5 |
| Benzo(a)pyrene | $\ln(C_p) = 0.9469 * \ln(C_s) - 1.7026$ | 5 | $Ci = 2.6 * Cs$ | 5 | $C_m = 0$ | 5 |
| Benzo(b)fluoranthene | $\ln(C_p) = 0.9469 * \ln(C_s) - 1.7026$ | 5 | $Ci = 2.6 * Cs$ | 5 | $C_m = 0$ | 5 |
| Benzo(k)fluoranthene | $\ln(C_p) = 0.9469 * \ln(C_s) - 1.7026$ | 5 | $Ci = 2.6 * Cs$ | 5 | $C_m = 0$ | 5 |
| Benzo[g,h,i]perylene | $\ln(C_p) = 0.9469 * \ln(C_s) - 1.7026$ | 5 | $Ci = 2.6 * Cs$ | 5 | $C_m = 0$ | 5 |
| Chrysene | $\ln(C_p) = 0.9469 * \ln(C_s) - 1.7026$ | 5 | $Ci = 2.6 * Cs$ | 5 | $C_m = 0$ | 5 |
| Dibenz(a,h)anthracen | $\ln(C_p) = 0.9469 * \ln(C_s) - 1.7026$ | 5 | $Ci = 2.6 * Cs$ | 5 | $C_m = 0$ | 5 |
| Fluoranthene | $\ln(C_p) = 0.9469 * \ln(C_s) - 1.7026$ | 5 | $Ci = 2.6 * Cs$ | 5 | $C_m = 0$ | 5 |
| Fluorene | $\ln(C_p) = 0.9469 * \ln(C_s) - 1.7026$ | 5 | $Ci = 2.6 * Cs$ | 5 | $C_m = 0$ | 5 |
| Indeno(1,2,3-c,d)pyren | $\ln(C_p) = 0.9469 * \ln(C_s) - 1.7026$ | 5 | $Ci = 2.6 * Cs$ | 5 | $C_m = 0$ | 5 |
| Pyrene | $\ln(C_p) = 0.9469 * \ln(C_s) - 1.7026$ | 5 | $Ci = 2.6 * Cs$ | 5 | $C_m = 0$ | 5 |
| HMW PAHs | $\ln(C_p) = 0.9469 * \ln(C_s) - 1.7026$ | 1 | $Ci = 2.6 * Cs$ | 1 | $C_m = 0$ | 1 |
| Picric acid | $C_p = C_s$ | 6 | $C_i = C_s$ | 6 | $C_m = C_s$ | 6 |

**Key:**

$C_p$ = plant contaminant concentration
$C_s$ = soil contaminant concentration
$C_m$ = small mammal contaminant concentration
EPC = Exposure point concentration
HMW PAH = high molecular weight PAH
LMW PAH = low molecular weight PAH
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
ND = non-detect
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
SLERA = screening level ecological risk assessment

**Notes:**

a Phase 2 analytes
b. Source references
1. USEPA 2007a
2 Bechtel Jacobs 1998b
3 Baes et al. 1984
4 Equation for LMW PAHs
5 Equation for HMW PAHs
6 Assumption
7 Sample et al. 1998; Table 4
8 USA CHPPM 2004 (note e)
9 Sample et al. 1998; Table 7 (90th percentile)

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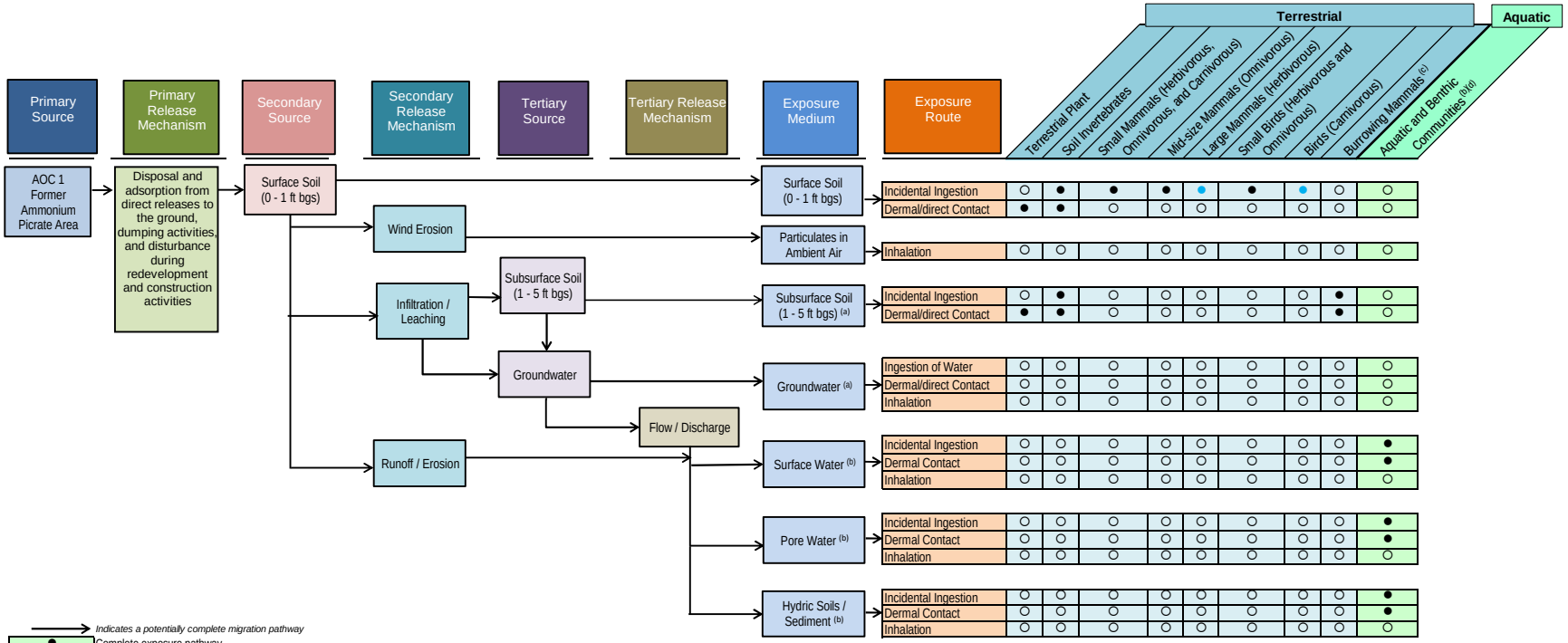
**FIGURES**

**Figure 3-1 Preliminary Ecological Conceptual Site Model: AOC 1 – Former Ammonium Picrate Area**




Notes:

(a) Chemical concentrations in discrete subsurface soil samples were compared to appropriate ecological screening levels as part of the Phase 1 risk screening (Subsection 5.7) process and will be used to determine the need for additional sampling and subsequent risk evaluation.

(b) Surface water, pore water, and sediment may be sampled as part of a phased assessment of groundwater contamination and will only be considered if DOD-related COPECs identified in groundwater are potentially discharging to nearby wetland areas.

(c) Burrowing mammals are included in the "small mammal" receptor category when considering surface soil exposure.

(d) Habitat Downgradient from the Ammonium Picrate Buildings within AOC 1 - Former Ammonium Picrate Area

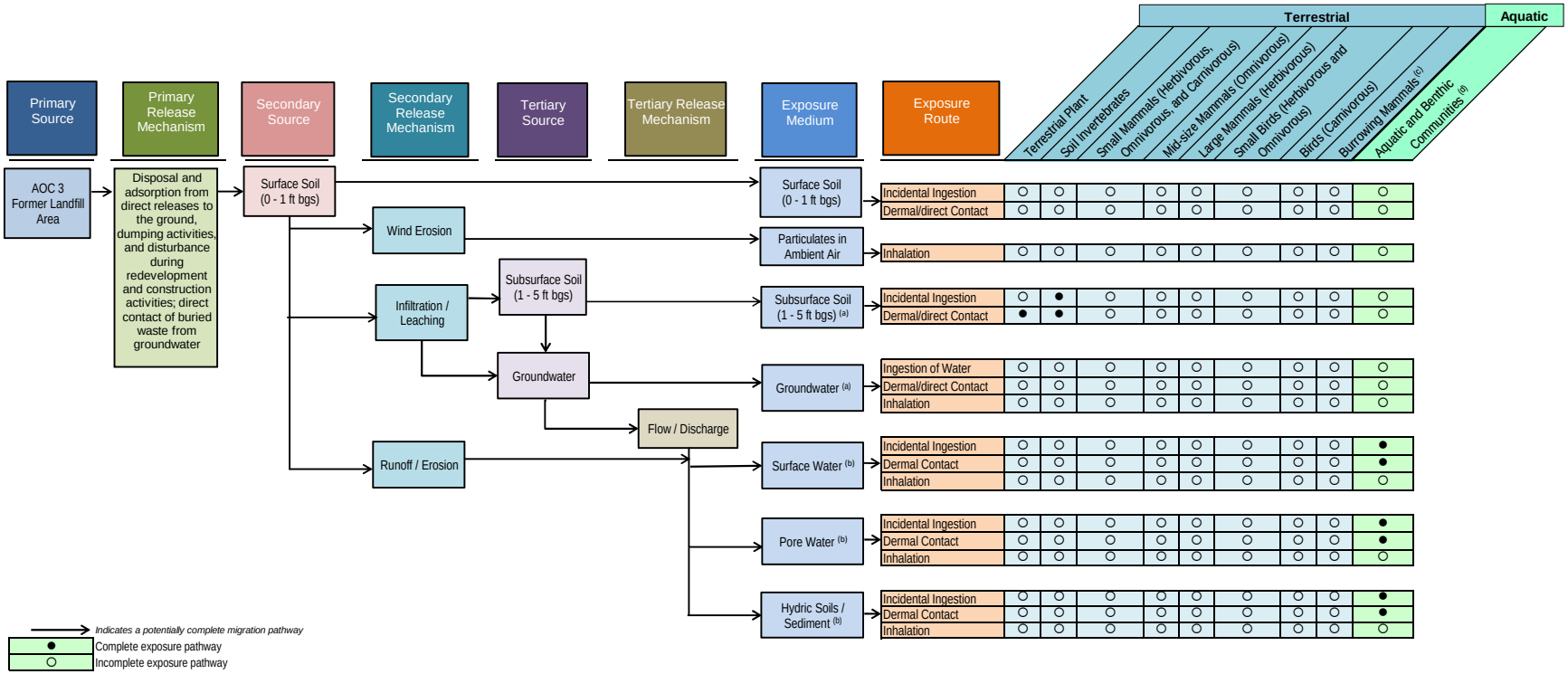
Acronyms:

AOC = area of concern

bgs = below ground surface

ft = feet

**Figure 3-2 Preliminary Ecological Conceptual Site Model: AOC 3 – Former Landfill Area**




Notes:

(a) Chemical concentrations in discrete subsurface soil samples were compared to appropriate ecological screening levels as part of the Phase 1 risk screening (Subsection 5.7) process and will be used to determine the need for additional sampling and subsequent risk evaluation.

(b) Surface water, pore water, and sediment may be sampled as part of a phased assessment of soil and groundwater contamination and will only be considered if DOD-related COPECs identified in soil and groundwater are potentially affecting the unnamed stream north of the landfill.

(c) Burrowing mammals are included in the "small mammal" receptor category when considering surface soil exposure.

(d) Habitat Downgradient from AOC 3 - Former Landfill Area.

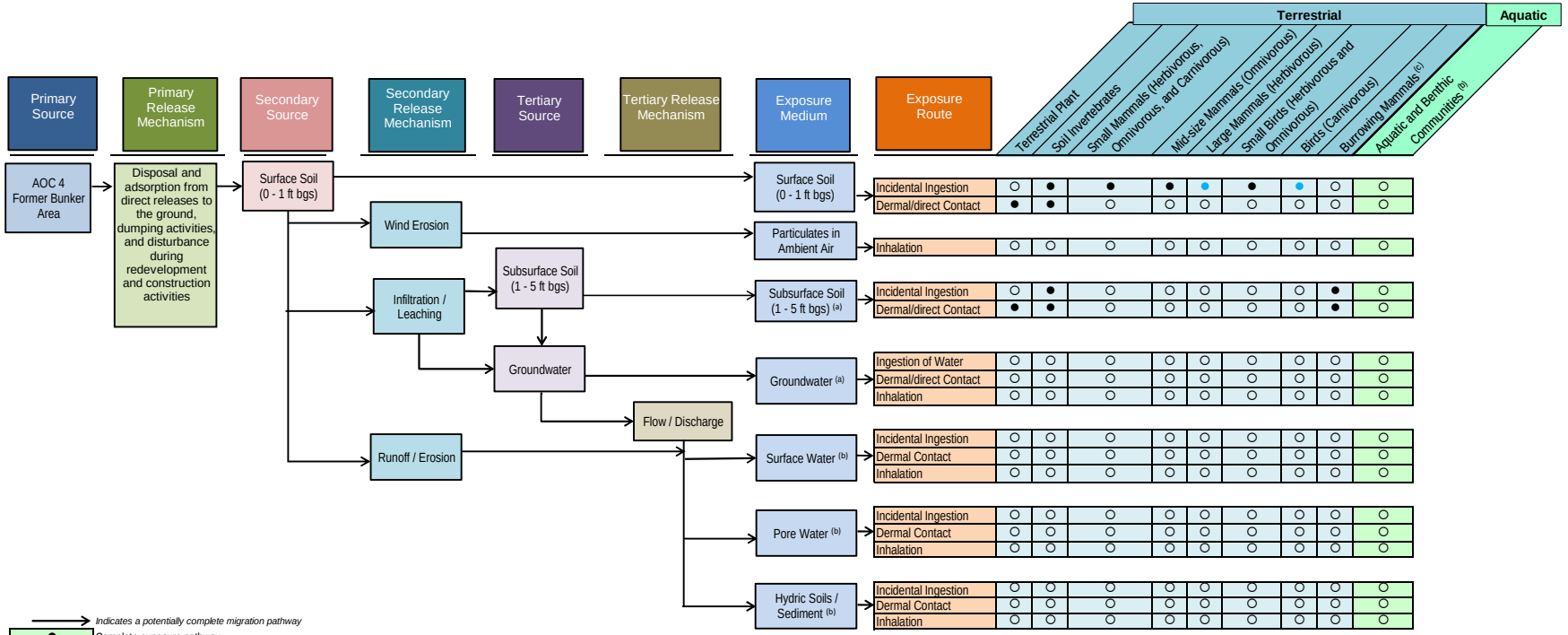
Acronyms:

AOC = area of concern

bgs = below ground surface

ft = feet

**Figure 3-3 Preliminary Ecological Conceptual Site Model: AOC 5 – Former Power Plant Area**




*Indicates a potentially complete migration pathway*

● Complete exposure pathway

○ Incomplete exposure pathway

● Complete but insignificant exposure pathway (note: due to large home range relative to potential site exposure)

Notes:

(a) Chemical concentrations in discrete subsurface soil samples were compared to appropriate ecological screening levels as part of the Phase 1 risk screening (Subsection 5.7) process and will be used to determine the need for additional sampling and subsequent risk evaluation.

(b) Surface water, pore water, and sediment may be sampled as part of a phased assessment of groundwater contamination and will only be considered if DOD-related COPECs identified in groundwater are potentially discharging to nearby wetland areas.

(c) Burrowing mammals are included in the "small mammal" receptor category when considering surface soil exposure.

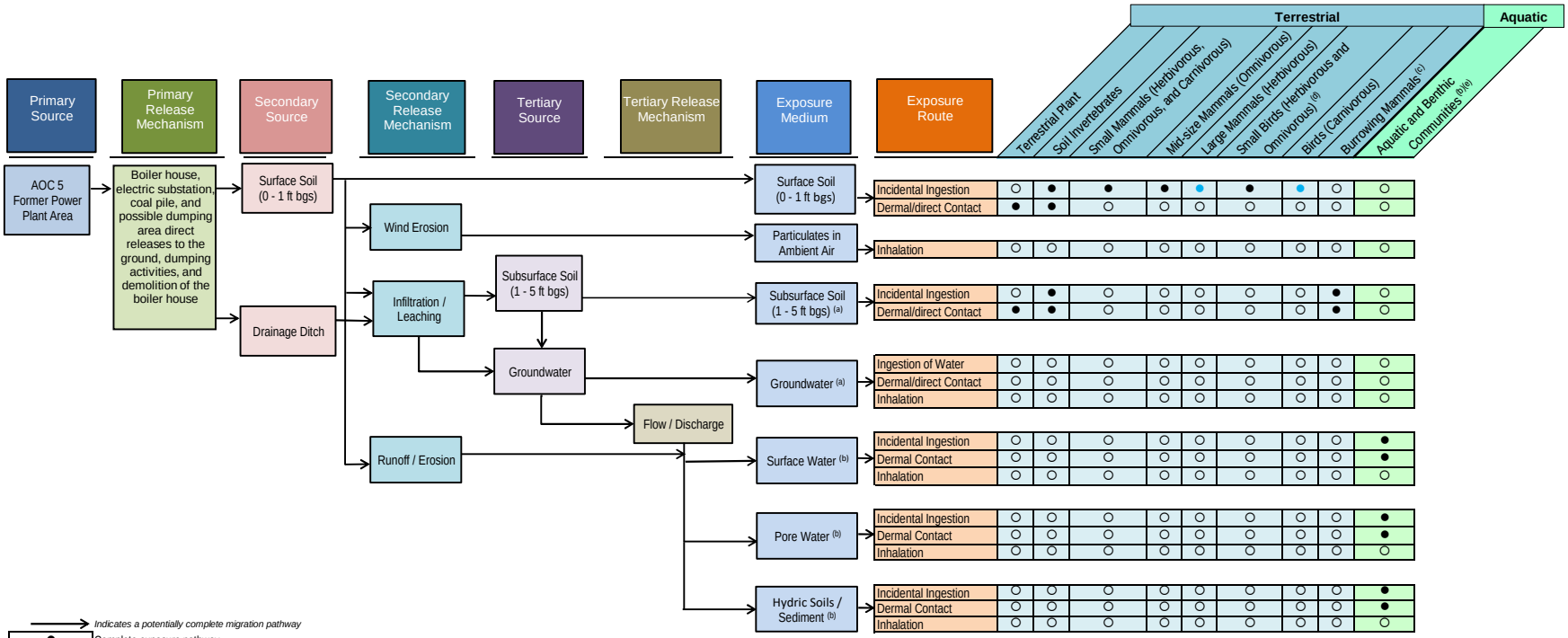
Acronyms:

AOC = area of concern

bgs = below ground surface

ft = feet

**Figure 3-4 Preliminary Ecological Conceptual Site Model: AOC 5 – Former Power Plant Area**




Notes:

(a) Chemical concentrations in discrete subsurface soil samples were compared to appropriate ecological screening levels as part of the Phase 1 risk screening (Subsection 5.7) process and will be used to determine the need for additional sampling and subsequent risk evaluation.

(b) Surface water, pore water, and sediment may be sampled as part of a phased assessment of groundwater contamination and will only be considered if DOD-related COPECs identified in groundwater are potentially discharging to nearby wetland areas.

(c) Burrowing mammals are included in the "small mammal" receptor category when considering surface soil exposure.

(d) Based on the risk screening evaluation results presented in Subsection 6.2.2 in the Phase 1 Risk Screening and Data Gaps Analysis report, small birds are not receptors of concern at the Boiler House.

(e) Habitat Downgradient from AOC 5 - Former Power Plant Area

Acronyms:

AOC = area of concern

bgs = below ground surface

ft = feet

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**ATTACHMENTS**

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# ATTACHMENT C.1

## Surrogate Compound Selection

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## ATTACHMENT C.1
## Surrogate Compound Selection

Ecological screening benchmarks are not available for two of the main contaminants of potential ecological concern (COPECs) at the New York Ordnance Works Formerly Used Defense Site in Baldwinsville, New York: 2,4,6-trinitrophenol (picric acid) and 2,4-dinitrochlorobenene (DNCB). In order to have a project action limit with which to determine whether or not the selected analytical methods have limits of quantification (LOQs) sufficiently low to meet data quality objectives, benchmarks from surrogate compounds were selected. Appropriate surrogates should have similar chemical properties and available toxicity benchmarks. The selection of surrogates for picric acid and DNCB are presented below. Picric acid is an aromatic compound with three electron-withdrawing (nitro) substituents at the para and at both ortho positions relative to the hydroxyl group; as a result, the phenolic proton is quite acidic (acid dissociation constant [pKa] < 1). As a starting point, the minimum requirements for finding an acceptable surrogate for picric acid included finding another phenolic compound with similar substituents in terms of steric hindrance, location on the aromatic ring and electron-withdrawing capacity (see Table A.1-1 in the Phase 1 Quality Assurance Project Plan for candidate structural analogs). Although chlorine and bromine are electron-withdrawing substituents, they are not the best choices as nitro group replacements, as they are single atoms and would not help delocalize the charge of a phenoxide ion in the same manner as the nitro groups. Therefore, a reasonable compromise was a nitro-substituted phenol with substitution in the ortho- and/or para- positions. The compounds 2,4-dinitrophenol (pKa ≈ 4) and 2,5-dinitrophenol (pKa ≈ 5) were the closest matches. The substitution pattern of 2,4-dinitrophenol (ortho-, para-) is more favorable than the substitution pattern of 2,5-dinitrophenol (ortho, meta-) for stabilization of charge, as both of its nitro groups are positioned on the aromatic ring to delocalize charge relative to the hydroxyl group. In addition, 2,4-dinitrophenol has available U.S. Environmental Protection Agency (Region 4 and Region 5) ecological screening benchmarks, whereas 2,5-dinitrophenol does not (see tables in Attachment C.2). As a result of these considerations, 2,4-dinitrophenol was selected as the best surrogate for picric acid. A safety factor of 10 has been applied to the 2,4-dinitrophenol benchmarks to account for potential differences between picric acid and 2,4-dinitrophenol toxicity.

| Medium | 2,4-Dinitrophenol Value[1] | Values used for Picric Acid PAL in Worksheet #15[2] |
|---|---|---|
| Surface water | 71 ug/L | 7.1 ug/L |
| Sediment | 0.22 mg/kg | 0.022 mg/kg |
| Soil | 0.061 mg/kg | 0.0061 mg/kg |

Notes:
[1]USEPA, 2018
[2]2,4-Dinitrophenol values divided by 10
Key: mg/kg = milligrams per kilogram; PAL = project action limit; ug/L = micrograms per liter

DNCB is an aromatic compound with two nitro substituents at the ortho- and para- positions relative to the chlorine substituent. The minimum requirements for finding an acceptable substitute for DNCB included finding another polynitrobenzene with a similar substituent pattern on the aromatic ring (see

Table A.1-2 in the Phase 1 Quality Assurance Project Plan for candidate structural analogs). Although an alternate 2,4-dinitrohalobenzene would be most similar, there are no compounds of that type with available toxicity benchmarks. Therefore, a dinitro-substituted benzene with the nitro groups oriented in the meta position relative to each other was first choice. The compounds 2,4-dinitrotoluene and 1,3-dinitrobenzene are both reasonable choices; both have toxicity benchmarks available from acceptable regulatory guidance sources. The compound 2,4-dinitrotoluene has water solubility and log Kow values closer to those of DNCB than does 1,3-dinitrobenzene. In addition, 2,4-dinitrotoluene has a methyl group at the same position on the aromatic ring as the chloride in DNCB, giving a similar steric hindrance to the adjacent nitro group, though the methyl group is a neutral substituent with regards to stabilizing ionization in an aromatic ring system. As a result of these considerations, 2,4-dinitrotoluene was selected as the best surrogate for DNCB. No safety factor was applied to the surrogate benchmarks to account for the difference between DNCB and 2,4-dinitrotoluene structures due to the difference in the structures being the methyl substituent.

| Medium | 2,4-Dinitrotoluene Value[1] | Values used for DNCB PAL in Worksheet #15 |
|---|---|---|
| Surface water | 44 ug/L | 44 ug/L |
| Sediment | 0.29 mg/kg | 0.29 mg/kg |
| Soil | 6 mg/kg | 6 mg/kg |

Notes:
[1]USEPA, 2018
Key: mg/kg = milligrams per kilogram; PAL = project action limit; ug/L = micrograms per liter

The above ESLs are considered to be adequately conservative for the initial ecological screening for these energetic compounds. If either picric acid or dinitrochlorobenzene is carried forward to Step 3, these values will be reassessed following review of available literature (e.g., Lotufo et al., 2013; USAPHC, 2019, 2020a, 2020b; USBRDL, 1975).

## References


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USAPHC. 2020b. Wildlife Toxicity Assessment for Mono-Nitrophenols. WTA No. HEF-042019-008. April.

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# ATTACHMENT C.2

## Development of Ecological Project Action Limits for Soil, Sediment and Aqueous Media

**Table C.2-1: Soil Ecological Screening Level Hierarchy**

| Method | Analyte | CAS Registry Number | 1) EPA Eco SSLs (mg/kg) | 2) EPA Region 4 (mg/kg) | 3) EPA Region 5 RCRA ESLs (mg/kg) | 4) LANL ECORISK (mg/kg) | 5) Derived - See Attachment C.1 (mg/kg) | Ecological Project Action Limit | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Value (mg/kg) | Reference |
| BNASIM | Acenaphthene | 83-32-9 | | 0.25 | 682 | 0.25 | - | 0.25 | 2) EPA Region 4 Soil |
| BNASIM | Acenaphthylene | 208-96-8 | | 0.34 | 682 | 120 | - | 0.34 | 2) EPA Region 4 Soil |
| BNASIM | Anthracene | 120-12-7 | | 0.0015 | 1480 | 6.8 | - | 0.0015 | 2) EPA Region 4 Soil |
| BNASIM | Benzo(a)anthracene | 56-55-3 | | 0.73 | 5.21 | 0.73 | - | 0.73 | 2) EPA Region 4 Soil |
| BNASIM | Benzo(a)pyrene | 50-32-8 | | 0.13 | 1.52 | 62 | - | 0.13 | 2) EPA Region 4 Soil |
| BNASIM | Benzo(b)fluoranthene | 205-99-2 | | 2.7 | 59.8 | 18 | - | 2.7 | 2) EPA Region 4 Soil |
| BNASIM | Benzo(g,h,i)perylene | 191-24-2 | | 0.07 | 119 | 25 | - | 0.07 | 2) EPA Region 4 Soil |
| BNASIM | Benzo(k)fluoranthene | 207-08-9 | | 0.13 | 148 | 71 | - | 0.13 | 2) EPA Region 4 Soil |
| BNASIM | Chrysene | 218-01-9 | | 3.1 | 4.73 | 3.1 | - | 3.1 | 2) EPA Region 4 Soil |
| BNASIM | Dibenz(a,h)anthracene | 53-70-3 | | 0.06 | 18.4 | 14 | - | 0.06 | 2) EPA Region 4 Soil |
| BNASIM | Fluoranthene | 206-44-0 | | 10 | 122 | 10 | - | 10 | 2) EPA Region 4 Soil |
| BNASIM | Fluorene | 86-73-7 | | 3.7 | 122 | 3.7 | - | 3.7 | 2) EPA Region 4 Soil |
| BNASIM | Indeno(1,2,3-c,d)pyrene | 193-39-5 | | 0.08 | 109 | 71 | - | 0.08 | 2) EPA Region 4 Soil |
| BNASIM | Naphthalene | 91-20-3 | | 0.16 | 0.0994 | 1 | - | 0.16 | 2) EPA Region 4 Soil |
| BNASIM | Naphthalene [1-methyl] | 90-12-0 | | 0.14 | - | - | - | 0.14 | 2) EPA Region 4 Soil |
| BNASIM | Naphthalene [2-methyl] | 91-57-6 | | 0.11 | 3.24 | 16 | - | 0.11 | 2) EPA Region 4 Soil |
| BNASIM | Phenanthrene | 85-01-8 | | 5.5 | 45.7 | 5.5 | - | 5.5 | 2) EPA Region 4 Soil |
| BNASIM | Pyrene | 129-00-0 | | 10 | 78.5 | 10 | - | 10 | 2) EPA Region 4 Soil |
| SVOCs | Acenaphthene | 83-32-9 | | 0.25 | 682 | 0.25 | - | 0.25 | 2) EPA Region 4 Soil |
| SVOCs | Acenaphthylene | 208-96-8 | | 0.34 | 682 | 120 | - | 0.34 | 2) EPA Region 4 Soil |
| SVOCs | Acetophenone | 98-86-2 | | | 300 | | - | 300 | 3) EPA Region 5 RCRA ESLs |
| SVOCs | Anthracene | 120-12-7 | | 0.0015 | 1480 | 6.8 | - | 0.0015 | 2) EPA Region 4 Soil |
| SVOCs | Atrazine | 1912-24-9 | | 0.00005 | | | - | 0.00005 | 2) EPA Region 4 Soil |
| SVOCs | Benzaldehyde | 100-52-7 | | | | | - | - | NA |
| SVOCs | Benzo(a)anthracene | 56-55-3 | | 0.73 | 5.21 | 0.73 | - | 0.73 | 2) EPA Region 4 Soil |
| SVOCs | Benzo(a)pyrene | 50-32-8 | | 0.13 | 1.52 | 62 | - | 0.13 | 2) EPA Region 4 Soil |
| SVOCs | Benzo(b)fluoranthene | 205-99-2 | | 2.7 | 59.8 | 18 | - | 2.7 | 2) EPA Region 4 Soil |
| SVOCs | Benzo(g,h,i)perylene | 191-24-2 | | 0.07 | 119 | 25 | - | 0.07 | 2) EPA Region 4 Soil |
| SVOCs | Benzo(k)fluoranthene | 207-08-9 | | 0.13 | 148 | 71 | - | 0.13 | 2) EPA Region 4 Soil |
| SVOCs | Biphenyl [1,1'-] | 92-52-4 | | 0.2 | | | - | 0.2 | 2) EPA Region 4 Soil |
| SVOCs | Caprolactam | 105-60-2 | | | | | - | - | NA |
| SVOCs | Carbazole | 86-74-8 | | 0.07 | | 79 | - | 0.07 | 2) EPA Region 4 Soil |
| SVOCs | Chlorethylether [bis(2-] | 111-44-4 | | | 23.7 | | - | 23.7 | 3) EPA Region 5 RCRA ESLs |

**Table C.2-1: Soil Ecological Screening Level Hierarchy**

| Method | Analyte | CAS Registry Number | 1) EPA Eco SSLs (mg/kg) | 2) EPA Region 4 (mg/kg) | 3) EPA Region 5 RCRA ESLs (mg/kg) | 4) LANL ECORISK (mg/kg) | 5) Derived - See Attachment C.1 (mg/kg) | Ecological Project Action Limit | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Value (mg/kg) | Reference |
| SVOCs | Chloroaniline [ 4-] (p-) | 106-47-8 | | 1 | 1.1 | 1 | - | 1 | 2) EPA Region 4 Soil |
| SVOCs | Chlorophenol [2-] | 95-57-8 | | 0.06 | 0.243 | 0.39 | - | 0.06 | 2) EPA Region 4 Soil |
| SVOCs | Chlorophenylphenylether [4-] | 7005-72-3 | | | | | - | - | NA |
| SVOCs | Chloropropane) [2,2'-oxybis; (1-] | 108-60-1 | | | 19.9 | | - | 19.9 | 3) EPA Region 5 RCRA ESLs |
| SVOCs | Chrysene | 218-01-9 | | 3.1 | 4.73 | 3.1 | - | 3.1 | 2) EPA Region 4 Soil |
| SVOCs | Cresol[p-chloro-m-, 4-chloro-3-] | 59-50-7 | | | 7.95 | | - | 7.95 | 3) EPA Region 5 RCRA ESLs |
| SVOCs | Dibenz(a,h)anthracene | 53-70-3 | | 0.06 | 18.4 | 14 | - | 0.06 | 2) EPA Region 4 Soil |
| SVOCs | Dibenzofuran | 132-64-9 | | 0.15 | | 6.1 | - | 0.15 | 2) EPA Region 4 Soil |
| SVOCs | Dichlorobenzidine [3,3'-] | 91-94-1 | | 0.03 | 0.646 | | - | 0.03 | 2) EPA Region 4 Soil |
| SVOCs | Dichlorophenol [2,4-] | 120-83-2 | | 0.05 | 87.5 | | - | 0.05 | 2) EPA Region 4 Soil |
| SVOCs | Dimethylphenol [2,4-] | 105-67-9 | | 0.04 | 0.01 | | - | 0.04 | 2) EPA Region 4 Soil |
| SVOCs | Dinitrophenol [2,4-] | 51-28-5 | | 0.061 | 0.0609 | | - | 0.061 | 2) EPA Region 4 Soil |
| SVOCs | Dinitrophenol [2-methyl-4,6-] | 534-52-1 | | | 0.144 | | - | 0.144 | 3) EPA Region 5 RCRA ESLs |
| SVOCs | Dinitrotoluene [2,4-] | 121-14-2 | | 6 | 1.28 | 6 | - | 6 | 2) EPA Region 4 Soil |
| SVOCs | Dinitrotoluene [2,6-] | 606-20-2 | | 4 | 0.0328 | 4 | - | 4 | 2) EPA Region 4 Soil |
| SVOCs | Fluoranthene | 206-44-0 | | 10 | 122 | 10 | - | 10 | 2) EPA Region 4 Soil |
| SVOCs | Fluorene | 86-73-7 | | 3.7 | 122 | 3.7 | - | 3.7 | 2) EPA Region 4 Soil |
| SVOCs | Hexachlorobenzene | 118-74-1 | | 0.079 | 0.199 | 0.079 | - | 0.079 | 2) EPA Region 4 Soil |
| SVOCs | Hexachlorobutadiene | 87-68-3 | | 0.009 | 0.0398 | | - | 0.009 | 2) EPA Region 4 Soil |
| SVOCs | Hexachlorocyclopentadiene | 77-47-4 | | 0.001 | 0.755 | | - | 0.001 | 2) EPA Region 4 Soil |
| SVOCs | Hexachloroethane | 67-72-1 | | 0.024 | 0.596 | | - | 0.024 | 2) EPA Region 4 Soil |
| SVOCs | Indeno(1,2,3-cd)pyrene | 193-39-5 | | 0.08 | 109 | 71 | - | 0.08 | 2) EPA Region 4 Soil |
| SVOCs | Isophorone | 78-59-1 | | | 139 | | - | 139 | 3) EPA Region 5 RCRA ESLs |
| SVOCs | Methane[bis(2-chloroethoxy)] | 111-91-1 | | | 0.302 | | - | 0.302 | 3) EPA Region 5 RCRA ESLs |
| SVOCs | Methylphenol [4-] (cresol; p-) | 106-44-5 | | 0.08 | 163 | | - | 0.08 | 2) EPA Region 4 Soil |
| SVOCs | Methylphenol [3-] (cresol; m-) | 108-39-4 | | 0.09 | | | - | 0.09 | 2) EPA Region 4 Soil |
| SVOCs | Methylphenol [2-] (cresol; o-) | 95-48-7 | | 0.1 | 40.4 | 0.67 | - | 0.1 | 2) EPA Region 4 Soil |
| SVOCs | Naphthalene | 91-20-3 | | 0.16 | 0.0994 | 1 | - | 0.16 | 2) EPA Region 4 Soil |
| SVOCs | Naphthalene [2-chloro-] | 91-58-7 | | | 0.0122 | | - | 0.0122 | 3) EPA Region 5 RCRA ESLs |
| SVOCs | Naphthalene [2-methyl-] | 91-57-6 | | 0.11 | 3.24 | 16 | - | 0.11 | 2) EPA Region 4 Soil |
| SVOCs | Nitroaniline [ 2-] (o-) | 98-88-74 | | | | | - | - | NA |
| SVOCs | Nitroaniline [ 4-] (p-) | 100-01-6 | | | 21.9 | | - | 21.9 | 3) EPA Region 5 RCRA ESLs |
| SVOCs | Nitrobenzene | 98-95-3 | | 2.2 | 1.31 | 2.2 | - | 2.2 | 2) EPA Region 4 Soil |

**Table C.2-1: Soil Ecological Screening Level Hierarchy**

| Method | Analyte | CAS Registry Number | 1) EPA Eco SSLs (mg/kg) | 2) EPA Region 4 (mg/kg) | 3) EPA Region 5 RCRA ESLs (mg/kg) | 4) LANL ECORISK (mg/kg) | 5) Derived - See Attachment C.1 (mg/kg) | Ecological Project Action Limit | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Value (mg/kg) | Reference |
| SVOCs | Nitrophenol [2-] (o-) | 88-75-5 | | | 1.6 | | - | 1.6 | 3) EPA Region 5 RCRA ESLs |
| SVOCs | Nitrophenol [4-] (p-) | 100-02-7 | | 5.12 | 5.12 | | - | 5.12 | 2) EPA Region 4 Soil |
| SVOCs | Nitrosodiphenylamine [N-] | 86-30-6 | | 0.545 | 0.545 | | - | 0.545 | 2) EPA Region 4 Soil |
| SVOCs | Pentachlorophenol (PCP) | 87-86-5 | | 2.1 | 0.119 | 0.36 | - | 2.1 | 2) EPA Region 4 Soil |
| SVOCs | Phenanthrene | 85-01-8 | | 5.5 | 45.7 | 5.5 | - | 5.5 | 2) EPA Region 4 Soil |
| SVOCs | Phenol | 108-95-2 | | 0.79 | 120 | 0.79 | - | 0.79 | 2) EPA Region 4 Soil |
| SVOCs | Phthalate [diethyl] | 84-66-2 | | 0.25 | 24.8 | 100 | - | 0.25 | 2) EPA Region 4 Soil |
| SVOCs | Phthalate [dimethyl] | 131-11-3 | | 0.35 | 734 | 10 | - | 0.35 | 2) EPA Region 4 Soil |
| SVOCs | Phthalate [di-n-butyl-] | 84-74-2 | | 0.011 | 0.15 | 0.011 | - | 0.011 | 2) EPA Region 4 Soil |
| SVOCs | Phthalate [di-n-octyl] | 117-84-0 | | 0.91 | 709 | 0.91 | - | 0.91 | 2) EPA Region 4 Soil |
| SVOCs | Phthalate[bis(2-ethylhexyl)] | 117-81-7 | | 0.02 | 0.925 | 0.02 | - | 0.02 | 2) EPA Region 4 Soil |
| SVOCs | Phthalate[butylbenzyl-] | 85-68-7 | | 0.59 | 0.239 | 90 | - | 0.59 | 2) EPA Region 4 Soil |
| SVOCs | Propylamine [N-nitrosodi-n-] | 621-64-7 | | | 0.544 | | - | 0.544 | 3) EPA Region 5 RCRA ESLs |
| SVOCs | Pyrene | 129-00-0 | | 10 | 78.5 | 10 | - | 10 | 2) EPA Region 4 Soil |
| SVOCs | Trichlorophenol [2,4,5-] | 95-95-4 | | 4 | 14.1 | | - | 4 | 2) EPA Region 4 Soil |
| SVOCs | Trichlorophenol [2,4,6-] | 88-06-2 | | 9.94 | 9.94 | | - | 9.94 | 2) EPA Region 4 Soil |
| SW6010C | Aluminum | 7429-90-5 | Narrative | Narrative | - | - | - | Narrative | 1) EPA Eco SSLs |
| SW6010C | Barium | 7440-39-3 | 330 | 330 | 1.04 | 110 | - | 330 | 1) EPA Eco SSLs |
| SW6010C | Beryllium | 7440-41-7 | 21 | 2.5 | 1.06 | 2.5 | - | 21 | 1) EPA Eco SSLs |
| SW6010C | Calcium | 7440-70-2 | - | - | - | - | - | - | NA |
| SW6010C | Chromium | 7440-47-3 | 26 | 23 | 0.4 | 23 | - | 26 | 1) EPA Eco SSLs |
| SW6010C | Cobalt | 7440-48-4 | 13 | 13 | 0.14 | 13 | - | 13 | 1) EPA Eco SSLs |
| SW6010C | Copper | 7440-50-8 | 28 | 28 | 5.4 | 14 | - | 28 | 1) EPA Eco SSLs |
| SW6010C | Iron | 7439-89-6 | Narrative | Narrative | - | - | - | Narrative | 1) EPA Eco SSLs |
| SW6010C | Lead | 7439-92-1 | 11 | 11 | 0.0537 | 11 | - | 11 | 1) EPA Eco SSLs |
| SW6010C | Magnesium | 7439-95-4 | - | - | - | - | - | - | NA |
| SW6010C | Manganese | 7439-96-5 | 220 | 220 | - | 220 | - | 220 | 1) EPA Eco SSLs |
| SW6010C | Nickel | 7440-02-0 | 38 | 38 | 13.6 | - | - | 38 | 1) EPA Eco SSLs |
| SW6010C | Potassium | 7440-09-7 | - | - | - | - | - | - | NA |
| SW6010C | Silver | 7440-22-4 | 4.2 | 4.2 | 4.04 | 2.6 | - | 4.2 | 1) EPA Eco SSLs |
| SW6010C | Sodium | 7440-23-5 | - | - | - | - | - | - | NA |
| SW6010C | Vanadium | 7440-62-2 | 7.8 | 7.8 | 1.59 | 4.7 | - | 7.8 | 1) EPA Eco SSLs |
| SW6010C | Zinc | 7440-66-6 | 46 | 46 | 6.62 | 47 | - | 46 | 1) EPA Eco SSLs |

**Table C.2-1: Soil Ecological Screening Level Hierarchy**

| Method | Analyte | CAS Registry Number | 1) EPA Eco SSLs (mg/kg) | 2) EPA Region 4 (mg/kg) | 3) EPA Region 5 RCRA ESLs (mg/kg) | 4) LANL ECORISK (mg/kg) | 5) Derived - See Attachment C.1 (mg/kg) | Ecological Project Action Limit | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Value (mg/kg) | Reference |
| SW6020A | Antimony | 7440-36-0 | 0.27 | 0.27 | 0.142 | 2.3 | - | 0.27 | 1) EPA Eco SSLs |
| SW6020A | Arsenic | 7440-38-2 | 18 | 18 | 5.7 | 6.8 | - | 18 | 1) EPA Eco SSLs |
| SW6020A | Cadmium | 7440-43-9 | 0.36 | 0.36 | 0.00222 | 0.27 | - | 0.36 | 1) EPA Eco SSLs |
| SW6020A | Selenium | 7782-49-2 | 0.52 | 0.52 | 0.0276 | 0.52 | - | 0.52 | 1) EPA Eco SSLs |
| SW6020A | Thallium | 7440-28-0 | | 0.05 | 0.0569 | 0.05 | - | 0.05 | 2) EPA Region 4 Soil |
| SW7471B | Mercury | 7439-97-6 | | 0.013 | 0.1 | 0.013 | - | 0.013 | 2) EPA Region 4 Soil |
| VOC | Acetone | 67-64-1 | | 1.2 | 2.5 | | - | 1.2 | 2) EPA Region 4 Soil |
| VOC | Benzene | 71-43-2 | | 0.12 | 0.255 | 24 | - | 0.12 | 2) EPA Region 4 Soil |
| VOC | Bromodichloromethane | 75-27-4 | | | 0.54 | | - | 0.54 | 3) EPA Region 5 RCRA ESLs |
| VOC | Bromoform (tribromomethane) | 75-25-2 | | 0.07 | 15.9 | | - | 0.070 | 2) EPA Region 4 Soil |
| VOC | Bromomethane (methylbromide) | 74-83-9 | | 0.002 | 0.235 | | - | 0.0020 | 2) EPA Region 4 Soil |
| VOC | Butanone [ 2-] (methy ethyl ketone) | 78-93-3 | | 1 | 89.6 | 350 | - | 1.0 | 2) EPA Region 4 Soil |
| VOC | Carbon disulfide | 75-15-0 | | 0.005 | 0.0941 | 0.81 | - | 0.005 | 2) EPA Region 4 Soil |
| VOC | Carbon tetrachloride | 56-23-5 | | 0.05 | 2.98 | | - | 0.050 | 2) EPA Region 4 Soil |
| VOC | Chlorobenzene | 108-90-7 | | 2.4 | 13.1 | 2.4 | - | 2.4 | 2) EPA Region 4 Soil |
| VOC | Chloroethane | 75-00-3 | - | | | | - | - | NA |
| VOC | Chloroethene[vinylchloride] | 75-01-4 | | 0.03 | 0.646 | 0.12 | - | 0.03 | 2) EPA Region 4 Soil |
| VOC | Chloroform[trichloromethane] | 67-66-3 | | 0.05 | 1.19 | 8 | - | 0.05 | 2) EPA Region 4 Soil |
| VOC | Chloromethane (methyl chloride) | 74-87-3 | | | 10.4 | | - | 10.4 | 3) EPA Region 5 RCRA ESLs |
| VOC | Chloropropane [1,2-dibromo-3-] | 96-12-8 | | | 0.0352 | | - | 0.0352 | 3) EPA Region 5 RCRA ESLs |
| VOC | Cyclohexane | 110-82-7 | - | | | | - | - | NA |
| VOC | Dibromochloromethane | 124-48-1 | | | 2.05 | | - | 2.05 | 3) EPA Region 5 RCRA ESLs |
| VOC | Dibromoethane [1,2-] | 106-93-4 | | | 1.23 | | - | 1.23 | 3) EPA Region 5 RCRA ESLs |
| VOC | Dichlorobenzene [1,2-] (o-) | 95-50-1 | | 0.09 | 2.96 | 0.92 | - | 0.090 | 2) EPA Region 4 Soil |
| VOC | Dichlorobenzene [1,3-] | 541-73-1 | | 0.08 | 37.7 | 0.74 | - | 0.080 | 2) EPA Region 4 Soil |
| VOC | Dichlorobenzene [1,4-] | 106-46-7 | | 0.88 | 0.546 | 0.89 | - | 0.88 | 2) EPA Region 4 Soil |
| VOC | Dichlorodifluoromethane | 75-71-8 | | | 39.5 | | - | 39.5 | 3) EPA Region 5 RCRA ESLs |
| VOC | Dichloroethane [1,1-] | 75-34-3 | | 0.14 | 20.1 | 210 | - | 0.14 | 2) EPA Region 4 Soil |
| VOC | Dichloroethane [1,2-] | 107-06-2 | | 0.4 | 21.2 | 0.85 | - | 0.40 | 2) EPA Region 4 Soil |
| VOC | Dichloroethene [1,1-] (dichloroethylene) | 75-35-4 | | 0.04 | 8.28 | 11 | - | 0.04 | 2) EPA Region 4 Soil |
| VOC | Dichloroethyene [cis-1,2-] | 156-59-2 | | 0.04 | | | - | 0.04 | 2) EPA Region 4 Soil |
| VOC | Dichloroethylene [trans-1,2-] | 156-60-5 | | 0.04 | 0.784 | | - | 0.04 | 2) EPA Region 4 Soil |
| VOC | Dichloromethane (methylene chloride) | 75-09-2 | | 0.21 | 4.05 | 2.6 | - | 0.21 | 2) EPA Region 4 Soil |

**Table C.2-1: Soil Ecological Screening Level Hierarchy**

| Method | Analyte | CAS Registry Number | 1) EPA Eco SSLs (mg/kg) | 2) EPA Region 4 (mg/kg) | 3) EPA Region 5 RCRA ESLs (mg/kg) | 4) LANL ECORISK (mg/kg) | 5) Derived - See Attachment C.1 (mg/kg) | Ecological Project Action Limit | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Value (mg/kg) | Reference |
| VOC | Dichloropropane [1,2-] | 78-87-5 | | 0.28 | 32.7 | | - | 0.28 | 2) EPA Region 4 Soil |
| VOC | Dichloropropene [1,3-] | 542-75-6 | | 0.001 | 0.398 | | - | 0.001 | 2) EPA Region 4 Soil |
| VOC | Dichloropropene [cis-1,3-] | 10061-01-5 | | 0.001 | 0.398 | | - | 0.001 | 2) EPA Region 4 Soil |
| VOC | Dichloropropene [trans-1,3-] | 10061-02-6 | | 0.001 | 0.398 | | - | 0.001 | 2) EPA Region 4 Soil |
| VOC | Ethylbenzene | 100-41-4 | | 0.27 | 5.16 | | - | 0.27 | 2) EPA Region 4 Soil |
| VOC | Hexanone [2-] | 591-78-6 | | 0.36 | 12.6 | 0.36 | - | 0.36 | 2) EPA Region 4 Soil |
| VOC | Isopropylbenzene (Cumene) | 98-82-8 | | 0.04 | | | - | 0.04 | 2) EPA Region 4 Soil |
| VOC | Methyl tert-butyl ether (MBTE) | 1634-04-4 | - | | | | - | - | NA |
| VOC | Methylacetate | 79-20-9 | - | | | | - | - | NA |
| VOC | Methylcyclohexane | 108-87-2 | - | | | | - | - | NA |
| VOC | Pentanone [4-methyl-2-] (MIBK) | 108-10-1 | | | 443 | 9.7 | - | 443 | 3) EPA Region 5 RCRA ESLs |
| VOC | Styrene (vinyl benzene) | 100-42-5 | | 1.2 | 4.69 | 1.2 | - | 1.2 | 2) EPA Region 4 Soil |
| VOC | Tetrachloroethane [1,1,2,2-] | 79-34-5 | | 0.127 | 0.127 | | - | 0.127 | 2) EPA Region 4 Soil |
| VOC | Tetrachloroethylene [1,1,2,2-] (PCE) | 127-18-4 | | 0.06 | 9.92 | 0.18 | - | 0.06 | 2) EPA Region 4 Soil |
| VOC | Toluene | 108-88-3 | | 0.15 | 5.45 | 23 | - | 0.15 | 2) EPA Region 4 Soil |
| VOC | Trichlorobenzene [1,2,4-] | 120-82-1 | | 0.27 | 11.1 | 0.27 | - | 0.27 | 2) EPA Region 4 Soil |
| VOC | Trichloroethane [1,1,1-] | 71-55-6 | | 0.04 | 29.8 | 260 | - | 0.04 | 2) EPA Region 4 Soil |
| VOC | Trichloroethane [1,1,2-] | 79-00-5 | | 0.32 | 28.6 | | - | 0.32 | 2) EPA Region 4 Soil |
| VOC | Trichloroethylene [1,1,2-] (TCE) | 79-01-6 | | 0.06 | 12.4 | 42 | - | 0.06 | 2) EPA Region 4 Soil |
| VOC | Trichlorofluoromethane | 75-69-4 | | 16.4 | 16.4 | 52 | - | 16.4 | 2) EPA Region 4 Soil |
| VOC | Trifluoroethane [1,1,2-trichloro-1,1,2-] | 76-13-1 | - | | | | - | - | NA |
| VOC | Xylenes [total] | 1330-20-7 | | 0.1 | 10 | 1.4 | - | 0.1 | 2) EPA Region 4 Soil |
| Calculated | Low Molecular Weight PAHs | LMW PAH | 29 | 29 | - | - | - | 29 | 1) EPA Eco SSLs |
| Calculated | High Molecular Weight PAHs | HMW PAH | 1.1 | 1.1 | - | - | - | 1.1 | 1) EPA Eco SSLs |
| SW8330A/B | Picric acid | 88-89-1 | | | | | 0.0061 | 0.0061 | 5) Derived - See Attachment C.1 |
| SW8270 | 2,4-Dinitrochlorobenzene | 97-00-7 | | | | | 6 | 6 | 5) Derived - See Attachment C.1 |
| SW8270 | 2,4-Dinitrophenol | 51-28-5 | | | 0.061 | - | - | 0.061 | 3) EPA Region 5 RCRA ESLs |

**Table C.2-1: Soil Ecological Screening Level Hierarchy**

| Method | Analyte | CAS Registry Number | 1) EPA Eco SSLs (mg/kg) | 2) EPA Region 4 (mg/kg) | 3) EPA Region 5 RCRA ESLs (mg/kg) | 4) LANL ECORISK (mg/kg) | 5) Derived - See Attachment C.1 (mg/kg) | Ecological Project Action Limit | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Value (mg/kg) | Reference |

**Notes:**

Highlighting = Value selected for ecological PAL.

Aluminum is identified as a COPC only for those soils with a pH less than 5.5. The technical basis for this procedure is that the soluble and toxic forms of aluminum are only present in soil under soil pH values of less than 5.5. Site -specific considerations could, however warrant inclusion of aluminum as a COPC.

Chromium by method SW6020 is total chromium. The Eco-SSL is for trivalent chromium because the value is more conservative than that for hexavalent chromium. The Region 4, Region 5, and Iron narrative statement (EPA Eco SSL, 2003): The main concern from an ecological risk perspective for iron is not direct chemical toxicity per se, but the effect of iron as a mediator in the geochemistry of other (potentially toxic) metals and the potential physical hazard of depositing flocculent. Soil pH and Eh should be included as standard soil chemical field parameters when conducting any field investigation. Although some EPA analytical methods require the collection of soil pH prior to analysis, this information is not always made available to the ultimate data users. In addition, the pH measured in the lab may no longer be representative of field conditions since the samples can be exposed to oxygen during storage prior to analysis. A determination of the geochemical conditions (i.e., pH and Eh at a minimum) of the environmental setting, as well as the presence of iron floc and the toxic metals, is critical to the determination of the relative importance of iron at a site.

EPA Eco SSL - Environmental Protection Agency Ecological Soil Screening Values.
HMW PAHs = High molecular weight polycyclic aromatic hydrocarbons.
LANL = Los Alamos National Laboratory.
LMW PAHs = Low molecular weight polycyclic aromatic hydrocarbons.
mg/kg = Milligrams per kilogram.
NA = Not available.
PAL = Project Action Limit.
RCRA = Resource Conservation and Recovery Act.

**Sources:**

1) EPA Ecological Soil Screening Levels (EcoSSLs; various dates) (https://www.epa.gov/chemical-research/interim-ecological-soil-screening-level-documents)

2) EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Soil Screening Values for Hazardous Waste Sites (https://www.epa.gov/sites/production/files/2018-03/documents/era_regional_supplemental_guidance_report-march-201

3) EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf)

4) Newport News Nuclear BWXT-Los Alamos, LLC (N3B). 2022. ECORISK Database (Release 4.3). Document EM2022-0358. Los Alamos, New Mexico.

5) Derived - See Appendix B.1

**Table C.2-2: Sediment Ecological Screening Level Hierarchy**

| Method | Analyte | CAS Registry Number | 1) EPA Region 4 (mg/kg) | 2) EPA Region 3 (mg/kg) | 3) EPA Region 5 RCRA ESLs (mg/kg) | 4) LANL ECORISK (mg/kg) | 5) Derived - See Attachment C.1 (mg/kg) | Ecological Project Action Limit | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Value (mg/kg) | Reference |
| SW6010C | Aluminum | 7429-90-5 | 25000 | | | 25000 | - | 25000 | 1) EPA Region 4 |
| SW6010C | Barium | 7440-39-3 | 20 | | | 150 | - | 20 | 1) EPA Region 4 |
| SW6010C | Beryllium | 7440-41-7 | | | | 66 | | 66 | 4) LANL ECORISK |
| SW6010C | Calcium | 7440-70-2 | | | | | | - | NA |
| SW6010C | Copper | 7440-50-8 | 31.6 | 31.6 | 31.6 | 23 | - | 31.6 | 1) EPA Region 4 |
| SW6010C | Iron | 7439-89-6 | 20000 | 20000 | | 20000 | - | 20000 | 1) EPA Region 4 |
| SW6010C | Magnesium | 7439-95-4 | | | | | | - | NA |
| SW6010C | Manganese | 7439-96-5 | 460 | 460 | | 460 | - | 460 | 1) EPA Region 4 |
| SW6010C | Nickel | 7440-02-0 | 22.7 | 22.7 | 22.7 | 12 | - | 22.7 | 1) EPA Region 4 |
| SW6010C | Potassium | 7440-09-7 | | | | | | - | NA |
| SW6010C | Silver | 7440-22-4 | 1 | 1 | 0.5 | 0.5 | - | 1 | 1) EPA Region 4 |
| SW6010C | Sodium | 7440-23-5 | | | | | | - | NA |
| SW6010C | Vanadium | 7440-62-2 | | | 0.012 | 29 | - | 0.012 | 3) EPA Region 5 RCRA |
| SW6010C | Zinc | 7440-66-6 | 121 | 121 | 121 | 63 | - | 121 | 1) EPA Region 4 |
| SW6020A | Antimony | 7440-36-0 | 2 | 2 | | 45 | - | 2 | 1) EPA Region 4 |
| SW6020A | Arsenic | 7440-38-2 | 9.8 | 9.8 | 9.79 | 9.7 | - | 9.8 | 1) EPA Region 4 |
| SW6020A | Cadmium | 7440-43-9 | 1 | 0.99 | 0.99 | 0.3 | - | 1.0 | 1) EPA Region 4 |
| SW6020A | Chromium | 7440-47-3 | 43.4 | 43.4 | 43.4 | 43 | - | 43.4 | 1) EPA Region 4 |
| SW6020A | Cobalt | 7440-48-4 | 50 | 50 | 50 | 220 | - | 50 | 1) EPA Region 4 |
| SW6020A | Lead | 7439-92-1 | 35.8 | 35.8 | 35.8 | 26 | - | 35.8 | 1) EPA Region 4 |
| SW6020A | Selenium | 7782-49-2 | | | | | | - | NA |
| SW6020A | Thallium | 7440-28-0 | | | | 0.73 | | 0.73 | 4) LANL ECORISK |
| SW7470A | Mercury | 7439-97-6 | 0.17 | 0.18 | 0.174 | 0.017 | - | 0.17 | 1) EPA Region 4 |
| SW8082A | Aroclor-1016 | 12674-11-2 | | | | 0.059 | | 0.059 | 4) LANL ECORISK |
| SW8082A | Aroclor-1221 | 11104-28-2 | | | | | | - | NA |
| SW8082A | Aroclor-1232 | 11141-16-5 | | | | | | - | NA |
| SW8082A | Aroclor-1242 | 53469-21-9 | | | | 0.053 | | 0.053 | 4) LANL ECORISK |
| SW8082A | Aroclor-1248 | 12672-29-6 | | | | 0.0081 | | 0.0081 | 4) LANL ECORISK |
| SW8082A | Aroclor-1254 | 11097-69-1 | | | | 0.053 | | 0.053 | 4) LANL ECORISK |
| SW8082A | Aroclor-1260 | 11096-82-5 | | | | 0.059 | | 0.059 | 4) LANL ECORISK |
| SW8082A | Aroclor-1262 | 37324-23-5 | | | | | | - | NA |
| SW8082A | Aroclor-1268 | 11100-14-4 | | | | | | - | NA |

**Table C.2-2: Sediment Ecological Screening Level Hierarchy**

| Method | Analyte | CAS Registry Number | 1) EPA Region 4 (mg/kg) | 2) EPA Region 3 (mg/kg) | 3) EPA Region 5 RCRA ESLs (mg/kg) | 4) LANL ECORISK (mg/kg) | 5) Derived - See Attachment C.1 (mg/kg) | Ecological Project Action Limit | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Value (mg/kg) | Reference |
| SW8260C | Acetone | 67-64-1 | 0.065 | | 0.0099 | 0.065 | | 0.065 | 1) EPA Region 4 |
| SW8260C | Benzene | 71-43-2 | 0.01 | | 0.142 | 0.01 | | 0.01 | 1) EPA Region 4 |
| SW8260C | Bromochloromethane | 74-97-5 | | | | | | - | NA |
| SW8260C | Bromodichloromethane | 75-27-4 | 0.21 | | | | | 0.21 | 1) EPA Region 4 |
| SW8260C | Bromoform | 75-25-2 | 0.142 | 0.654 | 0.492 | | | 0.142 | 1) EPA Region 4 |
| SW8260C | Bromomethane | 74-83-9 | 0.0065 | | 0.00137 | | | 0.0065 | 1) EPA Region 4 |
| SW8260C | Butanone [2-] (MEK) | 78-93-3 | 7.604 | | 0.0427 | 3000 | | 7.6 | 1) EPA Region 4 |
| SW8260C | Carbon disulfide | 75-15-0 | 0.0078 | 0.000851 | 0.0239 | 1.3 | | 0.0078 | 1) EPA Region 4 |
| SW8260C | Carbon tetrachloride | 56-23-5 | 0.057 | 0.0642 | 1.45 | | | 0.057 | 1) EPA Region 4 |
| SW8260C | Chlorobenzene | 108-90-7 | 0.03 | 0.00842 | 0.291 | 0.03 | | 0.03 | 1) EPA Region 4 |
| SW8260C | Chloroethane | 75-00-3 | | | | | | - | NA |
| SW8260C | Chloroform | 67-66-3 | 0.087 | | 0.121 | 9.2 | | 0.087 | 1) EPA Region 4 |
| SW8260C | Chloromethane | 74-87-3 | | | | | | - | NA |
| SW8260C | Chloropropane [1,2-dibromo-3-] | 96-12-8 | | | | | | - | NA |
| SW8260C | Cyclohexane | 110-82-7 | | | | | | - | NA |
| SW8260C | Dibromochloromethane | 124-48-1 | 0.198 | | | | | 0.198 | 1) EPA Region 4 |
| SW8260C | Dibromoethane [1,2-] (EDB) | 106-93-4 | | | | | | - | NA |
| SW8260C | Dichlorobenzene [1,2-] | 95-50-1 | 0.095 | 0.0165 | 0.294 | 1 | | 0.095 | 1) EPA Region 4 |
| SW8260C | Dichlorobenzene [1,3-] | 541-73-1 | 0.089 | 4.43 | 1.315 | 0.82 | | 0.089 | 1) EPA Region 4 |
| SW8260C | Dichlorobenzene [1,4-] | 106-46-7 | 0.03 | 0.599 | 0.318 | 0.03 | | 0.030 | 1) EPA Region 4 |
| SW8260C | Dichlorodifluoromethane | 75-71-8 | | | | | | - | NA |
| SW8260C | Dichloroethane [1,1-] | 75-34-3 | 0.02 | | 0.000575 | 0.02 | | 0.02 | 1) EPA Region 4 |
| SW8260C | Dichloroethane [1,2-] | 107-06-2 | 0.986 | | 0.26 | 6.1 | | 0.99 | 1) EPA Region 4 |
| SW8260C | Dichloroethene [1,1-] | 75-35-4 | 0.1 | 0.031 | 0.0194 | 0.1 | | 0.1 | 1) EPA Region 4 |
| SW8260C | Dichloroethene [1,2-] | 540-59-0 | 0.2 | | | | | 0.2 | 1) EPA Region 4 |
| SW8260C | Dichloroethene [cis-1,2-] | 156-59-2 | 0.432 | | | | | 0.432 | 1) EPA Region 4 |
| SW8260C | Dichloroethene [trans-1,2-] | 156-60-5 | 0.389 | 1.05 | 0.654 | | | 0.39 | 1) EPA Region 4 |
| SW8260C | Dichloropropane [1,2-] | 78-87-5 | 0.428 | | 0.333 | | | 0.43 | 1) EPA Region 4 |
| SW8260C | Dichloropropane [1,3-] | 142-28-9 | | | | | | - | NA |
| SW8260C | Dichloropropene [1,3-] | 542-75-6 | 0.0015 | 5.09E-05 | | | | 0.0015 | 1) EPA Region 4 |
| SW8260C | Dichloropropene [cis-1,3-] | 10061-01-5 | 0.0015 | | | | | 0.0015 | 1) EPA Region 4 |
| SW8260C | Dichloropropene [trans-1,3-] | 10061-02-6 | 0.0015 | 5.09E-05 | | | | 0.0015 | 1) EPA Region 4 |

**Table C.2-2: Sediment Ecological Screening Level Hierarchy**

| Method | Analyte | CAS Registry Number | 1) EPA Region 4 (mg/kg) | 2) EPA Region 3 (mg/kg) | 3) EPA Region 5 RCRA ESLs (mg/kg) | 4) LANL ECORISK (mg/kg) | 5) Derived - See Attachment C.1 (mg/kg) | Ecological Project Action Limit | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Value (mg/kg) | Reference |
| SW8260C | Ethylbenzene | 100-41-4 | 0.29 | 1.1 | 0.175 | | | 0.29 | 1) EPA Region 4 |
| SW8260C | Hexanone [2-] | 591-78-6 | 0.045 | | 0.0582 | 0.47 | | 0.045 | 1) EPA Region 4 |
| SW8260C | Isopropylbenzene (Cumene) | 98-82-8 | 0.035 | 0.086 | | | | 0.035 | 1) EPA Region 4 |
| SW8260C | Methyl acetate | 79-20-9 | | | | | | - | NA |
| SW8260C | Methyl tert-butyl ether (MTBE) | 1634-04-4 | 0.304 | | | | | 0.30 | 1) EPA Region 4 |
| SW8260C | Methylcyclohexane | 108-87-2 | | | | | | - | NA |
| SW8260C | Methylene chloride | 75-09-2 | 0.018 | | 0.159 | 0.018 | | 0.018 | 1) EPA Region 4 |
| SW8260C | Pentanone [4-methyl-2-] (MIBK) | 108-10-1 | 0.073 | | 0.0251 | 17 | | 0.073 | 1) EPA Region 4 |
| SW8260C | Pyridine | 110-86-1 | | | 0.106 | | | 0.106 | 3) EPA Region 5 RCRA |
| SW8260C | Styrene | 100-42-5 | 0.126 | 0.559 | 0.245 | | | 0.13 | 1) EPA Region 4 |
| SW8260C | Tetrachloroethane [1,1,2,2-] | 79-34-5 | 0.25 | 1.36 | 0.85 | - | | 0.25 | 1) EPA Region 4 |
| SW8260C | Tetrachloroethene [1,1,2,2-](PCE) | 127-18-4 | 0.002 | 0.468 | 0.99 | 0.002 | | 0.002 | 1) EPA Region 4 |
| SW8260C | Toluene | 108-88-3 | 0.01 | | 1.22 | 0.01 | | 0.01 | 1) EPA Region 4 |
| SW8260C | Trichlorobenzene [1,2,3-] | 87-61-6 | 0.113 | 0.858 | | | | 0.113 | 1) EPA Region 4 |
| SW8260C | Trichlorobenzene [1,2,4-] | 120-82-1 | 0.011 | 2.1 | 5.062 | 0.011 | | 0.011 | 1) EPA Region 4 |
| SW8260C | Trichloroethane [1,1,1-] | 71-55-6 | 0.07 | 0.0302 | 0.213 | 0.07 | | 0.07 | 1) EPA Region 4 |
| SW8260C | Trichloroethane [1,1,2-] | 79-00-5 | 0.538 | 1.24 | 0.518 | | | 0.54 | 1) EPA Region 4 |
| SW8260C | Trichloroethylene [1,1,2-] (TCE) | 79-01-6 | 0.078 | 0.0969 | 0.112 | 0.078 | | 0.078 | 1) EPA Region 4 |
| SW8260C | Trichlorofluoromethane | 75-69-4 | | | | 58 | | 58 | 4) LANL ECORISK |
| SW8260C | Trichloropropane [1,2,3-] | 96-18-4 | | | | | | - | NA |
| SW8260C | Trifluoroethane | 76-13-1 | | | | | | - | NA |
| SW8260C | Vinyl acetate | 108-05-4 | 0.0057 | | 0.013 | | | 0.0057 | 1) EPA Region 4 |
| SW8260C | Vinyl chloride | 75-01-4 | 0.482 | | 0.202 | 0.14 | | 0.48 | 1) EPA Region 4 |
| SW8260C | Xylene [o-] | 95-47-6 | | | | | | - | NA |
| SW8260C | Xylene [m-] | 108-38-3 | | 0.0252 | | | | 0.0252 | 2) EPA Region 3 BTAG |
| SW8260C | Xylenes (total) | 1330-20-7 | 0.13 | | 0.433 | 0.13 | | 0.13 | 1) EPA Region 4 |
| SW8270D | Acetophenone | 98-86-2 | | | | | | - | NA |
| SW8270D | Atrazine | 1912-24-9 | 0.0003 | 0.00662 | | | | 0.00030 | 1) EPA Region 4 |
| SW8270D | Benzaldehyde | 100-52-7 | 0.059 | | | | | 0.059 | 1) EPA Region 4 |
| SW8270D | Benzylbutylphthalate | 85-68-7 | 0.1 | 10.9 | 1.97 | 0.1 | | 0.1 | 1) EPA Region 4 |
| SW8270D | Biphenyl [1,1-] | 92-52-4 | 0.198 | 1.22 | | | | 0.198 | 1) EPA Region 4 |
| SW8270D | Bis(2]ethylhexyl)phthalate | 117-81-7 | 0.18 | 0.18 | 0.182 | 0.026 | | 0.18 | 1) EPA Region 4 |

**Table C.2-2: Sediment Ecological Screening Level Hierarchy**

| Method | Analyte | CAS Registry Number | 1) EPA Region 4 (mg/kg) | 2) EPA Region 3 (mg/kg) | 3) EPA Region 5 RCRA ESLs (mg/kg) | 4) LANL ECORISK (mg/kg) | 5) Derived - See Attachment C.1 (mg/kg) | Ecological Project Action Limit | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Value (mg/kg) | Reference |
| SW8270D | Bis(2-chloroethoxy) methane | 111-91-1 | | | | | | - | NA |
| SW8270D | Bis(2-chloroethyl)ether ((2-Chloroethylether) | 111-44-4 | 8.163 | | 3.52 | | | 8.163 | 1) EPA Region 4 |
| SW8270D | Bromophenylphenylether [4-] | 101-55-3 | 0.047 | 1.23 | 1.55 | | | 0.047 | 1) EPA Region 4 |
| SW8270D | Caprolactam | 105-60-2 | | | | | | - | NA |
| SW8270D | Carbazole | 86-74-8 | 0.069 | | | 130 | | 0.069 | 1) EPA Region 4 |
| SW8270D | Chloroaniline [ 4-] (p-) | 106-47-8 | 0.0009 | | 0.146 | | | 0.0009 | 1) EPA Region 4 |
| SW8270D | Chloronaphthalene [2-] | 91-58-7 | | | 0.417 | | | 0.417 | 3) EPA Region 5 RCRA |
| SW8270D | Chlorophenol [2-] | 95-57-8 | 0.055 | 0.0312 | 0.0319 | 0.055 | | 0.055 | 1) EPA Region 4 |
| SW8270D | Chlorophenylphenylether [4-] | 7005-72-3 | | | | | | - | NA |
| SW8270D | Chloropropane) [2,2'-Oxybis(1-] | 108-60-1 | | | | | | - | NA |
| SW8270D | Cresols [m- & p-] [1] | 1319-77-3 | 0.093 | | | | | 0.093 | 1) EPA Region 4 |
| SW8270D | Dibenzofuran | 132-64-9 | 0.51 | 0.415 | 0.449 | 0.51 | | 0.51 | 1) EPA Region 4 |
| SW8270D | Dichlorobenzidine [3,3'-] | 91-94-1 | 0.031 | 0.127 | 0.127 | | | 0.031 | 1) EPA Region 4 |
| SW8270D | Dichlorophenol [2,4-] | 120-83-2 | 0.057 | 0.117 | 0.0817 | | | 0.057 | 1) EPA Region 4 |
| SW8270D | Dimethylphenol [2,4-] | 105-67-9 | 0.039 | 0.029 | 0.304 | | | 0.039 | 1) EPA Region 4 |
| SW8270D | Dinitrophenol [2,4-] | 51-28-5 | 0.22 | | 0.00621 | | - | 0.22 | 1) EPA Region 4 |
| SW8270D | Dinitrotoluene [2,4-] | 121-14-2 | 0.29 | 0.0416 | 0.0144 | 0.29 | | 0.29 | 1) EPA Region 4 |
| SW8270D | Dinitrotoluene [2,6-] | 606-20-2 | 0.296 | | 0.0398 | 8.6 | | 0.30 | 1) EPA Region 4 |
| SW8270D | Hexachlorobenzene | 118-74-1 | 0.02 | 0.02 | 0.02 | 0.10 | | 0.020 | 1) EPA Region 4 |
| SW8270D | Hexachlorobutadiene | 87–68–3 | | | | | | - | NA |
| SW8270D | Hexachlorocyclopentadiene | 77-47-4 | 0.0065 | | 0.901 | | | 0.0065 | 1) EPA Region 4 |
| SW8270D | Hexachloroethane | 67-72-1 | 0.027 | 1.027 | 0.584 | | | 0.027 | 1) EPA Region 4 |
| SW8270D | Isophorone | 78-59-1 | 0.876 | | 0.432 | | | 0.88 | 1) EPA Region 4 |
| SW8270D | Methylphenol [2-] (o-Cresol) | 95-48-7 | 0.119 | | 0.0554 | 1700 | | 0.12 | 1) EPA Region 4 |
| SW8270D | Methylphenol [3-] (m-Cresol) | 108-39-4 | 0.112 | | | | | 0.11 | 1) EPA Region 4 |
| SW8270D | Methylphenol [4-] (p-Cresol) | 106-44-5 | 0.093 | | | | | 0.09 | 1) EPA Region 4 |
| SW8270D | Methylphenol [4,6-dinitro-2-] | 534-52-1 | 1.477 | | 0.104 | | | 1.5 | 1) EPA Region 4 |
| SW8270D | Methylphenol [4-chloro-3-] | 59-50-7 | 0.005 | | 0.388 | | | 0.005 | 1) EPA Region 4 |
| SW8270D | Nitroaniline [2-] | 88-74-4 | | | | 7.3 | | 7.3 | 4) LANL ECORISK |
| SW8270D | Nitroaniline [3-] | 99-09-2 | | | | | | - | NA |
| SW8270D | Nitroaniline [4-] | 100-01-6 | | | | | | - | NA |

**Table C.2-2: Sediment Ecological Screening Level Hierarchy**

| Method | Analyte | CAS Registry Number | 1) EPA Region 4 (mg/kg) | 2) EPA Region 3 (mg/kg) | 3) EPA Region 5 RCRA ESLs (mg/kg) | 4) LANL ECORISK (mg/kg) | 5) Derived - See Attachment C.1 (mg/kg) | Ecological Project Action Limit | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Value (mg/kg) | Reference |
| SW8270D | Nitrobenzene | 98-95-3 | 0.407 | | 0.145 | 24 | | 0.41 | 1) EPA Region 4 |
| SW8270D | Nitrophenol [2-] | 88-75-5 | 0.168 | | | | | 0.17 | 1) EPA Region 4 |
| SW8270D | Nitrophenol [4-] | 100-02-7 | 0.153 | | 0.0133 | | | 0.15 | 1) EPA Region 4 |
| SW8270D | Nitrosodiphenylamine [N-] | 86-30-6 | 0.11 | 2.68 | | | | 0.11 | 1) EPA Region 4 |
| SW8270D | Pentachlorophenol | 87-86-5 | 0.01 | 0.504 | 23 | 0.01 | | 0.010 | 1) EPA Region 4 |
| SW8270D | Phenol | 108-95-2 | 0.175 | 0.42 | 0.0491 | 750 | | 0.18 | 1) EPA Region 4 |
| SW8270D | Phthalate [diethyl] | 84-66-2 | 0.63 | 0.603 | 0.295 | 4000 | | 0.63 | 1) EPA Region 4 |
| SW8270D | Phthalate [dimethyl] | 131-11-3 | 0.678 | | | 90 | | 0.68 | 1) EPA Region 4 |
| SW8270D | Phthalate [di-n-butyl-] | 84-74-2 | 0.011 | 6.47 | 1.114 | 0.011 | | 0.011 | 1) EPA Region 4 |
| SW8270D | Phthalate [di-n-octyl] | 117-84-0 | 0.039 | | 40.6 | 1 | | 0.039 | 1) EPA Region 4 |
| SW8270D | Propylamine [N-nitrosodi-n-] | 621-64-7 | | | | | | - | NA |
| SW8270D | Tetrachlorobenzene [1,2,4,5-] | 95-94-3 | 0.187 | 1.09 | 1.252 | | | 0.19 | 1) EPA Region 4 |
| SW8270D | Tetrachlorophenol [2,3,4,6-] | 58-90-2 | 0.03 | 0.284 | 0.129 | | | 0.030 | 1) EPA Region 4 |
| SW8270D | Trichlorophenol [2,4,5-] | 95-95-4 | 0.034 | | | | | 0.034 | 1) EPA Region 4 |
| SW8270D | Trichlorophenol [2,4,6-] | 88-06-2 | 0.089 | 0.213 | 0.208 | | | 0.089 | 1) EPA Region 4 |
| SW8270D | Acenaphthene | 83-32-9 | 0.0067 | 0.0067 | 0.00671 | 0.076 | - | 0.0067 | 1) EPA Region 4 |
| SW8270D | Acenaphthylene | 208-96-8 | 0.0059 | 0.0059 | 0.00587 | 0.076 | - | 0.0059 | 1) EPA Region 4 |
| SW8270D | Anthracene | 120-12-7 | 0.057 | 0.0572 | 0.0572 | 0.057 | - | 0.057 | 1) EPA Region 4 |
| SW8270D | Benzo(a)anthracene | 56-55-3 | 0.108 | 0.108 | 0.108 | 0.1 | - | 0.108 | 1) EPA Region 4 |
| SW8270D | Benzo(a)pyrene | 50-32-8 | 0.15 | 0.15 | 0.15 | 0.15 | - | 0.15 | 1) EPA Region 4 |
| SW8270D | Benzo(b)fluoranthene | 205-99-2 | 0.19 | | 10.4 | 0.19 | - | 0.19 | 1) EPA Region 4 |
| SW8270D | Benzo(g,h,i)perylene | 191-24-2 | 0.17 | 0.17 | 0.17 | 0.17 | - | 0.17 | 1) EPA Region 4 |
| SW8270D | Benzo(k)fluoranthene | 207-08-9 | 0.24 | 0.24 | 0.24 | 0.24 | - | 0.24 | 1) EPA Region 4 |
| SW8270D | Chrysene | 218-01-9 | 0.166 | 0.166 | 0.166 | 0.16 | - | 0.166 | 1) EPA Region 4 |
| SW8270D | Dibenz(a,h)anthracene | 53-70-3 | 0.033 | 0.033 | 0.033 | 0.033 | - | 0.033 | 1) EPA Region 4 |
| SW8270D | Fluoranthene | 206-44-0 | 0.423 | 0.423 | 0.423 | 0.42 | - | 0.423 | 1) EPA Region 4 |
| SW8270D | Fluorene | 86-73-7 | 0.077 | 0.0774 | 0.0774 | 0.077 | - | 0.077 | 1) EPA Region 4 |
| SW8270D | Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.2 | 0.017 | 0.2 | 0.2 | - | 0.2 | 1) EPA Region 4 |
| SW8270D | Naphthalene | 91-20-3 | 0.176 | 0.176 | 0.176 | 0.17 | - | 0.176 | 1) EPA Region 4 |
| SW8270D | Naphthalene [1-methyl] | 90-12-0 | 0.141 | | | | - | 0.141 | 1) EPA Region 4 |
| SW8270D | Naphthalene [2-methyl] | 91-57-6 | 0.0202 | 0.0202 | 0.0202 | 0.076 | - | 0.0202 | 1) EPA Region 4 |
| SW8270D | Phenanthrene | 85-01-8 | 0.204 | 0.204 | 0.204 | 0.2 | - | 0.204 | 1) EPA Region 4 |

**Table C.2-2: Sediment Ecological Screening Level Hierarchy**

| Method | Analyte | CAS Registry Number | 1) EPA Region 4 (mg/kg) | 2) EPA Region 3 (mg/kg) | 3) EPA Region 5 RCRA ESLs (mg/kg) | 4) LANL ECORISK (mg/kg) | 5) Derived - See Attachment C.1 (mg/kg) | Ecological Project Action Limit | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Value (mg/kg) | Reference |
| SW8270D | Pyrene | 129-00-0 | 0.195 | 0.195 | 0.195 | 0.19 | - | 0.195 | 1) EPA Region 4 |
| Calculated | PCBs (total) | 1336-36-3 | 0.014 | 0.0598 | 0.0598 | | | 0.014 | 1) EPA Region 4 |
| Calculated | High Molecular Weight PAHs | HMW PAH | 1 | - | - | - | - | 1 | 1) EPA Region 4 |
| Calculated | Low Molecular Weight PAHs | LMW PAH | 0.6 | - | - | - | - | 0.6 | 1) EPA Region 4 |
| SW8270D | Dinitrochlorobenzene [2,4-] | 97-00-7 | | - | - | - | 0.29 | 0.29 | 5) Derived - See Attachment C.1 |
| SW8330A/B | Picric acid | 88-89-1 | | - | - | - | 0.022 | 0.022 | 5) Derived - See Attachment C.1 |

**Notes:**

Highlighting = Value selected for ecological PAL.

1. Selected value is the lowest of the individual isomers (i.e., p-cresol).

HMW PAHs = High molecular weight polycyclic aromatic hydrocarbons.
LANL = Los Alamos National Laboratory.
LMW PAHs = Low molecular weight polycyclic aromatic hydrocarbons.
mg/kg = Milligrams per kilogram.
NA = Not available.
PAL = Project Action Limit.
RCRA = Resource Conservation and Recovery Act.

**Sources:**

1) EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Soil Screening Values for Hazardous Waste Sites
2) EPA Region 3 BTAG (2006) Freshwater Sediment Screening Benchmarks; August (https://www.epa.gov/sites/default/files/2015-
3) EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf)
4) Newport News Nuclear BWXT-Los Alamos, LLC (N3B). 2022. ECORISK Database (Release 4.3). Document EM2022-0358. Los Alamos, New Mexico.
5) Derived - See Appendix B.1

**Table C.2-3: Surface Water Ecological Screening Level Hierarchy**

| Method | Analyte | CAS Registry Number | 1) National AWQC (ug/L) | 2) EPA Region 4 (ug/L) | 3) EPA Region 3 (ug/L) | 4) EPA Region 5 RCRA ESLs (ug/L) | 5) LANL ECORISK (ug/L) | 6) Derived - See Attachment C.1 (ug/L) | Ecological Project Action Limit | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Value (ug/L) | Reference |
| SW6010C | Aluminum | 7429-90-5 | | 87 | 87 | | 530 | - | 87 | 2) EPA Region 4 |
| SW6010C | Barium | 7440-39-3 | | 220 | 4 | 220 | 3.9 | - | 220 | 2) EPA Region 4 |
| SW6010C | Beryllium | 7440-41-7 | | 11 | 0.66 | 3.6 | 0.66 | - | 11 | 2) EPA Region 4 |
| SW6010C | Calcium | 7440-70-2 | | 116000 | 116000 | | | - | 116000 | 2) EPA Region 4 |
| SW6010C | Copper | 7440-50-8 | | | 9 | 1.58 | 5 | - | 9 | 3) EPA Region 3 |
| SW6010C | Iron | 7439-89-6 | 1000 | 1000 | 300 | | 1000 | - | 1000 | 1) National AWQC |
| SW6010C | Magnesium | 7439-95-4 | | 82000 | 82000 | | | - | 82000 | 2) EPA Region 4 |
| SW6010C | Manganese | 7439-96-5 | | 93 | 120 | | 1300 | - | 93 | 2) EPA Region 4 |
| SW6010C | Nickel | 7440-02-0 | 52 | 28.9 | 52 | 28.9 | 29 | - | 52 | 1) National AWQC |
| SW6010C | Potassium | 7440-09-7 | | 53000 | 53000 | | | - | 53000 | 2) EPA Region 4 |
| SW6010C | Silver | 7440-22-4 | | | 3.2 | 0.12 | 0.1 | - | 3.2 | 3) EPA Region 3 |
| SW6010C | Sodium | 7440-23-5 | | 680000 | 680000 | | | - | 680000 | 2) EPA Region 4 |
| SW6010C | Vanadium | 7440-62-2 | | 27 | 20 | | 19 | - | 27 | 2) EPA Region 4 |
| SW6010C | Zinc | 7440-66-6 | 120 | | 120 | 65.7 | 65 | - | 120 | 1) National AWQC |
| SW6020A | Antimony | 7440-36-0 | | 190 | 30 | 80 | 30 | - | 190 | 2) EPA Region 4 |
| SW6020A | Arsenic | 7440-38-2 | 150 | 150 | 5 | 148 | 150 | - | 150 | 1) National AWQC |
| SW6020A | Cadmium | 7440-43-9 | 0.25 | | 0.25 | 0.15 | 0.28 | - | 0.25 | 1) National AWQC |
| SW6020A | Chromium | 7440-47-3 | | | 85 | 42 | 11 | - | 85 | 3) EPA Region 3 |
| SW6020A | Cobalt | 7440-48-4 | | 19 | 23 | 24 | 3 | - | 19 | 2) EPA Region 4 |
| SW6020A | Lead | 7439-92-1 | 2.5 | 1.25 | 2.5 | 1.17 | 1 | - | 2.5 | 1) National AWQC |
| SW6020A | Selenium | 7782-49-2 | - | - | - | - | - | - | - | NA |
| SW6020A | Thallium | 7440-28-0 | | 6 | 0.8 | 10 | 0.03 | - | 6 | 2) EPA Region 4 |
| SW7470A | Mercury | 7439-97-6 | 0.77 | 0.77 | 0.026 | 0.0013 | 0.77 | - | 0.77 | 1) National AWQC |
| SW8082A | Aroclor-1016 | 12674-11- | | | 7.4E-05 | | 0.014 | | 7E-05 | 3) EPA Region 3 |
| SW8082A | Aroclor-1221 | 11104-28- | - | - | - | - | - | | - | NA |
| SW8082A | Aroclor-1232 | 11141-16- | - | - | - | - | - | | - | NA |
| SW8082A | Aroclor-1242 | 53469-21- | | | 7.4E-05 | | 0.014 | | 7E-05 | 3) EPA Region 3 |
| SW8082A | Aroclor-1248 | 12672-29- | | | 7.4E-05 | | 0.014 | | 7E-05 | 3) EPA Region 3 |
| SW8082A | Aroclor-1254 | 11097-69- | | | 7.4E-05 | | 0.014 | | 7E-05 | 3) EPA Region 3 |
| SW8082A | Aroclor-1260 | 11096-82- | | | 7.4E-05 | | 0.014 | | 7E-05 | 3) EPA Region 3 |
| SW8082A | Aroclor-1262 | 37324-23- | - | - | - | - | - | | - | NA |
| SW8082A | Aroclor-1268 | 11100-14- | - | - | - | - | - | | - | NA |
| SW8260C | 2-Hexanone | 591-78-6 | | 99 | 99 | 99 | | | 99 | 2) EPA Region 4 |
| SW8260C | Acetone | 67-64-1 | | 1700 | 1500 | 1700 | | | 1700 | 2) EPA Region 4 |

**Table C.2-3: Surface Water Ecological Screening Level Hierarchy**

| Method | Analyte | CAS Registry Number | 1) National AWQC (ug/L) | 2) EPA Region 4 (ug/L) | 3) EPA Region 3 (ug/L) | 4) EPA Region 5 RCRA ESLs (ug/L) | 5) LANL ECORISK (ug/L) | 6) Derived - See Attachment C.1 (ug/L) | Ecological Project Action Limit | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Value (ug/L) | Reference |
| SW8260C | Benzene | 71-43-2 | | 160 | 370 | 114 | 46 | | 160 | 2) EPA Region 4 |
| SW8260C | Bromochloromethane | 74-97-5 | - | - | - | - | - | | - | NA |
| SW8260C | Bromodichloromethane | 75-27-4 | | 340 | | | | | 340 | 2) EPA Region 4 |
| SW8260C | Bromoform | 75-25-2 | | 230 | 320 | 230 | | | 230 | 2) EPA Region 4 |
| SW8260C | Bromomethane | 74-83-9 | | 16 | 0 | 16 | | | 16 | 2) EPA Region 4 |
| SW8260C | Butanone [2-] (MEK) | 78-93-3 | | 22000 | 14000 | 2200 | 7200 | | 22000 | 2) EPA Region 4 |
| SW8260C | Carbon disulfide | 75-15-0 | | 15 | 0.92 | 15 | | | 15 | 2) EPA Region 4 |
| SW8260C | Carbon tetrachloride | 56-23-5 | | 77 | 13.3 | 240 | | | 77 | 2) EPA Region 4 |
| SW8260C | Chlorobenzene | 108-90-7 | | 25 | 1.3 | 47 | 130 | | 25 | 2) EPA Region 4 |
| SW8260C | Chloroethane | 75-00-3 | | | | | | | - | NA |
| SW8260C | Chloroform | 67-66-3 | | 140 | 1.8 | 140 | 1.8 | | 140 | 2) EPA Region 4 |
| SW8260C | Chloromethane | 74-87-3 | | | | | | | - | NA |
| SW8260C | Chloropropane [1,2-dibromo-3-] | 96-12-8 | | | | | | | - | NA |
| SW8260C | Cyclohexane | 110-82-7 | | 158 | | | | | 158 | 2) EPA Region 4 |
| SW8260C | Dibromochloromethane | 124-48-1 | | 320 | | | | | 320 | 2) EPA Region 4 |
| SW8260C | Dibromoethane [1,2-] (EDB) | 106-93-4 | | | | | | | - | NA |
| SW8260C | Dichlorobenzene [1,2-] | 95-50-1 | | 23 | 0.7 | 14 | | | 23 | 2) EPA Region 4 |
| SW8260C | Dichlorobenzene [1,3-] | 541-73-1 | | 22 | 150 | 38 | | | 22 | 2) EPA Region 4 |
| SW8260C | Dichlorobenzene [1,4-] | 106-46-7 | | 9.4 | 26 | 9.4 | 15 | | 9.4 | 2) EPA Region 4 |
| SW8260C | Dichlorodifluoromethane | 75-71-8 | | | | | | | - | NA |
| SW8260C | Dichloroethane [1,1-] | 75-34-3 | | 410 | 47 | 47 | 47 | | 410 | 2) EPA Region 4 |
| SW8260C | Dichloroethane [1,2-] | 107-06-2 | | 2000 | 100 | 910 | 100 | | 2000 | 2) EPA Region 4 |
| SW8260C | Dichloroethene [1,1-] | 75-35-4 | | 130 | 25 | 65 | 25 | | 130 | 2) EPA Region 4 |
| SW8260C | Dichloroethene [1,3-] | 542-75-6 | | 1.7 | 0.055 | | | | 1.7 | 2) EPA Region 4 |
| SW8260C | Dichloroethene [cis-1,2-] | 156-59-2 | | 620 | | | | | 620 | 2) EPA Region 4 |
| SW8260C | Dichloroethene [trans-1,2-] | 156-60-5 | | 558 | 970 | 970 | | | 558 | 2) EPA Region 4 |
| SW8260C | Dichloropropane [1,2-] | 78-87-5 | | 520 | | 360 | | | 520 | 2) EPA Region 4 |
| SW8260C | Dichloropropane [1,3-] | 142-28-9 | - | - | - | - | - | | - | NA |
| SW8260C | Dichloropropene [cis-1,3-] | 10061-01- | | 1.7 | 0.055 | | | | 1.7 | 2) EPA Region 4 |
| SW8260C | Dichloropropene [trans-1,3-] | 10061-02- | | 1.7 | 0.055 | | | | 1.7 | 2) EPA Region 4 |
| SW8260C | Ethylbenzene | 100-41-4 | | 61 | 90 | 14 | | | 61 | 2) EPA Region 4 |
| SW8260C | Isopropylbenzene (Cumene) | 98-82-8 | | 4.8 | 2.6 | | | | 4.8 | 2) EPA Region 4 |
| SW8260C | Methyl acetate | 79-20-9 | - | - | - | - | - | | - | NA |
| SW8260C | Methyl tertbutylether (MTBE) | 1634-04-4 | | 730 | 11070 | | | | 730 | 2) EPA Region 4 |
| SW8260C | Methylcyclohexane | 108-87-2 | | 52 | | | | | 52 | 2) EPA Region 4 |

**Table C.2-3: Surface Water Ecological Screening Level Hierarchy**

| Method | Analyte | CAS Registry Number | 1) National AWQC (ug/L) | 2) EPA Region 4 (ug/L) | 3) EPA Region 3 (ug/L) | 4) EPA Region 5 RCRA ESLs (ug/L) | 5) LANL ECORISK (ug/L) | 6) Derived - See Attachment C.1 (ug/L) | Ecological Project Action Limit | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Value (ug/L) | Reference |
| SW8260C | Methylene chloride | 75-09-2 | | 1500 | 98.1 | 940 | 210 | | 1500 | 2) EPA Region 4 |
| SW8260C | Pentanone (MIBK) [4-methyl-2-] | 108-10-1 | | 170 | 170 | 170 | | | 170 | 2) EPA Region 4 |
| SW8260C | Pyridine | 110-86-1 | | | 2380 | 2380 | | | 2380 | 3) EPA Region 3 |
| SW8260C | Styrene | 100-42-5 | | 32 | 72 | 32 | | | 32 | 2) EPA Region 4 |
| SW8260C | Tetrachloroethane [1,1,2,2-] | 79-34-5 | | 200 | 610 | 380 | | | 200 | 2) EPA Region 4 |
| SW8260C | Tetrachloroethene (PCE) | 127-18-4 | | 53 | 111 | 45 | 98 | | 53 | 2) EPA Region 4 |
| SW8260C | Toluene | 108-88-3 | | 62 | 2 | 253 | 9.8 | | 62 | 2) EPA Region 4 |
| SW8260C | Trichlorobenzene [1,2,3-] | 87-61-6 | | 8 | 8 | | | | 8 | 2) EPA Region 4 |
| SW8260C | Trichlorobenzene [1,2,4-] | 120-82-1 | | 130 | 24 | 30 | 24 | | 130 | 2) EPA Region 4 |
| SW8260C | Trichloroethane [1,1,1-] | 71-55-6 | | 76 | 11 | 76 | 11 | | 76 | 2) EPA Region 4 |
| SW8260C | Trichloroethane [1,1,2-] | 79-00-5 | | 730 | 1200 | 500 | | | 730 | 2) EPA Region 4 |
| SW8260C | Trichloroethylene (TCE) | 79-01-6 | | 220 | 21 | 47 | 21 | | 220 | 2) EPA Region 4 |
| SW8260C | Trichlorofluoromethane | 75-69-4 | | | | | | | - | NA |
| SW8260C | Trichloropropane [1,2,3-] | 96-18-4 | | | | | | | - | NA |
| SW8260C | Trifluoroethane | 76-13-1 | - | - | - | - | - | | - | NA |
| SW8260C | Vinyl acetate | 108-05-4 | | 16 | 16 | 248 | | | 16 | 2) EPA Region 4 |
| SW8260C | Vinyl chloride | 75-01-4 | | 930 | 930 | 930 | | | 930 | 2) EPA Region 4 |
| SW8260C | Xylene [o-] | 95-47-6 | - | - | - | - | - | | - | NA |
| SW8260C | Xylenes (total) | 1330-20-7 | | 27 | 13 | 27 | 13 | | 27 | 2) EPA Region 4 |
| SW8270D | Acetophenone | 98-86-2 | | | | | | | - | NA |
| SW8270D | Atrazine | 1912-24-9 | | 0.03 | 1.8 | | | | 0.03 | 2) EPA Region 4 |
| SW8270D | Benzaldehyde | 100-52-7 | | 143 | | | | | 143 | 2) EPA Region 4 |
| SW8270D | Benzylbutylphthalate | 85-68-7 | | 23 | 19 | 23 | 19 | | 23 | 2) EPA Region 4 |
| SW8270D | Biphenyl | 92-52-4 | | 6.5 | 14 | | | | 6.5 | 2) EPA Region 4 |
| SW8270D | Bis(2]chloroethoxy) methane | 111-91-1 | | | | | | | - | NA |
| SW8270D | Bis(2]chloroethyl)ether | 111-44-4 | | | | 19000 | | | 19000 | 4) EPA Region 5 |
| SW8270D | Bis(2]ethylhexyl)phthalate | 117-81-7 | | 8 | 16 | 0.3 | 32 | | 8 | 2) EPA Region 4 |
| SW8270D | Bromophenylphenylether [4-] | 101-55-3 | | 1.5 | 1.5 | 1.5 | | | 1.5 | 2) EPA Region 4 |
| SW8270D | Caprolactam | 105-60-2 | - | - | - | - | - | | - | NA |
| SW8270D | Carbazole | 86-74-8 | | 4 | | | | | 4 | 2) EPA Region 4 |
| SW8270D | Chloroaniline [4-] (p-) | 106-47-8 | | 0.8 | 232 | 232 | | | 0.8 | 2) EPA Region 4 |
| SW8270D | Chloronaphthalene [2-] | 91-58-7 | | | | 0.396 | | | 0.396 | 4) EPA Region 5 |
| SW8270D | Chlorophenol [2-] | 95-57-8 | | 18 | 24 | 24 | 490 | | 18 | 2) EPA Region 4 |
| SW8270D | Chlorophenylphenylether [4-] | 7005-72-3 | | | | | | | - | NA |

**Table C.2-3: Surface Water Ecological Screening Level Hierarchy**

| Method | Analyte | CAS Registry Number | 1) National AWQC (ug/L) | 2) EPA Region 4 (ug/L) | 3) EPA Region 3 (ug/L) | 4) EPA Region 5 RCRA ESLs (ug/L) | 5) LANL ECORISK (ug/L) | 6) Derived - See Attachment C.1 (ug/L) | Ecological Project Action Limit | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Value (ug/L) | Reference |
| SW8270D | Chloropropane) [2,2'-oxybis(1-] | 108-60-1 | | | | | | | - | NA |
| SW8270D | Cresols [m- & p-] | 59-50-7 | | 1 | | 34.8 | | | 1 | 2) EPA Region 4 |
| SW8270D | Dibenzofuran | 132-64-9 | | 4 | 3.7 | 4 | 3.7 | | 4 | 2) EPA Region 4 |
| SW8270D | Dichlorobenzidine [3,3'-] | 91-94-1 | | 4.5 | 4.5 | 4.5 | | | 4.5 | 2) EPA Region 4 |
| SW8270D | Dichlorophenol [2,4-] | 120-83-2 | | 11 | 11 | 11 | | | 11 | 2) EPA Region 4 |
| SW8270D | Dimethylphenol [2,4-] | 105-67-9 | | 15 | | 100 | | | 15 | 2) EPA Region 4 |
| SW8270D | Dinitrophenol [2,4-] | 51-28-5 | | 71 | | 19 | | - | 71 | 2) EPA Region 4 |
| SW8270D | Dinitrotoluene [2,4-] | 121-14-2 | | 44 | 44 | 44 | 65 | | 44 | 2) EPA Region 4 |
| SW8270D | Dinitrotoluene [2,6-] | 606-20-2 | | 81 | 81 | 81 | 230 | | 81 | 2) EPA Region 4 |
| SW8270D | Dioxane [1,4-] (p-Dioxane) | 123-91-1 | | 22000 | | 2200 | | | 22000 | 2) EPA Region 4 |
| SW8270D | Hexachlorobenzene | 118-74-1 | | 0.15 | 0.0003 | 0.0003 | | | 0.15 | 2) EPA Region 4 |
| SW8270D | Hexachlorobutadiene | 87-68-3 | | 1 | 1.3 | 0.053 | | | 1 | 2) EPA Region 4 |
| SW8270D | Hexachlorocyclopentadiene | 77-47-4 | | 0.45 | 0 | 77 | | | 0.45 | 2) EPA Region 4 |
| SW8270D | Hexachloroethane | 67-72-1 | | 12 | 12 | 8 | | | 12 | 2) EPA Region 4 |
| SW8270D | Isophorone | 78-59-1 | | 920 | | 920 | | | 920 | 2) EPA Region 4 |
| SW8270D | Methylphenol [2-] (o-Cresol) | 95-48-7 | | 67 | 13 | 67 | | | 67 | 2) EPA Region 4 |
| SW8270D | Methylphenol [4,6-dinitro-2-] | 534-52-1 | | | | 23 | | | 23 | 4) EPA Region 5 |
| SW8270D | Methylphenol [4-chloro-3-] | 59-50-7 | | 1 | | 34.8 | | | 1 | 2) EPA Region 4 |
| SW8270D | Nitroaniline [2-] | 88-74-4 | | 17 | | | | | 17 | 2) EPA Region 4 |
| SW8270D | Nitroaniline [3-] | 99-09-2 | | | | | | | - | NA |
| SW8270D | Nitroaniline [4-] | 100-01-6 | | | | | | | - | NA |
| SW8270D | Nitrobenzene | 98-95-3 | | 230 | | 220 | 550 | | 230 | 2) EPA Region 4 |
| SW8270D | Nitrophenol [2-] | 88-75-5 | | 73 | 1920 | | | | 73 | 2) EPA Region 4 |
| SW8270D | Nitrophenol [4-] | 100-02-7 | | 58 | 60 | 60 | | | 58 | 2) EPA Region 4 |
| SW8270D | Nitrosodiphenylamine [N-] | 86-30-6 | | 25 | 210 | | | | 25 | 2) EPA Region 4 |
| SW8270D | Pentachlorophenol | 87-86-5 | 15 | 15 | 0.5 | 4 | 15 | | 15 | 1) National AWQC |
| SW8270D | Phenol | 108-95-2 | | 160 | 4 | 180 | 320 | | 160 | 2) EPA Region 4 |
| SW8270D | Phthalate [diethyl] | 84-66-2 | | 220 | 210 | 110 | | | 220 | 2) EPA Region 4 |
| SW8270D | Phthalate [dimethyl] | 131-11-3 | | 1100 | | | 3 | | 1100 | 2) EPA Region 4 |
| SW8270D | Phthalate [di-n-butyl-] | 84-74-2 | | 19 | 19 | 9.7 | 19 | | 19 | 2) EPA Region 4 |
| SW8270D | Phthalate [di-n-octyl] | 117-84-0 | | 215 | 22 | 30 | 3 | | 215 | 2) EPA Region 4 |
| SW8270D | Propylamine [N-nitrosodi-n-] | 621-64-7 | | | | | | | - | NA |
| SW8270D | Tetrachlorobenzene [1,2,4,5-] | 95-94-3 | | 8.3 | 3 | 3 | | | 8.3 | 2) EPA Region 4 |
| SW8270D | Tetrachlorophenol [2,3,4,6-] | 58-90-2 | | 1 | 1.2 | 1.2 | | | 1 | 2) EPA Region 4 |

**Table C.2-3: Surface Water Ecological Screening Level Hierarchy**

| Method | Analyte | CAS Registry Number | 1) National AWQC (ug/L) | 2) EPA Region 4 (ug/L) | 3) EPA Region 3 (ug/L) | 4) EPA Region 5 RCRA ESLs (ug/L) | 5) LANL ECORISK (ug/L) | 6) Derived - See Attachment C.1 (ug/L) | Ecological Project Action Limit | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Value (ug/L) | Reference |
| SW8270D | Trichlorophenol [2,4,5-] | 95-95-4 | | 1.9 | | | | | 1.9 | 2) EPA Region 4 |
| SW8270D | Trichlorophenol [2,4,6-] | 88-06-2 | | 4.9 | 4.9 | 4.9 | | | 4.9 | 2) EPA Region 4 |
| SW8270D | Acenaphthene | 83-32-9 | | 15 | 5.8 | 38 | 5.8 | - | 15 | 2) EPA Region 4 |
| SW8270D | Acenaphthylene | 208-96-8 | | 13 | 0 | 4840 | 4800 | - | 13 | 2) EPA Region 4 |
| SW8270D | Anthracene | 120-12-7 | | 0.02 | 0.012 | 0.035 | 0.73 | - | 0.02 | 2) EPA Region 4 |
| SW8270D | Benzo(a)anthracene | 56-55-3 | | 4.7 | 0.018 | 0.025 | 0.027 | - | 4.7 | 2) EPA Region 4 |
| SW8270D | Benzo(a)pyrene | 50-32-8 | | 0.06 | 0.015 | 0.014 | 0.014 | - | 0.06 | 2) EPA Region 4 |
| SW8270D | Benzo(b)fluoranthene | 205-99-2 | | 2.6 | | 9.07 | 9 | - | 2.6 | 2) EPA Region 4 |
| SW8270D | Benzo(g,h,i)perylene | 191-24-2 | | 0.012 | | 7.64 | 7.6 | - | 0.012 | 2) EPA Region 4 |
| SW8270D | Benzo(k)fluoranthene | 207-08-9 | | 0.06 | | | 0.0041 | - | 0.06 | 2) EPA Region 4 |
| SW8270D | Chrysene | 218-01-9 | | 4.7 | | | 0.0018 | - | 4.7 | 2) EPA Region 4 |
| SW8270D | Dibenz(a,h)anthracene | 53-70-3 | | 0.012 | | | 0.0034 | - | 0.012 | 2) EPA Region 4 |
| SW8270D | Fluoranthene | 206-44-0 | | 0.8 | 0.04 | 1.9 | 0.04 | - | 0.8 | 2) EPA Region 4 |
| SW8270D | Fluorene | 86-73-7 | | 19 | 3 | 19 | 3.9 | - | 19 | 2) EPA Region 4 |
| SW8270D | Indeno(1,2,3-c,d)pyrene | 193-39-5 | | 0.012 | | 4.31 | 4.3 | - | 0.012 | 2) EPA Region 4 |
| SW8270D | Naphthalene | 91-20-3 | | 21 | 1.1 | 13 | 1.1 | - | 21 | 2) EPA Region 4 |
| SW8270D | Naphthalene [1-methyl] | 90-12-0 | | 6.1 | 2.1 | | | - | 6.1 | 2) EPA Region 4 |
| SW8270D | Naphthalene [2-methyl] | 91-57-6 | | 4.7 | 4.7 | 330 | 330 | - | 4.7 | 2) EPA Region 4 |
| SW8270D | Phenanthrene | 85-01-8 | | 2.3 | 0.4 | 3.6 | 6.3 | - | 2.3 | 2) EPA Region 4 |
| SW8270D | Pyrene | 129-00-0 | | 4.6 | 0.025 | 0.3 | 0.025 | - | 4.6 | 2) EPA Region 4 |
| Calculated | High Molecular Weight PAHs | HMW | - | - | - | - | - | - | - | NA |
| Calculated | Low Molecular Weight PAHs | LMW PAHs | - | - | - | - | - | - | - | NA |
| Calculated | PCBs (Total Aroclors) | 1336-36-3 | | 0.014 | 7.4E-05 | 0.00012 | | | 0.014 | 2) EPA Region 4 |
| SW8270D | Dinitrochlorobenzene [2,4-] | 97-00-7 | - | - | - | - | - | 44 | 44 | 6) Derived - See Attachment C.1 |
| SW8330A /B | Picric acid | 88-89-1 | - | - | - | - | - | 7.1 | 7.1 | 6) Derived - See Attachment C.1 |

**Table C.2-3: Surface Water Ecological Screening Level Hierarchy**

| Method | Analyte | CAS Registry Number | 1) National AWQC (ug/L) | 2) EPA Region 4 (ug/L) | 3) EPA Region 3 (ug/L) | 4) EPA Region 5 RCRA ESLs (ug/L) | 5) LANL ECORISK (ug/L) | 6) Derived - See Attachment C.1 (ug/L) | Ecological Project Action Limit | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Value (ug/L) | Reference |

**Notes:**

Highlighting = Value selected for ecological PAL.

National AWQC = Ambient Water Quality Criteria.

HMW PAHs = High molecular weight polycyclic aromatic hydrocarbons.

LANL = Los Alamos National Laboratory.

LMW PAHs = Low molecular weight polycyclic aromatic hydrocarbons.

ug/L = Micrograms per liter.

NA = Not available.

PAL = Project Action Limit.

RCRA = Resource Conservation and Recovery Act.

**Sources:**

1) EPA Ecological Soil Screening Levels (EcoSSLs; various dates) (https://www.epa.gov/chemical-research/interim-ecological-soil-screening-level-documents)

2) EPA Region 4 Ecological Risk Assessment Supplemental Guidance (2018) – Soil Screening Values for Hazardous Waste Sites

3) EPA Region 3 BTAG (2006) Freshwater Sediment Screening Benchmarks; July (https://www.epa.gov/sites/default/files/2015-

4) EPA Region 5 (2003) RCRA Ecological Screening Levels (ESLs) (https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf)

5) Newport News Nuclear BWXT-Los Alamos, LLC (N3B). 2022. ECORISK Database (Release 4.3). Document EM2022-0358. Los Alamos, New Mexico.

6) Derived - See Appendix B.1

# Appendix D Field Standard Operating Procedures and Field Forms

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# FIELD STANDARD OPERATING PROCEDURE #1

# NOTE TAKING AND FIELD BOOK ENTRIES PROCEDURE

The field book is a record of the day's activities that serves as a reference for future reporting and analyses. The field book is also a legal record for projects that may be used during legal proceedings. It is of the utmost importance that all notes are complete and comprehensive. The user is advised to read the entire standard operating procedure (SOP) and review the project site health and safety plan (HASP) and/or project safety plan (PSP) before beginning any onsite activities.

## 1.1 ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| HASP | Health and safety plan |
| IDW | Investigation-derived waste |
| PSP | Project safety plan |
| SOP | Standard operating procedure |

## 1.2 MATERIALS

- Permanently-bound waterproof field book (e.g., Rite-in-the-Rain® #550, or equivalent)
- Black or blue ballpoint pen (waterproof ink recommended; do not use felt-tip pens)

## 1.3 PRECONDITIONS AND BACKGROUND

This SOP has been prepared as part of the company's Environmental Quality Management Plan and is designed to provide detailed procedures for common field practices. Compliance with the methods presented in this document is mandatory for all field personnel and will ensure that the tasks are performed in a safe and consistent manner, are in accordance with federal and state guidance, and are technically defensible.

This SOP is written for the sole use of company employees and will be revised periodically to reflect updates to company policies, work practices, and the applicable state and/or federal guidance. Employees must verify that this document is the most recent version of the company's SOPs. Employees are also strongly advised to review relevant state and/or federal guidance, which may stipulate program-specific procedures, in advance of task implementation.

WSP requires that all personnel performing specific project assignments be appropriately qualified, including having required certifications or licenses, and properly trained in accordance with the requirements of their assignment, the Environmental Service Line's field standard operating procedures, and the Quality Management System.

The purpose of the field book is to provide a written log of all of field events and conditions. The notes must include sufficient detail (i.e., who, what, when, where, why, and how) to enable others to reconstruct the day's activities for analysis, reporting, or litigation. It is important to be objective, factual, and thorough. Language must be free of personal comments or terminology that might prove inappropriate. Additional data logs or worksheets, such as low flow groundwater sampling sheets, may be used as a supplement; however, under no circumstances should the data sheets be used as a substitute for the daily record of events to be recorded in the field book.

The field book forms the foundation upon which most of the project work (reports, subsequent work plans, etc.) is based. It is critical that the field book's chain of custody be maintained at all times.

## 1.4 SET-UP PROCEDURES

The first step in setting up a new field book is to add the information necessary for you to identify the field book in the future and for others to return the book to the company, should it be lost. On the first page of the field book (or, for some field books, the inside cover), place a "Return for Reward" notice. Include the following information:

- An "If Found – Return for Reward" notice in bold letters
- Our company name
- Our company address (usually the office where the project is being managed)
- Our company phone number

Reserve the second page of the field book for project-specific information, such as:

- The project name and number
- The project manager's name
- The site telephone number, address, and onsite contact (if appropriate)
- The names and telephone numbers for all key (onsite) personnel
- The emergency telephone numbers including the police, fire, and ambulance (found in the HASP)

Business cards from individuals who visit the site, (including the person in charge of the field book) can be affixed to the inside back cover.

## 1.5 FIELD BOOK ENTRIES

Start each day on a new page. Include the following information in the header of the first page (and all subsequent pages):

- The date
- The project name
- The page number (if not pre-printed in the field book)

Precede field book entries by the time entered along the left margin of the page using a 24-hour or military clock (e.g., 1330 for 1:30 PM). The first entry of the day must include your and your subcontractor's arrival time at the site, a description of the planned activities, key onsite personnel (including subcontractors), and the weather forecast. The first entry must also detail the tailgate review of the site-specific HASP or PSP with the onsite personnel. Be sure that field book entries are LEGIBLE and contain factual, accurate, and inclusive documentation of project field activities. Blank lines between field book entries should not be included unless necessary to accommodate a large entry (e.g., table or sketch); if blank lines are necessary, draw a line diagonally through any blank lines and initial at the end of the diagonal line. If a mistake is made in an entry, cross out the mistake with a single line and place your initials at the end of the line. Any acronyms written in the field book (including your initials) must be spelled out prior to the first use.

Subsequent log entries must document the day's activities in sequence and must be completed throughout the day as events occur (i.e., do not wait until the end of the work day to complete the notes); should notes need to be entered out of sequence, please identify the non-sequential entries using a footnote or by clearly indicating "Late Entry." Notes must be descriptive and provide location information or diagrams (if appropriate) of the work area or sample locations. Note any changes in the weather and document all deviations from the work plan. Arrival and departure times of all personnel, operational periods of standby, decontamination, and specific activities must be recorded.

Include the following information in entries describing field activities:

- The equipment, materials and methods used by subcontractors, if appropriate (e.g., drill rig type, boring diameters, well casing materials, etc.)
- The equipment, materials and methods used to obtain samples (e.g., split-spoon sampler, polyethylene bailer, pump types, geochemical, water or air monitoring equipment, low-flow purging procedures, etc.)
- The sample identification, which should include the location and depth, as appropriate
- The sample location, including a description of the approximate location as measured from a known point (e.g., 50 feet north of the building entrance; for points not yet surveyed)

- Any air or water monitoring equipment used, associated calibration activities, and measurements
- The sample collection time
- The sample identification of associated quality assurance/quality control samples (e.g., blind duplicate)
- The sample media and analyses to be performed; sizes, numbers, and types of containers; preservation (if any), and any resulting reactions (e.g., effervescence)
- If supplemental data recording logs (digital or hard copy) are used, such as groundwater sampling logs, chains-of-custody, and shipping records, the above information must be entered in the field book and the supplemental records cross-referenced
- The decontamination and disposal procedures for all equipment, samples, and personal protective equipment
- An inventory of the investigation-derived waste (IDW) materials generated during the site activities
- A description of the IDW labeling procedures and the onsite staging information; other sampling-specific information to be included in the IDW log is provided in SOP 5

Maintain a sequential log if the sample locations and areas of interest are photographed (strongly recommended). The photographic log must include:

- The date and time of the photograph
- The sequential number of the photograph (e.g., photograph-1, photograph-2, etc.)
- The general direction faced when the photograph was made
- A description of the subject in the image

## 1.6 CLOSING NOTES

The last entry of the day must include a brief wrap up of the work accomplished, a description of how the site is being secured, and a description of any near hits, accidents, and incidents that occurred during the day's work. Draw a line through the remainder of the page from the row of text diagonally through any blank lines and initial at the end of the diagonal line.

# FIELD STANDARD OPERATING PROCEDURE #3

# SAMPLE PACKAGING AND SHIPMENT PROCEDURE

Shipping samples is a basic but important component of field work. The majority of field activities include the collection of environmental samples. Proper packing and preservation of those samples is critical to ensuring the integrity of our work product. The user is advised to read the entire standard operating procedure (SOP) and review the site health and safety plan (HASP) and/or project safety plan (PSP) before beginning any onsite activities. In accordance with the HASP or PSP, proper personal protective equipment (PPE) must be selected and used appropriately.

## 3.1 ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| CFR | Code of Federal Regulations |
| DOT | U.S. Department of Transportation |
| IATA | International Air Transport Association |
| HASP | Health and safety plan |
| PPE | Personal protective equipment |
| PSP | Project safety plan |
| SOP | Standard operating procedure |

## 3.2 MATERIALS

- Suitable shipping container (e.g., plastic cooler)
- Chain-of-custody forms
- Custody seals
- Sample container custody seals (as necessary)
- Mailing address labels (as necessary)
- Shipping form (with account number, as necessary)
- Tape (e.g., strapping, clear packing)
- Permanent marker
- PPE
- Bubble wrap or other packing material

Temperature-preserved samples:

- Large plastic garbage bag
- Wet ice
- Heavy-duty zipper-style plastic bags
- Universal sorbent materials

Note: Some materials will be supplied by the laboratory, while others are must be supplied by the sampler. Confirm supplier of materials prior to mobilizing to the field.

## 3.3 PRECONDITIONS AND BACKGROUND

This SOP has been prepared as part of the company's Environmental Quality Management Plan and is designed to provide detailed procedures for common field practices. Compliance with the methods presented in this document is mandatory for all field personnel

and will ensure that the tasks are performed in a safe and consistent manner, are in accordance with federal and state guidance, and are technically defensible.

This SOP is written for the sole use of company employees and will be revised periodically to reflect updates to company policies, work practices, and the applicable state and/or federal guidance. Employees must verify that this document is the most recent version of the company SOPs. Employees are also strongly advised to review relevant state and/or federal guidance, which may stipulate program-specific procedures, in advance of task implementation.

WSP requires that all personnel performing specific project assignments be appropriately qualified, including having required certifications or licenses, and properly trained in accordance with the requirements of their assignment, the Environmental Service Line's field standard operating procedures, and the Quality Management System.

This SOP is designed to provide the user with a general outline for shipping samples and assumes the user is familiar with basic field procedures, such as recording field notes (SOP 1), sample collection and quality assurance procedures (SOP 4), and investigation derived waste management procedures (SOP 5).

Most environmental samples are classified non-hazardous materials due to unknown characteristics and hazardous classes, however environmental samples can meet the definition of U.S. Department of Transportation (DOT) hazardous materials when shipped by air, ground, or rail from a project site to the laboratory (e.g., free product, samples preserved with a hazardous material [TerraCore® samplers]). As such, field staff must work with their assigned company compliance professional to determine whether the sample shipment is subject to any specific requirements (e.g., packaging, marking, labeling, and documentation) under the DOT hazardous materials regulations.

## 3.4 SAMPLE SHIPMENT PROCEDURES

The two major concerns in shipping samples are incidental breakage during shipment and complying with applicable DOT and courier requirements for hazardous materials shipments.

> **NOTE: Many couriers, including Federal Express and United Parcel Service, have requirements that the company register with them before shipping hazard materials. In most cases, it is the sampling location, not the company office address, which needs to be registered. Therefore, each project will likely have unique requirements. Please contact your company compliance professional to determine whether or not you will be required to register for your shipment.**

Protecting the samples from incidental breakage can be achieved using "common sense." Pack all samples in a manner that will prevent them from moving freely about in the cooler or shipping container. Do not allow glass surfaces to contact each other. When possible, repack the sample containers in the same materials that they were originally received in from the laboratory. Cushion each sample container with plastic bubble wrap, styrofoam, or other nonreactive cushioning material. A more detailed procedure for packing environmental samples is presented below.

### 3.4.1 NON-HAZARDOUS MATERIAL ENVIRONMENTAL SAMPLES

The first step in preparing your samples for shipment is securing an appropriate shipping container. In most cases, the analytical laboratory will supply the appropriate container for bottle shipment, which can be used to return samples once they have been collected. Be sure that the container is large enough to contain the samples plus a sufficient amount of packing materials, and if applicable, enough wet ice to maintain the samples at the preservation temperature (usually 4 degrees Celsius). Use additional shipping containers as needed so that sample containers are protected from breakage due to overcrowding. Do not use lunch-box sized coolers or soft sided coolers, which do not offer sufficient insulation or protection from damage.

### 3.4.1.1 TEMPERATURE-PRESERVED SAMPLE CONTAINER PREPARATION

Temperature-preserved samples should be shipped to the laboratory in an insulated container (e.g., cooler). If using a plastic cooler with a drain, securely tape the inside of the drain plug with duct tape or other material to ensure that no water leaks from the cooler during shipment. Place universal sorbent materials (e.g., sorbent pads) in the bottom of the insulated container. The amount of sorbent material must be sufficient to absorb any condensation from the wet ice and a reasonable volume of water from melted wet ice (if a bag were to rupture) or a damaged (aqueous) sample container.

The next step is to line the insulated container with a large, heavy-duty plastic garbage bag. If shipping breakable sample containers (e.g., glass), place bubble wrap or other packing materials on the bottom of the container. Place the samples, including a temperature blank, on the packing materials with sufficient space to allow for the addition of more bubble wrap or other packing material between the sample containers. Place large or heavy sample containers on the bottom of the cooler with lighter samples placed on top to minimize the potential for breakage. Place all sample containers in the shipping container right-side up. Do not overfill the cooler with samples; room must be left for a sufficient volume of wet ice. Wet ice must be double-bagged in heavy-duty zipper-style plastic bags (1 gallon-sized, or less); properly seal both bags before placing in the insulated container. Place the bags of ice on top of or between the samples. Place as much ice as possible into the cooler to ensure the samples arrive at the lab at the required preservation temperature, even if the shipment is delayed. Fill any remaining space in the container with bubble wrap or other packing material to limit the airspace and minimize the shifting of the sample containers and in-transit melting of ice. Securely close the top of the heavy-duty plastic bag and knot or seal with tape.

### 3.4.1.2 NON-TEMPERATURE-PRESERVED SAMPLE CONTAINER PREPARATION

Non-temperature-preserved samples should be shipped to the laboratory in a durable package (e.g., hard plastic container or cardboard box). If shipping breakable sample containers (e.g., glass), place bubble wrap or other packing materials on the bottom of the container. Place the samples on the packing materials with sufficient space to allow for the addition of more bubble wrap or other packing material between and on top of the sample containers. Place large or heavy sample containers on the bottom of the container with lighter samples placed on top to minimize the potential for breakage. Place all sample containers within the shipping container right-side up. Fill any remaining space in the container with bubble wrap or other packing material to limit the airspace and minimize the shifting of the sample containers and in-transit melting of ice.

### 3.4.1.3 CONTAINER SHIPMENT

Samples in the container should be cross-checked against the chain-of-custory before signing off on the form and sealing the cooler. Place the original chain-of-custody form (i.e., laboratory copy) into a heavy-duty zipper-style plastic bag, affix/tape the bag to the shipping container's inside lid, and then close the shipping container; as required, include return shipping labels for the laboratory to return company-owned coolers. Only one chain-of-custody form is required to accompany one of the shipping containers per sample shipment; the other coolers in the shipment do not need to include chain-of-custody forms, unless required by the project. At this point, sample shipment preparations are complete if using a laboratory courier.

Once the shipping container is sealed, shake test the shipping container to make sure that there are no loose sample containers. If loose sample containers are detected, open the shipping container, repack the contents, and reseal the shipping container. If sending the sample shipment through a commercial shipping vendor, place two signed and dated chain-of-custody seals on alternate sides of the shipping container lid so that it cannot be opened without breaking the seals. Securely fasten the top of the shipping container shut with clear packing tape; carefully tape over the custody seals to prevent damage during shipping.

Affix a mailing label with the ship to and return to addresses to the top of the shipping container using clear shipping tape. Use the pre-printed return mailing label from the laboratory, if provided, or complete a new mailing label from the shipping carrier. Ship environmental samples to the contracted analytical laboratory using an appropriate delivery schedule. **Note: Samples can be shipped for Saturday delivery once the lab has been verified to be open and receiving samples on the weekend.**

Verify whether the shipment cost should be billed to the sender or recipient, and ensure the internal billing reference section on the mailing label includes either the laboratory's billing reference number, if the shipment is billed to the laboratory, or the project billable number, if the shipment is billed to WSP.

Declare the value of samples on the shipping form for insurance purposes, if applicable. When shipping samples to a lab, identify a declared value equal to the carrier's default value ($100); additional fees will be charged based on a higher value declared. Our preferred carrier, Federal Express, will only reimburse for the actual value of the cooler and its contents if a sample shipment is lost; they will not reimburse for the cost of having to re-collect the samples. [Please note: if you are shipping something other than samples, such as field equipment, declare the replacement value of the contents.]

Record the tracking numbers from the shipping company forms (i.e., the airbill number) in the field book and retain a copy of the shipping airbill. On the expected delivery date, confirm sample receipt by contacting the laboratory or tracking the package using the tracking number; provide this confirmation information to the project manager.

> **NOTE: Most shipping carriers adhere to transit schedules with final pickup times each day; these schedules are subject to change and vary by service location. If shipping containers are dropped off at a service location after the final pickup time, transit to the laboratory will not be initiated until the following day, and samples may not be properly preserved. Therefore, confirm transit schedules in advance of each sampling event, and ensure samples are delivered to the carrier before the final pickup time of the day.**

### 3.4.2 HAZARDOUS MATERIALS SAMPLES

Employees rarely ship hazardous materials due to DOT shipping requirements. If you find that your samples could be considered a DOT hazardous material, first coordinate with the assigned company compliance professional and project manager to make a hazardous material classification and, if necessary, establish the necessary protocols and to receive the appropriate training/certification.

> **NOTE: Employees shipping samples regulated as hazardous materials or exempt hazardous materials by air must have International Air Transport Association (IATA) training. IATA training is a separate training required in addition to DOT hazardous materials training for such shipments. Most of our employees do not have IATA training and therefore, anyone who needs to ship by air MUST consult with a company IATA-trained compliance professional.**

# FIELD STANDARD OPERATING PROCEDURE #5

# INVESTIGATION DERIVED WASTE MANAGEMENT PROCEDURE

The purpose of this standard operating procedure (SOP) is to provide instructions for handling, storing, and managing investigation derived waste (IDW) pending disposal. All IDW, which includes (but is not limited to) soil cuttings, development water, purge water, drilling fluids, decontamination fluids, personal protective equipment (PPE), and sampling equipment, must be managed in compliance with applicable or relevant and appropriate requirements. The user is advised to read the entire SOP and review the site health and safety plan (HASP) and/or project safety plan (PSP) before beginning any onsite activities. In accordance with the HASP or PSP, proper PPE must be selected and used appropriately.

## 5.1 ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| DOT | U.S. Department of Transportation |
| EPA | U.S. Environmental Protection Agency |
| HASP | health and safety plan |
| IDW | investigation derived waste |
| PCB | polychlorinated biphenyl |
| PPE | personal protective equipment |
| PSP | project safety plan |
| RCRA | Resource Conservation and Recovery Act |
| SOP | standard operating procedure |
| TSCA | Toxic Substances Control Act |

## 5.2 MATERIALS

- Pre-printed weatherproof waste labels (e.g., non-hazardous waste, hazardous waste, polychlorinated biphenyls [PCBs], etc.)
- IDW log (Figure 1)
- Permanent ink marking pen, paint, stick/pen
- Sampling equipment (refer to sampling SOPs)
- Impermeable covers (tarps), as needed
- Duct tape, rope, or other material to secure tarp
- Copy of the waste manifest or bill of lading

## 5.3 PRECONDITIONS AND BACKGROUND

This SOP has been prepared as part of the company's Environmental Quality Management Plan and is designed to provide detailed procedures for common field practices. Compliance with the methods presented in this document is mandatory for all field personnel and will ensure that the tasks are performed in a safe and consistent manner, are in accordance with federal and state guidance, and are technically defensible.

This SOP is written for the sole use of company employees and will be revised periodically to reflect updates to company policies, work practices, and the applicable state and/or federal guidance. Employees must verify that this document is the most recent version

of the company SOPs. Employees are also strongly advised to review relevant state and/or federal guidance, which may stipulate program-specific procedures, in advance of task implementation.

WSP requires that all personnel performing specific project assignments be appropriately qualified, including having required certifications or licenses, and properly trained in accordance with the requirements of their assignment, the Environmental Service Line's field standard operating procedures, and the Quality Management System.

This SOP is designed to provide the user with a general outline for handling, storing, and managing IDW pending disposal and assumes the user has received current U.S. Department of Transportation (DOT) training, Hazardous Waste Operations and Emergency Response training, and Resource Conservation and Recovery Act (RCRA) training (if required) and is familiar with basic field procedures, such as recording field notes (SOP 1), sample shipment procedures (SOP 3), sample collection and quality assurance procedures (SOP 4), and equipment decontamination (SOP 6). The SOP does not cover investigation planning; DOT, RCRA, and Toxic Substances Control Act (TSCA) regulations; nor does it cover the evaluation of the analytical results. **Consult and involve the company's compliance professionals during all phases of IDW management and disposal.**

***It is important to note that information contained in this SOP is based on federal regulations and interpretive guidance provided by the U.S. Environmental Protection Agency (EPA) and other federal regulatory sources; therefore, information provided in this SOP may be superseded by state or local-specific statutes or regulations. Field personnel must plan for and discuss the handling procedures with the project manager and assigned company compliance professional before mobilizing to the field.***

## 5.4 IDW GENERAL PROCEDURES

Nearly all intrusive field activities will generate solid or liquid wastes. Examples include:

**Solid Waste**

- Soil cuttings
- Drilling mud
- Plastic sheeting
- Spent carbon or filters
- PPE (e.g., Tyvek coveralls, gloves, respirator cartridges)
- Disposable or dedicated sampling equipment (e.g., bailers, hoses, clamps, buckets, cartridge filters)
- Field analytical waste (e.g., HACH kits, Chlor-n-Soil kits, Gastech tubes)
- Compressed gas cylinders (e.g., isopropylene, helium)
-
- Disposable cleaning materials (e.g., wipes or rags)

**Liquid Waste**

- Decontamination water
- Development water
- Drilling fluids
- Purge water
- Soap or wash solutions
- Reagents (e.g., hexane, nitric acid, methanol)

The specific procedures for dealing with these materials after the field activities have been completed will vary depending on whether the materials are considered to be non-hazardous, RCRA hazardous (characteristic or listed wastes), TSCA-regulated PCB waste, and/or DOT hazardous materials. The characterization of the wastes to be generated should be determined in conjunction with a company compliance professional before the field event occurs, based on previously generated data; however, in some cases, particularly for new sites, the status of the wastes may not be known. In these cases, handle IDW as hazardous waste until the status can be verified. Field personnel must consult their assigned company compliance professionals for assistance in proper waste characterization and to determine waste management requirements applicable to the site.

### 5.4.1 WASTE MINIMIZATION

As possible, select investigation methods and techniques that will minimize the amount of wastes generated during field activities, particularly if the IDW is hazardous. Examples include using direct-push methods instead of hollow stem augers (to minimize soil cuttings) during a soil investigation, if appropriate, eliminating the use of solvents or solvent-based cleaners for decontamination, if

possible, and limiting contact with the materials to reduce the amount of PPE required. Minimizing the amount of waste generated will reduce handling requirements and overall project costs, and is consistent with the company's corporate goals for sustainability.

## 5.5 ONSITE IDW MANAGEMENT PROCEDURES

Onsite handling procedures typically involve containerization of the IDW for offsite disposal at a regulated facility or, in the case of certain non-hazardous wastes, onsite disposal. Should more than one waste stream be present onsite, segregate the IDW containers by waste stream to facilitate the future waste disposal. The procedures for each type of waste are presented below.

### 5.5.1 NON-HAZARDOUS WASTE MANAGEMENT

If the IDW is classified as non-hazardous waste, the following procedures must be implemented only if approved by the applicable regulatory agency and after being discussed and approved by the project manager, project compliance professional, client, and facility personnel:

- Soil can be either:
  - spread around the borehole or other onsite location
  - placed back in the boring or excavated test pit
  - containerized and disposed of offsite
- Groundwater and decontamination fluids can be either:
  - poured onto the ground next to the well to allow infiltration
  - discharged to either the publically-owned treatment works or storm sewer
  - discharged to the onsite wastewater treatment plant
  - containerized and disposed of offsite
- After rendering the IDW unusable (e.g., cutting or tearing material), PPE, plastic sheeting, disposable cleaning materials, and spent bag filters can be double bagged and disposed of as general trash or containerized and disposed of offsite.
- Compressed gas cylinders should be depressurized and disposed of as general trash, recycled as scrap metal, or containerized and disposed of offsite.
- Field analytical waste (e.g., HACH® kits, Chlor-n-Soil® kits) can be disposed of in accordance with the manufacturer's instructions provided the disposal method is approved by the company's project manager and compliance professional.
- Minimize the volume of reagents as much as possible. Consult a company compliance professional to determine the proper disposal of any quantity of unused reagents. Empty reagent containers may be disposed of as general trash after removing all chemical name and warning labels, or may be containerized and disposed of offsite.
- Spent water treatment media (e.g., carbon, resin) should be containerized and disposed of offsite.
- Exploration and production exempt waste derived from material that was downhole at an oil and gas production site.

If the IDW is containerized and is classified as non-hazardous, the following procedures will apply:

- Place the non-hazardous IDW in DOT-compliant containers (e.g., 55-gallon drum, roll-off container, or temporary storage tank). Before placing IDW in the containers, ensure that the containers are in good condition and will not leak.
- Drums used as containers must remain closed except when adding, sampling, or inspecting the waste. The drums cannot be used as a work surface once waste is put in the container.
- Mark the container with the appropriate waterproof, self-adhesive non-hazardous waste label. The label must include a description of the contents of the container (e.g., soil cuttings, purge water) and the generator name (the client or the facility, never the company). **Field personnel must consult the project compliance professional for help in properly completing the labels.**
- Complete the IDW Log (Figure 1) before leaving the site. Present one copy of the log to the site contact and the original to the project manager.
- The IDW containers must be properly closed, wiped clean, and stored in a secure onsite location.

### 5.5.2 HAZARDOUS WASTE MANAGEMENT

If site data or generator knowledge indicates that the IDW is RCRA hazardous, the following procedures will apply:

- Place IDW in DOT-compliant containers (e.g., 55-gallon drum, roll-off container, or temporary storage tank). Before placing IDW in the containers, ensure that the containers are appropriate for the type of IDW generated (e.g., solid in containers authorized for transport of solids), in good condition and will not leak.

- Containers must remain closed except when adding, sampling, or inspecting the material. The containers cannot be used as a work surface once waste is put in the container.
- Mark the container with an appropriate waterproof, self-adhesive hazardous or radiological waste label. The label must include the accumulation start date, a description of the contents of the container (e.g., soil cuttings, purge water), the EPA identification number, the generator name (the client or the facility, never the company), and the hazardous waste codes, if known. **Field personnel must consult the project compliance professional for help in properly completing the labels.**
- The IDW containers must be properly closed, wiped clean, and stored in a secure onsite location (i.e., a designated facility hazardous waste storage area) to limit access. At a minimum, place the drums on an impermeable surface (if available) in an area of limited access. If stored outside, cover the containers with a secured tarp at the end of each field day until the containers are picked up for disposal.
- Complete the IDW Log (Figure 1) before leaving the site. Present one copy of the log to the site contact and the original to the project manager.
- If applicable, ensure that weekly inspections are conducted, and the proper inspection forms for documentation are completed during the entire time the waste is stored onsite. **Field personnel must consult the project compliance professional for help to determine if weekly inspections are required.**

If the IDW is presumed to be hazardous and sampling is required to confirm its classification, it must be labeled "Hazardous Waste-Pending Analysis" and sampled for the parameters specified by the project compliance professional or project manager before leaving the site. Any waste confirmation samples must be collected in accordance with the company's SOPs. Treatment, storage, and disposal facilities will usually specify the required analysis for waste profiles.

### 5.5.3 PCB WASTE MANAGEMENT

If information exists to classify PCB-containing IDW as TSCA-regulated IDW (i.e., PCBs greater than 50 milligrams per kilogram), the following procedures must be implemented:

- Place the PCB-containing IDW in DOT-compliant containers (e.g., 55-gallon drum, roll-off container, or temporary storage tank). Before placing IDW in the containers, ensure that the containers are in good condition and will not leak.
- Containers must remain closed except when adding, sampling, or inspecting the material. The containers cannot be used as a work surface once waste is put in the container.
- Mark the container with an appropriate waterproof, self-adhesive yellow label with the words "Caution Contains PCBs", the "removed from service" date (the accumulation start date), and a description of the contents of the container (e.g., soil cuttings). Complete the label with the name and phone number of the company personnel to contact in the event of an accident or spill. **Field personnel must consult the project compliance professional for help in properly completing the labels.**
- The IDW containers must be properly closed, wiped clean, and stored in a secure PCB storage area onsite. If a PCB storage area is not available, construct a temporary PCB storage area. Cover the containers with a secured tarp at the end of each field day until the drums are picked up for disposal. Place one yellow 6" x 6" "Caution Contains PCBs" label on the outside of the tarp, and note the "Removed from service date" on the label.
- Complete the IDW Log (Figure 1) before leaving the site. Present one copy of the log to the site contact and the original to the project manager.
- If applicable, inspect the area and the containers for leaks once every 30 days in accordance with TSCA requirements during the entire period the waste is stored onsite. **Field personnel must consult the project compliance professional for help to determine if weekly inspections are also required.**

## 5.6 POST-FIELD IDW MANAGEMENT ACTIVITIES

Field personnel must follow up on the management of the IDW after returning from the field. RCRA hazardous and TSCA-regulated PCB-containing wastes have storage time limits and periodic inspection requirements to remain in compliance with federal, state, or local regulations. Arrangements for proper disposal of wastes must be made within the required time limits and must be consistent with all applicable regulatory requirements, as well as the company's contracting procedures and policies for waste disposal. Copies of waste disposal documentation (e.g., bill of lading, waste manifest, land disposal restriction form, etc.) should be provided to the project manager and saved with the project files.

# INVESTIGATION DERIVED WASTE LOG

Date/Time:_____

Site Information:
Site Name: _____ Site EPA ID #: _____
Site Contact: _____ Site Address: _____
Site Contact Telephone No: _____

Origin of Material: _____
Type of Waste Generated:
☐ Soil Cuttings ☐ PPE ☐ Decontamination Water
☐ Groundwater ☐ Storm Water ☐ Drilling Fluids
☐ Other (Describe): _____
Field Activities that Generated the Waste:
☐ Soil Borings ☐ Well Sampling ☐ Well Installation
☐ Decontamination ☐ Excavation ☐ Pumping Tests
☐ Other (Describe): _____

Generation Date: _____ ***90/180/270-Day Deadline(for hazardous waste)***: _____
Quantity of Waste Generated and Container Type: _____
_____
Storage Location: _____
Waste Identification:
☐ Non-hazardous Waste (pending analysis)
☐ Non-hazardous Waste (based on site information or generator knowledge)
☐ Hazardous Waste (pending analysis)
☐ Hazardous Waste (based on site information or generator knowledge)
☐ PCB-containing Waste
☐ Radiological Waste
If generator knowledge or site information was used for identification, explain: _____
_____
_____
Type of Label Applied to Container: ☐ Non-hazardous ☐ Hazardous ☐ PCB ☐ Radiological
WSP Information (Note: One copy to site contact - the original copy to project manager)
Personnel/Contact: _____ Project No.:_____
Telephone: _____

Date Removed: _____ Signature: _____

# FIELD STANDARD OPERATING PROCEDURE #6

# DECONTAMINATION PROCEDURE

The decontamination procedures outlined in this standard operating procedure (SOP) are designed to ensure that all sampling equipment is free from the analytes that could potentially interfere with sample results. The user is advised to read the entire SOP and review the site health and safety plan (HASP) and/or project safety plan (PSP) before beginning any onsite activities. In accordance with the HASP or PSP, proper personal protective equipment (PPE) must be selected and used appropriately.

## 6.1 ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| DI | deionized water |
| DOT | U.S. Department of Transportation |
| EPA | U.S. Environmental Protection Agency |
| HASP | health and safety plan |
| PPE | personal protective equipment |
| PSP | project safety plan |
| QAPP | quality assurance project plan |
| SOP | standard operating procedure |

## 6.2 MATERIALS

- Field book
- PPE
- Polyethylene sheeting and/or garbage bags
- Laboratory-grade non-phosphate detergent[1] (e.g., Luminox® or Liquinox®)
- Cleaning reagents, as needed (e.g., isopropyl alcohol, methanol, hexane, nitric acid)
- Potable water
- Deionized (DI) water
- Containers (e.g., plastic buckets)
- Bristle brushes
- Aluminum foil
- Spray bottles
- Paper towels
- Pressurized steam cleaner (e.g., steam jenny), as needed
- Waste collection containers (e.g., drums), as needed
- Decontamination pad, as needed

## 6.3 PRECONDITIONS AND BACKGROUND

This SOP has been prepared as part of the company's Environmental Quality Management Plan and is designed to provide detailed procedures for common field practices. Compliance with the methods presented in this document is mandatory for all field personnel

[1] Not all laboratory-grade detergents are phosphate free. Be sure to verify the detergent's phosphate content before use.

and will ensure that the tasks are performed in a safe and consistent manner, are in accordance with federal and state guidance, and are technically defensible.

This SOP is written for the sole use of company employees and will be revised periodically to reflect updates to company policies, work practices, and the applicable state and/or federal guidance. Employees must verify that this document is the most recent version of the company's SOPs. Employees are also strongly advised to review relevant state and/or federal guidance, which may stipulate program-specific procedures, in advance of task implementation.

WSP requires that all personnel performing specific project assignments be appropriately qualified, including having required certifications or licenses, and properly trained in accordance with the requirements of their assignment, the Environmental Service Line's field SOPs, and the Quality Management System.

This SOP is designed to provide the user with a general outline for decontamination and assumes the user is familiar with basic field procedures, such as recording field notes (SOP 1), sample shipment procedures (SOP 3), sample collection and quality assurance procedures (SOP 4), and investigation-derived waste management procedures (SOP 5). All decontamination references must be available for consultation in the field, including:

- Company's SOPs
- Applicable state and federal guidelines or procedures
- Manufacturer's manuals
- Project-specific work plan, PSP and/or HASP, and QAPP

## 6.4 GENERAL PROCEDURES

The cleaning and decontamination procedures described below are designed to ensure that the equipment used for sample collection is free of analytes that could potentially alter the analytical results. These procedures are primarily targeted at preventing the incidence of cross-contamination (i.e., compounds of interest being transferred on the sampling equipment from one sample to another) in order to produce high quality, representative sample results. As with all analytical sampling, the effectiveness of the cleaning procedures must be demonstrated with the collection of equipment blanks; equipment blank sample collection procedures and frequency are discussed in SOP 4.

### 6.4.1 EQUIPMENT AND REAGENT SELECTION

It is important for employees to evaluate the expected types of contamination before mobilization to a site. State programs (or the U.S. Environmental Protection Agency [EPA], depending on the site) may require more stringent decontamination procedures than those listed in this SOP, specify the types and grades of various cleaning detergents and reagents (e.g., acids and solvents), or allow the use of phosphate-containing detergents, such as Liquinox® liquid detergent (preferred[2]) or the powdered Alconox®. Decontamination equipment (e.g., spray bottles, brushes, etc.) should be constructed of non-reactive, non-leachable materials (e.g., metal, glass, Teflon®-coated, polyethylene, etc.) which are compatible with the reagents and solvents being used for decontamination.

Many of the cleaning reagents (e.g., nitric acid, hexane, methanol) are U.S. Department of Transportation (DOT) hazardous materials and must be shipped using a ground delivery service. The Safety Data Sheets (SDSs) for any hazardous cleaning reagents to be used onsite must be reviewed before the commencement of work, and the potential hazards and protective measures to be employed must be addressed in the HASP. Do not use decontamination liquids that have been improperly stored (e.g., unsealed containers).

In specific cases, it may be necessary to steam clean the field equipment before proceeding with the decontamination steps presented in Section 6.5 (e.g., hollow stem augers). Generally, the company's subcontractors are responsible for bringing or building a decontamination pad, if necessary, to contain the spray from a steam jenny. As possible, decontamination pads should be constructed on a level, paved surface in an area known or believed to be free of surface contamination, and should be of sufficient size to contain the decontamination water. Equipment that is steam cleaned should be placed on racks or saw horses and not on the floor of the

[2] Liquinox® liquid detergent, manufactured by Alconox, Inc., is phosphate-free and does not contribute to nutrient loading or algae blooms in the environment.

decontamination pad. Decontamination water should be removed from the decontamination pad frequently to minimize the potential for leaks or overflow.

***Consult and involve the company's compliance professionals for storage procedures and disposal requirements of cleaning reagents, detergents, wastes, and other decontamination-related materials.***

### 6.4.2 OTHER CONSIDERATIONS

In preparing for decontamination, you should perform the following activities (with all observations and measurements noted in the field book):

- Perform a quick reconnaissance of the site to identify a decontamination (pad) area and evaluate the accessibility to and safety of the location.
- If working in a hazardous waste exclusion area, the decontamination area should be located in the contaminant reduction zone.
- Record a description of the decontamination (pad) area.

Survey the breathing zone around the decontamination area with the appropriate air quality meter(s), as necessary (see HASP), to ensure that the level of PPE is appropriate. When decontaminating equipment, it is important to find a suitable location away from any sources of cross-contamination that could compromise the integrity of the decontamination. As possible, position the decontamination area away from fuel-powered equipment, such as drill rigs or excavators, and upwind of other site activities (e.g., purging, sampling).

## 6.5 DECONTAMINATION PROCEDURES

The decontamination procedures described below are a four- to nine-step process, depending on the the applicable federal or state guidelines, the project-specific work plan, or the QAPP. Sampling activities must be initiated with clean, decontaminated equipment. Decontaminate all non-dedicated equipment that contacts the sample directly (e.g., spoons, trowels, pumps), before and between each sample location and sampling interval. record decontamination procedures in the field book. Disposable, single use items, such as bailers or tubing, do not require decontamination.

The decontamination process includes the following four basic steps:

1. Physical removal of soil or debris
2. Wash with non-phosphate detergent, such as Liquinox®, and nylon brush
3. Potable water rinse
4. Laboratory-supplied deionized (DI), analyte-free water rinse (distilled water can be used as a substitute, if necessary)

The first step is to remove as much soil or other debris from the sampling device as possible near the sampling area to limit the spread of potentially-contaminated materials into clean areas of the site. Containerize all soil or debris in DOT-compliant containers in accordance with SOP 5 or the project-specific work plan. Dispose of all wastes in conformance with the project-specific work plan and applicable regulations.

Cleaning and decontamination should occur at a designated area(s) (i.e., decontamination pad) on the site. If gross contamination or an oily film or residue is observed on the equipment, use a steam jenny or wash by hand, using a brush, to remove the particulate matter or surface film. Heavy oils or grease may be initially removed with paper towels soaked with isopropyl alcohol.

The physical removal of debris process is followed by soaking (a simple dunk of the equipment is insufficient) and hand scrubbing the equipment with a solution of potable water and non-phosphate detergent (mixed to the manufacturer's instructions) followed by a potable water rinse. If not using a decontamination pad, the most common set-up uses multiple 5-gallon plastic buckets (or equivalent) for washing and rinsing. The decontamination containers should be labeled as to their contents and pertinent information from original source, such as the date opened or transferred, and the expiration date (as well as any applicable hazardous labels), placed on polyethylene sheeting (to contain drips of decontamination fluids during the decontamination process), and sealed when not in use to prevent accidental release of the fluids. If decontaminating sealed submersible pumps, pump both the non-phosphate detergent wash

fluid and the potable water rinse through the pump body itself (usually done in separate buckets) to ensure that the internal components are thoroughly cleaned. Replace the detergent solution and rinse water at least daily or when it becomes oily or silty.

Next, place the DI water for the rinse in a small spray bottle or pour over the equipment after the potable water rinse.

**Typically, this level of decontamination (i.e., steps 1 through 4) is sufficient.**

Following Steps 1 through 4, additional decontamination (steps 5 through 9) may be required by the applicable federal or state guidelines, the project-specific work plan, or the QAPP. Typically, these decontamination steps are performed when sampling for inorganics or oil-related substances using non-motorized equipment. These steps include:

5 10% nitric acid rinse (if metals are part of the analyses)
6 Laboratory-supplied DI water rinse
7 Pesticide-grade solvent rinse (e.g., acetone [preferred], hexane, or isopropyl alcohol)
8 Air dry (solvent must evaporate)
9 Laboratory-supplied DI water rinse

Isopropyl alcohol is the recommended solvent for organic contaminants because it is readily available and is not a DOT hazardous material; where possible, lab-grade isopropyl alcohol should be used . However, other solvents (e.g., hexane and methanol) may be more effective in removing certain contaminants, such as oils or polychlorinated biphenyls, but any waste generated using these solvents must be managed accordingly. Solvents are never used for decontamination if sampling for volatiles organic compounds.

Handle the solvents and acid with care and store unused chemicals in their original, labeled, protective containers when not in use. It is a good idea to transfer small quantities of each solution into labeled, laboratory-grade spray bottles, which offer a convenient and controllable way to rinse the equipment. The equipment can then be rinsed over a 5-gallon plastic bucket or other suitable container placed on plastic sheeting as with the first part of the cleaning process. Nitric acid rinses must be used only on non-carbon steel sampling devices. Do not spray acid or solvent into pumps.

Decontamination steps used at sites where radioactive materials are contaminants of concern are similar with a few special considerations. Radiation contamination monitoring is used to help locate contamination and guide the success of the decontamination process. The liberal use of water and fluids as a decontamination agents are minimized, where practicable, because of the expense that can be incurred with disposing of radioactively contaminated decontamination water. Containerized decontamination wastes must be evaluated for radioactive content and disposed of appropriately depending on their content.

## 6.6 HANDLING DECONTAMINATED EQUIPMENT

Handle any decontaminated equipment using clean gloves to prevent re-contamination. Place the equipment away (preferably upwind) from the decontamination area once the process has been completed on clean plastic sheeting to allow it to air-dry. Once the equipment is dry, protect it from re-contamination by securely wrapping and sealing with aluminum foil (shiny side out) or clean, disposable plastic bags (inorganics only). Plastic bags may be wrapped directly around wet or dry equipment except when the expected contaminants include volatile and extractable organics; under those circumstances, allow the equipment to completely dry or wrap it in aluminum foil.

All sampling equipment must be decontaminated at the end of the investigation (i.e., prior to departure from the site). Label each piece of equipment with the date of decontamination, the initials of personnel performing the decontamination, and the type of decontamination solution(s) used. Containerize all decontamination fluids, and other disposable decontamination materials in DOT-compliant containers in accordance with SOP 5 or the project-specific work plan. Dispose of all wastes, including open and unused solvents or acids, in conformance with the project-specific work plan and applicable regulations.

# FIELD STANDARD OPERATING PROCEDURE #7

# WATER QUALITY MONITORING EQUIPMENT PROCEDURE

The procedures outlined in this Standard Operating Procedure (SOP) are designed to ensure that water quality monitoring equipment is calibrated and used properly. Specifically, this SOP addresses the short-term or discrete-measurement use of portable water quality monitoring equipment for the collection of physical, chemical, or biological field measurements. Common field parameters include temperature, pH, specific conductance (SC), turbidity, oxidation-reduction potential (ORP), and dissolved oxygen (DO). The user is advised to read the entire SOP and review the site health and safety plan (HASP) and/or project safety plan (PSP) before beginning any onsite activities. In accordance with the HASP or PSP, proper personal protective equipment (PPE) must be selected and used appropriately.

## 7.1 ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| DI | deionized water |
| DO | dissolved oxygen |
| °F | degrees Fahrenheit |
| HASP | health and safety plan |
| IDW | investigation derived waste |
| mg/l | milligrams per liter |
| mV | millivolts |
| NTU | nephelometric turbidity units |
| ORP | oxidation-reduction potential |
| PPE | personal protective equipment |
| PSP | project safety plan |
| QAPP | quality assurance project plan |
| SC | specific conductance |
| SDS | safety data sheets |
| SOP | standard operating procedure |
| SU | standard units |
| µS/cm | microsiemens per centimeter |
| (mS/cm) | millisiemens per centimeter |

## 7.2 MATERIALS

- Field book
- PPE
- Water quality meter
- Flow-through cell, as appropriate
- Display/logger
- Communication cables
- Calibration cup or beaker

- Calibration reagents and standard solutions, as appropriate
- Deionized water (DI) or distilled water
- Decontamination supplies

## 7.3 PRECONDITIONS AND BACKGROUND

This SOP has been prepared as part of the company's Environmental Quality Management Plan and is designed to provide detailed procedures for common field practices. Compliance with the methods presented in this document is mandatory for all field personnel and will ensure that the tasks are performed in a safe and consistent manner, are in accordance with federal and state guidance, and are technically defensible.

This SOP is written for the sole use of company employees and will be revised periodically to reflect updates to company policies, work practices, and the applicable state and/or federal guidance. Employees must verify that this document is the most recent version of the company SOPs. Employees are also strongly advised to review relevant state and/or federal guidance, which may stipulate program-specific procedures, in advance of task implementation.

WSP requires that all personnel performing specific project assignments be appropriately qualified, including having required certifications or licenses, and properly trained in accordance with the requirements of their assignment, the Environmental Service Line's field SOPs, and the Quality Management System.

This SOP is designed to provide the user with a general outline for preparing water quality monitoring equipment for use and assumes the user is familiar with basic field procedures, such as recording field notes (SOP 1), investigation derived waste (IDW) management procedures (SOP 5), and equipment decontamination (SOP 6). This SOP does not cover the selection of water quality monitoring equipment, nor does it cover water quality monitoring equipment-specific instructions. These topics require a significant amount of planning and are more appropriately addressed in a project-specific work plan. Be sure to review the project-specific work plan or Quality Assurance Project Plan (QAPP) and any applicable state and federal guidelines or calibration procedures. The sampler should be familiar with the use and calibration of all sampling and monitoring equipment. All sampling references must be available for consultation in the field, including:

- Company's SOPs
- Applicable state and federal guidelines or sampling procedures
- Manufacturer's manuals
- Project-specific work plan, PSP and/or HASP, and QAPP

## 7.4 GENERAL EQUIPMENT HANDLING AND MANAGEMENT PROCEDURES

Multi-parameter water quality meters are typically bundled in a single housing unit known as a sonde. These types of units offer a single, convenient device that is capable of measuring most or all of the parameters monitored during a typical sampling event. Individual parameter water quality meters are available and, in some cases, offer a higher degree of accuracy, although the difficulty in deploying multiple meters for most tasks relegates them to specialty use.

***Field personnel must consult their assigned company compliance professionals for assistance in proper use, storage, and disposal of all calibration standard solutions.***

The manufacturer's recommendations and instructions vary from one instrument to the next; however, all types of water quality monitoring equipment share common handling and management procedures designed to ensure the integrity of the measurements collected. Based on these procedures, the user should:

- Follow the manufacturer's instructions for transportation, assembly, operation, calibration, and maintenance specific to your equipment. The manufacturer's instructions should be followed explicitly in order to obtain accurate results.
- Keep either the sensor guard or transportation/calibration cup installed when not in use to avoid damaging the sensors. Some sensors require a small amount of water in the transportation/calibration cup; follow the manufacturer's recommendations.
- Inspect the sensors to be sure that they are clean, installed properly and are not damaged.

- Ensure that all equipment is in proper working condition, and that batteries are properly charged before using the equipment for field testing measurements.
- Protect instruments that are sensitive to static electricity.
- Record manufacturer name and model number for each instrument used in the field book.
- Calibrate the instrument, as close to the time of use as possible, and repeat at the frequency suggested by the project-specific work plan, QAPP, or manufacturer. All calibration records must be maintained in the project files.
- Protect the instrument from direct sunlight, precipitation, and extremely hot or cold temperatures.
- Store cables only after they are clean, dry, and neatly coiled – do not bend or crimp cables, and attach any provided storage caps.
- Protect cables from abrasion or unnecessary tension when in use.
- Unless otherwise instructed by the manufacturer, decontaminate water quality monitoring equipment using a non-phosphate detergent solution with a small, nonabrasive brush, cotton swab or cloth, followed by a thorough DI water rinse.

## 7.5 CALIBRATION PROCEDURES

Water quality monitoring equipment must be inspected and the sensors calibrated before use. Calibration frequency is dependent upon project specifications, instrument performance, and manufacturer's recommendations; repeat the calibration procedures as directed in the project-specific work plan, QAPP, or manufacturer's guidance. Consult the manufacturer's guidelines before beginning the calibration process and contact the manufacturer's technical support if problems or questions arise. Maintain all calibration records in the project files.

Conduct the following procedures to ensure proper calibration and record observations in the field book:

- Complete field calibration in an area sheltered from wind, dust, and temperature/sunlight fluctuations such as inside a room or vehicle in which the ambient temperature of the standards is maintained at a temperature greater than 40 degrees Fahrenheit (°F) and less than 100°F, unless otherwise specified by the manufacturer.
- Use standard calibration solutions in accordance with the project-specific work plan, QAPP, or manufacturer's guidance. Allow water quality monitoring equipment to equilibrate to the air temperature for at least 15 minutes after being powered on, or for the specified time period recommended by the manufacturer.
- Record the brand, concentration, lot numbers and expiration dates of standard solutions in the field book.
- Handle standard solutions in a manner that prevents their dilution or contamination. Do not use expired standard solutions. Do not reuse standard solutions or pour solutions back into the bottle; ensure that proper chain-of-custody has been followed for standard solutions stored at a site.
- Ensure that the water quality monitoring equipment has been set to display or record the appropriate measurement units, as available – be sure to record the units of measure in the field book or field form.
- Unless otherwise instructed by the manufacturer, use the calibration cup that comes with the instrument for calibration.
- Use the recommended volume of standard solution when filling the calibration cup (e.g., the standard solution must cover the temperature sensor, as most sensors require temperature compensation).
- Be careful not to over tighten the calibration cup; many calibration cups have vents that allow their equilibration with ambient pressure.
- Rinse sensors thoroughly with DI water after use of each standard solution, followed by a rinse with the next standard solution to be used.
- Wait for readings to stabilize (approximately 30 seconds under normal conditions) before adjusting and saving the calibration point.
- If calibration fails to meet criteria, follow the manufacturer's instructions for corrective action to adjust instrument performance and note any indication of a substandard calibration.
- If the instrument does not start up, meet the requirements above, or calibrate properly, the instrument should not be used.
- Document the time, date, serial number (or other identifier) and calibration status for each instrument.

### 7.5.1 SPECIFIC CONDUCTANCE

Specific conductance, or, more commonly conductivity, measures the ability of water to conduct an electric current. It is generally reported in either microsiemens per centimeter ( $\mu$ S/cm) or millisiemens per centimeter (mS/cm); be sure to note the units used in the field book. Natural waters, including groundwater, commonly exhibit SC below 1 $\mu$ S/cm. Elevated SC measurements (i.e., greater

than 500 $\mu$ S/cm) are a proxy for the amount of dissolved solids, which may be indicative of inadequate well development, grout contamination (or an inadequate grout seal), or contamination.

When calibrating water quality monitoring equipment for SC:

- If not specified in the project-specific work plan, choose a SC standard solution recommended by the instrument manufacturer; otherwise, select a standard that is similar to the anticipated conductivity of the water being sampled.
- The presence of air bubbles in conductivity electrodes will cause erroneous readings and incorrect calibration. Transmission lines, alternating-current electrical outlets and radio-frequency noise sources may cause interference; check with the instrument manufacturer's specifications for troubleshooting procedures.

### 7.5.2 DISSOLVED OXYGEN

Dissolved oxygen measurements are used to assess the water quality with respect to certain metals (the amount of oxygen can control the valence state of metals) and, more typically, biological activity. Concentrations of DO in groundwater under ambient conditions generally range from 1 to 4 milligrams per liter (mg/l). Erratic or elevated (greater than 4 mg/l) DO readings may indicate equipment maintenance issues, such as a fouled sonde, torn membrane, a sensor out of calibration range; or inappropriate monitoring procedures that are causing excessive agitation and aeration of the water column. The meters are sensitive to atmospheric interference: *ex situ* measurements (i.e., those measured outside of the well itself) should only be collected using a flow-through cell.

Dissolved oxygen meters vary widely in their sensitivity. Select the type of DO sensor (i.e., the polarographic [or Clark cell] sensor or the luminescent [optical] sensor) that is most appropriate for the scope of work detailed in the project-specific work plan. The guidance below is for the more common polarographic sensor; consult the manufacturer's guidance for maintenance and calibration procedures specific to optical DO meters.

- Check the DO membrane for bubbles, wrinkles or tears. If necessary, install a new membrane and replace worn or stretched O-rings. Manufacturer guidance generally specifies membrane replacement should be completed at least 3 to 4 hours before use.
- Most manufacturers recommend that the sensor be allowed to equilibrate to the temperature of the water-vapor-saturated air before calibration, as specified in the manufacturer's instructions.
- Fill the calibration cup with less than 1/8 inch of water, or as recommended by the manufacturer.
- Remove any water droplets from the sensor without wiping the membrane. Water droplets on the sensor can cause a temperature compensation error in the DO calibration.
- Do not submerge or wet the sensor when loosely attaching the calibration cup.
- Enter the barometric pressure and wait for readings to stabilize before adjusting and saving the calibration point.

### 7.5.3 PH

The effective concentration (or activity) of hydrogen ions on a numerical scale known as pH, which is expressed as the negative base-10 logarithm of the hydrogen-ion activity in moles per liter. Natural (uncontaminated) waters typically exhibit a pH ranging from 5 to 9 Standard Units (SU). Deviation of pH from background may indicate the presence of groundwater contamination or well construction problems.

Typically, a two-point calibration is used for pH (i.e., a zero-point and span calibration[s]):

- If not specified in the project-specific work plan, select a 7 SU buffer (zero-point) plus a second pH buffer (4 SU or 10 SU) that brackets the range of expected pH.
- If applicable, calibrate the conductivity and DO sensors before calibrating the pH sensor. This helps prevent cross-contamination of the conductivity sensor from pH buffer solutions (pH buffers have much higher conductivities than most environmental waters).
- Allow time for the pH and temperature sensors to equilibrate to the temperature of the buffer and stabilize before adjusting and saving the calibration point. Record the temperature reading and use the chart provided by the buffer manufacturer to determine the true pH of the buffer at that temperature and adjust the calibration reading to that value.
- Repeat the calibration process with the second buffer.

### 7.5.4 OXIDATION-REDUCTION POTENTIAL

Oxidation-reduction potential is a numerical index of the intensity of the oxidizing or reducing conditions within an aqueous solution. Oxidizing conditions are indicated by positive potentials and reducing conditions are indicated by negative potentials. These values are frequently used when evaluating the biodegradation capacity of a system. The ORP of natural (uncontaminated) waters typically ranges from +500 to -100 millivolts (mV). The meters for ORP, like those for DO, are sensitive to atmospheric interference and must be measured using a flow-through cell. Avoid touching the sensors during calibration and measurement as calibration can be affected by static electricity.

A one-point calibration, at a known temperature, is used to calibrate the ORP sensor:

- Fill the calibration cup with enough standard solution (i.e., ZoBell's solution) to completely cover the temperature and ORP sensors.
- Allow time for the ORP and temperature sensors to equilibrate to the temperature of the buffer and stabilize before adjusting and saving the calibration point. Record the temperature reading and use the chart provided by the manufacturer to determine the true ORP of the solution at that temperature and adjust the calibration reading to that value.

### 7.5.5 TURBIDITY

Turbidity is the presence of suspended mineral and organic particles in a water sample. Turbid water may indicate inadequate well construction, development or improper sampling procedures, such as purging at an excessive rate that exceeds the well yield. Purging and sampling in a manner that minimizes turbidity is particularly important when analyzing for total metals and other hydrophobic compounds, such as polychlorinated biphenyls, which may exhibit artificially elevated concentrations in high-turbidity samples due to their adsorption to colloidal material. Generally, the turbidity of *in situ* groundwater is very low (at or below 10 nephelometric turbidity units, NTUs); however, some groundwater zones may have natural turbidity higher than 10 NTUs.

Standard turbidity solutions are not necessarily interchangeable. Serious calibration errors can result from using inappropriate standards. Use only those standard turbidity solutions that are prescribed for the sensor by the instrument manufacturer.

Turbidity consists of a zero-point calibration and a span calibration(s):

- Fill the calibration cup to the reference line with DI or a zero-point standard.
- Allow time for the turbidity sensors to stabilize before adjusting and saving the calibration point.
- Record the temperature and use the chart provided by the manufacturer to determine the true turbidity of the standard and adjust the calibration reading to that value.
- Repeat the calibration process with the standard span calibration standard(s).

## 7.6 EQUIPMENT USE PROCEDURES

The monitoring equipment is ready to use once the calibration has been completed. The specific use of the device will be dictated by the project-specific work plan or QAPP; however, all projects should follow these general procedures during use:

- Charge instrument batteries per the manufacturer's instructions, as necessary.
- Ensure that instrument is warmed up and the measured value(s) on the water quality monitoring equipment are equilibrated (i.e., readings are representative of the solution, not ambient air) before recording in the field book.
- Biological growth or debris in the water can foul sensors; as possible, avoid inserting the sonde in areas that will result in having to stop and clean algae, sediment, or debris from the sensors (e.g., do not place on bottom of a well or streambed).
- If continuous monitoring is required, follow the manufacturer's instructions for performing continuous data logging events.

For flow through cells:

- Inspect the integrity of the flow-through cell and O-rings.
- Connect the discharge tubing to the bottom of the flow-through cell using properly-sized tubing and fittings. Connect the effluent tubing to the top of the flow-through cell and secure the end of the tubing into the designated groundwater purge container.
- Shield the flow-through cell from direct sunlight to minimize changes in the temperature.

- Do not record any measurements until all the air from the flow-through cell and the effluent tubing has been displaced and the sensors have equilibrated. The presence of air bubbles in the flow-through cell will result in highly biased readings.
- Do not collect samples for laboratory analysis from the groundwater in the flow-through cell.

## 7.7 CLOSING NOTES

Once field activities are complete, secure the site in accordance with the project-specific work plan. Decontaminate all equipment prior to departure and properly manage all PPE and IDW in conformance with SOP 6, the project-specific work plan, and applicable regulations.

# FIELD STANDARD OPERATING PROCEDURE #9

# SOIL SAMPLING PROCEDURE

The soil sampling procedures outlined in this standard operating procedure (SOP) are designed to ensure that collected soil samples are representative of current site conditions. Soil samples can be collected for onsite screening or for laboratory analysis. The user is advised to read the entire SOP and review the site health and safety plan (HASP) and/or project safety plan (PSP) before beginning any onsite activities. In accordance with the HASP, proper personal protective equipment (PPE) must be selected and used appropriately.

## 9.1 ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ºF | degrees Fahrenheit |
| HASP | health and safety plan |
| IDW | investigation derived waste |
| PID | photoionization detector |
| PPE | personal protective equipment |
| PSP | project safety plan |
| QAPP | quality assurance project plan |
| QA/QC | quality assurance/quality control |
| SOP | standard operating procedure |
| USCS | Unified Soil Classification System |

## 9.2 MATERIALS

- Field book
- PPE
- Air quality monitoring equipment, (e.g., photoionization detector [PID]), as needed
- Field test kits, as needed
- Sampling containers and labeling/shipping supplies
- Ruler or tape measure
- Zipper-style plastic bags, as needed
- Plastic sheeting
- Soil sampling method specific materials, as needed:
- Stainless steel trowels, probes, or shovels
- Stainless steel spatulas or spoons
- Bucket augers, auger extension rods, auger handle, pipe wrenches
- Split-spoon samplers, pipe wrenches
- Direct-push acetate liners, including catchers and opening tools, as needed
- Shelby tube samplers, plastic or wax caps
- Mixing tray or bowl
- Munsell color chart
- Decontamination supplies

## 9.3 PRECONDITIONS AND BACKGROUND

This SOP has been prepared as part of the company's Environmental Quality Management Plan and is designed to provide detailed procedures for common field practices. Compliance with the methods presented in this document is mandatory for all field personnel and will ensure that the tasks are performed in a safe and consistent manner, are in accordance with federal and state guidance, and are technically defensible.

This SOP is written for the sole use of company employees and will be revised periodically to reflect updates to company policies, work practices, and the applicable state and/or federal guidance. Employees must verify that this document is the most recent version of the company SOPs. Employees are also strongly advised to review relevant state and/or federal guidance, which may stipulate program-specific procedures, in advance of task implementation.

WSP requires that all personnel performing specific project assignments be appropriately qualified, including having required certifications or licenses, and properly trained in accordance with the requirements of their assignment, the Environmental Service Line's field SOPs, and the Quality Management System.

This SOP is designed to provide the user with a general outline for conducting soil sampling and assumes the user is familiar with basic field procedures, such as recording field notes (SOP 1), utility location (SOP 2), sample shipment procedures (SOP 3), sample collection and quality assurance procedures (SOP 4), investigation-derived waste (IDW) management procedures (SOP 5), equipment decontamination (SOP 6), and use and calibration of sampling and monitoring equipment (SOPs 7 and 8). This SOP does not cover investigation planning, nor does it cover the evaluation of the analytical results. These topics are more appropriately addressed in a project-specific work plan. Before soil sampling, be sure to review the project-specific work plan or Quality Assurance Project Plan (QAPP) and any applicable state and federal guidelines or sampling procedures.

***Consult and involve your assigned compliance professional during all phases of soil sampling. Do not ship hazardous waste samples without first consulting a company compliance professional.***

All sampling and monitoring references must be available for consultation in the field, including:

- Company's SOPs
- Applicable state and federal guidelines or sampling procedures
- Manufacturer's manuals
- Project-specific work plan, PSP and/or HASP, and QAPP

## 9.4 GENERAL PROCEDURES

Soil samples are collected using a variety of techniques and equipment, depending on the type (e.g., surface, subsurface) and purpose (e.g., lithological logging, headspace evaluation, laboratory analysis) of the sampling, and most sampling events employ more than one equipment type or methodology. Subsurface soil sampling, for example, often includes sample collection from split-spoon, macro-core, or other dedicated sampling devices advanced into the subsurface. Recovered cores are often logged (using a Munsell color chart and other logging aids), screened for volatile organic compounds (VOCs) using a PID, and sampled for laboratory analysis using disposable stainless steel spoons or other discrete sampling devices.

Each sampling configuration is associated with a unique set of sampling equipment requirements and techniques. The selected procedures and equipment are project-specific and should be discussed by the project team before arriving onsite. All types of soil sampling, regardless of the equipment used, share common handling and management procedures that are designed to ensure the integrity of the samples collected. These procedures include:

- The use of new, disposable or decontaminated sampling equipment
- The use and rotation of the appropriate PPE
- Selection of a suitable sampling location and staging area

Wear a clean pair of new, disposable gloves each time a different sample is collected and don the gloves immediately prior to collection. This limits the possibility of cross-contamination from accidental contact with gloves soiled during collection of the

previous sample. The gloves must not come in contact with the medium being sampled and must be changed any time during sample collection when their cleanliness is compromised. ***Gloved hands should not be used as a sampling device; always use the appropriate equipment to move the sample from the sampling device to the laboratory-supplied containers.*** If the soil cannot be transferred directly from the sampling device to the laboratory-supplied containers, use a stainless steel spoon or spatula to transfer the soil from the sampling device to the laboratory-supplied containers.

### 9.4.1 EQUIPMENT SELECTION

Collect all samples using either new, disposable equipment, such as polyethylene liners or single-use stainless steel spoons; or properly decontaminated sampling equipment, such as hand augers, split-spoon samplers, or trowels. Soil sampling equipment should be selected based on the analytical requirements of the project and the project-specific conditions likely to be encountered. The equipment should be constructed of non-reactive, non-leachable materials (e.g., stainless steel, Teflon®, Teflon®-coated steel, polyethylene, polypropylene) which are compatible with the chemical constituents at the site. When choosing sampling equipment, give consideration to:

- the types of soil or fill present
- the required depth of the sample
- the volume of sample required
- the analytes of interest

Select the types of equipment and decontamination procedures based on the types of sampling to be performed. Decontamination may require multiple steps or differing cleaning methods, depending on the sampling goals (see SOP 6 for decontamination procedures). In no case should disposable, single use materials (e.g., acetate liners, soil baskets) be used to collect more than one sample.

### 9.4.2 SAMPLING CONSIDERATIONS

In preparing for sampling, you should perform the following activities (with all observations and measurements noted in the field book):

- Perform a quick reconnaissance of the site to identify sampling locations and evaluate the accessibility (physical obstructions, slope, overhead and underground utilities) to the sampling location.
- Record the approximate ambient air temperature, precipitation, wind (direction and speed), tide, and other field conditions in the field book. In addition, any site-specific conditions or situations that could potentially affect the samples should be recorded.
- Record a description of the sampling location and the approximate distance to and direction from at least one permanent feature.
- Should any sample location require a vertical or horizontal offset from the proposed location, indicate the reason and record the actual sample location in the field book.

Survey the breathing zone around the sampling location with the appropriate air quality meter(s), as necessary (see HASP), to ensure that the level of PPE is appropriate. When sampling soil, it is important to find a suitable sampling location away from any sources of cross-contamination that could compromise the integrity of the samples. Consider the following:

- Position the sample collection area away from fuel-powered equipment, such as drill rigs or excavators, and upwind of other site activities (e.g., purging, sampling, decontamination) that could influence the sample. This is particularly important when screening samples in the field for VOCs with a PID, but should not be limited to the active sample collection.
- Store samples already collected from the field for laboratory analysis in clean containers in an ice-filled cooler (as required) and securely stage, if possible, in an uncontaminated area of the site.

## 9.5 SOIL SAMPLE COLLECTION

Soil samples can be collected from surface or subsurface depths, depending on the project requirements. Surface soils are generally those collected at depths less than 2 feet below ground surface (bgs) and can be collected using trowels, soil probes, shovels, or hand augers. Be aware that some states have specific definitions of what constitutes a surface soil sample. Subsurface soils are generally

deeper and require specialized equipment to recover the samples. In most cases, subsurface soils will be collected using a drill rig or excavator to prevent the soil from being mixed with soils from a shallower interval.

Push or drive the method-specific sampling equipment (e.g., trowel, hand auger, hollow corers, split-spoon, direct push sampler, rotosonic core barrel sampler, excavator bucket) into the soil to the desired sampling depth using decontaminated equipment. Record in the field book the depth interval through which the sampler was advanced and, when using a drilling rig and split-spoon sampler, the number of blows needed to drive the sampler 6 inches. If additional soil is needed to provide sufficient sample volume, repeat this step taking care to ensure that the same depth interval is collected during the resample. Use core catchers on the leading end of the sampler (if available) for soils that lack cohesiveness and are subject to falling out of the sampler (i.e., poor recovery).

Withdraw the sampling equipment from the interval, open the sampler (as appropriate), and collect the sample in a safe location (e.g., avoid entering an excavation by collecting the sample from an excavator bucket at ground surface). When collecting a sample from an excavator bucket, the sampler should watch the bucket as the excavated material is retrieved and collect the sample from the desired sampling material.

Recovered soils should be placed on plastic sheeting in a consistent manner such that the orientation of the sample (i.e., which end is "up") and the depth interval is readily apparent to the sampling personnel. Measure the length of the material recovered relative to the interval the sampler was advanced in percent notation (e.g., 75%) or as a fraction of the total length of the sample interval (i.e., [3/4] indicating 3 out of 4 feet) and record this information in the field book. If field screening for organic vapors is required, break or cut the soil core every 3 to 4 inches and quickly scan the breaks in the core material with the appropriate air quality monitoring equipment (e.g., PID) and record the readings and approximate depth in the field book. These measurements can be used to select appropriate soil samples for VOC or headspace analysis, if required (see procedures below).

### 9.5.1 UNDISTURBED SAMPLE COLLECTION

Undisturbed soil samples collected for geotechnical parameters (e.g., porosity, permeability) generally require the use of specialized undisturbed sampling equipment (e.g., Shelby tube or sealed Geoprobe® liner) and collection procedures. The sampling device, once retrieved, is typically capped or sealed (to maintain the sample in its relatively undisturbed state), labeled with the sample name, orientation of the sample (i.e., top and bottom), depth interval, and shipped to the appropriate geotechnical laboratory. Follow sample labeling, preparation, and shipping procedures in SOPs 3 and 4.

### 9.5.2 VOLATILE ORGANIC COMPOUND SAMPLING

Analytical soil samples for VOC analysis should be collected immediately after screening with the PID to avoid loss of constituents to the atmosphere. Transfer the soil from the portion of the soil core to be sampled (usually the area where the highest PID readings were observed) directly into the sample containers; do not homogenize soils for VOC analysis. Place the soil in the sampling container such that no headspace is present above the soil when the cover is placed on the jar. If U.S. Environmental Protection Agency Method 5035 (e.g., Encore® samplers) is required, follow manufacturer's specifications and company recommended shipping procedures.

When using an Encore® sampler, soil from the sampling device will be placed in pre-preserved sampling containers (40 ml VOA vial). It is important to ensure that the appropriate volume of soil is collected and is not increased or decrease due to overpacking/underpacking the sampler. Five (5) grams is the target volume of soil, plus or minus 10 percent. Preservative in the sample container should completely cover the sample mass. Care will be taken to ensure that container threads are free of soil to allow for the VOA vial to be sealed and not leak during transport. Each VOA vial will weighed prior to the addition of soil and after sample has been added. These weights will be compared to the laboratory weight upon sample receipt to ensure that preservative was not lost during transit.

Collect quality assurance/quality control (QA/QC) samples, if appropriate, in accordance with SOP 4, the project-specific work plan, and the QAPP.

### 9.5.3 SOIL HEADSPACE ANALYSIS

Collect soil samples for field-based headspace analysis, if required as part of the project-specific work plan, after collecting the VOC sample. First, examine the soil and remove coarse gravel, organic material (e.g., roots, grass, and woody material) and any other debris. Transfer the soil from the portion of the soil core to be sampled and place in a heavy-duty zipper-style plastic bag and seal the bag. Label the sample indicating the sampling location, depth, and date. Shake the sample vigorously for approximately 15 seconds to disaggregate the sample and expose as much surface area of the soil as possible (to release the VOCs to the atmosphere within the bag). If necessary, warm the sample to room temperature (70º Fahrenheit, [ºF]) by placing the bag in a heated room or vehicle. This step is critical when the ambient temperature is below 32ºF.

The VOCs, if present, will volatilize into the sealed bag. Allow the bag to stand (to achieve equilibrium) for approximately 15 minutes. Carefully open the bag slightly and place the tip of the PID into the opening. Do not insert the tip of the probe into the soil material and avoid the uptake of water droplets. Allow the PID to equilibrate and record the highest PID measurement noted. Erratic PID responses may result from high organic vapor concentrations or elevated headspace moisture. If these conditions exist, qualify the headspace data in the field book. It is also important to record the ambient temperature, humidity, and whether moisture was present in plastic bag. Duplicate 10% of the headspace samples by collecting two samples from the same location. Generally, duplicate sample values should be consistent to ±20%. Samples collected for headspace screening cannot be retained for laboratory analysis.

### 9.5.4 SEMI- AND NON-VOLATILE ANALYTICAL SAMPLE COLLECTION

For metal sulfide analysis, sediment should be maintained in anoxic conditions to limit exposure to oxygen. Samples should be collected immediately and stored with zero headspace.

Collect remaining organic samples then inorganic samples in the following order of volatilization sensitivity:

- Extractable organics, petroleum hydrocarbons, aggregate organics, and oil and grease
- Metals
- Inorganic non-metallic and physical and aggregate properties
- Microbiological samples
- Radionuclides

If homogenization is required, mix the soils (using stainless steel bowls and spoons, or other appropriate equipment) to a homogeneous particle size and texture. Transfer the soils from the sampler or mixing bowl to the sample container using a decontaminated or dedicated stainless steel spoon or spatula. Collect QA/QC samples in accordance with SOP 4, the project-specific work plan, and the QAPP.

If approved by the appropriate regulatory agency and specified in the project-specific work plan, composite soil samples can be collected to minimize the total number of analytical samples. Composite samples consist of equal aliquots (same sample size) of soil from each location being sampled (e.g., from each borehole or from multiple areas of a soil pile), by mixing the soil to a homogeneous particle size and texture using new or decontaminated stainless steel bowls and a stainless steel spoon or trowel. Transfer the contents to the appropriate laboratory supplied sample container using a stainless steel spoon. Collect QA/QC samples in accordance with SOP 4, the project-specific work plan, and the QAPP, if required.

If necessary, conduct field tests or screening on soils in accordance with the project-specific work plan and manufacturer's specifications for field testing equipment.

### 9.5.5 SAMPLE LABELING AND PREPARATION FOR SHIPMENT

Once collected, prepare the soil samples for offsite laboratory analysis:

1. Clean the outside of the sample container with paper towels or appropriate materials, if necessary
2. Affix a sample tag or label to each sample container and complete all required information (sample number, date, time, depth interval, sampler's initials, analysis, preservatives, place of collection)

3 Place clear tape over the tag or label (if non-waterproof labels are used)
4 Preserve samples immediately after collection by placing them into an insulated cooler filled with bagged wet ice to maintain a temperature of approximately 4°Celcius (if required by analytical method)
5 Record the sample designation, date, time, depth interval, number of sampling containers, analytical methods, and the sampler's name in the field book and on the chain-of-custody form
6 Complete the chain-of-custody forms with appropriate sampling information, including:
   — Location
   — Sample name
   — Sample collection date and time
   — Number of sample containers
   — Analytical method
7 Complete sample packing and ship in accordance with proper procedures

***Do not ship hazardous waste samples without first consulting a company compliance professional.***

## 9.6 SOIL CLASSIFICATION

Soil classification should be performed whenever soil samples are being collected to provide context for the analysis. Unless required to follow a different soil classification (e.g., US Department of Agriculture), follow the Unified Soil Classification System (USCS) logging procedures as described in ATSM D2488[1] . The emphasis of soil classification in the field must be on describing the soils using ALL of the required descriptors; categorization of the USCS group name or symbol alone may not provide details about the soils that could later prove useful. Avoid geologic interpretation or the use of local formation names, which are often difficult to determine in the field without the regional framework. Record ALL of the following information for each sample interval/soil type in the field book:

— Depth interval
— USCS group name (e.g., lean clay, elastic silt, well-graded gravel)
— USCS group symbol (e.g., cl, mh, gw)
— Color, using Munsell chart (in moist condition)
— Percent of cobbles, boulders, gravel, sand, and fines (approximate; by volume). Use the following standard descriptors for the textural percentages:
— Trace: <5%[2]
— Few: 5-10%
— Little: 15-25%
— Some: 30-45%
— Mostly: 50-100%
— Particle-size range:
— Gravel—fine (0.2-inch to 0.75-inch), medium, coarse (0.75-inch to 3 inch)
— Sand—fine (0.003-inch to 0.02-inch), medium (0.02-inch to 0.08-inch), coarse (0.08-inch to 0.2-inch)
— Fines – clay or silt
— For gravel and sand:
— Particle angularity: angular, subangular, subrounded, rounded
— Particle shape: (if appropriate) flat, elongated, flat and elongated
— Maximum particle size or dimension
— Hardness (under hammer blow) of coarse sand and larger particles
— For fine-grained soil (i.e., clay and silt):
— Plasticity: non-plastic, low, medium, high
— Dry strength: none, low, medium, high, very high
— Dilatancy: none, slow, rapid
— Toughness: low, medium, high
— Odor (mention only if organic or unusual; factual descriptions only, no interpretations)
— Moisture: dry, moist, wet
— Additional comments: presence of roots or root holes, presence of mica, gypsum, etc., surface coatings on coarse-grained particles, caving or sloughing of auger hole or trench sides, difficulty in augering or excavating, etc.

For intact samples also include:

- Consistency (fine-grained soils only): very soft, soft, firm, hard, very hard
- Structure: stratified, laminated, fissured, lensed, homogeneous
- Cementation: weak, moderate, strong

Example descriptions, using the information listed above, would read as follows:

- 8-10' – Well Graded Sand, SW (5YR 2/6) fine- to medium-grained sand, trace medium sub-angular rounded gravel (less than 0.5-inch diameter); medium dense to dense; wet; moderate petroleum-like odor between 9 feet bgs and 10 feet bgs.
- 10-12' – Lean Clay with Gravel, CL (5YR 2/6) some fine- to coarse-grained angular to subangular gravels (less than 0.25-inch diameter), trace fine- to medium-grained rounded sands; very stiff; low plasticity; low dry strength; no dilatancy; moist; no odors.

## 9.7 CLOSING NOTES

Once sampling is completed, restore and mark all sample locations with spray paint, stakes, or other appropriate marker for future reference or survey, including collecting Global Positioning System coordinates and photographs, or survey in accordance with the project-specific work plan. Decontaminate all equipment prior to departure and properly manage all PPE and IDW in conformance with SOP 6, the project-specific work plan, and applicable regulations.

[1] Note that certain states/regulatory programs may require soil classification under a secondary system (e.g., US Department of Agriculture) or the use of hydrochloric acid to test the reaction with soil (none, weak, strong).

[2] The use of "Trace" for describing the fraction of clay soils is inappropriate for field-based logs as clay contents of less than 20% in fine-grained soils cannot be reliably determined in the field.

# FIELD STANDARD OPERATING PROCEDURE #10

# SEDIMENT SAMPLING PROCEDURE

The sediment sampling procedures outlined in this standard operating procedure (SOP) are designed to ensure that collected sediment samples are representative of current site conditions. Sedimentsamples can be collected for onsite screening or for laboratory analysis. The user is advised to read the entire SOP and review the site health and safety plan (HASP) and/or project safety plan (PSP) before beginning any onsite activities. In accordance with the HASP, proper personal protective equipment (PPE) must be selected and used appropriately.

## 10.1 ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ºF | degrees Fahrenheit |
| HASP | health and safety plan |
| IDW | investigation derived waste |
| PID | photoionization detector |
| PPE | personal protective equipment |
| PSP | project safety plan |
| QAPP | quality assurance project plan |
| QA/QC | quality assurance/quality control |
| SOP | standard operating procedure |
| USCS | Unified Soil Classification System |
| VOC | volatile organic compounds |

## 10.2 MATERIALS

- Field book
- PPE
- Air quality monitoring equipment, (e.g., photoionization detector [PID]), as needed
- Field test kits, as needed
- Sampling containers and labeling/shipping supplies
- Ruler or tape measure
- Zipper-style plastic bags, as needed
- Plastic sheeting
- Hip-waders or rubber boots, as necessary
- Sediment sampling method specific materials, as needed:
  - Stainless steel trowels, shovels, or spoons
  - Stainless steel spatulas or spoons
  - Bucket augers, auger extension rods, auger handle, pipe wrenches
  - Vibracore
  - Eckman Grab Sampler (soft sediment)
  - Ponar Grab Sampler (hard sediment)
  - Split-spoon samplers, pipe wrenches
  - Direct-push acetate liners including catchers and opening tools, as needed
  - Shelby tube samplers

- Mixing tray or bowl
- Munsell color chart
- Decontamination supplies

## 10.3 PRECONDITIONS AND BACKGROUND

This SOP has been prepared as part of the company's Environmental Quality Management Plan and is designed to provide detailed procedures for common field practices. Compliance with the methods presented in this document is mandatory for all field personnel and will ensure that the tasks are performed in a safe and consistent manner, are in accordance with federal and state guidance, and are technically defensible.

This SOP is written for the sole use of company employees and will be revised periodically to reflect updates to company policies, work practices, and the applicable state and/or federal guidance. Employees must verify that this document is the most recent version of the company SOPs. Employees are also strongly advised to review relevant state and/or federal guidance, which may stipulate program-specific procedures, in advance of task implementation.

WSP requires that all personnel performing specific project assignments be appropriately qualified, including having required certifications or licenses, and properly trained in accordance with the requirements of their assignment, the Environmental Service Line's field SOPs, and the Quality Management System.

This SOP is designed to provide the user with a general outline for conducting sediment sampling and assumes the user is familiar with basic field procedures, such as recording field notes (SOP 1), utility location (SOP 2), sample shipment procedures (SOP 3), sample collection and quality assurance procedures (SOP 4), investigation-derived waste (IDW) management procedures (SOP 5), equipment decontamination (SOP 6), use and calibration of all sampling and monitoring equipment (SOPs 7 and 8), and soil and groundwater sampling procedures (SOPs 9 and 11). This SOP does not cover investigation planning, waste storage, waste characterization, or waste profiling, nor does it cover the evaluation of the analytical results. These topics are more appropriately addressed in a project specific work plan. Before sampling, be sure to review the project-specific work plan or quality assurance project plan (QAPP) and any applicable state and federal guidelines or sampling procedures.

***Consult and involve your assigned compliance professional during all phases of sediment sampling. Do not ship hazardous waste samples without first consulting a company compliance professional.***

All sampling and monitoring references must be available for consultation in the field, including:

- Company SOPs
- Applicable state and federal guidelines or sampling procedures
- Manufacturer's manuals
- Project-specific work plan, PSP and/or HASP, and QAPP

## 10.4 GENERAL PROCEDURES

Sediment samples are collected using a variety of techniques and equipment, depending on the type (e.g., surface, subsurface) and purpose (e.g., lithological logging, headspace evaluation, laboratory analysis) of the sampling, and most sampling events employ more than one equipment type or methodology. Recovered cores are often logged (using a Munsell color chart and other logging aids), screened for volatile organic compounds (VOCs) using a PID, and sampled for laboratory analysis using disposable stainless steel spoons or other discrete sampling devices.

Each sampling configuration is associated with a unique set of sampling equipment requirements and techniques. The selected procedures and equipment are project-specific and should be discussed by the project team before arriving onsite. All types of sediment sampling, regardless of the equipment used, share common handling and management procedures that are designed to ensure the integrity of the samples collected. These procedures include:

- The use of new, disposable or decontaminated sampling equipment

- The use and rotation of the appropriate PPE (e.g., hip-waders or rubber boots and gloves, and Saranex® or Tyvek® sleeves duct taped onto nitrile gloves)
- Selection of a suitable sampling location and staging area

Wear a clean pair of new, disposable gloves each time a different sample is collected and don the gloves immediately prior to collection. This limits the possibility of cross-contamination from accidental contact with gloves soiled during collection of the previous sample. The gloves must not come in contact with the medium being sampled and must be changed any time during sample collection when their cleanliness is compromised. ***Gloved hands should not be used as a sampling device; always use the appropriate equipment to move the sample from the sampling device to the laboratory-supplied containers.***

## 10.4.1 EQUIPMENT SELECTION

Collect all samples using either new, disposable equipment, or properly decontaminated sampling equipment. Follow the manufacturer's operation manual for proper sampling procedures. Sediment sampling equipment should be selected based on the analytical requirements of the project and the project-specific conditions likely to be encountered. The equipment should be constructed of non-reactive, non-leachable materials (e.g., stainless steel, Teflon®, Teflon®-coated steel, polyethylene, and polypropylene) which are compatible with the chemical constituents at the site. Extension rods or other appropriate devices can be used, as necessary, to allow the sample to be collected at a distance (or through deeper water) to minimize the risk to the sampler. When choosing sampling equipment, give consideration to:

- the depth and flow of any associated surface water body
- the required depth of the sample
- the volume of sample required
- the analytes of interest

Select the decontamination procedures based on the types of sampling to be performed and decontamination may require multiple steps or differing cleaning methods, depending on the sampling goals (see SOP 6 for decontamination procedures). In no case should disposable, single use materials be used to collect more than one sample.

## 10.4.2 SAMPLING CONSIDERATIONS

In preparing for sampling, you should perform the following activities (with all observations and measurements noted in the field book):

- Perform a quick reconnaissance of the site to identify sampling locations and evaluate the accessibility (physical obstructions, slope, overhead and underground utilities) to the sampling location.
- Record the approximate ambient air temperature, precipitation, wind (direction and speed), tide, and other field conditions in the field book. In addition, any site-specific conditions or situations that could potentially affect the samples at the sample locations should be recorded.
- Record a description of the sampling location and the approximate distance to and direction from at least one permanent feature.
- Describe the sampling location including width of stream or diameter of pipe, depth of stream or discharge, water color and clarity (transparency), and approximate surface flow (e.g., slow, fast moving).
- Should any sample location require a vertical or horizontal offset from the proposed location, indicate the reason and record the actual sample location in the field book.

Survey the breathing zone around the sampling location with the appropriate air quality meter(s), as necessary (see HASP), to ensure that the level of PPE is appropriate. When sampling sediment, it is important to find a suitable sampling location away from any sources of cross-contamination that could compromise the integrity of the samples. Consider the following:

- Position the sample collection area away from fuel-powered equipment, such as drill rigs or excavators, and upwind of other site activities (e.g., purging, sampling, decontamination) that could influence the sample. This is particularly important when screening samples in the field for VOCs with a PID, but should not be limited to the active sample collection.
- If collecting several samples from a stream or river, start sampling at the downstream location and progressively move upstream.

- Always approach the location from the downstream direction and face upstream (into the current) when collecting the sediment sample.
- Collect surface water samples, if being collected concurrently, before collecting the stream sediment samples from the same location. This procedure will eliminate the introduction of sediment and turbulence in the surface water that is to be sampled.
- Avoid wading into surface water, if possible, to avoid sediment suspension and potential cross-contamination.
- If not possible to avoid wading into the water for sample collection, use extreme caution and carefully approach the sample location to minimize disturbance of fine sediments.
- If using watercraft, collect samples near the bow, away and upwind from any fuel powered equipment; orient the watercraft so that the bow is positioned in the upstream direction. This is particularly important when screening for VOCs with a PID, but should not be limited to the active sample collection.
- Store samples already collected from the field for laboratory analysis in clean containers in an ice-filled cooler (as required) and securely stage, if possible, in an uncontaminated area of the site.

### 10.4.3 SAFETY CONSIDERATIONS

Sediment sampling presents a number of unique challenges for safe collection. All water bodies, particularly those with moving water, are inherently dangerous and must be approached with caution. Steep embankments, loose footing, and the potential presence of subsurface hazards (or dangerous plants or wildlife, for some parts of the country) can lead to serious injury or even death.

**A minimum of two people may be required to be present** during collection and samplers must use appropriate safety equipment (as outlined in the project HASP), such as insulated waders, snake chaps, and flotation devices. If possible, avoid wading into surface water. Be aware of recent weather conditions, tidal changes, or other events (e.g., a dam releases), which may result in unexpectedly higher water, flow conditions, or temperature changes. **Do not** attempt to sample surface impoundments used to manage potentially hazardous wastes from a boat; all sampling should be conducted from the banks or piers of surface impoundments.

**Do not** bodily enter pipes, such as storm sewers or other drainage conveyances, during sediment collection as these may be considered confined spaces.

## 10.5 SEDIMENT COLLECTION

In accordance with the project-specific work plan, collect sediment samples using the appropriate equipment: (1) scoops or trowels, (2) corers, or (3) grab samplers or dredges.

Push, drive, or drop the method-specific sampling equipment into the sediment to the desired sampling depth using decontaminated equipment. Do not use scoops or trowels in water deeper than 12 inches. Slowly retrieve the sediment sample. As applicable, tilt the sampling equipment at a slight angle in the upstream direction to minimize the disturbance and to avoid losing the sediment. If additional sediment is needed to provide sufficient sample volume, repeat this step. Occasionally sediments lack cohesiveness and are subject to falling out of the sampler. The use of core catchers on the leading end of the sampler may help retain the sample until it is retrieved to the surface; core catchers must be evaluated for compatibility with the proposed analytical program before use.

Withdraw the sampling equipment from the interval, open the sampler (as appropriate), and collect the sample safely (e.g., avoid entering an excavation by collecting the sample from an excavator bucket at ground surface). Samples collected from an excavator bucket should be taken from the center of the material to ensure material is representative of the desired sampling interval.

Recovered sediment should be placed on plastic sheeting in a consistent manner such that the orientation of the sample (i.e., which end is “up”) and the depth interval is readily apparent to the sampling personnel. Measure the length of the material recovered relative to the interval the sampler was advanced in percent notation (e.g., 75%) or as a fraction of the total length of the sample interval (e.g., [3/4] indicating 3 out of 4 feet) and record this information in the field book. If field screening for organic vapors is required, scan the recovered sediments quickly with the appropriate air quality monitoring equipment (e.g., PID), or for sediment cores break or cut the sediment every 3 to 4 inches and quickly scan the breaks in the core material with the appropriate air quality monitoring equipment (e.g., PID). Record the readings and approximate depth in the field book. These measurements can be used to select appropriate waste material samples for VOC or headspace analysis, if required (see procedures below).

### 10.5.1 UNDISTURBED SAMPLE COLLECTION

Undisturbed sediment samples collected for geotechnical parameters (e.g., porosity, permeability) generally require the use of specialized undisturbed sampling equipment (e.g., Shelby tube or sealed direct-push acetate liner) and collection procedures. The sampling device, once retrieved, is typically capped or sealed (to maintain the sample in its relatively undisturbed state), labeled with the sample name, orientation of the sample (i.e., top and bottom), depth interval, and shipped to the appropriate geotechnical laboratory. Follow sample labeling, preparation, and shipping procedures in SOPs 3 and 4.

### 10.5.2 INTERSTITIAL WATER

Interstitial water, or pore water, is the water occupying the space between sediment particles. It can be isolated to provide either a matrix for toxicity testing or an indication of the concentration and partitioning of contaminants with a sediment matrix. Interstitial water samples may be collected in the field using any available technology that will preserve the integrity of the analytes of interest during collection (e.g., temporary well) or extracted in the laboratory from field-collected sediments. Sandy sediments retain less water than fine sediments do; thus, the substrate type will dictate the amount of additional sample needed. In all cases, consult the laboratory conducting the analyses to provide estimates of the amount of sediment necessary to obtain the desired quantity of pore water.

If necessary, conduct field tests or screening of sediments in accordance with the project-specific work plan and manufacturer's specifications for field testing equipment.

### 10.5.3 VOLATILE ORGANIC COMPOUND SAMPLING

Analytical samples for VOC analysis should be collected immediately after screening with the PID to avoid loss of the constituents to the atmosphere. Transfer the sediment from the center portion of the sample interval to be sampled directly into the sample containers; do not homogenize sediments for VOC analysis. Place the sediment in the sampling container such that no headspace is present above the sediment when the cover is placed on the jar. If sampling by US Environmental Protection Agency Method 5035 is required, follow manufacturer's specifications to use a closed-system sampler (e.g., Encore® samplers). Collect quality assurance/quality control (QA/QC) samples in accordance with SOP 4 and the project-specific work plan or QAPP.

### 10.5.4 SEDIMENT HEADSPACE ANALYSIS

Although headspace analysis is typically not performed on saturated sediments, other sediments, such as those from pipes and pits, may be appropriate for headspace analysis.

Collect sediment samples for field-based headspace analysis, if required as part of the project-specific work plan, after collecting the VOC sample. First, examine the sediment and remove coarse gravel, organic material (e.g., roots, grass, and woody material) and any other debris. Collect the sample using decontaminated or dedicated spoons or trowels and place in a heavy-duty zipper-style plastic bag and seal the bag. Label the sample indicating the sampling location, depth, and date. Shake the sample vigorously for approximately 15 seconds to disaggregate the sample and expose as much surface area of the sediment as possible (to release the VOCs to the atmosphere within the bag). If necessary, warm the sample to room temperature (70º Fahrenheit, [ºF]) by placing the bag in a heated room or vehicle. This step is critical when the ambient temperature is below 32ºF.

VOCs, if present, will volatilize into the sealed bag. Allow the bag to stand (to achieve equilibrium) for approximately 15 minutes. Carefully open the bag slightly and place the tip of the PID into the opening. Do not insert the tip of the probe into the sediment and avoid the uptake of water droplets. Record the highest meter response, which typically occurs within the first 2 to 5 seconds. Erratic PID response may result from high organic vapor concentrations or elevated headspace moisture. If these conditions exist, qualify the headspace data in the field book. It is also important to record the ambient temperature, humidity, and whether moisture was present in plastic bag. Duplicate 10% of the headspace samples by collecting two samples from the same location. Generally, duplicate sample values should be consistent to ±20%. Samples collected for headspace screening cannot be retained for laboratory analysis.

## 10.5.5 SEMI- AND NON-VOLATILE ANALYTICAL SAMPLE COLLECTION

For metal sulfide analysis, sediment should be maintained in conditions to limit exposure to oxygen. Samples should be collected immediately and stored with zero headspace.

Collect remaining organic samples then inorganic samples in the following order of volatilization sensitivity:

- Extractable organics, petroleum hydrocarbons, aggregate organics, and oil and grease
- Metals
- Inorganic non-metallic and physical and aggregate properties
- Microbiological samples
- Radionuclides

If homogenization is required, mix the sediments (using stainless steel bowls and spoons, or other appropriate equipment) to a homogeneous particle size and texture. Transfer the sediments from the sampler or mixing bowl to the sample container using a decontaminated or dedicated stainless steel spoon or spatula. Collect QA/QC samples in accordance with SOP 4, the project-specific work plan, and the QAPP.

If approved by the appropriate regulatory agency and specified in the project-specific work plan, composite sediment samples can be collected to minimize the total number of analytical samples. Composite samples consist of equal aliquots (same sample size) of waste material from each location being sampled (e.g., from multiple areas of a site), by mixing the waste to a homogeneous particle size and texture using new or decontaminated stainless steel bowls and a stainless steel spoon or trowel. Transfer the contents to the appropriate laboratory-supplied sample container using a stainless steel spoon. Collect QA/QC samples in accordance with SOP 4 and the project specific work plan or QAPP, if required.

## 10.5.6 NON-AQUEOUS PHASE LIQUID SAMPLING PROCEDURES

Non-aqueous phase liquids (NAPL) are not typically collected from sediments. However, if NAPL samples are required, the sampling options and techniques should be discussed with the assigned company compliance professional and project manager to ensure that the NAPL is not considered to be a hazardous material for the purpose of shipping to the laboratory (SOP 3). Samples of NAPL should be collected using the same procedures as above and placed in the appropriate laboratory-supplied containers, packed on ice, and shipped to the analytical laboratory using procedures outlined in SOP 3.

## 10.5.7 SAMPLE LABELING AND PREPARATION FOR SHIPMENT

Once collected, prepare the samples for laboratory analysis:

1. Clean the outside of the sample container with paper towels or appropriate materials, if necessary
2. Affix a sample tag or label to each sample container and complete all required information (sample number, date, time, depth interval, sampler's initials, analysis, preservatives, place of collection)
3. Place clear tape over the tag or label (if non-waterproof labels are used)
4. Preserve samples immediately after collection by placing them into an insulated cooler filled with bagged wet ice to maintain a temperature of approximately 4°Celcius
5. Record the sample designation, date, time, depth interval, and the sampler's initials in the field book and on a sample tracking form, if appropriate
6. Complete the chain-of-custody forms with appropriate sampling information, including:
   - Location
   - Sample name
   - Sample collection date and time
   - Number of sample containers
   - Analytical method
7. Complete sample packing and ship in accordance with proper procedures

***Do not ship hazardous waste samples without first consulting a company compliance professional.***

## 10.5.8 SEDIMENT CLASSIFICATION

Sediment classification should be performed whenever samples are being collected to provide context for the analysis. Unless required to follow a different soil classification (e.g., US Department of Agriculture), follow the Unified Soil Classification System (USCS) logging procedures as described in ATSM D2488[1] . The emphasis of sediment classification in the field must be on describing the sediments using ALL possible descriptors; categorization of the USCS group name or symbol alone may not provide details that could later prove useful. Avoid geologic interpretation or the use of local formation names, if applicable, which are often difficult to determine in the field without the regional framework. Record ALL of the following information for each sediment type:

- Depth interval
- USCS group name (e.g., lean clay, elastic silt, well-graded gravel)
- USCS group symbol (e.g., cl, mh, gw)
- Color, using Munsell chart (in moist condition)
- Percent of cobbles or boulders, or both (approximate; by volume)
- Percent of gravel, sand, or fines, or all three (approximate; by dry weight)
- Particle-size range:
- Gravel—fine, medium, coarse
- Sand—fine, medium, coarse
- Fines – clay or silt
- For gravel and sand:
- Particle angularity: angular, subangular, subrounded, rounded
- Particle shape: (if appropriate) flat, elongated, flat and elongated
- Maximum particle size or dimension
- Hardness of coarse sand and larger particles
- For clay and silt:
- Plasticity: non-plastic, low, medium, high
- Dry strength: none, low, medium, high, very high
- Dilatancy: none, slow, rapid
- Toughness: low, medium, high
- Odor (mention only if organic or unusual; factual descriptions only, no interpretations)
- Moisture: dry, moist, wet
- Additional comments: presence of roots or root holes, presence of mica, gypsum, etc., surface coatings on coarse-grained particles, caving or sloughing of auger hole or trench sides, difficulty in augering or excavating, etc.

For intact samples also include:

- Consistency (fine-grained [clay] soils only): very soft, soft, firm, hard, very hard
- Structure: stratified, laminated, fissured, lensed, homogeneous
- Cementation: weak, moderate, strong

Use the following standard descriptors for the textural percentages:

- Trace: <5%[2]
- Few: 5-10%
- Little: 15-25%
- Some: 30-45%
- Mostly: 50-100%

[1] Note that certain states/regulatory programs may require classification under a secondary system (e.g., US Department of Agriculture) or the use of a hydrochloric acid to reaction test (none, weak, strong).

[2] The use of "Trace" for describing the fraction of clay soils is inappropriate for field-based logs as clay contents of less than 20% in fine-grained soils cannot be reliably determined in the field.

Example descriptions, using the information listed above, would read as follows:

- 8-10' – Well Graded Sand, SW (5YR 2/6) fine- to medium-grained sand, trace medium sub-angular rounded gravel (less than 0.5-inch diameter); medium dense to dense; wet; moderate petroleum-like odor between 9 feet bgs and 10 feet bgs.
- 10-12' – Lean Clay with Gravel, CL (5YR 2/6) some fine- to coarse-grained angular to subangular gravels (less than 0.25-inch diameter), trace fine- to medium-grained rounded sands; very stiff; low plasticity; low dry strength; no dilatancy; moist; no odors.

## 10.6 CLOSING NOTES

Once sampling is completed, restore and mark all sample locations with spray paint, stakes, or other appropriate marker for future reference or survey, including collecting Global Positioning System coordinates and photographs, in accordance with the project-specific work plan. Decontaminate all equipment prior to departure and properly manage all PPE and IDW in conformance with SOP 6, the project-specific work plan, and applicable regulations.

# FIELD STANDARD OPERATING PROCEDURE #11

# GROUNDWATER SAMPLING PROCEDURE

Groundwater sampling procedures outlined in this Standard Operating Procedure (SOP) are designed to ensure that collected samples are representative of current site conditions. These procedures can be applied to permanently or temporarily installed monitoring wells, direct-push sample points, water supply wells with installed plumbing, extraction wells for remedial groundwater treatment systems, and excavations where groundwater is present. The user is advised to read the entire SOP and review the site health and safety plan (HASP) and/or project safety plan (PSP) before beginning any onsite activities. In accordance with the HASP, proper personal protective equipment (PPE) must be selected and used appropriately.

## 11.1 ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ID | inside diameter |
| DI | deionized |
| DNAPL | dense non-aqueous phase liquid |
| DO | dissolved oxygen |
| DTW | depth-to-water |
| HASP | health and safety plan |
| IDW | investigation-derived waste |
| l/min | liters per minute |
| LNAPL | light non-aqueous phase liquid |
| mg/l | milligrams per liter |
| mV | millivolts |
| NAPL | non-aqueous phase liquid |
| NTU | nephelometric turbidity unit |
| ORP | oxygen reduction potential |
| PID | photoionization detector |
| PPE | personal protective equipment |
| PSP | project safety plan |
| QAPP | quality assurance project plan |
| SOP | standard operating procedure |
| SU | standard units |
| TD | total depth |
| TOC | top-of-casing |
| VOCs | volatile organic compounds |

## 11.2 MATERIALS

- Field book
- PPE
- Air quality monitoring equipment (e.g., photoionization detector [PID]) with calibration reagents and standards, as needed
- Electronic water level indicator or interface probe
- Water quality meter(s) with a flow-through cell, and calibration reagents and standards, as needed
- Field test kits, as needed
- Adjustable wrench or manhole wrench, as needed
- Well key(s), as needed
- Power supply, as needed
- Sampling containers and labeling/shipping supplies
- Deionized (DI) water
- Container(s) for water storage (e.g., bucket, drum)
- Pump or bailers, tubing, and associated lanyard materials
- Filters, as needed
- Decontamination supplies

## 11.3 PRECONDITIONS AND BACKGROUND

This SOP has been prepared as part of the company's Environmental Quality Management Plan and is designed to provide detailed procedures for common field practices. Compliance with the methods presented in this document is mandatory for all field personnel and will ensure that the tasks are performed in a safe, consistent manner; are in accordance with federal and state guidance; and are technically defensible.

This SOP is written for the sole use of company employees and will be revised periodically to reflect updates to company policies, work practices, and the applicable state and/or federal guidance. Employees must verify that this document is the most recent version of the company SOPs. Employees are also strongly advised to review relevant state and/or federal guidance, which may stipulate program-specific procedures, in advance of task implementation.

WSP requires that all personnel performing specific project assignments be appropriately qualified, including having required certifications or licenses, and properly trained in accordance with the requirements of their assignment, the Environmental Service Line's field SOPs, and the Quality Management System.

This SOP is designed to provide the user with a general outline for conducting groundwater sampling and assumes the user is familiar with basic field procedures, such as recording field notes (SOP 1), utility location (SOP 2), sample shipment procedures (SOP 3), sample collection and quality assurance procedures (SOP 4), investigation derived waste (IDW) management procedures (SOP 5), equipment decontamination (SOP 6), and use and calibration of all sampling and monitoring equipment (SOPs 7 and 8). This SOP does not cover investigation planning, nor does it cover the analysis of the analytical results. These topics are more appropriately addressed in a project-specific work plan. Before groundwater sampling, be sure to review the project-specific work plan or quality assurance project plan (QAPP) and any applicable state and federal guidelines or sampling procedures. All sampling and monitoring references must be available for consultation in the field, including:

- Company SOPs
- Applicable state and federal guidelines or sampling procedures
- Manufacturer's manuals
- Project-specific work plan, PSP and/or HASP, and QAPP

## 11.4 GENERAL PROCEDURES

Although the techniques used to sample groundwater are varied, most sampling events can be broken down into a three-step sequence:

1. Gauging: The measurement of the water column height (i.e., total well depth less depth-to-water) within the well.

2 Purging: The removal of stagnant water from the well bore to ensure that samples collected are representative of groundwater conditions in the water-bearing zone surrounding the well.
3 Sample Collection: After purging, the collection of aliquots of groundwater in method-specific, preserved (as needed) containers.

The procedures and equipment that are used to accomplish these steps are project-specific and should be discussed by the project team before arriving onsite. All types of groundwater sampling, however, regardless of the equipment used, share common handling and management procedures that are designed to ensure the integrity of the samples collected. These procedures include:

— The use of new, disposable, decontaminated, or dedicated sampling equipment
— The use and rotation of the appropriate PPE
— Selection of a suitable sampling location and staging area

Wear a clean pair of new, disposable gloves each time a different sample is collected and don the gloves immediately prior to collection. This limits the possibility of cross-contamination from accidental contact with gloves soiled during collection of the previous sample. The gloves must not contact the medium being sampled and must be changed any time during sample collection when their cleanliness is compromised. ***Gloved hands should not be used as a sampling device; always use the appropriate equipment to move the sample from the sampling device to the laboratory-supplied containers.***

## 11.5 EQUIPMENT SELECTION

Collect all samples using either new, disposable equipment or properly decontaminated sampling equipment. Groundwater purging and sampling equipment should be selected based on the analytical requirements of the project and the project-specific conditions (e.g., well diameter, depth to water, dissolved constituents, etc.) likely to be encountered. The equipment should be constructed of non-reactive, non-leachable materials (e.g., stainless steel, Teflon®, Teflon®-coated steel, polyethylene, polypropylene, etc.) that are compatible with the chemical constituents at the site. Note that project or regulatory guidance may limit the type of equipment for groundwater sampling.

Consider the following when choosing groundwater purging and sampling equipment:

— the diameter and depth of the well
— the depth to groundwater
— the volume of water to be withdrawn
— the sampling and purging technique
— the volume of sample required
— the analytes of interest

Select the decontamination procedures based on the types of sampling to be performed and media encountered; decontamination may require multiple steps or differing cleaning methods (see SOP 6 for decontamination procedures). In no case, should disposable, single-use materials be used to collect more than one sample.

## 11.6 PRE-SAMPLING CONSIDERATIONS

You should perform the following activities in preparing for sampling with all observations and measurements noted in the field book and on the project-specific groundwater monitoring log, if appropriate:

— Perform a quick reconnaissance of the site to identify sampling locations and evaluate the accessibility to the sampling location.
— Record the approximate ambient air temperature, precipitation, wind (direction and speed), tide, and other field conditions. In addition, any site-specific conditions or situations that could potentially affect the samples at the sample locations should be recorded.
— Record temporary sampling locations with respect to approximate distance to and direction from at least one permanent feature.
— Survey the breathing zone around the sampling location with the appropriate air quality meter(s), as necessary (see HASP), to ensure that the level of PPE is appropriate.
— Install the pump, tubing, passive sampler or other appropriate sampling equipment to the depth prescribed in the project-specific work plan or QAPP.

- Containerize and manage purge water in accordance with the project-specific work plan.

It is important to minimize any sources of cross-contamination that could compromise the integrity of the groundwater samples. Consider the following:

- Position fuel-powered equipment away from the sample collection area, such as drill rigs or excavators, and upwind of other site activities (e.g., purging, sampling, decontamination) that could influence the sample. This is particularly important when screening samples in the field for volatile organic compounds with a PID but should not be limited to the active sample collection.
- Establish a secure sample staging area in an uncontaminated area of the site.

## 11.7 GAUGING PROCEDURES

All wells should be opened to the atmosphere in advance of sampling to allow any pressure differentials, which could artificially raise or depress the water column in the well, to dissipate. The wells should be inspected to ensure that the protective casing is intact and has not been damaged. Remove the well covers and all standing water around the top of the well casing (for flush mounted-protective covers), as necessary, before opening the inner well cap or plug. Unlock and carefully remove well cap and allow the well to stand undisturbed for a minimum of 15 minutes, or as required by the project-specific work plan, before conducting any down-hole testing or measurements. If required by the HASP, survey the open well casing and the breathing zone around the wellhead with a PID to ensure that the level of PPE is appropriate.

### 11.7.1 GROUNDWATER LEVEL AND TOTAL DEPTH MEASUREMENT PROCEDURES

Depth to water (DTW) and total depth (TD) measurements are collected prior to sampling and are used to determine the volume water to be purged from the well (if using techniques other than no-purge or low flow sampling). The DTW measurements are also used after the field event to establish the groundwater elevation, flow direction, and gradient. Unless otherwise directed, do not place any objects inside the casing of private water wells; accordingly, DTW and TD measurements should not be collected at private water wells. Measurements of TD are not required for low flow and no-purge sampling applications and should not be measured before sampling the well.

Water level measurements must be collected within the shortest interval possible from all the wells to be gauged during the event before beginning any purge and sampling procedures at the site. This will ensure a nearly instantaneous snapshot of the water levels before the formations are disturbed by pumping or acted upon by other outside influences, such as tides, precipitation, barometric pressure, river stage, or intermittent pumping of production, irrigation, or supply wells.

Record the following observations and measurements (and the time when they were collected) in the field book:

- Measure the casing inside diameter (ID) and record in inches
- Measure the DTW with an electronic water level indicator (or an interface meter, if non-aqueous phase liquid [NAPL] is potentially present – see procedures below) from the top-of-casing (TOC) at the surveyor's mark, if present, and record the depth (to the nearest 0.01 foot) in feet below TOC
- If no mark is present, measure from the north side of the casing and mark the measuring point with a knife, metal file (if the inner casing is metal) or indelible marker for future reference
- Measure the TD from TOC at the surveyor's mark or north side of the casing, as appropriate.

Measuring the depth of deep wells with long water columns can be problematic due to tape buoyancy and weight effects or sediment in the bottom of the well casing. Care must be taken, and proper equipment selection must be used in these situations to ensure accurate measurements. Multiple TD measurements in silt-laden wells can provide a more precise assessment of the bottom depth.

### 11.7.2 GAUGING WELLS WITH NON-AQUEOUS PHASE LIQUID

If NAPL is potentially present at the site, the DTW and NAPL thickness measurements are collected using an interface meter capable of distinguishing between the NAPL and the groundwater, or a weighted tape coated with the appropriate reactive indicator paste for the suspected NAPL. Measuring NAPL thicknesses must be done with care to avoid agitating the liquids and generating an emulsion. This is particularly the case for light NAPL (LNAPL; those having a density less than water), which are typically viscous oils that

cling to the probe. Oil coating the probe can result in thickness measurements that are biased high (i.e., overestimate the thickness of the NAPL).

Conduct the following procedures to ensure an accurate measurement of the NAPL thickness:

- For LNAPL, slowly lower the electronic interface probe in the well casing until the electronic tone indicates the probe is at the top of the LNAPL layer; measure the depth below the TOC to the nearest 0.01 foot.
- To gauge the NAPL thickness, advance the probe slowly through the layer until the electronic tone indicates top of the water column and then slowly bring the probe back up to the bottom of the LNAPL. Repeat this process several times to ensure an accurate measurement of the bottom of the LNAPL layer (which can include bubbles and an emulsion layer).
- For dense NAPL (DNAPL), advance the probe through the water column until the tone indicates the top of the DNAPL layer; record the depth below TOC.
- To gauge the DNAPL thickness, advance the probe through the layer to the bottom of the well.

## 11.8 GROUNDWATER PURGING PROCEDURES

Purging is a process whereby potentially stagnant water is removed allowing the collection of samples that are representative of groundwater conditions in the water-bearing zone. The water in a well bore that has not been purged may be different than the surrounding formation due to exposure to ambient air. There are several purging (and no-purge) methods that may be used, depending on specific conditions encountered (e.g., DTW, hydraulic conductivity of the formation, etc.) and the sampling requirements. The purge/no purge options are described below.

- *Multiple Volume Purge:* Traditional well purging technique that relies on the withdrawal of the volume of the well bore and the surrounding filter pack (if present); three to five well volumes are typically removed using pumps or bailers. This methodology relies on equipment that is easy to obtain and use and is generally accepted in most states as an appropriate purging method.
- *Temporary Well Purge:* A variation of the multiple volume purge technique that often uses inertia lift pumps, peristaltic pumps, or bailers to remove water from a temporary well or discrete groundwater sampler (e.g., a groundwater profiler or direct-push screen point sampler). This is a less stringent technique that is typically done to minimize the turbidity of the samples, which can be high due to the lack of a well filter pack.
- *Private Water Well or In-Place Plumbing Purge:* A variation on the multiple volume purge technique whereby a tap or faucet is opened on a fixed water supply pipe and is allowed to remain open until the potentially stagnant water within the well casing and other components of the system (e.g., fixed piping, pressure tanks, etc.) has been removed and groundwater representative of the water-bearing zone is discharged at the tap.
- *Low Flow (Minimal Drawdown/Low Stress) Purge (and Sampling):* A modified purging technique that establishes an isolated, discrete, horizontal flow zone directly adjacent to the pump intake; this method requires the pump to be placed within a screened-interval or open borehole. Pumping rates are typically 0.1 to 0.5 liters per minute (l/min) or less to minimize the stress on the surrounding formation and reduce the geochemical alteration of the groundwater caused by pumping.
- *No-Purge/Passive Sampling Techniques:* These techniques use specialized equipment, such as trap-style samplers or permeable diffusion bags, to sample the undisturbed water column within a screened interval or open borehole. This methodology assumes that the water in the well is representative of the surrounding formation. This approach is well suited for some volatile organic compounds (VOCs), metals, and hydrophobic compounds, depending on the sampling device used.

### 11.8.1 CALCULATING ONE PURGE VOLUME

Multiple volume purging techniques require that a ***minimum*** of three well volumes of water must be removed before sample collection. The actual amount of water removed may be greater than the three volumes, depending on geochemical parameter stabilization (the field measurement of these parameters is discussed below).

Calculate the volume of water in a well or boring using the following equation:

$$\textbf{Volume (gallons)} = (\textbf{TD} - \textbf{DTW}) \times \textbf{ID}^2 \times \textbf{0.041}$$

where:

TD = total depth (feet)

DTW = depth to water (feet)

ID = inner diameter (inches)

Alternately, the volume of water in a well or boring may also be calculated by multiplying the water column height by the gallons per foot of water for the appropriate well or boring diameter:

| ID | Gallons per foot of water | Gallons per three water columns |
|---|---|---|
| 1-inch | 0.04 | 0.12 |
| 2-inch | 0.16 | 0.48 |
| 3-inch | 0.37 | 1.11 |
| 4-inch | 0.65 | 1.98 |

Calculate the total volume of the pump, associated tubing and container for in situ measurements (flow-through cell), using the following equation:

**Volume (in gallons) = P + ((0.0041)*D2*L) + fc**

where:

P = volume of pump (gallons)
D = tubing diameter (inches)
L = length of tubing (feet)
fc = volume of flow-through cell (gallons)

## 11.8.2 MULTIPLE VOLUME PURGE PROCEDURES

Begin purging at a rate that will not cause excessive turbulence and drawdown in the well; commonly less than 1 gallon per minute for a typical 2-inch diameter monitoring well. You may need to observe the water elevation after the pump is started and adjust the flow rate to minimize the amount of drawdown in the well casing. The objective is to remove the stagnant water in the casing and surrounding filter pack or open borehole allowing water from the surrounding water-bearing zone to enter the well for sampling with as little disturbance as possible. Excessive pump rates or well dewatering can result in higher turbidity, potential volatilization, and geochemical alteration of dissolved parameters.

Typically collect geochemical parameters (i.e., pH, specific conductance, dissolved oxygen [DO], oxygen-reduction potential [ORP], and temperature) at a minimum frequency of once for every well volume of water removed during the purge process. Record the measurements in the field book along with any other pertinent details, such as the visual quality of the water (e.g., color, odor, and presence of suspended particulates) and the approximate withdrawal rate (this can be estimated using a calibrated container and stopwatch). Review the geochemical measurements to ensure that readings have stabilized (after the minimum purge volume has been achieved). This is a proxy for determining that you are purging formation water rather than potentially stagnant water in the casing. Stabilization occurs when at least three consecutive measurements are within the following tolerances:

| Multiple Volume Purge Stabilization Parameters | |
|---|---|
| pH | ± 0.1 standard units (SU) |
| Specific Conductance | ± 3% |
| Temperature | ± 3% |
| Dissolved Oxygen (DO) | ± 0.2 milligrams per liter (mg/l) or 10% (flow-through cell only) |
| Turbidity | ± 10% for values greater than 10 nephelometric turbidity units (NTU) |
| Oxygen Reduction Potential (ORP) | ± 10 millivolts (mV; flow-through cell only) |

Parameter stabilization that does not occur within five well volumes may require you consult your project manager to decide whether to collect a sample or to continue purging. Wells with extremely slow recharge may also be problematic. Purging these wells, in some cases, may result in dewatering the well before the minimum purge can be completed. Allow wells or borings purged dry to recharge to a level of approximately 90% of the static (pre-purge) water elevation and proceed immediately to sample collection. If recovery exceeds 2 hours, sample as soon as sufficient sample volume is available, in accordance with applicable regulations.

### 11.8.3 LOW FLOW PURGE PROCEDURES

Low flow purging and sampling is used to obtain representative groundwater samples without removing all the water within the well. The protocol uses relatively low pumping rates (i.e., less than 0.5 l/min) to establish an isolated zone around the inlet of the pump where flow is horizontal (i.e., from the water bearing zone) rather than from the stagnant water in the well casing above and below the pump. Selection of an appropriate pump is critical to establishing the flow zone: it must be well suited for both low pumping rates and the analytes being sampled. Bailers are not appropriate for low flow sampling.

The set-up for low flow sampling includes positioning the pump at the appropriate depth within the casing such that the pump inlet is within the screened section of the well. Slowly lower the pump, where appropriate, and tubing into the water column to avoid agitating the water column; use of a lanyard is recommended (i.e., do not use the extraction tubing to lift or lower the pump). Secure the pump and/or tubing at the wellhead once the specified sampling depth has been achieved and record the depth in the field book. Avoid contacting the bottom of the well by using pre-cut tubing at the appropriate length or by lowering the pump/tubing simultaneously with an electronic water level indicator. Once the pump/tubing has been inserted and secured, allow the water levels to return to static conditions before initiating the purge.

The discharge tubing must be connected to an in-line flow-through cell equipped with a multi-parameter real-time water quality meter. The flow-through cell minimizes the exposure of the groundwater to ambient air, which can influence DO and ORP measurements.

Start the pump and maintain a steady flow rate that results in a stabilized water level (less than 0.3 feet of drawdown or as specified in the project-specific work plan). The pumping rate may need to be adjusted depending on the response of the water levels in the well. Record each adjustment made to the pumping rate and the water level measured immediately after each adjustment. Purging should not exceed 0.5 l/min.

During purging, monitor and record the flow rate and geochemical parameters at 30 seconds to 5-minute intervals (depending on the hydraulic conductivity of the aquifer, diameter of the well, and pumping rate). Stabilization occurs once the following criteria have been met over three successive measurements made at least three minutes apart:

| Low Flow Purge Stabilization Parameters | |
|---|---|
| Water Level Drawdown | <0.3 feet |
| pH | ± 0.1 SU |
| Specific Conductance | ± 3% |
| Temperature | ± 3% |
| DO | ± 0.2 mg/l or 10% (flow-through cell only) |
| Turbidity | ± 10% for values greater than 10 NTU |
| ORP | ± 10 mV (flow-through cell only) |

Record any other notable observations in the field book (e.g., groundwater color).

## 11.8.4 NO-PURGE SAMPLING TECHNIQUES

Several alternate sampling devices are available, such as equilibrated grab samplers, passive diffusion samplers, and other in situ sampling devices, that will allow sample collection without purging the well. These devices may be particularly useful for sampling low permeability geologic materials, assuming the device is made of materials compatible with the analytical parameters, meets data quality objectives, and has been properly evaluated.

No-purge grab or trap samplers are placed in the well before sampling and typically remain closed (i.e., no water is allowed into the sampler during insertion) until the sampler is activated. This allows the sampler device to equilibrate with the surrounding groundwater (to prevent adsorption to the sampler materials) and for the groundwater to recover and re-establish the natural flow after the disturbance caused by the sampler insertion into the well. Typical equilibration times depend on the well recovery rates and the type of sampler used. Samples recovered using the no-purge devices are either transferred to containers at the well head or the sampler itself is shipped to the laboratory for analysis. Examples of equilibrated grab samplers include HydraSleeve™, Snap Sampler™, and Kemmerer samplers.

Equilibration time for diffusion samplers are generally dictated by the diffusion rate through the permeable membrane and, thus, are less sensitive to changes induced within the well during deployment. Most diffusion bag samplers have a minimum equilibration time of 14 days prior to sample collection. The samplers may be deployed for an extended period (e.g., three months or longer), although the continuous exchange between the sampler and the well water means that the sampler will likely reflect only the conditions in the few days preceding the sample collection.

## 11.8.5 TEMPORARY WELL PURGE PROCEDURES

Procedures used to purge temporary groundwater monitoring wells differ from permanent wells because temporary wells are installed for immediate sample acquisition. Wells of this type may include open bedrock boreholes, standard polyvinyl chloride well screen and riser placed in open boreholes, or drilling rod-based sampling devices (e.g., Wellpoint®, Geoprobe® screen point or Hydropunch® samplers). Purging temporary wells of this type may not be necessary because stagnant water is typically not present. However, if water is used in the drilling process, purging would be necessary. Purging can minimize the turbidity in the sample, which can be significant due to the disturbance caused by the sampler installation and to rinse the sampling system with groundwater. The exception is for groundwater profiling applications (e.g., using a Waterloo Profiler®) where a more rigorous purge is used (using the multiple volume purge techniques described above) to limit the potential for cross-contamination between sample intervals.

## 11.8.6 PRIVATE WATER WELL OR IN-PLACE PLUMBING PURGE PROCEDURES

The configuration and construction of private water wells varies widely and access points for obtaining groundwater samples may be limited. WSP personnel should coordinate with the property owner or site representative to access functioning ports and valves to avoid causing any inadvertent damage.

Collect the groundwater sample as close to the well as possible (e.g., from a sample port at the well head) to ensure the sample is representative. Ideally, the sample should be collected upstream of the piping and treatment equipment (e.g., particulate filter, water softener, carbon filters, ultra-violet lights), heating unit, or storage tanks. The following potential sampling locations are presented in order of preference:

- Sampling port or spigot near the well head or piping system prior to entry into the storage tank
- Sampling port or spigot at storage tank
- Sampling port or spigot downstream of the pressure tank or holding tank but upstream of any water treatment equipment
- Tap or faucet

If purging from a tap or faucet, try to remove any aerators, filters, or other devices from the tap before purging and work with the property owner or site representative to bypass any water treatment systems. Document where the sample was collected and any steps that were taken to minimize the potential alteration of the water sample in the field book.

Purge the system by opening the tap or spigot and allowing the water to run for several minutes. Observe and record the purge rate for the system. The minimum purge volume must be more than the combined volume of the pump, tanks, piping, etc. Review the geochemical measurements (after the minimum purge volume has been removed) to ensure that readings have stabilized using the same procedures as those used for the multiple volume purge detailed above. Purge the system for a minimum of 15 minutes if the minimum volume is unknown. Sample only after the geochemistry parameters have stabilized and no there are no suspended particles (e.g., iron or rust) visible. Record the final purge volume in the field book and any water quality observations.

## 11.9 GROUNDWATER SAMPLE COLLECTION PROCEDURES

Collect groundwater samples as soon as possible after the geochemical parameters indicate representative groundwater is present. As practically possible, reduce the pump flow rate, but maintain a flow rate high enough to deliver a smooth stream of water without splashing or undue agitation. Collect samples directly from the tubing as it exits the well bore; do not sample on the downstream side of flow-through cells or any other instrumentation. If using a bailer for sample collection, lower and raise the bailer slowly and smoothly to minimize the disturbance to the water within the well.

Collect groundwater samples in order of volatilization sensitivity with organic compounds sampled first followed by inorganic compounds:

- VOCs
- Extractable organics, petroleum hydrocarbons, aggregate organics, and oil and grease
- Per- and Polyfluoroalkyl substances
- Total metals
- Dissolved metals (see filtering procedures below)
- Inorganic non-metallic and physical and aggregate properties
- Microbiological samples
- Radionuclides

Collect quality assurance/quality control samples in accordance with SOP 4 and the project-specific work plan or QAPP.

As necessary, conduct field tests or screening in accordance with the project-specific work plan and manufacturer's specifications for field testing equipment. Field samples must be directly transferred from the sampling equipment to the container that has been specifically prepared for that given parameter; intermediate containers should be avoided. If field chemical preservation is required, check the pH preservation by pouring a small portion of sample onto a pH test strip Adjust pH with additional preservative, if necessary.

Record the sample depth interval, if applicable, in the field book. Note the volume, phases, odor, and color of the groundwater.

### 11.9.1 GROUNDWATER FILTRATION PROCEDURES

Filtered groundwater samples are sometimes used for field kit analyses and should only be collected for laboratory analysis after approval from the appropriate regulatory agency or project manager. The filtered samples can be collected by attaching the in-line filter directly to the outlet tubing for a pressurized bailer, a submersible pump or a peristaltic pump. Intermediate containers can be used with a peristaltic pump if the well is too deep to use the pump to recover the sample directly. The intermediate container should be unpreserved laboratory-supplied glassware to avoid any cross-contamination during the filtering process.

Filtered samples using pumps should use the following procedures:

- Use a variable speed peristaltic pump with the in-line filter fitted on the outlet end of the tubing and the pump inlet tubing into the intermediate container holding the unpreserved groundwater sample; or,
- If a submersible pump is used to collect the groundwater sample, attached the in-line filter to the outlet end of the tubing (do not allow the groundwater to pass through flow-through cells or any other instrumentation while sampling)

Once the filter is connected:

- Turn on the pump and maintain a flow rate high enough to deliver a smooth stream of water without splashing or undue agitation. Hold the filter upright with the inlet and outlet in the vertical position and pump groundwater through the filter until all atmospheric oxygen has been removed and the minimum volume of water has been flushed through the filter, in accordance with the manufacturer's specifications
- Collect the filtered samples by placing the filtered output directly into the sample container
- If sediment is visible in the sample container after filtration, filter break-through has occurred and the sampling and filtering process should be repeated
- Discard the tubing and filter appropriately

Record sample filtration in the field book.

### 11.9.2 NON-AQUEOUS PHASE LIQUID SAMPLING PROCEDURES

Non-aqueous phase liquid is typically sampled to identify the compound, usually through an analytical "fingerprint" analysis. If samples are to be collected, the sampling options and techniques should be discussed with the assigned WSP compliance professional and project manager to ensure that the NAPL is either not considered to be a hazardous material for shipping to the laboratory or is properly shipped by qualified personnel using appropriate shipping containers (SOP 3). Samples of NAPL should be collected using the same procedures as above and placed in the appropriate laboratory-supplied containers, packed on ice, and shipped to the analytical laboratory using procedures outlined in SOP 3.

### 11.9.3 SAMPLE LABELING AND PREPARATION FOR SHIPMENT

Groundwater samples for offsite laboratory analysis should be prepared as follows:

1. Clean the outside of the sample container, if necessary
2. Affix a sample tag or label to each sample container and complete all required information (sample number, date, time, sampler's initials, analysis, preservatives, place of collection)
3. Place clear tape over the tag or label (if non-waterproof labels are used), as needed
4. If needed, preserve samples immediately after collection by placing them into an insulated cooler filled with bagged wet ice to maintain a temperature of approximately 4°Celcius
5. Record the sample designation, date, time, and the sampler's initials in the field book and on a sample tracking form, if appropriate
6. Complete the chain-of-custody forms with appropriate sampling information, including:
   - location
   - sample name
   - sample collection date and time
   - number of sample containers

- analytical method
- field filtration status

7 Secure the sample packing and shipping in accordance with proper procedures

***Do not ship hazardous waste samples without first consulting a WSP compliance professional.***

## 11.10 CLOSING NOTES

Secure and restore the site once sampling is completed. This may include locking permanent monitoring wells, staging the IDW, and disposing of (in conformance with applicable regulations) sampling expendables, such as plastic sheeting, tubing, and PPE. All locations where temporary wells or other sampling devices (e.g., profilers or direct-push equipment) should be marked with spray paint, stakes, or other appropriate method for future reference or survey, including collecting Global Positioning System coordinates and photographs, in accordance with the project-specific work plan. Decontaminate all equipment prior to departure and properly manage all PPE and investigation-derived wastes in conformance with SOP 6, the project-specific work plan, and applicable regulations.

# FIELD STANDARD OPERATING PROCEDURE #12

# SURFACE WATER SAMPLING PROCEDURE

Surface water sampling procedures outlined in this Standard Operating Procedure (SOP) are designed to ensure that surface water samples are representative of the water body from which they were collected and that they have not been altered or contaminated by the sampling and handling methods. Potential surface water sample locations include freshwater and marine environments such as streams, rivers, ponds, lakes, canals, ditches, wetlands, lagoons, and estuaries. Surface water samples are collected for onsite screening or for offsite laboratory analysis. The user is advised to read the entire SOP and review the site health and safety plan (HASP) and/or project safety plan (PSP) before beginning any onsite activities. In accordance with the HASP or PSP, proper personal protective equipment (PPE) must be selected and used appropriately.

## 12.1 ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| HASP | health and safety plan |
| IDW | investigation derived waste |
| NAPL | non-aqueous phase liquid |
| PPE | personal protective equipment |
| PSP | project safety plan |
| QAPP | quality assurance project plan |
| SOP | standard operating procedure |

## 12.2 MATERIALS

- Field book
- PPE
- Air quality monitoring equipment (e.g., photoionization detector [PID]) with calibration reagents and standards, as needed
- Electronic water level indicator or interface probe
- Water quality meter(s) with calibration reagents and standards, as needed
- Field test kits, as needed
- Power supply, as needed
- Sampling containers and labeling/shipping supplies
- Hip-waders or rubber boots, as needed
- Personal flotation device, as needed
- Expanding ruler or tape measure
- Surface sampler (e.g., dipper, pump, bailer, composite sampler)
- Tubing, as needed
- Lanyard materials (e.g., nylon rope, steel cable), as needed
- Filters, as needed
- Decontamination supplies

## 12.3 PRECONDITIONS AND BACKGROUND

This SOP has been prepared as part of the company's Environmental Quality Management Plan and is designed to provide detailed procedures for common field practices. Compliance with the methods presented in this document is mandatory for all field personnel

and will ensure that the tasks are performed in a safe and consistent manner, are in accordance with federal and state guidance, and are technically defensible.

This SOP is written for the sole use of company employees and will be revised periodically to reflect updates to company policies, work practices, and the applicable state and/or federal guidance. Employees must verify that this document is the most recent version of the company's SOPs. Employees are also strongly advised to review relevant state and/or federal guidance, which may stipulate program-specific procedures, in advance of task implementation.

WSP requires that all personnel performing specific project assignments be appropriately qualified, including having required certifications or licenses, and properly trained in accordance with the requirements of their assignment, the Environmental Service Line's field SOPs, and the Quality Management System.

This SOP is designed to provide the user with a general outline for conducting groundwater sampling and assumes the user is familiar with basic field procedures, such as recording field notes (SOP 1), sample shipment procedures (SOP 3), sample collection and quality assurance procedures (SOP 4), investigation derived waste (IDW) management procedures (SOP 5), equipment decontamination (SOP 6), and use and calibration of all sampling and monitoring equipment (SOPs 7 and 8). This SOP does not cover investigation planning, nor does it cover the analysis of the analytical results. These topics are more appropriately addressed in a project-specific work plan. Before sampling, be sure to review the project-specific work plan or Quality Assurance Project Plan (QAPP) and any applicable state and federal guidelines or sampling procedures.

All sampling and monitoring references must be available for consultation in the field, including:

- Company SOPs
- Applicable state and federal guidelines or sampling procedures
- Manufacturer's manuals
- Project-specific work plan, PSP and/or HASP, and QAPP

## 12.4 GENERAL PROCEDURES

Although the sampling equipment and techniques used to sample surface water are varied, most sampling can be broken down into a two-step sequence:

1. Gauging: provides an indication of the surface water elevation
2. Sample Collection: collection of aliquots in method-specific, preserved (as needed) containers that are representative of the conditions in the surface water body

Be aware that stagnant and moving water bodies may require varying the sampling order and could also require concurrent monitoring and recording of geochemical parameters to assist with identifying a sample interval. Follow your project-specific work plan to accommodate any variances in sampling order.

The procedures and equipment that are used to accomplish these steps are project-specific and should be discussed by the project team before arriving onsite. All types of surface water sampling, regardless of the equipment used, share common handling and management procedures that are designed to ensure the integrity of the samples collected. These procedures include:

- The use of new, disposable or decontaminated sampling equipment
- The use, changing, and disposal of the appropriate PPE
- Selection of a suitable sampling location and staging area

Wear a clean pair of new, disposable gloves each time a different sample is collected and don the gloves immediately prior to collection. This limits the possibility of cross-contamination from accidental contact with gloves soiled during collection of the previous sample. The gloves must not contact the medium being sampled and must be changed any time during sample collection when their cleanliness is compromised. ***Gloved hands should not be used as a sampling device; always use the appropriate equipment to move the sample from the sampling device to the laboratory-supplied containers.***

## 12.4.1 EQUIPMENT SELECTION

Collect all samples using either new, disposable equipment, or properly decontaminated sampling equipment. Surface water gauging and sampling equipment should be selected based on the analytical requirements of the project and the project-specific conditions (e.g., water body depth, sample volume, chemical constituents in sample water, etc.) likely to be encountered. The equipment should be constructed of non-reactive, non-leachable materials (e.g., stainless steel, Teflon®, Teflon®-coated steel, polyethylene, polypropylene, etc.). Extension rods or other appropriate devices can be used, as necessary, to allow the sample to be collected from a distance (or through deeper water) to minimize the safety risk to the sampler. Note that project or regulatory guidance may limit the type of equipment for sampling.

Consider the following when choosing sampling equipment:

- the type and location of the surface water
- the required depth of the sample
- the volume of sample required
- the analytes of interest

Select the decontamination procedures based on the types of sampling to be performed and decontamination may require multiple steps or differing cleaning methods, depending on the sampling goals (see SOP 6 for decontamination procedures). In no case should disposable, single use materials be used to collect more than one sample.

## 12.4.2 PRE-SAMPLING CONSIDERATIONS

You should perform the following activities in preparing for sampling with all observations and measurements noted in the field book and on the project-specific groundwater monitoring log, if appropriate:

- Perform a quick reconnaissance of the site to identify sampling locations. Note that project or regulatory guidance may limit the type of equipment for surface water sampling.
- Record the approximate ambient air temperature, precipitation, wind (direction and speed), tide, and other field conditions. In addition, any site-specific conditions or situations that could potentially affect the samples at the sample locations should be recorded.
- Describe the sampling location including the width of the surface water, depth of surface water, water color and clarity (transparency), and approximate surface flow (e.g., slow, fast moving, etc.).
- Record sampling locations with respect to approximate distance to and direction from at least one permanent feature.
- Survey the breathing zone around the sampling location with the appropriate air quality meter(s), as necessary (see HASP), to ensure that the level of PPE is appropriate.

When sampling surface water, it is important to find a suitable sampling location away from any sources of cross-contamination that could compromise the integrity of the samples. Consider the following:

- Position the sample collection area away from fuel-powered equipment, such as drill rigs or excavators, and upwind of other site activities (e.g., purging, sampling, decontamination) that could influence the sample. This is particularly important when screening samples in the field for volatile organic compounds, but should not be limited to the active sample collection.
- If sediment samples are being collected concurrently, collect the surface water samples first to avoid disturbing the bottom and suspending sediment in the water column.
- Avoid wading into surface water, if possible, to avoid sediment suspension and potential cross-contamination.
- If collecting several surface water samples from a stream or river, start sampling at the downstream location and progressively move upstream.
- If using watercraft, orient the watercraft so that the bow is positioned in the upstream direction; collect samples near the bow, away and upwind from any fuel-powered equipment.
- Establish a secure sample staging area in an uncontaminated area of the site.

### 12.4.3 SAFETY CONSIDERATIONS

Surface water sampling presents a number of unique safety challenges. All water bodies, particularly those with moving water, are inherently dangerous and must be approached with caution. Steep embankments, loose footing, and the potential presence of subsurface hazards (or dangerous plants or wildlife, for some parts of the country) can lead to serious injury or even death.

A minimum of two people must be present during collection and samplers must use appropriate safety equipment (as outlined in the project HASP), such as insulated waders, snake chaps, and flotation devices. If possible, avoid wading into surface water. Be aware of recent weather conditions, tidal changes, or other events (e.g., a dam release), which may result in unexpectedly higher water or flow conditions (or temperature changes) at different times of the year. Do not bodily enter pipes, such as storm sewers or other drainage conveyances during surface water collection as these may be considered confined spaces.

## 12.5 SURFACE WATER LEVEL MEASUREMENT PROCEDURES

Surface water level measurements are typically collected prior to surface water sampling and are used after the sampling event is completed to establish surface water elevation, discharge, and groundwater/surface water interaction (e.g., gaining or losing stream, flow direction).

Surface water level measurements **MUST** be collected within the shortest interval possible from **all selected existing stream gauges or established measuring points** during the event. If groundwater level measurements are to be collected, gauging should be performed concurrently in accordance with SOP 11. This will ensure a nearly instantaneous snapshot of the water levels before the water body is acted upon by other outside influences, such as tides, precipitation, barometric pressure, river stage, or intermittent pumping of nearby production, irrigation, or supply wells.

Measure the surface water level on the stream gauge or depth to water and total depth from an established measuring point (e.g., bridge) with an electronic water level tape or appropriate equipment and record observations and measurements in the field book. If non-aqueous phase liquids (NAPL) are present on the surface water body, measure the NAPL thickness using the stream gauge (or other appropriate equipment) and record observations and measurements in the field book.

## 12.6 SURFACE WATER SAMPLE COLLECTION PROCEDURES

Collect surface water samples using the appropriate sampling vessel in accordance with the project-specific work plan. Slowly lower the method-specific sampling vessel (e.g., dippers, sampling container, etc.) into the surface water to the desired sampling depth; Kemmerer, Niskin, Van Dorn, or similar samplers, pumps equipped with tubing, or double check valve bailers can be used to collect samples 12 inches or deeper below the water surface. Allow surface water to slowly enter the sampling vessel until the necessary sample volume has been collected. Once filled, slowly retrieve the sampling vessel and transfer the surface water directly to the sample containers. As applicable, retrieve the sampler at a slightly tilted angle in the upstream direction to minimize the disturbance. If necessary, collect additional surface water to provide sufficient sample volume. Field samples must be directly transferred from the sampling equipment to the container that has been specifically prepared for that given parameter; intermediate containers should be avoided.

Automatic composite samplers are frequently deployed at sites needing long-term surface water sampling. In some sampling situations, automatic composite samplers are permanently installed at surface water stations and remain in the field for months or even years.

Collect surface water samples in order of volatilization sensitivity with organic compounds sampled first followed by inorganic compounds:

- Volatile organic compounds
- Extractable organics, petroleum hydrocarbons, aggregate organics, and oil and grease
- Per- and Polyfluoroalkyl substances
- Total metals

- Dissolved metals (see filtering procedures below)
- Inorganic non-metallic and physical and aggregate properties
- Microbiological samples
- Radionuclides

Water quality parameters (e.g.,temperature, depth, dissolved oxygen, pH, total dissolved solids, specific conductance, turbidity, salinity, oxidation reduction potential, and others) are typically measured in the field as specified in the project planning documents. Collect quality assurance/quality control samples in accordance with SOP 4 and the project-specific work plan or QAPP.

As necessary, conduct field tests or screening in accordance with the project-specific work plan and manufacturer's specifications for field testing equipment. Field samples must be directly transferred from the sampling equipment to the container that has been specifically prepared for that given parameter; intermediate containers should be avoided. If field chemical preservation is required, check the pH preservation by pouring a small portion of sample onto a pH test strip. Adjust pH with additional preservative, if necessary.

Record the depth interval, if applicable, which the sample was collected in the field book. Note the volume, phases, and color of the surface water in the field book.

## 12.6.1 SURFACE WATER FILTRATION PROCEDURES

Filtered surface water samples are sometimes used for field kit analyses and should only be collected for laboratory analysis after approval from the appropriate regulatory agency and/or project manager. If surface water sample filtration is necessary, the following procedures should be followed:

Filtered samples using pumps should use the following procedures:

- Use a variable speed peristaltic pump with the in-line filter fitted on the outlet end; pressurized bailers or submersible pumps can also be used if sampling the surface water body directly.
- Insert the pump inlet tubing into the intermediate container holding the unpreserved surface water sample or surface water body.

Once the filter is connected:

- Turn on the pump and reduce the flow rate, but maintain a flow rate high enough to deliver a smooth stream of water without splashing or undue agitation, hold the filter upright with the inlet and outlet in the vertical position and pump surface water through the filter until the minimum volume of water has been flushed through the filter, in accordance with the manufacturer's specifications.
- Collect the filtered samples directly into the sample container from the pump-filter assembly.
- If sediment is visible in the sample container after filtration, filter break-through has occurred and the sampling and filtering process should be repeated; the sediment-containing sample should be discarded appropriately.
- Discard the tubing and filter appropriately.
- Record sample filtration in the field book.

## 12.6.2 NAPL SAMPLING PROCEDURES

NAPL samples are not typically collected from surface water. If samples are to be collected, sampling options and techniques should be discussed with the assigned project compliance professional and project manager; ensure that the NAPL is not considered to be a hazardous material for the purpose of shipping to the laboratory (SOP 3). Samples of NAPL should be placed in the appropriate laboratory-supplied containers, packed on ice, and shipped to the analytical laboratory using procedures outlined in SOP 3.

## 12.6.3 SAMPLE LABELING AND PREPARATION FOR SHIPMENT

Samples for offsite laboratory analysis should be prepared as follows:

1. Clean the outside of the sample container, if necessary

2. Affix a sample tag or label to each sample container and complete all required information (sample number, date, time, sampler's initials, analysis, preservatives, place of collection)
3. Place clear tape over the tag or label (if non-waterproof labels are used)
4. If needed, preserve samples immediately after collection by placing them into an insulated cooler filled with bagged wet ice to maintain a temperature of approximately 4°Celcius
5. Record the sample designation, date, time, and the sampler's initials in the field book and on a sample tracking form, if appropriate
6. Complete the chain-of-custody forms with appropriate sampling information, including:
   - location
   - sample name
   - sample collection date and time
   - number of sample containers
   - analytical method
   - field filtration status
7. Secure the sample packing and shipping in accordance with proper procedures

***Do not ship hazardous waste samples without first consulting a WSP compliance professional.***

## 12.7 CLOSING NOTES

Once sampling is completed, secure the locations in accordance with the project-specific project work plan. Mark all sample locations with stakes or other appropriate markers for future reference or survey, including collecting Global Positioning System coordinates and photographs, in accordance with the project-specific work plan. Decontaminate all equipment prior to departure and properly manage all PPE and IDW in conformance with SOP 6, the project-specific work plan, and applicable regulations.

**Region 4**
**U.S. Environmental Protection Agency**
**Science and Ecosystem Support Division**
**Athens, Georgia**

# GUIDANCE

Title: **Design and Installation of Monitoring Wells**

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## Revision History

This table shows changes to this controlled document over time. The most recent version is presented in the top row of the table. Previous versions of the document are maintained by the SESD Document Control Coordinator.

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| SESDGUID-101-R2, *Design and Installation of Monitoring Wells*, replaces SESDPROC-101-R1<br><br>**General:** Corrected any typographical, grammatical and/or editorial errors.<br><br>**Cover Page:** Cover page was updated to reflect reorganization and new personnel.<br><br>**Section 2.2.5:** Added Direct Push Technology as drilling method.<br><br>**Section 2.7:** Added additional cautions regarding early sampling of permanent wells<br><br>**Section 2.8:** Added greater detail to decommissioning procedures<br><br>**Section 4:** Generalized description of screen point installation. Added section on direct push technology well installation. | January 16, 2018 |
| SESDGUID-101-R1, *Design and Installation of Monitoring Wells*, replaces SESDPROC-101-R0. | January 29, 2013 |
| SESDGUID-101-R0, *Design and Installation of Monitoring Wells*, Original Issue | February 18, 2008 |

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# 1 General Information

## 1.1 Purpose

This document describes general and specific procedures, methods and considerations to be used and observed when designing and installing permanent and temporary groundwater monitoring wells to be used for collection of groundwater samples.

## 1.2 Scope/Application

The procedures contained in this document are to be used by field personnel when designing, constructing and installing groundwater monitoring wells. On the occasion that SESD field personnel determine that any of the procedures described in this section are either inappropriate, inadequate or impractical and that another procedure must be used for any aspect of the design, construction and/or installation of a groundwater monitoring well, the variant procedure will be documented in the field log book, along with a description of the circumstances requiring its use. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

## 1.3 Documentation/Verification

This procedure was prepared by persons deemed technically competent by SESD management, based on their knowledge, skills and abilities and has been tested in practice and reviewed in print by a subject matter expert. The official copy of this procedure resides on the SESD local area network (LAN). The Document Control Coordinator is responsible for ensuring the most recent version of the procedure is placed on the LAN and for maintaining records of review conducted prior to its issuance.

## 1.4 References

USEPA Region 4 Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM), November 2001

USEPA. Safety, Health and Environmental Management Program Procedures and Policy Manual. Science and Ecosystem Support Division, Region 4, Athens, GA, Most Recent Version

SESD Operating Procedure for Field Sampling Quality Control, SESDPROC-011, Most Recent Version

SESD Operating Procedure for Field Equipment Cleaning and Decontamination, SESDPROC-205, Most Recent Version

SESD Operating Procedure for Logbooks, SESDPROC-010, Most Recent Version

SESD Operating Procedure for Groundwater Sampling, SESDPROC-301, Most Recent Version

SESD Operating Procedure for Management of Investigation Derived Waste, SESDPROC-202, Most Recent Version

EPA/540/S-95/503, *Nonaqueous Phase Liquids Compatibility with Materials Used in Well Construction, Sampling, and Remediation*

ASTM standard D5092, *Design and Installation of Ground Water Monitoring Wells in Aquifers*

## 1.5 General Precautions

### *1.5.1 Safety*

Proper safety precautions must be observed when constructing and installing groundwater monitoring wells. Refer to the SESD Safety, Health and Environmental Management Program Procedures and Policy (SHEMP) Manual (Most Recent Version) and any pertinent site-specific Health and Safety Plans (HASPs) for guidelines on safety precautions. These guidelines should be used to complement the judgment of an experienced professional. When using this procedure, minimize exposure to potential health hazards through the use of protective clothing, eye wear and gloves. Address chemicals that pose specific toxicity or safety concerns and follow any other relevant requirements, as appropriate. Section 2.6, Safety Procedures for Drilling Activities, contains detailed and specific safety guidelines that must be followed by Branch personnel when conducting activities related to monitoring well construction and installation.

### *1.5.2 Procedural Precautions*

The following precautions should be considered when constructing and installing groundwater monitoring wells.

- Special care must be taken to minimize or prevent inadvertent cross-contamination between borehole locations. Equipment, tools and well materials must be cleaned and/or decontaminated according to procedures found in SESD Operating Procedure for Field Equipment Cleaning and Decontamination (SESDPROC-205).
- All field activities are documented in a bound logbook according to the procedures found in SESD Operating Procedure for Logbooks (SESDPROC-010).

# 2 Permanent Monitoring Well Design Considerations

## 2.1 General

The design and installation of permanent monitoring wells involves drilling into various types of geologic formations that exhibit varying subsurface conditions. Designing and installing permanent monitoring wells in these geologic environments may require several different drilling methods and installation procedures. The selection of drilling methods and installation procedures should be based on field data collected during a hydrogeologic site investigation and/or a search of existing data. Each permanent monitoring well should be designed and installed to function properly throughout the duration of the monitoring program. When designing monitoring wells, the following should be considered:

- Short-and long-term objectives;
- Purpose of the well(s);
- Probable duration of the monitoring program;
- Contaminants likely to be monitored;
- Surface and subsurface geologic conditions;
- Properties of the aquifer(s) to be monitored;
- Well screen placement;
- General site conditions; and
- Potential site health and safety hazards.

In designing permanent monitoring wells, the most reliable, obtainable data should be utilized. Once the data have been assembled and the well design(s) completed, a drilling method(s) must be selected. The preferred drilling methods for installing monitoring wells are those that temporarily case the borehole during drilling and the construction of the well, e.g. hollow-stem augers and sonic methods. However, site conditions or project criteria may not allow using these methods. When this occurs, alternate methods should be selected that will achieve the project objectives. The following discussion of methods and procedures for designing and installing monitoring wells will cover the different aspects of selecting materials and methods, drilling boreholes, and installing monitoring devices.

## 2.2 Drilling Methods

The following drilling methods may be used to install environmental monitoring wells or collect samples under various subsurface conditions. In all cases the preferred methods are those that case the hole during drilling, i.e. Hollow Stem Augers (HSA) and sonic methods using an override system. Other methods may be used where specific subsurface or project criteria dictate.

### *2.2.1 Hollow Stem Auger (HSA)*

This type of auger consists of a hollow, steel stem or shaft with a continuous, spiraled steel flight, welded onto the exterior. A hollow auger bit, generally with

carbide teeth, disturbs soil material when rotated, whereupon the spiral flights transport the cuttings to the surface. This method is best suited in soils that have a tendency to collapse when disturbed. A monitoring well can be installed inside of hollow-stem augers with little or no concern for the caving potential of the soils. If caving sands exist during monitoring well installations, a drilling rig must be used that has enough power to extract the augers from the borehole without having to rotate them. A bottom plug, trap door, or pilot bit assembly can be used at the bottom of the augers to keep out most of the soils and/or water that have a tendency to enter the bottom of the augers during drilling. Potable water (analyzed for contaminants of concern) may be poured into the augers during drilling to equalize pressure so that the inflow of formation materials will be held to a minimum. Water-tight center bits are not acceptable because they create suction when extracted from the augers. This suction forces or pulls cuttings and formation materials into the augers, defeating the purpose of the center plug. Augering without a center plug or pilot bit assembly is permitted, provided that the soil plug, formed in the bottom of the augers, is removed before sampling or installing well casings. Removing the soil plug from the augers can be accomplished by drilling and washing out the plug using a rotary bit, or augering out the plug with a solid-stem auger bit sized to fit inside the hollow-stem auger. Bottom plugs can be used where no soil sampling is conducted during the drilling process. The bottom plug is wedged into the bottom of the auger bit and is knocked out at depth with drill pipe or the weight of the casing and screen assembly. The plug material should be compatible with the screen and casing materials. The use of wood bottom plugs is not acceptable. The type of bottom plug, trap door, or pilot bit assembly proposed for the drilling activity should be approved by a senior field geologist prior to drilling operations. Boreholes can be augered to depths of 150 feet or more (depending on the auger size), but generally boreholes are augered to depths less than 100 feet.

### *2.2.2 Solid Stem Auger*

This type of auger consists of a sealed hollow or solid stem or shaft with a continuous spiraled steel flight welded on the outside of the stem. An auger bit connected to the bottom disturbs soil material when rotated and the helical flights transport cuttings to the surface. At the desired depth the entire auger string is removed to gain access to the bottom of the borehole. This auger method is used in cohesive and semi-cohesive soils that do not have a tendency to collapse when disturbed. Boreholes can be augered to depths of 200 feet or more (depending on the auger size), but generally boreholes are augered to depths less than 100 feet.

Both of the previously discussed auger methods can be used in unconsolidated soils and semi-consolidated (weathered rock) soils, but not in competent rock. Each method can be employed without introducing foreign materials into the borehole such as water and drilling fluids, minimizing the potential for cross contamination. Minimizing the risk of cross contamination is one of the most important factors to consider when selecting the appropriate drilling method(s) for a project.

### *2.2.3 Sonic Methods*

These methods generally alternately advance concentric hollow drill stems using rotation in conjunction with axial vibration of the drill stem. After each stage of drill stem advancement, the inner string is removed with a core of drill cuttings while the outer 'override' string remains to hold the borehole open. The cuttings can be removed nearly intact from the inner casing for examination of the stratigraphy prior to sampling or disposal. Because there are no auger flights to increase the borehole diameter, the quantity of cuttings removed from the hole is minimized as compared to hollow stem augering. With moderate rotation, smearing of the formation materials on the borehole walls is reduced as well. This drilling method is useful in a variety of materials, from flowing sands to heavily consolidated or indurated formations.

In flowing sands, the drill casings can be filled and/or pressurized with potable water to prevent excess entry of formation materials into the drill string. The same QA/QC requirements for sampling of material introduced to the borehole apply as in other drilling methods. Because the amount of water introduced into the borehole can be significant, an approximation of the water used in the drilling process should be logged for use in estimating appropriate well development withdrawal.

Sonic drilling allows a larger diameter temporary casing to be set into a confining layer while drilling proceeds into deeper aquifers. This temporary casing is then removed during the grouting operation. In many cases this will be acceptable technique. However, the level of contamination in the upper aquifer, the importance of the lower aquifers for drinking water uses, the permeability and continuity of the confining layer, and state regulations should be taken into account when specifying this practice as opposed to permanent outer casing placed into the confining unit. Note that when using the temporary casing practice, it is critical that grout be mixed and placed properly as specified elsewhere in this section.

Because the total borehole diameter in sonic drilling is only incrementally larger than the inner casing diameter, particular care should be taken that the well casing is placed in the center of the drill stem while placing the filter pack. Centralizers should be used in most cases to facilitate centering, particularly in the case of deep wells with PVC casing.

### *2.2.4 Rotary Methods*

These methods consist of a drill pipe or drill stem coupled to a drilling bit that rotates and cuts through the soils. The cuttings produced from the rotation of the drilling bit are transported to the surface by drilling fluids which generally consist of water, drilling mud, or air. The water, drilling mud, or air are forced down through the drill pipe, and out through the bottom of the drilling bit. The cuttings

are then lifted to the surface between the borehole wall and the drill pipe, (or within a concentric drill stem in reverse rotary). Except in the case of air rotary, the drilling fluid provides a hydrostatic pressure that reduces or prevents borehole collapse. When considering this method, it is important to evaluate the potential for contamination when fluids and/or air are introduced into the borehole.

Due to the introduction of the various circulating fluids, the use of rotary methods requires that the potential for contamination by these fluids be evaluated. Water and mud rotary methods present the possibility of trace contamination of halogenated compounds when municipal water supplies are used as a potable water source. Air rotary drilling can introduce contamination through the use of lubricants or entrained material in the air stream. Unless contaminated formations are cased off, the circulation of drilling fluids presents a danger of cross contamination between formations. In any of the rotary (or sonic) methods, care must be exercised in the selection and use of compounds to prevent galling of drill stem threads.

#### 2.2.4.1 Water Rotary

When using water rotary, potable water (that has been analyzed for contaminants of concern) should be used. If potable water (or a higher-quality water) is not available on-site, then potable water will have to be transported to the site or an alternative drilling method will have to be selected. Water does not clog the formation materials, but the suspended drilling fines can be carried into the formation, resulting in a very difficult to develop well. This method is most appropriate for setting isolation casing.

#### 2.2.4.2 Air Rotary

Air rotary drilling uses air as a drilling fluid to entrain cuttings and carry them to the surface. High air velocities, and consequently large air volumes and compressor horsepower are required. "Down-the-hole" (DTH) percussion hammers driven by the air stream can be used with this method to rapidly penetrate bedrock materials. Where a casing through unconsolidated material is required to prevent borehole collapse, it can be driven in conjunction with advancement of the drill stem.

When using air rotary drilling in any zone of potential contamination, the cuttings exiting the borehole must be controlled. This can be done using the dual-tube reverse circulation method where cuttings are carried to the surface inside dual-wall drill pipe and separated with a cyclone separator. An air diverter with hose or pipe carrying cuttings to a waste container is also an acceptable alternative. Allowing cuttings to blow uncontrolled from the borehole is not acceptable.

When using air rotary, the issue of contaminants being introduced into the borehole by the air stream must be addressed. Screw compressor systems

should have a coalescing filter system in good working order to capture excess entrained compressor oils. The lubricant to be used with DTH hammers as well as thread lubricants to be used on drill stem should be evaluated for their potential impact on analytical samples.

#### 2.2.4.3 Mud Rotary

Mud rotary is an undesirable drilling method because contamination can be introduced into the borehole from the constituents in the drilling mud, cross contamination can occur along the borehole column, and it is difficult to remove the drilling mud from the borehole after drilling and during well development. The drilling mud can also carry contaminates from a contaminated zone to an uncontaminated zone thereby cross-contaminating the borehole. If mud rotary is selected, only potable water and pure (no additives) bentonite drilling muds should be used. All materials used should have adequate documentation as to manufacturer's recommendations and product constituents. QA/QC samples of drilling muds and potable water should be sampled at a point of discharge from the circulation system to assure that pumps and piping systems are not contributing cross-contamination from previous use.

### *2.2.5 Direct Push Technology*

Direct Push Technology (DPT) uses hollow drive rods either driven percussively or by large forces from a rig weighted or anchored to the ground. Percussive rigs are used for general soil and groundwater investigations and the push only rigs are generally used for cone penetrometer testing (CPT). DPT does not bring cuttings to the surface but instead compresses them into the borehole walls. A variety of tool systems are available to perform soil sampling, groundwater sampling, well installation, and to profile contamination with in situ systems. The light tooling, small crews required, and reduced IDW can make DPT operations an economical investigation tool. Although significant depths have been explored with DPT, investigations are generally limited to 100 ft (and more practically 50 ft.) in unconsolidated materials.

### *2.2.6 Other Methods*

Other methods such as the cable-tool method, jetting method, and boring (bucket auger) method are available. If these and/or other methods are selected for monitoring well installations, they should be approved by a senior field geologist before field work is initiated.

## 2.3 Borehole Construction

### *2.3.1 Annular Space*

The borehole or hollow stem auger should be of sufficient diameter so that well construction can proceed without major difficulties. For open boreholes, the annular space should be approximately 2" to allow the uniform deposition of well materials around the screen and riser, and to allow the passage of tremie pipes and well materials without unduly disturbing the borehole wall. For example, a 2" nominal diameter (nom.) casing would require a 6" inside diameter (ID) borehole.

In hollow stem augers and sonic method drill casing, the ID should be of sufficient size to allow the passage of the tremie pipe to be used for well grout placement, as well as free passage of filter sands or bentonite pellets dropped through the auger or casing. In general, 4-1/4" ID should be the minimum size used for placement of 2" nom. casing and 8-1/4" ID for 4" nom. casing. Larger augers should be used where installation difficulties due to geologic conditions or greater depths are anticipated, e.g. larger augers might be required to place a bentonite pellet seal through a long water column.

### *2.3.2 Over-drilling the Borehole*

Sometimes it is necessary to over-drill the borehole in anticipation of material entering the augers during center bit removal or knocking out of the bottom plug. Normally, 3 to 5 feet is sufficient for over-drilling. The borehole can also be over-drilled to allow for an extra space or a "sump" area below the well screen. This "sump" area provides a space to attach a 5 or 10 foot section of well casing to the bottom of the well screen. The extra space or "sump" below the well screen serves as a catch basin or storage area for sediment that flows into the well and drops out of suspension. These "sumps" are added to the well screens when the wells are screened in aquifers that are naturally turbid and will not yield clear formation water (free of visible sediment) even after extensive development. The sediment can then be periodically pumped out of the "sump" preventing the well screen from clogging or "silting up". If the borehole is inadvertently drilled deeper than desired, it can be backfilled to the design depth with bentonite pellets, chips, or the filter sand that is to be used for the filter pack.

### *2.3.3 Filter Pack Placement*

When placing the filter pack into the borehole, a minimum of 6-inches of the filter pack material should be placed under the bottom of the well screen to provide a firm base. Also, the filter pack should extend a minimum of 2-feet above the top of the well screen to allow for settling and to isolate the screened interval from the grouting material. In open boreholes, the filter pack should be placed by the tremie or positive displacement method. Placing the filter pack by pouring the sand into

an open drill stem is acceptable with the use hollow stem augers, and other methods where the borehole is temporarily cased down to the filter pack.

### *2.3.4 Filter Pack Seal – Bentonite Pellet Seal (Plug)*

Bentonite pellets consist of ground, dried bentonite compacted into pellets available in several sizes. Bentonite pellets are compressed to a bulk density of 70-80 lbs/ft$^3$ and hydrate to a 30% min. solids material. Where neat cement grouts are to be used, the placement of a bentonite pellet seal above the filter pack is mandatory to prevent the possibility of grout infiltration into the screened interval prior to setting. Bentonite chips or other sealing products should not be substituted in this application. Where bentonite grouts are to be used, the placement of a bentonite pellet seal is optional, but desirable.

Since bentonite pellets begin hydrating rapidly, they can be very difficult to place properly. They are generally placed by pouring slowly into open boreholes, hollow stem augers or sonic drill pipe. In some cases, pellets are placed by tremie pipe and flushed into place with potable water. A tamper can be used to ensure that the material is being placed properly and to rapidly break up any pellet bridging that occurs.

Pellet seals should be designed for a two-foot thickness of dry pellets above the filter pack. Hydration may extend the height of the seal. Where neat cement grouts are to be used, the pellets should be hydrated for eight hours, or the manufacturer's recommended hydration time, whichever is greater. Where the water table is temporarily below the pellet seal, potable (or higher quality) water should be added repeatedly to hydrate the pellets prior to grouting.

### *2.3.5 Grouting the Annular Space*

The annular space between the casing and the borehole wall should be filled with either a 30% solids bentonite grout, a neat cement grout, or a cement/bentonite grout. Each type of grout selected should be evaluated as to its intended use and integrity. Bentonite grouts are preferred unless the application dictates the use of another material.

Bentonite grout shall be a 30% solids pure bentonite grout. Drilling muds are not acceptable for grouting. The grout should be placed into the borehole, by the tremie method, from the top of the bentonite seal to within 2-feet of the ground surface or below the frost line, whichever is the greater depth. The bentonite pellet seal or filter pack should not be disturbed during grout placement, either by the use of a side discharge port on the tremie tube, or by maintaining clearance between the bottom of the tremie tube and the bentonite seal or filter pack. The grout should be allowed to cure for a minimum of 24 hours before the concrete surface pad is installed. The preferred method of achieving proper solids content is by measurement of ingredients per the manufacturer's specifications during mixing with a final check by grout balance after mixing. Bentonite grouts should have a

minimum density of 10 lbs/gal to ensure proper gelling and low permeability. The density of the first batch of grout should be measured while mixing to verify proper measurement of ingredients. In addition, the grouting operation should not cease until the bentonite grout flowing out of the borehole has a minimum density of 10 lbs/gal. Estimating the grout density is not acceptable.

Cement grouts are generally dictated where a high level of dissolved solids or a particular dissolved constituent would prevent proper gelling of a bentonite grout. Neat cement grouts (cement without additives) should be mixed using 6 gallons of water per 94-lb bag of Type 1 Portland cement to a density of 15lbs/gal. The addition of bentonite (5 to 10 percent) to the cement grout can be used to delay the "setting" time and may not be needed in all applications. The specific mixtures and other types of cement and/or grout proposed should be evaluated on a case by case basis by a senior field geologist.

### *2.3.6 Above Ground Riser Pipe and Outer Casing*

The well casing, when installed and grouted, should extend above the ground surface a minimum of 2.5 feet. A vent hole should be drilled into the top of the well casing cap to permit pressure equalization, if applicable. An outer protective casing should be installed into the borehole after the annular grout has cured for at least 24 hours. The outer protective casing should be of steel construction with a hinged, locking cap. Generally, outer protective casings used over 2-inch well casings are 4 inches square by 5 feet long. Similarly, protective casings used over 4-inch well casings are 6 inches square and 5 feet long. Other types of protective casing including those constructed of pipe are also acceptable. All protective casings should have sufficient clearance around the inner well casings, so that the outer protective casings will not come into contact with the inner well casings after installation. The protective casings should have a weep hole to allow drainage of accumulated rain or spilled purge water. The weep hole should be approximately 1/4-inch in diameter and drilled into the protective casings just above the top of the concrete surface pad to prevent water from standing inside of the protective casings. Protective casings made of aluminum or other soft metals are normally not acceptable because they are not strong enough to resist tampering. Aluminum protective casing may be used in very corrosive environments such as coastal areas.

Prior to installing the protective casing, the bentonite grout in the borehole annulus is excavated to a depth of approximately two feet. The protective casing is installed by pouring concrete into the borehole on top of the grout. The protective casing is then pushed into the wet concrete and borehole a minimum of 2 feet. Extra concrete may be needed to fill the inside of the protective casing so that the level of the concrete inside of the protective casing is at or above the level of the surface pad. In areas where frost heave of the surface pad is possible, the protective casing should first be pressed into the top surface of the bentonite grout seal and concrete poured around the protective casing. A granular material such as sand or gravel can then be used to fill the space between the riser and protective casing. The use of granular material instead of concrete between the protective casing and riser will also facilitate the future conversion of the well to a flush-mount finish, if required.

The protective casing should extend above the ground surface to a height so that the top of the inner well casing is exposed when the protective casing is opened. At each site, all locks on the outer protective casings should be keyed alike.

### *2.3.7 Concrete Surface Pad*

A concrete surface pad should be installed around each well at the same time as the outer protective casing is being installed. The surface pad should be formed around the well casing. Concrete should be placed into the pad forms and into the borehole (on top of the grout) in one operation making a contiguous unit. The size of the concrete surface pad is dependent on the well casing size. If the well casing is 2 inches in diameter, the pad should be 3 feet x 3 feet x 4 inches. If the well casing is 4 inches in diameter, the pad should be 4 feet x 4 feet x 6 inches. Round concrete surface pads are also acceptable. The finished pad should be slightly sloped so that drainage will flow away from the protective casing and off of the pad. A minimum of one inch of the finished pad should be below grade to prevent washing and undermining by soil erosion.

### *2.3.8 Surface Protection – Bumper Guards*

If the monitoring wells are located in a high traffic area, a minimum of three bumper guards consisting of steel pipes 3 to 4 inches in diameter and a minimum 5-foot length should be installed. These bumper guards should be installed to a minimum depth of 2 feet below the ground surface in a concrete footing and extend a minimum of 3 feet above ground surface. Concrete should also be placed into the steel pipe to provide additional strength. Substantial steel rails and/or other steel materials can be used in place of steel pipe. Welding bars between the bumper posts can provide additional strength and protection in high traffic areas, but the protective bumpers should not be connected to the protective casing.

## 2.4 Construction Techniques

### *2.4.1 Well Installation*

The borehole should be bored, drilled, or augered as close to vertical as possible, and checked with a plumb bob or level. Deviation from plumb should be within 1° per 50ft of depth. Slanted boreholes are undesirable and should be noted in the boring logs and final construction logs. The depth and volume of the borehole, including the over-drilling if applicable, should have been calculated and the appropriate materials procured prior to drilling activities.

The well casings should be secured to the well screen by flush-jointed threads and placed into the borehole and plumbed by the use of centralizers and/or a plumb bob and level. Another method of placing the well screen and casings into the borehole and plumbing them at the same time is to suspend the string of well screen and casings in the borehole by means of a hoist on the drill rig. This wireline method is especially useful if the borehole is deep and a long string of well screen and casings have to be set and plumbed.

No lubricating oils or grease should be used on casing threads. No glue of any type should be used to secure casing joints. Viton® O-rings can be used where the joints are designed for same.

Before the well screen and casings are placed on the bottom of the borehole, at least 6 inches of filter material should be placed at the bottom of the borehole to serve as a firm footing. The string of well screen and casings should then be placed into the borehole and plumbed. Centralizers can be used to plumb a well, but centralizers should be placed so that the placement of the filter pack, bentonite pellet seal, and annular grout will not be hindered. Centralizers placed in the wrong locations can cause bridging during material placement. Monitoring wells less than 50 feet deep generally do not need centralizers. If centralizers are used they should be placed below the well screen and above the bentonite pellet seal. The specific placement intervals should be decided based on site conditions.

When installing the well screen and casings through hollow-stem augers, the augers should be slowly extracted as the filter pack, bentonite pellet seal, and grout are tremied and/or poured into place. The gradual extraction of the augers will allow the materials being placed in the augers to flow out of the bottom of the augers into the borehole. If the augers are not gradually extracted, the materials (sand, pellets, etc.) will accumulate at the bottom of the augers causing potential bridging problems.

After the string of well screen and casing is plumb, the filter pack material should then be placed around the well screen to the designated depth. With cased drilling methods, the sand should be poured into the casing or augers until the lower portion is filled. The casing or augers are then withdrawn, allowing the sand to flow into the evacuated space. With hollow stem augers, sand should always fill the augers 6-12 inches, maintained by pouring the sand while checking the level with a weighted tag line. The filter pack sand in open boreholes should be installed by tremie methods, using water to wash the sand through the pipe to the point of placement.

After the filter pack has been installed, the bentonite pellet seal (if used) should be placed directly on top of the filter pack to an unhydrated thickness of two feet. When installing the seal for use with cement grouts, the bentonite pellet seal should be allowed to hydrate a minimum of eight hours or the manufacturer's recommended hydration time, whichever is longer.

After the pellet seal has hydrated for the specified time, the grout should then be pumped by the tremie method into the annular space around the casings. The grout should be allowed to set for a minimum of 24 hours before the surface pad and protective casing are installed.

After the surface pad and protective casing are installed, bumper guards should be installed (if needed). The bumper guards should be placed around the concrete surface pad in a configuration that provides maximum protection to the well. Each

piece of steel pipe or approved material should be installed into an 8-to 10-inch diameter hole, to a minimum depth of 2 feet below ground surface, and filled with concrete. As previously stated, the bumper guard should extend above the ground surface a minimum of 3 feet. The total length of each bumper guard should be a minimum of 5 feet.

After the wells have been installed, the outer protective casing should be painted with a highly visible paint. The wells should be permanently marked with the well number, date installed, site name, elevation, etc., either on the cover or an appropriate place that will not be easily damaged and/or vandalized.

If the monitoring wells are installed in a high traffic area such as a parking lot, in a residential yard, or along the side of a road it may be desirable to finish the wells to the ground surface and install water-tight flush mounted traffic and/or man-hole covers. Flush mounted traffic and man-hole covers are designed to extend from the ground surface down into the concrete plug around the well casing. Although flush mounted covers may vary in design, they should have seals that make the unit water-tight when closed and secured. The flush mounted covers should be installed slightly above grade to minimize standing water and promote runoff. Permanent identification markings should be placed on the covers or in the concrete plug around the cover. Expansive sealing plugs should be used to cap the well riser to prevent infiltration of any water that might enter the flush cover.

### *2.4.2 Double-Cased Wells*

Double-cased wells should be constructed when there is reason to believe that interconnection of two aquifers by well construction may cause cross-contamination or when flowing sands make it impossible to install a monitoring well using conventional methods. A highly contaminated surface soil zone may also be cased off so that drilling may continue below the casing with reduced danger of cross contamination. A pilot borehole should be bored through the overburden and/or the contaminated zone into the clay confining layer or bedrock. An outer casing (sometimes called surface or pilot casings) should then be placed into the borehole and sealed with grout. The borehole and outer casing should extend into tight clay a minimum of two feet and into competent bedrock a minimum of 1 foot. The total depths into the clay or bedrock will vary, depending on the plasticity of the clay and the extent of weathering and\or fracturing of the bedrock. The final depths should be approved by a senior field geologist. The size of the outer casing should be of sufficient inside diameter to contain the inner casing, and the 2-inch minimum annular space. In addition, the borehole should be of sufficient size to contain the outer casing and the 2-inch minimum outer annular space, if applicable.

The outer casing should be grouted by the tremie, displacement, grout shoe, or Halliburton method from the bottom to the ground surface. The grout should be pumped into the annular space between the outer casing and the borehole wall. A minimum of 24 hours should be allowed for the grout plug (seal) to cure before attempting to drill through it. The grout mixture used to seal the outer annular space should be either a neat cement, cement/bentonite, cement/sand, or a 30% solids

bentonite grout. However, the seal or plug at the bottom of the borehole and outer casing should consist of a Type I portland cement/bentonite or cement/sand mixture. The use of a pure bentonite grout for a bottom plug or seal is not acceptable, because the bentonite grout cures to a gel-like material, and is not rigid enough to withstand the stresses of drilling. When drilling through the seal, care should be taken to avoid cracking, shattering, or washing out the seal. If caving conditions exist so that the outer casing cannot be sufficiently sealed by grouting, the outer casing should be driven into place and a grout seal placed in the bottom of the casing.

#### 2.4.2.1 Bedrock Wells

The installation of monitoring wells into bedrock can be accomplished in two ways:

1. The first method is to drill or bore a pilot borehole through the soil overburden into the bedrock. An outer casing is then installed into the borehole by setting it into the bedrock, and grouting it into place as described in the previous section. After the grout has set, the borehole can then be advanced through the grout seal into the bedrock. The preferred method of advancing the borehole into the bedrock is rock coring. Rock coring makes a smooth, round hole through the seal and into the bedrock without cracking and/or shattering the seal. Roller cone bits are used in soft bedrock, but extreme caution should be taken when using a roller cone bit to advance through the grout seal in the bottom of the borehole because excessive water and "down" pressure can cause cracking, eroding (washing), and/or shattering of the seal. Low volume air hammers may be used to advance the borehole, but they have a tendency to shatter the seal because of the hammering action. If the structural integrity of the grout seal is in question, a pressure test can be utilized to check for leaks. A visual test can also be made by examining the cement/concrete core that is collected when the seal is cored with a diamond coring bit. If the seal leaks (detected by pressure testing) and/ or the core is cracked or shattered, or if no core is recovered because of washing, excessive down pressure, etc., the seal is not acceptable. The concern over the structural integrity of the grout seal applies to all double cased wells. Any proposed method of double casing and/or seal testing will be evaluated on its own merits, and will have to be approved by a senior field geologist before and during drilling activities, if applicable. When the drilling is complete, the finished well will consist of an open borehole from the ground surface to the bottom of the well. There is no inner casing, and the outer surface casing, installed down into bedrock, extends above the ground surface, and also serves as the outer protective casing. If the protective casing becomes cracked or is sheared off at the ground surface, the well is open to direct contamination from the ground surface and will have to be repaired

immediately or abandoned. Another limitation to the open rock well is that the entire bedrock interval serves as the monitoring zone. In this situation, it is very difficult or even impossible to monitor a specific zone, because the contaminants being monitored could be diluted to the extent of being non-detectable. The installation of open bedrock wells is generally not acceptable in the Superfund and RCRA programs, because of the uncontrolled monitoring intervals. However, some site conditions might exist, especially in cavernous limestone areas (karst topography) or in areas of highly fractured bedrock, where the installation of the filter pack and its structural integrity are questionable. Under these conditions the design of an open bedrock well may be warranted.

2. The second method of installing a monitoring well into bedrock is to install the outer surface casing and drill the borehole (by an approved method) into bedrock, and then install an inner casing and well screen with the filter pack, bentonite seal, and annular grout. The well is completed with a surface protective casing and concrete pad. This well installation method gives the flexibility of isolating the monitoring zone(s) and minimizing inter-aquifer flow. In addition, it gives structural integrity to the well, especially in unstable areas (steeply dipping shales, etc.) where the bedrock has a tendency to shift or move when disturbed. Omitting the filter pack around the well screen is a general practice in some open rock borehole installations, especially in drinking water and irrigation wells. However, without the filter pack to protect the screened interval, sediment particles from the well installation and/or from the monitoring zone could clog the well screen and/or fill the screened portion of the well rendering it inoperable. Also, the filter pack serves as a barrier between the bentonite seal and the screened interval. Rubber inflatable packers have been used to place the bentonite seal when the filter pack is omitted, but the packers have to remain in the well permanently and, over a period of time, will decompose and possibly contribute contaminants to the monitoring zone.

## 2.5 Well Construction Materials

### *2.5.1 Introduction*

Well construction materials are chosen based on the goals and objectives of the proposed monitoring program and the geologic conditions at the site(s). In this section, the different types of available materials will be discussed.

### *2.5.2 Well Screen and Casing Materials*

When selecting the materials for well construction, the prime concern should be to select materials that will not contribute foreign constituents, or remove contaminants of concern from the ground water. If the monitoring program is designed to analyze for organic compounds, stainless steel materials are the preferred choice. If the monitoring program calls for the analyses of only inorganic compounds or the contaminants or formation are highly corrosive, then rigid PVC materials meeting National Sanitary Foundation (NSF) Standard 14 type WC (Well Casing) are acceptable. PVC materials may be acceptable for monitoring identified organic compounds in a soluble aqueous phase where incompatibilities are known to not exist. EPA document EPA/540/S-95/503, *Nonaqueous Phase Liquids Compatibility with Materials Used in Well Construction, Sampling, and Remediation* should be used for guidance in this area and in the use of PVC with non-aqueous phase liquids (NAPLs). Another concern is to select materials that will be rugged enough to endure the entire monitoring period. Site conditions will generally dictate the type of materials that can be used. A preliminary field investigation should be conducted to determine the geologic conditions, so that the most suitable materials can be selected. The best grade or highest quality material for that particular application should be selected. Each manufacturer can supply the qualitative data for each grade of material that is being considered. All materials selected for monitoring well installation should be evaluated and approved by a senior field geologist prior to field activities.

Well screen and casing materials generally used in monitoring well construction on RCRA and Superfund sites are listed in order of preference:

1. Stainless Steel (304 or 316)
2. Rigid PVC meeting NSF Standard 14 (type WC)
3. Other (where applicable)

There are other materials used for well screens and casings such as black iron, carbon steel, galvanized steel, and fiberglass, but these materials are not recommended for use in long term monitoring programs at hazardous waste sites, because of their low resistance to chemical attack and potential constituent contribution to the ground water. In cases where a driven casing is used, or a high strength outer casing is needed, carbon steel may be acceptable in non-corrosive aquifers. This outer casing should have threaded connections. Welding casing is not an acceptable practice unless all relevant safety issues have been adequately addressed.

The minimum nominal casing size for most permanent monitoring wells will be 2". Where a complete program of installation, monitoring, and abandonment is being designed, smaller wells may be installed if suitable purging and sampling equipment for the smaller diameter wells can be specified and obtained. The length of well screens in permanent monitoring wells should be long enough to effectively monitor the interval or zone of interest. However, well screens designed for long

term monitoring purposes should normally not be less than 5 feet in length. Well screens less than 5 feet long are generally only used in temporary monitoring wells where ground water samples are collected for screening purposes.

### *2.5.3 Filter Pack Materials*

The filter pack materials should consist of clean, rounded to well-rounded, hard, insoluble particles of siliceous composition. The required grain-size distribution or particle sizes of the filter pack materials should be selected based upon a sieve analysis conducted on the soil samples collected from the aquifer materials and/or the formation(s) to be monitored. Filter pack materials should not be accepted unless proper documentation can be furnished as to the composition, grain-size distribution, cleaning procedure, and chemical analysis. If a data search reveals that there is enough existing data to adequately design the well screen and filter pack, then it may not be necessary to conduct a sieve analysis on the formation materials to be monitored. However, all data and design proposals will be evaluated and approved by a senior staff geologist before field activities begin.

### *2.5.4 Filter Pack and Well Screen Design*

The majority of monitoring wells are installed in shallow ground water aquifers that consist of silts, clays, and sands in various combinations. These shallow aquifers are not generally characteristic of aquifers used for drinking water. Therefore, modifications to the procedures used for the design of water well filter packs may be required. In cases where insufficient experience exists with local or similar materials, the filter pack and well screen design should be based on the results of a sieve analysis conducted on soil samples collected from the aquifer or the formation(s) that will be monitored.

In formations consisting primarily of fines (silts and clays), the procedures for water well screen design may result in requirements for filter packs and screen slot sizes that are not available. In those cases the selection of 0.010" screen slots with a 20-40 sand filter pack, or 0.005" screen slots with 100 sand filter pack for very fine formations, will be acceptable practice. Table 6.6.1 provides size specifications for the selection of sand packs for fine formation materials. ASTM standard D5092, *Design and Installation of Ground Water Monitoring Wells in Aquifers*, may be consulted for further guidance on specifications for sand appropriate for these applications.

**Table 6.6.1**
**Sand Pack Specifications**

| Screen Opening (in) | Sand Pack Mesh Name | 1% Passing Size (d-1) (in) | 10% Passing Size (d-10) (in) | 30% Passing Size (d-30) (in) | Derived 60% Passing Size (d-60) (in) | Range for Uniformity Coefficient |
|---|---|---|---|---|---|---|
| 0.005-0.006 | 100 | .0035 - .0047 | .0055 - .0067 | .0067 - .0083 | .0085 - .0134 | 1.3 - 2.0 |
| 0.010" | 20-40 | .0098 - .0138 | .0157 - .0197 | .0197 -.0236 | .020 - .0315 | 1.1 - 1.6 |

The following procedure should be used in coarser grained formations:

The data from the sieve analysis are plotted on a grain-size distribution graph, and a grain-size distribution curve is generated. From this grain-size distribution curve, the uniformity coefficient (Cu) of the aquifer material is determined. The Cu is the ratio of the 60 percent finer material (d60) to the 10 percent finer material (d10)

$$Cu = (d60/d10)$$

The Cu ratio is a way of grading or rating the uniformity of grain size. For example, a Cu of unity means that the individual grain sizes of the material are nearly all the same, while a Cu with a large number indicates a large range of particle sizes. As a general rule, a Cu of 2.5 or less should be used in designing the filter pack and well screen.

Before designing the filter pack and well screen, the following factors should be considered:

1. Select the well screen slot openings that will retain 90 percent of the filter pack material.

2. The filter pack material should be of the size that minimizes head losses through the pack and also prevents excessive sediment (sand, silt, clay) movement into the well.

3. A filter material of varying grain sizes is not acceptable because the smaller particles fill the spaces between the larger particles thereby reducing the void spaces and increasing resistance to flow. Therefore, filter material of the same grain size and well-rounded is preferred.

4. The filter pack design is based on the gradation of the finest aquifer materials being analyzed.

Steps to design a filter pack in aquifers:

1. Construct a grain-size distribution curve, on a grain-size distribution graph, from the sieve analysis of the aquifer materials. The filter pack design (as stated above) is based on the gradation of the finest aquifer materials.

2. Multiply the d30 size from the grain-size distribution graph by a factor of four to nine (Pack-Aquifer ratio). A factor of four is used if the formation is fine-grained and uniform (Cu is less than 3), six if it is coarse-grained and non-uniform, and up to nine if it is highly non-uniform and contains silt. Head losses through filter packs increase as the Pack-Aquifer (P-A) ratios decrease. In order to design a fairly stable filter pack with a minimum head loss, the d30 size should be multiplied by a factor of four.

3. Plot the point from step 2 on the d30 abscissa of a grain-size distribution graph and draw a smooth curve with a uniformity coefficient of approximately 2.5.

4. A curve for the permissible limits of the filter pack is drawn plus or minus 8 per cent of the desired curve with the Cu of 2.5.

5. Select the slot openings for the well screen that will retain 90 per cent or more of the filter pack material.

The specific steps and procedures for sieve analysis and filter pack design can be found in soil mechanics, ground water, and water well design books. The staff geologists and/or engineers should be responsible for the correct design of the monitoring wells and should be able to perform the design procedures.

## 2.6 Safety Procedures for Drilling Activities

A site health and safety plan should be developed and approved by the Branch Safety Officer or designee prior to any drilling activities, and should be followed during all drilling activities. The driller or designated safety person should be responsible for the safety of the drilling team performing the drilling activities. All personnel conducting drilling activities should be qualified in proper drilling and safety procedures. Before any drilling activity is initiated, utilities should be marked or cleared by the appropriate state or municipal utility protection organization. In developed areas, additional measures should be taken to locate utilities not covered by the utility protection program. Before operating the drill rig, a pilot hole should be dug (with hand equipment) to a depth of three feet to check for undetected utilities or buried objects. Proceed with caution until a safe depth is reached where utilities normally would not be buried. The following safety requirements should be adhered to while performing drilling activities:

1. All drilling personnel should wear safety hats, safety glasses, and steel toed boots. Ear plugs are required and will be provided by the safety officer or driller.

2. Work gloves (cotton, leather, etc.) should be worn when working around or while handling drilling equipment.

3. All personnel directly involved with the drilling rig(s) should know where the kill switch(s) is located in case of emergencies.

4. All personnel should stay clear of the drill rods or augers while in motion, and should not grab or attempt to attach a tool to the drill rods or augers until they have completely stopped rotating. Rod wipers, rather than gloves or bare hands should be used to remove mud, or other material, from drill stem as it is withdrawn from the borehole.

5. Do not hold drill rods or any part of the safety hammer assembly while taking standard penetration tests or while the hammer is being operated.

6. Do not lean against the drill rig or place hands on or near moving parts at the rear of the rig while it is operating.

7. Keep the drilling area clear of any excess debris, tools, or drilling equipment.

8. The driller will direct all drilling activities. No work on the rig or work on the drill site will be conducted outside of the driller's direction. Overall drill site activities will be in consultation with the site geologist or engineer, if present.

9. Each drill rig will have a first-aid kit and a fire extinguisher located on the rig in a location quickly accessible for emergencies. All drilling personnel will be familiarized with their location.

10. Work clothes will be firm fitting, but comfortable and free of straps, loose ends, strings etc., that might catch on some moving part of the drill rig.

11. Rings, watches, or other jewelry will not be worn while working around the drill rig.

12. The drill rig should not be operated within a minimum distance of 20 feet of overhead electrical power lines and/or buried utilities that might cause a safety hazard. In addition, the drill rig should not be operated while there is lightening in the area of the drilling site. If an electrical storm moves in during drilling activities, the area will be vacated until it is safe to return.

## 2.7 Well Development

A newly completed monitoring well should not be developed for at least 24 hours after the surface pad and outer protective casing are installed. This will allow sufficient time for the well materials to cure before development procedures are initiated. The main purpose of developing new monitoring wells is to remove the residual materials remaining in the wells after installation has been completed, and to try to re-establish the natural hydraulic flow

conditions of the formations which may have been disturbed by well construction, around the immediate vicinity of each well. A new monitoring well should be developed until the column of water in the well is free of visible sediment, and the pH, temperature, turbidity, and specific conductivity have stabilized. In most cases the above requirements can be satisfied; however, in some cases the pH, temperature, and specific conductivity may stabilize but the water remains turbid. In this case the well may still contain well construction materials, such as drilling mud in the form of a mud cake and/or formation soils that have not been washed out of the borehole. Excessive or thick drilling mud cannot be flushed out of a borehole with one or two well volumes of flushing. Continuous flushing over a period of several days may be necessary to complete the well development. If the well is pumped to dryness or near dryness, the water table should be allowed to sufficiently recover (to the static water level) before the next development period is initiated. Caution should be taken when using high rate pumps and/or large volume air compressors during well development because excessive high rate pumping and high air pressures can damage or destroy the well screen and filter pack. The onsite geologist should make the decision as to the development completion of each well. All field decisions should be documented in the field log book.

The following development procedures, listed in approximate increasing order of the energy applied to the formation materials, are generally used to develop wells:

1. Bailing
2. Pumping/overpumping
3. Surging
4. Backwashing ("rawhiding")
5. Jetting
6. Compressed air (with appropriate filtering): airlift pumping and air surging

These development procedures can be used, individually or in combination, in order to achieve the most effective well development. In most cases, over-pumping and surging will adequately develop the well without imparting undue forces on the formation or well materials. Because of the danger of introducing contaminants with the airstream, the possibility of entraining air in the aquifer, and the violent forces imparted to the formation, air surging is the least desired method of development and should only be used where there is a specific need for the procedure. Air-lift pumping is permissible where an eductor pipe is used and several well volumes of water are removed from the well by other pumping means after air-lift pumping. Additional time before the first sampling event should be allowed when using air development methods, particularly airlift. The selected development method(s) should be approved by a senior field geologist before any well installation activities are initiated.

Wells can require a considerable length of time to equilibrate with the aquifer after construction and development. The length of time between development and the first sampling event should be as long as possible with times from 1 to 14 days recommended. The possibility of the first sampling event’s results being non-representative should always be considered.

## 2.8 Well Decommissioning (Abandonment)

When a decision is made to decommission (abandon) a monitoring well, the borehole should be sealed in such a manner that the well cannot act as a conduit for migration of contaminants from the ground surface to the water table or between aquifers. To properly decommission a well, the preferred method is to completely remove the well casing and screen from the borehole, clean out the borehole, and backfill with a cement or bentonite grout, neat cement, or concrete. In order to comply with state well decommissioning requirements, the appropriate state agency should be notified (if applicable) of monitoring well decommissioning. However, some state requirements are not explicit, so a technically sound well abandonment method should be designed based on the site geology, well casing materials, and general condition of the well(s).

### *2.8.1 Decommissioning Procedures*

As previously stated, the preferred method should be to completely remove the well casing and screen from the borehole. This may be accomplished by augering with a hollow-stem auger over the well casing down to the bottom of the borehole, thereby removing the grout and filter pack materials from the hole. The well casing should then be removed from the hole with the drill rig. The clean borehole can then be backfilled with the appropriate grout material. The backfill material should be placed into the borehole from the bottom to the top by pressure grouting with the positive displacement method (tremie method). This abandonment method can be accomplished on small diameter (1-inch to 4-inch) wells without too much difficulty. With wells having 6-inch or larger diameters, the use of hollow-stem augers for casing removal is very difficult or almost impossible. Instead of trying to ream the borehole with a hollow-stem auger, it is more practical to force a drill stem with a tapered wedge assembly or a solid-stem auger into the well casing and extract it out of the borehole. Wells with little or no grouted annular space and/or sound well casings can be removed in this manner. However, old wells with badly corroded casings and/or thickly grouted annular space have a tendency to twist and/or break-off in the borehole. When this occurs, the well will have to be grouted with the remaining casing left in the borehole. The preferred method in this case should be to pressure grout the borehole by placing the tremie tube to the bottom of the well casing, which will be the well screen or the bottom sump area below the well screen. The pressurized grout will be forced out through the well screen into the filter material and up the inside of the well casing sealing holes and breaks that are present.

A PVC well casing may be more difficult to remove from the borehole than a metal casing, because of its brittleness. If the PVC well casing breaks during removal, the borehole should be cleaned out by using a drag bit or roller cone bit with the wet rotary method to grind the casing into small cuttings that will be flushed out of the borehole by water or drilling mud. Another method is to use a solid-stem auger with a carbide tooth pilot bit to grind the PVC casing into small cuttings that will be brought to the surface on the rotating flights. After the casing materials have been removed from the borehole, the borehole should be cleaned out and pressure grouted with the approved grouting materials.

Where state regulations and conditions permit, it may be permissible to grout the casing in place. This decision should be based on confidence in the original well construction practice, protection of drinking water aquifers, and anticipated future property uses. The pad should be demolished and the area around the casing excavated. The casing should be sawn off at a depth of three feet below ground surface. The screen and riser should be tremie grouted with a 30% solids bentonite grout. Pouring bentonite chips into the well will be acceptable with wells large enough for the chips to fall to the bottom (generally 4" or larger).

# 3 Temporary Monitoring Well Installation

## 3.1 Introduction

Five types of temporary monitoring well installation techniques have been demonstrated as acceptable. The type selected for a particular site is dependent upon site conditions. The project leader and site geologist should be prepared to test temporary well installations on site and select the best solution. Temporary wells are cost effective, may be installed quickly, and can provide a rapid assessment of ground water quality.

Temporary monitoring well locations are not permanently marked, nor are their elevations normally determined. Sand pack materials may or may not be used, but typically there is no bentonite seal, grout, surface completion, or extensive development (as it normally applies to permanent monitoring wells). Temporary wells are generally installed, purged, sampled, removed, and backfilled in a matter of hours.

Due to the nature of construction, turbidity levels may initially be high. However, these levels may be reduced by low flow purging and sampling techniques as described in SESD Operating Procedure for Groundwater Sampling, SESDPROC-301.

Temporary wells may be left overnight, for sampling the following day, but the well must be secured, both against tampering and against the fall hazard of the open annulus. If the well is not sampled immediately after construction, the well should be purged prior to sampling as specified in SESD Operating Procedure for Groundwater Sampling, SESDPROC-301.

## 3.2 Data Limitation

Temporary wells described in this section are best used for delineation of contaminant plumes at a point in time, for some site screening purposes, or for determination of groundwater elevations and gradients. They are not intended to replace permanent monitoring wells. Temporary wells can be used in conjunction with a mobile laboratory, where quick-turnaround analytical results can be used to rapidly delineate contaminant plumes.

## 3.3 Temporary Well Materials

Materials used in construction of temporary monitoring wells are the same standard materials used in the construction of permanent monitoring wells. Sand used for the filter pack (if any) should be as specified in Section 2.5.3, Filter Pack Materials. The well screen and casing should be stainless steel for ruggedness and suitability for steam cleaning and solvent rinsing. Other materials may be acceptable, on a case by case basis. Some commercially available temporary well materials, pre-packed riser, screen and filter pack assemblies are available commercially; however, these pre-assembled materials cannot be

cleaned. Appropriate QA/QC must be performed to assure there will be no introduction of contamination.

## 3.4 Temporary Monitoring Well Borehole Construction

Borehole construction for temporary wells is as specified in Section 2.3, using a drill rig. Alternatively, boreholes may be constructed using hand augers or portable powered augers (generally limited to depths of ten feet or less). If a drill rig is used to advance the borehole, the augers must be pulled back the length of the well screen (or removed completely) prior to sampling. When hand augers are used, the borehole is advanced to the desired depth (or to the point where borehole collapse occurs). In situations where borehole collapse occurs, the auger bucket is typically left in the hole at the point of collapse while the temporary well is assembled. When the well is completely assembled, a final auger bucket of material is quickly removed and the well is immediately inserted into the borehole, pushing, as needed, to achieve maximum penetration into the saturated materials.

## 3.5 Temporary Monitoring Well Types

Five types of monitoring wells which have been shown to be acceptable are presented in the order of increasing difficulty to install and increasing cost:

### *3.5.1 No Filter Pack*

This is the most common temporary well and is effective in many situations. After the borehole is completed, the casing and screen are simply inserted. This is the least expensive and fastest well to install. This type of well is extremely sensitive to turbidity fluctuations because there is no filter pack. Care should be taken to not disturb the casing during purging and sampling.

### *3.5.2 Inner Filter Pack*

This type differs from the "No Filter Pack" well in that a filter pack is placed inside the screen to a level approximately 6 inches above the well screen. This ensures that all water within the casing has passed through the filter pack. For this type well to function properly, the static water level must be at least 6-12 inches above the filter pack. The screen slots may plug with this construction method.

### *3.5.3 Traditional Filter Pack*

For this type of well, the screen and casing are inserted into the borehole, and the sand is poured into the annular space surrounding the screen and casing. It may be difficult to effectively place a filter pack in open boreholes, due to collapse.

### *3.5.4 Double Filter Pack*

The borehole is advanced to the desired depth. As with the "inner filter pack" the well screen is filled with filter pack material and the well screen and casing inserted

until the top of the filter pack is at least 6 inches below the water table. Filter pack material is poured into the annular space around the well screen. This type temporary well construction can be effective in aquifers where fine silts or clays predominate.

#### *3.5.5 Well-in-a-Well*

The borehole is advanced to the desired depth. At this point, a 1-inch well screen and sufficient riser is inserted into a 2-inch well screen with sufficient riser, and centered. Filter pack material is then placed into the annular space surrounding the 1-inch well screen, to approximately 6 inches above the screen. The well is then inserted into the borehole.

This system requires twice as much well screen and riser, with attendant increases in assembly and installation time. The increased amount of well construction materials results in a corresponding increase in decontamination time and costs. The use of pre-packed well screens in this application will require rinse blanks of each batch of screens. Pre-pack Screen assemblies cannot be decontaminated for reuse.

### 3.6 Decommissioning

Temporary well boreholes must be decommissioned after sampling and removal of the screen and riser. Use of cuttings for backfilling holes will not be acceptable practice.

# 4 Direct-Push Technology in Groundwater Investigations

## 4.1 Screen Point Samplers

Screen Point samplers allow temporary wells to be established quickly and can return high quality samples. The sampler consists of a stainless steel or PVC screen housed in a hollow steel sheath and topped with a drive cap to adapt to the drive rods in use. A disposable point is inserted in the bottom of the sheath and serves to prevent soil from entering the sheath and damaging the screen during driving.

After driving the sampler to the target depth, an inner rod is inserted to hold the screen down at the bottom of the borehole while the sheath and rods are withdrawn to expose the screen. The disposable point stays at the bottom of the borehole. The inner rod system is withdrawn and sampling can commence immediately.

O-rings are commonly used on the disposable point. The additional friction from the O-ring can prevent the point from being driven off of the sampler in loose material or when encountering a hollow space such as during redriving.

Screen point samplers are deployed to a specified interval. If a greater sampling depth is desired after deployment, the sampler must be withdrawn, reassembled with a new point, and redriven to the greater depth. The standard screens can be withdrawn to a shallower interval if needed, but the sampler would still be accessing the deeper aquifer to some extent.

### *4.1.1 Special Considerations for Screen Point Samplers*

Decommissioning (Abandonment)

Like other wells, temporary screen points should be properly decommissioned. The most common means of decommissioning at SESD is to withdraw the screen point sampler, remove the screen, install a new disposable point, and redrive the sheath to the previously screened interval. A grouting head is attached to the probe rods, and grout pressure applied while withdrawing the rods to pull the disposable point free. The grout volume pumped is carefully managed to match the volume grouted during rod withdrawal.

Where preventing cross-connection of aquifers is critical or potential caving would prevent re-entry, a disposable screen can be used with some systems. The disposable screen is not linked to the sheath and will pull out and be left in the borehole. After sampling, the grouting head is attached to the rods, the rods pumped full of grout, and the sampler sheath is pulled off of the screen. Grouting proceeds as with re-entry grouting.

Geoprobe® Screen Points samplers have a feature available to knock a plug out of the bottom of the screen and thread a small diameter high-pressure grouting tube to

the bottom of the borehole. Grout is pumped through the tubing while rods are withdrawn and left threaded over the tubing aboveground. As this system is unwieldy and cannot reliably pump grout over 20% solids, it is not used at SESD.

SESD pressure-grouts soil sampling boreholes by reentry grouting or tremie grouting when depths exceed 10 ft, or groundwater is encountered. Shallower boreholes can be decommissioned by pouring pellets in short lifts and hydrating each lift with water, or by pouring a pourable grout.

Screen Material Selection

The screen point screens are available in stainless steel and PVC. Because of stainless steel's durability, ability to be cleaned and re-used, and overall inertness and compatibility with most contaminants, it is the material most used for SESD investigations. When stainless steel screens are stowed wet, they should be segregated from carbon steel components. Contact of the stainless screens with carbon steel when wet will cause galvanic corrosion that will shed chrome-bearing material when first flushed.

## 4.2 Groundwater Profiling

Rapid investigations can be facilitated by the use of groundwater profiling systems. A groundwater profiler allows a sampler to be advanced from one area of interest to the next with a discrete groundwater sample collected at each. The system may allow soil samples to be collected during advancement. As some sampler components are common for all samples, the groundwater profiler does not offer the same protection from cross-contamination that separate screen point samples would.

## 4.3 Small-Diameter Well Installation

With some limitations, direct push technology can be used to install permanent monitoring wells of quality commensurate with other drilling systems. The use of small diameter wells limits the possibilities for the pumps to be used in sampling. For shallow groundwater with water levels higher than 25 ft below ground surface, peristaltic pumps can be used with no limitation on minimum well diameter. For water levels deeper than 25 feet below ground surface, bladder pumps may be the only pumping option and well diameters should be 1" nominal diameter with an absolute minimum of ¾" nominal diameter.

Well materials are difficult to place with DPT systems and best results will be achieved with total depths less than 50 ft. It is also difficult or impossible to place bentonite seals, and caution should be used when aquifer isolation is particularly

important. Grout should be placed in the annular space by tremie pipe, as with conventional drilling installation. Grout placement by tremie will likely rule out the use of the smaller diameter tool strings such as 2.125" and 2.25" outside diameter (od). A 3.5" tool string with 2.75" inside diameter (id) will allow room for a 1" nom. diam. casing with grout pumped through ½" nom. dia. tremie. Pre-pack screens are available to install 2" nom. dia. wells in 3.5" od tool string, but grout cannot be placed by tremie with these systems and they should not be used.

Pre-packed screens are typically used, consisting of a slotted well screen surrounded by a sand filter pack wrapped in stainless steel screen wire. Sand packs wrapped by textile materials capable of or intended to filter fines or lower turbidity are unacceptable. Above the pre-packed screen standard well casing matching the slotted screen diameter is used.

Installation involves driving a tool string with disposable point to depth, placing the screen and casing inside, and withdrawing the tool string to dislodge the disposable point. The drive casing is withdrawn to fully expose the screen. Filter pack sand is then added during drive casing withdrawal until sand is placed to 2 ft above the screen. There is a narrow annular space between the pre-pack screen and borehole walls that the added sand may not fully fill. The placement of 2 ft of sand above the screen allows for settling.

Bentonite grout mixed to 30% solids content is then installed by tremie pipe while withdrawing the remaining drive casing. Care must be taken to not jet out the placed filter sand by resting the tremie on the bottom.

Alternate systems are available that use a polyethylene and foam skirt to isolate a bentonite seal wrapped in kraft paper from the screened interval. These systems result in natural development of the entire annular space around the pre-pack screen and introduce several materials that may have compatibility, contaminant leaching, or long-term stability issues. Although the placement of a bentonite seal is desirable, SESD does not use these systems due to concern over the other issues.

| Region 4<br>U.S. Environmental Protection Agency<br>Laboratory Services & Applied Science Division<br>Athens, Georgia | |
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| Operating Procedure | |
| Title: Pore Water Sampling | ID: LSASDPROC-513-R5 |
| Issuing Authority: Field Services Branch Supervisor | |
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| Method Reference: N/A | SOP Author: Mel Parsons |

**Purpose**

The purpose of this operating procedure is to describe the methods and considerations to be used when obtaining a pore water sample from soil or sediment.

**Scope/Application**

This document describes procedures generic to all pore water sampling methods to be used by field personnel when collecting and handling samples in the field. On the occasion that Laboratory Services and Applied Science Division (LSASD) personnel determine that any of the procedures described in this section are inappropriate, inadequate or impractical and that another procedure must be used to obtain a pore water sample, the variant procedure will be documented in the field logbook, along with a description of the circumstances requiring its use. Mention of trade names or commercial products in this operating procedure does not constitute endorsement or recommendation for use.

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# 1 General Information

## 1.1 Documentation/Verification

This procedure was prepared by persons deemed technically competent by LSASD management, based on their knowledge, skills and abilities and has been tested in practice and reviewed in print by a subject matter expert. The official copy of this procedure resides on the LSASD local area network (LAN). The Document Control Coordinator is responsible for ensuring the most recent version of the procedure is placed on the LAN and for maintaining records of review conducted prior to its issuance.

## 1.2 General Precautions

### 1.2.1 Safety

Proper safety precautions must be observed when collecting pore water samples. Refer to the LSASD Safety, Health and Environmental Management Program Procedures and Policy Manual (most recent version) and any pertinent site-specific Health and Safety Plans (HASP) for guidelines on safety precautions. These guidelines, however, should only be used to complement the judgment of an experienced professional. When using this procedure, minimize exposure to potential health hazards through the use of protective clothing, eye wear and gloves. Address chemicals that pose specific toxicity or safety concerns and follow any other relevant requirements, as appropriate.

### 1.2.2 Procedural Precautions

The following precautions should be considered when collecting pore water samples:

- Special care must be taken not to contaminate samples. This includes storing samples in a secure location to preclude conditions which could alter the properties of the sample. Samples shall be custody sealed during long-term storage or shipment.
- Collected samples are in the custody of the sampler or sample custodian until the samples are relinquished to another party.
- If samples are transported by the sampler, they will remain under his/her custody or be secured until they are relinquished.
- Shipped samples shall conform to all U.S. Department of Transportation (DOT) rules of shipment found in Title 49 of the Code of Federal Regulations (49 CFR parts 171 to 179), and/or International Air Transportation Association (IATA) hazardous materials shipping requirements found in the current edition of IATA's Dangerous Goods Regulations.
- Documentation of field sampling is done in a bound logbook. Chain-of-custody documents shall be filled out and remain with the samples until custody is relinquished.

- All shipping documents, such as bills of lading, will be retained by the project leader and stored in a secure place.

### 1.2.3 Records

Information generated or obtained by LSASD personnel will be organized and accounted for in accordance with LSASD records management procedures found in LSASD Operating Procedure for Control of Records, LSASDPROC-002 (most recent version). Field notes, recorded in a bound field logbook, will be generated, as well as chain-of-custody documentation, in accordance with LSASD Operating Procedure for Logbooks, LSASDPROC-010 (most recent version), and LSASD Operating Procedure for Sample and Evidence Management, LSASDPROC-005 (most recent version).

# 2 Sampling Methodology

## 2.1 General

The pore water sampling techniques and equipment described in this procedure are designed to minimize effects on the chemical and physical integrity of the sample. If the procedures in this section are followed, a representative sample of the pore water should be obtained.

## 2.2 Collection Considerations

The physical location of the investigator when collecting a sample may dictate the equipment to be used. Wading is the preferred method for reaching the sampling location, particularly if the stream has a noticeable current (i.e., is not impounded). However, wading may disrupt bottom sediments causing biased results; therefore, the sampler should enter the area downstream of the sampling location and collect the sample facing upstream. If the stream is too deep to wade, the pore water sample may be collected from a platform such as a boat or by SCUBA diving. If sampling from a boat or in water deeper than the length of the sampler, extensions may be utilized. If SCUBA diving, all diving activity must be conducted in accordance with EPA's Diving Safety Manual, current version.

## 2.3 Summary of Procedure

Pore water is collected using a pore water extracting device (Figure 1). The most common type used by LSASD is the PushPoint™ sampler (M.H.E. Products 2003), made out of stainless-steel tubing. The sampling end of the pore water device is inserted into the sediment to the desired depth, and pore water is extracted using a syringe or peristaltic pump. The device is suitable for use only in fine-grained material (no gravel or cobble). Other similar devices may be used providing that the integrity of the sample is maintained, and no ambient surface water is allowed in contact with the sample.

## 2.4 Sampling Equipment

A PushPoint™ or similar sampler typically consists of a pointed tubular stainless-steel tube with a screened zone at one end and a sampling port at the other. The pointed end with the screened zone consists of a series of very fine interlaced machined slots to allow pore water to enter the sampler.

A removable guard rod adds rigidity to the sampler during sediment insertion. The length of the screened zone will depend on the site-specific study design. Depending on the data quality objectives (DQO) of the study, filters may be placed over the screened zone if additional screening is needed. Pore water is collected through the opposite end of the device by connecting flexible tubing and using a syringe or peristaltic pump to extract the sample. Teflon® tubing is the preferred tubing to be used for collecting pore water samples. However, other tubing may be used, depending upon the DQOs for the specific application.

There are many modifications that can be incorporated into the procedure to satisfy data quality objectives for a specific application. The procedures discussed in the following sections provide guidance on the basic operation of pore water sampling devices and issues to consider when collecting pore water.

An alternative system is available in LSASD inventory for use in soft sediments in water deeper than wading depth. A well screen and short riser approximately ¾" in diameter are threaded to fasten to the bottom of a custom flange. Internal threads on the screen accept a tubing adapter. The accompanying rimmed flange has a coupling with both top and bottom threads. The well screen is screwed into the bottom of the flange and Teflon® tubing is attached to the tubing adapter threaded into the well screen. For deployment, the tubing is then inserted through a PVC pipe or well casing which is then screwed into the upper threads of the flange. The entire assembly can be deployed in water up to ten feet of depth from a well anchored boat.

## 2.5 Pore Water Sampler Deployment Considerations

It is critical in the collection of pore water to avoid surface water intrusion. Water will flow in a path of least resistance. If space is created around the sides of the sampling end of the pore water device during deployment, surface water may flow down the outside of the device to the screened area and into the intended sample. Therefore, the pore water device should be used with a sampling flange (Figure 2), especially when collecting pore water near the sediment-surface water interface. If pore water is collected from deep in sediments, a flange may not be necessary. When inserted though the flange, the body of the pore water device should form a watertight seal to eliminate surface water intrusion during sample collection. Flanges should include an outer vertical cutting ring to enhance sealing. Flange systems can be augmented by flexible plastic sheeting of appropriate material. The sheeting can be weighted to conform to a stream bottom by objects obtained from other areas of the stream away from the sampling location. Several of the flanges in LSASD inventory have a threaded nut and washer to facilitate sealing the flange to a polyethylene sheet.

The flange can be made of any material that will not cross contaminate the intended sample. If both inorganic and organic analyses are required, the flange should be made of inert material such as stainless steel or Teflon®. The size of the flange depends on the volume of pore water to be collected. If large volumes of pore water are to be collected, use a large flange size. A useful estimate can be made for planning by taking the required water volume, tripling it to assume 33% porosity, and then calculating the dimensions of a cylinder of this volume, based upon the penetration depth of the sampler. The flange should cover at least this estimated volume. If it is not practical to use a large flange, then multiple devices may be deployed, and smaller volumes can be collected from several devices for a composite sample. If multiple devices are deployed, they should be spaced an appropriate distance apart so they will not interfere with one another.

In general, the volume of pore water that can be collected at a given location is limited. Collecting large volumes of pore water will ultimately result in the collection of water from the overlying water body. Often, minimum required volumes must be negotiated with the laboratory to limit the volumes withdrawn.

Where significant differences in parameters such as pH or conductivity exist between the surface water and pore water, a check can be made at the end of sampling to assess whether surface water intrusion has occurred by measuring the pore water parameters at the beginning and conclusion of sampling. Fluorescent dye tracing can also be used for this purpose.

## 2.6 Pore Water Collection

The flange is first placed at the desired sampling point with the push-point removed to allow any water to escape from under the flange. The flange rim should be carefully worked into the soil or sediment until the flange is flush with the surface. The pore water device should then be inserted through the compression adapter on the flange and into the soil or sediment as carefully as possible (Figure 2). When the sampler is inserted to the desired depth, the compression adapter should be tightened. The push-point's guard rod can then be withdrawn. Do not reinsert the guard rod into the sampler for any reason until the sampler has been cleaned (particles rolled between the two metal surfaces will lock the parts together and permanently damage the sampler.)

When deploying the pore water device, care must be taken not to disturb the sampling area. If the sampler is wading, the sampler should lean out and insert the pore water device as far as possible away from where the sampler is standing to reduce potential effects of the sampler on the integrity of the pore water sample. Depth of penetration of the pore water device depends on the objectives of the specific investigation.

After the pore water device has been successfully deployed, attach the sample tubing to the sampling port of the pore water device. Short pieces of Silastic® tubing can be used to splice Teflon® sample tubing to a push-point sampler, taking care to butt the tubing to the sampler at the center of the splice. Then attach the other end of the tubing to a sample withdrawing device, such as a syringe or a peristaltic pump (according to LSASD Operating Procedure for Pump Operation, LSASDPROC-203). Before collecting a pore water sample, be sure to purge out all air and surface water from the pore water sampler and sample tubing with the appropriate amount of pore water. This step can be accomplished by calculating the volume of the sampler and attached tubing and pumping this volume plus an additional 10 percent of pore water through the sampler and tubing prior to collecting the sample. If utilizing a syringe for collection, a three-way valve with a side syringe must be utilized for the surface water purge in order not to cross contaminate the sampling syringe.

### 2.6.1 Peristaltic Pump/Vacuum Jar Collection

The peristaltic pump/vacuum jug can be used for sample collection of organic or inorganic samples because it allows for the sample to be collected without coming in contact with the pump head tubing, maintaining the integrity of the sample. This is accomplished by placing a Teflon® transfer cap assembly onto the neck of a pre-cleaned standard 1-liter amber glass container (Figure 3). Teflon® tubing (¼-inch O.D.) connects the container to both the pump and the sample source. The

pump creates a vacuum in the container, thereby drawing the sample into the container without it coming into contact with the pump head tubing.

Because the sample is exposed to a vacuum and is agitated as it enters the vacuum jug, this method cannot be used for collection of samples for volatile organic compounds. An alternative method for collecting volatile organics involves filling the Teflon® tubing with sample by running the pump for a short period of time. Once the tubing is full of water, the tubing is removed from the pore water sampler and, then pinched off at the pump in order to maintain the vacuum while it is being disconnected from the pump head tubing. The water is then allowed to carefully drain, by gravity, into the sample vials. Alternatively, without disconnecting the tubing from the pump head, the contained sample can be pushed out of the tubing, into the sample vials, by reversing the peristaltic pump at very low speed. Great care must still be taken with this method in order not to agitate the sample during the transfer process or to transfer water that has been in contact with the Silastic® tubing into the vials.

Because pore water is typically collected from an anaerobic environment, it is preferable, especially when collecting samples for nutrient analysis, to maintain the integrity of the sample by minimizing exposure to air. This can be accomplished by purging the sample container with an inert gas such as nitrogen or argon prior to sampling. In addition, if analyzing for nutrients or metals, the container can be pre-preserved in order to minimize exposure of the sample to ambient conditions.

An alternative, when collecting samples for metals, nutrients, or other sample analyses not affected by Silastic® tubing and when exposure to air is not a concern, is to collect the sample directly from the discharge of the pump head tubing after an adequate purge has been demonstrated. When collecting samples in this manner, there are several considerations of which to be aware. The pump head tubing (Silastic®, etc.) must be changed after each sample and a rinsate blank must be collected from a representative piece of the pump head tubing (only one blank per investigation). Also, precautions must be taken to ensure that the end of the discharge tubing is not allowed to touch the ground or other surface to ensure the integrity of samples collected in this manner.

### 2.6.2 Syringe

An alternative to using the pump and vacuum container is to use a syringe as the mechanism to draw the pore water through the sampling device. The tubing from the sampling port of the pore water device can be directly attached to a syringe with a three-way valve and a side syringe and the pore water sample can be manually withdrawn. The valve is first switched to the side syringe, which is used for purging air and any ambient surface water in the system prior to sampling. The volume to be purged is determined by the length and diameter of the sampling device and attached tubing. Once the sampler has been purged, the valve is switched to the sampling syringe and the sample is drawn into the syringe. The syringe can be used as the final sample container or the pore water can be transferred to another container, depending on project objectives and analytical requirements. This is the best method to use if the sample is to be collected underwater by SCUBA diving.

## 2.7 Quality Control

If possible, a control or background sample should be collected from a location not affected by the possible contaminants of concern and submitted with the other samples. In streams or other bodies of moving water, the control sample should be collected upstream of the sampled area. For impounded bodies of water, particularly small lakes or ponds, it may be difficult or inappropriate to obtain an unbiased control from the same body of water from which the samples are collected. In these cases, it may be appropriate to collect a background sample from a similar impoundment located near the sampled body of water if there is a reasonable certainty that the background location has not been impacted. Equipment blanks should be collected if equipment is field cleaned and reused on-site or, if necessary, to document that low- level contaminants were not introduced by pumps, bailers or other sampling equipment.

### 2.8 Specific Sampling Equipment Quality Assurance Techniques

All equipment used to collect pore water samples shall be cleaned as outlined in the LSASD Operating Procedure for Field Equipment Cleaning and Decontamination, LSASDPROC-205 (most recent version) or LSASD Operating Procedure for Field Equipment Cleaning and Decontamination at the FEC, LSASDPROC-206 (most recent version) and repaired, if necessary, before being stored at the conclusion of field studies. Cleaning procedures utilized in the field or field repairs shall be thoroughly documented in field records.

## 3 Special Sampling Considerations

### 3.1 Volatile Organic Compounds (VOC)

Pore water samples for VOC analysis must be collected in 40 ml glass vials with Teflon® septa. The vial may be either preserved with concentrated hydrochloric acid or they may be unpreserved. Preserved samples have a two-week holding time, whereas, unpreserved samples have only a seven day holding time. During most sampling events, preserved vials are used due to their extended holding time. In some situations, however, it may be necessary to use unpreserved vials. For example, if the surface water sample contains a high concentration of dissolved calcium carbonate, there may be an effervescent reaction between the hydrochloric acid and the water, producing large numbers of fine bubbles. This will render the sample unacceptable. In this case, unpreserved vials should be used, and arrangements must be confirmed with the laboratory to ensure that they can accept the unpreserved vials and meet the shorter sample holding times.

Samples for VOC analysis must be collected using either stainless steel or Teflon® equipment. Samples should be collected with as little agitation or disturbance as possible. The vial should be filled so that there is a meniscus at the top of the vial and absolutely no bubbles or headspace should be present in the vial after it is capped. After the cap is securely tightened, the vial should be inverted and tapped on the palm of one hand to see if any undetected bubbles are dislodged. If a bubble or bubbles are present, the vial should be refilled. Care should be taken not to flush any preservative out of the vial during topping off. If, after attempting to refill and cap the vial, bubbles are still present, a new vial should be obtained, and the sample should be re-collected.

### 3.2 Dissolved Metals Sample Collection

If a dissolved metals pore water sample is to be collected, an in-line filtration should be used. The use of disposable, high-capacity filter cartridges (barrel-type) or membrane filters in an in-line filter

apparatus is preferred. The high-capacity, barrel-type filter is preferred due to the higher surface area associated with this configuration.

Potential differences could result from variations in filtration procedures used to process water samples for the determination of trace element concentrations. A number of factors associated with filtration can substantially alter "dissolved" trace element concentrations; these include filter pore size, filter type, filter diameter, filtration method, volume of sample processed, suspended sediment concentration, suspended sediment grain-size distribution, concentration of colloids and colloidally-associated trace elements, and concentration of organic matter. Therefore, consistency is critical in the comparison of short-term and long-term results. Further guidance on filtration may be obtained from Section 4.7.3 of the LSASD Groundwater Sampling Procedure (LSASDPROC-301).

## 3.3 Special Precautions for Pore Water Sampling

- A clean pair of new, non-powdered, disposable latex gloves will be worn each time a different location is sampled, and the gloves should be donned prior to handling sampling equipment. The gloves should not come in contact with the media being sampled and should be changed any time during sample collection when their cleanliness is compromised.
- All background or control samples shall be collected and placed in separate ice chests or shipping containers. Sample collection activities shall proceed progressively from the least suspected contaminated area to the most suspected contaminated area. Samples of waste or highly contaminated media must not be placed in the same ice chest as environmental (i.e., containing low contaminant levels) or background samples.
- If possible, one member of the field sampling team should take all the notes and photographs, fill out tags, etc., while the other members collect the samples.
- Samplers must use new, verified, certified clean disposable equipment, or pre-cleaned non-disposable equipment. Non-disposable equipment should be pre-cleaned according to procedures contained in LSASD Operating Procedure for Field Equipment Cleaning and Decontamination (LSASDPROC-205), for collection of samples for trace metals or organic compound analyses.

## 3.4 Sample Handling and Preservation Requirements

- Pore water will typically be collected using a peristaltic pump and placed directly into sampling containers. In some cases, a syringe may be used to collect the pore water and then either left in the syringe as the sample container or transferred into an appropriate container.
- During sample collection, if transferring the sample from a collection device, make sure that the device does not come in contact with the sample containers.
- Place the sample into appropriate, labeled containers. Samples collected for VOC analysis must not have any headspace (see Section 3.1).
- All samples requiring preservation must be preserved as soon as practically possible, soon after sample collection. If pre-preserved VOA vials are used, these will be preserved with concentrated hydrochloric acid prior to departure for the field investigation. For all other chemical preservatives, LSASD will use the appropriate chemical preservative generally stored in an individual single-use vial as described in the LSASD Operating Procedure for Field Sampling Quality Control (LSASDPROC-011). The adequacy of sample preservation will be checked after the addition of the preservative for all samples, except for the samples collected for VOC analysis. If it is determined that a sample is not acceptably preserved, additional preservative should be added to achieve adequate preservation. Preservation requirements for surface water samples are found in

the USEPA Laboratory Services Branch *Laboratory Operations and Quality Assurance Manual* (LOQAM).

Figure 1. Pore Water Sampling Device

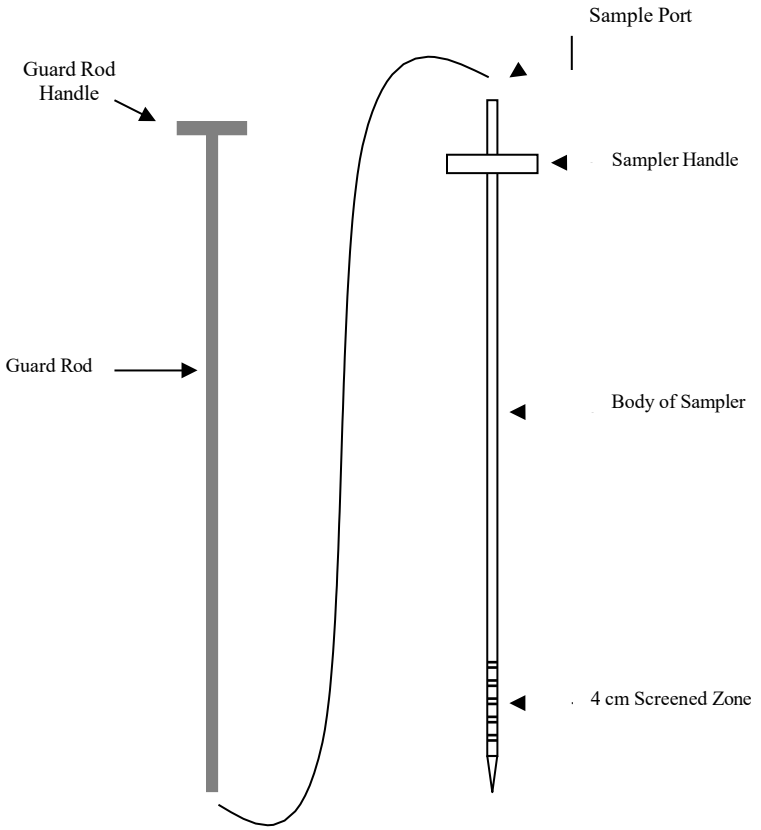



Figure 1A. Disassembled Device

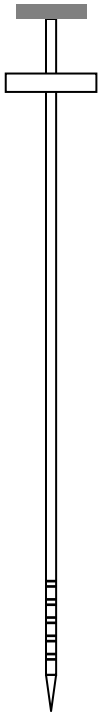


Figure 1B. Assembled Device

Actual length and width of device will vary, depending on sampling needs and site conditions.
Note: cm = centimeter

Figure 2. Pore Water Sampler Deployment Using a Sampling Flange

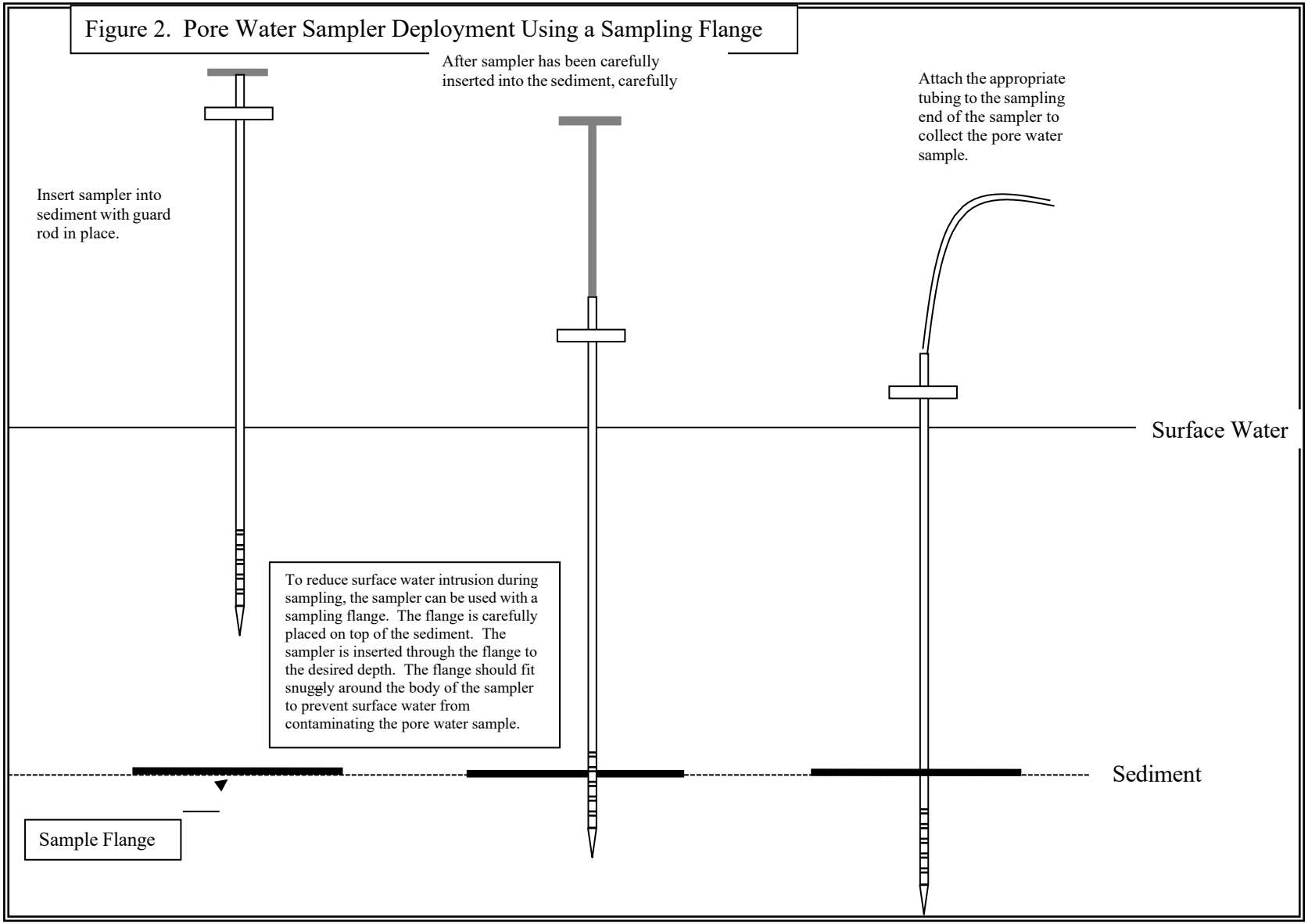
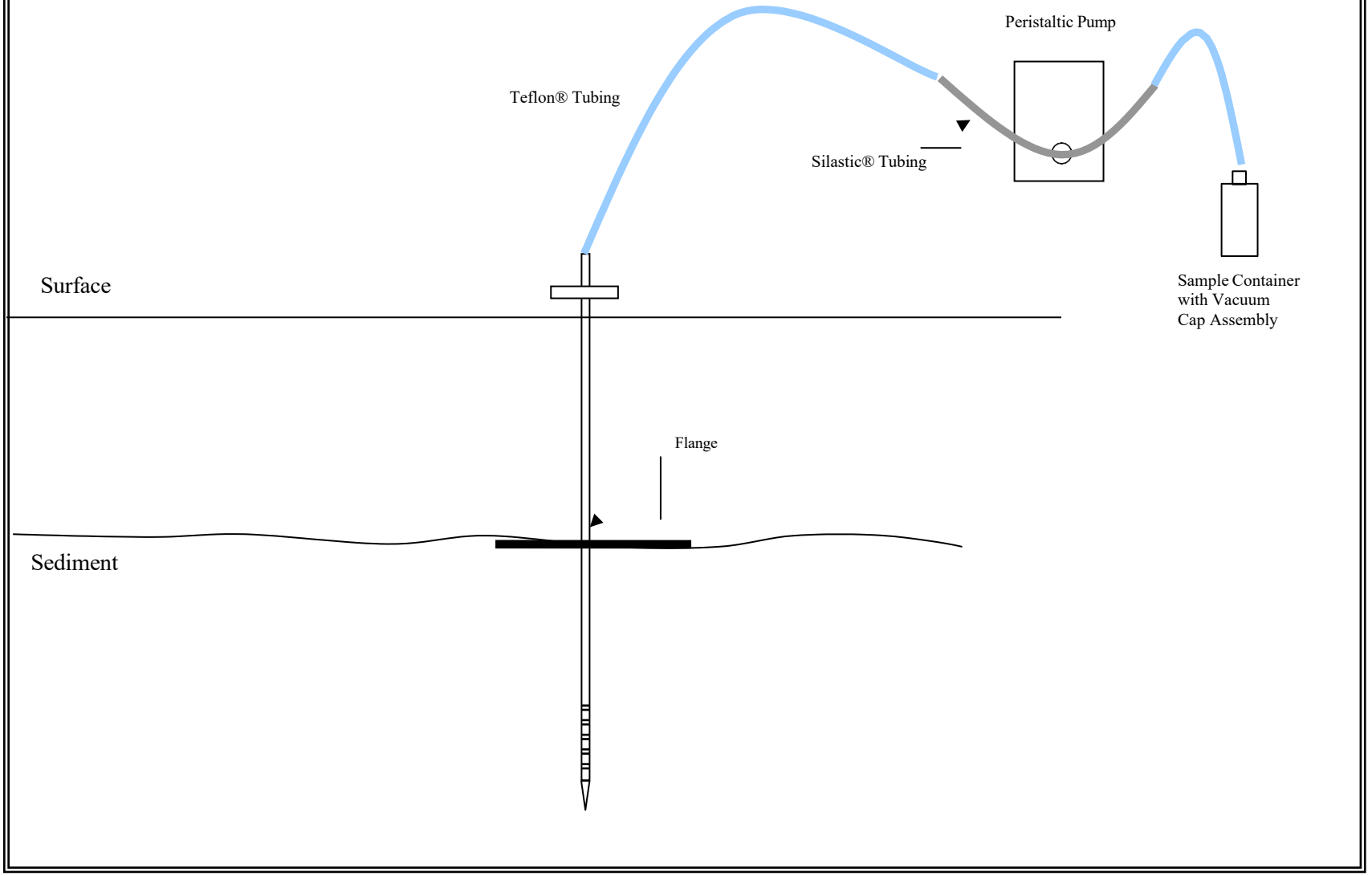


Figure 3. Pore Water Sampler Deployment Using a Peristaltic Pump to Sample



## References

International Air Transport Authority (IATA). Dangerous Goods Regulations, Most Recent Version.

M.H.E. Products. 2003. PushPoint Sampler (US Pat. # 6,470,967) Operators Manual and Applications Guide, Version 2.01. East Tawas, MI. http://www.mheproducts.com

LSASD Operating Procedure for Control of Records, LSASDPROC-002, Most Recent Version.

LSASD Operating Procedure for Sample and Evidence Management, LSASDPROC-005, Most Recent Version.

LSASD Operating Procedure for Logbooks, LSASDPROC-010, Most Recent Version.

LSASD Operating Procedure for Surface Water Sampling, LSASDPROC-201, Most Recent Version.

LSASD Operating Procedure for Pump Operation, LSASDPROC-203, Most Recent Version.

LSASD Operating Procedure for Field Equipment Cleaning and Decontamination, LSASDPROC-205, Most Recent Version.

LSASD Operating Procedure for Field Equipment Cleaning and Decontamination at the FEC, LSASDPROC-206, Most Recent Version.

LSASD Operating Procedure for Groundwater Sampling, LSASDPROC-301, Most Recent Version.

LSASD Operating Procedure for Potable Water Supply Sampling, LSASDPROC-305, Most Recent Version.

Title 49 Code of Federal Regulations, Pts. 171 to 179, Most Recent Version.

USEPA LSBLOQAM. Laboratory Services Branch Laboratory Operations and Quality Assurance Manual Region 4, Laboratory Services and Applied Science Division, Athens, GA. Most Recent Version.

USEPA SHEMP Safety, Health and Environmental Management Program Procedures and Policy Manual. Laboratory Services and Applied Science Division, Region 4, Athens, GA. Most Recent Version.

LSASD Operating Procedure for Field Sampling Quality Control, LSASDPROC-011, Most Recent Version.

USEPA. 2016. Diving Safety Manual, current version. US Environmental Protection Agency, Washington, DC.

## Revision History

The top row of this table shows the most recent changes to this controlled document. For previous revision history information, archived versions of this document are maintained by the LSASD Document Control Coordinator on the LSASD local area network (LAN).

| History | Effective Date |
|---|---|
| Replaced Chief with Supervisor; General formatting revisions. | April 22, 2023 |
| LSASDPROC-513-R4, Pore Water Sampling, *replaces SESDPROC-513-R3.*<br><br>Laboratory Services and Applied Science Division replaces Science and Ecosystem Support Division<br><br>**Title Page:** Changed the Field Quality Manager from Hunter Johnson to Stacie Masters.<br><br>**General:** Corrected typographical, grammatical, and/or editorial errors.<br><br>Added language to clarify some procedures. | May 13, 2020 |
| SESDPROC-513-R3, Pore Water Sampling, replaces SESDPROC-513-R2.<br><br>**General:** Corrected any typographical, grammatical, and/or editorial errors.<br><br>**Title Page:** Changed the Field Quality Manager from Bobby Lewis to Hunter Johnson. Updated cover page to represent SESD reorganization. John Deatrick was not listed as the Supervisor of the Field Services Branch | December 16, 2016 |
| SESDPROC-513-R2, Pore Water Sampling, *replaces SESDPROC-513-R1.* | February 28, 2013 |
| SESDPROC-513-R1, Pore Water Sampling, *replaces SESDPROC-513-R0.* | January 29, 2013 |
| SESDPROC-513-R0, Pore Water Sampling, *Original Issue* | February 05, 2007 |

# FT 1800. Field Measurement of Stage, Surface Water Velocity, and Discharge (Flow) and Computation of Streamflow

Use FT 1800 in conjunction with the following DEP Standard Operating Procedures (SOPs):

- FA 1000 Regulatory Scope and Administrative Procedures
- FD 1000 Documentation Procedures
- FM 1000 Field Planning and Mobilization
- FT 1400 Field Measurement of Temperature

## FT 1801. *Introduction*

Streamflow, or discharge, is defined as the volumetric rate of flow of water (volume per unit time) in a channel. This can include any sediment or other solids that move with the water. Use the procedures described and referenced in FT 1800 to measure and compute discharge of flowing surface waters. For purposes of this SOP, "surface waters" shall be those waters meeting the definition of surface water in subsection 62-302.200(38), F.A.C, and the definition of "waters" in Section 403.031(13), F.S. This SOP cites widely accepted procedures published by the United States Geological Survey (USGS), such as *Techniques in Water-Resource Investigation* (TWRI), Book 3, Chapters A1-A21; and, *Techniques and Methods* (TM), Book 3, Chapters A7, A8, A19, A22, and A23, for measurements of stage (water level) and velocity, and computation of flow for various environmental conditions and constructed water conveyances. These required procedures are incorporated by reference in rule 62-160.800, F.A.C. (Chapter 62-160, Quality Assurance), and are referenced throughout this SOP using abbreviations for the USGS books and chapters identified above (i.e., "TWRI 3-A21," "TM 3-A7").

## FT 1810. EQUIPMENT

Select equipment and necessary supplies according to directions provided in the USGS standard procedures cited in this SOP. Document measurement locations, equipment and supplies used for site measurements according to requirements in FT 1850, below. Staff must be trained to use selected equipment before conducting measurements. This section describes selected types of equipment typically used.

1. Selection of Current Meters and Profilers

Select the appropriate current meter and method identified below, taking into consideration the depth and velocity to determine discharge by direct measurements. Refer to Table 6 in TM 3-A8 as a guide in meter selection.

1.1. Mechanical meters measure point-velocities based on the principle of proportionality between the velocity of the water and the resulting angular velocity of the meter motor.

1.2. Electromagnetic meters measure point-velocities based on the principle that water moving through a magnetic field will produce an electrical current. Electromagnetic meters measure the electrical current to determine the velocity of flowing water.

1.3. Acoustic velocity meter (AVM) systems are non-mechanical devices that measure the velocity of flowing water by sonic signal and the acoustic travel time technique. AVMs can measure a wider range of velocities than mechanical meters and are deployed at a gaging station to provide continuous records in tidally affected areas or areas with variable backwater conditions.

1.4. Acoustic Doppler Velocity meters (ADVM) are non-mechanical devices that measure a volume of velocities in the water column based on the Doppler principle. Velocity of the

water is measured using transmitted and received signals from sound pulses reflecting off particles moving in the water column. Some models are used for discharge measurements while others are deployed at gages to compute discharge by the index-velocity method.

1.5. Acoustic Doppler Current Profilers (ADCP) measure velocity magnitude and direction using the Doppler shift of acoustic energy reflected by material suspended in the water column, providing a profile of velocity through the water column. Some models are used for discharge measurements while others are deployed at gages to compute discharge by the index-velocity method.

2. Maintenance of Current Meters and Profilers

Maintain meters and check performance to assure quality of measurements. Do not repair meters or profilers during a discharge measurement at a site. Do not change meters or profilers while conducting a discharge measurement at a site.

2.1. Mechanical and Electromagnetic Meters for point-velocity measurements.

2.1.1. Before using, check meter and repair or replace any broken parts.

2.1.2. Clean and oil meter to maintain optimum performance.

2.1.3. For mechanical meters, perform a spin test to ensure the meter is working properly before and after each event. Record results of the test.

2.1.4. For electromagnetic meters, calibrate in still water per manufacturer's instructions.

2.1.5. Follow directions provided in TM 3-A8 to conduct the test required for the specific meter types.

2.2. Acoustic velocity meters (AVM) for continuous measurements.

2.2.1. Enlist expert staff to install and maintain AVMs for peak performance in accordance with the meter manufacturer's manual.

2.2.2. Inspect the meter for cleanliness and signs of any damage from field use, and document any actions taken to clean or repair the instrument.

2.3. Acoustic Doppler Velocity meters (ADVM) for point-velocity measurements or for continuous measurements.

2.3.1. Review internal diagnostics during every field visit.

2.3.2. Visually inspect meter for signs of damage before and after field use.

2.3.3. Complete onboard quality control test with each measurement.

2.3.4. Perform beam checks under the following conditions:

- When instrument is received and installed;
- If damage has occurred or is suspected;
- After a firmware upgrade or repair was made;
- After any quality control test failures; and,
- During every field visit.

2.4. Acoustic Doppler Current Profilers (ADCP): Follow the steps below before, during and after use of ADCPs.

2.4.1. Ensure the ADCP is in working order with the latest approved firmware and there is sufficient space on the memory card.

2.4.2. Set ACDP onboard clock, perform diagnostic tests via software menus, and store test results on field computer. Document the ADCP diagnostic test results.

2.4.3. Compare ADCP temperature reading to an external, or separate, thermistor before each deployment. ADCP reading must be within 2° C of external thermistor that has been verified per DEP SOP FT 1400. If the temperature measured by the ADCP temperature sensor differs repeatedly from the independent temperature measurement by 2°C or more, or if the ADCP temperature sensor has failed, the ADCP should not be used to make discharge measurements until the temperature sensor is repaired and checked. If a discharge measurement is necessary and another ADCP is not readily available, it may be possible to enter a temperature manually for use in the speed-of-sound calculations. This action is not recommended as standard practice, however, and it may decrease the accuracy of the discharge measurement (see TM 3-A22).

2.4.4. Measure and document any other parameters required by the manufacturer's manual.

## FT 1820. DIRECT MEASUREMENT METHODS FOR DETERMINING DISCHARGE AT GAGING STATIONS AND OTHER LOCATIONS

Direct measurements are made at gaging stations to determine daily discharge, instantaneous stage and discharge, or annual extremes in stage and discharge. For instructions on how to establish a new gaging station, see TWRI 3-A6. Discharge may need to be determined at other locations for specific project requirements. The information below is used for the determination of discharge by direct measurements.

### FT 1821. *Stage Measurements at Gaging Stations*

1. Establish the stage, or gage, height of zero flow (GZF). Gage height of zero flow occurs at a constructed or natural control feature at which the flow ceases at a determined gage height. Measure and document the GZF during low or no flow. The characteristics of some waterbodies may prohibit the measurement of the GZF.
2. All stage measurement devices must have a measuring resolution of 0.01 ft.
3. A primary reference gage and auxiliary reference gage must be installed at each gaging station. The primary reference gage is a non-recording gage used to set and check the recording gage that automatically records the stage of the water body. The auxiliary reference gage is a second, non-recording gage used to verify the primary reference gage, and detect any elevational movement due to substrate settling or other disturbances. The auxiliary reference gage must be installed structurally independent of the recording and the primary reference gages.
4. Proceed with the following steps to take stage measurements at gaging stations.
   4.1. Before taking stage measurements, inspect the system for proper operation.
   4.2. Measure the stage at the primary reference gage and compare to the gage station recorder during each site visit. If the recorder and primary reference gage differ by more than 0.02 feet, investigate the possible causes of error and adjust according to TM 3-A7. If there is a known difference between the recorder and primary reference gage, apply a correction factor according to TM 3-A7. Document any adjustments or corrections.
   4.3. Record any deviation between the recorder and the reference gage as well as maintenance performed. Indicate personnel performing the maintenance.
   4.4. If the stage at the gaging station fluctuates ≥ 0.1 ft during the measurement period, report gage heights to the nearest 0.1 ft and note the conditions.

5. See procedures in TM 3-A7 for instructions on maintaining gaging stations and obtaining stage measurements.

## FT 1822. *Midsection method for the determination of discharge*

1. Discharge measurements are commonly made by direct current-meter measurements at gaging stations or project defined locations. Methods of computation and determination may vary depending on how the measurements are taken in the field. Refer to the following procedures and references to determine discharge by direct measurements at a gaging station and project defined locations**.**
2. Select the site with as many qualities listed below, which allow for the highest level of accuracy of measurements for determining flow:
    - Reasonably straight channel with streamlines parallel to each other;
    - Stable streambed free of large rocks, weeds, and other obstructions that would create eddies, slack water, or turbulence; and
    - For measurements associated with a gaging station, locate the cross-section as close to the gaging station as possible.
3. If a moving boat is to be used with current meters, refer to TWRI 3-A11.
4. If a cableway is to be installed and used, refer to TM 3-A21.
5. Select current meter and velocity measurement methods based on site conditions and project requirements, including data quality objectives, according to TM 3-A8**.**
6. Determine the width of the cross section with tapes and taglines, surveying methods, or research grade Global Positioning System (GPS).
7. Estimate the number of subsections within a cross-section at which velocity will be measured so that each subsection will contribute approximately 5% and no more than 10% of the total calculated discharge, using historical transect data for the site, if available. Increase or decrease width of subsections during the measurement procedure, as needed, throughout the cross section to meet the 5% target. Resulting flow measurement accuracy is highest if the 5% target is achieved for all subsections, but the 5% target may not be achievable at some sites (narrow streams, for example). The number of subsections that do not meet the 5% target or 10% limit is a component of the quality evaluation of the discharge measurement in FT 1824. See TM 3-A8 for further instruction.
8. Measure depth of the vertical (i.e., the waterbody depth) using equipment applicable to the site and the flow measurement method (i.e., wading, bridge, cableway, or boat) according to TM 3-A8 descriptions.
9. Conduct velocity measurements in each subsection per the requirements of the method selected in section 5, above.
    9.1. Inspect the current meter and check operation prior to, during and after the measurement event as described in FT 1810.
    9.2. Hold the meter in the measurement location for the time described in the instrument manual (typically 40-70 seconds) before recording a reading**.** Reduce stabilization time if the stream is large with rapidly changing stage.
    9.3. Record the velocity at each measurement point.
10. If the discharge measurement is at a gaged site, compute discharge as soon as possible based on equations found in TM 3-A8. Check all calculations after computation for correctness.
11. Compare computed discharge to chosen or established rating curve, if a rating curve for the site exists, and determine the difference. If different by 10% or more, repeat measurement

under the same conditions. If the computed discharge from the second measurement is within 5% of the first, consult an experienced hydrographer to evaluate the discharge results and rating curve.

**FT 1823.** *Determination of Discharge from a Moving Boat Using Acoustic Doppler Profilers (ADCP)*

1. Acoustic Doppler Current Profilers (ADCP) are commonly used to determine discharge in large rivers and estuarine water. This technology differs from that used in traditional discharge measurements and requires practiced techniques for accurate measurement as well as expert knowledge to conduct with accuracy. Wading is not recommended with ADCPs. Use the following procedures and TM 3-A22 to determine discharge with ADCPs in a moving boat.
2. Site selection: Consider the following for ADCP use, in addition to conditions listed in FT 1822, section 2.1:
   - Left and right edges of the transect should be deep enough for measurement of velocity within two or more depth cells, or bins, as defined by the instrument's software, while being close enough to minimize the amount of discharge that must be estimated at the edges of the waterbody. A transect is a straight line from one bank of a waterway to the opposing bank, perpendicular to the flow, along which ADCP measurements are taken.
   - Avoid measurement sections having local magnetic fields (e.g., underwater cable crossings) due to overhead truss bridges, low steel beam spans, power lines and other sources of magnetism to minimize interference with the internal compass.
   - Avoid asymmetric channel geometries and cross sections with abrupt changes in channel-bottom slope. The streambed should be as uniform as possible and free of obstructions, such as debris and rooted vegetation.
3. Set up and configure the ADCP according to the manufacturer's specifications for the model.
4. Prepare for the discharge measurement by completing the following as described in TM3-A8:
   4.1. Perform diagnostic test and log results according to the instrument's manual.
   4.2. Conduct and record a moving bed test as described in TM 3-A22. If a moving bed is present, it is optimal to use GPS for bottom location; however, another method of compensation may be needed (see TM 3-A22).
   4.3. Establish start and stop points.
5. Measure discharge of a transect.
   5.1. Position boat at the start point. Measure and record the distance from start point to the shore. Use the profiler to estimate the shape of the edge areas by moving the ADCP as close as possible to the river edges, even if the velocity cannot be measured.
   5.2. Measure depth to the transducer below water surface before ADCP measurements are taken and record the depth in the measurement notes.
   5.3. Begin measurements. Hold position at the start point for a minimum of 10 ensembles, or profiles, of the water velocity.
   5.4. Drive boat across the river at a speed no greater than the water's speed, if possible.
   5.5. Approach ending shore slowly and hold position at the end point for 10 ensembles. Stop recording and measure the distance from the end point to the shore and record the distance in the measurement notes.

6. Conduct two discharge measurement transects, composed of one transect in one direction and one in the opposite direction back to the starting point identified in 5.1 above (i.e., one transect pair). If the transect pair is completed in less than 12 minutes, conduct discharge measurements for a second transect pair. Calculate the mean of the transects.
7. If the discharge for any of the transects differs by greater than 5% from the mean, and cannot be explained, conduct two additional transects and use the mean of all transect measurements as the discharge.
8. Deviations from the procedures in 6 and 7 above may be necessary (e.g., low water velocity, non-steady flow), and must be documented as described in TM 3-A22.
9. Evaluate data in the field, looking for potential problems in the data.
10. Make temporary backups of measurements per manufacturer's manual before leaving the site.

### FT 1824. *Qualitative Evaluation of Direct Measurements*

Data collected for the determination and calculation of discharge should be evaluated for accuracy using qualitative methods directly after making the measurement. Measurements should be rated based on the hydrographer's professional opinion of the measurement, not on how well or how poorly it plots in relation to an established rating curve. The experience and training of the hydrographer will affect the results of the qualitative evaluation. Refer to TM 3-A8 for more information on qualitative evaluation of measurements taken by the midsection method; for qualitative evaluation for measurements by ADCP, refer to TM 3-A22.

Consider the following factors in evaluating direct measurements:

- Conditions of the measuring section and the ability to accurately measure the depth.
- Conditions upstream and the presence or absence of structures.
- Uniform velocity distribution across the stream, including its smoothness, presence or absence of turbulence, obstructions, and abnormally high or low velocities.
- Condition and type of equipment.
- Spacing of observation subsections.
- Number of subsections that exceeded 5% or 10% of total discharge, and site conditions that may have required fewer than 20 subsections to be assessed.
- Rapidly changing stage and how thoroughly the parameters could be measured.
- Wind and weather conditions at the time of measurement.

### FT 1830. RATING CURVES AND COMPUTATIONAL DETERMINATION OF DISCHARGE

A rating curve is a plot or graph of variables associated with stream hydrology and discharge determination. The type of curve developed depends on the variables that are measured at the site. A simple rating only relates discharge to gage height, or stage. However, a discharge rating can include other variables, if required by the circumstances, and then is considered a complex rating. The following parts of this SOP discuss the two most common types of rating curves. See TWRI 3-A10 for theory and considerations associated with both simple and complex ratings. Information about the rating curve must be maintained according to FT 1850, section 6, such that the status of the curve is known.

## FT 1831. *Stage-Discharge Rating Curves at Gaging Stations*

Stage-discharge rating is the relation of the discharge at a gaging station to stage. See TWRI 3-A10 for information regarding plotting, formatting, shaping and analysis of the stage-discharge curves.

1. Identify the control for the gaging station. Measure and document the GZF during low or no flow. The characteristics of some waterbodies may prohibit the measurement of the GZF.
2. Develop a stage-discharge rating curve over various stages and a range of conditions for the waterway. Do not use a rating curve until there are measurements over the range of stage and flows for the waterway well distributed throughout the curve. Ratings should not be extended beyond two times the highest measured discharge except for extreme events, and then only under the guidance of an experienced hydrographer. Every effort should be made to measure and document such extreme events to prevent having to extend beyond the specified factor.
3. After establishing a rating curve for a site, it is recommended that staff measure discharge at the site every 2 months as well as during unusual flow conditions to improve or develop the rating curve. If direct discharge measurements consistently exhibit a difference greater than 5% from the discharge predicted by the established rating curve for a prolonged period, evaluate whether a change in the rating curve is warranted.

## FT 1832. *Using the Index-Velocity Method to Determine Discharge Rating Curves*

The index-velocity method is used to compute a continuous record of discharge when backwater due to a control structure or tidal control prevents the use of a stage as the unique predictor for discharge. Discharge computed by the index velocity method differs from traditional stage-discharge calculations by separating velocity and area into two ratings (index-velocity rating and stage-area rating). An index-velocity rating is developed after sufficient measurements have been made to cover the range of velocity measured by the index-velocity sensor and the mean channel velocity at the station, and a stage-area rating is developed from a relationship between stage and the cross-sectional area for the channel. During gage operation and after the two ratings have been created, the index-velocity instrument measures the index-velocity concurrently with stage, and the results of the two ratings are then multiplied together to calculate discharge. See TM 3-A23 for additional information. Proceed with the following for the use of Acoustic Velocity Meters (AVM) or Acoustic Doppler Velocity Meters (ADVM) for the development of index-velocity rating curves:

1. Carefully evaluate the candidate index velocity gage site prior to selection.
   1.1. Locate a site suitable for accurate flow measurements, as described in FT 1822 and FT 1823.
   1.2. Select a location at the site best suited for an AVM or an ADVM, as described in TM 2-A23.
   1.3. Measure the cross-section with an ADCP based on procedures described in FT 1823 and TM 3-A22 to evaluate the site for suitability as an index-velocity station, if possible.
2. Select the appropriate type of index-velocity instrument after site reconnaissance and evaluation of the site conditions have been documented.
3. Install and configure the AVM or ADVM.
   3.1. Consider the following for instrument installation.
      3.1.1. Mount the instrument to maximize the downstream velocity reading and minimize the cross-stream velocity reading.

3.1.2. Mount instrument so that servicing can occur at all stages, when possible.
3.1.3. Mount instrument so that it is oriented to avoid impeding acoustic beams.
3.1.4. Mount instrument with index marks to monitor instrument movement from initial placement.

3.2. Configure the meter for the specific characteristics of the site. Refer to the manufacturer's manual for configuration recommendations. At a minimum, the meter should be configured for the following as determined for the site conditions:

- Measurement volume not impinging on an obstruction, channel, or water surface.
- Measurement interval sufficient to reduce the standard error.
- Averaging period.

4. Establish and conduct routine field processes as described in TM 3-A23 for maintenance of meter. Keep records of these procedures.
5. Refer to TM 3-A23 for specific detail in the development of a velocity index-rating curve using AVM or ADVM data.

## FT 1833. *Computation of Continuous Records of streamflow*

Continuous records can be computed from point discharge measurements and corresponding sensors deployed at gaging stations. Data quality of stream flow records will vary depending upon the level of care and precision taken during the measurement of parameters, as well as site conditions at the time of measurement. Data used for computation of stream flow records should be thoroughly reviewed by an experienced hydrographer. Clearly indicate that extrapolated data for missing records used for the computation of continuous records are estimated values. Refer to TWRI 3-A13 for information on how parameters are corrected, data are reviewed, and how continuous discharge records are computed. These actions must all be documented per FT 1850.

## FT 1840. INDIRECT MEASUREMENT METHODS OF DISCHARGE

At some sites, direct measurements for the determination of discharge may not be possible or may be impractical. Indirect measurements allow for the determination of discharge when there is no physical access to a site, such as during floods and high flows or at control structures. An indirect method may be the most reliable means of determining peak flows.

1. Measurement of Discharge by Slope-Area Method

The slope-area method is nationally the most common indirect determination of discharge, but is not frequently used in low slope areas like Florida because of the very long distances required between sections to get ½ foot fall. Discharge is computed based on the uniform flow equation accounting for channel characteristics, water surface profiles and a roughness, or retardation, coefficient. This method requires the review of a selection of reaches and cross-sections for the computation of discharge. Refer to TWRI 3-A2 for equations and site selection information used to compute discharge by the slope-area method.

2. Measurement of Discharge at Confinement Structures by Indirect Methods

Control structure sites are often not ideal for direct measurements because the current is impeded, so indirect methods have been developed for various types of confinement structures.

See descriptions below to determine the best indirect methods for the site conditions or project requirements. Document all measurements and calculations for discharge at confinement structures according to applicable requirements in part FT 1850. A person or entity may choose to use direct measurement methods to determine discharge at confinement structures.

2.1. Measurement of Discharge at Width Contractions and Culverts by Indirect Methods: To determine the peak discharge in culverts, use equations based on continuity and energy. Best results are achieved when the difference between the upstream and downstream water levels is at least ½ foot. Culverts are often put in place due to roadways and can change the flow of a stream channel. Peak discharge can be determined through culverts by indirect methods based on high-water marks that define the headwater and tail-water elevations. For direction in the examination of culverts, explanation of equations, roughness coefficient determination, and discharge computations based on specific conditions and material types, see TWRI 3-A3 and TWRI 3-A4.

2.2. Measurement of Discharge at Dams by Indirect Methods: Control sections are typically formed at structures like weirs, dams, or embankments. Peak discharge at control sections can be determined from a field survey, from records of high-water marks, and from knowledge of the geometry of the structure. The geometry of the structure and channel, along with the ratio of head to crest, should be assessed before determining the structure type and choosing the discharge equation and coefficient. Extensive field notes must be kept of water marks, reference marks, and tail-water height. For techniques and calculations to determine discharge at control structures, see TWRI 3-A5.

2.3. Using Flumes for the Measurement of Discharge: Flumes have a limited use in measurement of discharge, but are useful when channel characteristics that affect gage height are subject to shift or when stream rises are unpredictable. Discharge is determined only by the configuration of the flume. Discharge determined by this method can be confirmed with current meter measurements. See TWRI 3-A14 for information about determining discharge based on flume design, construction, and operation.

## FT 1850. MINIMUM DOCUMENTATION REQUIREMENTS

Documentation specified in the TWRI and TM references cited in this SOP must be included in the records for all measurements and calculations performed according to this SOP. Record information and retain documentation for all stage, velocity and discharge determinations in a manner that allows unequivocal reconstruction of the essential details of field measurement events, discharge calculations, and any other treatments or manipulations of data. The following documentation shall be provided, if applicable to the site:

1. Site Information
    - Source and location of the measurement (e.g., identification number, station number or other description);
    - Latitude and longitude of cross-section(s) measurement location (if required for the project, monitoring program, etc.);
    - Number of channels measured and observed;
    - Length of reach measured (if applicable);

- Date and time site was measured;
- Personnel who visited the site and their duties;
- Description or name of project, or monitoring program, associated with the measurements; and
- Description of site conditions during visit.

2. Instrumentation
    - Vendor certificates of all factory-calibrated instrumentation;
    - Manufacturers' instrumentation manual and specifications;
    - Identity of specific instrumentation in the documentation with a unique description or code for each instrument unit used;
    - Date and time of all quality control activities prescribed by manufacturers' instructions based on instrument type;
    - Identity of the quality control activities performed;
    - Description of the performance of instrumentation during quality control activities (e.g., spin test results or on-board quality control of ADCP);
    - Date and time of corrective actions taken to correct instrument performance according to records requirements of FD 3000; and
    - Names of personnel performing corrective actions.
3. Field measurements
    - Method used for determination of discharge;
    - Analyst(s) performing measurements;
    - Date and time of measurements; and
    - Measurement value and unit for each measurement.
4. Describe and document the rationale for any modifications made to the standard reference procedures cited in this SOP that are used for the project. Include specific listings and descriptions of modifications made and link the modifications to the applicable sections of the standard reference procedures cited in this SOP.
5. Calculations
    - Raw information used for calculations;
    - Analyst(s) who conducted all calculations;
    - Method by which discharge was calculated;
    - Result and units of calculated discharge;
    - Rating curve to which calculated discharge is compared;
    - Reasoning for deviating from prescribed calculation methods indicated in the applicable sections of the standard reference procedures cited in this SOP; and
    - Provide enough information so that the discharge can be recalculated by an independent party and obtain the same result for verification purposes.
6. Rating Curves
    - Status of the rating curve as determined by a hydrographer (e.g., under development, established);
    - Date the curve was last reviewed;
    - Hydrographer(s) responsible for latest review of the rating curve;

- Entity responsible for the maintenance of the rating curve;
- Location associated with the rating curve; and
- All notes associated with the quality of the rating curve and its status.

Designation: D2488 – 09a

# Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)[1]

This standard is issued under the fixed designation D2488; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the U.S. Department of Defense.*

## 1. Scope*

1.1 This practice covers procedures for the description of soils for engineering purposes.

1.2 This practice also describes a procedure for identifying soils, at the option of the user, based on the classification system described in Test Method D2487. The identification is based on visual examination and manual tests. It must be clearly stated in reporting an identification that it is based on visual-manual procedures.

1.2.1 When precise classification of soils for engineering purposes is required, the procedures prescribed in Test Method D2487 shall be used.

1.2.2 In this practice, the identification portion assigning a group symbol and name is limited to soil particles smaller than 3 in. (75 mm).

1.2.3 The identification portion of this practice is limited to naturally occurring soils (either intact or disturbed).

NOTE 1—This practice may be used as a descriptive system applied to such materials as shale, claystone, shells, crushed rock, etc. (see Appendix X2).

1.3 The descriptive information in this practice may be used with other soil classification systems or for materials other than naturally occurring soils.

1.4 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.5 *This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* For specific precautionary statements see Section 8.

1.6 *This practice offers a set of instructions for performing one or more specific operations. This document cannot replace education or experience and should be used in conjunction with professional judgment. Not all aspects of this practice may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project's many unique aspects. The word "Standard" in the title of this document means only that the document has been approved through the ASTM consensus process.*

## 2. Referenced Documents

2.1 *ASTM Standards:*[2]

D653 Terminology Relating to Soil, Rock, and Contained Fluids

D1452 Practice for Soil Exploration and Sampling by Auger Borings

D1586 Test Method for Penetration Test (SPT) and Split-Barrel Sampling of Soils

D1587 Practice for Thin-Walled Tube Sampling of Soils for Geotechnical Purposes

D2113 Practice for Rock Core Drilling and Sampling of Rock for Site Investigation

D2487 Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

D3740 Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

D4083 Practice for Description of Frozen Soils (Visual-Manual Procedure)

## 3. Terminology

3.1 *Definitions:*

3.1.1 Except as listed below, all definitions are in accordance with Terminology D653.

[1] This practice is under the jurisdiction of ASTM Committee D18 on Soil and Rock and is the direct responsibility of Subcommittee D18.07 on Identification and Classification of Soils.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

***A Summary of Changes section appears at the end of this standard**

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NOTE 2—For particles retained on a 3-in. (75-mm) US standard sieve, the following definitions are suggested:
*Cobbles*—particles of rock that will pass a 12-in. (300-mm) square opening and be retained on a 3-in. (75-mm) sieve, and
*Boulders*—particles of rock that will not pass a 12-in. (300-mm) square opening.

3.1.2 *clay*—soil passing a No. 200 (75-µm) sieve that can be made to exhibit plasticity (putty-like properties) within a range of water contents, and that exhibits considerable strength when air-dry. For classification, a clay is a fine-grained soil, or the fine-grained portion of a soil, with a plasticity index equal to or greater than 4, and the plot of plasticity index versus liquid limit falls on or above the "A" line (see Fig. 3 of Test Method D2487).

3.1.3 *gravel*—particles of rock that will pass a 3-in. (75-mm) sieve and be retained on a No. 4 (4.75-mm) sieve with the following subdivisions:

*coarse*—passes a 3-in. (75-mm) sieve and is retained on a ¾-in. (19-mm) sieve.

*fine*—passes a ¾-in. (19-mm) sieve and is retained on a No. 4 (4.75-mm) sieve.

3.1.4 *organic clay*—a clay with sufficient organic content to influence the soil properties. For classification, an organic clay is a soil that would be classified as a clay, except that its liquid limit value after oven drying is less than 75 % of its liquid limit value before oven drying.

3.1.5 *organic silt*—a silt with sufficient organic content to influence the soil properties. For classification, an organic silt is a soil that would be classified as a silt except that its liquid limit value after oven drying is less than 75 % of its liquid limit value before oven drying.

3.1.6 *peat*—a soil composed primarily of vegetable tissue in various stages of decomposition usually with an organic odor, a dark brown to black color, a spongy consistency, and a texture ranging from fibrous to amorphous.

3.1.7 *sand*—particles of rock that will pass a No. 4 (4.75-mm) sieve and be retained on a No. 200 (75-µm) sieve with the following subdivisions:

*coarse*—passes a No. 4 (4.75-mm) sieve and is retained on a No. 10 (2.00-mm) sieve.

*medium*—passes a No. 10 (2.00-mm) sieve and is retained on a No. 40 (425-µm) sieve.

*fine*—passes a No. 40 (425-µm) sieve and is retained on a No. 200 (75-µm) sieve.

3.1.8 *silt*—soil passing a No. 200 (75-µm) sieve that is nonplastic or very slightly plastic and that exhibits little or no strength when air dry. For classification, a silt is a fine-grained soil, or the fine-grained portion of a soil, with a plasticity index less than 4, or the plot of plasticity index versus liquid limit falls below the "A" line (see Fig. 3 of Test Method D2487).

## 4. Summary of Practice

4.1 Using visual examination and simple manual tests, this practice gives standardized criteria and procedures for describing and identifying soils.

4.2 The soil can be given an identification by assigning a group symbol(s) and name. The flow charts, Fig. 1a and Fig. 1b for fine-grained soils, and Fig. 2, for coarse-grained soils, can be used to assign the appropriate group symbol(s) and name. If the soil has properties which do not distinctly place it into a specific group, borderline symbols may be used, see Appendix X3.

NOTE 3—It is suggested that a distinction be made between *dual symbols* and *borderline symbols.*

*Dual Symbol*—A dual symbol is two symbols separated by a hyphen, for example, GP-GM, SW-SC, CL-ML used to indicate that the soil has been identified as having the properties of a classification in accordance with Test Method D2487 where two symbols are required. Two symbols are required when the soil has between 5 and 12 % fines or when the liquid limit and plasticity index values plot in the CL-ML area of the plasticity chart.
*Borderline Symbol*—A borderline symbol is two symbols separated by a slash, for example, CL/CH, GM/SM, CL/ML. A borderline symbol should be used to indicate that the soil has been identified as having properties that do not distinctly place the soil into a specific group (see Appendix X3).

## 5. Significance and Use

5.1 The descriptive information required in this practice can be used to describe a soil to aid in the evaluation of its significant properties for engineering use.

5.2 The descriptive information required in this practice should be used to supplement the classification of a soil as determined by Test Method D2487.

5.3 This practice may be used in identifying soils using the classification group symbols and names as prescribed in Test Method D2487. Since the names and symbols used in this practice to identify the soils are the same as those used in Test Method D2487, it shall be clearly stated in reports and all other appropriate documents, that the classification symbol and name are based on visual-manual procedures.

5.4 This practice is to be used not only for identification of soils in the field, but also in the office, laboratory, or wherever soil samples are inspected and described.

5.5 This practice has particular value in grouping similar soil samples so that only a minimum number of laboratory tests need be run for positive soil classification.

NOTE 4—The ability to describe and identify soils correctly is learned more readily under the guidance of experienced personnel, but it may also be acquired systematically by comparing numerical laboratory test results for typical soils of each type with their visual and manual characteristics.

5.6 When describing and identifying soil samples from a given boring, test pit, or group of borings or pits, it is not necessary to follow all of the procedures in this practice for every sample. Soils which appear to be similar can be grouped together; one sample completely described and identified with the others referred to as similar based on performing only a few of the descriptive and identification procedures described in this practice.

5.7 This practice may be used in combination with Practice D4083 when working with frozen soils.

NOTE 5—Notwithstanding the statements on precision and bias contained in this standard: The precision of this test method is dependent on the competence of the personnel performing it and the suitability of the equipment and facilities used. Agencies that meet the criteria of Practice D3740 are generally considered capable of competent and objective testing. Users of this test method are cautioned that compliance with Practice D3740 does not in itself assure reliable testing. Reliable testing

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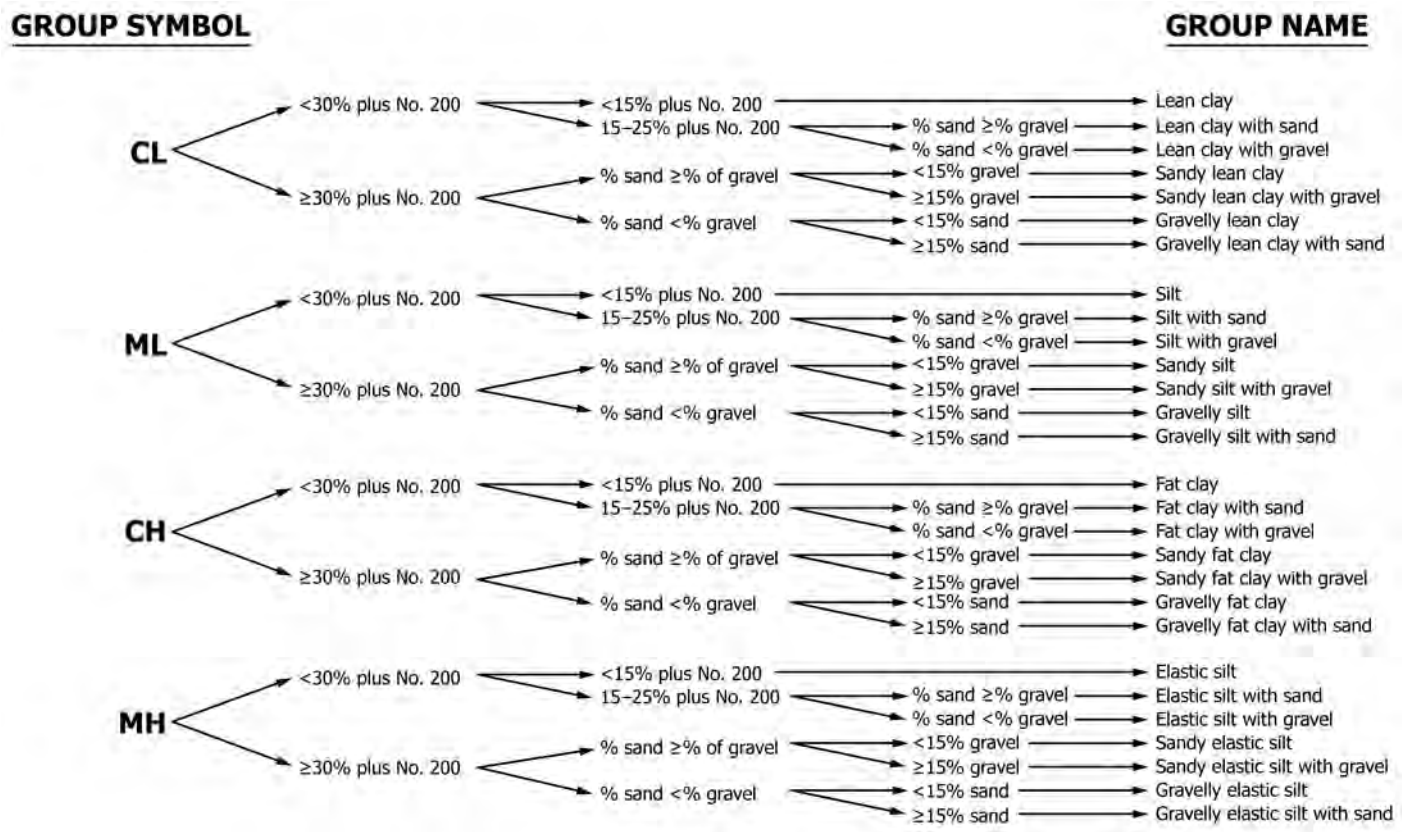
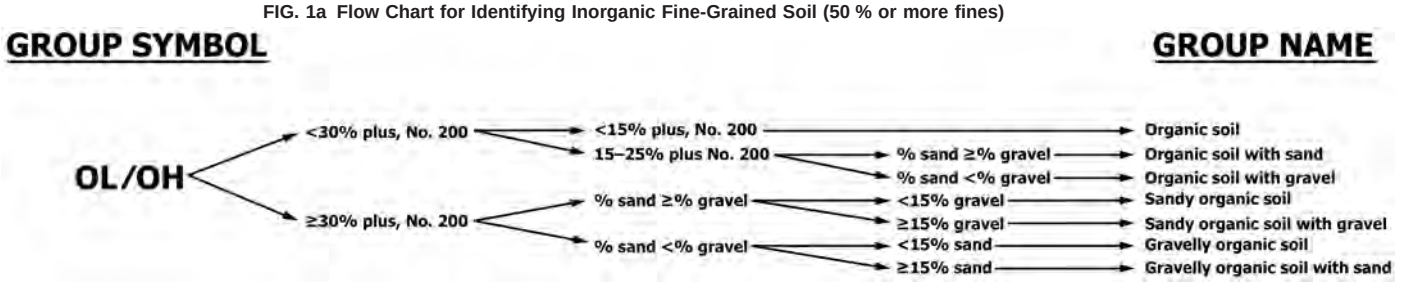



NOTE 1—Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5 %.

**FIG. 1a Flow Chart for Identifying Inorganic Fine-Grained Soil (50 % or more fines)**




NOTE 1—Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5 %.

**FIG. 1 b Flow Chart for Identifying Organic Fine-Grained Soil (50 % or more fines)**

depends on several factors; Practice D3740 provides a means for evaluating some of those factors.

## 6. Apparatus

6.1 *Required Apparatus:*

6.1.1 *Pocket Knife or Small Spatula.*

6.2 *Useful Auxiliary Apparatus:*

6.2.1 *Test Tube and Stopper* (or jar with a lid).

6.2.2 *Hand Lens.*

## 7. Reagents

7.1 *Purity of Water*—Unless otherwise indicated, references to water shall be understood to mean water from a city water supply or natural source, including non-potable water.

7.2 *Hydrochloric Acid*—A small bottle of dilute hydrochloric acid, HCl, one part HCl (10 *N*) to three parts water (This reagent is optional for use with this practice). See Section 8.

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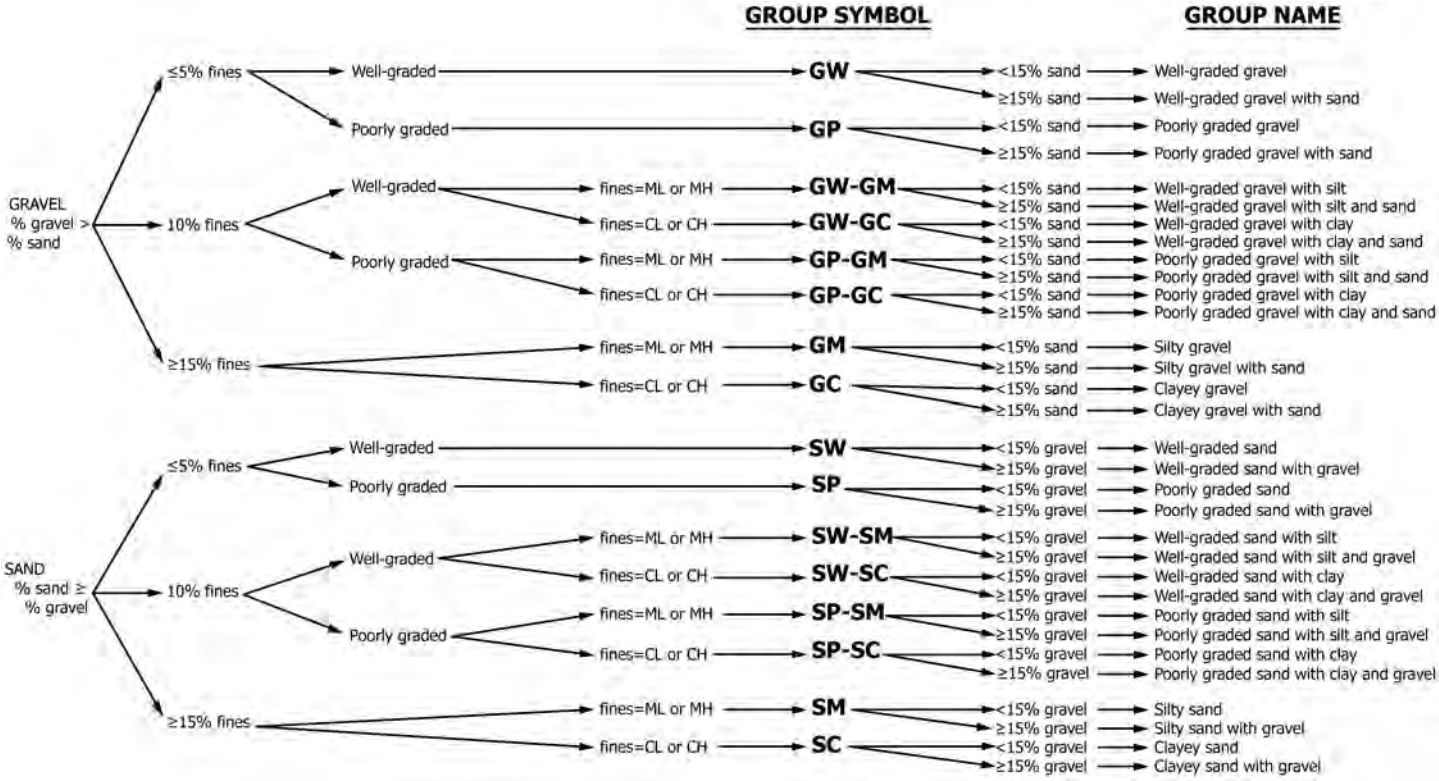


NOTE 1—Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5 %.

**FIG. 2 Flow Chart for Identifying Coarse-Grained Soils (less than 50 % fines)**

## 8. Safety Precautions

8.1 When preparing the dilute HCl solution of one part concentrated hydrochloric acid (10 *N*) to three parts of distilled water, slowly add acid into water following necessary safety precautions. Handle with caution and store safely. If solution comes into contact with the skin, rinse thoroughly with water.

8.2 **Caution**—Do not add water to acid.

## 9. Sampling

9.1 The sample shall be considered to be representative of the stratum from which it was obtained by an appropriate, accepted, or standard procedure.

NOTE 6—Preferably, the sampling procedure should be identified as having been conducted in accordance with Practices D1452, D1587, or D2113, or Test Method D1586.

9.2 The sample shall be carefully identified as to origin.

NOTE 7—Remarks as to the origin may take the form of a boring number and sample number in conjunction with a job number, a geologic stratum, a pedologic horizon or a location description with respect to a permanent monument, a grid system or a station number and offset with respect to a stated centerline and a depth or elevation.

9.3 For accurate description and identification, the minimum amount of the specimen to be examined shall be in accordance with the following schedule:

| Maximum Particle Size, Sieve Opening | Minimum Specimen Size, Dry Weight |
|---|---|
| 4.75 mm (No. 4) | 100 g (0.25 lb) |
| 9.5 mm (⅜ in.) | 200 g (0.5 lb) |
| 19.0 mm (¾ in.) | 1.0 kg (2.2 lb) |
| 38.1 mm (1½ in.) | 8.0 kg (18 lb) |
| 75.0 mm (3 in.) | 60.0 kg (132 lb) |

NOTE 8—If random isolated particles are encountered that are significantly larger than the particles in the soil matrix, the soil matrix can be accurately described and identified in accordance with the preceeding schedule.

9.4 If the field sample or specimen being examined is smaller than the minimum recommended amount, the report shall include an appropriate remark.

## 10. Descriptive Information for Soils

10.1 *Angularity*—Describe the angularity of the sand (coarse sizes only), gravel, cobbles, and boulders, as angular, subangular, subrounded, or rounded in accordance with the criteria in Table 1 and Fig. 3. A range of angularity may be stated, such as: subrounded to rounded.

10.2 *Shape*—Describe the shape of the gravel, cobbles, and boulders as flat, elongated, or flat and elongated if they meet the criteria in Table 2 and Fig. 4. Otherwise, do not mention the shape. Indicate the fraction of the particles that have the shape, such as: one-third of the gravel particles are flat.

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**TABLE 1 Criteria for Describing Angularity of Coarse-Grained Particles (see Fig. 3)**

| Description | Criteria |
|---|---|
| Angular | Particles have sharp edges and relatively plane sides with unpolished surfaces |
| Subangular | Particles are similar to angular description but have rounded edges |
| Subrounded | Particles have nearly plane sides but have well-rounded corners and edges |
| Rounded | Particles have smoothly curved sides and no edges |

10.3 *Color*—Describe the color. Color is an important property in identifying organic soils, and within a given locality it may also be useful in identifying materials of similar geologic origin. If the sample contains layers or patches of varying colors, this shall be noted and all representative colors shall be described. The color shall be described for moist samples. If the color represents a dry condition, this shall be stated in the report.

10.4 *Odor*—Describe the odor if organic or unusual. Soils containing a significant amount of organic material usually have a distinctive odor of decaying vegetation. This is especially apparent in fresh samples, but if the samples are dried, the odor may often be revived by heating a moistened sample. If the odor is unusual (petroleum product, chemical, and the like), it shall be described.

10.5 *Moisture Condition*—Describe the moisture condition as dry, moist, or wet, in accordance with the criteria in Table 3.

10.6 *HCl Reaction*—Describe the reaction with HCl as none, weak, or strong, in accordance with the critera in Table 4. Since calcium carbonate is a common cementing agent, a report of its presence on the basis of the reaction with dilute hydrochloric acid is important.

10.7 *Consistency*—For intact fine-grained soil, describe the consistency as very soft, soft, firm, hard, or very hard, in accordance with the criteria in Table 5. This observation is inappropriate for soils with significant amounts of gravel.

10.8 *Cementation*—Describe the cementation of intact coarse-grained soils as weak, moderate, or strong, in accordance with the criteria in Table 6.

10.9 *Structure*—Describe the structure of intact soils in accordance with the criteria in Table 7.

10.10 *Range of Particle Sizes*—For gravel and sand components, describe the range of particle sizes within each component as defined in 3.1.2 and 3.1.6. For example, about 20 % fine to coarse gravel, about 40 % fine to coarse sand.

10.11 *Maximum Particle Size*—Describe the maximum particle size found in the sample in accordance with the following information:

10.11.1 *Sand Size*—If the maximum particle size is a sand size, describe as fine, medium, or coarse as defined in 3.1.6. For example: maximum particle size, medium sand.

10.11.2 *Gravel Size*—If the maximum particle size is a gravel size, describe the maximum particle size as the smallest sieve opening that the particle will pass. For example, maximum particle size, 1½ in. (will pass a 1½-in. square opening but not a ¾-in. square opening).

10.11.3 *Cobble or Boulder Size*—If the maximum particle size is a cobble or boulder size, describe the maximum dimension of the largest particle. For example: maximum dimension, 18 in. (450 mm).

10.12 *Hardness*—Describe the hardness of coarse sand and larger particles as hard, or state what happens when the particles are hit by a hammer, for example, gravel-size particles fracture with considerable hammer blow, some gravel-size particles crumble with hammer blow. “Hard” means particles do not crack, fracture, or crumble under a hammer blow.

10.13 Additional comments shall be noted, such as the presence of roots or root holes, difficulty in drilling or augering hole, caving of trench or hole, or the presence of mica.

10.14 A local or commercial name or a geologic interpretation of the soil, or both, may be added if identified as such.

10.15 A classification or identification of the soil in accordance with other classification systems may be added if identified as such.

## 11. Identification of Peat

11.1 A sample composed primarily of vegetable tissue in various stages of decomposition that has a fibrous to amorphous texture, usually a dark brown to black color, and an organic odor, shall be designated as a highly organic soil and shall be identified as peat, PT, and not subjected to the identification procedures described hereafter.

## 12. Preparation for Identification

12.1 The soil identification portion of this practice is based on the portion of the soil sample that will pass a 3-in. (75-mm) sieve. The larger than 3-in. (75-mm) particles must be removed, manually, for a loose sample, or mentally, for an intact sample before classifying the soil.

12.2 Estimate and note the percentage of cobbles and the percentage of boulders. Performed visually, these estimates will be on the basis of volume percentage.

NOTE 9—Since the percentages of the particle-size distribution in Test Method D2487 are by dry weight, and the estimates of percentages for gravel, sand, and fines in this practice are by dry weight, it is recommended that the report state that the percentages of cobbles and boulders are by volume.

12.3 Of the fraction of the soil smaller than 3 in. (75 mm), estimate and note the percentage, by dry weight, of the gravel, sand, and fines (see Appendix X4 for suggested procedures).

NOTE 10—Since the particle-size components appear visually on the basis of volume, considerable experience is required to estimate the percentages on the basis of dry weight. Frequent comparisons with laboratory particle-size analyses should be made.

12.3.1 The percentages shall be estimated to the closest 5 %. The percentages of gravel, sand, and fines must add up to 100 %.

12.3.2 If one of the components is present but not in sufficient quantity to be considered 5 % of the smaller than 3-in. (75-mm) portion, indicate its presence by the term *trace*,

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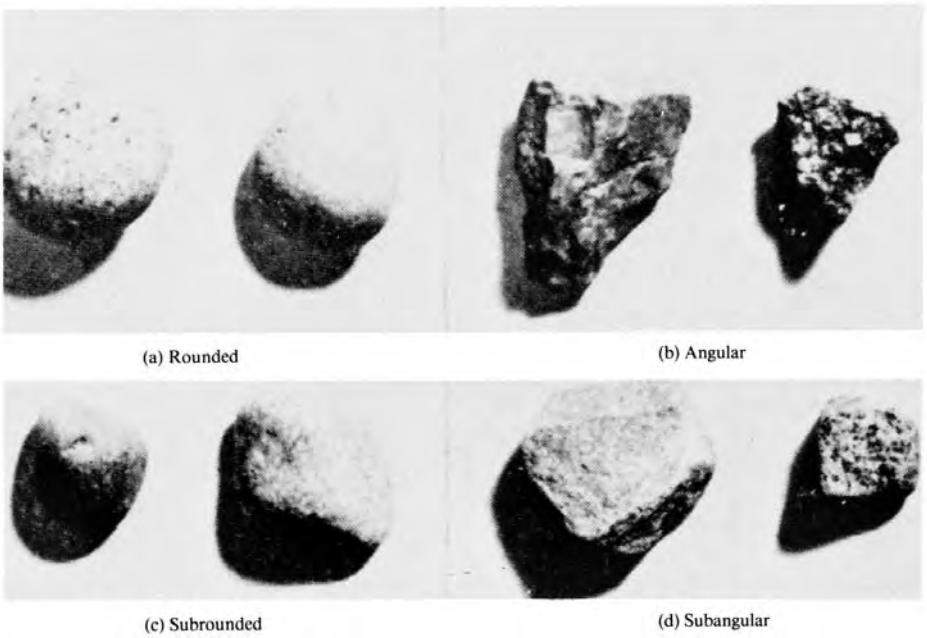


**FIG. 3 Typical Angularity of Bulky Grains**

**TABLE 2 Criteria for Describing Particle Shape (see Fig. 4)**

The particle shape shall be described as follows where length, width, and thickness refer to the greatest, intermediate, and least dimensions of a particle, respectively.

| | |
|---|---|
| Flat | Particles with width/thickness > 3 |
| Elongated | Particles with length/width > 3 |
| Flat and elongated | Particles meet criteria for both flat and elongated |

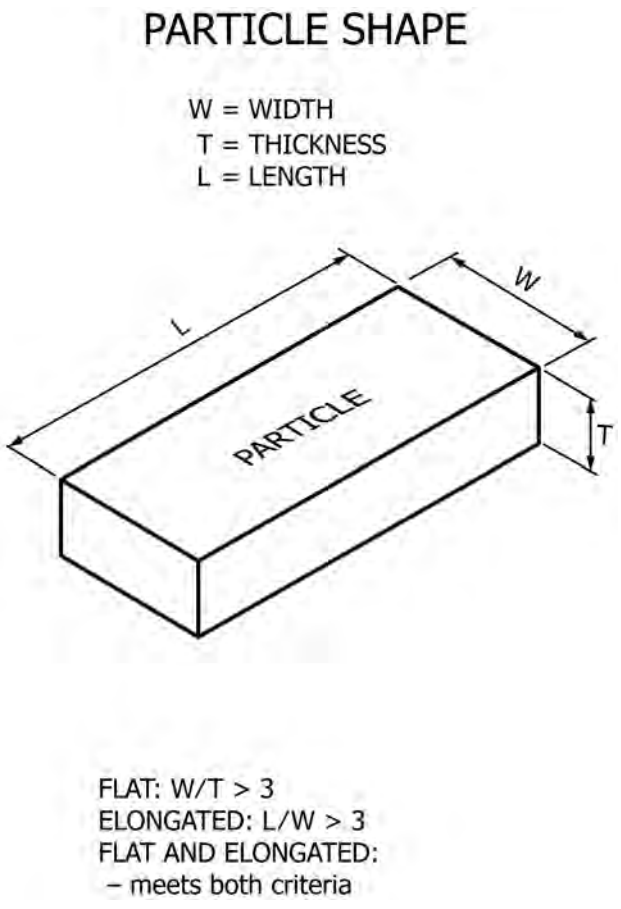


**FIG. 4 Criteria for Particle Shape**

for example, trace of fines. A trace is not to be considered in the total of 100 % for the components.

## 13. Preliminary Identification

13.1 The soil is *fine grained* if it contains 50 % or more fines. Follow the procedures for identifying fine-grained soils of Section 14.

13.2 The soil is *coarse grained* if it contains less than 50 % fines. Follow the procedures for identifying coarse-grained soils of Section 15.

## 14. Procedure for Identifying Fine-Grained Soils

14.1 Select a representative sample of the material for examination. Remove particles larger than the No. 40 sieve (medium sand and larger) until a specimen equivalent to about a handful of material is available. Use this specimen for performing the dry strength, dilatancy, and toughness tests.

14.2 *Dry Strength:*

14.2.1 From the specimen, select enough material to mold into a ball about 1 in. (25 mm) in diameter. Mold the material until it has the consistency of putty, adding water if necessary.

14.2.2 From the molded material, make at least three test specimens. A test specimen shall be a ball of material about ½



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**TABLE 3 Criteria for Describing Moisture Condition**

| Description | Criteria |
|---|---|
| Dry | Absence of moisture, dusty, dry to the touch |
| Moist | Damp but no visible water |
| Wet | Visible free water, usually soil is below water table |

**TABLE 4 Criteria for Describing the Reaction With HCl**

| Description | Criteria |
|---|---|
| None | No visible reaction |
| Weak | Some reaction, with bubbles forming slowly |
| Strong | Violent reaction, with bubbles forming immediately |

**TABLE 5 Criteria for Describing Consistency**

| Description | Criteria |
|---|---|
| Very soft | Thumb will penetrate soil more than 1 in. (25 mm) |
| Soft | Thumb will penetrate soil about 1 in. (25 mm) |
| Firm | Thumb will indent soil about ¼ in. (6 mm) |
| Hard | Thumb will not indent soil but readily indented with thumbnail |
| Very hard | Thumbnail will not indent soil |

**TABLE 6 Criteria for Describing Cementation**

| Description | Criteria |
|---|---|
| Weak | Crumbles or breaks with handling or little finger pressure |
| Moderate | Crumbles or breaks with considerable finger pressure |
| Strong | Will not crumble or break with finger pressure |

**TABLE 7 Criteria for Describing Structure**

| Description | Criteria |
|---|---|
| Stratified | Alternating layers of varying material or color with layers at least 6 mm thick; note thickness |
| Laminated | Alternating layers of varying material or color with the layers less than 6 mm thick; note thickness |
| Fissured | Breaks along definite planes of fracture with little resistance to fracturing |
| Slickensided | Fracture planes appear polished or glossy, sometimes striated |
| Blocky | Cohesive soil that can be broken down into small angular lumps which resist further breakdown |
| Lensed | Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness |
| Homogeneous | Same color and appearance throughout |

in. (12 mm) in diameter. Allow the test specimens to dry in air, or sun, or by artificial means, as long as the temperature does not exceed 60°C.

14.2.3 If the test specimen contains natural dry lumps, those that are about ½ in. (12 mm) in diameter may be used in place of the molded balls.

NOTE 11—The process of molding and drying usually produces higher strengths than are found in natural dry lumps of soil.

14.2.4 Test the strength of the dry balls or lumps by crushing between the fingers. Note the strength as none, low, medium, high, or very high in accorance with the criteria in Table 8. If natural dry lumps are used, do not use the results of any of the lumps that are found to contain particles of coarse sand.

14.2.5 The presence of high-strength water-soluble cementing materials, such as calcium carbonate, may cause exceptionally high dry strengths. The presence of calcium carbonate can usually be detected from the intensity of the reaction with dilute hydrochloric acid (see 10.6).

**TABLE 8 Criteria for Describing Dry Strength**

| Description | Criteria |
|---|---|
| None | The dry specimen crumbles into powder with mere pressure of handling |
| Low | The dry specimen crumbles into powder with some finger pressure |
| Medium | The dry specimen breaks into pieces or crumbles with considerable finger pressure |
| High | The dry specimen cannot be broken with finger pressure. Specimen will break into pieces between thumb and a hard surface |
| Very high | The dry specimen cannot be broken between the thumb and a hard surface |

14.3 *Dilatancy:*

14.3.1 From the specimen, select enough material to mold into a ball about ½ in. (12 mm) in diameter. Mold the material, adding water if necessary, until it has a soft, but not sticky, consistency.

14.3.2 Smooth the soil ball in the palm of one hand with the blade of a knife or small spatula. Shake horizontally, striking the side of the hand vigorously against the other hand several times. Note the reaction of water appearing on the surface of the soil. Squeeze the sample by closing the hand or pinching the soil between the fingers, and note the reaction as none, slow, or rapid in accordance with the criteria in Table 9. The reaction is the speed with which water appears while shaking, and disappears while squeezing.

14.4 *Toughness:*

14.4.1 Following the completion of the dilatancy test, the test specimen is shaped into an elongated pat and rolled by hand on a smooth surface or between the palms into a thread about ⅛ in. (3 mm) in diameter. (If the sample is too wet to roll easily, it should be spread into a thin layer and allowed to lose some water by evaporation.) Fold the sample threads and reroll repeatedly until the thread crumbles at a diameter of about ⅛ in. The thread will crumble at a diameter of ⅛ in. when the soil is near the plastic limit. Note the pressure required to roll the thread near the plastic limit. Also, note the strength of the thread. After the thread crumbles, the pieces should be lumped together and kneaded until the lump crumbles. Note the toughness of the material during kneading.

14.4.2 Describe the toughness of the thread and lump as low, medium, or high in accordance with the criteria in Table 10.

**TABLE 9 Criteria for Describing Dilatancy**

| Description | Criteria |
|---|---|
| None | No visible change in the specimen |
| Slow | Water appears slowly on the surface of the specimen during shaking and does not disappear or disappears slowly upon squeezing |
| Rapid | Water appears quickly on the surface of the specimen during shaking and disappears quickly upon squeezing |

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**TABLE 10 Criteria for Describing Toughness**

| Description | Criteria |
|---|---|
| Low | Only slight pressure is required to roll the thread near the plastic limit. The thread and the lump are weak and soft |
| Medium | Medium pressure is required to roll the thread to near the plastic limit. The thread and the lump have medium stiffness |
| High | Considerable pressure is required to roll the thread to near the plastic limit. The thread and the lump have very high stiffness |

14.5 *Plasticity*—On the basis of observations made during the toughness test, describe the plasticity of the material in accordance with the criteria given in Table 11.

14.6 Decide whether the soil is an *inorganic* or an *organic* fine-grained soil (see 14.8). If inorganic, follow the steps given in 14.7.

14.7 *Identification of Inorganic Fine-Grained Soils:*

14.7.1 Identify the soil as a *lean clay*, CL, if the soil has medium to high dry strength, no or slow dilatancy, and medium toughness and plasticity (see Table 12).

14.7.2 Identify the soil as a *fat clay*, CH, if the soil has high to very high dry strength, no dilatancy, and high toughness and plasticity (see Table 12).

14.7.3 Identify the soil as a *silt*, ML, if the soil has no to low dry strength, slow to rapid dilatancy, and low toughness and plasticity, or is nonplastic (see Table 12).

14.7.4 Identify the soil as an *elastic silt*, MH, if the soil has low to medium dry strength, no to slow dilatancy, and low to medium toughness and plasticity (see Table 12).

NOTE 12—These properties are similar to those for a lean clay. However, the silt will dry quickly on the hand and have a smooth, silky feel when dry. Some soils that would classify as MH in accordance with the criteria in Test Method D2487 are visually difficult to distinguish from lean clays, CL. It may be necessary to perform laboratory testing for proper identification.

14.8 *Identification of Organic Fine-Grained Soils:*

14.8.1 Identify the soil as an *organic soil*, OL/OH, if the soil contains enough organic particles to influence the soil properties. Organic soils usually have a dark brown to black color and may have an organic odor. Often, organic soils will change color, for example, black to brown, when exposed to the air. Some organic soils will lighten in color significantly when air dried. Organic soils normally will not have a high toughness or plasticity. The thread for the toughness test will be spongy.

NOTE 13—In some cases, through practice and experience, it may be possible to further identify the organic soils as organic silts or organic clays, OL or OH. Correlations between the dilatancy, dry strength, toughness tests, and laboratory tests can be made to identify organic soils in certain deposits of similar materials of known geologic origin.

**TABLE 11 Criteria for Describing Plasticity**

| Description | Criteria |
|---|---|
| Nonplastic | A ⅛-in. (3-mm) thread cannot be rolled at any water content |
| Low | The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit |
| Medium | The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit |
| High | It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit |

**TABLE 12 Identification of Inorganic Fine-Grained Soils from Manual Tests**

| Soil Symbol | Dry Strength | Dilatancy | Toughness and Plasticity |
|---|---|---|---|
| ML | None to low | Slow to rapid | Low or thread cannot be formed |
| CL | Medium to high | None to slow | Medium |
| MH | Low to medium | None to slow | Low to medium |
| CH | High to very high | None | High |

14.9 If the soil is estimated to have 15 to 25 % sand or gravel, or both, the words “with sand” or “with gravel” (whichever is more predominant) shall be added to the group name. For example: “lean clay with sand, CL” or “silt with gravel, ML” (see Fig. 1a and Fig. 1b). If the percentage of sand is equal to the percentage of gravel, use “with sand.”

14.10 If the soil is estimated to have 30 % or more sand or gravel, or both, the words “sandy” or “gravelly” shall be added to the group name. Add the word “sandy” if there appears to be more sand than gravel. Add the word “gravelly” if there appears to be more gravel than sand. For example: “sandy lean clay, CL”, “gravelly fat clay, CH”, or “sandy silt, ML” (see Fig. 1a and Fig. 1b). If the percentage of sand is equal to the percent of gravel, use “sandy.”

## 15. Procedure for Identifying Coarse-Grained Soils

(Contains less than 50 % fines)

15.1 The soil is a *gravel* if the percentage of gravel is estimated to be more than the percentage of sand.

15.2 The soil is a *sand* if the percentage of gravel is estimated to be equal to or less than the percentage of sand.

15.3 The soil is a *clean gravel* or *clean sand* if the percentage of fines is estimated to be 5 % or less.

15.3.1 Identify the soil as a *well-graded gravel*, GW, or as a *well-graded sand*, SW, if it has a wide range of particle sizes and substantial amounts of the intermediate particle sizes.

15.3.2 Identify the soil as a *poorly graded gravel*, GP, or as a *poorly graded sand*, SP, if it consists predominantly of one size (uniformly graded), or it has a wide range of sizes with some intermediate sizes obviously missing (gap or skip graded).

15.4 The soil is either a *gravel with fines* or a *sand with fines* if the percentage of fines is estimated to be 15 % or more.

15.4.1 Identify the soil as a *clayey gravel*, GC, or a *clayey sand*, SC, if the fines are clayey as determined by the procedures in Section 14.

15.4.2 Identify the soil as a *silty gravel*, GM, or a *silty sand*, SM, if the fines are silty as determined by the procedures in Section 14.

15.5 If the soil is estimated to contain 10 % fines, give the soil a dual identification using two group symbols.

15.5.1 The first group symbol shall correspond to a clean gravel or sand (GW, GP, SW, SP) and the second symbol shall correspond to a gravel or sand with fines (GC, GM, SC, SM).

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15.5.2 The group name shall correspond to the first group symbol plus the words “with clay” or “with silt” to indicate the plasticity characteristics of the fines. For example: “well-graded gravel with clay, GW-GC” or “poorly graded sand with silt, SP-SM” (see Fig. 2).

15.6 If the specimen is predominantly sand or gravel but contains an estimated 15 % or more of the other coarse-grained constituent, the words “with gravel” or “with sand” shall be added to the group name. For example: “poorly graded gravel with sand, GP” or “clayey sand with gravel, SC” (see Fig. 2).

15.7 If the field sample contains any cobbles or boulders, or both, the words “with cobbles” or “with cobbles and boulders” shall be added to the group name. For example: “silty gravel with cobbles, GM.”

## 16. Report

16.1 The report shall include the information as to origin, and the items indicated in Table 13.

NOTE 14—*Example: Clayey Gravel with Sand and Cobbles, GC*—About 50 % fine to coarse, subrounded to subangular gravel; about 30 % fine to coarse, subrounded sand; about 20 % fines with medium plasticity, high dry strength, no dilatancy, medium toughness; weak reaction with HCl; original field sample had about 5 % (by volume) subrounded cobbles, maximum dimension, 150 mm.
In-Place Conditions—Firm, homogeneous, dry, brown
Geologic Interpretation—Alluvial fan

NOTE 15—Other examples of soil descriptions and identification are given in Appendix X1 and Appendix X2.

NOTE 16—If desired, the percentages of gravel, sand, and fines may be stated in terms indicating a range of percentages, as follows:
*Trace*—Particles are present but estimated to be less than 5 %
*Few*—5 to 10 %
*Little*—15 to 25 %
*Some*—30 to 45 %
*Mostly*—50 to 100 %

16.2 If, in the soil description, the soil is identified using a classification group symbol and name as described in Test Method D2487, it must be distinctly and clearly stated in log forms, summary tables, reports, and the like, that the symbol and name are based on visual-manual procedures.

**TABLE 13 Checklist for Description of Soils**

1. Group name
2. Group symbol
3. Percent of cobbles or boulders, or both (by volume)
4. Percent of gravel, sand, or fines, or all three (by dry weight)
5. Particle-size range:
   Gravel—fine, coarse
   Sand—fine, medium, coarse
6. Particle angularity: angular, subangular, subrounded, rounded
7. Particle shape: (if appropriate) flat, elongated, flat and elongated
8. Maximum particle size or dimension
9. Hardness of coarse sand and larger particles
10. Plasticity of fines: nonplastic, low, medium, high
11. Dry strength: none, low, medium, high, very high
12. Dilatancy: none, slow, rapid
13. Toughness: low, medium, high
14. Color (in moist condition)
15. Odor (mention only if organic or unusual)
16. Moisture: dry, moist, wet
17. Reaction with HCl: none, weak, strong

*For intact samples:*

18. Consistency (fine-grained soils only): very soft, soft, firm, hard, very hard
19. Structure: stratified, laminated, fissured, slickensided, lensed, homogeneous
20. Cementation: weak, moderate, strong
21. Local name
22. Geologic interpretation
23. Additional comments: presence of roots or root holes, presence of mica, gypsum, etc., surface coatings on coarse-grained particles, caving or sloughing of auger hole or trench sides, difficulty in augering or excavating, etc.

## 17. Precision and Bias

17.1 This practice provides qualitative information only, therefore, a precision and bias statement is not applicable.

## 18. Keywords

18.1 classification; clay; gravel; organic soils; sand; silt; soil classification; soil description; visual classification

# APPENDIXES

**(Nonmandatory Information)**

## X1. EXAMPLES OF VISUAL SOIL DESCRIPTIONS

X1.1 The following examples show how the information required in 16.1 can be reported. The information that is included in descriptions should be based on individual circumstances and need.

X1.1.1 *Well-Graded Gravel with Sand (GW)*—About 75 % fine to coarse, hard, subangular gravel; about 25 % fine to coarse, hard, subangular sand; trace of fines; maximum size, 75 mm, brown, dry; no reaction with HCl.

X1.1.2 *Silty Sand with Gravel (SM)*—About 60 % predominantly fine sand; about 25 % silty fines with low plasticity, low dry strength, rapid dilatancy, and low toughness; about 15 % fine, hard, subrounded gravel, a few gravel-size particles fractured with hammer blow; maximum size, 25 mm; no reaction with HCl (Note—Field sample size smaller than recommended).

*In-Place Conditions*—Firm, stratified and contains lenses of silt 1 to 2 in. (25 to 50 mm) thick, moist, brown to gray; in-place density 106 lb/ft$^3$; in-place moisture 9 %.

X1.1.3 *Organic Soil (OL/OH)*—About 100 % fines with low plasticity, slow dilatancy, low dry strength, and low toughness; wet, dark brown, organic odor; weak reaction with HCl.

X1.1.4 *Silty Sand with Organic Fines (SM)*—About 75 % fine to coarse, hard, subangular reddish sand; about 25 % organic and silty dark brown nonplastic fines with no dry

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strength and slow dilatancy; wet; maximum size, coarse sand; weak reaction with HCl.

X1.1.5 *Poorly Graded Gravel with Silt, Sand, Cobbles and Boulders (GP-GM)*—About 75 % fine to coarse, hard, subrounded to subangular gravel; about 15 % fine, hard, subrounded to subangular sand; about 10 % silty nonplastic fines; moist, brown; no reaction with HCl; original field sample had about 5 % (by volume) hard, subrounded cobbles and a trace of hard, subrounded boulders, with a maximum dimension of 18 in. (450 mm).

## X2. USING THE IDENTIFICATION PROCEDURE AS A DESCRIPTIVE SYSTEM FOR SHALE, CLAYSTONE, SHELLS, SLAG, CRUSHED ROCK, AND THE LIKE

X2.1 The identification procedure may be used as a descriptive system applied to materials that exist in-situ as shale, claystone, sandstone, siltstone, mudstone, etc., but convert to soils after field or laboratory processing (crushing, slaking, and the like).

X2.2 Materials such as shells, crushed rock, slag, and the like, should be identified as such. However, the procedures used in this practice for describing the particle size and plasticity characteristics may be used in the description of the material. If desired, an identification using a group name and symbol according to this practice may be assigned to aid in describing the material.

X2.3 The group symbol(s) and group names should be placed in quotation marks or noted with some type of distinguishing symbol. See examples.

X2.4 Examples of how group names and symbols can be incororated into a descriptive system for materials that are not naturally occurring soils are as follows:

X2.4.1 *Shale Chunks*—Retrieved as 2 to 4-in. (50 to 100-mm) pieces of shale from power auger hole, dry, brown, no reaction with HCl. After slaking in water for 24 h, material identified as “Sandy Lean Clay (CL)”; about 60 % fines with medium plasticity, high dry strength, no dilatancy, and medium toughness; about 35 % fine to medium, hard sand; about 5 % gravel-size pieces of shale.

X2.4.2 *Crushed Sandstone*—Product of commercial crushing operation; “Poorly Graded Sand with Silt (SP-SM)”; about 90 % fine to medium sand; about 10 % nonplastic fines; dry, reddish-brown.

X2.4.3 *Broken Shells*—About 60 % uniformly graded gravel-size broken shells; about 30 % sand and sand-size shell pieces; about 10 % nonplastic fines; “Poorly Graded Gravel with Silt and Sand (GP-GM).”

X2.4.4 *Crushed Rock*—Processed from gravel and cobbles in Pit No. 7; “Poorly Graded Gravel (GP)”; about 90 % fine, hard, angular gravel-size particles; about 10 % coarse, hard, angular sand-size particles; dry, tan; no reaction with HCl.

## X3. SUGGESTED PROCEDURE FOR USING A BORDERLINE SYMBOL FOR SOILS WITH TWO POSSIBLE IDENTIFICATIONS.

X3.1 Since this practice is based on estimates of particle size distribution and plasticity characteristics, it may be difficult to clearly identify the soil as belonging to one category. To indicate that the soil may fall into one of two possible basic groups, a borderline symbol may be used with the two symbols separated by a slash. For example: SC/CL or CL/CH.

X3.1.1 A borderline symbol may be used when the percentage of fines is estimated to be between 45 and 55 %. One symbol should be for a coarse-grained soil with fines and the other for a fine-grained soil. For example: GM/ML or CL/SC.

X3.1.2 A borderline symbol may be used when the percentage of sand and the percentage of gravel are estimated to be about the same. For example: GP/SP, SC/GC, GM/SM. It is practically impossible to have a soil that would have a borderline symbol of GW/SW.

X3.1.3 A borderline symbol may be used when the soil could be either well graded or poorly graded. For example: GW/GP, SW/SP.

X3.1.4 A borderline symbol may be used when the soil could either be a silt or a clay. For example: CL/ML, CH/MH, SC/SM.

X3.1.5 A borderline symbol may be used when a fine-grained soil has properties that indicate that it is at the boundary between a soil of low compressibility and a soil of high compressibility. For example: CL/CH, MH/ML.

X3.2 The order of the borderline symbols should reflect similarity to surrounding or adjacent soils. For example: soils in a borrow area have been identified as CH. One sample is considered to have a borderline symbol of CL and CH. To show similarity, the borderline symbol should be CH/CL.

X3.3 The group name for a soil with a borderline symbol should be the group name for the first symbol, except for:

CL/CH lean to fat clay
ML/CL clayey silt
CL/ML silty clay

X3.4 The use of a borderline symbol should not be used indiscriminately. Every effort shall be made to first place the soil into a single group.

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## X4. SUGGESTED PROCEDURES FOR ESTIMATING THE PERCENTAGES OF GRAVEL, SAND, AND FINES IN A SOIL SAMPLE

X4.1 *Jar Method*—The relative percentage of coarse- and fine-grained material may be estimated by thoroughly shaking a mixture of soil and water in a test tube or jar, and then allowing the mixture to settle. The coarse particles will fall to the bottom and successively finer particles will be deposited with increasing time; the sand sizes will fall out of suspension in 20 to 30 s. The relative proportions can be estimated from the relative volume of each size separate. This method should be correlated to particle-size laboratory determinations.

X4.2 *Visual Method*—Mentally visualize the gravel size particles placed in a sack (or other container) or sacks. Then, do the same with the sand size particles and the fines. Then, mentally compare the number of sacks to estimate the percentage of plus No. 4 sieve size and minus No. 4 sieve size present. The percentages of sand and fines in the minus sieve size No. 4 material can then be estimated from the wash test (X4.3).

X4.3 *Wash Test (for relative percentages of sand and fines)*—Select and moisten enough minus No. 4 sieve size material to form a 1-in (25-mm) cube of soil. Cut the cube in half, set one-half to the side, and place the other half in a small dish. Wash and decant the fines out of the material in the dish until the wash water is clear and then compare the two samples and estimate the percentage of sand and fines. Remember that the percentage is based on weight, not volume. However, the volume comparison will provide a reasonable indication of grain size percentages.

X4.3.1 While washing, it may be necessary to break down lumps of fines with the finger to get the correct percentages.

## X5. ABBREVIATED SOIL CLASSIFICATION SYMBOLS

X5.1 In some cases, because of lack of space, an abbreviated system may be useful to indicate the soil classification symbol and name. Examples of such cases would be graphical logs, databases, tables, etc.

X5.2 This abbreviated system is not a substitute for the full name and descriptive information but can be used in supplementary presentations when the complete description is referenced.

X5.3 The abbreviated system should consist of the soil classification symbol based on this standard with appropriate lower case letter prefixes and suffixes as:

| *Prefix:* | Suffix: |
|---|---|
| s = sandy | s = with sand |
| g = gravelly | g = with gravel |
| | c = with cobbles |
| | b = with boulders |

X5.4 The soil classification symbol is to be enclosed in parenthesis. Some examples would be:

| *Group Symbol and Full Name* | Abbreviated |
|---|---|
| CL, Sandy lean clay | s(CL) |
| SP-SM, Poorly graded sand with silt and gravel | (SP-SM)g |
| GP, poorly graded gravel with sand, cobbles, and boulders | (GP)scb |
| ML, gravelly silt with sand and cobbles | g(ML)sc |

## SUMMARY OF CHANGES

Committee D18 has identified the location of selected changes to this standard since the last issue (D2488 – 09) that may impact the use of this standard. (Approved June 15, 2009.)

*(1)* Revised Section 1.2.3.

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# STANDARD OPERATING PROCEDURE FOR LOW-STRESS (Low Flow) / MINIMAL DRAWDOWN GROUND-WATER SAMPLE COLLECTION

## INTRODUCTION

The collection of "representative" water samples from wells is neither straightforward nor easily accomplished. Ground-water sample collection can be a source of variability through differences in sample personnel and their individual sampling procedures, the equipment used, and ambient temporal variability in subsurface and environmental conditions. Many site inspections and remedial investigations require the sampling at ground-water monitoring wells within a defined criterion of data confidence or data quality, which necessitates that the personnel collecting the samples are trained and aware of proper sample-collection procedures.

The purpose of this standard operating procedure (SOP) is to provide a method which minimize the amount of impact the purging process has on the ground water chemistry during sample collection and to minimize the volume of water that is being purged and disposed. This will take place by placing the pump intake within the screen interval and by keeping the drawdown at a minimal level (0.33 feet) ( Puls and Barcelona, 1996) until the water quality parameters have stabilized and sample collection is complete. The flow rate at which the pump will be operating will be depended upon both hydraulic conductivity of the aquifer and the drawdown with the goal of minimizing the drawdown. The flow rate from the pump during purging and sampling will be at a rate that will not compromise the integrity of the analyte that is being sampled. This sampling procedure may or may not provide a discrete ground water sample at the location of the pump intake. The flow of ground-water to the pump intake will be dependent on the distribution of the hydraulic conductivity (K) of the aquifer within the screen interval. In order to minimize the drawdown in the monitoring well a low-flow rate must be utilized. Low-flow refers to the velocity with which water enters the pump intake from the surrounding formation in the

immediate vicinity of the well screen. It does not necessarily refer to the flow rate of water discharged at the surface, which can be affected by flow regulators or restrictions (Puls and Barcelona, 1996). This SOP was developed by the Superfund/RCRA Ground Water Forum and draws from an USEPA's Ground Water Issue Paper, Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedure, by Robert W. Puls and Michael J. Barcelona. Also, available USEPA Regional SOPs regarding Low-Stress(Low Flow)Purging and Sampling were used for this SOP.

## SCOPE AND APPLICATION

This SOP should be used primarily at monitoring wells which have a screen or an open interval with a length of ten feet or less and can accept a sampling device which minimizes the disturbance to the aquifer or the water column in the well casing. The screen or open interval should have been optimally located to intercept an existing contaminant plume(s) or along flowpaths of potential contaminant releases. Knowledge of the contaminant distribution within the screen interval is highly recommended and is essential for the success of this sampling procedure. The ground-water samples which are collected using this procedure are acceptable for the analyses of ground-water contaminants which may be found at Superfund and RCRA contamination sites. The analytes may be volatile, semi-volatile organic compounds, pesticides, PCBs, metals and other inorganic compounds. The screened interval should be located within the contaminant plume(s) and the pump intake should be placed at or near the known source of the contamination within the screened interval. It is critical to place the pump intake in the exact location or depth for each sampling event. This argues for the use of dedicated, permanently installed sampling devices whenever possible. If this is not possible then the placement of the pump intake should be positioned with a calibrated sampling pump hose sounded with a weighted-tape or using a pre-measured hose. The pump intake should not be placed near the bottom of the screened interval to avoid disturbing any sediment that may have settled at the bottom of the well.

Water-quality indicator parameters and water levels must be measured during purging, prior to sample collection. Stabilization of the water quality parameters as well as

monitoring water levels are a prerequisite to sample collection. The water-quality indicator parameters which are recommended include the following: specific electrical conductance, dissolved oxygen, turbidity, oxidation-reduction potential, pH, and temperature. The latter two parameters are useful data, but are generally insensitive as purging parameters. Oxidation-reduction potential may not always be appropriate stabilization parameter, and will depend on site-specific conditions. However, readings should be recorded because of its value as a double check for oxidation conditions, and for fate and transport issues. Also, when samples are collected for metals, semi-volatile organic compounds, and pesticides every effort must be made to reduce turbidity to 10 NTUs or less (not just the stabilization of turbidity) prior to the collection of the water sample. In addition to the measurement of the above parameters, depth to water must be measured during purging (U.S. Environmental Protection Agency, 1995).

Proper well construction, development and maintenance are essential for any ground-water sampling procedure. Prior to conducting the field work, information on the construction of the well and well development should be obtained and that information factored into the site specific sampling procedure. The attached Sampling Checklist is an example of the type of information that is useful.

Stabilization of the water-quality indicator parameters is the criterion for sample collection. But if stabilization is not occurring and the procedure has been strictly followed, then sample collection can take place once three (minimum) to six (maximum) casing volumes have been removed (Schuller et al., 1981 and U.S. Environmental Protection Agency., 1986; Wilde et al., 1998; Gibs and Imbrigiotta., 1990). The specific information on what took place during purging must be recorded in the field notebook or in the ground-water sampling log.

This SOP is not to be used where non-aqueous phase liquids (immiscible fluids) are present in the monitoring well.

**EQUIPMENT**

- Depth-to-water measuring device - An electronic water-level indicator or steel tape and chalk, with marked intervals of

0.01 foot. Interface probe for determination of liquid products (NAPL) presence, if needed.

- Steel tape and weight – Used for measuring total depth of well. Lead weight should not be used.
- Sampling pump – Submersible or bladder pumps with adjustable rate controls are preferred. Pumps are to be constructed of inert materials, such as stainless steel and teflon®. Pump types that are acceptable include gear and helical driven, centrifugal (low-flow type) and air-activated piston. Adjustable rate, peristaltic pump can be used when the depth to water is 20 feet or less.
- Tubing – Teflon® or Teflon® lined polyethylene tubing is preferred when sampling for organic compounds. Polyethylene tubing can be used when sampling inorganics.
- Power Source – If a combustion type (gasoline or diesel-driven) generator is used, it must be placed downwind of the sampling area.
- Flow measurement supplies – flow meter, graduated cylinder and a stop watch.
- Multi-Parameter meter with flow-through-cell – This can be one instrument or more contained in a flow-through cell. The water-quality indicator parameters which must be monitored are pH, ORP/EH, dissolved oxygen (DO), turbidity, specific conductance, and temperature. Turbidity readings must be collected before the flow cell because of the potential for sediment buildup which can bias the turbidity measurements. Calibration fluids for all instruments should be NIST-traceable and there should be enough for daily calibration through-out the sampling event. The inlet of the flow cell must be located near the bottom of the flow cell and the outlet near the top. The size of the flow cell should be kept to a minimum and a closed cell is preferred. The flow cell must not contain any air or gas bubbles when monitoring for the water-quality indicator parameters.
- Decontamination Supplies – Including a reliable and documented source of distilled water and any solvents (if used). Pressure sprayers, buckets or decontamination tubes for pumps, brushes and non-phosphate soap will also be needed.
- Sample bottles, sample preservation supplies, sample tags or labels and chain of custody forms.
- Approved Field Sampling and Quality Assurance Project Plan.
- Well construction data, field and water quality data from the previous sampling event.
- Well keys and map of well locations.

- Field notebook, ground-water sampling logs and calculator. A suggested field data sheet (ground-water sampling record or ground-water sampling log) are provided in the attachment.
- Filtration equipment, if needed. An in-line disposable filter is recommended.
- Polyethylene sheeting which will be placed on ground around the well head.
- Personal protective equipment specified in the site Health and Safety Plan.
- Air monitoring equipment as specified in the Site Health and Safety Plan.
- Tool box -All needed tools for all site equipment used.
- A 55-gallon drum or container to contain the purged water.

Materials of construction of the sampling equipment (bladders, pumps, tubing, and other equipment that comes in contact with the sample) should be limited to stainless steel, Teflon®, glass and other inert material. This will reduce the chance of the sampling materials to alter the ground-water where concentrations of the site contaminants are expected to be near the detection limits. The sample tubing diameter thickness should be maximized and the tubing length should be minimized so that the loss of contaminants into and through the tubing walls may be reduced and the rate of stabilization of ground-water parameters is maximized. The tendency of organics to sorb into and out of material makes the appropriate selection of sample tubing material critical for trace analyses (Pohlmann and Alduino, 1992; Parker and Ranney, 1998).

## PURGING AND SAMPLING PROCEDURES

The following describes the purging and sampling procedures for the Low-Stress (Low Flow)/ Minimal Drawdown method for the collection of ground-water samples. These procedures also describe steps for dedicated and non-dedicated systems.

Pre-Sampling Activities (Non-dedicated and dedicated system)

1. Sampling locations must begin at the monitoring well with the least contamination, generally up-gradient or furthest from the site or suspected source. Then proceed systematically to the monitoring wells with the most contaminated ground water.

2. Check and record the condition of the monitoring well for damage or evidence of tampering. Lay out polyethylene sheeting around the well to minimize the likelihood of contamination of sampling/purging equipment from the soil. Place monitoring, purging and sampling equipment on the sheeting.

3. Unlock well head. Record location, time, date and appropriate information in a field logbook or on the ground-water sampling log (See attached ground-water sampling record and ground-water sampling log as examples).

4. Remove inner casing cap.

5. Monitor the headspace of the monitoring well at the rim of the casing for volatile organic compounds (VOC) with a Photo-ionization detector (PID) or Flame ionization detector (FID), and record in the logbook. If the existing monitoring well has a history of positive readings of the headspace, then the sampling must be conducted in accordance with the Health and Safety Plan.

6. Measure the depth to water (water level must be measured to nearest 0.01 feet) relative to a reference measuring point on the well casing with an electronic water level indicator or steel tape and record in logbook or ground-water sampling log. If no reference point is found, measure relative to the top of the inner casing, then mark that reference point and note that location in the field logbook. Record information on depth to ground water in the field logbook or ground water sampling log. Measure the depth to water a second time to confirm initial measurement; measurement should agree within 0.01 feet or re-measure.

7. Check the available well information or field information for the total depth of the monitoring well. Use the information from the depth of water in step six and the total depth of the monitoring well to calculate the volume of the water in the monitoring well or the volume of one casing. Record information in field logbook or ground-water sampling log.

<u>Purging and Sampling Activities</u>

8A. Non-dedicated system - Place the pump and support equipment at the wellhead and slowly lower the pump and tubing down into the monitoring well until the location of the pump intake is set

at a pre-determined location within the screen interval. The placement of the pump intake should be positioned with a calibrated sampling pump hose, sounded with a weighted-tape, or using a pre-measured hose. Refer to the available monitoring well information to determine the depth and length of the screen interval. Measure the depth of the pump intake while lowering the pump into location. Record pump location in field logbook or groundwater sampling log.

8B. Dedicated system - Pump has already been installed, refer to the available monitoring well information and record the depth of the pump intake in the field logbook or ground-water sampling log.

9. Non-dedicated system and dedicated system - Measure the water level (water level must be measured to nearest 0.01 feet) and record information on the ground-water sampling log, leave water level indicator probe in the monitoring well.

10. Non-dedicated and dedicated system - Connect the discharge line from the pump to a flow-through cell. A "T" connection is needed prior to the flow cell to allow for the collection of water for the turbidity measurements. The discharge line from the flow-through cell must be directed to a container to contain the purge water during the purging and sampling of the monitoring well.

11. Non-dedicated and dedicated system - Start pumping the well at a low flow rate (0.2 to 0.5 liter per minute) and slowly increase the speed. Check water level. Maintain a steady flow rate while maintaining a drawdown of less than 0.33 feet (Puls and Barcelona, 1996). If drawdown is greater than 0.33 feet lower the flow rate. 0.33 feet is a goal to help guide with the flow rate adjustment. It should be noted that this goal may be difficult to achieve under some circumstances due to geologic heterogeneities within the screened interval, and may require adjustment based on site-specific conditions and personal experience (Puls and Barcelona, 1996).

12. Non-dedicated and dedicated system - Measure the discharge rate of the pump with a graduated cylinder and a stop watch. Also, measure the water level and record both flow rate and water level on the groundwater sampling log. Continue purging, monitor and record water level and pump rate every three to five minutes during purging. Pumping rates should be kept at minimal flow to

ensure minimal drawdown in the monitoring well.

13. Non-dedicated and dedicated system - During the purging, a minimum of one tubing volume (including the volume of water in the pump and flow cell) must be purged prior to recording the water-quality indicator parameters. Then monitor and record the water-quality indicator parameters every three to five minutes. The water-quality indicator field parameters are turbidity, dissolved oxygen, specific electrical conductance, pH, redox-potential and temperature. Oxidation-reduction potential may not always be an appropriate stabilization parameter, and will depend on site-specific conditions. However, readings should be recorded because of its value as a double check for oxidizing conditions. Also, for the final dissolved oxygen measurement, if the readings are less than 1 milligram per liter, it should be collected and analyze with the spectrophotometric method (Wilde et al., 1998 Wilkin et al., 2001), colorimetric or Winkler titration (Wilkin et al., 2001). The stabilization criterion is based on three successive readings of the water quality field parameters; the following are the criteria which must be used:

| **Parameter** | **Stabilization Criteria** | **Reference** |
|---|---|---|
| pH | ± 0.1 pH units | Puls and Barcelona, 1996; Wilde et al., |
| Specific electrical conductance (SEC) | ± 3% FS/cm | Puls and Barcelona, 1996 |
| oxidation-reduction potential (ORP) | ± 10 millivolts | Puls and Barcelona 1996 |
| turbidity | ± 10 % NTUs (when turbidity is greater than 10 NTUs) | Puls and Barcelona, 1996 Wilde et al., 1998 |
| dissolved oxygen | ± 0.3 milligrams per liter | Wilde et al., 1998 |

Once the criteria have been successfully met indicating that the water quality indicator parameters have stabilized, then sample collection can take place.

14. If a stabilized drawdown in the well can't be maintained at 0.33 feet and the water level is approaching the top of the screened interval, reduce the flow rate or turn the pump off (for 15 minutes) and allow for recovery. It should be noted whether or not the pump has a check valve. A check valve is required if the pump is shut off. Under no circumstances should the well be

pumped dry. Begin pumping at a lower flow rate, if the water draws-down to the top of the screened interval again turn pump off and allow for recovery. If two tubing volumes (including the volume of water in the pump and flow cell) have been removed during purging then sampling can proceed next time the pump is turned on. This information should be noted in the field notebook or ground-water sampling log with a recommendation for a different purging and sampling procedure.

15. Non-dedicated and dedicated system - Maintain the same pumping rate or reduce slightly for sampling (0.2 to 0.5 liter per minute) in order to minimize disturbance of the water column. Samples should be collected directly from the discharge port of the pump tubing prior to passing through the flow-through cell. Disconnect the pump's tubing from the flow-through-cell so that the samples are collected from the pump's discharge tubing. For samples collected for dissolved gases or Volatile Organic Compounds (VOCs) analyses, the pump's tubing needs to be completely full of ground water to prevent the ground water from being aerated as the ground water flows through the tubing. The sequence of the samples is immaterial unless filtered (dissolved) samples are collected and they must be collected last (Puls and Barcelona, 1996). All sample containers should be filled with minimal turbulence by allowing the ground water to flow from the tubing gently down the inside of the container. When filling the VOC samples a meniscus must be formed over the mouth of the vial to eliminate the formation of air bubbles and head space prior to capping. In the event that the ground water is turbid,(greater then 10 NTUs), a filtered metal (dissolved) sample also should be collected.

If filtered metal sample is to be collected, then an in-line filter is fitted at the end of the discharge tubing and the sample is collected after the filter. The in-line filter must be pre-rinsed following manufacturer's recommendations and if there are no recommendations for rinsing, a minimum of 0.5 to 1 liter of ground water from the monitoring well must pass through the filter prior to sampling.

16A. Non-dedicated system - Remove the pump from the monitoring well. Decontaminate the pump and dispose of the tubing if it is non-dedicated.

16B Dedicated system - Disconnect the tubing that extends from the plate at the wellhead (or cap) and discard after use.

17. Non-dedicated system - Before locking the monitoring well, measure and record the well depth (to 0.1 feet).
Measure the total depth a second time to confirm initial measurement; measurement should agree within 0.01 feet or re-measure.

18. Non-dedicated and dedicated system - Close and lock the well.

## DECONTAMINATION PROCEDURES

Decontamination procedures for the water level meter and the water quality field parameter sensors.
The electronic water level indicator probe/steel tape and the water-quality field parameter sensors will be decontaminated by the following procedures:
1. The water level meter will be hand washed with phosphate free detergent and a scrubber, then thoroughly rinsed with distilled water.

2. Water quality field parameter sensors and flow-through cell will be rinsed with distilled water between sampling locations. No other decontamination procedures are necessary or recommended for these probes since they are sensitive. After the sampling event, the flow cell and sensors must be cleaned and maintained per the manufacturer's requirements.

Decontamination Procedure for the Sampling Pump

Upon completion of the ground water sample collection the sampling pump must be properly decontaminated between monitoring wells. The pump and discharge line including support cable and electrical wires which were in contact with the ground water in the well casing must be decontaminated by the following procedure:

1. The outside of the pump, tubing, support cable and electrical wires must be pressured sprayed with soapy water, tap water and distilled water. Spray outside of tubing and pump until water is flowing off of tubing after each rinse. Use bristle brush to help remove visible dirt and contaminants.
2.Place the sampling pump in a bucket or in a short PVC casing (4-in. diameter) with one end capped. The pump placed in this device must be completely submerged in the water. A small amount of phosphate free detergent must be added to the potable water

(tap water).
3. Remove the pump from the bucket or 4-in. casing and scrub the outside of the pump housing and cable.
4. Place pump and discharge line back in the 4-in. casing or bucket, start pump and re-circulate this soapy water for 2 minutes (wash).
5. Re-direct discharge line to a 55-gallon drum, continue to add 5 gallons of potable water (tap water)or until soapy water is no longer visible.
6. Turn pump off and place pump into a second bucket or 4-in. Casing which contains tap water, continue to add 5-gallons of tap water (rinse).
7. Turn pump off and place pump into a third bucket or 4-in. casing which contains distilled/deionized water, continue to add three to five gallons of distilled/deionized water (final rinse).
8. If a hydrophobic contaminant is present (such as separate phase, high levels of PCB's, etc.) An additional decon step, or steps, may be added. For example, an organic solvent, such as reagent-grade isopropanol alcool may be added as a first spraying/bucket prior to the soapy water rinse/bucket.

## FIELD QUALITY CONTROL

Quality control (QC) samples must be collected to verify that sample collection and handling procedures were performed adequately and that they have not compromised the quality of the ground water samples. The appropriate EPA program guidance must be consulted in preparing the field QC sample requirements for the site-specific Quality Assurance Project Plan (QAPP).

There are five primary areas of concern for quality assurance (QA) in the collection of representative ground-water samples:

1. Obtaining a ground-water sample that is representative of the aquifer or zone of interest in the aquifer. Verification is based on the field log documenting that the field water-quality parameters stabilized during the purging of the well, prior to sample collection.
2. Ensuring that the purging and sampling devices are made of materials, and utilized in a manner, which will not interact with or alter the analyses.
3. Ensuring that results generated by these procedures are reproducible; therefore, the sampling scheme should incorporate co-located samples (duplicates).

4. Preventing cross-contamination. Sampling should proceed from least to most contaminated wells, if known. Field equipment blanks should be incorporated for all sampling and purging equipment, and decontamination of the equipment is therefore required.
5. Properly preserving, packaging, and shipping samples.

All field quality control samples must be prepared the same as regular investigation samples with regard to sample volume, containers, and preservation. The chain of custody procedures for the QC samples will be identical to the field ground water samples. The following are quality control samples which must be collected during the sampling event:

| Sample Type | Frequency |
|---|---|
| ● Field duplicates | 1 per 20 samples |
| ● Matrix spike | 1 per 20 samples |
| ● Matrix spike duplicate | 1 per 20 samples |
| ● Equipment blank | Per Regional requirements or policy |
| ● Trip blank (VOCs) | 1 per sample cooler |
| ● Temperature blank | 1 per sample cooler |

## HEALTH AND SAFETY CONSIDERATIONS

Depending on the site-specific contaminants, various protective programs must be implemented prior to sampling the first well. The site Health and Safety Plan should be reviewed with specific emphasis placed on the protection program planned for the sampling tasks. Standard safe operating practices should be followed, such as minimizing contact with potential contaminants in both the liquid and vapor phase through the use of appropriate personal protective equipment.

Depending on the type of contaminants expected or determined in previous sampling efforts, the following safe work practices will be employed:

Particulate or metals contaminants

1. Avoid skin contact with, and incidental ingestion of, purge water.
2. Use protective gloves and splash protection.

Volatile organic contaminants

1. Avoid breathing constituents venting from well.
2. Pre-survey the well head space with an appropriate device as specified in the Site Health and Safety Plan.
3. If monitoring results indicate elevated organic constituents, sampling activities may be conducted in level C protection. At a minimum, skin protection will be afforded by disposable protective clothing, such as Tyvek®.

General, common practices should include avoiding skin contact with water from preserved sample bottles, as this water will have pH less than 2 or greater than 10. Also, when filling pre-acidified VOA bottles, hydrochloric acid fumes may be released and should not be inhaled.

**POST-SAMPLING ACTIVITIES**

Several activities need to be completed and documented once ground-water sampling has been completed. These activities include, but are not limited to:

1. Ensure that all field equipment has been decontaminated and returned to proper storage location. Once the individual field equipment has been decontaminated, tag it with date of cleaning, site name, and name of individual responsible.
2. All sample paperwork should be processed, including copies provided to the Regional Laboratory, Sample Management Office, or other appropriate sample handling and tracking facility.
3. All field data should be complied for site records.
4. All analytical data when processed by the analytical laboratory, should be verified against field sheets to ensure all data has been returned to sampler.

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## SAMPLING CHECKLIST

Well Identification:_____

Map of Site Included: Y or N
Wells Clearly Identified w/ Roads: Y or N
Well Construction Diagram Attached: Y or N

**Well Construction:**

Diameter of Borehole:_____ Diameter of Casing:_____
Casing Material:_____ Screen Material:_____

Screen Length:_____ Total Depth:_____

Approximate Depth to Water:_____
Maximum Well Development Pumping Rate:_____
Date of Last Well Development:_____

**Previous Sampling Information:**

Was the Well Sampled Previously: Y or N
(If Sampled, Fill Out Table Below)

| **Table of Previous Sampling Information** | | | | |
|---|---|---|---|---|
| Parameter | Previously Sampled | Number of Times Sampled | Maximum Concentration | Notes (include previous purge rates) |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
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| | | | | |

**Ground-Water Sampling Log**

**Site Name:** **Well #:** **Date:**

**Well Depth**( Ft-BTOC[1]): **Screen Interval**(Ft):

**Well Dia.:** **Casing Material:** **Sampling Device:**

**Pump placement**(Ft from TOC[2]):

**Measuring Point:** **Water level (static)**(Ft):

**Water level (pumping)**(Ft): **Pump rate**(Liter/min):

**Sampling Personnel:**

**Other info:** (such as sample numbers, weather conditions and field notes)

## Water Quality Indicator Parameters

| Time | Pumping rates (L/min) | Water level (ft) | DO (mg/l) | ORP (mv) | Turb. (NTU) | SEC[3] (FS/cm) | pH | Temp. ($C^{o}$) | Volume pumped (L) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

**Type of Sample collected:**

**1-casing volume was:**

**Total volume purged prior to sample collection:**

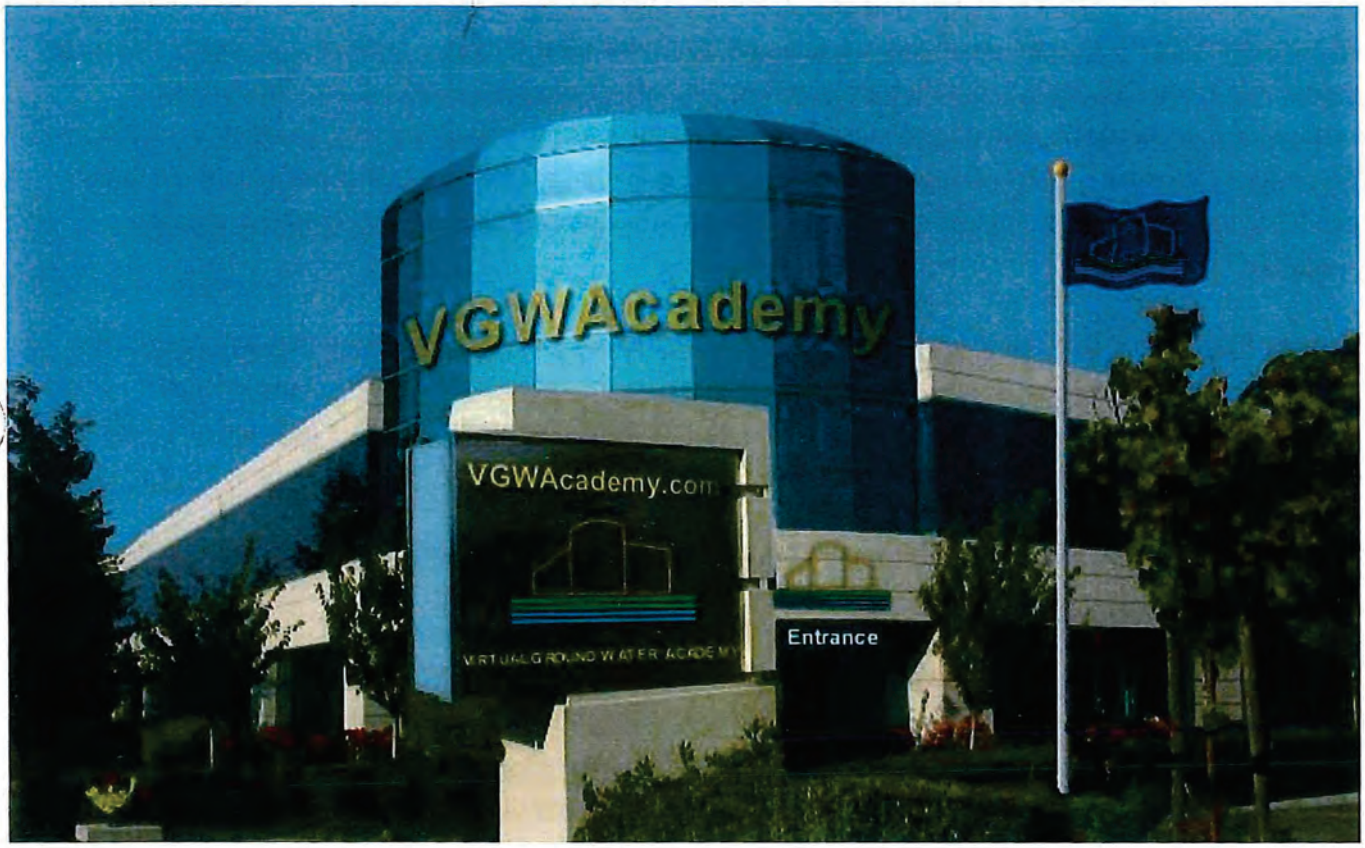
| Stabilization Criteria | | |
|---|---|---|
| DO | ± | 0.3 mg/l |
| Turb. | ± | 10% |
| SEC | ± | 3% |
| ORP | ± | 10 mv |
| pH | ± | 0.1 unit |

[1]**BTOC-Below Top of Casing**
[2]**TOC-Top of Casing**
[3]**Specific electrical conductance**

**VIRTUAL GROUND WATER ACADEMY**

# Determining Hydraulic Conductivity While Low Flow Sampling

v.1.01

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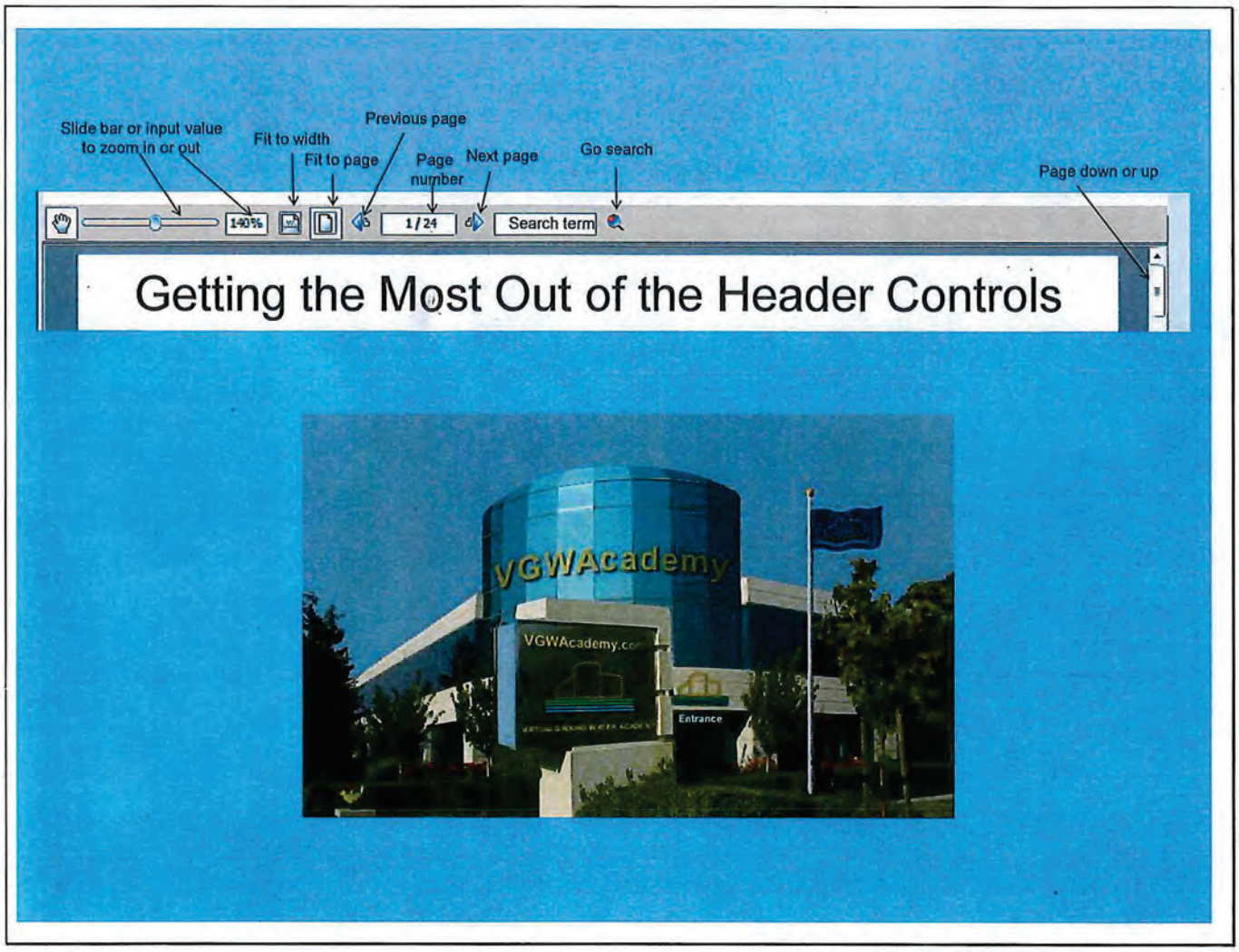
Slide 1




This training course is presented as an Adobe Flash ™ file. To get the most out of the header controls see the labeling above. Try the controls before you move to the next slide. You can also view the course notes separately from the rest of the webpage by clicking on the "View Only Lecture" link. This can be helpful in optimizing viewing for your screen resolution.

$$Q = \frac{0.9\ L}{10\ \text{Sec}} \times \frac{60\ \text{sec}}{1\ \text{min}} = 6.53\ \frac{L}{\text{min}}$$

Slide 2

Welcome. Here you will learn how to conduct and analyze low flow data to determine hydraulic conductivity (K). The short course is designed to take about 4 hours but take your time to conduct the simulations and to perform the required analyses. If you are seeking professional CEUs, you will be instructed at the end of the course on information you must submit.

Slide 3

# Introducing Your Instructor

- Professor of Geology at the University of Connecticut
  - Specializing in hydrogeology
  - Conducted research for over 25 years on improving site assessments at contamination sites
  - Authored over a hundred articles, reports and presentations
  - Developed patented PEBS method for field screening for volatile organics
  - Helped establish mobile site characterization group at CT DEEP (SASU)
  - Consultant to EPA, state regulators, industry, localities throughout US
  - Registered Geologist and Engineering Geologist in California
  - AIPG CPG
  - Recipient of the U. Connecticut Chancellor's Information Technology Award
- Senior Project Hydrogeologist with Woodward-Clyde Consultants
- Project Geologist with Nuclear Regulatory Commission
- Author of ***Expedited Site Assessment: The CD***
- Author and Instructor of online and mortar and brick continuing education courses for environmental professionals
- Manager, Robbins Consulting Services, LLC

Hi, I am Gary Robbins your instructor. I have spent a good portion of my professional career working on ways to improve site characterization methods at contamination sites and teaching lessons learned to students and professionals. Although I prefer to provide field based instruction, I have developed this short course as a mechanism to outreach to a larger audience of professionals. However, to maintain the sense of hands-on field experience, I have developed the test simulations in the short course. If along the way, you need some assistance, just click on the **Contact Instructor** link and send me an email with contact information. I will try to get back to you in short order. Enjoy learning.

Slide 4

# Special Thanks

- Special thanks to Steve Bartlett and Alexandra Aragon-Jose who assisted the author in the field in verifying the usefulness of the low flow K testing method.
- The author appreciates the assistance from all the professionals that conducted beta testing of this short course material.

Special thanks to my former students and coauthors who helped develop the approaches included in the short course.

Slide 5

# Outline fix

1. Low Flow Sampling and Determining K Overview
2. Test Parameters
3. Steady State Models
4. Test Procedures
5. Conduct the Low Flow Test Simulations
6. Conduct Sensitivity Analysis
7. QA/QC Considerations
8. Case Histories
9. Some Last Words by the Author
10. How to Obtain CEUs
11. Select References

Here is where we are going. Take your time and proceed at a comfortable pace. Background music might be a plus.

Slide 6

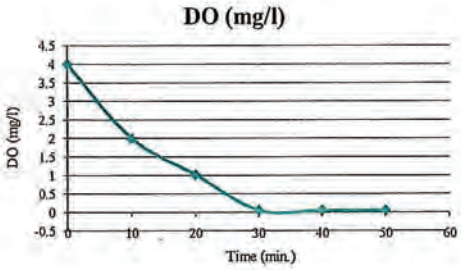
# 1. Low Flow Purging and Sampling Overview

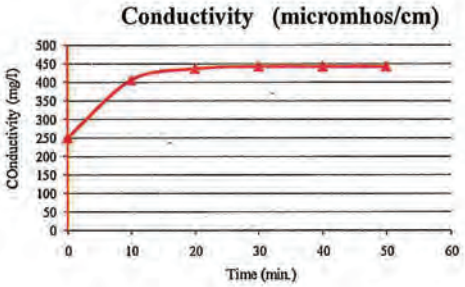
Low flow purging and sampling has become the norm for collecting ground water samples from monitoring wells. Typically, it entails purging a well by pumping at a relatively low discharge rate (<1 L/min) to minimize the amount of drawdown in the well. Once the drawdown is at steady state, water quality parameters are monitored until they are stable. Then a water quality sample is taken. Low flow sampling permits purging a well of "stale" water while minimizing drawdown which helps to promote radial flow to the well. Radial flow reduces complex mixing of water from difference levels in a formation that could result in complicated and inconsistent concentration averaging from sampling round to sampling round. It also reduces turbidity generation and the need for filtering.

Slide 7

# Low Flow Sampling Parameters

| Time (min) | DTW (ft) | Q(ml.min) | DO (mg/l) | ORP (mv) | T (oC) | EC (Mmhos/cm) | pH | Turbidity ( NTU) |
|---|---|---|---|---|---|---|---|---|
| 0 | 7.01 | 250 | 4 | 156 | 18 | 250 | 6.07 | 102 |
| 10 | 6.67 | 250 | 2 | 45 | 16 | 406 | 6.1 | 45 |
| 20 | 6.55 | 250 | 1.02 | -20 | 14 | 436 | 6.15 | 19 |
| 30 | 6.55 | 250 | 0.056 | -41 | 14 | 442 | 6.15 | 11 |
| 40 | 6.55 | 250 | 0.055 | -50 | 14 | 442 | 6.15 | 9 |
| 50 | 6.55 | 250 | 0.055 | -50 | 14 | 442 | 6.15 | 9 |




Data collected during low flow sampling includes, static depth to water, drawdown, flow rate, dissolved oxygen, temperature, conductivity, oxidation –reduction potential, pH and turbidity. Although the data collect during low flow sampling is used to determine when to sample, it is also very revealing of contaminant and hydrogeologic related conditions. It can provide direct and indirect information on the presence of contamination, on levels of biodegradation, and what ionic species may be stable and mobile. As will be shown in this course, the steady state discharge and drawdown achieved during low flow purging and sampling can be used to compute hydraulic conductivity.

Slide 8

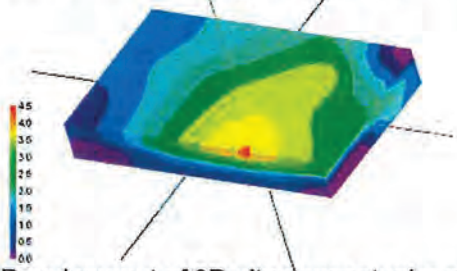
## Hydraulic Conductivity Has a Critical Influence on…

Ground water discharge and velocity
Contaminant velocity and flux

Direction of contaminant transport

Extent of investigation and magnitude of risk

Choice of remediation method

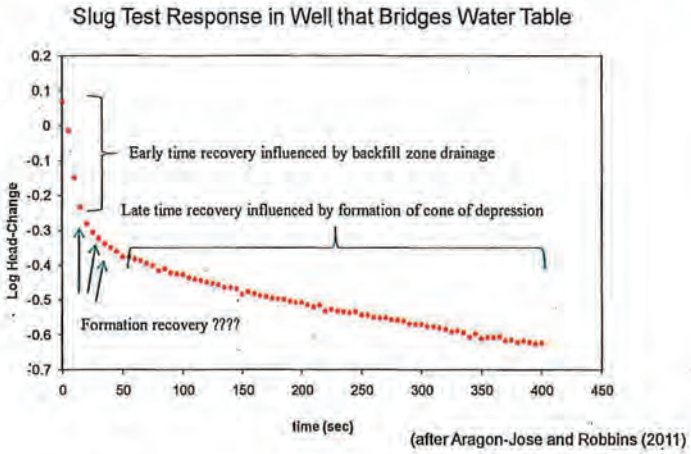


Development of 3D site conceptual model

Determining the magnitude and spatial variability of hydraulic conductivity at a contamination site is critical in performing site assessments, given the many factors that it influences as shown here. Hydraulic conductivity values collected while low flow sampling can also help monitor formation dynamics--whether a well needs development because fines have been mobilized during sampling or whether a remediation method may influence formation permeability over time

Slide 9

# Why Use the Low Flow Method to Determine K?




(after Aragon-Jose and Robbins (2011)

- Avoid backfill zone drainage and resaturation that makes determining K from slug tests in wells that have screens that bridge the water table dubious

At most contamination sites, the hydraulic conductivity is determined by slug testing. The main advantages of slug testing include: little, if any contaminated water is generated; equipment needs and test procedures are simple, and test analyses are straight forward. However, there are times when slug testing is problematic. In monitoring wells that bridge the water, slug test drawdown (head change) vs. time recovery curves are not log linear as predicted by the models used to analyze the tests (e.g., Hvorslev or Bouwer and Rice). The water level recovery is strongly influenced by backfill zone drainage in early time as shown on the figure. Backfill zone drainage results in an initial rapid recovery. The late time data is influenced by the formation of a cone of depression or ever decreasing recovery. These influences result in a multisegmented recovery curve. The hydraulic conductivity depends on

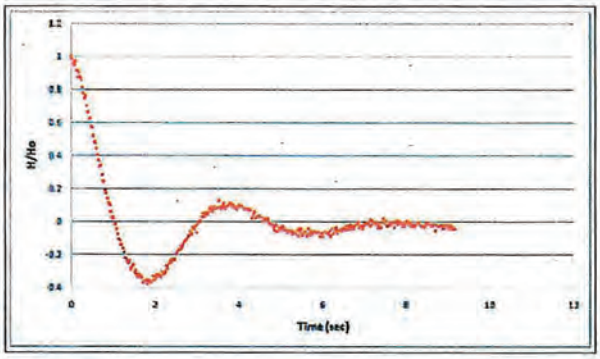
the slope of the recovery curve. One is left having to guess which part of the curve between the extremes represents only formation response. Of course this leads to a good deal of uncertainty in the analyses. The low flow method avoids these issues. At steady state, there is no backfill zone drainage or further development of a cone of depression influencing the near-field of the well.

Slide 10

# Why Use the Low Flow Method to Determine K?

Pneumatic Slug Test

Slug Test Response in High K Formation




•Avoid having to conduct pneumatic testing and use of complex analysis associated with slug tests in high K formations that exhibit oscillatory response

In highly permeable formations, slug test responses can be oscillatory (underdamped) and very short lived (seconds). To conduct slug tests in highly permeable formations requires using pneumatic equipment with a high frequency pressure transducer. It requires a considerable more effort than a typical slug test. Also, to determine hydraulic conductivity from oscillatory data requires using complex analyses. Furthermore, these tests are only valid if the well screen is fully submerged. Determining hydraulic conductivity from low flow sampling avoids the oscillatory response and allows for simplified analysis.

Slide 11

## Why Use the Low Flow Method to Determine K?

- Avoid another phase of investigation to conduct slug testing

- Monitor changes in formation water quality and permeability simultaneously to evaluate remediation method impact on both
  - oxygenates
  - iron filligs

Of course, conducting hydraulic testing while low flow sampling can avoid the need and cost associated with another phase of investigation. There are situations where remediation methods can impact a formation hydraulic conductivity which in turn will influence the ground water flow velocity and direction. Adding oxygenates to the groundwater can cause metals to precipitate which can clog pores. Iron walls made by injecting iron filings could also have similar impact. Determining the hydraulic conductivity while low flow sampling can be used to monitor these possible effects.

Slide 12

# 2. Test Parameters

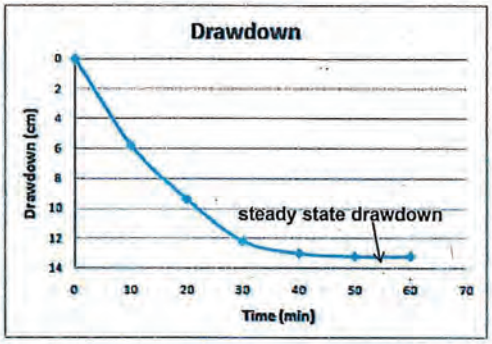
Steady State Drawdown

Steady State Flow Rate

In this section we will cover the ins and outs of field testing for hydraulic conductivity while low flow sampling. While the parameters needed are simple to measure, they must be measured as accurately as possible because only a limited amount of data is used in calculations.

Slide 13

# Steady State Drawdown




s = DTW(t) – DTWo
where:
s = drawdown
DTW(t) = depth to water while pumping
DTWo = depth to water before pumping

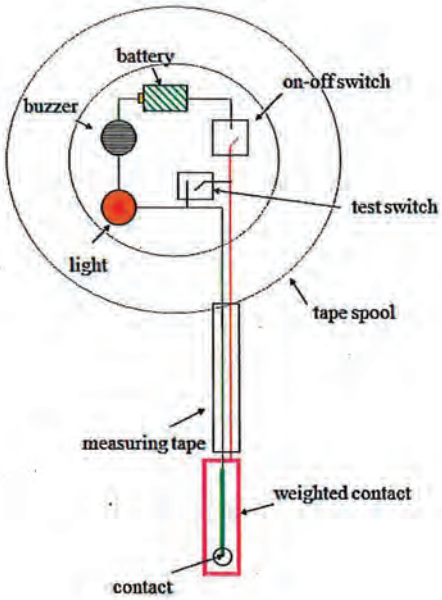
Water level meter

Pressure transducer

In low flow sampling, the drawdown is typically measured with a water level sounder. Drawdown is defined as the difference between the depth to water during pumping and the prepumping static water level. You can also determine the drawdown more accurately using a pressure transducer.

Slide 14

# Water Level Meter

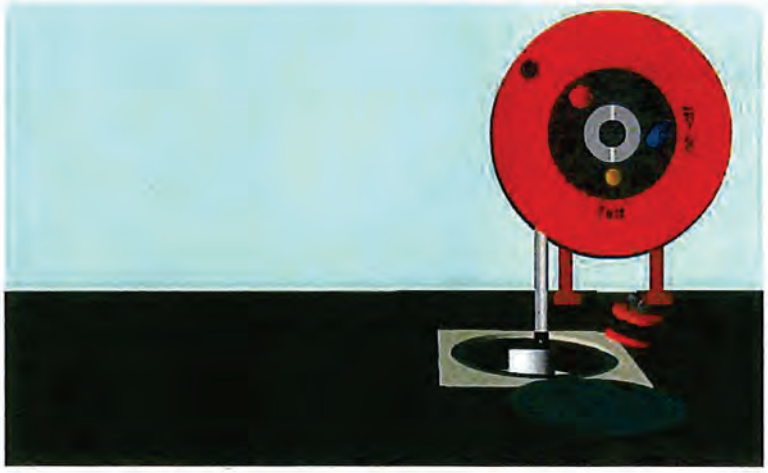



This is what a water level meter (sounder) looks like. It consists of a reel of Teflon® measuring tape in which two wires have been embedded. At the end of the wires is a weight. The outside of the weight is an electrical contact. Within the weight is another contact insulated from the outer contact. When the weight makes contact with water, the water completes an electrical circuit that consists of a battery, buzzer, light, on-off switch and circuit test switch. When the weight enters the water the buzzer sounds and the light turns on. One then reads the measuring tape length from a mark, such as the top of casing or ground surface. To get an accurate depth to water reading, be sure the tape is as straight as possible. Make several measurements to check on your readings. Also, avoid submerging the sound weight

as much as possible. Not only does submerging the sounder weight influence the water level (which rises) but it induces a transient head change (like a slug in test).

Slide 15

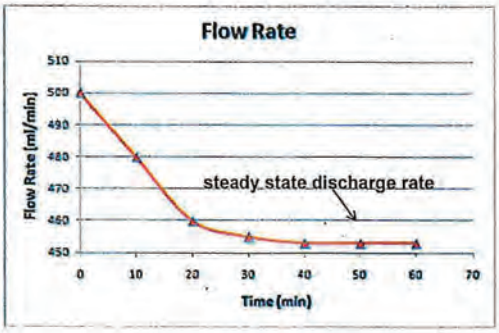
# Try the Water Level Sounder Simulation



Try the water level sounder simulation. What is the depth to water from the top of casing? If you going to use the one pair of measurements of discharge and drawdown to compute the hydraulic conductivity, be sure you can accurately read the meter. It is best to make several measurements of the same depth to water and average them.

Slide 16

# Steady State Discharge




Q = V/dt
where:
Q= Flow rate (discharge)
V = volume of water
dt = duration of collection

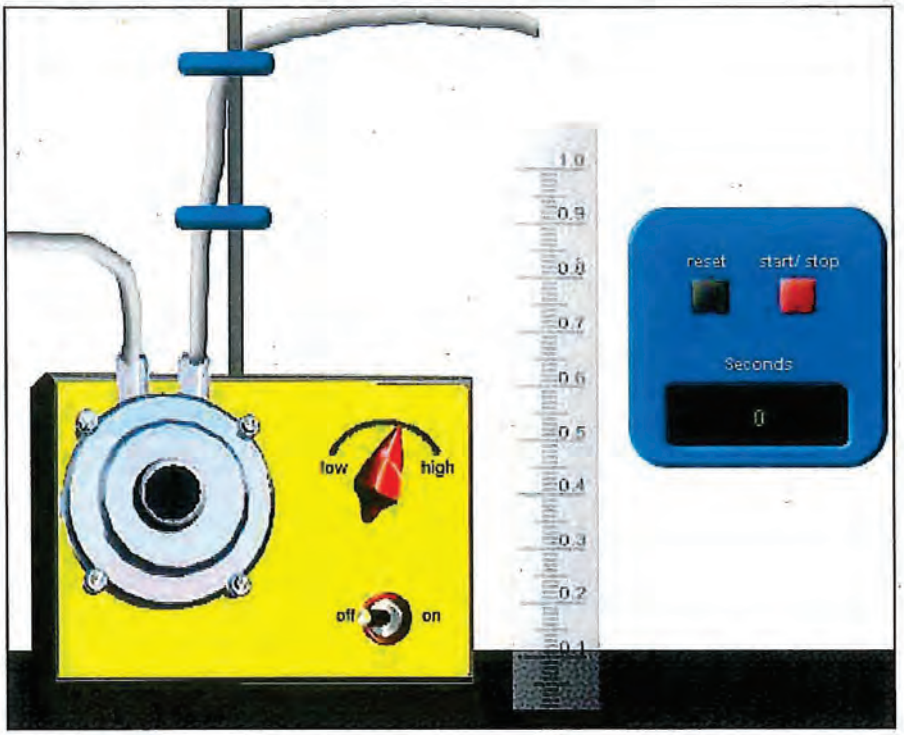
Graduated cylinders

Did you get 6.88 ft for the depth to water in the water level simulation? If not, be sure to reread the instructions on how to read the tape. In addition to the steady state depth to water, we need to know the steady state discharge. The steady state discharge can be readily determined using a stopwatch to time the collection of water in jugs or graduated cylinders. The flow rate is equal to the volume of water collected divided by the duration of collection. How much water and over what duration should you be collecting you ask? This depends on the flow rate and the gradations of the graduated cylinder you are using. I suggest you collect water for at least two minutes. That will pretty much negate a few seconds of error in measuring time. Collect at least enough water to fill 50% of the graduated cylinder. More is better than less. The more water you collect the more accurate you will be. In

addition to measuring the discharge using graduate cylinders, it can also be determined using an inline flow meter. Just be sure you meter is well calibrated.

Slide 17

# Try the Discharge Measurement Simulation

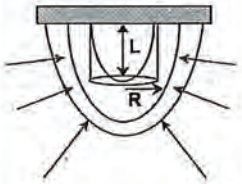



Try the discharge measurement simulation. You will be practicing how to determine the discharge using a graduated cylinder and stopwatch.

Slide 18

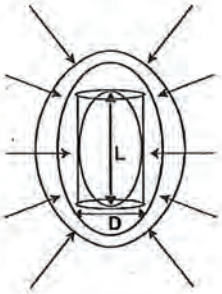
# 3. Steady State Models

**HALF ELLIPSOID**
**Dachler (1936)**



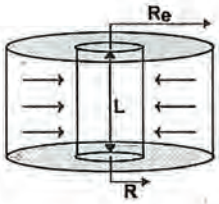

$$Q = \frac{2\pi LKH}{2.303\log\left[\frac{L}{R} + \sqrt{1+\left(\frac{L}{R}\right)^2}\right]}$$

**FULL ELLIPSOID**
**Hvorslev (1951)**




$$Q = \frac{2\pi LKH}{2.303\log\left[\frac{L}{D} + \sqrt{1+\left(\frac{L}{D}\right)^2}\right]}$$

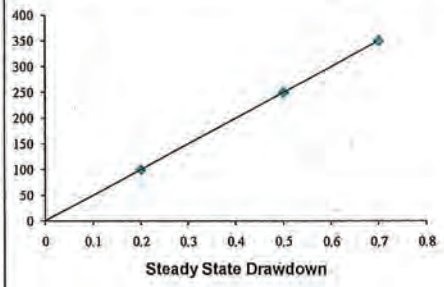
**RADIAL FLOW**
**Muskat (1937)**




$$Q = \frac{2\pi LKH}{2.303\log[R_e/R]}$$

Where:
Q = steady state flow rate
L = intake length
K = hydraulic Conductivity
H = steady state drawdown
R = intake radius
D = intake diameter
$R_e$ = radius of influence

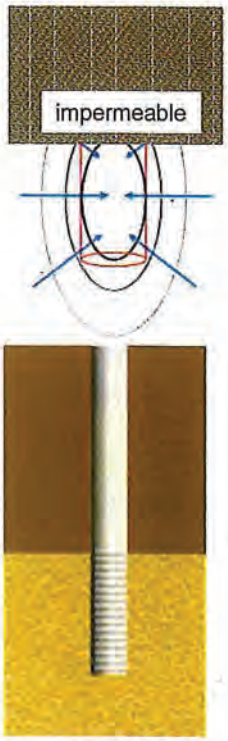
Q = slope*H
slope = f (well and formation geometry, K)




Did you get about 0.5 L/min for the steady state discharge in the simulation? The steady state discharge and drawdown can be substituted into steady state flow models to determine the hydraulic conductivity. The three models shown here are the foundation models for common slug test solutions. They are forms of Darcy's Law and take into account the well intake and formation geometry. As shown on the graph to the right, the models predict that the steady state drawdown and discharge are directly proportional (i.e., double one you double the other, half one you half the other). If you plotted the discharge (Q) vs. steady state drawdown (H), in theory the data would fit a straight line with a zero intercept and slope that is proportional to K. Let's look at the models more closely.

Slide 19

# Half Ellipsoid Model




*Formula*

$$Q = \frac{2\pi LKH}{2.303 \log\left[\frac{L}{R} + \sqrt{1+\left(\frac{L}{R}\right)^2}\right]}$$

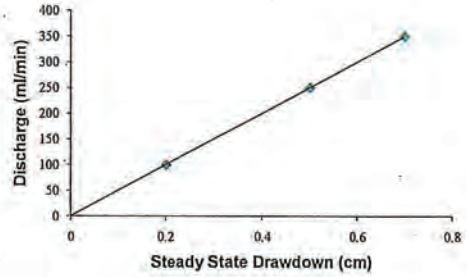
*Single O/H*

$$K = \frac{Q * 2.303 \log\left[\frac{L}{R} + \sqrt{1+\left(\frac{L}{R}\right)^2}\right]}{2\pi LH}$$

*Regression*

$Q = slope * H$

$$K = \frac{slope * 2.303 \log\left[\frac{L}{R} + \sqrt{1+\left(\frac{L}{R}\right)^2}\right]}{2\pi L}$$

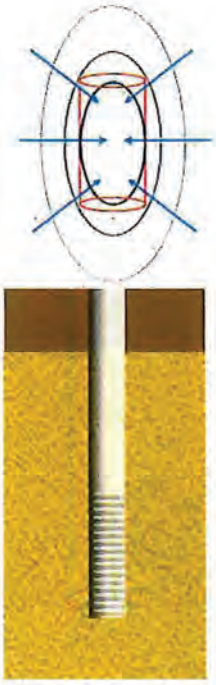



Where:
Q = steady state flow rate
L = intake length
K = Hydraulic Conductivity
H = steady state drawdown
R =intake radius

This is the half ellipsoid model. It is based on steady state flow to a line source that is truncated on one end, either the top or the bottom (Dachler, 1936). It would be applicable to a situation where there was a no flow boundary at one end of the well screen (e.g., low hydraulic conductivity layer, the water table). For a single pair of Q and H values, you can calculate the hydraulic conductivity by direct substitution. For three or more pairs of Q and H values the formula predicts a straight line that can be regressed to determine the slope. The hydraulic conductivity can be computed from the slope. This model is the basis for the Hvorslev slug test half ellipsoid model (Hvorslev, 1951).

Slide 20

# Full Ellipsoid Model



*Formula*

$$Q = \frac{2\pi LKH}{2.303 \log\left[\frac{L}{D} + \sqrt{1 + \left(\frac{L}{D}\right)^2}\right]}$$

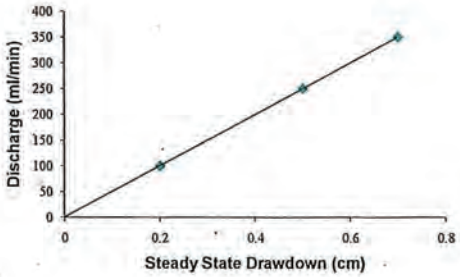
*Single O/H*

$$K = \frac{Q * 2.303 \log\left[\frac{L}{D} + \sqrt{1 + \left(\frac{L}{D}\right)^2}\right]}{2\pi LH}$$

*Regression*

$$Q = slope * H$$

$$K = \frac{slope * 2.303 \log\left[\frac{L}{D} + \sqrt{1 + \left(\frac{L}{D}\right)^2}\right]}{2\pi L}$$

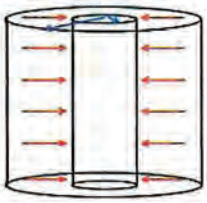



Where:
Q = steady state flow rate
L = intake length
K = Hydraulic Conductivity
H = steady state drawdown
D =intake diameter

This is the full ellipsoid model. It is based on steady state flow to a line source (Hvorslev, 1951). It is applicable to a situation where the well screen is installed in a uniform formation. For a single pair of Q and H values, you can calculate the hydraulic conductivity by direct substitution. For three or more pairs of Q and H values the formula predicts a straight line that can be regressed to determine the slope. The hydraulic conductivity can be computed from the slope. This model is the basis for the Hvorslev slug test full ellipsoid model.

Slide 21

# Radial Flow Model



***Formula***

$$Q = \frac{2\pi LKH}{2.303 \log(R_e / R)}$$

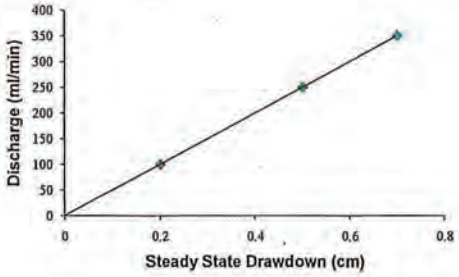
***Single Q/H***

$$K = \frac{Q * 2.303 \log(R_e / R)}{2\pi LH}$$

***Regression***

$$Q = slope * H$$

$$K = \frac{slope * 2.303 \log(R_e / R)}{2\pi L}$$




Where:
Q = steady state flow rate
L = intake length
K = Hydraulic Conductivity
H = steady state drawdown
R =intake radius
$R_e$ = radius of influence

How to find Re?

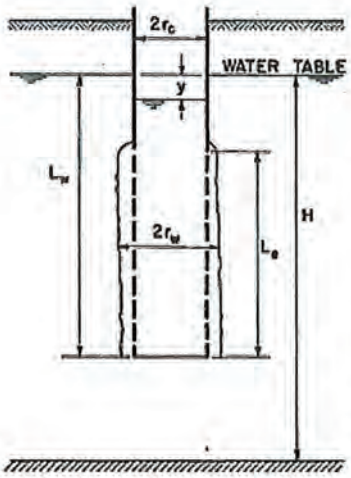
- 50 x hole radius
- 200 x hole radius (NAVY)
- Bouwer and Rice formulas based on electric analog modeling\

This model is the radial flow model (Muskrat 1937). The steady state radial flow model is based on integrating between two boundaries. One boundary is the well intake radius and the other is taken as the "radius of influence" ($R_e$) where the drawdown = 0. The model is a special case of the Thiem equation. It is applicable to a fully penetrating well in a confined aquifer, a well in a formation that is highly anisotropic (horizontal K >> vertical K), or a well that is screened from the water table to the bottom of a formation (low hydraulic conductivity layer). To use this model, one needs to define $R_e$. It is common to use a value = 50 * hole radius. Since the $R_e$ term is in a log, the hydraulic conductivity value is rather insensitive to the value chosen. For example, a ratio of $R_e/R$ in the model of 100 only changes the hydraulic conductivity value by a factor of 2. The model is the basis for the Bouwer and Rice

slug test solution. Using an electric analog model they determined values for $R_e$ based on the degree of well penetration in a formation.

Slide 22

# Bouwer and Rice Method to Determine $R_e$



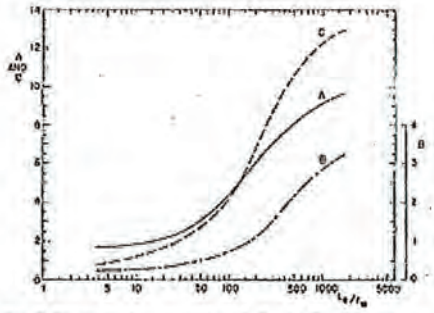




Fig. 2. Dimensionless parameters A, B, and C as a function of $L_e/r_w$ for calculation of $\ln(R_e/r_w)$.

$$\ln\frac{R_e}{r_w}=\left[\frac{1.1}{\ln(L_w/r_w)}+\frac{A+B\ln[(H-L_w)/r_w]}{L_e/r_w}\right]^{-1} \quad (4) \qquad L_w<H$$

$$\ln\frac{R_e}{r_w}=\left[\frac{1.1}{\ln(L_w/r_w)}+\frac{C}{L_e/r_w}\right]^{-1} \quad (5) \qquad L_w=H$$

From Bouwer, 1989, Ground Water, v. 27, n. 3, p. 304-309

Bouwer and Rice using an electrical analog model developed empirical equations to calculate $R_e$. These are shown here. They modeled steady state flow to a well by applying a voltage (analogous to head change) to a physical model of wires, resistors and capacitors. Their empirical equations define $R_e$ as 85% dissipation of the initial voltage (analogous to the initial head change). Although the model equation was developed for a fully penetrating well, they determined $R_e$ for both fully and partially penetrating well intakes. The equations shown depend on the thickness of the aquifer (H), the depth to the bottom of the screen ($L_w$), and the length of the screen ($L_e$). If the screen is partially penetrating ($L_w < H$), determine constants A and B from the graph for $L_e/r_w$. If the well is fully penetrating ($L_w = H$), determine constant C. Then use equation (4) for a partially penetrating well or (5) for a fully penetrating well

to determine $R_e/r_w$. Instead of using the graphs to find A, B or C, you can fit the graphs with polynomial functions and incorporate them into a spreadsheet for analysis. I did just that and incorporated the functions into the Radial Flow Analysis Spreadsheet which we will use to do some analysis later.

Slide 23

## Choosing the Correct Model and Input Parameters

- Check boring and construction logs for key parameters and for choosing model
- Set Intake length (L) = sand pack length if sand pack remains fully saturated during testing
- Set Intake length (L) = length from static water level to bottom of screen if screen bridges the water table
- Set Intake radius or diameter (R or D) = hole radius or diameter
- Use the Bouwer and Rice model if confined aquifer is fully screened or if you can justify that K in horizontal direction >> K in vertical direction
- Use the full ellipsoid model if screen is fully submerged and no upper or lower boundaries.
- Use the half ellipsoid model if screen bridges water table but does not bottom on a boundary

The K value you obtain will only be as good as the extent to which the well and formation geometry match the mathematical model. If you calculated the K value using each of the three models presented here, you will get different answers. Try choosing the model that best matches each wells geometry and formation conditions. I cannot overemphasize the need to examine the boring and construction logs for the wells you are testing. Listed on the slide are some guidelines I follow in choosing well parameters and models. Although you can use the Bouwer and Rice model for situations involving partial penetration, I try not to because the model assumes radial flow. This is not the case for the ellipsoidal models.

Slide 24

# 4. Test Procedures

Single pair of discharge and drawdown values

(1) Periodically measure the drawdown with a water level sounded or continuously monitor the water level with a pressure transducer until steady state is achieved.

(2) Once at steady state, measure the flow rate.

(3) Substitute the flow rate and steady state drawdown into the appropriate flow model and compute the hydraulic conductivity.

(4) For QA purposes, measure the flow rate and steady state drawdown three times to assess reproducibility.

Three or more pairs of discharge and drawdown values

(1) Repeat steps (1) and (2) above at three different flow rates but keep the drawdown small relative to the wetted thickness of the formation (< 10-15%)

(2) Plot Q vs. H. The data should lie on a straight line. Regress the line and determine the slope.

(3) Substitute the slope into the appropriate flow model and compute the hydraulic conductivity.

Here are the test procedures for computing K. If you are monitoring the same well periodically, after some initial measurements, you can use the single pair of discharge and drawdown measurements with confidence. The three or more pairs approach provides more confidence in your results if you get a straight line with a high correlation coefficient. It also indicates the theory is sound.

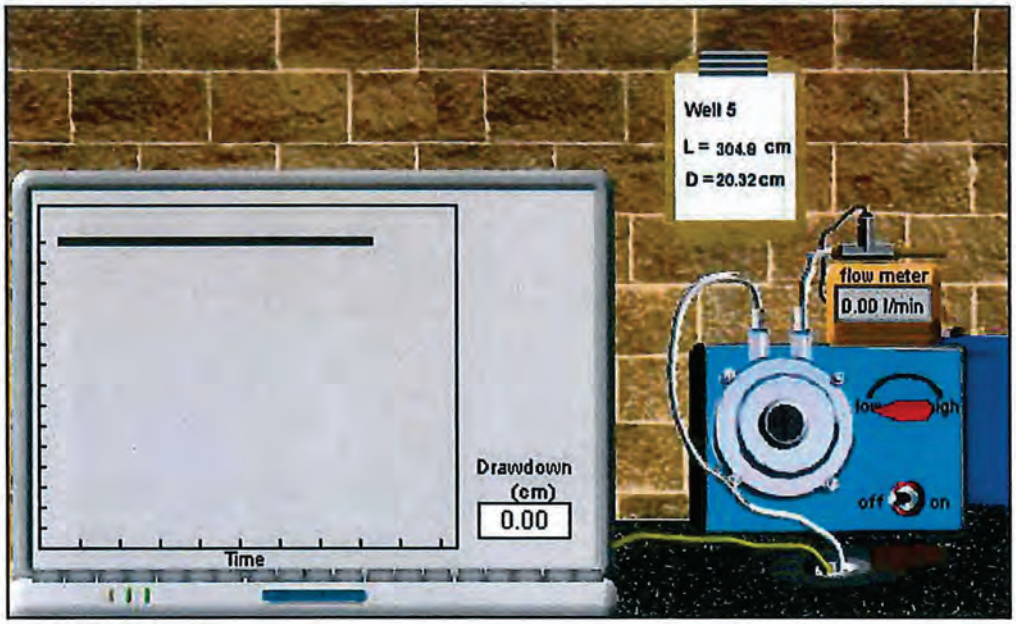
Slide 25

# View the Constant Head Test Video

View the constant head test video. Here we conducted testing at Port Hueneme, CA in a high permeable formation. The procedures would be the same for lower hydraulic conductivity environments but the flow rate would be much less.

Slide 26

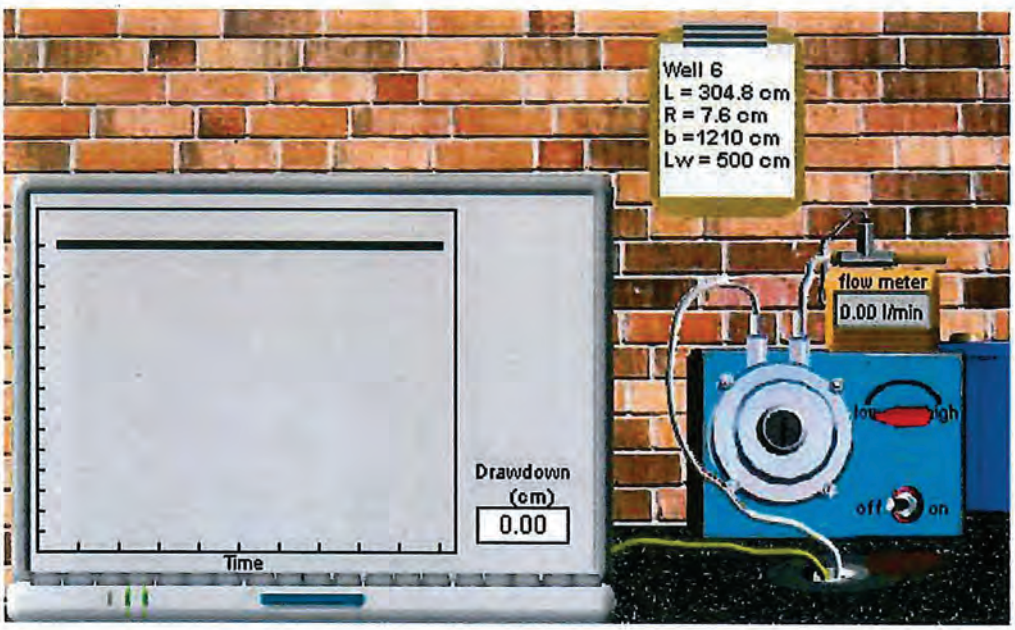
# 5. Conduct the Low Flow Simulation




Let's try a Low Flow Test Simulation. First open the Ellipsoidal Flow Steady State Model Analysis Excel Workbook. One worksheet can be used to analyze a single pair of Q and H data. The other can be used to analyze three pairs of data. In the simulation, flow is measured using an inline flow meter and drawdown is measured using a pressure transducer. Open the simulation and follow the directions. If you are an environmental professional seeking CEUs, save your work with your name in the title. You will have to submit a pdf copy of the workbook for credits.

Slide 27

# Conduct the Low Flow Simulation Using the Radial Flow Model




In this simulation, we have a partially penetrating well in an unconfined sandy aquifer. We will assume radial flow to the well and analyze the problem using the Radial Flow Steady State Model Excel Workbook. Open the workbook to the Single Q and H analysis worksheet. To computer Re ("radius of influence") the worksheet uses polynomial fits to the Bouwer and Rice graphs for A, B and C. The worksheet determines which parameters to use depending on the values of L, LW and b. If they are all equal, then the well is fully penetrating and parameter C is used. If not, parameters A and B are used. Open the Radial Flow Simulation and follow the directions in the simulation. If you are an environmental professional seeking CEUs, save your work with your name in the title. You will have to submit a pdf copy of the workbook for credits.

Slide 28

# 6. Sensitivity Analysis

- What Q or range of Q should I use?
- What pump should I use?
- What should I use to collect water to determine Q?
- How much drawdown will I get for a given Q?
- Do I have to pump at a rate > low flow (about 1 LPM)?
- How much water will I have to discharge and dispose of?

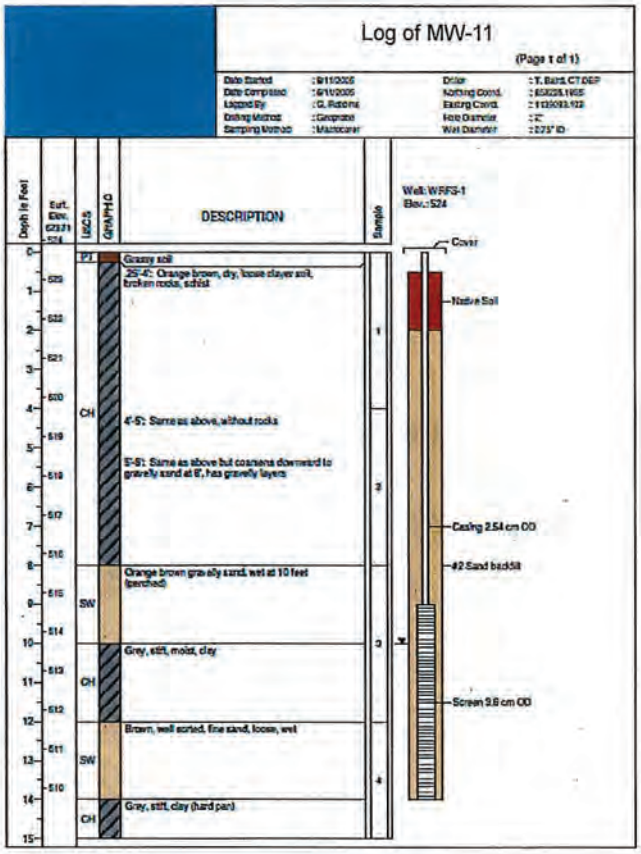
The flow rates (Q) and drawdowns were very different in the two simulations. In the first simulation, measureable drawdown was obtained within a range below 1 LPM. In the second simulation, because the formation had high permeability, you had to pump at a higher discharge to obtain measureable drawdown. In this case, you might collect your water quality samples within the range of parameters acceptable to regulatory authorities and then increase the flow rate to obtain the hydraulic conductivity. The questions listed here can best be addressed by conducting a sensitivity analysis prior to conducting a test. Set up a spreadsheet with an appropriate model and plug in the input parameters. Take an educated guess at the hydraulic conductivity based on the formation description. Then plug in Q values or drawdown values to determine drawdown or Q. Open the sensitivity workbook and

try the problems. If you are an environmental professional seeking CEUs, save your work with your name in the title. You will have to submit a pdf copy of the workbook for credits.

Slide 29

# 7. QA/QC Considerations

- Must accurately determine discharge and drawdown, especially if a single pair of values is being determined
- Review the boring log to determine the appropriate steady state flow model and the well parameters
- Wells need to be developed prior to testing




These three bullets cover where the major sources of error lie in determining K using the method. Be sure to accurately measure the discharge and steady state flow rate. Look over the boring log for the well to determine the appropriate model and input parameters. For the well intake radius, I use the radius of the hole. This assumes the backfill K is much greater than the formation K. If the well screen or sand pack around the screen are clogged with fines this will impact the test results. I recommend you develop a well prior to conducting a K test by plunging and pumping. If you use a well that will be monitored quarterly, you would only develop it the first time out. Keep in mind that the test only is measuring conditions in the near-field of the well and will be influenced by the presence of a disturbed or clogged zone ("Skin effect") around the well intake.

Slide 30

# Method Limitations

- For high K situations, you may have to exceed low flow pumping maximums to get appreciable drawdown
- For low K situations, you may have to exceed low flow drawdown maximums even at low pumping rates
- Generate contaminated water for disposal
- Near-field method subject to influence by drilling disturbance and intake clogging
- Relative to slug testing requires more equipment and resolution of logistical issues (e.g., water storage, power)

I have found empirically that the working range of the method extends from a hydraulic conductivity value greater than about $5 \times 10^{-6}$ to one that is less than $10^{-2}$ cm/s. Of course, the working range depends on formation conditions and the well design. Hence, the usefulness of performing a sensitivity analysis for a given set of conditions. In addressing the first issue, it may be best to collect your samples then increase the flow rate beyond regulatory low flow parameter guidance to obtain data to compute hydraulic conductivity values. Although the second issue may be resolved using a very low pumping rate, this solution might not be practical given time constraints. In terms of water needing proper storage and disposal, if a single pair of steady state discharge and drawdown is used, than no additional water may be generated beyond what would normally be generated during low flow sampling.

Again conduct a sensitivity analysis to get some sense as to how much water might be generated. The method measures the hydraulic conductivity in the near-field and like slug tests, depends on formation conditions in the immediate vicinity of the well. Although you might need more equipment then a slug test, and logistically it is more complex, the equipment needs and logistics are about the same as that for low flow sampling.

Slide 31

# 8. Case Histories

A. Analysis of Quarterly Monitoring Reports

B. Comparison of Pumping and Slug Tests, High K Environment

C. Comparison of Pumping and Low Flow Tests, Low K Environment

D Wells that Bridge the Water Table

Let's look at 4 case histories where the hydraulic conductivity was determined using the method.

Slide 32

## A. Analysis of Quarterly Monitoring Results

**Central Connecticut Monitoring Well Low Flow Hydraulic Conductivity Determinations**

| Well | Date | Q (ml/min) | SDTW (m) | SSDTW (m) | H (m) | SSL (m) | Tech. | Model | K (cm/s) | Mean K (cm/s) | Std. Dev. (cm/s) | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W 3-5 | Dec-06 | 130 | 3.48 | 4.45 | 0.97 | 3.05 | A | Half Ellipsoid | 4.64E-05 | | | |
| | Mar-07 | 150 | 3.36 | 4.67 | 1.30 | 3.05 | A | Half Ellipsoid | 3.98E-05 | 3.96E-05 | 6.87E-06 | 17 |
| | Jun-07 | 135 | 3.44 | 4.86 | 1.43 | 3.05 | A | Half Ellipsoid | 3.27E-05 | | | |
| W 6-1 | Dec-06 | 380 | 14.48 | 14.61 | 0.13 | 6.10 | B | Half Ellipsoid | 5.89E-04 | | | |
| | Mar-07 | 380 | 14.40 | 14.55 | 0.16 | 6.10 | A | Half Ellipsoid | 4.97E-04 | 5.57E-04 | 5.18E-05 | 9 |
| | Jun-07 | 140 | 14.70 | 14.75 | 0.05 | 6.10 | D | Half Ellipsoid | 5.83E-04 | | | |
| W 6-3 | Dec-06 | 500 | 16.86 | 17.91 | 1.05 | 4.95 | B | Radial Flow | 7.34E-05 | | | |
| | Mar-07 | 200 | 16.75 | 17.30 | 0.55 | 5.56 | C | Radial Flow | 5.14E-05 | 8.29E-05 | 3.72E-05 | 45 |
| | Jun-07 | 120 | 17.16 | 17.30 | 0.14 | 5.56 | D | Radial Flow | 1.24E-04 | | | |

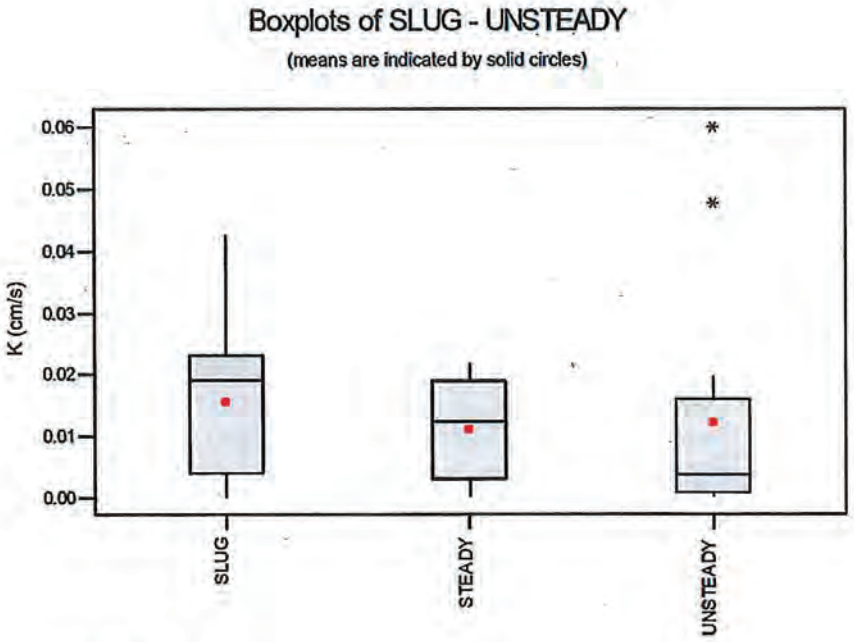
SDTW = starting depth to water
SSDTW = steady state depth to water
H = SSDTW-SDTW
SSL = saturated screen length
%RSD = 100*Std. Dev/Mean

After Robbins et al (2009)

I compiled the data in this table from consultant reports for three rounds of quarterly monitoring at three monitoring wells at a contamination site in Connecticut. The data were collected by 4 different field technicians (see the Tech column). I used the low flow data to calculate the hydraulic conductivity values based on single pairs of discharge and drawdown. Note the high degree of reproducibility in hydraulic conductivity values from sampling round to sampling round. This is exemplified by the low %RSD values (percent relative standard deviation). The %RSD is a measure of reproducibility. A %RSD of 50 represents a variation on the order of a factor of 2. Obviously, the technicians in this case are well trained in taking careful measurements.

Slide 33

## B. Comparison of Pumping and Slug Tests, High K Environment

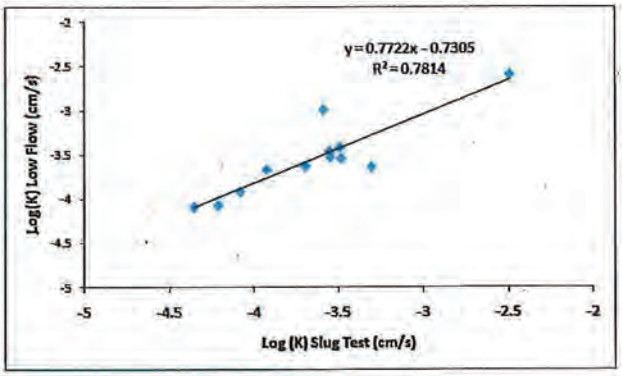



(After Bartlett et al 2004)

Bartlett et al. 2004 conducted a comprehensive study of the method at the Naval Facility in Port Hueneme, California. The study entailed testing wells installed by different methods and of different designs. They compared the results of 109 slug tests with 14 steady state (three pairs of discharge and steady state drawdown) pumping tests and 14 unsteady steady pumping tests. The tests were conducted in a high K formation ($10^{-2}$ cm/s). All the wells had fully submerged screens. They conducted ANOVA statistical comparisons and found there was no statistical difference in hydraulic conductivity values amongst the sets of tests as shown by the box plot comparisons.

Slide 34

## C. Comparison of Pumping and Low Flow Tests, Low K Environment




Water Resources Field Station

- 11 wells
  - 9 direct push
    - 7 wells ¾" ID
    - 3 wells 1" ID
  - 2 wells HSA
    - 1 well 2" ID
    - 1 well 4" ID

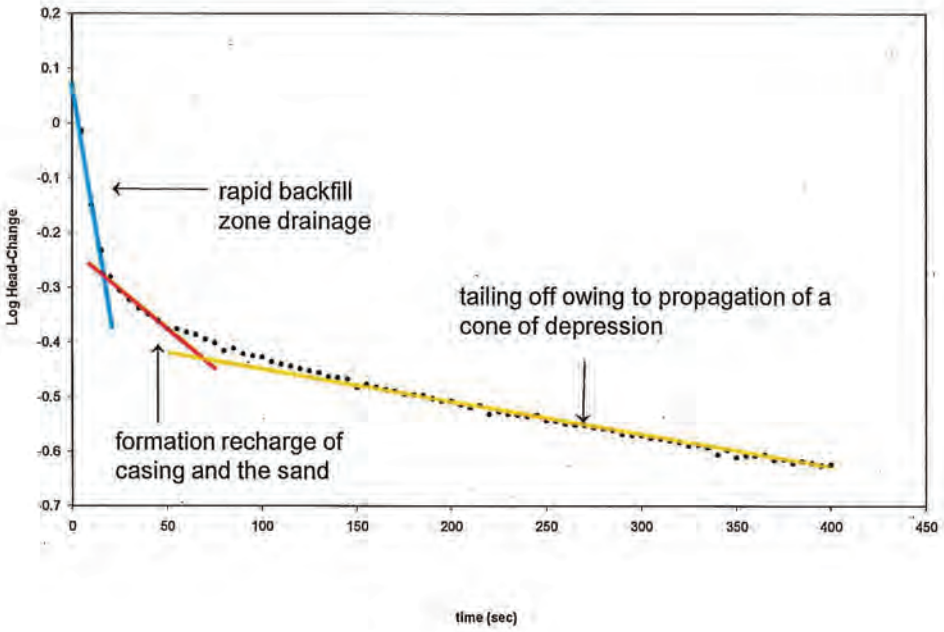
10 wells K values within a factor of 2
1 well K values within a factor of 3 to 4

After Robbins et al (2009)

Robbins et al (2009) compared hydraulic conductivity determinations from low flow tests and slug tests in glacial till and glacial lake sediments in Connecticut. Here the formation permeability was relatively low ($10^{-4}$ - $10^{-3}$ cm/s). All of the 11 wells tested had fully submerged screens. Most of the wells were installed by direct push. Two of the wells were installed by a hollow stem auger. The low flow and slug test results were in relatively good agreement as shown on the graph. Most of the wells yielded hydraulic conductivity values by low flow and slug testing that were well within a factor of 2.

Slide 35

## D. Wells that Bridge (Cross) the Water Table



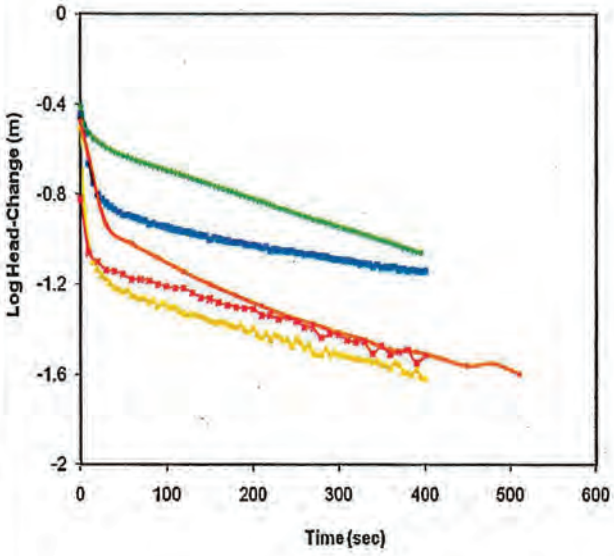

(After Aragon-Jose and Robbins (2011)

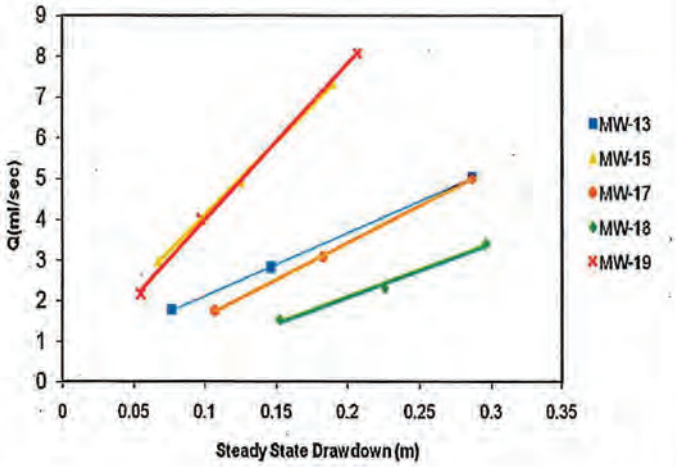
As noted earlier slug tests in wells that bridge the water table typically exhibit rapid early time recovery owing to backfill zone drainage and resaturation and late time asymptotic tailing due to the formation of a cone of depression. These recovery effects are not incorporated into slug test models used to analyze the data. It has been suggested that the intermediate period (shown here in red) be used to analyze the tests. However, the recovery even in this period is not free of backfill zone influence. As such, hydraulic conductivity values obtained from these test will likely over estimate the formation conductivity. Aragon-Jose and Robbins (2011) showed that the steady state method overcomes these problems. This is because once steady state drawdown is achieved the backfill zone has stopped draining and has no influence on flow to the well. Also, as long as the drawdown is small relative to

the saturated screen length, the cone of depression is small and should also not significantly influence flow to the well.

Slide 36

## Slug Tests vs. Steady State Tests




After Aragon-Jose and Robbins (2011)

These figures are from Aragon-Jose and Robbins (2011). The figure on the left illustrates the slug test response curves for 5 wells whose screens bridge (cross) the water table. Note that all the slug test responses exhibit early time rapid backfill zone drainage and late time asymptotic tailing. The intermediate responses occur only over very short periods. Slug test theory for wells with overdamped response would predict the curves on the left should plot as straight lines which of course they do not. The figure on the right shows the steady state discharge and drawdown curves for the same wells tested by the low flow method. Each curve is based on three pairs of data. Note how all the curves are straight lines as would be predicted by the theoretical flow models.

Slide 37

## Comparison of Slug Tests with Steady State Tests

**Ratios between Slug Test and Constant Head Test Hydraulic Conductivity Determinations**

| Well | Constant Porosity (36.7%) | Constant Specific Yield (28.7%) | Computed Specific Yield (variable) |
|---|---|---|---|
| MW13 | 6.2 | 5.2 | 2.9 |
| MW15 | 4.8 | 4.0 | 4.3 |
| MW17 | 3.9 | 3.3 | 2.4 |
| MW18 | 5.7 | 4.8 | 1.5 |
| MW19 | 3.2 | 2.6 | 2.9 |

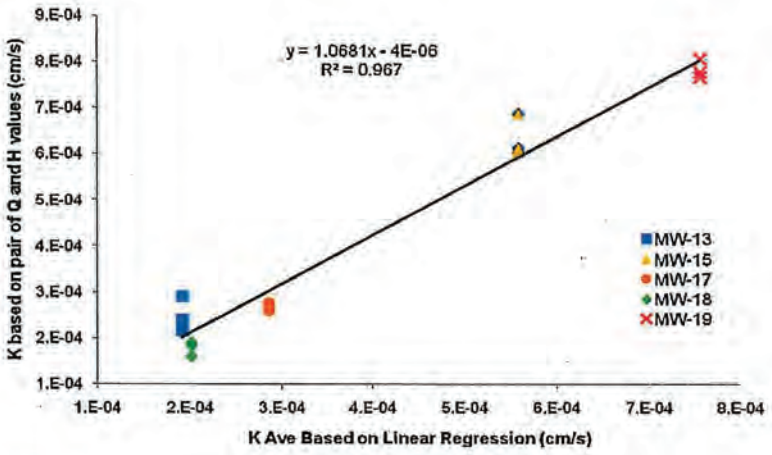
*K* determinations from the constant head test are the regressed values.

After Aragon-Jose and Robbins (2011)

This table from Aragon-Jose and Robbins (2011) compares values of hydraulic conductivity computed using the two different test methods. Because slug testing results in backfill zone drainage, the recovery curve is influenced by the pore space in the backfill zone that must be refilled. The amount of pore space in effect influences the effective radius of the well intake. The columns on the table are for three different assumptions regarding the backfill zone. The first column assumes a constant porosity. The second column assumes a constant specific yield as better representing the water drained. The third column is based on computing specific yields for each test. Of course the steady test avoids the need to consider backfill zone drainage. In all cases the slug tests overestimated the conductivity relative to the steady state tests.

Slide 38

## Single vs. Multiple Pairs of Discharge and Drawdown Data




After Aragon-Jose and Robbins (2011)

This graph compares hydraulic conductivity values based on single pairs of steady state flow and drawdown values with those based on linear regression of three pairs of steady state flow and drawdown values for the 5 wells. It shows that when care is used you can obtain the same value of hydraulic conductivity from analyzing just one pair of values as you would using multiple values of flow and drawdown. Although you can determined the hydraulic conductivity using a single pair or discharge and drawdown values, having multiple pairs helps confirm your results.

Slide 39

# 9. Some Last Words by the Author

I hope you have enjoyed the course. I am always looking to improve the material. I would appreciate any ideas you may have on improvements to this course or suggestions for new courses when you submit the required course evaluation.

I suggest you might review the references for additional material on the subject.

Thanks for taking the course.

Your author,

Gary Robbins

# 10. How to Obtain CEUs

If you are a professional and are seeking continuing education credits for taking the course you will have to submit certain material. Please click on the **How to Obtain CEUs** link to learn what states have approved the course, for instructions on what material you must submit for credits and how to submit the material.

# 11. Select References

Interested in more information on this subject? Click on the **references** link. You will find references (many of which you can download) on the subjects covered, the models used, well development and test related issues.

## Ellipsoidal Flow Steady State Model
## Single Pair of Discharge and Drawdown

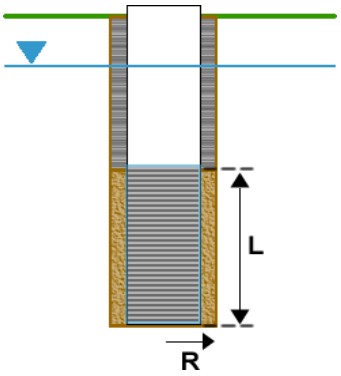
| | | | |
|---|---|---|---|
| Intake (screen) length (cm) | L= | 0.00 | cm |
| Intake (hole) diameter (cm) | D*= | 0.000 | cm |
| Steady state discharge (L/min) | Q= | 0 | L/min |
| Steady state drawdown (cm) | H= | 0 | cm |
| * This workbook can be used with the half ellipsoidal model by subsitituting the intake hole radius (R) instead of the intake hole diameter (D). | Computed Values | | |
| | **K=** | **#DIV/0!** | cm/s |
| | **K=** | **#DIV/0!** | ft/day |

*Formula*

$$Q = \frac{2\pi LKH}{2.303 \log\left[\frac{L}{D} + \sqrt{1 + \left(\frac{L}{D}\right)^2}\right]}$$

*Single Q/H*

$$K = \frac{Q * 2.303 \log\left[\frac{L}{D} + \sqrt{1 + \left(\frac{L}{D}\right)^2}\right]}{2\pi LH}$$




Model based on Hvorslev (1951)

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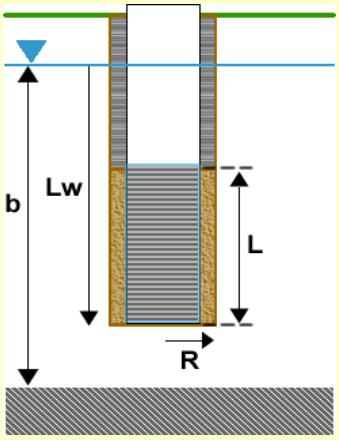
# Radial Flow Steady State Model
## Single Pair of Discharge and Drawdown

| | |
|---|---|
| Site | |
| Well No. | |
| Date | |
| Personnel | |

| | | | |
|---|---|---|---|
| Intake (screen) length (cm) | L= | 0 | cm |
| Well intake (hole) radius (cm) | R= | 0 | cm |
| Saturated aquifer thickness (cm) | b= | 0 | cm |
| Depth to bottom of well (cm) | Lw= | 0 | cm |
| Steady state discharge (L/min) | Q= | | L/min |
| Steady state drawdown (cm) | H= | 0 | cm |




| Computed Parameters | | |
|---|---|---|
| A*= | | |
| B*= | | |
| C*= | #DIV/0! | |
| L/R= | #DIV/0! | |
| Re= | #DIV/0! | cm |
| ln(Re/R) = | #DIV/0! | |
| **K=** | **#DIV/0!** | cm/s |
| **K=** | **#DIV/0!** | ft/day |

*Formula* *Single Q/H*

$$Q = \frac{2\pi LKH}{2.303 \log(R_e / R)} \qquad K = \frac{Q * 2.303 \log(R_e / R)}{2\pi LH}$$

* Fitting parameters for estimating Re based on polynomial fitting of curves in Bouwer, H., and Rice, R.C., 1976, A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers with Completely or Partially Penetrating Wells, Water Resources Research, v. 12, no. 3. P. 423-428.

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# Appendix D Forms

| New York Ordnance Works Phase II Remedial Investigation | |
|---|---|
| Daily Activity Summary Report | |
| **Date:** | **Report No:** |
| **Weather:** | |

| Personnel | Hrs. On Site | Affiliation |
|---|---|---|
| | | |
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| | | |

| Sample Area | Task | Locations Addressed |
|---|---|---|
| | | |
| | | |

| |
|---|
| **Field Tests Performed (Field Screening, Chemical Testing, etc.):** |
| **Work Delays (Due To Weather, Maintenance, Breakdowns, Waiting For Decisions):** |
| **Problems Encountered and Deviations from Work Plan or QAPP:** |
| **Written And Verbal Instruction by the Client:** |
| **Safety Issues:** |
| **Planned Activities For Next Work Day:** |
| **Remarks (Visitors, Completion of a field task, etc.):** |

**Field Team Leader Signature:** **Date:**

| New York Ordnance Works Phase II Remedial Investigation | |
|---|---|
| **Daily Activity Summary Report** | |
| **Date:** | **Report No:** |
| **Weather:** | |

**Photo Number: #-##  Date:  Direction:**
**Description:**

**Photo Number: #-##  Date:  Direction:**
**Description:**

Daily Calibration and Bump Test

MultiRAE 5 (4 Gas + PID) Serial #: Pine #:

Serial #: Cal Gas Lot: Multi - Iso - Cal Gas Exp Date:

Concentraions: $CO_2$ - $H_2S$ - LEL - $O_2$ - Isobutylene -

| DATE | Warm up? (Y/N) | Fresh Air Cal? (Y/N) | $CO_2$ Int / Final | $H_2S$ Int / Final | LEL Int / Final | $O_2$ Int / Final | VOC Int / Final | Calibrate or Bump | Pass or Fail | Personnel |
|---|---|---|---|---|---|---|---|---|---|---|
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*FIELD INSTRUMENT CALIBRATION RECORDS - CALIBRATION LOG - PRP*

Project Site/FacID: _____

Calibrated by (Print)/Affiliation: _____

*Boldly "X" this box if there is qualified data on this page.*

**ORGANIC VAPOR ANALYZER (OVA)** **Acceptance Criteria +/-5% the standard**

**REFERENCE: *Portable Instruments User's Manual For Monitoring VOC Sources* , EPA-340/1-86-015, June 1986**

Meter/Instrument Name and Unique ID: _____

| CAL | ICV | CCV | Initials | Date | Time | Standard (ppm) | Exp. Date | Lot # | Response (ppm) | Deviation (%) | Pass or Fail | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |

*FIELD INSTRUMENT CALIBRATION RECORDS - CALIBRATION LOG - PRP*

Project Site/FacID: _____

Calibrated by (Print)/Affiliation: _____

*Boldly "X" this box if there is qualified data on this page.*

**Temperature (Quarterly)** Date of Last Temp Verification: See log book:

**DISSOLVED OXYGEN (DO) (REFERENCE: DEP SOP FT 1500)** **Acceptance Criteria +/-0.3 mg DO/L**

Meter/Instrument Name and Unique ID: _____

| CAL | ICV | CCV | Initials | Date | Time | Standard (DO %) | Temp °C | DO Saturation mg/L (100%)** | Response DO (%) | Response mg DO/L | Deviation mg DO/L | Pass or Fail |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL | ICV | CCV | | | | 100% | | | | | | P F |
| CAL | ICV | CCV | | | | 100% | | | | | | P F |
| CAL | ICV | CCV | | | | 100% | | | | | | P F |
| CAL | ICV | CCV | | | | 100% | | | | | | P F |
| CAL | ICV | CCV | | | | 100% | | | | | | P F |
| CAL | ICV | CCV | | | | 100% | | | | | | P F |

** See Table FS 2200-2 and/or Table FT 1500-1 for Dissolved Oxygen 100% Saturation (mg/L) corresponding to Temperature.

**SPECIFIC CONDUCTANCE (REFERENCE: DEP SOP FT 1200)** **Acceptance Criteria +/-5% the standard**

Meter/Instrument Name and Unique ID: _____

| CAL | ICV | CCV | Initials | Date | Time | Standard (µmho/cm) | Exp. Date | Lot # | Response (µmho/cm) | Deviation (%) | Pass or Fail |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |

**OXIDATION-REDUCTION POTENTIAL (ORP)** **Acceptance Criteria +/-10 mV**

**REFERENCE:** ***EPA Region 4, Operating Procedure, Field Measurement of Oxidation-Reduction Potential (ORP)***

Meter/Instrument Name and Unique ID: _____

| CAL | ICV | CCV | Initials | Date | Time | Standard (mV) | Exp. Date | Lot # | Response (mV) | Deviation (mV) | Pass or Fail |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |

Perform ICVs and CCVs only in "READ/RUN" mode.

CAL - Calibration; ICV - Initial Calibration Verification; and, CCV - Continuing Calibration Verification.

Deviation (%) = 100-{(Response/Standard)*100}

*FIELD INSTRUMENT CALIBRATION RECORDS - CALIBRATION LOG - PRP*

Project Site/FacID: _____

Calibrated by (Print)/Affiliation: _____

*Boldly "X" this box if there is qualified data on this page.*

**TURBIDITY (REFERENCE: DEP SOP FT 1600)** Meter/Instrument Name and Unique ID: _____

**Std=0.1-10 NTU +/-10%** **Std=11-40 NTU +/-8%** **Std=41-100 NTU +/-6.5%** **Std>100 NTU +/-5%**

| CAL | ICV | CCV | Initials | Date | Time | Standard (NTU) | Exp. Date | Lot # | Response (NTU) | Deviation (%) | Pass or Fail | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |

**pH (REFERENCE: DEP SOP FT 1100)** **Acceptance Criteria +/-0.2 SU**

Meter/Instrument Name and Unique ID: _____

| CAL | ICV | CCV | Initials | Date | Time | Standard (SU) | Exp. Date | Lot # | Response (SU) | Deviation (SU) | Pass or Fail | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |

Perform ICVs and CCVs only in "READ/RUN" mode.

CAL - Calibration; ICV - Initial Calibration Verification; and, CCV - Continuing Calibration Verification.

Deviation (%) = 100-{(Response/Standard)*100}

*FIELD INSTRUMENT CALIBRATION RECORDS - CALIBRATION LOG - PRP*

Project Site/FacID: _____

Calibrated by (Print)/Affiliation: _____

*Boldly "X" this box if there is qualified data on this page.*

**ORGANIC VAPOR ANALYZER (OVA)** **Acceptance Criteria +/-5% the standard**

**REFERENCE: *Portable Instruments User's Manual For Monitoring VOC Sources* , EPA-340/1-86-015, June 1986**

Meter/Instrument Name and Unique ID: _____

| CAL | ICV | CCV | Initials | Date | Time | Standard (ppm) | Exp. Date | Lot # | Response (ppm) | Deviation (%) | Pass or Fail | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |
| CAL | ICV | CCV | | | | | | | | | P | F |

FIELD INSTRUMENT CALIBRATION RECORDS - CALIBRATION LOG - PRP

THIS FORM MAY BE USED FOR NON-TYPICAL PARAMETERS.
THIS FORM SHALL ***NOT*** BE USED FOR TYPICAL PARAMETERS (i.e. pH, DO, ORP, OVA, Turbidity, Conductance, etc.).

Project Site/FacID: _____

Calibrated by (Print)/Affiliation: _____

*Boldly "X" this box if there is qualified data on this page.*

**PARAMETER:** _____ **Acceptance Criteria** _____ **the standard**

**REFERENCE:** _____

Meter/Instrument Name and Unique ID: _____

| CAL | ICV | CCV | Initials | Date | Time | Standard (_____) | Exp. Date | Lot # | Response (_____) | Deviation (_____) | Pass or Fail |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |
| CAL | ICV | CCV | | | | | | | | | P F |

Notes (e.g. corrective actions, etc): _____

Perform only in Calibrate Mode: CAL - Calibrate
Perform only in Read/Run Mode: ICV - Initial Calibration Verification
Perform only in Read/Run Mode: CCV - Continuing Calibration Verification
Deviation (%) = 100-{(Response/Standard)*100}

**WELL/BORING No.** _____

Page ____ of ____

| | | | |
|---|---|---|---|
| SUBCONTRACTOR | | SITE NAME / LOCATION | |
| DRILLER | | PROJECT ID | |
| WSP GEOLOGIST | | ELEVATION | Datum |
| DATE | | LOCATION COORDINATES | N / E |

WATER LEVEL DATA

| DATE | TIME | WATER LEVEL | REF. PT. |
|---|---|---|---|
| | | | |
| | | | |

| | |
|---|---|
| TYPE OF DRILL RIG | |
| AUGER / CASING SIZE | |
| SOIL SAMPLING METHOD | |
| FINISHED TOTAL DEPTH | |

| Depth (ft. BGS) | SAMPLE INFORMATION: Core/SS No. | Blow Count | Recovery (ft) | PID/FID (ppm) | Lab/Field Sample ID & Analysis | SOIL DESCRIPTION / COMMENTS |
|---|---|---|---|---|---|---|
| | | | | NA | | |
| 2 | | | | | | |
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| 4 | | | | | | |
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| 28 | | | | | | |
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| 30 | | | | | | |
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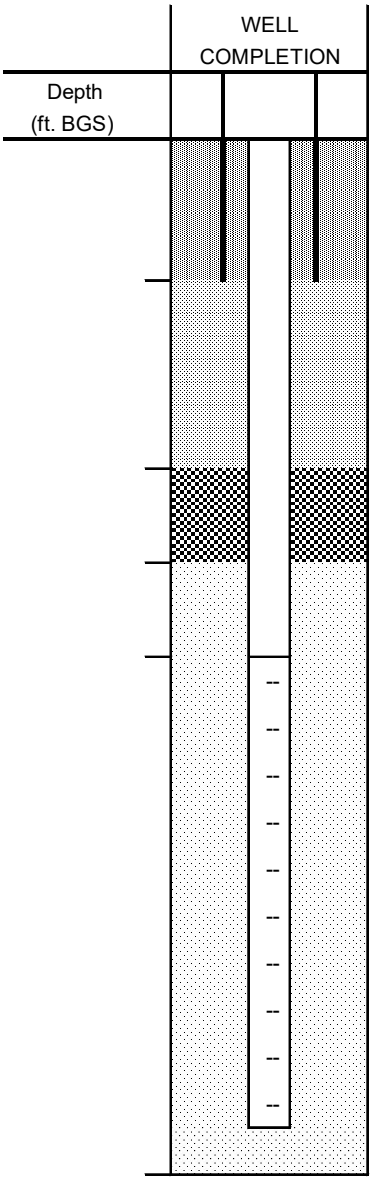
Method of Completion / Backfill: _____

Signature: _____

**WELL/BORING No.** _____

Borehole Location Sketch

Page ____ of ____




Stick-up: _____ ft

Protective Casing Type: _____

Inner Casing Size & Type: _____

Concrete/Grout: _____

Grout: _____

Cement / Bentonite ( %)

Bentonite Seal: _____

Type: _____

Sand: _____

Type: _____

Screen:

Type: _____

Diameter: _____

Length: _____

Slot size: _____

Borehole Diameter: _____

Total Depth: _____ ft BGS

# MONITORING WELL DEVELOPMENT RECORD

| | | | | | |
|---|---|---|---|---|---|
| SITE: | | WELL IDENTIFICATION NO. | | SCREEN LENGTH (FT): | |
| SITE ADDRESS: | | DATE INSTALLED: | | CASING ID (IN): | |
| PROJECT NAME: | | DATE DEVELOPED: | | DEPTH TO BOTTOM (FT): | |
| PROJECT NUMBER: | | DEVELOPMENT METHOD: | | STATIC WATER LEVEL BEFORE (FT). | |
| PERSONNEL: | | PUMP TYPE: | | STATIC WATER LEVEL AFTER (FT). | |
| COMPANY: | | | | | |

| TIME | ESTIMATED SEDIMENT THICKNESS (IN.) Measured from TOC before/during/after | CUMULATIVE WATER VOLUME (GALS). | WATER LEVEL READINGS (FT. BELOW TOC) | TURBIDITY (NTU) | TEMP (C°) | SP. COND. (UNITS___ _) | DO (mg/L) | pH | ORP (mV) | REMARKS (odor, color, clarity, particulate matter) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Initial DTB Post DTB | | | | | | | | | |
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**Project/Site Name:** _____ **Date :** _____

**ield Team Member:** _____ **Weather:** _____

**Level Meter Model:** _____

| Well ID | Time | DTW (ft bTOR) | DTB (ft bTOR) | Lock Y/N | Bolts Y/N | Cap Y/N | Well Condition/Comments |
|---|---|---|---|---|---|---|---|
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Notes:

* denotes reading will be taken directly from staff gauge.

bTOR = below top of PVC riser

ft = feet

## WELL PURGE & SAMPLE RECORD

Site Name/Location: _____ Well ID: _____

WSP Project No.: _____ Date: _____

Initial Depth to Water: _____ feet TOIC Start Time: _____

Total Well Depth: _____ feet TOIC End Time: _____

Depth to Pump: _____ feet TOIC ☐ Bailer ☐ Pump

Initial Pump Rate: _____ Lpm / gpm Pump Type: _____

adjusted to: _____ at _____ Well Diameter: _____ inches

adjusted to: _____ at _____ 1x Well Volume: _____ gallons

| Time | Purge Volume (gallons/liters) | pH (s.u.) | Temp. (°C/°F) | ORP (mV) | Conductivity (µS/cm mS/cm) | DO (mg/L) | Turbidity (NTU) | Water Level (feet) |
|---|---|---|---|---|---|---|---|---|
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| **Final Sample Data:** | | | | | | | | |

Sample ID: _____ Duplicate? ☐ Dupe Samp ID: _____

Sample Time: _____ MS/MSD? ☐ No. of Bottles: _____

Analyses: Methods: Comments: _____

☐ VOCs ☐ CLP _____

☐ SVOCs ☐ SW846 _____

☐ PCBs ☐ EPA/CWA _____

☐ Pest. ☐ _____ _____

☐ Metals/CN _____

☐ Dioxin Sampler(s): _____

**POREWATER SAMPLE RECORD**

Site Name/Location: _____ Location ID: _____

WSP Project No.: _____ Date: _____

Initial Pump Rate: _____ Lpm / gpm (recommend 150 mL/min) Start Time: _____

adjusted to: _____ at _____ End Time: _____

adjusted to: _____ at _____

Collect water quality readings while sampling. Recommend collecting every 5 mintues or after collecting 2-3 sample containers in order to insure that surface water has not inflitrated the sample.

| Time | Test Detail | pH (s.u.) | Temp. (ºC / ºF) | ORP (mV) | Conductivity (µS/cm mS/cm) | DO (mg/L) | Turbidity (NTU) |
|---|---|---|---|---|---|---|---|
| | Surface water | | | | | | |
| | Porewater before sampling | | | | | | |
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| | Porewater after sampling | | | | | | |

Sample ID: _____ Duplicate? ☐ Dupe Samp ID: _____

Sample Time: _____ MS/MSD? ☐ No. of Bottles: _____

Analyses: Methods: Comments: _____

☐ VOCs ☐ CLP _____

☐ SVOCs ☐ SW846 _____

☐ PCBs ☐ EPA/CWA _____

☐ Pest. ☐ _____ _____

☐ Metals/CN _____

☐ Dioxin Sampler(s): _____

## Water Quality Calibration Log

| Instrument/Model: | | | Instrument Response | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cal/Pf Check | Date | Time | pH (1) | pH (2) | Conductivity | ORP | DO | Turbidity | Turbidity | Calibrated | Initials |
| | | Standard (Units) | (SUs) | (SUs) | (uS) | (mV) | 100% (mg/L) | (NTUs) | (NTUs) | (Y/N) | |
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Cal = Calibration
Per Check = Performance Check
Sus = Standard Units
uS = microSiemens

mV = milliVolts
mg/L = milligrams per liter
NTUs = Nepholometric Units

**Measuring K While Low Flow Sampling**
**NYOW - Phase 2 RI**
**Baldwinsville, New York**

| Date | Well ID | Time (5 minute intervals) | Flow Rate ml/min | DTW (ft bTOC) in monitoring well |
|---|---|---|---|---|
| | | | | static = ft bTOC |
| DTB = ft bTOC | | | | |
| (Record for Sample Collection) | | | | |
| | | | | |
| | | | | |
|

# Appendix E  Investigation-Derived Waste Plan

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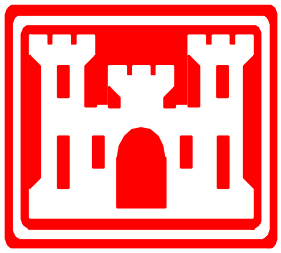
**FINAL**

# APPENDIX E

## Investigation-Derived Waste Plan

Phase 2 Remedial Investigation
New York Ordnance Works, Formerly Used Defense Site
(Property No: C02NY0290)
Baldwinsville, New York

**Prepared for:**
**U.S. ARMY CORPS OF ENGINEERS, NEW ENGLAND DISTRICT**



**July 2024**

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**Acronyms and Abbreviations**

| | |
|---|---|
| AOC | area of concern |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| COPCs | contaminants of potential concern |
| DOT | U.S. Department of Transportation |
| DNCB | dinitrochlorobenzene |
| DNP | dinitrophenol |
| EAS | Environmental Assessment Services, LLC |
| EPA | U.S. Environmental Protection Agency |
| FUDS | Formerly Used Defense Site |
| FTL | field team lead |
| HAZWOPER | Hazardous Waste Operations and Emergency Response |
| HCl | hydrochloric acid |
| HNO3 | nitric acid |
| ID | identification |
| IDW | investigation-derived waste |
| JV | joint-venture |
| L | liter(s) |
| LDR | land disposal restriction |
| mL | milliliter(s) |
| MSW | municipal solid waste |
| NYOW | New York Ordnance Works |
| NYSDEC | New York State Department of Environmental Conservation |
| OSHA | Occupational Safety and Health Administration |
| oz. | ounce(s) |
| PAHs | polyaromatic hydrocarbons |
| PCBs | polychlorinated biphenyls |
| PM | project manager |
| PPE | personal protective equipment |
| QAPP | Quality Assurance Project Plan |
| RCRA | Resource Conservation and Recovery Act |
| RI | remedial investigation |
| SVOC | semivolatile organic compound |
| TCLP | toxicity characteristic leaching procedure |
| UFP | Uniform Federal Policy |
| USACE | United States Army Corps of Engineers |
| VOC | volatile organic compound |
| WSP | WSP USA Solutions, Inc. |

## 1.0 Introduction

This Investigation-Derived Waste (IDW) Plan describes procedures for managing waste generated during the Phase 2 Remedial Investigation (RI) at the former New York Ordnance Works (NYOW) Formerly Used Defense Site (FUDS) Property ID: C02NY0290, Baldwinsville, New York. The work is being performed in accordance with the Uniform Federal Policy for Quality Assurance Project Plan (UFP-QAPP).

This IDW Plan provides procedures for characterizing, accumulating, storing, tracking, transporting, and disposing of waste originating from work performed as part of the investigations. The Joint Venture (JV) (Environmental Assessment Services, LLC [EAS] and WSP USA Solutions, Inc., [WSP]) has prepared this document under United States Army Corps of Engineers (USACE), Contract No. W912WJ23D0007, Task Order Number W912WJ23F0130.

Anticipated IDW that will be generated from the Phase 2 RI activities include the following:

- soil cuttings from borings.
- purge water from well development and groundwater/porewater sampling; and
- decontamination fluids.

Other waste that will be generated and considered as municipal waste generated from the Phase 2 RI activities include the following:

- Used personal protective equipment (PPE) and used disposable sampling equipment.
- General debris and refuse (e.g., water bottles, food wrappers, empty cement and bentonite bags).

Site contaminants of potential concern (COPCs) were identified during the Phase 1 RI and documented in the *Phase 1 Risk Screening and Data Gap Analysis* (USACE, 2023a). The following COPCs by site (i.e., area of concern [AOC]) have been identified:

- AOC 1 – 2,4-dinitrochlorobenzene (2,4-DNCB), 2,4-dinitrophenol (2,4-DNP), picric acid, and target analyte list (TAL) metals;
- AOC 3 – volatile organic compounds (VOCs), semi-VOCs (SVOCs), polyaromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) aroclors, picric acid, and TAL metals;
- AOC 4 – 2,4-DNCB, 2,4-DNP, and picric acid; and
- AOC 5 – PAHs, TAL metals.

Waste generated from these activities will be managed and disposed of in accordance with New York State Department of Environmental Conservation (NYSDEC) and federal hazardous and solid waste regulations. Based on previous site investigation work and waste characterization data, it is anticipated that the waste generated will be nonhazardous.

## 2.0 Roles, Responsibilities, and Training

The project manager (PM) and Field Team Lead (FTL) have primary responsibility for ensuring compliance with guidelines and requirements for waste management provided under this plan. However, all members of the field team are responsible for compliance at all times.

Field staff are responsible for the implementation of the work associated with waste management, including ensuring that containers are appropriately labeled, waste is sampled properly and on time, required inspections are performed and documented, and proper notifications are provided to USACE New England and the disposal facilities. Field staff will provide all necessary documentation to the PM, FTL, and other appropriate individuals for proper waste management.

The senior technical lead or FTL will be responsible for completing all associated analytical data, waste documentation (profiles, land disposal restrictions [LDRs], etc.) and final classification of waste. All waste documentation (profiles, manifests, LDRs, etc.) will be reviewed for accuracy before submitting to the USACE PM for signature.

Field staff who will manage hazardous waste will meet the training requirements of Title 40 *Code of Federal Regulations* (CFR) 262.34(a)(4) and 265.16 through the following:

- Hazardous Waste Operations and Emergency Response (HAZWOPER) training required bythe Occupational Safety and Health Administration (OSHA) in 29 CFR 1910.120.
- Classroom or online training on remediation waste management; classroom training provided as a module inthe 40-hour initial HAZWOPER course and 8-hour HAZWOPER training refresher courses.
- Dangerous goods shipping (Department of Transportation [DOT], and International Air Transport Association.
- On-the-job training, which includes project-specific health and safety plan review (requires each site worker and guests to review and sign the plan), activity hazard analysis, daily “tailgate” safety meetings, and project-specific work plan review (e.g., this IDW plan).

DOT training per 49 CFR 172, Subpart H, as appropriate, is also required for those staff who are involved in the following activities:

- Selecting and marking packaging or container for hauling.
- Preparing hazardous materials for transportation.
- Loading, unloading, or handling hazardous materials.
- Operating a vehicle used to transport hazardous materials.
- Preparing or reviewing hazardous materials shipping papers, including hazardous waste manifests.

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Table 1 **Typical Bottle and Preservation Requirements for Soil Waste Characterization Samples**

| Parameter | Analytical Method | Bottle Requirement | Preservative |
|---|---|---|---|
| TCLP VOCs | SW8260D | 4 oz glass jar with Teflon lid | Ice |
| TCLP SVOCs | SW8270E | 4 oz glass jar with Teflon lid | Ice |
| TCLP RCRA Metals | SW846 6020B | 1 x 4 oz Jar | Ice |
| Reactivity | 9034/SW846 9012B | 1 x 4oz jar | Ice |
| Flashpoint | EPA 261.21 | 1 x 8 oz jar | Ice |
| pH/ Corrosivity | SW846-9045D | 1 x 8 oz jar | none |

Table 2 **Typical Bottle and Preservation Requirements for Liquid Waste Characterization Samples**

| Parameter | Analytical Method | Bottle Requirement | Preservative |
|---|---|---|---|
| TCLP VOCs | SW8260D | 2 x 40mL VOAs | Ice<br>HCL to pH < 2, Ice |
| TCLP SVOCs | SW8270E | 2 x 1L amber glass bottle | Ice |
| TCLP RCRA Metals | SW846 6020B | 1 x 120 poly bottle w/ HNO3 | HNO3 to pH<2, Ice |
| Reactivity | 9034/SW846 9012B | 2 x 1L amber glass bottle | HNO3 to pH<2, Ice |
| Flashpoint | EPA 261.21 | 1 x 250 ml plastic | Ice |
| pH/ Corrosivity | SW846-9045D | 1 x 250 ml plastic | Ice |

Notes:
TCLP = toxicity characteristic leaching procedure
HCl = hydrochloric acid
L = liter(s)
$HNO_3$ = nitric acid
mL = milliliters
RCRA = Resource Conservation and Recovery Act

## 3.0 General Waste Management Requirements

The following section discusses general requirements for placing waste in accumulation and storage areas.

### 3.1 Waste Collection and Accumulation

Generally, waste will be managed as hazardous at the point of generation until analytical results are received, and the waste is characterized as nonhazardous. All waste will be managed in accordance with the requirements outlined in this IDW plan, unless otherwise specified. The RCRA hazardous waste management requirements apply the moment a waste is generated. The date or point of generation is the day that a waste is first placed in a container (e.g., drum, tank, etc.), or placed in a stockpile outside of an area of concern.

Waste will be staged inside temporary fencing located in the parking lot of the NYSDEC office located in the Three Rivers Wildlife Management Area near AOC 4. Signs will be posted identifying responsible personnel and emergency contact phone numbers. Good housekeeping practices will be maintained at the waste accumulation area. A secured chain-link fenced area will be constructed for the staging of investigation-derived wastes (IDW) and municipal 20-yard or equivalent dumpster for municipal trash. Due to most of the AOCs being within public areas with high visibility, all IDW generated will be brought to this staging area and drums generated for each AOC will be grouped separately. A fire extinguisher and eye wash station will be placed within the secured fence. During transport from the AOC to the waste accumulation area, the appropriate placards will be displayed.

Dangerous or hazardous waste, if generated, will be segregated from nonhazardous waste. Additionally, incompatible waste (e.g., flammable and corrosive wastes) will be segregated. Solids and liquid drums will be segregated within the designated IDW staging area by AOC. However, sites (i.e., AOCs) where there are similar waste streams (i.e., solids vs. liquids) and COPCs (AOC 1 soil and AOC 4 soil) can be grouped together. Waste from a given site should be placed into as few drums as possible to facilitate record keeping and characterization sampling. Specifically:

- Spoils from AOC 1 and AOC 4 may be combined in drums, if needed, since similar COPCs (e.g., 2,4-DNCB, 2,4-DNP, and picric acid) were identified.
- Spoils from AOC 3 will be kept containerized and separate from the other AOCs.
- Spoils from AOC 5 will be kept containerized and separate from the other AOCs.
- Aqueous fluids (purge water, decon fluid) from AOC 1 will be kept separate and not combined with aqueous fluids from any other AOC.
- Aqueous fluids (purge water, decon fluid) from AOC 3 may be combined with Background purge water generated from porewater samples.
- Aqueous fluids (purge water, decon fluid) from AOC 5 may be combined with Background purge water from Background monitoring wells since similar COPCs (i.e., PAHs, TAL metals) have been identified in groundwater.

All waste will be contained or otherwise managed to prevent the spread of contamination, as follows:

- All liquids, including decontamination water, will be contained in tightly sealed (leak- proof) compatible drums or portable tanks.
- Solid waste, including contaminated environmental media, will be contained in drums.
- Wastes from each AOC may be combined, if needed. Waste from a given site should be placed into as few drums as possible to facilitate record keeping and characterization sampling.

### 3.2 Waste Storage Time Limit

If hazardous waste is generated, it will be removed from the site within 90 days from date of generation. Based on previous sampling during the Phase 1 RI (USACE, 2021), waste is expected to be nonhazardous and will be removed from the site as soon as possible. The date of generation is the day that a waste is first placed in a container (e.g., drum, tank, etc.) or stockpile.

### 3.3 Container Labelling

Waste containers will be labeled in accordance with 49 CFR 172, 173, and 178. Waste containers must have visible labels and the labels will always include the type of waste, location from which the waste was generated, and accumulation start date. Until a waste is characterized, it will be handled as if it is hazardous, and an analysis-pending label will be placed on the container. Once the waste has been characterized as hazardous or nonhazardous, the "analysis pending" label will be removed and replaced with the appropriate "Hazardous" or "Nonhazardous" waste label.

A description of the different labels anticipated for use at the site are as follows:

- **"Analysis Pending" or "Investigation Derived Waste"** – This is a temporary label used until analytical results are received and reviewed, and the waste is characterized as hazardous or nonhazardous. Once the waste is characterized, this label will be replaced with one of the following labels. The accumulation start date must be included on this label.
- **"Hazardous Waste":** Preprinted or handwritten labels with the following information:
- Accumulation start date.
- Generator name, address and phone number (USACE New England PM).
- U.S. Environmental Protection Agency (EPA) ID number .
- Proper DOT shipping name.
- Prior to transport, the manifest number must be added (for containers of less than 110-gallon capacity).
- **"Nonhazardous Waste":** Preprinted waterproof labels with the following information will be attached to the container:
- Generator name, address and phone number (USACE New England PM).
- Drum/container/tank accumulation start date.
- Waste-specific information (composition, origin of waste/boring ID, and other information necessary to identify the waste).
- **"Waste Inventory Labels":** The PM and FTL will ensure that all wastes from generation to final disposition are tracked. Waste stored at central storage areas, or stored away from the site of generation, will be labeled for inventory purposes and logged onto a waste inventory sheet. A weather-proof label, in addition to the labels mentioned above, will be applied to each of these containers. At a minimum, this label will contain the following information:
  - ID number unique to each container.
  - Name of the site that the waste is from.
  - Contents of the container, including the project-specific location, boring, or well.

- Accumulation start date.
- Name and telephone number of generator contact (USACE New England PM).

Where applicable, labels showing the major hazards (e.g., flammable, oxidizer, and carcinogen) also will be included on the container prior to shipment.

### 3.4 Inspections

IDW accumulation areas will be inspected at least weekly for malfunctions, deterioration, discharges, and leaks that could result in a release. Secondary containment (if utilized) will also be inspected at least weekly for liner and berm integrity and for signs of erosion. Examples of inspection parameters include:

- Drummed waste and remnant material containers will be inspected for leaks, signs of corrosion, or signs of general deterioration.
- Areas will be inspected to ensure that good housekeeping practices are maintained.
- Verification of emergency response equipment and spill equipment appropriate to the waste's hazards. Signage will be included that provides emergency response contact(s) and telephone number(s).

Any deficiencies observed or noted during inspection will be corrected immediately. Appropriate measures may include transfer of waste from a leaking container to a new container, replacement of liner or cover, or repair of containment berm.

Inspections will be recorded. Any deficiency and corrective action will be documented. A follow-up inspection will be performed and recorded on the inspection form immediately after any noted deficiencies have been corrected. Copies of the report will be maintained onsite and available for review. Example inspection forms are provided in **Attachment 1**.

### 3.5 Security/Emergency Response

Waste accumulation areas and temporary waste staging at the work area will contain emergency response equipment and spill equipment appropriate to the waste's hazards. Signage will be included that provides 24-hour emergency response contact and phone number. The Health and Safety Plan (a separate document from this one) identifies the project emergency response procedures and equipment, including emergency response contacts and phone numbers.

In addition to the Health and Safety Plan procedures, hazardous waste accumulation areas, if needed, will be provided with (1) fire extinguishers if waste known or suspected to be flammable or ignitable are present, and (2) decontamination equipment. Spill control equipment (e.g., sorbent pads, etc.) will be available in the waste accumulation areas and where liquids are transferred from one vessel/container to another.

### 3.6 Employee Training

Field staff who will manage hazardous or potentially hazardous IDW, including the preparation of shipping documents (for example, manifests), will meet the hazardous waste generator training requirements of 40 CFR 265.16 and DOT (49 CFR 171 – 179) through the following:

- OSHA 1910.120 HAZWOPER training.
- On-the-job training including the following:
  - Project-specific Health and Safety Plan review, which requires each site worker and guest to review and sign the plan.

  - Activity hazard analysis and daily safety meetings.
  - Project-specific Work Plan review; for example, this project-specific IDW plan.
- DOT training per 49 CFR 172, Subpart H, as appropriate, for those performing the following functions:
  - Selecting and marking packaging or container for hauling.
  - Preparing hazardous materials for transportation.
  - Loading, unloading, or handling hazardous materials.
  - Operating a vehicle used to transport hazardous materials.
  - Preparing or reviewing hazardous materials shipping papers, including hazardous waste manifests.

### 3.7 Spills During Waste Handling

All spills will be reported internally as indicated in the Health and Safety Plan. Refer to this plan for emergency response procedures and additional reporting requirements. The definition of a release includes any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed containers) of any potentially hazardous chemical, substance, and/or material.

It is important that the USACE New England PM along with the JV PM also be notified immediately of spills/releases and other environmental compliance-related incidents (e.g., permit exceedance, notice of violation, regulatory violation) or near-loss environmental incidents. The USACE New England PM along with the JV PM will evaluate the spill or release to determine agency reporting requirements (e.g., National Response Center or state agency). Immediate internal spill reporting is critical to assure compliance applicable agency spill reporting requirements since EPA requires certain spills/releases be reported within 15 minutes.

Spill control equipment (e.g., sorbent pads) will be available in the waste accumulation areas and where liquids are transferred from one vessel to another. Sorbent used on spills of ignitable waste/materials should not be used past their capacity, and will be either containerized with additional sorbent, or overpacked to prevent draining of liquid. Any fire protection provisions outlined in the Health and Safety Plan must be adhered to.

### 3.8 Waste Tracking Log

A Waste Tracking Log (**Attachment 2**) will be used to track waste from generation to final disposition. Waste will be logged on this form the day the waste is generated and placed into containers. Transportation of waste will be inventoried the day of transportation from the site using the Waste Tracking Log.

## 4.0 Waste Characterization Procedures

Waste will be characterized in accordance with 40 CFR Part 261, Subpart C, and analyzed in accordance with this IDW plan. Additional guidelines related to field documentation, sample nomenclature, chain of custody, and sample handling is in the main body of the UFP-QAPP.

### 4.1 Municipal Trash

Municipal trash, such as empty cement, bentonite and sandbags, pallets, water bottles, and food wrappers, will be placed into the dumpster located at the accumulation area for local municipal trash landfill disposal. Also disposed of as municipal trash will be nitrile gloves, Tyvek® suits (if used), empty single-use sampling supplies (e.g., tubing, scoops), and wipes/paper towels.

### 4.2 Waste Sampling Guidelines

General instructions for collecting and characterizing samples for solid and liquid wastes are in the sections below. Sample containers, holding-time requirements, and preservation requirements for typical waste characterization analyses are summarized in **Table 1** (solids) and **Table 2** (liquids). The IDW disposal facility, once selected, may have additional analytical requirements. Field handling and storage of samples and sample containers are described in the main body of the UFP-QAPP.

#### 4.2.1 General Soil Sampling Guidelines

Analytical requirements for soil IDW are shown in **Table 1**. Offsite treatment or disposal facilities may have different sampling requirements and a higher sampling frequency may be required. Collection of soil samples for waste characterization typically include the following:

- Collect one sample for each 55-gallon drum from each AOC, keeping samples segregated by AOC. For example, if there are 10 drums for AOC 1, then collect one sample from each of the 10 drums, composite using cone and quarter techniques, and submit for analyses for AOC 1. Repeat, for the other AOCs. A hand user will be used to collect the sample.

Soil aliquots for VOC analyses should be collected using the following general procedure:

- Using a hand auger or other device, retrieve a core from one waste container.
- Remove the core from the auger or other device and place the sample into the 4-ounce (oz.) glass jar. The transfer operation should ideally be completed in 1 minute to minimize loss of volatile components.

Soil samples for all other analyses can be collected as follows:

- Collect one sample from each of the drums into a stainless-steel bowl.
- Homogenize the grab samples by the quartering techniques using a stainless-steel spoon until a uniform texture and color is achieved.
- Fill the appropriate sample jars completely full with the homogenized sample.
- Close the jar, label, and package the sample for shipment to the laboratory.

#### 4.2.2 General Liquid Waste Sampling Guidelines

Analytical requirements for liquid IDW are shown in **Table 2**. Offsite treatment or disposal facilities may have different sampling requirements and a higher sampling frequency may be required. The following sampling procedures maybe used for liquids waste analysis:

- Using a bailer, or peristaltic pumping methods, collect and combine an aliquot of water from each 55-gallon liquid drum present at the time of sampling. Note, the combined volume needs to be greater than the required total sample volume (4,820 milliliters [mL]) needed.
- Transfer the combined volume and fill sample containers for the appropriate analyses. Note, collect the VOC analysis first. The 40-mL vials for VOC analyses must be filled so that there is no headspace in any of the vials.
- Label and package the samples for shipment to the laboratory.
- Evaluate analytical results against discharge criteria.
- Non-hazardous waste will be disposed of off-Site at a non-hazardous waste RCRA Subtitle D landfill.

### 4.3 Waste Screening Criteria

Waste analytical results will be compared to the toxicity characteristic criteria provided in 40 CFR 261.24. Waste characterized as RCRA hazardous will be evaluated to determine whether the waste meets the RCRA LDR standards. Specifically, a generator of hazardous waste must determine if the waste must be treated before land disposal.

The classification of a waste is important for proper selection of the disposal facility, manifesting, and record keeping. Based on Phase 1 RI results, Phase 2 RI IDW is not anticipated to be hazardous.

### 4.4 Municipal Solid Waste

Municipal solid waste (MSW) that has not come into contact with site contaminants will generally be characterized using generator knowledge only. No analytical testing is required for characterization of these wastes. Potential MSW includes nonrecyclable office/field materials, single-use sampling equipment, and debris. MSW will be placed in a receptacle and disposed of as municipal waste.

### 4.5 Recyclable Material

Potential recyclable materials include office/field materials such as paper, cardboard, glass, and plastic generated from shipping sample containers and equipment or performing general record keeping. These wastes will be recycled where practical.

## 5.0 Container-Specific Handling Guidelines

This section provides guidance for the management and handling of different containers commonly used to store and transport IDW. All containers will be inspected upon arrival at the site for equipment in disrepair and any contamination or residual contents. If a container is in disrepair, is contaminated, or already contains a waste, it will be immediately rejected and documented. A container inventory log will be maintained in a logbook to facilitate identification and tracking of waste and containers.

### 5.1 Small Containers and Drums

The following guidelines relate to drums and small containers:

- Containers will be inspected and accepted by the JV prior to the driver leaving the site.
- Only new, water-tight drums and containers will be used. Do not use reconditioned drums purchased from an outside source. It is acceptable to reuse new drums from the site that are in good condition and have been steam cleaned.
- The insides and outsides of the drums must be free of any residues.
- No penetrating dents are allowed that could affect the integrity of the drum. Special attention to any dents at the drum seams should be made to ensure a seal. Use the highest level of integrity standards for drums intended to contain liquids.
- If containers are rusted or have creases, they must be replaced so the drums will not have the opportunity to leak.
- Drums will have United Nations approval numbers embossed on the bottom or stenciled on the side, “1A2/Y1.7/150” for liquids and “1A2/X425/S” for solids.
- Containers must be compatible with the type of waste being stored in them.
- Drums should be removable-head-type drums without bungs. Bung holes in the lid are acceptable for special applications, but bung holes in the side of the drum are never acceptable.
- All bungs must be tight.
- Each drum will be provided with its own label, and the labels will be visible.
- Waste will be properly contained, labeled, covered, and placed on pallets. The pallets will be arranged to allow access between them for container inspection.
- Adequate aisle space shall be provided between containers to allow the unobstructed movement of personnel and equipment. A row of drums should be no more than two drums wide. Drums are not to be stacked on top of each other.
- Drums will remain closed and lid rings tightened down except when removing or adding waste to the drum. Lids should fit correctly, and the gasket must be in good condition. Lids will be properly secured at the end of each workday.
- Drums will be disposed of with the contents. If the contents are removed from the drums for offsite transportation and treatment or disposal, the drums will be decontaminated prior to reuse or before leaving the site.
- Drums containing liquids must be provided with secondary containment (lined, bermed area) and may not be located near a storm water inlet or conveyance.

The following guidelines should be followed when placing hazardous waste in drums:

- Only one waste stream type per drum is allowed.
- Drums must be on an intact pallet and must be provided with secondary containment (lined, bermed area) and may not be located near a storm water inlet or conveyance.
- Drums must not be filled greater than 90 percent full; leave a minimum of 3 inches of headspace.
- Lids must be securely tightened with a good gasket in place, as required by DOT shipping regulations. Would the drum be leak free if it were turned upside down? If not, the drum is not securely tightened with a good gasket.
- Make sure that the drum ring bolt is below the top of the drum and that the nut is tightened, as required by DOT shipping regulations.

## 6.0 Waste Transportation and Disposal

In general, once IDW soil and aqueous sample results have been received by the JV, the following steps will occur:

- The JV will coordinate with the disposal company, to generate a waste profile. Once waste profile is filled out, the waste profile along with analytical results will be sent to the disposal company;
- The waste profile sheet including laboratory results that show the material does not meet any DOT hazard class (i.e., such as hazardous waste, hazardous substance, or marine pollutant) will be submitted to USACE no later than two (2) weeks prior to shipment. The names of the licensed transportation and disposal facilities will also be provided to USACE. The JV signs the waste profile
- The disposal company approves the signed waste profile.
- The JV schedule a date for off-site disposal and requests a copy of the waste manifest prior to off-site disposal to ensure that the shipping document is called a Non-Hazardous Waste Manifest, and materials must be described as, and meet the requirements of, "Non-RCRA and Non-DOT Regulated.
- Once the transporter is on-site to remove the IDW, the JV FTL signs the manifest as the “Offeror of the Non-RCRA, Non-DOT Regulated Material.”
- Waste profile sheets and shipping documents will be included in the Final Field Report.

### 6.1 Waste Profile

Waste characterization information will be used to complete the waste profile form(s) provided by the designated offsite treatment or disposal facility as part of the waste acceptance process. A separate waste profile will be generated for each media (i.e., solids and aqueous). As previously mentioned in Section 3.1, spoils from each AOC will be separate and not combined with aqueous fluids. Like media that also contains similar COPCs may be combined. For example, spoils from AOC 1 and AOC 4 may be combined in drums, if needed, since similar COPCs (e.g., 2,4-DNCB, 2,4-DNP, and picric acid) were identified. AOC 3 and AOC 5 spoils will be kept separate. Refer to Section 3.2 for additional details.

The profile typically requires the following information:

- Generator information, including name, address, contact, and phone number.
- Site name, including street and mailing address.
- Process generating waste (e.g., soil borings, well purge water, decontamination fluids).
- Source of contamination and historical use (i.e., historical releases).
- Waste composition (e.g., 95 percent soil, 5 percent debris).
- Physical state of waste (e.g., solid, liquid).
- Applicable hazardous waste codes

### 6.2 Shipping Documentation

#### 6.2.1 Manifests and Bills of Lading

Each load of waste (solids, or aqueous) material will be manifested separately and will be shipped using either a nonhazardous (based on Phase 1 RI) waste manifest and bill of lading. At a minimum, the manifest

form will include the following information:

- Generator information including name, address, contact and phone number, and EPA ID number.
- Transporter information including name, address, contact and phone number, and EPA ID number.
- Designated facility information including name, address, phone number, and EPA ID number.
- Site name including street/mailing address.
- DOT Proper Shipping Name.
- Type and number of containers.
- Quantity of waste (volumetric estimate).
- Task order or job number.
- Profile number.
- 24-hour Emergency phone number.

The generator and the transporter must sign the manifest prior to the load leaving the site. Prior to the waste pick up, the JV FTL will review the manifest(s) and confirm the transporter listed on the manifest identifies the transporter removing the waste and that all signatures are completed. The original facility-signed manifest will be returned to the address of the generator.

## 6.3 Waste Transport

### 6.3.1 Department of Transportation Requirements

Requirements under 49 CFR 171 through 180 will apply to all offsite shipments of hazardous materials and waste. The information contained in this section is provided as a general guide. Requirements specific to each hazardous material will be determined in the field. It is the responsibility of a DOT- trained individual to ensure that the requirements of 49 CFR 171 through 180 are met.

#### 6.3.1.1 Shipping Name

Material that exhibits one of the nine DOT hazard class characteristics (explosives, gases, flammable liquids, flammable solids, oxidizing substances, toxics/poisons, radioactive materials, corrosive substances, or miscellaneous hazards) is regulated under DOT rules for the transportation of hazardous material. If material is suspected to be a hazardous material, it will be shipped under the suspected hazard class. Each shipment of a suspected hazardous material will be provided with a proper shipping name using the Hazardous Materials Table in 49 CFR 172.101. All determinations will be made by DOT-trained personnel. Based on the Phase 1 RI, the IDW generated during the Phase 2 RI is anticipated to be nonhazardous.

#### 6.3.1.2 Packaging, Marking, and Labelling

The shipping name, hazard class, identification number, technical names (if applicable), EPA markings and waste code numbers, and consignee/consignor designations will be marked on packages for shipment (49 CFR 172.301). Once a waste is characterized, reference will be made to the Hazardous Materials Table in 49 CFR 172.101 to determine the appropriate label.

#### 6.3.1.3 Placards

Appropriate placards will be determined by DOT-trained personnel. Specific placard descriptions are found starting at 49 CFR 172.521. If a placard is required, it will be affixed on each side and each end of the transport vehicle.

#### 6.3.1.4 Waste Transporter Requirements

Each transport vehicle and load of waste will be inspected before leaving the site and documented. The quantities of waste leaving the site will be recorded on a transportation and disposal log (**Attachment 1**). A contractor licensed for commercial transportation will transport nonhazardous waste. If the waste is hazardous or dangerous, the transporter will have an EPA Identification number, and will comply with transportation requirements outlined in 49 CFR 171-180 (DOT), and Delaware Solid Waste Management rules and regulations. If waste is determined to be hazardous, additional Delaware requirements (Hazardous Waste Management) and 40 CFR 263.11 and 263.31 (Hazardous Waste Transportation) are also applicable.

Drivers of offsite disposal trucks must not come in physical contact with the contaminated material while covering the load or preparing it for transport. The JV and the transport driver will ensure that there is no visible soil/waste material on the sides or tires of any trucks leaving the staging area, or vehicle leaving the site. The JV will use proper decontamination procedures to remove soil or debris from the outsides of the vehicles if necessary, to ensure soil is not tracked beyond designated work areas.

Trucks used for offsite disposal will be equipped with appropriate liners and tarps in acceptable working condition and all loads will be lined and covered prior to departure. Liners and covers will be properly secured to assure that the vehicles do not leak or release any waste constituents at any time during the transport process. Waste materials will be loaded in an area designated during mobilization.

The transporter will be responsible for weighing loads at a certified scale. For each load of material, weight measurements will be obtained for each full and empty container, dump truck, or tanker truck. Disposal quantities will be based on the difference of weight measurements between the full and empty container, or dump truck. Weights will be recorded on the waste manifest and weight ticket.

The transporter will observe the following practices when hauling and transporting waste offsite:

- Minimize impacts to general public traffic.
- Repair road damage caused by construction and/or hauling traffic.
- Line and cover trucks/trailers used for hauling hazardous or regulated waste to prevent spills or releases.
- Decontaminate vehicles prior to re-use, other than hauling contaminated waste.
- Ensure seals on trucks transporting liquids are in good condition.
- Waste or materials from other sites may not be combined with waste generated during this project.
- All personnel involved in offsite disposal activities will follow safety and spill response procedures outlined in the Health and Safety Plan. All loads will be covered, and the trucks inspected by KGS and the transport driver to ensure the loads are secure, proper placarding is in place, and shipping documentation is accurate.

#### 6.3.1.5 Shipment Methods

All waste shipments offsite will comply with procedures specified in the Hazardous Materials Transportation Act, 49 CFR 171. Hazardous materials will be properly classified, described, packaged, marked, and labeled for shipment as required by 49 CFR. For example, a bulk package for solids is defined as having a maximum net mass of 882 pounds or more and a maximum capacity of 119 gallons or more. All packaging and labeling of waste will be performed by staff trained to meet the DOT requirements (for example, hazardous materials employee training requirements under 49 CFR 172 Subpart H).

### 6.3.2 Spill Reporting and Response

In the event of a spill or release of waste, the transporter will immediately notify JV personnel, in accordance with the Health and Safety Plan**.** The following information about the spill will be reported and recorded by the transport driver and the JV:

- Organization, name, and phone number of point-of-contact at spill site.
- Date and time of spill.
- Type of waste material (e.g., soil, water) and contaminant, and/or product (e.g., soil cuttings).
- Location, environment (e.g., confined within building, outside buildings, concrete, asphalt, soil or grass).
- Estimated volume.
- Media affected (e.g., spilled on concrete pad or soil).
- Weather conditions at time of spill.
- Detailed description of source and cause of spill.
- Any storm drains, waterways, or water bodies affected.
- Any injuries or property damage.
- Actions taken to correct situation.
- Final disposition of spilled material.

The transporter will also report a spill or release of hazardous waste or hazardous material, as required, to the following entities:

- National Response Center: (800) 424-8802 or (202) 426-2675.
- Spill Reporting Hotline: (800) 522-0206.

Transporters that report spills/releases to the National Response Center will also report in writing, as required by 49 CFR 171.16, to the Director, Office of Hazardous Materials Regulations, Materials Transportation Bureau, Department of Transportation, Washington DC. 20590.

## 6.4 Transportation Security Plans

Anyone offering or transporting a DOT hazardous material that requires placarding is required to have a Transportation Security Plan under 49 CFR 172 Subpart I. Each Transporter must also have a Transportation Security Plan since they may be packaging DOT hazardous materials for shipment. The Transporter's Transportation Security Plan can be a program-wide or company-wide plan and does not need to be project- or site-specific. The plan should address only those aspects of transportation for which

the Transporter might be responsible.

### 6.5 Disposal of Waste Streams

Offsite treatment, disposal, or recycling facilities will use the waste profile analytical results and supporting documentation (e.g., generator knowledge) to determine whether a waste will be accepted. Most environmental waste from the site is expected to be classified as nonhazardous waste and will be transported and disposed of offsite at a permitted Subtitle D landfill with approval under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Off-site Rule (40 CFR 300.400). Hazardous waste, although not expected, will be disposed of or treated accordingly. The designated offsite facility will be responsible for providing a copy of the fully executed waste manifest and a certificate of treatment or disposal to the USACE PM and JV PM for each load of waste received.

## 7.0 Record Keeping

The JV will retain copies of transporter-signed, fully executed waste manifests and waste analysis records discussed in this IDW plan for the disposal of all removed material in the project records for 3 years, as required by RCRA.

The following transportation and offsite disposal records and documents will be maintained in the project files:

- Copies of the waste profiles and associated characterization data
- Transportation and offsite disposal records, including:
  - The transporter signed manifest as well as the fully executed manifests, and copies of the following: Land Disposal Restriction notifications/certifications, and weight tickets.
  - Designated offsite facility waste receipts, certificates of disposal/destruction.
- Training records.
- Inspection records.

# Attachments

# Attachment 1 Example Inspection Form

## Waste Accumulation Area Inspection Log

Site:_____ Time:_____Date:_____

Inspected by: _____ Accumulation Area Location: _____

Signature:_____ _____ No. of Roll-off Boxes:____

No. of Containers:_____No. of Tanks: _____ _____No. of Stockpiles: _____

| Waste Containers, Tanks, and Roll-off Boxes | | |
|---|---|---|
| | **Yes** | **No** |
| Are roll-offs, drums, tanks closed?<br>Drums: lids and rings on and fit well, bolted tight<br>Roll-offs: bows and tarps on; all of roll-off covered and<br>tarp tightened down Tanks: lid/cover is on and tight | | |
| Containers (drums, roll-offs with slop/liquids, tanks) are in secondary containment? | | |
| Containers are in good shape (e.g., no rust, bulges, creases, fluid level drop, etc.)? | | |
| Drums, tank, roll-off boxes are appropriately labeled, readable, and visible? (e.g., "Hazardous Waste", "Non-Hazardous Waste", "Analysis Pending") If data back, label must be changed out immediately from "analysis pending". | | |
| Accumulation start date marked on all drums, tanks, roll-offs? (date first drop of waste is placed into container) | | |
| Labels are completely filled out? | | |
| If any of these questions were marked **NO**, please add comment and corrective actions: | | |

| Soil Stockpiles | | |
|---|---|---|
| | **Yes** | **No** |
| Liner is secure and intact? | | |
| Berm is secure and intact? | | |
| Cover is in place and secure (if necessary)? | | |
| If any of these questions were marked **NO**, please add comment and corrective actions: | | |

# Attachment 2 Waste Tracking Log

# Waste Tracking Log

| Item/Container of | Origin Date: | Project Name: |
|---|---|---|
| Area of Collection: | Container condition: | Project Number: |

| Waste Material Placed in (or Removed) From Container (note point of origin) | Quantity | Depositor | | Comments (If Waste is removed from container, then final disposition must be noted) |
|---|---|---|---|---|
| | | Initials | Date | |
| | | | | |
| | | | | |
| | | |

| Temporary Waste Storage Areas | | |
|---|---|---|
| | Yes | No |
| Secondary containment – NO signs of failure (e.g., ripped liner, berm failure, stained soil, sheen in secondary containment)? | | |
| Drums are on pallets? | | |
| Drums are covered with visqueen or tarp? | | |
| Secondary containment is free of liquid? | | |
| Accumulation Area is designated with other appropriate signage (temporary waste storage; emergency contact and phone number) | | |
| If any of these questions were marked **NO**, please add comment and corrective actions: | | |

| Emergency Response Equipment in Waste Storage Areas | | | |
|---|---|---|---|
| | | Yes | No |
| Telephone/Radios | Easily accessible in case of emergency? | | |
| | In working order? | | |
| Spill Control | Is unused absorbent material nearby? | | |
| | Decontamination equipment available? | | |
| | Is personnel protective equipment available? | | |
| Fire Protection | Is a fire extinguisher readily accessible? | | |
| | Is the fire extinguisher fully charged and seal intact? | | |
| If any of these questions were marked **NO**, please add comment and corrective actions: | | | |

| Paperwork | | |
|---|---|---|
| | Yes | No |
| T&D/Waste Tracking Log is up to date | | |
| Inspections completed weekly and documented | | |
| If any of these questions were marked NO, please add comment and corrective actions: | | |

## Incoming Drum Inspection Form

Project: _____ Drum arrival date: _____ Number of number: _____ Inspector/company:_____ Inspection date: _____

| | Yes | No |
|---|---|---|
| Drum is in good condition, no rust, holes, or unacceptable dents | | |
| Residual contamination/waste/material in or on drum (look under liner if installed): | | |
| Drum has UN Code | | |
| Drum lid fits and seals, gasket is in acceptable condition | | |
| Drum ring and bolt are in place and function | | |

Example of UN code: 1A1/Y1.4/150/10 USA/M1234 3 mm *Include photos of any unsatisfactory items.*

- 1A1 = Packaging identification code
- /Y1.4 Y = performance code
- 1.4 =maximum specific gravity
- 150 = hydrostatic test pressure
- 10= year manufactured
- USA = country of origin
- M1234 = manufacturers registered symbol
- mm = minimum thickness for reuse

Comments (if rejected include why):

Drums accepted: signature of inspector _____ Drums rejected: signature of inspector _____

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# Appendix F  Analytical Laboratory Standard Operating Procedures/ Accreditations & Certifications

(electronic copy only)

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| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Analysis of Polychlorinated Biphenyls (PCBs) by 8082A in Aqueous Samples using GC-ECD** | Level:<br>**Work Instruction** |
| Document number:<br>**T-PEST-WI9238** | | |
| Old Reference:<br>**1-P-QM-WI-9015109** | | |
| Version:<br>**9** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **TYZ8**<br>Effective Date: **27-JAN-2023** | Document users:<br>**6_EUUSLA_Pesticide Residue Analysis_All Management, 6_EUUSLA_Pesticide Residue Analysis_PCB Chemist** | Responsible:<br>**5_EUUSLA_Pesticide Residue Analysis_Manager** |

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## Revision Log

| **Revision:** 8 | **Effective Date:** | 31 March 2021 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Throughout Document | SOP obsolete | Removed all references to T-PEST-WI9980 |
| Personnel Training and Qualifications | Clarifications | Add 8000D reference for IDOC LCSs |
| Reagents and Standards | Enhancement | Add calibration standard scheme. Update 'or near' RL to 'or below' RL for low level standard |
| Statistical Information/Method Performance | TNI2016 requirements are more stringent. | Removed 8000D specific language. |

| **Revision:** 7 | **Effective Date:** | This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Throughout Document | New LIMS | Replaced all references to old LIMS with references to new LIMS |
| Throughout Document | SOPs obsolete | Removed references to T-PEST-WI10016 and T-PEST-WI10022 |

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## Reference

1. T*est Methods for Evaluating Solid Waste*, SW-846, Method 8082A, February 2007.

2. Determinative Chromatographic Separations, SW-846, Method 8000D, July 2014

3. *Chemical Hygiene Plan*, current version.

## Cross Reference

| Document | Document Title |
|---|---|
| *T-OE-PEST-WI10920* | Separatory Funnel Extraction by Method 3510C, 608, 608.3 or 622 for Pesticides and PCBs in a Wastewater |
| *T-OE-PEST-WI10281* | Cleanup Procedures for the Extraction of Pesticides and Polychlorinated Biphenyls (PCBs) |
| *T-PEST-WI10011* | QC Data Acceptability and Corrective Action |
| *T-PEST-WI9954* | Interpretation of Chromatographic Data |
| *T-PEST-WI10007* | Preventative and Corrective GC Maintenance |
| *T-PEST-WI9847* | Common Equations Used During Chromatographic Analyses |

## Scope

This method is useful for identifying and quantitating the following polychlorinated biphenyls (PCBs) as Aroclors in aqueous matrices:

| Compound | LOQ (µg/L) |
|---|---|
| Aroclor 1016 | 0.5 |
| Aroclor 1221 | 0.5 |
| Aroclor 1232 | 0.5 |
| Aroclor 1242 | 0.5 |
| Aroclor 1248 | 0.5 |
| Aroclor 1254 | 0.5 |
| Aroclor 1260 | 0.5 |

The following aroclors can also be analyzed for upon request by the client, usually on a project basis. Since aroclors 1262 and 1268 contain peaks that elute much later than 1260, the GC run time needs to be extended to ensure the entire pattern has eluted.

| Compound | LOQ (µg/L) |
|---|---|
| Aroclor 1262 | 0.5 |
| Aroclor 1268 | 0.5 |
| Aroclor 5422 | 1.0 |
| Aroclor 5432 | 1.0 |
| Aroclor 5460 | 1.0 |

See Appendix I for GC operating conditions and calibration information when analyzing for Aroclor 5422, 5432, and/or 5460.

Limits of Quantitiation (LOQs) are based on annual statistical evaluation of laboratory data and are subject to change. The current Method Detection Limits (MDLs) and LOQs are maintained in the LIMS.

## Basic Principles

A portion of an aqueous sample is extracted serially with methylene chloride. The volume of sample extracted can be adjusted depending on the physical appearance of the sample and the amount sent for analysis. The extract is dried, concentrated, and exchanged into hexane. The PCBs are then identified and quantitated using gas chromatography (GC) with an electron capture detector (ECD). The extract may require further cleanup (by florisil, sulfuric acid, or copper) to reduce matrix interferences that introduce large, unresolvable peaks in the chromatogram (due to interferents such as phthalates, oxygenated organics, unsaturated organics, or elemental sulfur).

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## Reference Modifications

Gas Chromatography conditions are different than those listed in Method 8082A however, all QC criteria are met.

## Interferences

1. Avoid contact with any plastic material during the extraction and analysis procedures to minimize interferences from phthalate esters.

2. Scrupulously clean all glassware to minimize interferences caused by laboratory contaminants.

3. An electron capture detector (ECD) is very sensitive to compounds that contain halogens and will also respond to many other compounds and materials including oxygenated organics, unsaturated organics, and elemental sulfur.

4. Extracts may require further cleanup if interferents are present. Refer to *T-OE-PEST-WI10281* for details on each cleanup procedure. Interfering materials can introduce large, unresolvable peaks into the chromatogram.

   a. Use Florisil cleanup to reduce organics that can interfere (polar compounds).

   b. Use GPC to remove sulfur and higher molecular weight organics.

   c. Use copper or TBA cleanup to remove elemental sulfur.

5. Common single component pesicides such as DDT, DDD, and DDE may cause interference with the aroclor pattern. To ensure that the analyst is aware of this, a standard containing DDE/DDD/DDT will be run with each initial calibration.

## Safety Precautions and Waste Handling

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

Gloves, lab coats, and safety glasses must be worn when preparing standards. Safety glasses must be worn around the GC where solvents and sample extracts are handled.

GC vials are disposed of in the designated lab container and subsequently lab packed for final disposal. All solvent waste is placed in designated containers in the laboratory then taken to the lab-wide facility by personnel trained in hazardous waste disposal.

## Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the analyst's training records.

Initially, each analyst performing instrumental analysis must work with an experienced analyst for a period of time until they can independently calibrate the instrument, use the chromatography data system to set up sequences, perform the calculations, interpret chromatograms, perform instrument maintenance, and enter data into the LIMS. Proficiency is measured through documented audits of the tasks listed and over checking of data as well as an Initial Demonstration of Capability (IDOC).

The IDOC consists of four laboratory control samples (LCS) that are carried through all steps of the analysis and meet the LCS acceptance criteria, per EPA 8000D section 9.3.3.2. The criteria include the

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calculation of mean accuracy and standard deviation. Various options are available for a DOC and can include four LCSs, one blind sample, or one ICAL with 4 ICVs and/or CCVs.

## Sample Collection, Preservation, and Handling

Samples are collected in 1 L or 250 mL amber glass containers with Teflon-lined caps and kept cool at 0° to 6°C, not frozen.

PCBs have no maximum recommended holding time for the extraction. Some agencies or projects may require a specific hold time for the extraction. If the hold time is specified in the project, this hold time must be followed. Sample analysis must be performed with 40 days of extraction. Extracts are stored in the freezer at ≤-10°C.

## Apparatus and Equipment

1. HP 7890 gas chromatograph equipped with an electron capture detector, or equivalent

2. Columns:

   a. Phenomonex MultiRes I – 30 m × 0.32 mm × 0.5 µm, or equivalent

   b. Phenomonex MultiRes II – 30 m × 0.32 mm × 0.25 µm, or equivalent

3. Integrating system such as Chrom Perfect® by Justice Laboratory Software, or equivalent. Chrom Perfect® is a data system capable of storing and reintegrating chromatographic data and determining peak areas using a forced baseline, area summation, baseline projection, and performing baseline compensation as required.

4. Various sizes of Class A volumetric flasks, pipettes, and syringes

## Reagents and Standards

A. Reagents

   1. Follow manufacturer's guidelines for storage conditions.

   2. Hexane for autosampler rinse vials. Stored at room temperature up to 1 year.

   3. UPC (Ultra Pure Carrier) helium for carrier gas.

   4. UPC nitrogen for detector make-up gas.

   5. UPC hydrogen carrier gas, either bottled or from a generator.

B. Standards

   1. All standards are prepared using Class A volumetric pipettes, syringes, and flasks.

   2. All weights are made on an analytical balance.

   3. Unopened ampules are stored according to the manufacturer's instructions and are stable until the expiration date provided by the manufacturer.

   4. All prepared standard solutions are stored at <-10° C in labeled containers for up to 6 months. If comparison with check standards indicates a problem prior to expiration date, the standards must be replaced.

   5. Aroclor 1016 stock – Restek 32006 at 1,000,000 ppb in hexane. Prepare an intermediate by diluting 1 to 10 mL of hexane.

   6. Aroclor 1016/1260 stock – Restek 32039 at 1,000,000 ppb in hexane. Prepare an intermediate by diluting 1 to 10 mL of hexane.

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7. Aroclor 1221 stock – Restek 32007 at 100,000 ppb in hexane. Two separate lots are kept on hand to provide a second source.

8. Aroclor 1232 stock – Restek 32008 at 100,000 ppb in hexane. Two separate lots are kept on hand to provide a second source.

9. Aroclor 1242 stock – Restek 32009 at 100,000 ppb in hexane. Two separate lots are kept on hand to provide a second source.

10. Aroclor 1248 stock – Restek 32010 at 1,000,000 ppb in hexane. Prepare an intermediate by diluting 1 to 10 mL of hexane. Two separate lots are kept on hand to provide a second source.

11. Aroclor 1254 stock – Restek 32011 at 1,000,000 ppb in hexane. Prepare an intermediate by diluting 1 to 10 mL of hexane. Two separate lots are kept on hand to provide a second source.

12. Initial calibration Verification standard (ICV) Stocks:

a. Aroclor 1016 - Accustandard cat # C-216S-H-10X at 1,000,000 ppb

Aroclor 1260 Accustandard Cat# C-260S-H-10x at 1,000,000 ppb

Prepare an intermediate by diluting 1mL of each to 10 mL of hexane.

b. Aroclor 1248 - Accustandard cat# C-248S-H-10X at 1,000,000 ppb.

Prepare an intermediate by diluting 0.5 mL to 5 mL of hexane

c. Aroclor 1254 – Accustandard cat#C-254S-H-10X at 1,000,000 ppb.

Prepare an intermediate by diluting 0.5 mL to 5mL of hexane.

13. Surrogate stock (SS) – Supelco 861284 containing DCB/TCX at 200,000 ppb in acetone.

14. 1016/1260 Matrix spike (MS) stock: Restek 32039. Each at 1,000,000 ppb in hexane. Also used as a second source stock. Prepare an intermediate by diluting 1 mL to 10 mL of hexane.

15. Aroclor 1262 stock – Restek #32409 at 1,000,000 ppb in hexane. Prepare an intermediate by diluting 1 mL to 10 mL of hexane.

16. Aroclor 1268 stock – Restek #32410 at 1,000,000 ppb in hexane. Prepare an intermediate by diluting 1 mL to 10 mL of hexane.

17. Instrument Blank (IBLK) – Surrogate Stock (SS) – Supelco #861284 containing Decachlorobiphenyl (DCB) and Tetrachlorometaxylene (TCX) at 200,000 ppb each in acetone.

18. Prepare working standards using the reagent module in the LIMS as a guide.

a. In the reagent module, first enter the reagents in this section as 'source' reagents.

b. Then select 'intermediate' reagent and load the most recent version of the working standard you wish to create for editing, or create a new standard if the working standard has not yet been prepared in TALS.

c. The module contains the following information: reagent description (ex. AR161), source reagent code, amount used, final amount, solvent used and solvent lot, concentration of each compound in solution, and expiration date. The working standards have an expiration date of 6 months.

d. The calibration scheme begins at or below the reporting limit through a 20 fold of the initial calibration level:

| **Calibration Standard** | **INT standard 10,000 ug/L Vol. (mL)** | **Surrogate GCS_ARpestssr Vol. (mL)** | **Final Vol. (mL)** | **Aroclor conc. (ug/L)** | **DCB/TCX Conc. (ug/L)** |
|---|---|---|---|---|---|
| GCS_AR161 (1016/1260) | 0.025 | 0.025 | 100 | 25 | 2.0 |
| GCS_AR162 (1016/1260) | 0.05 | 0.05 | 100 | 50 | 4.0 |
| GCS_AR163 (1016/1260) | 0.1 | 0.25 | 100 | 100 | 20 |

| | | | | | |
|---|---|---|---|---|---|
| GCS_AR164 (1016/1260) | 0.2 | 0.5 | 100 | 200 | 40 |
| GCS_AR165 (1016/1260) | 0.5 | 0.76 | 100 | 500 | 61 |
| GCS_AR166 (1016/1260) | 1.0 | 1.0 | 100 | 1000 | 80 |

| Standard Name | Parent Solution | Aliquot (mL) | Final Vol. (mL) | Final Conc. (ug/L) | Solvent | Description |
|---|---|---|---|---|---|---|
| GCS_MD16 | GCS_AR1660ING | 0.01 | 200 | 5.0 | Hexane | 1016/1260 MDL Standard |
| | GCSARpestssr | 0.01 | | 0.4 | | |
| GCS_IC16 | GCS_IC16INT | 1.0 | 200 | 200 | Hexane | Second Source ICV Check Standard |
| | GCS_ARpestssr | 0.4 | | 40 | | |
| GCS_IBLKpcb | GCS_PESTSUR | 0.05 mL | 500 | 20 | Hexane | SW-846 Water Surrogate - identical to that prepared for the Pesticides/PCBs analysis |

e. For 1L preps (3510C):

| Standard Name | Parent Solution | Aliquot (mL) | Final Vol. (mL) | Final Conc. (ug/L) | Solvent | Description |
|---|---|---|---|---|---|---|
| OP_PCB_MS | Aroclor 1016/1260 stock | 1.25 | 250 | 5000 | Acetone or methanol | PCB Spike used for extraction |
| OP_SW_SS | Pest Surr mix | 3 | 2000 | 300 | Acetone or methanol | SW846 surrogate standard used for extraction |

f. For 250mL preps (3510C_LVI)

| Standard Name | Parent Solution | Aliquot (mL) | Final Vol. (mL) | Final Conc. (ug/L) | Solvent | Description |
|---|---|---|---|---|---|---|
| OP_MINIPCB_MS | OP_PCB_MS | 12.5 | 50 | 1250 | Acetone or methanol | PCB Spike used for extraction |
| OP_SW_SS | Pest Surr mix | 0.375 | 1000 | 75 | Acetone or methanol | SW846 surrogate standard used for extraction |

The MS and SS working solutions are stored <-10°C.

19. An initial calibration verification standard must also be prepared at a concentration at the mid-point of the calibration for 1016, 1260, 1248, 1254 using a stock solution purchased from a different vendor or different lot than that used for the calibration standards.

20. Additional standards and preparations are listed in Appendix I for Aroclor 5442, 5432, and 5460 (PCT analysis).

## Extraction

See organic extraction procedure *T-OE-PEST-WI10920*.

## Gas Chromatographic Conditions

The conditions listed are usually the optimum operating conditions but can vary to improve the sensitivity, linearity, and overall chromatography or shorten run times on each GC system.

A Merlin microseal can be used in place of traditional septum.

| | |
|---|---|
| Detector | ECD |
| Detector Temperature | 330°C |
| Oven Temperature | 110°C |

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| | |
|---|---|
| | 40°C/min. to 250°C<br>20°C/min. to 280°C<br>30°C/min to 330°C<br>Hold until DCB elutes ~ 2 min. |
| Column A | MR I |
| Column B | MR II |
| Carrier | Hydrogen at 12 psi, 5ml/min constant flow.<br>(Can be substituted with Helium) |
| Makeup gas | N2 at 80 mL/min. for Agilent GCs |
| Injection size | 1 µL, direct injection |
| Injection Temperature | 225°C |

## Calibration

A. Fill the autosampler rinse vials with clean solvent or replace vials that appear dirty.

B. Prepare a sequence using the following order of injections:

1. Conditioner
2. IBLK
3. EVAL
4. AR161
5. AR162
6. AR163
7. AR164
8. AR165
9. AR166
10. AR481
11. AR482
12. AR483
13. AR484
14. AR485
15. AR486
16. AR541
17. AR542
18. AR543
19. AR544
20. AR545
21. AR546
22. AR214
23. AR324
24. AR424
25. AR624
26. AR684
27 AR16X
28. MD16 (MDL)
29. IC16X (ICV)
30. IC48X (ICV)
31. IC54X (ICV)
32. Blank
33. LCS
34. 1234567
35. 1234567ms
36. 1234567msd
37.- 47. Continue running samples
48. AR164 (CCV)
49. IBLK

1. Note for our routine PCBs: The AR21, AR32, and AR42 are level 4s in the ICAL and are entered as AR214 and AR424 in the ICAL. Also the AR62 and AR68 are both level 4s and are listed as AR624 and AR684 in the sequences.

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2. A single point of Aroclor 1016 is analyzed with the calibration to aid in better pattern recognition in the samples. Aroclor 1016 and 1242 have similar patterns with the exception of the smaller trailing peaks at the end of the Aroclor 1242 pattern. This is identified in the sequence as AR16X.

3. A DDT/Endrin breakdown standard is run with each ICAL in order to provide the retention times of p,p-DDE, p,p-DDD, and p,p-DDT which may interfere with the pattern for aroclor 1254, 1248, and 1260.

4. See Appendix I for a sequence example when the analysis of PCTs (Aroclors 5442, 5432, and 5460) is requested.

D. Continue running groups of samples/injections. Each bracket must contain no more than 20 samples/injections and last no more than 12 hours for Method 8082A. Each bracket is followed by the continuing calibration check standard and an instrument blank (IBLK).

E. The conditioner injection is usually a standard or sample that has already been injected.

1. The conditioner is used to prime the system.

2. It is best utilized when the GC has not been running and there is a gap in time prior to starting a set of injections.

F. Hexane blanks can also be run to allow the GC to go through some temperature programs and/or to check the cleanliness of the system.

G. Instrument blanks (IBLK) may also be run with the continuing calibration standards. This is optional but frequently requested for projects.

1. The instrument blank (IBLK) is injected after the conditioners but before the initial calibration.

2. It is used to determine that the instrument is free of background noise or contamination.

H. For projects where a known aroclor is present and at the request of clients other aroclors can be run for the continuing check standard. For instance, a set of continuing standards can be AR484, AR164, and IBLK.

I. Aroclor 1262 and 1268 can be analyzed when requested. A full six point curve can also be run, depending on the project requirements.

J. Initial Calibration (ICAL)

1. Calibrate for the aroclors using the six levels of 1016, 1260, 1248, and 1254. Use the single point for 1221, 1232, 1242, 1262, and 1268 when needed. As an option, 1248 and 1254 can use a single point calibration.

2. An external standard calibration based on the average calibration factor (AVG CF) for all analytes is used for quantitation where the %RSD is ≤20%.

3. The surrogate standards are calibrated using the AR16 levels using AVGCF unless the %RSD is >20%.

4. If the RSD is > 20%, use a calibration curve.

   a. Use a linear fit.

   b. The correlation coefficient must be >0.99 to be a valid fit.

   c. Extrapolate or force to zero is not allowed. Set the zero to ignore.

When 8000D is referenced and curve fits are used in the initial calibration, percent error (%E) must be calculated for each calibration level. Standard levels at or below the LOQ must meet +/- 50%, standards above the LOQ must meet +/-30%. (%error = (true concentration - calculated concentration )/true concentration)*100). All individual peaks used to calculate the aroclor pattern must meet the %E criteria.

5. If the 0.99 curve coefficient cannot be met:

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a. Inspect the data points to see if one or more calibration level became concentrated due to solvent evaporation or degraded over time.

b. Reinject or remake the standard if a specific calibration level has concentrated due to solvent evaporation, or degraded over time..

c. Perform instrument maintenance as needed. See *T-PEST-WI10007* for troubleshooting linearity problems.

6. The calibration range for the aroclors is 50ug/L to 1000 µg/L. Level 1 is equivalent to the Limit of Quantitation.

7. Set up the aroclor calibration data in LIMS. The retention times of the peaks to use for identifying and quantifying the aroclors are entered into the calibration file along with the corresponding peak heights and concentrations.

8. Ensure the peaks in the standards are labeled properly, including the surrogates in all injections that contain them.

9. Set the scaling of chromatograms and peak integration parameters so that the size of the peaks for each compound of interest are approximately 2 to 3 mm in height at the concentration of the method detection limit (MDL).

a. Ensure all peaks in the MDL standard are integrated.

b. By running the 1016/1260 MDL standard, the majority of peaks of all aroclors are represented.

K. Initial Calibration Verification (ICV)

1. Verify the calibration curves using the ICV mixtures injected directly after the full ICAL.

2. The % difference of the concentrations for these must be within 20% difference of the nominal concentration. All the individual peaks used in the ICAL for the PCB pattern must meet this criteria.

a. If this criteria is not met, reinject the ICV.

b. If the criteria is not met again, then prepare a new standard.

c. If the criteria is not met after analyzing the new ICV standard, then a recalibration is performed.

L. Continuing Calibration Verification (CCV)

1. Calibration verification is performed after each set of twenty injections (samples, QC, blanks, etc.) or 12 hours, whichever comes first.

2. Use AR16 to evaluate the calibration of the aroclors (or other aroclors as requested for particular clients or projects).

3. Other aroclors can also be used along with AR16. This must be done if a site has prior history of containing a specific aroclor, or as requested for client projects or to meet other regulatory requirements.

4. The concentration quantitated for the continuing calibration check standards must be within 20% difference (%D) of the nominal concentration for each compound. All the individual peaks used in the ICAL for the PCB pattern must meet this criteria.

5. Samples must be bracketed with compliant standards.

a. Exception: If the standard following a sample is outside the ±20% but exhibits increasing response, the samples before it do not have to be reinjected if the target analytes are not detected. A comment must be added to the analytical report.

b. If two consecutive/sequential CCVs fail, corrective action must be taken, which can include performing injection port maintenance, baking the instrument or other types of maintenance. Two consecutive/sequential CCVs must meet the criteria or an initial calibration must be performed before sample analysis can continue.

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c. If confirmation of target analytes is needed, then the second column should meet the 20% continuing calibration criteria, as well as all initial calibration criteria. if either of these are not met, a comment must be added to the analytical report.

6. The instrument blank (IBLK) is injected after each set of continuing calibration verifications when requested.

a. It must be evaluated as a water matrix against the water MDL/LOQs.

b. The IBLK must not have any target compounds above the reporting limits.

(1) If a target analyte is detected in the IBLK, any associated samples with a detection for that same target must be evaluated.

(2) Unless the concentration in the sample is more than 10x the IBLK value, the sample must be reinjected after another compliant IBLK.

(3) Instrument maintenance, like baking the system or injection port maintenance is usually necessary to clean up instrument.

7. Retention time (RT) windows

a. Established as 3× the standard deviation determined over 72 hours or at no less than ±0.02 min, applied to the mid-point initial calibration standard.

b. If the RTs for a CCV fall outside the RT window, update the mid-point RT using that standard.

(1) Save this under the appropriate name to indicate an update has occurred.

(2) RTs cannot be updated more than once per day. All subsequent standards run within a 24-hour period must be within this window.

(3) If RTs are not consistent, the cause must be investigated and corrective action taken.

## Procedure

1. Make injections via an auto sampler.

2. Samples are analyzed according to the sequence in the calibration section above, along with the appropriate check standards.

3. Retention times of peaks in the samples are compared to the standard RT windows.

Peaks present on both columns that are also in the correct ratios to represent an aroclor are quantitated and the high value is reported unless chromatographic anomalies are observed. See *T-PEST-WI9954*.

4. Use a minimum of three to six peaks for quantitation, with the exception of certain mixes where it can be more accurate to use less peaks to avoid excessive overlap of patterns.

5. If significant interference is present, schedule florisil and/or sulfuric acid cleanup. If elemental sulfur is present, copper treat the extract. If these techniques do not reduce the matrix problems, dilute the extract with hexane, analyze, and adjust the LOQs accordingly. Also, the reporting limit for individual aroclors may be raised in instances where matrix interference hinders the recognition of an aroclor pattern in the specified retention time window. The reporting limit is calculated by averaging the concentration of at least 3 peaks in the pattern.

6. Report the results for the least dilute sample where the concentration measured is within the acceptable calibration range.

## Calculations

A. See *T-PEST-WI9847* for details on all calculations/equations used to evaluate the initial and continuing calibration.

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B. Calculation of results is performed according to the following procedures:

1. The peak heights generated by the integration system are used to calculate the calibration factors (CF) for peaks of interest for each aroclor. Usually, the six major peaks that are unique to each aroclor are chosen for quantitation with the exception of 1221 where only three peaks are available.

2. Sample concentrations are calculated per peak using average calibration factor (AVG CF) from the initial calibration for 1016, 1260, 1248, and 1254 where a multi-point calibration is run, single point CF for 1221, 1232, 1242, (a multi-point calibration can also be run for these as requested or necessary to meet client or regulatory agency requirements). Do not use individual peaks that have values <MDL in quantitation.

3.

$$\frac{Sample\ Height}{AVG\ CF\ (CF)} \times \frac{FV}{IV} \times DF = \mu g/L\ as\ received$$

**Where:**

FV = Final volume – 2 or 10 mL

IV = Initial volume – 250 or 1000 mL

DF = Dilution factor, as needed

The final result that is reported is determined as the average of the result for each peak chosen for quantitation:

4. The surrogate results are determined using either AVGRF or linear curve:

$$(Result\ 1 + Result\ 2 + \ldots + Result\ n) / n = Average\ Result$$

a. Using AVGCF from the initial calibration:

$$\frac{Sample\ Height}{AVG\ CF\ (CF)} \times \frac{FV}{IV} \times DF = \mu g/L\ as\ received$$

b. Using linear curve from the initial calibration:

$$[(Sample\ Height - Y - intercept)/Slope] \times \frac{FV}{IV} \times DF = \mu g/L\ as\ received$$

**Where:**
FV = Final volume – 2 or 10 mL
IV = Initial volume – 250 or 1000 mL
DF = Dilution factor, as needed

## Statistical Information/Method Performance

LCS, MS, and RPD are compared to the limits stored in the LIMS. The limits for LCS and MS are statistically derived. Historical data for MS/Ds, LCS/Ds, measurement of uncertainty, is reviewed at least annually. Reporting limits including method detection limits (MDLs) and limits of quantitation (LOQs) are set according to EPA method requirements, are analyzed quarterly, and are evaluated annually. Refer to *QA-SOP11892* for specific guidelines and procedures. Updates to the LIMS are made as needed by the QA Department and only as directed by the manager. The department database is updated via a download from the LIMS.

## Quality Assurance/Quality Control



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A reagent water blank and a reagent water spike (LCS) are analyzed each day with every batch of samples (batch size is 20). An MS/MSD is performed per batch as long as there is ample volume of a sample in the batch. If an MS/MSD cannot be performed, an LCSD must be extracted.

Aroclor 1016 and 1260 are routinely spiked, however, other aroclors can be spiked as requested by clients.

DCB and TCX are added as surrogates to each sample and QC to monitor the efficiency of the extraction, the operation of the autosampler, and to monitor retention times throughout the GC run.

If any client, agency, or state has more stringent QC or batch requirements, these must be followed.

See *T-PEST-WI10011* for details on QC acceptance criteria and corrective action.

## Appendix I

### PCT Analysis ( Aroclor 5442, 5432, and 5460)

A. Standards:

PCT-Stocks - Aroclor 5432 (Accustandard T-4325), 5442, and 5460(Accustandard T-460S) purchased as individually ampulated solutions from Accustandard at 35,000ug/L.

MS stock of Aroclor 5442 - Absolute Cat. #71791. 1000ug/mL in Methanol.

Prepare working standards using the reagent module of the LIMS as a guide.

1. In the reagents module, first enter the reagents in this section as 'source' reagents.

2. Then select 'intermediate' reagent and load the most recent version of the working standard you wish to create for editing or create a new standard if the working standard has not yet been prepared in TALS.

3. The module contains the following information: reagent description (ex. AR161), source reagent code, amount used, final amount, solvent used and solvent lot, concentration of each compound in solution, and expiration date. The working standards have an expiration date of 6 months.

4. The calibration scheme begins at or near the reporting limit through a 20 fold of the initial calibration level.

5. The scheme for preparing the matrix and surrogate spiking solutions used in the extraction process are listed below. The MS and SS working solutions are stored at <-10° C.

| Standard Name | Parent Solution | Aliquot (mL) | Final Volume (mL) | Solvent | Description |
|---|---|---|---|---|---|
| MS | 5422 MS Stock | 0.625 | 125 | Acetone or methanol | PCT Water Spike |
| SS | SS Stock | 3 | 2000 | Acetone or methanol | PCB surrogate |

B. GC Chromatographic Conditions

Detector: ECD
Detector temp: 300°C
Oven Temp: 110°C to 250°C at 40°C/min, 280ºC to 330°C at 30°C/min, hold 9 min.
Carrier: Hydrogen at 5.0 mL/min
Makeup gas: N2 at 80mL/min or equivalent
Injection size: 1-uL, direct injection
Injection temp: 225°C

The conditions listed serve as a guideline only and are typically the optimum operating conditions. The analyst may make any changes to the chromatographic conditions to improve the speed of analysis,

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linearity, sensitivity, and/or improve separation if initial and continuing calibration criteria and quality assurance criteria listed within this analysis document are met.

C. Sequence

1. Conditioner
2. IBLK
3. EVAL
4. AR161
5. AR162
6. AR163
7. AR164
8. AR165
9. AR166
10. AR481
11. AR482
12. AR483
13. AR484
14. AR485
15. AR486
16. AR541
17. AR542
18 AR543
19. AR544
20. AR545
21. AR546
22. PCT1
23. PCT2
24. PCT3
25. PCT4
26. PCT5
27. A4421
28. A4422
29. A4423
30. A4424
31. A4425
32. AR214
33. AR324
34. AR423
35. AR624
36. AR684
37. MD16
38 MDPCTX
39. IC16
40. IC48
41. IC54
42. Blank
43. LCS
44. 1234567
45. 1234567MS
46. 1234567MSD
47-61. Continue running samples
62. AR164
63. PCT3
64. A4424
65. IBLK

T-OE-PEST-WI10281 Cleanup Procedures for the Extraction of Pesticides and Polychlorinated Biphenyls (PCBs)
T-OE-PEST-WI10920 Separatory Funnel Extraction by Method 3510C, 608, or 608.3 for Pesticides and PCBs in a Wastewater
T-PEST-WI10007 Preventative and Corrective GC Maintenance
T-PEST-WI10011 QC Data Acceptability and Corrective Action
T-PEST-WI9847 Common Equations Used During Chromatographic Analyses
T-PEST-WI9954 Interpretation of Chromatographic Data

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End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 7 | 17.MAR.2021 | | |
| 8 | 22.SEP.2021 | | |
| 9 | 13.JAN.2023 | | |

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## Revision Log

| **Revision** | 21 | **Effective Date**: This Version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Procedure B | Clarification | Updated to reflect current process |
| Sample Analysis 3. 4. and 6. | Current Process | Updated to reflect current process |

| **Revision** | 20 | **Effective Date**: April 27,2022 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Header | Clarification | Update to reflect current company name |
| Procedure B.2.c. | Clarification | Updated to reflect current process |
| Sample Analysis 3. 4. and 6. | Current Process | Updated to reflect current process |

## Reference


1. Test Methods for Evaluating Solid Wastes, SW-846 Method 7470A, September 1994

2. Test Methods for Evaluating Solid Wastes, SW-846 Method 7471B, February 2007.

3. Test Methods for Evaluating Solid Wastes, SW-846 Method 7471A, September 1994

4. Method 245.1 (rev. 3), Determination of Mercury in Water by Cold Vapor Atomic Absorption Spectroscopy, USEPA 600/R-94/111 May 1994.

5. *Chemical Hygiene Plan*, current version.


## Cross Reference

| Document | Document Title |
|---|---|
| *T-MET-WI11948* | Preparation of Solids by EPA 7471A or B for Mercury Analysis |
| *T-MET-WI11924* | Digestion of Aqueous Samples by SW-846 Method 7470A |
| *T-MET-WI26740* | Digestion of Aqueous Samples for Mercury by EPA 245.1 |
| *T-MET-WI9084* | Preparation of Mercury Solutions and Standards |
| *QA-SOP11178* | Demonstrations of Capability |
| *QA-SOP11901* | Instrument Maintenance and Calibration |
| *QA-SOP11892* | Determining Method Detection Limits and Limits of Quantitation |
| *QA-SOP11896* | Establishing Control Limits |
| *QA-SOP11886* | Processing Regulatory Compliance (i.e. SDWA, NPDES) Samples |
| *QA-FRM6871* | Do Not Use - Environmental |
| *T-MET-WI35797* | Metals Data Verification Process |


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**Scope**
This method is used for determination of mercury in aqueous and solid samples. The optimum concentration range for this method is 0.2 to 5.0 ppb.

Matrices - EPA 7470A and EPA 245.1 are applicable to water analysis. EPA 7471A and EPA 7471B are applicable to soil and tissue analysis. EPA 245.1 is applicable to drinking water analysis.

Method Detection Limits (MDLs) are based on annual statistical evaluation of laboratory data and are subject to change. The current MDLs and RLs are maintained in the LIMS, and are subject to change without notification.

**Basic Principles**
The Leeman Labs Mercury Analyzer utilizes continuous flow technology with drying of the sample vapor for the analysis of mercury by automated vapor generation. The reaction for the mercury analysis is a simple reduction reaction. The mercury is reduced with stannous chloride to liberate mercury metal and Tin (IV) chloride. An inert gas is used to sweep the volatile mercury into the absorption cell in the optical path of the atomic absorption spectrophotometer. The dry vapor enters one path of the optical cell, which has been optimized for fast response (small diameter), and sensitivity (long length).

Mercury is measured using a solid state detector with a wide dynamic range and a mercury source that delivers a stable source of emission at 254 nm. The signal is referenced to the simultaneous absorbance of air through direct view of the lamp. The system adds Stannous chloride to the samples via a "Y" connection in the pump tubing. The peristaltic pump then carries the sample/stannous mix to the liquid gas separator. Argon gas is bubbled through the liquid and used to transport the volatile mercury into the detector. The mercury is reduced with stannous chloride to liberate mercury metal and Tin (IV) chloride.

**Definitions**

1. CRA - Low Level Check Standard
2. MSA – Method of Standard Additions
3. SPLP - Synthetic Precipitation Leaching Procedure
4. TCLP – Toxicity Characteristic Leaching Procedure
5. QC Type Designators:
    a. BKG – unspiked background sample
    b. DUP – Sample Duplicate
    c. MS – sample spike
    d. MSD – Sample spike duplicate
    e. MB –Preparation Blank (Water/ Solid). Equivalent to a Method Blank (MB)
    f. LCS/LCSD - Laboratory Control Sample/Laboratory Control Sample Duplicate

**Interferences**
Potassium permanganate is added to samples to eliminate possible interference from sulfide. Concentrations as high as 20 mg/L of sulfide as sodium sulfide do not interfere with the recovery of added inorganic mercury from reagent water.

Samples high in chlorides require additional permanganate (as much as 25 mL) because, during the oxidation step, chlorides are converted to free chlorine, which also absorbs radiation of 253.7 nm. Take care to ensure that free chlorine is absent before the mercury is reduced and swept into the cell by using an excess of hydroxylamine sulfate (or chloride) reagent.

Copper has been reported to interfere; however, copper concentrations as high as 10 mg/kg had no effect on recovery of mercury from spiked samples.

**Safety Precautions and Waste Handling**
All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

Preparing samples for inorganic analysis involves working with concentrated acids and other chemicals which are dangerous if not handled carefully:

**Nitric acid (HNO3)** – This acid can cause skin burns. Add nitric acid to samples in a hood to avoid exposure to toxic fumes.

**Sulfuric acid (H2SO4)** – This acid is a strong oxidizing agent and can cause severe burns. Sulfuric acid spills are extremely slippery, adding to the danger. Always use in a fume hood. Never mix with concentrated HCl or concentrated KMNO4 to avoid a violent reaction (explosive splattering and extreme heat).

**Hydrochloric acid (HCl)** – This acid can cause skin burns. Never mix HCl with concentrated H2SO4 to avoid a violent reaction. Always use in a fume hood.

When diluting strong acids, never add water to acid; always add acid to water.

Store concentrated acids in the prep room acid lockers. Only acids are to be stored in these lockers. (Store solvents in the flammable liquid storage cabinet.) Some concentrated acids are kept in the acid reagent bottles on prep room counters. Fill reagent bottles in an operating fume hood using caution to avoid spills.

Perform acid digestions in hoods that are turned on and have active alarms. Notify a supervisor immediately if the hood is malfunctioning or the alarm sounds. Samples that contain dust may be hazardous. Open in a fume hood.

Samples that may contain cyanide require special precautions to avoid exposure to hydrogen cyanide gas. Contact your supervisor prior to adding acid. Always open these samples and add the acid in a hood.

Use spill pillows to absorb large acid spills (small spills are cleaned with wet paper towels.) Use SPILL-X-A powder or equivalent to neutralize any remaining acid and then rinse the area thoroughly with water.

Dispose of acid waste properly. Collect all acid digestions, waste solutions, and expired reagent solutions in waste containers. When the acid waste containers are full, a designated acid waste handler transfers the waste to the acid neutralization tank.

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**Personnel Training and Qualifications**
All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the analyst's training records.

Initially, each analyst performing the instrumental analysis must work with an experienced analyst for a period of time until they can independently calibrate the instrument, use the system to set up sequences, perform the calculations, interpret raw data, and enter data into the LIMS. Proficiency is measured through documented audits of the tasks listed and over checking of data as well as an Initial Demonstration of Capability (IDOC).

The IDOC consists of four laboratory control samples that are carried through all steps of the analysis and meet the defined acceptance criteria. The criteria include the calculation of mean accuracy and standard deviation. Various options are available for a DOC and can include four laboratory control samples or one blind sample. Refer to *QA-SOP11178* for more guidance on these options.

**Sample Collection, Preservation, and Handling**
Aqueous samples are collected in plastic or glass containers, preserved to a pH of <2 with nitric acid. Samples must be analyzed within 28 days of collection.
**NOTE:** Regulatory Drinking Water samples (EW) are collected in 1-L plastic or glass containers and must be analyzed by EPA 245.1. Drinking water samples are not analyzed for dissolved mercury.

Solid samples are collected in glass containers and stored at 0° to 6°C not frozen. Samples must be analyzed within 28 days of collection.

Dissolved Mercury: Samples to be analyzed for soluble mercury requiring filtration at the lab must be submitted unpreserved. The sample is run through a 0.45 micron filter within 5 days of receipt and are collected in plastic containers and preserved to a pH of <2 with HNO3.

Samples must be held for 16 hours following preservation and checked again prior to processing.

Store sample digestates in plastic bottles at room temperature. Store standards and digestates separately.

**Apparatus and Equipment**

1. Hydra II Mercury Analyzer
2. Leeman Labs Envoy software – a windows based program to help navigate the software.
3. 15-mL graduated polypropylene screw cap tubes (certified ± 1%)
4. 10-mL sterile disposable syringes
5. 25-mm syringe filters, PTFE, 0.45-µm
6. 40-mL clear glass VOA vials and lids
7. 50-mL polypropylene containers and covers (digestion vessels for block digestion) - certified clean and Class A equivalent

**Reagents and Standards**
A. Store all standards and reagents in polyethylene or glass containers at room temperature. Label the container with the solution name, lot number, date prepared, the expiration date, the initials of the person preparing the solution, and the storage conditions.

**NOTE:** Standard/ spiking concentration and reagent vendors are subject to change without notification.

B. Reagents use the following or equivalent:

1. Nitric acid, 70.0% to 71.0% HNO3, Fisher Trace Metal Grade reagent, 1.428 g/mL; Store in glass container at room temperature. Follow manufacturer's expiration date.
2. Sodium chloride, NaCl, J.T. Baker, Certified ACS. Store in plastic container at room temperature. Follow manufacturer's expiration date.
3. Hydroxylamine hydrochloride, NH2OH·HCl, J.T. Baker, Certified ACS. Store in plastic container at room temperature. Follow manufacturer's expiration date.
4. Reagent Water
5. Stannous chloride solution, 10% SnCl, Baker Analyzed reagent, ACS. Store in plastic container at room temperature. Follow manufacturer's expiration date.
6. Hydrochloric acid, HCl, 36.5% to 38.0%, Fisher Trace Metal Grade reagent, 1.194 g/mL or equivalent. Store in glass container at room temperature. Follow manufacturer's expiration date.

C. For the preparation of calibration blanks, ICBs, CCBs, calibration standards, ICVs, CCVs, CRAs, Method Blanks, LCSs and Matrix Spikes solutions, see Form *T-MET-WI9084*.

D. General solutions - See Form *T-MET-WI9084*.

NOTE: Method states to use Sulfuric acid when making Stannous Chloride, however, manufacture requires HCl. The lab practices this deviation in order to maintain instrument performance.

**Calibration**
Leeman Labs Hydra II Mercury Analyzer

1. The software program has been developed to check the correlation coefficient of the curve, run appropriate ICV and CCVs at proper intervals, and check the percent recoveries of the ICV and CCVs.
2. Due to the instrument software limitations, the calibration blank is included in the correlation coefficient calculation.
3. A recalibration and reread of any associated samples is required for any checks that fall outside the windows.
4. For the frequency, acceptance criteria and corrective action see SOP *T-MET-WI35797*
5. For the preparation of calibration standards, see *T-MET-WI9084*.
6. The calibration is part of each run shown in the LIMs system

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**Procedure**

A. Sample Digestion

1. Aqueous samples are digested by EPA 7471A/B according to SOP *T-MET-WI11924*.

2. Aqueous samples are digested by EPA 245.1 according to SOP *T-MET-WI26740*.

3. Solid samples are digested according to SOP *T-MET-WI11948*.

B. Leeman Labs Hydra II Mercury Analyzer Operation

1. Instrument Setup

a. If needed, turn ON the power to the instrument (switch in the back) and computer.

b. Ensure that Argon supply is set to 15 psi.

c. Double click the Envoy icon on the desktop to initialize the instrument software.

d. Put on the peristaltic pump cassettes. Do not over tighten.

e. Check to see that the lamp, peristaltic pump and gas are on. If necessary, open the Method/Instrument Control Panel and turn them on and set appropriate parameters.

f. Check that the rinse bottle is full. Place tubing into bottle with a 2.0% Hydrochloric Acid (HCl) solution. For preparation of 2.0% HCl solution, see *T-MET-WI9084*.

g. Check that the 10% stannous chloride bottle is full and place tubing into bottle. For preparation of 10% stannous chloride, see *T-MET-WI9084*.

h. Click the start icon on the Tool Bar to turn on the peristaltic pump and press the green play button.

i. Allow 20 minutes for lamp and pump equilibration.
a) There is an option to use Chart Recorder which displays when the instrument is optimized. To utilize this feature follow these steps
i. Observe Instrument
ii. Stabilization Tools
iii. Chart Recorder : resize window to ~1200 seconds or 10mins.

j. Inspect all system connections for leaks.

k. The system is now ready to be optimized for automated analysis.

2. Autosampler and Run Setup

a. Clear previous analyses
i. Analysis Tab
ii. Tools
iii. Database Manger
iv. Create Archive

b. Scan the samples from their label that is on the sample itself into the Envoy program under the Sequence Tab
i. Select Sequence
ii. New
iii. Select correct rack size
iv. Scan samples in order

c. Check QC
i. Method Tab
ii. QC control checks tab
iii. Modify QC as needed to set pass/fail flags

d. Press Run Sequence (Test tube rack icon): The calibration and sequence will run automatically with CCV and CCB every 10 analyses.

e. The results of the calibration and samples can be observed in the Analysis Tab.

**Sample Analysis**

1. Filtering Samples

a. Samples that are cloudy or have particulate suspended in solution must be filtered prior to analysis.

b. Difficult matrix samples or samples with limited volume may be filtered using a 10-mL sterile disposable syringe fitted with a 0.45 um PTFE syringe filter.

c. If any samples are filtered, the MB and the LCS on the batch must be filtered.

d. Document all filtrations on the run cover sheet.

2. Dilutions

a. Dilute samples with appropriate matrix matching solution when necessary to yield a response that falls within the calibration range.

b. Stop run if sample is above 4.5ppb. Rinse system and dilute sample immediately. Reanalyze. If the subsequent sample analyzed after an over range sample has a detection, reanalyze the subsequent sample as well.

c. Report the results for the least dilute sample where the concentration measured is within the acceptable calibration range.

3. Data Export: follow the below step by step instructions
On the instrument
a. Analysis Tab

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b. Report Tab
c. Select Statisics
d. Select Load
e. Select TALS Export
f. Select OK
g. Check all data on this run
h. Select Report
i. Select CSV File
1.Name CSV file (2034301MO7)
j. Select Save to desktop
k. Drop CSV to IDAT sequence shortcut on desktop
l. Drop CCV to LIMS import shortcut on desktop

4. Attach raw data to run: follow the step by step instructions
On the instrument
a. Analysis Tab
b. Report Tab
c. Select Detailed
d. Select Load
e. Select Detailed TALS
f. Select OK
g. Check all data on this run
h. Select report
i. Select CSV file
1.Name CSV file (2034301MO7)
j. Select Save
k. Drop CSV Raw file to IDAT sequence shortcut on desktop

**NOTE:** Do not paste this report into the TALS import file.

5. See Data Review section for when data is in LIMs system. See SOP *T-MET-WI35797* for final data review.

6. Shutdown

a. Place Stannous Chloride and rinse tubing into 10% HCl for minimum of 5 minutes.

b. Place tubing into reagent water for a minimum of 5 minutes

c. Remove tubing from reagent water to allow the aspirating of air for a minimum of 5 minutes.

Never leave bottle of Stannous Chloride and rinse connected to the instrument if the pump clamps are released because siphoning can occur and cause damage to the instrument.

**NOTE:** Do not turn off power switch to instrument on a daily basis.

**Calculations**
1. Final Result

a. Water sample (ug/L)

$$\text{Instrument Reading} \times \frac{\text{Dilution Volume}}{\text{Aliquot Volume}} \times \frac{\text{Final Volume}}{\text{Sample Volume}}$$

b. Solid sample (mg/kg)

$$\text{Instrument Reading} \times \frac{\text{Dilution Volume}}{\text{Aliquot Volume}} \times \frac{\text{Final Volume}}{\text{Sample Weight (grams)}}$$

2. Relative percent different (RPD)

$$RPD = \frac{S - D}{(S + D)/2} \times 100$$

**Where:**

S = first sample value

D = duplicate sample value

3. Spike recovery

$$\%\,Recovery = \frac{SSR - SR}{SA} \times 100$$

**Where:**

SSR = spiked sample result

SR = sample result

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SA = spike added

4. Correlation Coefficient

$$r = \frac{\sum XY - \frac{\sum X \sum Y}{N}}{\sqrt{\left(\sum X^2 - \frac{(\sum X)^2}{N}\right)\left(\sum Y^2 - \frac{(\sum Y)^2}{N}\right)}}$$

**Where :**

X = the known concentration

Y = the instrument response

N = the total number of data points

5. Serial Dilution

$$\%\ Difference = \frac{(5 \times SDR) - SR}{SR} \times 100$$

**Where:**

SDR = serial dilution result

SR = sample result

6. Methods of standard additions (MSA)

Take 4 identical aliquots of the same sample. Leave one unspiked. Spike the other 3 aliquots with different levels of a standard solution. Add blank solution to sample aliquots so that the final volume is the same for all. Use small volumes of spiking solution to avoid diluting the sample more than 10%. Analyze the 4 aliquots and record the instrument readings in absorbance. Use the readings and spike values to find the slope and x- and y- intercepts. The x- intercept is the result.

$$\text{Slope} = m = \frac{\sum x_i y_i - (\sum x_i \sum y_i)/n}{\sum x_i^2 - (\sum x_i)^2/n}$$

$$\text{Y-Intercept} = b = \bar{y} - m\bar{x}$$

$$\text{Result} = -\frac{b}{m}$$

$$\text{Correlation Coefficient} = r = \frac{\sum \{(x_i - \bar{x})(y_i - \bar{y})\}}{\sqrt{\left[\sum (x_i - \bar{x})^2\right]\left[\sum (y_i - \bar{y})^2\right]}}$$

The correlation coefficient (r) for the least squares fit must be ³0.995. If the r value is <0.995, the MSA must be repeated at the same dilution. If the r value is again low, the result with the higher r value is verified and both are flagged with a "+" in the data package. If the r value is <0.990, the sample is run at an interference dilution to overcome matrix effects. This usually requires a raised limit of quantitation. If a client requests a particular limit of quantitation that prohibits further dilution, then the sample is repeated at the same dilution and the best of the two results is verified.

**Statistical Information/Method Performance**
Generate MDLs and LOQs according to *QA-SOP11892*. The department supervisor maintains annual study data.

QC limits for MS/MSD, and LCS/LCSD are established through statistical analysis of historical data. The limits are maintained in the LIMS for the relevant analysis numbers.

The department supervisor requests that a Quality Assurance Specialist update to the LIMS as needed. Update the department database via a download from the LIMS.

**Quality Assurance/Quality Control**
Batch Quality Control

1. For the preparation and concentrations of Batch Quality Control see *T-MET-WI9084*.
2. For the frequency, acceptance criteria and corrective action see *T-MET-WI35797*.

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3. For EPA 7470A, 7471A, and 7471B, a digestion batch is up to 20 samples. Each batch must contain a MB, LCS, BKG, DUP, MS and MSD (an LCSD is used if there is insufficient sample for an MSD).

4. For EPA 245.1 Rev 3, a digestion batch is up to 10 samples. Each batch must contain a MB, LCS, BKG, DUP, and MS (an LCSD is used if there is insufficient sample for an MSD).

**Data Review**

1. To view imported analytical batch in the LIMS, follow these steps:
    a. Go to Analyst
    b. Choose Analyst Desktop II
    c. Select the instrument where the data is pulled from on the left hand side by expanding the Instrument option
    d. Data will be listed with a designated analytical batch number given by the LIMs system under the instrument where it was analyzed.
    e. Record this designated analytical batch number on prep batch paperwork.

2. How to complete 1st level review of analytical batch
    a. Once analytical batch is located from following steps in #1 double click to open the batch
    b. Choose Edit button
    c. When asked if data should be processed choose No
    d. Edit Standards/Batch QC
        i. Scan calibration standards from prep batch sheet
    e. If PDS is on analytical run enter PDS data
        i. Go to the Reagents tab at the bottom
        ii. Scan lot number of spike used in PDS
        iii. Enter volume of spike used for PDS. Normally this would be 0.1mL to a final volume of 10mL
        iv. Go to Worksheet Tab and enter a final volume for the PDS. Normally, this would be 10mL
    f. Calculate Results
        i. Go to Samples Results Tab
        ii. Highlight all samples by using Ctrl + L
        iii. Right click and choose Identify
        iv. Once samples are and calibration and all identified it is always a good practice to recalculate by hitting F6

    g. Evaluate the Results
        i. Go to the Sample List tab
        ii. Either look at each line individually to ensure calibration and data are valid or filter by job number and evaluate data
        iii. Look for recoveries in the spiked calibration as well as the batch QC
        iv. Look for contamination in blanks
        v. Look for E flags for samples that need to be diluted. If they were diluted check that the dilution makes sense.

    h. Enter Batch Information
        i. Prior to saving batch right click and chose View Batch Information or press Ctrl + 1
            a. If you try to save batch without going to this screen the program will prompt you
        ii. Enter analyst
        iii. Enter Stannous Chloride ID lot #
        iv. Enter tube lot #s if dilutions were made, filtering of samples occurred, or PDS was used
        v. Enter lot number of filters used
        vi. Hit Ok to save

    i. Attach Raw Data
        i. Go to IDAT Sequence folder \\lldata\Env\IDAT-Sequences
        ii. Find the analytical run by searching the unique run number given to it by the analyst.
        iii. Double Click on file once located
        iv. Once file is open, Save As pdf file and name the file the analytical run number give to the data by the LIMs system.
        v. Open Sharefile in Google Chrome
        vi. Go into the Personal Folder and choose Browse Files
        vii. Find File and select Upload
        viii. Once uploaded into Sharefiles go into the analytical batch in the LIMs system and choose Docs button at top
        ix. Right click and select Add New Document
        x. Select the document in the Personal Folder in Sharefiles and hit Select
        xi. Hit OK and now the raw data file is attached into the analytical batch

    j. 1st level data
        i. Once data has been confirmed by analyst to be valid and the raw data is attached go to Sample List tab
        ii. Highlight calibration and samples that are valid (if all samples Ctrl +L to highlight)
        iii. Either do Ctrl + Shift + 1 to turn status to 1st Level or right click, Review Sample, Choose 1st Level Review

**Instrument Maintenance and Repair**

A. Routine Maintenance

1. Replace the pump tubing as needed under normal daily usage.
    a. Inspect tygon supply lines for discoloration and cloudiness
    b. Check peri-pump lines for flattening

2. As needed for foamy samples, replace liquid/gas separator
    a. Remove and rinse the clear front panel
    b. For severe foam replace entire gas box module

3. If liquid has entered the optical cell, check the optical cell and windows, and if needed, clean the optical cell.

    a. Wipe the optical cell with a soapy solution (one drop of liquid Ivory soap to 500 mL reagent water) and warm tap water.

    b. Rinse with reagent water and dry. To speed the drying of the optical cell, connect the heater plug to the optical cell with the windows off for several minutes.

    c. Clean the quartz windows with methanol and a piece of lens paper.

4. Document any maintenance in the Mercury maintenance logbook.

NOTE: Detailed instructions for the maintenance and troubleshooting of the Leeman Labs Mercury Analyzer can be found in the Leeman Labs Hydra II Mercury Analyzer Manual.

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B. Taking an instrument/analysis out of service/returning an instrument/analysis to service.

NOTE: In the event of an equipment failure, perform the steps in SOP *QA-SOP11901*:

1. Document the nature of the failure in the maintenance logbook.

2. Document how and when the defect was discovered.

3. Notify a supervisor or experienced analyst to determine a person who can decide on appropriate action to take.

4. The instrument must be clearly tagged as Out of Service. The tag must be printed from Q-E*QA-FRM6871* contain the following information:

   a. Date taken out of service.

   b. Employee who took the instrument out of service.

   c. Reason for tagout.

5. The date taken out of service and the date returned to service must be documented in the logbook.

6. Document any corrective action that was taken and the result of that corrective action (i.e., system calibration within specifications, etc.) to bring the equipment back into service.

7. Supervisory personnel must perform a documented evaluation and review of instrumentation/equipment where a major or uncommon failure has occurred to assess the potential impact the failure could have on the calibration and/or qualification of the instrument.

8. After a repair, document whether the function has been fixed. Calibration or verification activities are to be performed before the instrumentation is put back into service.

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QA-FRM6871 Do Not Use - Environmental
QA-SOP11178 Demonstrations of Capability
QA-SOP11886 Processing Regulatory Compliance (i.e. SDWA, NPDES) Samples
QA-SOP11892 Determining Method Detection Limits and Limits of Quantitation
QA-SOP11896 Establishing Control Limits
QA-SOP11901 Instrument Maintenance and Calibration
T-MET-WI11924 Digestion of Aqueous Samples by SW-846 Method 7470A
T-MET-WI11948 Preparation of Solids by EPA 7471A or B for Mercury Analysis
T-MET-WI26740 Digestion of Aqueous Samples for Mercury by EPA 245.1
T-MET-WI35797 Metals Data Verification Process
T-MET-WI9084 Preparation of Mercury Solutions and Standards

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End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 19 | 24.NOV.2020 | | |
| 20 | 27.APR.2022 | | |
| 21 | 27.APR.2023 | | |

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| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Metals by ICPMS by Methods SW-846 6020/6020A/6020B(waters, solid, tissue) and EPA 200.8 (waters)** | Level:<br>**Work Instruction** |
| Document number:<br>**T-MET-WI11933** | | |
| Old Reference:<br>**1-P-QM-WI-9018443** | | |
| Version:<br>**13** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **X6TJ**<br>Effective Date: **27-JUL-2022** | Document users:<br>**6_EUUSLA_Metals_ICP-MS Analysis, 6_EUUSLA_Metals_Management, 6_EUUSLA_Metals_Verifiers** | Responsible:<br>**5_EUUSLA_Metals_Manager** |

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Safety Precautions and Waste Handling
Personnel Training and Qualifications
Sample Collection, Preservation, and Handling
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Figure I - Daily Performance Acceptance Criteria and Tuning Solution Concentrations

## Revision Log

| **Revision: 13** | **Effective Date:** | This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Throughout | Combined SOPs | Removed cross references to T-MET-WI11939. |
| Procedure E.2. | Enhancement | Added note to reference Internal Standard Attachment. |
| QAQC 11. | Enhancement | Added note to reference Internal Standard Attachment. Added reference to Verification SOP. |

| Revision: 13 | Effective Date: | This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Attachment | Enhancement | Attachment references internal standards used for analysis |

| Revision: 12 | Effective Date: | This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Throughout | Update to current LIMS | Updated method references to current LIMS |
| Throughout | Combined SOPs | Combined with T-MET-WI18027 and T-MET-215089 |
| Cross Reference | Updated document list | Updated document list to reference combined 7700 and 7900 maintenance procedures into T-MET-21590, and combined operations procedures into this procedure |
| Cross Reference | Formatting requirement per G-DC-FRM7674 | Added prep procedure cross references associated with this analysis and removed higher level references that are not required. |
| Scope | Added Clarification | Added RL is same as LOQ |
| Sample Collection, Preservation, and Handling | Reflects current protocol | Updated to reference water digestion and prep SOPs, and updated temperature for stored aqueous samples. |

## Reference


1. Method 200.8 (rev 5.4), Determination of Metals and Trace Metals in Water and Wastes by Inductively Coupled Plasma-Mass Spectrometry, USEPA 600/R-94/111 May 1994.

2. Test Methods for Evaluating Solid Wastes, SW-846 Method 6020, September 1994.

3. Test Methods for Evaluating Solid Wastes, SW-846 Method 6020A, February 2007.

4. Test Methods for Evaluating Solid Wastes, SW-846 Method 6020B, Rev. 2, July 2014.

5. ESI SC Manual.

6. Agilent 7700 and 7900 Series ICP-MS MassHunter Workstation Guide and Hardware Maintenance Manual.

7. *Chemical Hygiene Plan*, current version.


## Cross Reference

| Document | Document Title |
|---|---|
| *T-MET-WI12065* | Working Instructions for Preparation of ICP-MS Solutions and Standards |

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| Document | Document Title |
|---|---|
| *S-SS-WI10695* | Liquid Sample Preservation, Sample Splitting, and Turbidity for metals by EPA Methods 200.7 and 200.8 |
| *T-MET-WI21590* | Instrument Maintenance for Agilent 7700 and 7900 |
| *T-MET-WI35797* | Metals Data Verification Process |
| *T-MET-WI11925* | Client Specific - 3030 C. Treatment for Acid-Extractable Metals for North Carolina Groundwater Samples |
| *T-MET-WI11938* | Digestion of Waters by EPA 200.7/200.8 for the Analysis of Metals in Water by ICP or ICPMS |
| *T-MET-WI11941* | Sample Preparation of Wastewater and Leachates for Analysis of Total Metals by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP) and Inductively Coupled Plasma Mass Spectrometer (ICP-MS) |
| *T-MET-WI8636* | Sample Prep of Sediments, Sludges, Soils, and Tissues by SW846 3050B for ICP and ICP-MS |
| *T-MET-WI8639* | Sample Preparation of Waters for Analysis of Total Recoverable Metals by ICP-OES and ICP-MS |
| *T-MET-WI8732* | Lab and Field Filtered Waters and <1NTU Drinking Water Preparation for ICP (EPA 200.7, 6010B/C/D) or ICP-MS (EPA 200.8, 6020/A/B) |

## Scope

This procedure applies to analyses performed at Eurofins Lancaster Laboratories Environmental (ELLE) using ICP-MS for identification and quantitation of metallic constituents.

Aqueous undigested samples and digestates (aqueous and solid matrices) are analyzed via this SOP.

Limits of Quantitation (LOQs/RLs), Method Detection Limits (MDLs) and linear ranges are maintained in the LIMS. These are subject to change without notification.

This procedure is used for analysis and instrument operation for the Agilent 7700 and 7900 series ICPMS instruments.

## Routine Methods

| Analyte | Mass |
|---|---|
| Be | 9 |
| B | 11 |
| Na | 23 |
| Mg | 24 |
| Al | 27 |
| K | 39 |
| Ca | 44 |
| Ti | 47 |
| V | 51 |
| Cr | 52 |
| Mn | 55 |
| Fe | 57 |
| Co | 59 |
| Ni | 60 |
| Cu | 63 |
| Zn | 66 |
| As | 75 |
| Se* | 78 |
| Se** | 82 |
| Sr | 88 |
| Mo | 98 |
| | |

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| | |
|---|---|
| Ag | 107 |
| Cd | 111 |
| Sn | 120 |
| Sb | 121 |
| Ba | 137 |
| Tl | 203 |
| Pb 206 | 206 |
| Pb 207 | 207 |
| Pb 208*** | 208 |
| U | 238 |
| *Se 78 is the mass reported from collision cell ICPMS only<br>**Se 82 is the mass reported from non-collision cell ICPMS only<br>***For Pb masses 206, 207 and 208 are summed for calibration and analysis | |

## Basic Principles

ICP-MS is an analytical instrument that uses the energy of inductively coupled plasma to generate ions to be analyzed in the mass spectrometer.

The instruments use a discrete sampling system that first loads the sample into a Teflon sample loop. The sample is then pushed by a carrier solution using a computer controlled peristaltic pump that delivers the sample from the loop into the nebulizer attached to a cooled Scott double pass spray chamber.

The Agilent 7700 (E05) and 7900 (E07/E08/E09) can analyze samples in 3 different modes of operation, although typically analysis is done in 3 mode or No Gas mode only:

1. Mode 1 – no gas. This mode does not use a collision or reaction gas. Elements with a low atomic mass or that have no interferences can be analyzed using the "no gas" mode.

2. Mode 2 – Hydrogen ($H_2$) mode. This mode uses $H_2$ as a reaction gas, since it reacts quickly and efficiently with the Argon-based interfering species, but reacts slowly or not at all with the analyte(s) of interest. In this mode, interferences can be reduced to the level of baseline noise, allowing lower detection limits to be achieved for some difficult elements.

3. Mode 3 – Helium (He) mode. This mode uses He as a collision gas for reliable, predictable removal of unknown matrix interferences. No new interferences are formed in the cell, and no analytes are lost by a reaction.

## Interferences

ICP-MS interferences include isobaric elemental interferences and polyatomic ion interferences derived from the plasma gas, reagents, and/or sample matrix. The Agilent 7900 utilize helium as an inert collision gas to reduce or eliminate many types of polyatomic ion interferences.

Physical interferences caused by the change in sample matrix affecting sample transport and/or nebulization must be compensated for using internal standardization.

Memory interference is the contribution of analyte signal from a previous sample onto the next sample analysis. Adequate rinse time with an appropriate rinse solution of the sample introduction system overcomes any memory interference.

## Safety Precautions and Waste Handling

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state and local laws and regulations.
See the *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

Preparing samples for inorganic analysis involves working with concentrated acids and other chemicals which are dangerous if not handled carefully:

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**Hydrochloric acid (HCl)** – This acid can cause skin burns. Only mix with approved solutions. Always use this chemical in a fume hood.

**Hydrofluoric acid (HF)** – This acid is very toxic and absorbs through the skin without pain. This acid is found at trace levels in standard solutions.
**Hydrogen Peroxide 30% (**H2O2) **-** This oxidizer can cause skin burns. Always use in a fume hood.

**Nitric acid (HNO3)** – This acid can cause skin burns and burning of the respiratory tract. Add nitric acid to samples in a fume hood to avoid exposure to toxic fumes.

When diluting strong acids, never add water to acid; always add acid to water.
Store concentrated acids in the prep room acid cabinets. Only acids are to be stored in these cabinets. Flammable solvents are stored in flammable liquid storage cabinets. Some concentrated acids are kept in the acid reagent bottles on prep room counters. Fill reagent bottles in an operating fume hood using caution to avoid spills.

Large spills are cleaned by HSE. For large spills of concentrated acid, immediately evacuate the area and dial 1-1-1. HSE will use spill pillows to absorb large acid spills (small spills are cleaned with wet paper towels.)

Dispose of acid waste properly. Collect all acid digestions, waste solutions, and expired reagent solutions in waste containers. When the acid waste containers are full, a designated acid waste handler transfers the waste to the acid neutralization tank.

## Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the analyst's training records.

Initially, each analyst performing the instrumental analysis must work with an experienced analyst for a period of time until they can independently calibrate the instrument, use the sequence editor to set up the run, perform calculations, interpret raw data, and enter/transfer data into the LIMS. Proficiency is measured through documented audits of the tasks listed, and checking of data as well as an IDOC (Initial Demonstration of Capability) and continued DOCs (Demonstration of Capability) as defined in *QA-SOP11178*.

The IDOC consists of four laboratory control samples (LCS) that are carried through all steps of the prep and analysis and meet the defined acceptance criteria. The criteria include the calculation of mean accuracy and standard deviation.

## Sample Collection, Preservation, and Handling

Aqueous undigested samples, aqueous digestates, and solid digestates are analyzed via this SOP. Samples must be analyzed within 6 months of collection for all methods in this SOP.

Aqueous samples are collected in plastic or glass containers. Drinking Water samples are collected in 1-L plastic or glass containers. Aqueous samples are preserved with nitric acid with a pH of < 2 and stored at 0° to 6°C, not frozen, or at room temperature.

Aqueous digestates are digested per the method in *T-MET-WI11938* (aqueous samples 200.8), *T-MET-WI8639* (aqueous samples 3005A). Aqueous non-digested samples are prepared per the method in SOP *T-MET-WI8732* (lab and field filtered waters and <1NTU Drinking water). Aqueous samples are stored in 50 ml plastic vials at room temperature.

Solid samples are collected in glass containers and stored at 0° to 6°C, not frozen. Digestates are digested per the method in SOP *T-MET-WI8636*. Solid samples are stored in 100 ml plastic vials at room temperature.

Store standards and digestates separately.

The general practice in the metals group is to discard the digestions after all the required metals from a batch of samples have been analyzed and lab completed in the LIMS. Samples which require the digestate to be held for long term storage are periodically evaluated for discard.

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## Apparatus and Equipment

A. The following is a list of the hardware used in the Agilent 7700 and 7900 ICP-MS systems.

1. Inductively Coupled Plasma Mass Spectrometers (ICP-MS)

a. The Agilent 7700 and 7900 - The sample introduction system consists of an ESI FAST discrete sampling system, Teflon nebulizer and cooled spray chamber attached to a concentric quartz tube plasma torch.

2. Autosampler

a. The Agilent 7700 and 7900 (E08) systems use an ESI SC-8 FAST autosampler. The Agilent 7900 (E07 & E09) systems use an ESI SC-14 FAST autosampler. The autosampler parameters for each automated run are entered into the Sample List in MassHunter software.

3. Coolflow

a. The Agilent 7700 and 7900 G3292A Recirculating Chillers are set up to deliver cooling liquid to the ICP-MS at a regulated pressure of ~40 psi.

4. Computer

a.The Agilent 7700 and 7900 are controlled by a Windows-based IBM compatible PC with MassHunter software installed.

5. Vacuum Pumps

a. The Agilent 7700 and 7900 both have a 2-stage vacuum system. A rotary pump evacuates the interface chamber; a turbo molecular pump evacuates the ion lens chamber and the analyzer chamber.

B. The following is a list of the apparatus necessary for the setup of an ICP-MS run for analysis:

1. ICP-MS prep batch sheets.

2. Test tube racks

3. Graduated 15-mL polypropylene tubes and caps

4. 50-mL polypropylene screw cap tubes

5. FilterMate 2 µm filters and plungers

6. 10-mL sterile disposable syringes

7. 25-mm syringe filters, PTFE, 0.45µm

8. 30-mL polypropylene medicine cups

9. Fixed volume hand-held pipettes (25 – 2000 µL) - Eppendorf or equivalent.

**NOTE:** For routine operation, calibration, and maintenance of fixed-volume, hand-held pipettes, see *QA-SOP11880*.

## Reagents and Standards

Refer to Form *T-MET-WI12065* for reagent and standard information and the preparation of the following standards and solutions

1. ICP-MS Calibration Standards and ICP-MS LOQ Check Standard Solution (CRI)

2. ICP-MS Initial and Continuing Calibration Verification Standards

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3. Interference Check Solutions

4. Rinse/Carrier, Tuning, and Calibration Solutions

5. Internal Standard Solution

6. PDS Solutions

7. General Acids and Chemicals

## Calibration

Before calibration is performed, allow the instrument to warm up for the recommended time, usually at least 15 minutes, if the plasma has been off for 15 minutes or less, or at least 30 minutes if the plasma has been off for more than 15 minutes. Daily tuning requirements must be performed prior to calibration of the instrument and after warm up occurs. Full Tuning and Optimization is done as needed, or when required by the Group Leader or Manager.

Calibration is performed daily. Calibrations consist of a blank and one to three standards, followed by analysis of an ICV, ICB, CCV, CRI, ICSA/ICSAB, LRC, CCV, and CCB.

A single point calibration, consisting of a blank and one standard, is used for all analysis, except Non-TNI samples requiring a multi-point calibration (either MA MCP or CT RCP protocol or a lab note indicating a multi-point calibration is needed). For samples requiring a multi-point calibration the calibration consists of a blank, "S1", "S2", and "S3" standards. The concentrations of the calibration standards are defined in *T-MET-WI12065*.

For data review, acceptance criteria, and corrective action, see *T-MET-WI35797*.

## Procedure

A. Instrument Start Up

This procedure is the same for the Agilent 7700 (E05) and the 7900 (E07/E08/E09) instruments.

1. Power on the ESI autosampler and start the ESI software.

2. Make sure the instrument is powered on before starting the ICP-MS software – the light on the front of the instrument will be red (shutdown mode), orange (standby mode) or green (analysis mode).

3. If the instrument is powered down: flip the main power switch on the back of the instrument to the on position, and then make sure the Foreline Pump (red switch) is also in the on position.

4. Make sure the recirculating chiller power switch is in the on position. If the orange light on the front of the chiller is on, you will need to turn off the chiller and add coolant before turning the chiller back on.

5. Verify that the program is in Online mode – the Hardware tab will have a green check mark if it is online.

6. If the Hardware tab has a red x instead of the green check, click on the arrow down in the Hardware tab and select Communication. Select Online and click OK.

7.Check the Instrument Status pane. The instrument should be in one of three modes: Shutdown (plasma and vacuum off, red light on the front of instrument); Standby (plasma off but vacuum on, orange light on the front of instrument); Analysis (plasma and vacuum on, green light on the front of instrument).

8. If in Shutdown mode click on the Hardware tab arrow down and select Vacuum On – the Foreline pump will start and the instrument will transition to Standby mode.

9. Once Standby mode has been reached select Plasma On from the Plasma tab arrow down.

10. When asked if you want to "Run 'Startup' after plasma ignition?", select No.

11. The plasma will ignite and the instrument will transition to Analysis mode.

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12. Once Analysis mode is achieved you must allow the instrument to warm up for at least 20 minutes before running the EPA Daily Tune check sample.

B. Running the Daily Tune Check

1. To run the EPA Daily Tune check place both probes into the EPA Tune Solution and allow sufficient time for the solution to flush through both lines.

2. Make sure the FAST valve is in the LOAD position.

3. Once the EPA Tune Solution is aspirating into the spray chamber take the following steps to start the EPA Daily Tune check.

4. Click on the arrow down for the Batch tab.

5.Open the batch "~ICPMS.b" by clicking on the file in the drop down menu or the pop up menu if necessary.

6. In the Batch pane select the Acq Method tab then the Tune tab.

7. Right click in the Signal Monitor grid and select Report, then Generate Tune Report.

8. In the window that appears verify that the Report Template selected is as follows:

C:\Agilent\ICPMH\Report Templates\en\Letter\Tune Report\TuneCheckReport.xltx

9. Click Generate. The software will acquire the tune check data from the instrument and a report will be printed.

10. If the EPA Daily Tune fails any of the criteria rerun the tune a second time. If it fails a second time take corrective action before running the EPA Daily Tune check again (maintenance or optimization of tuning parameters).

C. Sample analysis

1. Once the EPA Daily Tune passes all criteria, place the internal standard probe in the internal standard solution and place the carrier probe into the carrier solution.

2. Once the carrier and internal standard solution have flushed through the tubing and are aspirating into the spray chamber, sample analysis can begin.

3. In MassHunter open the method batch file used for analysis. Use ~ICPMS.b for non-potable waters and solids analyses, and ~ICPMS_nogas.b for drinking water analysis.

4. Save the batch with a new name:

YYMDDR## where:

YY is the two digit year
M is the letter of the alphabet corresponding to the month (A for January, B for February, etc.)
DD is the two digit day of the month
R is the letter of the alphabet that changes for each attempted run sequence

Example: For the first run started on March 19 in the year 2012 the batch folder would be named 12C19A01.b

5. Enter the calibration standards and lot numbers in the order of:

ICV/ICB/CRI/ICSA/ICSAB/LRC(s)/Rinse(s)/CCV/CCB

6. Scan all samples into the sample list and add PDS/SD and/or dilutions as needed.

7. Add a CCV/CCB block after every 10 samples (or ending the run) as well as an ending CRI/ICSA/ICSAB as needed per method or project note.

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8. Enter the locations of the samples to match the rack in which they will loaded onto the auto-sampler. Ensure that the order of the samples on the batch paperwork/re-read sheet match the order in which they are loaded.

9. Right click on the sample list and print a copy.

10. Use the print out to confirm the sample ID(s) and locations of the samples on the auto-sampler.

11. Load the auto-sampler based off of the printed out sample list. Sign off on the sample list with your initials, employee number and the date.

12. Keep the sample list with the batch(es) paperwork until the batch is imported into the LIMS. Note the analytical and prep batch(es) numbers on the sample list and give to the Group Leader.

D. Pouring an ICP-MS run (Waters only in 50 mL digestion tubes):

**It is important to minimize any chance of contamination, to both yourself and the samples. Keep your hands and the work area clean at all times. Wear appropriate PPE at all times to prevent exposure to chemicals and samples including lab coat, gloves, and safety glasses, and additional PPE as required by project or health and safety.**

**NOTE:** See Form *T-MET-WI12065* for standards and solutions used during the analytical run.

1. Choose the appropriate prep batch sheet.

**NOTE:** When retrieving the batch from the shelf for the first time, record the batch location on the cap of the prep blank in black sharpie. This saves time when returning the batch to the proper location after analysis and shows that the batch has been poured before and verified to be in the correct order. To prevent more than one batch from being assigned to the same location, the digestion trays all have the location written on the foam holder.

2. Verify that each digestion tube is in the correct order according to the prep sheet. If anything is missing, correct the prep sheet and notify PREP or the Group Leader to correct the LIMS and put the sample back in for digestion. If the order is incorrect, reorder the sample digestion tubes to match the paperwork.

3. For batches prepared in hot blocks in 50-mL digestion tubes or prepared by the MTL_ND method:

a. The only tubes that typically need to be poured for the initial run are the post digestion spike (PDS) and serial dilution (SD)samples. These are prepared using the background sample (BKG) or the duplicate background sample (DUP) when limited sample volume is available.

b. All other samples remain in the 50-mL digestion tubes for analysis.

4. Samples that need to be poured into test tubes:

a. Obtain the appropriate number of tubes.

b. Write the last four digits of the sample number and the dilution factor if greater than 1 on each tube. If the MB or LCS must be in tubes, write MB/LCS and the prep batch number/location on the tubes.

c. Place tubes in test tube racks in the same order as the samples on the prep batch cover sheet and/or re-read.

d. The analyst must ensure that tubes are labeled correctly, that dilutions are performed accurately, and that the dilutions are recorded on the prep cover sheet and/or re-read.

5. Post-digest spike (PDS):

a. A PDS is required for each batch (sample volume permitting).

b. A PDS is prepared by pipetting 0.2 mL of the appropriate PDS solution into a 15-mL graduated test tube, and bringing it to a volume of 10 mL with the background sample, "BKG". If the PDS must be diluted, pipette 0.2 mL of the PDS solution into a 14 mL graduated test tube, add the appropriate amount of background sample, "BKG", and dilute to 10 mL using matrix rinse. If there is limited

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volume for the background sample, "BKG", then the "DUP" may be used for dilutions of the PDS or SD. If the duplicate is used for PDS or SD, make an internal NCM on the analytical batch after analysis.

c. Record the lot number of the PDS solution used on the prep batch cover sheet and/or re-read.

6. Serial dilution (SD)

a. Prepare the SD by diluting the background sample at a dilution that is equal to 5× the dilution factor of the PDS sample (i.e.if PDS= DF1, SD must = DF5; if PDS=DF5, SD must=DF25).

7. Filtering samples

a. Samples that are cloudy or have particulate suspended in solution must be filtered prior to analysis to prevent clogging of the sample introduction system, which causes run failures and instrument down time to correct the problem.

b. Samples that are in the 50-mL digestion tubes may be filtered using the FilterMate filtration devices and plunger or a syringe and syringe filter.

c. Attach a filtration device to the plunger and very carefully insert the filter into the digestion tube until the filter reaches the bottom of the digestion tube.

d. Remove and discard the plunger.

e. An alternative for samples in any type of vessel is to filter using a 10-mL sterile disposable syringe fitted with a 0.45µm PTFE syringe filter.

f. If any samples are filtered, the MB and LCS must also be filtered. If any QC sample is filtered (BKG, DUP, MS, or MSD), then all QC including the MB and LCS must be filtered.

g. Document all filtrations on the prep batch cover sheet.

**NOTE:** It is not necessary to filter all samples (in 50 mL digestion tubes only) that contain particulate, as long as all of the particulate is settled to the bottom of the tube below the 5-mL mark in 50-mL digestion vessels. The sampling depth of the autosampler probe is set such that the tip of the probe is approximately 100 mm above the bottom of the digestion tube. It is necessary to filter all solid samples and to dilute to DF2 prior to analysis.

8. Verify that all samples in the hotblock tray are in the correct position and/or pour each sample (or sample filtrate) into the appropriate tube. Usually, the order of the batch QC is MB, LCS, (LCSD), Bkg, PDS, DUP, MS, (MSD), and SD. Most importantly, the actual positions of the samples in the tray must match the autosampler table used for analysis.

**NOTE:** Immediately prior to beginning analysis, the analyst must visually verify that each sample is in the position indicated in the autosampler table used for the run.

9. If not being analyzed immediately, cap any poured tubes to prevent contamination of the samples (digestion tubes and dilutions prepared in graduated test tubes must be capped tightly except during pouring and/or analysis).

10. Return samples to sample storage, being sure to place the batch back into the location recorded on the prep batch sheet.

11. Record the following on the prep batch cover sheet: initials, employee number, and the date, and lot numbers for PDS, filters, test tubes, as used).

12. NOTES:

a. A PDS and a SD are performed on one sample in each digestion batch. Typically, the background sample is chosen. If the batch QC is split between two samples, the PDS is performed on the background sample accompanied by a matrix spike; the SD is performed on the background sample accompanied by a matrix duplicate. If sample volume is limited, it is acceptable to use the duplicate for the PDS and SD.

b. Batches with only field blanks or equipment blanks do not need a PDS or a SD.

c. Air filter batches need only a SD on one sample in the batch (a PDS is not required).

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d. "As Received" samples are analyzed with a blank and LCS, LCSD (prepared by the analyst).

e. Documentation is of utmost importance. Verify all entries.

E. Data analysis and Import

1. Once the sample run is complete you will switch to or open the Offline ICP-MS Data Analysis program to make any changes to internal standard selection and generate the file for import into LIMS. Note, the Attachment Internal Standard Reference includes the appropriate internal standards to reference for each metal.

2. Once in the Offline ICP-MS Data Analysis program open the batch that contains the run data you are going to process by clicking Open Analysis File (open folder icon or from the File drop down menu).

3. Evaluate appropriate internal standard selection based on the Quality Control section of this SOP and method requirements for the samples analyzed.

4. If it is appropriate to change internal standard selection from the defaults in the method used click the DA Method Editor button (skip to step e. if alternate internal standard selection is not needed).

a. Under Method Development Tasks (in the left pane of the DA Method Editor window) select "FullQuant" under item number 4 (Set up Analysis Parameters).

b. Under the analyte list that appears in the right hand pane of the DA Method Editor you will see a list of the analytes.

c. Change internal standards for any analytes where alternate internal standard selection is both necessary and appropriate.

d. Then click "Return to Batch-at-a-Glance" in the left hand pane.

e. When prompted to "Update Analysis Method?" select "Yes".

f. Click the "Process Batch" button to recalculate all concentration values in the batch folder using the internal standard selections you made while in the DA Method Editor.

5. To generate the file for import into LIMS you must first select all the data rows needed for your run, starting with the ICIS down to the last row in your run. If you restarted the run only select the most recent ICIS and all samples below it.

6. Once the appropriate rows of data are selected click on Tools and select "Upload to TALs" to run the script that compiles the file for import.

7. A pop up will appear once the script is complete stating that the file was created successfully. While the batch is still highlighted click on the Report tab. Generate the raw data PDF's and save them into the respective run's folder.

8. Open the ITUNE app and select the .rep file that was generated along with the tune file for that day. This will generate a new .rep file that will then be copied to the import folder. This will put the run into the LIMs system.

## Calculations

1. Final Result

a. Water sample

$$\text{Instrument Reading} \times \frac{\text{Dilution Volume}}{\text{Aliquot Volume}} \times \frac{\text{Final Volume}}{\text{Sample Volume}}$$

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b. Solid sample (mg/kg)

$$\text{Instrument Reading} \times \frac{\text{Dilution Volume}}{\text{Aliquot Volume}} \times \frac{\text{Final Volume}}{\text{Sample Weight (grams)}}$$

2. Relative percent different (RPD)

$$RPD = \frac{S - D}{(S + D)/2} \times 100$$

**Where:**

S = first sample value

D = duplicate sample value

3. Spike recovery

$$\%\ Recovery = \frac{SSR - SR}{SA} \times 100$$

**Where:**

SSR = spiked sample result

SR = sample result

SA = spike added

4. Correlation Coefficient

$$r = \frac{\sum XY - \frac{\sum X \sum Y}{N}}{\sqrt{(\sum X^2 - \frac{(\sum X)^2}{N})(\sum Y^2 - \frac{(\sum Y)^2}{N})}}$$

**Where :**

X = the known concentration

Y = the instrument response

N = the total number of data points

5. Serial Dilution

$$\%\ Difference = \frac{(5 \times SDR) - SR}{SR} \times 100$$

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**Where:**

SDR = serial dilution result

SR = sample result

6. Methods of standard additions (MSA)
Take either 4 identical aliquots (for 3 point MSA) or 2 identical aliquots (for one point MSA) of the same sample. Leave one unspiked. Spike the other 3 aliquots with different levels of a standard solution (for 3 point MSA) and spike the other aliquot at approximately the indigenous concentration of the sample (for one point MSA). Add blank solution to sample aliquots so that the final volume is the same for all. Use small volumes of spiking solution to avoid diluting the sample more than 10%. Analyze the 4 aliquots or 2 aliquots and record the instrument readings in absorbance. Use the readings and spike values to find the slope and x- and y- intercepts. The x- intercept is the result.

$$\text{Slope} = m = \frac{\sum x_i y_i - (\sum x_i \sum y_i)/n}{\sum x_i^2 - (\sum x_i)^2/n}$$

$$\text{Y-Intercept} = b = \bar{y} - m\bar{x}$$

$$\text{Result} = -\frac{b}{m}$$

$$\text{Correlation Coefficient} = r = \frac{\sum\{(x_i - \bar{x})(y_i - \bar{y})\}}{\sqrt{\left[\sum (x_i - \bar{x})^2\right]\left[\sum (y_i - \bar{y})^2\right]}}$$

The correlation coefficient (r) for the least squares fit must be ³0.995. If the r value is <0.995, the MSA must be repeated at the same dilution. If the r value is again low, the result with the higher r value is verified and both are flagged with a "+" in the data package. If the r value is <0.990, the sample is run at an interference dilution to overcome matrix effects. This usually requires a raised limit of quantitation. If a client requests a particular limit of quantitation that prohibits further dilution, then the sample is repeated at the same dilution and the best of the two results is verified.

7. Average, Standard Deviation and Relative Standard Deviation

The average result, $\bar{x}$, is calculated by summing the individual results and dividing this sum by the number (n) of individual values:

$$\bar{x} = \frac{x_1 + x_2 + x_3 + x_4 + \ldots x_n}{n}$$

Standard deviation is a measure of how precise the average is or how well the individual numbers agree with each other.

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$$\text{Standard deviation, } S = \sqrt{\frac{(x_1-\bar{x})^2+(x_2-\bar{x})^2+(x_3-\bar{x})^2+\ldots+(x_n-\bar{x})^2}{n-1}}$$

Relative standard deviation (RSD) is expressed in percent and is obtained by multiplying the standard deviation by 100 and dividing this product by the average.

$$\text{Relative standard deviation, RSD} = \frac{100\times S}{\bar{x}}$$

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## Statistical Information/Method Performance

Generate MDLs and LOQs according to *QA-SOP11892*.

The department principal scientist and manager maintain annual study data. The department principal scientist, manager, and/or group leader requests that a Quality Assurance Specialist update to the LIMS as needed by department email.

Refer to *QA-SOP11896* for statistical information.

## Quality Assurance/Quality Control

A. For 6020, 6020A and 6020B, each digestion batch (up to 20 samples) must contain a method blank, LCS, and either an BKG, DUP, MS, MSD or an LCS/LCSD (limited volume or approved by manager and QA only).

B. For 200.8, each digestion batch (up to 10 samples) must contain a method blank, LCS, and either an BKG, DUP, MS or an LCS/LCSD (limited volume or approved by manager and QA only). An additional BKG and MS are added for batches over 10 samples up to 20 samples.

C. QC limits for MS/MSD, and LCS/LCSD are established through statistical analysis of historical data.

1. The limits are maintained in the LIMS in Method Limit Groups.

2. The limits are evaluated every 6 months and updated as needed.

3. The limits are subject to change without notification.

D. Batch Quality Control

1. For the preparation and concentrations of Quality Control samples see *T-MET-WI12065*.

2. For the frequency, acceptance criteria and corrective action see *T-MET-WI35797*.

E. Raw data quality checks

1. Make sure that the run is correctly labeled, and dated and that the corresponding prep sheet is attached to the run.

2. Verify that the appropriate Tuning Report is with the run.

3. For run and batch QC/Calibration frequency, acceptance criteria and corrective action, see *T-MET-WI35797* tables.

4. Spike levels of batch QC are available in the LIMS and on T-MET-WI9082.

5. LOQs (RLs), MDLs, and IDLs are available to analysts in the LIMS in Method Limit Groups and Equipment Limit Groups.

6. Check to make sure that all results are not> 90% of the Linear Range, according to LIMS Equipment Limit Groups. If a sample reading is above 90% of the linear range, then reread the sample at a dilution sufficient to bring the sample concentration to approximately the middle of the calibration range.

7. Check that the **absolute** value of all non-detected analytes is less than the RL. A technical decision must be made as to whether a reread is warranted for readings <|RL|.

8. Check for carryover between samples. Sample RSD >20%, with a concentration > the LOQ decreasing progressively over time (i.e., Reading 3<2<1). Flag any suspect samples for reread.

**NOTE:** Whenever a sample is encountered that exceeds the calibration range, the following sample must be checked for carryover for the over range analyte (s) and any suspect results must be deselected and reanalyzed. During reanalysis the sample order must be modified as needed to avoid carryover from any over range sample(s).

9. For all EW (samples from public drinking water sources), highlighted mint green in the LIMS, check the results against the MCL (maximum contaminant level) by reviewing the limits tab in analyst desktop II. If an analyte **exceeds** the MCL, is a certified analyte for the SDWA method, and is associated with a mint green compliance drinking water sample, notify the verification group at once by NCM or email. An automated email is sent to the Client Service Representative and the state for the analytes listed below with the exception of Pb and Cu which follow the 90$^{th}$ percentile rule (the CSR tracks the lead and copper and notifies the supplier when necessary). Suppliers must be notified within the required time limit as stated in QA-SOP11886.

10. To avoid the risks associated with polyatomic interferences in wastewater and soil matrices all analytes must be analyzed on the collision cell ICP-MS instruments which include Agilent 7900, Equipment E07 - 27813, Equipment E08 - 30647, Equipment E09 - 30921).

a. Because EPA 200.8 rev. 5.4 does not currently allow the analysis of drinking water samples using collision cell ICP-MS all drinking water samples must be analyzed using a method with no gas mode for all analytes on the Agilent 7700, which includes Equipment E05 - 19204.

11. Check the internal standard level for the entire run. Reference the Internal Standard Reference attachment in this SOP for the appropriate internal standards to use for each metal. If the internal standard reading for any sample is out of the acceptance range of the S0 reading, evaluate whether this is a result of the sample matrix or drift from other samples in the run. Only reread the sample at a dilution if the internal standard appears to be out of range due to the sample matrix. For samples where an internal standard is above the acceptance range it is acceptable to reprocess the data using an alternate internal standard. This is the preferred approach in order to avoid raised reporting limits. The acceptance criteria differ based on the method being used. Refer to *T-MET-WI35797* for the method acceptance criteria.

**NOTE:** The internal standard is added in equal concentration to all of the samples and standards via a dedicated line on the peristaltic pump. The analytical lines referenced to an internal standard report a corrected concentration value based on the ratio of analyte to internal standard intensities. All the calculations for determining concentration are based on Intensity Ratio (IR). The IR is defined as the background corrected intensity signal of the

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analyte line (Ia) divided by the internal standard value (Iis). IR= Ia/Iis.

12. For TCLP and SPLP samples, an MSA (method of standard additions) is required if:

a. The sample concentration falls between 80% and 100% of the regulatory limit.

b. If the TCLP or SPLP matrix spike (QA) recovers <20%, all samples in the leachate batch must be reanalyzed using the method of standard additions for that analyte.

13. When items 1 – 12 are complete, check the following:

a. All samples requiring reread/redigestion are listed on the reread paperwork, and redigestions are communicated to the verification group by email.

b. The data are uploaded to LIMS via data transfer to TALS.

**Figure I - Daily Performance Acceptance Criteria and Tuning Solution Concentrations**

| | |
|---|---|
| Be (9) | 10 or 100 PPB |
| Mg (24) | 10 or 100 PPB |
| Co (59) | 10 or 100 PPB |
| In (115) | 10 or 100 PPB |
| Pb (208) | 10 or 100 PPB |
| CeO/Ce | <3% |
| Ce++/Ce | <3% |
| Background | <30 cps @ Mass 220 |
| RSD | <5% |
| Peak Width at 10% Peak Height | <0.9 AMU |
| Res/Axis | < +/- 0.1 AMU from unit mass |

Attachment:
Internal Standard Reference (.pdf)

Q-EQA-FRM6869 Nonconformance Form
QA-SOP11178 Demonstrations of Capability
QA-SOP11880 Laboratory Support Equipment - Calibrations, Verifications, and Maintenance
QA-SOP11892 Determining Method Detection Limits and Limits of Quantitation
QA-SOP11896 Establishing Control Limits
QA-SOP11901 Instrument Maintenance and Calibration
S-SS-WI10695 Liquid Sample Preservation Checks, Turbidity Checks, and Sample Splitting
T-MET-FRM8822 ICPMS Analysis
T-MET-WI11925 Client Specific - 3030 C. Treatment for Acid-Extractable Metals for North Carolina Groundwater Samples
T-MET-WI11938 Digestion of Waters by EPA 200.7/200.8 for Analysis of Metals by ICP/ICPMS
T-MET-WI11941 Digestion of Water and Leachates by EPA 3010A for Metals
T-MET-WI12065 Preparation of ICP-MS Solutions and Standards
T-MET-WI21590 Instrument Maintenance for Agilent 7900
T-MET-WI35797 Metals Data Verification Process
T-MET-WI8636 Sample Prep of Sediments, Sludges, Soils, and Tissues by SW846 3050B for ICP and ICP-MS
T-MET-WI8639 Digestion of Waters and Leachates by EPA 3005A for Analysis of Metals by ICP/ICPMS
T-MET-WI8732 Lab and Field Filtered Waters and <1NTU Drinking Water Preparation for ICP (EPA 200.7, 6010B/C/D) or ICP-MS (EPA 200.8, 6020/A/B)

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**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 11 | 12.NOV.2020 | | |
| 12 | 15.APR.2022 | | |
| 13 | 27.JUL.2022 | Reviewed on the week on 07.19.2023, no changes needed | |

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| Mass - Element | Possible ISTD | Internal Standard Elements | | | | |
|---|---|---|---|---|---|---|
| | | Sc - 45 | Ge - 72 | In - 115 | Tb - 159 | Bi - 209 |
| 9 - Be | Sc | DEFAULT INTERNAL STANDARD | Possible Use As Internal Standard | | | |
| 11 - B | Sc | | | | | |
| 23 - Na | Sc + Ge | | | | | |
| 24 - Mg | Sc + Ge | | | | | |
| 27 - Al | Sc + Ge | | | | | |
| 39 - K | Sc + Ge | | | | | |
| 44 - Ca | Sc + Ge | | | | | |
| 47 - Ti | Sc + Ge | | | | | |
| 51 - V | Sc + Ge | | | | | |
| 52 - Cr | Sc + Ge | | | | | |
| 55 - Mn | Sc + Ge | | | | | |
| 57 - Fe | Sc + Ge + In | | | | | |
| 59 - Co | Sc + Ge + In | Possible Use As Internal Standard | | DEFAULT INTERNAL STANDARD | | |
| 60 - Ni | Sc + Ge + In | | | | | |
| 63 - Cu | Sc + Ge + In | | | | | |
| 66 - Zn | Sc + Ge + In | | | | | |
| 75 - As | Sc + Ge + In | | | | | |
| 78 - Se | Sc + Ge + In | | | | | |
| 88 - Sr | Ge + In | | | | Possible Use As Internal Standard | DEFAULT INTERNAL STANDARD |
| 98 - Mo | Ge + In | | | | | |
| 107 - Ag | Ge + In + Tb | | | | | |
| 111 - Cd | Ge + In + Tb | | | | | |
| 120 - Sn | Ge + In + Tb | | | | | |
| 121 - Sb | Ge + In + Tb | | | | | |
| 137 - Ba | In + Tb | | | | | |
| 203 - Tl | Tb + Bi | | | | | |
| 208 - Pb | Tb + Bi | | | | | |
| 238 - U | Tb + Bi | | | | | |

| ISTD Elements |
|---|
| Sc - 45 |
| Ge - 72 |
| In - 115 |
| Tb - 159 |
| Bi - 209 |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**pH by EPA 9045C, 9045D and Corrosivity by SW-846 Chap 7 of Solids, Soils, and Solvents using Electrometic Methods** | Level:<br>**Work Instruction** |
| Document number:<br>**T-WC-WI11518** | | |
| Old Reference:<br>**1-P-QM-WI-9011685** | | |
| Version:<br>**15** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **X6TJ**<br>Effective Date: **15-NOV-2023** | Document users:<br>**EUUSLA_Water Quality_Manager, EUUSLA_Water Quality_Misc Analysis, EUUSLA_Water Quality_Verification** | Responsible:<br>**EUUSLA_Water Quality_Manager** |

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## Revision Log

| **Revision** | 15 | **Effective Date:** | This version |
|---|---|---|---|
| **Section** | **Justification** | | **Changes** |
| Revision Log | Formatting requirement | | Removed revision logs up to the previous version |
| Reference Modification | Current process | | Addition of stirring sample for both ORP and pH |
| Cross Reference | Higher level documents are not required to be referenced | | Removed QA-SOP11880 |
| Procedure 3. | Current process | | Added step to stir for 5 minutes for ORP then proceed to step 5 |
| Quality Assurance/Quality Control | Update | | Update to current standard QA/QC table |

| **Revision** | 14 | **Effective Date:** | April 22,2021 |
|---|---|---|---|
| **Section** | **Justification** | | **Changes** |
| Revision Log | Formatting requirement | | Removed revision logs up to the previous version |
| Throughout Document | Current process | | Update to new LIMS |
| Cross Reference | Higher level documents are not required to be referenced | | Removed QA-SOP11880 |

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| Revision | 14 | Effective Date: | April 22,2021 |
|---|---|---|---|
| Procedure 10. | Current process | | Added step 10 - to read the 2 and 12 standards when analyzing samples for corrosivity |
| Procedure | Current Process | | Removed previous step 11. Units are reported as S.U. |
| Quality Assurance/ Quality Control | Clarification<br><br>Current process | | Added acceptance range for CCVs.<br><br>Removed requirement to analyze the 2 and 12 standards before any samples<br>Removed step to read pH 3 times for corrosivity |

## Reference


1. Test Methods for Evaluating Solid Wastes, SW-846 Method 9045C, January 1995.

2. Test Methods for Evaluating Solid Wastes, SW-846 Method 9045D, November 2004.

3. Test Methods for Evaluating Solid Wastes, SW-846 Chapter 7.

4. *Chemical Hygiene Plan*, current version.


## Cross Reference

| Document | Document Title |
|---|---|
| *T-WC-WI11519* | pH Probes and Meters |

## Scope

This SOP provides the guidelines for analysts performing pH on solid, soil, and solvent samples. This procedure is applicable to solid/soil/solvent samples.

The sensitivity limit for this technique is 0.01 pH units.

## Basic Principles

A 1:1 slurry is prepared and the activity of hydrogen ions in the supernatant is measured using a combination pH electrode.

Determination of corrosivity is based on the pH value of the sample.

## Reference Modifications

Method 9045C/D has been modified for the analysis of solid, soil, and solvent samples in the following ways:

1. An Automatic Temperature Compensator is used for all samples instead of manually performing calculations to correct measured pH values if the sample and buffer solution temperatures differ by more than 2°C.

2. 25 g of soil to 25 g reagent water is used instead of the 20 g: 20 mL ratio.

3. The samples are tumbled for approximately 30 minutes instead of being stirred with a stir bar for 5 minutes. Samples that are analyzed for both ORP and pH are stirred with a sir bar for 5 minutes and analyzed immediately for both analyses. Both are shown to have acceptable precision according to a duplicate analysis study.

These modifications are performed in order to allow for adequate agitation and to provide sufficient supernatant to immerse the pH electrode during analysis.

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## Interferences
Interferences occur when oily or particulate matter adheres to the electrodes and reduces the response. Gentle wiping or rinsing with reagent water usually corrects this problem. Temperature effects are compensated for by calibrating the pH meter at the temperature of the sample or using a pH meter equipped with temperature compensators. There are no means of controlling temperature effects caused by shifts in ionic equilibria of the sample.

## Safety Precautions and Waste Handling
All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention. Standard safe laboratory procedure must be followed as outlined in the Chemical Hygiene Plan.

## Personnel Training and Qualifications
All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the analyst's training records.

Initially, each technician performing these techniques must work with an experienced technician for a period of time until they can independently perform the procedure. Proficiency is measured through an Initial Demonstration of Capability (IDOC).

The IDOC and the DOC consists of four pH readings of the 7.00 pH buffer (which is used as the laboratory control standard) that are carried through all steps of the procedure and meet the defined acceptance criteria. The criteria include the calculation of mean accuracy and standard deviation.

## Sample Collection, Preservation, and Handling
Sample must be collected in an unpreserved container and stored at 0° to 6°C; not frozen, until the time of analysis. There is no published holding time for pH analysis on soil; analysis is performed as soon as possible after sample is received in the laboratory.

## Apparatus and Equipment
1. Analytical balance capable of weighing 0.0001 g

2. pH meter equipped with an ATC probe (Automatic Temperature Compensator)

3. Combination electrode or equivalent

4. Stir bar and stir plate

## Reagents and Standards
1. 7.00 pH Buffer (ISO 17034 certified standard) – Control Company (Fisher Scientific Catalog 15-078-281) or equivalent, purchased; see container for shelf life information.

2. Appropriate pH electrode filling solution for electrode, purchased. Store at room temperature. See label for expiration date.

## Calibration
Balances must be calibrated each day before use.

Calibrate pH meter as described in *T-WC-WI11519*.

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## Procedure

1. Make sure the pH meter has been calibrated within the last 24 hours.

2. Weigh 25 ± 0.5 g of sample into a clean specimen cup and add 25 ± 0.5 mL of reagent water (makes a 1:1 slurry).

If the sample absorbs the water, add an additional 25 ± 0.5 mL of reagent water (makes a 1:2 slurry). If a 1:2 slurry does not provide sufficient supernatant to immerse the pH electrode, use less sample and add reagent water in proportion to the weight selected. Enter a comment in LIMS indicating the dilution.

3. Tightly place the screw-cap lid on the sample and mix the slurry in the tumbler for approximately 30 minutes. If ORP is also analyzed, stir the samples with a stir bar for 5 minutes and proceed to step 5.

4. Remove the sample from the tumbler and allow the sample to settle for about 1 hour.

5. Rinse and shake off any water on the electrodes.

6. Dip the electrodes into the supernatant (aqueous layer) of the sample and allow to equilibrate. If necessary, decant or pipette this layer into another container.

7. Using the calibrated, pH meter note the pH value of the sample after the meter equilibrates, and enter the value in the LIMS.

**NOTE**: If pH reading is < 4.00 or >10.00, then the pH result will be reported with a qualifying flag.

8. Note the temperature of the sample and record the value in LIMS.

9. Rinse and clean the electrodes before proceeding to the next sample.

10. If corrosivity is to be reported, read the pH 2 and 12 standards and record the pH value.

11. Corrosivity is determined from the sample's pH reading. A "Yes" or "No" response is entered for the corrosivity result, depending on the pH value. A sample is considered corrosive if the pH is <2 or >12, warranting a "Yes" result. A sample with a pH value from 2 to 12 has a corrosivity result of "No".

## Calculations

Not applicable.

## Statistical Information/Method Performance

Not applicable to this procedure

## Quality Assurance/Quality Control

1. Batch size - a batch contains up to 20 samples, analyzed within a 24 hour period

2. See Table I for QC acceptance criteria. If acceptable results cannot be obtained and the client requests that the data be reported, the data must be qualified to note that the method criteria were not met.

3. For every batch, a LCS, and two DU must be analyzed. When there is not enough sample to perform a DU, a LCSD must be performed. If 10 or fewer samples are on a batch then only one DU is required.

4. Every ten samples analyzed must be bracketed by CCVs.

5. When analyzing for Corrosivity, a pH check using buffers 2 and 12 must be analyzed.

6. If the meter must be re-calibrated during the analysis, a LCS must be analyzed after the calibration is performed.

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5. Follow Project Notes in the LIMS for any additional unique client requirements.

6. See LIMS for current quality control acceptance windows.

Table I – QC Frequency and Acceptance Criteria

| QC Check | Minimum Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|---|
| CCV (7.00 S.U. pH solution) | After every 10 samples and at the end of a batch | 90 – 110% | Re-analyze samples bracketed by failing CCVs |
| LCS (7.00 S.U. pH solution) | 1 per batch at the beginning of each batch | Per statistical evaluation, see LIMS for current limits | If reanalysis cannot be performed, data must have an NCM explaining the LCS qualification. |
| LCSD (7.00 S.U. pH solution) | Per Client or regulatory requirement | Per statistical evaluation, see LIMS for current limits | If reanalysis cannot be performed, data must have an NCM explaining the LCS qualification. |
| Sample Duplicate (DU) | 1 per 10 samples analyzed (2 per batch of 20) | Per statistical evaluation, see LIMS for current limits | Data are qualified |

T-WC-WI11519 pH Probes and Meters

End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 13 | 27.JUN.2019 | | |
| 14 | 22.APR.2021 | Annual review completed on 4/28/2022, no changes needed. | |
| 15 | 01.NOV.2023 | | |

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| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Polychlorinated Biphenyls (PCBs) in Solid Samples by 8082A Using GC-ECD** | Level:<br>**Work Instruction** |
| Document number:<br>**T-PEST-WI10004** | | |
| Old Reference:<br>**1-P-QM-WI-9015110** | | |
| Version:<br>**11** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **X6TJ**<br>Effective Date: **01-JUN-2022** | Document users:<br>**6_EUUSLA_Pesticide Residue Analysis_All Management, 6_EUUSLA_Pesticide Residue Analysis_PCB Chemist** | Responsible:<br>**5_EUUSLA_Pesticide Residue Analysis_Manager** |

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Appendix I

## Revision Log

| **Revision:** 11 | **Effective Date:** | This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Personnel Training and Qualifications | Clarification | Added LCS as IDOC criteria per 8000D |
| Calibration 8 | Clarification | Updated iblk injection to before or after based on client requirement |
| Statistical Information/Method Performance | Current process | LOQ verification is included in the MDLs SOP. |

| **Revision:** 10 | **Effective Date:** | 16.MAR.2021 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Throughout Document | New LIMS | Removed references to old LIMS analysis numbers |
| Throughout Document | Reflects current practice | Removed references to obsolete work instructions T-PEST-WI10016 and T-PEST-WI10022 |
| Reagents and Standards B.18 | New LIMS | Updated reagent database information |
| Calibration 5.f.(3) | Enhancement | SOP mentioned that quadratic fit may not be used for SC samples, but use of quadratic fit was not discussed. Added discussion about quadratic fit requirements. |
| Appendix I | New LIMS | Updated reagent database information |

## Reference

1. *Test Methods for Evaluating Solid Waste*, SW-846, Method 8082A, February 2007.
2. Determinative Chromotographic Separations, SW-846, Method 8000D, July 2014
3. *Chemical Hygiene Plan*, current version.

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## Cross Reference

| Document | Document Title |
|---|---|
| *T-OE-PEST-WI10922* | Ultrasonic Extraction for PCBs in a Solid Matrix by Method 3550C |
| *T-OE-PEST-WI10927* | Microwave Extraction Method 3546 for PCBs in a Solid Matrix |
| *T-OE-PEST-WI10281* | Cleanup Procedures for the Extraction of Pesticides and Polychlorinated Biphenyls (PCBs) |
| *T-PEST-WI10011* | QC Data Acceptability and Corrective Action |
| *T-PEST-WI9954* | Interpretation of Chromatographic Data |
| *T-PEST-WI10007* | Preventative and Corrective GC Maintenance |
| *T-PEST-WI9980* | Monitoring QC Data Acceptance Limits |
| *T-PEST-WI9847* | Common Equations Used During Chromatographic Analyses |

## Scope

This method is used for identifying and quantitating the following PCBs in solid samples and wipes using SW846 8082A:

| Compound | Soil LOQ (µg/kg) | Wipes LOQ (µg) | Tissue LOQ (µg/kg) |
|---|---|---|---|
| Aroclor 1016 | 17 | 0.5 | 34 |
| Aroclor 1221 | 17 | 0.5 | 34 |
| Aroclor 1232 | 17 | 0.5 | 34 |
| Aroclor 1242 | 17 | 0.5 | 34 |
| Aroclor 1248 | 17 | 0.5 | 34 |
| Aroclor 1254 | 17 | 0.5 | 34 |
| Aroclor 1260 | 17 | 0.5 | 34 |
| Aroclor 1262 | 17 | 0.5 | 34 |
| Aroclor 1268 | 17 | 0.5 | 34 |

Aroclors 5422, 5432, and 5460 can be analyzed upon request of the client. See Appendix I for GC operating conditions and calibration information.

| Compound | Soil LOQ (µg/kg) |
|---|---|
| Aroclor 5422 | 33 |
| Aroclor 5432 | 33 |
| Aroclor 5460 | 33 |

Limits of Quantitiation (LOQs) are based on statistical evaluation of laboratory data and are subject to change. The current Method Detection Limits (MDLs) and LOQs are maintained in the LIMS.

## Basic Principles

A solid sample or entire wipe is extracted using sonic probe with 1:1 methylene chloride:acetone, or microwave extraction with hexane. The extract is dried, concentrated, and exchanged to hexane. A florisil and sulfuric acid cleanup is utilized to reduce any matrix interferences. The PCBs are then identified and quantitated using gas chromatography (GC) with electron capture detector (ECD). Copper cleanup may also be employed to reduce elemental sulfur or other matrix interferences which introduce large, unresolvable peaks into the chromatogram. Refer to *T-OE-PEST-WI10281* for details on each cleanup procedure.

Solid matrices other than soil can also be analyzed as long as the sample can be handled through the extraction technique. Typically solids are reduced to small pieces for extracting (concrete, wood, other plant material etc). Tissue samples are ground and homogenized prior to extracting. Tissue samples may be whole fish, filets, or other miscellaneous species (usually aquatic but not necessarily). Wipe samples are analyzed by taking the entire wipe sample and any solvent in the sample container.

## Reference Modifications

Gas Chromatography conditions are different than those listed in Method 8082A, however, all QC criteria are met.

## Interferences

Avoid contact with any plastic material during the extraction and analysis procedures to minimize interferences from phthalate esters.

Scrupulously clean all glassware to minimize interferences caused by laboratory contaminants.

An electron capture detector (ECD) is very sensitive to compounds that contain halogens and will also respond to many other compounds and materials including oxygenated organics, unsaturated organics, and elemental sulfur.

Extracts may require further cleanup by sulfuric acid, florisil, or copper if interferents such as oxygenated organics, unsaturated organics, and elemental sulfur are present. Refer to *T-OE-PEST-WI10281*

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for details on each cleanup procedure.

Common single component pesicides such as DDT, DDD, and DDE may cause interference with the aroclor pattern. To ensure that the analyst is aware of this, a standard containing DDE/DDD/DDT will be run with each initial calibration.

## Safety Precautions and Waste Handling

See *Chemical Hygiene Plan* for generalinformation regarding employee safety, waste management, and pollution prevention.

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

Gloves, lab coats, and safety glasses must be worn when preparing standards. Safety glasses must be worn around the GC where solvents and sample extracts are handled.

GC vials are disposed of in the designated lab container and subsequently lab packed for final disposal. All solvent waste is placed in designated containers in the laboratory then taken to the lab-wide facility by personnel trained in hazardous waste disposal.

## Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the analyst's training records.

Initially, each analyst performing instrumental analysis must work with an experienced analyst for a period of time until they can independently calibrate the instrument, use the chromatography data system to set up sequences, perform the calculations, interpret chromatograms, perform instrument maintenance, and enter data into the LIMS. Proficiency is measured through documented audits of the tasks listed and over checking of data as well as an Initial Demonstration of Capability (IDOC).

The IDOC consists of four laboratory control samples that are carried through all steps of the analysis and meet the defined acceptance criteria. The criteria include the calculation of mean accuracy and standard deviation (per EPA 8000D the criteria are the statistical LCS window, and RPD </= 20%). Various options are available for a DOC and can include four laboratory control samples or one blind sample.

## Sample Collection, Preservation, and Handling

Samples are collected in wide-mouth glass containers with Teflon™-lined caps and kept cool at 0° to 6°C, not frozen.

PCBs have no maximum recommended holding time for the extraction. Some agencies or projects may require a specific hold time for the extraction. If the hold time is specified in the project, this hold time must be followed. Sample analysis must be performed within 40 days of extraction. Extracts are stored in the freezer at ≤-10°C

## Apparatus and Equipment

1. HP 7890 gas chromatograph equipped with an electron capture detector or equivalent
2. Columns:
    a. Phenomonex MultiRes I – 30 m × 0.32 mm × 0.5 µm or equivalent
    b. Phenomonex MultiRes II – 30 m × 0.32 mm × .25 µm or equivalent
    c. Alternatively, Restek columns can be used.
3. Integrating system such as Chrom Perfect® by Justice Laboratory Software, or equivalent. Chrom Perfect® is a data system capable of storing and reintegrating chromatographic data and determining peak areas using a forced baseline, area summation, baseline projection, and performing baseline compensation as required.
4. Various sizes of Class A volumetric flasks, pipettes, and syringes

## Reagents and Standards

A. Reagents
    1. Hexane for autosampler rinse vials, stored at room temperature.
    2. UPC (Ultra pure carrier) helium for carrier gas
    3. UPC nitrogen for detector make-up gas
    4. UPC hydrogen for carrier, either bottled or from a generator

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B. Standards

1. All standards are prepared using Class A volumetric pipettes, syringes, and flasks.
2. An analytical balance is used to measure all weights.
3. Unopened ampules are stored according to the manufacturer's instructions and are stable until the expiration date provided by the manufacturer.
4. All prepared standard solutions are stored at ≤-10°C in labeled containers or vessels.
5. Aroclor 1016 & 1260 stock – Restek #32039 at 1,000,000 ppb in isooctane or equivalent. Prepare a ten-fold dilution for an intermediate.
6. Aroclor 1016 ICV Stock – Accustandard Cat# C-2165-H-10X at 1,000,000 ppb in Hexane.
7. Aroclor 1260 ICV Stock - Accustandard Cat# C-2605-H-10X at 1,000,000 ppb in Hexane.
8. Aroclor 1221 stock – Restek #32007 at 100,000 ppb in isooctane or equivalent. Two lots are kept on hand to provide a second source.
9. Aroclor 1232 stock – Restek #32008 at 100,000 ppb in isooctane or equivalent. Two lots are kept on hand to provide a second source.
10. Aroclor 1242 stock – Restek #32009 at 100,000 ppb in isooctane or equivalent. Two lots are kept on hand to provide a second source.
11. Aroclor 1248 stock – Restek #362010 at 1,000,000 ppb in isooctane or equivalent. Two lots are kept on hand to provide a second source. Prepare an intermediate by diluting 1 mL to 10 mL of hexane.
12. Aroclor 1254 stock – Restek #32011 at 1,000,000 ppb in isooctane or equivalent. Two lots are kept on hand to provide a second source. Prepare an intermediate by diluting 1 mL to 10 mL of hexane.
13. Surrogate stock (SS) – Supelco #861284 containing DCB/TCX at 200,000 ppb in acetone or equivalent. Prepare an intermediate by diluting 1.0 mL to 25 mL of hexane for AR1016/1260, AR1254, AR1248.
14. 1016/1260 Matrix spike (MS) stock – Restek #32039 at 1,000,000 ppb in hexane or equivalent.
15. Aroclor 1262 stock – Restek #32409 at 1,000,000 ppb in hexane or equivalent. Prepare an intermediate by diluting 1 mL to 10 mL of hexane.
16. Aroclor 1268 stock – Restek #32410 at 1,000,000 ppb in hexane or equivalent. Prepare an intermediate by diluting 1 mL to 10 mL of hexane.
17. Instrument Blank (IBLK) – Surrogate Stock (SS) – Restek #32000 containing Decachlorobiphenyl (DCB) and Tetrachlorometaxylene (TCX) at 2000,000 ppb in acetone or equivalent.
18. Prepare working standards using the reagents module of the LIMS as a guide.
    a. In the reagents module, first enter the reagents in this section as 'source' reagents.
    b. Then select 'intermediate' reagent and load the most recent version of the working standard you wish to create for editing, or create a new standard if the working standard has not yet been prepared in TALS.
    c. The module contains the following information: reagent description (ex. AR161), source reagent code, amount used, final amount, solvent used and solvent lot, concentration of each compound in solution, and expiration date. The working standards have an expiration date of 6 months.
    d. The calibration scheme begins at or near the reporting limit through a 20 fold of the initial calibration level.
    e. The scheme for preparing the matrix and surrogate spiking solutions used in the extraction process are listed below.

| Standard Name | Parent Solution | Aliquot (mL) | Final Volume (mL) | Solvent | Description |
|---|---|---|---|---|---|
| PCB Spike | Aroclor 1016/1260 MS Stock | 1.25 | 250 | Acetone | PCB Spike |
| SS | Pest Surr Stock | 1.5 | 1000 | Methanol | SW-846 Water surrogate – identical to that prepared for Pest/PCB analyses |

19. An initial calibration verification standard must also be prepared at a concentration at the mid-point of the calibration for 1016, 1260,1248 and 1254 using a stock solution purchased from a different source other than that used for the calibration standards.
20. Additional standards and preparations are listed in Appendix I for Aroclor 5442, 5432, and 5460 (PCT analysis).

**Extraction**

See organic extraction work instruction T-OE-Pest-WI10922 for sonication extraction and T-OE-Pest-WI10927 for microwave extraction.

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**Gas Chromatographic Conditions**

The conditions listed are usually the optimum operating conditions but can vary to improve the sensitivity, linearity, and overall chromatography or shorten run times on each GC system. A Merlin microseal may be used in place of a traditional septum.

| | |
|---|---|
| Detector | ECD |
| Detector Temperature | 330°C |
| Oven Temperature | 110°C<br>40°C/min to 250°C<br>20°C/min to 280°C<br>30°C/min. to 330°C<br>Hold until DCB elutes ~ 2 min. |
| Carrier | Hydrogen at 12 psi, 5ml/min constant flow<br>(Can be substituted with Helium) |
| Makeup gas | N2 at 30 mL/min. for Varian GCs<br>N2 at 55 mL/min. for HP GCs |
| Injection size | 1 µL, direct injection |
| Injection Temperature | 225°C |

**Calibration**

1. Fill the autosampler rinse vials with clean solvent or replace vials which appear dirty.
2. Prepare a sequence using the following suggested order of injections:

    1. Conditioner
    2. IBLK
    3. EVAL
    4. AR161
    5. AR162
    6. AR163
    7. AR164
    8. AR165
    9. AR166
    10. AR481
    11. AR482
    12. AR483
    13. AR484
    14. AR485
    15. AR486
    16. AR541
    17. AR542
    18. AR543
    19. AR544
    20. AR545
    21. AR546
    22. AR214
    23. AR324
    24. AR424
    25. AR624
    26. AR684
    27. AR16xx
    28. MD16 (MDL)
    29. IC16x (ICV)
    30. IC48x (ICV)
    31. IC54x (ICV)
    32. Blank
    33. LCS
    34. 1234567
    35. 1234567ms
    36. 1234567msd
    37-47. Continue running samples
    48. AR164(CCV)
    49. IBLK

    a. For routine PCBs:

        (1) The AR21, AR32, and AR42 are level 4 in the cal and are entered at AR214, AR324, and AR424 in the cal.

        (2) AR62 and AR68 are both level 4 and are listed as AR624 and AR684 in the sequences.

        (3) A single point of Aroclor 1016 is analyzed with the calibration to aid in better pattern recognition in the samples. Aroclor 1016 and 1242 have similar patterns with the exception of the smaller trailing peaks at the end of the Aroclor 1242 pattern. This is identified in the sequence as AR16xx.

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(4) A DDT/Endrin breakdown standard is run with each ICAL in order to provide the retention times for p,p-DDE, p,p-DDD, and p,p-DDT which may interfere with the pattern for aroclor 1248, 1254, and 1260.

b. See Appendix I for a sequence example when the analysis of PCTs (Aroclors 5442, 5432, and 5460) is requested.

3. Inject conditioner to prime the system.

a. The conditioner injection is usually a standard or sample which has already been injected.

b. It is used to prime the system and is best utilized when the GC has not been running and there is a gap in time prior to starting a set of injections.

c. Hexane blanks may also be run to allow the GC to go through some temperature programs and/or to check the cleanliness of the system.

4. An instrument blank (IBLK) is always run prior to a new calibration to confirm that the instrument is free of background noise or contamination. IBLK may also be run with the continuing check standards - this is optional but frequently requested for projects.

5. Initial Calibration (ICAL)

a. Calibrate for the aroclors using the six levels of 1016, 1260, 1248, and 1254 (calibration range of 50 µg/L through 1000 µg/L) and using the single point for 1221, 1232, 1242, and 1262 and 1268 when needed (200 µg/L standard used).

b. As an option, 1248 and 1254 may use a single point calibration.

c. An external standard calibration based on the average calibration factor (AVG CF)for each individual peak chosen in the pattern is used for quantitation where the %RSD is ≤20%.

d. The surrogate standards are calibrated using the AR16 levels and the calibration is also performed using AVG CF unless the %RSD is >20%.

e. When the % RSD criteria is not met (i.e. >20%), a linear calibration curve is used.

(1) The curve must meet a correlation coefficient of 0.99 to be a valid fit.

(2) Extrapolate or force to zero is not allowed. Set the zero to ignore.

(3) North Carolina and 8000D requires calculation of % error for any linear fits. The criteria for % error of standard levels at or below the LOQ is +/- 50%. The criteria for % error of all other standard levels is +/-30%.

%error = ((true – calc)/true) x 100

f. If the %RSD criteria or 0.99 curve coefficient cannot be met:

(1) Inspect the data points to see if one or more calibration levels may have concentrated due to solvent evaporation or degraded over time.

(2) Reinject or remake the standard if this is the cause.

(3) Use a quadratic fit provided six points are used in the calibration and the curve meets a correlation coefficient of 0.99. The % error must be calculated and meet the criteria defined in e.4. **NOTE:** A quadratic fit may not be used for South Carolina samples.

(4) Perform instrument maintenance as needed.

(5) See *T-PEST-WI10007* for troubleshooting linearity problems.

g. Set up the aroclor calibration data in a custom program under Datalog. The retention times of the peaks to use for identifying and quantifying the aroclors are entered into the calibration file along with the corresponding peak heights and concentrations (in µg/L).

h. Ensure the surrogate peaks in the standards are labeled properly.

i. Set the scaling of chromatograms so that the size of the peaks of interest for each aroclor are approximately 2 to 3 mm in height at the concentration of the method detection limit (MDL).

(1) Ensure all peaks in the MDL standard are integrated.

(2) By running the 1016/1260 MDL standard, the majority of peaks for all aroclors should be represented.

6. Initial Calibration Verification (ICV)

a. Verify the calibration curves using the ICV mixtures injected directly after the full ICAL.

b. The % difference of the concentrations of each individual peak used to calculate the Aroclor must be within 20% difference of the nominal concentration.

7. Continuing Calibration Verification (CCV)

a. Calibration verification is performed after each set of twenty injections (samples, QC, blanks, etc.) or 12 hours, whichever comes first.

b. Use AR16 to evaluate the calibration of the aroclors (or other aroclors as requested for particular clients or projects).

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c. The concentration quantitated for each individual peak used to calculate the Aroclor in the continuing calibration verification standards must be within 20% difference (%D) of the nominal concentration for each peak/surrogate.

d. Samples must be bracketed by compliant standards.

(1) Exception: If standard following a sample is outside the ±20% but exhibits increasing response, the samples before it do not have to be reinjected if the target analytes are not detected. A comment must be added to the analytical report.

(2) If two consecutive/sequential CCVs fail, corrective action must be taken, which can include performing injection port maintenance, baking the instrument or other types of maintenance. Two consecutive/sequential CCVs must meet the criteria or an initial calibration must be performed before sample analysis can continue.

e. If confirmation of target analytes is needed, then the second column should meet the 20% continuing calibration criteria, as well as all initial calibration criteria. If either of these are not met, a comment must be added to the analytical report.

8. The instrument blank (IBLK), if requested for, is injected before or after each set of continuing calibration verification, depending on project specifications/project notes.

a. It must be evaluated as a water matrix against the water MDL/LOQs.

b. The IBLK must not have any target compounds above the reporting limits.

(1) If a target analyte is detected in the IBLK, any associated samples with a detection for that same target must be evaluated.

(2) Unless the concentration in the sample is more than 10x the IBLK value, the sample must be injected after another compliant IBLK.

(3) Instrument maintenance, i.e., baking the system or injection port maintenance is usually necessary to clean up the instrument.

9. Retention time (RT) windows

a. Established as 3× the standard deviation determined over 72 hours, or at no less than ±0.02 min, applied to the midpoint initial calibration standard.

b. If the RTs for a continuing calibration verification standard fall outside the RT window, update the midpoint RT using that standard.

(1) Save this under the appropriate name to indicate an update has occurred.

(2) RTs cannot be updated more than once per day. All subsequent standards run within a 24-hour period must be within this window.

(3) If RTs are not consistent, the cause must be investigated and corrective action taken.

**Procedure**

1. Prepare a sequence of injections as suggested in the Calibration Section, along with the appropriate check standards.

2. Retention times of peaks in the samples are compared to the standard RT windows.

a. Peaks present on both columns that are also in the correct ratios to represent an aroclor are quantitated, and the high value is reported unless chromatographic anomalies are observed. See *T-PEST-WI9954*.

b. Use a minimum of three to six peaks for quantitation, with the exception of certain mixes where it may be more accurate to use less peaks to avoid excessive overlap of patterns.

3. Continue running groups of samples/injections followed by check standards every 12 hours or 20 injections, whichever comes first.

a. For projects where a known aroclor is present and at the request of clients, other aroclors can be run for the continuing check standard. For instance, a set of continuing standards may be AR484, AR164, IBLK.

b. Aroclor 1262 and 1268 can be analyzed when requested. A full six point curve can also be run, depending on the project requirements.

4. If significant interference is present, schedule florisil and/or sulfuric acid cleanup. If elemental sulfur is present, TBA or copper the extract or have it put through GPC cleanup. If these techniques do not reduce the matrix problems, dilute the extract with hexane and adjust LOQs accordingly.

5. Report the results for the least dilute sample where the concentration measured is within the acceptable calibration range.

**Calculations**

1. The peak heights generated by the integration system are used to calculate the calibration factors (CF) for peaks of interest for each aroclor.

Usually, the six major peaks that are unique to each aroclor are chosen for quantitation, with the exception of 1221 where only three peaks are available.

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2. Sample concentrations are calculated per peak using average calibration factor (AVG CF) from the initial calibration.

$$\frac{Sample\ Height}{AVG\ CF\ (CF)} \times \frac{FV}{IW} \times DF = \mu g/kg\ as\ received\ per\ peak$$

**Where:**

FV = Final volume (mL)

IW = Initial weight (g)

DF = Dilution factor, as needed

The final result that is reported is determined as the average of the result for each peak chosen for quantitation:

$$(Result\ 1 + Result\ 2 + \ldots + Result\ n) / n = Average\ Result$$

3. The surrogate results are determined using either AVGRF or linear curve:

a. Using AVGCF from the initial calibration:

$$\frac{Sample\ Height}{AVCRF\ (CF)} \times \frac{FV}{IW} \times DF = \mu g/kg \quad as\ received$$

b. Using linear curve from the initial calibration:

$$[(Sample\ Height - Y - intercept)/Slope] \times \frac{FV}{IW} \times DF = \mu g/kg\ as\ received$$

**Where:**

FV = Final volume

IW = Initial weight

DF = Dilution factor, as needed

4. See *T-PEST-WI9847* for all other equations related to the analysis.

## Statistical Information/Method Performance

LCS,MS, and RPD are compared to the limits stored in the LIMS. The limits for LCS and MS are statistically derived. Historical data for MS/Ds, LCS/Ds, measurement of uncertainty, is reviewed at least annually. Acceptance limits are generated according to *T-PEST-WI9980*. Reporting limits including method detection limits (MDLs) and limits of quantitation (LOQs) are set according to EPA method requirements and are evaluated annually. Refer to *QA-SOP11892* for specific guidelines and procedures. Updates to the LIMS are made as needed by the QA Department and only as directed by the manager. The department database is updated via a download from the LIMS.

## Quality Assurance/Quality Control

QC Acceptance limits are established as statistical limits. See *T-PEST-WI9980* for further information on monitoring and establishing limits.

A sodium sulfate blank and a sodium sulfate spike (LCS) are analyzed with every group of samples up to a maximum of 20. An MS/MSD is performed per batch. For wipes and when an MS/MSD cannot be performed, an LCSD will be extracted.

Aroclor 1016 and 1260 are routinely spiked; however, other aroclors can be spiked as requested by clients.

DCB and TCX are added as surrogates to each sample and QC to monitor the efficiency of the extraction, the operation of the autosampler, and to monitor retention times throughout the GC run.

If any client, agency, or state has more stringent QC or batch requirements, these must be followed.

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See *T-PEST-WI10011* for details on QC acceptance criteria and corrective action.

## Appendix I

### PCT Analysis (Aroclor 5422, 5432, and 5460)

A. Standards:

1. PCT Stocks- Aroclor 5432, 5442, and 5460 are purchased as individually ampulated solutions from Accustandard at 35,000 ug/L.

2. Surrogate Stock- Ultra ISM-320 containing TCX/DCB at 200,000ppb in acetone. Prepare an intermediate by diluting 0.25mL to 25mL of hexane.

3. MS stock of Aroclor 5442 - Absolute cat# 71791, 1000ug/L in Methanol.

4. Prepare working standards using the reagents module of the LIMS as a guide.

   a. In the reagents module, first enter the reagents in this section as 'source' reagents.

   b. Then select 'intermediate' reagent and load the most recent version of the working standard you wish to create for editing, or create a new standard if the working standard has not yet been prepared in TALS.

   c. The module contains the following information: reagent description (ex. AR161), source reagent code, amount used, final amount, solvent used and solvent lot, concentration of each compound in solution, and expiration date. The working standards have an expiration date of 6 months.

   d. The calibration scheme begins at or near the reporting limit through a 20 fold of the initial calibration level.

   e. The scheme for preparing the matrix and surrogate spiking solutions used in the extraction process are listed below.

| Standard Name | Parent Solution | Aliquot (mL) | Final Volume (mL) | Solvent | Description |
|---|---|---|---|---|---|
| MS | Aroclor 5422 Stock | 0.75 | 100 | Acetone | Aroclor 5442 PCT Spike |
| SS | Pest Surr mix | 1.5 | 1000 | methanol | SW 846 surrogate |

B. GC Chromatographic Analysis:

The conditions listed serve as a guideline only and are typically the optimum operating conditions. The analyst may make any changes to the chromatographic conditions to improve the speed of analysis, linearity, sensitivity, and/or improve separation if initial and continuing calibration criteria and quality assurance criteria listed within this analysis document are met.

| | |
|---|---|
| Detector | ECD |
| Detector temp | 330°C |
| Oven Temp | 110°C to 250° at 40°C/min, to 280°C at 20°C/min, to 330°C at 30°C/min, hold 9 min. |
| Carrier | Hydrogen at 3.6 mL/min |
| Makeup gas | N2 at 60mL/min or equivalent |
| Injection size | 1-uL, direct injection |
| Injection temp | 225°C |

C. Example of a Sequence:

1. Conditioner
2. IBLK
3. EVAL
4. AR161
5. AR162
6. AR163
7. AR164
8. AR165
9. AR166
10. AR481
11. AR482
12. AR483
13. AR484
14. AR485
15 AR486
16. AR541
17. AR542
18. AR543
19. AR544
20. AR545
21. AR546
22. PCT1
23. PCT2

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24. PCT3
25. PCT4
26. PCT5
27. A4421
28. A4422
29. A4423
30. A4424
31. A4425
32. AR213
33. AR323
34. AR423
35. AR623
36. AR683
37. AR16xx
38. MDPCTX
39. MD16
40. IC16
41. IC48
42. IC54
43. Blank
44. LCS
45. 1234567
46. 1234567MS
47. 1234567MSD
48-62. Continue running samples
63. AR163
64. PCT3
65. A4423
66. IBLK

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T-OE-PEST-WI10281 Cleanup Procedures for the Extraction of Pesticides and Polychlorinated Biphenyls (PCBs)
T-OE-PEST-WI10922 Ultrasonic Extraction for PCBs in a Solid Matrix by Method 3550B and 3550C
T-OE-PEST-WI10927 Microwave Extraction Method 3546 for PCBs in a Solid Matrix
T-PEST-WI10007 Preventative and Corrective GC Maintenance
T-PEST-WI10011 QC Data Acceptability and Corrective Action
T-PEST-WI9847 Common Equations Used During Chromatographic Analyses
T-PEST-WI9954 Interpretation of Chromatographic Data
T-PEST-WI9980 Monitoring QC Data Acceptance Limits

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End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 9 | 29.MAR.2018 | | |
| 10 | 16.MAR.2021 | | |
| 11 | 18.MAY.2022 | No changes needed | |

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## Revision Log

| **Revision:** 14 | **Effective Date:** | This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Cross Reference;Procedure | Remove | Removed reference to 6869 |
| Procedure 1.2 | Reflects current practice | updated reference from 8270D to reflect 8270E |
| Table 2 | Addition | Addition of 2-butoxyethanol |
| Table 3 | Addition | Addition of 2-butoxyethanol and characteristic ions |

| **Revision:** 13 | **Effective Date:** | November 15,2022 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| | | |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Header | Formatting requirement | Updated to current company name |
| Personnel Training and Qualifications | Reflects current practice | Updated IDOC instruction to match current practice per EPA 8000D |
| Table 2 | Reflects current practice | Removed non-current analytes and updated to include all certified analytes |
| Table 3 | Reflects current practice | Removed non-current analytes and updated to include all certified analytes |

## Reference


1. SW-846 Test Method 8270E: Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Rev. 6, June 2018.

2. SW-846 Test Method 8270D: Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry, Rev. 5, February 2015.





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3. Test Methods for Evaluating Solid Wastes, SW-846 Method 8000D, Rev. 5, July 2018.

4. *Federal Register*, Vol. 57, No. 227, November 24, 1992, p. 55114 (TCLP).

5. *Federal Register*, Vol. 57, No. 160, August 18, 1992, p. 37203 (CCW).

6. *Chemical Hygiene Plan*, current version.

**Cross Reference**

| Document | Document Title |
|---|---|
| *T-OE-SVOA-WI10917* | Waste Dilution, EPA 3580A for Acid Extractables and Base-Neutrals in a Non-Water Soluble Matrix |
| *T-OE-SVOA-WI10916* | Low-Level Sonic Probe Extraction Procedure by Method 3550C for the Determination of Semivolatiles in a Solid Matrix |
| *T-OE-SVOA-WI10928* | Microwave Extraction by Method 3546 for Semivolatiles |
| *T-OE-SVOA-WI10935* | Separatory Funnel Extraction (Method 3510C) or Waste Dilution (Method 3580A) of Base Neutrals and Acid Extractables in Leachates |
| *T-OE-SVOA-WI11432* | Separatory Funnel Extraction by Method 3510C for BNAs in Wastewater |
| *T-SVOA-FRM9602* | Dept 4026 Calculations |
| *T-SVOA-WI11998* | Semivolatile Spiking and Calibration Standards |
| *T-SVOA-WI9598* | GC/MS Preventative and Corrective Maintenance |
| *T-SVOA-WI9604* | Monitoring GC/MS Semivolatile QC Data Acceptance Limits |
| *QA-SOP11178* | Demonstrations of Capability |
| *QA-SOP11892* | Determining Method Detection Limits and Limits of Quantitation |

**Scope**

This method is suitable for the determination of the concentration of certain semivolatile organic compounds (priority pollutant list, target compound list, Appendix IX list, TCLP list, and CCW list) found in soils, tissues, waters, and leachates. Typical limits of quantitation (LOQ) achieved are 33 µg/kg for soils, 132 µg/kg for tissues, 1 µg/L for waters, and 0.002 mg/L for leachates. Specific compound lists and associated method detection limits (MDLs) and LOQs can be found in the Laboratory Information Management System (LIMS) under the analysis numbers listed in the header of this SOP.

**Basic Principles**

Water samples are extracted according to *T-OE-SVOA-WI11432*. Soil samples are extracted according to T-OE-SVOA-WI10925 or *T-OE-SVOA-WI10928*. Leachates are extracted according to *T-OE-SVOA-WI10935*. Non-water soluble matrices are extracted according to *T-OE-SVOA-WI10917*.

An environmental sample (soil, water, sludge, etc.) is solvent extracted and then analyzed by electron impact gas chromatography/mass spectrometry (EI GC/MS). A predetermined aliquot of an extract containing organic compounds in solvent is injected onto a fused silica capillary column coated with a relatively non-polar stationary phase, which is enclosed in a temperature controlled oven. A carrier gas, which is ultra-pure helium, passes continuously through the column. The GC oven is temperature programmed and the organic mixture separates into its individual components as it moves along the length of the column. This separation is the function of the polarity and boiling point of the individual compounds. This column empties into a mass selective detector. When a compound reaches the detector, it is bombarded by high-energy electrons (70eV). This causes the compounds to fragment, forming ions. By applying various voltages to the lens, the positive ions are thrust into a quadrupole mass analyzer, which selects for a given mass fragment at a given time. These selected fragments reach an electron multiplier that detects and generates a signal for each mass fragment. The signals are amplified and sent to a computer. Target compounds are identified on the basis of relative retention times and spectral match to standards that are injected every 12 hours on the same system.

Quantification is achieved via use of the internal standard calibration technique. The average relative response factor of a multi-point calibration is used for quantification when the appropriate criteria are met.

**Interferences**

Method interferences may be caused by impurities in solvents, reagents, glassware, or other hardware used in the processing of samples. All glassware is solvent rinsed before use and a method blank is performed with each extraction batch to demonstrate that the extraction system is free of contamination.

Sample matrices can have an effect on the ability of the GC/MS system to resolve the individual masses used for quantification. Samples may require dilutions, a reduction in the extraction volume/weight used, a raised final extraction volume, or extract clean-up using various techniques in order to achieve proper target separation and determination.

**Safety Precautions and Waste Handling**

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

The toxicity or carcinogenicity of each reagent used in this method has not been precisely defined; however, each chemical compound and reagent should be treated as a potential health hazard. From this viewpoint, exposure to these chemicals must be reduced to the lowest possible level by whatever means are available such as fume hoods, safety glasses, lab coats, and gloves.

All solvent waste generated from this analysis must be collected for recycling (if applicable) or must be disposed of in designated containers. These are then transferred to a lab-wide disposal facility. Any solid waste material (disposable pipettes, broken glassware, pH paper) must be disposed of in the normal solid waste collection containers or sharps containers, as applicable.

**Personnel Training and Qualifications**

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the analyst's training records.

Initially, each analyst performing instrumental analysis must work with an experienced analyst for a period of time until they can independently perform daily maintenance, calibrate the instrument, change the column, clean the source, interpret chromatograms, perform calculations, review

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data, and enter data into the LIMS. The analyst is also trained on the preparation of dilutions and calibration standards. Proficiency is measured through documented audits of the tasks listed and over checking of data as well as an Initial Demonstration of Capability (IDOC).

The IDOC consists of four laboratory control samples that are carried through all steps of the analysis and meet the defined acceptance criteria. The criteria include the calculation of mean accuracy and standard deviation (per EPA 8000D, the statistical LCS window and RSD </= 20%)).

Various options are available for a DOC and can include four laboratory control samples or one blind sample. The RSD criteria is 20%.

Refer to *QA-SOP11178* for more guidance on these options.

**Sample Collection, Preservation, and Handling**
Water samples are collected in 250mL or 1L glass amber glass containers with PTFE-lined lids and may be preserved with sodium thiosulfate ($Na_2S_2O_3$). They are stored at 0ºC to 6ºC, not frozen, prior to extraction and must be extracted within 7 days of collection.

Solid samples are collected in glass wide-mouth jars with PTFE-lined lids and are not preserved. They are stored at 0ºC to 6ºC, not frozen, prior to extraction and must be extracted within 14 days of collection.

All sample extracts must be stored at ≤-10ºC (freezer) and protected from light using amber glass vials. All samples, sample extracts, and standards must be stored separately and in an area free from contamination. All extracts must be analyzed within 40 days of extraction.

**Apparatus and Equipment**

1. Hewlett-Packard Model 5890 (Series I and II) or Hewlett-Packard/Agilent 6890 or 7890 Gas Chromatograph or equivalent
2. Hewlett-Packard Models 5971, 5972, and Hewlett-Packard/Agilent 5973, 5975 Mass Selective Detector or equivalent
3. Hewlett-Packard ChemStation Software
4. Thru-Put Systems Target Acquisition Software/Oracle Database or equivalent
5. Column – 20 M × 0.18 mm ID × 0.18 µm, Agilent DB-5MS or equivalent
6. Column - 30M × 0.25 mm ID x 0.25 µm df, J&W Scientific DB-5MS or equivalent
7. Hamilton Gastight syringe, or equivalent – various volumes
8. Amber GC vials with crimp caps

**Reagents and Standards**

A. Reagents - All reagents are stored per manufacturer guidelines unless otherwise noted. Reagent vendors are subject to change without notification.

1. Helium carrier gas, UPC grade
2. Methylene chloride ($MeCl_2$ or $CH_2Cl_2$) – Baker Ultra Resi-Analyzed

B. Standards

1. Supelco Equity Semivolatile Internal Standard Mix, Part #46955-U or equivalent, 1000 µg/mL in methylene chloride. Ampulated solutions are maintained under refrigeration (0° to 6°C, not frozen) until consumed or manufacturer determined expiration date. Working solution is maintained at room temperature and is replenished daily from ampulated solutions. For 250 mL aqueous analyses Supelco Equity Semivolatile Internal Stanac Mix is diluted 4x to make a 250 µg/mL in methylene chloride solution. This solution is maintained under refrigeration (0° to 6°C, not frozen) for up 6 months.

2. Refer to *T-SVOA-WI11998* for the preparation and storage of tuning, calibration, and spiking solutions.

**Calibration**
See Procedure F for initial calibration processing and Procedure G for continuing calibration check processing.

**Procedure**

A. Standard preparation – Solutions are used to standardize the GC/MS system every 12 hours and are prepared approximately every 20-30 days or more frequently if needed based on consumption. See *T-SVOA-WI11998* for standard preparation. Calibration standard solutions may be used up to the labeled expiration date or until component degradation is observed. Degradation is determined by the inability to pass continuing calibration checks or by observations of unacceptable chromatography.

B. Internal standard mix is added to all standards and subsequent samples at a concentration of 20 µg/mL (5 µg/mL for 250 mL aqueous analyses). Using a 25-µL syringe, 20 µL of Supelco Equity Semivolatile Internal Standard Mix or equivalent, 1000 µg/mL (250 µg/mL for 250 mL aqueous analyses) in methylene chloride are added to 1 mL of standard or sample extract. If only 0.5 mL of sample is in the vial, 10 µL of internal spiking solution is added to the sample. See Table II for the list of compounds calibrated for and the internal standard that is assigned to each.

C. Daily maintenance – Refer to *T-SVOA-WI9598* for this procedure.

D. Instrument conditions

Equip a GC/MS (such as referenced under Apparatus and Equipment) in one of the two following manners:

1. For a 5890/5971 or 5972 and 6890/5973 or 5975
   a. Column – 30M × 0.25 mm ID x 0.25 µm df, J&W Scientific DB-5MS or equivalent
   b. Injector – Split/splitless operated in splitless mode
   c. Injector Temp – 275°C
   d. Detector Temp – 300°C
   e. Gas – Helium at approximately 1.5 mL/min, constant flow mode
   f. Oven Temp – 45°C for 3 minutes, ramp at 8°C/minute to 225°C, then ramp at 12°C/minute to 300°C and hold for 7.5 minutes.
2. For a 6890/5973 or 5975

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a. Column – 20M × 0.18 mm ID x 0.18 µm df, J&W Scientific DB-5MS or equivalent

b. Injector – Split/splitless operated in split mode, 20:1 split

c. Injector Temp – 275°C

d. Detector Temp – 280°C

e. Gas – Helium at approximately 1.0 mL/min, constant flow mode

f. Oven Temp – 40°C for 1 minute, ramp at 25°C/minute to 100°C, then ramp at 30°C/minute to 280°C, followed by another ramp at 25°C/minute to 320°C, hold for 2 minutes.

**NOTE:** It is not necessary to use the exact parameters listed above. Equivalent columns and conditions may be used to improve the linearity, sensitivity, overall chromatography, and performance required by the method on each GC/MS system.

E. Tuning

1. The DFTPP tune check standard is used to assess GC column performance and injection port inertness as well as mass spectrometer performance. The GC/MS system's tune is checked by inspecting the mass spectrum of the DFTPP peak and column performance and injection port inertness is evaluated with pentachlorophenol, benzidine, and DDT.

2. The GC/MS should be tuned using a predetermined aliquot of a 50 ng/µL or 12.5 ng/µL solution of DFTPP containing decafluorotriphenylphosphine, pentachlorophenol, benzidine, and DDT. This solution is prepared as indicated in *T-SVOA-WI11998*. See the tables below for acceptance criteria and corrective actions.

| DFTPP Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| Prior to initial calibration and every 12 hours prior to continuing calibration standard | 1. Criteria in Table I<br><br>2. DDT breakdown ≤20%*<br><br>3. Tailing factors:<br>- Benzidine ≤ 2<br>- Pentachlorophenol ≤ 2 | 1. Re-tune. Analysis cannot proceed until tune meets criteria.<br><br>2. More aggressive injection port maintenance.<br><br>3. Clean the source.<br><br>4. Change the column. |

*__NOTE:__ DDT breakdown greater than 20% may be acceptable if you are calibrating for polynuclear aromatic hydrocarbon compounds only. Consult your supervisor when this situation occurs.

3. Use only the background-subtracted spectrum of the following when evaluating the DFTPP:

A three scan average of the apex of the scan, the apex of the scan −1 and the apex of the scan +1.

**NOTE**: All standards, samples, and associated quality control samples with a particular tune must use the identical conditions of the mass spectrometer.

F. Initial calibration (ICAL)

1. Perform standardization by analyzing at least five levels of calibration standards ranging from 0.5 µg/mL to 120 µg/mL or from 0.125 µg/mL to 30 µg/mL for mini-sep waters analysis. (Refer to *T-SVOA-WI11998* for the preparation of calibration standards.) Use the internal standard calibration technique to generate an average relative response factor for each target compound and surrogate. The relative standard deviation (%RSD) of the response factors determines the suitability of the average relative response factor for calculation of compound concentration. At the end of the calibration standard injections, inject a Method Detection Limit (MDL) standard and an initial calibration verification (ICV) standard. See the tables below for acceptance criteria and corrective actions.

| ICAL Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| Initially and when the daily calibration standard fails criteria. | 1. Minimum response factors must be met in all levels of the calibration – especially in the lowest level of the calibration (see table IV).**<br><br>2. %RSD for each compound must be ≤20%. If more than 10% of the compounds in the ICAL exceed 20% RSD and/or also do not meet the minimum correlation coefficient for alternate fits (ie, the correlation coefficient is <0.990) then the analysis cannot proceed.<br><br>3. For any compound on a linear or quadratic fit the % error is measured between the calculated and expected amounts of the compound(s) at each calibration level to determine the calibration function acceptability for linear and non-linear curves. The % error must be ≤50% for the low calibration point. For calibration points above the LOQ the % error must be ≤30%.<br><br>4. The relative retention times of the target compounds must agree within 0.06 relative retention time units. | 1. Any target compound with a %RSD <20% will use the average RRF. For any compound in which the %RSD >20%, use a first degree (linear) fit provided the correlation coefficient (CC; r) is ≥0.995 or the coefficient of determination (COD;$r^2$) is ≥0.99. If the linear fit fails to meet this criteria, then a second order (quadratic) fit may be used*** provided the coefficient of determination is ≥0.99. If use of both the linear fit and the quadratic fit is acceptable using this criteria for any given compound, then use the fit with the smallest negative y-intercept. When using a quadratic fit, if the y-intercept quantifies to be greater than the MDL, consult your supervisor immediately or re-calibrate. See below for corrective action if the coefficient of determination for a quadratic fit is <0.99.*<br><br>2. Re-inject any levels that appear to be outliers due to an injection error.<br><br>3. If standard levels on the outside of the curve appear to be outliers for individual compounds and are throwing off the calibration curve, they |

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| | | |
|---|---|---|
| | 5. Structural isomers that produce very similar mass spectra are identified as individual isomers if they have sufficiently different GC retention times. Sufficient GC resolution is achieved if the height of the valley between two isomer peaks is <25% of the sum of the two peak heights. Otherwise, structural isomers are identified as isomeric pairs. | can be dropped from the calibration keeping the following in mind:<br>a. If a low calibration point is dropped, the analyst must ensure that the compound is still being calibrated to or below its LOQ.<br>b. If a high calibration point is dropped, any detections must recover below the new upper calibration limit.<br>4. Re-prep calibration standards.<br>5. Perform more aggressive system maintenance as outlined in *T-SVOA-WI9598* and re-calibrate. |

*See USEPA Method 8000D for the calculations associated with non-linear fit types.
**Minimum response factors are not required to be met for method 8270E. They are provided for guidance.
***Quadratic fits are not permitted when analyzing samples from South Carolina.

| MDL Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| Immediately following an initial calibration and before sample analysis | 1. The system must be able to detect all compounds in the MDL standard. | 1. If any compounds are not detected in the MDL standard, analysis can proceed if the compound is detected at or below its MDL in a higher concentration level.<br>2. If the system does not detect the compound(s), then the tuning and/or calibration procedure must be repeated under conditions that will yield a detection for the compound(s) or the MDL must be raised for the compound(s).<br>3. Perform more aggressive system maintenance as outlined in *T-SVOA-WI9598* and re-calibrate. |

| ICV Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| Immediately following an initial calibration and before sample analysis | 1. The ICV must be prepared using a second source standard.<br>2. %Drift for each compound must be ≤30%<br>3. The EICP area for each internal standard must fall within the window of -50% to +100% of the areas from the mid-level calibration standard produced during the initial calibration. | 1. Re-prep and re-analyze the ICV.<br>2. If the recovery for any compound fails these criteria low, the compound cannot be analyzed for under the calibration until a new calibration has been established or a passing ICV has been analyzed.<br>3. If the recovery for any compound fails these criteria high, the compound may be analyzed for but any samples with detections should be re-analyzed under a valid ICAL or will be reported with a qualifying comment.<br>4. Perform more aggressive system maintenance as outlined in *T-SVOA-WI9598* and re-calibrate. |

With supervisory approval, the following problematic compounds can be allowed to fail the 0.99 coefficient of determination criteria for a quadratic fit. If the COD is less than 0.99 for any other compound, the system should be inspected for problems and re-calibrated. Supervisory approval is required for exceptions to these guidelines.

| |
|---|
| 1,4-Phenylenediamine |
| 4-Aminobiphenyl |
| 3,3′-Dimethylbenzidine |
| 4,4′-Methylenebis(2-chloroaniline) |
| 4-Nitroquinoline-1-oxide |
| 1,4-Naphthoquinone |
| methapyrilene |

**Note that this allowance is not to be used for compliance samples, and any data reported under the calibration must be qualified.**

**NOTE:** All data associated with failed quality control will be qualified on the final report. QC outlier qualifiers are added to the associated sample results on the report by the LIMS.

3. Six levels of calibration standards must be used if a quadratic (second-order) type calibration fit is used.

4. One of the calibration standards must be at a concentration at or below the limit of quantitation (LOQ). The other concentrations correspond to the expected range of concentrations found in samples or should define the working range of the GC/MS system.

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5. The concentration of the MDL standard may require modification dependent upon the current MDL values.

G. Continuing Calibration Verification (CCV)

1. Perform a continuing calibration verification (CCV) by injecting a predetermined aliquot of a calibration standard at a concentration near the mid-point of the calibration, not to exceed ½ the highest level in the calibration.

| CCV Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| 1. Every 12 hours.<br><br>2. The CCV is analyzed each day a curve is not analyzed.<br><br>3. The CCV is analyzed after the DFTPP. | Target compounds must meet the minimum response factor criteria (see Table IV).*<br><br>1. The maximum % drift for all target compounds is 20%. No more than 20% of the target compounds can be greater than 20% drift. All target compounds that exceed 20% drift must be less than or equal to 50% drift.<br><br>2. The relative retention times of the internal standards must be within 10 seconds of the retention times from the mid-level calibration standard of the last initial calibration. The exception would be in the case of column maintenance.<br><br>3. The EICP area for each internal standard must fall within the window of -50% to +100% from the areas of the mid-level standard produced during the last initial calibration.<br><br>4. Structural isomers that produce very similar mass spectra should be identified as individual isomers if they have sufficiently different GC retention times. Sufficient GC resolution is achieved if the height of the valley between two isomer peaks is <25% of the sum of the two peak heights. Otherwise, structural isomers are identified as isomeric pairs. The resolution should be verified on the mid-point concentration of the ICAL as well as the check standard. | 1. In cases where compound(s) recover >20%D low, they may still be reported as non-detects if it can be demonstrated that there was adequate sensitivity to detect the compound(s) at the applicable quantitation limit. For situations when the failed compound is present, the concentrations must be reported as estimated values.<br><br>2. In cases where compound(s) recover >20%D high, analysis may continue, but any samples with detections should be re-analyzed under a valid CCV or the results will be qualified.<br><br>3. Perform more aggressive system maintenance as outlined in *T-SVOA-WI9598* and re-calibrate. |

*Minimum response factors are not required to be met for method 8270E. They are provided for guidance.

**NOTE:** All data associated with failed quality control will be qualified on the final report. QC outlier qualifiers are added to the associated sample results on the report by the LIMS.

2. In the event that a CCV fails and the cause is not obvious such as in the case of a concentrated standard or a mis-injection, corrective action must be taken. The corrective action must be documented in the form of a non-conformance memo. If the CCV does not pass after corrective action, a new initial calibration must be established.

H. Analysis of Samples:

1. All sample extracts are stored at ≤-10°C and protected from light from the time of sample extraction.

2. Prior to sample analysis, add 20 µL of internal standard to each 1.0 mL of sample extract. Concentration of internal standards in extract is 20 ng/µL (5 ng/µL for 250 mL aqueous analyses).

3. Analyze a predetermined aliquot of each sample extract under the same conditions used for the initial and continuing calibrations.

4. At the conclusion of data acquisition, use the same software to tentatively identify peaks within the retention time window of interest. Examine the ion abundances of components in the chromatogram. If the ion abundance of the target ion used for quantitation exceeds the calibration range, dilute the aliquot and reanalyze. When preparing dilutions, add sufficient internal standard to maintain the same concentration as that of the ICAL.

Dilution criteria:

1) Initial dilutions are recommended in the following situations:

i. More than three internal standard recoveries are <-50%

ii. Either of the last two internal standard recoveries are <-80%.

iii. The analyst's judgment of a sample extract's color or viscosity indicates possible matrix interference.

2) Secondary dilutions are required to bring all target compounds into the calibration range of the GC/MS.

I. Qualitative analysis

A compound is identified by comparison of the following parameters with those of a standard of the suspected compound (standard reference spectra). The reference mass spectrum used for this comparison should be generated by the laboratory using the conditions of the method, but the laboratory may also use a certified reference library. In order to verify identification, the following criteria must be met:

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1. The intensities of the characteristic ions of the compound must maximize in the same scan or within one scan of each other. The characteristic ions from the reference mass spectrum are defined to be the three ions of greatest relative intensity, or any ions over 30% relative intensity if less than three such ions occur in the reference spectrum.

2. The RT should be within ±10 seconds of the RT for this analyte in the CCV run at the beginning of the 12-hour period (delta RT 0.17 minute) or within ±10 seconds relative to the shift of the associated IS (delta RT of the IS ± 10 seconds). If the RT for the IS has shifted, the sample should be inspected for similar shifts for the associated target analytes. If RT drift is significant, relative retention time (RRT) may be used as an alternative to delta RTs.

3. The relative intensities of the qualifier ion(s) should agree within 30% of the relative intensities of these ions in the reference spectrum.

**NOTE:** N-Nitrosodiphenylamine decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine. For this reason, it is acceptable to report the combined result for both n-nitrosodiphenylamine and diphenylamine for either of these compounds as a combined concentration.

**NOTE:** 1,2-Diphenylhydrazine is unstable even at room temperature and readily converts to azobenzene. Given the stability problems, it would be acceptable to calibrate for 1,2-diphenylhydrazine using azobenzene. Under these poor compound separation circumstances the results for either of these compounds should be reported as a combined concentration.

J. Quantitative analysis

Once a compound has been identified, quantitation is based on the internal standard technique and the integrated abundance from the extracted ion current profile (EICP) of the primary characteristic ion. The list of primary characteristic ions and secondary ions can be found in Table III.

## Calculations

Refer to *T-SVOA-FRM9602* for all calculations.

## Statistical Information/Method Performance

LCS, MS, surrogate, and RPD recoveries are compared to the limits stored in the LIMS. LCS and surrogate limits are statistically derived every six months in accordance with *T-SVOA-WI9604*. All RPDs are set to a default value of 30%. MS limits are set equal to LCS limits.

Historical data for MS/Ds, LCS/Ds, surrogates, and measurement of uncertainty is reviewed at least annually.

Refer to the QA/QC section of this SOP and the criteria listed throughout this procedure for additional information on the performance of this method.

## Quality Assurance/Quality Control

A. Batch QC

1. Each extraction batch of ≤20 samples must contain a method blank, a laboratory control sample (LCS) and an unspiked background sample (US), a matrix spike (MS), and a matrix spike duplicate (MSD).

2. A laboratory control sample/laboratory control sample duplicate (LCS/LCSD) is prepared with the extraction batch if adequate sample volume is not provided to prepare a matrix spike and matrix spike duplicate.

3. Additional QC samples may be required to meet project or state certification requirements.

B. QC and sample spiking

1. The LCS/D and MS/D are spiked at a concentration of 50 µg/L with the exception of the following (in µg/L):

| | | | |
|---|---|---|---|
| Hexachlorocyclopentadiene | 100 | Benzoic acid | 100 |
| 2,4-Dinitrophenol | 100 | 1-Naphthylamine | 100 |
| 2-Naphthylamine | 100 | 3,3’-Dimethylbenzidine | 100 |
| Benzidine | 250 | 3-Methylphenol | 25 |
| 4-Methylphenol | 25 | | |

2. All samples are spiked with surrogates by the organic extraction group to evaluate the extraction process. Acid extractable surrogates are spiked at a concentration of 200 ng/µL and base/neutral extractable surrogates are spiked at a concentration of 100 ng/µL.

3. Prior to analysis each extract is spiked with an internal standard mix at a concentration of 20 ng/µL.

4. All spiking concentrations are 4x lower for 250 mL aqueous analyses.

C. QC items, acceptance criteria, and corrective actions.

**NOTE: If any client, state, or agency has more stringent QC, QC limits, or batch requirements, these must be followed instead.**

| Quality Control Item | Acceptance Criteria | Corrective Action |
|---|---|---|
| Internal Standards | 1. Peak area within -50% to +100% of the area in the associated reference standard.<br>2. Retention time (RT) within 30 seconds of RT for associated reference standard. | 1. Check instrument for possible problems and then re-inject sample(s).<br>2. If re-injection meets the criteria, report this injection.<br>3. If re-injection still shows the same problem, report first injection.<br>4. If there is substantial matrix interference, the analyst may dilute the extract as outlined in Procedure H.4. |

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| Quality Control Item | Acceptance Criteria | Corrective Action |
|---|---|---|
| Method Blank | 1. Must meet internal standard criteria.<br>2. Must meet surrogate criteria.<br>3. All target compounds must be less than the reporting limit for the associated samples. | 1. Inspect system for possible problems and reanalyze.<br>2. If the surrogates are out of spec high data can be used provided there aren't detections in the method blank.<br>3. If the surrogates are out of spec low and there aren't detections in the associated samples, the data can be used.*<br>4. If the method blank contains target compounds and the associated samples do not contain these compounds, no corrective action is required.<br>5. If the target compounds in the blank are also in the associated samples at a concentration <10x that in the blank, the samples are re-extracted unless the detection does not interfere with project data requirements.<br>6. If the target compounds in the blank are also in the associated samples at a concentration >10x than in the blank the data is usable. |
| Instrument Blank** | 1. Must run after the CCV if no clean method blank is analyzed at the beginning of a 12-hour analytical period.<br>2. Must meet internal standard criteria.<br>3. All target compounds must be less than the reporting limit for the associated samples. | 1. Inspect system for possible problems and reanalyze.<br>2. If the instrument blank contains target compounds and the associated samples do not contain these compounds, no corrective action is required. If the target compounds in the blank are also in the associated samples, the samples should be re-extracted unless it does not interfere with project data requirements or if sample detections are at a level 10x higher than the detections in the blank. |
| Laboratory Control Sample/Laboratory Control Sample Duplicate | 1. Must meet internal standard criteria.<br>2. Must meet surrogate criteria.<br>3. % Recoveries within QC limits. Refer to the analysis numbers in the header of this document in LIMS for acceptance limits. These are reviewed and updated on a semiannual basis.<br>4. RPDs within QC limits. | 1. If non-compliant, check for calculation or preparation errors.<br>2. If no errors found, check system for problems and reanalyze.<br>3. If LCS/LCSD recoveries are still outside acceptance limits, one of the following actions must be taken:<br>a. if recoveries are outside acceptance limits low, the sample(s) must be re-extracted.<br>b. if recoveries are outside acceptance limits high, data may be usable if the compounds that recovered above QC limits are not detected in samples.<br>c. if recoveries are outside acceptance limits high and there are detections for the failing compounds, the sample(s) must be re-extracted.<br>4. If RPDs fail but recoveries are within QC limits, no further action is required.<br>5. If surrogates fail to meet criteria but all target compounds are within specification, data is usable.*<br>6. Marginal exceedance limits, as defined in the NELAC standards, may be used if the defined requirements have been met. |

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| Quality Control Item | Acceptance Criteria | Corrective Action |
|---|---|---|
| Matrix Spike/Matrix Spike Duplicate(MS/MSD) | 1. Must meet internal standard criteria.<br>2. Must meet surrogate criteria.<br>3. % Recoveries within LCS limits. Refer to the analysis number in the header of this document in LIMS for acceptance limits. These are reviewed and updated on a semiannual basis.<br>4. RPDs within QC limits. | 1. If LCS within QC limits, proceed with sample analysis.<br>2. If most recoveries or RPDs out of spec, consult supervisor. BKG, MS, MSD may need to be re-extracted. |
| Surrogates | % Recoveries within QC limits. Refer to the analysis numbers in the header of this document in LIMS for acceptance limits. These are reviewed and updated on a semiannual basis. | 1. If non-compliant, check for calculation or preparation errors.<br>2. If no errors found, check system for problems and reanalyze.<br>3. If no problem is found, re-extract and reanalyze.<br>4. If surrogates are out of spec high and no targets are detected in the sample no corrective action is required.<br>5. For samples analyzed only at a dilution ≥10x, no further action is required for surrogate failures. |

*Requires approval of supervisor
**Method blank or instrument blank in each 12-hour analytical period required for 8270E.

**NOTE:** Any failures without corrective action require approval of supervisor and completion of a non-conformance memo (NCM).

**NOTE:** All data associated with failed quality control will be qualified on the final report. QC outlier qualifiers are added to the associated sample results on the report by the LIMS.

D. Lower Limit of Quantitation (LLOQ)

1. Refer to *QA-SOP11892* for initial and ongoing LLOQ requirements.

E. Method Detection Limit (MDL)

1. Refer to *QA-SOP11892* for initial and ongoing MDL requirements.

F. Limit of Quantitation (LOQ)

1. Refer to *QA-SOP11892* for initial and ongoing LOQ requirements.
2. Until the laboratory has sufficient data to determine the acceptance limits, the LLOQ criteria is ± 20% of the statistically determined LCS limits.

**Table I**

**DFTPP Key Ions and Ion Abundance Criteria**

| Mass | Ion Abundance Criteria |
|---|---|
| 51 | 10% to 80% of mass 198 |
| 68 | <2% of mass 69 |
| 70 | <2% of mass 69 |
| 127 | 10% to 80% of mass 198 |
| 197 | <2% of mass 198 |
| 198 | Base peak, or >50% of mass 442 |
| 199 | 5% to 9% of mass 198 |
| 275 | 10% to 60% of mass 198 |
| 365 | >1% of mass 198 |
| 441 | Present but less than 24% of mass 442 |
| 442 | Base peak, or >50% of mass 198 |
| 443 | 15% to 24% of mass 442 |

**Table II**

**Semivolatile Internal Standard with Corresponding Compounds Assigned for Quantitation**
**Semivolatile Internal Standard with Corresponding Compounds Assigned for Quantitation**

| **1,4-Dichlorobenzene-$d_4$** | **Naphthalene-$d_8$** | **Acenaphthene-$d_{10}$** |
|---|---|---|
| Aniline | Hexachloropropene | Acenaphthene |
| Benzyl alcohol | Benzoic acid | Acenaphthylene |
| Bis(2-chloroethyl) ether | Bis(2-chloroethoxy)methane | 1-Chloronaphthalene |

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Bis(2-chloroisopropyl) ether
2-Chlorophenol
1,3-Dichlorobenzene
1,4-Dichlorobenzene
1,2-Dichlorobenzene
Ethyl methanesulfonate
2-Fluorophenol (surr)
Hexachloroethane
Methyl methanesulfonate
2-Methylphenol
4-Methylphenol
N-Nitrosodimethylamine
N-Nitroso-di-n-propyl amine
Phenol
Phenol-d5 (surr)
2-Picoline
1,4-Dioxane
Pyridine
Indene
Acetophenone
o-Toluidine
N-Nitrosomethylethylamine
N-Nitrosodiethylamine
N-Nitrosopyrrolidine
N-Nitrosomorpholine
N,N-dimethyl formamide
N,N-dimethyl acetamide
Benzaldehyde
Malononitrile
2-butoxyethanol

(surr) = surrogate

4-Chloroaniline
4-Chloro-3-methylphenol
2,4-Dichlorophenol
2,6-Dichlorophenol
α,α-Dimethylphenylamine
2,4-Dimethylphenol
Hexachlorobutadiene
Isophorone
2-Methylnaphthalene
Naphthalene
Nitrobenzene
Nitrobenzene-d5 (surr)
2-Nitrophenol
N-Nitrosodi-n-butylamine
N-Nitrosopiperidine
1,2,4-Trichlorobenzene
1-Methylnaphthalene
O,O,O-triethylphosphorothioate
Hexachlorpropene
1,4-Phenylenediamine
Safrole
(2-Bromoethyl)benzene
Caprolactam
2-chlorobenzaldehyde

2-Chloronaphthalene
4-Chlorophenyl phenyl ether
Dibenzofuran
Diethyl phthalate
Dimethyl phthalate
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Fluorene
2-Fluorobiphenyl (surr)
Hexachlorocyclopentadiene
1-Naphthylamine
2-Naphthylamine
2-Nitroaniline
3-Nitroaniline
4-Nitroaniline
4-Nitrophenol
Pentachlorobenzene
1,2,3,4-Tetrachlorobenzene
1,2,3,5-Tetrachlorobenzene
1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol
2,4,6-Tribromophenol (surr)
2,4,6-Trichlorophenol
2,4,5-Trichlorophenol
1,1'-Biphenyl
Diphenyl ether
Isosafrole
1,4-Naphthoquinone
1,4-Dinitrobenzene
1,3-Dinitrobenzene
Thionazin
5-Nitro-o-toluidine
2-chlorobenzalmalononitrile

| **Phenanthrene-$d_{10}$** | **Pyrene-$d_{10}$** | **Perylene-$d_{12}$** |
|---|---|---|
| 4-Aminobiphenyl | Benzidine | Benzo(b)fluoranthene |
| Anthracene | Benzo(a)anthracene | Benzo(k)fluoranthene |
| 4-Bromophenyl phenyl ether | Bis(2-ethylhexyl) phthalate | Benzo(g,h,i)perylene |
| Di-n-butyl phthalate | Butyl benzyl phthalate | Benzo(a)pyrene |
| 4,6-Dinitro-2-methylphenol | Chrysene | Dibenz(a,h)acridine |
| Fluoranthene | 3,3'-Dichlorobenzidine | Dibenz(a,j)acridine |
| Hexachlorobenzene | p-Dimethylaminoazobenzene | Dibenz(a,h)anthracene |
| N-Nitrosodiphenylamine | Pyrene | Indeno(1,2,3-cd)pyrene |
| Octachlorostyrene | 6-Methylchrysene | Di-n-octylphthalate |
| Pentachlorophenol | Terphenyl-$d_{14}$ (surr) | 3-Methylcholanthrene |
| Pentachloronitrobenzene | 7,12-Dimethylbenz(a)anthracene | |
| Phenacetin | Chlorobenzilate | |
| Phenanthrene | 2-Acetylaminofluorene | |
| Pronamide | 3,3'-Dimethylbenzidine | |
| 1-Nitronaphthalene | 4,4'-Methylenebis(2-Chloroaniline) | |
| 1,2-Diphenylhydrazine | | |
| Carbazole | | |
| Tetraethyldithiopyrophosphate | | |
| 1,3,5-Trinitrobenzene | | |
| Diallate trans/cis | | |
| Phorate | | |
| Dimethoate | | |
| Methyl parathion | | |
| Parathion | | |
| 4-Nitroquinoline-1-oxide | | |
| Methapyrilene | | |
| Isodrin | | |
| Atrazine | | |
| Dinoseb | | |

(surr) = surrogate

**Table III**

**Characteristic Ions for Semivolatile Compounds**

| Compound | Primary Ion | Secondary Ions |
|---|---|---|
| 2-Picoline | 93 | 66, 92 |
| 1,4-Dioxane | 88 | 58, 43 |
| Aniline | 93 | 66, 65 |
| Phenol | 94 | 65, 66 |
| Bis(2-chloroethyl) ether | 93 | 63, 95 |
| 2-Chlorophenol | 128 | 64, 130 |
| 1,3-Dichlorobenzene | 146 | 148, 113 |

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**Characteristic Ions for Semivolatile Compounds**

| Compound | Primary Ion | Secondary Ions |
|---|---|---|
| 1,4-Dichlorobenzene-d4 (IS) | 152 | 150, 115 |
| 1,4-Dichlorobenzene | 146 | 148, 113 |
| Benzyl alcohol | 108 | 79, 77 |
| 1,2-Dichlorobenzene | 146 | 148, 113 |
| N-Nitrosomethylethylamine | 88 | 42, 43, 56 |
| Bis(2-chloroisopropyl) ether | 45 | 77, 121, 79 |
| Methyl methanesulfonate | 80 | 79, 65, 95 |
| N-Nitrosodi-n-propylamine | 70 | 42, 101, 130 |
| Hexachloroethane | 117 | 201, 199 |
| Nitrobenzene | 77 | 123, 65 |
| Isophorone | 82 | 95, 138 |
| N-Nitrosodiethylamine | 102 | 42, 57, 44, 56 |
| 2-Nitrophenol | 139 | 109, 65 |
| 2,4-Dimethylphenol | 107 | 122, 121 |
| Bis(2-chloroethoxy)methane | 93 | 95, 123 |
| Benzoic acid | 105 | 122, 77 |
| 2,4-Dichlorophenol | 162 | 164, 98 |
| Ethyl methanesulfonate | 109 | 79, 97, 45, 65 |
| 1,2,4-Trichlorobenzene | 180 | 182, 145 |
| Naphthalene-d8 (IS) | 136 | 68 |
| Naphthalene | 128 | 129, 127 |
| Hexachlorobutadiene | 225 | 223, 227 |
| 4-Chloro-3-methylphenol | 107 | 144, 142 |
| 1-Methylnaphthalene | 142 | 141, 115 |
| 2-Methylnaphthalene | 142 | 141, 115 |
| 2-Methylphenol | 108 | 107, 77, 79, 90 |
| Hexachloropropene | 213 | 211, 215, 117, 141 |
| Hexachlorocyclopentadiene | 237 | 235, 272 |
| N-Nitrosopyrrolidine | 100 | 41, 42, 68, 69 |
| Acetophenone | 105 | 71, 51, 120 |
| 4-Methylphenol | 108 | 107, 77, 79, 90 |
| 2,4,6-Trichlorophenol | 196 | 198, 200 |
| o-Toluidine | 106 | 107, 77, 51, 79 |
| 3-Methylphenol (as 4-Methylphenol) | 108 | 107, 77, 79, 90 |
| 2-Chloronaphthalene | 162 | 127, 164 |
| N-Nitrosopiperidine | 114 | 42, 55, 56, 41 |
| 1,4-Phenylenediamine | 108 | 80, 53, 54, 52 |
| 1-Chloronaphthalene | 162 | 127, 164 |
| 2-Nitroaniline | 138 | 92, 65 |
| Dimethyl phthalate | 163 | 194, 164 |
| Acenaphthylene | 152 | 151, 153 |
| 2,6-Dinitrotoluene | 165 | 63, 89, 121 |
| Phthalic anhydride | 104 | 76, 148 |
| 3-Nitroaniline | 138 | 108, 92 |
| Acenaphthene-d10 (IS) | 164 | 162, 160 |
| Acenaphthene | 153 | 154, 152 |
| 2,4-Dinitrophenol | 184 | 63, 154, 107 |
| 2,6-Dichlorophenol | 162 | 164, 126, 98, 63 |
| 4-Chloroaniline | 127 | 129, 65, 92 |
| Isosafrole | 162 | 131, 104, 77, 51 |
| Dibenzofuran | 168 | 139 |
| 2,4-Dinitrotoluene | 165 | 63, 89, 182 |
| 4-Nitrophenol | 109 | 139, 65 |
| 2-Naphthylamine | 143 | 115, 116 |
| 1,4-Naphthoquinone | 158 | 104, 102, 76, 130 |
| Diethyl phthalate | 149 | 177, 150 |
| Fluorene | 166 | 165, 167 |
| N-Nitrosodi-n-butylamine | 84 | 57, 41, 116, 158 |

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**Characteristic Ions for Semivolatile Compounds**

| Compound | Primary Ion | Secondary Ions |
|---|---|---|
| 4-Chlorophenyl phenyl ether | 204 | 206, 141 |
| 4,6-Dinitro-2-methylphenol | 198 | 51, 105, 182, 77 |
| N-Nitrosodiphenylamine | 169 | 168, 167 |
| Safrole | 162 | 104, 77, 103, 135 |
| Diphenylamine | 169 | 168,167 |
| 1,2,4,5-Tetrachlorobenzene | 216 | 214, 179, 143, 218 |
| 1-Naphthylamine | 143 | 115, 89, 63 |
| 4-Bromophenyl phenyl ether | 248 | 250, 141 |
| 2,4,5-Trichlorophenol | 196 | 198, 97, 132, 200 |
| Hexachlorobenzene | 283 | 142, 249 |
| Pentachlorophenol | 266 | 264, 268 |
| 5-Nitro-o-toluidine | 152 | 77, 79, 106, 94 |
| Thionazin | 107 | 96, 97, 143, 79 |
| Phenyl ether | 170 | 115, 115, 141, 142 |
| 4-Nitroaniline | 138 | 65, 108, 92, 80 |
| Phenanthrene-d10 (IS) | 188 | 94, 80 |
| Phenanthrene | 178 | 179, 176 |
| Anthracene | 178 | 176, 179 |
| 1,4-Dinitrobenzene | 168 | 75, 50, 76, 92 |
| 1,3-Dinitrobenzene | 168 | 76, 50, 75, 92 |
| Diallate (cis or trans) | 86 | 234, 43, 70 |
| Pentachlorobenzene | 250 | 252, 248, 215, 254 |
| 5-Nitro-o-anisidine | 168 | 79, 52, 138, 153, 77 |
| Pentachloronitrobenzene | 237 | 142, 214, 249, 295 |
| 4-Nitroquinoline-1-oxide | 190 | 160, 116, 114 |
| Di-n-butyl phthalate | 149 | 150, 104 |
| 2,3,4,6-Tetrachlorophenol | 232 | 131, 230, 166, 234 |
| Fluoranthene | 202 | 101, 203, 100 |
| 1,3,5-Trinitrobenzene | 213 | 74, 75, 120, 91 |
| Benzidine | 184 | 92, 185 |
| Pyrene | 202 | 101, 203 |
| Phorate | 75 | 121, 97, 93, 260 |
| Phenacetin | 108 | 179, 109, 137, 80 |
| Dimethoate | 87 | 93, 125, 143, 229 |
| 4-Aminobiphenyl | 169 | 168, 170, 115 |
| Pronamide | 173 | 175, 145, 109, 147 |
| Dinoseb | 211 | 163, 147, 117, 240 |
| Disulfoton | 88 | 97, 89, 142, 186 |
| Butyl benzyl phthalate | 149 | 91, 206 |
| Methyl parathion | 109 | 125, 263, 79, 93 |
| Dimethylaminoazobenzene | 225 | 120, 77, 148, 42 |
| Benz(a)anthracene | 228 | 229, 226 |
| Chrysene-d12 (IS) | 240 | 120, 236 |
| 3,3'-Dichlorobenzidine | 252 | 254, 126 |
| Chrysene | 228 | 226, 229 |
| Parathion | 109 | 97, 291, 186 |
| Bis(2-ethylhexyl) phthalate | 149 | 167, 279 |
| 3,3'-Dimethylbenzidine | 212 | 106, 196, 180 |
| Methapyrilene | 97 | 58, 72, 191, 261 |
| Isodrin | 193 | 66, 195, 263, 265, |
| Di-n-octyl phthalate | 149 | 167, 43, 150 |
| 2-Aminoanthraquinone | 223 | 167, 195, 139 |
| Aramite | 185 | 191, 319, 334, 197 |
| Benzo(b)fluoranthene | 252 | 253, 125 |
| Benzo(k)fluoranthene | 252 | 253, 125 |
| Chlorobenzilate | 139 | 251, 253, 111, 141 |
| Benzo(a)pyrene | 252 | 253, 125 |
| Perylene-d12 (IS) | 264 | 260, 265 |

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**Characteristic Ions for Semivolatile Compounds**

| Compound | Primary Ion | Secondary Ions |
|---|---|---|
| 7,12-Dimethylbenz(a)anthracene | 256 | 241, 239, 120 |
| 2-Acetylaminofluorene | 181 | 180, 223, 152 |
| 4,4'-Methylenebis(2-chloroaniline) | 231 | 266, 140, 195 |
| 3-Methylcholanthrene | 268 | 252, 253, 126, 134 |
| Indeno(1,2,3-cd)pyrene | 276 | 138, 227 |
| Dibenz(a,h)anthracene | 278 | 139, 279 |
| Benzo(g,h,i)perylene | 276 | 138, 277 |
| 1,2-Diphenylhydrazine | 77 | 105, 182, 51 |
| Endosulfan I | 195 | 33 |
| 2-Fluorobiphenyl (surr) | 172 | 171 |
| 2-Fluorophenol (surr) | 112 | 64, 92 |
| Nitrobenzene-d5 (surr) | 82 | 128, 54 |
| N-Nitrosodimethylamine | 74 | 42, 44 |
| Phenol-d5 (surr) | 99 | 42, 71 |
| Terphenyl-d14 (surr) | 244 | 122, 212 |
| 2,4,6-Tribromophenol (surr) | 330 | 332, 141 |
| N,N-dimethyl formamide | 73 | 44, 42 |
| N,N-dimethyl acetamide | 87 | 72, 44, 42 |
| (2-Bromoethyl)benzene | 184 | 77, 91, 105, 186 |
| Atrazine | 200 | 173, 215 |
| Benzaldehyde | 77 | 105, 106 |
| Caprolacatam | 113 | 55, 56 |
| 1,1-Biphenyl | 154 | 153, 152, 76 |
| Carbazole | 167 | 166, 139 |
| 1,3,5-Trichlorobenzene | 180 | 182, 145, 109 |
| 1,2,3-Trichlorobenzene | 180 | 182, 145, 109 |
| 1,2,3,4-Tetrachlorobenzene | 216 | 214, 218, 179 |
| 1-Chloro-4-Nitrobenzene | 157 | 111, 75, 99 |
| Octachlorostyrene | 308 | 343, 380, 273 |
| 1,2,3,5-tetrachlorobenzene | 216 | 214, 218, 179, 143 |
| 2-chlorobenzaldehyde | 139 | 111, 140, 76 |
| 2-chlorobenzalmalononitrile | 153 | 188, 126 |
| Malononitrile | 66 | 38, 39 |
| 6-Methylchrysene | 242 | 226, 215, 106 |
| Dibenz(a,h)acridine | 279 | 252, 139 |
| Dibenz(a,j)acridine | 279 | 252, 139 |
| Indene | 115 | 116, 89 |
| Pyridine | 79 | 52, 51 |
| 2-Butoxyethanol | 57 | 45, 87 |

IS = internal standard

surr = surrogate

**Table IV**

**Recommended Minimum Response Factor Criteria for Initial and Continuing Calibration Verification Using the Suggested Ions from Table III**

| Semivolatile Compounds | Minimum Response Factor (RF) |
|---|---|
| Benzaldehyde | 0.010 |
| Phenol | 0.800 |
| Bis(2-chloroethyl)ether | 0.700 |
| 2-Chlorophenol | 0.800 |
| 2-Methylphenol | 0.700 |
| 2,2'-Oxybis-(1-chloropropane) | 0.010 |
| Acetophenone | 0.010 |
| 4-Methylphenol | 0.600 |

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**Recommended Minimum Response Factor Criteria for Initial and Continuing Calibration Verification Using the Suggested Ions from Table III**

| Semivolatile Compounds | Minimum Response Factor (RF) |
|---|---|
| N-Nitroso-di-n-propylamine | 0.500 |
| Hexachloroethane | 0.300 |
| Nitrobenzene | 0.200 |
| Isophorone | 0.400 |
| 2-Nitrophenol | 0.100 |
| 2,4-Dimethylphenol | 0.200 |
| Bis(2-chloroethoxy)methane | 0.300 |
| 2,4-Dichlorophenol | 0.200 |
| Naphthalene | 0.700 |
| 4-Chloroaniline | 0.010 |
| Caprolactam | 0.010 |
| 4-Chloro-3-methylphenol | 0.200 |
| 2-Methylnaphthalene | 0.400 |
| Hexachlorocyclopentadiene | 0.050 |
| 2,4,6-Trichlorophenol | 0.200 |
| 2,4,5-Trichlorophenol | 0.200 |
| 1,1'-Biphenyl | 0.010 |
| 2-Chloronaphthalene | 0.800 |
| 2-Nitroaniline | 0.010 |
| Dimethylphthalate | 0.010 |
| 2,6-Drintrotoluene | 0.200 |
| Acenaphthylene | 0.900 |
| 3-Nitroaniline | 0.010 |
| Acenaphthene | 0.900 |
| 2,4-Dintirophenol | 0.010 |
| 4-Nitrophenol | 0.010 |
| Dibenzofuran | 0.800 |
| 2,4Dinitrotoluene | 0.200 |
| Diethylphthalate | 0.010 |
| 1,2,4,5-Tetrachlorobenzene | 0.010 |
| 4-Chlorophenyl-phenylether | 0.400 |
| Fluorene | 0.900 |
| 4-Nitroaniline | 0.010 |
| 4,6-Dinitro-2-methylphenol | 0.010 |
| 4-Bromophenyl-phenylether | 0.100 |
| N-Nitrosodiphenylamine | 0.010 |
| Hexachlorobenzene | 0.100 |
| Atrazine | 0.010 |
| Pentachlorophenol | 0.050 |
| Phenanthrene | 0.700 |
| Anthracene | 0.700 |
| Carbazole | 0.010 |
| Di-n-butylphthalate | 0.010 |
| Fluoranthene | 0.600 |
| Pyrene | 0.600 |
| Butylbenzylphthalate | 0.010 |

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**Recommended Minimum Response Factor Criteria for Initial and Continuing Calibration Verification Using the Suggested Ions from Table III**

| Semivolatile Compounds | Minimum Response Factor (RF) |
|---|---|
| 3,3'-Bichlorobenzidine | 0.010 |
| Benzo(a)anthracene | 0.800 |
| Chrysene | 0.700 |
| Bis(2-ethylhexyl)phthalate | 0.010 |
| Di-n-octlyphthalate | 0.010 |
| Benzo(b)fluoranthene | 0.700 |
| Benzo(k)fluoranthene | 0.700 |
| Benzo(a)pyrene | 0.700 |
| Indeno(1,2,3-cd)pyrene | 0.500 |
| Dibenz(a,h)anthracene | 0.400 |
| Benzo(g,h,i)perylene | 0.500 |
| 2,3,4,6-Tetrachlorophenol | 0.010 |

QA-SOP11178 Demonstrations of Capability
QA-SOP11892 Determining Method Detection Limits and Limits of Quantitation
T-OE-SVOA-WI10916 Low-Level Sonic Probe Extraction Procedure by Method 3550C for the Determination of Semivolatiles in a Solid Matrix
T-OE-SVOA-WI10917 Waste Dilution, EPA 3580A for Acid Extractables and Base-Neutrals in a Non-Water Soluble Matrix
T-OE-SVOA-WI10928 Microwave Extraction by Method 3546 for Semivolatiles
T-OE-SVOA-WI10935 Separatory Funnel Extraction (Method 3510C) of Base Neutrals and Acid Extractables in Leachates
T-OE-SVOA-WI11432 Separatory Funnel Extraction by Method 3510C for BNAs in Wastewater
T-SVOA-FRM9602 Dept 4026 Calculations
T-SVOA-WI11998 Semivolatile Spiking and Calibration Standards
T-SVOA-WI9598 GC/MS Preventative and Corrective Maintenance
T-SVOA-WI9604 Monitoring GC/MS Semivolatile QC Data Acceptance Limits

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**Version history**

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| 13 | 15.NOV.2022 | | |
| 14 | 23.JUN.2023 | | |

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|---|---|---|
| eurofins | Always check on-line for validity.<br>**TOC and TC in Solids and Sludges by Combustion by SW-846 9060/9060A, Lloyd Kahn** | Level:<br>**Work Instruction** |
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## Revision Log

| **Revision:** 19 | **Effective Date:** This version | |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version. |
| Calibration | Current Process | Update to RE criteria |

| **Revision:** 18 | **Effective Date:** 04-NOV-2022 | |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version. |
| Basic Principles | Updated | Changed Temperature and wording |
| Reference Modifications | Process correction | Added modifications to 9060 |
| Personnel Training and Qualifications | Enhancement | IDOC and DOC requirements added |

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| **Revision:** 18 | **Effective Date:** 04-NOV-2022 | |
|---|---|---|
| Calibration | Regulatory Requirement | Added relative error requirements |
| Throughout Document | Current Process | Changed wording to match standards names |

## Reference


1. Standard Methods for the Examination of Water and Wastewater, 21st Edition, 2005, Method 5310B-2011,

2. Standard Methods for the Examination of Water and Wastewater, Method 5310B-2014.

3. *Method 415.1, Methods for Chemical Analysis of Water and Wastes USEPA 600.*

4. *Test Methods for Evaluating Solid Wastes, SW-846 Method 9060, September 1986.*

5. Test Methods for Evaluating Solid Wastes, SW-846 Method 9060A, November 2004

6. *The Primacs SNC-100 Analyzer Manual*, Skalar..

7. *Determination of Total Organic Carbon in Sediment, U. S. EPA, Region II, July 27, 1988. ("Lloyd Kahn Method.").*

8. *Chemical Hygiene Plan*, current version.


## Cross Reference

| Document | Document Title |
|---|---|
| *QA-SOP11892* | Determining Method Detection Limits and Limits of Quantitation |
| *QA-SOP11896* | Establishing Control Limits |
| *QA-SOP11188* | Reagents and Standards |

## Scope

This method is applicable for the determination of total organic carbon (TOC) in soils and other samples not easily analyzed by the TOC waters method. The limit of quantitation (LOQ) for this method can be found in the analysis information file. Quantitative TOC results up to 1,000,000 mg/kg may be obtained by this method.

## Basic Principles

TOC is determined by acidifying a sample and heating it to remove the TIC. An aliquot of sample (1 mg to 1 g) is weighed into a sample cup. The sample is then heated to 1100°C for combustion of the remaining TOC. The resulting carbon dioxide from the TOC is detected by a nondispersive infrared (NDIR) detector that has been calibrated to directly display the mass of carbon dioxide detected. The mass is proportional to the mass of TOC in the sample. Samples analyzed by this method include solids such as soils or sediments, slurries, sludges, brines, and corrosives.

The TC method is identical to the TOC method, with the exception that there is not an acidification and heating step to remove the TIC.

TIC is the calculation subtracting the TOC soil result from the result obtained when analyzing the TC.

## Reference Modifications

The calibration standards, QC standards, and LCS employed for this analysis are composed of only organic sources of carbon (Sucrose for the calibration and a purchased standard for the LCS and CCV standards). Therefore, the Total Organic Carbon content is equal to the Total Carbon content in these standards.

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Method SW-846 9060 is a quadruplicate analysis that is designed for water analysis, the lab does not run the solids in quadruplicate the analysis runs a single injection of all samples.

## Interferences

Carbon is ubiquitous in nature. Therefore, extra care must be taken to avoid contamination of reagents, glassware, and any other materials that come in contact with the sample. Samples which are light in weight may need to be analyzed at smaller aliquots to fit within a sample cup. These samples are reported with an elevated LOQ.

## Safety Precautions and Waste Handling

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

1. Normal laboratory practices for safety must be followed.

2. Extreme caution must be used when handling sample cups after they have been analyzed.

3. Discard acid waste in acid waste containers.

4. See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

## Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the analyst's training records.

Initially, each technician performing these techniques must work with an experienced technician for a period of time until they can independently perform the procedure. Proficiency is measured through an Initial Demonstration of Capability (IDOC).

The IDOC consists of four aliquots spiked with sucrose at 1-4X the RL that are carried through all steps of the procedure and meet the defined acceptance criteria. The criteria include the calculation of mean accuracy of 50-150%, and relative standard deviation of less than or equal to 20%.

The DOC consists of four laboratory control samples (or alternatively, one blind sample) that are carried through all steps of the procedure. The DOC includes calculation of mean accuracy and standard deviation. The mean accuracy criteria are the LCS windows. The RSD criteria is 20%.

## Sample Collection, Preservation, and Handling

Samples must be collected and stored in glass containers unpreserved. Samples must be stored under refrigeration at 0° to 6°C, not frozen.

Because very small amounts (1 mg to 1 g) of sample are used for the analysis, the sample must be as homogeneous as possible.

The holding time for analysis by SW-846 9060/9060A is 28 days. The holding time for analysis by the Lloyd Kahn method is 14 days.

## Apparatus and Equipment

1. Skalar-Primacs SC100

2. PC and SNAccess software

3. 2-stage gas regulator (two required)

4. Sample cups

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5. Fiber quartz wool

6. Analytical balance, capable of accurately weighing to 1. mg

7. Glassware – General laboratory glassware as needed for preparing reagents and standards

8. Microliter syringe, various volumes

## Reagents and Standards

**NOTE:** All chemical used must be ACS reagent grade unless otherwise noted.
Different volumes or weights may be used provided the ratios remain equivalent.
See *QA-SOP11188*, for the appropriate labeling and documentation of reagent and standard preparation.

1. Ultra pure oxygen gas (60 psi)

2. Phosphoric acid. Store at room temperature. See label for expiration date.

3. 1+1 Phosphoric acid (WC_TOC_1:1PA)

| | |
|---|---|
| Phosphoric acid (H3PO4) | 50 mL |
| Reagent water | 50 mL |

Take 50 mL of H3PO4 and add slowly while swirling to a 100-mL volumetric flask containing 50 mL reagent water. Store at room temperature. Prepare fresh every 6 months.

4. TOC stock calibration standard (sucrose containing 30% carbon) (WC_TOC_30%SUC), purchased. See label for expiration date. Store at room temperature.

5. TOC LCS standard, purchased (WC_TOC_SLCSCC). Certified reference material, ISO-17034 certified. See label for expiration date, and the certified concentration. Store at room temperature.

## Sample Cup Preparation

Sample cups must be conditioned prior to analysis. This is achieved by heating the cups to at least 900°C for a period of 5 minutes.

## Calibration

1. Working standards for calibration

Pipette a volume of the Sucrose calibration standard into the sample cups as follows:

| Working Std. (mg C) | Vol. Sucrose (µL) |
|---|---|
| 0.30 | 1.0 |
| 0.90 | 3.0 |
| 3.0 | 10.0 |
| 6.0 | 20.0 |

2. Continuing calibration verification standard (CCV)

This is a purchased standard, and the acceptable range is specified by the manufacturer.

## Procedure

1. Turn on oxygen to 60 psig.

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2. Measure the carrier gas (oxygen) flow rate and adjust to 200 mL/min.

3. Power up instrument.

4. Program in a sequence file.

5. Run the calibration sequence as follows: 0.30, 0.90, 3.0, and 6.0 mg C (Performed monthly).

6. The instrument automatically calculates the R and list the calibration data.

7. Samples are analyzed along with the appropriate laboratory control standard and preparation blank. A check standard (CCV) and a continuing calibration blank (CCB) must be run at the beginning of each run and after every ten samples.

8. Add sufficient glass wool to each cup to cover the bottom surface.

9. Weigh samples into sample cups (up to 1000 mg). Add 1+1 H3PO4 drop wise until effervescence stops. Heat at 75°C for 15 minutes. Record the oven ID, time and temperature of this step in the log book.

**NOTE:** This procedure will convert inorganic carbonates and bicarbonates to carbon dioxide and eliminate it from the sample. The addition of H3PO4 and the heating to 75°C is not performed for samples requesting Total Carbon analysis.

10. Analyze the residue according to the instrument manufacturer's instructions for the remaining TOC result.

## Calculations

1. To determine mg/kg TOC or TC

   mg/kg = (Raw result in mg C) x (1000/weight in mg) x (1000)

2. To determine LOQ/MDL factors

$$Factor = \frac{Maximum\ sample\ aliquot\ weight\ (1000.mg)}{weight\ of\ sample\ (mg)}$$

3. To determine Total Inorganic Carbon (TIC)

   TIC = Total Carbon (TC) - Total Organic Carbon (TOC)

4. Relative Error

   % Relative Error = $[(x'_i - x_i) / x_i]*100$

   where:
   $x_i$ = True value for the calibrated standard
   $x'_i$ = Measured concentration of the calibration standard

## Statistical Information/Method Performance

1. The method detection limit (MDL) is determined annually by following the procedure outlined in *QA-SOP11892*.

2. The quality control acceptance windows are based off the manufacture data. The lab evaluates these windows per CRM received.

## Quality Assurance/Quality Control

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1. A calibration must be performed every 30 days. The acceptable range for the calibration is R = 0.995 or greater. Calculate the relative error (%RE) of the lowpoint and midpoint calibration standard. The low point must be less than or equal to 50% and the mid point must be less than or equal to 10%. If this criteria is not met, the instrument must be recalibrated.

2. A batch must contain no more than 20 field samples.

3. A batch blank (MB) must be analyzed with every batch (not to exceed 20 samples). An acceptable result is < the limit of quantitation. If the MB does not meet this criterion, it must be rerun twice. If either of the two additional trials do not meet the acceptance criterion, all samples in the batch must be repeated.

4. A laboratory control standard (LCS) must be analyzed with every batch (not to exceed 20 field samples). For TOC this is a purchased standard and the acceptable range is specified by the manufacturer. The LCS should undergo the same steps as the samples. If the LCS does not meet the acceptable criterion, it must be repeated twice. If either of the two additional trials do not meet the acceptance criterion, all samples in the batch must be reanalyzed.

5. Based upon client requirements, a laboratory control standard duplicate (LCSD) may need prepared and analyzed under the same conditions as the LCS. The acceptance criterion for the LCSD is the same as that of the LCS. The relative percent difference between the LCS and the LCSD is calculated statistically.

6. Lloyd Kahn - one sample is analyzed in quadruplicate every batch. The acceptable relative percent difference is statistically determined. The duplicate relative percent differences must be tracked to continually monitor method performance.

7. 9060- A matrix spike (MS) and matrix spike duplicate (MSD)must be analyzed for every 20 samples. The sample is spiked with 3 ul of the Sucrose standard. The acceptance range is determined statistically. The spike recoveries must be tracked to continually monitor method performance.

8. A check standard (CCV) and blank (CCB) must be run after every ten injections (including blanks and standards). The acceptable range for the CCV determined by the manufacturer. An acceptable CCB result is < the limit of quantitation. If either, or both, of these injections do not meet the acceptance criterion, the unacceptable original must be repeated twice. If either of the two additional trials do not meet the acceptance criterion, all samples since the last compliant CCV/CCB must be reanalyzed.

9. A CCV and CCB shall be analyzed at the beginning and the end of each run. At any time when the instrument has been idle for a period of 4 hours or more, a CCV and CCB must be analyzed. If either of these parameters cannot meet specifications, the instrument must be recalibrated.

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QA-SOP11188 Reagents and Standards
QA-SOP11892 Determining Method Detection Limits and Limits of Quantitation
QA-SOP11896 Establishing Control Limits

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**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 17.1 | 22.JUN.2021 | | |
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| eurofins<br>Document number:<br>**T-IWC-WI11637**<br>Old Reference:<br>**1-P-QM-WI-9011651**<br>Version:<br>**19** | Always check on-line for validity.<br>**Total Organic Carbon (TOC), Dissolved Organic Carbon (DOC), and Total Inorganic Carbon (TIC) by SM 5310C or EPA 415.1 in Waters** | Level:<br>**Work Instruction**<br>Organisation level:<br>**5-Sub-BU** |
| Approved by: **XL3S**<br>Effective Date: **02-NOV-2022** | Document users:<br>**5_EUUSLA_Instrumental Water Quality_Manager, 6_EUUSLA_ Instrumental Water Quality _TOC Analyst, 6_EUUSLA_Instrumental Water Quality_Verifiers** | Responsible:<br>**5_EUUSLA_Instrumental Water Quality_Manager** |

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## Revision Log

| **Revision:** | 19 | **Effective Date:** | This version |
|---|---|---|---|
| **Section** | **Justification** | | **Changes** |
| Revision Log | Formatting requirement | | Removed revision logs up to the previous version |
| Calibration 1.a. | ISO standard<br>WV 47CSR32 | | Added the use of ISO 17034 certified standard<br>Updated ICB criteria |
| QAQC | Enhancement<br>WV 47CSR32 | | Re-organized section and added table.<br>Updated CCB criteria. |

| **Revision:** | 18.1 | **Effective Date:** | 12-Nov-2021 |
|---|---|---|---|
| **Section** | **Justification** | | **Changes** |
| Revision Log | Formatting requirement | | Removed revision logs up to the previous version |
| Procedure | Correction | | Syringe filters are not rinsed prior to use. |
| QAQC 2. | Clarification | | CCVs alternate concentration. |

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## Reference

1. Standard Methods for the Examination of Water and Wastewater, 22nd Edition, Method 5310 C - 2000

2. . Standard Methods for the Examination of Water and Wastewater, Method 5310 C- 2011

3. Standard Methods for the Examination of Water and Wastewater, Method 5310 C -2014.

4. Method 415.1, Revision 1 (1974), Methods for Chemical Analysis of Water and Wastes USEPA 600.

5. *Model 1030 Total Organic Carbon Analyzer Operating Procedures and Service Manual,* O.I. Corporation, 2005.

6. *Chemical Hygiene Plan*, current version.

7. QC Laboratories Inc.SOP QC0590.

## Cross Reference:

| Document | Document Title |
|---|---|
| *T-WC-WI11644* | Maintenance of the OI Analytical Model 1030 Total Organic Carbon Analyzer |
| *QA-SOP11892* | Determining Method Detection Limits and Limits of Quantitation |
| *QA-SOP11896* | Establishing Control Limits |

## Scope:

This procedure is applicable for the determination of total organic carbon, Dissolved Organic Carbon, or Total Inorganic Carbon in water and wastewaters by SM 5310 C or EPA 415.1.

Swabs can be accepted and analyzed for TOC as a special request by the client.

The current limit of quantitation (LOQ) and method detection limit (MDL) for this analysis can be found in the laboratory information management system (LIMS).

## Basic Principles:

The procedure outlined in this method pertains to the O.I. Model 1030 analyzer. This model uses the persulfate oxidation technique.

A sample aliquot of water or wastewater is injected into a reaction vessel at 100°C where metered amounts of phosphoric acid are added. The sample is purged with ultrapure nitrogen gas to remove inorganic carbon as carbon dioxide and any purgeable organic carbon (POC). Following the purging of the inorganic fraction, a metered amount of sodium persulfate is added to the reaction vessel, and the sample is heated. The persulfate oxidizes any organic carbon to carbon dioxide. Following the completion of the persulfate digestion, the carbon dioxide is carried to the IR detector by the nitrogen stream.

Samples for DOC are passed through a 0.45-µ membrane filter prior to analysis. TIC can be determined by calculating the difference between total carbon and TOC.

Clients can send swabs for the determination of TOC. These samples are reported as mg/swab. Multiply the concentration of TOC found in the extract by the swab extract volume.

## Reference Modifications:

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There are no procedural differences between EPA 415.1 and SM 5310 C.

Syringe filters are not rinsed prior to sample filtration. All Method Blanks and LCS samples are filtered in the laboratory to show that there is no interference (positive or negative) that impacts DOC analysis. MB are evaluated to <1/2RL and LCS are evaluated to method criteria, showing acceptability of filters used in the laboratory.

## Interferences:

This method is generally free of interferences when normal wastewater and water samples are analyzed. However, high concentrations of chloride can interfere and several other problems can arise from certain sample matrices. These are listed below.

1. Chloride can react with the persulfate, which can cause erroneously low TOC results. Samples high in chloride may require that extra persulfate be added and the reaction time extended. The chlorine gas that is produced is also damaging to the molecular sieve. For these reasons, samples must not be preserved with hydrochloric acid.

2. Samples with high levels of inorganic carbon may require extra acid and longer purge time to ensure all the carbonates and bicarbonates are removed from the sample. A smaller sample volume may also be used.

3. Samples with high levels of organic carbon may require that extra sodium persulfate be added and that the reaction time is extended to ensure that all the organic carbon is oxidized by the persulfate. A smaller sample volume may also be used. Spiking the sample with a known amount of carbon and calculating recovery can be used to verify the oxidation efficiency.

4. When sequentially analyzing samples, carryover may occur when a sample high in carbon is followed by a sample low in carbon. This will produce erroneously high results for low-level TOC samples. This is caused by adsorption of organic carbon on the Teflon™ tubes and overloading of the molecular sieve. If an excessively high-level sample is accidentally introduced into the system, it may be necessary to clean the digestion vessel with reagent water before analyzing any more samples. This is accomplished by cycling reagent water and the reagents through the system until TOC values drop to less than 1/2 the RL.

## Safety Precautions and Waste Handling:

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

Normal laboratory safety practices must be followed when performing this method. Extra care must be taken when handling the persulfate reagent (which is a strong oxidant) and unknown samples that could contain toxic or carcinogenic chemicals. Inspect all glassware before use. Discard or send for repair any glassware that is chipped, flawed, or broken.

## Personnel Training and Qualifications:

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the analyst's training records.

Initially, each technician performing these techniques must work with an experienced technician for a period of time until they can independently perform the procedure. Proficiency is measured through an Initial Demonstration of Capability (IDOC).

The IDOC consists of four replicates of the LCS. The mean of the replicates must fall within ± 15% of the true value and have a RSD <10%.

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Various options are available for a DOC and can include four LCS's that meet the method acceptance criteria, or analysis of one blind sample.

## Sample Collection, Preservation, and Handling:

All samples must be collected in glass containers and stored at 0°to 6°C not frozen.

TOC samples must be acidified with concentrated phosphoric acid or sulfuric acid to a pH <2. The holding time for these samples is 28 days.

DOC samples are field or lab filtered within 48 hours, and then acidified with concentrated phosphoric acid or sulfuric acid to a pH <2. The holding time for these samples is 28 days after preservation.

## Apparatus and Equipment

1. O.I. Corporation Model 1030 TOC analyzer

2. O.I. Corporation Model 1088 Rotary Autosampler

3. 2-stage gas regulator

4. Analytical balance capable of accurately weighing to 0.0001 g

5. Automatic pipettes

6. Syringe filters - 0.45 µm pore size

## Reagents and Standards

A. All chemicals used must be ACS reagent grade unless otherwise noted.
B. Different volumes or weights may be used provided the ratios remain equivalent.

C. Reagents and Standards
1. Ultra-pure nitrogen gas (30 psi)

2. (WC_TOC_SodPer) Oxidizing reagent - Sodium persulfate (Na2S2O8)
   a. Dissolve 100 ± 1 g of sodium persulfate in approximately 500 mL of reagent water in a 1000-mL volumetric flask.

   b. Dilute to volume with reagent water.

   c. Purge with nitrogen gas for 1 hour to release inorganic carbon present in reagent.

   d. This solution is stable for 6 months and is stored at room temperature in a plastic container.

3. (WC_TOC_5%Phos) Phosphoric acid (5% w/w)

   a. Add 59 mL of 85% H3PO4 to about 500 mL of reagent water in a 1000-mL volumetric flask.

   b. Mix thoroughly and dilute to volume with reagent water.

   c. This solution is stable for 6 months and is stored at room temperature in a plastic container.

4. (WC_TIC_QC) Total Inorganic Standard (500 mg/L)

   Sodium bicarbonate (NaHCO3) 0.1750 g ±0.0005 g

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Sodium carbonate (Na2CO3) 0.2209 g ±0.0005 g

a. Dissolve above reagents in a 100-mL volumetric flask containing about 50 mL of reagent water.

b. Dilute to volume with reagent water.

c. Prepare monthly. Do not acidify. Store in the flask at 0°to 6°C not frozen.

5. ISO 17034 Certified Reference Material (CRM): Purchased. See certificate of analysis for true value supplied by the vendor.

## Calibration:

1. (WC_TOC_CALSTD) TOC stock calibration standard (1000 mg C/L)

    a. This is a purchased standard, ISO 17034 certified.

2. (WC_TOC_QC_STD) TOC stock QC standard (500 mg C/L)

    Phosphoric acid, concentrated (H3PO4) 20 drops

    a. Dissolve 1.063 ± 0.005 g of KHP a 1000-mL volumetric flask containing about 500 mL of reagent water.

    b. Add concentrated phosphoric acid (H3PO4) to the 1000-mL volumetric flask until the pH is <2.

    c. Bring to volume with reagent water

    d. Prepare every 30 days. Store in an amber glass bottle at 0º to 6º C, not

3. Working standards for calibration and QC

Pipette a volume of TOC stock standard into the appropriate volumetric flask that contains reagent water and three drops of concentrated phosphoric acid. Dilute to volume with reagent water. Prepare daily, as needed, according to the following table:

| Volume Stock CAL Standard (mL) | Standard Concentration (mg/L) | Final Volume (mL) |
|---|---|---|
| 10 | 100 | 100 |
| 5 | 50 | 100 |
| 5 | 25 | 200 |
| 1 | 10 | 100 |
| 3.0 | 7.5 | 100 |
| 0.1 | 1.0 | 100 |
| | | |
| Volume Stock QC Standard (mL) | Standard Concentration (mg/L) | Final Volume (mL) |
| 0.4 | 1.0 - CCVL | 200 |
| 10.0 | 25 - LCSW / ICV / CCV (Mid) | 200 |
| 10.0 | 50 - CCV (High) | 100 |

4. Instrument Calibration

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a. The instrument must be calibrated at least every 30 days, or whenever acceptable check standards can no longer be obtained. Prepare a calibration sequence as follows:

Clean Up
Rinse
QC Blank
STD - 0mg/L
1.0 mg/L CAL
2.0 mg/L CAL
15 mg/L CAL
20 mg/L CAL
50 mg/L CAL
100 mg/L CAL
ICB
ICV

b. A calibration of 6 standards and a reagent water blank must be run monthly as the instrument calibration. The correlation coefficient of the curve must be ≥0.995.

c. Calibration is linear. The % Relative Error for the 1.0 mg/L and the 25 mg/L standard must be less than 15%.

d. Immediately after a calibration run, analyze the ICB. The ICB is reagent water brought to pH of <2 with phosphoric acid. The ICB must be < the MDL. If the result is higher, a new calibration must be prepared with lower concentrations.

e. After the ICB, analyze the ICV. The ICV must be within 15% of the true value.

**Procedure:**

1. General (more detailed instructions for each step can be found in the instrument manual)

2. Start up the instrument in the following manner:

a. Turn on the power switch located at the back of the instrument. The system loads the startup screen and User Login dialog box. Turn on the nitrogen gas flow.

b. Prime the syringe and all reagents by following the manufacturer's instructions located in the instrument manual.

3. Load the active sequence. The daily sequence must include:

100 mg/L CAL standard
CCB
CCV (High) - 50 mg/L
[bracket of 10 samples]
CCB
CCV (Mid) - 25 mg/L
[bracket of 10 samples]
CCB
CCVL - 1.0 mg/L

4. Each sample is injected in duplicate. The RPD of the duplicate injections must be< 10% when the concentrations are greater than five times the LOQ.

5. For DOC, the samples and all quality control samples are filtered through a 0.45 micron filter. There is no subtraction of the filter blank in the calculation for DOC.

6. For swab samples, add 20 to 50 mL of reagent water to the container holding the swab. Record the amount of reagent water added. Shake the sample for 5 minutes. Filter the extract through a 0.45 micron filter as described abouve in #5.

7. Load samples onto the autosampler trays.

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8. Press Start.

## Calculations:

The TOC result (in mg/L) is performed as below using the average of the two injections:

*raw result (mg/L from instrument) x dilution factor = final TOC (mg/L)*

For swab samples report the TOC as mg per swab by the following:
*TOC, mg per swab = T x L*

***Where:***
T = the concentration of TOC found in the extract in mg/L.
L = swab extract volume (L) = (mL used for the extract/1000).

## Statistical Information/ Method Performance:

1. The method detection limit (MDL) is determined annually by following the procedure outlined in *QA-SOP11892*. The 7 replicates must be analyzed over a period of at least 3 days.

2. The quality control acceptance windows are generated annually by following the procedure outlined in *QA-SOP11896*.

## Quality Assurance/Quality Control:

A. Calibration QC Requirements

1. See the Calibration section for frequency of calibration, acceptance criteria, and corrective actions.

B. Analytical Batch QC Requirements

1. The Continuing Calibration Verification (CCV) alternates between high, mid, and low CCVs.

2. The Continuing Calibration Blank (CCB) and Method Blank (MB) is reagent water brought to a pH of <2 with phosphoric acid.

3. A batch contains no more than 20 samples and the appropriate QC. Each batch must have a Method Blank (MB), a Laboratory Control Standard (LCS), a sample duplicate (DU) for each 10 samples in the batch, a matrix spike (MS) for each 10 samples in the batch.

4. See Table: QC Frequency and Acceptance Criteria. If any of the QC does not meet acceptance criterion, see T-WC-WI11652 for handling outliers and the appropriate corrective action that must be taken.

5. Sample results may not exceed the concentration of the highest standard. If a sample result falls above this value, the sample must be diluted with reagent water and run again.

6. Based upon client requirements, a MSD is prepared and analyzed under the same conditions as the MS. The acceptance criteria and corrective action are the same as the MS. The relative percent difference between the MS and MSD is statistical and can be found in the LIMS. If the RPD is outside of these criteria, consult your group leader to determine if reanalysis is necessary.

7. A Total Inorganic Carbon (TIC) check standard must be prepared daily to determine the efficiency of inorganic carbon removal when performing the total organic carbon analysis. This standard is prepared by adding 1.25 ml of the TOC QC stock and 1.25 ml of the TIC QC stock to a 25 ml volumetric and bringing to volume with reagent water.

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8. Daily a TOC carryover check must be analyzed. This is preformed by analyzing the highest calibration point and immediately following with a blank. the result of the blank must be less than half the reporting limit.

*QC Frequency and Acceptance criteria*

| QC Check | Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|---|
| CCV | Beginning and end of batch and after every 10 samples and if instrument is idle for more than 4 hours. | CCV(high and mid): 85 - 115%<br><br>CCVL: 50 - 150% | Re-calibrate instrument, perform maintenance if needed. |
| CCB | Beginning and end of batch and after every 10 samples | <MDL | Re-calibrate instrument, perform maintenance if needed. |
| TOC Carryover Check | Daily, immediately after the highest calibration point | <MDL | Re-calibrate instrument, perform maintenance if needed. |
| TIC Check | Daily | 80 - 120% | Re-analyze check, perform maintenance if needed. |
| LCS<br>LCSD (if required by client) | Each batch of samples. Analyze the 50mg/L QC standard. | waters: Statistical, see LIMS. No wider than 85 - 115%<br>LCSD RPD: 15% | Repeat all samples in batch |
| MB | Each batch of samples | <MDL | B-flag data >MDL. Repeat all samples in batch >1/2RL |
| MS<br>MSD (if required by client) | Every 10 samples, at least 1 per batch | waters: 85 - 115%<br>MS RPD: Statistical, see LIMS. | Data are qualified |
| DU | Every 10 samples, at least 1 per batch | RPD: 15% | Data are qualified |

QA-SOP11892 Determining Method Detection Limits and Limits of Quantitation
QA-SOP11896 Establishing Control Limits
T-IWC-WI11644 Maintenance of the OI Analytical Total Organic Carbon Solids Analyzer

End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 18 | 11.NOV.2021 | | |
| 18.1 | 12.NOV.2021 | | |
| 19 | 19.OCT.2022 | | |

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| eurofins | Always check on-line for validity. | Level: |
|---|---|---|
| | **VOCs and GRO by GC/MS in Soils and Solids by EPA 8260C/D** | **Work Instruction** |
| Document number: **T-VOA-WI8236** | | |
| Old Reference: **1-P-QM-WI-9013077** | | |
| Version: **11** | | Organisation level: **5-Sub-BU** |
| Approved by: **TYZ8** Effective Date: **23-JUN-2023** | Document users: **6_EUUSLA_GC/MS Volatiles_GC/MS Auditors/Verifiers, 6_EUUSLA_GC/MS Volatiles_Management, 6_EUUSLA_GC/MS Volatiles_SW846 8260 Soil** | Responsible: **5_EUUSLA_GC/MS Volatiles_Manager** |

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## Revision Log

| | **Revision:** 11 | **Effective Date:** This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Confidentiality statement | Updated | Updated to correct business name |
| LIMS ID | Updated | Removed 25mL water methods |
| Reagents and Standards | Updated | Removed TSC sheet references |
| Calibration | Updated | Removed TSC sheet references |
| Quality Assurance/Quality Control | Updated | Removed attachment references |
| Attachments | Change in documentation | Removed TSC sheets and added method anlayte list and Formulary reports |

| | **Revision:** 10 | **Effective Date:** 22-MAY-2022 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement per G-DC-SOP16244 | Removed revision logs up to the previous version |
| Procedure NOTE | Current process | Addition of client specific compositing performed by the analyst upon request. |
| Attachment 7 | Current process | Addition of client specific compositing performed by the analyst upon request. |

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## Reference

1. Volatile Organic Compounds by Gas Chromatography/ Mass Spectrometry (GC/MS), SW-846 Method 8260C, August 2006.

2. Volatile Organic Compounds by Gas Chromatography/ Mass Spectrometry (GC/MS), SW-846 Method 8260D, June 2018.

3. Determinative Chromatographic Separations, SW-846 Method 8000D, March 2018.

4. Test Methods for Evaluating Solid Wastes, SW-846 Method 5030B, December 1996.

5. Test Methods for Evaluating Solid Wastes, SW-846 Method 5030C, May 2003.

6. Test Methods for Evaluating Solid Wastes, SW-846 Method 5035, Revision 0, December 1996.

7. Test Methods for Evaluating Solid Waste, SW-846, Method 5035A, July 2002.

8. *Total Petroleum Hydrocarbons Analysis-Gasoline Method*, California Department of Health Services, LUFT Task Force.

9. *Chemical Hygiene Plan*, current version.

## Cross Reference

| Document | Document Title |
|---|---|
| *S-SS-WI10682* | GC/MS - Bulk Solid Matrix Sample Preparation |
| *S-SS-WI11170* | Preparation of Soils for Volatile Analysis by EPA SW-846 Method 5035 |
| *T-VOA-WI7619* | GC and GC/MS Instrumentation Maintenance |
| *T-VOA-WI7629* | GC/MS Volatile Standards Traceability |
| *T-VOA-WI7692* | Preparation and Analysis of Cleaning Blanks for GC and GC/MS Volatiles |
| *T-VOA-WI8373* | GC/MS Volatiles Audit Process |
| *QA-SOP11892* | Determining Method Detection Limits and Limits of Quantitation |

## Scope

This method is suitable for the determination of target compounds listed and maintained in the Laboratory Information Management System (LIMS) for soil and solid matrices. Samples consist of soils/solids collected or submitted in bulk in glass containers with Teflon-lined screw-caps or in field core sampling/storage containers (i.e., EnCore or equivalent). Associated MDLs/LOQs are listed in the LIMS under the analysis numbers and/or Project Information lists. A list of analytes listed under the method is included in the Appendix, as well as the Reagent Formulary Reports for the compounds in the method (Figures 1-2). Non-target volatile compounds in the sample can be tentatively identified (TIC) using a mass spectral reference library comparison. This analysis must be performed by or under the direct supervision of an operator experienced in the analysis of volatile organics by purge and trap GC/MS methodologies and skilled in mass spectral interpretation. Using this method, the TICs are quantitated with an estimated concentration.

Compounds other than those listed in the LIMS for this group of master scans may be analyzed using USEPA SW-846 Method 8260C. Selected Ion Monitoring (SIM) parameters can be used to detect, identify and quantitate volatile organic compounds in methanol extracts of soils/solids, if lower quantitation limits are required (project- or client-specified) and/or matrix interferences are anticipated. Attachment I describes the proper analysis procedure for Gasoline Range Organics in soils and solids. Due to poor purging efficiency or poor chromatography, some analytes require calibration at higher levels and/or higher practical quantitation limits (PQLs). Standards containing additional analytes must be prepared as described in the Standards section of this document. Both secondary stock solutions and matrix spike solutions must be prepared for use in analyzing additional compounds.

## Basic Principles

The soil sample is prepared according to analysis *S-SS-WI10682* and *S-SS-WI11170* for 8260C. The sample is purged with an inert gas and the effluent gas passed through a sorbent trap where the volatile organics are trapped. After purging, the sorbent trap is rapidly heated and backflushed onto the head of a gas chromatographic column held at the appropriate initial temperature for the column in use. The gas chromatographic column is temperature programmed to separate the volatile compounds, which are subsequently detected and identified using mass spectrometric techniques.

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When a compound reaches the MS, it is bombarded by high energy electrons (70 eV). This causes the compound to fragment and form ions. The positive ions are focused into a quadrupole mass analyzer, where the ions are separated according to their mass/charge ratios during rapid repetitive scans. These ions are then amplified and detected with an electron multiplier.

The resulting time/intensity/mass spectra data are stored and processed by a computer. Target compounds are identified on the basis of relative retention times and mass spectral matches to standards, which are injected every 12 hours on the same system. The internal standard method is used for quantitation.

The GRO analysis is typically performed in conjunction with the analysis of other volatile target compounds by SW-846 Method 8260C. The GRO quantitation range is 0.1 minutes before the peak apex of C6 (hexane) to 0.2 minutes after the peak apex of C12 (dodecane); however, other ranges can be established. By establishing a (C12) GRO window to 0.2 minutes following the elution of dodecane, the areas from a trio of unresolved peaks eluting near to the upper limit of the range must consistently be included in the total GRO area. In addition, the range remains tight enough to ensure that no C13 or greater compounds can be included in the total GRO area. The C4 range retention time is determined by selecting the first peak after the air and/or artifact peak minus 0.1 minutes in the first level of standard analyzed with the ICAL. The C5 range retention time is 0.1 minutes before the peak apex of pentane.This analysis must be performed by or under the direct supervision of an operator experienced in the analysis of volatile organics by GC/MS purge and trap methodologies. The area of the total ion chromatogram for the GRO range is determined. The area of the internal standards and surrogate standards are found and subtracted from the total area of the chromatogram within the desired time range. The resulting area is then quantitated versus the internal standard, fluorobenzene.

## Interferences

Contaminant sources are volatile compounds in the laboratory environment, impurities in the inert purging gas, carryover from samples containing high concentrations of volatile organic compounds and dirty glassware. The analyst must demonstrate that the system is free from interferences (by producing acceptable method blank data) before analyzing a batch of samples. Matrix effects from heavily contaminated soils and solids can interfere with the internal standard responses, target analytes and surrogate recoveries, thereby hindering accurate quantitation. See Section 4.0 of SW-846 Method 8260C for further discussion.

## Safety Precautions and Waste Handling

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

The toxicity of each reagent used has not been precisely determined. However, each reagent must be treated as a potential health hazard. Safety measures would include the use of fume hoods, safety glasses, lab coats, and gloves when working directly with reagents. Refer to the *Chemical Hygiene Plan* for specific details.

## Personnel Training and Qualifications

Education Requirement: A 4–year Baccalaureate Degree from an accredited College or University in one of the physical sciences and/or 1 – 3 years of relevant gas chromatography experience.

Analysts must be trained in the proper method of volatile organic sample preparation and analysis as determined by the supervisor(s). All training and education relating to volatile organic sample preparation and analysis must be documented by each analyst in their training record. Specifically, each new chemist must train with an experienced chemist for the first 12 weeks depending on the individual and their previous experience. The first 12 weeks are spent working one-on-one with the trainer. This time may be less if the new chemist has prior relevant experience in GC/MS and analytical chemistry background.

During the training period, the new chemist must learn daily maintenance, calibration techniques, data and library search review, and forms generation. They are also required to read all relevant SOPs and EPA methods. All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP. Each analyst must perform an Initial Demonstration of Capability to measure proficiency. Thereafter, an annual Demonstration of Capability is performed and maintained in the analyst's training records.

**NOTE:** A separate Demonstration of Capability for GRO is required.

## Sample Collection, Preservation, and Handling

Soils are either collected/submitted in bulk in glass containers with Teflon-lined screw-caps, in field core sampling/storage containers (i.e., EnCore or equivalent), or preserved in the field before submittal to the laboratory. Samples for low level volatiles analysis are frozen with reagent water at ≤ 10 °C, and may be preserved with sodium bisulfate. Samples for high level volatiles analysis are preserved in methanol. Refer to the volatiles preservation SOPs *S-SS-WI10682* and *S-SS-WI11170* for further information. All samples must be analyzed within 14 days of collection.

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## Apparatus and Equipment

1. Gastight micro syringes – 10-µL and larger

2. 5-mL gastight syringes

3. Analytical balance, capable of accurately weighing ±0.0001 g

4. Top-loading balance capable of weighing ±0.01 g

5. Glassware

   a. Class A Volumetric flasks with ground-glass stopper

   b. Vials, 1.5-mL, 15-mL, and 40-mL screw cap, with Teflon/silicone septa

   c. Mininert vials, 1-mL, 2-mL, and 5-mL

6. Purge and trap device – Consisting of the sample purger, the trap, and desorber; the OI Analytical 4560, OI Analytical 4660, or equivalent meets the requirements of this method. The purging chamber must have the purge gas passing through the sample as finely divided bubbles and minimize the headspace between the sample and the trap to <15 mL.

7. Autosampler – OI Analytical 4551, Archon, or equivalent meets the requirements of this method. The Archon has the capability to purge solid samples directly in the 40-mL vial (needed for samples prepared by analysis 8389).

8. Spiker units (optional) – OI Analytical Model 4551 SIM/Spiker or equivalent. One or two automated syringe spikers can be added to the OI Analytical Model 4551 autosampler to automatically introduce 10 µL of internal standard (ISTD), surrogate standard, and/or matrix spiking solutions to the sample as it is being transferred to the sparge vessel. The Archon has a groove that can deliver 1 µL of appropriate standards.

9. GC/MS system – The HP 5890GC/5972 MSD, HP 6890GC/5973MSD, HP 6890GC/5975MSD, and Shimadzu GC/MS QP5000 meet the requirements for this method.

10. Data System/Computer/Software– this is interfaced to the GC/MS system, which continuously acquires and stores data during the analysis, and can process/reduce data to generate the appropriate forms and supporting data. The software used for acquisition is HP Chemstation®, and data reduction is accomplished using Target® software.

11. GC Columns

   a. Column 1 – 30M × 0.25 mm ID DB624 capillary column with a 1.4-µm film thickness from Agilent, or equivalent (to be used with the Shimadzu QP5000 or the Agilent 5972, 5973 and 5975 MSDs)

   b. Column 2 – 20M × 0.18 mm ID DB624 capillary column with a 1.0-µm film thickness from Agilent, or equivalent (to be used with the Shimadzu QP5000 or the Agilent 5972, 5973 and 5975 MSDs)

Different sampling/analysis combinations are used based on how the sample was collected, expected level of VOCs in the sample, possible matrix interferences, list of target compounds, whether TICs were requested, the required quantitation limits and the type of equipment/instrumentation available.

**NOTE:** Refer to *T-VOA-WI7619* for instrumentation maintenance and troubleshooting.

## Reagents and Standards

A. Reagents

1. Reagent water is defined as water in which an interferant is not observed at or above the reporting limit for parameters of interest. In general, the deionized water supplied at the taps in the laboratory must meet these criteria. If the reagent water does not meet the requirements, see your supervisor for further instructions.

2. Purge and Trap grade Methanol or equivalent

3. Sodium bisulfate – ACS grade

4. Sand- Ottawa Standard

B. Standards

See *T-VOA-WI7629* for standards traceability.

1. Stock standard solutions – Stock solutions must be prepared in methanol. Standards are prepared from ampulated and neat compounds obtained from suppliers that indicate the purity of the compound. No correction for purity is made if the purity is listed as ≥96%. Pre-made solutions can be used if the supplier documents the

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concentrations of the solutions. All ampulated standards are stored at ≤-10°C until the expiration date indicated by the vendor or for 1 year if no expiration date is provided.

**NOTE:** For most of the target compounds, the stock standard solutions are purchased from a vendor as custom mixes (V for calibration and Q for separate source quality control). The internal and surrogate standards are purchased from a vendor, as well as the target compounds that are gases at room temperature. These gaseous standards have a 1-week expiration date, starting from the date they are opened.

2. Surrogate stock standard solution (for high level soils) – a 2500 µg/mL stock standard solution of dibromofluoromethane, toluene-d8, 4-bromofluorobenzene, and 1,2-dichloroethane-d4 is prepared in methanol by a commercial supplier

3. 8260A Internal standard spiking solution (8260IS) – a 2500 µg/mL stock standard solution of fluorobenzene, chlorobenzene-d5, 1,4-dichlorobenzene-d4, and 12500 µg/mL deuterated tertiary butyl alcohol (tBA-d10) is prepared in methanol by a commercial supplier. Deuterated tertiary butyl alcohol (tBA-d10) is used sometimes as an auxiliary ISTD. If an autosampler is used, dilute the stock to 250 µg/mL (1250 µg/mL for tBA-d10) in methanol. This is assuming a 1-µL groove in the autosampler. If the groove is determined to be other than 1 µL, the standard preparation must be adjusted so that appropriate final concentration is obtained (50 µg/kg).

4. GRO calibration standard – a 5500-µg/mL stock unleaded gasoline composite prepared in methanol by a commercial supplier.

5. GRO QC standard – a 20,000-µg/mL stock unleaded gasoline composite prepared in methanol by a commercial supplier

6. To prepare stock standards from neat compounds:

a. Place about 9.8 mL methanol or an equivalent solvent into a tared 10.0-mL glass-stoppered volumetric flask. Weigh the flask to the nearest 0.1 mg.

b. Add the liquids using a syringe or pipette by adding 2 or more drops of the assayed material to the flask, being careful that no drop hits the side of the flask. Reweigh the flask, record/note the amount, dilute to volume, stopper, and mix by inverting the flask at least 3 times. Calculate the concentration of the standard.

c. The stock standard solutions are stored in Teflon-sealed screw-capped vials at ≤-10°C. The compound name, concentration, date prepared, expiration date, preparer name and storage conditions must appear on the bottle.

d. Replace in house prepared stock standard solutions every 6 months.

7. Secondary dilution standards – Using the stock standard solutions, prepare secondary stock solutions in methanol containing the desired compounds. These standards are prepared by calculating the volume of each stock standard required producing a given volume of a mixed working standard with a known concentration of each analyte. When custom mixes are used, these may be diluted down individually, or combined together with other mixes. The working standard is tested according to *T-VOA-WI7629*. The verified working standard is poured into Teflon-lined screw-capped GC vials or mininert vials and stored at ≤-10°C. A designator indicating the standard, month, and preparation date must be on the standard vials. The designator and all data pertaining to the working standard preparation are to be recorded in the standards logbook. Replace secondary dilution standards every 2-4 weeks (1 week for standards containing gases) unless otherwise indicated.

a. 1,4-Bromofluorobenzene (BFB) standard – Prepare a 50-µg/mL solution of BFB in methanol by diluting the stock standard (prepared from neat material) with methanol to a final volume of 100 mL. The volume of stock standard used varies, depending on the actual stock concentration.

b. Surrogate standard spiking solution (high level only) – Prepare the surrogate standard spiking solution from the stock standard solutions at a concentration of 25 or 250 µg/mL in methanol. The requested soil preparation method dictates what concentration of surrogates are required for analysis.

c. Internal standard (IS) solution (high level only) – fluorobenzene, chlorobenzene-d5, 1,4-dichlorobenzene-d4, and tert-Butyl Alcohol-d10. One mL of 8260IS is diluted with methanol to a total volume of 10 mL to give a final concentration of 250 µg/mL (1250 µg/mL for tBA-d10). This is assuming a 1-µL groove in the autosampler. If the groove is determined to be other than 1 µL, the standard preparation must be adjusted so that appropriate final concentration is obtained (50 µg/kg).

d. IS/SS spiking solution (low level only)– Dilute 1 mL of 8260IS and 1 mL of 8260SS with methanol to 10-mL final volume (resulting in a concentration of 250 µg/mL, 1250 µg/mL for tBA-d10). This is assuming a 1-µL groove in the autosampler. If the groove is determined to be other than 1 µL, the standard preparation must be adjusted so that appropriate final concentration is obtained 50 µg/kg).

e. Calibration spiking solution – Prepare solutions in methanol that contain the compounds of interest at known concentrations. Suggested calibration levels are 4, 10, 20, 50, 100, and 300 (µg/kg). Replace the calibration spiking solution every 2-4 weeks (1 week for standards containing gases).

f. Matrix spiking solution – Prepare solutions in methanol that contain the compounds of interest at known concentrations. These solutions serve as both the matrix spiking solution and the laboratory control sample solutions. Matrix spikes also serve as duplicates; therefore, two aliquots of the same sample need to be spiked for analysis with these solutions. Replace the matrix spiking solution every 2-4 weeks (1 week for standards containing gases).

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g. Store all standard solutions at ≤-10°C and protected from light.

## Calibration

A. Instrument Conditions:

1. The purge and trap device must have the trap conditioned for at least 10 minutes at 180° to 220°C at a flow rate of 20 to 60 mL/min prior to initial use.

2. An example of purge and trap conditions are listed below:

| | |
|---|---|
| Purge gas | Helium |
| Purge flow | 35 – 40 mL/min |
| Purge temperature | 40°C for low level soils and ambient temp. for medium/high level soils |
| Purge time | 11 min |
| Desorb temperature | 190°-220°C |
| Desorb time | 0.5 to 4 minutes ** |
| Bake temperature | 180°-220°C |
| Bake time | 8 min (±3 min) |

** - Range as suggested by the purge and trap instrument manufacturer

**NOTE:** Purge and trap conditions may be changed to optimize instrument operations. A record of actual purge and trap conditions for each instrument may be found in the appropriate instrument maintenance log.

3. The suggested gas chromatographic operating conditions are listed in the table below, depending on the column used:

| | Column 1 | Column 2 |
|---|---|---|
| Column liquid phase | DB-624 | DB-624 |
| Carrier gas | Helium | Helium |
| Carrier gas flow | 0.8 mL/min | 0.6 mL/min |
| Make-up gas flow | None | None |
| Initial temperature | 45°C | 45°C |
| Initial hold time | 4.5 min | 2.5 min |
| Temperature ramp | 12°/min to 100°C then 25°/min to 240°C | 12°/min to 100°C then 25°/min to 235°C |
| Final temperature | 240°C | 235°C |
| Final hold time | None | .02 min |

4. Recommended mass spectrometer (MS) operating conditions:

| | |
|---|---|
| Ions | Positive |
| Electron energy | 70 volts |
| Mass range | 35 – 300 amu |

H-P systems Scan time:

| | |
|---|---|
| Number A/D Samples | 22 (4) |
| Integration Time/Sample | 50 microsec |
| Total Scan Time | 0.6 sec |

B. Tuning:

Tune the GC/MS system to meet the criteria in Table 1 following a 50-ng injection of BFB. The chromatographic conditions must be the same as those under which the samples are analyzed except that the temperature ramp may be increased and the initial temperature and flow rate may be different. The BFB tune must be verified every 12 hours.

The tune must be evaluated by taking the average of the three scans across the BFB peak apex with a background subtraction of a scan within 20 scans prior to the start of the BFB peak.

**NOTE:** All standards, samples, and associated quality control samples must be analyzed with the same mass spectrometer parameters as those used to obtain a successful tune.

C. Initial Calibration:

1. Perform the initial calibration by analyzing at least six distinct levels of analyte concentration. For high level soils, the surrogates are also analyzed at each distinct level. Response factors for each analyte are determined from these levels. Six levels are required if second order regression fits are used. Calibration for GRO consists of analyzing

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six distinct levels of GRO area in order to produce a response factor for the GRO quantitation range of interest using the internal standard, fluorobenzene. The relative standard deviation of the response factor determines the suitability of the average relative response factor for calculation of the GRO concentration. The relative standard deviation of the response factors determines the suitability of the average relative response factor for calculation of the analyte or GRO concentration. Prior to the analysis of any calibration level, retention time markers must be run for the GRO range of interest. The retention time markers are hexane (C6) and Dodecane (C12). Other markers can be used if different ranges are required by a project.

**NOTE:** 5 levels are required by the method.

2. A method detection limit (MDL) standard must be analyzed with each initial calibration. This standard is prepared at or near the departmental MDL and is not to be included in the calibration curve. All compounds must be detected at or below MDL standard.

3. For medium/high level soils, methanol is added to all calibration standards. For low-level soils prepared according to EPA Method 5035, 1 scoop (approximately .50 -.75 grams) of sodium bisulfate is added to all calibration standards.

4. When using an autosampler, blanks and standards are prepared and poured into 40-mL vials with Teflon-lined septa. For the high-level method, 5 mL is withdrawn from the vial and transferred to the sparge vessel along with the appropriate amount of the internal standard spiking solution. For the low-level method, the autosampler transfers 5 mL of reagent water along with the appropriate amount of IS/SS spiking solution to the 40-mL vial.

5. Purge and desorb according to conditions listed in Calibration A.2.

6. Collect GC/MS data until the end of the GC run.

7. Empty and rinse the purging chamber at least twice with reagent water prior to loading another sample into the vessel, to minimize the possibility of carryover contamination.

8. Each level is analyzed as described above. Next, tabulate the area response of the characteristic ions (Table 2) against concentration for each analyte, surrogate standard, and internal standard and calculate relative response factors (RRF) for each compound (see Calculation section). The following table describes the guidelines for an acceptable initial calibration:

| Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| Initially and then when analytes in the daily calibration standard fail criteria. | 1. % RSD of ≤20% is required for all analytes. 10% of the analytes may fail this criteria.<br><br>2. All compounds of interest must be detected in the MDL standard.<br><br>3. The relative retention times of the target compounds must agree within 0.06 relative retention time (RRT) units. The exception would be in the case of system maintenance.<br><br>4. Minimum response factors must be met for select compounds. See Table 3. | 1. Any target analyte with a %RSD of ≤20% must use the average RRF for quantitation. For any analyte in which the %RSD >20%, a first-degree linear regression can be used (providing that the correlation coefficient [CC] is ≥0.995). A quadratic fit ** (using 6 stds) can also be used (provided the coefficient of determination [CD] is >0.99). If the linear fit and quadratic fit pass the criteria for any given analyte, then use the line/curve with the smallest positive y-intercept. If the y-intercept quantifies to be greater than the LOQ, consult your supervisor immediately or recalibrate. If CC or CD is <0.995 for linear or <0.99 for quadratic, recalibrate. Supervisory approval is required for exceptions to these guidelines. If >10% target analytes fail, recalibration is required. If a linear or quadratic curve fit is used for a target analyte, the calibration data must be refit back into the calibration model for all calibration levels. Percent error between the calculated and expected amounts of an analyte should be ≤ 30% for all standards. For some data uses, ≤ 50% may be acceptable for the lowest calibration point.<br>NOTE: Quadratic regression cannot be used for South Carolina compliance samples.<br><br>2. If a compound is not detected in the MDL standard, then report to the level of the lowest standard detected.<br><br>3,4. Perform system maintenance and recalibrate. |

**Consult USEPA method 8000D for non-linear curve fitting techniques/guidelines

9. Each GRO level is analyzed as described above. Next, tabulate the area response for the GRO quantitation range minus the peak areas for the internal and surrogate standards that elute within the GRO range. Calculate the relative response factor (RRF) for GRO (see Calculation section) using the internal standard peak area for Fluorobenzene. Although four internal standard compounds are spiked for the 8260C analysis, only Fluorobenzene, is used for the quantitation of the GRO result.

10. Calculate the average relative response factors for the GRO quantitation range of interest. The calibration levels are evaluated on the basis of the relative standard deviation of the RRF values (%RSD). The %RSD for the GRO range of interest must be ≤20%. If the calibration meets this requirement, then the average RRF is used to calculate

sample concentrations. If the %RSD is >20% then re-analysis of one or more levels can be necessary before the calibration is valid.

D. Initial Calibration Verification:

Following the calibration, an Initial Calibration Verification (ICV) standard must be run. The ICV acts as a second source standard to check against the initial calibration. All analytes must meet ICV acceptance windows of 70%-130%. If the ICV does not meet the aforementioned criteria, a second ICV is analyzed before invalidating the initial calibration. Upon failure of the second ICV, the system must be recalibrated after proper corrective action is taken.

For the GRO analysis, the ICV acts as a second source standard to check against the initial calibration. Results must quantitate within the 70-130% window. If the ICV does not meet the aforementioned criteria, a second ICV can be run before invalidating the initial calibration. Upon failure of the second ICV, the system must be recalibrated after proper corrective action is taken.

E. Continuing Calibration:

Continuing Calibration Verification (CCV) – The CCV is performed by analyzing a 50-ppb calibration standard (prepared daily due to aqueous nature) in subsequent tune periods after an initial calibration. The CCV is considered valid when the criteria listed below are met:

| Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| Every 12 hours. | 1. % Drift of ≤20% is required for all analytes. No more than 20% of analytes may fail this criteria if not detected in proceeding samples.<br><br>2. The relative retention times (RRT) of the target compounds must agree within 0.06 RRT units. The exception would be in the case of system maintenance.<br><br>3. The extracted ion current profile (EICP) area for each internal standard must fall within the window of –50 % to +100 % from the mid-level standard area produced during the last initial calibration.<br><br>4. Minimum response factors must be met for select compounds. See Table 3. | 1. - 4. In the event that the continuing calibration verification (CCV) standard fails any of these criteria, sample analysis must be suspended and the CCV must be re-analyzed. If the re-analysis fails any of the criteria then adjustments are to be made to the analytical system to return it to its original condition, followed by the analyses of 2 consecutive CCVs at the same level that failed. If both CCVs pass the criteria, then sample analysis can continue. Otherwise, the system must be recalibrated and the samples reanalyzed, or the data can be qualified. |

A 1100-ppb standard is analyzed for the GRO analysis. The calibration is considered valid if the percent drift is ≤20%. Also, the internal standard peak area of fluorobenzene for the CCV is monitored against the mid-point standard of the initial calibration and must be –50% to +100% of the area counts. If any criteria listed above fails, the CCV is considered invalid. In the case where two consecutive CCVs fail, corrective action must be taken which can include re-analysis of the calibration check, instrument maintenance, and/or recalibration. If the criteria are met, the selected quantitation method from the initial calibration is used for blank and sample calculations until the end of the 12-hour period.

F. MDL Sensitivity Check- A MDL Sensitivity Check must be analyzed in cases where compounds fail to meet the % drift criteria in the CCV and have decreased sensitivity (-20% drift or greater). Affected compounds can be reported as non-detects if it is demonstrated that there is adequate sensitivity to detect the compound at the MDL. If the failed compound is detected, the concentration must be reported as an estimated value.

## Calibration Calculations

1. Calculation of the relative response factor (RRF):

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$$RRF = \frac{[A(x) \times C(is)]}{[A(is) \times C(x)]}$$

**Where:**

A(x) = Characteristic ion area for the compound being measured

A(is) = Characteristic ion area for the specific internal standard

C(x) = Concentration of the compound being measured

C(is) = Concentration of specific internal standard

2. Regression equations:

1st Order (linear) regression: $Y = Mx + B$

2nd order (quadratic) regression: $Y = Cx2 + Mx + B$

**Where:**

x = Area(Std) /Area(Istd)

Y = Conc.(Std)/Conc.(Istd)

M = 1st degree slope

C = 2nd degree slope

B = Y-intercept

3. Percent relative standard deviation (%RSD):

$$\% \ RSD = \frac{Standard\ Deviation}{Mean} \times 100$$

4. Calculation of the percent drift:

$$\% \ Drift = \frac{C(i) - C(c)}{C(i)} \times 100$$

**Where:**

C(i) = Calibration check compound standard concentration

CI = Measured concentration using selected quantification method

## Procedure

A. Method Blank:

Analyze the method blank as described above for the initial calibration standards using reagent water. Refer to table in QA/QC section for specific requirements. The method blank is examined for interfering peaks. Any target compound peaks are calculated as described under the Calculations section of this procedure. All compounds must be less than the reporting limit for the associated samples. If the blank values exceed these values, corrective action must be taken and the method blank reanalyzed until the criteria are met. The method blank must be analyzed before processing any samples.

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B. Laboratory Control Sample/ Duplicate and Matrix Spike/Duplicate: Refer to table in QA/QC section for specific requirements.

**NOTE**: Per client request, the analyst may perform a compositing procedure prior to analysis. See Attachment 3, or the specific procedure provided by the client for this process.

C. Qualitative Analysis:

Sample analysis for soil, solids, and nonaqueous matrices proceeds as described in the Calibration section. The aqueous matrix is replaced by the soil sample, which is prepared according to *S-SS-WI10682* and *S-SS-WI11170*. A compound is identified by comparison of the following parameters with those of a standard of this target compound (standard reference spectra). In order to verify identification, the following criteria must be met:

1. The intensities of the characteristic ions of the compound must maximize in the same scan or within one scan of each other.

2. The compound relative retention time must compare within ±0.06 RRT units of the RRT of the standard.

3. The characteristic ions from the reference mass spectrum are defined to be the three ions of greatest relative intensity, or any ions over 30% relative intensity if less than three such ions occur in the reference spectrum.

4. The relative intensities of the characteristic ions must agree within 30% of the relative intensities of these ions in the reference spectrum. Analyst discretion is used to determine compound identification. (Example: for an ion with an abundance of 50% in the reference spectrum, the corresponding abundance in a sample spectrum can range between 20% and 80%).

5. The above criteria apply to hits greater than or equal to the LOQ. For hits between the MDL and the LOQ, both the above criteria and analyst discretion are used to determine compound identification.

6. The analyst must account for peaks that are greater than 10% relative intensity in the sample mass spectrum, but not present in the standard mass spectrum. Also, if a compound fails any of the criteria listed above but in the judgment of the mass spectral interpretation specialist is a correct identification, the identification is used and the quantitation of the peak is performed. The primary and secondary ions can be found in Table 2.

7. For the GRO analysis, the Total Ion Chromatogram (TIC) is reviewed to insure proper integration around the 8260 surrogates and internal standards. Also the TIC is checked to make sure all major peaks are integrated.

D. Quantitative Analysis:

Once a compound has been identified, quantitation of identified priority pollutant compounds is performed using the equations listed in the Calculations section of this SOP. The primary ions listed in Table 2 are used for quantitation. A secondary ion may be used if there is interference with the primary ion. All calculations must report concentrations in values of µg/kg. Any analyte with a calculated concentration above the highest standard must be reanalyzed at a dilution that brings the concentration in the solution within the calibration curve. It is desirable to have the dilution fall within the top half of the calibration curve, but it is not required.

The quantitation of the GRO range is performed using the equations listed in the Calculations section of this procedure. All calculations must report concentrations in values of µg/L. In the case where the total GRO concentration exceeds the calibration range, the sample is re-analyzed at a dilution that brings the GRO concentration within the calibration range of the GC/MS system.

## Calculations

A. Analyte Concentration

1. Low level

$$\text{Concentration } (\mu g/kg) \frac{(Ax)(Is)}{(Ais)(RRF)(Ws)}$$

**Where:**

Ax = Area of the quantitation ion peak for the compound to be measured
Ais = Area of the quantitation ion peak for the appropriate internal standard
Is = Amount of internal standard added in nanograms
Ws = Weight of sample purged
RRF = Relative response factor from the initial calibration

2. Medium/high level

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$$Concentration\ (\mu g/kg) \frac{(Ax)\,(Is)\,(Vt)}{(Ais)\,(RRF)\,(Ws)\,(Vi)}$$

**Where:**

Ax = Area of the quantitation ion peak for the compound to be measured
Ais = Area of the quantitation ion peak for the appropriate internal standard
Is = Amount of internal standard added in nanograms
Vt = Volume of the total extract in microliters
Vi = Volume of the extract used for purging in microliters
Ws = Weight of sample extracted
RRF = Relative response factor from the initial calibration

B. QC Calculations:

$$\%\ Recovery = \frac{SSR - SR}{SA} \times 100$$

**Where:**

SSR = Spiked sample result

SR = Sample result

SA = Spike added

C. Relative percent difference (RPD)

$$RPD = \frac{MSR - MSDR}{(1/2)\ (MSR + MSDR)} \times 100$$

**Where:**

MSR = Matrix spike measured concentration

MSDR = Matrix spike duplicate measured concentration

## Statistical Information/Method Performance

The LCS must contain 80% to100% of the compounds in the calibration mix. LCS, MS, and surrogate recoveries and RPD are compared to the limits stored on the LIMS. These limits are statistically derived but must fall within 70% to 130% recovery for South Carolina compliance samples. Historical data for MS/Ds, LCS/Ds, measurement of uncertainty, is reviewed at least annually. Reporting limits including method detection limits (MDLs) and limits of quantitation (LOQs) are set according to EPA method requirements and are evaluated on an annual basis in accordance with 40 CFR Part 136. Updates to the LIMS are made as needed by the QA Department and only as directed by the supervisor. The department database is updated via a download from the LIMS.

## Quality Assurance/Quality Control

Each analysis batch must contain a method blank, a laboratory control sample (LCS), and either an unspiked background sample (US), a matrix spike (MS), a matrix spike duplicate (MSD), or a laboratory control sample/laboratory control sample duplicate (LCS/LCSD). Additional QC samples may be required to meet project or state certification requirements. For South Carolina, an LCS duplicate (LCSD) is only necessary per client request, or when adequate sample volume is not provided to prepare a matrix spike and matrix spike duplicate (MS/MSD). It is not appropriate to prepare and analyze an LCSD with each batch of samples if adequate sample volume has been provided for a MS/DUP or MS/MSD. Every sample or QC analysis must contain internal standards and surrogate compounds.

The laboratory will establish the Lower Limit of Quantitation (LLOQ) at concentrations where both quantitative and qualitative requirements can consistently be met for 8000D. The LLOQ is the lowest concentration at which the laboratory has demonstrated target analytes can be reliably measured and reported with a certain degree of confidence, which must be ≥ the lowest point in the calibration curve. The LLOQ/LLOQVs (Limit of Quantitation Verifications) are analyzed once per instrument per quarter. See SOP *QA-SOP11892*.

The GC/MS system must be tuned to meet the criteria in Table 1 following BFB injection. The chromatographic conditions must be the same as those under which the samples are analyzed except that the rate of temperature

ramping may be increased and the initial temperature and column flow may be different. The BFB tune must be verified every 12 hours.

| Quality Control Item | Acceptance Criteria | Corrective Action |
|---|---|---|
| Internal Standards<br>• Added to every sample, standard, method blank or QC sample | 1. Peak areas within -50% to +100% of the area in the associated reference standard.<br><br>2. Retention time (RT) within 30 seconds of RT for associated reference standard. | 1. Check instrument for possible problems and then reanalyze samples.<br><br>2. If re-injecting meets the criteria, report this analysis.<br><br>3. If this reanalysis still shows the same problem, report results from first analysis and qualify data with a comment. |
| Surrogates<br>• Added to every sample, standard, method blank or QC sample | All % recoveries must fall within statistically derived QC limits, which are reviewed and updated on a semi-annual basis. | If non-compliant, check for calculation or preparation errors. If no errors are found, check system for problems and reanalyze. If this reanalysis still shows the same problem, report first analysis and qualify data with a comment. If recoveries are outside of specification high and no target compounds are detected then a reanalysis or comment is not required. |
| Method Blank (MB)<br>Performed during each tune period after the initial calibration or CCV (minimum of 1 MB per 20 samples)<br>• 1 scoop of Sodium Bisulfate is added if the preservative was added to the initial calibration.<br>• Approximately 5 grams of sand is required for low level analysis. | 1. Must meet internal standard criteria.<br><br>2. Must meet surrogate criteria.<br><br>3. Quantitative results for all target compounds must be less than the reporting limit for the associated samples. | 1,2. Inspect system for possible problems and reanalyze.<br><br>3. If the MB contains target analytes and the associated samples do not, then no corrective action is required. If the target compounds in the MB are also in the associated samples, then they must be reanalyzed after a clean MB is obtained (certain projects may allow some exceptions for common laboratory contaminants like methylene chloride and acetone up to 5X the LOQ) |
| Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)<br>• LCS analyzed with each batch of ≤ 20 samples<br>• LCSD analyzed if MS/MSD unavailable<br>• Approximately 5 grams of sand is required for low level analysis.<br>• 1 scoop of Sodium Bisulfate is added if the preservative was added to the initial calibration. | 1. Must meet internal standard criteria.<br><br>2. Must meet surrogate criteria.<br><br>3. All % recoveries must fall within statistically derived QC limits, which are reviewed and updated on a semi-annual basis. | 1,2. If non-compliant, check for calculation or preparation errors. If no errors found, check system for problems and reanalyze.<br><br>3. If LCS/LCSD re-analysis still fails, perform appropriate system maintenance and restart the tune period. Only with an LCS % recovery failing high (for the requested target compounds) with targets non-detected in the sample, can the results be reported. Otherwise, the sample must be analyzed with a compliant LCS. |
| Matrix Spike/Matrix Spike Duplicate (MS/MSD)<br>• MS/MSD analyzed with each batch of ≤ 20 samples (if sufficient sample volume available) | 1. % Recoveries must fall within statistically derived QC limits, which are reviewed and updated on a semi-annual basis<br><br>2. RPDs within QC limits. | 1. If LCS within QC limits, proceed with sample analysis.<br><br>2. If most recoveries and/or RPDs outside of QC limits, consult the supervisor. |

The method blank must meet all the above criteria for internal standard recoveries and surrogate recoveries. In addition, the method blank may not contain any target compound above the reporting limit for the associated samples. All method blanks must meet these criteria; otherwise, the system is considered out of control and corrective action must be taken.

If sufficient sample volume is not available to perform MS/MSD, LCS/LCSD are prepared and analyzed and must meet the above-mentioned criteria.

**NOTE:** Prior to release from the analytical laboratory, all data is reviewed in accordance with *T-VOA-WI8373*.

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The sample is analyzed using the same instrumental conditions as the standard (whether ICAL or CCV), tune and method blank. If the QA criteria are satisfied and no target compounds are detected at concentrations above the calibration range, the results can be reported. To avoid possible matrix effects, sample carryover and re-analyses, an initial dilution may be performed if:

1. Prescreening indicates a high volatile organic content in the sample
2. Historical data (or lack thereof) and/or sample appearance indicate a need for dilution

If target compounds are detected in the sample at concentrations above the calibration range, a dilution must be performed (see *T-VOA-WI7692* for information on when cleaning blanks must be run). See method SW-846 8260C for the recommended dilution procedures.

**Table 1**

**BFB Key Ion Abundance Criteria**

| Mass | Ion Abundance Criteria |
|---|---|
| 50 | 15% to 40% of mass 95 |
| 75 | 30% to 60% of mass 95 |
| 95 | base peak, 100% relative abundance |
| 96 | 5% to 9% of mass 95 |
| 173 | less than 2% of mass 174 |
| 174 | greater than 50% of mass 95 |
| 175 | 5% to 9% of mass 174 |
| 176 | greater than 95% but less than 101% of mass 174 |
| 177 | 5% to 9% of mass 176 |

**Table 2**

**Primary and Secondary Ions**

| Compound Name | Primary Ion | Secondary Ion |
|---|---|---|
| Chloromethane | 50 | 52 |
| Vinyl Chloride | 62 | 64 |
| Bromomethane | 94 | 96 |
| Chloroethane | 64 | 66 |
| 1,1-Dichloroethene | 96 | 61, 63 |
| Acetone | 43 | 58 |
| Carbon Disulfide | 76 | 78 |
| Methylene Chloride | 84 | 49, 86 |
| 1,1-Dichloroethane | 63 | 65, 83 |
| *trans*-1,2-Dichloroethene | 96 | 61, 63 |
| *cis*-1,2-Dichloroethene | 96 | 61, 63 |
| 2-Butanone | 43 | 72 |
| Chloroform | 83 | 85 |
| 1,2-Dichloroethane | 62 | 98 |
| 1,1,1-Trichloroethane | 97 | 61, 99 |
| Carbon Tetrachloride | 117 | 119 |
| Benzene | 78 | |
| Trichloroethene | 95 | 130, 132 |
| 1,2-Dichloropropane | 63 | 76 |
| Bromodichloromethane | 83 | 85 |
| *cis*-1,3-Dichloropropene | 75 | 77, 110 |
| *trans*-1,3-Dichloropropene | 75 | 77, 110 |
| 1,1,2-Trichloroethane | 97 | 83, 85 |
| Dibromochloromethane | 129 | 127 |
| Bromoform | 173 | 175 |
| 4-Methyl-2-pentanone | 43 | 58 |
| Toluene | 92 | 91 |
| Tetrachloroethene | 166 | 131, 164 |
| 2-Hexanone | 43 | 58 |
| Chlorobenzene | 112 | 77 |
| Ethylbenzene | 91 | 106 |

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| Compound Name | Primary Ion | Secondary Ion |
|---|---|---|
| Xylene (total) | 106 | 91 |
| Styrene | 104 | 78 |
| 1,1,2,2-Tetrachloroethane | 83 | 85, 131 |
| Dibromofluoromethane | 113 | 111 |
| 1,2-Dichloroethane-d4 | 102 | 104 |
| Fluorobenzene | 96 | 70 |
| Toluene-d8 | 98 | 100 |
| Chlorobenzene-d5 | 117 | 82 |
| 4-Bromofluorobenzene | 95 | 174 |
| 1,4-Dichlorobenzen-d4 | 152 | 115 |

**Continued**
**Primary and Secondary Ions**

| Compound Name | Primary Ion | Secondary Ion |
|---|---|---|
| Chloromethane | 50 | 52 |
| Vinyl Chloride | 62 | 64 |
| Bromomethane | 94 | 96 |
| Chloroethane | 64 | 66 |
| 1,1-Dichloroethene | 96 | 61, 63 |
| Acetone | 43 | 58 |
| Carbon Disulfide | 76 | 78 |
| Methylene Chloride | 84 | 49, 86 |
| 1,1-Dichloroethane | 63 | 65, 83 |
| *trans*-1,2-Dichloroethene | 96 | 61, 63 |
| *cis*-1,2-Dichloroethene | 96 | 61, 63 |
| 2-Butanone | 43 | 72 |
| Chloroform | 83 | 85 |
| 1,2-Dichloroethane | 62 | 98 |
| 1,1,1-Trichloroethane | 97 | 61, 99 |
| Carbon Tetrachloride | 117 | 119 |
| Benzene | 78 | |
| Trichloroethene | 95 | 130, 132 |
| 1,2-Dichloropropane | 63 | 76 |
| Bromodichloromethane | 83 | 85 |
| *cis*-1,3-Dichloropropene | 75 | 77, 110 |
| *trans*-1,3-Dichloropropene | 75 | 77, 110 |
| 1,1,2-Trichloroethane | 97 | 83, 85 |
| Dibromochloromethane | 129 | 127 |
| Bromoform | 173 | 175 |
| 4-Methyl-2-pentanone | 43 | 58 |
| Toluene | 92 | 91 |
| Tetrachloroethene | 166 | 131, 164 |
| 2-Hexanone | 43 | 58 |
| Chlorobenzene | 112 | 77 |
| Ethylbenzene | 91 | 106 |
| Xylene (total) | 106 | 91 |
| Styrene | 104 | 78 |
| 1,1,2,2-Tetrachloroethane | 83 | 85, 131 |
| Dibromofluoromethane | 113 | 111 |
| 1,2-Dichloroethane-d4 | 102 | 104 |
| Fluorobenzene | 96 | 70 |
| Toluene-d8 | 98 | 100 |
| Chlorobenzene-d5 | 117 | 82 |
| 4-Bromofluorobenzene | 95 | 174 |
| 1,4-Dichlorobenzene-d4 | 152 | 115 |

NOTE: Alternative ions may be used for quantitation due to response factor, ion interference or analytical needs.

**Table 3**
**Minimum Relative Response Factors For ICAL and CCV**

| Volatile Compounds | Minimum Response Factor |
|---|---|
| Dichlorodifluoromethane | 0.100 |
| Chloromethane | 0.100 |
| Vinyl Chloride | 0.100 |
| Bromomethane | 0.100 |
| Chloroethane | 0.100 |
| Trichlorofluoromethane | 0.100 |

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|---|---|
| 1,1-Dichloroethene | 0.100 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.100 |
| Acetone | 0.100 |
| Carbon Disulfide | 0.100 |
| Methyl Acetate | 0.100 |
| Methylene Chloride | 0.100 |
| trans-1,2-Dichloroethene | 0.100 |
| cis-1,2-Dichloroethene | 0.100 |
| Methyl tert-Butyl Ether | 0.100 |
| 1,1-Dichloroethane | 0.200 |
| 2-Butanone | 0.100 |
| Chloroform | 0.200 |
| 1,1,1-Trichloroethane | 0.100 |
| Cyclohexane | 0.100 |
| Carbon Tetrachloride | 0.100 |
| Benzene | 0.500 |
| 1,2-Dichloroethane | 0.100 |
| Trichloroethene | 0.200 |
| Methylcyclohexane | 0.100 |
| 1,2-Dichloropropane | 0.100 |
| Bromodichloromethane | 0.200 |
| cis-1,3-Dichloropropene | 0.200 |
| trans-1,3-Dichloropropene | 0.100 |
| 4-Methyl-2-pentanone | 0.100 |
| Toluene | 0.400 |
| 1,1,2-Trichloroethane | 0.100 |
| Tetrachloroethene | 0.200 |
| 2-Hexanone | 0.100 |
| Dibromochloromethane | 0.100 |
| 1,2-Dibromoethane | 0.100 |
| Chlorobenzene | 0.500 |
| Ethylbenzene | 0.100 |

**Table 3 Continued**

| Volatile Compounds | Minimum Response Factor |
|---|---|
| m&p-Xylene | 0.100 |
| o-Xylene | 0.300 |
| Styrene | 0.300 |
| Bromoform | 0.100 |
| Isopropylbenzene | 0.100 |
| 1,1,2,2-Tetrachloroethane | 0.300 |
| 1,3-Dichlorobenzene | 0.600 |
| 1,4-Dichlorobenzene | 0.500 |
| 1,2-Dichlorobenzene | 0.400 |
| 1,2-Dibromo-3-chloropropane | 0.050 |
| 1,2,4-Trichlorobenzene | 0.200 |

Attachment:
Attachment 1 (.pdf)
Attachment 2 (.pdf)
Attachment 3 (.doc)

QA-SOP11892 Determining Method Detection Limits and Limits of Quantitation
T-VOA-WI10682 GC/MS - Bulk Solids Matrix Sample Preparation
T-VOA-WI11170 Preparation of Soils for Volatile Analysis by EPA SW-846 Method 5035 and Method 5035A
T-VOA-WI7619 GC and GC/MS Instrumentation Maintenance
T-VOA-WI7629 GC/MS Volatile Standards Traceability
T-VOA-WI7692 Preparation and Analysis of Cleaning Blanks for GC and GC/MS Volatiles
T-VOA-WI8373 GC/MS Volatiles Audit Process

End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 9 | 09.APR.2021 | | |
| 10 | 11.MAY.2022 | | |
| 11 | 23.JUN.2023 | | |

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| Status | Analyte Order | Analyte | Default Reporting Synonym | Cas. Num | Report | Type | Unit |
|---|---|---|---|---|---|---|---|
| 1 | 0 | 1,1,1,2-Tetrachloroethane | 1,1,1,2-Tetrachloroethane | 630-20-6 | 1 | F | ug/L |
| 1 | 10 | 1,1,1-Trichloroethane | 1,1,1-Trichloroethane | 71-55-6 | 1 | F | ug/L |
| 1 | 20 | 1,1,2,2-Tetrachloroethane | 1,1,2,2-Tetrachloroethane | 79-34-5 | 1 | F | ug/L |
| 1 | 30 | 1,1,2-Trichloroethane | 1,1,2-Trichloroethane | 79-00-5 | 1 | F | ug/L |
| 1 | 40 | 1,1-Dichloroethane | 1,1-Dichloroethane | 75-34-3 | 1 | F | ug/L |
| 1 | 50 | 1,1-Dichloroethene | 1,1-Dichloroethene | 75-35-4 | 1 | F | ug/L |
| 1 | 60 | 1,1-Dichloropropene | 1,1-Dichloropropene | 563-58-6 | 1 | F | ug/L |
| 1 | 70 | 1,2,3-Trichlorobenzene | 1,2,3-Trichlorobenzene | 87-61-6 | 1 | F | ug/L |
| 1 | 80 | 1,2,3-Trichloropropane | 1,2,3-Trichloropropane | 96-18-4 | 1 | F | ug/L |
| 1 | 90 | 1,2,3-Trimethylbenzene | 1,2,3-Trimethylbenzene | 526-73-8 | 1 | F | ug/L |
| 1 | 100 | 1,2,4-Trichlorobenzene | 1,2,4-Trichlorobenzene | 120-82-1 | 1 | F | ug/L |
| 1 | 110 | 1,2,4-Trimethylbenzene | 1,2,4-Trimethylbenzene | 95-63-6 | 1 | F | ug/L |
| 1 | 120 | 1,2-Dibromo-3-Chloropropane | 1,2-Dibromo-3-Chloropropane | 96-12-8 | 1 | F | ug/L |
| 1 | 130 | Ethylene Dibromide | 1,2-Dibromoethane | 106-93-4 | 1 | F | ug/L |
| 1 | 140 | 1,2-Dichlorobenzene | 1,2-Dichlorobenzene | 95-50-1 | 1 | F | ug/L |
| 1 | 150 | 1,2-Dichloroethane | 1,2-Dichloroethane | 107-06-2 | 1 | F | ug/L |
| 1 | 160 | 1,2-Dichloroethene, Total | 1,2-Dichloroethene (total) | 540-59-0 | 1 | S | ug/L |
| 1 | 170 | 1,2-Dichloropropane | 1,2-Dichloropropane | 78-87-5 | 1 | F | ug/L |
| 1 | 180 | o-diethylbenzene | 1,2-Diethylbenzene | 135-01-3 | 1 | F | ug/L |
| 1 | 190 | 1,3,5-Trichlorobenzene | 1,3,5-Trichlorobenzene | 108-70-3 | 1 | F | ug/L |
| 1 | 200 | 1,3,5-Trimethylbenzene | 1,3,5-Trimethylbenzene | 108-67-8 | 1 | F | ug/L |
| 1 | 210 | Butadiene | 1,3-Butadiene | 106-99-0 | 1 | F | ug/L |
| 1 | 220 | 1,3-Dichlorobenzene | 1,3-Dichlorobenzene | 541-73-1 | 1 | F | ug/L |
| 1 | 240 | 1,3-Dichloropropane | 1,3-Dichloropropane | 142-28-9 | 1 | F | ug/L |
| 1 | 250 | 1,3-Dichloropropene, Total | 1,3-Dichloropropene (total) | 542-75-6 | 1 | S | ug/L |
| 1 | 260 | 1,3-Diethylbenzene | 1,3-Diethylbenzene | 141-93-5 | 1 | F | ug/L |
| 1 | 270 | 1,3-Divinylbenzene | 1,3-Divinylbenzene | 108-57-6 | 1 | F | ug/L |
| 1 | 280 | 1,4-Dichlorobenzene | 1,4-Dichlorobenzene | 106-46-7 | 1 | F | ug/L |
| 1 | 290 | p-Diethylbenzene | 1,4-Diethylbenzene | 105-05-5 | 1 | F | ug/L |
| 1 | 300 | 1,4-Dioxane | 1,4-Dioxane | 123-91-1 | 1 | F | ug/L |
| 1 | 310 | 1,4-Divinylbenzene | 1,4-Divinylbenzene | 105-06-6 | 1 | F | ug/L |
| 1 | 320 | 1-Chlorobutane | 1-Chlorobutane | 109-69-3 | 1 | F | ug/L |
| 1 | 330 | 1-Chlorohexane | 1-Chlorohexane | 544-10-5 | 1 | F | ug/L |
| 1 | 340 | 2,2-Dichloropropane | 2,2-Dichloropropane | 594-20-7 | 1 | F | ug/L |
| 1 | 350 | 2,3,4-Trichlorobutene | 2,3,4-Trichlorobutene | 2431-50-7 | 1 | F | ug/L |
| 1 | 370 | 2-Butanone (MEK) | 2-Butanone | 78-93-3 | 1 | F | ug/L |
| 1 | 380 | 2-Chloro-1,3-butadiene | 2-Chloro-1,3-butadiene | 126-99-8 | 1 | F | ug/L |
| 1 | 390 | 2-Chloroethyl vinyl ether | 2-Chloroethyl vinyl ether | 110-75-8 | 1 | F | ug/L |
| 1 | 400 | 2-Chlorotoluene | 2-Chlorotoluene | 95-49-8 | 1 | F | ug/L |
| 1 | 410 | 2-Hexanone | 2-Hexanone | 591-78-6 | 1 | F | ug/L |
| 1 | 420 | 2-Methylnaphthalene | 2-Methylnaphthalene | 91-57-6 | 1 | F | ug/L |
| 1 | 430 | 2-Nitropropane | 2-Nitropropane | 79-46-9 | 1 | F | ug/L |
| 1 | 440 | Isopropyl alcohol | 2-Propanol | 67-63-0 | 1 | F | ug/L |
| 1 | 450 | 3,4-Dichloro-1-butene | 3,4-Dichloro-1-butene | 760-23-6 | 1 | F | ug/L |
| 1 | 460 | 3-chloro-1-Butene | 3-chloro-1-Butene | 563-52-0 | 1 | F | ug/L |
| 1 | 470 | 4-Chlorotoluene | 4-Chlorotoluene | 106-43-4 | 1 | F | ug/L |
| 1 | 480 | 4-Methyl-2-pentanone (MIBK) | 4-Methyl-2-pentanone | 108-10-1 | 1 | F | ug/L |
| 1 | 490 | Acetone | Acetone | 67-64-1 | 1 | F | ug/L |
| 1 | 500 | Acetonitrile | Acetonitrile | 75-05-8 | 1 | F | ug/L |
| 1 | 510 | Acrolein | Acrolein | 107-02-8 | 1 | F | ug/L |
| 1 | 520 | Acrylonitrile | Acrylonitrile | 107-13-1 | 1 | F | ug/L |
| 1 | 530 | 3-Chloro-1-propene | Allyl chloride | 107-05-1 | 1 | F | ug/L |
| 1 | 540 | Benzene | Benzene | 71-43-2 | 1 | F | ug/L |
| 1 | 550 | Benzyl chloride | Benzyl chloride | 100-44-7 | 1 | F | ug/L |
| 1 | 560 | Bromobenzene | Bromobenzene | 108-86-1 | 1 | F | ug/L |
| 1 | 570 | Chlorobromomethane | Bromochloromethane | 74-97-5 | 1 | F | ug/L |
| 1 | 580 | Dichlorobromomethane | Bromodichloromethane | 75-27-4 | 1 | F | ug/L |
| 1 | 590 | Bromoform | Bromoform | 75-25-2 | 1 | F | ug/L |
| 1 | 600 | Bromomethane | Bromomethane | 74-83-9 | 1 | F | ug/L |
| 1 | 610 | n-Butyl acetate | Butyl acetate | 123-86-4 | 1 | F | ug/L |
| 1 | 620 | C4-C10 | C4-C10-TPH-GRO | STL00504 | 1 | F | ug/L |
| 1 | 630 | C4-C12 | C4-C12-TPH-GRO | STL00350 | 1 | F | ug/L |
| 1 | 640 | C5-C12 | C5-C12-TPH-GRO | STL00349 | 1 | F | ug/L |
| 1 | 650 | C6-C10 | C6-C10-TPH-GRO | 8006-61-9 | 1 | F | ug/L |
| 1 | 660 | C6-C12 | C6-C12-TPH-GRO | STL00061 | 1 | F | ug/L |
| 1 | 670 | Carbon disulfide | Carbon disulfide | 75-15-0 | 1 | F | ug/L |
| 1 | 680 | Carbon tetrachloride | Carbon tetrachloride | 56-23-5 | 1 | F | ug/L |
| 1 | 690 | Chlorobenzene | Chlorobenzene | 108-90-7 | 1 | F | ug/L |
| 1 | 700 | Chlorodifluoromethane | Chlorodifluoromethane | 75-45-6 | 1 | F | ug/L |
| 1 | 710 | Chloroethane | Chloroethane | 75-00-3 | 1 | F | ug/L |
| 1 | 720 | Chloroform | Chloroform | 67-66-3 | 1 | F | ug/L |
| 1 | 730 | Chloromethane | Chloromethane | 74-87-3 | 1 | F | ug/L |
| 1 | 740 | Chlorotrifluoroethene | Chlorotrifluoroethene | 79-38-9 | 1 | F | ug/L |
| 1 | 750 | cis-1,2-Dichloroethene | cis-1,2-Dichloroethene | 156-59-2 | 1 | F | ug/L |
| 1 | 760 | cis-1,3-Dichloropropene | cis-1,3-Dichloropropene | 10061-01-5 | 1 | F | ug/L |
| 1 | 770 | cis-1,4-Dichloro-2-butene | cis-1,4-Dichloro-2-butene | 1476-11-5 | 1 | F | ug/L |
| 1 | 780 | Cyclohexane | Cyclohexane | 110-82-7 | 1 | F | ug/L |
| 1 | 790 | Cyclohexanone | Cyclohexanone | 108-94-1 | 1 | F | ug/L |
| 1 | 800 | Chlorodibromomethane | Dibromochloromethane | 124-48-1 | 1 | F | ug/L |
| 1 | 810 | Dibromomethane | Dibromomethane | 74-95-3 | 1 | F | ug/L |
| 1 | 820 | Dichlorodifluoromethane | Dichlorodifluoromethane | 75-71-8 | 1 | F | ug/L |
| 1 | 830 | Dichlorofluoromethane | Dichlorofluoromethane | 75-43-4 | 1 | F | ug/L |
| 1 | 840 | Diethoxymethane | Diethoxymethane | 462-95-3 | 1 | F | ug/L |
| 1 | 850 | Total Diethylbenzene | Diethylbenzene (total) | 25340-17-4 | 1 | S | ug/L |
| 1 | 860 | Isopropyl ether | Isopropyl ether | 108-20-3 | 1 | F | ug/L |
| 1 | 870 | divinyl benzene | Divinylbenzene (Total) | 1321-74-0 | 1 | S | ug/L |
| 1 | 880 | Ethanol | Ethanol | 64-17-5 | 1 | F | ug/L |
| 1 | 890 | Ethyl acetate | Ethyl acetate | 141-78-6 | 1 | F | ug/L |
| 1 | 900 | Ethyl ether | Ethyl ether | 60-29-7 | 1 | F | ug/L |
| 1 | 910 | Ethyl methacrylate | Ethyl methacrylate | 97-63-2 | 1 | F | ug/L |
| 1 | 920 | Tert-butyl ethyl ether | Ethyl t-butyl ether | 637-92-3 | 1 | F | ug/L |
| 1 | 930 | Ethylbenzene | Ethylbenzene | 100-41-4 | 1 | F | ug/L |
| 1 | 940 | 1,1,2-Trichloro-1,2,2-trifluoroethane | Freon 113 | 76-13-1 | 1 | F | ug/L |
| 1 | 950 | 1,2-Dichloro-1,1,2-trifluoroethane | Freon 123a | 354-23-4 | 1 | F | ug/L |
| 1 | 960 | 2-Chloro-1,1,1-Trifluoroethane | Freon 133a | 75-88-7 | 1 | F | ug/L |
| 1 | 970 | 1,1-Dichloro-1-fluoroethane | Freon 141 | 1717-00-6 | 1 | F | ug/L |
| 1 | 980 | Hexachlorobutadiene | Hexachlorobutadiene | 87-68-3 | 1 | F | ug/L |
| 1 | 1000 | Isobutyl alcohol | Isobutyl alcohol | 78-83-1 | 1 | F | ug/L |
| 1 | 1010 | Isopropyl acetate | Isopropyl acetate | 108-21-4 | 1 | F | ug/L |
| 1 | 1020 | Isopropylbenzene | Isopropylbenzene | 98-82-8 | 1 | F | ug/L |
| 1 | 1030 | m-Xylene & p-Xylene | m&p-Xylene | 179601-23-1 | 1 | F | ug/L |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 1040 | Methacrylonitrile | Methacrylonitrile | 126-98-7 | 1 | F | ug/L |
| 1 | 1050 | Methyl acetate | Methyl acetate | 79-20-9 | 1 | F | ug/L |
| 1 | 1060 | Iodomethane | Methyl iodide | 74-88-4 | 1 | F | ug/L |
| 1 | 1070 | Methyl methacrylate | Methyl methacrylate | 80-62-6 | 1 | F | ug/L |
| 1 | 1080 | Methyl tert-butyl ether | Methyl tertiary butyl ether | 1634-04-4 | 1 | F | ug/L |
| 1 | 1090 | Methylal | Methylal | 109-87-5 | 1 | F | ug/L |
| 1 | 1100 | Methylcyclohexane | Methylcyclohexane | 108-87-2 | 1 | F | ug/L |
| 1 | 1110 | Methylene Chloride | Methylene Chloride | 75-09-2 | 1 | F | ug/L |
| 1 | 1120 | Naphthalene | Naphthalene | 91-20-3 | 1 | F | ug/L |
| 1 | 1130 | n-Butanol | n-Butanol | 71-36-3 | 1 | F | ug/L |
| 1 | 1140 | n-Butylbenzene | n-Butylbenzene | 104-51-8 | 1 | F | ug/L |
| 1 | 1150 | n-Heptane | n-Heptane | 142-82-5 | 1 | F | ug/L |
| 1 | 1160 | Hexane | n-Hexane | 110-54-3 | 0 | F | ug/L |
| 1 | 1170 | Pentane | n-Pentane | 109-66-0 | 1 | F | ug/L |
| 1 | 1180 | n-Propyl acetate | n-Propyl acetate | 109-60-4 | 1 | F | ug/L |
| 1 | 1190 | N-Propylbenzene | N-Propylbenzene | 103-65-1 | 1 | F | ug/L |
| 1 | 1200 | o-Xylene | o-Xylene | 95-47-6 | 1 | F | ug/L |
| 1 | 1210 | Pentachloroethane | Pentachloroethane | 76-01-7 | 1 | F | ug/L |
| 1 | 1220 | 4-Isopropyltoluene | p-Isopropyltoluene | 99-87-6 | 1 | F | ug/L |
| 1 | 1230 | Propionitrile | Propionitrile | 107-12-0 | 1 | F | ug/L |
| 1 | 1240 | Propene oxide | Propylene oxide | 75-56-9 | 1 | F | ug/L |
| 1 | 1250 | sec-Butylbenzene | sec-Butylbenzene | 135-98-8 | 1 | F | ug/L |
| 1 | 1260 | Styrene | Styrene | 100-42-5 | 1 | F | ug/L |
| 1 | 1270 | t-Amyl alcohol | t-Amyl alcohol | 75-85-4 | 1 | F | ug/L |
| 1 | 1280 | 2-ethoxy-2-methyl butane | t-Amyl ethyl ether | 919-94-8 | 1 | F | ug/L |
| 1 | 1290 | Tert-amyl methyl ether | t-Amyl methyl ether | 994-05-8 | 1 | F | ug/L |
| 1 | 1300 | 2-Methyl-2-propanol | t-Butyl alcohol | 75-65-0 | 1 | F | ug/L |
| 1 | 1310 | tert-Butylbenzene | tert-Butylbenzene | 98-06-6 | 1 | F | ug/L |
| 1 | 1320 | Tetrachloroethene | Tetrachloroethene | 127-18-4 | 1 | F | ug/L |
| 1 | 1330 | Tetrahydrofuran | Tetrahydrofuran | 109-99-9 | 1 | F | ug/L |
| 1 | 1340 | Toluene | Toluene | 108-88-3 | 1 | F | ug/L |
| 1 | 1350 | trans-1,2,3-Trichlorobutene-2 | trans-1,2,3-Trichlorobutene-2 | STL02687 | 1 | F | ug/L |
| 1 | 1360 | trans-1,2-Dichloroethene | trans-1,2-Dichloroethene | 156-60-5 | 1 | F | ug/L |
| 1 | 1370 | trans-1,3-Dichloropropene | trans-1,3-Dichloropropene | 10061-02-6 | 1 | F | ug/L |
| 1 | 1380 | trans-1,4-Dichloro-2-butene | trans-1,4-Dichloro-2-butene | 110-57-6 | 1 | F | ug/L |
| 1 | 1390 | Trichloroethene | Trichloroethene | 79-01-6 | 1 | F | ug/L |
| 1 | 1400 | Trichlorofluoromethane | Trichlorofluoromethane | 75-69-4 | 1 | F | ug/L |
| 1 | 1410 | Vinyl acetate | Vinyl acetate | 108-05-4 | 1 | F | ug/L |
| 1 | 1420 | Vinyl chloride | Vinyl chloride | 75-01-4 | 1 | F | ug/L |
| 1 | 1430 | Xylenes, Total | Xylene (total) | 1330-20-7 | 1 | S | ug/L |
| 1 | 1440 | 1,2-Dichloroethane-d4 (Surr) | 1,2-Dichloroethane-d4 (Surr) | 17060-07-0 | 1 | Q | ug/L |
| 1 | 1450 | 4-Bromofluorobenzene (Surr) | 4-Bromofluorobenzene (Surr) | 460-00-4 | 1 | Q | ug/L |
| 1 | 1460 | Dibromofluoromethane (Surr) | Dibromofluoromethane (Surr) | 1868-53-7 | 1 | Q | ug/L |
| 1 | 1470 | Toluene-d8 (Surr) | Toluene-d8 (Surr) | 2037-26-5 | 1 | Q | ug/L |
| 1 | 1480 | 1,4-Dichlorobenzene-d4 | 1,4-Dichlorobenzene-d4 | 3855-82-1 | 0 | I | ug/L |
| 1 | 1490 | t-Butyl alcohol-d10 (IS) | t-Butyl alcohol-d10 (IS) | 53001-22-2 | 0 | I | ug/L |
| 1 | 1500 | Chlorobenzene-d5 (IS) | Chlorobenzene-d5 (IS) | 3114-55-4 | 0 | I | ug/L |
| 1 | 1510 | Fluorobenzene (IS) | Fluorobenzene (IS) | 462-06-6 | 0 | I | ug/L |
| 1 | 1540 | Chloroacetonitrile | Chloroacetonitrile | 107-14-2 | 1 | F | ug/L |
| 1 | 1550 | Dodecane | Dodecane | 112-40-3 | 0 | F | ug/L |
| 1 | 1560 | n-Decane | n-Decane | 124-18-5 | 0 | F | ug/L |
| 1 | 1580 | Butane | Butane | 106-97-8 | 0 | F | ug/L |
| 1 | 1970 | cis-1,2,3-Trichlorobutene-2 | cis-1,2,3-Trichlorobutene-2 | STL02686 | 1 | F | ug/L |
| 1 | 1980 | 1-Bromo-2-chloroethane | 1-Bromo-2-chloroethane | 107-04-0 | 1 | F | ug/L |
| 1 | 2160 | Total BTEX | Total BTEX | STL00431 | 1 | S | ug/L |
| 1 | 2270 | 4-Ethyltoluene | 4-Ethyltoluene | 622-96-8 | 1 | F | ug/L |
| 1 | 2280 | Isobutyl acetate | Isobutyl acetate | 110-19-0 | 1 | F | ug/L |
| 1 | 2290 | Propanol | Propanol | 71-23-8 | 1 | F | ug/L |
| 1 | 2300 | sec-Butyl Alcohol | sec-Butyl Alcohol | 78-92-2 | 1 | F | ug/L |
| 1 | 2310 | 3-Methyl-1-butene | 3-Methyl-1-butene | 563-45-1 | 1 | F | ug/L |
| 1 | 2480 | n-Butyl acrylate | n-Butyl acrylate | 141-32-2 | 1 | F | ug/L |
| 1 | 2490 | Ethyl acrylate | Ethyl acrylate | 140-88-5 | 1 | F | ug/L |
| 1 | 2500 | Methyl acrylate | Methyl acrylate | 96-33-3 | 1 | F | ug/L |
| 1 | 2510 | 2-Ethylhexyl acrylate | 2-Ethylhexyl acrylate | 103-11-7 | 1 | F | ug/L |
| 1 | 2520 | 2-Butoxyethyl acetate | 2-Butoxyethyl acetate | 112-07-2 | 1 | F | ug/L |

eurofins | Environment Testing

MSV_BCE_00052

## Reagent ID: MSV_BCE_00052

| | | | |
|---|---|---|---|
| Type: | ASTD | Expiration Date: | 02/28/2023 |
| Description: | A0177627 1-Bromo-2-chloroethane 2000ug | Laboratory: | Eurofins Lancaster Laboratories Envir |
| No. of Bottles: | 5 | Prepared By: | Long, Jason M |
| Storage Location: | VOA-C148-F | Vendor: | Restek |
| Reagent Volume: | 1.000 mL | Vendor Lot #: | A0177627 |
| Creation Date: | 10/26/2021 | Vendor Cat #: | 30469 |
| Open Date: | 01/29/2023 | | |
| Container(s): | 1978177, 1978178, 1978179, 1978180, 1978181 | | |
| Comment: | | | |

### Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 1-Bromo-2-chloroethane | | | | | 2000.00000 | ug/mL |

eurofins | Environment Testing

MSV_CCV_EE_00004

# Reagent ID: MSV_CCV_EE_00004

| | | | |
|---|---|---|---|
| Description: | CCV_ Ethyl Ether working std | Expiration Date: | 05/17/2023 |
| No. of Bottles: | 8 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 50.000 mL | Solvent: | Methanol |
| Creation Date: | 11/17/2022 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3569186, 3569187, 3569188, 3569189, 3569190, 3569191, 3569192, 3569193 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Ethyl ether | MSV_EE_MiSCSK_0001 | 05/17/2023 | 46860.00000 | ug/mL | 999.99240 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_EE_MISCSK_0011 | Misc Stock Solution of CCV_ Ethyl Ether | | 05/17/23 | | | | 1.06700 | mL |

eurofins | Environment Testing

MSV_CCV_LKB_00005

# Reagent ID: MSV_CCV_LKB_00005

| | | | |
|---|---|---|---|
| Description: | CCV_ LKB Working Std | Expiration Date: | 06/19/2023 |
| No. of Bottles: | 7 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 50.000 mL | Solvent: | Methanol |
| Creation Date: | 02/08/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3862586, 3862587, 3862588, 3862589, 3862590, 3862591, 3862592 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 3,4-Dichloro-1-butene | MSV_V34D1B_SK_0000 | 06/19/2023 | 91750.00000 | ug/mL | 1000.07500 | ug/mL |
| cis-1,4-Dichloro-2-butene | MSV_Vc14d_STK_00008 | 06/19/2023 | 52858.00000 | ug/mL | 1000.07336 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_V34D1B_SK_00009 | V 3,4-Dichloro-1-butene Stock | | 06/19/23 | | | | 0.54500 | mL |
| MSV_Vc14d_STK_00008 | V cis-1,4 Dichloro-2-butene Stock | | 06/19/23 | | | | 0.94600 | mL |

eurofins | Environment Testing

MSV_CCV_OH_Sp_00001

# Reagent ID: MSV_CCV_OH_Sp_00001

| | | | |
|---|---|---|---|
| Description: | CCV for Ohio Special | Expiration Date: | 08/09/2023 |
| No. of Bottles: | 1 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Long, Jason M |
| Reagent Volume: | 10.000 mL | Solvent: | Methanol |
| Creation Date: | 02/15/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3890935 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 2-Ethylhexyl acrylate | MSV_V_Acr_Std_00001 | 08/09/2023 | 5001.98400 | ug/mL | 1000.39680 | ug/mL |
| Ethyl acrylate | MSV_V_Acr_Std_00001 | 08/09/2023 | 5000.73200 | ug/mL | 1000.14640 | ug/mL |
| Methyl acrylate | MSV_V_Acr_Std_00001 | 08/09/2023 | 4999.68000 | ug/mL | 999.93600 | ug/mL |
| n-Butyl acrylate | MSV_V_Acr_Std_00001 | 08/09/2023 | 4997.62200 | ug/mL | 999.52440 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_V_Acr_Std_00001 | V Acrylates for special project | | 08/09/23 | | | | 2.00000 | mL |

eurofins | Environment Testing

# Reagent ID: MSV_CCV_Penta_00030

| | | | |
|---|---|---|---|
| Description: | CCV Pentachloroethane standard | Expiration Date: | 03/08/2023 |
| No. of Bottles: | 5 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Manderbach, Sarah |
| Reagent Volume: | 1.000 mL | Solvent: | Methanol |
| Creation Date: | 02/08/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3860760, 3860761, 3860762, 3860763, 3860764 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Pentachloroethane | MSV_V_PentaCL_00029 | 03/08/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_V_PentaCL_00029 | A0184174 Primary Pentachloroethane | ASTD | 03/08/23 | Restek | A0184174 | 577491 | 200.00000 | uL |

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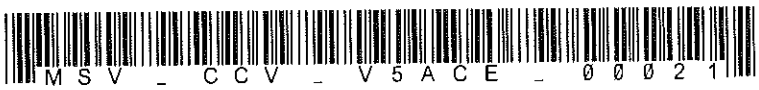


# Reagent ID: MSV_CCV_V5ACE_00021

| | | | |
|---|---|---|---|
| Description: | CCV Small Acetates & Acetonitrile | Expiration Date: | 03/04/2023 |
| No. of Bottles: | 10 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Kephart, Kayla |
| Reagent Volume: | 10.000 mL | Solvent: | Methanol |
| Creation Date: | 02/02/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3838629, 3838630, 3838631, 3838632, 3838633, 3838634, 3838635, 3838636, 3838637, 383863 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Acetonitrile | MSV_AcetatesV_00026 | 03/04/2023 | 50000.00000 | ug/mL | 5000.00000 | ug/mL |
| Ethyl acetate | MSV_AcetatesV_00026 | 03/04/2023 | 10000.00000 | ug/mL | 1000.00000 | ug/mL |
| Isopropyl acetate | MSV_AcetatesV_00026 | 03/04/2023 | 10000.00000 | ug/mL | 1000.00000 | ug/mL |
| n-Butyl acetate | MSV_AcetatesV_00026 | 03/04/2023 | 10000.00000 | ug/mL | 1000.00000 | ug/mL |
| n-Propyl acetate | MSV_AcetatesV_00026 | 03/04/2023 | 10000.00000 | ug/mL | 1000.00000 | ug/mL |
| Vinyl acetate | MSV_AcetatesV_00026 | 03/04/2023 | 10000.00000 | ug/mL | 1000.00000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_AcetatesV_00026 | A0184542 Acetates/Acetonitrile in MeOH | ASTD | 03/04/23 | Restek | A0184542 | 557489 | 1.00000 | mL |

eurofins | Environment Testing

## Reagent ID: MSV_V_SMFreon_00025

| | | | |
|---|---|---|---|
| Type: | ASTD | Expiration Date: | 03/24/2023 |
| Description: | A0172146 Custom SM Freon in MeOH | Laboratory: | Eurofins Lancaster Laboratories Envir |
| No. of Bottles: | 1 | Prepared By: | Long, Jason M |
| Storage Location: | VOA-C148-F | Vendor: | Restek |
| Reagent Volume: | 1.000 mL | Vendor Lot #: | A0172146 |
| Creation Date: | 04/01/2022 | Vendor Cat #: | 577490 |
| Open Date: | 02/22/2023 | | |
| Container(s): | 2698274 | | |
| Comment: | | | |

### Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 2-Chloro-1,1,1-Trifluoroethane | | | | | 2000.00000 | ug/mL |
| Chlorodifluoromethane | | | | | 2000.00000 | ug/mL |
| Chlorotrifluoroethene | | | | | 2000.00000 | ug/mL |

eurofins | Environment Testing

MSV_CCV_2CEVE_00107

# Reagent ID: MSV_CCV_2CEVE_00107

| | | | |
|---|---|---|---|
| Description: | CCV 2CEVE Weekly Std | Expiration Date: | 03/21/2023 |
| No. of Bottles: | 10 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 5.000 mL | Solvent: | Methanol |
| Creation Date: | 02/19/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3902082, 3902083, 3902084, 3902085, 3902086, 3902087, 3902088, 3902089, 3902090, 39020 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 2-Chloroethyl vinyl ether | MSV_V_2CLEVE_00111 | 04/30/2025 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_V_2CLEVE_00111 | A0184487 Primary 2CEVE Standard | ASTD | 04/30/25 | Restek | A0184487 | 577492 | 1.00000 | mL |

eurofins | Environment Testing

MSV_CCV_CYC_00005

# Reagent ID: MSV_CCV_CYC_00005

| | | | |
|---|---|---|---|
| Description: | CCV_ CYC Working Standard | Expiration Date: | 06/23/2023 |
| No. of Bottles: | 10 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 200.000 mL | Solvent: | 50/50 MeOH/Water |
| Creation Date: | 01/23/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3807157, 3807158, 3807159, 3807160, 3807161, 3807162, 3807163, 3807164, 3807165, 380716 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Cyclohexanone | MSV_VCYC_STK_00009 | 06/23/2023 | 130000.00000 | ug/mL | 6249.75000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_VCYC_STK_00009 | V Cyclohexanone Stock | | 06/23/23 | | | | 9.61500 | mL |

eurofins | Environment Testing

MSV_CCV_GASES_00386

## Reagent ID: MSV_CCV_GASES_00386

| | | | |
|---|---|---|---|
| Type: | ASTD | Expiration Date: | 03/01/2023 |
| Description: | A0184815 Custom Gases Primary Standa | Laboratory: | Eurofins Lancaster Laboratories Envir |
| No. of Bottles: | 5 | Prepared By: | Long, Jason M |
| Storage Location: | VOA-C148-F | Vendor: | Restek |
| Reagent Volume: | 1.000 mL | Vendor Lot #: | A0184815 |
| Creation Date: | 11/02/2022 | Vendor Cat #: | 577488 |
| Open Date: | 02/22/2023 | | |
| Container(s): | 3514559, 3909488, 3909489, 3909490, 3909491 | | |
| Comment: | | | |

### Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 1,2-Dichloro-1,1,2-trifluoroethane | | | | | 2000.00000 | ug/mL |
| Bromomethane | | | | | 2000.00000 | ug/mL |
| Butadiene | | | | | 2000.00000 | ug/mL |
| Chloroethane | | | | | 2000.00000 | ug/mL |
| Chloromethane | | | | | 2000.00000 | ug/mL |
| Dichlorodifluoromethane | | | | | 2000.00000 | ug/mL |
| Dichlorofluoromethane | | | | | 2000.00000 | ug/mL |
| Trichlorofluoromethane | | | | | 2000.00000 | ug/mL |
| Vinyl chloride | | | | | 2000.00000 | ug/mL |

eurofins | Environment Testing

MSV_CCV_VOC#1_00111

# Reagent ID: MSV_CCV_VOC#1_00111

| | | | |
|---|---|---|---|
| Description: | CCV VOC#1 Weekly Std | Expiration Date: | 03/21/2023 |
| No. of Bottles: | 9 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 5.000 mL | Solvent: | Methanol |
| Creation Date: | 02/19/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3902052, 3902053, 3902054, 3902055, 3902056, 3902057, 3902058, 3902059, 3902060 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,1,1-Trichloroethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,1,2,2-Tetrachloroethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,1,2-Trichloroethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,1-Dichloroethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,1-Dichloroethene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,1-Dichloropropene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,2,3-Trichlorobenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,2,3-Trichloropropane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,2,4-Trichlorobenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,2,4-Trimethylbenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,2-Dibromo-3-Chloropropane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,2-Dichlorobenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,2-Dichloroethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,2-Dichloropropane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,3,5-Trimethylbenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,3-Dichlorobenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,3-Dichloropropane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |

eurofins | Environment Testing

# Reagent ID: MSV_CCV_VOC#1_00111

| | | | |
|---|---|---|---|
| Description: | CCV VOC#1 Weekly Std | Expiration Date: | 03/21/2023 |
| No. of Bottles: | 9 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 5.000 mL | Solvent: | Methanol |
| Creation Date: | 02/19/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3902052, 3902053, 3902054, 3902055, 3902056, 3902057, 3902058, 3902059, 3902060 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 2,2-Dichloropropane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 2-Chlorotoluene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 4-Chlorotoluene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 4-Isopropyltoluene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Benzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Bromobenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Bromoform | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Carbon tetrachloride | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Chlorobenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Chlorobromomethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Chlorodibromomethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Chloroform | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| cis-1,2-Dichloroethene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| cis-1,3-Dichloropropene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Dibromomethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Dichlorobromomethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Ethylbenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |

eurofins | Environment Testing

# Reagent ID: MSV_CCV_VOC#1_00111

| | | | |
|---|---|---|---|
| Description: | CCV VOC#1 Weekly Std | Expiration Date: | 03/21/2023 |
| No. of Bottles: | 9 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 5.000 mL | Solvent: | Methanol |
| Creation Date: | 02/19/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3902052, 3902053, 3902054, 3902055, 3902056, 3902057, 3902058, 3902059, 3902060 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Ethylene Dibromide | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Hexachlorobutadiene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Isopropylbenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Methylene Chloride | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| m-Xylene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| m-Xylene & p-Xylene | MSV_MegaMIX#1_00112 | 03/21/2023 | 10000.00000 | ug/mL | 2000.00000 | ug/mL |
| Naphthalene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| n-Butylbenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| N-Propylbenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| o-Xylene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| p-Xylene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| sec-Butylbenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Styrene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| tert-Butylbenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Tetrachloroethene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Toluene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| trans-1,2-Dichloroethene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| trans-1,3-Dichloropropene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |

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MSV_CCV_VOC#1_00111

## Reagent ID: MSV_CCV_VOC#1_00111

| | | | |
|---|---|---|---|
| Description: | CCV VOC#1 Weekly Std | Expiration Date: | 03/21/2023 |
| No. of Bottles: | 9 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 5.000 mL | Solvent: | Methanol |
| Creation Date: | 02/19/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3902052, 3902053, 3902054, 3902055, 3902056, 3902057, 3902058, 3902059, 3902060 | | |
| Comment: | | | |

### Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Trichloroethene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,2,3-Trimethylbenzene | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,3,5-Trichlorobenzene | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,3-Diethylbenzene | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,4-Dioxane | MSV_MegaMix#2_00108 | 03/21/2023 | 62500.00000 | ug/mL | 12500.00000 | ug/mL |
| 1-Chlorohexane | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 2-Chloro-1,3-butadiene | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 2-ethoxy-2-methyl butane | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 2-Methyl-2-propanol | MSV_MegaMix#2_00108 | 03/21/2023 | 25000.00000 | ug/mL | 5000.00000 | ug/mL |
| 2-Methylnaphthalene | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 2-Nitropropane | MSV_MegaMix#2_00108 | 03/21/2023 | 25000.00000 | ug/mL | 5000.00000 | ug/mL |
| 3-Chloro-1-propene | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Acrylonitrile | MSV_MegaMix#2_00108 | 03/21/2023 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |
| Benzyl chloride | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Carbon disulfide | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Cyclohexane | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Ethyl methacrylate | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |

## Reagent ID: MSV_CCV_VOC#1_00111

| | | | |
|---|---|---|---|
| Description: | CCV VOC#1 Weekly Std | Expiration Date: | 03/21/2023 |
| No. of Bottles: | 9 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 5.000 mL | Solvent: | Methanol |
| Creation Date: | 02/19/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3902052, 3902053, 3902054, 3902055, 3902056, 3902057, 3902058, 3902059, 3902060 | | |
| Comment: | | | |

### Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Hexane | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Iodomethane | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Isobutyl alcohol | MSV_MegaMix#2_00108 | 03/21/2023 | 62500.00000 | ug/mL | 12500.00000 | ug/mL |
| Isopropyl alcohol | MSV_MegaMix#2_00108 | 03/21/2023 | 25000.00000 | ug/mL | 5000.00000 | ug/mL |
| Isopropyl ether | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Methacrylonitrile | MSV_MegaMix#2_00108 | 03/21/2023 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |
| Methyl acetate | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Methyl methacrylate | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Methyl tert-butyl ether | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Methylcyclohexane | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| n-Butanol | MSV_MegaMix#2_00108 | 03/21/2023 | 62500.00000 | ug/mL | 12500.00000 | ug/mL |
| n-Heptane | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| o-diethylbenzene | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| p-Diethylbenzene | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Pentane | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Propionitrile | MSV_MegaMix#2_00108 | 03/21/2023 | 25000.00000 | ug/mL | 5000.00000 | ug/mL |
| Tert-amyl methyl ether | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Tert-butyl ethyl ether | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |

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# Reagent ID: MSV_CCV_VOC#1_00111

| | | | |
|---|---|---|---|
| Description: | CCV VOC#1 Weekly Std | Expiration Date: | 03/21/2023 |
| No. of Bottles: | 9 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 5.000 mL | Solvent: | Methanol |
| Creation Date: | 02/19/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3902052, 3902053, 3902054, 3902055, 3902056, 3902057, 3902058, 3902059, 3902060 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Tetrahydrofuran | MSV_MegaMix#2_00108 | 03/21/2023 | 25000.00000 | ug/mL | 5000.00000 | ug/mL |
| trans-1,4-Dichloro-2-butene | MSV_MegaMix#2_00108 | 03/21/2023 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_MegaMIX#1_00112 | A0184527 Cus VOC MegaMix #1 in MeOH | ASTD | 03/21/23 | Restek | A0184527 | 577486 | 1.00000 | mL |
| MSV_MegaMix#2_00108 | A0186885 MegaMix #2 Primary Custom | ASTD | 03/21/23 | Restek | A0186885 | 577487 | 1.00000 | mL |

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# Reagent ID: MSV_CCV_VOC#3_00112

| | | | |
|---|---|---|---|
| Description: | CCV VOC#3 Weekly Std | Expiration Date: | 03/21/2023 |
| No. of Bottles: | 10 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 5.000 mL | Solvent: | Methanol |
| Creation Date: | 02/19/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3902072, 3902073, 3902074, 3902075, 3902076, 3902077, 3902078, 3902079, 3902080, 39020 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Acrolein | MSV_CCV_ACR_00009 | 04/10/2023 | 124991.89700 | ug/mL | 12499.18967 | ug/mL |
| 2-Butanone (MEK) | MSV_V_Ketones_00100 | 01/31/2025 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |
| 2-Hexanone | MSV_V_Ketones_00100 | 01/31/2025 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |
| 4-Methyl-2-pentanone (MIBK) | MSV_V_Ketones_00100 | 01/31/2025 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |
| Acetone | MSV_V_Ketones_00100 | 01/31/2025 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_CCV_ACR_00009 | V Acrloein Working Standard | | 04/10/23 | | | | 0.50000 | mL |
| MSV_V_Ketones_00100 | A0180742 Ketones Primary standard in Me | ASTD | 01/31/25 | Restek | A0180742 | 569721 | 1.00000 | mL |

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MSV_V_VOA2_00181

# Reagent ID: MSV_V_VOA2_00181

| | | | |
|---|---|---|---|
| Description: | VOA 2 Weekly Std | Expiration Date: | 03/21/2023 |
| No. of Bottles: | 10 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 5.000 mL | Solvent: | Methanol |
| Creation Date: | 02/19/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3902062, 3902063, 3902064, 3902065, 3902066, 3902067, 3902068, 3902069, 3902070, 390207 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 1,4-Dioxane | MSV_V#2B_00309 | 04/30/2024 | 62500.00000 | ug/mL | 12500.00000 | ug/mL |
| 2-Methyl-2-propanol | MSV_V#2B_00309 | 04/30/2024 | 25000.00000 | ug/mL | 5000.00000 | ug/mL |
| Isobutyl alcohol | MSV_V#2B_00309 | 04/30/2024 | 62500.00000 | ug/mL | 12500.00000 | ug/mL |
| Isopropyl alcohol | MSV_V#2B_00309 | 04/30/2024 | 25000.00000 | ug/mL | 5000.00000 | ug/mL |
| Methacrylonitrile | MSV_V#2B_00309 | 04/30/2024 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |
| n-Butanol | MSV_V#2B_00309 | 04/30/2024 | 125000.00000 | ug/mL | 25000.00000 | ug/mL |
| Propionitrile | MSV_V#2B_00309 | 04/30/2024 | 25000.00000 | ug/mL | 5000.00000 | ug/mL |
| trans-1,4-Dichloro-2-butene | MSV_V#2B_00309 | 04/30/2024 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_V#2B_00309 | A0184378 V#2B 5000ug/mL in MeOH | ASTD | 04/30/24 | Restek | A0184378 | 56734 | 1.00000 | mL |

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MSV_Cust_VGro_00098

## Reagent ID: MSV_Cust_VGro_00098

| | | | |
|---|---|---|---|
| Type: | ASTD | Expiration Date: | 07/09/2023 |
| Description: | A0171576 V Unleaded Gas Comp 5500ug/ | Laboratory: | Eurofins Lancaster Laboratories Envir |
| No. of Bottles: | 5 | Prepared By: | Long, Jason M |
| Storage Location: | VOA-C148-F | Vendor: | Restek |
| Reagent Volume: | 1.000 mL | Vendor Lot #: | A0171576 |
| Creation Date: | 05/03/2022 | Vendor Cat #: | 570209 |
| Open Date: | 06/09/2023 | | |
| Container(s): | 2805492, 4411551, 4411552, 4411553, 4411554 | | |
| Comment: | EXP; 03/2025 | | |

### Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Butane | | | | | 1.00000 | ug/mL |
| C4-C10 | | | | | 5500.00000 | ug/mL |
| C4-C12 | | | | | 5500.00000 | ug/mL |
| C5-C12 | | | | | 5500.00000 | ug/mL |
| C6-C10 | | | | | 5500.00000 | ug/mL |
| C6-C12 | | | | | 5500.00000 | ug/mL |

**Client-Specific Volatile Compositing**

1. Samples are collected using pre-tared methanol vials.
2. The client defines the decision unit and provides compositing instructions to the laboratory.
3. The Volatiles prep technician weighs each vial and records the initial weight of soil collected for each vial.
4. The Volatiles prep technician enters the initial combined weight and total methanol extract volume as the initial and final volumes in LIMS.
5. The Volatiles analyst removes an equal amount of methanol from each discrete sample vial, composited in an appropriately sized container and mixed well.

NOTE: Caution must be used to minimize handling time to avoid the loss of volatiles.

6. The initial combined weight and total methanol extract volume is used to calculate the results of the composited sample.

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**VOCs and GRO by GC/MS in Waters and Wastewaters by EPA 8260C/D** | Level:<br>**Work Instruction** |
| Document number:<br>**T-VOA-WI8194** | | |
| Old Reference:<br>**1-P-QM-WI- 9013078** | | |
| Version:<br>**14** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **X6TJ**<br>Effective Date: **16-NOV-2023** | Document users:<br>**6_EUUSLA_GC/MS Volatiles_GC/MS Auditors/Verifiers, 6_EUUSLA_GC/MS Volatiles_Level II Peer Review, 6_EUUSLA_GC/MS Volatiles_Management, 6_EUUSLA_GC/MS Volatiles_SW846 8260 Water** | Responsible:<br>**5_EUUSLA_GC/MS Volatiles_Manager** |

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## Revision Log

| | **Revision:** 14 | **Effective Date:** This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Attachments | Update | Added Attachment 3 (analyte list for 8260C/D_LL) and Attachment 4 (Reagent Formulary report for 8260C/D_LL Calibration) |

| | **Revision:** 13 | **Effective Date:** July 25,2023 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Reference | Update | Updated Method 8000D revision |
| Personnel Training and Qualifications | Updated procedure | Updated IDOC procedure |

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## Reference

1. Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), SW-846 Method 8260C, August 2006.

1. Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), SW-846 Method 8260D, June 2018.

2. Determinative Chromatographic Separations, SW-846 Method 8000D, Revision 5, March 2018.

3. Purge and Trap for Aqueous Samples, SW-846 Method 5030B, December 1996.

4. Purge and Trap for Aqueous Samples, SW-846 Method 5030C, Rev 3, May 2003.

5. *Total Petroleum Hydrocarbons Analysis-Gasoline Method*, California Department of Health Services, LUFT Task Force.

6. *Chemical Hygiene Plan*, current version.

## Cross Reference

| Document | Document Title |
|---|---|
| *T-VOA-WI7691* | Glassware Washing |
| *T-VOA-WI7619* | GC and GC/MS Instrumentation Maintenance |
| *T-VOA-WI7629* | GC/MS Volatile Standards Traceability |
| *T-VOA-WI7692* | Preparation and Analysis of Cleaning Blanks for GC and GC/MS Volatiles |
| *T-VOA-WI8373* | GC/MS Volatiles Audit Process |
| *T-VOA-WI8400* | Level II Review of GS/MS Volatiles |
| *QA-SOP11892* | Determining Method Detection Limits and Limits of Quantitation |

## Scope

This method is suitable for the determination of the target compounds listed and maintained in the LIMS (Laboratory Information Management System) for aqueous matrices. Associated MDLs/LOQs are also listed in the LIMS under the analysis number and/or Project Information lists. Non-target volatile compounds in the sample can be tentatively identified (TIC) using a mass spectral reference library comparison. This analysis must be performed by or under the direct supervision of an operator experienced in the analysis of volatile organics by purge and trap GC/MS methodologies and skilled in mass spectral interpretation. Using this method, the TICs are quantitated with an estimated concentration. Compounds other than those listed in the LIMS for this group of master scans are analyzed using USEPA SW-846 Method 8260C. A list of analytes listed under the method is included in the Appendix, as well as the Reagent Formulary Reports for the compounds in the method (Figures 1-2). Due to poor purging efficiency or poor gas chromatographic performance, some analytes require calibration at higher levels and higher practical quantitation limits (PQLs). Standards containing additional analytes must be prepared as described in the Standards section of this document. Both secondary stock solutions and matrix spike solutions must be prepared for use in analyzing additional compounds.

## Basic Principles

A 5-mL or 25-mL sample or a dilution of a sample is placed in a specially designed purge vessel. The sample is purged with an inert gas and the effluent gas passed through a sorbent tube where the volatile organics are trapped. After purging, the sorbent trap is rapidly heated and backflushed on to the head of a gas chromatographic (GC) capillary column. The GC column is temperature programmed to separate the volatile compounds, which are subsequently detected and identified using mass spectrometric techniques.

When a compound reaches the Mass Spectrometer, it is bombarded by high-energy electrons (70 eV). This causes the compound to fragment and form ions. The positive ions are focused into a quadrupole mass analyzer, where the ions are separated according to their mass/charge ratios during rapid repetitive scans. These ions are then amplified and detected with an electron multiplier.

The resulting time/intensity/mass spectra data are stored and processed by a computer. Target compounds are identified on the basis of relative retention times and mass spectral matches to standards, which are injected every 12 hours on the same system. The internal standard method is used for quantitation.

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The GRO analysis is typically performed in conjunction with the analysis of other volatile target compounds by SW-846 Method 8260C. The GRO quantitation range is 0.1 minutes before the peak apex of C6 (hexane) to 0.2 minutes after the peak apex of C12 (dodecane); however, other ranges can be established. By establishing a (C12) GRO window to 0.2 minutes following the elution of dodecane, the areas from a trio of unresolved peaks eluting near to the upper limit of the range must consistently be included in the total GRO area. In addition, the range remains tight enough to ensure that no C13 or greater compounds can be included in the total GRO area. The C4 range retention time is determined by selecting the first peak after the air and/or artifact peak minus 0.1 minutes in the first standard analyzed in the ICAL. The C5 range retention time is 0.1 minutes before the peak apex of pentane. This analysis must be performed by or under the direct supervision of an operator experienced in the analysis of volatile organics by GC/MS purge and trap methodologies. The area of the total ion chromatogram for the GRO range is determined. The area of the internal standards and surrogate standards are found and subtracted from the total area of the chromatogram within the desired time range. The resulting area is then quantitated versus the internal standard, fluorobenzene.

## Interferences

Contaminant sources are volatile compounds in the laboratory environment, impurities in the inert purging gas, carryover from samples containing high concentrations of volatile organic compounds and dirty glassware. The analyst must demonstrate that the system is free from interferences (by producing acceptable method blank data) before analyzing a batch of samples. Matrix effects from heavily contaminated waters can interfere with the internal standard responses, target analytes and surrogate recoveries, thereby hindering accurate quantitation. See Section 4.0 of SW-846 Method 8260C for further discussion.

## Safety Precautions and Waste Handling

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

The toxicity or carcinogenicity of each reagent used in this method has not been precisely defined; therefore, each chemical compound must be treated as a potential health hazard. Exposure to these chemicals must be reduced to the lowest possible level by whatever means available, such as the use of fume hoods, safety glasses, lab coats, and gloves. Neat compound sources and stock solutions must be collected into a lab pack upon expiration. The lab pack is delivered to Safety personnel for appropriate disposal. Expired secondary standard solutions in methanol must be disposed of as solvent waste. Pour expired secondary standard solutions into the appropriate solvent waste collection container. Aqueous calibration standard mixes are disposed of as nonhazardous aqueous waste due to the low concentration. Samples with a pH ≤2 are taken to storage until disposal in an acid waste container.

## Personnel Training and Qualifications

Education Requirement: A 4-year Baccalaureate Degree from an accredited College or University in one of the physical sciences and/or one to three years of relevant gas chromatography experience.

Analysts must be trained in the proper method of volatile organic sample preparation and analysis as determined by the supervisor(s). All training and education relating to volatile organic sample preparation and analysis must be documented by each analyst in his/her training record. Specifically, each new chemist trains with an experienced chemist for the first 12 weeks depending on the individual and his/her previous experience. The first 12 weeks are spent working one-on-one with the trainer. This time is less if the new chemist has prior relevant experience in GC/MS and/or analytical chemistry background.

During the training period, the new chemist learns daily maintenance, calibration techniques, data and library search review, and forms generation. He/she is also required to read all relevant SOPs and EPA methods. All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP.

Each analyst must perform an Initial Demonstration of Capability <(IDOC) to measure proficiency. The IDOC consists of four laboratory control samples that are carried through all steps of the analysis and meet the defined acceptance criteria. The criteria include the calculation of mean accuracy and standard deviation (per EPA 8000D the criteria are the statistical LCS window, and RPD ≤ 20%). Various options are available for a DOC and can include four laboratory control samples or one blind sample. Thereafter, an annual Demonstration of Capability is performed annually and is maintained in the analyst's training records.

**NOTE:** A separate Demonstration of Capability for GRO is required.

## Sample Collection, Preservation, and Handling

The samples to be analyzed with this method must be stored in a refrigerator at 0°C to 6°C, not frozen. Samples are collected in 40-mL vials with no headspace. Preserve samples to a pH of <2 in order to prevent degradation of aromatic compounds that are present in the sample. 1:1 HCL is the recommended preservative. Preserved samples must be analyzed within 14 days of collection; those that are not preserved must be analyzed within 7 days of

collection. Samples to be tested for Acrolein and Acrylonitrile must be collected without headspace in vials that are preserved to a pH range of 4.0 to 5.0 and must be analyzed within 7 days of collection. Samples may also be submitted in unpreserved vials for Acrolein and Acrylonitrile, but must be analyzed within 3 days of collection. Unpreserved samples from South Carolina for Acrolein and Acrylonitrile do not meet RCRA requirements and must be qualified. Samples submitted outside of the pH range or analyzed outside of the specified holding time windows will be reported with a comment on the final analytical report.

## Apparatus and Equipment

1. Gastight micro-syringes – 1 to 1000 µL (various sizes)

2. 5-mL gastight syringes

3. Analytical balance, capable of accurately weighing ±0.0001 g

4. Glassware

   a. Class-A Volumetric flasks with ground-glass stopper

   b. Vials, 1.5-mL, 15-mL, and 40-mL screw cap, with Teflon™/silicone septa

   c. Mininert vials, 1 mL, 2 mL, and 5 mL

5. Purge and trap device – Consisting of the sample purger, the trap, and desorber; the OI Analytical 4560, OI Analytical 4660, or equivalent meets the requirements of this method. The purging chamber must have the purge gas passing through the sample as finely divided bubbles and minimize the headspace between the sample and the trap to <15 mL.

6. Autosampler – OI Analytical 4551, OI Analytical 4552, Archon, or equivalent meets the requirements of this method.

7. Spiker unit – OI analytical Model 4551/4552 SAM/Spiker or equivalent. One or two automated syringe spikers can be added to the OI Analytical Model 4551/4552 autosampler to automatically introduce 1 µL of internal standard (ISTD), surrogate standard, and/or matrix spiking solutions to the sample as it is being transferred to the sparge vessel. The Archon has a groove that can deliver 1 µL of appropriate standards.

8. GC/MS system – The Agilent 5890GC/5972 MSD, Agilent 6890GC/5973MSD, Agilent 6890GC/5975MSD and Shimadzu GC/MS QP5000 meet the requirements for this method.

9. Data System/Computer/Software – this is interfaced to the GC/MS system that continuously acquires and stores data during the analysis, and can process/reduce data to generate the appropriate forms and supporting data. The software used for acquisition is HP Chemstation®, and data reduction is accomplished using Target® software.

10. GC Columns

   a. Column 1 – 30M × 0.25 mm ID DB624 capillary column with a 1.4-µm film thickness from Agilent, or equivalent (to be used with the Shimadzu QP5000 or the Agilent 5972, 5973 and 5975 MSDs)

   b. Column 2 – 20M × 0.18 mm ID DB624 capillary column with a 1.0-µm film thickness from Agilent, or equivalent (to be used with the Shimadzu QP5000 or the Agilent 5972, 5973 and 5975 MSDs)

   c. Column 3 – 20M × 0.18 mm ID DB-VRX capillary column with a 1.0-µm film thickness from Agilent, or equivalent (to be used with the Shimadzu QP5000 or the Agilent 5972, 5973 and 5975 MSDs)

   **NOTE:** Refer to *T-VOA-WI7619* for instrumentation maintenance and troubleshooting.

## Reagents and Standards

A. Reagents

   1. Reagent water is defined as water in which an interferent is not observed at or above the reporting limit for parameters of interest. In general, the deionized water supplied at the taps in the laboratory meets these criteria. If the reagent water does not meet the requirements, see your supervisor for further instructions.

   2. Methanol, Purge and Trap Grade or equivalent.

B. Standards

See *T-VOA-WI7629* for standards traceability.

   1. Stock standard solutions – Stock solutions must be prepared in methanol. Standards are prepared from ampulated and neat compounds obtained from suppliers that indicate the purity of the compound. No correction for purity is made if the purity is listed as ≥96%. Pre-made solutions can be used if the supplier documents the

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concentrations of the solutions. All ampulated standards are stored at ≤-10°C until the expiration date indicated by the vendor or for 1 year if no expiration date is provided.

a. For most of the target compounds, the stock standard solutions are purchased from a vendor as custom mixes (V for calibration and Q for separate source quality control). The internal and surrogate standards are purchased from a vendor, as well as the target compounds that are gases at room temperature. These gaseous standards have a 1-week expiration date, starting from the date they are opened.

b. 8260A Surrogate standard spiking solution (8260SS) – a 2500 µg/mL stock standard solution of dibromofluoromethane, toluene-d8, 4-bromofluorobenzene, and 1,2-dichloroethane-d4 is prepared in methanol by a commercial supplier.

c. 8260A Internal standard spiking solution (8260IS) – a 2500 µg/mL stock standard solution of fluorobenzene, chlorobenzene-d5, 1,4-dichlorobenzene-d4, and 12500 µg/mL deuterated tertiary butyl alcohol (tBA-d10) is prepared in methanol by a commercial supplier. Deuterated tertiary butyl alcohol (tBA-d10) is used sometimes as an auxiliary ISTD.

d. GRO calibration standard – a 5500-µg/mL stock unleaded gasoline composite prepared in methanol by a commercial supplier.

e. GRO QC standard – a 20,000-µg/mL stock unleaded gasoline composite prepared in methanol by a commercial supplier

To prepare stock standards from neat compounds:

(1) Place about 9.8 mL methanol or an equivalent solvent into a tared 10.0-mL glass-stoppered volumetric flask. Weigh the flask to the nearest 0.1 mg.

(2) Add the liquids using a syringe or pipette by adding 2 or more drops of the assayed material to the flask, being careful that no drop hits the side of the flask. Reweigh the flask, record/note the amount, dilute to volume, stopper, and mix by inverting the flask at least 3 times. Calculate the concentration of the standard.

(3) The stock standard solutions are stored in Teflon™-sealed screw-capped vials at ≤-10°C. The compound name, concentration, date prepared, expiration date, preparer name and storage method must appear on the bottle.

(4) Replace in-house prepared stock standard solutions every 6 months.

2. Secondary dilution standards - Using the stock standard solutions, prepare secondary stock solutions in methanol containing the desired compounds. These standards are prepared by calculating the volume of each stock standard required to produce a given volume of a mixed working standard with a known concentration of each analyte. When custom mixes are used, these are diluted down individually or combined together with other mixes. The working standard is tested according to *T-VOA-WI7629*. The verified working standard is poured into Teflon-lined screw-capped GC vials or mininert vials and stored at ≤-10°C. A designator indicating the standard name, month, and day of preparation and expiration date must be on the standard vials. The designator and all data pertaining to the working standard preparation are to be recorded in the standards logbook. Replace secondary dilution standards every 2-4 weeks (1 week for standards containing gases) unless otherwise indicated.

a. 1,4-Bromofluorobenzene (BFB) standard – Prepare a 50-µg/mL solution of BFB in methanol by diluting the stock standard (prepared from neat material) with methanol to a final volume of 100 mL. The volume of stock standard used varies depending on the actual stock concentration.

b. IS/SS spiking solution – Dilute 1 mL of 8260IS and 1 mL of 8260SS with methanol to 10-mL final volume (resulting in a concentration of 250 µg/mL, 1250 µg/mL for tBA-d10). This is assuming a 1-µL groove in the autosampler. If the groove is determined to be other than 1 µL, the standard preparation must be adjusted so that appropriate final concentration is obtained.(50& µg/L for 5-mL purge, 10 µg/L for 25-mL purge).

c. Calibration spiking solution – Prepare solutions in methanol that contain the compounds of interest at known concentrations. Suggested calibration levels are 1, 4, 10, 20, 50, 100, and 300 ppb for 5-mL purge analysis. Suggested calibration levels are 0.2, 0.5, 1, 2, 5, 10, and 25 ppb for 25-mL purge analysis. Replace calibration spiking solution every 2-4 weeks (1 week for standards containing gases).

d. Matrix spiking solution – Prepare second source solutions in methanol that contain the compounds of interest at known concentrations. These solutions serve as both the matrix spiking solution and the laboratory control sample solutions. Matrix spikes also serve as duplicates. Therefore, two aliquots of the same sample need to be spiked for analysis with these solutions. Replace matrix spiking solution every 2-4 weeks (1 week for standards containing gases).

Store all standard solutions at ≤-10°C and protected from light.

## Preparation of Glassware

All glassware is cleaned according to *T-VOA-WI7691*.

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## Calibration

A. Instrument conditions

1. The purge and trap device must have the trap conditioned for at least 10 minutes at 180° to 220°C at a flow rate of 20 to 60 mL/min prior to initial use.

2. An example of purge and trap conditions are listed below:

| | |
|---|---|
| Purge Gas | Helium |
| Purge Flow | 35 - 45 mL/min |
| Purge Temperature | 40°C for 8260C waters |
| Purge Time | 11 minutes |
| Desorb Temperature | 190°- 220°C |
| Desorb Time | 0.5 to 4 minutes ** |
| Bake Temperature | 180°-220°C |
| Bake Time | 5 – 16 min |

**Range as suggested by the purge and trap instrument manufacturer

**NOTE:** Purge and trap conditions are changed to optimize instrument operations. A record of actual purge and trap conditions for each instrument is found in the appropriate instrument maintenance log.

3. The suggested gas chromatographic operating conditions are listed in the table below, depending on the column used:

| | Column 1 | Column 2 | Column 3 |
|---|---|---|---|
| **Column liquid phase** | DB-624 | DB-624 | DB-VRX |
| **Carrier gas** | Helium | Helium | Helium |
| **Carrier gas flow** | 0.8 mL/min | 0.6 mL/min | 0.6 mL/min |
| **Make-up gas flow** | None | None | None |
| **Initial temperature** | 45°C | 45°C | 45°C |
| **Initial hold time** | 4.5 min | 2.5 min | 4 min |
| **Temperature ramp** | 12°/min until 100°C<br>then<br>25°/min until 240°C | 12°/min until 100°C<br>then<br>25°/min until 235°C | 25°/min until 60°C<br>then<br>36°/min until 240°C |
| **Final temperature** | 240°C | 235°C | 240°C |
| **Final hold time** | None | .02 min | 1 min |

4. The recommended mass spectrometer operating conditions are listed below:

| | |
|---|---|
| **Mass range:** | 35 – 300 amu |
| **Scan time:** | One scan cycle per second or less and resulting in at least five scans per chromatographic peak |

**NOTE:** It is not necessary to use the exact parameters listed above. Equivalent columns and conditions that give the performance required by the method are acceptable.

B. Tuning

Tune the GC/MS system to meet the criteria in Table 1 following a 50-ng injection of BFB. The chromatographic conditions must be the same as those under which the samples are analyzed except that the temperature ramp is increased and the initial temperature and flow rate is different. The BFB tune must be verified every 12 hours.

The tune must be evaluated by taking the average of the three scans across the BFB peak apex with a background subtraction of a scan within 20 scans prior to the start of the BFB peak.

**NOTE:** All standards, samples, and associated quality control samples must be analyzed with the same MS parameters as those used to obtain a successful tune.

C. Initial calibration

1. The initial internal standard calibration consists of analyzing seven distinct levels of analyte concentrations and producing response factors for each compound (six levels are required if second order regression fits are used). Calibration for GRO consists of analyzing six distinct levels of GRO area in order to produce a response factor for the GRO quantitation range of interest using the internal standard, fluorobenzene. The relative standard deviation of the response factor determines the suitability of the average relative response factor for calculation of the GRO concentration. The relative standard deviation of the response factors determines the suitability of the average relative

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response factor for calculation of the analyte concentration. Prior to the analysis of any calibration level, retention time markers must be run for the GRO range of interest. The retention time markers are hexane (C6) and Dodecane (C12). Other markers can be used if different ranges are required by a project.

**NOTE:** 5 levels of standard are required by the method.

a. When using an OI 4552 or OI 4551 autosampler, the standards (including target and surrogate compounds) are prepared and poured into 40-mL vials with Teflon™-lined septa. A 5-mL or 25-mL aliquot is withdrawn from the vial by the autosampler. The aliquot is transferred through the spiker unit to add the IS/SS spiking solution and then transferred to the sparge vessel.

b. Purge and desorb according to instrument conditions listed in Calibration A.

c. Collect GC/MS data until the end of the GC run.

d. Empty and rinse the purging chamber at least twice with reagent water prior to loading another sample into the vessel, to minimize the possibility of carryover contamination.

e. Each level is analyzed as described above. Next, tabulate the area response of the characteristic ions (Table 2) against concentration for each analyte, surrogate standard, and internal standard and calculate relative response factors (RRF) for each compound (see Calculation section). The calibration is valid for 12 hours from the injection of the BFB tune standard, at which time a new tune check and a continuing calibration check standard are evaluated prior to the analysis of additional samples. The following table describes the guidelines for an acceptable initial calibration:

| Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| Initially and then when analytes in the daily calibration standard fail criteria. | 1. % RSD of≤20% is required for all analytes. 10% of the analytes may fail this criteria.<br><br>2. The relative retention times of the target compounds must agree within 0.06 relative retention time (RRT) units. The exception would be in the case of system maintenance.<br><br>3. Minimum response factors must be met for select compounds. See Table 3. | 1. Any target analyte with a %RSD of ≤20% must use the average RRF for quantitation. For any analyte in which the %RSD >20%, a first-degree linear regression can be used (providing that the correlation coefficient [CC] is ≥0.995). A quadratic fit ** (using 6 stds) can also be used (provided the coefficient of determination [CD] is >0.99). If the linear fit and quadratic fit pass the criteria for any given analyte, then use the line/curve with the smallest positive y-intercept. If the y-intercept quantifies to be greater than the LOQ, consult your supervisor immediately or recalibrate. If CC or CD is <0.995 for linear or <0.99 for quadratic, recalibrate. Supervisory approval is required for exceptions to these guidelines. If >10% target analytes fail, recalibration is required. If a linear or quadratic curve fit is used for a target analyte, the calibration data must be refit back into the calibration model for all calibration levels. Percent error between the calculated and expected amounts of an analyte should be ≤30% for all standards. For some data uses, ≤50% may be acceptable for the lowest calibration point.<br>NOTE: Quadratic regression cannot be used for South Carolina compliance samples.<br>2.-3. Perform system maintenance and recalibrate. |

**Consult USEPA method 8000D for non-linear curve fitting techniques/guidelines

f. Each level is analyzed as described above. Next, tabulate the area response for the GRO quantitation range minus the peak areas for the internal and surrogate standards that elute within the GRO range. Calculate the relative response factor (RRF) for GRO (see Calculation section) using the internal standard peak area for fluorobenzene. Although four internal standard compounds are spiked for the 8260C analysis, only one, fluorobenzene, is used for the quantitation of the GRO result.

Calculate the average relative response factors for the GRO quantitation range of interest. The calibration levels are evaluated on the basis of the relative standard deviation of the RRF values (%RSD). The %RSD for the GRO range of interest must be ≤20%. If the calibration meets this requirement then the average RRF is used to calculate sample concentrations. If the %RSD is >20% then re-analysis of one or more levels can be necessary before the calibration is valid.

D. Following the calibration, an Initial Calibration Verification (ICV) standard must be run. The ICV acts as a second source standard to check against the initial calibration. All analytes must meet ICV acceptance windows of 70%-130%. If the ICV does not meet the aforementioned criteria, a second ICV is analyzed before invalidating the initial calibration. Upon failure of the second ICV, the system must be recalibrated after proper corrective action is taken. For the GRO analysis, the ICV acts as a second source standard to check against the initial calibration. Results must quantitate within the 70-130% window. If the ICV does not meet the aforementioned criteria, a second ICV can be run before invalidating the initial calibration. Upon failure of the second ICV, the system must be recalibrated after proper corrective action is taken.

E. Continuing calibration verification (CCV) – The CCV is performed by analyzing a CCV standard in subsequent tune periods after an initial calibration. The CCV (prepared daily due to aqueous nature) is analyzed at 50 ppb for 5-mL purge waters and 10 ppb for 25-mL purge waters. The CCV is considered valid when the criteria listed below are met:

| Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| Every 12 hours. | 1. % Drift of ≤20% is required for all analytes. No more than 20% of analytes may fail this criteria if not detected in proceeding samples.<br><br>2. The relative retention times (RRT) of the target compounds must agree within 0.06 RRT units. The exception would be in the case of system maintenance.<br>3. The extracted ion current profile (EICP) area for each internal standard must fall within the window of –50 % to +100 % from the mid-level standard area produced during the last initial calibration.<br>4. Minimum response factors must be met for select compounds. See Table 3. | 1.-4. In the event that the continuing calibration verification (CCV) standard fails any of these criteria, sample analysis must be suspended and the CCV must be re-analyzed. If the re-analysis fails any of the criteria then adjustments are to be made to the analytical system to return it to its original condition, followed by the analyses of 2 consecutive CCVs at the same level that failed. If both CCVs pass the criteria, then sample analysis can continue. Otherwise, the system must be recalibrated and the samples reanalyzed, or the data can be qualified. |

A 1100-ppb standard (prepared daily due to aqueous nature) is analyzed for the GRO analysis. The calibration is considered valid if the percent drift is ≤20%. Also, the internal standard peak area of fluorobenzene for the CCV is monitored against the mid-point standard of the initial calibration and must be –50% to +100% of the area counts. If any criteria listed above fails, the CCV is considered invalid. In the case where two consecutive CCVs fail, corrective action must be taken which can include re-analysis of the calibration check, instrument maintenance, and/or recalibration. If the criteria are met, the selected quantitation method from the initial calibration is used for blank and sample calculations until the end of the 12-hour period.

F. MDL Sensitivity Check- A MDL Sensitivity Check must be analyzed in cases where compounds fail to meet the % drift criteria in the CCV and have decreased sensitivity (-20% drift or greater). Affected compounds can be reported as non-detects if it is demonstrated that there is adequate sensitivity to detect the compound at the MDL. If the failed compound is detected, the concentration must be reported as an estimated value.

## Procedure

A. Method Blank

Analyze the method blank as described above for the initial calibration standards using reagent water. Refer to table in QA/QC section for specific requirements. The method blank is examined for interfering peaks. Any target compound peaks are calculated as described under the Calculations section of this procedure. All compounds must be less than the reporting limit for the associated samples. If the blank values exceed these values, corrective action must be taken and the method blank reanalyzed until the criteria are met. The method blank must be analyzed before processing any samples.

B. Laboratory Control Sample/ Duplicate and Matrix Spike/Duplicate: Refer to table in QA/QC section for specific requirements.

C. Qualitative analysis

A compound is identified by comparison of the following parameters with those of a standard of this suspected compound (standard reference spectra). In order to verify identification, the following criteria must be met:

1. The intensities of the characteristic ions of the compound must maximize in the same scan or within one scan of each other.

2. The compound relative retention time must compare within ±0.06 RRT units of the RRT of the standard.

3. The characteristic ions from the reference mass spectrum are defined to be the three ions of greatest relative intensity, or any ions over 30% relative intensity if less than three such ions occur in the reference spectrum.

4. The relative intensities of the characteristic ions must agree within 30% of the relative intensities of these ions in the reference spectrum. Analyst discretion is used to determine compound identification. Example: for an ion with an abundance of 50% in the reference spectrum, the corresponding abundance in a sample spectrum can range between 20% and 80%).

5. The above criteria apply to hits greater than or equal to the LOQ. For hits between the MDL and the LOQ, both the criteria listed above and the analyst's discretion is used to determine compound identification.

6. The analyst must account for peaks that are greater than 10% relative intensity in the sample mass spectrum, but not present in the standard mass spectrum. Also, if a compound fails any of the criteria listed above but in the

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judgment of the mass spectral interpretation specialist is a correct identification, the identification is used and the quantitation of the peak is performed.

The primary and secondary ions for the target compounds can be found in Table 2.

7. For GRO, the Total Ion Chromatogram (TIC) is reviewed to insure proper integration around the 8260 surrogates and internal standards. Also the TIC is checked to make sure all major peaks are integrated.

D. Quantitative analysis

Once a compound has been identified, quantitation is based on the internal standard technique and the integrated area from the extracted ion current profile (EICP) of the primary characteristic ion. The list of primary characteristic ions is listed in Table 2.

The quantitation of the GRO range is performed using the equations listed in the Calculations section of this procedure. All calculations must report concentrations in values of µg/L. In the case where the total GRO concentration exceeds the calibration range, the sample is re-analyzed at a dilution that brings the GRO concentration within the calibration range of the GC/MS system.

E. Sample Analysis

A 5-mL or 25-mL aliquot of the sample is analyzed using the same instrumental conditions as the standard (whether ICAL or CCV), tune and method blank. If the QA criteria are satisfied and no target compounds are detected at concentrations above the calibration range, the results can be reported. To avoid possible matrix effects, sample carryover and re-analyses, an initial dilution is performed if:

1. Prescreening indicates a high volatile organic content in the sample

2. Historical data (or lack thereof) and/or sample appearance indicate a need for dilution

If target compounds are detected in the sample at concentrations above the calibration range, a dilution must be performed (See *T-VOA-WI7692* for information on when cleaning blanks must be run). See Section 11.5.6 in method SW-846 8260C for recommended dilution procedures.

## Calculations

A. Calibration calculations

1. Calculation of the relative response factor (RRF):

$$RRF = \frac{[A(x) \times C(is)]}{[A(is) \times C(x)]}$$

**Where:**

A(x) = Characteristic ion area for the compound being measured

A(is) = Characteristic ion area for the specific internal standard

C(x) = Concentration of the compound being measured

C(is) = Concentration of specific internal standard

2. Regression Equations:

1st Order (linear) regression: Y = MX + B

2nd order (quadratic) regression: Y = CX2 + MX + B

**Where:**
x = Area(Std) /Area(Istd)
Y = Conc.(Std)/Conc.(Istd)
M = 1st degree slope
C = 2nd degree slope
B = Y-intercept

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3. Percent relative standard deviation (%RSD):

$$\%\ RSD = \frac{Standard\ Deviation}{Mean} \times 100$$

4. Calculation of the percent drift:

$$\%\ Drift = \frac{C(i) - C(c)}{C(i)} \times 100$$

**Where:**
C(i) = Calibration check compound standard concentration
C(c) = Measured concentration using selected quantification method

B. QA Calculations

1. Calculation of percent recovery

$$\%\ Recovery = \frac{SSR - SR}{SA} \times 100$$

**Where:**

SSR = Spiked sample result

SR = Sample result

SA = Spike added

2. Relative percent difference (RPD):

$$RPD = \frac{MSR - MSDR}{(1/2)\ (MSR + MSDR)} \times 100$$

**Where:**

MSR = Matrix spike measured concentration

MSDR = Matrix spike duplicate measured concentration

3. Analyte Concentration

$$Concentration\ (\mu g/L) = \frac{(Ax)\ (Is)}{(Ais)\ (RRF)}$$

**Where:**

Ax = Area of the quantitation ion peak for the compound to be measured

Ais = Area of the quantitation ion peak for the appropriate internal standard

Is = Concentration of internal standard added in µg/L

RRF = Relative response factor from the initial calibration

**Statistical Information/method Performance**

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The LCS must contain 80% to100% of the compounds in the calibration mix. LCS, MS, and surrogate recoveries and RPD are compared to the limits stored on the LIMS. These limits are statistically derived but must fall within 70% to 130% recovery for South Carolina compliance samples. Historical data for MS/Ds, LCS/Ds, measurement of uncertainty, is reviewed at least annually. Reporting limits including method detection limits (MDLs) and limits of quantitation (LOQs) are set according to EPA method requirements and are evaluated on an annual basis in accordance with 40 CFR Part 136. The MDLs are maintained in the LIMS. Updates to the LIMS are made as needed by the QA Department and only as directed by the supervisor. The department database is updated via a download from the LIMS.

## Quality Assurance/Quality Control

Each analysis batch (consisting of no more that 20 samples) must contain a method blank, a laboratory control sample (LCS), and either an unspiked background sample (US), a matrix spike (MS), a matrix spike duplicate (MSD), a laboratory control sample/laboratory control sample duplicate (LCS/LCSD) or a duplicate (DUP). The LCS serves as a 2nd source standard verification of the initial calibration (ICAL). Additional QC samples are required to meet project or state certification requirements. Every sample or QC analysis must contain internal standards and surrogate compounds at a concentration of 50 µg/L for a 5-mL purge or 10 µg/L for a 25-mL purge. For South Carolina samples, an LCS duplicate (LCSD) is only necessary per client request, or when adequate sample volume is not provided to prepare a matrix spike and matrix spike duplicate (MS/MSD). It is not appropriate to prepare and analyze an LCSD with each batch of samples if adequate sample volume has been provided for a MS/DUP or MS/MSD.
The laboratory will establish the Lower Limit of Quantitation (LLOQ) at concentrations where both quantitative and qualitative requirements can consistently be met for 8000D. The LLOQ is the lowest concentration at which the laboratory has demonstrated target analytes can be reliably measured and reported with a certain degree of confidence, which must be ≤ the lowest point in the calibration curve. The LLOQ/LLOQVs (Limit of Quantitation Verifications) are analyzed once per instrument per quarter. See SOP *QA-SOP11892*.

The GC/MS system must be tuned to meet the criteria in Table 1 following BFB injection. The chromatographic conditions must be the same as those under which the samples are analyzed except that the rate of temperature ramping may be increased and the initial temperature and column flow may be different. The BFB tune must be verified every 12 hours.

| Quality Control Item | Acceptance Criteria | Corrective Action |
|---|---|---|
| 1. Internal Standards<br><br>Added to every sample, standard, method blank and QC sample | 1. Peak areas within -50% to +100% of the area in the associated reference standard.<br><br>2. Retention time (RT) within 30 seconds of RT for associated reference standard. | 1. Check instrument for possible problems and then reanalyze samples.<br><br>2. If re-injecting meets the criteria, report this analysis.<br><br>3. If this reanalysis still shows the same problem, report results from first analysis and qualify data with a comment. |
| 2 Surrogates<br><br>Added to every sample, standard, method blank and QC sample | All % recoveries must fall within statistically derived QC limits, which are evaluated on a semi-annual basis. | If non-compliant, check for calculation or preparation errors. If no errors are found, check system for problems and reanalyze. If this reanalysis still shows the same problem, report first analysis and qualify data with a comment. If recoveries are outside of specification high and no target compounds are detected, then a reanalysis or comment is not required. |
| 3 Method Blank (MB)<br><br>Performed during each tune period after the initial calibration or CCV (minimum of 1 MB per 20 samples) | 1. Must meet internal standard criteria.<br><br>2. Must meet surrogate criteria.<br><br>3. Quantitative results for all target compounds must be less than the reporting limit for the associated samples. | 1.-2.Inspect system for possible problems and reanalyze.<br><br>3. If the MB contains target analytes and the associated samples do not, then no corrective action is required. If the target compounds in the MB are also in the associated samples, then they must be reanalyzed after a clean MB is obtained (certain projects may allow some exceptions for common laboratory contaminants like methylene chloride and acetone up to 5X the LOQ) |

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| Quality Control Item | Acceptance Criteria | Corrective Action |
|---|---|---|
| Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)<br><br>LCS analyzed with each batch of ≤ 20 samples<br>LCSD analyzed if MS/MSD unavailable. | 1. Must meet internal standard criteria.<br><br>2. Must meet surrogate criteria.<br><br>3. All % recoveries must fall within statistically derived QC limits, which are evaluated on a semi-annual basis. | 1.-2. If non-compliant, check for calculation or preparation errors. If no errors found, check system for problems and reanalyze.<br><br>3. If LCS/LCSD re-analysis still fails, perform appropriate system maintenance and restart the tune period. Only with a LCS % recovery failing high (for the requested target compounds) with targets non-detected in the sample, can the results be reported. Otherwise, the sample must be analyzed with a compliant LCS. |
| Matrix Spike/Matrix Spike Duplicate (MS/MSD)<br><br>MS/MSD analyzed with each batch of ≤ 20 samples (if sufficient sample volume available). | 1. % Recoveries must fall within statistically derived QC limits, which are evaluated on a semi-annual basis<br><br>2. RPDs within QC limits. | 1. If LCS within QC limits, proceed with sample analysis.<br><br>2. If most recoveries and/or RPDs outside of QC limits, consult the supervisor. |

**NOTE:** Prior to release from the analytical laboratory, all data is reviewed in accordance with *T-VOA-WI8373* or *T-VOA-WI8400* (dual purge and trap).

**Table 1**

**BFB Key Ion Abundance Criteria**

| Mass | Ion Abundance Criteria |
|---|---|
| 50 | 15% to 40% of mass 95 |
| 75 | 30% to 60% of mass 95 |
| 95 | base peak, 100% relative abundance |
| 96 | 5% to 9% of mass 95 |
| 173 | less than 2% of mass 174 |
| 174 | greater than 50% of mass 95 |
| 175 | 5% to 9% of mass 174 |
| 176 | greater than 95% but less than 101% of mass 174 |
| 177 | 5% to 9% of mass 176 |

**Table 2**

**Primary and Secondary Ions**

| Compound Name | Primary Ion | Secondary Ion |
|---|---|---|
| Chloromethane | 50 | 52 |
| Vinyl Chloride | 62 | 64 |
| Bromomethane | 94 | 96 |
| Chloroethane | 64 | 66 |
| 1,1-Dichloroethene | 96 | 61, 63 |
| Acetone | 43 | 58 |
| Carbon Disulfide | 76 | 78 |
| Methylene Chloride | 84 | 49, 86 |
| 1,1-Dichloroethane | 63 | 65, 83 |
| *trans*-1,2-Dichloroethene | 96 | 61, 63 |
| *cis*-1,2-Dichloroethene | 96 | 61, 63 |
| 2-Butanone | 43 | 72 |
| Chloroform | 83 | 85 |
| 1,2-Dichloroethane | 62 | 98 |
| 1,1,1-Trichloroethane | 97 | 61, 99 |
| Carbon Tetrachloride | 117 | 119 |
| Benzene | 78 | |
| Trichloroethene | 95 | 130, 132 |

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| Compound Name | Primary Ion | Secondary Ion |
|---|---|---|
| 1,2-Dichloropropane | 63 | 76 |
| Bromodichloromethane | 83 | 85 |
| *cis*-1,3-Dichloropropene | 75 | 77, 110 |
| *trans*-1,3-Dichloropropene | 75 | 77, 110 |
| 1,1,2-Trichloroethane | 97 | 83, 85 |
| Dibromochloromethane | 129 | 127 |
| Bromoform | 173 | 175 |
| 4-Methyl-2-pentanone | 43 | 58 |
| Toluene | 92 | 91 |
| Tetrachloroethene | 166 | 131, 164 |
| 2-Hexanone | 43 | 58 |
| Chlorobenzene | 112 | 77 |
| Ethylbenzene | 91 | 106 |
| Xylene (total) | 106 | 91 |
| Styrene | 104 | 78 |
| 1,1,2,2-Tetrachloroethane | 83 | 85, 131 |
| Dibromofluoromethane | 113 | 111 |
| 1,2-Dichloroethane-d4 | 102 | 104 |
| Fluorobenzene | 96 | 70 |
| Toluene-d8 | 98 | 100 |
| Chlorobenzene-d5 | 117 | 82 |
| 4-Bromofluorobenzene | 95 | 174 |
| 1,4-Dichlorobenzen-d4 | 152 | 115 |

NOTE: Alternative ions may be used for quantitation due to response factor, ion interference or other analytical needs.

**Table 3**
**Minimum Relative Response Factors For ICAL and CCV**

| Volatile Compounds | Minimum Response Factor |
|---|---|
| Dichlorodifluoromethane | 0.100 |
| Chloromethane | 0.100 |
| Vinyl Chloride | 0.100 |
| Bromomethane | 0.100 |
| Chloroethane | 0.100 |
| Trichlorofluoromethane | 0.100 |
| 1,1-Dichloroethene | 0.100 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.100 |
| Acetone | 0.100 |
| Carbon Disulfide | 0.100 |
| Methyl Acetate | 0.100 |
| Methylene Chloride | 0.100 |
| trans-1,2-Dichloroethene | 0.100 |
| cis-1,2-Dichloroethene | 0.100 |
| Methyl tert-Butyl Ether | 0.100 |
| 1,1-Dichloroethane | 0.200 |
| 2-Butanone | 0.100 |
| Chloroform | 0.200 |
| 1,1,1-Trichloroethane | 0.100 |
| Cyclohexane | 0.100 |
| Carbon Tetrachloride | 0.100 |
| Benzene | 0.500 |
| 1,2-Dichloroethane | 0.100 |
| Trichloroethene | 0.200 |
| Methylcyclohexane | 0.100 |
| 1,2-Dichloropropane | 0.100 |
| Bromodichloromethane | 0.200 |
| cis-1,3-Dichloropropene | 0.200 |
| trans-1,3-Dichloropropene | 0.100 |
| 4-Methyl-2-pentanone | 0.100 |
| Toluene | 0.400 |
| 1,1,2-Trichloroethane | 0.100 |
| Tetrachloroethene | 0.200 |
| 2-Hexanone | 0.100 |
| Dibromochloromethane | 0.100 |
| 1,2-Dibromoethane | 0.100 |
| Chlorobenzene | 0.500 |
| Ethylbenzene | 0.100 |

**Table 3 - Continued**

| Volatile Compounds | Minimum Response Factor |
|---|---|

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| | |
|---|---|
| m&p-Xylene | 0.100 |
| o-Xylene | 0.300 |
| Styrene | 0.300 |
| Bromoform | 0.100 |
| Isopropylbenzene | 0.100 |
| 1,1,2,2-Tetrachloroethane | 0.300 |
| 1,3-Dichlorobenzene | 0.600 |
| 1,4-Dichlorobenzene | 0.500 |
| 1,2-Dichlorobenzene | 0.400 |
| 1,2-Dibromo-3-chloropropane | 0.050 |
| 1,2,4-Trichlorobenzene | 0.200 |

Attachment:
Attachment 1 (.pdf)
Attachment 2 (.pdf)
Attachment 3 (.pdf)
Attachment 4 (.pdf)

QA-SOP11892 Determining Method Detection Limits and Limits of Quantitation
T-VOA-WI7619 GC and GC/MS Instrumentation Maintenance
T-VOA-WI7629 GC/MS Volatile Standards Traceability
T-VOA-WI7691 Glassware Washing
T-VOA-WI7692 Preparation and Analysis of Cleaning Blanks for GC and GC/MS Volatiles
T-VOA-WI8373 GC/MS Volatiles Audit Process
T-VOA-WI8400 Level II Review of GC/MS Volatiles

End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 12 | 23.JUN.2023 | | |
| 13 | 25.JUL.2023 | | |
| 14 | 16.NOV.2023 | | |

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| Status | Analyte Order | Analyte | Default Reporting Synonym | Cas. Num | Report | Type | Unit |
|---|---|---|---|---|---|---|---|
| 1 | 0 | 1,1,1,2-Tetrachloroethane | 1,1,1,2-Tetrachloroethane | 630-20-6 | 1 | F | ug/L |
| 1 | 10 | 1,1,1-Trichloroethane | 1,1,1-Trichloroethane | 71-55-6 | 1 | F | ug/L |
| 1 | 20 | 1,1,2,2-Tetrachloroethane | 1,1,2,2-Tetrachloroethane | 79-34-5 | 1 | F | ug/L |
| 1 | 30 | 1,1,2-Trichloroethane | 1,1,2-Trichloroethane | 79-00-5 | 1 | F | ug/L |
| 1 | 40 | 1,1-Dichloroethane | 1,1-Dichloroethane | 75-34-3 | 1 | F | ug/L |
| 1 | 50 | 1,1-Dichloroethene | 1,1-Dichloroethene | 75-35-4 | 1 | F | ug/L |
| 1 | 60 | 1,1-Dichloropropene | 1,1-Dichloropropene | 563-58-6 | 1 | F | ug/L |
| 1 | 70 | 1,2,3-Trichlorobenzene | 1,2,3-Trichlorobenzene | 87-61-6 | 1 | F | ug/L |
| 1 | 80 | 1,2,3-Trichloropropane | 1,2,3-Trichloropropane | 96-18-4 | 1 | F | ug/L |
| 1 | 90 | 1,2,3-Trimethylbenzene | 1,2,3-Trimethylbenzene | 526-73-8 | 1 | F | ug/L |
| 1 | 100 | 1,2,4-Trichlorobenzene | 1,2,4-Trichlorobenzene | 120-82-1 | 1 | F | ug/L |
| 1 | 110 | 1,2,4-Trimethylbenzene | 1,2,4-Trimethylbenzene | 95-63-6 | 1 | F | ug/L |
| 1 | 120 | 1,2-Dibromo-3-Chloropropane | 1,2-Dibromo-3-Chloropropane | 96-12-8 | 1 | F | ug/L |
| 1 | 130 | Ethylene Dibromide | 1,2-Dibromoethane | 106-93-4 | 1 | F | ug/L |
| 1 | 140 | 1,2-Dichlorobenzene | 1,2-Dichlorobenzene | 95-50-1 | 1 | F | ug/L |
| 1 | 150 | 1,2-Dichloroethane | 1,2-Dichloroethane | 107-06-2 | 1 | F | ug/L |
| 1 | 160 | 1,2-Dichloroethene, Total | 1,2-Dichloroethene (total) | 540-59-0 | 1 | S | ug/L |
| 1 | 170 | 1,2-Dichloropropane | 1,2-Dichloropropane | 78-87-5 | 1 | F | ug/L |
| 1 | 180 | o-diethylbenzene | 1,2-Diethylbenzene | 135-01-3 | 1 | F | ug/L |
| 1 | 190 | 1,3,5-Trichlorobenzene | 1,3,5-Trichlorobenzene | 108-70-3 | 1 | F | ug/L |
| 1 | 200 | 1,3,5-Trimethylbenzene | 1,3,5-Trimethylbenzene | 108-67-8 | 1 | F | ug/L |
| 1 | 210 | Butadiene | 1,3-Butadiene | 106-99-0 | 1 | F | ug/L |
| 1 | 220 | 1,3-Dichlorobenzene | 1,3-Dichlorobenzene | 541-73-1 | 1 | F | ug/L |
| 1 | 240 | 1,3-Dichloropropane | 1,3-Dichloropropane | 142-28-9 | 1 | F | ug/L |
| 1 | 250 | 1,3-Dichloropropene, Total | 1,3-Dichloropropene (total) | 542-75-6 | 1 | S | ug/L |
| 1 | 260 | 1,3-Diethylbenzene | 1,3-Diethylbenzene | 141-93-5 | 1 | F | ug/L |
| 1 | 270 | 1,3-Divinylbenzene | 1,3-Divinylbenzene | 108-57-6 | 1 | F | ug/L |
| 1 | 280 | 1,4-Dichlorobenzene | 1,4-Dichlorobenzene | 106-46-7 | 1 | F | ug/L |
| 1 | 290 | p-Diethylbenzene | 1,4-Diethylbenzene | 105-05-5 | 1 | F | ug/L |
| 1 | 300 | 1,4-Dioxane | 1,4-Dioxane | 123-91-1 | 1 | F | ug/L |
| 1 | 310 | 1,4-Divinylbenzene | 1,4-Divinylbenzene | 105-06-6 | 1 | F | ug/L |
| 1 | 320 | 1-Chlorobutane | 1-Chlorobutane | 109-69-3 | 1 | F | ug/L |
| 1 | 330 | 1-Chlorohexane | 1-Chlorohexane | 544-10-5 | 1 | F | ug/L |
| 1 | 340 | 2,2-Dichloropropane | 2,2-Dichloropropane | 594-20-7 | 1 | F | ug/L |
| 1 | 350 | 2,3,4-Trichlorobutene | 2,3,4-Trichlorobutene | 2431-50-7 | 1 | F | ug/L |
| 1 | 370 | 2-Butanone (MEK) | 2-Butanone | 78-93-3 | 1 | F | ug/L |
| 1 | 380 | 2-Chloro-1,3-butadiene | 2-Chloro-1,3-butadiene | 126-99-8 | 1 | F | ug/L |
| 1 | 390 | 2-Chloroethyl vinyl ether | 2-Chloroethyl vinyl ether | 110-75-8 | 1 | F | ug/L |
| 1 | 400 | 2-Chlorotoluene | 2-Chlorotoluene | 95-49-8 | 1 | F | ug/L |
| 1 | 410 | 2-Hexanone | 2-Hexanone | 591-78-6 | 1 | F | ug/L |
| 1 | 420 | 2-Methylnaphthalene | 2-Methylnaphthalene | 91-57-6 | 1 | F | ug/L |
| 1 | 430 | 2-Nitropropane | 2-Nitropropane | 79-46-9 | 1 | F | ug/L |
| 1 | 440 | Isopropyl alcohol | 2-Propanol | 67-63-0 | 1 | F | ug/L |
| 1 | 450 | 3,4-Dichloro-1-butene | 3,4-Dichloro-1-butene | 760-23-6 | 1 | F | ug/L |
| 1 | 460 | 3-chloro-1-Butene | 3-chloro-1-Butene | 563-52-0 | 1 | F | ug/L |
| 1 | 470 | 4-Chlorotoluene | 4-Chlorotoluene | 106-43-4 | 1 | F | ug/L |
| 1 | 480 | 4-Methyl-2-pentanone (MIBK) | 4-Methyl-2-pentanone | 108-10-1 | 1 | F | ug/L |
| 1 | 490 | Acetone | Acetone | 67-64-1 | 1 | F | ug/L |
| 1 | 500 | Acetonitrile | Acetonitrile | 75-05-8 | 1 | F | ug/L |
| 1 | 510 | Acrolein | Acrolein | 107-02-8 | 1 | F | ug/L |
| 1 | 520 | Acrylonitrile | Acrylonitrile | 107-13-1 | 1 | F | ug/L |
| 1 | 530 | 3-Chloro-1-propene | Allyl chloride | 107-05-1 | 1 | F | ug/L |
| 1 | 540 | Benzene | Benzene | 71-43-2 | 1 | F | ug/L |
| 1 | 550 | Benzyl chloride | Benzyl chloride | 100-44-7 | 1 | F | ug/L |
| 1 | 560 | Bromobenzene | Bromobenzene | 108-86-1 | 1 | F | ug/L |
| 1 | 570 | Chlorobromomethane | Bromochloromethane | 74-97-5 | 1 | F | ug/L |
| 1 | 580 | Dichlorobromomethane | Bromodichloromethane | 75-27-4 | 1 | F | ug/L |
| 1 | 590 | Bromoform | Bromoform | 75-25-2 | 1 | F | ug/L |
| 1 | 600 | Bromomethane | Bromomethane | 74-83-9 | 1 | F | ug/L |
| 1 | 610 | n-Butyl acetate | Butyl acetate | 123-86-4 | 1 | F | ug/L |
| 1 | 620 | C4-C10 | C4-C10-TPH-GRO | STL00504 | 1 | F | ug/L |
| 1 | 630 | C4-C12 | C4-C12-TPH-GRO | STL00350 | 1 | F | ug/L |
| 1 | 640 | C5-C12 | C5-C12-TPH-GRO | STL00349 | 1 | F | ug/L |
| 1 | 650 | C6-C10 | C6-C10-TPH-GRO | 8006-61-9 | 1 | F | ug/L |
| 1 | 660 | C6-C12 | C6-C12-TPH-GRO | STL00061 | 1 | F | ug/L |
| 1 | 670 | Carbon disulfide | Carbon disulfide | 75-15-0 | 1 | F | ug/L |
| 1 | 680 | Carbon tetrachloride | Carbon tetrachloride | 56-23-5 | 1 | F | ug/L |
| 1 | 690 | Chlorobenzene | Chlorobenzene | 108-90-7 | 1 | F | ug/L |
| 1 | 700 | Chlorodifluoromethane | Chlorodifluoromethane | 75-45-6 | 1 | F | ug/L |
| 1 | 710 | Chloroethane | Chloroethane | 75-00-3 | 1 | F | ug/L |
| 1 | 720 | Chloroform | Chloroform | 67-66-3 | 1 | F | ug/L |
| 1 | 730 | Chloromethane | Chloromethane | 74-87-3 | 1 | F | ug/L |
| 1 | 740 | Chlorotrifluoroethene | Chlorotrifluoroethene | 79-38-9 | 1 | F | ug/L |
| 1 | 750 | cis-1,2-Dichloroethene | cis-1,2-Dichloroethene | 156-59-2 | 1 | F | ug/L |
| 1 | 760 | cis-1,3-Dichloropropene | cis-1,3-Dichloropropene | 10061-01-5 | 1 | F | ug/L |
| 1 | 770 | cis-1,4-Dichloro-2-butene | cis-1,4-Dichloro-2-butene | 1476-11-5 | 1 | F | ug/L |
| 1 | 780 | Cyclohexane | Cyclohexane | 110-82-7 | 1 | F | ug/L |
| 1 | 790 | Cyclohexanone | Cyclohexanone | 108-94-1 | 1 | F | ug/L |
| 1 | 800 | Chlorodibromomethane | Dibromochloromethane | 124-48-1 | 1 | F | ug/L |
| 1 | 810 | Dibromomethane | Dibromomethane | 74-95-3 | 1 | F | ug/L |
| 1 | 820 | Dichlorodifluoromethane | Dichlorodifluoromethane | 75-71-8 | 1 | F | ug/L |
| 1 | 830 | Dichlorofluoromethane | Dichlorofluoromethane | 75-43-4 | 1 | F | ug/L |
| 1 | 840 | Diethoxymethane | Diethoxymethane | 462-95-3 | 1 | F | ug/L |
| 1 | 850 | Total Diethylbenzene | Diethylbenzene (total) | 25340-17-4 | 1 | S | ug/L |
| 1 | 860 | Isopropyl ether | Isopropyl ether | 108-20-3 | 1 | F | ug/L |
| 1 | 870 | divinyl benzene | Divinylbenzene (Total) | 1321-74-0 | 1 | S | ug/L |
| 1 | 880 | Ethanol | Ethanol | 64-17-5 | 1 | F | ug/L |
| 1 | 890 | Ethyl acetate | Ethyl acetate | 141-78-6 | 1 | F | ug/L |
| 1 | 900 | Ethyl ether | Ethyl ether | 60-29-7 | 1 | F | ug/L |
| 1 | 910 | Ethyl methacrylate | Ethyl methacrylate | 97-63-2 | 1 | F | ug/L |
| 1 | 920 | Tert-butyl ethyl ether | Ethyl t-butyl ether | 637-92-3 | 1 | F | ug/L |
| 1 | 930 | Ethylbenzene | Ethylbenzene | 100-41-4 | 1 | F | ug/L |
| 1 | 940 | 1,1,2-Trichloro-1,2,2-trifluoroethane | Freon 113 | 76-13-1 | 1 | F | ug/L |
| 1 | 950 | 1,2-Dichloro-1,1,2-trifluoroethane | Freon 123a | 354-23-4 | 1 | F | ug/L |
| 1 | 960 | 2-Chloro-1,1,1-Trifluoroethane | Freon 133a | 75-88-7 | 1 | F | ug/L |
| 1 | 970 | 1,1-Dichloro-1-fluoroethane | Freon 141 | 1717-00-6 | 1 | F | ug/L |
| 1 | 980 | Hexachlorobutadiene | Hexachlorobutadiene | 87-68-3 | 1 | F | ug/L |
| 1 | 1000 | Isobutyl alcohol | Isobutyl alcohol | 78-83-1 | 1 | F | ug/L |
| 1 | 1010 | Isopropyl acetate | Isopropyl acetate | 108-21-4 | 1 | F | ug/L |
| 1 | 1020 | Isopropylbenzene | Isopropylbenzene | 98-82-8 | 1 | F | ug/L |
| 1 | 1030 | m-Xylene & p-Xylene | m&p-Xylene | 179601-23-1 | 1 | F | ug/L |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 1040 | Methacrylonitrile | Methacrylonitrile | 126-98-7 | 1 | F | ug/L |
| 1 | 1050 | Methyl acetate | Methyl acetate | 79-20-9 | 1 | F | ug/L |
| 1 | 1060 | Iodomethane | Methyl iodide | 74-88-4 | 1 | F | ug/L |
| 1 | 1070 | Methyl methacrylate | Methyl methacrylate | 80-62-6 | 1 | F | ug/L |
| 1 | 1080 | Methyl tert-butyl ether | Methyl tertiary butyl ether | 1634-04-4 | 1 | F | ug/L |
| 1 | 1090 | Methylal | Methylal | 109-87-5 | 1 | F | ug/L |
| 1 | 1100 | Methylcyclohexane | Methylcyclohexane | 108-87-2 | 1 | F | ug/L |
| 1 | 1110 | Methylene Chloride | Methylene Chloride | 75-09-2 | 1 | F | ug/L |
| 1 | 1120 | Naphthalene | Naphthalene | 91-20-3 | 1 | F | ug/L |
| 1 | 1130 | n-Butanol | n-Butanol | 71-36-3 | 1 | F | ug/L |
| 1 | 1140 | n-Butylbenzene | n-Butylbenzene | 104-51-8 | 1 | F | ug/L |
| 1 | 1150 | n-Heptane | n-Heptane | 142-82-5 | 1 | F | ug/L |
| 1 | 1160 | Hexane | n-Hexane | 110-54-3 | 0 | F | ug/L |
| 1 | 1170 | Pentane | n-Pentane | 109-66-0 | 1 | F | ug/L |
| 1 | 1180 | n-Propyl acetate | n-Propyl acetate | 109-60-4 | 1 | F | ug/L |
| 1 | 1190 | N-Propylbenzene | N-Propylbenzene | 103-65-1 | 1 | F | ug/L |
| 1 | 1200 | o-Xylene | o-Xylene | 95-47-6 | 1 | F | ug/L |
| 1 | 1210 | Pentachloroethane | Pentachloroethane | 76-01-7 | 1 | F | ug/L |
| 1 | 1220 | 4-Isopropyltoluene | p-Isopropyltoluene | 99-87-6 | 1 | F | ug/L |
| 1 | 1230 | Propionitrile | Propionitrile | 107-12-0 | 1 | F | ug/L |
| 1 | 1240 | Propene oxide | Propylene oxide | 75-56-9 | 1 | F | ug/L |
| 1 | 1250 | sec-Butylbenzene | sec-Butylbenzene | 135-98-8 | 1 | F | ug/L |
| 1 | 1260 | Styrene | Styrene | 100-42-5 | 1 | F | ug/L |
| 1 | 1270 | t-Amyl alcohol | t-Amyl alcohol | 75-85-4 | 1 | F | ug/L |
| 1 | 1280 | 2-ethoxy-2-methyl butane | t-Amyl ethyl ether | 919-94-8 | 1 | F | ug/L |
| 1 | 1290 | Tert-amyl methyl ether | t-Amyl methyl ether | 994-05-8 | 1 | F | ug/L |
| 1 | 1300 | 2-Methyl-2-propanol | t-Butyl alcohol | 75-65-0 | 1 | F | ug/L |
| 1 | 1310 | tert-Butylbenzene | tert-Butylbenzene | 98-06-6 | 1 | F | ug/L |
| 1 | 1320 | Tetrachloroethene | Tetrachloroethene | 127-18-4 | 1 | F | ug/L |
| 1 | 1330 | Tetrahydrofuran | Tetrahydrofuran | 109-99-9 | 1 | F | ug/L |
| 1 | 1340 | Toluene | Toluene | 108-88-3 | 1 | F | ug/L |
| 1 | 1350 | trans-1,2,3-Trichlorobutene-2 | trans-1,2,3-Trichlorobutene-2 | STL02687 | 1 | F | ug/L |
| 1 | 1360 | trans-1,2-Dichloroethene | trans-1,2-Dichloroethene | 156-60-5 | 1 | F | ug/L |
| 1 | 1370 | trans-1,3-Dichloropropene | trans-1,3-Dichloropropene | 10061-02-6 | 1 | F | ug/L |
| 1 | 1380 | trans-1,4-Dichloro-2-butene | trans-1,4-Dichloro-2-butene | 110-57-6 | 1 | F | ug/L |
| 1 | 1390 | Trichloroethene | Trichloroethene | 79-01-6 | 1 | F | ug/L |
| 1 | 1400 | Trichlorofluoromethane | Trichlorofluoromethane | 75-69-4 | 1 | F | ug/L |
| 1 | 1410 | Vinyl acetate | Vinyl acetate | 108-05-4 | 1 | F | ug/L |
| 1 | 1420 | Vinyl chloride | Vinyl chloride | 75-01-4 | 1 | F | ug/L |
| 1 | 1430 | Xylenes, Total | Xylene (total) | 1330-20-7 | 1 | S | ug/L |
| 1 | 1440 | 1,2-Dichloroethane-d4 (Surr) | 1,2-Dichloroethane-d4 (Surr) | 17060-07-0 | 1 | Q | ug/L |
| 1 | 1450 | 4-Bromofluorobenzene (Surr) | 4-Bromofluorobenzene (Surr) | 460-00-4 | 1 | Q | ug/L |
| 1 | 1460 | Dibromofluoromethane (Surr) | Dibromofluoromethane (Surr) | 1868-53-7 | 1 | Q | ug/L |
| 1 | 1470 | Toluene-d8 (Surr) | Toluene-d8 (Surr) | 2037-26-5 | 1 | Q | ug/L |
| 1 | 1480 | 1,4-Dichlorobenzene-d4 | 1,4-Dichlorobenzene-d4 | 3855-82-1 | 0 | I | ug/L |
| 1 | 1490 | t-Butyl alcohol-d10 (IS) | t-Butyl alcohol-d10 (IS) | 53001-22-2 | 0 | I | ug/L |
| 1 | 1500 | Chlorobenzene-d5 (IS) | Chlorobenzene-d5 (IS) | 3114-55-4 | 0 | I | ug/L |
| 1 | 1510 | Fluorobenzene (IS) | Fluorobenzene (IS) | 462-06-6 | 0 | I | ug/L |
| 1 | 1540 | Chloroacetonitrile | Chloroacetonitrile | 107-14-2 | 1 | F | ug/L |
| 1 | 1550 | Dodecane | Dodecane | 112-40-3 | 0 | F | ug/L |
| 1 | 1560 | n-Decane | n-Decane | 124-18-5 | 0 | F | ug/L |
| 1 | 1580 | Butane | Butane | 106-97-8 | 0 | F | ug/L |
| 1 | 1970 | cis-1,2,3-Trichlorobutene-2 | cis-1,2,3-Trichlorobutene-2 | STL02686 | 1 | F | ug/L |
| 1 | 1980 | 1-Bromo-2-chloroethane | 1-Bromo-2-chloroethane | 107-04-0 | 1 | F | ug/L |
| 1 | 2160 | Total BTEX | Total BTEX | STL00431 | 1 | S | ug/L |
| 1 | 2270 | 4-Ethyltoluene | 4-Ethyltoluene | 622-96-8 | 1 | F | ug/L |
| 1 | 2280 | Isobutyl acetate | Isobutyl acetate | 110-19-0 | 1 | F | ug/L |
| 1 | 2290 | Propanol | Propanol | 71-23-8 | 1 | F | ug/L |
| 1 | 2300 | sec-Butyl Alcohol | sec-Butyl Alcohol | 78-92-2 | 1 | F | ug/L |
| 1 | 2310 | 3-Methyl-1-butene | 3-Methyl-1-butene | 563-45-1 | 1 | F | ug/L |
| 1 | 2480 | n-Butyl acrylate | n-Butyl acrylate | 141-32-2 | 1 | F | ug/L |
| 1 | 2490 | Ethyl acrylate | Ethyl acrylate | 140-88-5 | 1 | F | ug/L |
| 1 | 2500 | Methyl acrylate | Methyl acrylate | 96-33-3 | 1 | F | ug/L |
| 1 | 2510 | 2-Ethylhexyl acrylate | 2-Ethylhexyl acrylate | 103-11-7 | 1 | F | ug/L |
| 1 | 2520 | 2-Butoxyethyl acetate | 2-Butoxyethyl acetate | 112-07-2 | 1 | F | ug/L |

eurofins | Environment Testing

MSV_BCE_00052

## Reagent ID: MSV_BCE_00052

| | | | |
|---|---|---|---|
| Type: | ASTD | Expiration Date: | 02/28/2023 |
| Description: | A0177627 1-Bromo-2-chloroethane 2000ug | Laboratory: | Eurofins Lancaster Laboratories Envir |
| No. of Bottles: | 5 | Prepared By: | Long, Jason M |
| Storage Location: | VOA-C148-F | Vendor: | Restek |
| Reagent Volume: | 1.000 mL | Vendor Lot #: | A0177627 |
| Creation Date: | 10/26/2021 | Vendor Cat #: | 30469 |
| Open Date: | 01/29/2023 | | |
| Container(s): | 1978177, 1978178, 1978179, 1978180, 1978181 | | |
| Comment: | | | |

### Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 1-Bromo-2-chloroethane | | | | | 2000.00000 | ug/mL |

eurofins | Environment Testing

MSV_CCV_EE_00004

# Reagent ID: MSV_CCV_EE_00004

| | | | |
|---|---|---|---|
| Description: | CCV_ Ethyl Ether working std | Expiration Date: | 05/17/2023 |
| No. of Bottles: | 8 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 50.000 mL | Solvent: | Methanol |
| Creation Date: | 11/17/2022 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3569186, 3569187, 3569188, 3569189, 3569190, 3569191, 3569192, 3569193 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Ethyl ether | MSV_EE_MiSCSK_0001 | 05/17/2023 | 46860.00000 | ug/mL | 999.99240 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_EE_MISCSK_0011 | Misc Stock Solution of CCV_ Ethyl Ether | | 05/17/23 | | | | 1.06700 | mL |

eurofins | Environment Testing

MSV_CCV_LKB_00005

# Reagent ID: MSV_CCV_LKB_00005

| | | | |
|---|---|---|---|
| Description: | CCV_ LKB Working Std | Expiration Date: | 06/19/2023 |
| No. of Bottles: | 7 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 50.000 mL | Solvent: | Methanol |
| Creation Date: | 02/08/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3862586, 3862587, 3862588, 3862589, 3862590, 3862591, 3862592 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 3,4-Dichloro-1-butene | MSV_V34D1B_SK_0000 | 06/19/2023 | 91750.00000 | ug/mL | 1000.07500 | ug/mL |
| cis-1,4-Dichloro-2-butene | MSV_Vc14d_STK_00008 | 06/19/2023 | 52858.00000 | ug/mL | 1000.07336 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_V34D1B_SK_0 0009 | V 3,4-Dichloro-1-butene Stock | | 06/19/23 | | | | 0.54500 | mL |
| MSV_Vc14d_STK_0 0008 | V cis-1,4 Dichloro-2-butene Stock | | 06/19/23 | | | | 0.94600 | mL |

eurofins | Environment Testing

MSV_CCV_OH_Sp_00001

# Reagent ID: MSV_CCV_OH_Sp_00001

| | | | |
|---|---|---|---|
| Description: | CCV for Ohio Special | Expiration Date: | 08/09/2023 |
| No. of Bottles: | 1 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Long, Jason M |
| Reagent Volume: | 10.000 mL | Solvent: | Methanol |
| Creation Date: | 02/15/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3890935 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 2-Ethylhexyl acrylate | MSV_V_Acr_Std_00001 | 08/09/2023 | 5001.98400 | ug/mL | 1000.39680 | ug/mL |
| Ethyl acrylate | MSV_V_Acr_Std_00001 | 08/09/2023 | 5000.73200 | ug/mL | 1000.14640 | ug/mL |
| Methyl acrylate | MSV_V_Acr_Std_00001 | 08/09/2023 | 4999.68000 | ug/mL | 999.93600 | ug/mL |
| n-Butyl acrylate | MSV_V_Acr_Std_00001 | 08/09/2023 | 4997.62200 | ug/mL | 999.52440 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_V_Acr_Std_00001 | V Acrylates for special project | | 08/09/23 | | | | 2.00000 | mL |

eurofins | Environment Testing

# Reagent ID: MSV_CCV_Penta_00030

| | | | |
|---|---|---|---|
| Description: | CCV Pentachloroethane standard | Expiration Date: | 03/08/2023 |
| No. of Bottles: | 5 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Manderbach, Sarah |
| Reagent Volume: | 1.000 mL | Solvent: | Methanol |
| Creation Date: | 02/08/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3860760, 3860761, 3860762, 3860763, 3860764 | | |
| Comment: | | | |

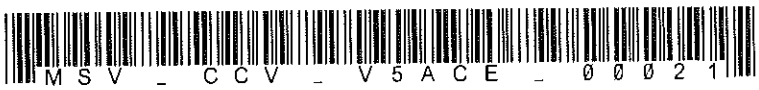
## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Pentachloroethane | MSV_V_PentaCL_00029 | 03/08/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_V_PentaCL_00029 | A0184174 Primary Pentachloroethane | ASTD | 03/08/23 | Restek | A0184174 | 577491 | 200.00000 | uL |

eurofins | Environment Testing




# Reagent ID: MSV_CCV_V5ACE_00021

| | | | |
|---|---|---|---|
| Description: | CCV Small Acetates & Acetonitrile | Expiration Date: | 03/04/2023 |
| No. of Bottles: | 10 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Kephart, Kayla |
| Reagent Volume: | 10.000 mL | Solvent: | Methanol |
| Creation Date: | 02/02/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3838629, 3838630, 3838631, 3838632, 3838633, 3838634, 3838635, 3838636, 3838637, 383863 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Acetonitrile | MSV_AcetatesV_00026 | 03/04/2023 | 50000.00000 | ug/mL | 5000.00000 | ug/mL |
| Ethyl acetate | MSV_AcetatesV_00026 | 03/04/2023 | 10000.00000 | ug/mL | 1000.00000 | ug/mL |
| Isopropyl acetate | MSV_AcetatesV_00026 | 03/04/2023 | 10000.00000 | ug/mL | 1000.00000 | ug/mL |
| n-Butyl acetate | MSV_AcetatesV_00026 | 03/04/2023 | 10000.00000 | ug/mL | 1000.00000 | ug/mL |
| n-Propyl acetate | MSV_AcetatesV_00026 | 03/04/2023 | 10000.00000 | ug/mL | 1000.00000 | ug/mL |
| Vinyl acetate | MSV_AcetatesV_00026 | 03/04/2023 | 10000.00000 | ug/mL | 1000.00000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_AcetatesV_00026 | A0184542 Acetates/Acetonitrile in MeOH | ASTD | 03/04/23 | Restek | A0184542 | 557489 | 1.00000 | mL |

eurofins | Environment Testing

## Reagent ID: MSV_V_SMFreon_00025

| | | | |
|---|---|---|---|
| Type: | ASTD | Expiration Date: | 03/24/2023 |
| Description: | A0172146 Custom SM Freon in MeOH | Laboratory: | Eurofins Lancaster Laboratories Envir |
| No. of Bottles: | 1 | Prepared By: | Long, Jason M |
| Storage Location: | VOA-C148-F | Vendor: | Restek |
| Reagent Volume: | 1.000 mL | Vendor Lot #: | A0172146 |
| Creation Date: | 04/01/2022 | Vendor Cat #: | 577490 |
| Open Date: | 02/22/2023 | | |
| Container(s): | 2698274 | | |
| Comment: | | | |

### Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 2-Chloro-1,1,1-Trifluoroethane | | | | | 2000.00000 | ug/mL |
| Chlorodifluoromethane | | | | | 2000.00000 | ug/mL |
| Chlorotrifluoroethene | | | | | 2000.00000 | ug/mL |

eurofins | Environment Testing

MSV_CCV_2CEVE_00107

# Reagent ID: MSV_CCV_2CEVE_00107

| | | | |
|---|---|---|---|
| Description: | CCV 2CEVE Weekly Std | Expiration Date: | 03/21/2023 |
| No. of Bottles: | 10 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 5.000 mL | Solvent: | Methanol |
| Creation Date: | 02/19/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3902082, 3902083, 3902084, 3902085, 3902086, 3902087, 3902088, 3902089, 3902090, 39020 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 2-Chloroethyl vinyl ether | MSV_V_2CLEVE_00111 | 04/30/2025 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_V_2CLEVE_00111 | A0184487 Primary 2CEVE Standard | ASTD | 04/30/25 | Restek | A0184487 | 577492 | 1.00000 | mL |

eurofins | Environment Testing

MSV_CCV_CYC_00005

# Reagent ID: MSV_CCV_CYC_00005

| | | | |
|---|---|---|---|
| Description: | CCV_ CYC Working Standard | Expiration Date: | 06/23/2023 |
| No. of Bottles: | 10 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 200.000 mL | Solvent: | 50/50 MeOH/Water |
| Creation Date: | 01/23/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3807157, 3807158, 3807159, 3807160, 3807161, 3807162, 3807163, 3807164, 3807165, 380716 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Cyclohexanone | MSV_VCYC_STK_00009 | 06/23/2023 | 130000.00000 | ug/mL | 6249.75000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_VCYC_STK_00009 | V Cyclohexanone Stock | | 06/23/23 | | | | 9.61500 | mL |

eurofins | Environment Testing

MSV_CCV_GASES_00386

## Reagent ID: MSV_CCV_GASES_00386

| | | | |
|---|---|---|---|
| Type: | ASTD | Expiration Date: | 03/01/2023 |
| Description: | A0184815 Custom Gases Primary Standa | Laboratory: | Eurofins Lancaster Laboratories Envir |
| No. of Bottles: | 5 | Prepared By: | Long, Jason M |
| Storage Location: | VOA-C148-F | Vendor: | Restek |
| Reagent Volume: | 1.000 mL | Vendor Lot #: | A0184815 |
| Creation Date: | 11/02/2022 | Vendor Cat #: | 577488 |
| Open Date: | 02/22/2023 | | |
| Container(s): | 3514559, 3909488, 3909489, 3909490, 3909491 | | |
| Comment: | | | |

### Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 1,2-Dichloro-1,1,2-trifluoroethane | | | | | 2000.00000 | ug/mL |
| Bromomethane | | | | | 2000.00000 | ug/mL |
| Butadiene | | | | | 2000.00000 | ug/mL |
| Chloroethane | | | | | 2000.00000 | ug/mL |
| Chloromethane | | | | | 2000.00000 | ug/mL |
| Dichlorodifluoromethane | | | | | 2000.00000 | ug/mL |
| Dichlorofluoromethane | | | | | 2000.00000 | ug/mL |
| Trichlorofluoromethane | | | | | 2000.00000 | ug/mL |
| Vinyl chloride | | | | | 2000.00000 | ug/mL |

eurofins | Environment Testing

MSV_CCV_VOC#1_00111

# Reagent ID: MSV_CCV_VOC#1_00111

| | | | |
|---|---|---|---|
| Description: | CCV VOC#1 Weekly Std | Expiration Date: | 03/21/2023 |
| No. of Bottles: | 9 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 5.000 mL | Solvent: | Methanol |
| Creation Date: | 02/19/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3902052, 3902053, 3902054, 3902055, 3902056, 3902057, 3902058, 3902059, 3902060 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,1,1-Trichloroethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,1,2,2-Tetrachloroethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,1,2-Trichloroethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,1-Dichloroethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,1-Dichloroethene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,1-Dichloropropene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,2,3-Trichlorobenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,2,3-Trichloropropane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,2,4-Trichlorobenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,2,4-Trimethylbenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,2-Dibromo-3-Chloropropane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,2-Dichlorobenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,2-Dichloroethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,2-Dichloropropane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,3,5-Trimethylbenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,3-Dichlorobenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,3-Dichloropropane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |

# Reagent ID: MSV_CCV_VOC#1_00111

| | | | |
|---|---|---|---|
| Description: | CCV VOC#1 Weekly Std | Expiration Date: | 03/21/2023 |
| No. of Bottles: | 9 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 5.000 mL | Solvent: | Methanol |
| Creation Date: | 02/19/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3902052, 3902053, 3902054, 3902055, 3902056, 3902057, 3902058, 3902059, 3902060 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 2,2-Dichloropropane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 2-Chlorotoluene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 4-Chlorotoluene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 4-Isopropyltoluene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Benzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Bromobenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Bromoform | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Carbon tetrachloride | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Chlorobenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Chlorobromomethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Chlorodibromomethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Chloroform | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| cis-1,2-Dichloroethene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| cis-1,3-Dichloropropene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Dibromomethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Dichlorobromomethane | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Ethylbenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |

# Reagent ID: MSV_CCV_VOC#1_00111

| | | | |
|---|---|---|---|
| Description: | CCV VOC#1 Weekly Std | Expiration Date: | 03/21/2023 |
| No. of Bottles: | 9 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 5.000 mL | Solvent: | Methanol |
| Creation Date: | 02/19/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3902052, 3902053, 3902054, 3902055, 3902056, 3902057, 3902058, 3902059, 3902060 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Ethylene Dibromide | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Hexachlorobutadiene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Isopropylbenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Methylene Chloride | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| m-Xylene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| m-Xylene & p-Xylene | MSV_MegaMIX#1_00112 | 03/21/2023 | 10000.00000 | ug/mL | 2000.00000 | ug/mL |
| Naphthalene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| n-Butylbenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| N-Propylbenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| o-Xylene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| p-Xylene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| sec-Butylbenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Styrene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| tert-Butylbenzene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Tetrachloroethene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Toluene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| trans-1,2-Dichloroethene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| trans-1,3-Dichloropropene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |

eurofins | Environment Testing

MSV_CCV_VOC#1_00111

## Reagent ID: MSV_CCV_VOC#1_00111

| | | | |
|---|---|---|---|
| Description: | CCV VOC#1 Weekly Std | Expiration Date: | 03/21/2023 |
| No. of Bottles: | 9 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 5.000 mL | Solvent: | Methanol |
| Creation Date: | 02/19/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3902052, 3902053, 3902054, 3902055, 3902056, 3902057, 3902058, 3902059, 3902060 | | |
| Comment: | | | |

### Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Trichloroethene | MSV_MegaMIX#1_00112 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,2,3-Trimethylbenzene | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,3,5-Trichlorobenzene | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,3-Diethylbenzene | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 1,4-Dioxane | MSV_MegaMix#2_00108 | 03/21/2023 | 62500.00000 | ug/mL | 12500.00000 | ug/mL |
| 1-Chlorohexane | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 2-Chloro-1,3-butadiene | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 2-ethoxy-2-methyl butane | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 2-Methyl-2-propanol | MSV_MegaMix#2_00108 | 03/21/2023 | 25000.00000 | ug/mL | 5000.00000 | ug/mL |
| 2-Methylnaphthalene | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 2-Nitropropane | MSV_MegaMix#2_00108 | 03/21/2023 | 25000.00000 | ug/mL | 5000.00000 | ug/mL |
| 3-Chloro-1-propene | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Acrylonitrile | MSV_MegaMix#2_00108 | 03/21/2023 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |
| Benzyl chloride | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Carbon disulfide | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Cyclohexane | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Ethyl methacrylate | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |

# Reagent ID: MSV_CCV_VOC#1_00111

| | | | |
|---|---|---|---|
| Description: | CCV VOC#1 Weekly Std | Expiration Date: | 03/21/2023 |
| No. of Bottles: | 9 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 5.000 mL | Solvent: | Methanol |
| Creation Date: | 02/19/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3902052, 3902053, 3902054, 3902055, 3902056, 3902057, 3902058, 3902059, 3902060 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Hexane | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Iodomethane | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Isobutyl alcohol | MSV_MegaMix#2_00108 | 03/21/2023 | 62500.00000 | ug/mL | 12500.00000 | ug/mL |
| Isopropyl alcohol | MSV_MegaMix#2_00108 | 03/21/2023 | 25000.00000 | ug/mL | 5000.00000 | ug/mL |
| Isopropyl ether | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Methacrylonitrile | MSV_MegaMix#2_00108 | 03/21/2023 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |
| Methyl acetate | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Methyl methacrylate | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Methyl tert-butyl ether | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Methylcyclohexane | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| n-Butanol | MSV_MegaMix#2_00108 | 03/21/2023 | 62500.00000 | ug/mL | 12500.00000 | ug/mL |
| n-Heptane | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| o-diethylbenzene | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| p-Diethylbenzene | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Pentane | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Propionitrile | MSV_MegaMix#2_00108 | 03/21/2023 | 25000.00000 | ug/mL | 5000.00000 | ug/mL |
| Tert-amyl methyl ether | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Tert-butyl ethyl ether | MSV_MegaMix#2_00108 | 03/21/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |

# Reagent ID: MSV_CCV_VOC#1_00111

| | | | |
|---|---|---|---|
| Description: | CCV VOC#1 Weekly Std | Expiration Date: | 03/21/2023 |
| No. of Bottles: | 9 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 5.000 mL | Solvent: | Methanol |
| Creation Date: | 02/19/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3902052, 3902053, 3902054, 3902055, 3902056, 3902057, 3902058, 3902059, 3902060 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Tetrahydrofuran | MSV_MegaMix#2_00108 | 03/21/2023 | 25000.00000 | ug/mL | 5000.00000 | ug/mL |
| trans-1,4-Dichloro-2-butene | MSV_MegaMix#2_00108 | 03/21/2023 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_MegaMIX#1_00112 | A0184527 Cus VOC MegaMix #1 in MeOH | ASTD | 03/21/23 | Restek | A0184527 | 577486 | 1.00000 | mL |
| MSV_MegaMix#2_00108 | A0186885 MegaMix #2 Primary Custom | ASTD | 03/21/23 | Restek | A0186885 | 577487 | 1.00000 | mL |

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MSV_CCV_VOC#3_00112

# Reagent ID: MSV_CCV_VOC#3_00112

| | | | |
|---|---|---|---|
| Description: | CCV VOC#3 Weekly Std | Expiration Date: | 03/21/2023 |
| No. of Bottles: | 10 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 5.000 mL | Solvent: | Methanol |
| Creation Date: | 02/19/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3902072, 3902073, 3902074, 3902075, 3902076, 3902077, 3902078, 3902079, 3902080, 39020 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Acrolein | MSV_CCV_ACR_00009 | 04/10/2023 | 124991.89700 | ug/mL | 12499.18967 | ug/mL |
| 2-Butanone (MEK) | MSV_V_Ketones_00100 | 01/31/2025 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |
| 2-Hexanone | MSV_V_Ketones_00100 | 01/31/2025 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |
| 4-Methyl-2-pentanone (MIBK) | MSV_V_Ketones_00100 | 01/31/2025 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |
| Acetone | MSV_V_Ketones_00100 | 01/31/2025 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_CCV_ACR_00009 | V Acrloein Working Standard | | 04/10/23 | | | | 0.50000 | mL |
| MSV_V_Ketones_00100 | A0180742 Ketones Primary standard in Me | ASTD | 01/31/25 | Restek | A0180742 | 569721 | 1.00000 | mL |

eurofins | Environment Testing

MSV_V_VOA2_00181

# Reagent ID: MSV_V_VOA2_00181

| | | | |
|---|---|---|---|
| Description: | VOA 2 Weekly Std | Expiration Date: | 03/21/2023 |
| No. of Bottles: | 10 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 5.000 mL | Solvent: | Methanol |
| Creation Date: | 02/19/2023 | Solvent Lot: | EB679 |
| Open Date: | | | |
| Container(s): | 3902062, 3902063, 3902064, 3902065, 3902066, 3902067, 3902068, 3902069, 3902070, 390207 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 1,4-Dioxane | MSV_V#2B_00309 | 04/30/2024 | 62500.00000 | ug/mL | 12500.00000 | ug/mL |
| 2-Methyl-2-propanol | MSV_V#2B_00309 | 04/30/2024 | 25000.00000 | ug/mL | 5000.00000 | ug/mL |
| Isobutyl alcohol | MSV_V#2B_00309 | 04/30/2024 | 62500.00000 | ug/mL | 12500.00000 | ug/mL |
| Isopropyl alcohol | MSV_V#2B_00309 | 04/30/2024 | 25000.00000 | ug/mL | 5000.00000 | ug/mL |
| Methacrylonitrile | MSV_V#2B_00309 | 04/30/2024 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |
| n-Butanol | MSV_V#2B_00309 | 04/30/2024 | 125000.00000 | ug/mL | 25000.00000 | ug/mL |
| Propionitrile | MSV_V#2B_00309 | 04/30/2024 | 25000.00000 | ug/mL | 5000.00000 | ug/mL |
| trans-1,4-Dichloro-2-butene | MSV_V#2B_00309 | 04/30/2024 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_V#2B_00309 | A0184378 V#2B 5000ug/mL in MeOH | ASTD | 04/30/24 | Restek | A0184378 | 56734 | 1.00000 | mL |

eurofins | Environment Testing

MSV_Cust_VGro_00098

## Reagent ID: MSV_Cust_VGro_00098

| | | | |
|---|---|---|---|
| Type: | ASTD | Expiration Date: | 07/09/2023 |
| Description: | A0171576 V Unleaded Gas Comp 5500ug/ | Laboratory: | Eurofins Lancaster Laboratories Envir |
| No. of Bottles: | 5 | Prepared By: | Long, Jason M |
| Storage Location: | VOA-C148-F | Vendor: | Restek |
| Reagent Volume: | 1.000 mL | Vendor Lot #: | A0171576 |
| Creation Date: | 05/03/2022 | Vendor Cat #: | 570209 |
| Open Date: | 06/09/2023 | | |
| Container(s): | 2805492, 4411551, 4411552, 4411553, 4411554 | | |
| Comment: | EXP; 03/2025 | | |

### Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Butane | | | | | 1.00000 | ug/mL |
| C4-C10 | | | | | 5500.00000 | ug/mL |
| C4-C12 | | | | | 5500.00000 | ug/mL |
| C5-C12 | | | | | 5500.00000 | ug/mL |
| C6-C10 | | | | | 5500.00000 | ug/mL |
| C6-C12 | | | | | 5500.00000 | ug/mL |

| Status | Analyte Order | Analyte | Default Reporting Synonym | Cas. Num | Report | Type | Unit |
|---|---|---|---|---|---|---|---|
| 1 | 0 | 1,1,1,2-Tetrachloroethane | 1,1,1,2-Tetrachloroethane | 630-20-6 | 1 | F | ug/L |
| 1 | 10 | 1,1,1-Trichloroethane | 1,1,1-Trichloroethane | 71-55-6 | 1 | F | ug/L |
| 1 | 20 | 1,1,2,2-Tetrachloroethane | 1,1,2,2-Tetrachloroethane | 79-34-5 | 1 | F | ug/L |
| 1 | 30 | 1,1,2-Trichloroethane | 1,1,2-Trichloroethane | 79-00-5 | 1 | F | ug/L |
| 1 | 40 | 1,1-Dichloroethane | 1,1-Dichloroethane | 75-34-3 | 1 | F | ug/L |
| 1 | 50 | 1,1-Dichloroethene | 1,1-Dichloroethene | 75-35-4 | 1 | F | ug/L |
| 1 | 60 | 1,1-Dichloropropene | 1,1-Dichloropropene | 563-58-6 | 1 | F | ug/L |
| 1 | 70 | 1,2,3-Trichlorobenzene | 1,2,3-Trichlorobenzene | 87-61-6 | 1 | F | ug/L |
| 1 | 80 | 1,2,3-Trichloropropane | 1,2,3-Trichloropropane | 96-18-4 | 1 | F | ug/L |
| 1 | 90 | 1,2,3-Trimethylbenzene | 1,2,3-Trimethylbenzene | 526-73-8 | 1 | F | ug/L |
| 1 | 100 | 1,2,4-Trichlorobenzene | 1,2,4-Trichlorobenzene | 120-82-1 | 1 | F | ug/L |
| 1 | 110 | 1,2,4-Trimethylbenzene | 1,2,4-Trimethylbenzene | 95-63-6 | 1 | F | ug/L |
| 1 | 120 | 1,2-Dibromo-3-Chloropropane | 1,2-Dibromo-3-Chloropropane | 96-12-8 | 1 | F | ug/L |
| 1 | 130 | Ethylene Dibromide | 1,2-Dibromoethane | 106-93-4 | 1 | F | ug/L |
| 1 | 140 | 1,2-Dichlorobenzene | 1,2-Dichlorobenzene | 95-50-1 | 1 | F | ug/L |
| 1 | 150 | 1,2-Dichloroethane | 1,2-Dichloroethane | 107-06-2 | 1 | F | ug/L |
| 1 | 160 | 1,2-Dichloroethene, Total | 1,2-Dichloroethene, Total | 540-59-0 | 1 | S | ug/L |
| 1 | 170 | 1,2-Dichloropropane | 1,2-Dichloropropane | 78-87-5 | 1 | F | ug/L |
| 1 | 180 | 1,3,5-Trichlorobenzene | 1,3,5-Trichlorobenzene | 108-70-3 | 1 | F | ug/L |
| 1 | 190 | 1,3,5-Trimethylbenzene | 1,3,5-Trimethylbenzene | 108-67-8 | 1 | F | ug/L |
| 1 | 200 | Butadiene | 1,3-Butadiene | 106-99-0 | 1 | F | ug/L |
| 1 | 210 | 1,3-Dichlorobenzene | 1,3-Dichlorobenzene | 541-73-1 | 1 | F | ug/L |
| 1 | 220 | 1,3-Dichloropropane | 1,3-Dichloropropane | 142-28-9 | 1 | F | ug/L |
| 1 | 230 | 1,3-Dichloropropene, Total | 1,3-Dichloropropene, Total | 542-75-6 | 1 | S | ug/L |
| 1 | 240 | 1,4-Dichlorobenzene | 1,4-Dichlorobenzene | 106-46-7 | 1 | F | ug/L |
| 1 | 250 | 1,4-Dioxane | 1,4-Dioxane | 123-91-1 | 1 | F | ug/L |
| 1 | 260 | 1-Bromo-3-Chloropropane | 1-Bromo-3-Chloropropane | 109-70-6 | 1 | F | ug/L |
| 1 | 280 | 1-Chlorohexane | 1-Chlorohexane | 544-10-5 | 1 | F | ug/L |
| 1 | 290 | 2,2-Dichloropropane | 2,2-Dichloropropane | 594-20-7 | 1 | F | ug/L |
| 1 | 300 | 2-Butanone (MEK) | 2-Butanone | 78-93-3 | 1 | F | ug/L |
| 1 | 310 | 2-Chloro-1,3-butadiene | 2-Chloro-1,3-butadiene | 126-99-8 | 1 | F | ug/L |
| 1 | 320 | 2-Chloroethyl vinyl ether | 2-Chloroethyl vinyl ether | 110-75-8 | 1 | F | ug/L |
| 1 | 330 | 2-Chlorotoluene | 2-Chlorotoluene | 95-49-8 | 1 | F | ug/L |
| 1 | 340 | 2-Hexanone | 2-Hexanone | 591-78-6 | 1 | F | ug/L |
| 1 | 350 | 2-Nitropropane | 2-Nitropropane | 79-46-9 | 1 | F | ug/L |
| 1 | 360 | 4-Chlorotoluene | 4-Chlorotoluene | 106-43-4 | 1 | F | ug/L |
| 1 | 370 | 4-Methyl-2-pentanone (MIBK) | 4-Methyl-2-pentanone | 108-10-1 | 1 | F | ug/L |
| 1 | 380 | Acetone | Acetone | 67-64-1 | 1 | F | ug/L |
| 1 | 390 | Acetonitrile | Acetonitrile | 75-05-8 | 1 | F | ug/L |
| 1 | 400 | Acrolein | Acrolein | 107-02-8 | 1 | F | ug/L |
| 1 | 410 | Acrylonitrile | Acrylonitrile | 107-13-1 | 1 | F | ug/L |
| 1 | 420 | 3-Chloro-1-propene | Allyl chloride | 107-05-1 | 1 | F | ug/L |
| 1 | 430 | Benzene | Benzene | 71-43-2 | 1 | F | ug/L |
| 1 | 440 | Benzyl chloride | Benzyl chloride | 100-44-7 | 1 | F | ug/L |
| 1 | 450 | Bromobenzene | Bromobenzene | 108-86-1 | 1 | F | ug/L |
| 1 | 460 | Chlorobromomethane | Bromochloromethane | 74-97-5 | 1 | F | ug/L |
| 1 | 470 | Dichlorobromomethane | Bromodichloromethane | 75-27-4 | 1 | F | ug/L |
| 1 | 480 | Bromoform | Bromoform | 75-25-2 | 1 | F | ug/L |
| 1 | 490 | Bromomethane | Bromomethane | 74-83-9 | 1 | F | ug/L |
| 1 | 500 | Carbon disulfide | Carbon disulfide | 75-15-0 | 1 | F | ug/L |
| 1 | 510 | Carbon tetrachloride | Carbon tetrachloride | 56-23-5 | 1 | F | ug/L |
| 1 | 530 | Chlorobenzene | Chlorobenzene | 108-90-7 | 1 | F | ug/L |
| 1 | 540 | Chlorodifluoromethane | Chlorodifluoromethane | 75-45-6 | 1 | F | ug/L |
| 1 | 550 | Chloroethane | Chloroethane | 75-00-3 | 1 | F | ug/L |
| 1 | 560 | Chloroform | Chloroform | 67-66-3 | 1 | F | ug/L |
| 1 | 570 | Chloromethane | Chloromethane | 74-87-3 | 1 | F | ug/L |
| 1 | 580 | cis-1,2-Dichloroethene | cis-1,2-Dichloroethene | 156-59-2 | 1 | F | ug/L |
| 1 | 590 | cis-1,3-Dichloropropene | cis-1,3-Dichloropropene | 10061-01-5 | 1 | F | ug/L |
| 1 | 600 | cis-1,4-Dichloro-2-butene | cis-1,4-Dichloro-2-butene | 1476-11-5 | 1 | F | ug/L |
| 1 | 610 | 1-Chloropropane | Chloropropane | 540-54-5 | 1 | F | ug/L |
| 1 | 620 | Cyclohexane | Cyclohexane | 110-82-7 | 1 | F | ug/L |
| 1 | 630 | Cyclohexanone | Cyclohexanone | 108-94-1 | 1 | F | ug/L |
| 1 | 640 | Chlorodibromomethane | Dibromochloromethane | 124-48-1 | 1 | F | ug/L |
| 1 | 650 | Dibromomethane | Dibromomethane | 74-95-3 | 1 | F | ug/L |
| 1 | 660 | Dichlorodifluoromethane | Dichlorodifluoromethane | 75-71-8 | 1 | F | ug/L |
| 1 | 670 | Dichlorofluoromethane | Dichlorofluoromethane | 75-43-4 | 1 | F | ug/L |
| 1 | 680 | Isopropyl ether | di-Isopropyl ether | 108-20-3 | 1 | F | ug/L |
| 1 | 690 | Dimethyl ether | Methoxymethane | 115-10-6 | 1 | F | ug/L |
| 1 | 700 | Ethyl acetate | Ethyl acetate | 141-78-6 | 1 | F | ug/L |
| 1 | 710 | Ethyl ether | Ethyl ether | 60-29-7 | 1 | F | ug/L |
| 1 | 720 | Ethyl methacrylate | Ethyl methacrylate | 97-63-2 | 1 | F | ug/L |
| 1 | 730 | Tert-butyl ethyl ether | Ethyl t-butyl ether | 637-92-3 | 1 | F | ug/L |
| 1 | 740 | Ethylbenzene | Ethylbenzene | 100-41-4 | 1 | F | ug/L |
| 1 | 750 | 1,1,2-Trichloro-1,2,2-trifluoroethane | Freon 113 | 76-13-1 | 1 | F | ug/L |
| 1 | 760 | 1,2-Dichloro-1,1,2-trifluoroethane | Freon 123a | 354-23-4 | 1 | F | ug/L |
| 1 | 770 | Hexachlorobutadiene | Hexachlorobutadiene | 87-68-3 | 1 | F | ug/L |
| 1 | 780 | Isobutyl alcohol | Isobutyl alcohol | 78-83-1 | 1 | F | ug/L |
| 1 | 790 | Isopropylbenzene | Isopropylbenzene | 98-82-8 | 1 | F | ug/L |
| 1 | 800 | m-Xylene & p-Xylene | m&p-Xylene | 179601-23-1 | 1 | F | ug/L |
| 1 | 810 | Methacrylonitrile | Methacrylonitrile | 126-98-7 | 1 | F | ug/L |
| 1 | 820 | Methyl acetate | Methyl acetate | 79-20-9 | 1 | F | ug/L |
| 1 | 830 | Methyl acrylate | Methyl acrylate | 96-33-3 | 1 | F | ug/L |
| 1 | 840 | Iodomethane | Methyl iodide | 74-88-4 | 1 | F | ug/L |
| 1 | 850 | Methyl methacrylate | Methyl methacrylate | 80-62-6 | 1 | F | ug/L |
| 1 | 860 | Methyl tert-butyl ether | Methyl tertiary butyl ether | 1634-04-4 | 1 | F | ug/L |
| 1 | 870 | Methylcyclohexane | Methylcyclohexane | 108-87-2 | 1 | F | ug/L |
| 1 | 880 | Methylene Chloride | Methylene Chloride | 75-09-2 | 1 | F | ug/L |
| 1 | 890 | Naphthalene | Naphthalene | 91-20-3 | 1 | F | ug/L |
| 1 | 900 | n-Butanol | n-Butanol | 71-36-3 | 1 | F | ug/L |
| 1 | 910 | n-Butylbenzene | n-Butylbenzene | 104-51-8 | 1 | F | ug/L |
| 1 | 920 | n-Heptane | n-Heptane | 142-82-5 | 1 | F | ug/L |
| 1 | 930 | Hexane | n-Hexane | 110-54-3 | 1 | F | ug/L |
| 1 | 940 | N-Propylbenzene | N-Propylbenzene | 103-65-1 | 1 | F | ug/L |
| 1 | 950 | o-Xylene | o-Xylene | 95-47-6 | 1 | F | ug/L |
| 1 | 960 | Pentachloroethane | Pentachloroethane | 76-01-7 | 1 | F | ug/L |
| 1 | 970 | Propionitrile | Propionitrile | 107-12-0 | 1 | F | ug/L |
| 1 | 980 | 4-Isopropyltoluene | p-Isopropyltoluene | 99-87-6 | 1 | F | ug/L |
| 1 | 990 | sec-Butylbenzene | sec-Butylbenzene | 135-98-8 | 1 | F | ug/L |
| 1 | 1000 | Styrene | Styrene | 100-42-5 | 1 | F | ug/L |
| 1 | 1010 | Tert-amyl methyl ether | t-Amyl methyl ether | 994-05-8 | 1 | F | ug/L |
| 1 | 1020 | 2-Methyl-2-propanol | t-Butyl alcohol | 75-65-0 | 1 | F | ug/L |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | 1030 | tert-Butylbenzene | tert-Butylbenzene | 98-06-6 | 1 | F | ug/L |
| 1 | 1040 | Tetrachloroethene | Tetrachloroethene | 127-18-4 | 1 | F | ug/L |
| 1 | 1050 | Tetrahydrofuran | Tetrahydrofuran | 109-99-9 | 1 | F | ug/L |
| 1 | 1060 | Toluene | Toluene | 108-88-3 | 1 | F | ug/L |
| 1 | 1070 | trans-1,2-Dichloroethene | trans-1,2-Dichloroethene | 156-60-5 | 1 | F | ug/L |
| 1 | 1080 | trans-1,3-Dichloropropene | trans-1,3-Dichloropropene | 10061-02-6 | 1 | F | ug/L |
| 1 | 1090 | trans-1,4-Dichloro-2-butene | trans-1,4-Dichloro-2-butene | 110-57-6 | 1 | F | ug/L |
| 1 | 1100 | Trichloroethene | Trichloroethene | 79-01-6 | 1 | F | ug/L |
| 1 | 1110 | Trichlorofluoromethane | Trichlorofluoromethane | 75-69-4 | 1 | F | ug/L |
| 1 | 1120 | Vinyl acetate | Vinyl acetate | 108-05-4 | 1 | F | ug/L |
| 1 | 1130 | Vinyl chloride | Vinyl chloride | 75-01-4 | 1 | F | ug/L |
| 1 | 1140 | Xylenes, Total | Xylenes, Total | 1330-20-7 | 1 | S | ug/L |
| 1 | 1240 | 2-Bromo-1-chloropropane | 2-Bromo-1-chloropropane | 3017-95-6 | 1 | F | ug/L |
| 1 | 1250 | n-Decane | n-Decane | 124-18-5 | 0 | F | ug/L |
| 1 | 1260 | Dodecane | Dodecane | 112-40-3 | 0 | F | ug/L |
| 1 | 1350 | 1-Bromo-2-chloroethane | 1-Bromo-2-chloroethane | 107-04-0 | 1 | F | ug/L |

eurofins | Environment Testing

MSV_DME_00051

# Reagent ID: MSV_DME_00051

| | | | |
|---|---|---|---|
| Type: | ASTD | Expiration Date: | 12/12/2023 |
| Description: | V DME Lot A0190883 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| No. of Bottles: | 1 | Prepared By: | Long, Jason M |
| Storage Location: | VOA-C148-F | Vendor: | Restek |
| Reagent Volume: | 1.000 mL | Vendor Lot #: | A0190883 |
| Creation Date: | 11/07/2022 | Vendor Cat #: | 564156 |
| Open Date: | 11/12/2023 | | |
| Container(s): | 3514299 | | |
| Comment: | Exp: 08/19/2025 | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Dimethyl ether | | | | | 1000.00000 | ug/mL |

eurofins | Environment Testing

MSV_LL_#1_826_00103

# Reagent ID: MSV_LL_#1_826_00103

| | | | |
|---|---|---|---|
| Description: | 25mL Mix 1 8260 for CCV | Expiration Date: | 12/12/2023 |
| No. of Bottles: | 5 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Walmer, Gavin |
| Reagent Volume: | 1.000 mL | Solvent: | Methanol |
| Creation Date: | 11/12/2023 | Solvent Lot: | EG095 |
| Open Date: | | | |
| Container(s): | 5153491, 5153492, 5153493, 5153494, 5153495 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,1,1-Trichloroethane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,1,2,2-Tetrachloroethane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,1,2-Trichloroethane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,1-Dichloroethane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,1-Dichloroethene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,1-Dichloropropene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,2,3-Trichlorobenzene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,2,3-Trichloropropane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,2,3-Trimethylbenzene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,2,4-Trichlorobenzene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,2,4-Trimethylbenzene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,2-Dibromo-3-Chloropropane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,2-Dichlorobenzene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,2-Dichloroethane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,2-Dichloropropane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,3,5-Trichlorobenzene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |

eurofins | Environment Testing

MSV_LL_#1_826_00103

## Reagent ID: MSV_LL_#1_826_00103

| | | | |
|---|---|---|---|
| Description: | 25mL Mix 1 8260 for CCV | Expiration Date: | 12/12/2023 |
| No. of Bottles: | 5 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Walmer, Gavin |
| Reagent Volume: | 1.000 mL | Solvent: | Methanol |
| Creation Date: | 11/12/2023 | Solvent Lot: | EG095 |
| Open Date: | | | |
| Container(s): | 5153491, 5153492, 5153493, 5153494, 5153495 | | |
| Comment: | | | |

### Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 1,3,5-Trimethylbenzene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,3-Dichlorobenzene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,3-Dichloropropane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,3-Diethylbenzene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,4-Dichlorobenzene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 1,4-Dioxane | MSV_CCV_VOC#1_001E | 12/12/2023 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |
| 1-Chlorohexane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 2,2-Dichloropropane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 2-Chloro-1,3-butadiene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 2-Chlorotoluene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 2-ethoxy-2-methyl butane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 2-Methyl-2-propanol | MSV_CCV_VOC#1_001E | 12/12/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| 2-Methylnaphthalene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 2-Nitropropane | MSV_CCV_VOC#1_001E | 12/12/2023 | 5000.00000 | ug/mL | 250.00000 | ug/mL |
| 3-Chloro-1-propene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 4-Chlorotoluene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 4-Isopropyltoluene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Acrylonitrile | MSV_CCV_VOC#1_001E | 12/12/2023 | 2500.00000 | ug/mL | 125.00000 | ug/mL |

eurofins | Environment Testing

MSV_LL_#1_826_00103

## Reagent ID: MSV_LL_#1_826_00103

| | | | |
|---|---|---|---|
| Description: | 25mL Mix 1 8260 for CCV | Expiration Date: | 12/12/2023 |
| No. of Bottles: | 5 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Walmer, Gavin |
| Reagent Volume: | 1.000 mL | Solvent: | Methanol |
| Creation Date: | 11/12/2023 | Solvent Lot: | EG095 |
| Open Date: | | | |
| Container(s): | 5153491, 5153492, 5153493, 5153494, 5153495 | | |
| Comment: | | | |

### Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Benzene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Benzyl chloride | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Bromobenzene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Bromoform | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Carbon disulfide | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Carbon tetrachloride | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Chlorobenzene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Chlorobromomethane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Chlorodibromomethane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Chloroform | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| cis-1,2-Dichloroethene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| cis-1,3-Dichloropropene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Cyclohexane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Dibromomethane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Dichlorobromomethane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Ethyl methacrylate | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Ethylbenzene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Ethylene Dibromide | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |

eurofins | Environment Testing

MSV_LL_#1_826_00103

## Reagent ID: MSV_LL_#1_826_00103

| | | | |
|---|---|---|---|
| Description: | 25mL Mix 1 8260 for CCV | Expiration Date: | 12/12/2023 |
| No. of Bottles: | 5 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Walmer, Gavin |
| Reagent Volume: | 1.000 mL | Solvent: | Methanol |
| Creation Date: | 11/12/2023 | Solvent Lot: | EG095 |
| Open Date: | | | |
| Container(s): | 5153491, 5153492, 5153493, 5153494, 5153495 | | |
| Comment: | | | |

### Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Hexachlorobutadiene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Hexane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Iodomethane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Isobutyl alcohol | MSV_CCV_VOC#1_001E | 12/12/2023 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |
| Isopropyl alcohol | MSV_CCV_VOC#1_001E | 12/12/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Isopropyl ether | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Isopropylbenzene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Methacrylonitrile | MSV_CCV_VOC#1_001E | 12/12/2023 | 2500.00000 | ug/mL | 500.00000 | ug/mL |
| Methyl acetate | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Methyl methacrylate | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Methyl tert-butyl ether | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Methylcyclohexane | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Methylene Chloride | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| m-Xylene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| m-Xylene & p-Xylene | MSV_CCV_VOC#1_001E | 12/12/2023 | 2000.00000 | ug/mL | 100.00000 | ug/mL |
| Naphthalene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| n-Butanol | MSV_CCV_VOC#1_001E | 12/12/2023 | 12500.00000 | ug/mL | 4375.00000 | ug/mL |
| n-Butylbenzene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |

eurofins | Environment Testing

MSV_LL_#1_826_00103

## Reagent ID: MSV_LL_#1_826_00103

| | | | |
|---|---|---|---|
| Description: | 25mL Mix 1 8260 for CCV | Expiration Date: | 12/12/2023 |
| No. of Bottles: | 5 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Walmer, Gavin |
| Reagent Volume: | 1.000 mL | Solvent: | Methanol |
| Creation Date: | 11/12/2023 | Solvent Lot: | EG095 |
| Open Date: | | | |
| Container(s): | 5153491, 5153492, 5153493, 5153494, 5153495 | | |
| Comment: | | | |

### Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| n-Heptane | MSV_CCV_VOC#1_0015 | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| N-Propylbenzene | MSV_CCV_VOC#1_0015 | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| o-diethylbenzene | MSV_CCV_VOC#1_0015 | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| o-Xylene | MSV_CCV_VOC#1_0015 | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| p-Diethylbenzene | MSV_CCV_VOC#1_0015 | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Pentane | MSV_CCV_VOC#1_0015 | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Propionitrile | MSV_CCV_VOC#1_0015 | 12/12/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| p-Xylene | MSV_CCV_VOC#1_0015 | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| sec-Butylbenzene | MSV_CCV_VOC#1_0015 | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Styrene | MSV_CCV_VOC#1_0015 | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Tert-amyl methyl ether | MSV_CCV_VOC#1_0015 | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Tert-butyl ethyl ether | MSV_CCV_VOC#1_0015 | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| tert-Butylbenzene | MSV_CCV_VOC#1_0015 | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Tetrachloroethene | MSV_CCV_VOC#1_0015 | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| Tetrahydrofuran | MSV_CCV_VOC#1_0015 | 12/12/2023 | 5000.00000 | ug/mL | 250.00000 | ug/mL |
| Toluene | MSV_CCV_VOC#1_0015 | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| trans-1,2-Dichloroethene | MSV_CCV_VOC#1_0015 | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| trans-1,3-Dichloropropene | MSV_CCV_VOC#1_0015 | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |

eurofins | Environment Testing

MSV_LL_#1_826_00103

# Reagent ID: MSV_LL_#1_826_00103

| | | | |
|---|---|---|---|
| Description: | 25mL Mix 1 8260 for CCV | Expiration Date: | 12/12/2023 |
| No. of Bottles: | 5 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Walmer, Gavin |
| Reagent Volume: | 1.000 mL | Solvent: | Methanol |
| Creation Date: | 11/12/2023 | Solvent Lot: | EG095 |
| Open Date: | | | |
| Container(s): | 5153491, 5153492, 5153493, 5153494, 5153495 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| trans-1,4-Dichloro-2-butene | MSV_CCV_VOC#1_001E | 12/12/2023 | 2500.00000 | ug/mL | 500.00000 | ug/mL |
| Trichloroethene | MSV_CCV_VOC#1_001E | 12/12/2023 | 1000.00000 | ug/mL | 50.00000 | ug/mL |
| 2-Butanone (MEK) | MSV_CCV_VOC#3_001E | 12/12/2023 | 2500.00000 | ug/mL | 500.00000 | ug/mL |
| 2-Hexanone | MSV_CCV_VOC#3_001E | 12/12/2023 | 2500.00000 | ug/mL | 500.00000 | ug/mL |
| 4-Methyl-2-pentanone (MIBK) | MSV_CCV_VOC#3_001E | 12/12/2023 | 2500.00000 | ug/mL | 500.00000 | ug/mL |
| Acetone | MSV_CCV_VOC#3_001E | 12/12/2023 | 2500.00000 | ug/mL | 500.00000 | ug/mL |
| Acrolein | MSV_CCV_VOC#3_001E | 12/12/2023 | 12499.28600 | ug/mL | 2499.85725 | ug/mL |
| 1,4-Dioxane | MSV_V_VOA2_00214 | 12/12/2023 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |
| 2-Methyl-2-propanol | MSV_V_VOA2_00214 | 12/12/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Isobutyl alcohol | MSV_V_VOA2_00214 | 12/12/2023 | 12500.00000 | ug/mL | 2500.00000 | ug/mL |
| Isopropyl alcohol | MSV_V_VOA2_00214 | 12/12/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| Methacrylonitrile | MSV_V_VOA2_00214 | 12/12/2023 | 2500.00000 | ug/mL | 500.00000 | ug/mL |
| n-Butanol | MSV_V_VOA2_00214 | 12/12/2023 | 25000.00000 | ug/mL | 4375.00000 | ug/mL |
| Propionitrile | MSV_V_VOA2_00214 | 12/12/2023 | 5000.00000 | ug/mL | 1000.00000 | ug/mL |
| trans-1,4-Dichloro-2-butene | MSV_V_VOA2_00214 | 12/12/2023 | 2500.00000 | ug/mL | 500.00000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_CCV_VOC#1_00155 | CCV VOC#1 Weekly Std | | 12/12/23 | | | | 50.00000 | uL |
| MSV_CCV_VOC#3_00152 | CCV VOC#3 Weekly Std | | 12/12/23 | | | | 200.00000 | uL |
| MSV_V_VOA2_00214 | VOA 2 Weekly Std | | 12/12/23 | | | | 150.00000 | uL |

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MSV_LL_#2_826_00112

# Reagent ID: MSV_LL_#2_826_00112

| | | | |
|---|---|---|---|
| Description: | 25mL 8260 Mix 2 for CCV | Expiration Date: | 11/15/2023 |
| No. of Bottles: | 5 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Walmer, Gavin |
| Reagent Volume: | 1.000 mL | Solvent: | Methanol |
| Creation Date: | 11/09/2023 | Solvent Lot: | EG095 |
| Open Date: | | | |
| Container(s): | 5139452, 5139453, 5139454, 5139455, 5139456 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Ethyl bromide | CCV_ETBR_00005 | 11/15/2023 | 999.09600 | ug/mL | 49.95480 | ug/mL |
| 1-Bromo-2-chloroethane | MSV_BCE_00066 | 11/28/2023 | 2000.00000 | ug/mL | 50.00000 | ug/mL |
| Ethyl ether | MSV_CCV_EE_00006 | 05/07/2024 | 1000.13900 | ug/mL | 50.00693 | ug/mL |
| Pentachloroethane | MSV_V_PentaCL_00039 | 12/05/2023 | 5000.00000 | ug/mL | 50.00000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| CCV_ETBR_00005 | CCV_ Ethyl Bromide work STD | | 11/15/23 | | | | 50.00000 | uL |
| MSV_BCE_00066 | A0201612 1-Bromo-2-chloroethane 2000ug/m | ASTD | 11/28/23 | Restek | A0201612 | 30469 | 25.00000 | uL |
| MSV_CCV_EE_00006 | CCV_ Ethyl Ether working std | | 05/07/24 | | | | 50.00000 | uL |
| MSV_V_PentaCL_00039 | A0184174 Primary Pentachloroethane | ASTD | 12/05/23 | Restek | A0184174 | 577491 | 10.00000 | uL |

eurofins | Environment Testing

MSV_LL_GAS826_00178

# Reagent ID: MSV_LL_GAS826_00178

| | | | |
|---|---|---|---|
| Description: | 25mL GAS for 8260 CCV's | Expiration Date: | 11/19/2023 |
| No. of Bottles: | 5 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Walmer, Gavin |
| Reagent Volume: | 1.000 mL | Solvent: | Methanol |
| Creation Date: | 11/12/2023 | Solvent Lot: | EG095 |
| Open Date: | | | |
| Container(s): | 5153496, 5153497, 5153498, 5153499, 5153500 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 1,2-Dichloro-1,1,2-trifluoroethane | MSV_CCV_GASES_006( | 11/19/2023 | 2000.00000 | ug/mL | 50.00000 | ug/mL |
| Bromomethane | MSV_CCV_GASES_006( | 11/19/2023 | 2000.00000 | ug/mL | 50.00000 | ug/mL |
| Butadiene | MSV_CCV_GASES_006( | 11/19/2023 | 2000.00000 | ug/mL | 50.00000 | ug/mL |
| Chloroethane | MSV_CCV_GASES_006( | 11/19/2023 | 2000.00000 | ug/mL | 50.00000 | ug/mL |
| Chloromethane | MSV_CCV_GASES_006( | 11/19/2023 | 2000.00000 | ug/mL | 50.00000 | ug/mL |
| Dichlorodifluoromethane | MSV_CCV_GASES_006( | 11/19/2023 | 2000.00000 | ug/mL | 50.00000 | ug/mL |
| Dichlorofluoromethane | MSV_CCV_GASES_006( | 11/19/2023 | 2000.00000 | ug/mL | 50.00000 | ug/mL |
| Trichlorofluoromethane | MSV_CCV_GASES_006( | 11/19/2023 | 2000.00000 | ug/mL | 50.00000 | ug/mL |
| Vinyl chloride | MSV_CCV_GASES_006( | 11/19/2023 | 2000.00000 | ug/mL | 50.00000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_CCV_GASES_00637 | A0198362 Custom Gas Primary Standard | ASTD | 11/19/23 | Restek | A0198362 | 577488.SEC | 25.00000 | uL |

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MSV_CCV_CYC_00007

# Reagent ID: MSV_CCV_CYC_00007

| | | | |
|---|---|---|---|
| Description: | CCV_ CYC Working Standard | Expiration Date: | 01/19/2024 |
| No. of Bottles: | 10 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Reilling, Lori L |
| Reagent Volume: | 100.000 mL | Solvent: | 50/50 MeOH/Water |
| Creation Date: | 07/19/2023 | Solvent Lot: | EG095 |
| Open Date: | | | |
| Container(s): | 4579981, 4579982, 4579983, 4579984, 4579985, 4579986, 4579987, 4579988, 4579989, 45799 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Cyclohexanone | MSV_VCYC_STK_00010 | 01/19/2024 | 100030.00000 | ug/mL | 6249.87440 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_VCYC_STK_00010 | V Cyclohexanone Stock | | 01/19/24 | | | | 6.24800 | mL |

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# Reagent ID: MSV_V_SMRV4_00064

| | | | |
|---|---|---|---|
| Description: | V SMRV4 | Expiration Date: | 12/06/2023 |
| No. of Bottles: | 5 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Walmer, Gavin |
| Reagent Volume: | 1.000 mL | Solvent: | Methanol |
| Creation Date: | 11/09/2023 | Solvent Lot: | EG095 |
| Open Date: | | | |
| Container(s): | 5134617, 5134618, 5134619, 5134620, 5134621 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| 2-Chloroethyl vinyl ether | MSV_CCV_2CEVE_0014 | 12/07/2023 | 1000.00000 | ug/mL | 200.00000 | ug/mL |
| 2,3,4-Trichlorobutene | MSV_CCV_LKB_00007 | 12/26/2023 | 1000.44200 | ug/mL | 400.17691 | ug/mL |
| 3,4-Dichloro-1-butene | MSV_CCV_LKB_00007 | 12/26/2023 | 1000.04800 | ug/mL | 400.01920 | ug/mL |
| cis-1,4-Dichloro-2-butene | MSV_CCV_LKB_00007 | 12/26/2023 | 999.97600 | ug/mL | 399.99028 | ug/mL |
| 2-Chloro-1,1,1-Trifluoroethane | MSV_V_SMFreon_00032 | 12/06/2023 | 2000.00000 | ug/mL | 200.00000 | ug/mL |
| Chlorodifluoromethane | MSV_V_SMFreon_00032 | 12/06/2023 | 2000.00000 | ug/mL | 200.00000 | ug/mL |
| Chlorotrifluoroethene | MSV_V_SMFreon_00032 | 12/06/2023 | 2000.00000 | ug/mL | 200.00000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_CCV_2CEVE_00147 | CCV 2CEVE Weekly Std | | 12/07/23 | | | | 200.00000 | uL |
| MSV_CCV_LKB_00007 | CCV_ LKB Working Std | | 12/26/23 | | | | 400.00000 | uL |
| MSV_V_SMFreon_00032 | A0184508 Custom SM Freon in MeOH | ASTD | 12/06/23 | Restek | A0184508 | 577490 | 100.00000 | uL |

eurofins | Environment Testing

MSV_CCV_V5ACE_00030

# Reagent ID: MSV_CCV_V5ACE_00030

| | | | |
|---|---|---|---|
| Description: | CCV Small Acetates & Acetonitrile | Expiration Date: | 12/09/2023 |
| No. of Bottles: | 5 | Laboratory: | Eurofins Lancaster Laboratories Envir |
| Storage Location: | VOA-C148-F | Prepared By: | Kephart, Kayla |
| Reagent Volume: | 10.000 mL | Solvent: | Methanol |
| Creation Date: | 11/09/2023 | Solvent Lot: | EG095 |
| Open Date: | | | |
| Container(s): | 5136598, 5136599, 5136600, 5136601, 5136602 | | |
| Comment: | | | |

## Reagent Analyte Information

| Analyte | Source ID | Source Exp. Date | Source Conc. | Source Conc. Units | Final Conc. | Final Conc. Units |
|---|---|---|---|---|---|---|
| Acetonitrile | MSV_AcetatesV_00056 | 11/30/2024 | 50000.00000 | ug/mL | 5000.00000 | ug/mL |
| Ethyl acetate | MSV_AcetatesV_00056 | 11/30/2024 | 10000.00000 | ug/mL | 1000.00000 | ug/mL |
| Isopropyl acetate | MSV_AcetatesV_00056 | 11/30/2024 | 10000.00000 | ug/mL | 1000.00000 | ug/mL |
| n-Butyl acetate | MSV_AcetatesV_00056 | 11/30/2024 | 10000.00000 | ug/mL | 1000.00000 | ug/mL |
| n-Propyl acetate | MSV_AcetatesV_00056 | 11/30/2024 | 10000.00000 | ug/mL | 1000.00000 | ug/mL |
| Vinyl acetate | MSV_AcetatesV_00056 | 11/30/2024 | 10000.00000 | ug/mL | 1000.00000 | ug/mL |

## Source Reagents

| Reagent | Description | Type | Expiration | Vendor | Vendor Lot # | Vendor Cat Lot # | Volume Used | Volume Units |
|---|---|---|---|---|---|---|---|---|
| MSV_AcetatesV_00056 | A0197847 Acetates/Acetonitrile in MeOH | ASTD | 11/30/24 | Restek | A0197847 | 557489 | 1.00000 | mL |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Multi-Parameters in Solids and Waters by ManTech Multi-Parameter System** | Level:<br>**Work Instruction** |
| Document number:<br>**T-WC-WI11475** | | |
| Old Reference:<br>**1-P-QM-WI-9013112** | | |
| Version:<br>**21** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **X6TJ**<br>Effective Date: **04-FEB-2025** | Document users:<br>**EUUSLA_Water Quality_Manager, EUUSLA_Water Quality_ManTech, EUUSLA_Water Quality_Verification** | Responsible:<br>**EUUSLA_Water Quality_Manager** |

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Table I

## Revision Log

| | **Revision:** 21 | **Effective date:** This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Reference | Update | Updated references to include USEPA Drinking Water Manual |
| Quality Assurance/Quality Control | Addition | Included analysis of an MRL for Drinking Water Hardness batches |
| Table 1 | Addition | Added MRL to table |

| | **Revision:** 20 | **Effective date:** July 31, 2024 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Reference | Update | Updated references to include latest method revisions and removed references to methods |

| | **Revision:** 20 | **Effective date:** July 31, 2024 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| | | that have been moved to a separate SOP |

## Reference


1. Standard Methods for the Examination of Water and Wastewater, Method 2310 B-2011.
2. Standard Methods for the Examination of Water and Wastewater, Method 2310 B-1997.
3. Standard Methods for the Examination of Water and Wastewater, Method 2320 B-2021.
4. Standard Methods for the Examination of Water and Wastewater, Method 2320 B-2011.
5. Standard Methods for the Examination of Water and Wastewater, Method 2320 B-1997.
6. Standard Methods for the Examination of Water and Wastewater, Method 2340 C-2021.
7. Standard Methods for the Examination of Water and Wastewater, Method 2340 C-2011.
8. Standard Methods for the Examination of Water and Wastewater, Method 2340 C-1997.
9. Standard Methods for the Examination of Water and Wastewater, Method 2510 B-2011.
10. Standard Methods for the Examination of Water and Wastewater, Method 2510 B-1997.
11. Standard Methods for the Examination of Water and Wastewater, Method 2550 B-2010.
12. Standard Methods for the Examination of Water and Wastewater, Method 4500-CO2 D-2011.
13. Standard Methods for the Examination of Water and Wastewater, Method 4500-F B-2011.
14. Standard Methods for the Examination of Water and Wastewater, Method 4500-F C-2021.
15. Standard Methods for the Examination of Water and Wastewater, Method 4500-F C-2011.
16. Standard Methods for the Examination of Water and Wastewater, Method 4500-F C-1997.
17. Standard Methods for the Examination of Water and Wastewater, Method 4500 NH3 B-2011.
18. Standard Methods for the Examination of Water and Wastewater, Method 4500 NH3 C-2021
19. Standard Methods for the Examination of Water and Wastewater, Method 4500 NH3 D-2021.
20. Standard Methods for the Examination of Water and Wastewater, Method 4500 NH3 D-2011.
21. Standard Methods for the Examination of Water and Wastewater, Method 4500 NH3 D-1997.
22. Standard Methods for the Examination of Water and Wastewater, 8010 F-2015 (Table 8010:VI.)
23. Standard Methods for the Examination of Water and Wastewater, Method 4020B - 2022.
24. Method 120.1, Methods for Chemical Analysis of Water and Wastes USEPA 600, rev 1982
25. Method 130.2, Methods for Chemical Analysis of Water and Wastes USEPA 600.
26. Method 150.1, Methods for Chemical Analysis of Water and Wastes USEPA 600.

27. Method 170.1 Methods for Chemical Analysis of Water and Wastes USEPA 600 rev 1974

28. Method 305.1, Methods for Chemical Analysis of Water and Wastes USEPA 600.

29. Method 305.2, Methods for Chemical Analysis of Water and Wastes USEPA 600.

30. Method 310.1, Methods for Chemical Analysis of Water and Wastes USEPA 600, rev 1974

31. Method 340.2, Methods for Chemical Analysis of Water and Wastes USEPA 600.

32. Method 350.3, Methods for Chemical Analysis of Water and Wastes USEPA 600.

33. Test Methods for Evaluating Solid Wastes, SW-846 Method 9040B.

34. Test Methods for Evaluating Solid Wastes, SW-846 Method 9040C.

35. Test Methods for Evaluating Solid Wastes, SW-846 Method 9050A, December 1996.

36. Test Methods for Evaluating Solid Wastes, SW-846 Method 9214.

37. ManTech Associates, Inc. PC-Titration Plus Instruction and Operation manual, January 25 2000.

38. Standard Methods for the Examination of Water and Wastewater, Method 1020B-2014.

39. West Virginia 47CSR32 Sec. 5.2.2.h

40. *Chemical Hygiene Plan*, current version.

41. USEPA Manual for the Certification of Laboratories Analyzing Drinking Water, Criteria and Procedures, Quality Assurance, Fifth Edition. (*G-EXT-FRM23905*)

## Cross Reference

| Document | Document Title |
|---|---|
| *T-WC-WI10425* | Bellack Distillation for Fluoride in Waters and Solids by SM 4500-F B–1997 or EPA 340.1 Procedure 6.1 |
| *T-WC-WI11519* | pH Probes and Meters |
| *T-WC-WI10348* | Fixed Volume Hand-Held Pipettes |
| *T-WC-WI9897* | Adjustable Volume Handheld Pipettes |
| *T-WC-WI11585* | Standardization of 0.02 Normal Sodium Hydroxide |
| *T-WC-WI10362* | Standardization of 0.02 and 0.1 Normal Sulfuric Acid |
| *T-WC-WI11584* | Specific Conductance in Solids by SM 2510B-2011, SM 2510B-1997, SW-846 9050A, SW-846 9050, or EPA 120.1 |
| *T-WC-WI53655* | Fluoride in Waters by Man-Tech ISE by SM4500-F C-1997/2011 |
| *T-WC-WI58195* | Specific Conductance in Waters by Man-Tech ISE by SM 2510B-2011, SM 2510B-1997, SW-846 9050A, or EPA 120.1 |
| *T-WC-WI58197* | Alkalinity in Solids and Waters by Man-Tech ISE by SM 2320B-2011, SM 2320B-1997, or EPA 310.1 |
| *T-WC-WI58199* | pH in Waters by Man-Tech ISE by SM 4500-H+ B-2011, SM 4500-H+ B-2000, SW-846 9040B, or SW-846 9040C |

| Document | Document Title |
|---|---|
| *T-WC-WI58201* | Unionized Ammonia in Waters by Calculation by SM 8010F-2011 (Table 8010:VI) |
| *QA-SOP11892* | Determining Method Detection Limits and Limits of Quantitation |
| *QA-SOP11896* | Establishing Control Limits |

## Scope

This SOP describes analysis of the parameters noted below and the instrument maintenance and operating conditions for the ManTech system. The ManTech Multi-Parameter System is an instrument used for the determination of the following analytes (see table below) in drinking waters, surface waters, and wastewater samples.
The table below lists the name and LIMS ID number of the analyses that are included in this SOP and the method references associated with each.

**Table of Analyses and Reference Methods**

| Analysis Name | LIMS ID | Analysis Method |
|---|---|---|
| Acidity to pH 3.7 and pH 8.3 (titrimetric) | 305.2 | EPA 305.2 |
| Fluoride | 340.2<br>4500_F_C | See *T-WC-WI53655* |
| Fluoride (distilled) | 340.2_Dist<br>4500_F_B | See *T-WC-WI53655* |
| Total Acidity | SM2310B<br>305.1 | SM 2310 B-2011<br>SM 2310 B-199<br>EPA 305.1 |
| Specific Conductance | 2510B<br>120.1<br>9050A | See *T-WC-WI11584* and *T-WC-WI58195* |
| Total Hardness | 2340C<br>130.2 | SM 2340C-2011<br>SM 2340C-1997<br>EPA 130.2 |
| Carbonate Alkalinity | 2320B | See *T-WC-WI58197* |
| Bicarbonate Alkalinity | 2320B | See *T-WC-WI58197* |
| Total Alkalinity | 2320B<br>310.1 | See *T-WC-WI58197* |
| Temperature of pH | 170.1<br>SM2550B | See *T-WC-WI58199* |
| pH | SM4500_H+<br>9040C<br>9040B | See *T-WC-WI58199* |
| Ammonia-Nitrogen | SM4500NH3_D<br>350.3 | SM 4500-NH3D-2011<br>SM 4500-NH3 D-1997<br>EPA 350.3 |
| Ammonia-Nitrogen Distilled | SM4500NH3_D<br>350.3 | SM 4500-NH3 D-2011<br>SM 4500-NH3 D-1997<br>EPA 350.3 |
| Phenolphthalein Alkalinity | 2320B<br>310.1 | See *T-WC-WI58197* |
| **Preparation /Calculations** | | **Method** |
| Free Carbon Dioxide | SM4500_CO2_D | SM 4500-CO2 D-2011 |
| Hydroxide Alkalinity | 2320B | See *T-WC-WI58197* |
| Fluoride distillation | 4500_F_B<br>340.2_Dist | See *T-WC-WI10425* |

| | | |
|---|---|---|
| Unionized Ammonia | SM8010F_NH4 | See *T-WC-WI58201* |
| Ammonia Distillation | SM4500NH3_B | SM 4500-NH3 B-2011<br>EPA 350.3 |
| Total Acidity | SM2310B_Prep | SM 2310 B-2011<br>SM 2310 B-1997<br>EPA 305.1 |

## Basic Principles
Samples are analyzed using the ManTech Multi-Parameter System, which has been designed to test for specific analytes. The system is able to be configured in different ways to optimize sample volumes required, and analysis times. The ManTech system is able to analyze for one parameter or multi-parameters at the same time.

## Reference Modifications
The following analyses have reference modifications:

1. Method 2340C - Total Hardness:

   a. The procedures listed in SM 2340C and Method 130.2 are modified by using potassium cyanide (KCN) as the inhibitor instead of sodium cyanide (NaCN).

   b. SM2340C and EPA 130.2 state to dilute 25 mL of sample to 50 mL with reagent water prior to titration. This procedure uses 50 mL sample.

2. Method SM4500NH#_D, 350.3 – Ammonia-Nitrogen and Distilled Ammonia-Nitrogen
Instead of using NaOH in order to pH adjust the samples during the ammonia analysis, this procedure uses alkaline reagent. Alkaline reagent is a purchased reagent containing NaOH that is currently recommended by the manufacturer of the ammonia electrode.

## Interferences
Sample matrix is likely to be the largest cause of interference for each analysis.

Samples containing oily layers, soaps, suspended solids, or precipitates may impede the electrode response. The electrode must be cleaned according to the manufacturer's instructions.

Total Hardness – excessive amounts of heavy metals can interfere, causing a faded or indistinct endpoint by the stoichiometric consumption of EDTA. If this interference is not resolved after multiple dilutions on the ManTech automated procedure, then the sample must be analyzed using the manual procedure. See SM 2340C for more discussion on interferences and how to treat them.

Ammonia Nitrogen – volatile amines are a positive interference. Mercury and Silver also interfere with this procedure. Electrode responds slowly at levels <1 mg NH3-N/L; use longer electrode immersion times.

See individual analytical SOPs for interferences.

## Safety Precautions and Waste Handling
All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

## Personnel Training and Qualifications
All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is

maintained in the analyst's training records.

Initially, each technician performing these techniques must work with an experienced technician for a period of time until they can independently perform the procedure. Proficiency is measured through an Initial Demonstration of Capability (IDOC).

The IDOC consists of four aliquots spiked at 1-4X the RL that are carried through all steps of the procedure. The criteria include the calculation of mean accuracy of 50 - 150% and standard deviation of less than 20%.

The DOC consists of four laboratory control spikes (or alternatively, one blind sample for the DOC) that are carried through all steps of the procedure and meet the LCS acceptance criteria and standard deviation of less than 20%.

## Sample Collection, Preservation, and Handling

Samples for Total Acidity, and Acidity to pH 3.7 and pH 8.3 are to be collected with minimum aeration and analyzed within 14 days of collection.

Samples for Ammonia must be collected in a glass container, preserved with concentrated sulfuric acid to a pH < 2. Analyze within 28 days of collection.

Samples for Total Hardness must be collected in a glass or plastic container, preserved with nitric acid to a pH < 2. Analyze within 6 months of collection.

All samples must be stored at 0° to 6°C, not frozen. Prior to analysis, samples must be brought to room temperature.

See individual analytical SOPs for sampling and preservation requirements.

## Apparatus and Equipment

1. ManTech Multi-Parameter System instrument:

   The instrument is equipped and programmed to analyze for pH, temperature of pH, alkalinity, acidity, conductivity, fluoride, ammonia and total hardness.

   Each test can be performed individually or in tandem with others. The analyst will determine the combination of analyses for each run.

   a. pH Electrode

   b. Fluoride ion selective electrode

   c. Interface

   d. Burivar I/2 (25 mL burette)

   e. TitraRinse pump

   f. TitraRinse slow speed reagent addition pump

   g. Reversible Peri-Max pump

   h. ManTech photometric detector with a 620nm filter

   i. Conductivity/TDS Meter, Model 4510

   j Ammonia electrode

   k. Autosampler - MEGA, 197 sample locations

2. Ammonia Distillation LIMS ID SM4500NH3_B

a. Kjeldahl distillation rack

b. Refrigerated recirculator (Coolflow) with a recirculating pressure set at 20 psi and the temperature adjustment set at 10°C, or equivalent.

c. Glass distillation apparatus with connector and 800 mL Kjeldahl flask

d. pH indicator strips, purchased

e. Porous boiling chips, purchased

f. 500 mL class A graduate

g. 400 mL (approx.) distillation collection cups

h. 800 mL (approx.) sample collection cups

i. Kjeldahl flasks

j. 5 mL class A pipette

3. Total Acidity Preparation LIMS ID SM2310B_Prep

a. pH meter with pH electrode and automated temperature compensator (ATC) probe that reads to 0.05 pH units

b. Magnetic stir bar and stir plate

c. Hot plate

d. 150-mL glass beakers and plastic cups

## Reagents and Standards

Alternative weights and volumes are acceptable as long as final concentrations remain the same.

A. Reagents and Standards needed for ManTech Analyses

1. Standardized Sulfuric acid, 0.02 N

a. Dilute 0.6 mL of concentrated sulfuric acid to 1000 mL with reagent water.

b. Store at room temperature in glass or plastic container and re-evaluate yearly.

c. Standardize according to *T-WC-WI10362*.

d. Re-standardize titrant before use if more than 30 days have passed since the last standardization date.

2. Sodium hydroxide, 10 N - Purchased; see container for shelf life information. Or prepare:

a. Dissolve 400 ± 0.5 g NaOH pellets in 1000 mL volumetric flask containing approximately 800 mL reagent water. Solution becomes very warm.

b. Cool to room temperature and dilute to 1000 mL with reagent water.

c. Store at room temperature in plastic or glass container and re-evaluate yearly.

3. Sodium hydroxide, 1.0 N

a. In a 1-L glass volumetric flask containing approximately 500 mL reagent water, dissolve 40.00 ± 0.05 g NaOH.

b. Cool and dilute to volume.

c. Store at room temperature in plastic or glass container and re-evaluate yearly.

4. Standardized Sodium Hydroxide, 0.02 N

a. In a 1-L glass volumetric flask, add approximately 500 mL reagent water.

b. Add 20 mL of 1 N NaOH to the flask and dilute to volume with reagent water.

c. Store at room temperature in glass or plastic container and re-evaluate yearly.

d. Standardize using instructions as per *T-WC-WI11585*.

e. Re-standardize titrant before use if more than 30 days have passed since the last standardization date.

5. Total alkalinity standard (9400 mg/L as $CaCO_3$)

a. Dry sodium carbonate ($Na_2CO_3$) for at least 4 hours at approximately 250°C.

b. Desiccate approximately 2 hours.

c. Dissolve 9.954g ± 0.002g $Na_2CO_3$ in reagent water and dilute to 1000 mL in a volumetric flask.

d. Solution expires 3 months from the date of preparation.

e. Store in a glass container at 0º to 6ºC, not frozen.

f. Dilute for other concentrations.

6. TISAB III, purchased. See container for storage conditions.

7. Ammonia nitrogen standard (100 m/L $NH_3$-N)

a. Dry ammonium chloride (NH4Cl) at 103°C to 105°C for approximately 2 hours.

b. Desiccate approximately 1 hour.

c. Dissolve 0.3819 ± 0.0002 g $NH_4Cl$ in approximately 800 mL reagent water.

d. Once dissolved, preserve the solution with concentrated sulfuric acid to a pH < 2. Dilute to 1000 mL in a volumetric flask.

e. Stable for 6 months.

f. Store at 0º - 6º C, not frozen in a glass or plastic container.

g. Dilute as needed for other concentrations.

**NOTE**: The Ammonia nitrogen standard used to prepare the calibration curve must be prepared using a **different source** of NH4Cl.

8. Ammonia electrode storage solution- purchased. See container for shelf life information.

9. Standard EDTA titrant (0.02N) - Purchased; see container for shelf life information.

10. pH 10 hardness buffer solution – purchased; see container for shelf life information. Or prepare:

a. Dissolve 16.9 g ammonia chloride ($NH_4Cl$) in 143 mL of concentrated ammonium hydroxide ($NH_4OH$).

b. Separately, dissolve 1.179 ± 0.0005 g of disodium EDTA and 0.78 ± 0.005 g of ($MgSO_4 \cdot 7$ H2O) in 50 mL of reagent water (this solution becomes turbid).

c. Combine the above two solutions and dilute to 250 mL with reagent water in a volumetric flask.

d. Solution is stable 30 days.

e. Store at room temperature in plastic container.

11. Calmagite indicator solution (0.1 % w/v) – Purchased; Store at room temperature. See manufacturer's label for expiration date.

12. Calcium reference standard (1000 mg/L Ca = 2497 mg/L $CaCO_3$) – Purchased; store at room temperature. See manufacturer's label for expiration date.

13. 1000 mg/L $CaCO_3$ intermediate calcium standard

a. Pipette 20.0 mL of purchased reference standard into 50 mL volumetric flask and dilute to volume with reagent water.

b. Stable for 6 months.

c. Store at room temperature in glass or plastic container.

14. 15% w/v Sodium Acetate Solution – Add 85 mL of reagent water to a 150 mL beaker. Dissolve 15.0 g ± 0.01 g of sodium acetate anhydrous into the reagent water. Prepare fresh before use.

15. Total acidity standard (5000 mg/L as $CaCO_3$)

a. In a 1-L glass volumetric flask containing approximately 500 mL of reagent water; add 20.4000 ± 0.0005 g potassium hydrogen phthalate, dried at 120 degrees C for 2 hours. Cool in desiccator for approximately 1 hour.

b. Allow to dissolve and dilute solution to volume.

c. Store at 0°to 6°C, not frozen, in a glass container.

d. Solution expires 6 months from the date of preparation.

16. Hydrogen peroxide ($H_2O_2$, 30% solution) – purchased. Store at room temperature. See label for expiration date.

17. pH 8.00 buffer Solution; purchased. Store at room temperature. See container for shelf life information.

B. **Reagents needed for LIMS ID SM4500NH3_B – Ammonia distillation:**

1. Borate buffer solution – Dissolve 19.0 ± 0.1 g sodium borate, 10-hydrate ($Na_2B_4O_7 \cdot 10\ H_2O$) in approximately 1000 mL of reagent water. Add 176 mL of 0.1N NaOH to the solution and dilute to 2000 mL with reagent water in a volumetric flask. Store at room temperature in a glass container. Solution stable for 6 months.

2. 0.1N $H_2SO_4$ – Dilute 3.0 mL of concentrated sulfuric acid to 1000 mL with reagent water in a volumetric flask. Store at room temperature in a glass or plastic container and re-evaluate yearly.

3. 4% $H_2SO_4$ Solution – Dilute 380 mL of 0.1N $H_2SO_4$ to 1000 mL with reagent water in a volumetric flask. Store at room temperature in a plastic container and re-evaluate yearly.

4. Antifoam B; purchased. Store at room temperature. See manufacturer's label for expiration date.

5. Sodium hydroxide, 5N – Dissolve 200 ± 0.5 g sodium hydroxide (NaOH) pellets in approximately 800 mL of reagent water. Solution becomes very warm. Cool to room temperature and dilute to 1000 mL with reagent water in a volumetric flask. Store at room temperature in plastic container and re-evaluate yearly. (This is used to pH adjust samples.)

6. Sodium hydroxide, 0.1N – Dilute 40 mL of 5N NaOH solution to 2000 mL with reagent water in a volumetric flask. Store at room temperature in a plastic container and re-evaluate yearly. (This is used in

borate buffer solution.)

7. Dilute Hydrochloric (HCl) acid – Add 50 mL of concentrated HCl to approximately 3.5 liters of reagent water. Slowly invert. Store at room temperature in a plastic container. (This is used to rinse tubing prior to steam cleaning the distillation apparatus.)

8. Ammonia-nitrogen standard, 500 mg/L $NH_3$-N – In a 1 L volumetric flask containing approximately 500 mL reagent water, dissolve 1.9095 ± .0002 g $NH_4Cl$ (which has been dried at 105° ± 2°C for at least 2 hours). Dilute to 1 L using reagent water. Preserve the solution with concentrated sulfuric acid to a pH <2. Store the standard at 0º to 6ºC, not frozen in a glass or plastic container. Standard expires 6 months from the date of preparation.

**C. Standards Preparation Needed for Linearity Check for LIMS ID 2510B, 120.1 and 9050A**

1. 0.1 M KCl (12,900 µhoms/cm) [Solution I]

   a. In a 1 L glass volumetric flask, dissolve 7.4555 ± .0001 g predried KCl (2 hours at 105° ± 2°C) in approximately 500 mL reagent water.

   b. Dilute to volume with reagent water.

   c. Solution expires 3 months from the date of preparation.

   d. Store at room temperature in a glass or plastic

2. 0.01 M KCL (1413 µhoms/cm) [Solution II

   a. In a 1-L volumetric flask, dissolve 0.7456 ± 0.0001 g predried KCl (2 hours at 105° ± 2°C) in approximately 500 mL reagent water.

   b. Dilute to volume with reagent water.

   c. Solution expires 3 months from the date of preparation.

   c. Store at room temperature in a glass or plastic container.

2. Prepare the following 8 standards in 100-mL volumetric flasks using Solutions I or II as indicated in the table below. Bring to volume with reagent water. Prepare fresh before use.

| Solution to use | Standard | mL of Solution | umhos/cm |
|---|---|---|---|
| Solution II | 0.0001 M | 1 | 14.94 |
| Solution II | 0.0005 M | 5 | 73.9 |
| Solution II | 0.001 M | 10 | 147 |
| Solution II | 0.005 M | 50 | 717.8 |
| Solution II | 0.01 M | 100 | 1,413 |
| Solution I | 0.02 M | 20 | 2,767 |
| Solution I | 0.05 M | 50 | 6,668 |
| Solution I | 0.1 M | 100 | 12,900 |

## Calibration

Calibration is performed daily. It is only necessary to calibrate for analyses that will be performed on that day.

Balances must be calibrated each day before use.

**NOTE:** For all calibrations, 50 mL of standard is poured into a sample tube. For each analysis, a predetermined and programmed sample volume is used (to be taken from the 50 mL in the sample tube).

**NOTE:** Recalibration is necessary for each analysis if acceptance criteria is not met.

A. LIMS ID SM4500NH3_D, 350.3 Ammonia Calibration

1. Curve: Prepare a calibration curve daily using the concentrations listed below.

The curve must be analyst specific.

| Conc. (mg/L NH3-N) | mL 100 mg/L ® 100 mL |
|---|---|
| 0.1 | 0.1 |
| 0.5 | 0.5 |
| 2.5 | 2.5 |
| 5.0 | 5.0 |
| 10.0 | 10.0 |

a. Ensure electrode is filled to line with appropriate fill solution (NH4Cl).

b. Dilute stock standard to obtain the following concentrations: 0.1, 0.5, 2.5, 5.0, 10.0 mg/L and place calibration standards into the sampler rack in ascending order, and pH 4 buffer into dip rinse (second rinse) position.

c. Sampler moves to flowing rinse station where electrode is rinsed with reagent water.

d. Sampler moves to dip station and electrode remains immersed in pH 4 buffer for 15 seconds.

e. Sampler moves to flowing rinse station where electrode is rinsed again with reagent water.

f. Sampler moves to first calibration standard position and stirrer is turned on.

g. 0.45 mL of ISA (10 N NaOH) is added to sample to adjust pH to 11 or greater, ensuring all NH4 is converted to NH3.

h. Ammonia electrode is allowed to stabilize and reading is recorded.

i. Steps c. - h. are repeated for remaining calibration standards.

j. Acceptance criteria: The slope of the curve must be between -54.0 to -60.0 mV. When linear fits are used, the % error is measured between the calculated and expected amounts to determine the calibration function acceptability. The % error must be ≤50% for the low calibration point and ≤10% for all other points of the calibration curve. This calculation is kept on file with the raw calibration data.

k. Record pH electrode ID, instrument ID, Employee ID, and date on calibration print out. Store in designated calibration folder.

l. Export and attach the curve to the analytical batch in LIMS.

B. Conductivity Meter Linearity Check (for Specific Conductivity analyses 2510B, 120.1, 9050A):

a. Linearity check of the conductivity meter must be performed on the instrument at least once per year using the following concentrations below. Refer to Reagents and Standards section for preparation instructions.

0 .0001M, 0.0005M, 0.001M, 0.005M, 0.01M, 0.02M, 0.05M, 0.1M

b. Fill tubes with standards in accending order by concentration and schedule the Mantech instrument to perform conductivity on all the standards.

c. Print out data from standards and keep in designated calibration folder for Conductivity.

d. Correlation Coefficient must be = 0.995. If this acceptance criteria is not met, the linearity check must be repeated.

## Procedure

### I. Preparation Procedures: Ammonia Distillation

A. LIMS ID SM4500NH3_B - Ammonia Distillation (for use with LIMS ID SM4500NH3_D)

1. Before each distillation, rinse tubes with dilute HCl. Add approximately 500 mL of reagent water to an 800-mL Kjeldahl flask to steam clean the distillation apparatus.

2. Connect Kjeldahl flask to glass adapter and hose. Turn on the Coolflow. Turn on the temperature control and distill until approximately 150 mL of water is collected in the beaker at the bottom of the setup. Remove distillate from delivery tube immediately after turning off heat source to avoid back wash during the cool-down phase.

3. Measure 500 mL of sample (or an aliquot diluted to 500 mL with reagent water) using a Class A graduated cylinder. Pour into a beaker and adjust the pH of the sample to 9.5 with 5N NaOH. Check pH of adjusted sample with purchased pH strips to ensure the pH is 9.5, and then add 25 mL of borate buffer solution.

4. Transfer the solution to an 800-mL Kjeldahl flask. Add a pinch of boiling chips and approximately 5 mL of antifoam B to the solution. Connect flask to glass adapter and hose. Turn on the Coolflow.

5. Measure 50 mL of 4% H2SO4 solution into a 400-mL beaker. Make sure the delivery tube is below the level of the 4% H2SO4 solution (receiving solution).

6. Begin heating. Collect approximately 220 mL of distillate. Distill at a rate of 6 - 10mL/min. Turn off heat and immediately remove the distillate beakers from the delivery tube. Turn off the Coolflow.

7. Pour the distillate into a 500-mL Class A graduated cylinder and dilute to final volume of 500 mL with reagent water. Store distillate at 0°C - 6°C; not frozen, prior to analyzing

8. Analyze distillate for NH3-N according to Method SM4500NH3_D procedure.

B. LIMS ID SM2310B_Prep - Total Acidity Preparation (for use with LIMS ID SM2310B)

1. Calibrate the pH electrode prior to use. Refer to *T-WC-WI11519* for instructions on calibration.
2. Pour 100 mL of the sample into a 150-mL beaker. Read the initial pH of the sample and record the result.

3. If the pH is above 4.0, add standard sulfuric acid in 5 mL increments to lower the pH to 4.0 or less. If the initial pH is less than 4.0, addition of sulfuric acid is not required.

4. Add 5 drops of 30% $H_2O_2$ .

5. Heat the sample to boiling and boil for 3 minutes.

6. Cool the sample to room temperature. Analyze for Total Acidity, LIMS ID SM2310B.

**II. ManTech Procedure:**

NOTE: Before operating the analyst must ensure that all required reagents and reagent water containers needed for each test are in adequate supply and are not expired.

A. To operate the instrument, open the PC-titrate software menu from the computer desktop.

Each day before any analysis is performed; the daily calibration associated with each analysis must be completed and evaluated to ensure that the acceptance criteria are met. (See the calibration section for the required concentrations and acceptance criteria for each calibration). Daily calibration schedules are created and saved. If a specific analysis is not being performed that day, the calibration can be removed from the schedule for that day.

B. Performing daily calibration:

Open the daily start up tab and load the standards according to the schedule for each calibration. Click on the start button and the instrument will proceed with the calibration. Once the calibration is complete the

calibration data is automatically sent to the assign printer and is printed. Ensure the calibration data meets requirements before proceeding. See the calibration section for the required concentrations and acceptance criteria for each calibration. Store calibration sheets in designated ManTech folders.

C. Analyzing samples:

**NOTE**: specific instructions are found in the analytical method SOPs.

To analyze samples, select “Run titration” from the PC-titrate menu. A blank schedule will appear.

1. Click on the add row buttons to add the required number of rows for that run.

2. Double click on the blank space under the schedule header. The menu of analyses will appear. Select the analyses to be performed and click ok.

3. When completing the schedule, each analysis must be bracketed by its own Continuing Calibration Verification standard (CCV) of alternating concentrations and a Continuing Calibration Blank (CCB). The CCV’s and CCB’s ID’s are pre–programmed and are to be scanned in from the charts provided at each instrument. Barcodes are provided for each CCV and CCB. See Table I.

4. The Laboratory Control Standard (LCS) for each analysis is pre-programmed and is to be scanned in from the charts provided at each instrument. See Table I.

5. Scan the sample numbers directly from the label of the container. Sample numbers and QC identifiers can be typed. Use a "^" to designate the dilution factor. 410-12345-A-6^10 indicates a 10 times dilution.

6. Fill the sample tubes with Method Blank, LCS, each CCV, CCB and samples. Ensure the sample tubes are loaded according to the order on the schedule.

7. Click on the auto-generate order number to add the order number to the schedule.

8. Once the schedule is completed, click start and the instrument will proceed with the analysis until the entire schedule of samples is complete.

9. Save the data and send to the PC –Titrate export file before importing to the LIMS system.

10. Create PDFs of all calibrations and raw data associated with the batch. Attach the PDFs to the "Docs" tab in the batch in the LIMS.

D. Routine Maintenance of ManTech multi-parameter system

1. Calibration of Titrasip Pumps: Flow Rate Check:

a. Manual Control of Autosampler

(1) From the PC-Titrate main menu, click on Titrator, then on Manual Control (autosampler tab)

(2) Next, click on Load Tray From Folder button and then double click on Automax 197 Tube Sampler file

(3) Then, under Zone select tubes. Under Tubes select tube position and place a tube in that position on the autosampler tray.

(4) Click on Home Sampler

(5) Click on Go To This Location XYZ button. The autosampler will then move to the tube position.

(6) Click OK button in order to get back to the PC-Titrate main menu

b. Flow Rate Check:

(1) From the PC-Titrate menu select the pump to be calibrated (Click on Pump Cal button) and follow the prompts.

(2) Calibration must be performed monthly and documented in the maintenance logbook.

**NOTE:** When completed, Home sampler (follow instructions under II. ManTech Procedure D1a. steps 1-4)

2. Calibration of Zero and Span for the Hardness detector and monthly buffer volume check for Hardness Detector

**NOTE:** Turn on Hardness Detector in order for the detector to warm up before calibration.

**NOTE:** Ensure reagent water is in titration vessel cup containing the photo cell

a. Accessing Zero and Span Check screen and set-up:

(1) From the PC-Titrate main menu, click on Titrator, then on Manual Control

(2) Click on Analog

(3) Click on Scan Analog, making sure the continuous button is checked

(4) The Hardness Detector is on Monitor Electrode # 4

b. Zero Check/Calibration:

(1) Unscrew the Zero (careful not to look directly into the bright light). The Zero must be as close as possible to 0 mV.

(2) If not, adjust the screw for Zero on the hardness detector until reading is as close as possible to 0 mV.

(3) Check/Calibration must be performed monthly and documented in the maintenance logbook.

c. Span Check/Calibration:

(1) The Span reading must be -400 mV ± 25 mV.

(2) If not, adjust the screw for Span on the hardness detector until reading is within range.

(3) Check/Calibration must be performed monthly and documented in the maintenance logbook.

d. Monthly buffer volume check on Hardness Detector:

**Perform two trials:

(1) Place buffer dispenser titrant line into a 10 mL graduated cylinder.

(2) From the PC-titrate main menu, click on run titration.

(3) Following steps outlined in procedure section C above, schedule a vial of reagent water to be analyzed for Hardness and click on START.

(4) Once the buffer has been dispensed into the graduated cylinder, click on STOP on the computer screen.

(5) Record the amount of buffer solution collected in the graduated cylinder in the maintenance logbook for the instrument. Repeat steps 1-5 once more.

(6) Average two trials and record average result in maintenance logbook

(7) Acceptance criteria is 2.0 mL +/- 0.1 mL.

(8) If averaged amount falls outside the acceptance range, then repeat the buffer volume check. If the check fails again then seek guidance from supervisor.

3. Changing and Entering Acid Normalities on ManTech:

a. Changing Titrant –Purging titrant: Titrant must be changed each time a new stock of titrant is prepared.

**NOTE:** Disconnect acid titrant bottle from dispenser line

(1) Click on PC-Titrate, Titrator, Manual Control, Serial Devices

(2) Click on Burivar II TIS1 tab; Titrasip pump#1/Burette #1

(3) Purge Buret one time (empty cup-use manual button on side of pump #1 at the top of cup)

(4) Fill titrant bottle with new standardized 0.02N H2SO4 titrant and connect dispenser line to bottle

(5) Purge system two more times

(6) Click OK

b. Entering Acid Normalities: Acid Normalities must be updated in ManTech software each time the acid is standardized and the standardization yields a new normality.

(1) Click on PC-Titrate, Set-up, Titration Method, Load

(2) Click Alkalinity

(3) Under Titrant Information-Concentration, change Normality to current value.

(4) Click Save

(5) Click Alkalinity-Low and follow steps (3) and (4) above

E. Maintenance of all other systems:

1. Maintenance of the Ammonia Ion-Selective Electrode – See manufactures instruction manual for maintenance and operation of electrode

2. Maintenance of pH electrodes- refer to *T-WC-WI11519* for maintenance of pH electrodes

3. Perform Maintenance on all other systems as needed.

F. Retrieving Historical Raw Data on ManTech:

1. Find run number of sample in question.

2. Open PC-titrate software menu from computer desktop

3. Click on Titrator, Replay Titration, Load, Sort by order and sample name

4. Click on sample (go by time), Select, Print, Equation Result Report (rplyeqn.srw), Print.

## Calculations

A. Free Carbon Dioxide Calculation (LIMS ID SM4500_CO2_D)

The calculation assumes that the total alkalinity of the sample is due almost entirely to hydroxides, carbonates or bicarbonates.

The total dissolved solids of the sample may not be greater than 500 mg/L for this calculation.

mg/L CO2 = 2.0 x B x 10^(6-pH)

**Where:**
B = bicarbonate alkalinity (from LIMS ID 2320B)

**NOTE**: Total carbon dioxide can be calculated, if requested, according to the calculations found in SM 4500 CO2 D-2011

B. Total Hardness (LIMS ID 2340C, 130.2):

Hardness (EDTA) as mg $CaCO_{3/L}$ =

A x B x 1000 / mL of sample

where:
A = mL titration for sample
B = mg CaCO3 equivalent to 1.00 ml of 0.01 M EDTA titrant (B = 1.00088)

B is calculated as follows:

$$B = \left(\frac{0.01\ \text{mol}}{\text{L}}\right) \times \left(\frac{0.001\ \text{L}}{1}\right) \times \left(\frac{100.088\ \text{g}}{\text{mol}}\right)\left(\frac{1000\ \text{mg}}{\text{g}}\right)$$

B = (Molarity of titrant) x (1 mL of titrant) x (molecular weight of CaCO3)

C. Total Acidity (LIMS ID SM2310B, 305.1)

$$\text{Acidity as mg / mL } CaCO_3 \quad \frac{[(A \times B) - (C \times D)] \times 50{,}000}{\text{mL of sample}}$$

**Where:**
A = Vol. of std. NaOH used in titration
B = Normality of std. NaOH
C = Vol. of std. H2SO4 used to reduce pH to less than 4
D = Normality of std. H2SO4

I. Acidity to pH 3.7 and pH 8.3 (LIMS ID 305.2)

mg/L as CaCO3 = (Normality)(50,000)(mL of titrant) / ( mL of sample volume)

## Statistical Information/Method Performance

The method detection limit (MDL) is determined annually by following the procedure outlined in *QA-SOP11892*.

The quality control acceptance windows are generated annually by following the procedure outlined in *QA-SOP11896*.

## Quality Assurance/Quality Control

Before independent analysis is allowed, an Initial Demonstration of Capability (IDOC) consisting of a Method Blank (MB) and 4 Laboratory Control Standards (LCS) with acceptable results must be analyzed. This must be followed up with an Ongoing DOC containing 4 LCS samples annually.

The batch size is limited to 20 samples or less. For analyses with more than 10 samples on a batch, two duplicates are needed (excluding ammonia and fluoride – only one duplicate is needed per batch 20 samples – unless a batch contains an NPDES sample(s) from South Carolina and the batch contains more than 10 samples, then two duplicates are needed).

A Laboratory Control Standard (LCS) must be analyzed for each analysis per batch. See Table I for each analysis LCS concentration.

A Method Blank (MB) must be analyzed for each analysis per batch. MB > MDL are qualified. If the MB is > RL, non-detected samples may be reported with qualification. Any samples in the batch with detections > MDL must be re-analyzed.

For alkalinity, Total Acidity and total hardness one matrix spike (MS) must be analyzed per batch of 20 samples or less.

For ammonia, fluoride and Acidity to pH 3.7 and 8.3 (total acidity spikes only), a matrix spike (MS) and a matrix spike duplicate (MSD) must be analyzed per batch of 20 samples or less.

When sample volume does not permit the analysis of either a sample matrix duplicate or an MS and MSD, then a LCSD must be analyzed to demonstrate method precision.

For Ammonia by ISE a Certified Reference Material (CRM) must be analyzed annually. The acceptance range for the CRM is 90% to 110% of the true value.

Total Acidity samples with results > 600 mg/L as CaCO3 must be diluted and reanalyzed.

For Total Hardness, samples that are designated NPDES require digestion. Confirm whether this analysis is appropriate for samples designated NPDES.

Every Total Hardness batch containing drinking water samples must analyze a 10mg/L MRL sample.

For each analysis, a continuing calibration verification (CCV) standard must be analyzed at the beginning of each batch, after every 10 samples and at the end of each batch. The concentration of the CCV must at or below the mid-point of the calibration. All CCVs must have an acceptance criteria of 90% to 110%. If any CCV's are outside this range, then the samples bracketed by the out of specification CCV must be repeated. Refer to Table I for CCV concentrations for each analysis.

A continuing calibration verification blank (CCB – a reagent water blank) must be analyzed after each CCV standard on the batch. The CCB must be less than the MDL for the analysis. If the CCB is above the MDL, then the samples bracketed by the out of specification CCB must be repeated.

See LIMS for current quality control (QC) acceptance windows.

**Table I**

| Analysis Name and Number | CCV Barcodes/Concentrations | Frequency | Acceptance Criteria |
|---|---|---|---|
| (2320B, 310.1)<br><br>Total Alkalinity<br>Carbonate<br>Bicarbonate | CCVPH2 = 7.00 pH buffer (ISO 17025 approved)<br>LCSAK = 188 mg/L<br>LCSPH = 7.00 pH buffer (ISO 17025 approved)<br>MB = Method Blank<br>CCB = reagent water blank | CCV/CCB - beginning/end of batch, after every 10 samples | CCVs ±10% of true value<br>CCBs <MDL<br>MB < RL<br>LCS - see LIMS for current QC acceptance windows |
| SM2310B, 305.1<br><br>Total Acidity | CCVPH8 = 8.00 pH buffer<br>LCSHACD = 250 mg/L<br>MB = Method Blank<br>CCB = reagent water blank | CCV/CCB - beginning/end of batch, after every 10 samples | CCVs ±10% of true value<br>CCBs <MDL<br>MB < RL<br>LCS - see LIMS for current QC acceptance windows |
| 305.2<br><br>Acidity to pH 3.7 and pH 8.3 | CCVPH8 = 8.00 pH buffer<br>LCSACD = 250 mg/L<br>MB = Method Blank<br>CCB = reagent water blank | CCV/CCB - beginning/end of batch, after every 10 samples | CCVs ±10% of true value<br>CCBs <MDL<br>MB < RL<br>LCS - see LIMS for current QC acceptance windows |

| | | | |
|---|---|---|---|
| SM4500NH3_D<br>350.3<br><br>Ammonia<br><br>Distilled Ammonia | CCVNH2 = 2.5 mg/L<br>LCSNH = 5 mg/L<br>PBWNH = Method Blank (12679-distilled)<br>MB = Method Blank (12677)<br>CCB = reagent water blank | CCV/CCB - beginning/end of batch, after every 10 samples | CCVs ±10% of true value<br>CCBs <MDL<br>MB < RL<br>LCS - see LIMS for current QC acceptance windows |
| 2340C, 130.2<br><br>Total Hardness | CCVTH2 = 40 mg/L<br>LCSTH = 40 mg/L<br>MB = Method Blank<br>CCB = reagent water blank<br>MRL = 10mg/L | CCV/CCB - beginning/end of batch, after every 10 samples<br>MRL = Every batch containing Drinking Water samples | CCVs ±10% of true value<br>CCBs <MDL<br>MB < RL<br>LCS/MRL - 85-115% |

For Fluoride, Specific Conductance, Alkalinity, and pH see the individual analytical SOPs.

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G-EXT-EX23905 EPA Drinking Water Manual
QA-SOP11188 Reagents and Standards
QA-SOP11880 Laboratory Support Equipment - Calibrations, Verifications, and Maintenance
QA-SOP11892 Determining Method Detection Limits and Limits of Quantitation
QA-SOP11896 Establishing Control Limits
QA-SOP11913 Laboratory Notebooks, Logbooks, and Documentation
T-WC-WI10348 Fixed Volume Hand-Held Pipettes
T-WC-WI10360 Quality Control Data for Wet Chemistry
T-WC-WI10362 Standardization of 0.02 and 0.1 Normal Sulfuric Acid
T-WC-WI10425 Distillation of Fluoride in Waters by SM 4500 F B, EPA 340.1 Procedure 6.1
T-WC-WI11519 pH Probes and Meters
T-WC-WI11584 Specific Conductance in Solids by SM 2510B, SW-846 9050A, SW-846 9050, or EPA 120.1
T-WC-WI11585 Standardization of 0.02 Normal Sodium Hydroxide
T-WC-WI53655 Fluoride in Waters by Man-Tech ISE by 4500-F C
T-WC-WI58195 Specific Conductance in Waters by Man-Tech ISE by SM 2510B, SW-846 9050A, or EPA 120.1
T-WC-WI58197 Alkalinity in Solids and Waters by Man-Tech ISE by SM 2320B-2011, SM 2320B-1997, or EPA 310.1
T-WC-WI58199 pH in Waters by Man-Tech ISE by SM 4500-H+ B, SW-846 9040B, or SW-846 9040C
T-WC-WI58201 Unionized Ammonia in Waters by Calculation by SM 8010F-2011 (Table 8010:VI)
T-WC-WI9862 Accumet Model AB30 pH/Ion/Conductivity Meter
T-WC-WI9897 Adjustable Volume Handheld Pipettes
T-WC-WI9898 Calibration of Hach 2100AN and Hach TU5200 Turbidimeters

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End of document

**Version history**

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|---|---|---|---|
| 19 | 16.MAY.2024 | | |
| 20 | 31.JUL.2024 | | |
| 21 | 30.JAN.2025 | | |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Total Suspended Solids (TSS)-Gravimetric by SM 2540 D and Total Filtered: Total Volume Test by NJDEP in Waters** | Level:<br>**Work Instruction** |
| Document number:<br>**T-WC-WI11604** | | |
| Old Reference:<br>**1-P-QM-WI-9012778** | | |
| Version:<br>**15** | | Organisation level:<br>**5-Sub-BU** |
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## Revision Log

| **Revision:** | 15 | **Effective Date:** | This version |
|---|---|---|---|
| **Section** | **Justification** | **Changes** | |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version | |
| Procedure 8 d | Update | Updated the "start time" to the time of filtration | |

| **Revision:** | 14 | **Effective Date:** | May 16, 2024 |
|---|---|---|---|
| **Section** | **Justification** | **Changes** | |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version | |
| Header | Removal | Removed year references | |
| Reference | Update | Update Methods per MUR | |

## Reference

1. Standard Methods for the Examination of Water and Wastewater, Method 2540 D-2020.

2. Standard Methods for the Examination of Water and Wastewater, Method 2540 D-2015.
3. Standard Methods for the Examination of Water and Wastewater, Method 2540 D-2011.
4. Standard Methods for the Examination of Water and Wastewater, Method 2540 D-1997.
5. Standard Methods for the Examination of Water and Wastewater, Method 2020 B-2021.
6. Chemical Hygiene Plan, current version.

**Cross Reference**

| Document | Document Title |
|---|---|
| *T-WC-WI10610* | Fixed Suspended Solids (Gravimetric) Volatile Suspended Solids (Gravimetric) by SM 2540 E - 2011 or EPA 160.4 in Water |
| *QA-SOP11892* | Determining Method Detection Limits and Limits of Quantitation |
| *QA-SOP11896* | Establishing Control Limits |

**Scope**
Methods 2540D and 2540D_SingleDry are used for the determination of total suspended solids (TSS) in potable, surface and saline water, domestic and industrial wastewater in a range up to 20,000 mg/L. The reporting limit for this analysis varies with the sample volume. LIMS may round the reporting limit during the calculation routine.

**Basic Principles**
For Methods 2540D and 2540D_SingleDry, a well-mixed sample is filtered through a glass fiber filter and the residue on the filter is dried in an oven at 103° to 105°C. The increase in weight of the filter represents the TSS.

The start time for the analysis is the time the samples are initially placed in the oven to dry.

Method 2540D requires repeat drying, cooling, desiccating and weighing cycles until the weight change is less than 4% of the previous weight or ≤ 0.0005g, whichever is less.

Method 2540D_SingleDry records only one weight after a 16 hour drying cycle.

The appropriate analysis scan is typically determined by the sample state of origin.

**Interferences**
Samples high in dissolved solids may yield positive interferences. If the sample is over the residue limit of 0.2 g, the sample is reanalyzed at a reduced volume.

**Safety Precautions and Waste Handling**
All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

**Personnel Training and Qualifications**
All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the analyst's training records.

Initially, each technician performing these techniques must work with an experienced technician for a period of time until they can independently perform the procedure. Proficiency is measured through an Initial Demonstration of Capability (IDOC).

The IDOC and the DOC consists of four laboratory control spikes (or alternatively, one blind sample for the DOC) that are carried through all steps of the procedure and meet the defined acceptance criteria. The criteria include the calculation of mean accuracy and standard deviation.

**Sample Collection, Preservation, and Handling**
Samples must be unpreserved, collected in glass or plastic containers and refrigerated at 0° to 6°C, not frozen.

Analyze samples within 7 days of collection to minimize microbiological decomposition of the solids.

Exclude non-representative, nonhomogeneous materials, such as leaves and sticks, from the analysis if their inclusion is not desired in the final result.

## Apparatus and Equipment

1. ProWeigh Filters from Environmental Express – pre-weighed 47 mm glass fiber filters or equivalent
2. ProWeigh Filters from Environmental Express – pre-weighed **volatile** 47 mm glass fiber filters or equivalent
3. Filtration apparatus
4. Desiccators.
5. Oven maintained at 104° ± 1°C. Adjust as needed to stay in this range.
6. Analytical balance.

## Reagents and Standards

Alternate weights and volumes are acceptable as long as final concentrations remain the same.

A. 1,8 Naphthalimide, 98%, Thermo Fisher Scientific, Cas#A18856.18 or equivalent .See COA for storage conditions and expiration.

B. TSS Working Standard (150 mg/L)

1. Dry 1,8 Naphthalimide, 98%, for approximately 1 hour at 104° ± 1°C.
2. Desiccate approximately 1 hour.
3. Dissolve 0.1500 ± 0.005 g Naphthalimide in approximately 700-mL of reagent water in a 1000-mL volumetric flask.
4. Mix very well.
5. Dilute to 1000 mL with reagent water.
6. Store at room temperature.
7. Stable 30 days.
8. Prior to use, Naphthalimide can be weighed out and stored in small glass vials at room temperature.

## Calibration

A balance calibration check and leveling check must be performed each day before use.

## Procedure

1. Batch samples for analysis in the LIMS.
2. Assemble filtration apparatus.
3. Assign a pre-washed, pre-weighed filter to each client sample and each QC sample on the batch. If fixed or volatile suspended solids are to be performed use a pre-weighed **volatile** filter and follow instructions in *T-WC-WI10610*.
4. Remove the assigned filter from its aluminum carrying dish and place on the filtration unit.
5. Apply vacuum to the filtration apparatus.
6. Wet filter with small amount of reagent water to seat it.
7. Quality Control samples preparation
    a. Analyze the method blank by using 1000 mL of reagent water.

b. Analyze the LCS/LCSD using 1000 mL of the 150 mg/L TSS working standard for each QC standard.

c. Prepare duplicates by analyzing equal portions of sample.

8. Sample filtration

a. Shake sample vigorously.

**NOTE:** If the sample does not maintain a homogeneous state until the aliquot is taken, then magnetically stir the sample while pipetting the appropriate aliquot onto the filter.

b. Using a graduated cylinder or wide mouth pipette, measure 1000 mL of sample or a smaller portion if the sample matrix dictates.

**Note:** 1000ml of sample should be used whenever possible.

c. Rapidly transfer an aliquot of the sample to the filtration unit.

d. Still under vacuum, filter the sample and record the time. Filtration time is the "Start Time" in the TALS Lims program.

e. Repeat steps 8b-d until the appropriate total volume for the sample matrix has been filtered.
Record each volume filtered in the 'Notes' column.

f. After all of the sample's volumes have been filtered, rinse the graduated cylinder. Rinse sufficiently to ensure all of the solids inside the graduated cylinder are transferred to the filtration apparatus.

(1) If the entire volume was used for the analysis, then rinse the inside of the sample container with at least three 10-mL portions of reagent water and transfer the rinses to the filtration apparatus. Rinse sufficiently to ensure all of the solids inside the bottle are transferred to the filtration apparatus.

g. Wash the filter with at least three 10 mL portions of reagent water. Allow complete drainage between washings. If complete filtration takes more than 10 minutes, reanalyze the sample decreasing the sample volume.

h. If necessary, perform a final rinse to remove any residue from the sides of the filtration unit.

i. Continue suction at least 3 minutes after filtration is complete.

**NOTE:** This step is important to ensure that dissolved solids are rinsed through, and not dried in the filter.

9. The total sample volume filtered ('initial Amount' column on the raw data worksheet) is calculated by adding all the volumes from the 'Notes' column. Record the total sample volume used in the 'Initial Amount' column on the worksheet.

10. Transfer the filter back into its aluminum carrying dish and place in an oven maintained at 104° ± 1°C.

11. Record the oven temperature and the time the samples were placed in the oven in the batch information window.

12. Dry the filter for the appropriate amount of time according to the analysis selected.

a. Method 2540D - dry the filter for at least one hour.

b. Method 2540D_SingleDry - dry the filter for at least 16 hours.

13. After the drying time, transfer the aluminum dish into a desiccator and cool to balance temperature. Record the time and the temperature.

14. After cooling, weigh the filter and record the oven dried weight of the filter.

a. Method 2540D - repeat this drying desiccating and weighing cycle until weight change is less than 4% of the previous weight or ≤ 0.0005g, whichever is less.

b. Method 2540D_SingleDry - require only one weight after a 16-hour drying cycle.

**Calculations**

$$mg\ Total\ Suspended\ Solids\ /\ L = \frac{(A - B) \times 1000 \times 1000}{Sample\ Volume\ (mL)}$$

**Where:**

A = Weight of filter, (in grams) after drying

B = Tare weight of filter (in grams)

## Statistical Information/Method Performance

Generate the method detection limit (MDL) and limit of quantitation (LOQ) annually by following the procedure in *QA-SOP11892* . The department maintains annual study data and updates to LIMS are made as needed by the QA department.

Generate the quality control acceptance windows by following the procedure outlined in *QA-SOP11896*. The limits are evaluated annually and updated as needed. These limits are maintained in LIMS for the relevant analysis number(s).

## Quality Assurance/Quality Control

1. Batch size - a batch contains up to 20 samples, analyzed within a 24 hour period.

2. See Table I for QC acceptance criteria. If acceptable results cannot be obtained and the client requests that the data be reported, the data must be qualified to note that the method criteria were not met.

3. For every batch, a MB LCS, and a DU must be analyzed. A DU must be analyzed with each group of up to 10 samples. When there is not enough sample to perform a DU, a LCSD must be performed.

4. The maximum residue limit for samples is 0.2 g. If sample results are > 200 mg/L re-analyze using a smaller initial volume.

5. Follow Project Notes in the LIMS for any additional unique client requirements.

6. See LIMS for current quality control acceptance windows.

*Table I - QC Frequency and Acceptance Criteria*

| QC Check | Minimum Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|---|
| Method Blank (MB) | 1 per batch | <RL | B qualifier if MDL<MB<RL. Re-analyze samples if MB>RL. |
| Laboratory Control Sample (LCS) 150mg/L | 1 per batch | See LIMS for current QC acceptance windows | If reanalysis cannot be performed, data must have an NCM explaining the LCS qualification. |
| LCSD 150mg/L | Per Client or regulatory requirement, OR insufficent sample for DU | RPD <20% | If reanalysis cannot be performed, data must have an NCM explaining the LCS qualification. |
| Sample Duplicate (DU) | 1 per batch | RPD <5% | Data are qualified |

QA-SOP11892 Determining Method Detection Limits and Limits of Quantitation
QA-SOP11896 Establishing Control Limits
T-WC-WI10610 Fixed Suspended Solids (Gravimetric) Volatile Suspended Solids (Gravimetric)by SM 2540 E or EPA 160.4 in Water

End of document

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Electronic Copy Only

# Nitroaromatic and Nitroamine Explosive Compounds by High Performance Liquid Chromatography (HPLC) [SW-846 8330A & 8330B]

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## 1.0 Scope and Application

**1.1** This standard operating procedure (SOP) describes the determination of nitroaromatic and nitroamine explosive residues by high performance liquid chromatography (HPLC) using dual columns and dual UV wavelengths. This includes analysis in water, soil, and sediment matrices. The instrumental analysis is based on EPA Methods 8330A and 8330B.

**1.2** This SOP does not include the extraction procedures. For those details, please refer to DV-OP-0017 *Solid Phase Extraction of Nitroaromatic and Nitroamine Explosive Compounds and Picric Acid from Water Samples by SW-846 3535A* and DV-OP-0018 *Extraction of Nitroaromatic and Nitroamine Explosive Compounds and Picric Acid from Soil Samples by SW-846 8330A and 8330B*.

### 1.3 Application of 8330A versus 8330B

**1.3.1** This procedure is for analysis by either Method 8330A or 8330B. EPA Method 8330B includes Appendix A which describes sample collection and preparation procedure using Incrementing Sampling Methodology (ISM) (see details in DV-OP-0018 *Extraction of Nitroaromatic and Nitroamine Explosive Compounds and Picric Acid from Soil Samples*).

**1.3.2** For soil analysis a sample size of 2 g is used for 8330A and a sample size of 10 grams is used for 8330B.

**1.3.3** 8330A only describes the cyano (CN) column for confirmation. 8330B gives the option of either cyano (CN) or phenyl-hexyl columns for confirmation. Eurofins Denver uses the Phenomenex Luna Phenyl-Hexyl column for confirmation on both methods, as it provides better sensitivity and peak resolution.

### 1.4 Analytes, Matrix(s), and Reporting Limits

**1.4.1** The list of analytes, CAS numbers, abbreviations are found in Attachment I. Reporting limits and Method Detection Limits for individual analytes are stored in TALS.

**1.4.2** The working ranges of this method are as follows:

| Analytes | 8330A Soil (2 g prep) | 8330B Soil (10 g prep) | Water |
|---|---|---|---|
| All Analytes except nitroglycerin and PETN | 0.2 µg/g – 100 µg/g | 0.08 µg/g – 10 µg/g | 0.2 µg/L - 25 µg/L |
| Nitroglycerin and PETN | 2.0 µg/g – 250 µg/g | 0.80 µg/g – 100 µg/g | 2.0 µg/L - 250 µg/L |

## 2.0 Summary of Method

**2.1** Instrument calibration is performed by external standardization using a minimum of five concentration levels.

**2.2** An acetic acid and phosphate buffer in water / methanol gradient program is used for HPLC separation (see details in Section 7.8.10 and Attachment 5). Compounds are tentatively identified based on retention time and detection by the UV detector using the primary Agilent Poroshell 120 EC-C18 column. Confirmation is performed by the UV detector using a Phenomenex Luna Phenyl-Hexyl column (see Attachment 5 for instrument conditions).

## 3.0 Definitions

**3.1** **Explosives**: As used in this SOP, the term "explosives" refers specifically to the analytes listed in Attachment 1. These include compounds that can be readily detonated with heat, shock, or ignition, such as nitroglycerin, RDX, and TNT. It also includes production by-products and degradation products of true explosives.

**3.2** Refer to DV-QA-003P *Quality Control Program* for definitions of general analytical and QA/QC terms.

## 4.0 Interferences

**4.1** Solvents, reagents, glassware, and other sample processing hardware may yield discrete artifacts and/or elevated baselines, causing misinterpretation of the chromatograms. All of these materials must be demonstrated to be free from interferences, under the conditions of the analysis, by running method blanks.

**4.2** Contamination by carryover can occur when a low-concentration sample is analyzed immediately following a high-concentration sample. This potential is minimized by continuously flushing the needle with solvent. If contamination is suspected, the sample should be re-aliquoted and re-analyzed.

**4.3** Co-elution of target analytes with non-target analytes can occur, resulting in false positives or biased high results.

**4.4** Co-elution between target analytes can occur when high concentrations of individual compounds are present in samples, see Section 12.3 for details.

**4.5** The inclusion of vegetation is not recommended per QSM 5.4 and 6.0

**4.6** Per EPA Method 8330B Section 4.3: "Tetryl decomposes rapidly in methanol/water solutions, as well as with heat. All aqueous samples expected to contain tetryl should be diluted with acetonitrile prior to filtration and acidified to pH <3 with aqueous sodium bisulfate. All samples expected to contain tetryl should not be exposed to temperatures above room temperature."

## 5.0 Safety

Employees must abide by the policies and procedures in the Environmental Health and Safety Manual (CW-E-M-001), Radiation Safety Manual (RSM) and this document. This procedure may involve hazardous material, operations and equipment. This SOP does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of the method to follow appropriate safety, waste disposal and health practices under the assumption that all samples and reagents are potentially hazardous. Safety glasses, gloves, lab coats and closed-toe, nonabsorbent shoes are a minimum.

### 5.1 Specific Safety Concerns or Requirements

**5.1.1** Eye protection that satisfies ANSI Z87.1, laboratory coat, and nitrile or latex gloves must be worn while handling samples, standards, solvents, and reagents. Disposable gloves that have been contaminated will be removed and discarded; non-disposable gloves must be cleaned immediately.

**5.1.2** If a sample is expected to have an explosive concentration $\geq$ 2% (but less than 10%), the EH&S Coordinator and Group Leader shall be notified before any work is performed. Additional safety precautions may be implemented as required due to high concentrations of explosives.

**WARNING:** Soil samples with explosive concentrations greater than 2% cannot be accepted by the laboratory unless they have a moisture content of 25% or greater. Under no circumstances shall a soil sample with an explosive concentration greater than 10% be accepted by the laboratory.

**5.1.3** Soil samples with high concentrations (between 2 and 10%) of explosives should not be ground using a mortar and pestle. Visual observation of a soil samples is important prior to grinding samples. Any samples containing metal fragments, powders, waxy appearing pieces, or other suspicious material should be brought to the attention of the Group Leader and the EH&S Coordinator before proceeding with the procedure. Bypassing the grinding step and proceeding to solvent dilution is an alternative for samples that are determined to be unsafe to grind.

**5.2 Primary Materials Used**

The following is a list of materials used in this method, which have a serious or significant hazard rating.

**NOTE:** This list does not contain all materials used in the method. The table contains a summary of the primary hazards listed in the SDS for each of the materials listed in the table.

A complete list of materials used in the method can be found in the reagent and materials section. Employees must review the information in the SDS for each material before using it for the first time or when there are major changes to the SDS.

| MATERIAL [(1)] | HAZARDS | EXPOSURE LIMIT [(2)] | SIGNS AND SYMPTOMS OF EXPOSURE |
|---|---|---|---|
| Acetonitrile | Flammable Poison | 40 ppm – TWA | Early symptoms may include nose and throat irritation, flushing of the face, and chest tightness. Prolonged exposure to high levels of vapors may cause formation of cyanide anions in the body. |
| Glacial Acetic Acid | Corrosive Poison Flammable Liquid and Vapor | 10 ppm - TWA | Inhalation of concentrated vapors may cause serious damage to the lining of the nose, throat, and lungs. Breathing difficulties may occur. Can cause serious damage to skin, including redness, pain, and burns. Contact with eyes may cause severe damage followed by loss of sight. |
| Methanol | Flammable Poison Irritant | 200 ppm - TWA | A slight irritant to the mucous membranes. Toxic effects are exerted upon the nervous system, particularly the optic nerve. Symptoms of overexposure may include headache, drowsiness, and dizziness. Methyl alcohol is a defatting agent and may cause the skin to be become dry and cracked. Skin absorption can occur, symptoms may parallel inhalation exposure. Irritant to the eyes. |
| Phosphoric Acid | Corrosive | 1 ppm - TWA | Ingestion can cause severe burns to the throat, mouth, and stomach, abdominal pain and nausea. Severe exposures by ingestion can lead to shock, circulatory collapse, and death. Inhalation is not an expected hazard unless misted. Corrosive, contact with skin or eyes can |

| MATERIAL [1] | HAZARDS | EXPOSURE LIMIT [2] | SIGNS AND SYMPTOMS OF EXPOSURE |
|---|---|---|---|
| | | | cause redness, pain, severe burns, blurred vision, and permanent eye damage. |
| Sodium hydroxide | Corrosive Poison | 2 mg/m$^3$ | Effects from inhalation of dust or mist vary from mild irritation to serious damage of the upper respiratory tract, depending on severity of exposure. Symptoms may include sneezing, sore throat, runny nose. Contact with skin can cause irritation or severe burns and scarring with greater exposures. Causes irritation of eyes and can cause burns that may result in permanent impairment of vision, even blindness with greater exposures. |

(1) Always add acid to water to prevent violent reactions.
(2) Exposure limit refers to the OSHA regulatory exposure limit.

## 6.0 Equipment and Supplies

### 6.1 Instrumentation

**6.1.1 HPLC System**
HPLC, equipped with a pump capable of achieving 6,000 psi, a 100 µL loop injector, and a Diode Array Detector (DAD) or Multi-Wavelength Detector (MWD), Hewlett Packard Model 1100, or equivalent.

**6.1.2** Primary Column: Reverse phase HPLC column, Agilent Poroshell 120, EC-C-18, 4.6 mm x 150 mm (2.7 µm) or equivalent.

**6.1.3** Confirmation Column: Phenomenex Luna Phenyl-Hexyl reverse phase HPLC column, 15 cm x 4.6 mm (3 µm) or equivalent.

**6.1.4** Hewlett Packard HPLC Chem Station for instrument control.

### 6.2 Supplies

**6.2.1** Glass vials, various sizes.

**6.2.1.1** Amber glass, 8.0 mL and 12.0 mL, with Teflon-lined screw caps, for the storage of standards.

**6.2.1.2** Crimp-top vial with caps for analysis, 1.8 mL.

**6.2.2** Disposable pipettes, used for non-quantitative transfers only.

**6.2.3** Volumetric flasks, various sizes.

**6.2.4** Hamilton syringes, various sizes.

### 6.3 Computer Software and Hardware
A list of computer software and hardware used for analysis and data processing is maintained by the QA department at \\Tacorp\corp\QA\QA_Facilities\Denver-QA\Equipment: Master Equipment List.

## 7.0 Reagents and Standards

### 7.1 Stock Standards

**7.1.1** Stock standards are purchased as certified solutions or prepared from 100%, neat materials. Stock standard solutions are stored at -10 °C to -20 °C, or per vendor

instructions. All stock standards must be protected from light and should be brought to room temperature before using.

**7.1.2** Stock standard solutions must be replaced after 1 year or sooner if comparison with check standards prepared from an independent source indicates a problem. Expiration times for all standards are measured from the time the standard is prepared or from the time that the standard ampoule is opened, if the standard is supplied in a sealed ampoule.

**7.1.3** 3,5-Dinitroaniline is purchased at a concentration of 100 µg/mL in acetonitrile, equivalent to the High-Level Calibration Mix. This standard is added directly to the Intermediate Level Calibration Standard. (Section 7.4).

**7.1.4** PETN and Nitroglycerin are purchased as separate individual standards at a concentration of 1,000 µg/mL in acetonitrile. These standards are added directly to the Intermediate Level Calibration Standard (Section 7.4).

**7.1.5** 2,4-diamino-6-nitrotoluene and 2,6-diamino-4-nitrotoluene are purchased as separate individual standards at a concentration of 100 µg/mL in acetonitrile, equivalent to the High-Level Calibration Mix. These standards are added directly to the Intermediate Level Calibration Standard (Section 7.4).

**7.1.6** MNX, DNX, TNX are purchased from Ultra Scientific as a custom standard at 100 µg/mL. These compounds are in a separate standard called 8330 DMT in TALS. This is the only known source of MNX, DNX, and TNX and we do not currently have a second-source standard for these compounds.

**7.2 Volume Measurements for all Standards Preparation**

The volume of stock and intermediate standard solutions used in subsequent dilutions is measured using Hamilton syringes appropriate for the volume being measured and accurate to ± 2%. Standards are prepared either by (1) using a syringe to measure the standard solution and bringing to volume with the appropriate solvent in a Class A volumetric flask, or by (2) measuring the volumes of both the standard solution and the solvent using a calibrated syringe or Class A pipette and combining them in a vial.

**7.3 High-Level Calibration Mix, Prepared from Stock Standards**

This high level standard must be replaced every 1 year or sooner if comparison with check standards prepared from independent sources indicate a problem.

A solution is prepared to contain most standard analytes at a concentration of 100 µg/mL each in acetonitrile (see details in standards database instructions). Nitroglycerin, PETN, 3,5-Dinitroaniline, 2,4-diamino-6-nitrotoluene and 2,6-diamino-4-nitrotoluene are purchased as separate stock standards, and are not included in this mixture. They are added to the intermediate level standards in Section 7.4.

**7.4 Intermediate Level Calibration Standards**

**8330IntermStk**: Prepare a 10 µg/mL solution (nitroglycerin and PETN at 100 µg/mL) from the high-level calibration mix (see Section 7.3) by diluting 1.0 mL of the High-Level Calibration mix along with 1.0 mL each of stock standards of nitroglycerin and PETN to a final volume of 10.0 mL in acetonitrile. The shelf life of this material is 6 months.

**8330_ADDs**: Prepare a 20 µg/mL solution from stock standards by diluting 1.0 mL each of stock standards of 3,5 -dinitroaniline, 2,4-diamino-6-nitrotoluene, and 2,6-diamino-4-

nitrotoluene to a final volume of 5.0 mL in acetonitrile. The shelf life of this material is 6 months.

**8330 DMT**: Prepare a 20 µg/mL solution from stock standard by diluting 1.0 mL of MNX, TNX, DNX stock to a final volume of 5 mL. The shelf life of this material is 6 months.

### 7.5 Working Level Standards for Calibration Curve

Prepare calibration standards by diluting the intermediate standard solutions as shown in the table below using the 75%:25% (v/v) acidic water:ACN solution (described in Section 7.8.7). These standards must be prepared fresh on the day of calibration and refrigerated if not used immediately. All volumes are measured using the appropriately sized Hamilton syringe.

**7.5.1** On the primary (C18) column, the mixes 8330IntermStk, 8330_ADDs and 8330 DMT must be calibrated using a separate calibration curves due to co-elution of target analytes. The intermediate standards are prepared at the same concentration; therefore, the calibrations are made with the same volumes of intermediate stock and solvent in the following table "Primary (C18) Column Calibration".

**7.5.2** On the confirmation (phenyl-hexyl) column, the intermediate full-list (8330IntermStk) must be calibrated using a separate calibration curve, however 8330_DMT and 8330 ADDs are combined into a single calibration curve. See Table below "Confirmation (Phenyl-Hexyl) Column Calibration".

**Recommended Calibration Levels**

| Calibration Level | Final Concentration (µg/mL) | | Primary (C18) Column Calibration | | Confirmation (Phenyl-Hexyl) Column Calibration | |
|---|---|---|---|---|---|---|
| | Standard Analytes | NG & PETN | Vol. Intermediate (µL) | Vol. Solvent (µL) | Vol. EACH Intermediate (µL) | Vol. Solvent (µL) |
| 8 | 2.5 | 25.0 | 250 ± 1 | 750 ± 9 | 250 ± 1 | 750 ± 9 |
| 7 | 1.0 | 10.0 | 100 ± 0.5 | 900 ± 10 | 100 ± 0.5 | 900 ± 10 |
| 6 | 0.7 | 7.0 | 70 ± 0.4 | 930 ± 10 | 70 ± 0.4 | 930 ± 10 |
| 5 | 0.4 | 4.0 | 40 ± 0.2 | 960 ± 10 | 40 ± 0.2 | 960 ± 10 |
| 4* | 0.25 | 2.5 | 25 ± 0.1 | 975 ± 10 | 25 ± 0.1 | 975 ± 10 |
| 3 | 0.1 | 1.0 | 10 ± 0.5 µL | 990 ± 10 | 10 ± 0.5 µL | 990 ± 10 |
| 2 | 0.05 | 0.5 | 5 ± 0.5 µL | 995 ± 10 | 5 ± 0.5 µL | 995 ± 10 |
| 1 | 0.02 | 0.2 | 2 ± 0.1 µL | 998 ± 10 | 2 ± 0.1 µL | 998 ± 10 |

- Level 4 concentration is used for the daily and continuing calibrations.
- Nitroglycerine and PETN are 10X higher than the other analytes in all calibration levels.

### 7.6 Extractions Standards

#### 7.6.1 LCS Spike Solution

The LCS spike solution is prepared at a working level concentration of 10 µg/mL (nitroglycerin and PETN at 100 µg/mL) in acetonitrile. This standard is stored in a freezer at –20 °C to –10 °C and given a 6-month expiration date. The standard is allowed to come to room temperature before use and returned to the freezer as soon as possible. This standard contains all explosives target compounds except 2,4-diamino-6-nitrotoluene and 2,6-diamino-4-nitrotoluene.

**7.6.2 MNX, DNX, TNX LCS solution**

The 8330 OP DMT LCS solution is prepared at a working level concentration of 10 µg/mL in acetonitrile. This standard is stored in a freezer at –20 °C to –10 °C and given a 6-month expiration date.

**7.6.3 Diamino LCS Solution**

The Diamino LCS solution is prepared at a working level concentration of 10 µg/mL in acetonitrile of 2,4-diamino-6-nitrotoluene and 2,6-diamino-4-nitrotoluene. This standard is stored in a freezer at –20 °C to –10 °C and given a 6-month expiration date. The standard is allowed to come to room temperature before use and returned to the freezer as soon as possible. This standard is only added when these compounds are specifically requested by the client. They are added to a separate LCS/MS/MSD.

**7.6.4 Working Level Surrogate (1,2-Dinitrobenzene) Solution**

The 8330 surrogate solution is prepared at a working level concentration of 10 µg/mL in acetonitrile. This standard is stored in a freezer at –20 °C to –10 °C and given a 6-month expiration date. The standard is allowed to come to room temperature before use and returned to the freezer as soon as possible.

**7.7 Second Source Initial Calibration Verification Solution**

The second source standard must be obtained from a different source than the standards used for initial calibration. This standard is used to verify the accuracy of the calibration standards.

**NOTE:** There is currently no second source available for MNX, DNX, and TNX.

**7.7.1 Working-Level Second Source Mix**

Prepare a solution containing all compounds except 2,4-diamino-6-nitrotoluene and 2,6-diamino-4-nitrotoluene at a concentration of 0.50 µg/mL (nitroglycerin and PETN at 5.0 µg/mL). A separate solution containing 2,4-diamino-6-nitrotoluene and 2,6-diamino-4-nitrotoluene is prepared at a concentration of 0.50 µg/mL when analyzing on the primary (C18) column; the standards can be combined for analysis on the confirmation (phenyl-hexyl) column. A separate solution containing MNX, DNX and TNX is prepared at a concentration of 0.50 µg/mL. These solutions are prepared using the 75%:25% (v/v) acidic water:ACN solution (described in Section 7.8.7). These standards must be prepared fresh on the day of calibration. All volumes are measured using the appropriately sized Hamilton syringe.

**7.8 Reagents**

**7.8.1 Reagent Water**

For method blanks and laboratory control samples reagent water is generated by an ELGA water purification system. The performance of the water polishing system is checked daily and recorded per SOP DV-QA-0026.

**7.8.2** HPLC Grade Water

**7.8.3** Acetonitrile, $CH_3CN$ (ACN) - HPLC grade

**7.8.4** Methanol - HPLC grade

**7.8.5** Glacial Acetic Acid – Reagent Grade

**7.8.6** 85% Phosphoric acid, $H_3PO_4$ – Reagent Grade

**7.8.7 Acidified Water (75%): Acetonitrile Solution (25%)**
TALS Reagent: 8330AcidH2O

Take 250 mL of acetonitrile (ACN), and bring to 1.0 L with Elga or HPLC-grade water. Acidify the solution to a pH of approximately 3 by adding 20 drops (1 mL) of 85% phosphoric acid ($H_3PO_4$).

**7.8.8 Acidified Calcium Chloride, $CaCl_2$ Solution, 5 g/L**
TALS Reagent: CaCL2 Sol

Place 5 ± 0.05 g of reagent grade $CaCl_2$ into a one-liter volumetric flask containing approximately 500 mL of reagent water. Swirl the solution until the $CaCl_2$ is dissolved. Add approximately 1 mL of 85% $H_3PO_4$ to acidify the solution and bring to volume with reagent water.

**7.8.9 Sodium Phosphate Buffer Stock**
TALS Reagent: 8330bufferstk

Slowly add 115.29 grams of 85% phosphoric acid (molecular weight = 97.9924 g/mol) to approximately 500 mL of water in a 1 L beaker. Place a stir bar in the beaker and the beaker in an ice bath on top of a magnetic stirrer. Slowly add 150 mL of 10 M (10 M = 10 N) sodium hydroxide, allowing time for the mixture to cool down between additions. Transfer to a 1 L volumetric flask and bring to volume with Elga or HPLC-grade water. The final pH of this solution should be 7.2.

**7.8.10 Buffer Eluents for Analysis:**
Make up the HPLC eluents for each column as described in Sections 7.8.10.1 and 7.8.10.2. The pH of the working eluents *must* be modified by the analyst by changing the volume of glacial acetic acid added to ensure compound resolution. This is particularly necessary when the column is replaced, to ensure that picric acid does not co-elute with any other target compound. Increasing the concentration (or volume added) of glacial acetic acid will result in greater retention of picric acid. The eluent can only be adjusted at the start of an initial calibration, not with the CCVs. The calculated retention time windows should account for the drift of any specific analyte.

**7.8.10.1 Working Eluent for Primary (C18) Column:**
Combine 1 L of water, 1 mL of Sodium Phosphate Buffer Stock solution (Section 7.8.9), and Glacial Acetic acid (50-150 µL) to adjust the pH < 5. Make fresh at least weekly or more often as needed.

**7.8.10.2 Working Eluent for Confirmation (Phenyl-Hexyl) Column:**
Combine 1 L of water, 2 mL of Sodium Phosphate Buffer Stock solution (Section 7.8.9), and Glacial Acetic acid (50 – 200 µL) **to adjust pH** <5 so that picric acid does not co-elute with MNX or RDX. Make fresh before each run.

## 8.0 Sample Collection, Preservation, Shipment and Storage

### 8.1 Aqueous Samples

Water samples should be collected in duplicate 500 mL amber glass bottles with Teflon-lined caps.

**8.2 Soil and Sediment Samples**

**8.2.1** For method 8330A, soil samples should be collected in eight-ounce wide mouth jars with Teflon-lined caps.

**8.2.2** For method 8330B, sample volume will range between 250-1000 g or more. Samples may be shipped in wide mouth jars or clean plastic bags.

**8.3** Samples and sample extracts must be stored in amber glass containers at ≤ 6 °C from the time of collection through analysis, except during drying.

**8.4** Soil and sediment samples should be air dried at ambient temperature until dry enough to sieve. See DV-OP-0018 *Extraction of Nitroaromatic and Nitroamine Explosive Compounds and Picric Acid from Soil Samples* for details. Once the sample is air dried, the sample can be stored at room temperature.

| Matrix | Sample Container | Min. Sample Size | Preservation | Holding Time | Reference |
|---|---|---|---|---|---|
| Water | Amber glass | 2 x 500 mL | Cool; ≤ 6 °C | 7 Days to Extraction<br>40 Days to Analysis | SW-846<br>8330A/B |
| Soil | Glass / plastic | 50 g (8330A) /<br>up to 1 kg<br>(8330B) | Cool; ≤ 6 °C | 14 Days to Extraction<br>40 Days to Analysis | SW-846<br>8330A/B |

**Note:** If DNX, MNX, or TNX are requested analytes, additional volume will be required for MS/MSD analysis (up to 10 x 500 mL).

## 9.0 Quality Control

**9.1** The minimum quality controls (QC), acceptance criteria, and corrective actions are described in this section. When processing samples in the laboratory, use the TALS Method Comments to determine specific QC requirements that apply.

**9.1.1** The laboratory's standard QC requirements, the process of establishing control limits, and the use of control charts are described more completely in Eurofins Denver Policy DV-QA-003P *Quality Control Program*.

**9.1.2** Specific QC requirements for Federal programs, e.g., Department of Defense (DoD), Department of Energy (DOE), etc., are described in Eurofins Denver policy DV-QA-024P *QA/QC Requirements for Federal Programs*. This procedure meets all criteria for the DoD/DOE QSM (5.0 or later) unless otherwise stated. Any deviation or exceptions from QSM requirements must have prior approval in the project requirements.

**9.1.3** Project-specific requirements can override the requirements presented in this section when there is a written agreement between the laboratory and the client, and the source of those requirements should be described in the project documents. Project-specific requirements are communicated to the analyst via Method Comments in TALS and the Quality Assurance Summaries (QAS) in the public folders.

**9.1.4** Any QC result that fails to meet control criteria must be documented in a Nonconformance Memo (NCM). The NCM is automatically sent to the laboratory Project Manager by e-mail so that the client can be notified as appropriate. The QA group periodically reviews NCMs for potential trends. The NCM process is described in more detail in SOP DV-QA-0031 *Non-Conformance and Corrective*

*Action System*. This is in addition to the corrective actions described in the following sections.

**9.2 Batch Definition**

Batches are defined at the sample preparation stage. The batch is a set of up to 20 samples of the same matrix, plus required QC samples, processed using the same procedures and reagents within the same time period. Batches should be kept together through the whole analytical process as far as possible, but it is not mandatory to analyze prepared extracts on the same instrument or in the same sequence. The method blank must be run on each column on which the associated samples are analyzed. See QC Policy DV-QA-003P *Quality Control Program* for further details.

**9.3 Method Blank (MB)**

A method blank (MB) must be prepared and analyzed with each batch of samples. The MB consists of reagent water for aqueous samples, and Ottawa sand for soil samples.

The MB is created **at the time of extraction** after the samples have been dried, sieved, and ground and is processed through the extraction and analysis steps.

The method blank is used to identify any system and process interferences or contamination of the analytical system that may lead to the reporting of elevated analyte concentrations or false-positive data.

See Section 9.9 for the use of the grinding blank for Method 8330B solids samples that require ISM.

***Acceptance Criteria:*** The MB must not contain any analyte of interest >1/2 LOQ or at or above 10% of the measured concentration of that analyte in the associated samples, whichever is higher.

MBs are evaluated on each column on which associated samples are analyzed, when confirmation data are required. If there is a detection on either column in the MB, then detections for that target compound are suspect in associated samples. See Attachment 4 for guidance on interpretation of confirmation data to assess acceptance of the MB.

***Corrective Action:*** If the method blank does not meet the acceptance criteria, the source of contamination must be investigated and measures taken to correct, minimize, or eliminate the problem. Reanalyze and/or reprepare all samples associated with a failed method blank.

If the MB acceptance criteria are not met and re-preparation and reanalysis are not possible, then the sample data associated with the unacceptable MB must be qualified. This nonconformance must be addressed in the project or case narrative and the client must be notified.

**9.4 Laboratory Control Sample (LCS)**

One LCS must be analyzed with each extraction batch of samples (up to 20 samples). The LCS must contain specified analytes of interest and must be carried through the entire extraction and analytical procedure.

For water samples, the LCS is prepared by spiking the analytes of interest into reagent water. For soil samples, the LCS is prepared by spiking the analytes of interest into Ottawa sand during the extraction procedure.

The LCS is created **at the time of sample extraction** after the samples have been dried, sieved and ground. The LCS is used to monitor the accuracy of the analytical process. On-going monitoring of the LCS results provides evidence that the laboratory is performing the method within acceptable accuracy and precision guidelines.

The LCS must be analyzed on the confirmation column with samples. If there is insufficient volume to prepare an MS/MSD, and LCSD must also be prepared and analyzed.

See Section 9.10 for SRM criteria.

***Acceptance Criteria:***

Commercial Projects: The LCS recovery for each spiked analyte must be within established control limits. Laboratory default control limits are calculated as ± 3 standard deviations around the mean of historical data, as described in SOP DV-QA-003P *Quality Control Program*.

DOD/DOE QSM 5.4: QSM limits are applied unless project specific limits are requested by the client. When no QSM limits are available, laboratory historical limits are applied. Control limits are maintained in TALS.

In accordance with the TNI 2009 Standard a marginal exceedance within ± 4 standard deviations are allowed for one of the analytes. This is based on the number of analytes typically spiked for this method, which is between 11 and 30. These acceptance criteria may be superseded by project-specific limits, as applicable.

DOD/DOE QSM6.0: The LCS shall contain all surrogates and reported analytes. QSM limits are applied according the prep procedure (no ISM, or aqueous) unless project specific limits are requested by the client. When no QSM limits are available, laboratory historical limits are applied. Control limits are maintained in TALS. See Section 9.10 for SRM criteria.

***Corrective Action:*** If recoveries for all spiked analytes are not within the acceptance limits, including the one allowed marginal exceedance, the analytical system is out of control and corrective action must occur. Generally, this requires re-extraction and reanalysis of all associated samples. If the LCS is biased high and all associated samples are ND (not detected), it may be possible to report results with an NCM (see requirements for individual programs and clients).

**9.5 Matrix Spike Sample (MS) and Matrix Spike Duplicate (MSD)**

A matrix spike (MS) is a field sample to which known concentrations of target analytes have been added. A matrix spike duplicate (MSD) is a second aliquot of the same sample (spiked identically as the MS) prepared and analyzed along with the sample and matrix

spike. The soil matrix spikes are created **at the time of extraction**. Spikes are added after the sample has been dried, sieved, and ground.

One MS/MSD pair must be processed for each preparation batch (up to 20 samples). The MS/MSD results are used to determine the effect of a matrix on the precision and accuracy of the analytical process. Samples identified as field blanks, equipment blanks, or rinse blanks cannot be used for MS/MSD analysis.

***Acceptance Criteria:*** The spike recoveries must fall within established control limits. The relative percent difference (RPD) between the MS and MSD must be less than or equal to the established RPD limit. LCS limits are used for MS/MSD evaluation. Control limits are maintained in the LIMS. For DoD/DOE work, QSM limits are applied if available unless project specific limits are requested by the client. The RPD limit for DoD/DOE QSM work is 30% for Method 8330A and 20% for Method 8330B.

For QSM 6.0: The MS/D shall contain all surrogates and reported analytes. RPD limit for all analytes shall be < 20% between MS and MSD samples or sample and MD. LCS limits are used for MS/MSD evaluation and are maintained in the LIMS.

**NOTE**: RPD does not apply if the results are below the LOQ.

***Corrective Action:*** The information obtained from MS data are sample/matrix specific and are not normally used to determine the validity of the entire batch. If the MS and/or MSD recovery falls outside of the established control limits, the bracketing CCV and batch LCS recoveries must be within control limits in order to accept results for the associated samples. The following corrective actions are required for MS/MSD recovery failures to rule out lab error:

- Check calculation and instrument performance
- Verify, if possible, that the MS and MSD were spiked correctly (e.g., very low or very high recoveries)
- Consider objective evidence of matrix interference (e.g., heterogeneous sample, interfering peaks seen on chromatograms, or interference demonstrated by prior analyses);
- Flag the data for any results outside of acceptance limits
- For any single RPD failure, check calculations; verify, if possible, that the MS and MSD were spiked correctly; check instrument performance; consider objective evidence of matrix interference or sample inhomogeneity; and flag the data
- If both the parent sample and associated matrix spike results are over range the parent and the spikes shall be diluted by the same amount and the results from the reanalysis reported for both. If the analyte concentration in the parent sample is greater than 4x the concentration of spike added, then spike recovery results are not compared to control limits, and the recovery is either reported as “NC” (not calculated) or with a qualifier flag to indicate that the spike

was less than four times the analyte concentration in the sample. If the dilution will cause the spike to be less than two times the reporting limit, the MS/MSD do not need to be diluted and the recovery reported as "NC" (not calculated)

- For MS/MSD that serve as batch QC, if the parent sample result is within the calibration range and the MS/MSD results are above the calibration range, the results are reported with the MS/MSD result being flagged as an over-range measurement (e.g., the E-flag qualifier)
- If the MS/MSD are client requested and the parent sample result is within calibration range but the MS/MSD results are above the calibration range, MS/MSD are reported with narration and flagging. The sample and spike must be report from the same dilution.
- If the native analyte concentration in the MS/MSD sample exceeds 4 times the spike level for that analyte, the recovery data are reported as NC (i.e., not calculated) and the appropriate qualifier flags are added

**NOTE:** Some client programs require reanalysis to confirm matrix interferences. Check special project requirements for this corrective action.

**9.6 Surrogates**

Each calibration standard, field sample, and QC sample is spiked with the surrogate compound 1,2-dinitrobenzene. The surrogate is added to field samples and QC samples before the first extraction step for all matrices.

**QSM 6.0:** For solid samples that require ISM, the surrogate shall be added to each field sample, blank, and SRM after sieving and before any processing (drying, grinding, or extraction). Reprocessing by ISM is not possible if surrogate is outside the acceptance criteria, results will be flagged and reported with narration. An additional surrogate may be added to evaluate the extraction process.

***Acceptance Criteria:*** The recovery of the surrogate must fall within established statistical limits, which are based on historical data.

***Corrective Action:*** If recoveries for surrogates in blanks or LCSs are outside of the control limits, check for calculation or instrument problems and re-prepare and reanalyze the associated samples.

For samples with failing surrogate recoveries the decision to reanalyze or flag the data should be made as required by the project.

If matrix interference is obvious from observation of chromatograms or other objective evidence, reanalysis is unlikely to produce new or more useful information. If the matrix interference is not obvious from the initial analysis, it is only necessary to reprepare and reanalyze a sample once to demonstrate that poor surrogate recovery is due to matrix effect, so long as the extraction/instrument system is proven to be working properly.

### 9.7 Sample Replicate (ISM Soil Analysis only)

**NOTE:** Method 8330B requires the preparation of both a soil duplicate and a soil triplicate.

Although not typically required for organic analyses, a duplicate or triplicate sample may be required for project-specific quality control. The lab will extract triplicate aliquots after grinding on the client designated sample. If a sample is not designated by the client, the lab will select the sample.

Field blanks cannot be used for replicate testing. The results for replicates are reported separately and cannot be averaged when reporting results. Sample replicate results are used to evaluate the precision of the method. As such, results should be $\geqslant$ RL/LOQ for a valid statistical comparison.

**For QSM 6.0:** At the analytical subsampling step, ISM laboratory replicates shall be performed on one ISM sample in each preparation batch. ISM replicates shall not be performed on any sample identified as a QC or blank (e.g., LCS, Grinding Blank or other QC). The laboratory shall prepare and analyze three or more replicates, each consisting of a minimum of 30 increments of the same mass and depth.

***Acceptance Criteria:*** The RPD between the sample and the sample duplicate results must be less than the established limit.

***For QSM 6.0 Criteria***: The RPD shall not exceed 20%. RPD does not apply if all results are < LOQ

***Corrective Action:*** Results for samples that do not meet acceptance limits, particularly if due to difficulties in subsampling, shall be discussed in the final report case narrative, after client notification and agreement.

The percent relative standard deviation (%RSD) is calculated as follows:

$$\%RSD = \frac{s}{\overline{C}} \times 100\% \qquad \textit{Equation 1}$$

Where s is the standard deviation of the average concentration ($\overline{C}$) and is calculated as follows:

$$s = \sqrt{\frac{\sum_{i=1}^{n} (C_i - \overline{C})^2}{n-1}} \qquad \textit{Equation 2}$$

### 9.8 Grinding Blank (GB)

Refer to SOP DV-OP-0018 *Extraction of Nitroaromatic and Nitroamine Explosive Compounds and Picric Acid from Soil Samples* for details on how the grinding blanks for soils by method 8330B are prepared. The DOD/DOE QSM 6.0 requires one grinding blank per ISM batch, processed after the ground SRM, or after a client identified sample with known contamination, or at the end of the batch.

***Acceptance Criteria:*** The grinding blank must not contain any analyte of interest ≤ LOQ/RL or > 10% of the measured concentration of that analyte in the associated samples, whichever is higher.

***QSM 6.0:*** In addition to the above criteria, the grinding blank must be spiked with surrogate prior to the ISM process. Reprocessing the ISM is not possible grinding blank contains an analyte of interest, results will be flagged and reported with narration. The method blank can be used to asses if contamination was introduced during the ISM or extraction process.

***Corrective Action:*** If the method blank does not meet the acceptance criteria, the source of contamination must be investigated and measures taken to correct, minimize, or eliminate the problem. If there is remaining sample volume, re-subsample, re-analyze and/or re-prepare all samples associated with a failed method blank.

If the MB acceptance criteria are not met and re-preparation and reanalysis are not possible, then the sample data associated with the unacceptable MB must be qualified. This nonconformance must be addressed in the project or case narrative and the client must be notified.

**9.9 Grinding LCS (LCSSRM)**

Refer to SOP DV-OP-0018 *Extraction of Nitroaromatic and Nitroamine Explosive Compounds and Picric Acid from Soil Samples* for details on how the grinding LCS for soils by method 8330B is prepared. The grinding LCS is spiked by an commercial vendor, and then ground with the associated samples. One grinding SRM per batch is required.

***Acceptance Criteria:*** The grinding LCS recovery for each spiked analyte must be within established control limits. Control limits are maintained in TALS.

***Corrective Action:*** If the surrogate compound recovers below control limits, or every compound recovers outside of control limits, but at approximately the same percentage, this could be an indication of a bad extraction (post-grinding). Associated samples will be sent for re-extraction and re-analysis.

According to QSM 5.4, grinding may introduce a bias and is not recommended for certain compounds. This statement has been removed in QSM 6.0, although is still relevant.

**QSM 6.0 Criteria** Where an assignable cause isolated to only the SRM is identified, the SRM may be reanalyzed. Otherwise, reprepare (re-extract) and (re) analyze the SRM and all affected QC and field samples in the associated preparatory batch for the analytes outside acceptance criteria (beginning at the subsampling step for ISM samples) if sufficient sample material is available.

If the samples cannot be reprepared (re-extracted) and analyzed, apply qualifier to affected analyte results of all samples in the associated preparatory batch and explain in the case narrative. The ISM process cannot be redone.

## 10.0 Procedure

**10.1** One-time procedural variations are allowed only if deemed necessary in the professional judgment of supervision to accommodate variation in sample matrix, radioactivity,

chemistry, sample size, or other parameters. Any variation in procedure shall be completely documented using an NCM.

**10.2** Any deviations from this procedure identified after the work has been completed must be documented in an NCM, with a cause and corrective action described.

**10.3** **Extraction of Water Samples –** *Please reference DV-OP-0017 Solid Phase Extraction of Nitroaromatic and Nitroamine Explosive Compounds and Picric Acid from Water Samples for details*

Samples are extracted using a 500 mL initial volume and are concentrated to a 5 mL final volume.

**10.4** **Extraction of Soil Samples –** *Please reference DV-OP-0018 Extraction of Nitroaromatic and Nitroamine Explosive Compounds and Picric Acid from Soil Samples for details*

**10.4.1** Samples for method 8330A are extracted using a 2 g initial weight and delivered to the analytical group with a 10 mL final volume. Samples for method 8330B are extracted using a 10 g initial weight and delivered to the analytical group with a 20 mL final volume.

**10.4.2** TALS prep batches for soils will show a final volume of 20 mL for 8330A extracts, and 40 mL for 8330B extracts. These final volumes include the 1:1 dilutions with the acidified calcium chloride done by the analyst prior to instrument analysis. (See Section 10.5.2.)

**10.5 HPLC Analysis**

**10.5.1** HPLC Startup: All electronic equipment should be allowed to warm up for 30 minutes. During this period, at least 15 void volumes of mobile phase are passed through the column. Continue until the detector's baseline has stabilized.

**10.5.2** Prior to analysis, soil extracts (or a portion of the extract) must be diluted exactly 1:1 with the acidified calcium chloride solution that is described in Section 7.8.8.

**10.5.3** Analyze the samples using the chromatographic conditions given in Attachment 5. All positive measurements above the method detection limit observed on the primary C18 column are confirmed by injection of the sample extract onto the confirmation Phenyl-Hexyl column. The MB and LCS must be analyzed on the confirmation column if samples are analyzed on that column. The MS and MSD must be analyzed on the confirmation column if the parent sample is analyzed on the confirmation column. Many EDDs require the parent and MS/MSD results be from the same analytical batch. For DoD/DOE work, calibration and QC criteria are the same as for primary column analysis. QC must pass on both columns when confirmation analysis is performed for DoD or DOE.

**10.5.4** Analytes are introduced by direct injection of the extract. Samples, standards, and QC samples must be introduced using the same procedure.

**10.5.5** It has been demonstrated that water samples with total concentrations of 16,000 µg/L can yield low recoveries due to saturation of the extraction cartridge. The client should be contacted to determine if re-extraction using a smaller sample aliquot size is required for samples with concentrations in this range. The low extraction recovery may meet the client's action limit, such that a re-extraction may not be necessary.

**10.5.6 Analytical Sequence**

**10.5.6.1** The analytical sequence starts with either an initial calibration or a Continuing Calibration Verification (CCV). If the sequence begins with a CCV, the center of the retention time window is set based on the initial CCV in the sequence. Do not reset the retention times with the bracketing CCV.

**10.5.6.2** The CCV includes analyzing standards that contain all target analytes. If 2,4-diamino-6-nitrotoluene and 2,6-diamino-4-nitrotoluene are not target compounds, it is not required to analyze a CCV for these analytes.

**10.5.6.3** If there is a break in the analytical sequence greater than 12 hours since the analysis of a CCV standard, a new CCV standard must be analyzed before proceeding with the sequence.

**10.5.7 Retention Time Windows**

**10.5.7.1** Retention time windows must be determined for all analytes at method set up and after major maintenance (e.g. column change). Make an injection of all analytes of interest each day for a 3-day period. Calculate the retention time window width by 3x the standard deviation of each analyte retention time from a 72 hour study or 0.03 min, whichever is greater.

**10.5.7.2** The chromatograms in Attachments 6 and 7 summarize the estimated retention times on both the C18 and Phenyl-Hexyl columns for many of the compounds analyzed using this method.

**10.5.7.3** If the retention time window, as calculated above, < ± 0.035 minutes for the C18 column or < ± 0.07 minutes for the phenyl hexyl column, use ± 0.035 or ± 0.07 minutes as the retention time window. This allows for slight variations in retention times caused by sample matrix.

Picric Acid is known to shift in retention time for given sample matrix.

**10.5.8 Daily Retention Time**

The RTs are updated using the mid-point of the initial calibration, or the initial CCV of the sequence (i.e., the CCV that begins the analytical sequence).

**Note:** Chromatographic conditions, including the exact makeup of the eluent are determined at the time of the initial calibration and shall not be changed until the next initial calibration.

***Corrective Action:***

If there are shifts in retention times for target compounds between CCVs that are outside the established retention time window (see Section 10.5.7), all samples analyzed after the last compliant standard must be reanalyzed unless the following conditions are met for any compound that elutes outside the retention time window:

- The retention time of that compound in the standard must be within the retention time range equal to twice the original window, as determined by the opening CCV of a bracket, and

- The retention time of the compound must be shifted in the same direction as the surrogate and by approximately the same amount.

If these two conditions are met, reset the window and reprocess the data.

**10.6 Calibration Range and Dilutions**

**10.6.1** If the concentration of any analyte exceeds the working range as defined by the calibration standards, then the sample must be diluted and reanalyzed. Dilutions should target the most concentrated analyte in the upper half (between the CCV and highest standard) of the calibration range.

**10.6.2** Samples that are analyzed immediately following a sample with an unusually high concentration of explosives must be evaluated for carryover. The potential for carryover is minimized in the analytical system by continuously flushing the HPLC needle with solvent. If contamination is suspected, the sample should be re-aliquoted and re-analyzed.

**10.6.3 Guidance for Dilutions Due to Matrix Interference:**
It may also be necessary to dilute samples because of matrix interferences. If the sample is initially run at a dilution and only minor matrix peaks are present, then the sample should be reanalyzed at a more concentrated dilution.

Analyst judgment is required to determine the most concentrated dilution that will not result in instrument contamination. Ideally, the dilution chosen will make the response of the matrix interferences equal to approximately half the response of the mid-level calibration standard.

**10.6.4 Reporting Dilutions**
Some projects require reporting of multiple dilutions (check method comments in TALS). In other cases, the lowest dilution with no target compounds above the calibration range will be reported. In general, a maximum of two dilutions will be reported; one at the lowest dilution and one in which the most concentrated target analyte is in the upper half of the calibration range.

**10.7 Instrument Maintenance and Troubleshooting**

**10.7.1** Minor instrument maintenance may include back flushing the column, changing the guard cartridge, and changing the frit on the front end of the column.

**10.7.2** The solvent channel on which the buffer is run should be rinsed weekly with pure water followed by pure methanol and finally pure water again before reloading the buffer in order to prevent the buildup of salts and prevent bacterial growth in the system.

**10.7.3** A cleanup method is provided in the instrument software to remove the buffer from the column. It should be run as the last injection of any run sequence. The buffer solution should not be left on the column for extended periods when the instrument is not in use or decreased column lifetime will be observed.

**10.7.4** Noisy baseline, particularly noticeable in RL level standards and MDLV samples, is normally due to a noisy UV Lamp. If the noise is sufficient to interfere with the quantitation of these samples, the lamp should be replaced and the instrument recalibrated. Less commonly, noisy baselines are the result of dirty flow cell windows, which should be cleaned or replaced according the manufacturer's instructions.

**10.7.5** Unstable retention times are normally due to a malfunction somewhere in the flow path of the instrument. Likely sources are the active inlet valve, outlet ball valve, multichannel gradient valve or purge valve. Dirty solvent inlet filters can starve the pump and may also result in unstable retention times.

## 11.0 Instrument Calibration

**11.1** Detailed calibration equations can be found in the corporate SOP NDSC-US-TS-QP44940 *Calibration Curves and the Selection of Calibration Points*.

### 11.2 Instrument QC

**11.2.1** External calibration is used for this analysis. Prepare standards containing each analyte of interest at a minimum of five concentration levels. The low level standard should be at or below the reporting limit. The other standards define the working range of the detector. Recommended calibration levels are given in Attachment 2.

**11.2.2** A new calibration curve must be generated after major changes to the system or when the continuing calibration criteria cannot be met. Major changes include a new column and any changes in instrument operating parameters (including solvent flows, replacement of a detector lamp, replacement of the flow cell windows, etc.).

**11.2.3** With the exception noted in Section 11.2.4 below, it is NOT acceptable to remove points from the calibration curve for the purpose of meeting criteria, unless the points are the highest or lowest on the curve AND the reporting limit and/or linear range is adjusted accordingly. At least 5 points must be included in a linear calibration curve and at least 6 points for a second order calibration curve.

**11.2.4** A mid-level point may be removed from the calibration only if the reason can be clearly documented (i.e., a broken vial or an injection error). Due to the difficulty involved in properly documenting these errors, removing mid-points should be avoided if at all possible. The curve must also still satisfy the requirements for total numbers of points, five levels must remain in the calibration for a linear model and six for a second order model. The documentation must be retained with the initial calibration.

### 11.3 Initial Calibration

Calibrations are modeled either as average response factors or as calibration curves, using a systematic approach to selecting the optimum calibration function in order as follows. When calibration acceptance criteria cannot be met for a model, appropriate corrective action must be taken. This may include processing the data using another model, instrument maintenance and or re-preparation of standards followed by recalibration.

**11.3.1** The following requirements must be met for any calibration to be used:

**11.3.1.1** Response must increase with increasing concentration.

**11.3.1.2** Calibration curves will not be forced through the origin.

**11.3.1.3** The absolute value of the intercept of the curve at zero response should ideally be less than the MDL for the analyte. At a minimum the intercept must be less than ½ the on-column equivalent of the reporting limit.

### 11.3.2 Linear Calibration Using Average Calibration Factors

**11.3.2.1** External standard calibration using average calibration factors involves the comparison of instrument response (e.g., peak area or peak height) from the target compounds in the sample to the responses of the target compounds in the calibration standards. The ratio of the detector response to the concentration of target analyte in the calibration standard is defined as the calibration factor (CF), as follows:

$$CF = \frac{R_x}{C_s} \qquad \textit{Equation 3}$$

Where: $R_x$ = Response for analyte
$C_s$ = Concentration in calibration standard, µg/mL

**11.3.2.2** For each target analyte, calculate the average calibration factor ( $\overline{CF}$ ) as follows:

$$\overline{CF} = \frac{\sum_{i=1}^{n} CF_i}{n} \qquad \textit{Equation 4}$$

Where: n = Number of calibration levels
$CF_i$ = Calibration factor for the $i^{th}$ level

**11.3.2.3** The calibration relationship can be graphically represented as a line through the origin with a slope equal to the average calibration factor.

**11.3.2.4** The relative standard deviation (RSD) is calculated as follows:

$$RSD = \frac{SD}{\overline{CF}} x100\% \qquad \textit{Equation 5}$$

Where SD is the standard deviation of the average CF, which is calculated as follows:

$$SD = \sqrt{\frac{\sum_{i=1}^{n} \left(CF_i - \overline{CF}\right)^2}{n-1}} \qquad \textit{Equation 6}$$

**11.3.2.5** To calculate the concentration in an unknown sample extract, the equation is solved for concentration, resulting in the following equation:

$$C_{ex} = \frac{R_x}{\overline{CF}} \qquad \textit{Equation 7}$$

Where: $C_{ex}$ = Extract analyte concentration, µg/mL
$R_x$ = Response for analyte
$\overline{CF}$ = Average Calibration Factor

**11.3.3 Average Calibration Factor Evaluation**

Examine the residuals, i.e., the difference between the actual calibration points and the plotted line. Particular attention should be paid to the residuals for the highest points, and if the residual values are relatively large, a linear regression should be considered.

***Acceptance Criteria: QSM 5.4:***

The RSD of the average response factor must be ≤ 20% for 8330A. (15% for Method 8330B for DOD/DOE QSM 5.4 projects).

Examine the residuals, especially for the high points versus the fitted function. If the residual values are large, a linear regression should be considered.

The Relative Standard Error (RSE) for alternative curve types, including linear, quadratic, weighted or unweighted, must be ≤ 20% (15% for Method 8330B for DOD/DOE QSM projects)

***Corrective Action:*** If the RSD is > 20% (or > 15% for Method 8330B for DOD/DOE projects), average response factor cannot be used and least-squares linear regression should be attempted.

***QSM 6.0:*** RSD must be ≤ 20% for each analyte by 8330B if using average calibration.

**11.3.4 Linear Calibration Using Least-Squares Regression**

Calibration using least-squares linear regression produces a straight line that does not pass through the origin. The calibration relationship is constructed by performing a linear regression of the instrument response (peak area or peak height) versus the concentration of the standards. The instrument response is treated as the dependent variable (y) and the concentration as the independent variable (x).

The weighting used is the reciprocal of the concentration or the reciprocal of the square of the concentration. The regression produces the slope and intercept terms for a linear equation in the following:

$$R_x = m_1(C_s) + b \qquad \textit{Equation 8}$$

Where:
- $C_s$ = Concentration in calibration standard, µg/mL
- $R_x$ = Response for analyte
- b = y - Intercept
- $m_1$ = Slope

To calculate the concentration in an unknown sample extract, the regression equation is solved for concentration, resulting in the following equations, where $C_{ex}$ is the concentration of the target analyte in the unknown sample:

$$C_{ex} = \frac{[R_x - b]}{m_1} \qquad \textit{Equation 9}$$

Where: $C_{ex}$ = Extract analyte concentration, µg/mL
$R_x$ = Response for analyte
b = y - Intercept
$m_1$ = Slope

**11.3.5 Evaluation of the Linear Least-Squares Regression Calibration Function:**
With an unweighted linear regression, points at the lower end of the calibration curve have less weight in determining the curve than points at the high concentration end of the curve. For this reason, inverse weighting of the linear function is recommended to optimize the accuracy at low concentrations.

Note that the August 7, 1998 EPA memorandum "Clarification Regarding Use of SW-846 Methods", Attachment 2, Page 9, includes the statement "The Agency further recommends the use of this for weighted regression over the use of an unweighted regression."

***Acceptance Criteria:***

**11.3.5.1** Examine the residuals, but with particular attention to the residuals at the bottom of the curve. If the intercept or the residuals are large, a second-order regression should be considered.

**11.3.5.2** The linear regression must have a correlation coefficient (r) $\geqslant$ 0.995 ($r^2 \geqslant$ 0.990).

***QSM 6.0 Criteria:***

Option 2: Linear least square regression for each analytes must be $r^2 \geq 0.99$. Relative percent error must be $\leqslant$ 20% for mid-range concentration and $\leqslant$ 40% at the low level concentration.

**11.3.6** Non-linear Calibration Using a Second-Order Equation

**QSM 6.0 table B-3 does not include criteria for non-linear calibration.**

When the instrument response does not follow a linear model over a sufficiently wide working range, or when the previously described calibration approaches fail acceptance criteria, a non-linear, second-order calibration model may be employed. The second-order calibration uses the following equation:

*Equation 10*

$$R_x = m_2(C_s)^2 + m_1(C_s) + b$$

Where: $C_s$ = Analyte concentration in calibration standard, µg/mL
$R_x$ = Response for analyte
$m_2$ = Curvature
$m_1$ = Slope
b = y - Intercept

To calculate the concentration in an unknown sample extract, the roots of the quadratic equation are solved for:

$$C_{ex} = \frac{-m_1 \pm \sqrt{(m_1)^2 - 4(m_2)(b - R_x)}}{2m_2}$$

*Equation 11*

Where: $C_{ex}$ = Extract analyte concentration, µg/mL
$R_x$ = Response for analyte
$m_2$ = Curvature
$m_1$ = Slope
b = y – Intercept

**11.3.7 Evaluation of Second-Order Regression Calibration:**

A minimum of six points must be used for a second-order regression fit.

***Acceptance Criteria (QSM 5.4 or Commercial projects)***

**11.3.7.1** Second-order regressions should be the last option, and note that some programs (e.g., South Carolina) do not allow the use of second-order regressions.

**11.3.7.2** The coefficient of determination (COD, $r^2$) must be ≥ 0.99.

**11.3.7.3** The response increases significantly with increasing standard concentration (i.e., the instrument response does not plateau at high concentrations).

**11.3.7.4** The distribution of concentrations is adequate to characterize the curvature.

**11.3.7.5 QSM 6.0 table B-3 does not include criteria for non-linear calibration.**

**11.4 Calibration Verification**

**11.4.1 Initial Calibration Verification (ICV)**
A second-source verification standard must be analyzed with each initial calibration. The calculated concentration of the analytes in this standard may not be greater than 20% different from the calibration standard (QSM 6.0 or commercial projects).

QSM 5.0 or earlier use ≤15% for Method 8330A.

**11.4.2 Continuing Calibration Verification (CCV)**
The working calibration curve or RF must be verified by the analysis of a mid-point continuing calibration standard at the beginning of the analysis sequence, after every 10 samples, and at the end of the analysis sequence.

***Acceptance Criteria:***

For projects that require QSM 5.4 or earlier:

Results are acceptable for any individual compound if the %D (percent difference between the standard and measured values of the CCV standard) is ≤ 20%. (≤ 15% for QSM 5.4 or earlier for Method 8330A). Eurofins discourages the use of grand mean for method 8000B. The use of grand mean is not acceptable for Method 8000C (required by Arizona) or 8000D (required by North Carolina, South Carolina and West Virginia).

**NOTE:** In order to comply with DoD/DOE QSM requirements, the use of the grand mean is <u>not</u> acceptable (refer to policy DV-QA-024P QA/QC *Requirements for Federal Programs*). Results are acceptable for

individual compounds if the %D is: ≤ 15 for Method 8330A and ≤ 20 for Method 8330B.

***Corrective Action:***

If the percent difference for any analyte falls outside of ± 20% (or program specific limit such as DoD or DOE), corrective action must be taken. This may include back flushing the column, changing the guard cartridge, changing the frit on the front end of the column, or other minor instrument adjustments, followed by reanalyzing the standard. If the response for any analyte still varies by more than 20% (or program specific limit such as DoD or DOE), a new calibration curve must be prepared and analyzed. The column may also need to be replaced based on the chromatography.

Reported sample results must be bracketed by successful CCVs. When a CCV fails, all samples run since the last successful calibration verification must be reanalyzed. If the CCV recovery is > 20% D (or program specific limit such as DoD or DOE) and the associated samples are ND, the samples may be reported without reanalysis. Flag the data and document the decision in an NCM. For DoD or DOE, this must be accepted by the client and documented in the project records.

**For projects that require QSM 6.0 or later:**

***Acceptance Criteria:***

CCV must be analyzed daily before samples, after every 12 hours of analysis, and at the end of the analytical batch. All target analytes and surrogates must be withing their retention time window and within ± 20% of the true value.

***Corrective Action***

If there is an assignable cause isolated to only the CCV, one additional CCV may be analyzed immediate (within 1 hour and no samples analyzed). If the CCV is acceptable, proceed with analysis.

Correct the problem, analyzed a passing CCV or recalibrate. All affected samples shall be realized. If samples cannot be reanalyzed, qualifier the affected results and narrate.

If the CCV recovery is > 20% D (or program specific limit such as DoD or DOE) and the associated samples are ND, the samples may be reported without reanalysis. Flag the data and document the decision in an NCM.

## 12.0 Calculations / Data Reduction

**12.1** Detailed calibration equations can be found in the corporate SOP NDSC-US-TS-QP44940 *Calibration Curves and the Selection of Calibration Points*.

**12.2 Qualitative Identification**

**12.2.1** Tentative identification occurs when a peak is found within the retention time window for an analyte, at a concentration above the method detection limit. The required quantitation level is defined as the TALS reporting limit for standard reports, adjusted for initial weight and volume and any dilutions. A UV detector wavelength of 254 nm is used to quantify and report all analytes except PETN and Nitroglycerin that are quantified and reported using a UV detector wavelength of 215 nm.

**12.2.2** Identification is confirmed if a peak is also detected within the retention time window on a dissimilar column (Section 12.3).

**12.2.3 Sample Evaluation:**

**12.2.3.1** Analyst judgment weighs heavily in the evaluation of retention time shifts for client samples. The evaluation may be based on RT shifts of the surrogate standard (e.g. picric acid). The chromatograms must be examined closely to ensure that false positive / negative results are not reported. In the absence of significant shifts of the surrogate, peaks within a ± 0.035 minutes (C18 column) or ± 0.07 minutes (phenyl hexyl column) window must be considered positive results.

**12.2.3.2** If the sample required significant dilution due to high levels of target peaks or interfering compounds, the surrogate peak may not be obvious. In this case, an adjustment of RTs due to matrix for target compounds cannot be done reliably, and ± 0.035 minutes (C18 column) or ± 0.07 minutes (phenyl hexyl column) (or the established RT window described in Section 10.5.7) from the most recent CCV will be used for all compounds.

**12.2.3.3** The expected retention time for target analytes is updated with the retention times of each CCV. If sample matrix is causing significant retention time shifts between CCVs, samples may require dilution and reanalysis to minimize the matrix effects.

**12.2.3.4 Method Blank Detections:**
When a detection is observed in the method blank on either column, the result must be confirmed on the other dissimilar column to be considered a true hit. See Section 9.3 and Attachment 4 for additional information for evaluation of method blanks.

**12.2.3.5 Interferences:**
2,4,6-Trinitrotoluene elutes closely with 4-amino-2,6-dinitrotoluene on the primary (C18) column. Because of this close elution, high levels of 2,4,6-trinitrotoluene can overlap the retention time window for, and thus mask the presence of, low levels of 4-amino-2,6-dinitrotoluene. Therefore, 4-amino-2,6-dinitrotoluene may be reported as a detection from the confirmation (phenyl-hexyl) column, even though no peak could be detected on the primary column. In this event, an NCM is necessary.

Other target compound interferences may be observed in samples. Analyst judgment will be necessary to evaluate sample chromatograms and potentially report additional detections without confirmation due to interferences and/or analyze samples at dilutions. In this event, an NCM is required, documenting the decision.

**12.3 Second-Column Confirmation**

Detection of compounds on the primary column is confirmed using a second, dissimilar column. This column is calibrated using the same calibration levels as the primary column. The analysis on the second column must meet all of the instrument QC

described in Section 9.0 and 11.0. Identification is confirmed if a peak is also present in the retention time window for that analyte on the confirmatory column.

The RPD between two results is calculated using the following equation:

$$\%RPD = \frac{\left|R_1 - R_2\right|}{\frac{1}{2}\left(R_1 + R_2\right)} \times 100\% \qquad \textit{Equation 12}$$

Where $R_1$ is the result for the first column and $R_2$ is the result for the second column.

***Acceptance Criteria:***
The RPD between confirmed results should agree within 40%; results will then be reported from the primary column.

**QSM 6.0:** All results > MDL shall be confirmed. Samples without detection of target analytes do not require second-column analysis. The RPD between confirmed results should agree within 40%; results will then be reported from the primary column. RPD evaluation does not apply if both results are below the LOQ.

***Corrective Action:***
If the RPD is > 40% and there is visible positive interference, e.g., co-eluting peaks, elevated baseline, etc., for one column and not the other, then report the results from the column without the interference with the appropriate data qualifier flag, footnote, and/or narrative comment in the final report.

If the RPD is > 40% and there is visible positive interference for both columns, then report the lower of the two results with the appropriate flag, footnote, and/or narrative comment in the final report.

Special project reporting requirements may supersede these reporting schemes. Verify in the method comments or project Quality Assurance Summary.

**QSM 6.0:** Apply flags to affected results and narrate. If results are reported from the secondary column due to interference or QC outside acceptance criteria, the laboratory shall flag and narrate.

**12.4 Manual Integrations**

If manual data manipulations are necessary, they must be justified and documented. See Policy DV-QA-011P *Acceptable Manual Integration Practices* for requirements for manual integration.

**12.5 % Difference Calculation for ICV / CCV Evaluation**

The percent difference for the analysis of a CCV standard is calculated as follows:

$$\%\ \text{Difference} = \left(\frac{\text{Expected Value} - \text{Measured Value}}{\text{Expected Value}}\right) \times 100\% \qquad \textit{Equation 13}$$

**12.6 Concentration in Aqueous Samples**

The concentration of analyte in the original aqueous sample is calculated as follows:

$$\text{Concentration, } \mu\text{g/L} = \frac{C_{ex}V_t}{V_o}xDF \qquad \textit{Equation 14}$$

Where: $C_{ex}$ = Extract analyte concentration, µg/mL
$V_t$ = Volume of total extract in mL (normally 5 mL)

$V_o$ = Volume of water extracted in liters (normally 0.5 L)
DF = Dilution factor, as appropriate

**12.7 Concentration in Soil Samples**

The concentration of analyte in the original non-aqueous sample is calculated as follows:

$$\text{Concentration, } \mu\text{g/kg} = \frac{C_{ex} V_t}{WD} \times DF \qquad \textit{Equation 15}$$

Where:
$C_{ex}$ = Concentration of analyte in the extract (µg/mL)
$V_t$ = Total volume of original extract in mL (normally 20 mL for 8330A or 40 mL for 8330B); this volume includes the extracted volume in ACN and the 1:1 dilution with $CaCl_2$
W = Weight (mass) of sample extracted in kg (nominal 0.002 kg for 8330A or 0.010 kg for 8330B)
D = (100-% moisture in sample)/100 for dry weight basis or 1 for wet-weight basis
DF = Dilution factor, as appropriate

**12.8 Concentration of Ammonium Picrate**

Ammonium picrate is requested by some clients as a target compound. This is the ammonium salt of picric acid. Chromatographically, there is no difference between these two compounds, therefore, upon request, the result for ammonium picrate ($C_{AP}$) is calculated based on the measured concentration of picric acid, as follows:

$$C_{AP} = Picric\ Acid\ Result \times \left( \frac{246.13\,(Molar\ Mass\ of\ \ Ammonium\ Picrate)}{229.11\,(Molar\ Mass\ of\ \ Picric\ Acid)} \right) \qquad \textit{Equation 16}$$

In TALS, this calculation is accomplished by opening the batch information in the analytical batch, and setting the calculation line to 1 (Yes).

**12.9 LCS and CCV Percent Recovery**

$$\text{ControlSpike Recovery} = \frac{S_{SR}}{S_A} \times 100\% \qquad \textit{Equation 17}$$

Where
$S_{SR}$ = Calculated analyte concentration of spiked sample
$S_A$ = Concentration of standard added

**12.10 MS / MSD Percent Recovery Calculation**

$$\text{Matrix Spike Recovery} = \frac{S_{SR} - S_R}{S_A} \times 100\% \qquad \textit{Equation 18}$$

Where
$S_{SR}$ = Calculated analyte concentration of spiked sample
$S_R$ = Calculated analyte concentration of parent sample
$S_A$ = Concentration of standard added

**12.11 Relative Percent Difference Calculation for the MS/MSD**

$$RPD = \frac{\left| MS_R - MSD_R \right|}{1/2(MS_R + MSD_R)} \times 100 \qquad \textit{Equation 19}$$

Where
RPD = Relative percent difference
$MS_R$ = Matrix spike result of analyte
$MSD_R$ = Matrix spike duplicate result of analyte

**12.12** Reporting limits may be found in TALs. If samples require dilutions or smaller volumes than normally used, the MDLs and RLs will be correct based on the actual volume used and/or the dilution factor. Reporting limits for soil samples are adjusted for the actual weight of sample extracted. As samples are dried prior to subsampling for analysis percent moisture is not determined.

**12.13** All results are subject to two levels of technical review. See SOP DV-QA-0020 *Data Review* for a more detailed description for data review and an example of this checklist.

## 13.0 Method Performance

### 13.1 Method Detection Limit Study (MDL)

The method detection limit (MDL) is the lowest concentration that can be detected for a given analytical method and sample matrix with 99% confidence that the analyte is present. The MDL is determined according to the laboratory's MDL policy in NDSC-US-TS-QP44940 *Calibration Curves and the Selection of Calibration Points*. MDLs reflect a calculated (statistical) value determined under ideal laboratory conditions in a clean matrix, and may not be achievable in all environmental matrices. The laboratory maintains MDL studies for analyses performed; these are verified at least annually unless method or program requirements require a greater frequency.

### 13.2 Demonstration of Capabilities

All personnel are required to perform an initial demonstration of proficiency (IDOC) on the instrument they will be using for analysis prior to testing samples. On-going proficiency must be demonstrated annually. IDOCs and on-going proficiency demonstrations are conducted as follows.

**13.2.1** Four aliquots of the QC check sample are analyzed using the same procedures used to analyze samples, including sample preparation. The concentration of the QC check sample should be equivalent to a mid- level calibration.

**13.2.2** Calculate the average recovery and standard deviation of the recovery for each analyte of interest.

**13.2.3** If any analyte does not meet the acceptance criteria, the test must be repeated. Only those analytes that did not meet criteria in the first test need to be evaluated. TNI 2009 requires consecutive passing results. Repeated failure for any analyte indicates the need for the laboratory to evaluate the analytical procedure and take corrective action.

**13.2.4** Until the IDOC is approved by the QA Manager (or designee); the trainer and trainee must be identified in the batch record.

**13.2.5** Further details concerning demonstrations of proficiency are described in SOP DV-QA-0024 *Training*.

### 13.3 Training Requirements

The Group Leader is responsible for ensuring that this procedure is performed by an associate who has been properly trained in its use and has the required experience. A new analyst must be working under documented supervision prior to approval of the IDOC. Documentation that a new analyst is performing under supervision must be entered into the batch record (View Batch Information) until that analyst's IDOC has been approved by the QA Manager (or designee). See requirements for demonstration of analyst proficiency in SOP DV-QA-0024 *Training*.

## 14.0 Pollution Control

Standards and reagents are prepared in volumes consistent with laboratory use to minimize the volume of expired standards and reagents requiring disposal.

## 15.0 Waste Management

**15.1** All waste will be disposed of in accordance with Federal, State, and local regulations. When reasonably feasible, technological changes have been implemented to minimize the potential for pollution of the environment. Employees will abide by this procedure, the policies in Section 13, *Waste Management and Pollution Prevention*, of the Corporate Environmental Health and Safety Manual, and DV-HS-001P *Waste Management Plan*.

**15.2** The following waste streams are produced when this method is carried out:

**15.2.1** Expired Chemicals/Reagents/Standards – Contact Waste Coordinator

**15.2.2** Flammable solvent waste – Waste Stream C

**15.2.3** Flammable vial waste – Waste Stream A

**NOTE:** Radioactive and potentially radioactive waste must be segregated from non-radioactive waste as appropriate. Contact the Radioactive Waste Coordinator for proper management of radioactive or potentially radioactive waste generated by this procedure.

## 16.0 References / Cross-References

**16.1** SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition and all promulgated updates, EPA Office of Solid Waste, January 2005.

**16.1.1** Method 3535A, Solid Phase Extraction (SPE), Revision 1, 2007.

**16.1.2** Method 8000B, Determinative Chromatographic Separations, Revision 2, December 1996.

**16.1.3** Method 8000C, Determinative Chromatographic Separations, Revision 3, March 2003.

**16.1.4** Method 8000D, Determinative Chromatographic Separations, Revision 5, March 2018.

**16.1.5** Method 8330A, Nitroaromatics and Nitramines by High Performance Liquid Chromatography, Revision 1, February 2007

**16.1.6** Method 8330B, Nitroaromatics, Nitramines, and Nitrate Esters by High Performance Liquid Chromatography, Revision 2, October 2006.

**16.2** Department of Defense Quality Systems Manual for Environmental Laboratories, Final Version 4.2, 10/25/2010.

**16.3** Department of Defense/Department of Energy Consolidated Quality Systems Manual for Environmental Laboratories Version 5.0, July 2013.

**16.4** Department of Defense/Department of Energy Consolidated Quality Systems Manual for Environmental Laboratories Version 5.1, 2017.

**16.5** Department of Defense/Department of Energy Consolidated Quality Systems Manual for Environmental Laboratories Version 5.2, 2018.

**16.6** Department of Defense/Department of Energy Consolidated Quality Systems Manual for

Environmental Laboratories Version 5.3, 2019.

**16.7** Department of Defense/Department of Energy Consolidated Quality Systems Manual for Environmental Laboratories Version 5.4, 2021.

**16.8** Department of Defense/Department of Energy Consolidated Quality Systems Manual for Environmental Laboratories Version 6.0, 2023.

## 17.0 Method Modifications:

### 17.1 Deviations from Method Source and Rationale

Method 8330 prescribes the shelf life for standards as follows:

| Standards | Concentration | Shelf Life per 8330A | Shelf Life per 8330B |
|---|---|---|---|
| Stock standards | 1,000,000 µg/L (1,000 ppm) | 6 Months | 1 year |
| Intermediate standards | 2.5 to 10,000 µg/L | 30 days | 1 year |
| Working standards | 1 to 500 µg/L | Daily | Daily |

This SOP describes the use of 100,000 µg/L high-level standards, which are assigned a 6 month shelf life based on Eurofins Denver's experience with these materials. Further, a 25 - 1,000 µg/L standard mix is characterized as an intermediate-level, and assigned a 30 day shelf life.

**17.2** Acidic water (pH < 3) is added to the concentrated extract, dilutions, and all calibration and check standards in place of reagent water. This is to preserve any Tetryl present in the extract.

**17.3** The samples are dried, sieved, subsampled, ground, and extracted per project specification. See DV-OP-0018 for more details.

## 18.0 Attachments

Attachment 1. Analyte List

Attachment 2. Suggested Calibration Levels (µg/mL)

Attachment 3. Spike Levels

Attachment 4. Assessment of Method Blank Results

Attachment 5. Suggested Instrument Conditions

Attachment 6. Example Chromatogram from Primary Column – Ultracarb ODS (20)

Attachment 7. Example Chromatogram from Confirmation Column – Luna Phenyl-Hexyl

## 19.0 Revision History

This section has been added beginning with Revision 0. Only details of the last two revisions are incorporated into this SOP. Prior revisions are documented in the QA files and available upon request.

Revision 28, dated 13 July 2023

- Annual Review
- Language and formatting corrected throughout
- Changed Appendix to Attachment throughout document
- Add QSM 6.0 criteria throughout
- Removed Section 1.3
- Removed Section 1.3.4. 3,5-dinitroaniline is offered by 8330A and B and has been added into the 8330 Intermediate spike mix. Sections 7.6.2, 7.6.4, 7.7.1, 7.5.2, 10.5.6.2, Attachment 1 and 2.
- Updated Section 2.2 to include correct Appendix reference.
- Updated Section 6.3 on computer software and hardware
- Removed measurement uncertainty from Section 7.4
- Updated concentration in Sections 7.7.1
- Updated Note in Table 8.4 to include volume for MS/MSD
- Update Section 10.5.7 and 10.5.8 for clarity
- Remove Section 17.3

Revision 27, dated 13 July 2023

- Updated copyright information
- Section 11.3.3 updated to include %RSE for linear, quadratic, weighted, or unweighted curve types.
- Section 9.9 grinding blanks criteria are updated.

**Attachment 1. Analyte List**

| Compound | Peak # | | CAS # | Symbol |
|---|---|---|---|---|
| | Primary Column | 2º Column | | |
| 2,6-Diamino-4-nitrotoluene** | 2 | 1 | 59229-75-3 | 2,6-DA-4-NT |
| Hexahydro-1,3,5-trinitroso-1,3,5-triazine | 3 | 3 | 13980-04-6 | TNX |
| Octahydro-1,3,5,7-tetranitro-1,3,5,7,-tetrazocine | 3 | 6 | 2691-41-0 | HMX |
| 2,4-Diamino-6-nitrotoluene** | 5 | 2 | 6629-29-4 | 2,4-DA-6-NT |
| 1,3-dinitroso-5-nitro-1,3,5-triazacyclohexane | 6 | 5 | 80251-29-2 | DNX |
| Hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine | 7 | 7 | 5755-27-1 | MNX |
| Hexahydro-1,3,5-trinitro-1,3,5-triazine | 8 | 8 | 121-82-4 | RDX |
| Picric Acid (2,4,6-Trinitrophenol) | 9 | 4 | 88-89-1 | PA |
| 1,3,5-Trinitrobenzene | 10 | 20 | 99-35-4 | 1,3,5-TNB |
| 1,2-Dinitrobenzene (surrogate) | 11 | 10 | 528-29-0 | 1,2-DNB |
| 1,3-Dinitrobenzene | 12 | 13 | 99-65-0 | 1,3-DNB |
| Methyl-2,4,6-trinitrophenyl nitramine | 13 | 23 | 479-45-8 | Tetryl |
| 3,5-Dinitroaniline | 14 | 11 | 618-87-1 | 3,5-DNA |
| Nitrobenzene | 15 | 9 | 98-95-3 | NB |
| Nitroglycerin | 16 | 12 | 55-63-0 | NG |
| 2,4,6-Trinitrotoluene | 17 | 24 | 118-96-7 | 2,4,6-TNT |
| 4-Amino-2,6-dinitrotoluene | 18 | 17 | 19406-51-0 | 4-Am-DNT |
| 2-Amino-4,6-dinitrotoluene | 19 | 19 | 35572-78-2 | 2-Am-DNT |
| 2,6-Dinitrotoluene | 20 | 21 | 606-20-2 | 2,6-DNT |
| 2,4-Dinitrotoluene | 21 | 22 | 121-14-2 | 2,4-DNT |
| 2-Nitrotoluene (o-Nitrotoluene) | 22 | 14 | 88-72-2 | 2-NT |
| 4-Nitrotoluene (p-Nitrotoluene) | 23 | 16 | 99-99-0 | 4-NT |
| PETN | 24 | 25 | 78-11-5 | PETN |
| 3-Nitrotoluene (m-Nitrotoluene) | 25 | 18 | 99-08-1 | 3-NT |
| Triamine Trinitrobenzene | 1 | 15 | 3058-38-6 | TATB |

**Non-standard spike analytes, only spiked when specifically requested.

A: - Agilent Poroshell 120, EC-C-18 column

B: - Phenomenex Luna Phenyl Hexyl column

**Attachment 2. Suggested Calibration Levels (µg/mL)**

| Compound | Level 1 | Level 2 | Level 3 | Level 4* | Level 5 | Level 6 | Level 7 | Level 8 |
|---|---|---|---|---|---|---|---|---|
| MNX | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| DNX | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| TNX | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| HMX | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| RDX | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| 1,3,5-Trinitrobenzene | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| 1,3-Dinitrobenzene | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| Tetryl | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| Nitrobenzene | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| 2,4,6-Trinitrobenzene | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| 4-Amino-2,6-dinitrotoluene | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| 2-Amino-4,6-dinitrotoluene | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| 2,4-Dinitrotoluene | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| 2,6-Dinitrotoluene | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| 2-Nitrotoluene | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| 3,5-Dinitroaniline | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| 3-Nitrotoluene | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| 4-Nitrotoluene | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| Nitroglycerin | 0.2 | 0.5 | 1.0 | 2.5 | 4 | 7 | 10. | 25 |
| PETN | 0.2 | 0.5 | 1.0 | 2.5 | 4 | 7 | 10. | 25 |
| 2,4-Diamino-6-ditrotoluene | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| 2,6-Diamino-4-nitrotoluene | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| Picric Acid | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| 1,2-Dinitrobenzene (surrogate) | 0.02 | 0.05 | 0.10 | 0.25 | 0.4 | 0.7 | 1.0 | 2.5 |
| Triamine Trinitrobenzene | 0.02 | 0.06 | 0.12 | 0.2 | 0.4 | 0.8 | 1.2 | 2.4 |

* This level is used for the daily and continuing calibration standards.

**Attachment 3. Spike Levels**

| LCS / MS / MSD Spike Levels | | | | | |
|---|---|---|---|---|---|
| **Method and Matrix** | **Working Solution** | | **Spike Amount** | **Final Concentrations** | |
| | **Standard Analytes** | **Nitroglycerin & PETN** | | **Standard Analytes** | **Nitroglycerin & PETN** |
| Water, Methods 8330A and 8330B | 10 µg/mL | 100 µg/mL | 0.1 mL | 2 µg/L | 20 µg/L |
| Soil Method 8330A (2 g prep) | 10 µg/mL | 100 µg/mL | 0.5 mL | 2.5 mg/kg | 25 mg/kg |
| Soil Method 8330B (10 g prep) | 10 µg/mL | 100 µg/mL | 1.0 mL | 1.0 mg/kg | 10 mg/kg |

| Surrogate Spike Levels | | | |
|---|---|---|---|
| **Method and Matrix** | **Working Solution 1,2-DNB** | **Spike Amount** | **Final Concentration** |
| Water, Methods 8330A and 8330B | 10 µg/mL | 0.1 mL | 2 µg/L |
| Soil Method 8330A (2 g prep) | 10 µg/mL | 0.5 mL | 2.5 mg/kg |
| Soil Method 8330B (10 g prep) | 10 µg/mL | 1.0 mL | 1.0 mg/kg |

**Attachment 4. Assessment of Method Blank Results**

| Primary Column | Confirmation Column | Corrective Action |
|---|---|---|
| NO | NO | Proceed with analysis; MB is ND |
| YES | NO | Proceed with analysis; MB is ND |
| NO | YES | Proceed with analysis; MB is ND |
| J FLAG | NO | Proceed with analysis; MB is ND |
| NO | J FLAG | Proceed with analysis; MB is ND |
| J FLAG | J FLAG | Detection confirms; however, no reworks needed if primary result < ½ RL<br>If primary result > ½ RL, re-extract if possible unless the sample-samples are ND or > 10x the MB for the analyte detected in the MB.<br>Report with NCM |
| YES | YES | Samples must be ND or > 10x the MB; otherwise re-extract.<br>Report with NCM |
| J FLAG | YES | If primary result > ½ RL, re-extract if possible unless the sample analytes are ND or > 10x the MB for the analyte detected in the MB. The relative percent difference between the primary and confirmation result determines which result to report. See Section 12.3. Flags applied by formatter. Report with NCM. |
| YES | J FLAG | |

YES = Analyte was detected at a concentration above the RL
NO = Analyte was not detected above the MDL
J FLAG = Analyte was detected at a concentration less than the RL but at or above the MDL

**NOTE: The formatter assigned in TALS will apply B flags according to program rules. Do NOT remove B flags. If a client requests such removal, QA staff and PM must be involved in the decision making process and all such removals must be documented. (See Policy P15-001.)**

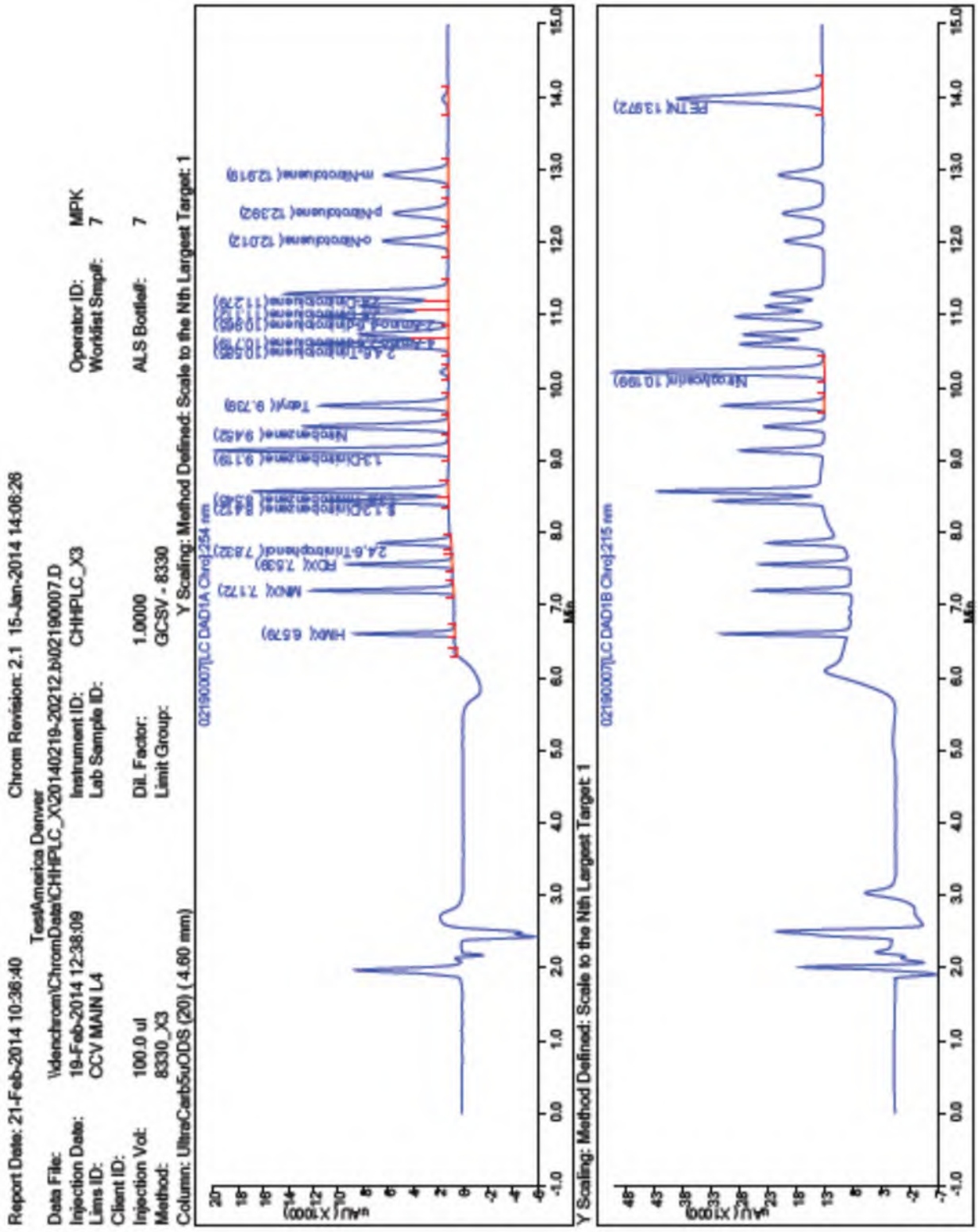
**Attachment 5. Suggested Instrument Conditions**

| **Instrument Conditions** | | | |
|---|---|---|---|
| **Column Types** | Primary Column: Agilent Poroshell 120, EC-C18, 4.6 mm x 150 mm (2.7 µm) | | |
| | Confirmation Column: Phenomenex Luna Phenyl-Hexyl, 4.6mm x 150 mm (3.0 µm) | | |
| **Detector - 1st Channel** | UV 254 nm, 40 R 550 nm | | |
| **Detector - 2nd Channel** | UV 215 nm, 40 R 450 nm | | |
| **General Parameters** | | Primary Column | Confirmation Column |
| | Injection Volume: | 50 µL | 100 µL |
| | Column Temperature: | 26.9 °C | 24.3 °C |

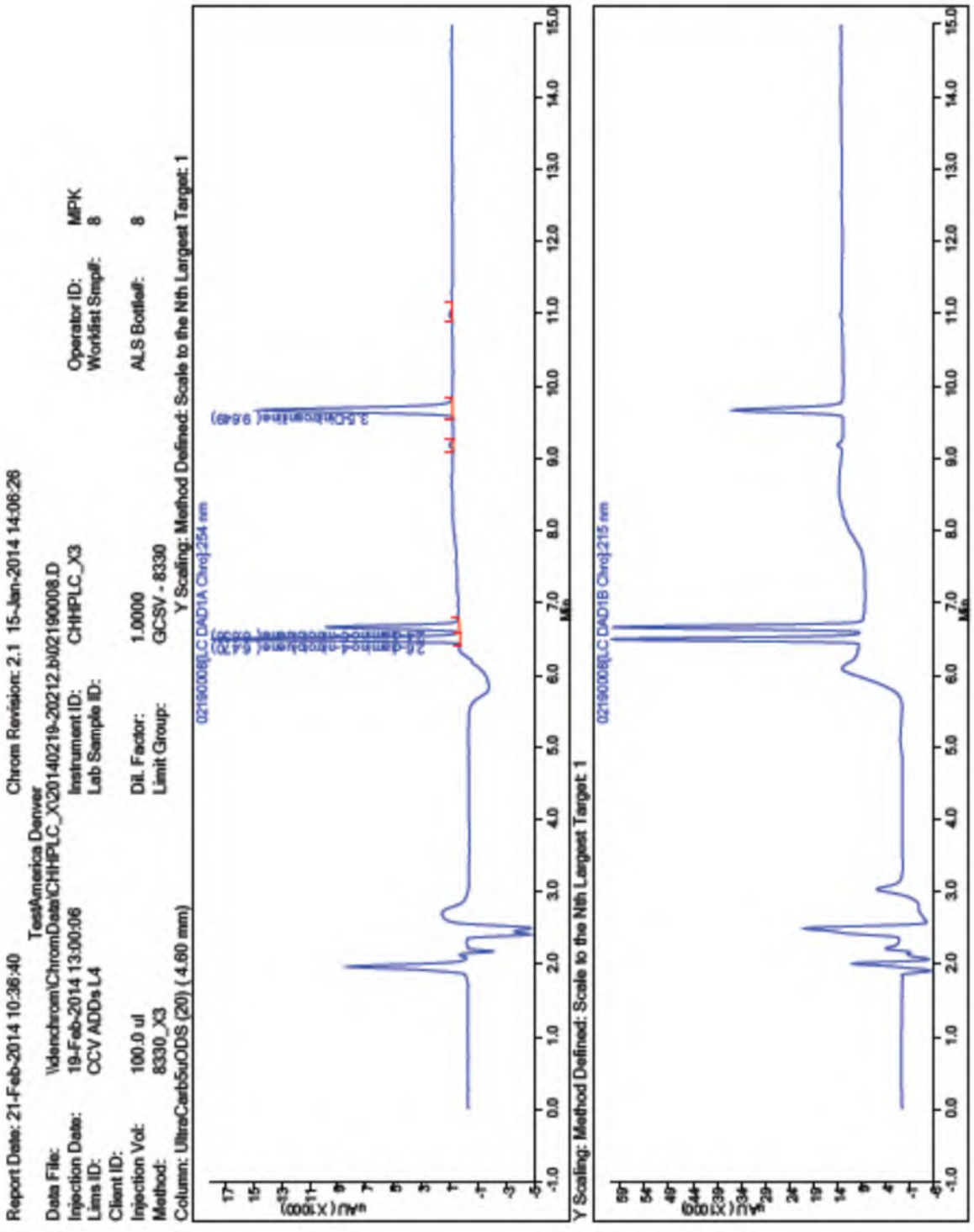
| **Suggested Column Parameters** | | | | | | |
|---|---|---|---|---|---|---|
| | **Stop Time (min.)** | **Post Time (min.)** | **Flow Rate (mL/min.)** | **Time (minutes)** | **% $H_2O$** | **% Methanol** |
| Gradient: Primary (C18) Column | 16.5 | 5.0 | 0.75 | 0.0, 2.0, 2.98, 13.0, 13.5, 16.0, 16.5 | 90, 90, 42, 40,5, 5, 90 | 10, 10, 58, 60, 95, 95, 10 |
| Gradient: Confirmation (Phenyl-Hexyl) Column | 29.0 | 4.0 | 0.8 | 0.0, 1.0, 21.0, 25.5, 28.0, 28.5 | 50, 50, 30, 5, 5, 50 | 50, 50, 70, 95, 95, 50 |

**Attachment 6. Example Chromatograms from Primary (C18) Column**

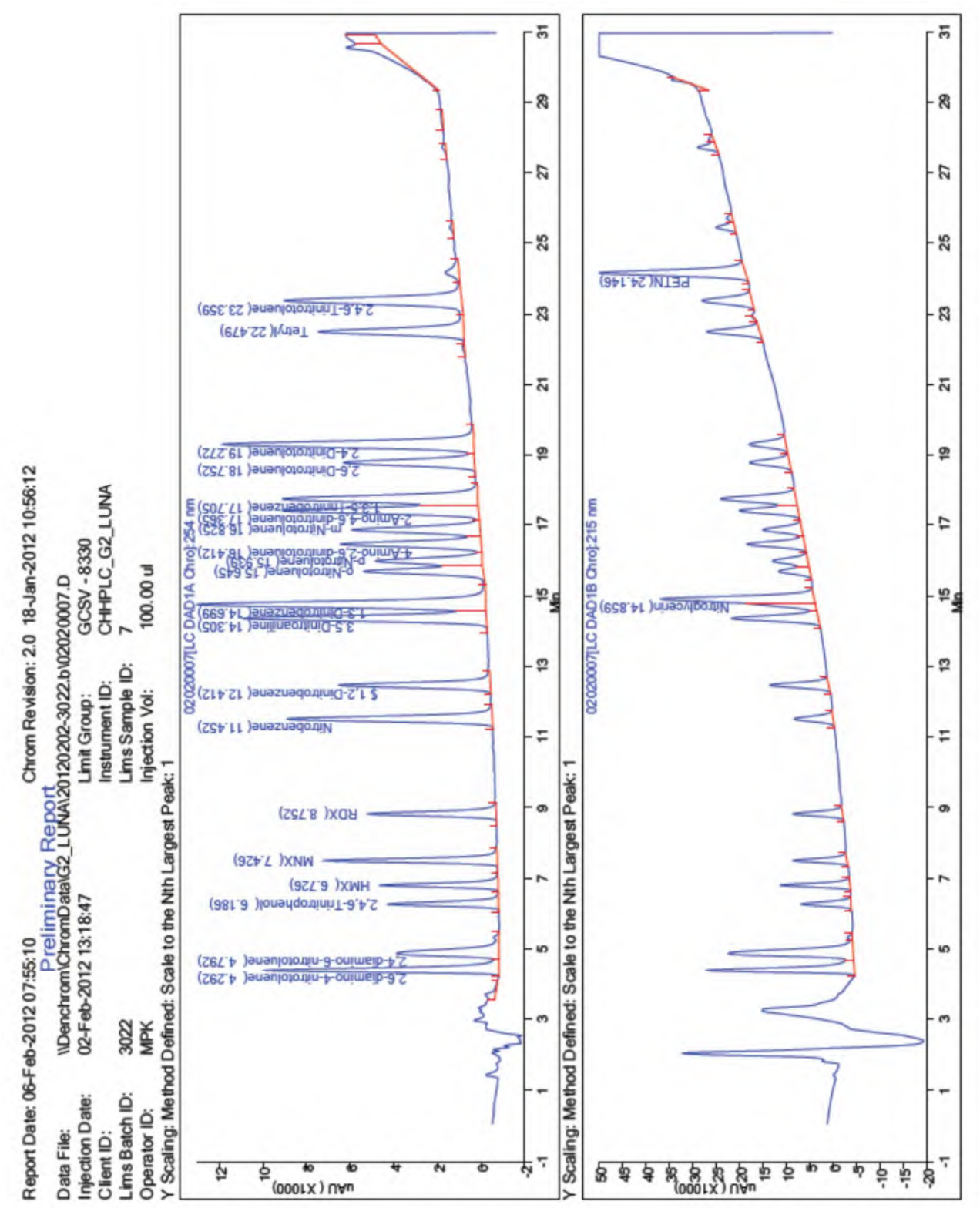
**8330IntermStk:**



**Additional Compounds (8330_ADDs):**



**Attachment 7. Example Chromatogram from Confirmation (Phenyl-Hexyl) Column**



| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Semivolatiles in Waters and Soils by Methods 8270D/E SIM and 625.1 SIM by GC/MS** | Level:<br>**Work Instruction** |
| Document number:<br>**T-SVOA-WI9995** | | |
| Old Reference:<br>**1-P-QM-WI-9015192** | | |
| Version:<br>**20** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **TYZ8**<br>Effective Date: **07-JUL-2023** | Document users:<br>**5_EUUSLA_GC/MS Semivolatiles_All** | Responsible:<br>**5_EUUSLA_GC/MS Semivolatiles_Manager** |

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## Revision Log

| **Revision:** 20 | **Effective Date:** | This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Reference | Remove | Remove reference to 8270C |
| LIMS ID | Addition | Added 8270D_SIM_DOD5, 8270E_SIM_DOD5 |
| Throughout | Removal | Removed references to 8270C |

| **Revision:** 19 | **Effective Date:** | May 20,2022 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Header | Reflects current Naming | Updated to current company name |
| Basic Principles | Updated SOP #s | Added T-OE-SVOA -WI11432 and T-OE-SVOA-WI19916 |
| Personnel Training and Qualifications | Reflects current practice | Updated IDOC criteria for 8270 and 625.1 |

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| **Revision:** 19 | **Effective Date:** | May 20,2022 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Procedure | Clarification | Added wording for clarification on certain processes. |
| Statistical Information/Method Performance | Text duplicated | Removed duplicated text; revised statement about which methods use statistical surrogate limits |
| Quality Assurance/Quality Control | Clarification | Clarified that marginal exceedance is only used for 8270C/D/E |
| Table I | Removed | Method 8270C was added to the existing Table II. All table numbering was then renumbered accordingly. |

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## Reference


1. Test Methods for Evaluating Solid Wastes, SW-846 Method 8270D (SIM), July 2014
2. Hazardous Waste Test Method, SW-846 Test Method 8270E (SIM), June 2018
3. Test Methods for Evaluating Solid Wastes, SW-846 Method 8000D, July 2014
4. USEPA, 40 CFR Part 136, Method 625.1, December 2016 (SIM); MUR Effective September 2017
5. *Hewlett-Packard Operations Manuals*
6. *Chemical Hygiene Plan*, current version


## Cross Reference

| Document | Document Title |
|---|---|
| *T-OE-SVOA-WI10916* | Low-Level Sonic Probe Extraction Procedure by Method 3550C for the Determination of Semivolatiles in a Solid Matrix |
| *T-OE-SVOA-WI10928* | Microwave Extraction by Method 3546 for Semivolatiles |
| *T-OE-SVOA-WI11432* | Separatory Funnel Extraction by Method 3510C for BNAs in Wastewater |
| *T-OE-SVOA-WI10947* | Separatory Funnel Extraction for BNAs in Wastewater by Method 612 or 625.1 |
| *T-SVOA-FRM9602* | Dept 4026 Calculations |
| *T-SVOA-WI11998* | Semivolatile Spiking and Calibration Standards |
| *T-SVOA-WI9598* | GC/MS Preventative and Corrective Maintenance |
| *T-SVOA-WI9604* | Monitoring GC/MS Semivolatile QC Data Acceptance Limits |
| *QA-SOP11178* | Demonstrations of Capability |
| *QA-SOP11892* | Determining Method Detection Limits and Limits of Quantitation |

## Scope

This method is suitable for the determination of low-level semivolatile compounds in soils and waters by selected ion monitoring (SIM) Gas Chromatography/Mass Spectrometry (GC/MS). The analysis applies to a concentration range that spans from an MDL of 0.01 µg/L in water (0.33 µg/kg for soil) to an upper calibration concentration of 10 µg/L in water (330 µg/kg for soil). Specific compound lists and their associated MDLs/LOQs are found in the Laboratory Information Management System (LIMS) under the analysis numbers listed on the front page of this SOP.

## Basic Principles

Water samples are extracted according to *T-OE-SVOA-WI11432* for 8270 analysis or *T-OE-SVOA-WI10947* for 625.1 analysis. Soil samples are extracted according to either *T-OE-SVOA-WI10928* or *T-OE-SVOA-WI10916*.

An environmental sample (soil, water, sludge, etc.) is solvent extracted and then analyzed by electron impact gas chromatography/mass spectrometry (EI GC/MS). A predetermined aliquot of an extract containing organic compounds in solvent is injected onto a fused silica capillary column coated with a relatively non-polar stationary phase, which is enclosed in a temperature controlled oven. A carrier gas, which is ultra-pure helium, passes continuously through the column. The GC oven is temperature programmed and the organic mixture separates into its individual components as it moves along the length of the column. This separation is the function of the polarity and boiling point of the individual compounds. This column empties into a mass selective detector. When a compound reaches the detector, it is bombarded by high-energy electrons (70 eV). This causes the compounds to fragment, forming ions. By applying various voltages to the lens, the positive ions are thrust into a quadrupole mass analyzer, which selects for a given mass fragment at a given time. These selected fragments reach an electron multiplier that detects and generates a signal for each mass fragment. The signals are amplified and sent to a computer. By analyzing for specific masses over a narrow mass range, SIM analysis allows for longer dwell times at specific masses. This allows for significantly greater sensitivity of analysis with a small reduction in specificity of analysis.

Target compounds are identified on the basis of spectral match and relative retention times as they compare to standards that are injected every 12 hours on the same system. Quantification is achieved via use of the internal standard calibration technique. The average relative response factor of a multi-point calibration is used for quantification when the appropriate criteria are met.

## Interferences

Method interferences may be caused by impurities in solvents, reagents, glassware, or other hardware used in the processing of samples. All glassware is solvent rinsed before use and a method blank is extracted with each extraction batch to demonstrate that the extraction system is free of contamination.

Sample matrices can have an effect on the ability of the GC/MS system to resolve the individual masses used for quantification. Samples may require dilutions, a reduction in the extraction volume/weight used, a raised final extraction volume, or extract clean-up using various techniques in order to achieve proper target separation and determination.

## Safety Precautions and Waste Handling

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See Chemical Hygiene Plan for general information regarding employee safety, waste management, and pollution prevention.

The toxicity or carcinogenicity of each reagent used in this method has not been precisely defined; therefore, each chemical compound should be treated as a potential health hazard. Exposure to these chemicals must be reduced to the lowest possible level by whatever means available, such as the use of fume hoods, lab coats, safety glasses, and gloves.

All solvent waste generated from this analysis must be collected for recycling (if applicable) or must be disposed of in designated containers. These will then be transferred to a lab-wide disposal facility. Any solid waste material (disposable pipettes, broken glassware, and pH paper) must be disposed of in the normal solid waste collection containers or sharps containers, as applicable.

## Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the analyst's training records.

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Initially, each analyst performing instrumental analysis must work with an experienced analyst for a period of time until they can independently perform daily maintenance, calibrate the instrument, change the column, clean the source, interpret chromatograms, perform calculations, review data, and enter data into the LIMS. The analyst is also trained on the preparation of dilutions and calibration standards. Proficiency is measured through documented audits of the tasks listed and over checking of data as well as an Initial Demonstration of Capability (IDOC).

For 8270D/E the IDOC consists of four laboratory control samples that are spiked at 1-4x the LOQ and are carried through all steps of the procedure. For 625.1, the IDOC is spiked near the midpoint of the calibration. The defined acceptance criteria must be met. The criteria include the calculation of mean accuracy and standard deviation. The mean accuracy for all compounds must fall within the laboratory's most recent statistically derived LCS limits ±20% and must exhibit a standard deviation ≤20% for methods 8270D/E. The mean accuracy for all compounds must fall within the limits listed in table V under 'X' and must exhibit a standard deviation less than or equal to the limits listed in Table V under 's' for method 625.1. Analytes not listed in table V in 625.1 use statistically derived limits. See statistical info/method performance for more information.

Various options are available for a DOC and can include four laboratory control samples or one blind sample. Refer to *QA-SOP11178* for more guidance on these options.

## Sample Collection, Preservation, and Handling

Water samples are collected in 250mL or 1L glass amber containers with PTFE-lined lids and may be preserved with sodium thiosulfate ($Na_2S_2O_3$). They are stored at 0°C to 6°C, not frozen, prior to extraction and must be extracted within 7 days of collection.

Solid samples are collected in glass wide-mouth jars with PTFE-lined lids and are not preserved. They are stored at 0°C to 6°C, not frozen, prior to extraction and must be extracted within 14 days of collection.

All sample extracts must be stored at ≤-10°C (freezer) and protected from light using amber glass vials. All samples, sample extracts, and standards must be stored separately and in an area free from contamination. All extracts must be analyzed within 40 days of sample extraction.

## Apparatus and Equipment

1. Hewlett-Packard Model 6890 Gas Chromatograph or equivalent

2. Hewlett-Packard Model 5973 and 5975 Mass Selective Detector or equivalent

3. Hewlett-Packard ChemStation Software or equivalent

4. Chrome Peak Review data system or equivalent

5. Column:

30 m x 0.25 mm x 0.5 µm film thickness, Restek Rxi-5Sil MS or equivalent
30 m x 0.25 mm x 0.25 µm film thickness, Agilent DB-5MS or equivalent

6. Hamilton Gastight syringe, or equivalent – various volumes

7. Amber GC vials with crimp caps

## Reagents and Standards

Refer to *T-SVOA-WI11998* for all standard preparation information.

## Calibration

Calibration is accomplished using an internal standard calibration technique. Calibration standards at five or more concentration levels are analyzed. See Procedure F for the initial calibration process and criteria and see Procedure G for the continuing calibration process and criteria. If any client, state, or agency has more stringent calibration criteria, these must be followed instead.

**NOTE**: South Carolina does not allow the use of quadratic fits.

## Procedure

A. Standard preparation

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Solutions are used to standardize the GC/MS system every 12 hours. Refer to *T-SVOA-WI11998* for standard preparation. Calibration solutions may be used up to the labeled expiration date or until component degradation is observed. Degradation is determined by the inability to pass continuing calibration checks or by observations of unacceptable chromatography.

B. Internal standards

Internal standard mix is added to all standards and subsequent samples at a concentration of 1 µg/mL for soil and 1L analyses, and 0.25 µg/mL for 250 mL analyses. Using a 25 µL syringe, add 10 µL of internal standard to 1 mL of sample extract or standard. See Table III for the list of compounds calibrated for and the internal standard that is assigned to each.

C. Daily maintenance

Refer to *T-SVOA-WI9598* for this procedure

D. Instrument conditions

1. The GC/MS system must be capable of meeting the following specifications:

| | |
|---|---|
| Mass range: | 35 to 500 amu |
| Scan time: | 1 scan/sec |
| GC column: | 30 m x 0.25 mm x 0.5 µm film Restek Rxi – 5 or equivalent |
| Injector temperature and mode: | 250° to 300°C; splitless |
| Transfer line temperature: | 250° to 300°C |
| Detector temperature: | 300°C |
| EI condition: | 70 eV |
| Mass scan: | Capable of SIM scanning (see manufacturer's instructions) |
| Carrier gas: | Helium at approximately 30 cm/sec. |
| GC Oven temperature program: | Initial temperature – 35°C<br>Initial hold time – 1.82 minutes<br>GC Ramp #1 – 20°C/minute to 310°C<br>GC Ramp #2 – 4°C/minute to 325°C<br>Final hold time – 4.30 minutes |

**NOTE:** It is not necessary to use the exact parameters listed above. Equivalent columns and conditions may be used to improve the linearity, sensitivity, overall chromatography, and performance required by the method on each GC/MS system.

2. Prior to analysis by SIM, a check standard must be analyzed in the full scan mode to determine where the specific start and stop times are for each of the groups. Each time column maintenance is performed, the scan times are reviewed to ensure that all ions are included. The GC/MS is configured in the SIM mode with a total cycle time (including voltage reset time) of 1 second or less. Set the Low Res to “N” and the Start Time for each group. In the m/z field, enter the ions for each group from the following tables:

| **GROUP 1 (Dwell – 60 msec)** | | | |
|---|---|---|---|
| **Compound** | **Type** | **Quant Ion (m/z)** | **Monitor Ion (m/z)** |
| 1,4-Dioxane | Target | 88 | 58 |
| N-Nitrosodimethylamine | Target | 74 | 42 |

| **GROUP 2 (Dwell – 40 msec)** | | | |
|---|---|---|---|
| **Compound** | **Type** | **Quant Ion (m/z)** | **Monitor Ion (m/z)** |
| Quinoline | Target | 129 | 102 |
| 1,4-Dichlorobenzene-d4 | ISTD | 152 | 115 |
| Naphthalene-d8 | ISTD | 136 | 68 |

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| GROUP 2 (Dwell – 40 msec) | | | |
|---|---|---|---|
| **Compound** | **Type** | **Quant Ion (m/z)** | **Monitor Ion (m/z)** |
| Naphthalene | Target | 128 | 129,102 |
| Bis(2-chloroethyl)ether | Target | 93 | 63 |

| GROUP 3 (Dwell – 40-50 msec) | | | |
|---|---|---|---|
| **Compound** | **Type** | **Quant Ion (m/z)** | **Monitor Ion (m/z)** |
| Dimethylphthalate | Target | 163 | 194 |
| 2-Methylnaphthalene | Target | 142 | 141 |
| 1-Methylnaphthalene | Target | 142 | 141 |
| 1-Methylnaphthalene-d10 | Surrogate | 152 | 76 |
| Acenaphthylene | Target | 152 | 76 |
| Acenaphthene-d10 | ISTD | 164 | 162 |
| Acenaphthene | Target | 154 | 152 |

| GROUP 4 (Dwell – 25-30 msec) | | | |
|---|---|---|---|
| **Compound** | **Type** | **Quant Ion (m/z)** | **Monitor Ion (m/z)** |
| Dibenzofuran | Target | 168 | 139 |
| Diethylphthalate | Target | 149 | 177 |
| Fluorene | Target | 166 | 165 |
| Hexachlorobenzene | Target | 284 | 142 |
| N-Nitrosodiphenylamine | Target | 169 | 168 |
| Phenanthrene-d10 | ISTD | 188 | 94 |
| Phenanthrene | Target | 178 | 176 |
| Anthracene | Target | 178 | 176 |

| GROUP 5 (Dwell – 50 msec) | | | |
|---|---|---|---|
| **Compound** | **Type** | **Quant Ion (m/z)** | **Monitor Ion (m/z)** |
| Di-n-butylphthalate | Target | 149 | 150 |
| Fluoranthene | Target | 202 | 101 |
| Pyrene | Target | 202 | 101 |
| Flouranthene-d10 | Surrogate | 212 | 106 |

| GROUP 6 (Dwell – 40 msec) | | | |
|---|---|---|---|
| **Compound** | **Type** | **Quant Ion (m/z)** | **Monitor Ion (m/z)** |
| Butylbenzylphthalate | Target | 149 | 91 |
| Benzo(a)anthracene | Target | 228 | 229 |
| Chrysene-d12 | ISTD | 240 | 236 |
| Chrysene | Target | 228 | 229 |
| Bis(2-ethylhexyl)phthalate | Target | 149 | 167 |
| Di-n-octylphthalate | Target | 149 | 150 |
| Benzo(b)fluoranthene | Target | 252 | 253 |
| Benzo(k)fluoranthene | Target | 252 | 253 |
| Benzo(e)pyrene | Target | 252 | 253 |
| Benzo(a)pyrene | Target | 252 | 253 |

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| GROUP 6 (Dwell – 40 msec) | | | |
|---|---|---|---|
| **Compound** | **Type** | **Quant Ion (m/z)** | **Monitor Ion (m/z)** |
| Perylene-d12 | ISTD | 264 | 260 |
| Benzo(a)pyrene-d12 | Surrogate | 264 | 132 |
| Perylene | Target | 252 | 253 |

| GROUP 7 (Dwell – 100 msec) | | | |
|---|---|---|---|
| **Compound** | **Type** | **Quant Ion (m/z)** | **Monitor Ion (m/z)** |
| Indeno(1,2,3-cd)pyrene | Target | 276 | 138 |
| Dibenz(a,h)anthracene | Target | 278 | 139 |
| Benzo(g,h,i)perylene | Target | 276 | 138 |

**NOTE:** Each program must be identical for the Temperature and Pressure programs so that the peak retention times are the same.

E. Tuning

1. The DFTPP tune check standard is used to assess GC column performance and injection port inertness as well as mass spectrometer performance. The GC/MS system's tune is checked by inspecting the mass spectrum of the DFTPP peak and column performance and injection port inertness is evaluated with pentachlorophenol, benzidine, and DDT.

2. The GC/MS should be tuned using a 50 ng/µL solution (12.5 ng/µL for 250 mL analyses) of DFTPP containing decafluorotriphenylphosphine, pentachlorophenol, benzidine, and DDT. This solution is prepared as indicated in *T-SVOA-WI11998*. See the table below for acceptance criteria and corrective actions.

| **Frequency** | **Acceptance Criteria** | **Corrective Action** |
|---|---|---|
| Prior to initial calibration and every 12 hours prior to continuing calibration standard<br><br>**NOTE**: Analysis of DFTPP, the LCS, and the blank are outside of the 12-hour analysis shift for method 625.1. The total time for DFTPP, the LCS, the blank, and the 12-hour shift must not exceed 15 hours. | 1. Ion Acceptance Criteria in Table I<br><br>2. DDT breakdown ≤20%*<br><br>3. Tailing factors:<br><br>a. 8270D/E:<br>- Benzidine ≤2<br>- Pentachlorophenol ≤2**<br><br>b. 625.1:<br>- Benzidine <2<br>- Pentachlorophenol <2** | 1. Re-tune. Analysis cannot proceed until tune meets criteria.<br><br>2. More aggressive injection port maintenance.<br><br>3. Clean the source.<br><br>4. Change the column. |

*DDT breakdown greater than 20% may be acceptable if calibrating for polynuclear aromatic hydrocarbon (PAH) compounds only. Consult supervisor when this situation occurs.

**Unless project requirements dictate otherwise, the PCP tailing factor may fail acceptance criteria as only compounds with basic or neutral properties are targets of interest by SIM.

3. Use only the background-subtracted spectrum of the following when evaluating the DFTPP:

A three scan average of the apex of the scan, the apex of the scan -1, and the apex of the scan +1.

**NOTE:** All standards, samples, and associated quality control samples analyzed within a particular tune must use the identical conditions of the mass spectrometer.

F. Initial calibration (ICAL)

1. The initial calibration consists of analyzing standards at 6 concentration levels (0.05, 0.2, 0.5, 1, 5, and 10 ng/µL for solid and 1L water analyses) (0.01, 0.05, 0.1, 0.5, 1, and 2.5 ng/µL for 250-mL analyses). The initial calibration for 8270D soil and 1L water extractions includes an additional calibration point at 0.01 ng/µL. Response factors are produced for each level. An average response factor is then generated for each compound and surrogate. The relative standard deviation (%RSD) of the response factors determines the

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suitability of the average relative response factor for calculation of compound concentration. Use of the average relative response factor requires at least four calibration levels. If an alternate fit is required for any compound, at least five calibration levels are required for linear fits, and six calibration levels are required for quadratic fits. At the end of the calibration standard injections, inject the Method Detection Limit (MDL) standard and an initial calibration verification (ICV) standard. See the tables below for acceptance criteria and corrective actions.

| ICAL Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| 1. Initially establish with at least 6 levels of standards.<br><br>2. When % drift in the daily continuing calibration check standard fails criteria. | 1. %RSD requirements (if these criteria are met, then calculate concentrations based upon the average response factor fit):<br><br>a. 8270D/E: %RSD ≤20%<br><br>b. 625.1: %RSD ≤35%<br><br>2. The relative retention time of each target compound in each calibration standard should agree within 0.06 relative retention time units.<br><br>3. Structural isomers that produce very similar mass spectra should be identified as individual isomers if they have sufficiently different GC retention times. Sufficient GC resolution is achieved if the height of the valley between two isomer-peaks is <25% of the sum of the two peak heights. Otherwise, structural isomers are identified as isomeric pairs.<br><br>4. 8270D/E: See table II for minimum response factors for each compound. It is not necessary to meet these specifications. They are provided merely as guidance.<br><br>5. The %Error is measured between the calculated and expected amounts of a compound at each calibration level to determine the calibration function acceptability for linear and quadratic curve fits. The % error must be ≤50% for the low calibration point. For calibration points above the LOQ the % error must be ≤30%. **NOTE:** For 625.1 calibrations, only the low calibration point and the mid-point need to be evaluated. | 1. If the %RSD for any compound is greater than the defined acceptance criteria, use a first degree(linear) fit provided the correlation coefficient (CC; r) is ≥0.995 or the coefficient of determination (COD;r2) is ≥0.99. If the linear fit fails to meet this criteria, then a second order (quadratic) fit may be used provided the coefficient of determination is ≥0.99.* If use of both the linear fit and the quadratic fit is acceptable using these criteria for any given compound, then use the fit with the smallest negative y-intercept. When using a quadratic fit, if the y-intercept quantifies to be greater than the MDL, consult your supervisor immediately or re-calibrate.<br><br>2. Re-inject any levels that appear to be outliers due to an injection error.<br><br>3. If standard levels on the outside of the curve appear to be outliers for individual compounds and are throwing off the calibration curve, they can be dropped from the calibration keeping the following in mind:<br><br>a. If a low calibration point is dropped, the analyst must ensure that the compound is still being calibrated down to or below its RL.<br><br>b. If a high calibration point is dropped, any detections must recover below the new upper calibration limit.<br><br>4. Re-prep calibration standards.<br><br>5. Perform more aggressive system maintenance as outlined in *T-SVOA-WI9598* and re-calibrate. |

*South Carolina does not allow the use of quadratic fits.

| MDL Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| Immediately following an initial | 1. The system must be able to | 1. If any compounds are not |

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| | | |
|---|---|---|
| calibration and before sample analysis | detect all compounds in the MDL solution. | detected in the MDL standard, analysis can proceed if the compound is detected at or below its MDL in a higher concentration level.<br><br>2. If the system does not detect the compound(s), then the tuning and/or calibration procedure must be repeated under conditions that will yield a detection for the compound(s) or the MDL must be raised for the compound(s).<br><br>3. Perform more aggressive system maintenance as outlined in *T-SVOA-WI9598* and re-calibrate. |

**NOTE:** 625.1 does not require the analysis of an MDL standard as part of the initial calibration.

| ICV Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| Immediately following an initial calibration and before sample analysis | 1. The ICV must be prepared using a second source standard<br><br>2. %D requirements:<br><br>a. 8270D/E: ±30%D<br><br>b. 625.1: Criteria listed under Q in Table V of this SOP<br><br>3. The EICP area for each internal standard must fall within the window of -50% to +100% of the areas from the mid-level calibration standard produced during the initial calibration.<br><br>Surrogate compounds must be included in the processing list for analysis 625.1 and must meet the same criteria as target compounds. | 1. Re-prep and re-analyze the ICV.<br><br>2. If the recovery for any compound fails these criteria low, the compound cannot be analyzed for under the calibration until a new ICV has been analyzed.<br><br>3. If the recovery for any compound fails these criteria high, the compound may be analyzed for but any samples with detections should be re-analyzed under a valid ICAL or will be reported with a qualifying comment.<br><br>4. Perform more aggressive system maintenance as outlined in *T-SVOA-WI9598* and re-calibrate. |

**NOTE:** All data associated with failed quality control will be qualified on the final report. QC outlier qualifiers are added to the associated sample results on the report by the LIMS.

2. One of the calibration standards must be at a concentration at or below the limit of quantitation (LOQ). The other concentrations correspond to the expected range of concentrations found in samples or should define the working range of the GC/MS system.

3. The concentration of the MDL standard may require modification dependent upon the current MDL values.

G. Continuing calibrations

Perform the continuing calibration verification (CCV) by injecting a predetermined aliquot of a calibration standard at a concentration near the mid-point of the calibration, not to exceed ½ the highest level in the calibration. See the table below for acceptance criteria and possible corrective actions.

| CCV Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| 1. Every 12 hours.<br><br>2. The CCV is analyzed each day a curve is not analyzed. | 1. %Drift:<br><br>a. 8270D/E: ≤20%<br><br>b. 625.1: Criteria listed under Q in Table V of this SOP | 1. If the CCV fails and the cause is obvious such as in the case of a concentrated standard or a mis-injection, re-inject the CCV, making sure to select another |

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|---|---|---|
| 3. The CCV is analyzed after DFTPP. | 2. The relative retention times of the internal standards must be within 10 seconds of the retention times from the mid-level calibration standard of the last initial calibration. The exception would be in the case of column maintenance.<br><br>3. The EICP area for each internal standard must fall within the window of -50% to +100% of the areas from the mid-level calibration standard produced during the last initial calibration.<br><br>4. 8270D/E: See Table II for minimum response factors for each compound. It is not necessary to meet these specifications. They are provided merely as guidance.<br><br>5. Structural isomers that produce very similar mass spectra are identified as individual isomers if they have sufficiently different GC retention times. Sufficient GC resolution is achieved when the height of the valley between two isomer peaks is <25% of the sum of the two peak heights. Otherwise, structural isomers are identified as isomeric pairs. | standard vial if a bad standard is suspected.<br><br>2. If the %Drift for any compound is >20% high and it is not detected in samples, data can be reported.<br><br>3. If the %Drift for any compound is >20% low, perform more aggressive system maintenance as outlined in *T-SVOA-WI9598* or adjust the tune file. Document the corrective action in the form of a non-conformance memo. Re-inject DFTPP and the calibration standard. If the CCV does not pass after corrective action, a new initial calibration must be established.<br><br>**NOTE:** For method 8270D, in cases where compounds recover >20%D low, they may still be reported as non-detects if it can be demonstrated that there was adequate sensitivity to detect the compounds at the applicable quantitation limit. For situations when the failed compound is present, the concentrations must be reported as estimated values. |

**NOTE:** All data associated with failed quality control will be qualified on the final report. QC outlier qualifiers are added to the associated sample results on the report by the LIMS.

H. Analysis of Samples

1. All sample extracts are stored at ≤-10°C and protected from light from the time of sample extraction.

2. Prior to sample analysis, add 10 µL of internal standard to each 1.0 mL of sample extract.

3. Analyze a predetermined aliquot of each sample extract under the same conditions used for the initial and continuing calibrations.

4. At the conclusion of data acquisition, use the same software to tentatively identify peaks within the retention time window of interest. Examine the ion abundances of components of the chromatogram. If the ion abundance of the target ion used for quantitation exceeds the calibration range, dilute the aliquot and reanalyze. When preparing dilutions, add sufficient internal standard to maintain the same concentration as that of the ICAL.

a. Dilution criteria

I. Initial dilutions are recommended in the following situations:

i. More than three internal standard recoveries are <50%.

ii. Either of the last two internal standard recoveries are <20%.

iii. The analyst's judgment of a sample extract's color or viscosity indicates possible matrix interference.

iv. Raised final prep volume can also be indicative of potential matrix interference

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I. Secondary dilutions are required to bring all target compounds into the calibration range of the GC/MS.

A. Qualitative Analysis:

A compound is identified by comparison of the following parameters with those of a standard of the suspected compound (standard reference spectra). The reference mass spectrum used for this comparison should be generated by the laboratory using the conditions of the method. In order to verify identification, the following criteria must be met:

1. The sample component relative retention time should compare within ±0.06 RRT units of the RRT of the standard component.

2. The intensities of the characteristic ions of the compound must maximize in the same scan or within one scan of each other. The characteristic ions from the reference mass spectrum are defined to be the three ions of greatest relative intensity, or any ions over 20% relative intensity if less than three such ions occur in the reference spectrum.

3. The relative intensities of the characteristic ions:

   a. 8270D/E - The relative intensities of the characteristic ions must agree within 30% of the relative intensities of these ions in the reference spectrum. (Example: For an ion with an abundance of 50% in the reference spectrum, the corresponding abundance in a sample spectrum can range between 20% and 80%.)

   b. 625.1 - The relative intensities of the characteristic ions must agree within 50% to 200% (0.5 to 2 times) for the quantitation and secondary m/z's in the reference mass spectrum stored in the data system. For example, if a peak has an intensity of 20% relative to the base peak, the analyte is identified if the intensity of the peak in the sample is in the range of 10% to 40% of the base peak. Analyst discretion is used to determine compound identification.

4. The above criteria apply to detections greater than or equal to the LOQ. For detections between the MDL and the LOQ, the above criteria and analyst discretion are used to determine compound identification. If identification is ambiguous, an experienced spectrometrist must determine the presence or absence of the compound.

B. Quantitative Analysis:

When a compound has been identified, quantitation is based on the internal standard technique and the integrated abundance from the extracted ion current profile (EICP) of the primary characteristic ion.

## Calculations

Refer to *T-SVOA-FRM9602* for all departmental calculations.

## Statistical Information/Method Performance

LCS, MS, surrogate, and RPD recoveries are compared to the limits stored in the LIMS. The surrogate recoveries will be compared to statistically generated limits for acceptance criteria for 8270D/E and for the surrogate in Table IV for 625.1. The LCS and MS recoveries will be compared to statistically generated limits for 8270D/E and for all 625.1 compounds contained in Table IV. For any compounds not contained in table IV, the LCS and MS recoveries will be compared to limits contained in Table V and the surrogate recoveries will be compared to limits contained in Table VI for 625.1.

For 8270D/E LCS and surrogate limits are statistically derived every six months in accordance with *T-SVOA-WI9604*. For 625.1 limits are derived anually. All RPDs are set to a default value of 30%, and MS limits are set equal to LCS limits.

All current and historical limit data is stored in the LIMS under the methods listed in the header of this SOP. The historical data for MDLs, MS/D, LCS/D, and measurement of uncertainty is reviewed at least annually and kept on file. Refer to the QA/QC section of this SOP and the criteria listed throughout this procedure for additional information on the performance of this method.

## Quality Assurance/Quality Control

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A. Batch QC

1. Each extraction batch of ≤20 samples must contain a method blank, a laboratory control sample (LCS) and an unspiked background sample (US), a matrix spike (MS), and a matrix spike duplicate(MSD).

2. A laboratory control sample/laboratory control sample duplicate (LCS/LCSD) is prepared with the extraction batch if adequate sample volume is not provided to prepare a matrix spike and matrix spike duplicate.

3. Additional QC samples may be required to meet project or state certification requirements.

B. QC and sample spiking

1. The LCS/D and MS/D are spiked at a concentration of 1 ppm.

2. All samples are spiked with surrogates at a concentration of 1 ppm by the extraction group to evaluate the extraction process.

3. Prior to analysis each sample extract is spiked with an internal standard mix.

4. All spiking concentrations are 4x lower for 250-mL aqueous analyses.

C. QC items, acceptance criteria, and corrective actions.

**NOTE: If any client, state, or agency has more stringent QC, QC limits, or batch requirements, these must be followed instead.**

| Quality Control Item | Acceptance Criteria | Corrective Action |
|---|---|---|
| Internal Standards | 1. Peak area within -50% to +100% of the area in the associated reference standard.<br>2. Retention time (RT) within 30 seconds of RT for associated reference standard. | 1. Check instrument for possible problems and then re-inject sample(s).<br>2. If re-injection meets the criteria, report this injection.<br>3. If re-injection still shows the same problem, report first injection.<br>4. If there is substantial matrix interference, the analyst may dilute the extract as outlined in Procedure H.4. |

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| Quality Control Item | Acceptance Criteria | Corrective Action |
|---|---|---|
| Method Blank | 1. Must meet internal standard criteria.<br>2. Must meet surrogate criteria.<br>3. All target compounds must be less than the reporting limit for the associated samples.<br>4. For 625.1 the method blank must be analyzed immediately after the LCS and before the MS/D. | 1. Inspect system for possible problems and reanalyze.<br>2. If the surrogates are out of spec high data can be used provided there aren't detections in the method blank.<br>3. If the surrogates are out of spec low and there aren't detections in the associated samples, the data can be used.*<br>4. If the method blank contains target compounds and the associated samples do not contain these compounds, no corrective action is required.<br>5. If the target compounds in the blank are also in the associated samples at a concentration <10x that in the blank, the samples are re-extracted unless the detection does not interfere with project data requirements.<br>6. If the target compounds in the blank are also in the associated samples at a concentration >10x that in the blank the data is usable.<br>7. Phthalates may be detected in the method blank and data reported as long as the phthalate detection is <LOQ. |
| Instrument Blank** | 1. Must run after the CCV if no clean method blank is analyzed at the beginning of the 12-hour analytical period.<br>2. Must meet internal standard criteria.<br>3. All target compounds must be less than the reporting limit for the associated samples. | 1. Inspect system for possible problems and reanalyze.<br>2. If the instrument blank contains target compounds and the associated samples do not contain these compounds, no corrective action is required.<br>3. If the target compounds in the blank are also in the associated samples, the samples should be re-extracted unless it does not interfere with project data requirements or if sample detections are at a level 10x higher than the detections in the blank. |

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| Quality Control Item | Acceptance Criteria | Corrective Action |
|---|---|---|
| Laboratory Control Sample/Laboratory Control Sample Duplicate | 1. Must meet internal standard criteria.<br>2. Must meet surrogate criteria.<br>3. % Recoveries within QC limits. Refer to the analysis numbers in the header of this document in LIMS for acceptance limits. These are reviewed and updated on a semiannual basis.<br>4. RPDs within QC limits. | 1. If non-compliant, check for calculation or preparation errors.<br>2. If no errors found, check system for problems and reanalyze.<br>3. If LCS/LCSD recoveries are still outside acceptance limits, one of the following actions must be taken:<br>a. if recoveries are outside acceptance limits low, the sample(s) must be re-extracted.<br>b. if recoveries are outside acceptance limits high, data may be usable if the compounds that recovered above QC limits are not detected in samples.<br>c. if recoveries are outside acceptance limits high and there are detections of the failing compounds, the sample(s) must be re-extracted.<br>4. If RPDs fail but recoveries are within QC limits, no further action is required.<br>5. If surrogates fail to meet criteria but all target compounds are within specification, data is usable.*<br>6. Marginal exceedance limits, as defined in the NELAC standards, may be used if the defined requirements have been met for 8270D/E.<br>7. South Carolina requires an aqueous LCS recovery criterion of 70-130% for PAH SIM analysis. |
| Matrix Spike/Matrix Spike Duplicate (MS/MSD) | 1. Must meet internal standard criteria.<br>2. Must meet surrogate criteria.<br>3. % Recoveries within LCS limits. Refer to the analysis number in the header of this document in LIMS for acceptance limits. These are reviewed and updated on a semiannual basis.<br>4. RPDs within QC limits. | 1. If LCS within QC limits, proceed with sample analysis.<br>2. If most recoveries or RPDs out of spec, consult supervisor. BKG, MS, MSD may need to be re-extracted. |

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| Quality Control Item | Acceptance Criteria | Corrective Action |
|---|---|---|
| Surrogates | 1. %Recoveries within QC limits. Refer to the methods in the header of this document in LIMS for acceptance limits. These are reviewed and updated on a semiannual basis. | 1. If non-compliant, check for calculation or preparation errors.<br>2. If no errors found, check system for problems and reanalyze.<br>3. If no problem is found, re-extract and reanalyze.<br>4. If surrogates are out of spec high and no targets are detected in the sample no corrective action is required.<br>5. For samples analyzed only at a dilution ≥10x, no further action is required for surrogate failures. |

*Requires approval of supervisor.
**Method blank or instrument blank in each 12-hour analytical period required for 8270E. (an instrument blank is recommended for all methods to demonstrate the instrument is free of contamination)

**NOTE:** Any failures without corrective action require approval of supervisor and completion of a non-conformance memo (NCM).

**NOTE:** All data associated with failed quality control will be qualified on the final report. QC outlier qualifiers are added to the associated sample results on the report by the LIMS.

D. Lower Limit of Quantitation (LLOQ)

1. The lower limit of quantitation (LLOQ) is verified annually through the extraction and analysis of an LCS at 0.5 to 2 times the established LLOQ.
2. The LLOQ is performed on similar analytical instruments such that all are included, at a minimum, within a 3 year time period.
3. Until the laboratory has sufficient data to determine the acceptance limits, the LLOQ criteria is ± 20% of the LCS limits.
4. Refer to *QA-SOP11892* for additional initial and ongoing LLOQ requirements.

E. Method Detection Limit (MDL)

1. Initial MDL studies must contain at least seven replicates and must be prepped across three different calendar days.
2. The MDLs must be analyzed on every instrument used for that analysis across three different calendar days.
3. Two ongoing MDLVs are analyzed and confirmed quarterly on each instrument, and MDLs are updated, if necessary, after enough points have been collected.
4. All compounds in the ongoing MDL verifications must be spiked at the same concentration level as the initial study.
5. Refer to *QA-SOP11892* for additional initial and ongoing MDL requirements.

F. Limit of Quantitation (LOQ)

1. Initial LOQ studies are spiked with compounds at the laboratory assigned LOQ and are analyzed on every instrument used for that analysis.
2. One ongoing LOQV is analyzed and confirmed quarterly on each instrument, and the LOQs are updated, if necessary.
3. Until the laboratory has sufficient data to determine the acceptance limits, the LOQ criteria is ±20% of the LCS limits.

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4. Refer to *QA-SOP11892* for additional initial and ongoing LOQ requirements.

**Table I**

**DFTPP Key Ion Abundance Criteria (8270C/D/E/625.1)**

| Mass | Ion Abundance Criteria |
|---|---|
| 51 | 10% to 80% of mass 198 |
| 68 | less than 2% of mass 69 |
| 70 | less than 2% of mass 69 |
| 127 | 10% to 80% of mass 198 |
| 197 | less than 2% of mass 198 |
| 198 | base peak, or >50% mass 442 |
| 199 | 5% to 9% of mass 198 |
| 275 | 10% to 60% of mass 198 |
| 365 | greater than 1% of mass 198 |
| 441 | present but less than 24% of mass 442 |
| 442 | Base peak, or >50% of mass 198 |
| 443 | 15% to 24% of mass 442 |

**Table II**

**Recommended Minimum Response Factor Criteria for Initial and Continuing Calibration Verification (8270D)**

| Semivolatile Compounds | Minimum Response Factor (RF) |
|---|---|
| Naphthalene | 0.700 |
| 2-Methylnaphthalene | 0.400 |
| Dimethylphthalate | 0.010 |
| Acenaphthylene | 0.900 |
| Acenaphthene | 0.900 |
| Dibenzofuran | 0.800 |
| Diethylphthalate | 0.010 |
| Fluorene | 0.900 |
| N-Nitrosodiphenylamine | 0.010 |
| Hexachlorobenzene | 0.100 |
| Phenanthrene | 0.700 |
| Anthracene | 0.700 |
| Di-n-butylphthalate | 0.010 |
| Fluoranthene | 0.600 |
| Pyrene | 0.600 |
| Butylbenzylphthalate | 0.010 |
| Benzo(a)anthracene | 0.800 |
| Chrysene | 0.700 |
| Benzo(a)anthracene | 0.800 |

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**Recommended Minimum Response Factor Criteria for Initial and Continuing Calibration Verification (8270D)**

| Semivolatile Compounds | Minimum Response Factor (RF) |
|---|---|
| Bis(2-ethylhexyl)phthalate | 0.010 |
| Di-n-octlyphthalate | 0.010 |
| Benzo(b)fluoranthene | 0.700 |
| Benzo(k)fluoranthene | 0.700 |
| Benzo(a)pyrene | 0.700 |
| Indeno(1,2,3-cd)pyrene | 0.500 |
| Dibenz(a,h)anthracene | 0.400 |
| Benzo(g,h,i)perylene | 0.500 |

**Table III**

**Semivolatile Internal Standard with Corresponding Analytes Assigned for Quantitation**

| | | |
|---|---|---|
| 1,4-Dichlorobenzene-$d_4$ | Naphthalene-$d_8$ | Acenaphthene-$d_{10}$ |
| 1,4-Dioxane | Quinoline | Acenaphthene |
| N-Nitrosodimethylamine | 2-Methylnaphthalene | Acenaphthylene |
| | Naphthalene | Diethyl phthalate |
| | Bis(2-chloroethyl)ether | Dimethyl phthalate |
| | 1-Methylnaphthalene | Fluorene |
| | 1-Methylnaphthalene-d10 (surr) | Dibenzofuran |
| Phenanthrene-$d_{10}$ | Chrysene-$d_{12}$ | Perylene-$d_{12}$ |
| Anthracene | Pyrene | Benzo(b)fluoranthene |
| Phenanthrene | Benzo(a)anthracene | Benzo(k)fluoranthene |
| Di-n-butyl phthalate | Bis(2-ethylhexyl) phthalate | Benzo(g,h,i)perylene |
| Fluoranthene | Butyl benzyl phthalate | Benzo(a)pyrene |
| Hexachlorobenzene | Chrysene | Benzo(a)pyrene-d12 (surr) |
| N-Nitrosodiphenylamine | | Dibenz(a,h)anthracene |
| Fluoranthene-d10 (surr) | | Indeno(1,2,3-cd)pyrene |
| | | Di-n-octylphthalate |
| | | Benzo(e)pyrene |
| | | Perylene |

(surr) = surrogate

**Table IV**

**625.1 Analytes and Surrogate that use statistical limits**

1,4-Dioxane
1-Methylnaphthalene
2-Methylnaphthalene

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Dibenzofuran
N-Nitrosodimethylamine
1-Methylnaphthalene-d10 (surr)

(surr) = surrogate

**Table V**

| Table 6 – QC Acceptance Criteria – Method 625 [1] | | | | | |
|---|---|---|---|---|---|
| **Analyte** | **Range for Q (%) [2]** | **Limit for s (%) [3]** | **Range for X (%) [3]** | **Range for $P_1$, $P_2$ (%) [3]** | **Limit for RPD (%)** |
| Acenaphthene | 70-130 | 29 | 60-132 | 47-145 | 48 |
| Acenaphthylene | 60-130 | 45 | 54-126 | 33-145 | 74 |
| Anthracene | 58-130 | 40 | 43-120 | 27-133 | 66 |
| Benzo(a)anthracene | 42-133 | 32 | 42-133 | 33-143 | 53 |
| Benzo(b)fluoranthene | 42-140 | 43 | 42-140 | 24-159 | 71 |
| Benzo(k)fluoranthene | 25-146 | 38 | 25-146 | 11-162 | 63 |
| Benzo(a)pyrene | 32-148 | 43 | 32-148 | 17-163 | 72 |
| Benzo(ghi)perylene | 13-195 | 61 | 10-195 | 10-219 | 97 |
| Benzyl butyl phthalate | 43-140 | 36 | 10-140 | 10-152 | 60 |
| bis(2-Chloroethyl)ether | 52-130 | 65 | 43-126 | 12-158 | 108 |
| bis(2-Ethylhexyl) phthalate | 43-137 | 50 | 29-137 | 10-158 | 82 |
| Chrysene | 44-140 | 53 | 44-140 | 17-168 | 87 |
| Dibenz(a,h)anthracene | 13-200 | 75 | 10-200 | 10-227 | 126 |
| Di-n-butyl phthalate | 52-130 | 28 | 10-120 | 10-120 | 47 |
| Diethyl phthalate | 47-130 | 60 | 10-120 | 10-120 | 100 |
| Dimethyl phthalate | 50-130 | 110 | 10-120 | 10-120 | 183 |
| Di-n-octyl phthalate | 21-132 | 42 | 19-132 | 10-146 | 69 |
| Fluoranthene | 47-130 | 40 | 43-121 | 26-137 | 66 |
| Fluorene | 70-130 | 23 | 70-120 | 59-121 | 38 |
| Hexachlorobenzene | 38-142 | 33 | 10-142 | 10-152 | 55 |
| Indeno(1,2,3-cd)pyrene | 13-151 | 60 | 10-151 | 10-171 | 99 |
| Naphthalene | 70-130 | 39 | 36-120 | 21-133 | 65 |
| Phenanthrene | 67-130 | 24 | 65-120 | 54-120 | 39 |
| Pyrene | 70-130 | 30 | 70-120 | 52-120 | 49 |

[1] Acceptance criteria are based upon method performance data in Table 7 and from EPA Method 1625. Where necessary, limits for recovery have been broadened to assure applicability to concentrations below those used to develop Table 7.

[2] Test concentration = 100 µg/mL

[3] Test concentration = 100 µg/L

Q = Calibration verification
s = Standard deviation for four recovery measurements in the DOC test.
X = Average recovery for four recovery measurements in the DOC test.
$P_1$, $P_2$ = MS/MSD recovery.
RPD = MS/MSD relative percent difference.

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Table adapted from EPA method 625.1

**Table VI**

| Surrogate Standard Acceptance Limits - Method 625 | | |
|---|---|---|
| **Surrogate** | **Range for Surrogate Recovery (%) [1]** | |
| | **Calibration verification** | **Recovery from samples** |
| Benzo(a)pyrene-d12 | 32-194 | 32-194 |
| Fluoranthene-d10 | 47-215 | 30-187 |

[1] Recovery from samples is the wider of the criteria in the CLP SOW for organics or in Method 1625

QA-SOP11178 Demonstrations of Capability
QA-SOP11892 Determining Method Detection Limits and Limits of Quantitation
T-OE-SVOA-WI10916 Low-Level Sonic Probe Extraction Procedure by Method 3550C for the Determination of Semivolatiles in a Solid Matrix
T-OE-SVOA-WI10928 Microwave Extraction by Method 3546 for Semivolatiles
T-OE-SVOA-WI10947 Separatory Funnel Extraction for BNAs in Wastewater by Method 612 or 625.1
T-OE-SVOA-WI11432 Separatory Funnel Extraction by Method 3510C for BNAs in Wastewater
T-SVOA-FRM9602 Dept 4026 Calculations
T-SVOA-WI11998 Semivolatile Spiking and Calibration Standards
T-SVOA-WI9598 GC/MS Preventative and Corrective Maintenance
T-SVOA-WI9604 Monitoring GC/MS Semivolatile QC Data Acceptance Limits

End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 18.1 | 27.APR.2021 | Version 18.1 published for editorial changes only. | |
| 19 | 20.MAY.2022 | Reviewed 6/7/2023 by William Saadeh | |
| 20 | 23.JUN.2023 | | |

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| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Particle Size Distribution of Soils and Solids/Grain Size Classification by ASTM D422-63 (reapproved 2007) - Modified** | Level:<br>**Work Instruction** |
| Document number:<br>**T-WC-WI46354** | | |
| Old Reference:<br>**NA** | | |
| Version:<br>**2** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **ULJC**<br>Effective Date: **07-JUL-2023** | Document users:<br>**EUUSLA_Water Quality_Manager, EUUSLA_Water Quality_Grain Size, EUUSLA_Water Quality_Verification** | Responsible:<br>**EUUSLA_Water Quality_Manager** |

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## Revision Log

| **Revision** | 2 | **Effective Date:** | This version |
|---|---|---|---|
| **Section** | **Justification** | | **Changes** |
| Revision Log | Addition | | New Revision log due to new addition |
| Header | Enhancement | | Updated LIMs ID and the company's name in the confidentiality |
| Interferences | Reflects current procedure | | Interference has been added for samples that contain non-soil particle |
| Sample Collection, Preservation, and Handling | Addition | | Procedure added for questionable matrices |
| Quality Assurance/Quality Control | Addition | | Procedure added for interferences that may occur |

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| Revision | 1 | Effective Date: | November 11,2021 |
|---|---|---|---|
| **Section** | **Justification** | | **Changes** |
| | | | New Procedure |

## Reference


1. ASTM Standard D422-63 (Re-approved 2007) “Standard Test Method for Particle-Size Analysis of Soils”, ASTM International, West Conshohocken, PA 2003, DOI: 10.1520/C0033-03, www.astm.org

2. ASTM Standard D2217-8585 (Re-approved 1998) “Standard Practice for Wet Preparation of Soil Samples for Particle-Size Analysis and Determination of Soil Constants”, ASTM International, West Conshohocken, PA 2003, DOI: 10.1520/C0033-03, www.astm.org

4. ASTM Standard D6913-17 “Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using SieveAnalysis”

5. STM Standard D7928-17 “Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained SoilsUsing the Sedimentation (Hydrometer) Analysis”

6. *Chemical Hygiene Plan*, current version.


## Cross Reference

| Document | Document Title |
|---|---|
| *S-SS-WI10697* | % Moisture Calculation and % Solids Calculation (Gravimetric) |
| *T-WC-FRM46355* | D422-Mod Particle Size Distribution / Grain Size Classification |
| *T-WC-WI9901* | Equipment Muffle Furnaces and Ovens |

## Scope

This procedure is applicable to the determination of the distribution of particle sizes in soils and solids. Particle sizes in the range 75 to 0.075 mm are determined by sieving. Distribution of particle sizes smaller than 0.075 mm is determined by a sedimentation process using a hydrometer.

## Basic Principles

A portion of sample is soaked in a dispersing agent then partitioned into separate portions: material retained on a #10 sieve and material passing the #10 sieve. The material retained on the #10 sieve is dried to constant weight then passed through a large size sieve stack; the material retained on each sieve is measured and recorded. Material passing the #10 sieve is subject to hydrometer analysis then passed through a small size sieve stack; the material retained on each sieve is measured and recorded. All measurements: large and small sieves and hydrometer readings, and the hygroscopic moisture are used to establish the particle size distribution of the sample.

This SOP is based on the following reference methods: ASTM Standard D2217-8585 (Re-approved 1998), ASTM Standard D422-63 (Re-approved 2007), ASTM Standard D6913-17, and ASTM Standard D7928-17.

NOTE: ASTM D2217 was withdrawn without replacement by ASTM in 2007. A withdrawn standard is an ASTM standard that has been discontinued by the ASTM Sponsoring Committee responsible for the standard.

NOTE: ASTM D422-63 was withdrawn by ASTM in January 2016. Individual methods for gradation by sieve analysis (ASTM D6913-17) and gradation by sedimentation/hydrometer analysis (ASTM D7928-

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17) were promulgated as replacement approaches. At the time of this writing, ASTM has not yet developed a combined sieve/hydrometer approach. The laboratory's procedure will utilize elements of these two new methods into a combined approach.

## Interferences

Any sample that contains non-soil particle(s) will cause an interference particularly in the hydrometer phase of the test, which leads to anomalous particle size distribution. This manifests itself in the particle size distribution curve bottoming out at zero then starts to climb again. Analysts must evaluate the data and inform the client via a Non Conformance Memo (NCM) to notify them of this sample matrix issue.

## Safety Precautions and Waste Handling

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

## Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the analyst's training records.

Initially, each technician performing these techniques must work with an experienced technician for a period of time until they can independently perform the procedure. Analysts are considered proficient when they have successfully demonstrated competency under supervision of a supervisor or other trained analyst, with a documented OJT form.

## Sample Collection, Preservation, and Handling

Sample are collected in a glass jar or plastic bag. A minimum of 500g of sample is recommended. There is no holding time for this analysis. Samples are stored at 0 to 6 degrees C; not frozen.

The lab will reject samples that have questionable matrices for the grainsize test. If the lab determines that a matrix is inappropriate for analysis, this will be communicated to the client with a Non Conformance Memo (NCM).

## Apparatus and Equipment

1. Top-Loading Balance, capable of weight measurement to 0.01 g
2. Mechanical Stirring Device and Dispersion Cup
3. Thermometer: Accurate to 0.5°C
4. Mortar and Rubber Tipped Pestle
5. Sedimentation Cylinder(s) 1000 mL
6. Hydrometer: ASTM 151H in specification E 100.
7. Sieves, of the following size(s): Gilson Company, Inc. or equivalent
    1. 3.0" (75.00 mm)

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2. 2.0” (50.00 mm)
3. 1.5” (37.50 mm)
4. 1.0” (25.00 mm)
5. 3/4" (19.00 mm)
6. 3/8” (9.50 mm)
7. # 4 (4.75 mm)
8. #10 (2.00 mm)
9. #20 (850.0 um)
10. #40 (425 um)
11. #60 (250.0 um)
12. #80 (180.0 um)
13. #100 (150.0 um)
14. #200 (75.0 um)

8. Drying Oven with temperature range of 60-110°C
9. Stainless Steel Spatulas & Spoons
10. Metal & Bristle Brushes
11. Sieve Shaker
12. Timer

## Reagents and Standards

Alternate weights may be used as long as the final concentrations remain the same.

1. Sodium hexametaphosphate solution

a. Using a 1000-mL volumetric flask, dissolve 40 g of sodium hexametaphosphate in reagent water.

b. Dilute to final volume once dissolved.

c. Store at room temperature in a glass or plastic container.

d. Solution expires one month from date of preparation.

## Calibration

Balance calibration must be checked each day before use.

## Procedure

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## A. % Solids Test

Check to be sure that the balance has been calibrated each day before use.

1. Label an aluminum pan with the Lab ID for each sample.

2. Tare the balance. Weigh the aluminum pan and record in spreadsheet *T-WC-FRM46355*.

3. Mix the sample with a stainless steel spatula. Measure at least 10-15 g of each sample into the labeled aluminum pan and record the weight of sample in the spreadsheet.

4. Place the pan and sample in an oven maintained at a temperature of 110°C +/- 5°C and dry the sample for at least 16 hours. Reweigh each pan and record the weight measurement in the spreadsheet.

## B. Hydrometer Analysis

Check to be sure that the balance has been calibrated each day before use.

1. Use calculated % Solids from Procedure A. and Table 2 to determine the amount needed for analysis. Add an NCM and contact the PM if there is insufficient sample to perform the test.

2. Using the sample in the 250-mL beaker add 125 mL of sodium hexametaphosphate solution. Stir the soil-water slurry until it is thoroughly moistened. Cover and label beaker with sample number. Allow this slurry to soak for at least 16 hours.

3. At the end of the soaking period, transfer the soil-water slurry into a dispersion cup using room temperature reagent water. Be sure to rinse all residue from the beaker into the dispersion cup.

**NOTE:** Extra care needs to be taken when rinsing the sample into another container or when using any apparatus. **All particles need to be rinsed into the new container or a loss in sample weight is possible to occur.**

4. Stir for one minute using the stirring apparatus. **Rinse stirring apparatus well into dispersion cup to prevent loss of sample.**

5. Place the #10 sieve in a funnel above a 1000-mL glass sedimentation cylinder. Transfer the soil-water slurry into the cylinder, rinsing well. Add room temperature reagent water until the total volume is 1000 mL.

a. Label an aluminum pan with the sample ID. Transfer the sample retained on the #10 sieve to the aluminum pan. Place the pan in the oven set to 110°C +/- 5°C and dry the sample for at least 16 hours. Inspect materials in Procedure C.1 and perform Sieve Analysis in procedure C.2.

6. Cover the open end of the cylinder with parafilm, then placing the palm of the hand over the end, invert the cylinder and agitate for a period of one minute. Place the cylinder in a location where it will not be disturbed or moved during the sedimentation readings (for 24 hours). Start a timer.

7. Remove the parafilm and immediately begin the hydrometer readings, recording the temperature reading after each suspension. Record the readings at the following intervals (measured from the beginning of sedimentation): 2, 5,15, 30, 60, 250, and 1440 minutes. Insert the hydrometer about 20 to 25 seconds before the reading is due to the approximate depth. Read the hydrometer from the top of the meniscus to the nearest 0.0005 and enter the reading on the worksheet *T-WC-FRM46355*. Clean the hydrometer before the first reading, and between readings, by placing it into reagent water and twisting with a spinning motion.

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**NOTE: The hydrometer used in the process will be calibrated on an annually basis by a certified vendor.**

8. After hydrometer reading, insert a calibrated thermometer into the cylinder to the same depth as the hydrometer reading. Read the temperature to the nearest 0.5°C and enter the temperature measurement on the worksheet. Rinse the temperature probe in the hydrometer rinse bath.

9. After hydrometer analysis, proceed to Small Sieve Analysis in Procedure C.3.

## C. Sieve Procedure

1. Inspect the sample material in the aluminum pan and record a description of the non-soil material (e.g.- sticks, grass, wood, plastic), hardness of material, and shape of material in the worksheet. Hardness qualifiers include hard, soft, and brittle. Shape qualifiers include well-rounded, rounded, subrounded, subangular, and angular.

2. Sieve Analysis

a. Weigh the 3/4", 3/8", #4 and #10 sieves and enter the weight measurements in the worksheet as the tare weight.

b. Stack the sieves and then transfer the sample material from the aluminum dish to the sieve stack. If the sample material is less than 30 g, manually shake the sieve stack for 2 minutes. If the sample material is greater than 30 g, place the sieve stack into the Ro-tap machine and shake the sieve stack for 10 minutes.

c. Weigh each sieve and record these measurements in the worksheet.

3. Small Sieve Analysis

a. Quantitatively transfer the sample from the graduated cylinder to a #200 wet wash sieve. Ensure the entire sample has been transferred to the #200 wet wash sieve by rinsing the graduated cylinder several time with reagent water. Using reagent water, wash the sample through the #200 sieve until the water runs clear, then transfer the material retained on the sieve into a 250-mL glass beaker labeled with the sample ID.

b. Place the beaker in the drying oven and dry at a temperature of 110ºC for at least 16 hours. After 16 hours, remove the beaker from the oven and allow it to cool.

c. Gently mix the dried contents of the beaker with a rubber-tipped pestle to break up any soil aggregates that may have formed during the drying stage.

d. Tare the balance and weigh the sieve stack sized between #20 and #200 and record the tare weights.

e. Transfer the sample to the sieve stack and ensure complete transfer. Use hair or wire brushes to clean the beaker. Place the sieve stack on the RoTap machine and shake for ten minutes.

f. Weigh each sieve and record these measurements in the worksheet.

## Calculations

### A. Sample Used (SU): Dry Preparation

SU = (pan+ dry sample - pan) - (pan + non- soil material - pan) x HMCF

Where:
HMCF = Hygroscopic moisture correction factor.

### B. Sieve Analysis (Percent Finer = PF)

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Large Sieves:

3 inch: PF = 100-100* (Sieve and Sample (3 inch) - Sieve (3 inch))/SU

2 inch: PF = PF (3 inch) - 100*(Sieve and Sample (2 inch) - Sieve (2 inch))/SU

and so on through the #10 Sieve.

Small Sieves:

#20: PF = PF(#10) - 100*(mass passing #10/sample mass (Hyd))*(sieve and sample (#20) - sieve(#20))/sample used

#40: PF = PF (#20) - 100*(mass passing #10/sample mass (Hyd))*(sieve and sample (#40) - sieve (#40))/sample used and so on up through #10 sieve.

**B. Hydrometer Analysis**

Particle size, Micron

1000*sqrt [930*viscosity/980*(SG-1))*(effective depth/time)]

Viscosity at sample temperature, poises

Effective Depth, cm = 16.29-264.5*(actual Hydrometer reading - 1) above equation for effective depth based on equation found with table 2 in method, in which 16.29 = 0.5*(14.0-67.0/27.8)+10.5 and 264.5 = (10.5-2.3)/0.031

Time, minutes = Time of hydrometer reading from beginning of sedimentation

Sqrt - square root

SG - Specific Gravity of soil

Viscosity - is the resistance of a liquid to flow

**C. Percent Finer (PF):**

PF = Constant*(actual hydrometer reading - hydrometer correction factor - 1)

Where:

Constant = (100,000/W)*SG/(SG-1)

W = (Total sample used *sample used for hydrometer analysis*HMCF)/Amount of total sample passing #10 sieve

Hydrometer Correction = slope*sample temperature + Intercept

Slope = ((low temp. reading -1)-(high temp. reading -1)/(low temp. - high temp.))

Intercept = (low temp. reading -1) - (low temp. * slope)

## Statistical Information / Method Performance

Not applicable to this procedure

## Quality Assurance / Quality Control

When possible, perform duplicate analyses for particle size on a routine basis.

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Batch size is limited to 20 samples or less.

Any sample that contains non-soil particle(s) will cause an interference particularly in the hydrometer phase of the test, which leads to anomalous particle size distribution. This manifests itself in the particle size distribution curve bottoming out at zero then starts to climb again. Analysts must evaluate the data and inform the client via a Non Conformance Memo (NCM) to notify them of this sample matrix issue.

**Table 1 - Hydrometer Reading Table (For up to 12 Sedimentation Cylinders)**

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**Table 1: Hydrometer Reading Table (For up to 12 Sedimentation Cylinders)**

| Elapsed Time (hr:min) | Task | Cyl. No. | Actual Time (min) | Elapsed Time (hr:min) | Task | Cyl. No. | Actual Time (min) |
|---|---|---|---|---|---|---|---|
| 0:00 | Shake | 1 | | 1:01 | Read | 10 | 5 |
| 0:01 | Place | 1 | | 1:02 | Shake | 11 | |
| 0:01 | Shake | 2 | | 1:03 | Place | 11 | |
| 0:02 | Place | 2 | | 1:04 | Read | 9 | 15 |
| 0:03 | Read | 1 | 2 | 1:05 | Read | 11 | 2 |
| 0:04 | Read | 2 | 2 | 1:06 | Read | 7 | 31 |
| 0:06 | Read | 1 | 5 | 1:07 | Read | 3 | 58 |
| 0:07 | Read | 2 | 5 | 1:08 | Read | 11 | 5 |
| 0:08 | Shake | 3 | | 1:09 | Shake | 12 | |
| 0:09 | Place | 3 | | 1:10 | Place | 12 | |
| 0:09 | Shake | 4 | | 1:11 | Read | 10 | 15 |
| 0:10 | Place | 4 | | 1:12 | Read | 12 | 2 |
| 0:11 | Read | 3 | 2 | 1:13 | Read | 4 | 63 |
| 0:12 | Read | 4 | 2 | 1:14 | Read | 8 | 32 |
| 0:14 | Read | 3 | 5 | 1:15 | Read | 12 | 5 |
| 0:15 | Read | 4 | 5 | 1:18 | Read | 11 | 15 |
| 0:16 | Read | 1 | 15 | 1:19 | Read | 9 | 30 |
| 0:17 | Read | 2 | 15 | 1:21 | Read | 5 | 60 |
| 0:20 | Shake | 5 | | 1:25 | Read | 12 | 15 |
| 0:21 | Place | 5 | | 1:26 | Read | 10 | 30 |
| 0:23 | Read | 5 | 2 | 1:27 | Read | 6 | 59 |
| 0:24 | Read | 3 | 15 | 1:33 | Read | 11 | 30 |
| 0:25 | Read | 4 | 15 | 1:34 | Read | 7 | 59 |
| 0:26 | Read | 5 | 5 | 1:41 | Read | 12 | 31 |
| 0:27 | Shake | 6 | | 1:42 | Read | 8 | 60 |
| 0:28 | Place | 6 | | 1:52 | Read | 9 | 63 |
| 0:30 | Read | 6 | 2 | 1:53 | Read | 10 | 57 |
| 0:31 | Read | 1 | 30 | 2:06 | Read | 11 | 63 |
| 0:32 | Read | 2 | 30 | 2:07 | Read | 12 | 57 |
| 0:33 | Read | 6 | 5 | 4:17 | Read | 1 | 256 |
| 0:34 | Shake | 7 | | 4:18 | Read | 2 | 256 |
| 0:35 | Place | 7 | | 4:19 | Read | 3 | 250 |
| 0:36 | Read | 5 | 15 | 4:20 | Read | 4 | 250 |
| 0:37 | Read | 7 | 2 | 4:21 | Read | 5 | 240 |
| 0:38 | Read | 3 | 29 | 4:22 | Read | 6 | 234 |
| 0:39 | Read | 4 | 29 | 5:00 | Read | 7 | 265 |
| 0:40 | Read | 7 | 5 | 5:01 | Read | 8 | 259 |
| 0:41 | Shake | 8 | | 5:02 | Read | 9 | 253 |
| 0:42 | Place | 8 | | 5:03 | Read | 10 | 247 |
| 0:43 | Read | 6 | 15 | 5:04 | Read | 11 | 241 |
| 0:44 | Read | 8 | 2 | 5:05 | Read | 12 | 235 |
| 0:47 | Read | 8 | 5 | 24:01 | Read | 1 | 1440 |
| 0:48 | Shake | 9 | | 24:02 | Read | 2 | 1440 |
| 0:49 | Place | 9 | | 24:03 | Read | 3 | 1434 |
| 0:50 | Read | 7 | 15 | 24:04 | Read | 4 | 1434 |
| 0:51 | Read | 9 | 2 | 24:05 | Read | 5 | 1424 |
| 0:52 | Read | 5 | 31 | 24:06 | Read | 6 | 1418 |
| 0:54 | Read | 9 | 5 | 24:07 | Read | 7 | 1412 |
| 0:55 | Shake | 10 | | 24:08 | Read | 8 | 1406 |
| 0:56 | Place | 10 | | 24:09 | Read | 9 | 1400 |
| 0:57 | Read | 8 | 15 | 24:10 | Read | 10 | 1394 |
| 0:58 | Read | 10 | 2 | 24:11 | Read | 11 | 1388 |
| 0:59 | Read | 6 | 31 | 24:12 | Read | 12 | 1382 |
| 1:00 | Read | 1 | 59 | | | | |
| 1:00 | Read | 2 | 58 | | | | |

**Table 2 - Percent Solids Table for Weight Determination for D422**

| % solids | Specific | Silt/Clay | Silt/Sand | Sand | Sand/Gravel |
|---|---|---|---|---|---|

| | Gravity | | | | |
|---|---|---|---|---|---|
| 1 | 2500 | 5000 | 7500 | 10000 | 20000 |
| 2 | 1250 | 2500 | 3750 | 5000 | 10000 |
| 3 | 833 | 1667 | 2500 | 3333 | 6667 |
| 4 | 625 | 1250 | 1875 | 2500 | 5000 |
| 5 | 500 | 1000 | 1500 | 2000 | 4000 |
| 6 | 417 | 833 | 1250 | 1667 | 3333 |
| 7 | 357 | 714 | 1071 | 1429 | 2857 |
| 8 | 313 | 625 | 938 | 1250 | 2500 |
| 9 | 278 | 556 | 833 | 1111 | 2222 |
| 10 | 250 | 500 | 750 | 1000 | 2000 |
| 11 | 227 | 455 | 682 | 909 | 1818 |
| 12 | 208 | 417 | 625 | 833 | 1667 |
| 13 | 192 | 385 | 577 | 769 | 1538 |
| 14 | 179 | 357 | 536 | 714 | 1429 |
| 15 | 167 | 333 | 500 | 667 | 1333 |
| 16 | 156 | 313 | 469 | 625 | 1250 |
| 17 | 147 | 294 | 441 | 588 | 1176 |
| 18 | 139 | 278 | 417 | 556 | 1111 |
| 19 | 132 | 263 | 395 | 526 | 1053 |
| 20 | 125 | 250 | 375 | 500 | 1000 |
| 21 | 119 | 238 | 357 | 476 | 952 |
| 22 | 114 | 227 | 341 | 455 | 909 |
| 23 | 109 | 217 | 326 | 435 | 870 |
| 24 | 104 | 208 | 313 | 417 | 833 |
| 25 | 100 | 200 | 300 | 400 | 800 |
| 26 | 96 | 192 | 288 | 385 | 769 |
| 27 | 93 | 185 | 278 | 370 | 741 |
| 28 | 89 | 179 | 268 | 357 | 714 |
| 29 | 86 | 172 | 259 | 345 | 690 |
| 30 | 83 | 167 | 250 | 333 | 667 |
| 31 | 81 | 161 | 242 | 323 | 645 |
| 32 | 78 | 156 | 234 | 313 | 625 |
| 33 | 76 | 152 | 227 | 303 | 606 |
| 34 | 74 | 147 | 221 | 294 | 588 |
| 35 | 71 | 143 | 214 | 286 | 571 |
| 36 | 69 | 139 | 208 | 278 | 556 |
| 37 | 68 | 135 | 203 | 270 | 541 |
| 38 | 66 | 132 | 197 | 263 | 526 |
| 39 | 64 | 128 | 192 | 256 | 513 |
| 40 | 63 | 135 | 188 | 250 | 500 |
| 41 | 61 | 122 | 183 | 244 | 488 |
| 42 | 60 | 119 | 179 | 238 | 476 |
| 43 | 58 | 116 | 174 | 233 | 465 |
| 44 | 57 | 114 | 170 | 227 | 466 |
| 45 | 56 | 111 | 167 | 222 | 444 |
| 46 | 54 | 109 | 163 | 217 | 435 |
| 47 | 53 | 106 | 160 | 213 | 426 |
| 48 | 52 | 104 | 156 | 208 | 417 |

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|---|---|---|---|---|---|
| 49 | 51 | 102 | 153 | 204 | 408 |
| 50 | 50 | 100 | 150 | 200 | 400 |
| 51 | 49 | 98 | 147 | 196 | 392 |
| 52 | 48 | 96 | 144 | 192 | 385 |
| 53 | 47 | 94 | 142 | 189 | 377 |
| 54 | 46 | 93 | 139 | 185 | 370 |
| 55 | 45 | 91 | 136 | 182 | 364 |
| 56 | 45 | 89 | 134 | 179 | 357 |
| 57 | 44 | 88 | 132 | 175 | 351 |
| 58 | 43 | 86 | 129 | 172 | 345 |
| 59 | 42 | 85 | 127 | 169 | 339 |
| 60 | 42 | 83 | 125 | 167 | 333 |
| 61 | 41 | 82 | 123 | 164 | 328 |
| 62 | 40 | 81 | 121 | 161 | 323 |
| 63 | 40 | 79 | 119 | 159 | 317 |
| 64 | 39 | 78 | 117 | 156 | 313 |
| 65 | 38 | 77 | 115 | 154 | 308 |
| 66 | 38 | 76 | 114 | 152 | 303 |
| 67 | 37 | 75 | 112 | 149 | 299 |
| 68 | 37 | 74 | 110 | 147 | 294 |
| 69 | 36 | 72 | 109 | 145 | 290 |
| 70 | 36 | 71 | 107 | 143 | 286 |
| 71 | 35 | 70 | 106 | 141 | 282 |
| 72 | 35 | 69 | 104 | 139 | 278 |
| 73 | 34 | 68 | 103 | 137 | 274 |
| 74 | 34 | 68 | 101 | 135 | 270 |
| 75 | 33 | 67 | 100 | 133 | 267 |
| 76 | 33 | 66 | 99 | 132 | 263 |
| 77 | 32 | 65 | 97 | 130 | 260 |
| 78 | 32 | 64 | 96 | 128 | 256 |
| 79 | 32 | 63 | 95 | 127 | 253 |
| 80 | 31 | 63 | 94 | 125 | 250 |
| 81 | 31 | 62 | 93 | 123 | 247 |
| 82 | 30 | 61 | 91 | 122 | 244 |
| 83 | 30 | 60 | 90 | 120 | 241 |
| 84 | 30 | 60 | 89 | 119 | 238 |
| 85 | 29 | 59 | 88 | 118 | 235 |
| 86 | 29 | 58 | 87 | 116 | 233 |
| 87 | 29 | 57 | 86 | 115 | 230 |
| 88 | 28 | 57 | 85 | 114 | 227 |
| 89 | 28 | 56 | 84 | 112 | 225 |
| 90 | 28 | 56 | 83 | 111 | 222 |
| 91 | 27 | 55 | 82 | 110 | 220 |
| 92 | 27 | 54 | 82 | 109 | 217 |
| 93 | 27 | 54 | 81 | 108 | 215 |
| 94 | 27 | 53 | 80 | 106 | 213 |
| 95 | 26 | 53 | 79 | 105 | 211 |
| 96 | 26 | 52 | 78 | 104 | 208 |
| 97 | 26 | 52 | 77 | 103 | 206 |

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|---|---|---|---|---|---|
| 98 | 26 | 51 | 77 | 102 | 204 |
| 99 | 25 | 51 | 76 | 101 | 202 |
| 100 | 25 | 50 | 75 | 100 | 200 |

Use the attachment of Table 2 to determine the amount of sample to use in Procedure B.1.

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Attachment:
Table 2 - Percent Solids Table for Weight Determination for D422 (.xls)

---

QA-SOP11188 Reagents and Standards
QA-SOP11880 Laboratory Support Equipment - Calibrations, Verifications, and Maintenance
S-SS-WI10697 % Moisture Calculation and % Solids Calculation (Gravimetric)
T-WC-FRM46355 D422-Mod Particle Size Distribution / Grain Size Classification
T-WC-WI9901 Equipment Muffle Furnaces and Ovens

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End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 1 | 11.NOV.2021 | Reviewed on 2/20/2023, no changes. | |
| 2 | 23.JUN.2023 | | |

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% Solids:80

Matrix:Sand

**(g) sample to use:125**

**Table 2: Percent Solids Table for Weight Determination for D422**

| % solids | Specific Gravity | Silt/Clay | Silt/Sand | Sand | Sand/Gravel |
|---|---|---|---|---|---|
| 1 | 2500 | 5000 | 7500 | 10000 | 20000 |
| 2 | 1250 | 2500 | 3750 | 5000 | 10000 |
| 3 | 833 | 1667 | 2500 | 3333 | 6667 |
| 4 | 625 | 1250 | 1875 | 2500 | 5000 |
| 5 | 500 | 1000 | 1500 | 2000 | 4000 |
| 6 | 417 | 833 | 1250 | 1667 | 3333 |
| 7 | 357 | 714 | 1071 | 1429 | 2857 |
| 8 | 313 | 625 | 938 | 1250 | 2500 |
| 9 | 278 | 556 | 833 | 1111 | 2222 |
| 10 | 250 | 500 | 750 | 1000 | 2000 |
| 11 | 227 | 455 | 682 | 909 | 1818 |
| 12 | 208 | 417 | 625 | 833 | 1667 |
| 13 | 192 | 385 | 577 | 769 | 1538 |
| 14 | 179 | 357 | 536 | 714 | 1429 |
| 15 | 167 | 333 | 500 | 667 | 1333 |
| 16 | 156 | 313 | 469 | 625 | 1250 |
| 17 | 147 | 294 | 441 | 588 | 1176 |
| 18 | 139 | 278 | 417 | 556 | 1111 |
| 19 | 132 | 263 | 395 | 526 | 1053 |
| 20 | 125 | 250 | 375 | 500 | 1000 |
| 21 | 119 | 238 | 357 | 476 | 952 |
| 22 | 114 | 227 | 341 | 455 | 909 |
| 23 | 109 | 217 | 326 | 435 | 870 |
| 24 | 104 | 208 | 313 | 417 | 833 |
| 25 | 100 | 200 | 300 | 400 | 800 |
| 26 | 96 | 192 | 288 | 385 | 769 |
| 27 | 93 | 185 | 278 | 370 | 741 |
| 28 | 89 | 179 | 268 | 357 | 714 |
| 29 | 86 | 172 | 259 | 345 | 690 |
| 30 | 83 | 167 | 250 | 333 | 667 |
| 31 | 81 | 161 | 242 | 323 | 645 |
| 32 | 78 | 156 | 234 | 313 | 625 |
| 33 | 76 | 152 | 227 | 303 | 606 |
| 34 | 74 | 147 | 221 | 294 | 588 |
| 35 | 71 | 143 | 214 | 286 | 571 |
| 36 | 69 | 139 | 208 | 278 | 556 |
| 37 | 68 | 135 | 203 | 270 | 541 |
| 38 | 66 | 132 | 197 | 263 | 526 |
| 39 | 64 | 128 | 192 | 256 | 513 |
| 40 | 63 | 135 | 188 | 250 | 500 |
| 41 | 61 | 122 | 183 | 244 | 488 |

| | | | | | |
|---|---|---|---|---|---|
| 42 | 60 | 119 | 179 | 238 | 476 |
| 43 | 58 | 116 | 174 | 233 | 465 |
| 44 | 57 | 114 | 170 | 227 | 466 |
| 45 | 56 | 111 | 167 | 222 | 444 |
| 46 | 54 | 109 | 163 | 217 | 435 |
| 47 | 53 | 106 | 160 | 213 | 426 |
| 48 | 52 | 104 | 156 | 208 | 417 |
| 49 | 51 | 102 | 153 | 204 | 408 |
| 50 | 50 | 100 | 150 | 200 | 400 |
| 51 | 49 | 98 | 147 | 196 | 392 |
| 52 | 48 | 96 | 144 | 192 | 385 |
| 53 | 47 | 94 | 142 | 189 | 377 |
| 54 | 46 | 93 | 139 | 185 | 370 |
| 55 | 45 | 91 | 136 | 182 | 364 |
| 56 | 45 | 89 | 134 | 179 | 357 |
| 57 | 44 | 88 | 132 | 175 | 351 |
| 58 | 43 | 86 | 129 | 172 | 345 |
| 59 | 42 | 85 | 127 | 169 | 339 |
| 60 | 42 | 83 | 125 | 167 | 333 |
| 61 | 41 | 82 | 123 | 164 | 328 |
| 62 | 40 | 81 | 121 | 161 | 323 |
| 63 | 40 | 79 | 119 | 159 | 317 |
| 64 | 39 | 78 | 117 | 156 | 313 |
| 65 | 38 | 77 | 115 | 154 | 308 |
| 66 | 38 | 76 | 114 | 152 | 303 |
| 67 | 37 | 75 | 112 | 149 | 299 |
| 68 | 37 | 74 | 110 | 147 | 294 |
| 69 | 36 | 72 | 109 | 145 | 290 |
| 70 | 36 | 71 | 107 | 143 | 286 |
| 71 | 35 | 70 | 106 | 141 | 282 |
| 72 | 35 | 69 | 104 | 139 | 278 |
| 73 | 34 | 68 | 103 | 137 | 274 |
| 74 | 34 | 68 | 101 | 135 | 270 |
| 75 | 33 | 67 | 100 | 133 | 267 |
| 76 | 33 | 66 | 99 | 132 | 263 |
| 77 | 32 | 65 | 97 | 130 | 260 |
| 78 | 32 | 64 | 96 | 128 | 256 |
| 79 | 32 | 63 | 95 | 127 | 253 |
| 80 | 31 | 63 | 94 | 125 | 250 |
| 81 | 31 | 62 | 93 | 123 | 247 |
| 82 | 30 | 61 | 91 | 122 | 244 |
| 83 | 30 | 60 | 90 | 120 | 241 |
| 84 | 30 | 60 | 89 | 119 | 238 |
| 85 | 29 | 59 | 88 | 118 | 235 |
| 86 | 29 | 58 | 87 | 116 | 233 |
| 87 | 29 | 57 | 86 | 115 | 230 |
| 88 | 28 | 57 | 85 | 114 | 227 |

| | | | | | |
|---|---|---|---|---|---|
| 89 | 28 | 56 | 84 | 112 | 225 |
| 90 | 28 | 56 | 83 | 111 | 222 |
| 91 | 27 | 55 | 82 | 110 | 220 |
| 92 | 27 | 54 | 82 | 109 | 217 |
| 93 | 27 | 54 | 81 | 108 | 215 |
| 94 | 27 | 53 | 80 | 106 | 213 |
| 95 | 26 | 53 | 79 | 105 | 211 |
| 96 | 26 | 52 | 78 | 104 | 208 |
| 97 | 26 | 52 | 77 | 103 | 206 |
| 98 | 26 | 51 | 77 | 102 | 204 |
| 99 | 25 | 51 | 76 | 101 | 202 |
| 100 | 25 | 50 | 75 | 100 | 200 |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Preparation of Vials for Field Preservation of Soils for Volatile Analysis** | Level:<br>**Work Instruction** |
| Document number:<br>**T-VOA-WI11242** | | |
| Old Reference:<br>**1-P-QM-WI-9015073** | | |
| Version:<br>**19** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **X6TJ**<br>Effective Date: **24-APR-2023** | Document users:<br>**6_EUUSLA_GC/MS Volatiles_VOA Prep** | Responsible:<br>**5_EUUSLA_GC/MS Volatiles_Manager** |

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Revision Log
Reference
Purpose
Scope
Basic Principles
Definitions
Interferences
Safety Precautions and Waste Handling
Personnel Training and Qualifications
Sample Collection, Preservation, and Handling
Apparatus and Equipment
Reagents and Standards
Calibration
Procedure
Calculations
Statistical Information/Method Performance
Quality Assurance/Quality Control

## Revision Log

| **Revision** | 19 | **Effective Date:** | This version |
|---|---|---|---|
| **Section** | **Justification** | | **Changes** |
| Revision Log | Formatting requirement | | Removed revision logs up to the previous version |
| Header | Correction | | Corrected company name in confidentiality statement |
| Scope | Addition | | Included scope to reference also pre-tared/pre-purchased vials instead of just bottle order vials |
| Basic Principles | Correction | | Corrected the right module to be Container PrePrep, not Analyst Desktop |
| Safety Precautions and Waste Handling | Enhancement | | Added additional details of what samples are worked on under the hood |
| Reagents and Standards, 6 | Correction | | Updated as per current practice |
| Procedure A.2.b | Correction | | Updated as per current of using pump with surrogate and methanol mixed together |
| Procedure A.6 | Enhancement | | Changed Analyst Desktop to Container PrePrep |
| Procedure B.1 | Correction | | Updated process to current practice |
| Procedure B.4 | Correction | | Changed generated to created |

| **Revision** | 19 | **Effective Date:** | This version |
|---|---|---|---|
| Procedure C.1 | Correction | | Changed tracking number to vial label |
| Procedure C.2 | Enhancement | | removed bottle codes since no longer used |
| Procedure C.3.c | Clarification | | Added more information about vial label instruments |
| Procedure D, note | Enhancement | | Removed information about groups when sorting in numerical order |

| **Revision** | 18 | **Effective Date:** | Jan 06, 2022 |
|---|---|---|---|
| **Section** | **Justification** | | **Changes** |
| Revision Log | Formatting requirement | | Removed revision logs up to the previous version |
| Basic Principles | LIMS update | | Updated LIMS program |
| Definitions | LIMS update | | Removed old program reference |
| Procedure | LIMS update | | Updated LIMS program |
| Procedure | Updated reporting | | Method for reporting issues to PM updated |

## Reference


1. USEPA, 40 CFR Part 60, Appendix A, Method 25D

2. Test Methods for Evaluating Solid Wastes, SW-846 Method 5035, December 1996.

3. Test Methods for Evaluating Solid Wastes, SW-846, Method 5035A, July 2002.

4. *Method for the Field Extraction/Preservation of Soil Samples with Methanol for Volatile Organic Compounds*, New Jersey DEP, February 1997.

5. Method AK101 for the Determination of Gasoline Range Organics, April 8, 2002.

6. USEPA, 40 CFR Part 60, Appendix A, Method 25D

7. WI PVOC PUBL-SW-140 09/95, *Wisconsin DNR Modified GRO*.

8. *Chemical Hygiene Plan*, current version.


## Purpose

The purpose of this SOP is to provide detailed instructions for the preparation of vials used for field-preservation of soil samples to be analyzed for volatiles.

## Scope

This procedure applies to analysts who prepare pre-preserved containers used in the field for soil sampling of volatile analyses, as well as pre-tared/pre-purchased vials

## Basic Principles

An aliquot of preservative is placed in a volatile-free container and weighed. The weight of the container and preservative is then captured using the Container PrePrep program in LIMS. When requested, the container is sent to the client for use in field preservation of a solid sample. When the container and the soil sample are returned to the lab, it is re-weighed and the actual sample weight is calculated. Samples are then spiked with the appropriate surrogate as determined by the analysis being performed.

## Definitions

Laboratory Control Sample/ Laboratory Control Sample Duplicate (LCS/LCSD) – A sample of known composition analyzed with each batch of samples to demonstrate laboratory accuracy. The samples either naturally contain the analytes of interest or are clean samples fortified with known concentrations used to demonstrate laboratory accuracy. A duplicate is a second aliquot of a sample that is treated identically to the original to determine precision of the test.

## Interferences

Sample contamination can occur if the vial preparation is not performed in a volatile-free environment; therefore, this process must be performed in one of the designated volatile-free laboratories. Samples also become contaminated if volatiles diffuse through the sample vial septum. A trip blank carried through sampling, storage and handling acts as a check of such contamination.

## Safety Precautions and Waste Handling

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

Methanol is flammable. Containers of this solvent must be kept away from any sources of open flames or sparks. Due to the potentially toxic nature of samples received from clients for analysis, safety precautions must be observed when handling samples. Safety glasses, lab coats, and gloves are required. Weighing out of the samples must always take place in a hood if the samples has an odor or if fine/ 'powder-like'

The solvents utilized in this procedure are disposed of in a solvent waste container which is transferred to the lab-wide disposal facility. Expired standards in methanol are disposed of as hazardous waste. Bulk sample containers and methanolic sample preparations are returned to the sample storage area for future disposal. Other wastes generated by Lancaster Labs are disposed of via incineration at EPA licensed facilities.

## Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding and agreeing to follow the current version of this SOP.

The initial training consists of observing the procedure being carried out by an experienced analyst/technician. Next, the trainee performs the procedure while the experienced person watches, answers questions, and gives feedback. Following the initial training, experienced individuals are available as a resource until no longer required. Analysts are considered proficient when they are able to perform the procedure independently.

## Sample Collection, Preservation, and Handling

Sample containers must be refrigerated at 0° to 6°C, not frozen, after preparation. Containers containing surrogates are not kept for more than 2 weeks before being discarded or sent into the field for use in sample collection. Packaging of sample containers must follow all DOT regulations. When returned, samples must be preserved and refrigerated unfrozen at 0° to 6°C or frozen in reagent water at = -10° within 48 hours of collection. See individual technical area SOPs for method specific hold times.

## Apparatus and Equipment

1. 40-mL vials with Teflon™-lined septa and screw caps

2. 40-mL vials with stir bars, Teflon™-lined septa, and screw caps

3. 125-mL amber glass wide mouth jar with Teflon™-lined septa and screw caps

4. Pipette capable of dispensing up to 25 ± 0.25 mL.

5. 50-µL syringe

6. 1000-mL volumetric flask, class A

7. Analytical balance capable of weighing ±0.01 g.
8. Label printer/labels

9. LIMS VOA prep application and Reagent, Solution, and Balance Applications which integrates a PC with an analytical balance to collect data directly from the balance. It organizes the data, performs calculations, and stores final results in the Laboratory Information Management System (LIMS).

## Reagents and Standards

**NOTE:** A rinse using reagent water followed by methanol must be performed on the pipette dispensers before adding a new lot of solution or standards.

1. Methanol – Purge and trap grade.

   a. Store at room temperature and re-analyze yearly.

   b. Use methanol that has been previously tested and approved for use by the labs.

2. 8260A/B Surrogate Mix, Restek Catalog #30340 (2500 µg/mL) or equivalent.

   a. Store at = -10°C for up to 1 year.

   b. Use standard as is, or diluted in methanol to a final concentration of 2.5 µg/mL. Diluted standard must be stored at = -10°C for up to 6 months.

   c. This standard is used for the GC/MS analyses.

3. Custom a,a,a-trifluorotoluene (TFT), Restek Catalog #54357 (15,000 µg/mL) or equivalent.

   a. Dilute standard in methanol to a final concentration of 750 µg/L for the working solution. A prep dilution of 0.5 mL of TFT to 10 mL of methanol is used when spiking returned field preserved containers.

   b. Store at = -10°C for up to 30 days.

   c. This standard is used for the GC analyses.

4. Sodium hydrogen sulfate anhydrous powder, Fluka, Catalog #2316657 or equivalent.

   a. Store at room temperature and re-analyze yearly.

   b. If compounds are detected above the method detection limit (MDL), prepare another vial and repeat the analysis. If compounds are still detected above the MDL, a new container must be tested and used.

5. Sodium Bisulfate Solution –

   a. Prepare by diluting 200 ±0.5 g of the Sodium hydrogen sulfate anhydrous into 1000 mL of reagent water in 1000-mL volumetric flask. Cap and invert at least 10 times to mix.

   b. Store at room temperature and re-analyze every 6 months if supply remains.

c. If compounds are detected above the method detection limit (MDL), repeat the analysis. If compounds are still detected above the MDL, remake the solution and test before using.

6. Reagent water – water in which target analytes are not detected at or above the reporting limit for parameters of interest. In general, the deionized water supplied via pre-tared vials meets criteria. If the reagent water does not meet the requirements, see your supervisor for further instructions.

7. Polyethylene glycol (PEG) – Average molecular weight 400 amu, EM Science preferred.

a. Any lot/vendor must meet a cleanliness level of <50 mg/kg volatile content.

b. Store at room temperature and re-analyze each year if supply remains.

## Calibration

Not applicable to this procedure.

## Procedure

A. Prepare preservative containers

**NOTE:** Pre-purchased vials can be used for selected preps. Vials containing 5 mL of DI Water, vials containing 5 mL of Sodium Bisulfate and vials containing 5, 10 and 15 mL of methanol are available for field preserved analyses. The vials contain the initial tare weight, vial lot number, and the preservative lot number.

1. Check to make sure the pipette calibration has been performed.

2. Use the pipette to add the appropriate amount of preservative to a clean container. A 40-mL vial is used unless otherwise indicated on T-VOA-FRM10681.

a. For AK101 and 10mL DE Vials for 8260 the appropriately diluted surrogate solution must be added at this time using a pipette.

b. For NJ 25mL vials for 8260 use a pump that has the surrogate and methanol already mixed into a 40-mL vial. 1 µL of 8260A/B surrogate for every 1 mL of methanol in the vial.

3. Seal the container with a screw cap and septum seal.

4. Label the container with the tracking number.

5. Check to make sure the balance has been calibrated each day before use.

6. Place the container on a zeroed balance and capture the weight electronically to the nearest 0.01 g using Container PrePrep

7. Store the prepared containers in the designated area in the Volatile Prep room. Vials containing surrogates must be stored in the freezer, vials containing just methanol are stored at room temperature or refrigerated.

8. Pull vials as requested via e-mail from client services and place on the designated shelf in the bottles room storage area. The containers are now ready to be sent into the field for sample collection.

9. Send a reply e-mail to the client service representative to notify them that the order has been completed.

B. Re-weigh preservative containers after return from the field

1. Using Analyst Desktop application, type in the tracking number on the ID Label. This brings up the information documented from the preparation step described above.

**NOTE:** If using purchased pre-tarred vials insert the vial ID, preservative, and tare weight information on the Pre-Tarred tab within the Volatile Prep Application.

2. Check to make sure the balance has been calibrated each day before use. Place the container on a zeroed balance and capture the second weight electronically using the VOA Prep application.

3. Analyst Desktop calculates the net weight. (weight of vial, solution, and soil minus the weight of the vial and solution).

4. If there are any holding-time issues or if weights are outside of the Action Requirement, an NCM should be created and the PM contacted.

5. Record any unusual observations about the sample in the comment section.

C. Sample spiking

**NOTE:** Wipe samples do not require a surrogate to be spiked into the methanol.

A 1:1 ratio of µL to mL is required when spiking surrogate into methanol, except for analysis 0388 MA-VPH samples which require 30 µL to the 15 mL of methanol.

1. Determine the amount of methanol in the sample. This is determined by the analysis number and the mL of methanol printed on the vial label

2. Fill the syringe with the appropriate surrogate slightly past the amount of µL needed.

a. Add the appropriate surrogate based on the department receiving the sample.

b. GC requires a TFT surrogate mix to be used.

c. GC/MS requires an 8260A/B surrogate mix to be used.

3. Dispense the surrogate from the syringe until the required level of µL is reached. This assures no air bubbles are present and the syringe contains surrogate.

a. Tilt the vial so the methanol comes toward the top of the vial, take off the cap(s), submerging the tip of the syringe into the methanol.

b. Shake the vial to disperse the surrogate throughout the sample.

c. Put an “S” on the vial label to indicate surrogate has been added and the amount of surrogate, such as "5-5, 5-10" (specify if the surrogate was TFT, VPH, etc, ex: "VPH 5-30").

d. Clean the syringe before proceeding to the next sample.

D. Deliver samples to the labs

Once the sample containers have been re-weighed, they must be transported to the laboratory for analysis. Each department has a designated refrigerated drop-off spot. All trip blanks and field blanks submitted must follow the sample containing the same preservative. Blanks submitted as waters are to be stored in the designated volatile refrigerator.

**NOTE:** Any sample designated for prescreen must be taken to the appropriate refrigerator and placed in a box sorted in numerical order. If a methanol sample is designated for prescreen and a corresponding methanol trip blank or field blank is submitted the blanks must follow the associated samples through the entire process including sample prescreen.

## Calculations

Calculation of sample weight : Wn = Ws - Wf

**Where:**

Wf = weight of container + solution (first weight)

Ws = weight of container + solution + soil (second weight)

Wn = net weight of soil sample

## Statistical Information/Method Performance

Not applicable to this procedure.

## Quality Assurance/Quality Control

The number of containers requested from Client Services includes the appropriate amount of extra bottles to serve as matrix quality control (QC) for volatile analyses requested. The matrix QC spiking for this process is noted in Procedure C. All other QC samples such as the LCS, LCSD, and method blanks are prepared as outlined in the individual technical area's SOPs.

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End of document

## Version history

| Version | Approval | Revision information | |
|---|---|---|---|
| 17 | 08.MAR.2018 | | |
| 18 | 06.JAN.2022 | | |
| 19 | 10.APR.2023 | No updates needed as per review from technical done 04.11.2024; expiration extended 1 year | |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**GC/MS - Bulk Solids Matrix Sample Preparation** | Level:<br>**Work Instruction** |
| Document number:<br>**T-VOA-WI10682** | | |
| Old Reference:<br>**1-P-QM-WI-9015069** | | |
| Version:<br>**15** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **X6TJ**<br>Effective Date: **08-AUG-2023** | Document users:<br>**6_EUUSLA_GC/MS Volatiles_VOA Prep** | Responsible:<br>**5_EUUSLA_GC/MS Volatiles_Manager** |

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Quality Assurance/Quality Control

## Revision Log

| **Revision:** 15 | **Effective Date:** | This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Header | Correction | Corrected company name in confidentiality statement |
| Revision Log | Formatting Requirement | Removed revision Log of previous versions |
| Procedure, C | Reflect current procedure | Removed the use of forms and updated step for digital LIMs system step |
| Procedure, D | Enhancement | Updated procedural steps |
| Procedure, E.1 | Clarification | Rearranged procedural steps |
| Procedure, E.2.a | Clarification | Updated step as per current practices |
| Procedure, E.5 | Clarification | Corrected Sample Support to ASRS |

| **Revision:** 14 | **Effective Date:** | 04/09/2021 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Definitions | Clarification | Updated for new LIMS |
| Safety Precautions and Waste Handling | Reflect current procedure | Weighing out of samples only when requested |

| **Revision:** 14 | **Effective Date:** 04/09/2021 | |
|---|---|---|
| Sample Collection, Preservation and Handling | Reflect current procedure | Removed unused method references |
| Apparatus and Equipment | Clarification | Updated for new LIMS |
| Procedure D, E | Clarification and reflect current procedure | Updated for new LIMS and changed method references |
| Procedure F | Reflect current procedure | Removed procedure no longer performed |
| Quality Assurance/Quality Control | Clarification | Corrected typo |

## Reference

1. *Test Methods for Evaluating Solid Waste*, SW-846, Method 5030A, Revision 1, July 1992.

2. *Test Methods for Evaluating Solid Waste*, SW-846, Method 5035A modified, July 2002.

3. *Chemical Hygiene Plan*, current version.

## Cross Reference

| Document | Document Title |
|---|---|
| *S-SS-WI11260* | Preservation and Bottles Room Preservative Traceability |
| *T-VOA-WI11168* | Pipette Dispenser Calibration Procedure |
| *S-SS-WI10683* | Glassware Cleaning |
| *QA-SOP11880* | Balance, Syringe, Pipette Verification |
| *QA-SOP11913* | Laboratory Notebooks, Logbooks, and Documentation for Environmental Testing |

## Scope

This method is for preparation of solid samples (received in bulk containers) for analysis using GC/MS purge and trap techniques.

## Basic Principles

The low-level sample preparation consists of weighing an aliquot of the soil sample into a vial with a stir bar, adding reagent water, and freezing. The vial is thawed prior to the purge and trap analysis.

The high-level preparation consists of weighing an aliquot of the soil sample into a vial, adding methanol (including surrogates), and shaking to dissolve the volatile organic compounds into the solvent layer. A portion of this solvent layer is diluted in reagent water by the GC/MS Volatiles department for analysis on the purge and trap system according to the determinative method.

## Definitions

1. Preparation – Refers to the preservation steps that are performed at the lab, not an extraction step.

2. Reagent water – Water in which target analytes are not detected at or above the reporting limit for parameters of interest. In general, the deionized water supplied at the taps in the laboratory meets criteria. If the reagent water does not meet the requirements, see your supervisor for further instructions.

3. Analyst Desktop – Reports that reside on the LIMS database. Using the Analyst Desktop application and moisture results pulled from LIMS, the report is populated and calculations are performed to achieve a Final Extraction Volume to be used when necessary by the GC and GC/MS groups.

## Interferences

Care must be exercised to prevent sample cross-contamination of glassware, utensils, solvents, and other equipment. A clean spatula must be used for each new sample. To avoid sample contamination, perform this procedure in one of the designated volatile free laboratories.

## Preparation of Glassware/Utensils

All glassware and utensils are washed in accordance with *S-SS-WI10683*.

## Safety Precautions and Waste Handling

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

Methanol is flammable. Containers of this solvent must be kept away from any sources of open flames or sparks. Vials containing methanol must be stored in explosion-proof refrigerators.

Due to the potentially toxic nature of samples received from clients for analysis, safety precautions must be observed when handling samples. Safety glasses, lab coats, and gloves are required as personal protective wear. Only when instructed to do so in the Lab Notes, weighing out of the samples must always take place in a hood.

The solvents utilized in this procedure are disposed of in a solvent waste container. Expired standards in methanol are disposed of as hazardous waste. Bulk sample containers and sample preparations are returned to the sample storage area for future disposal. Other wastes generated by Lancaster Labs are disposed of via incineration at EPA licensed facilities.

## Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and a documented Demonstration of Capability.

The initial training consists of observing the procedure being carried out by an experienced analyst/technician. Next, the trainee performs the procedure while the experienced person watches, answers questions, and gives feedback. Following the initial training, experienced individuals are available as a resource until no longer required. Analysts are considered proficient when the procedure can be carried out independently.

## Sample Collection, Preservation, and Handling

Samples are collected in a 2-oz. glass jar with a Teflon™-lined cap. Samples must be refrigerated at 0 - 6°C, not frozen, and prepared within 48 hours of receipt.

## Apparatus and Equipment

1. 40-mL pre-cleaned Teflon™ lined, screw-cap vials

2. Utensils

3. Magnetic stir bars, Teflon™ coated, 12-mm

4. Top-loading balance capable of weighing ±0.01 g

5. Pipette capable of dispensing up to 25 ±0.25 mL, or equivalent

6. Glassware – funnels and volumetric flasks, Class A

7. Analyst Desktop Application – integrates a PC with a balance to collect data directly from the balance. It organizes the data, performs calculations (when required), and stores final results in the Laboratory Information Management System. This procedure is used whenever possible to facilitate data transfers and other tracking. If necessary, data is recorded traditionally in a logbook. Refer to *QA-SOP11913*.

## Reagents and Standards

**NOTE:** A rinse using reagent water followed by methanol must be performed on the pipette dispensers before adding a new lot of solution or standards. A clean funnel is used to transfer the new solution into the pipette dispenser.

A. Reagents

1. Reagent water – see definition section

2. Methanol – purge and trap grade or equivalent

The methanol used must have been previously tested and approved for use by the labs. See 1-P-QM-QMA-9015516 for further information.

B. Standard

8260 surrogate standard (SS) spiking solution – Prepare a solution in methanol containing dibromofluoromethane, toluene-d8, 4-bromofluorobenzene, and 1,2-dichloroethane–d4 at a concentration of 25 µg/mL.

Personnel in the GC/MS Volatiles lab prepare the SS spike by volumetric dilution in methanol using an ampulated stock standard mix purchased from a supplier. All standards are stored at -10° to -15°C. The ampulated standards are stored until the expiration date indicated by the vendor or for 2 years if no expiration date is provided. The SS spike is stored for 6 months.

## Calibration

Not applicable to this procedure

## Procedure

A. Ensure that the balance is calibrated according to *QA-SOP11880* and that the pipette dispenser is calibrated according to *T-VOA-WI11168* before proceeding.

B. Each unhomogenized sample is received in a "zero-headspace" container to preserve any aromatics and to ensure accuracy of the method.

**NOTE:** Headspace is defined as a significant amount of space between the sample level and the top of the jar. Some sample settling is acceptable. However, a significant amount of headspace exists when more than a 1/4 of the volume in the container is missing.

C. If headspace is present, a comment is added to the Notes Section on the batch's Worksheet tab in the LIMs

D. Low level prep method 5030C Solid NAC/8260 – This prep is performed on samples expected to contain less than 1000 to 1500 µg/kg of VOCs.

1. In Analyst Desktop, create a new batch using the 5030C_Solid_NAC method code

2. Create a method blank in Login, using the earliest collection date and time from the samples to be prepped.

3. Enter the method blank into the first line in the batch. Scan the sample ID's using the Run Log tab

4. Print the batch labels and label the vials with the appropriate container number.

5. Weigh 5+/- 0.50g into a tared 40mL screw-capped vial with a stir bar.

   a. Add the purged DI lot number and amount to the reagent tab.

   b. All dates, times, and analyst information is pulled in when assigning the final weight taken.

6. Add 5 mL of reagent water to the vial containing the weighed sample along with a stir bar. Seal the screw cap on the vial to prevent leakage. Please perform this step quickly to minimize the loss of VOC from the sample and minimize the possibility of airborne contamination of the sample

   a. If the sample absorbs the full 5 mL, a smaller sample weight is used. On the worksheet tab, a note must be added to explain the reason for the change.

   b. When it is not possible to use 5 g of sample due to the nature of the sample matrix or limited sample volume, smaller sample weights are acceptable. On the worksheet tab, a note must be added to explain the reason for the change.

7. Once the samples are prepared, they are transported to the appropriate laboratory for analysis.

   a. The low level soil preparations are stored in the designated freezer location.

   b. The original sample containers are returned to ASRS for storage.

8. See specific analytical method for dilution information and QC standard spiking procedures.

E. High level prep method 5030C H/8260 – This prep is performed in conjunction with the low level prep to provide a high level option for the volatile group in case the VOCs are greater than 1000 to 1500 µg/kg.

1. In Analyst Desktop, create a new batch using 5030C H method. Scan the sample ID using the Run Log tab, and record the weight using the Worksheet tab. Weigh 5 ± 0.50 g into a tared, 40-mL screw-capped vial.

   a. Be sure to label the vial with the appropriate sample number provided from Sample Administration

   b. Weight 5 +/- 0.50g into a tared 40mL screw-capped vial.

   c. Other information provided includes: assigning a container number along with the Methanol/8260 surrogate solution lot number under the reagent tab, assigning the sample weight, headspace observed, any additional comments, and assigning the ELLE sample number, method and A-method.

d. All dates, times, and analyst information are pulled in when assigning the final weight taken.

e. When it is not possible to use 5 g of sample due to the nature of the sample's matrix or limited sample volume, smaller sample weights are acceptable.

2. Add 5 mL of 8260/MeOH solution to the vial containing the weighed sample. Seal the screw cap on the vial to prevent leakage.

a. If the sample absorbs the full 5 mL, add 5mL more.

b. Perform these steps quickly to minimize the loss of VOC from the sample and to minimize the possibility of airborne contamination of the sample.

3. Once the methanol has been added, cap and shake the sample for approximately 2 minutes.

4. Centrifuge the vial until the soil is separated from the MeOH layer.

5. Once the samples are prepared, they are transported to the appropriate laboratory for analysis. Each department has a designated refrigerated location. The original sample containers are returned to ASRS for storage.

6. See specific analytical method for dilution information and QC standard spiking procedures.

## Calculations

See analytical methods.

## Statistical Information/Method Performance

See analytical methods.

## Quality Assurance/Quality Control

1. Preservation blanks are created each day samples are prepared. The preparation of a low level blank consists of dispensing 5 mLs of reagent water into a 40-mL screw-capped vial with a stir bar. These blanks are then stored in a designated spot in the freezer and are analyzed by a GC/MS low level analysis.

2. Laboratory Control Sample (LCS), Laboratory Control Sample Duplicate (LCSD), and method blank are prepared as outlined in the individual technical areas SOPs.

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QA-SOP11880 Laboratory Support Equipment - Calibrations, Verifications, and Maintenance
QA-SOP11913 Laboratory Notebooks, Logbooks, and Documentation
S-SA-WI11260 Preservation and Bottles Room Preservative Traceability
S-SS-WI10683 Glassware Cleaning
T-VOA-WI11168 Pipette Dispenser Calibration Procedure

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End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 13 | 07.OCT.2014 | | |
| 14 | 09.APR.2021 | | |
| 15 | 25.JUL.2023 | Reviewed 08.12.2025 by Roy Mellot, expiration extended one year | |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Preparation of Soil and Solid Samples for GC Volatile Analyses by methods SW-846-5030A and SW-846-5035A Modified** | Level:<br>**Work Instruction** |
| Document number:<br>**T-VOA-WI11169** | | |
| Old Reference:<br>**1-P-QM-WI-9015124** | | |
| Version:<br>**21** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **XL3S**<br>Effective Date: **18-JUL-2025** | Document users:<br>**6_EUUSLA_GC/MS Volatiles_VOA Prep** | Responsible:<br>**5_EUUSLA_GC/MS Volatiles_Manager** |

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## Revision Log

| **Revision:** 21 | | **Effective Date:** | This version |
|---|---|---|---|
| **Section** | **Justification** | | **Changes** |
| Revision Log | Formatting | | Removed previous revision logs up to this version |
| Procedure 11 | Current process | | Specific VPH solution is not used; added correct prep |
| Procedure 14 | Current process | | Updated to VPH being analyzed in dept. 4021 |
| Quality Assurance/Quality Control | Corrected error | | Corrected reagent used for daily preservation blanks from methanol to reagent water |

| **Revision:** 20 | | **Effective Date:** | Jun. 17, 2024 |
|---|---|---|---|
| **Section** | **Justification** | | **Changes** |
| Revision Log | Formatting | | Removed previous revision logs up to this version |
| Sample Collection, Preservation, and Handling | Updated | | Removed size of container, as various sizes are used |

| **Revision:** | 20 | **Effective Date:** | Jun. 17, 2024 |
|---|---|---|---|
| Reagents and Standards | Current Process | Removed rinsing of reagent pumps | |
| Procedure 14 | Current Process | Added prescreen step to process | |

## Reference

1. *Method for the Determination of Gasoline Range Organics*, *EPA Underground Storage Tank Work Group Draft*, American Petroleum Institute, Revision 6, August 18, 1993.

2. *Test Methods for Evaluating Solid Waste, SW-846*, Method 5030A, Revision 1, July 1992.

3. *Test Methods for Evaluating Solid Wastes, SW-846*, Method 5035A (Modified), November 2004.

4. Massachusetts Department of Environmental Protection Method for the Determination of Extractable Petroleum Hydrocarbons, May 2004.

5. *Total Petroleum Hydrocarbons Analysis - Gasoline Method*, California Department of Health Services, LUFT Task Force.

6. *Chemical Hygiene Plan*, current version.

## Purpose

The purpose of this SOP is to describe the proper procedure to prepare high level solid sample received in bulk containers for GC and VPH analyses.

## Scope

This method is used to prepare high level solid samples (received in bulk containers) for the determination of aromatic analytes and/or gasoline range organics using GC purge and trap techniques. Care must be exercised to prevent sample cross-contamination of glassware, utensils, solvents, and other equipment.

## Basic Principles

An aliquot of the soil sample is weighed into a vial, methanol (including the surrogate) is added, and after capping, the vial is shaken to dissolve the volatile organic compounds into the solvent layer. A portion of this solvent layer will be diluted in reagent water by the Volatiles GC department for analysis on the purge and trap system according to the determinative method.

## Reference Modifications

A 10-g sample to 10-mL methanol preparation is used in place of the 20-g sample to 20-mL methanol preparation discussed in Reference 1. The requirements of the method are met since the 1:1 ratio is maintained.

## Definitions

1. Preparation – Refers to the preservation steps that are performed at the lab, not an extraction step.

2. Reagent water – Water in which target analytes are not detected at or above the reporting limit for parameters of interest. In general, the deionized water supplied at the taps in the laboratory meets criteria. If the reagent water does not meet the requirements, see your supervisor for further instructions.

3. Analyst Desktop – Reports that reside on the LIMS database. Using the Analyst Desktop application and moisture results pulled from LIMS, the report is populated and calculations are performed to achieve a Final Extraction Volume to be used when necessary by the GC and GC/MS groups.

## Interferences

A clean spatula must be used for each new sample to prevent contamination during the preparation process. Preparations must be performed in one of the designated volatile free laboratories to prevent contamination.

## Safety Precautions and Waste Handling

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

Methanol is flammable. Containers of this solvent must be kept away from any sources of open flames or sparks.

Due to the potentially toxic nature of samples received from clients for analysis, safety precautions must be observed when handling samples. Safety glasses, lab coats, and gloves are required as personal protective wear. Weighing out of the samples may need to take place in a hood, if samples are highly contaminated.

The solvents utilized in this procedure are disposed of in a solvent waste container which is transferred to a lab-wide disposal facility. Expired standards in methanol are disposed of as hazardous waste. Bulk sample containers and methanolic sample preparations are returned to the sample storage area for future disposal. Other wastes generated by Lancaster Labs are disposed of via incineration at EPA licensed facilities.

## Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and a documented Demonstration of Capability.

The initial training consists of observing the procedure being carried out by an experienced analyst/technician. Next, the trainee performs the procedure while the experienced person watches, answers questions, and gives feedback. Following the initial training, experienced individuals are available as a resource until no longer required. Analysts are considered proficient when they are able to perform the procedure independently.

## Sample Collection, Preservation, and Handling

Samples are collected in a glass jar with a Teflon™-lined cap, stored at 0 to 6°C, not frozen, and preserved within 48 hours of receipt.

## Apparatus and Equipment

1. 40-mL pre-cleaned Teflon™-lined, screw-capped vials
2. Pipette or pipette dispenser capable of dispensing up to 25 ±0.25 mL, or equivalent
3. Top-loading balance capable of weighing ±0.01 g with 100-g capacity
4. Utensils/glassware are washed in accordance with S-SS-WI10683.

5. Analyst Desktop Application – Integrates a PC with a balance to collect data directly from the balance. It organizes the data, performs calculations (when required), and stores final results in the Laboratory Information Management System. This procedure is used whenever possible to facilitate data transfers and other tracking; however, it is allowable to record data traditionally in a logbook if necessary.

6. Gas-tight syringes – Various sizes (used to prepare the surrogate solution)

7. Volumetric flasks – Class A, various sizes (used to prepare the surrogate solution)

## Reagents and Standards

The methanol used in this procedure must be tested and approved by the labs prior to use.

A. Reagents

1. Reagent water – See Definitions section

2. Methanol (MeOH) – Purge and trap grade or equivalent stored at room temperature.

B. Standard

1. Personnel in the Volatiles by GC lab prepare the surrogate standard by dilutions in methanol using an ampulated stock standard purchased from a supplier.
2. All ampulated standards are stored at =-10°C until the expiration date indicated by the vendor or for 1 year if no expiration date is provided.

3. Secondary dilution and working standards in methanol are stored in vials at =-10°C until they expire (30 days from the date of preparation).

**NOTE:** All standard aliquots are measured in a syringe capable of holding the appropriate volume of standard.

C. Purgeable Aromatics in High-Level Soils

1. Trifluorotoluene (TFT) surrogate stock solution – A standard that is purchased from an analytical supplier at a concentration of 15,000 ppm.

2. TFT working standard – Prepared by adding 0.5 mL of the TFT surrogate stock solution to 10 mL of MeOH.

3. TFT/MeOH Solution – Prepared by adding 2 mL of the TFT working standard to 2000 mL of MeOH.

## Calibration

Not applicable to this procedure.

## Procedure

1. Ensure that the balance is calibrated.

2. Ensure that the pipette dispenser is calibrated

3. Each sample to be analyzed must be unhomogenized and received in a "zero-headspace" container to preserve any aromatics and to ensure accuracy of the method.

a. When one or both of the previous criteria have not been met, a comment is added to the prep batch to outline any inadequacies.

**NOTE:** Headspace is defined as a significant amount of space between the sample level and the top of the jar. Some sample settling is acceptable. However, a significant amount of headspace exists when more than a 1/4 of the volume in the container missing.

4. For GC Prep Methods 5030C H/8015, weigh 10 ±1.0 g into a tared, 40-mL screw-capped vial.

a. In Analyst Desktop, create a new batch using 5030C H method. Scan the sample ID using the run log tab and record the weight using the bulk tab in the worksheet tab.

When it is not possible to use 10 g of sample due to the nature of the sample's matrix or limited sample volume, smaller sample weights are allowed. However, a minimum of 2 g must be utilized.

b. Be sure to print the batch labels and label the vial with the appropriate container number found using the run log tab.

c. Other information provided includes assigning a container number along with the MeOH/Surrogate solution lot number under the reagent tab, assigning the sample weight, headspace observed, any additional comments, and assigning the LLI sample number, method and A-method.

d. All dates, times, and analyst information is pulled in when assigning the final weight taken.

5. Add 10 mL of TFT/MeOH solution to the vial containing the weighed sample. Seal the screw cap on the vial to prevent leakage.

a. Perform these steps quickly to minimize the loss of VOC from the sample and to minimize the possibility of airborne contamination of the sample.

b. If the sample is not dense enough to be covered by the 10 mL of the solution or if the sample absorbs the full 10 mL, a smaller sample weight must be used.

c. If <10 g of sample is available, maintain a 1:1 sample to methanol ratio, if possible.

6. Once the methanol has been added, cap and shake the sample for 2 minutes.

7. Centrifuge the vial until the soil is separated from the MeOH layer.

8. Once the samples are prepared, the TFT vial is prescreened prior to being transported to its designated refrigerator location.

a. Each department has a designated refrigerated location.

b. The original sample containers are returned to sample support for storage.

9. See specific analytical method for dilution information and QC standard spiking procedures.

10. For VPH Prep Methods 5030A_M_7d/MTVPH, weigh 15 ±3.75 g into a tared, 40-mL screw-capped vial.

a. Record the sample number and the weight using the bulk tab in the VOA Prep application.

When it is not possible to use 15 g of sample due to the nature of the sample's matrix or limited sample volume, smaller sample weights are allowed. However, a minimum of 5 g must be utilized.

b. Be sure to print the batch labels and label the vial with the appropriate container number found using the run log tab.

c. Other information provided includes: assigning a container number along with the MeOH/Surrogate solution lot number under the reagent tab, assigning the sample weight, headspace observed, any additional comments, and assigning the LLI sample number, method and A-method.

d. All dates, times, and analyst information is pulled in when assigning the final weight taken.

11. Add 15 mL of MeOH to the vial containing the weighed sample and spiked with 30 uL of TFT Working standard. Seal the screw cap on the vial to prevent leakage.

a. Perform these steps quickly to minimize the loss of VOC from the sample and to minimize the possibility of airborne contamination of the sample.

b. If the sample is not dense enough to be covered by the 15 mL of the solution or if the sample absorbs the full 15 mL, a smaller sample weight must be used.

c. If <15 g of sample is available, maintain a 1:1 sample to methanol ratio, if possible.

12. Once the methanol has been added, cap and shake the sample for 2 minutes.

13. Centrifuge the vial until the soil is separated from the MeOH layer.

14. Once the samples are prepared, the sample is prescreened prior to being transported to the laboratory that will be analyzing them.

a. The original sample containers are returned to sample support for storage.

15. See specific analytical method for dilution information and QC standard spiking procedures.

## Calculations
See analytical methods.

## Statistical Information/Method Performance
See analytical methods.

## Quality Assurance/Quality Control

1. Preservation blanks are created each day samples are prepared. The preparation of a low level blank consists of dispensing 5 mLs of Reagent Water into a 40-mL screw-capped vial. These blanks are then stored in a designated spot in methanol sample storage.

2. Laboratory Control Sample (LCS), Laboratory Control Sample Duplicate (LCSD), and method blank are prepared as outlined in the individual technical areas SOPs.

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End of document

## Version history

| Version | Approval | Revision information | |
|---|---|---|---|
| 19 | 28.JUN.2023 | | |
| 20 | 17.JUN.2024 | | |
| 21 | 18.JUL.2025 | | |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Laboratory Support Equipment - Calibrations, Verifications, and Maintenance** | Level:<br>**Standard Operating Procedure** |
| Document number:<br>**QA-SOP11880** | | |
| Old Reference:<br>**1-P-QM-QMA-9015389; DOD - LOM-SOP-ES-235** | | |
| Version:<br>**18** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **ULJC**<br>Effective Date: **07-FEB-2025** | Document users:<br>**4_EUUSLA_ELLE_All_Technical** | Responsible:<br>**5_EUUSLA_Env Quality Assurance_All** |

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A. Verification and Calibration Requirements
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## Revision Log

| | **Revision:** 18 | **Effective date:** This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Procedure C | Enhancement | Reflect current process |
| Procedure F | Enhancement | Reflect current procedure |

| | **Revision:** 17 | **Effective date:** September 06, 2024 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Cross-Reference | Addition | Added QA-FRM74360 |
| Scope | Clarification | Added language referring to manufacturing procedures identified in equipment operating manuals |
| Procedure | Clarification | Added language stating that balances must be calibrated at full range of use. Added transportation information. Clarified that plastic labware cannot qualify as Class A |

## Reference


1. *ASTM Standard Specification for Laboratory Weights and Precision Mass Standards*, E 617-97.
2. *ASTM Standard Specification for Laboratory Glass Volumetric Flasks*, E 288-03
3. *ASTM Standard Specification for Laboratory Glass Graduated Cylinders*, E 1272-02
4. *DoD Quality Systems Manual for Environmental Laboratories*, current version
5. *The TNI Standards*, current version
6. 25 Pa 252.306, current version
7. Center of Expertise in Environmental Analysis of Quebec; *Guidelines for Analytical Work in Chemistry*, DR-12-SCA-01, March 20, 2018.
8. N.J.A.C 7:18, current version
9. *Chemical Hygiene Plan*, current version


## Cross Reference

### Procedures

| Document | Document Title |
|---|---|
| *QA-SOP11901* | Instrument Maintenance and Calibration |
| *QA-SOP11191* | Monitoring Temperatures in Refrigerators, Freezers, Incubators, Using the ETM |
| *QA-SOP11916* | Use and Maintenance of Reagent Water Supply |
| *QA-FRM74360* | How to Send Equipment to Garber Metrology for Calibration |

### Equipment label templates and printed forms

| Document | Document Title |
|---|---|
| *QA-FRM6871* | Do Not Use - Environmental |
| *QA-FRM41248* | Scheduled Maintenance |

| Document | Document Title |
|---|---|
| *QA-FRM52177* | Garber Delivery Receipt |
| *QA-FRM72988* | Equipment Label Template |
| *Q-EQA-FRM6858* | Weight Set Sign-Out |
| *Q-EQA-FRM52624* | Annual Balance Calibration Tracking (resource) |

**Equipment verification forms**

| Document | Document Title |
|---|---|
| *QA-FRM45536* | Semi-Annual Department Syringe Verifications |
| *QA-FRM50673* | F Qualified Weight Impact Assessment Spreadsheet |
| *QA-FRM70571* | Annual Department Weight Set Verifications |
| *QA-FRM72827* | Annual Department Timer Verifications |

## Scope

This procedure addresses the following calibration, verification, and routine maintenance procedures for laboratory support equipment.

- Balances (analytical and top-loading) - Procedure B
- ASTM Class 1 Weights - Procedure C
- Mechanical pipettes - Procedure D, including
- Volumetric Syringe Verification (≤10-µL in size) - Procedure E, including:
  - Eppendorf-style
  - Repeators
- Temperature Measuring Devices - Procedure F, excluding
  - The calibration of ETM probes, which is discussed in *QA-SOP11191*
  - NIST-traceable thermometers
- Volumetric Labware - Procedure G
- Other Laboratory Equipment Requiring Verification - Procedure H

Instruments (equipment that give analytical results) are addressed in *QA-SOP11901*. Bottle-top dispensers are verified by this procedure only if used for critical volumes. The requirement for verification applies to equipment where quantitative results are dependent on their accuracy.

Some regulatory programs or special-use equipment have additional requirements for calibration checks and/or maintenance. Because of the wide variety of these devices used by the laboratory, it is recommended that analysts also refer to the manufacturer’s instruction manual for additional information.

Manufacturing procedures identified in the Equipment Operating Manuals are referenced for safe handling, transport storage, and use and planned maintenance of measuring equipment to ensure proper functioning and in order to prevent contamination or deterioration.

**NOTE:** This procedure does not apply to instrument autosampler syringes.

## Definitions

1. NIST – National Institute of Standards and Technology

2. ASTM – American Society for Testing and Materials

3. Class 1 Weights (ASTM) – These weights are designated as high-precision standards for calibration. They are used for the monthly (or daily, if desired) calibration check of balances as reference standards for calibrating other weights. These weights are recommended for calibration of balances using optical or electrical methods for accurately weighing quantities below 20 mg.

4. DOD QSM – Department of Defense Quality Systems Manual

5. Sensitivity – The smallest amount that the equipment can measure.

6. Accuracy - The degree of agreement between an observed value and an accepted reference value.

7. Precision - The degree to which a set of observations or measurements of the same property, obtained under similar conditions, conform to themselves; a data quality indicator. Precision is usually expressed as standard deviation, variance or range, in either absolute or relative terms.

8. Support Equipment - machines that are required to complete the steps of the analysis - i.e. autoclaves, hot water baths, digestors, sonicators, microwaves, etc. Equipment does not generate analytical data.

9. Instrument - Instruments provide a measurable result of an analyte. Instruments have specific calibration criteria. See *QA-SOP11901*.

## Personnel Training and Qualifications

Personnel performing this procedure must have documentation of reading, understanding and agreeing to follow this version of the SOP.

Analysts must be trained to use the equipment and work with an experienced analyst prior to performing the verification procedure independently.

## Safety Precautions and Waste Handling

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

## Procedure

## A. Verification and Calibration Requirements

1. All verifications, calibrations, repairs or maintenance must be documented in a maintenance and calibration logbook and/or a verification logbook or acceptable alternative (database, excel spreadsheet, etc.). See *QA-SOP11913* for further documentation requirements.

2. The acceptance criteria must be noted in the log.  Corrective action must be documented for any checks that are out of specification.The results of any calibration or verification must be within specified acceptance limits in order to proceed. The acceptance limits are defined by the regulations and the intended use of the equipment.

3. If the equipment fails to meet the specified limits, it must be taken out of service using Form *QA-FRM6871* until repaired. In the case of temperature measuring devices, a correction factor may be applied.

4. Records of all maintenance, including service calls and external calibrations, must be maintained.

5. The unique identification of the equipment (balance, pipette, weight set, etc.) used to perform the various calibrations must also be documented.

## B. Balances

### Calibration - Annual

An annual check of the balance must be made by a qualified (ISO 17025 accredited) professional service firm. This check includes a calibration verification and appropriate preventative maintenance (e.g., cleaning). The balances must be calibrated at a full range of use. The Environmental Quality Assurance Department is responsible for scheduling this annual check. Calibration records are maintained on the D4052 shared network. The date of the calibration must be noted on the balance. A confirmation of the calibration range defined on the label by the balance is performed following the annual calibration of the balance. *Q-EQA-FRM52624* may be used to track this process.

### Verifications - Daily

Check each balance for proper calibration **prior to use** on each day that it is used. Verify using at least three Class 1 weights that bracket the range of use. Document the results of the verification either in a physical logbook or in the Balance module within the LIMS.

1. Confirm and document that the balance is level.

2. Tare the balance with a container representative of the weighing vessel normally used.

3. Ensure the balance pan is free of debris before placing a weight on the pan. Record the readback of the balance as the verification. **Note:** In order to preserve the highly accurate nature of the weights, they must be handled with great care. Never touch weights with anything other than forceps, and transfer the weights directly from the case to the pan of the balance.

4. The verification is acceptable if this criteria is met:

    - For **top-loading balances**, the reading must be ±0.2% or ±0.02g of the true value of the weight, whichever is greater.

    - For **analytical balances**, the reading must be ±0.1% or ±0.5mg, whichever is greater.

5. If a balance must be physically moved during the day, perform an additional check of the level and calibration.

6. Corrective actions

    a. For a balance that is not operating within the stated acceptance criteria, first verify the cleanliness of the weighing pan. Clean weights and perform the check again. Some balances are equipped with built-in calibration weights permitting automatic calibration. Consult the manufacturer's manual to see if any adjustments are recommended to correct the problem.

    b. If the problem cannot be resolved, immediately take the balance out of service using Form *QA-FRM6871* and place a call to the manufacturer or the professional balance service firm to address the situation. See *QA-SOP11901* in the event of a calibration check failure or the need to take the balance out of service.

    c. Data generated since the last acceptable daily/monthly calibration must be evaluated by management on a case-by-case basis.

7. The manager or designee must review these verification records a minimum of once per month.

### Daily Use

1. The range, accuracy, and sensitivity of a balance must be appropriate for its use. Balances used in drinking water analyses should be able to weigh to 0.0001 g.

2. Analytical balances must be in an area that is vibration-free in order for the balance to remain level and supply accurate readings. A stabilizing slab can be used on a counter top or in a hood in order to minimize vibrations.

3. Balances must be located away from laboratory traffic and protected from drafts and sudden temperature and humidity changes whenever possible.

4. Special precautions must be taken to avoid spillage of chemicals on the pan or inside the balance case. The interior of the balance housing must be kept scrupulously clean.

5. Before using any balance, check to assure that it is level and free of dust. In order to obtain accurate readings, a balance must be level. It is the responsibility of each user to ensure that the bubble within the level is fully within the indicator circle each time that they approach the balance for use. If any portion of the bubble is outside of the circle, the balance must be brought back to level and the calibration re-verified prior to use.

6. Do not overload the balance and avoid jarring. Gently place all objects to be weighed on the pan.

7. Each balance is marked with its range and it must not be used for weights outside that range. The total weight placed on the balance is equal to the weight of the tared vessel plus the vessel contents and this total must be within the weight range capacity of the balance. Balance calibration checks must span the range of use.

8. A balance could be marked as limited use. The firm that performs the annual check may add a limited use sticker to the balance that will state the limitation such as “corners”. This indicates that the balance does not weigh properly when the load is not placed in the center of the pan. Therefore caution should be used to properly center all loads when weighing.

## C. Weights

### 1. Reference Weight Set Calibration/Recertification - 3-5 Years

a. Quality Assurance (QA) maintains a Class 1 reference weight set for departments to use for annual verification of working weight sets.

b. The weights must be signed out and returned upon completion of the check. It is the responsibility of QA to have the weights reclassified every 3 years by a qualified (ISO 17025 accredited) calibration firm. A 3-year cycle is required under PALA (Quebec) accreditation. This weight set is used for checking balances in the labs that come under the PALA scope.

c. If a technical department not under PALA accreditation chooses to purchase their own Class 1 weights, it is their responsibility to ensure they are reclassified every 5 years by a qualified (ISO 17025 accredited) calibration firm.

d. A certificate of reclassification is maintained on file to document traceability to NIST materials used in the recalibration operation. This certification statement, provided with mass standards, certifies that the nominal values of the weights are correct within the prescribed limits. The reclassification certificates for the weights are filed in QA.

e. Any weight that is qualified on the reclassification certificate as failing the ‘As Found tolerance test’('F' qualified) must be evaluated by a member of the QA department prior to returning the weight to use.

1. Use Form *QA-FRM50673* (F Qualified Weight Impact Assessment Spreadsheet) to determine if there is an impact to balance calibration checks that were performed using the 'F' qualified weights.

2. Maximum Low or Maximum High values that fall outside the low or high balance acceptance limits in Table II of *QA-FRM50673* require further investigation for potential impact on the ELLE balance calibration checks and subsequent measurements obtained from that balance. An Investigation and Corrective Action must be initiated. QA will also enter the occurrence in the Risk Assessment Registry.

**2. Working Weight Set Verification - Annually**

a. Annually, departments must sign out the reference weight set from QA in order to perform a weight set verification.

b. Use *QA-FRM70571* to document the verification of the weight set. Print this form as a PDF and submit the form to QA.

c. The working weights are compared to the QA reference weights, using a analytical balance that has been verified that day. The working weights must be ±0.1% or ±0.0002 g, whichever is greater.

d. QA files the form and provides a verification label using *QA-FRM72988*.

**3. Working Weight Set Daily Use**

a. If weights are dropped or potentially damaged they need to be checked against alternate weights either from Quality Assurance(QA) or another weight set.

b. Document the comparison in the logbook. Be sure to include the serial number of the alternate weights.

c. All weights must meet the defined acceptance criteria.

**4. Transportation**

a. All weight sets are received "as is" from the manufacturer, in its original case with bubble wrap and packing paper to fill in all the gaps and prevent movement of the weights during shipping. Upon receipt, they are delivered directly to the department

b. Weights that are shipped out are packaged in their original case with packing materials in a box and delivered to the Shipping department for shipping.

## D. Pipettes and Dispensers

**1. Verification - Daily**

a. When the pipette or dispenser is used for critical volumes, verification must be performed each day of use, prior to use. Bottle-top dispensers used for non-critical volumes may have quarterly verification. Daily verification must be used in applications where quantitative results are dependent on their accuracy.

b. Perform a minimum of three trials at each nominal volume (volume of use). For variable volume pipettes, two volumes bracketing the range of use can also be used for the verification.

c. Change the pipette tip between each trial.

d. This calibration check is documented either in a locked Excel file on the department's network drive or in the Pipette Module within the LIMS.

e. Weigh an aliquot of room-temperature solvent into a tared container. The measured weight to set volume comparison is made based on the density of of the solvent at ambient temperature. Record the readback on the balance.

f. The verification is acceptable if this criteria is met:

- The mean must be within ±2% of the nominal volume (bias).
- RSD must be ≤ 1% of the nominal volume (precision).

g. If the check fails, the test can be repeated but there must be two passing checks. Otherwise, perform cleaning and maintenance followed by verification.

### 2. Daily Use

a. Refer to manufacturer's instructions for specific information regarding operation of the pipette.

b. Any pipette found to be contaminated by aspirated liquid or contain a plunger that is excessively "sticky" must be cleaned and verified prior to use.

c. The range, accuracy, and sensitivity of a pipette must be appropriate for its use. For adjustable pipettes, never use a setting below the lowest volume or above the highest volume of the pipette.

d. Pipettes held at an angle will take up more liquid than pipettes held vertically. Pipettes should be held in an upright, vertical position.

e. The density of liquid is dependent on the temperature of the water. Hot and cold liquids can lead to errors in the amount of liquid aspirated. To avoid temperature interferences, pipette liquids that have reached ambient temperature.

## E. Syringes

### 1. Verification - Semi-Annually

a. Verification is not required for syringes used for handling gas standards.

b. When performing this verification, gloves must be worn to eliminate the possibility of oils from your hands adding weight to the weighing vessel.

c. Pull a volume of reagent water into the syringe that represents half the total volume of the syringe (e.g. 25 µL for a 50-µL syringe, 100 µL for a 200-µL syringe).

d. Ensure that there are no air bubbles and accurately set the syringe to the volume to be measured.

e. Dispense the reagent water into a tared medicine cup or small vial on an analytical balance. Use QA-FRM45536 to record these verifications and save the files in department records as a PDF.

f. The weight must fall within the tolerance limits listed in Table 1 below.

Table 1 - Syringe Tolerance Limits

| Syringe Size (µL) | Volume of Water (µL) | Target Weight (g) | Tolerance Limit (g) |
|---|---|---|---|
| 10 | 5 | 0.005 | (±4%) 0.0048 - 0.0052 |
| 20 | 10 | 0.010 | (±2%) 0.0098 - 0.0102 |
| 50 | 25 | 0.025 | (±2%) 0.0245 - 0.0255 |
| 100 | 50 | 0.050 | (±2%) 0.049 - 0.051 |
| 200 | 100 | 0.100 | (±2%) 0.098 - 0.102 |
| 500 | 250 | 0.25 | (±2%) 0.245 - 0.255 |
| 1000 | 500 | 0.5 | (±2%) 0.49 – 0.51 |

g. Verification Frequency

a. Initial verification upon receipt:

- Perform ten (10) trials as described in Syringe Verification procedure above.
- If there are several syringes from one lot, test one representative syringe from that lot.
- Do not place a syringe (or lot) that is outside the acceptable tolerance into general use.
- Notify the department supervisor when new syringes fail and ensure that the vendor is contacted.
- If the syringe is within the acceptable tolerance apply the appropriate tape label, using designated color scheme from Table 2 below, and place it in the laboratory for general use.

| Table 2 - Syringe Tape Color Code | |
|---|---|
| Month/Year of calibration | Tape Color |
| January – even year | Red |
| July – even year | Blue |
| January – odd year | Yellow |
| July – odd year | Green |

b. Continuing verification is performed every six months in January and July.

- Perform three (3) trials as described in the Syringe Verification procedure above.
- If the syringe is within the acceptable tolerance apply the appropriate tape label and place it in the laboratory for general use.
- **Discard any syringe that is outside the tolerance during this verification.**

c. If evidence of wear or deterioration is observed during normal lab operations, recheck the syringe to ensure proper operation and accuracy or discard.

## F. Temperature Measuring Devices

**Transportation -** All thermometers and temperature measuring devices are received in their original packaging and delivered directly to the department. If being shipped out, all thermometers and temperature measuring devices are wrapped by the department in either a case or box with packing materials and delivered to the Shipping Department to be mailed out.

**Calibration**

1. All thermometers must be calibrated before first use against a NIST-traceable thermometer. After the first calibration, the calibration period is defined as follows:
    - Mercury thermometers - Annually
    - Alcohol thermometers - Annually
    - Dial thermometers - Quarterly
    - ETM probes - Annually
    - Chart recorders - Quarterly
    - Infrared thermometer – Quarterly
    - Digital thermometers – Quarterly
2. For thermometer calibrations sent to the offsite vendor, the environmental technical departments have the following responsibilities:

    a. Contact vendor when the calibration is due to make arrangements for the calibration. **NOTE:** The laboratory must request that correction factors be reported on the calibration report and label affixed

to the thermometer after calibration by the vendor.

b. Label all expired thermometers as Do Not Use using *QA-FRM6871*. Multiple thermometers may be stored in one box with the Do Not Use label attached.

c. Use a back-up thermometer with a current calibration in the interim.

d. When the thermometer is returned to the laboratory, update the correction factor on the thermometer ID tag and/or on any printed material in the department. If the calibration procedure has determined that no correction factor is needed, a CF of 0°C must still be documented.

e. Maintain the calibration certificates and/or records on the department's local shared drive. The records must include the date of calibration, NIST reference thermometer identification, working thermometer identification, reference thermometer temperature reading, working thermometer temperature reading, correction factor, and the initials of the individual conducting the calibration.

1. All new thermometers must be calibrated before use or purchased as calibrated thermometers.

2. All thermometers must be calibrated at the temperature of use or at two temperatures that bracket the range of use. If two temperatures are used, assume linearity between the two.

   - If the device is used at one temperature or a range 10°C or less, a single temperature point can be used for verification.

   - If the device is used at a temperature range of over 10°C, at least two temperature points must be used.

   - Do not use a temperature measuring device to cover a range of more than 30°C.

**Applying Correction Factors**

1. Correction factors are documented on the calibration paperwork for each thermometer. Correction factors must be immediately accessible to employees using the thermometer. Technical department management must ensure that the actual correction factor for each thermometer in use is clearly displayed on the thermometer itself or posted in the area that the thermometer is used.

2. The correction factor must be applied to the temperature reading. The corrected value must be recorded in the data records and used to evaluate compliance of the temperature, as applicable.

3. When reporting a temperature, record the "corrected temperature" as the sum of the measured temperature and the correction factor of the temperature range, if any.

   Example:
   Lab Measured temperature = 25.3°C
   Calibration Determined Correction factor = -0.4°C
   Corrected temperature = 25.3°C + (-)0.4°C = 24.9°C

4. In most areas of the laboratory, temperatures are only required to be evaluated to a whole degree. (For example, a required temperature of 90 ± 5 degrees.) In this case correction factors that are <1 degree do not need to be applied. The displayed/posted correction factor would be 0. However, a required temperature of <6.0 degrees requires application correction factors to one-tenth of a degree. Any thermometer with a correction factor greater than 2°C must be discontinued.

5. If the temperature measuring device has been calibrated at various points over a range and each point has a corresponding correction factor, use the correction factor for the calibration point that is closest to your measured temperature.

   Example:
   Lab Measured Temperature = 6.3°C
   Calibration determined correction factor at 4°C = 0.1°C
   Calibration determined correction factor at 10°C = 0.0°C

Corrected Temperature = 6.3°C+0.1°C = 6.4°C

6. Corrective actions for temperatures outside of designated ranges are performed in accordance with the individual technical methods. However, all evaluations of compliance are made using the corrected temperature reading.

**Daily Use**

1. All thermometers in use must be uniquely identified and labeled with the calibration date and correction factors. If the calibration procedure has determined that no correction factor is needed, a CF of 0°C must still be documented.

2. Each thermometer selected for use must be graduated to the level required for the temperature measurements of the method, at least in 0.5°C. Estimated readings between the gradations are not permitted.

3. If there is separation in the liquid column of a glass thermometers, it must not be used.

4. In order to ensure the traceability of the temperature measurements to calibration and correction factor information, the thermometer ID used to obtain the temperature reading must be recorded in the data records.

5. It is required that thermometer probes must be immersed in sand (if used for ovens) or liquid (water/ethylene/glycol)

**Temperature Monitoring**

1. The temperatures of all refrigerators and freezers are checked and documented on a daily basis. There must be at least one thermometer per unit. These thermometers must be graduated in increments no larger than 1°C. Ovens, incubators, water baths are checked and documented every day of use.

2. Monitoring is performed via the ETM. See *QA-SOP11191* for more information. Any freezer, refrigerator, oven, incubator or water bath **not** being monitored by the ETM must use *S-SS-FRM10674* to record the temperature once per day. Record the date, time, the equipment ID, the corrected temperature (with CF applied), and employee initials.

   a. Refrigerators must be between 0-6°C

   b. Freezers must be less than or equal to -10°C.

   c. Ovens, incubators, water baths must meet the requirements of analytical testing for which they are being used.

3. When any freezer, refrigerator, oven, incubator, or water bath is outside the acceptance window, corrective action must be taken and documented.

## G. Incubators, Ovens, Water Baths

### 1. Temperature Monitoring - Daily

1. The temperatures of all refrigerators and freezers are checked and documented on a daily basis. There must be at least one thermometer per unit. These thermometers must be graduated in increments no larger than 1°C. Ovens, incubators, water baths are checked and documented every day of use.

2. Monitoring is performed via the ETM. See *QA-SOP11191* for more information. Any freezer, refrigerator, oven, incubator or water bath **not** being monitored by the ETM must use *S-SS-FRM10674* to record the temperature once per day. Record the date, time, the equipment ID, the corrected temperature (with CF applied), and employee initials.

a. Refrigerators must be between 0-6°C

b. Freezers must be less than or equal to -10°C.

c. Ovens, incubators, water baths must meet the requirements of analytical testing for which they are being used.

3. When any freezer, refrigerator, oven, incubator, or water bath is outside the acceptance window, corrective action must be taken and documented.

## H. Volumetric Labware

Class A glassware (volumetrics, burets, graduated cylinders, glass pipettes, etc.) are exempt from calibration.

**Verification of Class B Volumetric Labware** - e.g. Teflon and HDPE flasks and graduated cylinders that are not used for critical volumes. Note: Plastic labware is to be considered Class B and not considered to be "Class A" even if it is labelled such by the manufacturer and should not be used in instances that require volumetric measurements.

1. If the labware is to be used for critical volume preparations (i.e. standard preparation), the labware must be verified to Class A specifications.

2. Must be performed by lot, or prior to first use and annually thereafter.

3. Perform and record 10 trials at each nominal volume (volume of use).

   a. The mean must be within ±2% of the nominal volume (bias).

   b. Based on the replicate measurements, RSD must be ≤ 1% of the nominal volume (precision).

   c. If the check fails, the test can be repeated but there must be two passing checks. Otherwise, perform cleaning and maintenance followed by verification.

**Verification of labware to Class A glassware specifications**

1. Tare the clean and dry volumetric on a top-loading balance with at least 0.001 g specificity.

2. Fill volumetric to the mark with reagent water, taking care not to splash water on the walls of the volumetric.

3. Measure and record the weight of the reagent water in the volumetric.

4. Determine the temperature by placing a thermometer in the volumetric after weighing.

5. Calculate the volume (see Calculation section).

6. Verify that the weight meets the tolerances listed in Table 3 below.

7. Engrave an “A” next to the engraved serial number as verification that the volumetric has been checked and meets Class A acceptance criteria.

| Table 3 - Required tolerances | | |
|---|---|---|
| **Capacity (mL)** | **Class A flasks (+/- mL)** | **Class A graduated cylinders (+/- mL)** |
| | | |
| **5** | 0.02 | 0.05 |
| **10** | 0.02 | 0.10 |
| **25** | 0.03 | 0.10 |
| **50** | 0.05 | 0.25 |
| **100** | 0.08 | 0.50 |
| **200** | 0.10 | 0.50 |
| **250** | 0.12 | 1.00 |
| **500** | 0.20 | 2.00 |
| **1000** | 0.30 | 3.00 |
| **2500** | 0.50 | 6.00 |

## I. Timer Verifications

### 1. Verification - Annually

a. Annually, departments must verify all timers used in the laboratory.

b. Use *QA-FRM72827* to document verification of all timers. Print this form as a PDF and submit the form to QA.

c. The timer is tested using the NIST reference time phone number (303) 499-7111. Set the timer to two minutes, and start/stop the timer at the time the minute tone is played on the line. The elapsed time recorded from the timer must be less than one second (00:01.00).

d. QA files the form and provides a verification label using *QA-FRM72988*.

## J. Other Laboratory Equipment Requiring Verification

All equipment that has an effect on the accuracy, precision, or validity of an analysis or preparation must be calibrated and/or verified at least annually. The procedures must be listed in the department's Work Instructions. Use form *QA-FRM41248* to track scheduled maintenance for equipment.

This section lists some common laboratory equipment and the criteria for annual verifications. However, some methods, regulatory programs, special-use equipment, or manufacturer's instructions may require other verifications or more frequent verifications.
Any equipment verification requirements must be detailed in the department's work instructions or SOPs.

Verification can be performed internally with measuring equipment with a current NIST-traceable certificate of analysis, or externally by an ISO 17025 certified vendor.

Microwaves - verify the temperature at least annually.

Autoclaves - verify the temperature and pressure at least annually.

Barometers - verify the pressure reading at least annually.

Tumblers, Shakers, Rotators with specific RPM specifications - verify the RPMs at least annually.

## K. Calculations

A. Percent Difference (%D):

$$\%D = \frac{Measured\ Weight - Targeted\ Weight}{Targeted\ Weight} \times 100$$

B. Relative Standard Deviation (RSD):

$$RSD = \frac{Standard\ Deviation\ of\ the\ data\ set}{Mean\ of\ the\ data\ set} \times 100$$

**NOTE:** The measured weight to set volume (targeted weight) comparison is made based on the density of reagent water being equivalent to 1 g/mL.

C. Volume Calculation for Class A glassware specifications:

$$V_{flask} = \frac{W_{flask+water} - W_{flask}}{\rho_{water}}$$

where:

$V_{flask}$ = volume of the flask or graduated cylinder

$W_{flask + water}$ = weight of the water and flask or graduated cylinder

$W_{flask}$ = weight of the flask or graduated cylinder

$\rho_{water}$ = density of water based off the measured temperature

| Density of reagent water | |
|---|---|
| Temperature °C | Density (g/mL) |
| 16.0 | 0.99897 |
| 16.5 | 0.99889 |
| 17.0 | 0.99880 |
| 17.5 | 0.99871 |
| 18.0 | 0.99862 |

| Density of reagent water | |
|---|---|
| Temperature °C | Density (g/mL) |
| 18.5 | 0.99853 |
| 19.0 | 0.99843 |
| 19.5 | 0.99833 |
| 20.0 | 0.99823 |
| 20.5 | 0.99812 |
| 21.0 | 0.99802 |
| 21.5 | 0.99791 |
| 22.0 | 0.99780 |
| 22.5 | 0.99768 |
| 23.0 | 0.99757 |

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Q-EQA-FRM52624 Annual Balance Calibration Tracking (resource)
Q-EQA-FRM6858 Weight Set Sign-Out
QA-FRM41248 Scheduled Maintenance
QA-FRM45536 Semi-Annual Department Syringe Verifications
QA-FRM50673 F Qualified Weight Impact Assessment Spreadsheet
QA-FRM52177 Garber Delivery Receipt
QA-FRM6871 Do Not Use - Environmental
QA-FRM70571 Annual Department Weight Set Verifications
QA-FRM72827 Annual Department Timer Verifications
QA-FRM72988 Equipment Label Template
QA-FRM74360 How to Send Equipment to Garber Metrology for Calibration
QA-SOP11191 Monitoring Temperatures in Refrigerators, Freezers, and Incubators, Using the ETM
QA-SOP11901 Instrument Maintenance and Calibration
QA-SOP11913 Laboratory Notebooks, Logbooks, and Documentation
QA-SOP11916 Use and Maintenance of Reagent Water Supply
S-SS-FRM10674 Client Hold Walk-in Temperature Check Logbook

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End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 16 | 08.JUL.2024 | | |
| 17 | 06.SEP.2024 | | |
| 18 | 04.FEB.2025 | | |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**GC and GC/MS Instrumentation Maintenance** | Level:<br>**Work Instruction** |
| Document number:<br>**T-VOA-WI7619** | | |
| Old Reference:<br>**1-P-QM-PRO-9015467; DOD-SOP-MS-004** | | |
| Version:<br>**11** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **TYZ8**<br>Effective Date: **28-MAY-2024** | Document users:<br>**6_EUUSLA_GC/MS Volatiles_All Analysts, 6_EUUSLA_GC/MS Volatiles_Management** | Responsible:<br>**5_EUUSLA_GC/MS Volatiles_Manager** |

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## Revision Log

| **Revision** | 11 | **Effective Date:** | This version |
|---|---|---|---|
| **Section** | **Justification** | | **Changes** |
| Revision Log | Formatting requirement | | Removed revision logs up to the previous version |
| Reference | Enhancement | | Added Agilent 8890 user manual and removed old technology references |
| Scope | Enhancement | | Removed old technology, added new technology and reorganized |

| **Revision** | 10 | **Effective Date:** | Apr 24, 2023 |
|---|---|---|---|
| **Section** | **Justification** | | **Changes** |
| Revision Log | Formatting requirement | | Removed revision logs up to the previous version |
| Header | Addition | | Adding company confidentiality statement |
| Scope | Enhancement | | Removed Shimadzu technology, added Agilent and Centurion technology |

## Reference

1. *Mass Selective Detector Hardware Manual*, Hewlett-Packard, June 1988.
2. *HP5972A MSD Hardware Manual*, Hewlett Packard, 1994.
3. *Maintaining Your HP GC/MS*, Hewlett Packard, 1998.
4. *HP 5890A Shelf Reference Manual*. Hewlett-Packard, Sept 1983.

5. *Model 4560 Sample Concentrator Operator's Manual*. OI Analytical, Revision 1.0, March 1992

6. *Model 4551 Vial Multisampler Operator's Manual*. OI Analytical, Version 1.0, November 1999.

7. *Sampler Cooler option for the Model 4551 Vial Multisampler, Installation and Maintenance Guide*. OI Analytical, Revision 1.0, January 1994.

8. *Low-Dead-Volume Injector for the HP5890 Series Gas Chromatograph, Installation and Maintenance Guide*. OI Analytical, First Edition, September 1992.

9. *Model 4430 Photoionization Detector Operator's Manual*. OI Analytical, revision 2.0, January 1996.

10. *Model 5230 Photoionization Detector Operator's Manual*. OI Analytical, Revision 1.0, January 1994.

11. *Model 4410 Flame Ionization Detector Operator's Manual*. OI Analytical, First Edition, January 1992.

12. *Agilent 6890N Gas Chromatograph User Information.* Agilent Technologies, First Edition, June 2001.

13. *Agilent 7890A Gas Chromatograph Advanced User Guide*. Agilent Technologies, First Edition, March 2007.

14. *Archon Instruction Manual for Model 5100 Autosampler System*. Dynatech Precision Sampling Corporation, Revision I, 196 – 5100A, 1995.

15. *Agilent User manual 8890 Gas Chromatograph,* Agilent Technologies, October 2014

16. *Chemical Hygiene Plan*, Current version.

**Purpose**
This document serves as a guideline for both general and comprehensive maintenance procedures to be used in the GC/MS and GC Volatiles Department at Eurofins Lancaster Laboratories Environmental (ELLE).

**Scope**
The guidelines outlined in this standard operating procedure are used when performing preventive or corrective maintenance on the following GC/MS and GC systems:

Hewlett-Packard/Agilent Technologies (6890GC/5973MSD)

Agilent Technologies (7890GC/5975MSD/5977MSD)

Agilent Technologies (8890GC/5977MSD/5978MSD)

Hewlett-Packard (5890GC)

Hewlett-Packard (6890GC)

OI Analytical (4560, 4660, 4760)

OI Analytical (4551)

OI Analytical (4430, 5230, 4410)

OI Analytical (4430, 5230, 4410)

Archon (5100)

EST Centurion (W/S)

**Basic Principles**
Maintenance is to be done in order to ensure maximum system performance.

**Safety Precautions and Waste Handling**
All laboratory waste is accumulated, managed and disposed of in accordance with Federal and State laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management and pollution prevention. Certain instrument preparations need to be made to ensure the personal safety of all laboratory employees or service personnel. For example, the mass spectrometer needs to be properly cooled and/or vented before the ion source is removed for cleaning. The necessary preparation is indicated in the specific instrument's manual for the desired maintenance procedure.

**Personnel Training and Qualifications**
All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP.

The analyst must mentor with a trained analyst. Mentoring includes observation of maintenance and hands-on practice. This continues until the trainee performs the maintenance independently.

**Procedure**
1. General maintenance – This is done on an as needed basis. The analyst informs the supervisor of the need for maintenance due to the instrument performance. Along with input from the supervisor or experienced analyst, it is determined what maintenance is needed. A rigid schedule is not followed for the frequency of mechanical pump or turbo pump oil changes. General maintenance involves the following:

a. Purge and Trap maintenance (GC and GC/MS)

b. Septum replacement (GCMS)

c. Mechanical or turbo pump oil changes (GC/MS)

2. Comprehensive maintenance – This is also done on an as needed basis. The analyst must inform the supervisor of the need for maintenance due to the instrument performance. Along with input from the supervisor, it is determined what maintenance is needed and whether the analyst, or the appropriate service personnel performs the maintenance. In the event that a supervisor is unavailable, an

experienced analyst performs the maintenance deemed necessary. Comprehensive maintenance involves, but is not limited to the following:

a. Ion source cleaning (GC/MS)

b. Filament replacement (GC/MS)

c. Electron multiplier replacement (GC/MS)

d. Column replacement (GC and GC/MS)

e. Injection port cleaning or replacement (GC and GC/MS)

f. PID lamp replacement (GC)

The manuals for each instrument contain guidelines on the appropriate procedure for comprehensive maintenance.

3. Troubleshooting – Some common GC/MS problems are indicated by the following:

| Symptom | Possible Cause | Solution |
|---|---|---|
| Inability to tune BFB | Dirty Source | Clean |
| High baseline | Clogged column/injection port | Clean/replace |
| Small or no peaks and high column pressure | Clogged injection port | Clean/replace |
| Poor peak shapes | Bad column/improper He flow | Replace/adjust flow |

Note- See Appendix I for GC Troubleshooting

All service calls, maintenance and repairs must be recorded in the appropriate instrument's maintenance logbook. The logbook entry must include why maintenance was needed, a detailed description of the maintenance performed, and resolution (as left). Each entry must be signed (initials and employee number) and dated by the ELLE personnel who performed the maintenance or observed maintenance handled by an outside contractor. Maintenance logs are reviewed on a monthly basis for accuracy.

## Appendix I

### GC Troubleshooting Guide

| Symptom | Instrument | Possible Cause | Remedy |
|---|---|---|---|
| **Low purge flow** | Purge & Trap | Purge flow regulator not set correctly | While in Purge-Ready, pressure gauge should be set to 20 PSI |
| | | Leak in gas line upstream of sparge vessel | Check gas lines leading to purge flow regulator |
| | | Clogged or dirty sparge filter | Inspect or replace sparge filter |
| | | Clog in line downstream of sparge vessel | Inspect or replace lines to 6-port and trap |
| **Low response** | Purge & Trap | Transfer line not turned on | Turn on transfer line to correct temp. |
| | | Trap not heating | Make sure trap is heating during desorb. Turn trap power on. |
| | | Desorb time set to zero | Set desorb time to correct setting |
| | | Low purge flow | |

| | | | |
|---|---|---|---|
| | | | See symptoms of low purge flow |
| | | Leak in sparge vessel | Leak check sparge vessel and fix any leaks |
| | | Purge pressure out of range | In purge, pressure gauge should read between 6-10 PSI |
| | | Leak in gas line downstream of sparge vessel | Inspect or replace lines to 6-port and trap |
| | | Clogged or dirty sparge filter | Inspect or replace sparge filter |
| | Detector | Detectors not turned on | Turn detectors on to correct temp. |
| | | Detector gas flows not within specs | Adjust gas flows to proper settings |
| | | PID electrometer not set correctly | Adjust setting of PID electrometer to correct setting |
| | | Leak around PID lamp | Replace o-ring at base of PID lamp |
| | GC | Injector not turned on | Turn on injector to correct temp. |
| | | Dirty septa in injection port | Replace septa in injection port |

| Symptom | Instrument | Possible Cause | Remedy |
|---|---|---|---|
| **No response (FID)** | Detector | Flame not lit | Ignite flame |
| | | Detectors not turned on | Turn on detectors to correct temp |
| | | Trap not turned on | Turn trap temp to on |
| | | Desorb time set to zero | Set desorb time to correct setting |
| | | Computer not acquiring data | Turn computer off and on |
| | | Detector gas flows not within specs | Adjust gas flows to proper settings |

| | | | |
|---|---|---|---|
| **No response (PID)** | Detector | PID lamp not lit | Check lamp to see if it's lit; replace lamp if defective |
| | | Detectors not turned on | Turn on detectors to correct temp |
| | | Trap not turned on | Turn trap temp to on |
| | | Desorb time set to zero | Set desorb time to correct setting |
| | | Computer not acquiring data | Turn computer off and on |
| | | Detector gas flows not within specs | Adjust gas flows to proper settings |
| | | Leak around PID lamp | Replace o-ring at base of PID lamp |

| | | | |
|---|---|---|---|
| **Noisy baseline (FID)** | Detector | Detector gas flows not within specs | Adjust gas flows to proper settings |
| | | Data integration set to low in Chromperfect method | Adjust area reject, threshold, and peak width in method |
| | | Bad wire connection | Check wiring for loose connections or weak spots |

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|---|---|---|---|
| **Noisy baseline (PID)** | Detector | Old PID lamp | |

| | | | |
|---|---|---|---|
| | | | Inspect or replace PID lamp |
| | | Voltage of PID lamp set too low | Increase PID voltage on PID power supply |
| | | Fault in Chromperfect data board | Reboot computer |
| | | Detector gas flows not within specs | Adjust gas flows to proper settings |
| | | Data integration set to low in Chromperfect | Adjust area reject, threshold, and peak width in method |
| | | Bad wire connection | Check wiring for loose connections or weak spots |

| Symptom | Instrument | Possible Cause | Remedy |
|---|---|---|---|
| **Shifting retention times** | GC | Leak in gas line downstream of sparge vessel | Inspect or replace lines to 6-port and trap |
| | | Leak at injection port | Inspect around injection port for leaks |
| | | Column flow too low for mass flow controller | Increase column flow |
| | | GC oven exhaust doors not closing during heat ramp | Motor for exhaust doors will need replaced |
| | | Faulty mass flow controller | Inspect and replace mass flow controller |

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|---|---|---|---|
| **No surrogates or internal standards** | SIM/SAM | SIM not turned on | Turn SIM on in 4560 configuration |
| | | No response (see symptom for No response) | See causes for no response |
| | | SIM board fault | Inspect SIM LEDs while sampling to ensure power to SIM |
| | | Bubble in standard syringe | Inspect syringe for leaks |
| | | SIM spiker valve not turning correctly | Inspect and replace SIM spiker valve |

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|---|---|---|---|
| **Surrogate Standard inconsistent** | SIM/SAM | Standard in wrong SIM syringe | Refill SIM syringe with correct standard |
| | | SIM spiker valve not turning correctly | Inspect and replace SIM spiker valve |
| | | Dirty sparge filter or sparge vessel | Change sparge filter, clean sparge vessel |
| | | Dirty lines from 6-port valve | Inspect or replace lines to 6-port and trap |
| | | Dirty water management | Inspect or replace Water management |
| | | Standard syringe not seated properly in SIM valve | Tighten standard syringe |
| | | Bubble in standard syringe | Inspect syringe for leaks |
| | | SAM gas pressure not turned on or set too low | Inspect that head pressure is set above 30 PSI and toggle is turned on |
| | | SAM spiker inlet tube clogged | Remove and inspect the inlet tube to make sure it is free flowing |

| Symptom | Instrument | Possible Cause | Remedy |
|---|---|---|---|
| | Autosampler | Autosampler fault | |

| | | | |
|---|---|---|---|
| **Needle tower not ready error** | | | Turn autosampler off/on to reset |
| | | Autosampler needle bent | Replace needle and sleeve, turn autosampler off/on to reset |
| | | Slider on needle tower not sliding or spring is missing | Inspect needle tower slider to make sure it is sliding up and returning |
| | | Needle tower switch broken | Inspect and replace needle tower switch |
| | | CPU board on 4560 has faulty memory | Remove jumpers (JP1 & JP2) on 4560 CPU board to clear memory |
| | | CPU board on 4551 has faulty memory | Remove jumper (JP1) on 4551 CPU board to clear memory |

| | | | |
|---|---|---|---|
| **Sparge vessel not being rinsed with water** | Autosampler | No water in wash vial | See symptoms of no water in wash vial |
| | | Wash cycle out of calibration | Perform wash station calibration according to O.I. manual |
| | | Peristaltic pump tubing worn | Replace peristaltic pump tubing |
| | | Pinch valve tubing worn | Replace pinch valve tubing |

| | | | |
|---|---|---|---|
| **No water in wash vial** | Autosampler | Wash cycle out of calibration | Perform wash station calibration according to O.I. manual |
| | | No water in water reservoir bottle | Fill water bottle with water |
| | | Peristaltic pump tubing worn | Replace peristaltic pump tubing |
| | | Pinch valve tubing worn | Replace pinch valve tubing |
| | | Wash pump not operating correctly | Inspect and replace wash pump |
| | | Siphon tube filter in wash bottle is clogged | Replace siphon tube filter |

| Symptom | Instrument | Possible Cause | Remedy |
|---|---|---|---|
| **Wash vial overflowing** | Autosampler | Wash cycle out of calibration | Perform wash station calibration according to O.I. manual |
| | | Peristaltic pump tubing worn | Replace peristaltic pump tubing |
| | | Pinch valve tubing worn | Replace pinch valve tubing |

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|---|---|---|---|
| **Water being left on top of vial in autosampler** | Autosampler | Pinch valve tubing worn | Replace pinch valve tubing |

| | | | |
|---|---|---|---|
| **Water leak in autosampler** | Autosampler | Lines to autosampler six port loose | Inspect and tighten fittings around six port |
| | | Lines to autosampler needle loose | Inspect and tighten fittings around needle |
| | | Lines to SIM spiker loose | Inspect and tighten fittings around SIM |

G-EHS-QP12356 Chemical Hygiene Plan

End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 9 | 24.FEB.2017 | | |
| 10 | 24.APR.2023 | | |
| 11 | 14.MAY.2024 | | |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity. **Semivolatile Organic Compounds by Method 8270D/E in Aqueous and Non-Aqueous Matrices using GC-MS** | Level: **Work Instruction** |
| Document number: **T-SVOA-WI9617** | | |
| Old Reference: **1-P-QM-WI-9015100** | | |
| Version: **15** | | Organisation level: **5-Sub-BU** |
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## Revision Log

| **Revision:** 15 | **Effective Date:** | This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Table 2 | Addition | Addition of tetraethyl lead |
| Table 3 | Addition | Addition of tetraethyl lead and characteristic ions |

| **Revision:** 14 | **Effective Date:** | This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Cross Reference; Procedure | Remove | Removed reference to 6869 |
| Procedure 1.2 | Reflects current practice | updated reference from 8270D to reflect 8270E |
| Table 2 | Addition | Addition of 2-butoxyethanol |
| Table 3 | Addition | Addition of 2-butoxyethanol and characteristic ions |

## Reference

1. SW-846 Test Method 8270E: Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Rev. 6, June 2018.
2. SW-846 Test Method 8270D: Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry, Rev. 5, February 2015.

3. Test Methods for Evaluating Solid Wastes, SW-846 Method 8000D, Rev. 5, July 2018.
4. *Federal Register*, Vol. 57, No. 227, November 24, 1992, p. 55114 (TCLP).
5. *Federal Register*, Vol. 57, No. 160, August 18, 1992, p. 37203 (CCW).
6. *Chemical Hygiene Plan*, current version.

**Cross Reference**

| Document | Document Title |
|---|---|
| *T-OE-SVOA-WI10917* | Waste Dilution, EPA 3580A for Acid Extractables and Base-Neutrals in a Non-Water Soluble Matrix |
| *T-OE-SVOA-WI10916* | Low-Level Sonic Probe Extraction Procedure by Method 3550C for the Determination of Semivolatiles in a Solid Matrix |
| *T-OE-SVOA-WI10928* | Microwave Extraction by Method 3546 for Semivolatiles |
| *T-OE-SVOA-WI10935* | Separatory Funnel Extraction (Method 3510C) or Waste Dilution (Method 3580A) of Base Neutrals and Acid Extractables in Leachates |
| *T-OE-SVOA-WI11432* | Separatory Funnel Extraction by Method 3510C for BNAs in Wastewater |
| *T-SVOA-FRM9602* | Dept 4026 Calculations |
| *T-SVOA-WI11998* | Semivolatile Spiking and Calibration Standards |
| *T-SVOA-WI9598* | GC/MS Preventative and Corrective Maintenance |
| *T-SVOA-WI9604* | Monitoring GC/MS Semivolatile QC Data Acceptance Limits |
| *QA-SOP11178* | Demonstrations of Capability |
| *QA-SOP11892* | Determining Method Detection Limits and Limits of Quantitation |

## Scope

This method is suitable for the determination of the concentration of certain semivolatile organic compounds (priority pollutant list, target compound list, Appendix IX list, TCLP list, and CCW list) found in soils, tissues, waters, and leachates. Typical limits of quantitation (LOQ) achieved are 33 µg/kg for soils, 132 µg/kg for tissues, 1 µg/L for waters, and 0.002 mg/L for leachates. Specific compound lists and associated method detection limits (MDLs) and LOQs can be found in the Laboratory Information Management System (LIMS) under the analysis numbers listed in the header of this SOP.

## Basic Principles

Water samples are extracted according to *T-OE-SVOA-WI11432*. Soil samples are extracted according to T-OE-SVOA-WI10925 or *T-OE-SVOA-WI10928*. Leachates are extracted according to *T-OE-SVOA-WI10935*. Non-water soluble matrices are extracted according to *T-OE-SVOA-WI10917*.

An environmental sample (soil, water, sludge, etc.) is solvent extracted and then analyzed by electron impact gas chromatography/mass spectrometry (EI GC/MS). A predetermined aliquot of an extract containing organic compounds in solvent is injected onto a fused silica capillary column coated with a relatively non-polar stationary phase, which is enclosed in a temperature controlled oven. A carrier gas, which is ultra-pure helium, passes continuously through the column. The GC oven is temperature programmed and the organic mixture separates into its individual components as it moves along the length of the column. This separation is the function of the polarity and boiling point of the individual compounds. This column empties into a mass selective detector. When a compound reaches the detector, it is bombarded by high-energy electrons (70eV). This causes the compounds to fragment, forming ions. By applying various voltages to the lens, the positive ions are thrust into a quadrupole mass analyzer, which selects for a given mass fragment at a given time. These selected fragments reach an electron multiplier that detects and generates a signal for each mass fragment. The signals are amplified and sent to a computer. Target compounds are identified on the basis of relative retention times and spectral match to standards that are injected every 12 hours on the same system.

Quantification is achieved via use of the internal standard calibration technique. The average relative response factor of a multi-point calibration is used for quantification when the appropriate criteria are met.

## Interferences

Method interferences may be caused by impurities in solvents, reagents, glassware, or other hardware used in the processing of samples. All glassware is solvent rinsed before use and a method blank is performed with each extraction batch to demonstrate that the extraction system is free of contamination.

Sample matrices can have an effect on the ability of the GC/MS system to resolve the individual masses used for quantification. Samples may require dilutions, a reduction in the extraction volume/weight used, a raised final extraction volume, or extract clean-up using various techniques in order to achieve proper target separation and determination.

## Safety Precautions and Waste Handling

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

The toxicity or carcinogenicity of each reagent used in this method has not been precisely defined; however, each chemical compound and reagent should be treated as a potential health hazard. From this viewpoint, exposure to these chemicals must be reduced to the lowest possible level by whatever means are available such as fume hoods, safety glasses, lab coats, and gloves.

All solvent waste generated from this analysis must be collected for recycling (if applicable) or must be disposed of in designated containers. These are then transferred to a lab-wide disposal facility. Any solid waste material (disposable pipettes, broken glassware, pH paper) must be disposed of in the normal solid waste collection containers or sharps containers, as applicable.

### Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the analyst's training records.

Initially, each analyst performing instrumental analysis must work with an experienced analyst for a period of time until they can independently perform daily maintenance, calibrate the instrument, change the column, clean the source, interpret chromatograms, perform calculations, review data, and enter data into the LIMS. The analyst is also trained on the preparation of dilutions and calibration standards. Proficiency is measured through documented audits of the tasks listed and over checking of data as well as an Initial Demonstration of Capability (IDOC).

The IDOC consists of four laboratory control samples that are carried through all steps of the analysis and meet the defined acceptance criteria. The criteria include the calculation of mean accuracy and standard deviation (per EPA 8000D, the statistical LCS window and RSD </= 20%)).

Various options are available for a DOC and can include four laboratory control samples or one blind sample. The RSD criteria is 20%.

Refer to *QA-SOP11178* for more guidance on these options.

### Sample Collection, Preservation, and Handling

Water samples are collected in 250mL or 1L glass amber glass containers with PTFE-lined lids and may be preserved with sodium thiosulfate ($Na_2S_2O_3$). They are stored at 0ºC to 6ºC, not frozen, prior to extraction and must be extracted within 7 days of collection.

Solid samples are collected in glass wide-mouth jars with PTFE-lined lids and are not preserved. They are stored at 0ºC to 6ºC, not frozen, prior to extraction and must be extracted within 14 days of collection.

All sample extracts must be stored at ≤-10ºC (freezer) and protected from light using amber glass vials. All samples, sample extracts, and standards must be stored separately and in an area free from contamination. All extracts must be analyzed within 40 days of extraction.

### Apparatus and Equipment

1. Hewlett-Packard Model 5890 (Series I and II) or Hewlett-Packard/Agilent 6890 or 7890 Gas Chromatograph or equivalent
2. Hewlett-Packard Models 5971, 5972, and Hewlett-Packard/Agilent 5973, 5975 Mass Selective Detector or equivalent
3. Hewlett-Packard ChemStation Software
4. Thru-Put Systems Target Acquisition Software/Oracle Database or equivalent
5. Column – 20 M × 0.18 mm ID × 0.18 µm, Agilent DB-5MS or equivalent
6. Column - 30M × 0.25 mm ID x 0.25 µm df, J&W Scientific DB-5MS or equivalent
7. Hamilton Gastight syringe, or equivalent – various volumes
8. Amber GC vials with crimp caps

### Reagents and Standards

A. Reagents - All reagents are stored per manufacturer guidelines unless otherwise noted. Reagent vendors are subject to change without notification.

1. Helium carrier gas, UPC grade
2. Methylene chloride ($MeCl_2$ or $CH_2Cl_2$) – Baker Ultra Resi-Analyzed

B. Standards

1. Supelco Equity Semivolatile Internal Standard Mix, Part #46955-U or equivalent, 1000 µg/mL in methylene chloride. Ampulated solutions are maintained under refrigeration (0° to 6°C, not frozen) until consumed or manufacturer determined expiration date. Working solution is maintained at room temperature and is replenished daily from ampulated solutions. For 250 mL aqueous analyses Supelco Equity Semivolatile Internal Stanadard Mix is diluted 4x to make a 250 µg/mL in methylene chloride solution. This solution is maintained under refrigeration (0° to 6°C, not frozen) for up to 6 months.

2. Refer to *T-SVOA-WI11998* for the preparation and storage of tuning, calibration, and spiking solutions.

### Calibration

See Procedure F for initial calibration processing and Procedure G for continuing calibration check processing.

### Procedure

A. Standard preparation – Solutions are used to standardize the GC/MS system every 12 hours and are prepared approximately every 20-30 days or more frequently if needed based on consumption. See *T-SVOA-WI11998* for standard preparation. Calibration standard solutions may be used up to the labeled expiration date or until component degradation is observed. Degradation is determined by the inability to pass continuing calibration checks or by observations of unacceptable chromatography.

B. Internal standard mix is added to all standards and subsequent samples at a concentration of 20 µg/mL (5 µg/mL for 250 mL aqueous analyses). Using a 25-µL syringe, 20 µL of Supelco Equity Semivolatile Internal Standard Mix or equivalent, 1000 µg/mL (250 µg/mL for 250 mL aqueous analyses) in

methylene chloride are added to 1 mL of standard or sample extract. If only 0.5 mL of sample is in the vial, 10 µL of internal spiking solution is added to the sample. See Table II for the list of compounds calibrated for and the internal standard that is assigned to each.

C. Daily maintenance – Refer to *T-SVOA-WI9598* for this procedure.

D. Instrument conditions

Equip a GC/MS (such as referenced under Apparatus and Equipment) in one of the two following manners:

1. For a 5890/5971 or 5972 and 6890/5973 or 5975

   a. Column – 30M × 0.25 mm ID x 0.25 µm df, J&W Scientific DB-5MS or equivalent

   b. Injector – Split/splitless operated in splitless mode

   c. Injector Temp – 275°C

   d. Detector Temp – 300°C

   e. Gas – Helium at approximately 1.5 mL/min, constant flow mode

   f. Oven Temp – 45°C for 3 minutes, ramp at 8°C/minute to 225°C, then ramp at 12°C/minute to 300°C and hold for 7.5 minutes.

2. For a 6890/5973 or 5975

   a. Column – 20M × 0.18 mm ID x 0.18 µm df, J&W Scientific DB-5MS or equivalent

   b. Injector – Split/splitless operated in split mode, 20:1 split

   c. Injector Temp – 275°C

   d. Detector Temp – 280°C

   e. Gas – Helium at approximately 1.0 mL/min, constant flow mode

   f. Oven Temp – 40°C for 1 minute, ramp at 25°C/minute to 100°C, then ramp at 30°C/minute to 280°C, followed by another ramp at 25°C/minute to 320°C, hold for 2 minutes.

**NOTE:** It is not necessary to use the exact parameters listed above. Equivalent columns and conditions may be used to improve the linearity, sensitivity, overall chromatography, and performance required by the method on each GC/MS system.

E. Tuning

1. The DFTPP tune check standard is used to assess GC column performance and injection port inertness as well as mass spectrometer performance. The GC/MS system's tune is checked by inspecting the mass spectrum of the DFTPP peak and column performance and injection port inertness is evaluated with pentachlorophenol, benzidine, and DDT.

2. The GC/MS should be tuned using a predetermined aliquot of a 50 ng/µL or 12.5 ng/µL solution of DFTPP containing decafluorotriphenylphosphine, pentachlorophenol, benzidine, and DDT. This solution is prepared as indicated in *T-SVOA-WI11998*. See the tables below for acceptance criteria and corrective actions.

| DFTPP Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| Prior to initial calibration and every 12 hours prior to continuing calibration standard | 1. Criteria in Table I<br><br>2. DDT breakdown ≤20%*<br><br>3. Tailing factors:<br>- Benzidine ≤ 2<br>- Pentachlorophenol ≤ 2 | 1. Re-tune. Analysis cannot proceed until tune meets criteria.<br><br>2. More aggressive injection port maintenance.<br><br>3. Clean the source.<br><br>4. Change the column. |

*__NOTE:__ DDT breakdown greater than 20% may be acceptable if you are calibrating for polynuclear aromatic hydrocarbon compounds only. Consult your supervisor when this situation occurs.

3. Use only the background-subtracted spectrum of the following when evaluating the DFTPP:

A three scan average of the apex of the scan, the apex of the scan −1 and the apex of the scan +1.

**NOTE**: All standards, samples, and associated quality control samples with a particular tune must use the identical conditions of the mass spectrometer.

F. Initial calibration (ICAL)

1. Perform standardization by analyzing at least five levels of calibration standards ranging from 0.5 µg/mL to 120 µg/mL or from 0.125 µg/mL to 30 µg/mL for mini-sep waters analysis. (Refer to *T-SVOA-WI11998* for the preparation of calibration standards.) Use the internal standard calibration technique to generate an average relative response factor for each target compound and surrogate. The relative standard deviation (%RSD) of the response factors determines the suitability of the average relative response factor for calculation of compound concentration. At the end of the calibration standard injections, inject a Method Detection Limit (MDL) standard and an initial calibration verification (ICV) standard. See the tables below for acceptance criteria and corrective actions.

| ICAL Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| Initially and when the daily calibration standard fails criteria. | 1. Minimum response factors must be met in all levels of the calibration – especially in the | 1. Any target compound with a %RSD <20% will use the average RRF. For any compound in which the %RSD |

| | | |
|---|---|---|
| | lowest level of the calibration (see table IV).**<br><br>2. %RSD for each compound must be ≤20%. If more than 10% of the compounds in the ICAL exceed 20% RSD and/or also do not meet the minimum correlation coefficient for alternate fits (ie, the correlation coefficient is <0.990) then the analysis cannot proceed.<br><br>3. For any compound on a linear or quadratic fit the % error is measured between the calculated and expected amounts of the compound(s) at each calibration level to determine the calibration function acceptability for linear and non-linear curves. The % error must be ≤50% for the low calibration point. For calibration points above the LOQ the % error must be ≤30%.<br><br>4. The relative retention times of the target compounds must agree within 0.06 relative retention time units.<br><br>5. Structural isomers that produce very similar mass spectra are identified as individual isomers if they have sufficiently different GC retention times. Sufficient GC resolution is achieved if the height of the valley between two isomer peaks is <25% of the sum of the two peak heights. Otherwise, structural isomers are identified as isomeric pairs. | >20%, use a first degree (linear) fit provided the correlation coefficient (CC; r) is ≥0.995 or the coefficient of determination (COD;$r^2$) is ≥0.99. If the linear fit fails to meet this criteria, then a second order (quadratic) fit may be used*** provided the coefficient of determination is ≥0.99. If use of both the linear fit and the quadratic fit is acceptable using this criteria for any given compound, then use the fit with the smallest negative y-intercept. When using a quadratic fit, if the y-intercept quantifies to be greater than the MDL, consult your supervisor immediately or re-calibrate. See below for corrective action if the coefficient of determination for a quadratic fit is <0.99.*<br><br>2. Re-inject any levels that appear to be outliers due to an injection error.<br><br>3. If standard levels on the outside of the curve appear to be outliers for individual compounds and are throwing off the calibration curve, they can be dropped from the calibration keeping the following in mind:<br><br>a. If a low calibration point is dropped, the analyst must ensure that the compound is still being calibrated to or below its LOQ.<br><br>b. If a high calibration point is dropped, any detections must recover below the new upper calibration limit.<br><br>4. Re-prep calibration standards.<br><br>5. Perform more aggressive system maintenance as outlined in *T-SVOA-WI9598* and re-calibrate. |

*See USEPA Method 8000D for the calculations associated with non-linear fit types.
**Minimum response factors are not required to be met for method 8270E. They are provided for guidance.
***Quadratic fits are not permitted when analyzing samples from South Carolina.

| MDL Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| Immediately following an initial calibration and before sample analysis | 1. The system must be able to detect all compounds in the MDL standard. | 1. If any compounds are not detected in the MDL standard, analysis can proceed if the compound is detected at or below its MDL in a higher concentration level.<br><br>2. If the system does not detect the compound(s), then the tuning and/or calibration procedure must be repeated under conditions that will yield a detection for the compound(s) or the MDL must be raised for the compound(s).<br><br>3. Perform more aggressive system maintenance as outlined in *T-SVOA-WI9598* and re-calibrate. |

| ICV Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| Immediately following an initial calibration and before | 1. The ICV must be prepared using a second source standard. | 1. Re-prep and re-analyze the ICV. |

| ICV Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| sample analysis | 2. %Drift for each compound must be ≤30%<br><br>3. The EICP area for each internal standard must fall within the window of -50% to +100% of the areas from the mid-level calibration standard produced during the initial calibration. | 2. If the recovery for any compound fails these criteria low, the compound cannot be analyzed for under the calibration until a new calibration has been established or a passing ICV has been analyzed.<br><br>3. If the recovery for any compound fails these criteria high, the compound may be analyzed for but any samples with detections should be re-analyzed under a valid ICAL or will be reported with a qualifying comment.<br><br>4. Perform more aggressive system maintenance as outlined in *T-SVOA-WI9598* and re-calibrate. |

With supervisory approval, the following problematic compounds can be allowed to fail the 0.99 coefficient of determination criteria for a quadratic fit. If the COD is less than 0.99 for any other compound, the system should be inspected for problems and re-calibrated. Supervisory approval is required for exceptions to these guidelines.

| |
|---|
| 1,4-Phenylenediamine |
| 4-Aminobiphenyl |
| 3,3’-Dimethylbenzidine |
| 4,4’-Methylenebis(2-chloroaniline) |
| 4-Nitroquinoline-1-oxide |
| 1,4-Naphthoquinone |
| methapyrilene |

**Note that this allowance is not to be used for compliance samples, and any data reported under the calibration must be qualified.**

**NOTE:** All data associated with failed quality control will be qualified on the final report. QC outlier qualifiers are added to the associated sample results on the report by the LIMS.

3. Six levels of calibration standards must be used if a quadratic (second-order) type calibration fit is used.

4. One of the calibration standards must be at a concentration at or below the limit of quantitation (LOQ). The other concentrations correspond to the expected range of concentrations found in samples or should define the working range of the GC/MS system.

5. The concentration of the MDL standard may require modification dependent upon the current MDL values.

G. Continuing Calibration Verification (CCV)

1. Perform a continuing calibration verification (CCV) by injecting a predetermined aliquot of a calibration standard at a concentration near the mid-point of the calibration, not to exceed ½ the highest level in the calibration.

| CCV Frequency | Acceptance Criteria | Corrective Action |
|---|---|---|
| 1. Every 12 hours.<br><br>2. The CCV is analyzed each day a curve is not analyzed.<br><br>3. The CCV is analyzed after the DFTPP. | Target compounds must meet the minimum response factor criteria (see Table IV).*<br><br>1. The maximum % drift for all target compounds is 20%. No more than 20% of the target compounds can be greater than 20% drift. All target compounds that exceed 20% drift must be less than or equal to 50% drift.<br><br>2. The relative retention times of the internal standards must be within 10 seconds of the retention times from the mid-level calibration standard of the last initial calibration. The exception would be in the case of column maintenance.<br><br>3. The EICP area for each internal standard must fall within the window of -50% to +100% from the areas of the mid-level standard produced during the last initial calibration.<br><br>4. Structural isomers that produce very similar mass spectra should be identified as individual isomers if they have sufficiently different GC retention times. Sufficient GC resolution is achieved if the height of the valley between two isomer peaks is <25% of the sum of the two peak heights. Otherwise, structural isomers are identified as isomeric pairs. The resolution should be verified on the mid-point concentration of the ICAL as well as the check standard. | 1. In cases where compound(s) recover >20%D low, they may still be reported as non-detects if it can be demonstrated that there was adequate sensitivity to detect the compound(s) at the applicable quantitation limit. For situations when the failed compound is present, the concentrations must be reported as estimated values.<br><br>2. In cases where compound(s) recover >20%D high, analysis may continue, but any samples with detections should be re-analyzed under a valid CCV or the results will be qualified.<br><br>3. Perform more aggressive system maintenance as outlined in *T-SVOA-WI9598* and re-calibrate. |

*Minimum response factors are not required to be met for method 8270E. They are provided for guidance.

**NOTE:** All data associated with failed quality control will be qualified on the final report. QC outlier qualifiers are added to the associated sample results on the report by the LIMS.

2. In the event that a CCV fails and the cause is not obvious such as in the case of a concentrated standard or a mis-injection, corrective action must be taken. The corrective action must be documented in the form of a non-conformance memo. If the CCV does not pass after corrective action, a new initial calibration must be established.

H. Analysis of Samples:

1. All sample extracts are stored at ≤-10°C and protected from light from the time of sample extraction.

2. Prior to sample analysis, add 20 µL of internal standard to each 1.0 mL of sample extract. Concentration of internal standards in extract is 20 ng/µL (5 ng/µL for 250 mL aqueous analyses).

3. Analyze a predetermined aliquot of each sample extract under the same conditions used for the initial and continuing calibrations.

4. At the conclusion of data acquisition, use the same software to tentatively identify peaks within the retention time window of interest. Examine the ion abundances of components in the chromatogram. If the ion abundance of the target ion used for quantitation exceeds the calibration range, dilute the aliquot and reanalyze. When preparing dilutions, add sufficient internal standard to maintain the same concentration as that of the ICAL.

Dilution criteria:

1) Initial dilutions are recommended in the following situations:

i. More than three internal standard recoveries are <-50%

ii. Either of the last two internal standard recoveries are <-80%.

iii. The analyst’s judgment of a sample extract’s color or viscosity indicates possible matrix interference.

2) Secondary dilutions are required to bring all target compounds into the calibration range of the GC/MS.

I. Qualitative analysis

A compound is identified by comparison of the following parameters with those of a standard of the suspected compound (standard reference spectra). The reference mass spectrum used for this comparison should be generated by the laboratory using the conditions of the method, but the laboratory may also use a certified reference library. In order to verify identification, the following criteria must be met:

1. The intensities of the characteristic ions of the compound must maximize in the same scan or within one scan of each other. The characteristic ions from the reference mass spectrum are defined to be the three ions of greatest relative intensity, or any ions over 30% relative intensity if less than three such ions occur in the reference spectrum.

2. The RT should be within ±10 seconds of the RT for this analyte in the CCV run at the beginning of the 12-hour period (delta RT 0.17 minute) or within ±10 seconds relative to the shift of the associated IS (delta RT of the IS ± 10 seconds). If the RT for the IS has shifted, the sample should be inspected for similar shifts for the associated target analytes. If RT drift is significant, relative retention time (RRT) may be used as an alternative to delta RTs.

3. The relative intensities of the qualifier ion(s) should agree within 30% of the relative intensities of these ions in the reference spectrum.

**NOTE:** N-Nitrosodiphenylamine decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine. For this reason, it is acceptable to report the combined result for both n-nitrosodiphenylamine and diphenylamine for either of these compounds as a combined concentration.

**NOTE:** 1,2-Diphenylhydrazine is unstable even at room temperature and readily converts to azobenzene. Given the stability problems, it would be acceptable to calibrate for 1,2-diphenylhydrazine using azobenzene. Under these poor compound separation circumstances the results for either of these compounds should be reported as a combined concentration.

J. Quantitative analysis

Once a compound has been identified, quantitation is based on the internal standard technique and the integrated abundance from the extracted ion current profile (EICP) of the primary characteristic ion. The list of primary characteristic ions and secondary ions can be found in Table III.

### Calculations

Refer to *T-SVOA-FRM9602* for all calculations.

### Statistical Information/Method Performance

LCS, MS, surrogate, and RPD recoveries are compared to the limits stored in the LIMS. LCS and surrogate limits are statistically derived every six months in accordance with *T-SVOA-WI9604*. All RPDs are set to a default value of 30%. MS limits are set equal to LCS limits.

Historical data for MS/Ds, LCS/Ds, surrogates, and measurement of uncertainty is reviewed at least annually.

Refer to the QA/QC section of this SOP and the criteria listed throughout this procedure for additional information on the performance of this method.

### Quality Assurance/Quality Control

A. Batch QC

1. Each extraction batch of ≤20 samples must contain a method blank, a laboratory control sample (LCS) and an unspiked background sample (US), a matrix spike (MS), and a matrix spike duplicate (MSD).

2. A laboratory control sample/laboratory control sample duplicate (LCS/LCSD) is prepared with the extraction batch if adequate sample volume is not provided to prepare a matrix spike and matrix spike duplicate.

3. Additional QC samples may be required to meet project or state certification requirements.

B. QC and sample spiking

1. The LCS/D and MS/D are spiked at a concentration of 50 µg/L with the exception of the following (in µg/L):

| | | | |
|---|---|---|---|
| Hexachlorocyclopentadiene | 100 | Benzoic acid | 100 |
| 2,4-Dinitrophenol | 100 | 1-Naphthylamine | 100 |
| 2-Naphthylamine | 100 | 3,3’-Dimethylbenzidine | 100 |
| Benzidine | 250 | 3-Methylphenol | 25 |
| 4-Methylphenol | 25 | | |

2. All samples are spiked with surrogates by the organic extraction group to evaluate the extraction process. Acid extractable surrogates are spiked at a concentration of 200 ng/µL and base/neutral extractable surrogates are spiked at a concentration of 100 ng/µL.

3. Prior to analysis each extract is spiked with an internal standard mix at a concentration of 20 ng/µL.

4. All spiking concentrations are 4x lower for 250 mL aqueous analyses.

C. QC items, acceptance criteria, and corrective actions.

**NOTE: If any client, state, or agency has more stringent QC, QC limits, or batch requirements, these must be followed instead.**

| Quality Control Item | Acceptance Criteria | Corrective Action |
|---|---|---|
| Internal Standards | 1. Peak area within -50% to +100% of the area in the associated reference standard.<br><br>2. Retention time (RT) within 30 seconds of RT for associated | 1. Check instrument for possible problems and then re-inject sample(s).<br><br>2. If re-injection meets the criteria, report this injection. |

| Quality Control Item | Acceptance Criteria | Corrective Action |
|---|---|---|
| | reference standard. | 3. If re-injection still shows the same problem, report first injection.<br><br>4. If there is substantial matrix interference, the analyst may dilute the extract as outlined in Procedure H.4. |
| Method Blank | 1. Must meet internal standard criteria.<br><br>2. Must meet surrogate criteria.<br><br>3. All target compounds must be less than the reporting limit for the associated samples. | 1. Inspect system for possible problems and reanalyze.<br><br>2. If the surrogates are out of spec high data can be used provided there aren't detections in the method blank.<br><br>3. If the surrogates are out of spec low and there aren't detections in the associated samples, the data can be used.*<br><br>4. If the method blank contains target compounds and the associated samples do not contain these compounds, no corrective action is required.<br><br>5. If the target compounds in the blank are also in the associated samples at a concentration <10x that in the blank, the samples are re-extracted unless the detection does not interfere with project data requirements.<br><br>6. If the target compounds in the blank are also in the associated samples at a concentration >10x than in the blank the data is usable. |
| Instrument Blank** | 1. Must run after the CCV if no clean method blank is analyzed at the beginning of a 12-hour analytical period.<br><br>2. Must meet internal standard criteria.<br><br>3. All target compounds must be less than the reporting limit for the associated samples. | 1. Inspect system for possible problems and reanalyze.<br><br>2. If the instrument blank contains target compounds and the associated samples do not contain these compounds, no corrective action is required. If the target compounds in the blank are also in the associated samples, the samples should be re-extracted unless it does not interfere with project data requirements or if sample detections are at a level 10x higher than the detections in the blank. |
| Laboratory Control Sample/Laboratory Control Sample Duplicate | 1. Must meet internal standard criteria.<br><br>2. Must meet surrogate criteria.<br><br>3. % Recoveries within QC limits. Refer to the analysis numbers in the header of this document in LIMS for acceptance limits. These are reviewed and updated on a semiannual basis.<br><br>4. RPDs within QC limits. | 1. If non-compliant, check for calculation or preparation errors.<br><br>2. If no errors found, check system for problems and reanalyze.<br><br>3. If LCS/LCSD recoveries are still outside acceptance limits, one of the following actions must be taken:<br><br>a. if recoveries are outside acceptance limits low, the sample(s) must be re-extracted.<br><br>b. if recoveries are outside acceptance limits high, data may be usable if the compounds that recovered above QC limits are not detected in samples.<br><br>c. if recoveries are outside acceptance limits high and |

| Quality Control Item | Acceptance Criteria | Corrective Action |
|---|---|---|
| | | there are detections for the failing compounds, the sample(s) must be re-extracted.<br><br>4. If RPDs fail but recoveries are within QC limits, no further action is required.<br><br>5. If surrogates fail to meet criteria but all target compounds are within specification, data is usable.*<br><br>6. Marginal exceedance limits, as defined in the NELAC standards, may be used if the defined requirements have been met. |
| Matrix Spike/Matrix Spike Duplicate(MS/MSD) | 1. Must meet internal standard criteria.<br><br>2. Must meet surrogate criteria.<br><br>3. % Recoveries within LCS limits. Refer to the analysis number in the header of this document in LIMS for acceptance limits. These are reviewed and updated on a semiannual basis.<br><br>4. RPDs within QC limits. | 1. If LCS within QC limits, proceed with sample analysis.<br><br>2. If most recoveries or RPDs out of spec, consult supervisor. BKG, MS, MSD may need to be re-extracted. |
| Surrogates | % Recoveries within QC limits. Refer to the analysis numbers in the header of this document in LIMS for acceptance limits. These are reviewed and updated on a semiannual basis. | 1. If non-compliant, check for calculation or preparation errors.<br><br>2. If no errors found, check system for problems and reanalyze.<br><br>3. If no problem is found, re-extract and reanalyze.<br><br>4. If surrogates are out of spec high and no targets are detected in the sample no corrective action is required.<br><br>5. For samples analyzed only at a dilution ≥10x, no further action is required for surrogate failures. |

*Requires approval of supervisor
**Method blank or instrument blank in each 12-hour analytical period required for 8270E.

**NOTE:** Any failures without corrective action require approval of supervisor and completion of a non-conformance memo (NCM).

**NOTE:** All data associated with failed quality control will be qualified on the final report. QC outlier qualifiers are added to the associated sample results on the report by the LIMS.

D. Lower Limit of Quantitation (LLOQ)

1. Refer to *QA-SOP11892* for initial and ongoing LLOQ requirements.

E. Method Detection Limit (MDL)

1. Refer to *QA-SOP11892* for initial and ongoing MDL requirements.

F. Limit of Quantitation (LOQ)

1. Refer to *QA-SOP11892* for initial and ongoing LOQ requirements.
2. Until the laboratory has sufficient data to determine the acceptance limits, the LLOQ criteria is ± 20% of the statistically determined LCS limits.

**Table I**

**DFTPP Key Ions and Ion Abundance Criteria**

| Mass | Ion Abundance Criteria |
|---|---|
| 51 | 10% to 80% of mass 198 |
| 68 | <2% of mass 69 |
| 70 | <2% of mass 69 |
| 127 | 10% to 80% of mass 198 |

| | |
|---|---|
| 197 | <2% of mass 198 |
| 198 | Base peak, or >50% of mass 442 |
| 199 | 5% to 9% of mass 198 |
| 275 | 10% to 60% of mass 198 |
| 365 | >1% of mass 198 |
| 441 | Present but less than 24% of mass 442 |
| 442 | Base peak, or >50% of mass 198 |
| 443 | 15% to 24% of mass 442 |

**Table II**

**Semivolatile Internal Standard with Corresponding Compounds Assigned for Quantitation**

**Semivolatile Internal Standard with Corresponding Compounds Assigned for Quantitation**

| **1,4-Dichlorobenzene-$d_4$** | **Naphthalene-$d_8$** | **Acenaphthene-$d_{10}$** |
|---|---|---|
| Aniline | Hexachloropropene | Acenaphthene |
| Benzyl alcohol | Benzoic acid | Acenaphthylene |
| Bis(2-chloroethyl) ether | Bis(2-chloroethoxy)methane | 1-Chloronaphthalene |
| Bis(2-chloroisopropyl) ether | 4-Chloroaniline | 2-Chloronaphthalene |
| 2-Chlorophenol | 4-Chloro-3-methylphenol | 4-Chlorophenyl phenyl ether |
| 1,3-Dichlorobenzene | 2,4-Dichlorophenol | Dibenzofuran |
| 1,4-Dichlorobenzene | 2,6-Dichlorophenol | Diethyl phthalate |
| 1,2-Dichlorobenzene | $\alpha,\alpha$-Dimethylphenylamine | Dimethyl phthalate |
| Ethyl methanesulfonate | 2,4-Dimethylphenol | 2,4-Dinitrophenol |
| 2-Fluorophenol (surr) | Hexachlorobutadiene | 2,4-Dinitrotoluene |
| Hexachloroethane | Isophorone | 2,6-Dinitrotoluene |
| Methyl methanesulfonate | 2-Methylnaphthalene | Fluorene |
| 2-Methylphenol | Naphthalene | 2-Fluorobiphenyl (surr) |
| 4-Methylphenol | Nitrobenzene | Hexachlorocyclopentadiene |
| N-Nitrosodimethylamine | Nitrobenzene-d5 (surr) | 1-Naphthylamine |
| N-Nitroso-di-n-propyl amine | 2-Nitrophenol | 2-Naphthylamine |
| Phenol | N-Nitrosodi-n-butylamine | 2-Nitroaniline |
| Phenol-d5 (surr) | N-Nitrosopiperidine | 3-Nitroaniline |
| 2-Picoline | 1,2,4-Trichlorobenzene | 4-Nitroaniline |
| 1,4-Dioxane | 1-Methylnaphthalene | 4-Nitrophenol |
| Pyridine | O,O,O-triethylphosphorothioate | Pentachlorobenzene |
| Indene | Hexachlorpropene | 1,2,3,4-Tetrachlorobenzene |
| Acetophenone | 1,4-Phenylenediamine | 1,2,3,5-Tetrachlorobenzene |
| o-Toluidine | Safrole | 1,2,4,5-Tetrachlorobenzene |
| N-Nitrosomethylethylamine | (2-Bromoethyl)benzene | 2,3,4,6-Tetrachlorophenol |
| N-Nitrosodiethylamine | Caprolactam | 2,4,6-Tribromophenol (surr) |
| N-Nitrosopyrrolidine | 2-chlorobenzaldehyde | 2,4,6-Trichlorophenol |
| N-Nitrosomorpholine | Tetraethyl lead | 2,4,5-Trichlorophenol |
| N,N-dimethyl formamide | | 1,1'-Biphenyl |
| N,N-dimethyl acetamide | | Diphenyl ether |
| Benzaldehyde | | Isosafrole |
| Malononitrile | | 1,4-Naphthoquinone |
| 2-butoxyethanol | | 1,4-Dinitrobenzene |
| | | 1,3-Dinitrobenzene |
| | | Thionazin |
| | | 5-Nitro-o-toluidine |
| (surr) = surrogate | | 2-chlorobenzalmalononitrile |

| **Phenanthrene-$d_{10}$** | **Pyrene-$d_{10}$** | **Perylene-$d_{12}$** |
|---|---|---|
| 4-Aminobiphenyl | Benzidine | Benzo(b)fluoranthene |
| Anthracene | Benzo(a)anthracene | Benzo(k)fluoranthene |
| 4-Bromophenyl phenyl ether | Bis(2-ethylhexyl) phthalate | Benzo(g,h,i)perylene |
| Di-n-butyl phthalate | Butyl benzyl phthalate | Benzo(a)pyrene |
| 4,6-Dinitro-2-methylphenol | Chrysene | Dibenz(a,h)acridine |
| Fluoranthene | 3,3'-Dichlorobenzidine | Dibenz(a,j)acridine |
| Hexachlorobenzene | p-Dimethylaminoazobenzene | Dibenz(a,h)anthracene |
| N-Nitrosodiphenylamine | Pyrene | Indeno(1,2,3-cd)pyrene |
| Octachlorostyrene | 6-Methylchrysene | Di-n-octylphthalate |
| Pentachlorophenol | Terphenyl-$d_{14}$ (surr) | 3-Methylcholanthrene |
| Pentachloronitrobenzene | 7,12-Dimethylbenz(a)anthracene | |
| Phenacetin | Chlorobenzilate | |
| Phenanthrene | 2-Acetylaminofluorene | |

Pronamide
1-Nitronaphthalene
1,2-Diphenylhydrazine
Carbazole
Tetraethyldithiopyrophosphate
1,3,5-Trinitrobenzene
Diallate trans/cis
Phorate
Dimethoate
Methyl parathion
Parathion
4-Nitroquinoline-1-oxide
Methapyrilene
Isodrin
Atrazine
Dinoseb
3,3'-Dimethylbenzidine
4,4'-Methylenebis(2-Chloroaniline)

(surr) = surrogate

**Table III**

**Characteristic Ions for Semivolatile Compounds**

| Compound | Primary Ion | Secondary Ions |
|---|---|---|
| 2-Picoline | 93 | 66, 92 |
| 1,4-Dioxane | 88 | 58, 43 |
| Aniline | 93 | 66, 65 |
| Phenol | 94 | 65, 66 |
| Bis(2-chloroethyl) ether | 93 | 63, 95 |
| 2-Chlorophenol | 128 | 64, 130 |
| 1,3-Dichlorobenzene | 146 | 148, 113 |
| 1,4-Dichlorobenzene-d4 (IS) | 152 | 150, 115 |
| 1,4-Dichlorobenzene | 146 | 148, 113 |
| Benzyl alcohol | 108 | 79, 77 |
| 1,2-Dichlorobenzene | 146 | 148, 113 |
| N-Nitrosomethylethylamine | 88 | 42, 43, 56 |
| Bis(2-chloroisopropyl) ether | 45 | 77, 121, 79 |
| Methyl methanesulfonate | 80 | 79, 65, 95 |
| N-Nitrosodi-n-propylamine | 70 | 42, 101, 130 |
| Hexachloroethane | 117 | 201, 199 |
| Nitrobenzene | 77 | 123, 65 |
| Isophorone | 82 | 95, 138 |
| N-Nitrosodiethylamine | 102 | 42, 57, 44, 56 |
| 2-Nitrophenol | 139 | 109, 65 |
| 2,4-Dimethylphenol | 107 | 122, 121 |
| Bis(2-chloroethoxy)methane | 93 | 95, 123 |
| Benzoic acid | 105 | 122, 77 |
| 2,4-Dichlorophenol | 162 | 164, 98 |
| Ethyl methanesulfonate | 109 | 79, 97, 45, 65 |
| 1,2,4-Trichlorobenzene | 180 | 182, 145 |
| Naphthalene-d8 (IS) | 136 | 68 |
| Naphthalene | 128 | 129, 127 |
| Hexachlorobutadiene | 225 | 223, 227 |
| 4-Chloro-3-methylphenol | 107 | 144, 142 |
| 1-Methylnaphthalene | 142 | 141, 115 |
| 2-Methylnaphthalene | 142 | 141, 115 |
| 2-Methylphenol | 108 | 107, 77, 79, 90 |
| Hexachloropropene | 213 | 211, 215, 117, 141 |
| Hexachlorocyclopentadiene | 237 | 235, 272 |
| N-Nitrosopyrrolidine | 100 | 41, 42, 68, 69 |

**Characteristic Ions for Semivolatile Compounds**

| Compound | Primary Ion | Secondary Ions |
|---|---|---|
| Acetophenone | 105 | 71, 51, 120 |
| 4-Methylphenol | 108 | 107, 77, 79, 90 |
| 2,4,6-Trichlorophenol | 196 | 198, 200 |
| o-Toluidine | 106 | 107, 77, 51, 79 |
| 3-Methylphenol (as 4-Methylphenol) | 108 | 107, 77, 79, 90 |
| 2-Chloronaphthalene | 162 | 127, 164 |
| N-Nitrosopiperidine | 114 | 42, 55, 56, 41 |
| 1,4-Phenylenediamine | 108 | 80, 53, 54, 52 |
| 1-Chloronaphthalene | 162 | 127, 164 |
| 2-Nitroaniline | 138 | 92, 65 |
| Dimethyl phthalate | 163 | 194, 164 |
| Acenaphthylene | 152 | 151, 153 |
| 2,6-Dinitrotoluene | 165 | 63, 89, 121 |
| Phthalic anhydride | 104 | 76, 148 |
| 3-Nitroaniline | 138 | 108, 92 |
| Acenaphthene-d10 (IS) | 164 | 162, 160 |
| Acenaphthene | 153 | 154, 152 |
| 2,4-Dinitrophenol | 184 | 63, 154, 107 |
| 2,6-Dichlorophenol | 162 | 164, 126, 98, 63 |
| 4-Chloroaniline | 127 | 129, 65, 92 |
| Isosafrole | 162 | 131, 104, 77, 51 |
| Dibenzofuran | 168 | 139 |
| 2,4-Dinitrotoluene | 165 | 63, 89, 182 |
| 4-Nitrophenol | 109 | 139, 65 |
| 2-Naphthylamine | 143 | 115, 116 |
| 1,4-Naphthoquinone | 158 | 104, 102, 76, 130 |
| Diethyl phthalate | 149 | 177, 150 |
| Fluorene | 166 | 165, 167 |
| N-Nitrosodi-n-butylamine | 84 | 57, 41, 116, 158 |
| 4-Chlorophenyl phenyl ether | 204 | 206, 141 |
| 4,6-Dinitro-2-methylphenol | 198 | 51, 105, 182, 77 |
| N-Nitrosodiphenylamine | 169 | 168, 167 |
| Safrole | 162 | 104, 77, 103, 135 |
| Diphenylamine | 169 | 168,167 |
| 1,2,4,5-Tetrachlorobenzene | 216 | 214, 179, 143, 218 |
| 1-Naphthylamine | 143 | 115, 89, 63 |
| 4-Bromophenyl phenyl ether | 248 | 250, 141 |
| 2,4,5-Trichlorophenol | 196 | 198, 97, 132, 200 |
| Hexachlorobenzene | 283 | 142, 249 |
| Pentachlorophenol | 266 | 264, 268 |
| 5-Nitro-o-toluidine | 152 | 77, 79, 106, 94 |
| Thionazin | 107 | 96, 97, 143, 79 |
| Phenyl ether | 170 | 115, 115, 141, 142 |
| 4-Nitroaniline | 138 | 65, 108, 92, 80 |
| Phenanthrene-d10 (IS) | 188 | 94, 80 |
| Phenanthrene | 178 | 179, 176 |
| Anthracene | 178 | 176, 179 |
| 1,4-Dinitrobenzene | 168 | 75, 50, 76, 92 |
| 1,3-Dinitrobenzene | 168 | 76, 50, 75, 92 |
| Diallate (cis or trans) | 86 | 234, 43, 70 |
| Pentachlorobenzene | 250 | 252, 248, 215, 254 |

**Characteristic Ions for Semivolatile Compounds**

| Compound | Primary Ion | Secondary Ions |
|---|---|---|
| 5-Nitro-o-anisidine | 168 | 79, 52, 138, 153, 77 |
| Pentachloronitrobenzene | 237 | 142, 214, 249, 295 |
| 4-Nitroquinoline-1-oxide | 190 | 160, 116, 114 |
| Di-n-butyl phthalate | 149 | 150, 104 |
| 2,3,4,6-Tetrachlorophenol | 232 | 131, 230, 166, 234 |
| Fluoranthene | 202 | 101, 203, 100 |
| 1,3,5-Trinitrobenzene | 213 | 74, 75, 120, 91 |
| Benzidine | 184 | 92, 185 |
| Pyrene | 202 | 101, 203 |
| Phorate | 75 | 121, 97, 93, 260 |
| Phenacetin | 108 | 179, 109, 137, 80 |
| Dimethoate | 87 | 93, 125, 143, 229 |
| 4-Aminobiphenyl | 169 | 168, 170, 115 |
| Pronamide | 173 | 175, 145, 109, 147 |
| Dinoseb | 211 | 163, 147, 117, 240 |
| Disulfoton | 88 | 97, 89, 142, 186 |
| Butyl benzyl phthalate | 149 | 91, 206 |
| Methyl parathion | 109 | 125, 263, 79, 93 |
| Dimethylaminoazobenzene | 225 | 120, 77, 148, 42 |
| Benz(a)anthracene | 228 | 229, 226 |
| Chrysene-d12 (IS) | 240 | 120, 236 |
| 3,3'-Dichlorobenzidine | 252 | 254, 126 |
| Chrysene | 228 | 226, 229 |
| Parathion | 109 | 97, 291, 186 |
| Bis(2-ethylhexyl) phthalate | 149 | 167, 279 |
| 3,3'-Dimethylbenzidine | 212 | 106, 196, 180 |
| Methapyrilene | 97 | 58, 72, 191, 261 |
| Isodrin | 193 | 66, 195, 263, 265, |
| Di-n-octyl phthalate | 149 | 167, 43, 150 |
| 2-Aminoanthraquinone | 223 | 167, 195, 139 |
| Aramite | 185 | 191, 319, 334, 197 |
| Benzo(b)fluoranthene | 252 | 253, 125 |
| Benzo(k)fluoranthene | 252 | 253, 125 |
| Chlorobenzilate | 139 | 251, 253, 111, 141 |
| Benzo(a)pyrene | 252 | 253, 125 |
| Perylene-d12 (IS) | 264 | 260, 265 |
| 7,12-Dimethylbenz(a)anthracene | 256 | 241, 239, 120 |
| 2-Acetylaminofluorene | 181 | 180, 223, 152 |
| 4,4'-Methylenebis(2-chloroaniline) | 231 | 266, 140, 195 |
| 3-Methylcholanthrene | 268 | 252, 253, 126, 134 |
| Indeno(1,2,3-cd)pyrene | 276 | 138, 227 |
| Dibenz(a,h)anthracene | 278 | 139, 279 |
| Benzo(g,h,i)perylene | 276 | 138, 277 |
| 1,2-Diphenylhydrazine | 77 | 105, 182, 51 |
| Endosulfan I | 195 | 33 |
| 2-Fluorobiphenyl (surr) | 172 | 171 |
| 2-Fluorophenol (surr) | 112 | 64, 92 |
| Nitrobenzene-d5 (surr) | 82 | 128, 54 |
| N-Nitrosodimethylamine | 74 | 42, 44 |
| Phenol-d5 (surr) | 99 | 42, 71 |
| Terphenyl-d14 (surr) | 244 | 122, 212 |

**Characteristic Ions for Semivolatile Compounds**

| Compound | Primary Ion | Secondary Ions |
|---|---|---|
| 2,4,6-Tribromophenol (surr) | 330 | 332, 141 |
| N,N-dimethyl formamide | 73 | 44, 42 |
| N,N-dimethyl acetamide | 87 | 72, 44, 42 |
| (2-Bromoethyl)benzene | 184 | 77, 91, 105, 186 |
| Atrazine | 200 | 173, 215 |
| Benzaldehyde | 77 | 105, 106 |
| Caprolacatam | 113 | 55, 56 |
| 1,1-Biphenyl | 154 | 153, 152, 76 |
| Carbazole | 167 | 166, 139 |
| 1,3,5-Trichlorobenzene | 180 | 182, 145, 109 |
| 1,2,3-Trichlorobenzene | 180 | 182, 145, 109 |
| 1,2,3,4-Tetrachlorobenzene | 216 | 214, 218, 179 |
| 1-Chloro-4-Nitrobenzene | 157 | 111, 75, 99 |
| Octachlorostyrene | 308 | 343, 380, 273 |
| 1,2,3,5-tetrachlorobenzene | 216 | 214, 218, 179, 143 |
| 2-chlorobenzaldehyde | 139 | 111, 140, 76 |
| 2-chlorobenzalmalononitrile | 153 | 188, 126 |
| Malononitrile | 66 | 38, 39 |
| 6-Methylchrysene | 242 | 226, 215, 106 |
| Dibenz(a,h)acridine | 279 | 252, 139 |
| Dibenz(a,j)acridine | 279 | 252, 139 |
| Indene | 115 | 116, 89 |
| Pyridine | 79 | 52, 51 |
| 2-Butoxyethanol | 57 | 45, 87 |
| Tetraethyl lead | 237 | 295, 208 |

IS = internal standard

surr = surrogate

**Table IV**

**Recommended Minimum Response Factor Criteria for Initial and Continuing Calibration Verification Using the Suggested Ions from Table III**

| Semivolatile Compounds | Minimum Response Factor (RF) |
|---|---|
| Benzaldehyde | 0.010 |
| Phenol | 0.800 |
| Bis(2-chloroethyl)ether | 0.700 |
| 2-Chlorophenol | 0.800 |
| 2-Methylphenol | 0.700 |
| 2,2'-Oxybis-(1-chloropropane) | 0.010 |
| Acetophenone | 0.010 |
| 4-Methylphenol | 0.600 |
| N-Nitroso-di-n-propylamine | 0.500 |
| Hexachloroethane | 0.300 |
| Nitrobenzene | 0.200 |
| Isophorone | 0.400 |
| 2-Nitrophenol | 0.100 |

**Recommended Minimum Response Factor Criteria for Initial and Continuing Calibration Verification Using the Suggested Ions from Table III**

| Semivolatile Compounds | Minimum Response Factor (RF) |
|---|---|
| 2,4-Dimethylphenol | 0.200 |
| Bis(2-chloroethoxy)methane | 0.300 |
| 2,4-Dichlorophenol | 0.200 |
| Naphthalene | 0.700 |
| 4-Chloroaniline | 0.010 |
| Caprolactam | 0.010 |
| 4-Chloro-3-methylphenol | 0.200 |
| 2-Methylnaphthalene | 0.400 |
| Hexachlorocyclopentadiene | 0.050 |
| 2,4,6-Trichlorophenol | 0.200 |
| 2,4,5-Trichlorophenol | 0.200 |
| 1,1'-Biphenyl | 0.010 |
| 2-Chloronaphthalene | 0.800 |
| 2-Nitroaniline | 0.010 |
| Dimethylphthalate | 0.010 |
| 2,6-Drintrotoluene | 0.200 |
| Acenaphthylene | 0.900 |
| 3-Nitroaniline | 0.010 |
| Acenaphthene | 0.900 |
| 2,4-Dintirophenol | 0.010 |
| 4-Nitrophenol | 0.010 |
| Dibenzofuran | 0.800 |
| 2,4Dinitrotoluene | 0.200 |
| Diethylphthalate | 0.010 |
| 1,2,4,5-Tetrachlorobenzene | 0.010 |
| 4-Chlorophenyl-phenylether | 0.400 |
| Fluorene | 0.900 |
| 4-Nitroaniline | 0.010 |
| 4,6-Dinitro-2-methylphenol | 0.010 |
| 4-Bromophenyl-phenylether | 0.100 |
| N-Nitrosodiphenylamine | 0.010 |
| Hexachlorobenzene | 0.100 |
| Atrazine | 0.010 |
| Pentachlorophenol | 0.050 |
| Phenanthrene | 0.700 |
| Anthracene | 0.700 |
| Carbazole | 0.010 |
| Di-n-butylphthalate | 0.010 |
| Fluoranthene | 0.600 |

**Recommended Minimum Response Factor Criteria for Initial and Continuing Calibration Verification Using the Suggested Ions from Table III**

| Semivolatile Compounds | Minimum Response Factor (RF) |
|---|---|
| Pyrene | 0.600 |
| Butylbenzylphthalate | 0.010 |
| 3,3'-Bichlorobenzidine | 0.010 |
| Benzo(a)anthracene | 0.800 |
| Chrysene | 0.700 |
| Bis(2-ethylhexyl)phthalate | 0.010 |
| Di-n-octlyphthalate | 0.010 |
| Benzo(b)fluoranthene | 0.700 |
| Benzo(k)fluoranthene | 0.700 |
| Benzo(a)pyrene | 0.700 |
| Indeno(1,2,3-cd)pyrene | 0.500 |
| Dibenz(a,h)anthracene | 0.400 |
| Benzo(g,h,i)perylene | 0.500 |
| 2,3,4,6-Tetrachlorophenol | 0.010 |

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QA-SOP11178 Demonstrations of Capability
QA-SOP11892 Determining Method Detection Limits and Limits of Quantitation
T-OE-SVOA-WI10916 Low-Level Sonic Probe Extraction Procedure by Method 3550C for the Determination of Semivolatiles in a Solid Matrix
T-OE-SVOA-WI10917 Waste Dilution, EPA 3580A for Acid Extractables and Base-Neutrals in a Non-Water Soluble Matrix
T-OE-SVOA-WI10928 Microwave Extraction by Method 3546 for Semivolatiles
T-OE-SVOA-WI10935 Separatory Funnel Extraction (Method 3510C) of Base Neutrals and Acid Extractables in Leachates
T-OE-SVOA-WI11432 Separatory Funnel Extraction by Method 3510C for BNAs in Wastewater
T-SVOA-FRM9602 Dept 4026 Calculations
T-SVOA-WI11998 Semivolatile Spiking and Calibration Standards
T-SVOA-WI9598 GC/MS Preventative and Corrective Maintenance
T-SVOA-WI9604 Monitoring GC/MS Semivolatile QC Data Acceptance Limits

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End of document

**Version history**

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| 15 | 02.JUL.2025 | | |

| | | |
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| eurofins | Always check on-line for validity.<br>**Separatory Funnel Extraction by Method 3510C for BNAs in Wastewater** | Level:<br>**Work Instruction** |
| Document number:<br>**T-OE-SVOA-WI11432** | | |
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## Revision Log

| **Revision:** 21 | **Effective Date:** | This Version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Throughout Document | Update | Update to remove 8270C |

| **Revision:** 20 | **Effective Date:** | February 24, 2023 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Cross Reference | Addition | Added *T-OE-GEN-WI10861* to the cross reference section |
| Procedure 25 | Addition | Added new concentration procedure for the Buchi Concentrator |
| Apparatus and Equipment | Addition | Add equipment used for Buchi concentration |

## Reference

1. Test Methods for Evaluating Solid Wastes, SW-846 Method 3510C, Rev 3, December 1996.
2. Test Methods for Evaluating Solid Wastes, SW-846 Method 8151A, December 1996
3. Chemical Hygiene Plan, current version.

## Cross Reference

| Document | Document Title |
|---|---|
| *T-OE-GEN-FRM23822* | Instructions for Checking pH During Extraction Procedures |
| *T-OE-GEN-WI10864* | Glassware Cleaning for Organic Extractions |

| Document | Document Title |
|---|---|
| *T-OE-GEN-WI10876* | Organic Extraction Standards Storage and Handling |
| *T-SVOA-WI11998* | Semivolatile Spiking and Calibration Standards |
| *T-SVOA-WI13634* | The Determination of 1,4-Dioxane by GC/MS using Isotope Dilution and Selective Ion Monitoring (SIM) by Method 8270D/E |
| *T-SVOA-WI9252* | Parent and Alkyl Substituted PAHs and Geochemical Biomarkers by 8270D/E SIM by GC/MS |
| *T-SVOA-WI9617* | Semivolatile Organic Compounds by Method 8270D/E in Aqueous and Non-Aqueous Matrices using GC-MS |
| *T-SVOA-WI9995* | Semivolatiles in Waters and Soils by Methods 8270D/E SIM and 625.1 SIM by GC/MS |
| *T-SVOA-WI34848* | Client Specific Dinoseb by ATP in Water Using GC/MS |
| *T-SVOA-WI31758* | Client Specific Methylphenols by Method 8270D in Water Using GC/MS |
| *T-OE-GEN-WI10861* | Steam Bath, N-Evap, Buchi Concentrator, and RapidVap Usage, Calibration, and Maintenance |

### Scope

This method is for the extraction of semivolatile organic compounds at low ppb to low ppm levels in aqueous samples that are not prone to emulsions. High levels of organic compounds and/or extreme alkalinity or acidity in the sample often interfere with normal detection limits.

### Basic Principles

A sample is placed into a separatory funnel. Surrogate standards are added to each sample to monitor recovery. The pH of the sample is adjusted to >11 and the sample is serially extracted with methylene chloride. The pH is then adjusted to <2 and the sample is again serially extracted with methylene chloride. The solvent fractions are combined, and the extract is concentrated to 1.0 mL.

Procedural changes to use a reduced sample aliquot while maintaining the default reporting limits are permitted as long as the reagent aliquots are reduced proportionally and a demonstration of capability study is performed and on file.

### Reference Modifications

Surrogate and matrix spiking solutions are not added before the transfer to the separatory funnel for several reasons:

1. Samples must be poured from the amber bottles to determine the matrix and volume of sample to use for each extraction.
2. Many sample bottles have no headspace and there is no room to add surrogate to the sample in the bottle.
3. Due to the volume of samples extracted, a separate graduated cylinder for each sample is unrealistic.
4. To maintain consistency with all extractions, no samples are spiked in the bottle or graduated cylinders.

### Interferences

High levels of organic compounds in the sample lead to interferences with normal detection limits.

Impurities in solvents, reagents, glassware, or other hardware used in sample processing lead to interferences with the method. All glassware must be rinsed with solvent before use. A method blank is performed with each batch of samples to demonstrate that the extraction system is free of contaminants. See *T-OE-GEN-WI10864* for glassware cleaning instructions.

### Safety Precautions and Waste Handling

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

The toxicity or carcinogenicity of each reagent used in this method has not been precisely defined. Each chemical compound must be treated as a potential health hazard. Exposure to these chemicals must be reduced to the lowest possible level by whatever means available, such as fume hoods, lab coats, safety glasses, and gloves.

Extracts are concentrated on a steam bath, rapid vap, or Buchi; caution must be exercised while working around these apparatuses.

All solvent waste generated from this preparation must be collected for recycling (if applicable) or disposed of in the designated containers. These are transferred to the lab-wide disposal facility. Any solid waste material (disposable pipettes, broken glassware, pH paper) is disposed of in the normal solid waste collection containers.

### Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the employees training records.

Initially, each technician performing the extraction must work with an experienced employee for a period of time until they can independently perform the extraction. Proficiency is measured through a documented Initial Demonstration of Capability (IDOC).

The IDOC consists of four laboratory control samples that are carried through all steps of the extraction and analysis and meet the defined acceptance criteria. The criteria include the calculation of mean accuracy and standard deviation. Various options are available for a DOC and can include four laboratory control samples, or one blind sample.

### Sample Collection, Preservation, and Handling

Samples must be collected in amber glass bottles with PTFE-lined lids and stored under refrigeration at 0º to 6ºC, not frozen, prior to extraction. Samples must be extracted within 7 days of collection. The extract is stored in an amber autosampler vial in the freezer at ≤-10 °C for up to 40 days prior to analysis.

### Apparatus and Equipment

1. Separatory funnel for extracting organic components from an aqueous matrix
2. Kuderna-Danish (K-D) assembly with appropriate ampule for concentrating the solvent used during the extraction
3. Water bath – VWR/LLI Model #1127 or equivalent
4. Graduated cylinders – Class A, assorted sizes
5. Pipettes – Class A, assorted sizes
6. Pipettes – Disposable
7. Solvent pumps – Beckman, adjustable
8. Balance – Capable of weighing to 0.01 g
9. Automatic shaker – Capable of holding 2L separatory funnels
10. Centrifuge – Beckman GS-6 or equivalent
11. Sodium sulfate columns with extra course frits
12. Micro-snyder columns
13. Wash bottles – Teflon™
14. Amber autosampler vials with crimp caps
15. Teflon™ boiling chips
16. Teflon™ separatory funnel
17. pH paper - wide range or Hydrion (or equivalent) 10 to 12 range and 1 to 2.5 range.
18. Automated Water Extraction Bench – capable of holding separatory funnels for 250-mL extractions.
19. Rapid-Vap Evaporators – for concentration of 250-mL extractions
20. Rapid-Vap Evaporator Tubes – Class A
21. N-evap nitrogen evaporator with nitrogen supply
22. Erlenmeyer flasks - 250mL
23. Buchi Concentrator
24. Buchi Concentrator Tubes

### Reagents and Standards

Unless otherwise noted, use ACS grade reagents or equivalent. See *T-OE-GEN-WI10876* for storage and handling of spikes.

1. Methylene chloride ($MeCl_2$ or $CH_2Cl_2$) – Pesticide grade or equivalent. Store at room temperature for up to one year.
2. Methanol (MeOH) - pesticide grade or equivalent. Store at room temperature for up to 1 year.
3. Hexane - Pesticide grade or equivalent. Store at room temperature for up to 1 year.
4. Acetone - Pesticide grade or equivalent. Store at room temperature for up to 1 year.
5. 10N Sodium hydroxide (NaOH) – Lab chem or equivalent. Store at room temperature for up to one year.

6. Sulfuric acid($H_2SO_4$) – ACS grade or equivalent, concentrated. Store at room temperature for up to one year.
7. Sodium sulfate – Anhydrous reagent grade or equivalent. Bake at approximately 400°C for a minimum of 4hours in a shallow pan prior to use to remove organic contaminants. After baking, store in a glass jar at room temperature for up to 1year.
8. Tap water - In general the laboratory tap water has been shown not to contribute interferences at or above the reporting limits for parameters of interest.
9. Reagent water – Deionized water ($DIH_2O$) in which interferences are not observed at or above the reporting limit for parameters of interest. In general, the reagent water supplied at the $DIH_2O$ taps in the laboratory meets this criterion. If the reagent water does not meet the requirements, see your supervisor for further instructions.
10. Trimethylsilyldiazomethane (TMSD) - Follow manufacturer's storage and expiration information
11. Silicic Acid - Follow manufacturer's storage and expiration information
12. Diazald (N-methyl-N-nitroso-*p*-toluenesulfonamide) - Follow manufacturer's storage and expiration information
13. Potassium Hydroxide (KOH) – ACS Certified, Fisher Chemical or equivalent. Store at room temperature for up to 5 years
14. Reagent Alcohol GR. Store at room temperature for up to 1 year

All QC standards added during extraction process are prepared by the organic extraction department using the Reagent module in LIMS as a guide. Detailed instructions can be found in *T-SVOA-WI11998*.

### Calibration

Not applicable to this procedure

### Procedure

1. Prepare the glassware to be used as outlined in *T-OE-GEN-WI10864*. If the sample is entered for analytical method Dinoseb_ATP, perform a thorough acid rinse of the separatory funnel through the stopcock, followed by a thorough water rinse and finally, a thorough solvent rinse using 1:1 Acetone/Hexane prior to extraction.
2. Determine the volume of sample to be used for each extraction. Ideally, one full bottle is used. (Typically, this is 250 mL for 3510C_LVI extractions or 1 L for 3510C extractions).
   a. Samples being extracted using 1 L are entered for 3510C.
   b. Samples being extracted using 250 mL are entered for 3510C_LVI.
3. If using one full bottle:
   a. Place the full sample bottle with the cap on the scale. Record this weight in the LIMS as the gross weight.
   b. Shake the bottle vigorously.
   c. Pour the sample into a separatory funnel.
   d. Record any comments about the sample in the LIMS.

   **NOTE:** Reduced volumes of sample are only used with prior approval by the client or if the matrix of the sample does not allow the extraction to proceed using the full volume. The sample must then be diluted with reagent water to 1 L or 250 mL depending on the extraction.
4. The method blank, laboratory control sample (LCS), and laboratory control sample duplicate (LCSD) (if applicable) are prepared using 1 L (or 250 mL for mini-extractions) of tap water (except for isotope dilution (ID) analytical methods 8270D_SIM_ID_D5, 8270D_SIM_ID_DK, 8270D_SIM_MS_ID which are prepared with reagent water) measured into the separatory funnel.
5. The background, MS, and MSD are prepared on three separate aliquots of a field sample.
6. Surrogates

   Unless noted otherwise, surrogate spike is added to all samples, blanks, LCS, LCSD (if applicable), MS, and MSD (if applicable). See *T-SVOA-WI11998* for preparation of spikes. See *T-OE-GEN-WI10876* for storage and handling of spikes.
   a. For samples entered for any of the 8270 methods referenced in the cross reference section of this SOP paired with extraction method 3510C (1 L) - Add 1.0 mL BNA surrogate (OP_BNA_SS). Exception: Any samples entered for analytical method Dinoseb_ATP - Add 0.2 mL Mini BNA surrogate.
   b. For samples entered for any of the 8270 methods referenced in the cross reference section of this SOP paired with extraction method 3510C_LVI (250 mL) – Add 1.0 mL of Mini BNA surrogate (OP_MINIBNA_SS). Exception: for isotope dilution methods listed in step 4 - Add 0.25 mL of Mini 1,4- Dioxane-d8 Surrogate (OP_14DX-d8_SS).

   **NOTE:** The standard must drip directly into the aqueous sample without touching the glass side of the separatory funnel to avoid poor recoveries.
7. Spiking solutions

   Unless noted otherwise, spiking solutions are added to the LCS, LCSD (if applicable), MS, and MSD (if applicable).

a. For methods 8270D, 8270D_DKQP, 8270D_DOD5, 8270DEL, 8270E, 8270MCP, 8270RCP paired with extraction method 3510C, add 1.0 mL of LCS Spike Mix #1 (OP_LCS1_MS). The analytes contained in this mix can be found in Table I. The following additional spikes may also be added as indicated below dependent upon the requested analyte list.

   i. Add 1.0 mL of LCS Spike Mix #2 (OP_LCS 2_MS) if benzaldehyde, atrazine, or caprolactam are requested analytes.

   ii. Add 1.0 mL of Benzenethiol Spike (OP_BENTHIO_MS) if phenylmercaptan is requested. This will be spiked into a separate LCS/D.

   iii. Add 1.0 mL of APPIX Mix #1 (OP_APPIX1_MS) if any analytes contained in Table II are requested. This will be spiked into a separate LCS/D.

   iv. Add 1.0 mL of APPIX Mix #2 (OP_APPIX2_MS) if p-Phenylenediamine is requested. This will be spiked into the same LCS/D as APPIX Mix #1. Note: APPIX Mix #2 will not be requested without APPIX Mix #1.

b. For methods 8270D, 8270D_DKQP, 8270D_DOD5, 8270D_MPhenols, 8270DEL, 8270E, 8270MCP, 8270RCP paired with extraction method 3510C_LVI, add 1.0 mL of Mini LCS Spike Mix #1 (OP_MINLCS1_MS). The analytes contained in this mix can be found in Table I. The following additional spikes may also be added as indicated below dependent upon the requested analyte list.

   i. Add 1.0 mL of Mini LCS Spike Mix #2 (OP_MINLCS2_MS) if benzaldehyde, atrazine, or caprolactam are requested analytes.

   ii. Add 0.25 mL of Benzenethiol Spike (OP_BENTHIO_MS) if phenylmercaptan is requested. This will be spiked into a separate LCS/D. Note: A spiking solution is not prepared at a lower concentration for reduced volume analysis.

   iii. Add 1.0 mL of Mini APPIX Mix #1 (OP_MINAPP1_MS) if any analytes contained in Table II are requested. This will be spiked into a separate LCS/D.

   iv. Add 0.25 mL of APPIX Mix #2 (OP_APPIX2_MS) if p-Phenylene diamine is requested. This will be spiked into the same LCS/D as APPIX Mix #1. Notes: APPIX Mix #2 will not be requested without APPIX Mix #1. A spiking solution is not prepared at a lower concentration for reduced volume analysis.

c. For the isotope dilution methods listed in Step 4, add 0.25 mL of 1,4-Dioxane LCS Spike (OP_1,4-D_MS).

d. For Dinoseb_ATP add 0.08 mL Mini APPIX #1 Spike (OP_MINAPP1_MS).

e. For methods 8270_SIMMCP, 8270_SIMRCP, 8270D_SIM, 8270D_SIM_DKQP, 8270D_SIM_DOD5, 8270E_SIM paired with extraction method 3510C, add 1.0 mL of SIM spiking solution (OP_SIMLCS_MS).

f. For methods 8270_SIMMCP, 8270_SIMRCP, 8270D_SIM, 8270D_SIM_DKQP, 8270D_SIM_DOD5, 8270E_SIM paired with extraction method 3510C_LVI, add 0.25 mL of SIM spiking solution (OP_SIMLCS_MS).

g. For methods 8270D_SIM_Alkyl and 8270D_SM_Alk_D5 paired with extraction method 3510C, add 1.0 mL of Alkyl PAH spike (OP_ALK_PAH_MS).

h. If the sample requires analytes in addition to those found in the above mixes and in Tables I and II, add 1.0 mL (or 0.25 mL for 250-mL extractions) of the appropriate spiking solution.

**NOTE:** The standard must drip directly into the aqueous sample without touching the glass side of the separatory funnel to avoid poor recoveries.

8. Adjusting the pH of samples

   a. See *T-OE-GEN-FRM23822* for instructions on checking the pH of samples.

   b. For samples entered for analytical method Dinoseb_ATP, only the acid fraction is extracted. If samples are entered with a LabNote requesting 'reverse pH prep', or if the sample is acid-preserved, the acid fraction is extracted first, followed by the base-neutral fraction.

   c. For all other analytical methods, the base-neutral fraction is extracted first.

9. Adjusting the pH of samples to >11 for 1 L extractions:

   a. Add approximately 12 drops of 10 N sodium hydroxide to all batch QC and samples using a disposable Pasteur pipette. Swirl to mix.

   b. Check the pH of samples using Hydrion 10 to 12 range pH paper or equivalent to check if pH of >11 has been attained.

   c. If a pH of >11 is not observed, add approximately 6 to 7 drops of 10 N sodium hydroxide using a disposable Pasteur pipette. Swirl and re-check the pH with Hydrion 10 to 12 range pH paper or equivalent. See a supervisor if a pH of >11 is not achieved after repeating the 10 N sodium hydroxide addition five times. Note any issues in the LIMS batch for any samples that are difficult to pH adjust.

10. Adjusting the pH of samples to >11 for 250 mL extractions:

    a. Add approximately 4 drops of 10 N sodium hydroxide to all batch QC and samples using a disposable Pasteur pipette. Swirl to mix.

    b. Check the pH of samples using Hydrion 10 to 12 range pH paper or equivalent to check if pH of >11 has been attained.

    c. If a pH of >11 is not observed, add approximately 2 to 3 drops of 10N sodium hydroxide using a disposable Pasteur pipette. Swirl and re-check the pH with Hydrion 10 to 12 range pH paper or equivalent. See a supervisor if a pH of >11 is not achieved after repeating the 10 N sodium hydroxide addition five times. Note any issues in the LIMS batch for samples that are difficult to pH adjust.

11. If the original sample bottle is empty:

    a. Use a solvent pump to measure 60 mL of methylene chloride for 1 L extractions (15 mL for 250-mL extractions).

b. Rinse the sample bottle by adding the methylene chloride to the bottle. Swirl the bottle to rinse the interior of the bottle with methylene chloride.

c. Transfer the solvent to the separatory funnel.

d. Place the empty sample bottle, with the cap, on the scale.

e. Record this weight in the LIMS as the tare weight. The initial weight is automatically calculated.

f. If the sample container is not empty, use a solvent pump to measure 60 mL of methylene chloride (15 mL for 250 mL extractions) and add the solvent to the graduated cylinder or directly to the separatory funnel.

12. Cap the funnel, invert it, and vent immediately.

13. Handshake and vent frequently until the pressure is stable.

14. For 1 L extractions - Place the funnel on the automatic shaker and shake at the designated speed for 2 minutes with the stopcocks closed.
For 250 mL extractions – Separatory funnels remain on the Automated Water Extraction bench. Press the green "start" button to lower the hood and activate the Automated Water Extraction Bench. The bench will tumble for 2 minutes. The sash will rise after the samples have tumbled.
**NOTE:** Shaker speeds vary greatly between instruments; the proper setting is marked on each.

15. For 1 L extractions - Place the separatory funnel on the rack and allow it to sit undisturbed until the methylene chloride layer (bottom layer) has separated from the water.
For 250 mL extractions - the separatory funnel will sit undisturbed on the Automated Water Extraction Bench.
The time required for extracts to sit undisturbed is based upon visual confirmation that the layers are adequately separated. Additional time may be necessary for samples with unusually high density (i.e. high salt content).
If an emulsion forms and is >1/3 of the volume of the solvent layer, mechanical techniques such as stirring and centrifugation must be employed to complete the separation.

16. For 1L extractions, drain the solvent layer into a metal beaker and pour it through approximately 10 cm (~4 inches) of sodium sulfate into a K-D apparatus containing Teflon™-boiling chips.
For 250 mL extractions, drain the solvent layer directly into the sodium sulfate column containing approximately 5 cm of sodium sulfate (~2 inches). This drains into a concentrator tube.

17. Use a solvent pump to add 60 mL of methylene chloride (15 mL for 250 mL extractions) to the separatory funnel and repeat Procedure 14 through 16, venting only as necessary.

18. Use a solvent pump to add another 60 mL of methylene chloride (15 mL for 250 mL extractions) to the separatory funnel and repeat Procedure 14 through 16, venting only as necessary, a second time for the third of three methylene chloride extractions.

**NOTE:** The acid extract is also added to this K-D (or evaporator tube for 250 mL extractions).

19. Adjusting the pH of samples to <2 for 1 L extractions:

a. Add approximately 1 mL (1/2 full disposable Pasteur pipette) of concentrated sulfuric acid to all batch QC and samples using a disposable glass pipette. Swirl to mix.

b. Check the pH of samples using Hydrion 1 to 2.5 range pH paper or equivalent to check if pH of <2 has been attained.

c. If a pH of <2 is not observed, add approximately 10 to 11 drops of concentrated sulfuric acid using a disposable Pasteur pipette. Swirl and re-check the pH with Hydrion 1 to 2.5 range pH paper or equivalent. See a supervisor if a pH of <2 is not achieved after repeating the concentrated sulfuric acid addition six times. Note any issues in the LIMS for samples that are difficult to pH adjust.

20. Adjusting the pH of samples to <2 for 250 mL extractions:

a. Add approximately 12 drops of concentrated sulfuric acid to all batch QC and samples using a disposable glass pipette. Swirl to mix.

b. Check the pH of samples using Hydrion 1 to 2.5 range pH paper or equivalent to check if pH of <2 has been attained.

c. If a pH of <2 is not observed add approximately 3 to 4 drops of concentrated sulfuric acid using a disposable Pasteur pipette. Swirl and re-check the pH with Hydrion 1 to 2.5 range pH paper or equivalent. See a supervisor if a pH of <2 is not achieved after repeating the concentrated sulfuric addition six times. Note any issues in the LIMS for samples that are difficult to pH adjust.

21. After a pH of <2 has been attained: Using three 60-mL aliquots of methylene chloride (15 mL for 250 mL extractions), serially extract the sample as described in Procedure 14 through 16, venting only as necessary.

22. Collect the solvent in a K-D setup (or evaporator tube for the 250 mL extractions). For 1 L extractions, rinse the metal beaker with approximately 20 mL of methylene chloride and pour into the sodium sulfate column.

23. Use a wash bottle to rinse the sodium sulfate column with approximately 20 mL of methylene chloride (approximately 5 mL for 250 mL extractions).

24. For 1 L extractions:

a. Attach a 3-ball Snyder column to the K-D, wet with solvent, and concentrate the extract to approximately 2-mL on a steam bath at 80° to 90°C. At the proper rate of distillation, the balls of the column will actively chatter, but the chambers will not flood. Adjust the vertical position of the apparatus and the water temperature as needed to complete the concentration in 10 - 20 min. Allow the extracts to cool for approximately 10 minutes.

**NOTE:** This steam bath temperature ensures concentration in a reasonable length of time. Do not allow the ampule to go dry.

b. If extracting samples entered for client-requested analytical method Dinoseb_ATP, the extracts are methylated at this time. For all other extractions, proceed to step 24d. The methylation steps outlined below must be followed utilizing a hood containing no electrical appliances or

steam baths. Additional heat and electrical hazards must be avoided. **Note:** In the case of limited availability of TMSD, the use of Diazomethane for esterification can be used. If using Diazomethane, skip step 24b and go to step 24c.

i. After allowing the 2-3 mL of extract to cool for 10 minutes, add 1 mL TMSD.

ii. Add 0.5 mL MeOH, mix with a Pasteur pipette, and let sit for 10 minutes.

iii. Quench with approximately 10 mg of silicic acid.

iv. Quantitatively transfer to a new ampule to remove the extract from the silicic acid.

v. Concentrate on N-evap nitrogen evaporator to bring the extract below 1 mL.

vi. The extract is quantitatively transferred from the ampule using a Pasteur pipette to a 2 mL amber autosampler vial using hexane. The final volume of 1 mL is quantified by comparing the extract auto sampler vial to a reference auto sampler vial containing exactly 1 mL of hexane.

vii. If too much solvent is added to the sample vial, the extract from the vial should be transferred back into the ampule. Concentrate on N-evap nitrogen evaporator to bring the extract below 1 mL. The previous step is then repeated to bring the extract to 1 mL.

viii. Cap the vial securely and store in the freezer at ≤-10°C.

ix. Record the final volume in the LIMS.

**NOTE: TMSD is flammable and acutely toxic. Only open the container in a drawn hood. If the solution is spilled, leave the area immediately and contact safety. Wear gloves at all times during this procedure. Additional protection such as a safety shield is also recommended. All glassware used in this procedure must be taken directly to wash room personnel. Do not place it on a cart with other dirty glassware.**

c. Set up diazomethane generator and esterify the extract as described below:

Safety precautions

i. Diazald is a carcinogen. **Wear gloves at all times during this procedure**.
ii. Perform esterification in a hood with the sash down. Additional protection, such as a safety shield, is recommended. **Avoid inhalation of diazomethane.**
iii. Avoid using etched or scratched glassware, ground glass joints, and glass stirrers - **EXPLOSION may result**.
iv. **To avoid explosion do not heat over 90°C.**
v. All glassware used in this procedure must be taken directly to wash room personnel, not placed on cart of dirty glassware.
vi. The generator must be set up in a hood containing no electrical appliances or steam baths. Additional heat and electrical hazard must be avoided.

Diazomethane Generator Procedure

i. Prepare the KOH solution.

Reagents must be mixed in the following order:

(a) Place 5 g of KOH in a 125-mL Erlenmeyer flask.
(b) Use a graduated cylinder to add 8 mL of reagent water and swirl to dissolve the KOH.
(c) **Allow the solution to cool.**
(d) Use a graduated cylinder to add 25 mL of reagent alcohol.
(e) Use a graduated cylinder to add 25 mL of ethyl ether.
(f) The amount of KOH solution needed depends on the number of samples extracted. One solution can be used for eight to ten samples. If more than ten samples are to be extracted, prepare a second solution for use during esterification.

ii. Fill 40-mL vials with ethyl ether for rinsing the generator between samples. Use 1 vial per 3 samples.

iii. Prepare the diazomethane solution under a hood and just prior to starting the procedure:

(a) Add approximately 3 g of diazald powder to each KOH solution.
NOTE: Add the diazald powder immediately before use.
(b) Clamp the Erlenmeyer in place.

iv. Fill a plastic beaker with warm water from the steam bath (not to exceed 80º to 85ºC for safety concerns using diazomethane) and hold under the Erlenmeyer containing the diazomethane solution. At the same time, hold a rinse vial of ethyl ether at the end of the generator.

v. When the rinse vial begins to turn yellow, remove the vial and begin placing samples at the end of the generator.

(a) Use a rinse vial to rinse the generator between samples.
(b) Be sure each sample turns bright yellow before going on to the next sample. This ensures that esterification is complete.
(c) If the yellow color does not persist in all of the samples after methylation is complete, remethylate the samples that are no longer yellow.

vi. After esterification, N-Evap the samples below 1 mL.

vii. The extract is quantitatively transferred from the ampule using a Pasteur pipette to a 1 mL amber autosampler vial using hexane. The final volume of 1 mL is quantified by comparing the extract auto sampler vial to a reference auto sampler vial containing exactly 1 mL of hexane.

viii. Cap the vial securely and store in the freezer at≤-10ºC.

ix. Record the final volume in the LIMS.

d. Attach a microsnyder to the ampule and concentrate on a steam bath to slightly below 1 mL.

e. The extract is quantitatively transferred from the ampule using a Pasteur pipette to a 2 mL amber autosampler vial using methylene chloride. The final volume of 1 mL is quantified by comparing the extract auto sampler vial to a reference auto sampler vial containing exactly 1 mL of methylene chloride.

f. If too much solvent is added to the sample vial, the extract from the vial should be transferred back into the ampule. A microsnyder is then attached to the ampule and the extract is concentrated on a steam bath to around 0.5 mL. The previous step is then repeated to bring the extract to 1 mL.

g. Cap the vial securely and store in the freezer at ≤-10°C.

h. Record the final volume in the LIMS.

25. For 250-mL extractions:

Buchi Vacuum Concentrator - refer to *T-OE-GEN-WI10861* for parameter settings.

a. Turn on the SyncorePlus, Chiller, and Vacuum Pump by using the green switch located on the front of the devices.

b. Turn on the heat of the SyncorePlus by pressing the green knob on the control panel.

1. To adjust the temperature of the heating bath and the heated cover, press the set button on the control panel and rotate the knob to the correct
temperature needed.

2. The heating bath needs to be slightly filled with DI H2O. (Approximately 25mL per reservoir)

3. **Note** - The heated cover is set differently based on the solvent used. Consult a supervisor about the appropriate temperatures for the solvent being concentrated.

c. Turn on the cool flow of the Chiller by pressing the green control knob on the front of the device.

1. To adjust the temperature of the chiller, rotate the knob to the correct temperature needed.

d. From the interface attached to the vacuum pump, go to the operating modes menu tab (pen & paper button). The methods used for concentration are
listed in the methods sub-item. For all 8270 methods use the 90mL Methylene Chloride concentration method.

e. In the event that further concentration is needed, the Timer sub-item in the operating modes menu tab can be used with a selected method.

1. Once in the timer sub-item the timer can adjusted to the desired time. Consult a supervisor about appropriate times for remaining solvent.

7. After each concentration the solvent must be emptied from the collection flask into a carboy.

8. The extract is quantitatively transferred from the evaporator tube using a Pasteur pipette to a 2 mL amber autosampler vial using methylene chloride. The final volume of 1 mL is quantified by comparing the extract auto sampler vial to a reference auto sampler vial containing exactly 1 mL of methylene chloride.

9. If too much solvent is added to the sample vial, the extract from the vial should be transferred back into the evaporator tube and concentrated on the rapid vap down to around 0.5 mL. The previous step should then be repeated to bring the extract to 1 mL.

10. Cap the vial securely and store in the freezer at ≤-10°C.

11. Record the final volume in the LIMS.

Rapid-Vap Concentrator

a. Place the evaporator tube containing the solvent extract into the pre-heated (approximately 80°C) Rapid-Vap Evaporator. Set the timer for 10 minutes and speed at 75% (the speed is the rotation within the unit while the sample is evaporating). After 10 minutes, rinse the tube with approximately 5-7 mL methylene chloride and set the timer for 10 more minutes. Confirm that the nitrogen is set at approximately 15 PSI (this is adjusted on the regulator attached to the nitrogen line). Allow samples to concentrate to around 0.5 mL.

**NOTE:** The temperature, timer, and speed settings can be adjusted as necessary to accommodate difficult sample matrices, etc.

b. The extract is quantitatively transferred from the evaporator tube using a Pasteur pipette to a 2 mL amber autosampler vial using methylene chloride. The final volume of 1 mL is quantified by comparing the extract auto sampler vial to a reference auto sampler vial containing exactly 1 mL of methylene chloride.

c. If too much solvent is added to the sample vial, the extract from the vial should be transferred back into the evaporator tube and concentrated on the rapid vap down to around 0.5 mL. The previous step should then be repeated to bring the extract to 1 mL.

d. Cap the vial securely and store in the freezer at ≤-10°C.

e. Record the final volume in the LIMS.

### Calculations

See analysis method.

### Statistical Information/Method Performance

See analysis method.

### Quality Assurance/Quality Control

A batch is defined as the samples to be extracted on any given day but not to exceed 20 field samples. If more than 20 samples are prepared in a day, an additional batch must be prepared. If any client, state, or agency has more stringent QC or batch requirements, these must be followed instead.

Each extraction batch (up to 20 samples) must contain a method blank, a LCS, and an unspiked background sample, MS, and MSD. An LCSD is required if insufficient sample volume is submitted for a background/MS/MSD. If the batch contains only field or equipment blank samples, the LCS/LCSD QC pairing should be used.

QC limits for surrogates, LCS/LCSD, and MS/MSD are established through statistical analysis of historical data. The limits are evaluated as frequently as defined in the analytical method and updated as needed. The limits are maintained in the LIMS for the relevant analysis numbers.

### Table I

**LCS Mix #1 Reagent Analyte List**

1,1'-Biphenyl
1,2,4,5-Tetrachlorobenzene
1,2,4-Trichlorobenzene
1,2-Dichlorobenzene
1,2-Diphenylhydrazine
1,3-Dichlorobenzene
1,3-Dinitrobenzene
1,4-Dichlorobenzene
1,4-Dioxane
1-Methylnaphthalene
1-Methylphenanthrene
2,3,4,6-Tetrachlorophenol
2,2'-oxybis[1-chloropropane]
2,3-Dichlorobenzeneamine
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dichlorophenol
2,6-Dinitrotoluene
2-Chloronaphthalene
2-Chlorophenol
2-Methylnaphthalene
2-Methylphenol
2-Nitroaniline
2-Nitrophenol
3,3'-Dichlorobenzidine
3-Methylphenol
3-Nitroaniline
4,6-Dinitro-2-methylphenol
4-Bromophenyl phenyl ether
4-Chloro-3-methylphenol
4-Chloroaniline
4-Chlorophenyl phenyl ether
4-Methylphenol
4-Nitroaniline
4-Nitrophenol
Acenaphthene
Acenaphthylene
Acetophenone
Alpha Methyl Styrene
Alpha-Terpineol
Aniline
Anthracene
Benzidine
Benzo[a]anthracene
Benzo[a]pyrene
Benzo[b]fluoranthene
Benzo[g,h,i]perylene
Benzo[k]fluoranthene
Benzoic acid
Benzyl alcohol
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl)ether
Bis(2-ethylhexyl) phthalate
Butyl benzyl phthalate
Carbazole
Chrysene
Dibenz(a,h)anthracene
Dibenzofuran
Diethyl phthalate
Dimethyl phthalate
Dimethylformamide
Di-n-butyl phthalate
Di-n-octyl phthalate
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Hexadecane
icosane
Indene
Indeno[1,2,3-cd]pyrene
Isophorone
Naphthalene
n-Decane
n-Docosane
Nitrobenzene
N-Nitrosodimethylamine
N-Nitrosodi-n-propylamine
N-Nitrosodiphenylamine
n-Octadecane
n-Tetradecane
Octachlorostyrene
Pentachlorophenol
Phenanthrene
Phenol
Phenyl ether
Pyrene
Pyridine

### Table II

**APPIX Mix #1 Reagent Analyte List**

1,3,5-Trinitrobenzene
1,4-Dinitrobenzene
1,4-Naphthoquinone
1-Chloronaphthalene
1-Naphthylamine
2,3,5,6-Tetrachlorophenol
2-Acetylaminofluorene
2-Naphthylamine
2-Picoline
2-Toluidine
3,3’-Dimethylbenzidine
3-Methylcholanthrene
4,4'-Methylene bis(2-chloroaniline)
4-Aminobiphenyl
4-Nitroquinoline-1-oxide
6-Methylchrysene
7,12-Dimethylbenz(a)anthracene
Famphur
Hexachloropropene
Isodrin
Isosafrole
Kepone
Methapyrilene
Methyl methanesulfonate
Methyl parathion
N-Nitro-o-toluidine
N-Nitrosodiethylamine
N-Nitroso-di-n-butylamine
N-Nitrosomethylethylamine
N-Nitrosomorpholine
N-Nitrosopiperidine
N-Nitrosopyrrolidine
o,o',o''-Triethylphosphorothioate
p-Dimethylamino azobenzene

alpha,alpha-Dimethyl phenethylamine
Aramite, Total
Chlorobenzilate
Diallate
Dibenz[a,h]acridine
Dibenz[a,j]acridine
Dimethoate
Dinoseb
Disulfoton
Ethyl methanesulfonate
Ethyl Parathion
Pentachlorobenzene
Pentachloroethane
Pentachloronitrobenzene
Phenacetin
Phorate
p-Phenylene diamine
Pronamide
Quinoline
Safrole, Total
Sulfotepp
Thionazin

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T-OE-GEN-FRM23822 Instructions for Checking pH During Extraction Procedures
T-OE-GEN-WI10861 Steam Bath, N-Evap, Buchi Concentrator, and RapidVap Usage, Calibration, and Maintenance
T-OE-GEN-WI10864 Glassware Cleaning for Organic Extractions
T-OE-GEN-WI10876 Organic Extraction Standards Storage and Handling
T-SVOA-WI11998 Semivolatile Spiking and Calibration Standards
T-SVOA-WI13634 The Determination of 1,4-Dioxane by GC/MS using Isotope Dilution and Selective Ion Monitoring (SIM) by Method 8270D and 8270E
T-SVOA-WI31758 Client Specific Methylphenols by Method 8270D in Water Using GC/MS
T-SVOA-WI34848 Client Specific Dinoseb by ATP in Water Using GC/MS
T-SVOA-WI9252 Parent and Alkyl Substituted PAHs and Geochemical Biomarkers by 8270D/E SIM by GC/MS
T-SVOA-WI9617 Semivolatile Organic Compounds by Method 8270D/E in Aqueous and Non-Aqueous Matrices using GC-MS
T-SVOA-WI9995 Semivolatiles in Waters and Soils by Methods 8270D/E SIM and 625.1 SIM by GC/MS

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End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 19 | 22.JUL.2022 | | |
| 20 | 24.FEB.2023 | | |
| 21 | 20.MAR.2024 | 02/24/2025 - 32227 - Reviewed, no changes needed | |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**GC/MS Preventative and Corrective Maintenance** | Level:<br>**Work Instruction** |
| Document number:<br>**T-SVOA-WI9598** | | |
| Old Reference:<br>**1-P-QM-PRO-9015393; DOD - MC-EX-001** | | |
| Version:<br>**6** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **XL3S**<br>Effective Date: **26-SEP-2019** | Document users:<br>**5_EUUSLA_GC/MS Semivolatiles_All** | Responsible:<br>**5_EUUSLA_GC/MS Semivolatiles_Manager** |


Revision Log
Reference
Purpose
Scope
Safety Precautions and Waste Handling
Personnel Training and Qualifications
Procedure


## Revision Log

| | **Revision:** 06 | **Effective date:** This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Throughout document | Reflects current instrumentation | Removed references to old instrumentation and added references to new instrumentation |
| Preventative Maintenance Basic Principles, Maintenance Authorization, Vacuum System Preventative Maintenance Basic Principles, Corrective Maintenance Basic Principles | Flow | Sections removed and information relocated to Procedure |

| **Revision:** | 05 | **Effective Date:** | Apr 13, 2011 |
|---|---|---|---|
| **Section** | **Justification** | **Changes** | |
| Revision Log | Formatting requirements per LOM-SOP-LAB-201 | Removed revision logs up to the previous version. | |
| References | Referenced in document | Added manual for the new instruments (Trace DSQ II) | |
| Scope | New instruments added to department | Preventative and corrective maintenance pertaining to new instruments (Trace DSQ II) | |
| Safety Precautions and Waste Handling | Formatting requirements per LOM-SOP-LAB-201 | Added required text | |
| Personnel Training and Qualifications | Formatting requirements per LOM-SOP-LAB-201 | Added required text | |

## Reference

1. Hardware Manual: HP 5973 Mass Selective Detector, Hewlett Packard, Hewlett-Packard Company, 1996.

2. 5975 Series MSD Troubleshooting and Maintenance Manual, Agilent, 2010.

3. HP 6890 Series Gas Chromatograph Maintenance and Troubleshooting Manual, Hewlett-Packard Company, 1989-1994.

4. *Chemical Hygiene Plan*, current version.

## Purpose
Preventative and corrective maintenance are crucial in maintaining the overall performance of the GC/MS system. This SOP explains the basic principles of managing the integrity of the GC/MS system.

## Scope
This document serves as a guideline for the performance of preventative and corrective maintenance on HP6890 and HP7890 GC and HP5973, HP5975, and HP5977 MSD GC/MS systems.

## Safety Precautions and Waste Handling
All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

Safety glasses must be worn and all necessary safety precautions taken when performing any type of preventative or corrective maintenance. See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

## Personnel Training and Qualifications
All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP.

Each new chemist will train with an experienced chemist for the first 8 weeks depending on the individual and their previous experience. The first 8 weeks is spent working one-on-one with the trainer. This time may be less if the new chemist has prior experience in the GC/MS Semivolatiles area.

During the training period, the new chemist will learn daily preventative maintenance and corrective maintenance procedures, column and source changing procedures, calibration techniques, data and library search review, and form generation. They are also required to read all relevant SOPs and EPA methods. They can also participate in on-line GC/MS tutorials.

## Procedure
Routine preventative maintenance is required to maintain a GC/MS system that will perform to method specifications. The performance of preventative maintenance is at the discretion and determination of the chemist, based on experience and what may be required to meet method performance specifications.

Corrective maintenance may be performed by the chemist based on the observed non-conformance. If, however, it is determined that an outside contractor must be contacted to perform certain types of preventative or corrective maintenance on a system, the chemist should consult with their group leader. The group leader will then help determine if contact must be made with the outside contractor and will determine who will make that contact.

The various types of maintenance are as follows:

A. Routine preventative maintenance:

Routine preventative maintenance may be performed daily on the gas chromatograph injector and gas chromatograph column to ensure maximum system performance. Specific maintenance techniques may vary

from instrument to instrument depending on analyst experience, instrument setup, method requirements, and types of samples run.

Routine preventative maintenance may include the following:

1. Injector maintenance

a. Lower the GC oven temperature to 30ºC and the injection port temperature to 70°C. Turn off the pressure/flow.

b. To replace the septum, remove the automatic injection tower and set aside. Lift the GC cover; loosen, remove, and set aside the septum retainer nut. Remove and discard the old septum. Place a new septum on top of the inlet base. (Be sure the inlet is free of particulate matter.) Replace the septum retainer nut, tightening to finger tightness. Avoid overtightening; the retainer nut is spring-loaded to provide sufficient pressure for sealing. Turn the pressure on and check to be sure head pressure has returned to the level it was prior to performing this task.

c. To replace the inlet liner, remove the insert retainer nut. Remove the insert liner already in place. (Optional: Swab the port with methylene chloride or other suitable solvent.) Inspect the new liner; if chipped or cracked, **DO NOT USE – DISCARD**. Place a silicone O-ring on the insert liner, about 2 to 3 mm from the top end.

Install the insert liner by pressing it straight down, as far as possible, into the inlet. Replace the insert retainer nut. Turn the pressure on and check to be sure head pressure has returned to the level it was prior to performing this task.

d. To clean or replace the injector seal, turn off the GC oven and open the oven door. With a small wrench, loosen, remove, and set aside the column nut. Remove and set aside the bottom insulation cover. (You may need to loosen one or two screws to do this.) With a large wrench, remove the reducing nut. The washer and seal are inside the reducing nut. Swab the seal with methylene chloride or an appropriate solvent. Check for graphite in the ferrule end of the seal. If graphite is clogging the opening, remove it. If the flat side of the seal is visibly dirty and cannot be cleaned properly, replace it with a new seal. Place the washer back in the bottom of the reducing nut; place the seal, flat side up, on top of the washer. Screw the reducing nut in place. Secure the bottom insulation cover. Move to column maintenance.

2. Column maintenance

a. While the column is still disconnected from the injection port, slide the desired amount of column to be removed through the column nut and clip the head of the column with a column-cleaving tool. Check for a clean break. (The amount of column removed is at the chemist's discretion based on the type of samples run. 1-3" is typical for systems designated for water samples; 6" to 1' is typical for systems desigated for soil samples. More length may be taken if extremely dirty samples were analyzed. The reason for sliding the column through the column nut and ferrule BEFORE clipping is to avoid blockage by graphite particles at the head of the column.) Slide the column nut 6 to 12 mm from the end of the column and insert the column nut and column into the injector port.

Tighten the column nut. Turn the pressure on and check to be sure head pressure has returned to the level it was prior to performing this task. Close the oven door and set the temperature zones to 300ºC.

b. Fill out the routine maintenance page of the maintenance logbook found next to the instrument. Record all maintenance performed in a clear, concise manner.

B. Vacuum System Preventative Maintenance:

Vacuum system preventative maintenance may be performed every six to nine months to ensure maximum vacuum system performance. Specific maintenance techniques may vary from instrument to instrument depending on analyst and instrument setup. For specific maintenance techniques, chemists should refer to the proper hardware manual. This maintenance may be performed by an outside contractor.

Vacuum system preventative maintenance includes the following:

1. Check and, if necessary, replace foreline pump fluid
2. Check and, if necessary, replace diffusion pump fluid
3. Check and, if necessary, refill calibration vial
4. Replace carrier gas trap

Vacuum system preventative maintenance must be documented on the non-routine maintenance page of the maintenance logbook in a clear, concise manner.

C. Corrective Maintenance

Corrective maintenance is performed on the gas chromatograph and mass spectrometer only when symptoms indicate they are necessary to ensure maximum system performance, or to correct poor system performance. The specific maintenance required will vary depending on the observed problem(s), instrument setup, types of samples run, and method requirements. Following is a list of possible corrective maintenance and related symptoms; to properly troubleshoot the instrument symptoms, chemists should refer to the proper hardware manual. This maintenance may be performed by an outside contractor.

Corrective maintenance may, depending on symptoms, include the following:

1. Remove and clean the ion source
2. Replace the column
3. Replace ion source parts
4. Replace filaments
5. Replace electron multiplier (detector)
6. Replace entire analyzer
7. Replace purge lines and insert assembly
8. Replace heater/sensor assembly
9. Replace electronics (fuses, printed circuit boards)

Related symptoms may be grouped in the following categories:

1. General symptoms
    a. GC or MSD does not turn on
    b. Foreline and/or diffusion pump is not operating
2. Chromatographic symptoms
    a. No peaks
    b. Does not pass tune
    c. Peaks are tailing or fronting
    d. Peaks have flat or split tops
    e. Baseline is high
    f. Baseline is rising or falling

g. Baseline wanders

h. Retention times for all peaks drift

i. Poor sensitivity

j. Poor repeatability

3. Mass spectral symptoms

Missing isotopes or incorrect isotope ratios

a. High background

b. High abundances at m/z 18, 28, 32, 44

c. Mass assignments incorrect

d. Peaks have precursors

e. Peak widths inconsistent

f. Poor high mass sensitivity

g. Pressure symptoms

h. Foreline pressure is too high or too low

i. Vacuum manifold pressure is too high or too low

j. Temperature symptoms

k. Ion source will not heat up

l. Mass filter (quad) heater will not heat up

m. GC/MSD interface will not heat up

4. Error messages

Numerous possibilities, refer to proper system hardware manual

5. Contamination

Excessive background in mass spectra

6. Air leaks

a. Higher than normal vacuum pressure

b. Higher than normal background

c. Peaks characteristic of air (m/z 18, 28, 32, 44)

d. Poor sensitivity

All corrective maintenance procedures, whether performed internally or by outside contractor, must be fully documented in the instrument maintenance logbook in a clear, concise manner.

End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 5 | 13.APR.2011 | | |
| 6 | 12.SEP.2019 | Reviewed and expiration date extended 9/16/24 - WS2991 | |

| | | |
|---|---|---|
| eurofins<br>Document number: **T-OE-SVOA-WI10928**<br>Old Reference: **1-P-QM-WI -9015105**<br>Version: **16** | Always check on-line for validity.<br>**Microwave Extraction by Method 3546 for Semivolatiles** | Level: **Work Instruction**<br>Organisation level: **5-Sub-BU** |
| Approved by: **ULJC**<br>Effective Date: **20-MAY-2025** | Document users: **6_EUUSLA_GC/MS Semivolatiles_Analysts, 6_EUUSLA_GC/MS Semivolatiles_Management, 6_EUUSLA_Organic Extraction_Mgmt, 6_EUUSLA_ Organic Extraction_Semivolatile Soils** | Responsible: **5_EUUSLA_Organic Extraction_Manager** |

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## Revision Log

| **Revision** 16 | **Effective Date:** | **This version** |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Procedure | Update | Remove Rapid Vap concentration |
| Apparatus and Equipment | Update | Remove Rapid Vap equipment |

| **Revision** 15 | **Effective Date:** | **April 12, 2024** |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Cross Reference | Update | Removed T-SVOA-WI9623 |
| Procedure | Update | Moved GPC concentration to *T-OE-SVOA-WI10554* |
| Apparatus and Equipment | Update | Removed equipment used for GPC concentration and added new concentration for standard prep |
| Reagents and Standards | Update | Removed Ottawa Sand |
| Procedure | Update | Added new concentration method |

## Reference

1. *Test Methods for Evaluating Solid Wastes*, SW-846 Method 3546, Revision 0, February 2007.
2. *MARS Operation Manual*, Revision 2, February 2006.
3. *Chemical Hygiene Plan*, current version.

## Cross Reference

| Document | Document Title |
|---|---|
| *T-OE-GEN-WI7154* | Food and Tissue Preparation |
| *T-SVOA-WI9587* | Tetraethyl Lead (TEL) in Water and Solids by 8270D/E by GC/MS |

| Document | Document Title |
|---|---|
| *T-SVOA-WI9995* | Semivolatiles in Waters and Soils by Methods 8270D/E SIM and 625.1 SIM by GC/MS |
| *T-SVOA-WI9252* | Parent and Alkyl Substituted PAHs and Geochemical Biomarkers by 8270D/E SIM by GC/MS |
| *T-SVOA-WI9617* | Semivolatile Organic Compounds by Method 8270D/E in Aqueous and Non-Aqueous Matrices using GC-MS |
| *T-OE-SVOA-WI10554* | Semivolatile Extract Cleanup Using GPC by Method 3640A |
| *T-SVOA-WI11998* | Semivolatile Spiking and Calibration Standards |
| *T-OE-GEN-WI10864* | Glassware Cleaning for Organic Extractions |
| *T-OE-GEN-WI10876* | Organic Extraction Standards Storage and Handling |
| *T-OE-GEN-WI10861* | Steam Bath, N-Evap, Buchi Concentrator, and RapidVap Usage, Calibration, and Maintenance |

**Scope**
This procedure is used to clearly outline the steps taken for the extraction of semivolatile compounds from soils or solid wastes using microwave technology.

**Basic Principles**
A portion of sample is placed in an extraction vessel. Surrogate standards are added to each sample to monitor recovery. The vessel is then loaded into the instrument and extracted. The organic compounds present in the sample dissolve in the solvent, which is then removed. The extract is concentrated to about 1 mL. At this time, it is determined if the sample requires gel-permeation cleanup (GPC). If needed, the extract is diluted to 10 mL then cleaned using GPC. The extract is stored in an amber-autosampler vial in the freezer until analysis.

**Reference Modifications**
Base/Neutral and Acid compounds are added at a concentration of 50 ppm in the matrix spiking and LCS solutions so that the concentrations in the extract are within calibration range.

**Interferences**
Impurities in solvents, reagents, glassware, or other hardware used in sample processing can interfere with the method. All glassware must be rinsed with solvent before use. A method blank is performed with each batch of samples to demonstrate that the extraction system is free of contaminants.

**Safety Precautions and Waste Handling**
All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

The toxicity or carcinogenicity of each reagent used in this method has not been precisely defined. Each chemical compound must be treated as a potential health hazard. Exposure to these chemicals must be reduced to the lowest possible level by whatever means available, such as fume hoods, lab coats, safety glasses, and gloves.

Extracts are concentrated on a steam bath; caution must be exercised while working around this apparatus.

All solvent waste generated from this preparation must be collected for recycling (if applicable) or disposed of in the designated containers. These are then transferred to the lab-wide disposal facility. Any solid waste material (disposable pipettes, broken glassware, pH paper) is disposed of in the normal solid waste collection containers.

**Personnel Training and Qualifications**
All personnel performing this procedure must have documentation of reading, understanding and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the analyst's training records.

Initially, each technician performing the extraction must work with an experienced employee for a period of time until they can independently perform the extraction. Proficiency is measured through a documented Initial Demonstration of Capability (IDOC).

The IDOC and the DOC consists of four laboratory control samples (or alternatively, one blind sample for the DOC) that is carried through all steps of the extraction and meet the defined acceptance criteria. The criteria for the LCSs include the calculation of mean accuracy and standard deviation.

**Sample Collection, Preservation and Handling**
Samples are collected in glass wide-mouth jars with PTFE-lined lids and stored under refrigeration at 0° to 6°C, not frozen, prior to extraction. Samples must be extracted within 14 days of sample collection. Extracts are stored in the freezer at ≤-10° C and must be analyzed within 40 days of the date extracted.

**Apparatus and Equipment**
1. MARS Xpress – CEM Corp. or equivalent
2. Balance – Capable of weighing to 0.01 g
3. Beakers – Stainless steel – Assorted sizes
4. Scoop
5. Pipettes – Class A, assorted sizes
6. Wash bottles – Teflon®
7. Disposable pipettes
8. Autosampler vials – Amber, crimp top

9. Funnels – Stainless steel or Teflon®

10. Extraction vessels

11. Sodium sulfate columns

12. Buchi Concentrator

13. Buchi Concentrator Tubes

**Reagents and Standards**

1. Methylene chloride ($CH_2Cl_2$) – Pesticide grade or equivalent. Store at room temperature for up to one year.

2. Acetone – Pesticide grade or equivalent. Store at room temperature for up to one year.

3. Sodium Sulfate ($Na_2SO_4$) – Reagent grade or equivalent. Bake at 400°C for a minimum of 4 hours in a shallow pan to remove contaminants. Store in a glass jar for up to 1 year after baking.

**NOTE:** All QC standards added during extraction process are prepared by Organic Extractions using instructions generated by the standards database. Detailed instructions can be found in the corresponding analytical analyses for scans *T-SVOA-WI9587*, *T-SVOA-WI9995*, *T-SVOA-WI9252*, *T-SVOA-WI9617*

**Calibration**

Not applicable to this procedure.

**Preparation of Glassware**

See *T-OE-GEN-WI10864*.

**Procedure**

1. Sample aliquot

   a. If Sample Registration has pre-weighed the sample into a glass jar, proceed to procedure step 2.

   b. If the sample is not pre-weighed, weigh 30.0 - 30.5 g of sample into a labeled stainless steel beaker. If sample matrix is tissue, use 15.0 - 15.5 g.

      (1) Record the initial weight and any comments about the sample in the LIMS.

      (2) Alternative sample weights may be used to meet certain reporting limits. However, if sample weight greater than 30.5 g is used the sample must be divided among multiple vessels and the extracts combined.

   c. Process all tissues by Analysis *T-OE-GEN-WI7154* prior to extraction.

2. Add approximately 5 g of sodium sulfate to each sample and mix.

   a. If the sample has high water content or is a clay-like soil, add an additional 10 g (approximate) of sodium sulfate.

   b. Mix the sodium sulfate and sample until a free-flowing consistency is reached.

3. Perform the background, matrix spike (MS), and matrix spike duplicate (MSD) on three separate aliquots of a field sample.

4. Prepare the Blank, laboratory control sample (LCS), and laboratory control sample duplicate (LCSD) (if applicable) by filling a Teflon® extraction vessel with 35 g of sodium sulfate. Use 15.0 g tilapia if matrix is tissue. Record 30.0 g in the LIMS (or 15.0 for tissue samples). (The sodium sulfate used for the QC samples is measured out as 35.0 g to account for the 30 g "sample" plus the 5g of sodium sulfate.)

5. Place each sample into its clearly marked corresponding extraction vessel. Use a funnel to prevent spillage and loss of sample.

6. Add surrogate standards and spiking solutions using pipettes. Add surrogates to all samples, blanks and spiked samples. Add spikes to the LCS, LCSD (if applicable), MS, and MSD samples. Typically they are as follows:

   a. Analysis *T-SVOA-WI9623* – Surrogate: 1.0mL of BNA surrogate. Spike: 1.0mL of LCS spike. If required, spike 1.0 mL of Benzenthiol spike in a separate LCS/LCSD. If required, Spike 1.0 mL of AppIX Mix #1 in a separate LCS/LCSD. If required, Spike 1.0 mL of AppIX Mix #2 in a separate LCS/LCSD.

   b. Analysis *T-SVOA-WI9995* – Surrogate: 1.0mL of BNA surrogate. Spike: 1.0mL of SIM LCS spike.

   c. Analysis *T-SVOA-WI9587* – Surrogate: 1.0mL of BNA Surrogate. Spike: 1.0mL of TEL/TML spike.

      **NOTE:** If the sample is being analyzed for Benzoic Acid, a separate LCS/LCSD must be created with 1.0 mL of Appendix IX Mix#1 spike.

   See *T-OE-GEN-WI10876* for storage and handling of spikes and *T-SVOA-WI11998* for SVOA spiking and calibration standards.

      **NOTE:** If the sample is being divided among multiple vessels, the spike must be divided among the vessels as well.

7. Add 30 mL of 50% acetone in methylene chloride to each vessel.

8. Cap each vessel according to manufacturer's guidelines.

9. Invert each vessel to ensure mixing of sample and solvent.

10. Place the vessels into the carousel. When all samples are loaded, place the carousel into the microwave.

11. Run Program "LL Soils". See Table I for Instrument conditions. Verify that the run reaches the 100 °C temperature requirement and document in the LIMS.

12. Uncap the cooled vessel.

13. Pour the extract and sample from the vessel into a salt column filled with approximately 10 cm of sodium sulfate on top of an evaporator tube.

14. Rinse the microwave vessel with 10 to 20 mL of methylene chloride from a wash bottle and pour it into the salt column.

15. Allow the salt column to drip dry into the concentrator tube.

**Note:** If using the Buchi concentrator refer to *T-OE-GEN-WI10861* for parameter settings.

16. Buchi Vacuum Concentrator

a. Turn on the SyncorePlus, Chiller, and Vacuum Pump by using the green switch located on the front of the devices.

b. Turn on the heat of the SyncorePlus by pressing the green knob on the control panel.

1. To adjust the temperature of the heating bath and the heated cover, press the set button on the control panel and rotate the knob to the correct temperature needed.

2. The heating bath needs to be slightly filled with DI H2O. (Approximately 25mL per reservoir)

3. **Note** - The heated cover is set differently based on the solvent used. Consult a supervisor about the appropriate temperatures for the solvent being concentrated.

c. Turn on the cool flow of the Chiller by pressing the green control knob on the front of the device.

1. To adjust the temperature of the chiller, rotate the knob to the correct temperature needed.

d. From the interface attached to the vacuum pump, go to the operating modes menu tab (pen & paper button). The methods used for concentration are listed in the methods sub-item. For all 8270 extractions use the 90mL Methylene Chloride concentration method for soils.

e. In the event that further concentration is needed, the Timer sub-item in the operating modes menu tab can be used with a selected method.

1. Once in the timer sub-item the timer can adjusted to the desired time. Consult a supervisor about appropriate times for remaining solvent.

7. After each concentration the solvent must be emptied from the collection flask into a carboy.

17. If GPC is not needed, go to Procedure Step 18.

a. For samples that require GPC bring the final volume to 10.0 mL with methylene chloride in a class A volumetric. Filter extracts into a 100 mm. screw cap tubes using a 10mL Luer-Lok glass syringe and a disposable 0.45-micron filter (Whatman catalog number 6874-2504 or equivalent).

b. Place the extract into the appropriate GPC queuing area for storage until the cleanup is performed. See *T-OE-SVOA-WI10554*.

18. Bring to a final volume of 1.0 mL with methylene chloride in a labeled amber GC vial.

a. The final volume is determined by placing the extract into an amber-autosampler vial and comparing the level in the vial to a reference vial containing the exact targeted final volume.

b. The vials used for bottling must be the same lot number as the reference vial.

c. Methylene chloride is added to the extract using a disposable pipette until exactly the same level is in both vials.

d. If too much solvent is added to the sample vial, remove the extract from the vial and concentrate it by adding it to a concentrator tube to be re-concentrated to slightly less than the targeted final volume and rebottle.

e. Cap the vial and store in the freezer until analysis.

f. Record the final volume in the LIMS.

## Calculations
See analysis method.

## Statistical Information/Method Performance
See analysis method.

## Quality Assurance/Quality Control
For each batch of samples extracted, a method blank, an LCS, an unspiked background sample, an MS, and an MSD must be extracted. If insufficient volume of sample is available for MS/MSD, then an LCSD must be prepared instead.

A batch is defined as the samples to be extracted on any given day but not to exceed 20 field samples. If more than 20 samples are prepared in a day, an additional batch must be prepared. If any client, state, or agency has more stringent QC or batching requirements, these must be followed.

## Table I

Instrument Conditions

| | |
|---|---|
| Power: | 1600W |
| Ramp Temperature: | 100°C |
| Ramp Time: | 30 minutes |

| | |
|---|---|
| Hold Time: | 10 minutes |
| Cool Down Time: | 20 minutes |

T-OE-GEN-WI10861 Steam Bath, N-Evap, Buchi Concentrator, and RapidVap Usage, Calibration, and Maintenance
T-OE-GEN-WI10864 Glassware Cleaning for Organic Extractions
T-OE-GEN-WI10876 Organic Extraction Standards Storage and Handling
T-OE-GEN-WI7154 Food and Tissue Preparation
T-OE-SVOA-WI10554 Semivolatile Extract Cleanup Using GPC by Method 3640A
T-SVOA-WI11998 Semivolatile Spiking and Calibration Standards
T-SVOA-WI9252 Parent and Alkyl Substituted PAHs and Geochemical Biomarkers by 8270D/E SIM by GC/MS
T-SVOA-WI9587 Tetraethyl lead (TEL) in Water and Solids by 8270D/E by GC/MS
T-SVOA-WI9617 Semivolatile Organic Compounds by Method 8270D/E in Aqueous and Non-Aqueous Matrices using GC-MS
T-SVOA-WI9995 Semivolatiles in Waters and Soils by Methods 8270D/E SIM and 625.1 SIM by GC/MS

End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 14 | 01.APR.2022 | Reviewed 5.9.2023. No changes needed per D36 management. | |
| 15 | 12.APR.2024 | | |
| 16 | 16.MAY.2025 | | |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Extraction of Nitroaromatics and Nitroamines by Method 3535A in Water** | Level:<br>**Work Instruction** |
| Document number:<br>**T-OE-PEST-WI10942** | | |
| Old Reference:<br>**1-P-QM-WI -9015171** | | |
| Version:<br>**16** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **ULJC**<br>Effective Date: **16-MAY-2023** | Document users:<br>**5_EUUSLA_Organic Extraction_Manager, 6_EUUSLA_Organic Extraction_Explosives Waters and, 6_EUUSLA_Pesticide Residue Analysis_All Management, 6_EUUSLA_Pesticide Residue Analysis_Explosive Chem** | Responsible:<br>**5_EUUSLA_Organic Extraction_Manager** |

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## Revision Log

| **Revision:** 16 | **Effective Date:** | This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Apparatus and Equipment | Reflects current practice | Added "Balance - capable of weighing to 0.1g" |
| Sample collection | Reflects current practice | Updated sample bottle volume to include 500 mL bottles |
| Procedure | Reflects current practice | Updated to reflect the current sample weight determination process |
| Procedure | Reflects current practice | Removed 12mL vial from step 14. |

| **Revision:** 15 | **Effective Date:** | August 11, 2022 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Reagents and Standards | Reflects current practice | Removed sulfuric acid and the making of 10% sulfuric acid |
| Procedure 1 | Reflects current practice | Removed sulfuric acid rinsing. All glassware will be rinsed with acetone |

## Reference

1. Solid-Phase Extraction (SPE), EPA SW-846 Method 3535A, February 2007.

2. "Analyze Nitroaromatic and Nitroamine Explosives in Groundwater Using Solid Phase Extraction and HPLC," Waters, 1994.

3. *Test Methods for Evaluating Solid Wastes*, EPA SW-846 Method 8330B, Rev. 2, October 2006.

4. *Chemical Hygiene Plan,* current version.

### Cross Reference

| Document | Document Title |
|---|---|
| *T-PEST-WI9981* | Nitroaromatics and Nitroamines by Method 8330B in Water and Solids using HPLC with UV Detection |
| *T-OE-GEN-WI10864* | Glassware Cleaning for Organic Extractions |
| *T-OE-GEN-WI10876* | Organic Extraction Standards Storage and Handling |

### Scope

The method is for the extraction of trace levels of nitroaromatics and nitroamines from explosives in water samples.

### Basic Principles

A portion of the sample is passed through a Porapak RDX cartridge. The cartridge is then eluted with acetonitrile and the extract is brought to exactly 5 mL. The extract is diluted to 10 mL using a calcium chloride solution.

### Interferences

Impurities in solvents, reagents, glassware, or other hardware used in sample processing interfere with the method. All glassware must be is rinsed with solvent before use. A method blank is performed with each batch of samples to demonstrate that the extraction system is free of contaminants.

### Safety Precautions and Waste Handling

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

The toxicity or carcinogenicity of each reagent used in this method has not been precisely defined. Each chemical compound must be treated as a potential health hazard. Exposure to these chemicals must be reduced to the lowest possible level by whatever means available, such as fume hoods, lab coats, safety glasses, and gloves.

All solvent waste generated from this preparation must be collected for recycling (if applicable) or disposed of in the designated containers. These are then transferred to the lab-wide disposable facility. Any solid waste material (disposable pipettes, broken glassware, pH paper) is disposed of in the normal solid waste collection containers.

**Samples suspected of being high in explosives must be handled with extreme care.**

### Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the technicians training records.

Initially, each technician performing the extraction must work with an experienced employee for a period of time until they can independently perform the extraction. Proficiency is measured through a documented Initial Demonstration of Capability (IDOC).

The IDOC and the DOC consists of four laboratory control samples (or alternatively, one blind sample for the DOC) that is carried through all steps of the extraction and meet the defined acceptance criteria. The criteria include the calculation of mean accuracy and standard deviation.

### Sample Collection, Preservation, and Handling

Samples are collected in 500 mL or 1-L, unpreserved, amber glass bottles with PTFE-lined lids and stored refrigerated at 0° to 6°C, not frozen, prior to extraction. Samples must be extracted with 7 days of collection. The extract is stored in a clear autosampler vial in a refrigerator at 0° to 6°C, not frozen, for up to 40 days after extraction.

### Preparation of Glassware

See *T-OE-GEN-WI10864*.

### Apparatus and Equipment

1. Porapak RDX Sep-pak extraction cartridges – Waters
2. SPE vacuum manifold system – Baker or equivalent
3. Disposable pipettes – glass
4. Volumetric pipettes – Class A, assorted sizes
5. Graduated cylinders – Class A, assorted sizes
6. Disposable cartridge membrane filters – 0.2-µm Teflon
7. Clear crimp cap autosampler vials
8. 12-mL screw cap vials
9. Volumetric flask – Class A, assorted sizes
10. Filter paper – Fisher glass fiber or equivalent
11. Buchner funnel
12. Balance - Capable of weighing to 0.1 g

### Reagents and Standards

1. Acetonitrile (ACN) – HPLC grade. Store at room temperature for up to 1 year.
2. Calcium Chloride ($CaCl_2$) – Reagent grade.
   a. To prepare solution:
      (1) Add 5.0 g $CaCl_2$ to approximately 800 mL of reagent water.
      (2) Shake until the $CaCl_2$ goes into solution.
      (3) Dilute to 1000 mL with reagent water.
   b. Store at room temperature in a glass bottle. Reagent is stable 1 year.
   c. Preparation of larger volumes is acceptable if equivalent volumes are used.
   d. Document all reagent preps in the appropriate logbooks.

4. All QC standards added during extraction process are prepared by Organic Extractions using instructions generated by the reagent module of the LIMS. Detailed instructions can be found in the corresponding analytical SOP *T-PEST-WI9981*.

### Calibration

Not applicable to this procedure.

### Procedure

1. Rinse all glassware with acetone using a wash bottle.
2. Place the full sample bottle, with cap, on the balance. Record this weight in the LIMS as the gross weight.

3. If necessary, filter the samples through a Buchner funnel and filter paper.

If any samples are filtered, the blank, LCS, and LCSD must also be filtered.

4. Use pipettes to add surrogate standards and spiking solutions directly to the sample bottle. Volumetric flasks are used for the Blanks, LCS, and LCSD (if applicable).

a. Surrogates are added to all samples (including all QC).

b. Spikes are added to the LCS, LCSD (if applicable), Matrix Spike (MS), and Matrix Spike Duplicate (MSD) samples.

c. The surrogates and spikes are as follows:

(1) Surrogate: 0.5 mL Explosives Water Surrogate (OP_EXPW_SS)

(2) Spike: 0.5 mL 8330B Explosives Spike (OP_8330B_MS)

(3) If 2,4-diamino-6-nitrotoluene or 2,6-diamino-4-nitrotoluene are requested, create an additional LCS/LCSD. Add 0.1 mL of OP_246DIA_STK and OP_264DIA_STK to both.

d. See *T-PEST-WI9981* for spike details.

e. See *T-OE-GEN-WI10876* for storage and handling of spikes.

5. Assemble the SPE vacuum manifold with the Porapak RDX cartridges.

6. With the valves closed, use a graduated cylinder to add 15 mL of ACN to each reservoir.

a. Elute the solvent through the cartridge at 10 mL/min.

b. Empty the waste in the chamber into the appropriate solvent waste container.

7. Again, with the valves closed, use a graduated cylinder to add 30 mL of reagent water to each reservoir.

Elute the water through the cartridge at 10 mL/min.

8. Pull all samples through the cartridge at 10 mL/min. Once sample bottle is empty, rinse the bottle with DI water, and pass this rinse through the cartridge. Empty the chamber as needed so it does not overflow.

9. Place the rinsed, empty sample bottle, with cap, on the balance. Record this weight in the LIMS as the tare weight. The initial volume is calculated in the LIMS by subtracting the tare weight from the gross weight.

10. Place labeled 5-mL volumetric flasks, numbered to match the cartridges, into the tube holder.

a. Place the tube holder into the vacuum chamber.

b. Place the top onto the vacuum chamber; the drip tips must go into the top of the volumetric flasks.

11. Use a graduated cylinder to elute the cartridge with 5 mL of ACN.

a. Disassemble the vacuum chamber.

b. Bring each sample to exactly 5.0 mL with ACN.

12. Use a disposable pipette to transfer the extract to a 10-mL volumetric flask.

13. Use $CaCl_2$ solution to rinse the 5-mL volumetric flask and add the rinseate to the 10-mL flask.

a. Add enough $CaCl_2$ solution to the flask to bring the extract to exactly 10.0 mL.

b. Mix thoroughly.

14. Filter the extract through a 0.2-µm filter into two clear crimp cap auto sampler vials. Verify that both vials are labeled with the appropriate sample number.

## Calculations

See analysis method.

### Statistical Information/Method Performance

See analysis method.

### Quality Assurance/Quality Control

A batch is defined as the samples to be extracted on any given day, but not to exceed 20 field samples. If more than 20 samples are prepared in any day an additional batch must be prepared.

For each batch of samples extracted a blank, an LCS, an MS and an MSD must be extracted. If there is limited sample preventing the preparation of the MS/MSD, then an LCSD must be prepared instead. If the batch contains only field or equipment blank samples, the LCS/LCSD QC pairing must be used.

If any client, agency, or state has more stringent QC or batch requirements, these must be followed instead.

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T-OE-GEN-WI10864 Glassware Cleaning for Organic Extractions
T-OE-GEN-WI10876 Organic Extraction Standards Storage and Handling
T-PEST-WI9981 Nitroaromatics and Nitroamines by Method 8330B in Water and Solids using HPLC with UV Detection

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End of document

### Version history

| Version | Approval | Revision information | |
|---|---|---|---|
| 14 | 12.APR.2021 | | |
| 15 | 11.AUG.2022 | | |
| 16 | 02.MAY.2023 | 05/21/2025 - 32227 - Reviewed, no changes needed | |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity. **Separatory Funnel Extraction by Method 3510C, 608, or 608.3 for Pesticides and PCBs in a Wastewater** | Level: **Work Instruction** |
| Document number: **T-OE-PEST-WI10920** | | |
| Old Reference: **1-P-QM-WI -9015079** | | |
| Version: **25** | | Organisation level: **5-Sub-BU** |
| Approved by: **ULJC** Effective Date: **20-MAY-2025** | Document users: **5_EUUSLA_Organic Extraction_Manager, 6_EUUSLA_Organic Extraction_Pest/PCB Waters, 6_EUUSLA_Pesticide Residue Analysis_All Management, 6_EUUSLA_Pesticide Residue Analysis_OC Pesticide C, 6_EUUSLA_Pesticide Residue Analysis_PCB Chemist** | Responsible: **5_EUUSLA_Organic Extraction_Manager** |

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## Revision Log

| **Revision** 25 | | **Effective Date:** This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Apparatus and Equipment | Update | Remove Rapid Vap concentration equipment |
| Procedure | Update | Remove Rpaid Vap concentration |

| **Revision** 24 | | **Effective Date: April 15, 2024** |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Procedure | Removal | Removed captan/captafol spiking |
| Sample Collection, Preservation, and Handling | Clarification | Added that sample extracts are stored in the dark |

## Reference

1. Test Methods for Evaluating Solid Wastes, SW-846 Method 3510C, Rev. 3, December 1996.
2. USEPA, 40 CFR Part 136, Appendix A, Method 608.
3. USEPA, 40 CFR Part 136, Appendix A, Method 608.3, December 2016. MUR Effective September 2017.
4. USEPA, 40 CFR Part 136, Appendix A, Method 622.
5. *Chemical Hygiene Plan*, current version.

## Cross Reference

| Document | Document Title |
|---|---|
| *T-PEST-WI9998* | Pesticides in Water by Method 8081B using GC-ECD |
| *T-PEST-WI18000* | Polychlorinated Biphenyls (PCBs) by Method 608.3 |
| *T-PEST-WI9238* | Analysis of Polychlorinated Biphenyls (PCBs) by 8082A in Aqueous Samples using GC-ECD |
| *T-PEST-WI9961* | Low Level PCBs in Water by Method 8082/8082A using GC-ECD |
| *T-OE-PEST-WI11410* | Pesticide Extract Cleanup Using GPC by Method 3640A |
| *T-OE-GEN-WI10864* | Glassware Cleaning for Organic Extractions |
| *T-OE-PEST-WI10281* | Cleanup Procedures for the Extraction of Pesticides and Polychlorinated Biphenyls (PCBs) |

| | |
|---|---|
| *T-OE-GEN-WI10876* | Organic Extraction Standards Storage and Handling |
| *T-OE-GEN-FRM23822* | Instructions for Checking pH During Extraction Procedures |
| *T-OE-GEN-WI10861* | Steam Bath, N-Evap, Buchi Concentrator, and RapidVap Usage, Calibration, and Maintenance |

**Purpose**
The purpose of this SOP is to provide clear instructions for performing the separatory funnel extraction procedure on samples that are to be analyzed for pesticides and PCBs.

**Scope**
This procedure is for the extraction of organochlorine and organophosphorous pesticides and PCBs from wastewaters.

**Basic Principles**
An aliquot of the sample is placed into a separatory funnel. The volume of sample extracted is adjusted (if appropriate) depending on the physical appearance of the sample and the volume sent for analysis. A surrogate standard is added to the sample to monitor recovery. The sample is then extracted with methylene chloride. The extract is dried, concentrated, and exchanged to hexane. Several cleanup procedures are available to eliminate matrix interferences before the sample is analyzed. They include sulfuric acid treatment, copper treatment, florisil, and Gel-Permeation Cleanup (GPC).

**Reference Modifications**
1. Surrogate and matrix spiking solutions are not added before the transfer to the extractor. For several reasons:

   a. Samples must be poured from the amber bottles to determine the matrix and volume of sample to use for each extraction.

   b. Many sample bottles have no headspace and there is no room to add surrogate to the sample in the bottle.

   c. Due to the volume of samples extracted, a separate graduated cylinder for each sample is unrealistic.

   d. To maintain consistency with all extractions, no samples are spiked in the bottle or graduated cylinders.

2. In Procedure Step 19 the joint of the KD is not rinsed with fresh solvent when the ampule is removed. Quad and MDL studies have shown that this step is unnecessary.

**Interferences**
Impurities in solvents, reagents, glassware, or other hardware used in sample processing interfere with the method. All glassware must be rinsed with solvent before use. A method blank is performed with each batch of samples to demonstrate that the extraction system is free of contaminants.

**Safety Precautions and Waste Handling**
See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

The toxicity or carcinogenicity of each reagent used in this method has not been precisely defined. Each chemical compound must be treated as a potential health hazard. Exposure to these chemicals must be reduced to the lowest possible level by whatever means available, such as fume hoods, lab coats, safety glasses, and gloves.

Extracts are concentrated on a steam bath; caution must be exercised while working around this apparatus.

All solvent waste generated from this preparation must be collected for recycling (if applicable) or disposed of in the designated containers. These are transferred to the lab wide disposal facility. Any solid waste material (disposable pipettes, broken glassware, pH paper) is disposed of in the normal solid waste collection containers.

**Personnel Training and Qualifications**
All personnel performing this procedure must have documentation of reading, understanding and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the employees training records.

Initially, each technician performing the extraction must work with an experienced employee for a period of time until they can independently perform the extraction. Proficiency is measured through a documented Initial Demonstration of Capability (IDOC).

The IDOC consists of four laboratory control samples that are carried through all steps of the extraction and analysis and meet the defined acceptance criteria. The criteria include the calculation of mean accuracy and standard deviation. Various options are available for a DOC and can include four laboratory control samples, or one blind sample.

**Sample Collection, Preservation, and Handling**
Samples are collected in amber glass bottles with PTFE-lined lids, preserved with sodium thiosulfate, and stored refrigerated at 0 - 6°C, not frozen. The sample hold times are 365 days unless collected from New Jersey or requested as shorter by the client for PCB samples. The sample hold times are 7 days starting from day of collection for Pesticide samples. Extracts are stored in a freezer, in the dark, at less than or equal to -10°C.

**Apparatus and Equipment**
1. Separatory funnel for extracting organic components from an aqueous matrix
2. Kuderna-Danish (K-D) assembly with appropriate ampule for concentrating the solvent used during the extraction
3. Water bath – VWR/LLI Model #1127 or equivalent
4. Sodium sulfate column with extra course frit
5. Nitrogen evaporation (N-Evap) with nitrogen supply – Organomation Associates or equivalent
6. pH paper – Wide range
7. Automatic shaker – Glass Col or equivalent, capable of holding 2-L separatory funnels

8. Pipettes – Class A, assorted sizes
9. Graduated cylinders – Class A, assorted sizes
10. Pipettes – Disposable
11. Solvent dispenser – Brinkmann, adjustable or equivalent
12. Balance – Capable of weighing to 0.01 g
13. Centrifuge – Beckman GS-6 or equivalent
14. Micro-Snyder columns
15. Wash bottles – Teflon
16. Vials – Assorted sizes
17. Teflon boiling chips
18. Syringes - Assorted sizes
19. Micro-pipetter
20. Automated Water Extraction Bench – capable of holding separatory funnels for 250 mL extractions.
21. Buchi Concentrator
22. Buchi Concentrator Tubes

**Reagents and Standards**

1. Methylene chloride (CH2Cl2) – Pesticide grade or equivalent. Store at room temperature for up to 1 year.
2. Acetone – Pesticide grade or equivalent. Store at room temperature for up to 1 year.
3. Hexane – Pesticide grade or equivalent. Store at room temperature for up to 1 year.
4. 10N Sodium hydroxide (NaOH) – Lab Chem or equivalent. Store at room temperature. Follow manufacturer's expiration date.
5. Sulfuric acid (H2SO4) – ACS grade or equivalent. Store at room temperature. Follow manufacturer's expiration date.
6. Sodium Sulfate (Na2SO4) – Reagent grade or equivalent. Bake at approximately 400°C for a minimum of 4 hours in a shallow pan to remove organic contaminants. Store in a glass jar at room temperature for up to 1 year after baking.
7. Reagent water – water in which an interferent is not observed at or above the reporting limit for parameters of interest. In general, the reagent water supplied at the taps in the laboratory meets this criterion. If the reagent water does not meet the requirements, see your supervisor for further instructions.
8. Extraction fluid – Prepared and delivered by the leachate department. Store refrigerated at 0-6°C, not frozen, in a glass container with a PTFE-lined lid.
9. Sodium chloride (NaCl) – Bake at approximately 400°C for a minimum of 4 hours in a shallow pan prior to use to remove organic contaminants. After baking, store in a glass jar at room temperature for up to 1 year.
10. All QC standards added during extraction process are prepared by Organic Extractions using instructions generated by the standards database. Detailed instructions can be found in *T-PEST-WI9998*, *T-PEST-WI9843*, *T-PEST-WI11971, T-PEST-WI9997, T-PEST-WI9238*, *T-PEST-WI9961*.

**Calibration**

Not applicable to this procedure.

**Preparation of Glassware**

See SOP *T-OE-GEN-WI10864*.

**Procedure**

1. Determine the volume of sample to be used for each extraction. Typically, this is 1L or 250 mL. For 1311/8081: 50 mL of sample is measured from the sample bottle and diluted to 250 mL in a sep funnel.

1 Liter Analyses: *T-PEST-WI9961*

250 mL Analyses: *T-PEST-WI9998*, *T-PEST-WI9843, T-PEST-WI11971, T-PEST-WI9997, T-PEST-WI9238*

a. If uncertain of the volume to extract for any sample, ask your supervisor.

b. Use one full bottle for all analysis scans (with the exception of 1311/8081) unless the matrix is poor (thick, lots of sediment, extremely foul odor).

(1) If using reduced volume due to matrix, take as much as possible while trying to minimize matrix problems, document why the reduced volume was used.

(2) Reduced volume aliquots due to matrix are typically are 500, 200, or 100 mL (100, 50, or 25 mL for 250 mL extractions).

c. For 1311/8081:

(1) If the sample bottle contains at least 100 mL of sample, measure 50 mL.

(2) If the sample bottle contains <100 mL of sample, use 1/2 of the available volume or 10 mL, whichever is greater.

(3) If a matrix spike (MS) or MS/matrix spike duplicate (MSD) is required for the sample, use 50 mL each.

(4) After adding the 50 ml of sample add approximately 200 mL of Di water to bring the volume in the sep funnel to 250 mL.

d. The background, MS, and MSD are performed on three separate aliquots of a field sample.

2. Prepare the blank, laboratory control sample (LCS), laboratory control sample duplicate (LCSD) (if applicable) with 1 L of reagent water (or 250mL for 250 mL extractions) measured into the separatory funnel.

Exception: For 1311/8081 - The blank, LCS, and LCSD (if applicable) are prepared using 50 mL of extraction fluid measured into the separatory funnel. Add approximately 200 mL of DI water to bring the volume to 250 mL.

3. For samples using 1 entire bottle:

a. Weigh the entire bottle including the cap on a balance and record in gross weight column in the LIMS.

b. Shake the bottle vigorously and then pour the contents into a separatory funnel.

4. For all samples requiring a specified volume:

a. Shake each bottle vigorously.

b. Use a clean graduated cylinder to measure the desired volume.

c. Pour the sample from the graduated cylinder into the separatory funnel.

d. Record any comments about the sample appearance or odor. Also record comments if a reduced volume was taken due to sample matrix or insufficient available sample.

e. If <1000 mL (or <250mL for 250mL extractions) of sample is used, use a graduated cylinder to add enough reagent water to bring the volume in the separatory funnel to 1-L (or 250mL for 250mL extractions).

5. For 8082 PCB preps: add 25g of NaCl for 250mL and 50g for 1L extractions to the sample in the separtory funnel. Add stopper and shake by hand to dissolve the N

6. Use pipettes to add surrogate standards and spiking solutions to the aqueous sample in the separatory funnel.

a. Be certain the standard drips directly into the aqueous sample without touching the glass side of the separatory funnel to avoid poor recoveries.

b. Surrogates – Surrogates are added to all samples, blanks, and spikes.

The type of surrogate is determined by the analysis scan number. Typically they are as follows:

(1) For *T-PEST-WI9961* – 0.1 mL of SW-846 Surrogate.

(2) For *T-PEST-WI18000*, *T-PEST-WI9843*, *T-PEST-WI9997*, *T-PEST-WI9238*, *T-PEST-WI9998* – 0.25 mL of SW-846 Surrogate.

(3) For *T-PEST-WI9998* by 1311/8081- Use 1.0 mL of Mini Sep. SW846 Surrogate

c. Spiking Solutions – Spiking solutions are added to the LCS, LCSD (if applicable), MS, and MSD.

(1) The type of spike is determined by an analysis number. Typically they are as follows:

(a) For *T-PEST-WI18000*, *T-PEST-WI9238* – 0.25 mL PCB Spike.

(b) For *T-PEST-WI9998*, *T-PEST-WI9997* – 0.25 mL SW-846 Spike.

(c) For *T-PEST-WI9998* by 1311/8081 – 1.0 mL of Mini TCLP Pesticides Spike regardless of initial volume

(d) For *T-PEST-WI9998* – 0.25 mL Chlordane Spike

(e) For *T-PEST-WI9961* – 0.1 mL of PCB Spike

(2) Spike details can be found in the corresponding analytical SOP(s)

(3) This is changed to accommodate specific-client requirements, if appropriate.

(4) If a sample requires any special compounds in addition to the standard list, an appropriate spike containing those compounds is added at this time.

(5) See SOP *T-OE-GEN-WI10876* for storage and handling of spikes.

7. Measure the pH of the sample using wide-range pH paper. Record the pH of the sample in the initial pH column of the LIMS. See *T-OE-GEN-FRM23822* for instructions to check and adjust pH.

a. If necessary, adjust the pH to between 5 and 9 using 10N NaOH (to bring up the pH) or concentrated H2SO4 (to lower the pH).

b. To adjust the pH, add a few drops of the appropriate solution with a disposable pipette, swirl the separatory funnel and re-check the pH.

c. If the pH now falls between 5 and 9, record the adjusted pH in the 1st pH column of the LIMS.

d. If the pH is still out of range, continue adding small aliquots of base or acid, swirling and checking the pH until it is within the specified range.

e. Record the adjusted pH in the 1st pH column of the LIMS.

**NOTE:** Any samples from North Carolina require that the volume of acid or base added to the sample to adjust the pH to be recorded in the LIMS.

8. If the original sample bottle is empty:

a. Use a solvent pump to measure 60 mL (15 mL for 250 mL extractions) of methylene chloride. Add the methylene chloride to the sample bottle and swirl the bottle to rinse the interior of the bottle with methylene chloride. Add the solvent to the separatory funnel.

b. Weigh the entire bottle including the cap on a balance and record in the tare weight column in the LIMS.

c. The initial volume automatically calculates in the initial volume of the LIMS.

9. If the sample container is not empty, measure 60 mL (15 mL for 250mL extractions) of methylene chloride to the graduated cylinder used to measure out the sample volume and add it to the separatory funnel.

10. Cap the funnel, invert it, and vent immediately. With the cap on shake the separatory funnel and vent. Continue shaking and venting until the pressure in the funnel has equalized.

11. For 1 Liter Analyses: Place the sample on the automatic shaker and shake at the designated speed for 2 minutes with the stopcocks closed.

For 250 mL Analyses: Separatory funnels remain on the Automated Water Extraction Bench. Press the green "start" button to lower the hood and activate the Automated Water Extraction Bench. The bench will tumble for 2 minutes. The sash will rise after the samples have tumbled.

**NOTE:** Shaker speeds vary greatly between instruments so the proper setting is marked on each.

12. For 1 Liter Analyses: Place the separatory funnel on the rack and allow it to sit undisturbed until the solvent layer (bottom layer) has separated from the water layer (top layer). For 250 mL Analyses: the separatory funnel will sit undisturbed on the Automated Water Extraction Bench.

a. The time required for extracts to set undisturbed is based upon visual confirmation that the layers are adequately separated.

b. If an emulsion forms and is greater than 1/3 of the volume of the solvent layer, mechanical techniques such as stirring and centrifugation must be employed to complete the separation.

13. Removing the Solvent Layer.

a. For 1 Liter analyses: Remove the solvent layer by opening the stopcock and collect the solvent in a metal beaker then pour through approximately 10cm of sodium sulfate into a K-D apparatus containing Teflon boiling chips.

b. For 250 mL analyses: drain the solvent layer directly into the sodium sulfate column containing approximately 5cm of sodium sulfate. This drains into a concentrator tube.

**NOTE:** Do not use more than the recommended quantity of sodium sulfate and take care not to transfer water into the column. Excessive sodium sulfate and/or water in the column results in low aldrin recovery.

14. Use a solvent pump to add 60 mL (15mL for 250mL extractions) of methylene chloride to the separatory funnel and repeat Procedure Steps 10 through 13, venting only as necessary.

15. Again, use a solvent pump to add 60 mL (15 mL for 250mL extractions) of methylene chloride to the separatory funnel and repeat Procedure Steps 10 through 13, venting only as necessary.

16. For 1L extractions only, rinse the metal beaker that was used for solvent collection with approximately 20 mL of methylene chloride. Pour into salt column.

17. Rinse salt column with approximately 20 mL (5mL for 250mL extractions) of methylene chloride.

18. Concentrating extracts for 1 Liter analyses

a. Attach a 3-ball Snyder column to the K-D, wet with solvent, and concentrate the extract to approximately 3 to 5 mL on a steam bath at 85° to 99°C. Adjust the vertical position of the apparatus and the water temperature, as required, to complete the concentration in 10-20 minutes. At the proper rate of distillation the balls of the column will actively chatter, but the chambers will not flood. This steam bath temperature ensures concentration in a reasonable length of time.

**Note:** Do not allow the extracts to reach a point of dryness. Loss of analytes may occur.

b. Add 50 mL of hexane directly through the Snyder column after the apparent volume in the ampule reaches 3-5 mL. Continue concentrating on the steam bath until an apparent volume of 3-5 ml is reached. Allow the extracts to cool for 10 minutes prior to removing the ampule from the KD.

**Note:** Do not allow the extracts to reach a point of dryness. Loss of analytes may occur.

c. Bring the extracts to a final volume of 5 mL in the ampule with hexane.

d. Go to Procedure 21 for details on cleanup procedures.

19. Concentrating extracts for 250 mL analyses for samples that do not require GPC.

**Note:** For samples that require GPC go to Procedure 20

**Note:** If using the Buchi concentrator refer to *T-OE-GEN-WI10861* for parameter settings.

**Buchi Vacuum Concentrator**

a. Turn on the SyncorePlus, Chiller, and Vacuum Pump by using the green switch located on the front of the devices.

b. Turn on the heat of the SyncorePlus by pressing the green knob on the control panel.

1. To adjust the temperature of the heating bath and the heated cover, press the set button on the control panel and rotate the knob to the correct temperature needed.

2. The heating bath needs to be slightly filled with DI $H_2O$. (Approximately 25mL per reservoir)

3. **Note** - The heated cover is set differently based on the solvent used. Consult a supervisor about the appropriate temperatures for the solvent being concentrated.

c. Turn on the cool flow of the Chiller by pressing the green control knob on the front of the device.

1. To adjust the temperature of the chiller, rotate the knob to the correct temperature needed.

d. From the interface attached to the vacuum pump, go to the operating modes menu tab (pen & paper button). The methods used for concentration are listed in the methods sub-item. For all 8081, 8082, and 608 extractions use the 45mL Methylene Chloride for the first concentration and use the Hexane method for t

e. In the event that further concentration is needed, the Timer sub-item in the operating modes menu tab can be used with a selected method.

1. Once in the timer sub-item the timer can adjusted to the desired time. Consult a supervisor about appropriate times for remaining solvent.

7. After each concentration the solvent must be emptied from the collection flask into a carboy.

20. Concentrating samples that require GPC for 250ml analysis

**Buchi Vacuum Concentrator**

a. Turn on the SyncorePlus, Chiller, and Vacuum Pump by using the green switch located on the front of the devices.

b. Turn on the heat of the SyncorePlus by pressing the green knob on the control panel.

1. To adjust the temperature of the heating bath and the heated cover, press the set button on the control panel and rotate the knob to the correct temperature needed.

2. The heating bath needs to be slightly filled with DI H2O. (Approximately 25mL per reservoir)

3. **Note** - The heated cover is set differently based on the solvent used. Consult a supervisor about the appropriate temperatures for the solvent being concentrated.

c. Turn on the cool flow of the Chiller by pressing the green control knob on the front of the device.

1. To adjust the temperature of the chiller, rotate the knob to the correct temperature needed.

d. From the interface attached to the vacuum pump, go to the operating modes menu tab (pen & paper button). The methods used for concentration are listed in the methods sub-item. For all 8081, 8082, and 608 extractions use the 45mL Methylene Chloride.

e. In the event that further concentration is needed, the Timer sub-item in the operating modes menu tab can be used with a selected method.

1. Once in the timer sub-item the timer can adjusted to the desired time. Consult a supervisor about appropriate times for remaining solvent.

f. After each concentration the solvent must be emptied from the collection flask into a carboy.

g. Allow samples to concentrate to approximately 7 mL and then bring to final volume of 10.0 mL in a class A volumetric using Methylene Chloride. Make sure to mix the extract thoroughly to ensure the extract is homogenous.

h. Filter the extracts using a Whatman 0.45 µm filter (part number 6875-2504 or equivalent) and 10 mL Fisher disposable syringe (part number 14955459 or equivalent) into 12 mL glass screw top vials. Place the extract into the appropriate GPC queuing area for storage until the cleanup is performed. Perform GPC cleanup following SOP *T-OE-PEST-WI11410*.

21. If the extract is scheduled for PCB analysis (8082), treat the extract with sulfuric acid as described in *T-OE-PEST-WI10281*.

22. If the extract is scheduled for Pesticide analysis (8081), florisil the sample 2 mL to 2 mL as described in the Pesticide Florisil section of SOP *T-OE-PEST-WI10281*.

a. Pesticide florisil is also performed for *T-PEST-WI9843* if required due to matrix or client request.

23. If the extract is scheduled for PCB analysis, florisil the extract following the PCB Florisil section of *T-OE-PEST-WI10281*.

24. If the extract has a sulfur odor, perform copper cleanup of the extract as described in *T-OE-PEST-WI10281* for Pest and PCB (8081, 8082, or 608) samples only. Other samples are cleaned up with GPC.

## Calculations
See analysis method as listed in the Cross Reference section.

## Statistical Information/Method Performance
See analysis method as listed in the Cross Reference section.

## Quality Assurance/Quality Control
A batch is defined as the samples to be extracted on any given day, but not to exceed 20 field samples. If more than 20 samples are prepared in a day, an additional batch must be prepared.

For each batch of samples extracted a blank, an LCS, an MS and an MSD must be extracted. For method 608, the laboratory must, on an ongoing basis, spike at least 10% of the samples, if enough sample volume is received, to assess accuracy. If there is limited sample preventing the preparation of the MS/MSD, an LCSD must be prepared instead. If the batch contains only field or equipment blank samples, the LCS/LCSD QC pairing must be used.

If any client, agency, or state has more stringent QC or batch requirements, these must be followed instead.

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T-OE-GEN-FRM23822 Instructions for Checking pH During Extraction Procedures
T-OE-GEN-WI10861 Steam Bath, N-Evap, Buchi Concentrator, and RapidVap Usage, Calibration, and Maintenance
T-OE-GEN-WI10864 Glassware Cleaning for Organic Extractions
T-OE-GEN-WI10876 Organic Extraction Standards Storage and Handling
T-OE-PEST-WI10281 Cleanup Procedures for the Extraction of Pesticides and Polychlorinated Biphenyls (PCBs)
T-OE-PEST-WI11410 Pesticide Extract Cleanup Using GPC by Method 3640A
T-PEST-WI18000 Polychlorinated Biphenyls (PCBs) by Method 608.3
T-PEST-WI9238 Analysis of Polychlorinated Biphenyls (PCBs) by 8082A in Aqueous Samples using GC-ECD
T-PEST-WI9961 Low Level PCBs in Water by Method 8082/8082A using GC-ECD
T-PEST-WI9998 Pesticides in Water by Method 8081B using GC-ECD

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End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 23 | 23.MAY.2023 | | |
| 24 | 15.APR.2024 | | |
| 25 | 16.MAY.2025 | | |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Preventative and Corrective GC Maintenance** | Level:<br>**Work Instruction** |
| Document number:<br>**T-PEST-WI10007** | | |
| Old Reference:<br>**1-P-QM-PRO-9015495; DOD - SOP-PP-013** | | |
| Version:<br>**7** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **UKL3**<br>Effective Date: **04-FEB-2019** | Document users:<br>**6_EUUSLA_Pesticide Residue Analysis_All Chemist Tr, 6_EUUSLA_Pesticide Residue Analysis_All Management** | Responsible:<br>**5_EUUSLA_Pesticide Residue Analysis_Manager** |

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## Revision Log

| **Revision** 07 | | **Effective Date:** This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Procedure for Maintenance A.2.g | Reflects current procedure | Added information on Merlin microseal |
| Procedure for Maintenance B | Clarification | Changed wording from must to should<br>Added if ferrule is damaged |
| Procedure for Maintenance C | Clarification | Added using cotton swab.<br>Added use of hexane<br>Changed wording from exactly to 2-4 mm |

| **Revision** 06 | | **Effective Date:** Mar 29, 2017 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Procedure II. A. | Reflects current process | Added Merlin Microseal |
| Procedure II. A.2.e. | Reflects current instrumentation | Removed reference to Varian instruments |
| Procedure II. B.3. f and g | Reflects current liner and process | Changed from uniliner to liner. Removed wording on pushing column into the uniliner |
| Procedure II.C | Clarification | Removed C.1-C.2 relating to packed column and renumbered section |
| Procedure II. C. | Unnecessary information | Removed information contained in C.4-C6 relating to packed column and renumbered section |
| Procedure II. C | Unnecessary information | Removed reference to Uniliners for splitless ports. |

## Purpose

The purpose of this SOP is to provide guidelines by which chromatographic problems causing nonconformance to the methods performed in the Pesticides Residue Analysis Department may be recognized and corrected. In addition, guidelines for the performance of preventative maintenance are presented to standardize the frequency and procedures of such maintenance throughout the department.

## Scope

The guidelines outlined in this SOP are for use when performing preventative or corrective maintenance on any gas chromatographs capillary columns in the Pesticides Residue Analysis Department.

## Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP.

The analyst being trained will work with an experienced analyst performing the instrument maintenance until such time as they can independently perform the routine tasks with minimal downtime and acceptable chromatography afterwards. For troubleshooting or repairing non-routine problems, the analyst may need to consult the instrument manuals associated with the GC or detector, and/or work with a more experienced analyst periodically as they encounter unusual situations. Proficiency is measured by auditing the person performing the routine maintenance and checking the resulting chromatography.

## Procedure

### I Procedure for Troubleshooting Chromatographic Problems:

A. Nonreproducible responses

When the response of continuing calibration standards run shortly after the initial calibration do not match the initial calibration within the criteria defined by the method being run, or when certain compounds repeatedly fall outside acceptable limits, column maintenance may be required. The autosampler should first be checked when all the compound responses are consistently high or low to verify that it is injecting a constant volume of sample. If the autosampler is functioning correctly, then column maintenance must be performed. An indication of the need for column maintenance is when the responses of only a few compounds, usually the ones which suffer breakdown or are breakdown components, fall off or increase sharply during the course of a run.

B. Poor linearity

Poor linearity in the initial calibration standards of a run is another indication that column maintenance may need to be performed. Once again, check the autosampler first to determine that it is operating correctly.

C. High analyte breakdown

High breakdown of endrin to endrin ketone and endrin aldehyde, and of 4,4' DDT to 4,4' DDD and 4,4' DDE, in evaluation mixes run on the instrument are a definite sign that column maintenance needs to be performed. On capillary systems, high breakdown is an indication that injection port maintenance must also be performed (see Injection Port Maintenance).

D. Extraneous peaks

1. Extraneous peaks in chromatograms of standards are an indication of contamination somewhere in the system.

a. If extraneous peaks are present, first rebottle and reinject the standard to ensure that the extraneous peaks are not carryover from a previous injection or that the standard was not contaminated during bottling.

b. If the peaks are still present in the reinjection, clean the autosampler thoroughly and inject hexane to see if the peaks are still present.

c. If the peaks remain, make a hand injection of hexane.

d. If the peaks are not present, then the autosampler is contaminated and needs further cleaning. If the peaks are still present, then either the column, injection port, or detector is contaminated.

2. Steps to determine detector contamination on capillary systems.

a. Remove the column from the makeup gas adapter and plug the base of the adapter with a blank column nut.

b. Run the instrument through a program blank while collecting the signal.

c. If the contamination peaks appear, then the detector is contaminated and needs to be cleaned (see Detector Maintenance).

d. If the peaks do not appear, then the column or injection port is contaminated, requiring column and injection port maintenance.

E. Noisy baseline

1. A noisy baseline is another indication that column maintenance may have to be performed.

2. Baseline noise that has irregular frequency and magnitude is an indication of a leak in the system, and column maintenance must be performed to eliminate the leak.

3. Baseline noise of regular frequency and varying magnitude has been demonstrated to be the result of a capillary column connector leaking when the pressure had built up to a sufficient level to open the gap between the column and connector.

4. If a pattern of baseline noise of equivalent frequency and magnitude is seen in chromatograms, it is probably electronic noise.

5. When electronic noise is suspected:

a. First check all the connections between the instrument and the data collection system.

b. If all the connections are found to be tight, inspect all the internal connections to and from the electrometer and the motherboard of the instrument.

c. If the noise is still present, check the connection between the detector and the electrometer.

d. If all the connections have been checked and found to be tight, and the electronic noise remains, clean all the connections with a swab soaked in alcohol.

e. If electronic noise is still present, put in a work order to the equipment repair department and have them look at the instrument for problems with the boards.

F. Poor peak shape

1. Maintenance is required when analytes fail to have a sharp Gaussian peak shape, with little or no fronting or tailing.

2. Poor peak shape can be a result of injection port contamination, column leaks, or column phase degradation.

3. Peak shape directly affects the analyte peak heights and therefore, the analyte’s response.

## II Procedure for Maintenance:

A. Injection port septum or Merlin Microseal

1. Frequency of injection port septum changes:

a. The injection port septum should be changed regularly as preventative maintenance to avoid problems arising from retention time or response drift.

b. The septum life will vary from instrument to instrument.

c. A gradual retention time shift on consecutive chromatograms is an indication of a worn septum. The septum should be replaced whenever this occurs.

d. While regular septum changing is a necessary practice on capillary columns, the oxygen introduced to the column with each septum change degrades the column phase, shortens the life, and detracts from the column's performance. Therefore, only change the septum before a new initial calibration or when retention time shifts have occurred.

2. Changing:

a. On capillary column instruments, take the oven temperature down to 40°C.

b. Do not shut off the carrier and makeup gas flows.

(1) Keeping the gas flows on will minimize the time required for detectors to settle.

(2) The carrier gas flow also serves to cool the column to prevent it from overheating and purges any oxygen contamination that occurs during the septum change.

c. For EPC systems, the pressure must be turned to 0.

d. Change the septum as quickly as possible to minimize the amount of oxygen the column is exposed to.

e. To change the septum:

(1) Remove the septum retainer nut and remove the old septum with a septum puller.

(2) Place a new septum of the correct diameter in the injection port and retighten the septum nut.

f. After the septum has been changed:

(1) Set the EPC systems to the proper pressure.

(2) The oven temperature should remain at 40°C for at least 10 to 15 minutes, to purge the column of all the oxygen that was introduced during the septum change.

(3) After the 10 to 15 minutes have passed, raise the oven temperature back to the initial temperature program.

g. To change merlin microseal

(1) Remove retaining nut and old microseal.

(2) Place new microseal in injection port and tighten until pressure meets setpoint

(3) Tighten retaining nut an additional 30 degrees.

B. Column maintenance

1. Column maintenance should be performed as a preventative measure to ensure valid injections meet all the criteria necessary for the method being performed on the instrument.

2. The frequency of the maintenance will be dependent upon the type of samples being processed, the sensitivity of the analysis and detector to systemic contamination, sample matrix, and the volume of samples being processed.

3. To perform column maintenance:

a. On capillary column instruments, the oven and injection port temperature should be lowered to room temperature before any maintenance is performed on the column.

b. If ferrule is damaged, remove the column from the injection port by first loosening the column nut.

c. Slide the nut off the column, then remove and discard the ferrule in the nut.

d. Slide the nut with a new ferrule onto the column, pushing it back far enough so that it will not fall off during the following steps.

The nut and ferrule must be on the column before the final cut is made, since small amounts of graphite are shaved off and lodge in the column whenever the ferrule is slid over the column's end. This graphite may cause poor column performance and breakdown.

e. Using the capillary column cutter, remove the first 3" to 6" of the column.

(1) With a magnifying glass, inspect the cut to ensure that it is acceptable.

(2) An acceptable cut will appear smooth for the entire circumference of the column and will have no jagged edges.

(3) After the initial 3" to 6" have been removed, cut small increments of the column off until an acceptable cut is made.

f. After the liner has been inspected and, as is generally necessary, replaced (see Injection Port Maintenance), reinstall the column.

Once the column is held in place by the nut, verified by the column not sliding during gentle tugging, tighten the nut with a wrench another ¾ turn. Do not overtighten the ferrule. Overtightening will split it, cause leaking, and make it hard to remove from the nut the next time maintenance is performed.

g. The detector end of the column will rarely need maintenance. High bleed or column contamination unresolved by maintenance on the front of the column, are reason to perform detector end maintenance.

(1) First remove the column from the detector.

(2) Slide the column nut down the column, after removing and replacing the old ferrule, so that it will not fall off during the following steps.

(3) Now follow the same procedure for the cutting of the column as outlined for the front end.

(4) Reinstall the column into the detector, checking to make sure that the appropriate length of column is inserted into the detector.

C. Injection port maintenance

1. Since the injection port greatly affects the performance of the column in a capillary system, whenever column maintenance is performed, the condition of the liner should be checked to determine whether or not it needs to be replaced.

Replacing the liner is highly recommended to limit active sites caused by previous sample contamination.

2. Maintenance of split/splitless injection port

a. Split/splitless injection ports consist of a glass liner which is held in place with an O-ring, and a gold-seal at the base which maintains inertness for EPC systems.

b. Turn the pressure to 0.

c. Use a ¼" wrench to remove the column nut from the injection port fitting in the oven.

d. Use a Torx™-driver to remove the insulated cover from over the port inside the oven.

e. Use a specialized wrench to loosen the fitting below the septum nut fitting to reveal the glass sleeve. Remove the sleeve and O-ring.

f. Use the ½" wrench to remove the injection port fitting which contains the gold seal. Using cotton swab wetted with solvent, clean the inside of the port and weldment.

g. Inspect the gold seal, and the washer which will be under it.

If tarnishing is evident, replace the seal, or clean it with a mild abrasive until no tarnish is evident.

h. Generally, replacement of the washer is required. Rinse the fitting, seals, and washer with methanol or hexane before re-installation.

(1) Insert the new washer into the fitting, followed by the gold seal.

(2) Attach the fitting, and tighten with a ½" wrench until it is just snug. Do not over-tighten.

(3) Attach an O-ring to a new glass sleeve, and install from the top of the port.

(4) Press the sleeve down until it hits the base. Re-attach the cover and tighten until snug.

(5) Take care not to cross-thread the nut.

i. Re-install the insulated cover inside the oven prior to installing the column.

j. Cut 3" to 6" off of the guard column after installing the column nut and ferrule.

Make sure that the cut is clean and straight using a magnifier.

k. Insert the column into the port, making sure the column does not fall below the ferrule.

l. Tighten fingertight plus one additonal ¼ turn with a ¼" wrench to set the ferrule.

m. Re-loosen the nut, and slide the column to a distance of 2 - 4 mm above the ferrule. This distance is critical for the performance of the system.

n. Make sure the column does not slide, and re-install the nut. Re-tighten to fingertight plus ¼ turn.

o. For EPC systems, turn the pressure back to operating pressure, and check for leaks.

p. Let the system equilibrate for 15 minutes at 40°C prior to elevating temperatures to allow any oxygen to evacuate.

D. Maintenance of electron capture detector

1. Detector maintenance should be performed only when column and injection port maintenance have not corrected the problems of poor reproducibility of response, poor linearity, or contamination.

When any of these problems are present after injection port and column maintenance have been performed, then the status of the detector should be investigated.

2. A good indication of detector problems is if the baseline of the detector is elevated to a high mV reading when the instrument is sitting at either its isothermal operating temperature or the lower temperature of its temperature program.

The detector should be thermally cleaned following the guidelines provided in the appropriate manufacturer's service manual.

3. If the problems are still present once the thermal cleaning is performed, then all of the steps taken to alleviate the problem should be closely examined and repeated to ensure that the detector is the cause of the problem.

4. Rarely will persistent contamination be caused by the detector.

5. Poor linearity and drifting response are problems frequently attributable to the detector.

a. All the steps of instrument maintenance should be performed, including thermal cleaning, before the detector is replaced in an attempt to rectify these problems.

b. In these situations, the detector may be replaced with greater certainty as the solution to the problem.

6. If a detector replacement is determined as being necessary, consult the appropriate manufacturer's service manual for the procedure.

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End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 5 | 05.JUL.2011 | | |
| 6 | 15.MAR.2017 | | |
| 7 | 21.JAN.2019 | 11/27/2023 - UMD2 reviewed, no changes needed | |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Digestion of Waters and Leachates by EPA 3005A for Analysis of Metals by ICP/ICPMS** | Level:<br>**Work Instruction** |
| Document number:<br>**T-MET-WI8639** | | |
| Old Reference:<br>**1-P-QM-WI-9015133** | | |
| Version:<br>**20** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **L7CC, X6TJ**<br>Effective Date: **13-OCT-2023** | Document users:<br>**6_EUUSLA_Metals_Management, 6_EUUSLA_Metals_Prep, 6_EUUSLA_Metals_Verifiers** | Responsible:<br>**5_EUUSLA_Metals_Manager** |

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## Revision Log

| | **Revision:** 20 | **Effective date:** This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Header | Update | Update WI name, Remove old LIMs IDs, Update current to current company name |
| Cross Reference | Update | Update WI11933 to current name |
| Personnel Training and Qualifications | Addition | Added IDOC criteria |
| Procedure | Removal | Removed reference to filtration samples |

| | **Revision:** 19 | **Effective date:** August 16,2021 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |

| | **Revision:** 19 | **Effective date:** August 16,2021 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Procedure A | Reflect current protocol | Added procedure for leachate samples |

## Reference

1. *Test Methods for Evaluating Solid Waste*, SW-846 Method 3005A, July 1992.

2. *Chemical Hygiene Plan*, current version.

## Cross Reference

| Document | Document Title |
|---|---|
| *T-MET-WI11931* | Metals by ICP for Methods SW-846 6010B/C/D (aqueous, solid, tissue) and EPA 200.7(aqueous) |
| *T-MET-WI11933* | Metals by ICPMS for Methods SW-846 6020/6020A/6020B(waters, solid, tissue) and EPA 200.8 (waters) |
| *T-MET-WI9082* | Working Instructions for Prep Solutions and Standards |
| *QA-SOP11178* | Demonstrations of Capability |

## Scope

This acid digestion procedure is used to prepare wastewater, surface water, and groundwater samples for measurement of total recoverable metals by inductively coupled plasma optical emission spectroscopy (ICP-OES) and inductively coupled plasma mass spectrometry following SW-846 protocol.

## Basic Principles

Samples are heated with nitric and hydrochloric acids with a substantial reduction in volume during digestion to dissolve metals.

## Reference Modifications

1. A 50-mL sample aliquot and final volume is used instead of 100-mL to improve digestion throughout, conserve sample usage, and limit waste generation. Because all reagents are also adjusted so that concentrations are equivalent to a 100-mL aliquot, there is no impact on the data.

2. Ribbed watch glasses or reflux caps are not used during evaporation; samples are heated without watch glasses in non-metallic hoods to speed evaporation. No contamination trends have been observed in prep blanks evaporated without using watch glasses.

3. Samples are heated at 90° to 95°C on hot plates or HotBlocks.

## Interferences

Not applicable to this procedure.

## Safety Precautions and Waste Handling

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

Preparing samples for inorganic analysis involves working with concentrated acids and other chemicals which are dangerous if not handled carefully:

**Nitric acid ($HNO_3$)** – This acid can cause skin burns. Add nitric acid to samples in a hood to avoid exposure to toxic fumes or use the designated dispensing equipment.

**Hydrochloric acid (HCl)** – This acid can cause skin burns. Never mix HCl with concentrated $H_2SO_4$ to avoid a violent reaction. Always use in a fume hood or use the designated dispensing equipment.

When diluting strong acids, never add water to acid; always add acid to water.

Store concentrated acids in the prep room acid lockers. Only acids are to be stored in these lockers. (Store solvents in the flammable liquid storage cabinet.) Some concentrated acids are kept in the acid reagent bottles on prep room counters. Fill reagent bottles in an operating fume hood using caution to avoid spills.

Perform acid digestions in hoods that are turned on and have active alarms. Notify a supervisor immediately if the hood is malfunctioning or the alarm sounds.

Samples that contain dust may be hazardous. Open in a fume hood.

When a hazardous flag is added indicating possible cyanide, special precautions are required to avoid exposure to hydrogen cyanide gas. Contact your supervisor prior to adding acid. Always open these samples and add the acid in a hood.

Use spill pillows to absorb large acid spills (small spills are cleaned with wet paper towels.) Use SPILL-X-A powder or equivalent to neutralize any remaining acid and then rinse the area thoroughly with water. Spill pillows and SPILL-X-A are stored on the prep room shelf.

Dispose of acid waste properly. Collect all acid digestions, waste solutions, and expired reagent solutions in waste containers. When the acid waste containers are full, a designated acid waste handler transfers the waste to the acid neutralization tank.

## Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and a documented Demonstration of Capability for this or an equivalent procedure.

Initially, each employee performing this digestion procedure must work with an experienced employee for a period of time until they can independently set up batches and perform the necessary steps outlined in this procedure. Proficiency is measured through documentation of the critical steps in this procedure, over checking of data as well as an IDOC.

The IDOC consists of aliquots spiked at 1-4X the RL that are carried through all steps of the prep and analysis and meet the defined acceptance criteria. The criteria include the calculation of mean accuracy of 50 - 150% and standard deviation of </= 20%". Ongoing DOC consists of four laboratory control samples that are carried through all steps of the analysis and meet the defined acceptance criteria. The criteria include the calculation of mean accuracy and standard deviation.

## Sample Collection, Preservation, and Handling

Samples are collected in plastic containers and preserved to a pH of <2 with $HNO_3$. (Samples to be analyzed for soluble metals requiring filtration at the lab must be submitted unpreserved. The sample is run through a 0.45 micron filter within 5 days of receipt and then preserved.) The pH is checked upon receipt and adjusted as necessary by Sample Support; samples that are pH adjusted at the lab must not be digested for a minimum of 24 hours. If samples fail to maintain a pH of <2 the Client Service Representative is notified for further direction. Samples are stored at 0° to 6°C, but not frozen, prior to digestion. Samples must be digested within 6 months of collection. Digested samples are stored in plastic at room temperature and have a 6 month holding time.

## Apparatus and Equipment

1. Polypropylene containers (digestion vessels) – certified clean and Class A equivalent
2. 250-mL beakers, 400-mL beakers (or other volumes as appropriate)
3. 100-mL graduated cylinders (or other volumes as appropriate)
4. 100-mL Class A volumetric flasks (or other volumes as appropriate)
5. 125-mL Nalgene bottles (or other volumes as appropriate)
6. Hot plates or HotBlocks adjustable and capable of maintaining a temperature of 90° to 95°C

## Reagents and Standards

For reagent preparation, shelf life, and storage conditions, see *T-MET-WI9082*.

1. Nitric acid, $HNO_3$ - Fisher, Trace Metal Grade, or equivalent. Store at room temperature and re-evaluate annually.

2. Hydrochloric acid, HCl - Fisher, Trace Metals Grade, or equivalent. Store at room temperature and reevaluate annually.

3. Nitric acid (1:1) – Add 500 mL of $HNO_3$ to 500mL of reagent water. Store at room temperature. Expires in 6 months.

4. Hydrochloric acid (1:1) – Add 500 mL of HCl to 500 mL of reagent water. Store at room temperature. Expires in 6 months.

**NOTE:** It is acceptable to prepare solutions using multiples of indicated volumes if exact ratios are maintained.

## Calibration

Not applicable to this method.

## Procedure

**This SOP has been set up to outline the procedures for HotBlock and hot plate digestion (see below). Choose the procedure that corresponds to the sample heating technique being used for sample digestion.**

A. HotBlocks

**NOTE:** It is acceptable to reduce the volume of sample being analyzed as long as the sample reagent ratios are maintained.

**NOTE:** If the sample contains high solids, use a smaller aliquot of the sample and bring sample to final volume as stated in this procedure. Make appropriate acid, reagent, and spike volume adjustments based on sample

final volume.

See HotBlock Control Point Temperature Logbook to obtain control point temperature setting for the HotBlock being used for digestion. If necessary, adjust control point temperature to the proper setting as instructed below.

1. Shake sample well. For non-leachate samples, transfer 50 mL of well-mixed sample into a 68-mL digestion vessel. For leachate samples, transfer 5-mL of well-mixed sample into a 68-mL digestion vessel and bring to 50-mL using DI water. After the sample has been poured, add the spiking solution. For sample batch spiking procedures, see *T-MET-WI9082*. For sample batch quality control requirements see *T-MET-WI11931*. LCS/LCSD and MS/MSD samples for leachate batches use 5 mL of SPLP or TCLP fluid brought to 50-mL with DI water.

2. Add 2 mL of (1:1) $HNO_3$ and 5 mL of (1:1) HCl.

3. Heat the solution in a HotBlock at about 90° to 95°C until sample volume is reduced to between 15 and 20 mL, making certain the sample does not boil.

4. Allow to cool.

5. Adjust volume to the 50-mL mark on the digestion vessel with reagent water, cap, and mix.

6. The sample is now ready for analysis.

B. Hot Plates:

**NOTE:** If boron (B) is requested on a sample, use Teflon vessels.

**NOTE:** It is acceptable to reduce the volume of sample being analyzed as long as the sample reagent ratios are maintained.

**NOTE:** If the sample contains high solids, use a smaller aliquot of the sample and bring sample to final volume as stated in this procedure. Make appropriate acid, reagent, and spike volume adjustments based on sample final volume.

1. Shake sample well. Transfer 50-mL of well-mixed sample into a glass vessel. After the sample has been poured, add the spiking solution. For sample batch spiking procedures see *T-MET-WI9082*. For sample batch quality control requirements see *T-MET-WI11931*.

2. Add 2 mL of (1:1) $HNO_3$ and 5 mL of (1:1) HCl.

3. Heat the solution on a hot plate at 90° to 95°C until sample volume is reduced to between 15 and 20 mL, making certain the sample does not boil.

4. Allow to cool.

5. Transfer the solution to a 50-mL volumetric flask. Adjust volume to the 50-mL mark with reagent water and mix.

6. Transfer the solution to a 68-mL digestion container and cap.

7. The sample is now ready for analysis.

## Block Digestor Instructions

1. Turn block digestor on by pressing rocker switch located on the cord.

2. Wait about 8 seconds until controller display indicates current block temperature.

3. Press and hold Star (*) key.

4. The display shows the Set Point Temperature.

5. The digits can be changed to the desired value by pressing the up and down arrows keys while holding the (*) key.

6. Confirm Control Point temperature is set to the block temperature that provides 90° to 95°C.

**NOTE:** See HotBlock Control Point Temperature Logbook to obtain control point temperature setting for the HotBlock being used for digestion. If necessary, adjust Control Point temperature to the proper setting.

**NOTE:** Polypropylene containers must not be heated above 130°C.

## Calculations

Not applicable to this procedure.

## Statistical Information/Method Performance

Not applicable to this procedure.

## Quality Assurance/Quality Control

A method blank, sample duplicate, sample matrix spike, sample matrix spike duplicate, and laboratory control sample must be performed for every SW-846 digestion batch. A batch is 20 samples or less.

Each piece of batch QC is digested following the procedures in this SOP.

For sample batch quality control requirements see *T-MET-WI11931* for ICP and *T-MET-WI11933* for ICP-MS

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QA-SOP11178 Demonstrations of Capability
T-MET-WI11931 Metals by ICP for Methods SW-846 6010B/C/D (aqueous, solid, tissue) and EPA 200.7 (aqueous)
T-MET-WI11933 Metals by ICPMS by Methods SW-846 6020B(waters, solid, tissue) and EPA 200.8 (waters)
T-MET-WI9084 Preparation of Mercury Solutions and Standards

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End of document

## Version history

| Version | Approval | Revision information | |
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| 18 | 13.MAY.2021 | | |
| 19 | 16.AUG.2021 | Reviewed by TNA28673 on 10/10/2022. No Changes. | |
| 20 | 13.OCT.2023 | 10/14/2024 URSJ Reviewed - No changes needed | |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Instrument Maintenance for Agilent 7900** | Level:<br>**Work Instruction** |
| Document number:<br>**T-MET-WI21590** | | |
| Old Reference: | | |
| Version:<br>**2** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **UDM6**<br>Effective Date: **12-FEB-2021** | Document users:<br>**6_EUUSLA_Metals_ICP-MS Analysis, 6_EUUSLA_Metals_Management** | Responsible:<br>**5_EUUSLA_Metals_Manager** |


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Purpose
Scope
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Procedure


## Revision Log

| **Revision:** 02 | **Effective Date:** This version | |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Procedure | Reflects current practice | Entire procedure needed revision |

| **Revision:** | 01 | **Effective Date:** | 29-MAR-2019 |
|---|---|---|---|
| **Section** | **Justification** | | **Changes** |
| | | | New |

## Cross Reference

| Document | Document Title |
|---|---|
| *QA-SOP11901* | Instrument and Equipment Maintenance and Calibration |
| *T-MET-WI11933* | Metals by Inductively Coupled Plasma Mass Spectrometry for SW-846 Methods 6020/6020A/6020B(aqueous, solid, tissue) and EPA 200.8 (aqueous) |

## Purpose

This SOP outlines the proper instrument maintenance of the ICP-MS 7900 instrumentation.

## Scope

This procedure applies specifically to the Agilent 7900 series instrument used at Eurofins Lancaster Laboratories Environmental (ELLE).

## Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP.
Initially, each analyst performing routine instrument maintenance must work with an experienced analyst for a period of time until they can independently perform routine required maintenance successfully.

## Procedure

A. Maintenance for the Agilent 7900 ICP-MS and ESI SC-8/ SC-14 FAST Autosampler

1. Documentation

Any adjustment to an instrument, replacement of parts, etc., must be documented in the appropriate instrument logbook.

**NOTE:** For more details on procedures in this document please refer to the Agilent 7900 Series ICP-MS Hardware Maintenance Manual.

**NOTE:** The 7900 system uses the ESI SC-8/SC-14 FAST autosampler, a water cooled Scott double pass spray chamber, and a teflon miramist nebulizer. Some components of the sample introduction system are different from those described in the Agilent 7900 Series Maintenance Manual.

2. Routine maintenance

a. Remove and clean the sample introduction system when instrument performance declines.

(1) Clean nebulizer and spray chamber.

(a) Put the instrument into standby mode.

(b) Once the instrument is in standby open the small cover.

(c) Remove torch box cover by undoing the latch.

(d) Remove the two metal clip holding the transfer tube in place and remove the transfer tube.

(e) Unthread and remove the nebulizer from the spray chamber. Place the protective cover over the nebulizer tip to protect it.

(f) Remove spray chamber cooling block top cover by loosening the two screws. Disconnect the make-up gas line from the spray chamber. Disconnect the dilution nozzle from the spray chamber. Disconnect the dilution nozzle from the gas line and set aside, being careful not to deform the tip.

(g) Lift spray chamber and carefully remove drain line. Disconnect the end cap from the spray chamber body.

(h) Soak the spray chamber, end cap and glass transfer tube in 10% nitric for at least 24 hours. Rinse with reagent water.

(i) Dry the outside of the spray chamber and transfer tube with a paper towel. Remove any excess water from the spray chamber using compressed air. It is not necessary to completely dry the inside of the spray chamber.

(j) The transfer tube must be completely dry before reinstallation. Accelerate drying, if necessary, placing the transfer tube in a drying oven set to 100 degrees Celsius for approximately 10 minutes.

(2) Removing and cleaning the torch

(a) Follow steps (1)a through (1)d in nebulizer removal section above.

(b) Remove gas connections from torch. Inspect the gas lines: notify a supervisor immediately if any cracks or signs of weakness are observed.

(c) Open quick release clamp. Remove the torch, platinum shield and bonnet from coil.

(d) Remove bonnet and platinum shield from the torch.

(e) Check bonnet and platinum shield for cracks or deformation.

(f) Soak torch and bonnet in 10% nitric for at least 24 hours. Rinse with reagent water.

(g) Replace torch if it shows excessive wear, devitrification or build-up that cannot be removed.

(h) The torch and bonnet must be completely dry before reinstallation. Drying may be accelerated by placing these parts in a drying oven set to 100 degrees Celsius for approximately 10 minutes.

(3) Reassembling sample introduction system

(a) Put platinum shield and bonnet on torch.

(b) Slide torch into coil. Align the small glass bump with the corresponding notch on the torch stand to ensure proper torch alignment.

(c) Close quick release clamp.

(d) Connect gas lines. Gas lines are different sizes to avoid accidental incorrect connection.

(e) Assemble spray chamber. Attach drain line and put spray chamber back in the cooling block. Connect the dilution nozzle to the gas line and attach to the spray chamber. Replace top cover and tighten plastic screws. Connect the make-up gas line to the spray chamber.

(f) Remove the cover from the tip of the nebulizer and slide the nebulizer into the end cap of the spray chamber.

(g) Install the transfer tube. Attach with metal clips.

(h) Replace torch box cover and close the clamp. Close the small cover.

(4) Cleaning the FAST valve assembly

**NOTE:** Detailed descriptions and diagrams of the FAST valve assembly are located in the pdf document "ESI SC Manual.pdf" located in the dept. 22 folder at Z:\DEPT22\ICP Training and Reference Materials\ICPMS Training and Reference Materials.

(a) Periodically clean the FAST valve assembly when instrument performance declines and instrument maintenance does not correct the problem.

(b) In the Mass Hunter software open stop the nebulizer pump.

(c) Unthread and set aside all seven connections going into the FAST valve head.

(d) Use a 9/64” Allen wrench to remove the valve head from the FAST hub.

(e) Use a 7/64” Allen wrench to remove the three screws from the valve assembly.

(f) Disassemble the valve assembly and place components on a clean dry surface.

(g) Rinse the rotor with reagent water and use compressed air to remove any deposits. Remove stubborn deposits by sonicating the rotor in a solution of up to 10% nitric acid for approximately 10 minutes, followed by rinsing with reagent water. Replace the rotor if it shows signs of excessive wear. Dry rotor with compressed air prior to reinstallation.

(h) Use compressed air on each of the seven ports on the stator. Visually inspect the openings and confirm that nothing obstructs any of the seven ports.

(i) Reassemble the valve assembly. When reinserting the 3 screws, alternate between the 3 screws to keep them evenly threaded.

(j) It is very important to avoid over tightening the 3 screws. Once you reach the point where the stator, body ring, and valve body are flush with one another tighten each screw gently until it feels snug (using forefinger and thumb only). DO NOT tighten with full force to avoid damage to the valve assembly.

(k) Reattach the valve assembly to the FAST hub. While keeping the valve assembly firmly seated against the hub, use the 9/64” Allen wrench to firmly tighten the screw. It is necessary to apply enough force to make sure the valve head does not rotate when the hub switches between LOAD and INJECT.

(l) Carefully thread each of the seven connections to the valve head. You MUST avoid cross threading and over tightening to avoid damaging the threaded connections. Threading must be smooth. If you encounter resistance STOP, reverse and restart the threading. Gently finger-tighten each connection.

b. Removing and cleaning the cones.

(1) Removing cones

(a) Open the small cover and remove the torch box cover by undoing the latch.

(b) Press the button inside the small cover to move the torch box to the maintenance position. You may need to disconnect the drain line from the spray chamber to prevent excessive tension on it while the torch box is in the

maintenance position. Alternatively, on the Mass Hunter instrument control panel click on hardware and then right click on sample introduction. Select maintenance from the pop up. This allows you to move the torch box between initialize and maintenance.

(c) Unscrew the sampling cone retaining ring, use of the sampling cone tool might be necessary. Place the tool into the respective holes on the retaining ring and use a screwdriver for added leverage.

(d) Slide skimmer cone wrench into hole where skimmer cone is and turn until magnets lock pins into place. If necessary, use a screwdriver for leverage in loosening the skimmer cone.

(2) Cleaning cones

(a) Rinse cones in reagent water. Use a wet paper towel to help remove deposits.

(b) If deposits are still observed after completing step (a), additional cleaning must be performed following steps (c). and (d). below. Otherwise skip to step (e) below.

(c) Sonicate cones in 2% Citranox for 5-10 minutes. Rinse with reagent water.

(d) If necessary, use a 5% $HNO_3$ solution with q-tips to gently polish the cones until the q-tips stay clean. Sonicate in reagent water for 5 minutes.

(e) Rinse each cone thoroughly with reagent water to remove all traces of loose deposits and.

(f) Sonicate cones in a beaker containing only reagent water for 5 minutes.

(g) Remove form Beaker. Rinse with reagent water and dry. Accelerate drying, if necessary, by placing the cones in an oven set to 100°C for approximately 10 minutes. Cones must be completely dry before reinstallation.

(h) Visually check the tip of the cone and the back of the cone for abnormalities. Replace any cone that appears to have an oversized or non-round tip, or has surface deformities on the back of the cone.

(i) Visually inspect the graphite gasket for cracks or tears. Replace if necessary.

(3) Reinstalling cones

(a) Put skimmer cone in the skimmer cone wrench and turn until magnets lock pins into place. Slide wrench with cone attached into the interface and carefully thread the cone onto the lens stack. Be sure to not cross thread.

(b) Seat the sampling cone onto the interface and secure with the retaining ring. Be careful not to cross thread it.

(c) Press the button inside the small cover to move the torch box to the initialize position. Reattach the drain line to the spray chamber if removed while the torch box was in the maintenance position. Alternatively, on the Mass Hunter instrument control panel click on hardware and then right click on sample introduction. Select maintenance from the pop up. This allows you to move the torch box between initialize and maintenance.

(d) Replace the torch box cover and secure the latch.

(e) Close small cover.

c. Removing and cleaning the lenses

(1) Removing Lenses (There are multiple lenses to clean: the lens stack assembly, the Reaction cell which contains the Cell Focus and Cell Entrance Lens, Plate Bias Lens.)

(a) Follow steps a. through c. in the Cleaning Nebulizer section.

(b) Press the button inside the small cover to move the torch box to the maintenance position. You may need to disconnect the drain line from the spray chamber to prevent excessive tension on it while the torch box is in the maintenance position. Alternatively, on the Mass Hunter instrument control panel click on hardware and then right click on sample introduction. Select maintenance from the pop up. This allows you to move the torch box between initialize and maintenance.

**NOTE:** If you are not cleaning the Reaction Cell it is not necessary to put the instrument in shutdown mode or to vent the vacuum chamber. Once the instrument is in standby mode skip to step g. below. DO NOT put the instrument in shutdown mode or vent the vacuum chamber if you are only cleaning the Extraction Lens-Omega-Lens assembly.

(c) Put the instrument in shutdown mode (turn off vacuum). Turn computer off and then turn off instrument using the button on the front of the instrument.

(d) Open the large cover. Turn the vent valve (located on the front left of the vacuum chamber) one turn. A slight hissing sound is heard.

(e) While the chamber is hissing remove screws on the vacuum chamber lid.

(f) Once the vacuum chamber has equalized, remove the lid. Remember to retighten the vent valve. Rest the lid on top when not working in the vacuum chamber to avoid entrance of dust and particles.

(g) Remove the sampling cone and skimmer cone by following steps c. and d. in Removing cones section.

(h) Loosen three screws on skimmer base. Remove the lens stack assembly. Disassemble the lens stack according to the 7700 maintenance manual. Slide off each lens and keep spacers in order. There are four lenses.

**NOTE:** If you are not cleaning the Reaction Cell skip to Cleaning lenses section (2) below. Follow steps i. through l. only if you are cleaning the Reaction Cell.

(i) Open vacuum lid and loosen reaction cell screw. Loosen but do not completely remove plate bias wire terminal screw. Remove wire. Unplug plastic wire connector. Carefully remove reaction cell by lifting out at an angle.

(j) Loosen but do not completely remove plate bias wire screws. Remove wire ends. Remove the four cell assembly screws. Separate housing and carefully remove octopole unit. Be sure not to touch the octopole to avoid misaligning the poles.

(k) Remove the two screws from the entrance side of the octopole. Slide off the cell focus, spacer and cell entrance lens. Secure octopole plate with same screws. Remove the other two screws from the exit side. Remove cell exit lens, spacer and QP focus. Secure octopole plate with same screws. Place octopole unit aside to avoid damage. There are four lenses.

l) Open the vacuum chamber lid and loosen the plate bias lens screws. Remove cell exit guide and plate bias lens.

(2) Cleaning lenses

(a) Polish each lens with #400 polishing paper. Then use #1200 paper. Clean the orifice of each lens using an alumina powder slurry.

(b) Rinse with water.

(c) Sonicate in water for 5 minutes after polishing.

(d) Rinse with water.

(e) Sonicate in water for additional five minutes.

(f) Allow lenses to dry. Do not wipe. Accelerate drying, if necessary, by placing the lenses in an oven set to 100 degrees Celsius for approximately 10 minutes. Lenses must be completely dry before reinstallation.

(3) Reinstalling lenses

**NOTE:** If you are not cleaning the Reaction Cell skip to step f. below. Follow steps a. through e. only if you are cleaning the Reaction Cell.

(a) Remove vacuum chamber cover. Put plate bias lens and cell exit guide in place. Secure with screws.

(b) Remove each octopole plate and reattach the lenses on either side of the octopole. Be aware that there are two different sized holes so that the lenses go back on in the correct orientation. Place reassembled octopole unit into the reaction cell and put the four screws back in.

(c) Reattach the wires to the back of the reaction cell. The top screw holds down the wire that is attached to the reaction cell. The bottom screw holds the currently loose wire.

(d) Carefully put the reaction cell back into the vacuum chamber. Tighten the reaction cell screw. Replace wire in the plate bias lens screw and tighten screw. Plug the wire connector back in.

(e) Put the vacuum chamber lid back on. Secure it with the four screws tightly. Make sure the vent valve is tight as well. Close top cover.

(f) Reassemble the lens stack assembly. Slide into the interface. Tighten the screws.

(g) Put cones back in. Use steps a. and b. in reinstalling cones section.

(h) Turn instrument and computer on. Turn on vacuum in Mass Hunter. Wait 15 to 60 minutes for the vacuum to pump down. Once instrument is pumped down, press the button inside the small cover to move the torch box to the initialize position. Reattach the drain line to the spray chamber if removed while the torch box was in the maintenance position. Alternatively, on the Mass Hunter instrument control panel click on hardware and then right click on sample introduction. Select maintenance from the pop up. This allows you to move the torch box between initialize and maintenance.

(i) Turn Plasma on. Give the instrument time to equilibrate with the vacuum and the plasma both on. Check instrument performance.

d. Replace pump tubing when it shows stretching, flat spots, or increased relative standard deviations. Inspect all tubing to ensure that it is secure and in good condition. Periodically perform visual check on the oil level of the vacuum pump and the water level in the recirculating chiller.

B. Preventative Maintenance (performed as needed).

1. Vacuum instrument air filters

2. Vacuum chiller air filters; chiller air filters may also be removed and run under tap water to remove dust build up.

3. Change vacuum pump oil

C. Taking an instrument/analysis out of service/returning an instrument/analysis to service

**NOTE:** The following information is taken from 1*QA-SOP11901*. In the event of an equipment failure, perform the following:

1. Document the nature of the failure in the maintenance logbook.

2. Document how and when the defect was discovered.

3. Notify a supervisor or responsible person to decide on appropriate action to take.

4. The instrument must be clearly tagged as *Out of Service*. The tag must contain the following information:

   a. Date taken out of service

   b. Employee who took the instrument out of service

   c. Reason for tagout

5. The date taken out of service and the date returned to service must be documented in the logbook.

6. Document any corrective action that was taken to bring the equipment back into service.

7. Document results of the corrective action (e.g., system calibration within specifications, etc.)

8. Supervisory personnel must perform a documented evaluation and review of instrumentation/equipment where a major or uncommon failure has occurred to assess the potential impact of the failure on the calibration and/or qualification of the instrument.

9. After repair, document whether the function has been fixed. Calibration or verification activities are performed before the instrumentation is put back into service.

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QA-SOP11901 Instrument Maintenance and Calibration
T-MET-WI11933 Metals by ICPMS by Methods SW-846 6020B(waters, solid, tissue) and EPA 200.8 (waters)

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End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 1 | 21.MAR.2019 | | |
| 2 | 29.JAN.2021 | Reviewed on 2/7/25 by URSJ/0811. OK as is. | |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Digestion of Aqueous Samples by SW-846 Method 7470A** | Level:<br>**Work Instruction** |
| Document number:<br>**T-MET-WI11924** | | |
| Old Reference:<br>**1-P-QM-WI-9015082** | | |
| Version:<br>**24** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **ULJC**<br>Effective Date: **15-MAY-2024** | Document users:<br>**6_EUUSLA_Metals_Hg Analysis, 6_EUUSLA_Metals_Hg Prep, 6_EUUSLA_Metals_Management, 6_EUUSLA_Metals_Verifiers** | Responsible:<br>**5_EUUSLA_Metals_Manager** |

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11924) Procedure

## Revision Log

| **Revision:** 24 | **Effective Date:** | This Version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Personnel Training and Qualifications | Updated to reflect current practice | Added spiking requirements for IDOC |
| Procedure A.5. | Updated to reflect current practice | Clarified the preparation of the Method Blank and MS/MSD |

| **Revision:** 23 | **Effective Date:** | April 26, 2022 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Header | Name Change | Changed to current company name |
| Cross Reference | Current SOP | Updated to reflect current Prep Solution and Standards SOP |

## Reference

1. Test Methods for Evaluating Solid Wastes, SW-846 Method 7470A, September 1994

2. *Chemical Hygiene Plan*, current version.

### Cross Reference

| Document | Document Title |
|---|---|
| *T-MET-WI9082* | Working Instructions for Prep Solutions and Standards |
| *T-MET-WI7965* | Mercury in Aqueous, Solid and Tissue Samples by EPA 7471A, 7471B, 7470A, and 245.1 rev 3 by Cold Vapor AA |

### Scope

This procedure is used for automated and manual digestion of samples and standards for Mercury analysis in aqueous samples by SW-846 Method 7470A.

### Basic Principles

The samples are digested with nitric acid, sulfuric acid, potassium permanganate, and potassium persulfate to oxidize mercury compounds to mercuric ions. Mercuric ions are reduced to mercury metal using stannous chloride. Mercury measurement is performed using the mercury cold vapor technique.

### Interferences

Not applicable to this procedure.

### Safety Precautions and Waste Handling

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

Preparing samples for inorganic analysis involves working with concentrated acids and other chemicals which are dangerous if not handled carefully:

**Nitric acid (HNO3)** – This acid can cause skin burns. Add nitric acid to samples in a hood to avoid exposure to toxic fumes, or use the designated dispensing equipment.

**Sulfuric acid (H2SO4)** – This acid is a strong oxidizing agent and can cause severe burns. Sulfuric acid spills are extremely slippery, adding to the danger. Always use in a fume hood, or use the desinated dispensing equipment. Never mix with concentrated HCl or concentrated KMNO4 to avoid a violent reaction (explosive splattering and extreme heat).

**Hydrochloric acid (HCl)** – This acid can cause skin burns. Never mix HCI with concentrated H2SO4 to avoid a violent reaction. Always use in a fume hood, or use the designated dispensing equipment.

When diluting strong acids, never add water to acid; always add acid to water.

Store concentrated acids in the prep room acid lockers. Only acids are to be stored in these lockers. (Store solvents in the flammable liquid storage cabinet.) Some concentrated acids are kept in the acid reagent bottles on prep room counters. Fill reagent bottles in an operating fume hood using caution to avoid spills.

Perform acid digestions in hoods that are turned on and have active alarms. Notify a supervisor immediately if the hood is malfunctioning or the alarm sounds.

When a hazardous flag is added indicating possible cyanide, special precautions are required to avoid exposure to hydrogen cyanide gas. Contact your supervisor prior to adding acid. Always open these samples and add the acid in a hood.

Use spill pillows to absorb large acid spills (small spills are cleaned with wet paper towels.) Use SPILL-X-A powder or equivalent to neutralize any remaining acid and then rinse the area thoroughly with water.

Dispose of acid waste properly. Collect all acid digestions, waste solutions, and expired reagent solutions in waste containers. When the acid waste containers are full, a designated acid waste handler transfers the waste to the acid neutralization tank.

## Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the analyst's training records.

Initially, each employee performing the digestion must work with an experienced employee for a period of time until they can independently perform digestions. The IDOC must be spiked at 1 to 4x the RL. Proficiency is measured through documented audits of the tasks listed as well as an Initial Demonstration of Capability (IDOC).

The DOC consists of four laboratory control samples (LCS's) that are carried through all steps of the analysis and meet the defined acceptance criteria. The criteria include the calculation of mean accuracy and standard deviation.

## Sample Collection, Preservation, and Handling

Aqueous samples are collected in plastic or glass containers (drinking water sample volume is 1-L). Samples are preserved to a pH of <2 with nitric acid at collection and the pH is checked upon receipt and adjusted as necessary by Sample Support; samples that are pH adjusted at the laboratory must not be digested for a minimum of 24 hours. If samples fail to maintain a pH of <2 the Client Representative is notified for further direction. Samples are stored at 0 to 6°C, not frozen, prior to digestion. Samples must be analyzed within 28 days of collection.

Dissolved Mercury: Samples are to be filtered within 15 minutes of collection by the client. Clients may submit unpreserved bottles to the lab for dissolved mercury analysis. The sample is run through a 0.45 micron filter within 5 days of receipt and then preserved to a pH of <2 with HNO3.

Digested samples are stored in plastic bottles at room temperature. Store samples, standards, and digested samples separately.

## Apparatus and Equipment

1. 50-mL polypropylene containers and covers (digestion vessels for block digestion) – certified clean and Class A equivalent

2. Environmental Express HotBlock (block digester) – adjustable and capable of maintaining a sample temperature of 95°C.

## Reagents and Standards

1. For standards preparation, shelf life, and storage conditions, see *T-MET-WI9082*. This form also has instructions for the initial preparation of Method Blanks, LCSs, Matrix Spikes and General Solutions.
2. Store all standards and reagents at room temperature. Label the container with the solution name, lot number, date prepared, the expiration date, the initials of the person preparing the solution, and the storage conditions.
3. Standard/spiking concentration and reagent vendors are subject to change without notification.
4. Nitric acid, 70.0% to 71.0% $HNO_3$, J.T Baker ACS Grade, or equivalent. Follow manufacturer's expiration date.
5. Sulfuric acid, 95.0% to 98.0%, $H_2SO_4$, 36 N, J.T Baker, ACS Grade, or equivalent. Follow manufacturer's expiration date.
6. Potassium permanganate, $KMnO_4$, Baker Analyzed reagent, ACS, or equivalent. Follow manufacturer's expiration date.
7. Potassium persulfate, $K_2S_2O_8$ Baker Analyzed reagent, ACS, or equivalent. Follow manufacturer's expiration date.
8. Sodium chloride, NaCl, J.T. Baker, Certified ACS, or equivalent. Follow manufacturer's expiration date.
9. Hydroxylamine hydrochloride, $NH_2OH{\cdot}HCl$, J.T. Baker, Certified ACS, or equivalent. Follow manufacturer's expiration date.
10. Stannous chloride, $SnCl_2$, Baker Analyzed reagent, ACS, or equivalent. Follow manufacturer's expiration date.
11. Hydrochloric acid, HCl, 36.5% to 38.0%, J.T Baker ACS Grade, or equivalent. Follow manufacturer's expiration date.

## Calibration

Not applicable to this procedure.

### Calculations

Not applicable

### Statistical Information/Method Performance

Not applicable

### Quality Assurance/Quality Control

1. Each digestion batch is up to 20 samples.

2. Each digestion batch must contain a MB, LCS, BKG, DUP, MS and/or MSD when applicable. If insufficient sample for a duplicate or per client requirement, an LCSD/MSD is added to the batch.

   a. MB – Method Blank also equivalent to a Preparation Blank.

   b. LCS/LCSD – Laboratory Control Sample/Laboratory Control Sample Duplicate

   c. BKG – unspiked background sample

   d. DUP – duplicate

   e. MS – Matrix Spike

   f. MSD – Matrix spike duplicate

### 11924) Procedure

A. Manual hot block digestion

1. Turn block digester on and allow block to reach the Control Point setting that provides 95° ± 1°C sample temperature.
2. Before digestion, check the temperature with a calibrated thermometer and record in the logbook.
3. If the sample to be digested is not in split bin location:
   a. Scan parent bottle into LIMS prep batch.
   b. Shake sample well.
   c. Transfer 20 mL of well-mixed sample (or an aliquot diluted to 20 mL) into the polypropylene container. If a different final volume is necessary, adjust reagent volumes accordingly.
4. Scan split samples from bin into the LIMS prep batch.
5. Prepare batch QC and calibration standards. Prepare a Method Blank using 20 mL of Reagent Water. Matrix Spike and Matrix Spike Duplicate are spiked in the same manner as the LCS/LCSD. See *T-MET-WI9082* for preparation instructions and concentrations. See the Quality Assurance/Quality Control section for the required batch QC.

**NOTE**: Exception - For leachate batches containing leachate spiked QA samples, use one of the leachate spiked QA samples as the batch QC matrix spike and matrix spike duplicate, and proceed with the spiking procedures for the LCS according to *T-MET-WI9082*.

1. Add 1 mL of $H_2SO_4$ and mix.
2. Add 0.5 mL of $HNO_3$ and mix.
3. Add 3 mL of 5% $KMnO_4$ solution and mix.
4. Allow the sample to stand for 15 minutes and then check sample for purple color.
   a. purple color does not persist for at least 15 minutes, perform a dilution on the sample beginning with a DF5.

b. Continue diluting in increments of 5 or 10 until the purple color persists for at least 15 minutes.

5. Add 1.6 mL of 5% $K_2S_2O_8$ solution and mix.
6. Place containers in block digester.
7. Place a calibrated thermometer in a container with reagent water.
8. Put a polypropylene cover on each container. Remove after the samples reach 95° ± 1°C.
9. Heat for 2 hours in the block digester at 95° ± 1°C. The temperature is checked with a calibrated thermometer and recorded in the logbook.
10. Remove samples from block digester and cool.
11. Add 1.2 mL of 12% sodium chloride/hydroxylamine hydrochloride solution to reduce excess permanganate (color change is from purple to colorless). If the solution is not colorless, add reductant in 1-mL increments until $KMnO_4$ is completely reduced.
12. Screw on cap and shake sample
13. Adjust the volume to 20 mL with reagent water and mix. Reserve for analysis.

**NOTE:** The block temperature is different than the temperature of the liquid being digested.

B. Block Digester Instructions:

1. Turn block digester on by pressing rocker switch located on the cord.
2. Wait about 8 seconds until controller display indicates current block temperature.
3. Press and hold STAR (*) key.
4. The display shows the Set Point Temperature.
5. The digits can be changed to the desired value by pressing the up and down arrow keys while holding the (*) key.
6. Confirm Control Point temperature is set to the block temperature that provides 95°C.

**NOTE:** See HotBlock Control Point Temperature Logbook to obtain control point temperature setting for the HotBlock being used for digestion. If necessary, adjust Control Point temperature to the proper setting.

**NOTE:** Polypropylene containers must not be heated above 130°C.

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T-MET-WI7965 Mercury in Aqueous, Solid and Tissue Samples by EPA 7471A, 7471B, 7470A, and 245.1 rev 3 by Cold Vapor AA
T-MET-WI9082 Working Instructions for Prep Solutions and Standards

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End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 22 | 05.NOV.2020 | | |
| 23 | 26.APR.2022 | Reviewed 04/26/2023 by ULJC, no changes | |
| 24 | 01.MAY.2024 | OK as is Reviewed 5/16/25 by URSJ. | |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Preparation of Solids by EPA 7471A or B for Mercury Analysis** | Level:<br>**Work Instruction** |
| Document number:<br>**T-MET-WI11948** | | |
| Old Reference:<br>**1-P-QM-WI-9015161** | | |
| Version:<br>**25** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **X6TJ**<br>Effective Date: **10-FEB-2025** | Document users:<br>**6_EUUSLA_Metals_Hg Prep, 6_EUUSLA_Metals_Management** | Responsible:<br>**5_EUUSLA_Metals_Manager** |

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## Revision Log

| **Revision:** 25 | **Effective date:** This Version | |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | |
| Header | Addition | 7471B_Prep_2X |
| Cross Reference | Update WI7965 to current name | WI7965 to current name |
| Procedure | Addition | Weight requirements for 7471B_Prep_2X |

| **Revision:** 24 | **Effective date:** February 19.2024 | |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Procedure | Updated | Updated to record amount of boiling chips weighed for MB/LCS |

## Reference

1. Test Methods for Evaluating Solid Wastes, SW-846 Method 7471A, Rev. 1, September 1994.
2. Test Methods for Evaluating Solid Wastes, SW-846 Method 7471B, Rev. 2, February 2007
3. *Chemical Hygiene Plan*, current version.

## Cross Reference

| Document | Document Title |
|---|---|
| *T-MET-WI7965* | Mercury in Aqueous, Solid and Tissue Samples by EPA 7471A, 7471B, 7470A and 245.1 rev 3 by Cold Vapor AA |
| *T-MET-WI9084* | Preparation of Mercury Solutions and Standards |

## Scope

This procedure is used to prepare soil, sediment, sludge, oil, tissue and wipe samples for the measurement of mercury by atomic absorption cold vapor technique following SW-846 7471A or 7471B protocol. If this dissolution procedure is not sufficient to dissolve a specific matrix type or sample, then this method is not applicable for that matrix. Samples that require additional homogenization are addressed on a case-by-case basis and homogenized by the Sample Support Group (Department 6055).

## Basic Principles

Soil and solid samples are mixed and aliquoted during soil sample splitting by Sample Administration staff or by metals staff. Full homogenization must be requested additionally by clients.

Samples are digested with aqua regia and potassium permanganate to oxidize mercury compounds to mercuric ions and eliminate possible interference from sulfide. Samples high in chlorides require additional permanganate. At the time of analysis, excess permanganate is reduced with sodium chloride/hydroxylamine hydrochloride. Mercuric ions are reduced to mercury metal using stannous chloride. Mercury measurement is performed using mercury cold vapor technique.

## Reference Modifications

To increase efficiency, polypropylene containers are used in place of BOD bottles. Prior to analysis (after excess potassium permanganate is reduced with sodium chloride/hydroxylamine hydrochloride solution) samples are adjusted to 100 mL in volumetric flasks. This allows aliquots to be taken as required for analysis; aliquots cannot be taken when BOD bottles are used. No impact on the quality of the data generated using this modification has been observed.

## Interferences

Not applicable to this procedure.

## Safety Precautions and Waste Handling

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

Preparing samples for inorganic analysis involves working with concentrated acids and other chemicals which are dangerous if not handled carefully:

**Nitric acid ($HNO_3$)** – This acid can cause skin burns. Add nitric acid to samples in a hood or use the designated dispensing equipment to avoid exposure to toxic fumes.

**Hydrochloric acid (HCl)** – This acid can cause skin burns. Never mix HCl with concentrated $H_2SO_4$ to avoid a violent reaction. Always use in a fume hood or use the designated dispensing equipment.

When diluting strong acids, never add water to acid; always add acid to water.

Store concentrated acids in the prep room acid lockers. Only acids are to be stored in these lockers. (Store solvents in the flammable liquid storage cabinet.) Some concentrated acids are kept in the acid reagent bottles on prep room counters. Fill reagent bottles in an operating fume hood using caution to avoid spills.

Perform acid digestions in hoods that are turned on and have active alarms. Notify a supervisor immediately if the hood is malfunctioning or the alarm sounds.

Samples that contain dust may be hazardous. Open in a fume hood.

When a hazardous flag is added indicating possible cyanide, special precautions are required to avoid exposure to hydrogen cyanide gas. Contact your supervisor prior to adding acid. Always open these samples and add the acid in a hood.

Use spill pillows to absorb large acid spills. (Small spills are cleaned with wet paper towels.) Use SPILL-X-A powder or equivalent to neutralize any remaining acid and then rinse the area thoroughly with water. Spill pillows and SPILL-X-A are stored on the prep room shelf.

Dispose of acid waste properly. Collect all acid digestions, waste solutions, and expired reagent solutions in waste containers. When the acid waste containers are full, a designated acid waste handler transfers the waste to the acid neutralization tank.

### Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the analyst's training records.

Initially, each employee performing this digestion procedure must work with an experienced employee for a period of time until they can independently set up batches and perform the necessary steps outlined in this procedure.

The IDOC consists of aliquots spiked at 1-4X the RL that are carried through all steps of the prep and analysis and meet the defined acceptance criteria. The criteria include the calculation of mean accuracy of 50 - 150% and standard deviation of </= 20%.

Various options are available for a DOC and can include four laboratory control samples (LCS) or one blind sample. The mean recovery of four LCSs must meet the accuracy criteria of an LCS, and the standard deviation must be </= 20% .

### Sample Collection, Preservation, and Handling

Samples are collected in either glass or plastic containers with no preservatives. They must be stored at 0° to 6°C, not frozen and digested and analyzed within 28 days of collection.

Digested samples are stored in plastic containers at room temperature. Store samples, standards, and digested samples separately.

### Apparatus and Equipment

1. Polypropylene containers (digestion vessels) - Certified clean and Class A equivalent
2. Balance, capable of reading 0.1 mg
3. Polypropylene covers, (digestion vessel covers)
4. Chemware Ultra-Pure PTFE boiling stones, or equivalent
5. Environmental Express HotBlock (block digestor), adjustable and capable of maintaining a temperature of 95° ± 1°C

### Reagents and Standards

A. Store all prepared standards and reagents in glass or polyethylene bottles at room temperature. Label the bottle with the solution name, lot number, date prepared, the expiration date, the initials of the person preparing the solution, and the storage conditions.

B. Standard/ spiking concentration and reagent vendors are subject to change without notification.

C. Reagents - Follow manufacturer's storage conditions and expiration date. If no expiration date is provided, re-evaluate annually or set a one year expiration date. Use the following or equivalent:

1. Hydrochloric acid, 36.5% to 38.0% HCl, JT Baker Trace Metal Grade reagent
2. Nitric acid, 70.0% to 71.0% $HNO_3$, JT Baker. Trace Metal Grade reagent

3. Potassium permanganate, $KMNO_4$, Fisher or equivalent. Certified ACS.

4. Sodium chloride, NaCl, J.T. Baker or equivalent. Certified ACS.

5. Hydroxylamine hydrochloride, $NH_2OH{\cdot}HCl$, J.T. Baker or equivalent. Certified ACS.

6. 1000 mg/L Hg standard solution, Inorganic Ventures or equivalent.

D. Working instructions for the preparation of mercury solutions and standards are contained within *T-MET-WI9084*. This form includes shelf life and storage conditions.

1. Hg intermediate standard (10 mg/L).

2. Hg intermediate standard (1.0 mg/L).

3. 40 ppb Hg Water Standard.

4. 100 ppb Hg Soil Standard.

5. Potassium permanganate solution (5%).

6. Aqua regia.

7. Sodium chloride/hydroxylamine hydrochloride solution.

E. Adjust all additions according to final solution volume if larger or smaller volumes are needed. Thoroughly mix the solution after diluting to volume.

### Calibration
Not applicable to this procedure.

### Block Digestor Instructions
1. Turn block digestor on by pressing rocker switch located on the cord.

2. Wait about 8 seconds until controller display indicates current block temperature.

3. Press and hold STAR (*) key.

4. The display shows the Set Point Temperature.

5. The digits can be changed to the desired value by pressing the up and down arrow keys while holding the (*) key.

6. Confirm Control Point temperature is set to the block temperature that provides 95° ± 1°C sample temperature.

**NOTE:** See HotBlock Control Point Temperature Logbook to obtain control point temperature setting for the HotBlock being used for digestion. If necessary, adjust Control Point temperature to the proper setting.

### Procedure

1. Turn block digestor on and allow block to reach the Control Point setting that provides 95° ± 1°C sample temperature.

   Note: Soil samples for metals typically go through soil splitting. Mixing and aliquoting is performed in soil splitting, and splits are delivered to the metals preparation laboratory in the digestate tube. Solids are mixed. Full homogenization must be requested additionally by the client.

   Note: For 7471A/B_Prep weigh 0.6-0.65 g
   For 7471B_Prep_2X weigh 1.2 - 1.3

1. Collect samples and batch from the split bins. If a sample is not located in a split bin, weigh three aliquots, taken from three different areas of a well-mixed, as-received sample into a polypropylene digestion vessel according to the prep method.

2. Add an amount of Chemware Ultra-Pure PTFE boiling stones to the vessel for the MB and LCS according to the prep method.

3. Enter the MB weight as 0.6 or 1.2 depending on the prep with final volume of 100 mL and the LCS weight as 0.6 or 1.2 depending on the prep with final volume 100 mL in the LIMS. In the notes section, record the actual weight in grams of boiling stones used.

4. Matrix exceptions:

    a. Samples with a liquid consistency: increase weight to 1 g (1.00 to 1.05 g).

    b. Oil samples: weigh 0.2000 g to 0.2500 g (to the nearest 0.0001 g) of sample and add 0.2000 g to 0.2499 g of Teflon Chips to the MB and LCS container. Enter the blank weight as 0.2000 to 100.0000 final volume, and the LCS weight as 0.2000 to 100.0000 final volume in LIMS.

    c. Wipes: one blank media each must be used for the batch MB, the LCS, and the LCSD. Use reagent water to rinse any particulate matter from the wipe container into the vessel containing the wipe before digesting. Digest wipes in their own batch. Enter as "1 wipe" into prep batch.

    d. Tissue samples: spike the LCS, LCSD in the same manner as the matrix spike and matrix spike duplicate (Refer to *T-MET-WI9084*). Digest tissue samples in their own batch.

5. For sample batch quality control preparation, spiking procedures and concentration levels see *T-MET-WI9084*.

6. All spiking must be performed prior to starting the digestion procedure.

7. Add about 5 mL reagent water and about 5 mL of aqua regia solution.

8. Place sample containers in block digestor, bring to 95°C ± 1°C and heat approximately 2 minutes. (Place a calibrated thermometer in batch blank container.)

9. Remove sample containers from block and allow to cool.

10. Add 50 mL of reagent water and 15 mL of 5% $KMnO_4$ solution and mix by carefully swirling the container.

    a. Add additional portions of 5% $KMnO_4$ solution (in 5-mL increments, up to as much as 25 mL), if necessary, until the purple color persists for at least 15 minutes.

    b. Add the same amount of $KMnO_4$ solution to entire digestion batch.

    c. If the maximum amount of 25 mL of 5% $KMnO_4$ solution was added and the purple color did not persist for at least 15 minutes, then contact group leader, further dilutions are required. A comment must be placed on the batch sheet documenting the reason for the dilution.

11. Transfer sample containers to block digestor.

12. Place a calibrated thermometer in batch blank container.

13. Put a polypropylene cover on each container.

14. When the thermometer indicates 95° ± 1°C, continue heating for 30 minutes.

15. Remove sample containers from digestion block and allow to cool.

16. Add 6 mL of sodium chloride/hydroxylamine hydrochloride solution to reduce excess permanganate. Adjust volume to the 100 mL mark with reagent water, seal container with screw cap and mix.

17. The sample is now ready for analysis.

## Calculations
Not applicable to this procedure.

## Statistical Information/Method Performance
Not applicable to this procedure.

## Quality Assurance/Quality Control

Each digestion batch (up to 20 samples) must contain a method blank (MB), LCS, and either an unspiked background sample, duplicate (DU), matrix spike (MS), matrix spike duplicate (MSD) or an LCS/LCSD.

Refer to *T-MET-WI7965* for sample batch quality control requirements, acceptance criteria, and corrective action.

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T-MET-WI7965 Mercury in Aqueous, Solid and Tissue Samples by EPA 7471A, 7471B, 7470A, and 245.1 rev 3 by Cold Vapor AA
T-MET-WI9084 Preparation of Mercury Solutions and Standards

End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 23 | 12.JUL.2023 | | |
| 24 | 19.FEB.2024 | | |
| 25 | 27.JAN.2025 | | |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Maintenance of Continuous Flow Analyzers** | Level:<br>**Work Instruction** |
| Document number:<br>**T-IWC-WI11643** | | |
| Old Reference:<br>**1-P-QM-PRO-9015399; DOD - MC-IC-007** | | |
| Version:<br>**7** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **X6TJ**<br>Effective Date: **31-MAY-2022** | Document users:<br>**5_EUUSLA_Instrumental Water Quality_Manager, 6_EUUSLA_Instrumental Water Quality_Flow Analys** | Responsible:<br>**5_EUUSLA_Instrumental Water Quality_Manager** |

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## Revision Log

| **Revision:** | 06 | **Effective Date:** | This Version |
|---|---|---|---|
| **Section** | **Justification** | **Changes** | |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version | |
| Reference | Updated Instrumentation | Removed all references to Alpkem and added current instruments | |
| Procedure | Corrected steps | Added in the use of ChemSolv and reference to operator's manuals. | |

| **Revision:** | 05 | **Effective Date:** | Oct. 10, 2016 |
|---|---|---|---|
| **Section** | **Justification** | **Changes** | |
| Header | Formatting requirements per LOM-SOP-LAB-201 | Added separate line item for revision number | |
| Approvals | Formatting requirements per LOM-SOP-LAB-201 | Moved signatures to beginning of document | |
| Revision Log | Formatting requirements per LOM-SOP-LAB-201 | Moved to beginning of document, reformatted to include Justification and removed revision logs up to the previous version | |
| Safety Precautions and Waste Handling | Required statement | Added "All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state and local laws and regulations." | |

## Reference

1. Operator's Manual for Flow Solution FS 3100, O.I. Analytical, Rev 2.0, Nov. 2006

2. Operator's Manual for Flow Solution 3700, O.I. Analytical, Rev 4.0, July 2016

3. Skalar San Plus operations Manual. Skalar Anaytical B.V., Pub # 0101022C.US, Jan. 2010

4. Astroia 2 Analyzer Operation Manual, Astoria-Pacific, Revised 5/16

5. *Chemical Hygiene Plan*, Lancaster Laboratories, current version.

## Purpose

The purpose of this SOP is to provide a guideline for the proper maintenance of the continuous flow analyzers. Proper maintenance and calibration are essential for extending the life of the instrument as well as keeping the instrument running appropriately.

## Scope

This maintenance procedure covers the upkeep of all components of the autoanalyzer system.

## Personnel Training and Qualifications

Analysts are considered proficient when they documentation of reading, understanding and agreeing to follow the most current version of this SOP.

## safety Precautions and Waste Handling

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state and local laws and regulations.

Dispose of acids in appropriate acid waste container.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

## Procedure

As needed maintenance:

1. Clean the sample probe (by flushing a syringe full of deionized water through it).

2. Replace pump tubes approximately every 160 to 200 hours or 20 to 30 runs. Replace all pump tubes associated with the analysis simultaneously.

3. Rinse flowcell and debubbler with methanol.

4. If buildup is noticed in the block or if the flow becomes erratic flush the system with 20% ChemSolv for 10-15 minutes, followed by 20 minutes of DI water.
5. Clean systems by pumping with 5N $H_2SO_4$, 1N NaOH, and/or 30% $H_2O_2$, followed by deionized water.

6. Periodically flush the sampler wash reservoir with 1N HCl to prevent the growth of algae or bacteria. A solution of 1 part sodium hypochlorite (household bleach) mixed with 19 parts of water can also be used. Flush thoroughly with deionized water.

7. Wipe platens and pump rollers with methanol. If pump seems to be rolling unevenly, or is making noise when rolling, send to instrument maintenance technician for a thorough cleaning.

8. Wipe down all exterior parts of instrument after each run. Immediately clean up any spills.

9. Refer to the detector instruction manual for the proper procedure to replace/clean any parts excluding the pump tubing.

**NOTE:** Document performance of maintenance in the appropriate logbook.

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End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 5 | 28.DEC.2009 | | |
| 6 | 01.NOV.2018 | | |
| 7 | 27.MAY.2022 | Reviewed 10/3/2024 no changes needed | |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Preparation of Solids for Cation Exchange Capacity (CEC) using Sodium Acetate by EPA 9081** | Level:<br>**Work Instruction** |
| Document number:<br>**T-MET-WI7562** | | |
| Old Reference:<br>**1-P-QM-WI-9015138** | | |
| Version:<br>**10** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **ULJC**<br>Effective Date: **06-DEC-2024** | Document users:<br>**5_EUUSLA_Metals_All** | Responsible:<br>**5_EUUSLA_Metals_Manager** |

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Figure 1

## Revision Log

| **Revision:** 10 | | **Effective Date:** Mar 10, 2011 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirements | Removed revision logs up to the previous version. |
| Throughout document | Update | Updated entire SOP to current laboratory practice |

| **Revision:** 9 | | **Effective Date:** April 12, 2013 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement per 1-P-QM-QMA-9017356 | Removed revision logs up to the previous version |
| Throughout Document | Reflect re-identification of documents in EtQ<br><br>Reflects current practices | Replaced all prior Level 1, 2, 3, and 4 document numbers (analyses excluded) with EDR numbers<br><br>Changed wrist action shaker to platform shaker |
| Document Title | Enhancement | Added method. |
| Cross Reference | Referenced in the document | Added Analysis #6966, 1643, 6935, … |
| Reagents and Standards | Enhancement | Added storage conditions to entries that did not have them. |

**Reference**

1. Test Methods for Evaluating Solid Wastes, SW-846 Method 9081, September 1986.

2. *Chemical Hygiene Plan,* Eurofins Lancaster Laboratories, Inc., current version.

**Cross Reference**

| Document | Document Title |
|---|---|
| *T-MET-WI11931* | Metals by ICP for Methods SW-846 6010B/C/D (aqueous, solid, tissue) and EPA 200.7 (aqueous) |
| *QA-SOP11188* | Reagents and Standards |
| *T-WC-WI11519* | pH Probes and Meters |

**Scope**

This Process is suitable for preparation of the cation exchange capacity of soils.

The procedure is a preparation for determination of displaced sodium concentration by method SW-846 6010

**Basic Principles**

A soil sample is mixed with an excess of sodium acetate solution, resulting in the exchange of the added sodium cations for the matrix cations. Subsequently, the sample is washed with isopropyl alcohol. An ammonium acetate solutions then added, which replaces the adsorbed sodium. The concentration of the displaced sodium is then determined by method SW-846 6010.

**Interferences**

Impurities in solvents, reagents, glassware, or other hardware used in sample processing lead to interferences. A method blank is performed with each batch of samples to demonstrate that the extraction system is free of contaminants

**Safety Precautions and Waste Handling**

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

**Personnel Training and Qualifications**

All Personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP.

Initially, each employee performing this digestion procedure must work with an experienced employee for a period of time until they can independently set up batches and perform the necessary steps outlined in this procedure

**Sample Collection, Preservation, and Handling**

Samples are collected in either plastic or glass and must be stored at 4 ± 2°C prior to extraction. Sample extraction must be started within 14 days of collection.

**Apparatus and Equipment**

1. 50mL centrifuge tubes
2. Analytical Balance
3. pH Meter
4. Orbital Shaker
5. Vortex
6. Centrifuge
7. Glassware - General Laboratory Glassware

**Reagents and Standards**

**NOTE:** All chemicals used be ACS reagent grade unless otherwise noted

Different volumes or weights may be used provided the ratios remain equivalent.
See *QA-SOP11188* for the appropriate labeling and documentation of reagent and standard preparation.

1. Glacial Acetic acid –Fisher chemical or equivalent. Store at room temperature in a glass bottle. Follow manufacture guide for expiration time.

2. 10N sodium Hydroxide - Fisher chemical or equivalent. Store at room temperature in a plastic bottle. Follow manufacture guide for expiration time.

3. 1.0N Sodium Acetate –
   a. Weigh out 136g of sodium acetate into a 1-L Class-A volumetric flask containing 500mL of reagent water.
   b. Mix thoroughly and bring to volume with reagent water.
   c. Measure the pH of the solution, the pH must be 8.2 (±0.05). The solution can be adjusted using the acetic acid and/or sodium hydroxide from above.

4. 1.0N ammonium Acetate -
   a. Weigh out 154 g of ammonium acetate into a 2-L Class-A volumetric flask containing 100mL of reagent water.
   b. Mix thoroughly and bring to volume with reagent water.
   c. Solution is stable for 6 months at room temperature.

5. 99% Isopropyl Alcohol, ACE grade VWR part# BDH1133 or equivalent

**Calibration**
Not applicable to this procedure

**Procedure**

A. Weigh a 5 g aliquot of the soil sample into a tared 50-mL centrifuge tube.

B. Using a Class-A graduated cylinder add 30mL of 1.N sodium Acetate solution. Cap the tube, and shake on an orbital shaker for 5 minutes. Centrifuge the sample at 2000 PRM for 15 minutes or until the supernatant is clear. Decant and discard the liquid using care to not lose any of the soil sample. Repeat this step 3 more times.

C. Using a Class-A graduated cylinder add 30mL of 99% isopropyl alcohol. Cap the tube, and shake on an orbital shaker for 5 minutes. Centrifuge the sample at 2000 PRM for 15 minutes or until the supernatant is clear. Decant and discard the liquid using care to not lose any of the soil sample. Repeat this step 2 more times.

D. Using a Class-A graduated cylinder add 30mL of 1.0 N ammonia Acetate. Cap the tube, and shake on an orbital shaker for 5 minutes. Centrifuge the sample at 2000 PRM for 15 minutes or until the supernatant is clear. Decant the liquid into a 100mL volumetric flask labeled with the sample number, using care to not lose any of the soil sample. Repeat this step 2 more times, combining all three aliquots of each sample supernatant.

E. Dilute the combined ammonium acetate washings to 100mL using excess ammonium acetate solution.

F. Analyze the solution for sodium using method SW-846 6010.

**Calculations**
Calculation of Cation Exchange Capacity (CEC) in Meg/100qm

$$\frac{raw\ result\ (mg/L) \times volume\ used\ (L) \times .0437\ mequiv/mg}{g\ of\ wt.\ used} = final\ result\left(\frac{mequiv}{g}\right)$$

$$final\ result\left(\frac{mequiv}{g}\right) \times \frac{100}{100} = \frac{mequiv}{100\ g}$$

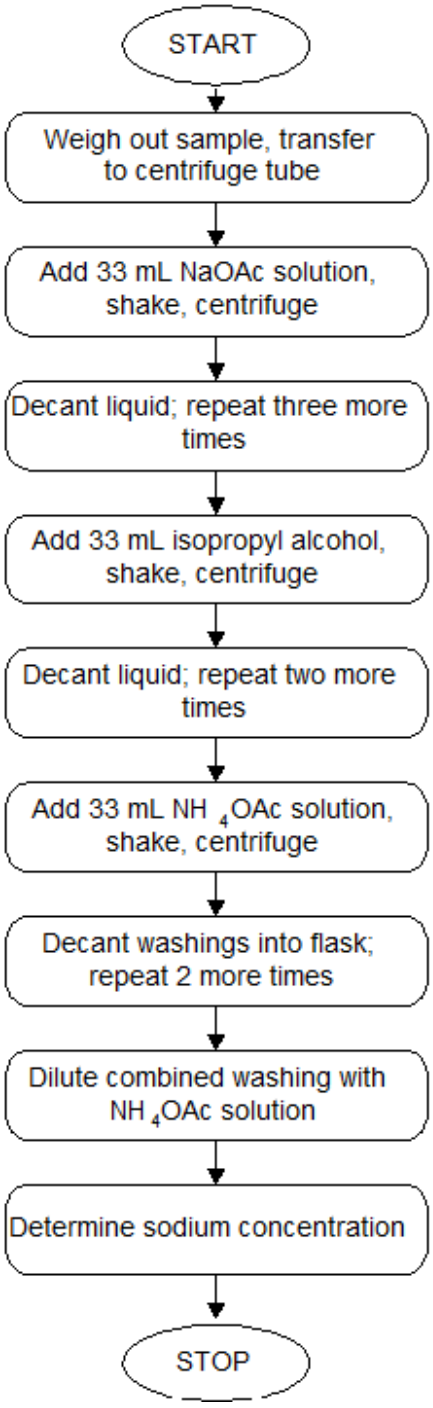
**Statistical Information/Method Performance**

Not applicable to this procedure. See analysis procedure *T-MET-WI11931* or *T-MET-WI11933*.

**Quality Assurance/Quality Control**

A method blank, sample duplicate is required per every batch of 20 samples. The Method Blank (MB) is prepared by weighing out approximately 5.0 g of glass beads that are processed in the same manner as the analytical samples.

**Figure 1**




QA-SOP11188 Reagents and Standards
T-MET-WI11931 Metals by ICP for Methods SW-846 6010B/C/D (aqueous, solid, tissue) and EPA 200.7 (aqueous)
T-WC-WI11519 pH Probes and Meters

End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 9 | 12.APR.2013 | | |
| 10 | 06.DEC.2024 | | |

| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Metals by ICP for Methods SW-846 6010B/C/D (aqueous, solid, tissue) and EPA 200.7 (aqueous)** | Level:<br>**Work Instruction** |
| Document number:<br>**T-MET-WI11931** | | |
| Old Reference:<br>**1-P-QM-WI-9018442** | | |
| Version:<br>**18** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **ULJC**<br>Effective Date: **06-FEB-2025** | Document users:<br>**6_EUUSLA_Metals_ICP Analysis, 6_EUUSLA_Metals_Management, 6_EUUSLA_Metals_Verifiers** | Responsible:<br>**5_EUUSLA_Metals_Manager** |

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Appendix I

## Revision Log

| **Revision:** 18 | **Effective Date:** | This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Reference | Addition | Added USEPA Drinking Water Manual |
| Personnel Training and Qualifications | Addition | Added Arizona Drinking Water requirement for MDLs |
| Reagent and Standards | Addition | Added MRL |
| Procedure A. 2. | Addition | Added Arizona MRL requirement |
| Procedure A. 5. | Addition | Added MRL |
| Quality Assurance/Quality Control B. | Addition | Added MRL requirement. |

| **Revision:** 17 | **Effective Date:** | 30.May.2024 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Procedure 5. | Clarification | added note for 2 ICvs for 200.7 |

## Reference


1. *Test Methods for Evaluating Solid Wastes*, SW-846 Method 6010B, December 1996.

2. *Test Methods for Evaluating Solid Wastes*, SW-846 Method 6010C, February 2007.

3. *USEPA Manual for the Certification of Laboratories Analyzing Drinking Water, Criteria and Procedures, Quality Assurance, Fifth Edition.*

4. *Test Methods for Evaluating Solid Wastes*, SW-846 Method 6010D, Rev.4, July 2014.

5. *Test Methods for Evaluating Solid Wastes*, SW-846 Method 6010D, Rev.5, July 2018.

6. Method 200.7 (rev. 4.4), Determination of Metals and Trace Metals in Water and Wastes by Inductively Coupled Plasma-Atomic Emission Spectrometry, USEPA 600/R-94/111 May 1994.

7. ICAP™ 6000 Series ICP-OES Spectrometer Operator Manual, 2005/2006.

8. *Hardness Calculation SM 2340 B-1997, 20th edition.*

9. *Hardness Calculation SM 2340 B-2011.*

10. *Chemical Hygiene Plan*, current version.


## Cross Reference

| Document | Document Title |
|---|---|
| *S-SS-WI10695*. | Liquid Sample Preservation, Sample Splitting, and Turbidity for metals by EPA Methods 200.7 and 200.8 |
| *T-MET-WI12063* | Preparation of ICP Solutions and Standards Preparations |
| *T-MET-WI9082* | Working Instructions for Prep Solutions and Standards |
| *QA-SOP11892* | Determining Method Detection Limits and Limits of Quantitation |
| *T-MET-WI11938* | Digestion of Waters by EPA 200.7/200.8 for Analysis of Metals by ICP/ICPMS |
| *T-MET-WI11941* | Digestion of Water and Leachates by EPA 3010A for Metals |
| *T-MET-WI8636* | Sample Prep of Sediments Sludges,Soils,and Tissues by SW846 3050B for ICP and ICP-MS |

| Document | Document Title |
|---|---|
| *T-MET-WI8639* | Sample Preparation of Waters for Analysis of Total Recoverable Metals by IPC-OES and IPC-MS |
| *QA-SOP11896* | Establishing Control Limits |
| *T-MET-WI35797* | Metals Data Verification Process |

## Scope

This procedure applies to analyses performed in the Metals department using Inductively Coupled Plasma (ICP) Atomic Emissions Spectroscopy for identification and quantitation of metallic constituents by Methods 6010B/C/D (aqueous, solid, tissue) and EPA 200.7 (aqueous).

The Reporting Limits (RLs) are based on annual statistical evaluation of laboratory data and are subject to change without notification. The current method detection limits (MDLs) and RLs are maintained in the laboratory information management system (LIMS).

This SOP also outlines the proper operation and maintenance of the ICP instrumentation and provides consistent guidelines for the evaluation of ICP data.

## Routine Methods

Elements routinely analyzed on the Thermo Scientific iCAP 6000 and 7000 Series Analyzers:

| Element | Wavelength (nm) |
|---|---|
| Ag | 328.06 |
| Al | 308.21 |
| As | 189.04 |
| B | 249.67 |
| Ba | 455.4 |
| Be | 313.04 |
| Ca | 317.93 |
| Cd | 226.5 |
| Co | 228.62 |
| Cr | 267.72 |
| Cu | 327.4 |
| Fe | 261.19 |
| K | 766.49 |
| Li | 670.78 |
| Mg | 285.21 |
| Mn | 257.61 |
| Mo | 202.03 |
| Na | 589.59 |
| Ni | 231.6 |
| P | 177.49 |
| Pb | 220.35 |
| S | 182.03 |
| Sb | 206.83 |
| Se | 196.09 |

| | |
|---|---|
| Si | 251.6 |
| Sn | 189.99 |
| Sr | 421.55 |
| Th | 401.913 |
| Ti | 334.94 |
| Tl | 190.86 |
| V | 292.4 |
| W | 207.911 |
| Zn | 213.86 |
| Zr | 339.19 |

## Basic Principles

If required, samples are digested with acids and heated to solubilize metals. Samples are received from the prep area in digestion vials.
After the analytical batch is prepared it is loaded onto the autosampler for trace metals analysis.

Samples are transported to a nebulizer via an autosampler and peristaltic pump. The nebulizer introduces an aerosol into a spray chamber; the resulting mist is then transported to an argon plasma torch where excitation of atoms occurs. Characteristic atomic-line emission spectra are produced by a radio-frequency (R.F.) inductively coupled plasma. The spectra are dispersed by a diffraction grating and the intensities of the light at each wavelength are monitored by a photosensitive device. The signals from the photosensitive device are processed by a computer. A background correction technique is required to compensate for variable background contribution to the spectra of trace elements.

## Interferences

Spectral interferences are caused by background emission, stray light from high concentration elements or overlap from a spectral line from another element. Spectral interferences are compensated for by the use of background points, alternate wavelengths and interelement corrections.

Physical and chemical interferences caused by the change in sample matrix affecting sample transport and/or nebulization must be compensated for by using internal standardization. Yttrium is used as the internal standard. Sample results are adjusted by the software using the intensity of Yttrium in the calibration blank and comparing it to the intensity of Yttrium in each sample and standard. Cesium is used as an ionization buffer that allows the ICP plasma to compensate for changes to the plasma excitation conditions.

Memory interference, or carryover, is the contribution of analyte signal from a previous sample onto the next sample analysis. Adequate rinse time of the autosampler tubing overcomes any memory interference.

## Safety Precautions and Waste Handling

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

Preparing samples for inorganic analysis involves working with concentrated acids and other chemicals which are dangerous if not handled carefully:

**Nitric acid (HNO3)** – This acid can cause skin burns. Add nitric acid to samples in a hood to avoid exposure to toxic fumes.

**Hydrochloric acid (HCl)** – This acid can cause skin burns. Never mix HCI with concentrated H2SO4 to avoid a violent reaction. Always use in a fume hood.

When diluting strong acids, never add water to acid; always add acid to water.

Store concentrated acids in the prep room acid lockers. Only acids are to be stored in these lockers. (Store solvents in the flammable liquid storage cabinet.) Fill reagent bottles in an operating fume hood using caution to avoid spills.

Dispose of acid waste properly. Collect all acid digestions, waste solutions, and expired reagent solutions in waste containers. When the acid waste containers are full, a designated acid waste handler transfers the waste to the acid neutralization tank.

In case of spills contact the Emergency Response Team.

## Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP and an annual documented Demonstration of Capability (DOC) which is maintained in the analyst's training records.

Initially, each analyst performing the instrumental analysis must work with an experienced analyst for a period of time until they can independently calibrate the instrument, use the sequence editor to set up the run, perform calculations, interpret raw data, and enter data into the LIMS. Proficiency is measured through documented audits of the tasks listed and over checking of data as well as an IDOC (Initial Demonstration of Capability).

The IDOC consists of aliquots spiked at 1-4X the RL that are carried through all steps of the prep and analysis and meet the defined acceptance criteria. The criteria include the calculation of mean accuracy of 50 - 150% and standard deviation of </= 20%.

Arizona Drinking Water requires that each analyst perform an MDL study that consist of 7 spikes over 3 days.

Various options are available for a DOC and can include four laboratory control samples (LCS) or one blind sample. The mean recovery of four LCSs must meet the accuracy criteria of an LCS, and the standard deviation must be </= 20%.

## Sample Collection, Preservation, and Handling

A. Preservation and Holding time

1. All samples are typically shipped and stored at 0°to 6°C, not frozen, but room temperature is acceptable. Samples are analyzed within 6 months of collection.

2. Aqueous samples are collected in plastic or glass containers and are preserved to pH <2 with nitric acid. If samples are received > pH 2, they are preserved at the lab and held at least 24 hours until digestion. See *S-SS-WI10695*.

3. Drinking water samples are digested if the turbidity is > 1 NTU. See *S-SS-WI10695*.

4. Dissolved metals must be filtered within 15 minutes of sampling. If this is not done, the lab filters the samples of unpreserved bottles within 5 days of submission to the laboratory. Lab-filtered samples are preserved to pH <2 with nitric acid after filtration.

5. Solid samples are collected in glass containers with no chemical preservation.

6. Sample digestates are stored in plastic bottles at room temperature.

B. Sample Discard - The general practice in the metals group is to discard the digestions after all the required metals from a batch of samples have been analyzed and verified in the LIMS. Samples which require the digestate to be held for long term storage are periodically evaluated for discard.

## Apparatus and Equipment

The following is a list of the hardware and apparatus necessary for ICP analysis. More detailed hardware information is located in the *Operator's Manuals*.

1. 15-mL graduated polypropylene test tubes with caps (certified ±1%)

2. 10-mL sterile disposable syringes

3. syringe filters, PTFE, 0.45-µm

4. 30-mL polypropylene medicine cups

5. Calibrated hand-held pipettes and tips (10 – 5000 µL) - FisherBrand or equivalent.

6. Spectrometer - The Thermo Scientific iCAP™ 6000, 6500, and 7000 series Trace Analyzer utilizes a high performance solid state Charge Injection Device (CID) camera system to deliver high contrast/low noise imaging and quantification of all wavelengths in the analytical range. With the entire spectrometer and foreoptics purged with either Argon or Nitrogen, it features a 52.91 grooves/mm grating and dual-view detector.

7. Auto-sampler – The ESI SC-14 auto-sampler and integrated "FAST" system offer increased capacity and reduce sample introduction times. The parameters for each automated run are entered into the auto-sampler table in the iTEVA™ software as described in Instrument Operation, Section A of this SOP.

8. Coolflow –The ThermoFlex™ 900 cooling device for the iCAP™ 6000 series Trace Analyzer operates at 17°C.

9. Personal computer – The iCAP™ 6000 series Trace Analyzer is controlled by PCs.

## Reagents and Standards

Reagent and standard information and the preparation of the following standard and solutions are located in *T-MET-WI12063*:

Initial Calibration (ICAL)
Blank (ICIS) and Calibration Standard (STD1)
Initial Calibration Verification (ICV) standard
Continuing Calibration Verification (CCV) standard
Rinse/Carrier and Profile Solutions
Interference Check Solutions (ICSA and ICSAB)
Low Level Check (CRI) standards
Post Digestion Spike (PDS)
Serial Dilution (SD)
Linear Range Standards (LRC)
Initial Calibration Blank (ICB)
Continuing Calibration Blank (CCB)
Internal Standard Solution
Instrument Detection Limit (IDL) and MDL Solutions
Method Reporting Limit (MRL)

## Calibration

See T-MET-WI35797 for the frequency, acceptance criteria and corrective action of the ICAL, ICV, ICB, CRI, ICSA/ICSAB.

## Procedure

A. Setting up an ICP run sequence file

1. Determine the batches to be analyzed and determine any special requirements by viewing Batch notes and/or Comments that are with the batch paperwork delivered from the metals prep area.

2. Complete necessary pouring for the prep batch following Section B

   a. Batches with only field blanks or equipment blanks do not need a post-digest spike or a serial dilution.

   b. "As Received" samples must be run with a blank and LCS, LCSD (prepared and documented in the LIMs system by the analyst).

   NOTE: Arizona Drinking Water samples require the preparation and analysis of an MRL

3. Open run template following Instrument Operations Section 2.

4. Scan samples by digestate bottle into program.

5. When setting up a run, Batch QC must be placed in the same block of ten or fewer samples. If there are two LCSs, they must be placed one after the other. [The order of the batch QC is typically MB, LCS, (LCSD), BKG, PDS, DUP, MS, (MSD) and SD.]

NOTE: Arizona Drinking Water samples require the preparation and analysis of an MRL. MRL can be placed after the MB.

   a. ICV/ICB must be analyzed immediately after the calibration curve. (NOTE: 200.7 requires the analysis of 2 ICVs. The RSD of both ICVs must be <3%)

   b. CRI, ICSA, ICSAB, CCV, CCB must immediately follow the ICV/ICB.

   c. 6010D requires analysis of LRCs prior to beginning the analytical run

   c. CCV/CCB must be analyzed after every ten analytical samples.

   d. Additional QC are added per client requirements at the end of the run: CRI, ICSA, ICSAB.

   e. Any deviations from protocol must be noted in the LIMs system

6. Edit dilution factors (DF) and auto-sampler locations as needed.

7. Remove all unnecessary QC standards by selecting individual lines and clicking on the remove samples icon at the top of the screen.

8. Save the sequence file

B. Pouring ICP samples and QC samples

It is important to minimize any chance of contamination, both of yourself and the samples. Keep your hands and the work area clean at all times. Do not re-use any pipette tips.

Run QC standards are prepared separately, and kept in separate auto-sampler racks to be obtained at the time of analysis.

1. Use the prep paperwork to document the following information when pouring samples: initials, employee number, PDS lot number, test tube lot number, filter lot number(if applicable) and the date.

2. Carefully examine the batch to ensure there are no discrepancies between the Batch Preparation Sheet and the physical placement of samples in the batch.

3. Obtain and label all required test tubes, and place them in test tube racks.

4. Prepare and label the PDS required for each new batch (sample volume permitting).

    a. A PDS is prepared using 0.2 mL of a custom-ordered PDS solution into 9.8 mL of background sample.

        i. If sample volume is limited, reduce volumes but keep ratios equivalent (i.e. 0.1 mL PDS solution into 4.9 mL background sample.)

        ii. If the background sample must be diluted, add a reduced volume of background sample and bring to volume with the appropriate matrix.

5. Prepare a DF5 serial dilution(SD) of the background sample by pipetting 2 mL of background sample into 8 mL of the matrix solution.

    a. If the background sample chosen for serial dilution has been diluted due to matrix interference or to bring the concentration into the linear range of the instrument, the serial dilution must also be diluted by 5 times the dilution factor of the background (i.e., if Bkg = DF5, S.D. must = DF25).

6. If samples need to be filtered due to cloudiness or contain particulate, then the corresponding method blank (MB) and laboratory control sample (LCS) must be filtered.

    a. Filter using a 10-mL sterile disposable syringe fitted with a 0.45 µm PTFE syringe filter.

    b. Document lot of filters on the preparation batch sheet and mark each sample lid with an “F” to indicate that it was filtered.

7. Perform any additional spiking or dilutions and document on the preparation batch sheet

8. Cover the samples with lids or with plastic wrap to prevent contamination.

9. Place the poured batch on the bench top to await analysis, or return samples to their ICP sample storage location.

10. Take **NOTE** of the following:

    a. A PDS and a serial dilution (SD) must be performed on one sample in each digestion batch unless the batch contains only field blanks or equipment blanks.

b. Analysis information, including standard lot numbers, run number, method, analyst and date of analysis, are captured in the LIMs system

c. Documentation is of utmost importance. Double check all entries.

d. Dilute samples when necessary to yield a response that falls within the calibration range. When there are multiple analytes over range, only run a maximum of three tubes, the DF 1 if needed, the highest dilution required for the highest analyte, and a dilution in between.
Exception: If analytes are over range at a DF1, and the next dilution they are ND, take the data

e. If a batch requires re-analysis, it is acceptable to re-use dilutions and/or spiked samples that were prepared for the previous analysis. A "P" on the preparation batch sheet is used to indicate that a previously poured test tube is being re-used.

## Instrument Operations

A. iTEVA™ software: The Thermo Scientific iCAP instrument is operated through iTEVA™ software. From the Start menu, select "iTEVA™ Control Center" to start the software.

1. Plasma ignition

a. Open the plasma status window by clicking on the icon at the bottom of the screen.

b. Verify that all parameters are within acceptable range for ignition as indicated by a green light.

c. Ensure that the drain tubing for the spray chamber is properly connected to the peristaltic pump and positioned to drain into a waste carboy.

d. Select "Ignite plasma". After the plasma has ignited, the instrument automatically performs optimization of the nebulizer gas pressure, and then starts the on-board peristaltic pump.

e. If the plasma does not light, repeat steps b-d.

f. Once the plasma operating parameters have engaged, exit the Plasma status window by clicking on Close.

g. If the plasma has been off for more than 15 minutes let the instrument warm up for 30 minutes. If the plasma has been off less than 15 minutes, let the instrument warm up 5 to 10 minutes.2. Automated analysis using the iTEVA™ software

a. Open the Analyst window from the Control Center by clicking on the Analyst icon. When prompted, select the appropriate method.

b. In the Analyst window, click on the Sequence tab at the bottom of the screen.

c. From the Auto-session menu, select New Autosampler.

d. The "New automation-session" window opens.

e. Click on "New" to add a sequence and the "New sequence" window appears.

f. Click on the "Import from delimited text file" option and choose an appropriate template or previously prepared run sequence from the drop-down menu for the run to be entered.

g. Change the sequence name to reflect the run number, but do not change the method revision number in the parentheses.

h.Click OK at the bottom of the New Automation session window to continue.

i. The sequence template is loaded. When prompted in the import warning window, click OK to choose the populate the auto-sampler.

j. Right-click on the most recent auto-sampler session and select "Auto-locate All" to have autosampler positions automatically assigned.

k. Click on the "list view" icon and scan calibration information into the table using barcodes provided.

l. Scan client samples into table from digestate bottle to include sample number and hand enter the dilution factor if greater than a DF1.

m. Additional samples and QC are added using the "Add sample" and "Add QC" icons, respectively, at the top of the screen. Unused rows are removed by selecting the entire row(s) and using the "remove sample" icon at the top of the screen.

n. Verify that the sample list you entered into the autosampler sequence matches the samples loaded.

o. Carefully examine the batch to ensure there are no discrepancies between the preparation batch sheet, auto-sampler sequence table and the physical placement of samples in the batch.

p. Click on the "Run auto-session" icon to start the run sequence. If a run sequence is to be started at a sample or standard other than the initial calibration, open auto session run using the plus sign. Open the run and use the plus sign to open the required sample or standards. Right-click on the appropriate sample or standard and choose "Start Auto-Session Run at this Sample". Deselect the reslope (or Calibration option if running Multi Point Method) and QC, then click OK.

3. Running an AutoPeak in iTEVA™

a. In an open autosampler session (autosampler must be initialized), right-click on the location of the AutoPeak solution, and choose "Go to..."

b. Click on the Analysis tab to open the Analysis window.

c. From the Instrument menu, select Perform AutoPeak.

d. Click on All elements, then OK.

e. When prompted to aspirate the high standard ( STD1,ICV or CCV), click OK. The AutoPeak is now performed.

f. When the AutoPeak has finished, click on Done.

4. Manual analysis in iTEVA™

a. In an open autosampler session (autosampler must be initialized), add sample(s) to be analyzed to a new or existing sequence as detailed in section A.2 of this section.

b. To start analysis, right-click on the appropriate sample and choose "Start Auto-Session Run at this Sample" and elect not to run the "start actions."

c. When analysis is complete, results can be printed from the Analysis tab by right-clicking on the sample name and selecting "Print Sample…"

5. Performing an interelement correction (IEC) in iTEVA™

a. Prepare a solution of the interfering element at the linear range of the instrument. Perform manual analysis according to section A.4 of this section.

b. Note results of elements with a known interference that are greater than the limit of quantitation.

c. Divide the result of each interfered element by that of the interfering element. These values represent the amount the current IECs need to be adjusted.

d. In the Method window, click on Elements to expand the list of elements in the method.

e. Click on the targeted element to view the settings for that element.

f. Click on the IECs tab to view the current IECs for that element.

g. Add each calculated result to the correction factors currently in the first column corresponding to each pair of elements.

h. Enter the new correction factors in the table.

i. Repeat steps d-f as needed.

j. Click on the Save method icon to save the method.

k. For routine IECs that are completed every six months, an experienced analyst updates the LIMs database with the information provided by a calculated analytical run. For non-routine IECs the analyst must document changes in the instrument log book with updated information.

B. Import Analytical and Raw data into LIMs System

1. Within the "Analyst" tab of ITeva, right click on the calibration bracket and select export all samples.

2. Enter the most recent run number that was documented in the instrument laboratory data logbook.

3. Highlight the run number and type Control C on the keyboard.

4. Individually select all of the brackets that acquired after the cal, and export the file as listed above. The Control V function will paste the run number originally typed.

5. Make sure all brackets have been exported and in the proper order.

6. Once again right click on the calibration bracket and select "Print Selected Samples".

7. When the printer box opens, select "pdf Factory Pro" from the drop down list, then hit "OK".

8. Print all of the brackets that acquired after the calibration using the same steps listed above in steps 6 and 7.

9. Open the pdf Pro document that was created at the bottom of the screen. Click on the save tab then hit Control V again to populate the run number. Hit "Save".

10. Within the "Sequence" tab of ITeva, select the upper left hand box of the spreadsheet to highlight the entire sequence.

11. Press the Print Samples List Icon at the top of the screen, and select 'pdf Factory Pro" from the drop down list. Hit "OK".

12. Open the pdf Pro document, and select the save tab. Type Control V to enter the run number. Append "Runlog" to the end of the file name and hit "Save".

**NOTE: For DOD samples these steps must be taken**

a. Right click on run number and select edit report option

b. Select output mode to intensity ratio for unknowns as well as QC standards.

c. Right click on run number after and post process samples.

d. Export with same name used in step 2 with "RAW" at the end of the file

e. Do this for both the Calibration file and the Sample file.

13. Insert a Thumb Drive into the Instrument PC tower.

14. Locate the files you just created within the favorites tab, and copy all associated files onto the Thumb Drive.

15. Right Click on the external Thumb Drive and select "Eject".

16. Remove the Thumb Drive.

17. Insert the Thumb Drive into a PC with a network connection.

18. Locate the (\\corptalsapp19\410-ELLE-RawData\Metals) folder. Copy the export "txt" file from the Thumb Drive and paste it to the correct instrument folder.

19. Copy the samples pdf, runlog pdf, and DOD raw data pdf files from the Thumb Drive and paste them into the correct instrument raw data folder on the public drive.

20. Once the pdfs have been copied to the public drive, copy the sample pdfs to your mapped personal folder. If the run included DOD samples, copy the "Raw" sample pdfs to this folder as well.

21. Open the LIMS and select Analyst - Analyst Desktop II.

22. Expand the Equipment Tab in the upper left of the screen, and scroll down to find the correct instrument folder.

23. Expand the Instrument folder and select the top folder from the list. This will open the file in analyst desktop.

24. Hit the edit button at the top of the screen. When asked if you want to process the samples , select "No".

25. Hit the Reagent Tab at the bottom of the screen.

26.Rename the "S0" that acquired at the beginning of the run as "ICIS".

27. Rename the "S1" as "STD1".

28. Locate the tab called MT_IJ_RINSE at the top of the screen. Enter "#" for the matrix rinses that acquired before the calibration and for the "ICIS".

29. Locate the Enter/Scan New Reagent box at the bottom of the screen. Type the correct LIMS Lot # for the "S1" standard used.

30. Once added, the "S1" standard will appear as one of the reagent tabs across the top of the screen.

31. Locate the "S1" tab and enter a "#" into the associated box.

32. Type the current "PDS" or Post Digestion Spike reagent into the New Reagent box at the bottom of the screen.

33. Locate the "PDS" tab that was created, and enter 0.2 into the amount column for all associated post digestion spikes.

34. Select the Worksheet tab at the bottom of the screen. Enter 10 ml as the final amount for all associated post digestion spikes.

35. Go to the "Docs" tab at the top of the screen. Right click within the box and select "Add New Document". Navigate to your personal folder and locate the raw data file from the run. Select them and hit "OK" to add them to the analyst desktop batch.

36. Right click anywhere within Analyst Desktop and select " View Batch Information". Populate this box with the correct Lot numbers used to prep/run the samples. Add your name to the Analyst Tab in the top right of the date box and hit "OK".

37. Press "F6" on the keyboard to process all of the samples in the run.

38. Save the Analyst Desktop Batch.

## Routine Maintenance for the ICAP™ 6000 Duo Analyzer

A. Sample introduction system removal and cleaning: Remove and clean the sample introduction system when instrument performance declines (See **Figure 1**). Any adjustment to an instrument (replacement of parts, etc.) must be documented in the appropriate instrument logbook.

1. Turn plasma off and let instrument cool for approximately 5 to 10 minutes.

2. Remove spray chamber and nebulizer.

    a. Unclamp spray chamber from spray chamber adapter by gently squeezing clamp with one hand while supporting the spray chamber with the other hand.

    b. Gently remove the nebulizer from the spray chamber by pulling it out.

    c. Disconnect the argon and sample tubing from the nebulizer by pinching the Luer lock and pulling the tubing off the nebulizer.

    d. Remove the drain tubing from the spray chamber.

3. Prepare ultrasonic bath. Make sure the bath is at least ½ full with clean reagent water.

4. Clean radial cup
    a. remove gently from box by wiggling back and forth

    b. place radial cup in medicine cup and fill inside radial cup and medicine cup with matrix rinse or 1:1 HCL

    c. allow it to soak for approximately 10 minutes and then rinse off with reagent water

    d. dry radial cup and place back in torch box prior to reconnecting the torch

5. Clean torch, injector tip, and nebulizer.

    a. Invert the torch with tip assembly in a 250-mL vacuum flask of 50% HCl and place in the sonicator for approximatley 10 minutes. After sonication, rinse the torch with reagent water. (Be careful not to get a lot of water down into the base of the torch.) Carefully dry the torch with a paper towel.

    b. For a plastic nebulizer, use a syringe to force the 50% HCl solution through the nebulizer to clean and/or remove any clogs.

    c. Clean the spray chamber by filling with 50% HCL letting sit for approximately 5 minutes and then rinsing with reagent water.

6. Removal and disassemble the torch and tip if dirty or damaged ( cracked,melted,ect)

    a. Gently pull the spray chamber adapter out of the torch assembly.

    b. Unlock the torch assembly by turning it clockwise and remove it from the instrument.

    c. Turn the injector tip assembly counter clockwise to separate it from the torch housing.

    d. Gently pull the center tube out of housing to clean.

    **Note: If the torch and tip is disassembled a torch alignment must be performed before an ICAL is ran**

B. Reassemble the sample introduction system: (See **Figure 1**)

1. Torch.

    a. Inspect The o-rings on the metal torch mount and replaced if any wear or damage is visible.

    b. Push on the quartz torch to ensure that it is firmly seated in the housing assembly

    c. The circular "target" design on the torch **MUST** align with the circular notch on the torch mount.

    d. Make sure the tip is fully inserted into the center tube holder.

    e. Mount the torch assembly back into the instrument by inserting it straight through the torch hole and coil, being careful not to disturb the quartz bonnet above the radial view lens.

    f. Turn the assembly counter-clockwise to lock it into position.

    g. Gently push the spray chamber adapter into the back of the center tube assembly.

2. Reassemble the spray chamber and nebulizer.

a. Reattach the drain tube to the spray chamber.

b. With a twisting motion, insert the nebulizer into the spray chamber so that the collar is a tight fit.

c. Attach the sample and nebulizer gas tubing to the nebulizer.

d. Clamp the spray chamber to the spray chamber adapter.

3. Ignite the plasma.

C. Changing the pump tubing: Change pump tubing on the peristaltic pump when routine maintenance is performed or when the tubing shows wear. Inspect all tubing to insure that it is secure and in good condition.

D. Documentation for instrument/analysis tag out and return to service.

**NOTE:** The following information is taken from QA-SOP11901: In the event of an equipment failure, the following must be performed:

1. Document the nature of the failure in the maintenance logbook

2. Document how and when the defect was discovered

3. Notification of supervisor or responsible person who can decide on appropriate action to take

4. The instrument must be clearly tagged as *Out of Service*. The tag must contain the following information:

a. Date taken out of service

b. Employee who took the instrument out of service

c. Reason for tagout

Form Q-EQA-FRM6871is used for "tagging out".

5. The date taken out of service and the date returned to service must be documented in the maintenance logbook.

6. Document any corrective action that was taken to bring the equipment back into service.

7. Results of the corrective action (i.e., system calibration within specifications, etc.)

8. Supervisory personnel must perform a documented evaluation and review of instrumentation/equipment where a major or uncommon failure has occurred to assess the potential impact the failure could have on the calibration and/or qualification of the instrument. This is done on a case-by-case basis.

9. After repair, document whether the function has been fixed. Then determine if calibration or verification activities need to be performed before the instrumentation is put back into service.

## Calculations

1. Final Result

a. Water sample (mg/L)

$$\text{Instrument Reading} \times \frac{\text{Dilution Volume}}{\text{Aliquot Volume}} \times \frac{\text{Final Volume}}{\text{Sample Volume}}$$

b. Solid sample (mg/kg)

$$\text{Instrument Reading} \times \frac{\text{Dilution Volume}}{\text{Aliquot Volume}} \times \frac{\text{Final Volume}}{\text{Sample Weight (grams)}}$$

2. Relative percent different (RPD)

$$RPD = \frac{S - D}{(S + D)/2} \times 100$$

**Where:**

S = first sample value

D = duplicate sample value

3. Spike recovery

$$\%\ Recovery = \frac{SSR - SR}{SA} \times 100$$

**Where:**

SSR = spiked sample result

SR = sample result

SA = spike added

4. Correlation Coefficient

$$r = \frac{\sum XY - \frac{\sum X \sum Y}{N}}{\sqrt{\left(\sum X^2 - \frac{(\sum X)^2}{N}\right)\left(\sum Y^2 - \frac{(\sum Y)^2}{N}\right)}}$$

**Where :**

X = the known concentration

Y = the instrument response

N = the total number of data points

5. Serial Dilution

$$\%\ Difference = \frac{(5 \times SDR) - SR}{SR} \times 100$$

**Where:**

SDR = serial dilution result

SR = sample result

6. Total Hardness Calculation (SM2340B), Standard Methods 2340B-2011. The calcium result (mg/l) is multiplied by a factor of 2.497, the magnesium result is multiplied by a factor of 4.118, and the two values are added together for the hardness result.

7. Trivalent Chromium (7199_CR3) water and soils. Calculation is performed by subtracting hexavalent chromium from total chromium.

8. Ferric Iron (3500_F+3_B_Calc) is calculated by subtracting ferrous iron from the total iron.

## Statistical Information/Method Performance

Generate MDLs and RLs according to *QA-SOP11892*. Perform an MDL study on each instrument used for the analysis. Determine the MDL by taking seven spiked replicates through the entire digestion and analysis procedure. Compare and pool results to determine the final reporting MDL. The department supervisor maintains annual study data. The department supervisor requests that a Quality Assurance Specialist update to the LIMS as needed. Update the department database via a download from the LIMS.

QC acceptance limits (MS, MSD, LCS and LCSD) are established as statistical limits (see *QA-SOP11896* for guidance). Limits are evaluated every 6 months by the department and updated in LIMS by QA as directed by the department supervisor.

## Quality Assurance/Quality Control

A. For 6010B, 6010C, and 6010D each digestion batch (up to 20 samples) must contain a method blank (MB), LCS, unspiked sample (BKG), Duplicate (DUP), MS, and MSD. If there is not sufficient sample or per client requirement and LCSD is included.

B. For 200.7, each digestion batch (up to 10 samples) must contain a MB, LCS, BKG, DUP, and MS. If there is not sufficient sample or per client requirement and LCSD is included.

NOTE: Arizona Drinking Water samples require the preparation and analysis of an MRL.

C. Batch Quality Control - For the preparation and concentrations see *T-MET-WI12063* and for the frequency, acceptance criteria and corrective action see SOP T-MET-WI35797.

D. Data Quality Checks

1) For SPLP and TCLP samples, an MSA (method of standard additions, EPA 1311 section 8.4.2, EPA 1312 section 8.4.2) is required if:

a. The sample concentration falls between 80% to 100% of the regulatory limits, AND

b. The SPLP or TCLP Matrix Spike (QA) recovers < 50%.

2) For all EW samples (samples from public drinking water sources); check the results against the MCL (maximum contaminant level). If an analyte **exceeds** the MCL, notify a verifier at once. An automated email is sent to the Client Service Representative and the state for the analytes listed in QA-SOP11886. Suppliers must be notified within 24 hours.

F. When raw data checks are complete, check the following:

1. All samples requiring reread/redigestion are listed on the reread/redigestion schedule forms. Any dilutions required have been calculated correctly and added to the reread/redigestion form. Specific instrument has been noted for client requirements if necessary.

2. Data for samples following Good Laboratory Practices (GLP) must be retained as permanent storage.

G. Instrument detection limits are performed when an instruments detector is changed or a new instrument is added to the lab. Method detection limits (MDLs) follow guidelines in SOP ***QA-SOP11892***. Inter-Element Correction factors (IECs) are checked routinely every 6 months for each analytical instrument. Linear ranges are verified semi-annually.

H. For data review reference SOP T-MET-WI35797

## Appendix I

Definitions and explanations of the codes and symbols used on the raw data

A. Sample table information

1. The run number.

2. The page number.

3. The tube number.

4. The sample number.

5. The first and second of four asterisks denote whether the sample is a background (U*), duplicate (D*), spike (R*), MSD (M*), post-digestion spike (UP), serial dilution (UL), or not a QC sample (**).

6. The weight to volume or volume to volume digestion ratio, consisting of the initial quantity of sample used and the final digest volume.

7. The dilution factor – Indicating if the digest solution was diluted prior to analysis. An undiluted sample is labeled DF1.

8. Digestion batch number – Assigned when designated samples are scheduled for preparation, this number is used to track samples and QC prepared together.

9. The protocol by which the data is reviewed (SW-846, EPA-600).

10. Date and time of the sample injection into the instrument.

11. The ICAP identification number.

B. The ICP scans all of the method elements simultaneously during the analysis. The QC review lists all the samples on the run. The QC review lists elements verified, good phantom, and elements/phantom that are bad (need to be reread for run or batch QC). The reviewer or verifier documents on the QC review if any element(s)/sample(s) were selected/deselected.

C. The following are error codes in the iTEVA™ software.

1. S = Saturation – The concentration of the element is more than the detector can quantify.

2. K = The Elements Affected by a Saturated Element – The concentration listed is not accurate, and a more accurate result can be obtained by running the sample at a dilution.

D. Along with the average concentration (in ppm), the average intensity, %RSD and all three replicates are shown for each analyte. Internal standard values are intensities (cts/s).

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Attachment:
Figure 1 (.doc)

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QA-SOP11892 Determining Method Detection Limits and Limits of Quantitation
QA-SOP11896 Establishing Control Limits
S-SA-WI10695 Liquid Sample Preservation Checks, Turbidity Checks, and Sample Splitting
T-MET-WI11938 Digestion of Waters by EPA 200.7/200.8 for Analysis of Metals by ICP/ICPMS
T-MET-WI11941 Digestion of Water and Leachates by EPA 3010A for Metals
T-MET-WI12063 Preparation of ICP Solutions and Standards
T-MET-WI35797 Metals Data Verification Process
T-MET-WI8636 Sample Prep of Sediments, Sludges, Soils, and Tissues by SW846 3050B for ICP and ICP-MS
T-MET-WI8639 Digestion of Waters and Leachates by EPA 3005A for Analysis of Metals by ICP/ICPMS
T-MET-WI9082 Working Instructions for Prep Solutions and Standards

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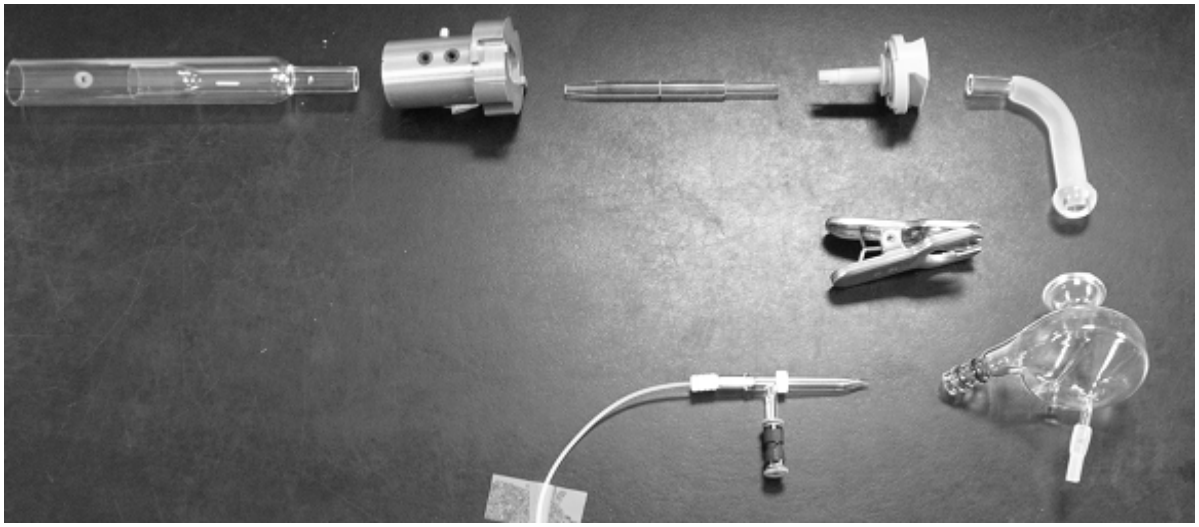
End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 16 | 03.MAY.2023 | | |
| 17 | 30.MAY.2024 | | |
| 18 | 06.FEB.2025 | | |

## Figure 1



| | | |
|---|---|---|
| eurofins | Always check on-line for validity.<br>**Preparation of Soils for Volatile Analysis by EPA SW-846 Method 5035 and Method 5035A** | Level:<br>**Work Instruction** |
| Document number:<br>**T-VOA-WI11170** | | |
| Old Reference:<br>**1-P-QM-WI-9015193** | | |
| Version:<br>**23** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **XL3S**<br>Effective Date: **15-JUL-2025** | Document users:<br>**6_EUUSLA_GC/MS Volatiles_VOA Prep** | Responsible:<br>**5_EUUSLA_GC/MS Volatiles_Manager** |

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## Revision Log

| **Revision:** | 23 | **Effective Date:** | This version |
|---|---|---|---|
| **Section** | **Justification** | **Changes** | |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version | |
| Reagents and Standards | Updated process | Removed rinsing of pipette dispensers as it is no longer performed | |
| Quality Assurance/Quality Control | Updated process | Removed specific storage location for VBs and added that they are stored with samples | |

| **Revision:** | 22 | **Effective Date:** | Jun 17, 2024 |
|---|---|---|---|
| **Section** | **Justification** | **Changes** | |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version | |

| **Revision:** | 22 | **Effective Date:** | Jun 17, 2024 |
|---|---|---|---|
| Procedure A | Updated process | | Removed tracking numbers for the preps, as the procedure is no longer performed |
| Procedure C | Updated process | | Added prescreen process |
| Quality Assurance/Quality Control | Updated process | | Removed reference to sodium bisulfate<br>Added prescreen process |

**Reference**

1. *Test Methods for Evaluating Solid Wastes*, SW-846 Method 5035, Revision 0, December 1996.

2. *Test Methods for Evaluating Solid Wastes*, SW-846, Method 5035A, Revision 1, July 2002.

3. *Method AK101 for the Determination of Gasoline Range Organics*, April 8, 2002.

4. *Chemical Hygiene Plan*, current version.

**Cross Reference**

Not applicable

**Purpose**

The purpose of this SOP is to describe the proper technique to perform the preparation of soil samples for low and high concentration volatile analysis when submitted in a coring device.

**Scope**

This SOP covers the preparation of vials used when preparing soil samples for low and high concentration volatile analysis. It also covers preparing soil samples that have been collected in a coring device for analysis, such as the Encore™ sampler.

**Basic Principles**

The sample is collected in a coring device (Encore™) and extruded into a pre-weighed volatile-free container and preserved within 48 hours of collection. The weight of the container, preservative, and soil is captured and the net weight of the sample is calculated and captured in the Volatile Preparation program in LIMS.

**Definitions**

Analyst Desktop - Reports that reside on the LIMS database. Using the Analyst Desktop application and moisture results pulled from LIMS, the report is populated and the calculations are performed to achieve a Final Extraction Volume to be used when necessary by the GC and GC/MS groups.

**Interferences**

Sample preparation must be performed in a volatile free environment to avoid contamination. Therefore, this process must be performed in one of the designated volatile free laboratories. It is possible for samples to become contaminated by diffusion of volatiles through the sample vial septum; a trip blank carried through sampling, storage and handling acts as a check for such contamination.

**Safety Precautions and Waste Handling**

All laboratory waste is accumulated, managed, and disposed of in accordance with all federal, state, and local laws and regulations.

See *Chemical Hygiene Plan* for general information regarding employee safety, waste management, and pollution prevention.

Methanol is flammable. Containers of this solvent must be kept away from any sources of open flames or sparks. Due to the potentially toxic nature of samples received from clients for analysis, safety precautions must be observed when handling samples. Safety glasses, lab coats, and gloves are required. Weighing of hazardous samples must always take place in a hood; see lab notes for further direction.

The solvents utilized in this procedure are disposed of in a solvent waste container which is transferred to a lab-wide disposal facility. Expired standards in methanol are disposed of as hazardous waste. Bulk sample containers and methanolic sample preparations are returned to the sample storage area for future disposal. Other wastes generated by Lancaster Labs are disposed of via incineration at EPA licensed facilities.

**Personnel Training and Qualifications**

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP which is maintained in the employee's training record.

The initial training consists of observing the procedure being carried out by an experienced analyst/technician. Next, the trainee performs the procedure while the experienced person watches, answers questions, and gives feedback. Following the initial training, experienced individuals are available as a resource until no longer required. Analysts are considered proficient when able to perform the procedure independently.

**Sample Collection, Preservation, and Handling**

Samples in either Encore™ sampling devices or jars used for the effervescence check must be refrigerated at 0° to 6°C, not frozen. (Jars used for collection must be glass with a PTFE-lined lid.) Samples must be preserved or frozen in reagent water at ≤-10°C within 48 hours of collection. See individual technical area SOPs for method specific hold times.

**Apparatus and Equipment**

It is acceptable to use alternate weights and volumes as long as the final concentrations remain the same.

1. 40-mL vials with stir bars, Teflon™-lined low-bleed septa, and screw caps. SciSpec Catalog #376740-MB or equivalent.

2. Encore™ sampler, or equivalent.

3. Pipette capable of dispensing up to 25 mL.

4. Analytical balance capable of weighing 0.01 g

5. Extruder tool for EnCore™ sampler.

6. Analyst Desktop Application - integrates a PC with a balance to collect data directly from the balance. It organizes the data, performs calculations (when required), and stores final results in the Laboratory Information Management System. This procedure must be used whenever possible to facilitate data transfers and other tracking; however, it is allowable to record data traditionally in a logbook if necessary.

**Reagents and Standards**
The methanol used must have been previously tested and approved for use by the labs.

1. Methanol – Purge and trap grade, store at room temperature and re-analyze yearly. The methanol used must have been previously tested and approved for use by the labs.

2. 8260A/B Surrogate Mix, Restek Catalog #30340 (2500 µg/mL) or equivalent. Store at ≤ -10° C for up to 1 year. This standard is used as is or diluted in methanol to a final concentration of 2.5 µg/mL. Diluted standard must be stored at ≤ -10°C for up to 6 months. This standard is used for the GC/MS analyses.

3. Custom a,a,a-trifluorotoluene (TFT), Restek Catalog #54357 (15,000 µg/mL) or equivalent. This standard is used as is or diluted in methanol to a final concentration of 750 µg/L. Store at ≤ -10°C for up to 30 days. This standard is used for the GC analyses.

4. Reagent water – water in which target analytes are not detected at or above the reporting limit for parameters of interest. In general, the deionized water supplied at the taps in the laboratory meets criteria. If the reagent water does not meet the requirements, see your supervisor for further instructions.

**Calibration**
Not applicable to this procedure

**Procedure**
A. Preparing vials

NOTE: Pre-purchased vials can be used for selected preps. Vials containing 5 mL of DI Water, and vials containing 5 mL of methanol are available for Encore preparations. The vials contain the initial tare

weight, vial lot number, and the preservative lot number. When using the pre-purchased vials the vial information must be added to the volatile prep application before performing any preparations.

1. Reagent water vials used in preparation for low concentration GC/MS prep method 5035LP Calc/8260.

a. Add 5 mL of reagent water to a clean 40-mL vial with a magnetic stir bar.

b. Seal the vial with a screw cap and septum seal. (Septum seal must be able to withstand an acidic solution—low bleed septum recommended).

2. Methanol vials used in preparation for high concentration GC/MS analysis prep method 5035A M Calc/8260.

a. Add required amount of methanol with 8260 surrogate (pre-made solution) to a clean 40-mL vial.

b. Seal the vial with a screw cap and septum seal.

c. Store at ≤ -10°C

3. Methanol vials used in preparation for high concentration GC prep method 5035A M Calc/8015.

a. Add required amount of methanol with TFT surrogate (pre-made solution) to a clean 40-mL vial.

b. Seal the vial with a screw cap and septum seal.

c. Store at 0° to 6°C, not frozen.

B. Preparing the sample

1. Samples are stored at 0° to 6°C, not frozen, prior to preparation.

2. Samples are removed from the refrigerator/cooler for preparation in small numbers to ensure that they remain cold.

3. Samples for low concentration analysis require three replicate collections.

a. Two replicates are prepared into reagent water.

b. One replicate is prepared into methanol as a back up in case we need to change to high level.

4. Samples for high concentration analysis only require one collection prepared into methanol.

5. The methanol vial must be prepared first to ensure at least one vial is available for each required solution.

6. Reagent vials

a. Weigh a prepared vial to the nearest 0.01 g. Capture the weight.

b. Extrude the sample from the sampling device into the vial and immediately recap the vial.

c. Weigh the vial which now contains the soil to the nearest 0.01 g and capture the weight.

d. The weight of the soil is determined by a calculation performed by the Analyst Desktop program based on subtracting the weight of the prepped vial from the weight of the vial with soil. Note in the comment section if the Encore™ sampling device is not properly sealed or if the device is not full causing a low weight. If the sample is prepped outside of the 48 hour hold time, create an NCM.

e. Record any unusual observations about the sample.

7. Methanol vials

a. Weigh a prepared vial to the nearest 0.01 g. Capture this weight.

b. Extrude the sample from the sampling device into the vial and immediately recap the vial.

c. Weigh the vial, which now contains the soil to the nearest 0.01 g, and capture this weight.

d. The weight of the soil is determined by a calculation performed by the Analyst Desktop program based on subtracting the weight of the prepped vial from the weight of the vial with soil. Note in the comment section if the Encore™ sampling device is not properly sealed or if the device is not full causing a low weight. If the sample is prepped outside of the 48 hour hold time, create and NCM.

e. Record any unusual observations about the sample.

C. Deliver sample to the labs

Once the samples are prepared into either methanol or frozen in reagent water, they must be transported to the laboratory that performs the analysis. Prescreen analysis is performed on the methanol vials before they are transported to the laboratory. Each department has a designated drop-off spot. Analysis is then performed per the methods of that department.

**Calculations**

Calculation of sample weight : Wn = Ws - Wf

**Where:**

Wf = weight of container + solution (first weight)

Ws = weight of container + solution + soil (second weight)

Wn = net weight of soil sample

**To Determine Final Extract Volume**

When there is no moisture value to consider, the Final Extract Volume = the preservation volume (mL) + MeOH added (mL).

When the moisture volume is to be considered, the Final Extract Volume = the preservative volume (mL) + MeOH added (mL) + the moisture volume (mL).

The moisture volume (mL) = weight (g) x (% moisture/100)

**Statistical Information/Method Performance**

Not applicable to this procedure.

**Quality Assurance/Quality Control**

The number of sampling devices requested from client services must include enough extra to serve as matrix QC for the volatile analyses requested. Generally, the low-level analysis requires a total of seven Encore™ sampling devices. Four are prepared: two for the unspiked sample, one for the matrix spike sample (MS), and one for the matrix spike duplicate sample (MSD). Three are prepared in methanol: one for the unspiked sample, one for the MS, and one for the MSD. Other numbers of sampling devices for matrix QC purposes are sent at the client's request.

All other QC samples such as the Laboratory Control Samples (LCS), Laboratory Control Sample Duplicates (LCSD), and method blanks are prepared and outlined in the individual technical areas SOPs.

The only surrogate addition performed under this procedure is for the high level containers as noted in Procedure A.3.a and A.4.a, are prepared and outlined in the individual technical areas SOPs.

Volatile Blanks (VB) are created for every 20 samples per reagent used. The preparation of HL lab blank consists of dispensing 5 mL of MeOH with surrogate spike (or equivilent volume used for samples) into a 40-mL screw-capped vial. These blanks are then stored with the associated samples and are analyzed by an analyst.

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End of document

**Version history**

| Version | Approval | Revision information | |
|---|---|---|---|
| 21 | 29.JUN.2023 | | |
| 22 | 17.JUN.2024 | | |
| 23 | 15.JUL.2025 | | |

| eurofins | Always check on-line for validity.<br>**Interpretation of Chromatographic Data** | Level:<br>**Work Instruction** |
|---|---|---|
| Document number:<br>**T-PEST-WI9954** | | |
| Old Reference:<br>**1-P-QM-PRO-9015494; DOD - SOP-011** | | |
| Version:<br>**17** | | Organisation level:<br>**5-Sub-BU** |
| Approved by: **X6TJ**<br>Effective Date: **26-JUL-2023** | Document users:<br>**6_EUUSLA_Pesticide Residue Analysis_All Chemist Tr, 6_EUUSLA_Pesticide Residue Analysis_All Management** | Responsible:<br>**5_EUUSLA_Pesticide Residue Analysis_Manager** |


Revision Log
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Table I


## Revision Log

| **Revision:** 17 | **Effective Date:** | This version |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Procedure | Enhancement | Removed method 8081A, 8082, 8330A, 8318 |
| Procedure | Addition | Added co-elution checks for 8081B and 608.3 Pest |

| **Revision:** 16 | **Effective Date:** | Feb 23,2022 |
|---|---|---|
| **Section** | **Justification** | **Changes** |
| Revision Log | Formatting requirement | Removed revision logs up to the previous version |
| Procedure | Reflects current practice | Removed method 504.1 |

## Cross Reference

| Document | Document Title |
|---|---|
| *T-PEST-WI9980* | Monitoring QC Data Acceptance Limits |
| *T-PEST-WI10020* | Uploading Data to the LIMS |
| *QA-SOP11913* | Laboratory Notebooks, Logbooks, and Documentation |

## Purpose

The purpose of this SOP is to outline how chromatographic data is interpreted in the pesticide residue group so that consistency between all analysts is ensured.

## Scope

This SOP applies to all pesticide, herbicide, PCB, and other analyses performed by GC and HPLC in Department 4024 with the exception of explosives. The explosives (Method 8330) are detailed in the individual methods. This SOP assumes that 1) the samples were run according to the appropriate method, 2) the data was checked for conformance to method criteria, and 3) the samples were analyzed on a calibrated run.

## Definitions

1. GC – Gas chromatography or gas chromatograph
2. HPLC – High performance liquid chromatography or chromatograph
3. LOQ – Limit of quantitation
4. MDL – Method detection limit
5. LIMS – Laboratory Information Management System
6. RPD – Relative percent difference (percent difference divided by the true value)
7. RSD – Relative standard deviation (standard deviation divided by the mean)
8. RT – Retention time
9. CCV- Continuing Calibration Verification
10. OOS- Out of specification
11. NCF - Nonconformance Form
12. NCM - Nonconformance Memo

## Personnel Training and Qualifications

All personnel performing this procedure must have documentation of reading, understanding, and agreeing to follow the current version of this SOP.

Each analyst interpreting chromatography data must have documentation that they have read, understood and agree to follow this version of the SOP *T-PEST-WI9980* and the instrumental analysis and extraction methods associated with the data. They must go through several sets of data with an experienced analyst until they can independently determine surrogate and spike concentrations, perform all related calculations, understand and apply the appropriate LOQs and MDLs. They must learn to interpret data for single-component analyses over the course of several weeks, followed by interpretation of multi-component data such as PCBs. Proficiency is measured through verification of data, along with an Initial Demonstration of Capability study. Calculations must be done manually by the trainee and submitted for overchecking at least once for each type of equation used by the software programs. A Demonstration of Capability is also done annually for an ongoing evaluation of proficiency.

## Procedure

A. The samples must be run under the following conditions before accurate data interpretation can be performed:

   1. The GC or HPLC must be set up according to the method specifications.
   2. The retention times on the GC or HPLC must be stable.

3. The data system must be calibrated for each target compound and the correct RT and RT search window must be established and entered into the calibration file for accurate and consistent compound identification.

B. Quality control samples

All blanks, LCS/LCSD, and MS/MSD must conform to the QC acceptance criteria.

C. Interpretation of chromatograms

1. The following items are recorded by Chrom peak review:

    a. Laboratory sample number, with any cleanup steps, reinjection, or re-extraction noted where applicable

    b. Sample code

    c. Date and time of injection

    d. Raw data file number

    e. Extraction information – Weights, volumes

    These items are automatically recorded if proper entry of this information into the sequence file was performed following *T-PEST-WI10020* prior to data acquisition.

2. Check the surrogate standard recovery, which is recorded in the LIMS. Any problems with the surrogate standard must be noted, such as diluted out or matrix related. If the surrogate is outside the acceptance limits, the corrective action must be followed.

3. The automated LIMS forms used during data interpretation are dependent on accurate entries in the sequence file, accurate calibration files, stable retention times, and correctly labeled quantitation reports. Therefore, they must be double-checked for accuracy against the raw data (chromatograms and quantitation reports).

    The automated forms do not replace the review of raw data by the analyst but are used to provide additional information to the analyst, to perform calculations, neatly summarize results and increase the speed and accuracy of data interpretation.

4. Procedure C.5. through C.10. outline the basic raw data review process.

5. Review the chromatograms for all columns and detectors used. The following items must be checked:

    a. The integration of each peak to ensure it is correct.

        (1) Use PeakReview in TALs to correct baseline problems.

        (2) The experience of the analyst is an important factor in determining when a baseline is drawn incorrectly.

6. With the help of the LIMS, review the chromatograms and determine if any presumptive peaks are present by checking the list of analytes reported in the quantitation report for each chromatogram.

    a. A presumptive peak is one that lies within the RT window of a compound or is close enough to the RT to interfere with the detection of that compound.

    b. The experience of the analyst weighs heavily in determining if a compound separates from an interfering peak. This decision depends on the size of the interference as well as the RT of the interference in relation to the expected RT of the compound of interest. Check peak widths to assist in determining overlapping peaks.

7. A compound is reported in a sample if a presumptive peak in the chromatogram lies inside the retention time window for that compound. For dual-column or dual-detector analyses, a peak must be present within the retention time window on both columns/detectors.

8. For single column analyses, if no presumptive peak is present, the normal LOQ can be reported.

    a. If the concentration is below the LOQ but above the MDL, flag the value with a J for estimated.

    b. If the concentration is below the MDL, flag the value as <MDL. This value is not reported to the client as a detected hit.

9. For dual-column (or dual detector) analyses, the following guidelines apply:

**SW-846 Methods 8151A (CCV ±15%)**

    a. No presumptive peaks are present which confirm on the second column, the normal LOQ can be reported.

        (1) Data reporting defaults to D1 unless there is a CCV OOS on D1, then would default to D2 assuming CCV is in spec and there are no coelutions on the in-spec column.

        (2) If compound not detected on one column, and the CCVs are in spec on that column, then would report as ND from that column.

        (3) If CCV oos high and no detections, would need to comment but no reinjection necessary.

    b. If a presumptive peak is present on both columns, evaluate the agreement between the concentrations. This is done by calculating the %RPD between the values as follows:

**% RPD = difference over the average of the two results x 100**

        (1) Data is reported from the high side (surrogates all data is reported) if %D is <40% D between the 2 columns when all CCV data is within the limits (15% no grand mean follow update V(8000D)).

        (2) If > 40%, the low side is reported when all CCV data is within the limits (15% no grand mean follow update V(8000D)). P flag is on at compound level

        (3) If %D is >100% a worst-case determination is made to raise limit above the low side.

        (4) If CCV fails high on one column, then the sample would need to be reinjected for detections. If reinjection cannot be done, then sample data requires an internal NCM and a comment on the report.

        (5) If CCV fails low on one column, then the sample would need to be reinjected for detections. If reinjection cannot be done, then sample data requires an internal NCM and a comment on the report.

        (6) If a surrogate is OOS for recovery a comment is always required on the report.

        (7) Project specific requirements would supersede the above listing.

**SW-846 Methods 8081B, 8082A, (CCVs ±20%)**

    c. No presumptive peaks are present which confirm on the second column, the normal LOQ can be reported.

        (1) Data reporting defaults to D1 unless there is a CCV OOS on D1, then would default to D2 assuming CCV is in spec and there are no coelutions on the in-spec column.

(2) If compound not detected on one column, and the CCVs are inspec on that column, then would report as ND from that column.

(3) If %D is >100% a worst-case determination is made to raise limit above the low side.

(4) If ccv oos high and no detections, would need to comment but no reinjection necessary.

d. If a presumptive peak is present on both columns, evaluate the agreement between the concentrations (%RPD).

(1) Data is reported from the high side (surrogates all data is reported) if %D is <40% RPD between the 2 columns when all CCV data is within the limits (20% no grand mean follow update V(8000D)).

(2) If >40%, the low side is reported when all CCV data is within the limits (20% no grand mean follow update V(8000D)). P flag is on at compound level.

(3) If CCV fails high on one column, then the sample would need to be reinjected for detections. If reinjection cannot be done, then sample data requires an internal NCM and a comment on the report.

(4) If CCV fails low on one column, then the sample would need to be reinjected for detections. If reinjection cannot be done, then sample data requires an internal NCM and a comment on the report.

(5) If a surrogate is OOS for recovery a comment is always required on the report.

(6) Project specific requirements would supersede the above listing

e. Review for the following co-elutions to ensure the correct analyte is reported.

(1) 2,4'-DDE and gamma-chlordane.

(2) 4,4'-DDD and Kepone.

(3) 2,4'-DDT and Endrin.

**Method 608.3 (both oc pest and pcbs)**

f. No presumptive peaks are present which confirm on the second column, the normal LOQ can be reported.

(1) Data reporting defaults to D1 unless there is a CCV OOS on D1, then would default to D2 assuming CCV is in spec and there are no coelutions on the inspec column.

(2) If compound not detected on one column, and the CCVs are inspec on that column, then would report as ND from that column.

(3) If ccv oos high and no detections, would need to comment but no reinjection necessary.

g. If a presumptive peak is present on both columns, evaluate the agreement between the concentrations (%RPD).

(1) data is reported from low side if %D is <50%. All surrogate data is reported.

(2) (we would rarely use this option) If %D is >50%, if the amounts do not agree, and the RT data indicate the presence of the analyte (per Section 14), it is likely that a positive interference is present on the column that yielded the higher result. That interference may be represented by a separate peak on the other column that does not coincide with the

retention time of any of the target analytes. If the interfering peak is evident on the other column, report the result from that column and advise the data user that the interference resulted in a %D value greater than 50%.

(3) (this is the preferred option) If an interference is not identifiable on the second column, then the results must be reported as "not detected" at the lower concentration (AKA worst-case). In this event, the pesticide is not confirmed and the reporting limit is elevated.

(4) If CCV is outside the criteria, reinjection must occur unless ND and OOS high, then can report with comment. All SS CCV must pass to report the data.

(5) If CCV fails high on one column, then the sample would need to be reinjected for detections. If reinjection cannot be done, then sample data requires an NCM and a comment on the report.

(6) If CCV fails low on one column, then the sample would need to be reinjected for detections. If reinjection cannot be done, then sample data requires an NCM and a comment on the report.

(7) Any OOS SS would require commenting on the report.

h. Review for the following co-elutions to ensure the correct analyte is reported for 608.3 Pest

(1) 2,4'-DDE and gamma-chlordane.

(2) 4,4'-DDD and Kepone.

(3) 2,4'-DDT and Endrin.

**Method 531.1**

i. If CCV out on primary(D1) must reinject.

j. If reporting from confirmation must do NCM and comment.

k. If EW or PW designation no QC may fail.

l. If WW designation (531.1) may do NCM and comment for failures if reinjection is not possible.

**Method 8011**

m. Data reports from the primary column(D1)

n. If CCV out on primary must reinject (unless OOS high no hits)

o. If CCV is outside the criteria, reinjection must occur unless ND and OOS high, then can report with comment. All SS CCV must pass to report the data.

p. Confirmation column must be in spec. If the primary column CCV's pass and no detection on the primary you could report as nd without reinjection for confirmation.

q. If reporting from confirmation must do NCM and comment.

**Method 8330B 8318A**

r. Report from primary

s. If CCV out on primary must reinject

t. If reporting from confirmation, must write NCM and comment

u. Co-Elution Exceptions:

(1) Explosive 8330A

Nitrobenzene/Tetryl coelutes on D1

(2) Explosive 8330B

4-Am2,6-DNT/Nitrobenzene coelutes on D2
HMX/2,6Diamino-4-Nitrotoluene coelutes on D2

10. The following situations must be evaluated by the analyst for all analyses:

a. A presumptive peak is present with a retention time just outside the RT window on the one column and just inside the window on the second column and the amounts are both above the LOQ.

(1) If the retention times during the run are stable, the compound should not be reported.

(2) The normal LOQ can be reported if the analyst feels there would be separation of the target compound from the interference. If separation is uncertain, a worst-case determination is made.

(3) However, the compound might be reported after the following parameters have been considered: the RT of the standards bracketing the sample injection, the history of the sample and site, the peak shape, the baseline where the peak eluted, and the possible coelution of matrix interferences. The experience of the analyst weighs heavily in deciding if the compound must be reported.

b. A presumptive peak is present on both columns but the retention time is outside the windows on both columns. Only in rare cases is a compound to be reported. The parameters listed above in Procedure C.10.a. must be evaluated. The normal LOQ can be reported if the analyst feels there would be separation of the target compound from the interference. If separation is uncertain, a worst-case determination is made.

11. The LIMS lists all the target analytes found on both columns, then summarize the results into a summary report as follows. However, how the data is evaluated may change based on client or project specific requirements.

a. If a target analyte is not detected or not detected on both columns, ND is placed on the summary section, but the MDL and LOQ must have a "<" symbol in front of their respective numbers.

b. If a target analyte is detected on both columns for SW-846, the LIMS configuration is set so that it places the highest value in the summary section, unless the RPD is >40%, then the lower value is listed.

c. If a target analyte is detected on both columns for 500 series, the LIMS configuration is set so that it places the value from the primary column in the summary section.

d. If a target analytes is detected on both columns for method 608/622, the LIMS configuration is set so that it places the lowest value in the summary section, unless the RPD between columns is greater than 100%. In this case the detection limit is raised to report a less than value (to a value above the lowest concentration detected) since there is significant uncertainty to the presence of the compound.

12. The LIMS also summarizes the result for each multicomponent compound in the calibration. Each peak used for quantitation is shown as well as averages, %RSD between peaks, and the RPD between the two columns on the final data.

D. Worst-case calculation

1. A worst-case calculation is performed using the peak height (area) of the interference in a sample (see Procedure C.7.), using the lower value for dual column data (provided the associated check standards meet specifications).

2. The value obtained is rounded off to the proper number of figures as if the number were to be reported based on the LOQ. An elevated LOQ and/or MDL are established at one figure higher than this value.

3. If the worst-case value is above the LOQ, then both the LOQ and MDL must be adjusted.

For example, if the worst-case value is 0.39 µg/L for the analyte and the LOQ is 0.1, the value is rounded to 0.4 µg/L and the LOQ and MDL are set at <0.5 µg/L.

4. By raising the LOQ and/or MDL, we tell the client that the most accurate determination we can make with the data for the sample is that the analyte is not present at 0.5 µg/L or above. Due to the interference present, we cannot be sure of concentrations below this amount.

5. These values are edited into the upload file prior to uploading to the LIMS. Care should be taken to edit only the MDL and/or LOQ fields as appropriate to the situation as outlined above.

6. An NCM must be added to the report stating that reporting limits were raised due to interference from the sample matrix.

## Table I

**Qualifiers:**

J = The compound was detected at an amount below the quantitation limit and is therefore an estimated value.

E = Peak response exceeds the calibration range – a dilution must be performed.

**Abbreviations:**

R = Designates that the data is from a repeated extraction.
DF = Dilution Factor – This is the amount that the extract was diluted by (i.e., a DF10 is a 10-fold dilution).
DO = Diluted Out
WC = Worst-Case – Denotes the actual value from the worst-case calculation.

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QA-SOP11913 Laboratory Notebooks, Logbooks, and Documentation
T-PEST-WI10020 Uploading Data to the LIMS
T-PEST-WI9980 Monitoring QC Data Acceptance Limits

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End of document

## Version history

| Version | Approval | Revision information | |
|---|---|---|---|
| 15 | 02.MAR.2021 | | |
| 16 | 23.FEB.2022 | No updates needed | |
| 17 | 12.JUL.2023 | | |

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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ENVIRONMENTAL

Valid To: November 30, 2026 Certificate Number: 0001.01

In recognition of the successful completion of the A2LA evaluation process, (including an assessment of the laboratory's compliance with the 2016 TNI Environmental Testing Laboratory Standard, the requirements of the DoD Environmental Laboratory Accreditation Program (DoD ELAP) as detailed in version 6.0 of the DoD/DOE Quality Systems Manual for Environmental Laboratories, and the fifth edition of the Environmental Protection Agency's Manual for the Certification of Laboratories Analyzing Drinking Water), accreditation is granted to this laboratory to perform recognized EPA methods using the following testing technologies in the analyte categories identified below, and on the following matrices as applicable: Drinking Water, Bottled Water, Water as a Component of Food and Beverage, Non-Potable Water, Food and Feed, Aqueous and Solid Hazardous Waste, and Tissue.

Testing Technologies

Atomic Absorption/ICP-AES Spectrometry, ICP-MS Spectrometry, Gas Chromatography, Gas Chromatography/Mass Spectrometry (including Single Ion Monitoring (SIM), Isotope Dilution, and Triple-Quad), Gravimetry, High Performance Liquid Chromatography, Ion Chromatography, Misc.-Electronic Probes (pH, $F^-$, $O_2$), Oxygen Demand, Spectrophotometry (Visible), Spectrophotometry (Automated), Titrimetry, TCLP, Total Organic Carbon, Turbidity, Liquid Chromatography/Mass Spectrometry/Mass Spectrometry, High Resolution Gas Chromatography/Mass Spectrometry

| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| **Demands** | | | | |
| Biochemical Oxygen Demand (BOD) | ---------- | SM 5210B-2016 | SM 5210B-2016 | ---------- |
| Carbonaceous Biochemical Oxygen Demand (CBOD) | ---------- | SM 5210B-2016 | SM 5210B-2016 | ---------- |
| COD | ---------- | EPA 410.4 | EPA 410.4 | ---------- |
| Dissolved Organic Carbon (DOC) | | EPA 9060A<br>SM 5310C-2014 | EPA 9060A<br>SM 5310C-2014 | ---------- |
| Total Organic Carbon (TOC) | ---------- | EPA 9060A<br>SM 5310C-2014 | EPA 9060A<br>SM 5310C-2014 | EPA 9060A<br>Lloyd Kahn |
| **Anions** | | | | |
| Fluoride | ---------- | EPA 300.0<br>EPA 9056A | EPA 300.0<br>EPA 9056A | EPA 300.0<br>EPA 9056A |

1 – In addition to GC/MS, the lab offers this method by GC/MS-MS for this analyte.
2 – In addition to GC/MS, the lab offers this method by SIM for this analyte
3 – In addition to GC/MS, the lab offers this method by SIM – isotope dilution for this analyte


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| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| Nitrate (as N) | ---------- | EPA 300.0<br>EPA 353.2<br>EPA 9056A | EPA 300.0<br>EPA 353.2<br>EPA 9056A | EPA 300.0<br>EPA 9056A |
| Nitrite (as N) | ---------- | EPA 300.0<br>EPA 353.2<br>EPA 9056A | EPA 300.0<br>EPA 353.2<br>EPA 9056A | EPA 300.0<br>EPA 9056A |
| Nitrate and Nitrite Total | ---------- | EPA 300.0<br>EPA 353.2<br>EPA 9056A | EPA 300.0<br>EPA 353.2<br>EPA 9056A | EPA 300.0<br>EPA 9056A |
| Bromide | ---------- | EPA 300.0<br>EPA 9056A | EPA 300.0<br>EPA 9056A | ---------- |
| Chloride | ---------- | EPA 300.0<br>EPA 9056A | EPA 300.0<br>EPA 9056A | EPA 300.0<br>EPA 9056A |
| Sulfate | ---------- | EPA 300.0<br>EPA 9056A | EPA 300.0<br>EPA 9056A | EPA 300.0<br>EPA 9056A |
| **Wet Chemistry** | | | | |
| Acid Volatile Sulfide (AVS) (Including Distillation for SEM Metals) | ---------- | ---------- | EPA-821-R-91-100 | EPA-821-R-91-100 |
| Alkalinity | ---------- | SM 2320B-2021 | SM 2320B-2021 | ---------- |
| Ammonia | ---------- | EPA 350.1 | EPA 350.1 | SM 4500-NH3 B/C-2021-MOD |
| Anion Exchange Capacity (AEC) Preparation and Calculation (Analysis by ICP-AES EPA 6010D) | ---------- | ---------- | ---------- | T-MET-WI76522 |
| Cation Exchange Capacity (CEC) Preparation and Calculation (Analysis by ICP-AES EPA 6010D) | ---------- | ---------- | ---------- | EPA 9081 |
| Corrosivity | ---------- | ---------- | SW-846 Chapter 7 | SW-846 Chapter 7 |
| Conductivity | ---------- | SM 2510B-2021 | SM 2510B-2021 | ---------- |
| Cyanide | ---------- | ---------- | EPA 9012B | EPA 9012B |
| Ferrous Iron | ---------- | SM 3500Fe B-2011 | SM 3500Fe B-2011 | ---------- |
| Flashpoint | ---------- | EPA 1010A/B | EPA 1010A/B | EPA 1010A/B |
| Grain Size | ---------- | ---------- | ---------- | ASTM D422 MOD |
| Hardness | ---------- | EPA 130.2<br>SM 2340B-2021<br>SM 2340C-2021 | EPA 130.2<br>SM 2340B-2021<br>SM 2340C-2021 | ---------- |
| HEM (Oil&Grease) | ---------- | EPA 1664B | EPA 1664B | EPA 9071B |
| Hexavalent Chromium Digestion | ---------- | ---------- | ---------- | EPA 3060A |
| Hexavalent Chromium | ---------- | EPA 218.6<br>EPA 7196A<br>EPA 7199 | EPA 218.6<br>EPA 7196A<br>EPA 7199 | EPA 7196A<br>EPA 7199 |

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2 – In addition to GC/MS, the lab offers this method by SIM for this analyte
3 – In addition to GC/MS, the lab offers this method by SIM – isotope dilution for this analyte

| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| | | SM 3500-Cr B-2020 | SM 3500-Cr B-2020 | |
| Ignitability | ---------- | ---------- | 40 CFR 261.21 | 40 CFR 261.21 |
| Orthophosphate | ---------- | EPA 365.3<br>SM 4500 P E-2021 | EPA 365.3<br>SM 4500 P E-2021 | ---------- |
| Paint Filter | ---------- | EPA 9095B | EPA 9095B | EPA 9095B |
| pH | ---------- | SM 4500 H+B-2011<br>EPA 9040B/C | EPA 9040B/C | EPA 9045C/D |
| Phenol | ---------- | EPA 9066 | EPA 9066 | ---------- |
| Reactivity Prep | ---------- | SW-846 Chapter 7.3 | SW-846 Chapter 7.3 | SW-846 Chapter 7.3 |
| Reactive Cyanide | ---------- | EPA 9012B | EPA 9012B | EPA 9012B |
| Reactive Sulfide | ---------- | EPA 9034 | EPA 9034 | EPA 9034 |
| Residue, Filterable (Total Suspended Solids, TSS) | ---------- | SM 2540D-2020 | SM 2540D-2020 | ---------- |
| Residue, Non-Filterable (Total Dissolved Solids, TDS) | ---------- | SM 2540C-2020 | SM 2540C-2020 | ---------- |
| Residue, Total (Total Solids, TS) | ---------- | SM 2540B-2020 | SM 2540B-2020 | SM 2540G-2020 |
| SGT-HEM (Total Petroleum Hydrocarbons) | ---------- | EPA 1664B | EPA 1664B | EPA 9071B |
| Sulfide, Total | ---------- | EPA 376.1<br>EPA 376.2<br>SM 4500 S2D-2021<br>SM 4500 S2F-2021 | EPA 376.1<br>EPA 376.2<br>SM 4500 S2D-2021<br>SM 4500 S2F-2021 | ---------- |
| Sulfide, Dissolved | ---------- | SM 4500 S2 B/D-2021 | SM 4500 S2 B/D-2021 | ---------- |
| Total Kjeldahl Nitrogen (TKN) | ---------- | EPA 351.2 | EPA 351.2 | EPA 351.2 |
| Total Phosphorus | ---------- | EPA 365.1<br>SM 4500P B/F-2021 | EPA 365.1<br>SM 4500P B/F-2021 | EPA 365.1<br>SM 4500P B/F-2021 |
| **Metals** | | | | |
| Metals Digestion | ---------- | EPA 3005A | EPA 3005A | EPA 3050B |
| Aluminum | EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Antimony | EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Arsenic | EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Barium | EPA 200.7 | EPA 200.7 | EPA 6010D | EPA 6010D |

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2 – In addition to GC/MS, the lab offers this method by SIM for this analyte
3 – In addition to GC/MS, the lab offers this method by SIM – isotope dilution for this analyte

| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| | EPA 200.8 | EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6020B | EPA 6020B |
| Beryllium | EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Boron | ---------- | EPA 200.7<br>EPA 6010D | EPA 6010D | EPA 6010D |
| Cadmium | EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Calcium | EPA 200.7<br>EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Chromium | EPA 200.7<br>EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Cobalt | EPA 200.7 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Copper | EPA 200.7<br>EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Iron | EPA 200.7<br>EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Lead | EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Lithium | EPA 200.7 | EPA 200.7<br>EPA 6010D | EPA 6010D | EPA 6010D |
| Molybdenum | ---------- | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Magnesium | EPA 200.7<br>EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Manganese | EPA 200.7 | EPA 200.7 | EPA 6010D | EPA 6010D |

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| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| | EPA 200.8 | EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6020B | EPA 6020B |
| Mercury | EPA 245.1 | EPA 245.1<br>EPA 7470A | EPA 245.1<br>EPA 7470A | EPA 7471B |
| Nickel | EPA 200.7<br>EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Potassium | EPA 200.7<br>EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Selenium | EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Silicon | ---------- | EPA 200.7<br>EPA 6010D | EPA 6010D | EPA 6010D |
| Silver | EPA 200.7<br>EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Sodium | EPA 200.7<br>EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Strontium | EPA 200.7<br>EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Sulfur | EPA 200.7 | EPA 200.7<br>EPA 6010D | EPA 6010D | EPA 6010D |
| Thallium | EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Thorium | ---------- | EPA 6010D | EPA 6010D | EPA 6010D |
| Tin | EPA 200.7 | EPA 200.7<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Titanium | ---------- | EPA 200.7<br>EPA 200.8<br>EPA 6010D | EPA 6010D | EPA 6010D |
| Tungsten | ---------- | EPA 6010D | EPA 6010D | EPA 6010D |
| Uranium | ---------- | EPA 200.8<br>EPA 6020B | EPA 6020B | EPA 6020B |

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| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| Vanadium | EPA 200.7 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Zinc | EPA 200.7<br>EPA 200.8 | EPA 200.7<br>EPA 200.8<br>EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Zirconium | ---------- | EPA 6010D | EPA 6010D | EPA 6010D |
| **Simultaneously Extracted Metals (SEM) by EPA-821-R-91-100** | | | | |
| Aluminum (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Antimony (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Arsenic (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Barium (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Beryllium (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Cadmium (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Calcium (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Chromium (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Cobalt (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Copper (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Iron (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Lead (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Molybdenum (SEM) | ---------- | ---------- | EPA 6020B | EPA 6020B |
| Magnesium (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Manganese (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Mercury (SEM) | ---------- | ---------- | EPA 7470A | EPA 7470A |
| Nickel (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Potassium (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Selenium (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Silver (SEM) | ---------- | ---------- | EPA 6010D | EPA 6010D |

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| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| | | | EPA 6020B | EPA 6020B |
| Sodium (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Strontium (SEM) | ---------- | ---------- | EPA 6020B | EPA 6020B |
| Thallium (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Tin (SEM) | ---------- | ---------- | EPA 6020B | EPA 6020B |
| Titanium (SEM) | ---------- | ---------- | EPA 6020B | EPA 6020B |
| Vanadium (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| Zinc (SEM) | ---------- | ---------- | EPA 6010D<br>EPA 6020B | EPA 6010D<br>EPA 6020B |
| **Total Petroleum Hydrocarbons** | | | | |
| Gasoline Range Organics (GRO) and Volatile Petroleum Hydrocarbons (VPH) | ---------- | EPA 8015C/D<br>EPA 8260C/D<br>NW TPH-Gx<br>MA VPH Rev 2.1<br>AK101 | EPA 8015C/D<br>EPA 8260C/D<br>NW TPH-Gx<br>MA VPH Rev 2.1<br>AK101 | EPA 8015C/D<br>EPA 8260C/D<br>NW TPH-Gx<br>MA VPH Rev 2.1<br>AK101 |
| Extractable Petroleum Hydrocarbons (EPH) | ---------- | NWTPH Dx<br>MA EPH Rev 2.1<br>TX1005<br>NJ EPH<br>AK102/103, SV | NWTPH Dx<br>MA EPH Rev 2.1<br>TX1005<br>NJ EPH<br>AK102/103, SV | NWTPH Dx<br>MA EPH Rev 2.1<br>TX1005<br>NJ EPH<br>AK102/103 |
| Diesel Range Organics (DRO) | ---------- | EPA 8015C/D | EPA 8015C/D | EPA8015 C/D |
| Carbon Range Organics C8-C44 (including subsets of this range i.e. HRO, MRO, ORO, RRO, TPH Fingerprinting) | ---------- | EPA 8015C/D | EPA 8015C/D | EPA 8015C/D |
| Total Petroleum Hydrocarbons | ---------- | FL-PRO (2018) | FL-PRO (2018) | FL-PRO (2018) |
| **Purgeable Organics (Volatiles)** | | | | |
| Acetone | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Acetonitrile | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Acrolein | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Acrylonitrile | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Allyl chloride | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| tert-Amyl Alcohol | ---------- | EPA 8260C/D | EPA 8260C/D | EPA 8260C/D |
| tert-Amyl Methyl Ether | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| tert-Butyl Alcohol | ---------- | EPA 8260C/D | EPA 8260C/D | EPA 8260C/D |

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| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| | | EPA 624.1 | EPA 624.1 | |
| tert-Butyl Formate | ---------- | EPA 8260C/D | EPA 8260C/D | EPA 8260C/D |
| Benzene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Benzyl Chloride | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Bromobenzene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Bromochloromethane | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Bromodichloromethane | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Bromoform | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Bromomethane | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| n-Butanol | ---------- | EPA 8260C/D | EPA 8260C/D | EPA 8260C/D |
| 2-Butanone | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| n-Butyl acetate | ---------- | EPA 624.1 | EPA 624.1 | |
| n-Butylbenzene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| sec-Butylbenzene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| tert-Butylbenzene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Carbon disulfide | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Carbon tetrachloride | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 2-Chloro-1,3-butadiene | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Chloroacetonitrile | EPA 524.2 | ---------- | ---------- | ---------- |
| Chlorobenzene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1-Chlorobutane | EPA 524.2 | ---------- | ---------- | ---------- |
| Chlorodifluoromethane | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Chloroethane | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 2-Chloroethyl Vinyl Ether | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Chloroform | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1-Chlorohexane | ---------- | EPA 8260C/D | EPA 8260C/D | EPA 8260C/D |
| Chloromethane | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 2-Chlorotoluene | EPA 524.2 | EPA 8260C/D | EPA 8260C/D | EPA 8260C/D |

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| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| | | EPA 624.1 | EPA 624.1 | |
| 4-Chlorotoluene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Cyclohexane | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Cyclohexanone | ---------- | EPA 8260C/D | EPA 8260C/D | EPA 8260C/D |
| Di-Isopropyl ether | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Dibromochloromethane | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,2-Dibromo-3-chloropropane | EPA 524.2 | EPA 8260C/D<br>EPA 624.1<br>EPA 8011 | EPA 8260C/D<br>EPA 624.1<br>EPA 8011 | EPA 8260C/D |
| Dibromomethane | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,2-Dibromoethane (EDB) | ---------- | EPA 8260C/D<br>EPA 624.1<br>EPA 8011 | EPA 8260C/D<br>EPA 624.1<br>EPA 8011 | EPA 8260C/D |
| 1,2-Dichlorobenzene | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,3-Dichlorobenzene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,4-Dichlorobenzene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| trans-1,4-dichloro-2-butene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Dichlorodi-fluoromethane | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,1-Dichloroethane | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,2-Dichloroethane | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,1-Dichloroethene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| cis-1,2-Dichloroethene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| trans-1,2-Dichloroethene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Dichlorofluoromethane | EPA 524.2 | EPA 624.1 | EPA 624.1 | ---------- |
| 1,2-Dichloropropane | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,3-Dichloropropane | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 2,2-Dichloropropane | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,1-Dichloropropene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| cis-1,3-Dichloropropene | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |

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| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| trans-1,3-Dichloropropene | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,4-Dioxane | ---------- | EPA 8260C/D[2, 3]<br>EPA 624.1 | EPA 8260C/D[2, 3]<br>EPA 624.1 | EPA 8260C/D[2,3] |
| Ethanol | ---------- | EPA 8260C/D | EPA 8260C/D | EPA 8260C/D |
| Ethylbenzene | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Ethyl acetate | ---------- | EPA 624.1 | EPA 624.1 | ---------- |
| Ethyl ether | EPA 524.2 | EPA 8260C/D | EPA 8260C/D | EPA 8260C/D |
| Ethyl Methacrylate | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Ethyl Tert-Butyl Ether | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Freon-113 | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Freon 123a | ---------- | EPA 624.1 | EPA 624.1 | ---------- |
| Heptane | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Hexane | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 2-Hexanone | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Hexachlorobutadiene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Hexachloroethane | EPA 524.2 | ---------- | ---------- | ---------- |
| Isobutyl alcohol | ---------- | EPA 624.1 | EPA 624.1 | ---------- |
| Isopropyl acetate | ---------- | EPA 624.1 | EPA 624.1 | ---------- |
| Isopropyl Alcohol | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Isopropylbenzene | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,4-Isopropyltoluene | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Methylacrylonitrile | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,1,2,2-Tetrachloroethane | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Tetrachloroethene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Tetrahydrofuran | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Toluene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,2,3-Trichlorobenzene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,2,4-Trichlorobenzene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,3,5-Trichlorobenzene | ---------- | EPA 8260C/D | EPA 8260C/D | EPA 8260C/D |

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| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| 1,1,1-Trichloroethane | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,1,2-Trichloroethane | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Trichloroethene | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Trichlorofluoromethane | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,2,3-Trichloropropane | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,2,4-Trimethylbenzene | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,3,5-Trimethylbenzene | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Vinyl Acetate | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| Vinyl Chloride | EPA 524.2 | EPA 8260C/D[2]<br>EPA 624.1 | EPA 8260C/D[2]<br>EPA 624.1 | EPA 8260C/D |
| Xylenes, Total | ---------- | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,2-Xylene (o-Xylene) | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| 1,3+1,4-Xylene<br>(m+p Xylene) | EPA 524.2 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D<br>EPA 624.1 | EPA 8260C/D |
| **Extractable Organics (Semivolatiles)** | | | | |
| Acenaphthene | ---------- | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[2] |
| Acenaphthylene | ---------- | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[2] |
| Acetophenone | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| 2-Acetylaminofluorene | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| Alkylated PAHs | ---------- | EPA 8270D/E SIM | EPA 8270D/E SIM | EPA 8270D/E SIM |
| 4-Aminobiphenyl | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| 2-Amino-4,6-dinitrotoluene | ---------- | EPA 8330B | EPA 8330B | EPA 8330B MOD |
| 4-Amino-2,6-dinitrotoluene | ---------- | EPA 8330B | EPA 8330B | EPA 8330B MOD |
| Aniline | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| Anthracene | ---------- | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[1, 2]<br>EPA 625.1 | EPA 8270D/E[2] |
| Atrazine | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E[1] |
| Benzaldehyde | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| Benzidine | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| Benzoic acid | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| Benzo (a) anthracene | ---------- | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[1, 2]<br>EPA 625.1 | EPA 8270D/E[1,2] |

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| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| Benzo (b) fluoranthene | ---------- | EPA 8270D/E[1,2] EPA 625.1 | EPA 8270D/E[1,2] EPA 625.1 | EPA 8270D/E[1,2] |
| Benzo (k) fluoranthene | ---------- | EPA 8270D/E[1,2] EPA 625.1 | EPA 8270D/E[1,2] EPA 625.1 | EPA 8270D/E[1,2] |
| Benzo (ghi) perylene | ---------- | EPA 8270D/E[1,2] EPA 625.1 | EPA 8270D/E[1,2] EPA 625.1 | EPA 8270D/E[2] |
| Benzo (a) pyrene | ---------- | EPA 8270D/E[1,2] EPA 625.1 | EPA 8270D/E[1,2] EPA 625.1 | EPA 8270D/E[1,2] |
| Benzo (e) pyrene | ---------- | EPA 8270D/E SIM | EPA 8270D/E SIM | EPA 8270D/E SIM |
| Benzyl Alcohol | ---------- | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E |
| Biphenyl | ---------- | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E |
| bis (2-Chloroethoxy) Methane | ---------- | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E |
| bis (2-Chloroethyl) Ether | ---------- | EPA 8270D/E[1,2] EPA 625.1 | EPA 8270D/E[1,2] EPA 625.1 | EPA 8270D/E |
| bis (2-Ethylhexyl) Phthalate | ---------- | EPA 8270D/E[1,2] EPA 625.1 | EPA 8270D/E[1,2] EPA 625.1 | EPA 8270D/E[2] |
| 4-Bromophenylphenyl Ether | ---------- | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E |
| Butyl benzyl Phthalate | ---------- | EPA 8270D/E[1 2] EPA 625.1 | EPA 8270D/E[1, 2] EPA 625.1 | EPA 8270D/E[2] |
| Caprolactam | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| Carbazole | ---------- | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E |
| 4-Chloroaniline | ---------- | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E |
| 4-Chloro-3-methylphenol | ---------- | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E |
| Chlorobenzilate | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| 1-Chloronaphthalene | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| 2-Chloronaphthalene | ---------- | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E |
| 2-Chlorophenol | ---------- | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E |
| 4-Chlorophenyl phenyl ether | ---------- | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E |
| Chrysene | ---------- | EPA 8270D/E[1, 2] EPA 625.1 | EPA 8270D/E[1, 2] EPA 625.1 | EPA 8270D/E[2] |
| Cresols (Methyl phenols) | ---------- | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E[1] EPA 625.1 | EPA 8270D/E |
| cis-/trans-Diallate | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| 2,4-Diamino-6-nitrotoluene | ---------- | EPA 8330B | EPA 8330B | EPA 8330B MOD |
| 2,6-Diamino-4-nitrotoluene | ---------- | EPA 8330B | EPA 8330B | EPA 8330B MOD |
| Dibenzo (a,h) acridine | ---------- | EPA 8270D/E[1] | EPA 8270D/E | EPA 8270D/E |
| Dibenzo (a,h) anthracene | ---------- | EPA 8270D/E[1,2] | EPA 8270D/E[1,2] | EPA 8270D/E[2] |
| Dibenzofuran | ---------- | EPA 8270D/E[1,2] | EPA 8270D/E[1,2] | EPA 8270D/E[1,2] |

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| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| 1,2-Dichlorobenzene | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| 1,3-Dichlorobenzene | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| 1,4-Dichlorobenzene | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| 3,3-Dichlorobenzidine | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| 2,4-Dichlorophenol | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| 2,6-Dichlorophenol | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| Diethyl Phthalate | ---------- | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[2] |
| Dimethoate | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| p-Dimethylaminoazobenze | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| 7,12-Dimethylbenz (a) anthracene | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| 2,4-Dimethylphenol | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| Dimethyl Phthalate | ---------- | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[2] |
| 3,3'-Dimethylbenzidine | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| Di-n-butyl Phthalate | ---------- | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[2] |
| Di-n-octyl phthalate | ---------- | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[2] |
| 3,5-Dinitroaniline | ---------- | EPA 8330B | EPA 8330B | EPA 8330B MOD |
| 1,3-Dinitrobenzene | ---------- | EPA 8270D/E[1]<br>EPA 8330B | EPA 8270D/E[1]<br>EPA 8330B | EPA 8270D/E<br>EPA 8330B MOD |
| 1,4-Dinitrobenzene | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| 2,4-Dinitrophenol | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| 2,4-Dinitrotoluene | ---------- | EPA 8270D/E[1]<br>EPA 625.1<br>EPA 8330B | EPA 8270D/E[1]<br>EPA 625.1<br>EPA 8330B | EPA 8270D/E<br>EPA 8330B MOD |
| 2,6-Dinitrotoluene | ---------- | EPA 8270D/E[1]<br>EPA 625.1<br>EPA 8330B | EPA 8270D/E[1]<br>EPA 625.1<br>EPA 8330B | EPA 8270D/E<br>EPA 8330B MOD |
| 1,4-Dioxane | ---------- | EPA 8270D/E[1,2,3]<br>EPA 625.1 | EPA 8270D/E[1,2,3]<br>EPA 625.1 | EPA 8270D/E[2] |
| Diphenylamine | ---------- | EPA 8270D/E | EPA 8270D/E | EPA 8270D/E |
| Diphenyl ether | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| 1,2-Diphenylhydrazine | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| Ethyl Methanesulfonate | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| Fluoroanthene | ---------- | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[2] |

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| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| Fluorene | ---------- | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[2] |
| Hexachlorobenzene | ---------- | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E |
| Hexachlorobutadiene | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| Hexachlorocyclo-pentadiene | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| Hexachloroethane | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| Hexachloropropene | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| Hexahydro-1,3,5-trinitro- 1,3,5-triazine (RDX) | ---------- | EPA 8330B | EPA 8330B | EPA 8330B MOD |
| Indeno (1,2,3-cd) Pyrene | ---------- | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[2] |
| Isodrin | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| Isophorone | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| Isosafrole | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| 3-Methycholanthrene | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| 2-Methyl-4,6-dinitrophenol | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| Methyl methane sulfonate | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| 1-Methylnaphthalene | ---------- | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[2] |
| 2-Methylnaphthalene | ---------- | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[2] |
| 2-Methylphenol | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| 4-Methylphenol | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| Naphthalene | ---------- | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[2] |
| 1,4-Naphthoquinone | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| 1-Naphthylamine | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| 2-Naphthylamine | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| 4-Nitroquinoline-1-oxide | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| 2-Nitroaniline | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| 3-Nitroaniline | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| 4-Nitroaniline | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| Nitrobenzene | ---------- | EPA 8270D/E[1]<br>EPA 625.1<br>EPA 8330B | EPA 8270D/E[1]<br>EPA 625.1<br>EPA 8330B | EPA 8270D/E<br>EPA 8330B MOD |
| Nitroglycerin | ---------- | EPA 8330B | EPA 8330B | EPA 8330B MOD |

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| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| 2-Nitrophenol | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| 4-Nitrophenol | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| 2-Nitrotoluene | ---------- | EPA 8330B | EPA 8330B | EPA 8330B MOD |
| 3-Nitrotoluene | ---------- | EPA 8330B | EPA 8330B | EPA 8330B MOD |
| 4-Nitrotoluene | ---------- | EPA 8330B | EPA 8330B | EPA 8330B MOD |
| 5-Nitro-o-toluidine | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| n-Nitroso-di-n-butylamine | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| n-Nitrosodiethylamine | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| n-Nitrosodimethylamine | ---------- | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[2] |
| n-Nitrosomethylethylamine | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| n-Nitrosomorpholine | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| n-Nitrosodi-n-propylamine | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| n-Nitrosodiphenylamine | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| n-Nitrosopiperidine | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| n-Nitrosopyrrolidine | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| Octahydro-1,3,5,7-tetranitro- 1,3,5,7-tetrazocine (HMX) | ---------- | EPA 8330B | EPA 8330B | EPA 8330B MOD |
| 2,2-Oxybis (1-chloropropane) | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| Pentachlorobenzene | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| Pentachloronitrobenzene | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| Pentachlorophenol | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| Pentaerythritol Tetranitrate (PETN) | ---------- | EPA 8330B | EPA 8330B | EPA 8330B MOD |
| Perylene | ---------- | EPA 8270D/E SIM | EPA 8270D/E SIM | EPA 8270D/E SIM |
| Phenacetin | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| Phenanthrene | ---------- | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[1,2]<br>EPA 625.1 | EPA 8270D/E[2] |
| Phenol | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| 2-Picoline | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| Pronamide | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| Pyrene | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1] |
| Pyridine | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |

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| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| Safrole | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| 1,2,4,5- Tetrachlorobenzene | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| 2,3,4,6-Tetrachlorophenol | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| Tetraethyl dithiopyrophosphate | ---------- | EPA 8270D/E | EPA 8270D/E | EPA 8270D/E |
| Tetraethyl lead | ---------- | EPA 8270D/E | EPA 8270D/E | EPA 8270D/E |
| Tetryl | ---------- | EPA 8330B | EPA 8330B | EPA 8330B MOD |
| Thionazin | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| o-Toluidine | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| 1,2,4-Trichlorobenzene | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| 1,3,5-Trinitrobenzene | ---------- | EPA 8330B<br>EPA 8270E GC/MS-MS | EPA 8330B<br>EPA 8270E GC/MS-MS | EPA 8330B MOD |
| 2,4,5-Trichlorophenol | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| 2,4,6-Trichlorophenol | ---------- | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E[1]<br>EPA 625.1 | EPA 8270D/E |
| O,O,O-Tri-ethylphosphorothioate | ---------- | EPA 8270D/E[1] | EPA 8270D/E[1] | EPA 8270D/E |
| 2,4,6-Trinitrotoluene | ---------- | EPA 8330B | EPA 8330B | EPA 8330B MOD |
| **Organochlorine Pesticides** | | | | |
| Aldrin | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| alpha-BHC | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| beta-BHC | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| delta-BHC | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| gamma-BHC (Lindane) | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| alpha-Chlordane | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| Chlordane (Technical) | ---------- | EPA 8081B | EPA 8081B | EPA 8081B |

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| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| | | EPA 608.3 | EPA 608.3 | |
| 2,4'-DDD | ---------- | EPA 8081B<br>EPA 608.3 | EPA 8081B<br>EPA 608.3 | EPA 8081B |
| 2,4'-DDE | ---------- | EPA 8081B<br>EPA 608.3 | EPA 8081B<br>EPA 608.3 | EPA 8081B |
| 2,4'-DDT | ---------- | EPA 8081B<br>EPA 608.3 | EPA 8081B<br>EPA 608.3 | EPA 8081B |
| 4,4'-DDD | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| 4,4'-DDE | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| 4,4'-DDT | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| Dieldrin | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| Dinoseb | ---------- | EPA 8270D/E<br>EPA 8270E GC/MS-MS | EPA 8270D/E<br>EPA 8270E GC/MS-MS | EPA 8270D/E |
| Endosulfan I (alpha) | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| Endosulfan II (beta) | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| Endosulfan Sulfate | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| Endrin | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| Endrin Aldehyde | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| Endrin Ketone | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| gamma-Chlordane | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |

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| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| Heptachlor | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| Heptachlor Epoxide | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| Hexachlorobenzene | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| Hexachlorocyclopentadiene | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS | EPA 8081B<br>EPA 8270E GC/MS-MS | EPA 8081B |
| Methoxychlor | ---------- | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B<br>EPA 8270E GC/MS-MS<br>EPA 608.3 | EPA 8081B |
| Mirex | ---------- | EPA 8081B<br>EPA 608.3 | EPA 8081B<br>EPA 608.3 | EPA 8081B |
| Toxaphene | ---------- | EPA 8081B<br>EPA 608.3 | EPA 8081B<br>EPA 608.3 | EPA 8081B |
| **PCBs (Aroclors)** | | | | |
| PCB-1016 | ---------- | EPA 8082A<br>EPA 608.3 | EPA 8082A<br>EPA 608.3 | EPA 8082A |
| PCB-1221 | ---------- | EPA 8082A<br>EPA 608.3 | EPA 8082A<br>EPA 608.3 | EPA 8082A |
| PCB-1232 | ---------- | EPA 8082A<br>EPA 608.3 | EPA 8082A<br>EPA 608.3 | EPA 8082A |
| PCB-1242 | ---------- | EPA 8082A<br>EPA 608.3 | EPA 8082A<br>EPA 608.3 | EPA 8082A |
| PCB-1248 | ---------- | EPA 8082A<br>EPA 608.3 | EPA 8082A<br>EPA 608.3 | EPA 8082A |
| PCB-1254 | ---------- | EPA 8082A<br>EPA 608.3 | EPA 8082A<br>EPA 608.3 | EPA 8082A |
| PCB-1260 | ---------- | EPA 8082A<br>EPA 608.3 | EPA 8082A<br>EPA 608.3 | EPA 8082A |
| PCB-1262 | ---------- | EPA 8082A<br>EPA 608.3 | EPA 8082A<br>EPA 608.3 | EPA 8082A |
| PCB-1268 | ---------- | EPA 8082A<br>EPA 608.3 | EPA 8082A<br>EPA 608.3 | EPA 8082A |
| PCB congeners (209) | ---------- | EPA 1668A/C | EPA 1668A/C | EPA 1668A/C |
| **Herbicides** | | | | |
| 2,4,5-T | ---------- | EPA 8151A | EPA 8151A | EPA 8151A |
| 2,4,5-TP (Silvex) | ---------- | EPA 8151A | EPA 8151A | EPA 8151A |
| 2,4-D | ---------- | EPA 8151A | EPA 8151A | EPA 8151A |
| 2,4-DB | ---------- | EPA 8151A | EPA 8151A | EPA 8151A |
| Dalapon | ---------- | EPA 8151A | EPA 8151A | EPA 8151A |
| Dicamba | ---------- | EPA 8151A | EPA 8151A | EPA 8151A |
| Dichlorprop | ---------- | EPA 8151A | EPA 8151A | EPA 8151A |

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| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| Dinoseb | ---------- | EPA 8151A | EPA 8151A | EPA 8151A |
| MCPA | ---------- | EPA 8151A | EPA 8151A | EPA 8151A |
| MCPP | ---------- | EPA 8151A | EPA 8151A | EPA 8151A |
| Pentachlorophenol | ---------- | EPA 8151A | EPA 8151A | EPA 8151A |
| **PCB Homologues** | | | | |
| Monochlorobiphenyls | ---------- | EPA 680 | EPA 680 | EPA 680 |
| Dichlorobiphenyls | ---------- | EPA 680 | EPA 680 | EPA 680 |
| Trichlorobiphenyls | ---------- | EPA 680 | EPA 680 | EPA 680 |
| Tetrachlorobiphenyls | ---------- | EPA 680 | EPA 680 | EPA 680 |
| Pentachlorobiphenyls | ---------- | EPA 680 | EPA 680 | EPA 680 |
| Hexachlorobiphenyls | ---------- | EPA 680 | EPA 680 | EPA 680 |
| Heptachlorobiphenyls | ---------- | EPA 680 | EPA 680 | EPA 680 |
| Octachlorobiphenyls | ---------- | EPA 680 | EPA 680 | EPA 680 |
| Nonachlorobiphenyls | ---------- | EPA 680 | EPA 680 | EPA 680 |
| Decachlorobiphenyls | ---------- | EPA 680 | EPA 680 | EPA 680 |
| **Dioxins/Furans** | | | | |
| 2,3,7,8-TCDD | EPA 1613B | EPA 8290A | EPA 8290A | EPA 8290A |
| 2,3,7,8-TCDF | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| 1,2,3,7,8-PeCDF | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| 2,3,4,7,8-PeCDF | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| 1,2,3,7,8-PeCDD | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| 1,2,3,4,7,8-HxCDF | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| 1,2,3,6,7,8-HxCDF | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| 2,3,4,6,7,8-HxCDF | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| 1,2,3,7,8,9-HxCDF | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| 1,2,3,4,7,8,-HxCDD | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| 1,2,3,6,7,8-HxCDD | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| 1,2,3,7,8,9-HxCDD | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| 1,2,3,4,6,7,8-HpCDF | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| 1,2,3,4,7,8,9-HpCDF | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| 1,2,3,4,6,7,8-HpCDD | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| OCDF | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| OCDD | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| Total HpCDD | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| Total HpCDF | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| Total HxCDD | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| Total HxCDF | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| Total PeCDD | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| Total PeCDF | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| Total TCDD | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |
| Total TCDF | ---------- | EPA 8290A | EPA 8290A | EPA 8290A |

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| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| **Misc. Headspace Analysis** | | | | |
| Carbon dioxide | ---------- | RSK-175 | RSK-175 | ---------- |
| Ethane | ---------- | RSK-175 | RSK-175 | ---------- |
| Ethene | ---------- | RSK-175 | RSK-175 | ---------- |
| Methane | ---------- | RSK-175 | RSK-175 | ---------- |
| Acetylene | ---------- | RSK-175 | RSK-175 | ---------- |
| Propane | ---------- | RSK-175 | RSK-175 | ---------- |
| **Hazardous Waste Characteristics** | | | | |
| Toxicity Characteristic Leaching Procedure | ---------- | ---------- | EPA 1311 | EPA 1311 |
| Synthetic Precipitation Leaching Procedure | ---------- | ---------- | EPA 1312 | EPA 1312 |
| ASTM Leaching Procedure | ---------- | ---------- | ASTM D3987-12 | ASTM D3987-12 |
| **Other** | | | | |
| Perchlorate | ---------- | EPA 6850 | EPA 6850 | EPA 6850 |
| Hydrazine | ---------- | EPA 8315A MOD | EPA 8315A MOD | EPA 8315A MOD |
| Formaldehyde | ---------- | ---------- | EPA 8315A | EPA 8315A |
| Methylhydrazine | ---------- | EPA 8315A MOD | EPA 8315A MOD | EPA 8315A MOD |
| 1,1-Dimethylhydrazine | ---------- | EPA 8315A MOD | EPA 8315A MOD | EPA 8315A MOD |
| Acetic Acid | ---------- | EPA 8015D | EPA 8015D | ---------- |
| Butryic acid | ---------- | EPA 8015D | EPA 8015D | ---------- |
| Lactic Acid | ---------- | EPA 8015D | EPA 8015D | ---------- |
| Propionic Acid | ---------- | EPA 8015D | EPA 8015D | ---------- |
| Pyruvic Acid | ---------- | EPA 8015D | EPA 8015D | ---------- |
| Citric Acid | ---------- | EPA 8015D | EPA 8015D | ---------- |
| Formic Acid | ---------- | EPA 8015D | EPA 8015D | ---------- |
| Oxalic Acid | ---------- | EPA 8015D | EPA 8015D | ---------- |
| Quinic Acid | ---------- | EPA 8015D | EPA 8015D | ---------- |
| Succinic Acid | ---------- | EPA 8015D | EPA 8015D | ---------- |
| Tartaric Acid | ---------- | EPA 8015D | EPA 8015D | ---------- |
| Volatile Preparation | ---------- | EPA 5030C | EPA 5030C | EPA 5035A |
| Organic Extraction/Cleanup | ---------- | EPA 3510C, 3511, 3660B, 3620C, 3630C, 3665A | EPA 3510C, 3511, 3660B, 3620C, 3630C 3665A | EPA 3546, 3550C, 3660B, 3620C, 3630C, 3665A, 3640A |
| Adsorbable Organic Flurorine (AOF) | ---------- | EPA 1621 | EPA 1621 | ---------- |
| Total Fluorine (TF) and Adsorbable Organic Fluorine (AOF) | ---------- | T-PFAS-WI38299 | T-PFAS-WI38299 | ---------- |
| Total Fluorine (TF) and Extractable Organic Fluorine (AOF) | ---------- | ---------- | ---------- | T-PFAS-WI43681 |

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| Parameter/Analyte | Drinking Water | Nonpotable Water | Solid Hazardous Waste | Tissue |
|---|---|---|---|---|
| **Per- and Polyfluoroalkyl Substances (PFAS)** | | | | |
| N-ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | EPA 537.1 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| N-methyl perfluoroctanesulfonamidoacetic Acid (NMeFOSAA) | EPA 537.1 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluorobutanesulfonic Acid (PFBS) | EPA 537.1<br>EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluorodecanoic Acid (PFDA)<br><br>CASRN: 335-76-2 | EPA 537.1<br>EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluorododecanoic Acid (PFDoA) | EPA 537.1<br>EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluoroheptanoic Acid (PFHpA)<br><br>CASRN: 375-85-9 | EPA 537.1<br>EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluorohexanesulfonic Acid (PFHxS)<br><br>CASRN: 355-46-4 | EPA 537.1<br>EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluorohexanoic Acid (PFHxA) | EPA 537.1<br>EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluorononanoic Acid (PFNA) | EPA 537.1<br>EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluorooctanesulfonic Acid (PFOS) | EPA 537.1<br>EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluorooctanoic Acid (PFOA) | EPA 537.1<br>EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluorotetradecanoic Acid (PFTeDA)<br><br>CASRN: 376-06-7 | EPA 537.1 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluorotridecanoic Acid (PFTrDA)<br><br>CASRN: 72629-94-8 | EPA 537.1 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluoroundecanoic Acid (PFUnA)<br><br>CASRN: 2058-94-8 | EPA 537.1<br>EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |

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| Parameter/Analyte | Drinking Water | Nonpotable Water | Solid Hazardous Waste | Tissue |
|---|---|---|---|---|
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | EPA 537.1<br>EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| 4,8-Dioxa-3*H*- perfluorononanoic acid (DONA) | EPA 537.1<br>EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| 9-Chlorohexadecafluoro-3- oxanonane-1- sulfonic acid (9Cl- PF3ONS) | EPA 537.1<br>EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| 11-Chloroeicosafluoro-3- oxaundecane-1- sulfonic acid (11Cl- PF3OUdS) | EPA 537.1<br>EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluorobutanoic Acid (PFBA) | EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluoropentanoic Acid (PFPeA)<br><br>CASRN: 2706-90-3 | EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| 1H,1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2FTS) | EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| 1H,1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2-FTS)<br><br>CASRN: 39108-34-4 | EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluoropentanesulfonic Acid (PFPeS) | EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| 1H,1H, 2H, 2H-Perfluorooctanesulfonic acid<br>(6:2-FTS)<br><br>CASRN: 27619-97-2 | EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluoroheptanesulfonic Acid (PFHpS)<br><br>CASRN: 375-92-8 | EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluorononanesulfonic Acid (PFNS) | ---------- | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluorodecanesulfonic Acid (PFDS) | ---------- | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |

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| Parameter/Analyte | Drinking Water | Nonpotable Water | Solid Hazardous Waste | Tissue |
|---|---|---|---|---|
| Perfluorododecanesulfonic Acid (PFDoS) | ---------- | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluorooctadecanoic Acid (PFODA)<br><br>CASRN: 16517-11-6 | ---------- | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluorooctanesulfonamide (PFOSA) | ---------- | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| N-methyl perfluorooctanesulfonamidoethanol (NMeFOSE)<br><br>CASRN: 24448-09-7 | ---------- | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| N-methyl perfluorooctanesulfonamide (NMeFOSA) | ---------- | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| N-ethyl perfluorooctanesulfonamidoethan ol (NEtFOSE) | ---------- | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| N-ethylperfluorooctanesulfonamide (NEtFOSA) | ---------- | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluoro-3-methoxypropanoic acid (PFMPA)<br><br>CASRN: 377-73-1 | EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluoro-4-methoxybutanoic acid (PFMBA) | EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluoro(2- ethoxyethane)sulfonic acid (PFEESA) | EPA 533 | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| 3-Perfluoropropylpropanoic acid (3:3 FTCA)<br><br>CASRN: 356-02-5 | ---------- | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| 2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA) | ---------- | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |

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| Parameter/Analyte | Drinking Water | Nonpotable Water | Solid Hazardous Waste | Tissue |
|---|---|---|---|---|
| 3-Perfluoroheptylpropanoic acid (7:3 FTCA)<br><br>CASRN: 812-70-4 | ---------- | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Perfluoropropionic acid (PFPrA)<br><br>CASRN: 422-64-0 | ---------- | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |
| Bis (trifluoromethane) sulfonamide (TFSI)<br><br>CASRN: 82113-65-3 | ---------- | EPA 1633<br>EPA 1633A | EPA 1633<br>EPA 1633A | Draft EPA Method 1633 (Version 4) |

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In recognition of the successful completion of the A2LA evaluation process, (including an assessment of the laboratory's compliance with the test methods applicable to Kentucky Statute KRS 224.60-130(2)(a)), accreditation is granted to this laboratory to perform recognized EPA methods using the following testing technologies and in the analyte categories identified below:

Testing Technologies

Atomic Absorption/ICP-AES Spectrometry, Gas Chromatography

| **Parameter/Analyte** | **Nonpotable Water** | **Hazardous Waste** | |
|---|---|---|---|
| | | **Aqueous** | **Solid** |
| **Metals** | | | |
| Arsenic | EPA 6010D | EPA 6010D | EPA 6010D |
| Barium | EPA 6010D | EPA 6010D | EPA 6010D |
| Cadmium | EPA 6010D | EPA 6010D | EPA 6010D |
| Chromium | EPA 6010D | EPA 6010D | EPA 6010D |
| Lead | EPA 6010D | EPA 6010D | EPA 6010D |
| Mercury | EPA 7470A | EPA 7470A | EPA 7471B |
| Selenium | EPA 6010D | EPA 6010D | EPA 6010D |
| Silver | EPA 6010D | EPA 6010D | EPA 6010D |
| **Total Petroleum Hydrocarbons** | | | |
| Diesel Range Organics (DRO) | EPA 8015C/D | EPA 8015C/D | EPA 8015C/D |
| Gasoline Range Organics (GRO) | EPA 8015C/D<br>EPA 8260C/D | EPA 8015C/D<br>EPA 8260C/D | EPA 8015C/D<br>EPA 8260C/D |

In recognition of the successful completion of the A2LA evaluation process, (including an assessment of the laboratory's compliance for the test methods applicable to the Wyoming Storage Tank Remediation Laboratory Accreditation Program), accreditation is granted to this laboratory to perform recognized EPA methods using the following testing technologies and in the analyte categories identified below:

Testing Technologies

Atomic Absorption/ICP-AES Spectrometry, Gas Chromatography, Gas Chromatography/Mass Spectrometry, Spectrophotometry (Visible)

| **Parameter/Analyte** | **Nonpotable Water** | **Hazardous Waste** | |
|---|---|---|---|
| | | **Aqueous** | **Solid** |
| **Metals** | | | |
| Cadmium | EPA 6010D | EPA 6010D | EPA 6010D |
| Chromium | EPA 6010D | EPA 6010D | EPA 6010D |
| Chromium (Hexavalent) | EPA 7196A | EPA 7196A | EPA 3060A<br>EPA 7196A |
| Lead | EPA 6010D | EPA 6010D | EPA 6010D |
| **Total Petroleum Hydrocarbons** | | | |
| Diesel Range Organics (DRO) | EPA 8015C/D<br>EPA 3630C Cleanup | EPA 8015C/D<br>EPA 3630C Cleanup | EPA 8015C/D<br>EPA 3630C Cleanup |
| Gasoline Range Organics (GRO) | EPA 8015C/D<br>EPA 8260C/D | EPA 8015C/D<br>EPA 8260C/D | EPA 8015C/D<br>EPA 8260C/D |
| **Purgeable Organics (Volatiles)** | | | |
| Volatile Preparation | EPA 5030C | EPA 5030C | EPA 5035A |
| Benzene | EPA 8260D | EPA 8260D | EPA 8260D |
| 1,2-Dichloroethane | EPA 8260D | EPA 8260D | EPA 8260D |
| 1,2-Dibromoethane | EPA 8011 | EPA 8011 | EPA 8011 |
| Diisopropyl Ether | EPA 8260D | EPA 8260D | EPA 8260D |
| Ethyl Benzene | EPA 8260D | EPA 8260D | EPA 8260D |
| Ethyl tert-butyl Ether | EPA 8260D | EPA 8260D | EPA 8260D |
| Methyl tert-butyl Ether | EPA 8260D | EPA 8260D | EPA 8260D |
| Naphthalene | EPA 8260D | EPA 8260D | EPA 8260D |
| Toluene | EPA 8260D | EPA 8260D | EPA 8260D |
| Tert-amyl Methyl Ether | EPA 8260D | EPA 8260D | EPA 8260D |
| Tert-butyl Alcohol | EPA 8260D | EPA 8260D | EPA 8260D |
| Xylenes, total | EPA 8260D | EPA 8260D | EPA 8260D |

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform recognized EPA methods using the following testing technologies in the analyte catagories identified below, and on the following matrices as applicable: Drinking Water, Bottled Water, Water as a Component of Food and Beverage, Non-Potable Water, Food and Feed, and Aqueous and Solid Hazardous Waste.

Testing Technologies

High Performance Liquid Chromatography, Ion Chromatography, Liquid Chromatography/Mass Spectrometry/Mass Spectrometry, High Resolution Gas Chromatography/Mass Spectrometry, and Combustion Ion Chromatography.

| **Parameter** | **Food and Feed** |
|---|---|
| **Food and Feed (WHO 29)** | |
| 2,3,7,8-TCDD | EPA 1613B |
| 2,3,7,8-TCDF | EPA 1613B |
| 1,2,3,7,8-PeCDF | EPA 1613B |
| 2,3,4,7,8-PeCDF | EPA 1613B |
| 1,2,3,7,8-PeCDD | EPA 1613B |
| 1,2,3,4,7,8-HxCDF | EPA 1613B |
| 1,2,3,6,7,8-HxCDF | EPA 1613B |
| 2,3,4,6,7,8-HxCDF | EPA 1613B |
| 1,2,3,7,8,9-HxCDF | EPA 1613B |
| 1,2,3,4,7,8-HxCDD | EPA 1613B |
| 1,2,3,6,7,8-HxCDD | EPA 1613B |
| 1,2,3,7,8,9-HxCDD | EPA 1613B |
| 1,2,3,4,6,7,8-HpCDF | EPA 1613B |
| 1,2,3,4,7,8,9-HpCDF | EPA 1613B |
| 1,2,3,4,6,7,8-HpCDD | EPA 1613B |
| OCDF | EPA 1613B |
| OCDD | EPA 1613B |
| 6 marker PCBs (PCB28, PCB52, PCB101, PCB138, PCB153, and PCB180) | EPA 1668C |
| (PCB77, PCB81, PCB105, PCB114, PCB118, PCB123, PCB126, PCB156, PCB157, PCB167, PCB169, and PCB189) | EPA 1668C |

| **Parameter/Analyte** | **Tissue** |
|---|---|
| PCB congeners (209) | EPA 1668C |
| Perchlorate | EPA 6850 |
| Organic Extraction/ Cleanup | EPA 3546, 3550C, 3660B, 3620C, 3665A, 3640A |

| Parameter/Analyte | Drinking Water | Nonpotable Water | Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| **Other** | | | | |
| Perchlorate | ---------- | EPA 6850 | EPA 6850 | EPA 6850 |
| Hydrazine | ---------- | EPA 8315A MOD | EPA 8315A MOD | EPA 8315A MOD |
| Methylhydrazine | ---------- | EPA 8315A MOD | EPA 8315A MOD | EPA 8315A MOD |
| 1,1-Dimethylhydrazine | ---------- | EPA 8315A MOD | EPA 8315A MOD | EPA 8315A MOD |
| Volatile Preparation | ---------- | EPA 5030C | EPA 5030C | EPA 5035A |
| Organic Extraction/ Cleanup | | EPA 3510C, 3511, 3660B, 3620C, 3665A | EPA 3510C, 3511, 3660B, 3620C, 3665A | EPA 3546, 3550C, 3660B, 3620C, 3665A, 3640A |
| **Adsorbable Organic Fluorine (AOF) by Combustion Ion Chromatography** | | | | |
| Adsorbable Organic Fluorine (AOF) | ---------- | EPA 1621 | EPA 1621 | ---------- |
| **Per and Polyfluoroalkyl Substances (PFAS)** | | | | |
| N-ethyl perfluorooctane-sulfonamidoacetic acid (NetFOSAA) | EPA 537.1 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| N-methyl perfluorooctane-sulfonamidoacetic acid (NMeFOSAA) | EPA 537.1 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluorobutanesulfonic acid (PFBS) | EPA 537.1 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluorodecanoic acid (PFDA) | EPA 537.1 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluorododecanoic acid (PFDoDA) | EPA 537.1 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluoroheptanoic acid (PFHpA) | EPA 537.1 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluorohexanesulfonic acid (PFHxS) | EPA 537.1 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluorohexanoic acid (PFHxA) | EPA 537.1 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluorononanoic acid (PFNA) | EPA 537.1<br>EPA 533 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluorooctanesulfonic acid (PFOS) | EPA 537.1<br>EPA 533 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluorooctanoic acid (PFOA) | EPA 537.1<br>EPA 533 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluorotetradecanoic acid (PFTeDA) | EPA 537.1 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluorotridecanoic acid (PFTrDA) | EPA 537.1 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluoroundecanoic acid (PFUnDA) | EPA 537.1<br>EPA 533 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (HFPODA) | EPA 537.1<br>EPA 533 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| 4,8-Dioxa-3H-perfluorononanoic acid | EPA 537.1 | EPA 537v1.1Mod | EPA 537v1.1Mod | EPA 537v1.1Mod |

| Parameter/Analyte | Drinking Water | Nonpotable Water | Hazardous Waste | |
|---|---|---|---|---|
| | | | Aqueous | Solid |
| (DONA) | EPA 533 | EPA 1633 | EPA 1633 | EPA 1633 |
| 9-Chlorohexadecafluoro-3- oxanonane-1-sulfonic acid (9Cl-PF3ONS) | EPA 537.1<br>EPA 533 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | EPA 537.1<br>EPA 533 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluoro-n-butanoic acid (PFBA) | EPA 533 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluoro-n-pentanoic acid (PFPeA) | EPA 533 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| 8:2 Fluorotelomersulfonic acid (8:2FTS) | EPA 533 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| 4:2 Fluorotelomersulfonic acid (4:2-FTS) | EPA 533 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluoropentanesulfonic acid (PFPeS) | ---------- | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| 6:2 Fluorotelomersulfonic acid (6:2-FTS) | EPA 533 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluoroheptanesulfonic acid (PFHpS) | ---------- | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluorononanesulfonic acid (PFNS) | ---------- | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluorodecanesulfonic acid (PFDS) | ---------- | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| 10:2 Fluorotelomersulfonic acid (10:2-FTS) | ---------- | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluorododecanesulfonic acid (PFDoDS) | ---------- | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluorohexadecanoic acid (PFHxDA) | ---------- | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluorooctadecanoic acid (PFODA) | ---------- | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| Perfluorooctanesulfonamide (PFOSA) | ---------- | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (NMePFOSAE) | ---------- | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| N-methylperfluoro-1- octanesulfonamide (NMePFOSA) | ---------- | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol (NEtPFOSAE) | ---------- | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |
| N-ethylperfluoro-1-octanesulfonamide (NEtPFOSA) | ---------- | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 | EPA 537v1.1Mod<br>EPA 1633 |

# Accredited Laboratory

A2LA has accredited

## EUROFINS LANCASTER LABORATORIES ENVIRONMENT TESTING, LLC

*Lancaster, PA*

for technical competence in the field of

## Environmental Testing

In recognition of the successful completion of the A2LA evaluation process that includes an assessment of the laboratory's compliance with ISO/IEC 17025:2017, the 2016 TNI Environmental Testing Laboratory Standard, the requirements of the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) as detailed in version 6.0 of the DoD/DOE Quality System Manual for Environmental Laboratories (QSM), the A2LA *R220 – Specific Requirements – A2LA DoD Environmental Laboratory Accreditation Program*, the A2LA *R206 – Specific Requirements – Environmental Testing Laboratory Accreditation Program*, the A2LA *R210 - Specific Requirements – Kentucky Underground Storage Tank Testing Laboratory Accreditation Program,* and the A2LA *R211 – Specific Requirements – Wyoming Storage Tank Remediation Testing Laboratory Accreditation Program,* accreditation is granted to this laboratory to perform recognized EPA methods as defined on the associated A2LA Environmental Scope of Accreditation. This accreditation demonstrates technical competence for this defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated *April 2017*).

Presented this 24th of October 2024.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 0001.01
Valid to November 30, 2026

*For the tests to which this accreditation applies, please refer to the laboratory's Environmental Scope of Accreditation.*

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

EUROFINS DENVER
4955 Yarrow Street
Arvada, CO 80002
Anthony Grimaldi Phone: 303-736-0100
www.eurofinsus.com

ENVIRONMENTAL

Valid To: October 31, 2026 Certificate Number: 2907.01

In recognition of the successful completion of the A2LA evaluation process, (including an assessment of the laboratory's compliance with the 2016 TNI Environmental Testing Laboratory Standard, the requirements of the DoD Environmental Laboratory Accreditation Program (DoD ELAP), and the requirements of the Department of Energy Consolidated Audit Program (DOECAP) as detailed in version 6.0 of the DoD/DOE Quality Systems Manual for Environmental Laboratories), and for the test methods applicable to the Wyoming Storage Tank Remediation Laboratory Accreditation Program, accreditation is granted to this laboratory to perform recognized EPA methods using the following testing technologies and in the analyte categories identified below:

Testing Technologies

Atomic Absorption/ICP-AES Spectrometry, ICP/MS, Gas Chromatography, Gas Chromatography/Mass Spectrometry, Gravimetry, High Performance Liquid Chromatography, Liquid Chromatography/Mass Spectrometry, Ion Chromatography, Misc.- Electronic Probes (pH, $O_2$), Oxygen Demand, Hazardous Waste Characteristics Tests, Spectrophotometry (Visible), Spectrophotometry (Automated), Titrimetry, Total Organic Carbon, Total Organic Halide

| **Parameter/Analyte** | **Non-Potable Water** | **Solid Hazardous Waste** | |
|---|---|---|---|
| | | **Water** | **Solid** |
| **Metals** | | | |
| Aluminum | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Antimony | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Arsenic | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Barium | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Beryllium | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Boron | EPA 200.7 | EPA 6010C/6010D | EPA 6010C/6010D |
| Cadmium | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |

| Parameter/Analyte | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|
| | | Water | Solid |
| Calcium | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Chromium | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Cobalt | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Copper | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Iron | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Lead | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Lithium | EPA 200.7 | EPA 6010C/6010D | EPA 6010C/6010D |
| Magnesium | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Manganese | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Mercury | EPA 245.1 | EPA 7470A | EPA 7471A/B |
| Molybdenum | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Nickel | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Potassium | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Selenium | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Silica | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | ---------- |
| Silicon | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | ---------- |
| Silver | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Sodium | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Strontium | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Sulfur | EPA 200.7 | EPA 6010C/6010D | EPA 6010C/6010D |
| Thallium | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Tin | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D |
| Titanium | EPA 200.7 | EPA 6010C/6010D | EPA 6010C/6010D |

| Parameter/Analyte | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|
| | | Water | Solid |
| Uranium | EPA 200.8 | EPA 6020B | EPA 6020B |
| Vanadium | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| Zinc | EPA 200.7<br>EPA 200.8 | EPA 6010C/6010D<br>EPA 6020B | EPA 6010C/6010D<br>EPA 6020B |
| **Nutrients** | | | |
| Nitrate (as N) | EPA 300.0 | EPA 9056/9056A | EPA 9056/9056A |
| Nitrate-Nitrite (as N) | EPA 300.0<br>EPA 353.2 | EPA 9056/9056A | EPA 9056/9056A |
| Nitrite (as N) | EPA 300.0<br>SM 4500-$NO_2$ B | EPA 9056/9056A | EPA 353.2<br>EPA 9056/9056A |
| Orthophosphate (as P) | EPA 365.1 | EPA 365.1 | EPA 365.1 |
| Total Phosphorus | EPA 365.1 | EPA 6010C/6010D | EPA 6010C/6010D |
| **Demands** | | | |
| Total Organic Carbon | SM 5310B | EPA 9060/9060A | EPA 9060/9060A |
| Dissolved Organic Carbon | SM 5310B | EPA 9060/9060A | EPA 9060/9060A |
| Total Organic Halides | EPA 9020B | EPA 9020B | ---------- |
| **Wet Chemistry** | | | |
| Alkalinity<br>(Total Bicarbonate, Carbonate, and Hydroxide Alkalinity) | SM 2320B | SM 2320B | SM 2320B |
| Ammonia | EPA 350.1 | EPA 350.1 | ---------- |
| Biological Oxygen Demand | SM 5210B | SM 5210B | ---------- |
| Bromide | EPA 300.0 | EPA 9056/9056A | EPA 9056/9056A |
| Chloride | EPA 300.0<br>SM 4500-CL E | EPA 9056/9056A | EPA 9056/9056A |
| Chemical Oxygen Demand | EPA 410.4 | EPA 410.4 | ---------- |
| Conductivity | EPA 9050/9050A | EPA 9050/9050A | EPA 9050/9050A |
| Cyanide, Total | EPA 335.4 | EPA 9012A/9012B | EPA 9012A/9012B |
| Cyanide, Amenable and Non-Amenable | EPA 9012A/9012B | EPA 9012A/9012B | EPA 9012A/9012B |
| Ferrous Iron | SM 3500-Fe B | SM 3500-Fe B | SM 3500-Fe B |
| Fluoride | EPA 300.0 | EPA 9056/9056A | EPA 9056/9056A |
| Flashpoint | EPA 1010A/1010B | EPA 1010A/1010B | EPA 1010A/1010B |
| Hexavalent Chromium | EPA 7196A | EPA 7196A | EPA 7196A / EPA 3060A |
| Hardness, Total | SM 2340C<br>SM2340B | SM 2340C<br>SM2340B | ---------- |
| pH | SM 4500 H+B | EPA 9040B/9040C | EPA 9045C/9045D |
| Oil and Grease<br>(HEM and SGT-HEM) | EPA 1664A/1664B | EPA 1664A/1664B | ---------- |

| Parameter/Analyte | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|
| | | Water | Solid |
| Percent Moisture | ---------- | ---------- | ASTM D2216 |
| Perchlorate | EPA 6850 | EPA 6850 | EPA 6850 |
| Phenols | EPA 420.4 | EPA 9066 | ---------- |
| Solids, Total | ---------- | ---------- | SM 2540B |
| Solids, Total Suspended | SM 2540D | SM 2540D | ---------- |
| Solids, Total Dissolved | SM 2540C | SM 2540C | ---------- |
| Sulfate | EPA 300.0<br>SM 4500-SO4 E | EPA 9056/9056A | EPA 9056/9056A |
| Sulfide, Total | EPA 9034/9030B<br>SM 4500S2 D | EPA 9034/9030B<br>SM 4500S2 D | EPA 9034/9030B |
| Sulfide | SM 4500S2 D | EPA 9034/9030D | EPA 9034/9030D |
| Sulfite | SM 4500-SO3 B | SM 4500-SO3 B | ---------- |
| Total Kjeldahl Nitrogen | EPA 351.2 | EPA 351.2 | EPA 351.2 |
| **Purgeable Organics (Volatiles)** | | | |
| 1,1,1,2-Tetrachloroethane | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,1,1-Trichloroethane | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,1,2,2-Tetrachloroethane | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,1,2-Trichloroethane | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,1-Dichloroethane | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,1-Dichloroethene | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,1-Dichloropropene | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,2 Dibromoethane (EDB) | EPA 624.1 | EPA 8260C/8260D<br>EPA 8011 | EPA 8260C/8260D<br>EPA 8011 |
| 1,2,3-Trichlorobenzene | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,2,3-Trichloropropane | EPA 624.1 | EPA 8260C/8260D<br>EPA 8011 | EPA 8260C/8260D<br>EPA 8011 |
| 1,2,3-Trimethylbenzene | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,2,4-Trichlorobenzene | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,2,4-Trimethylbenzene | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,2-Dibromo-3-chloropropane (DBCP) | EPA 624.1 | EPA 8260C/8260D<br>EPA 8011 | EPA 8260C/8260D<br>EPA 8011 |
| 1,2-Dichlorobenzene | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,2-Dichloroethane | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,2-Dichloroethene, Total | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,2-Dichloropropane | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,2-Xylene (o-Xylene) | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,3,5-Trichlorobenzene | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,3,5-Trimethylbenzene | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,3-Dichlorobenzene | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,3-Dichloropropane | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,3-Dichloropropene, Total | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |

| Parameter/Analyte | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|
| | | Water | Solid |
| 1,4-Dichlorobenzene | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,4-Dioxane | EPA 624.1 | EPA 8260C/8260D<br>EPA 8260C/8260D SIM | EPA 8260C/8260D<br>EPA 8260C/8260D SIM |
| 1-Chlorohexane | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| 2,2-Dichloropropane | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| 2-Butanone<br>[Methyl Ethyl Ketone (MEK)] | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| 2-Chloro-1,3-butadiene<br>(Chloroprene) | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| 2-Chloroethyl Vinyl Ether | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| 2-Chlorotoluene | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| 2-Hexanone | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| 2-Nitropropane | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| 2-Pentanone | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| 4-Chlorotoluene | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| 4-Isopropyltoluene (p-Cymene) | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| 4-Methyl-2-pentanone (MIBK) | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Acetone | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Acetonitrile | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Acetylene | RSK-175 | RSK-175 | ---------- |
| Acrolein | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Acrylonitrile | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Allyl Chloride<br>(3-Chloro-1-propene) | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Benzene | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Bromobenzene | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| Bromochloromethane | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| Bromodichloromethane | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Bromoform | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Bromomethane | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Carbon Disulfide | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Carbon Tetrachloride | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Chlorobenzene | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Chloroethane | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Chloroform | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Chloromethane | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| cis-1,2-Dichloroethene | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| cis-1,3-Dichloropropene | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| cis-1,4-Dichloro-2-butene | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| Cyclohexane | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| Cyclohexanone | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| Dibromochloromethane | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Dibromomethane | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Dichlorodifluoromethane | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Dichlorofluoromethane | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |

| Parameter/Analyte | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|
| | | Water | Solid |
| Diethyl Ether (Ethyl Ether) | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| Di-isopropylether (Isopropyl ether) | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| Ethane | RSK-175 | RSK-175 | ---------- |
| Ethanol | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| Ethyl Acetate | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| Ethyl Benzene | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Ethyl Methacrylate | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Ethyl Tert-Butyl Ether | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| Ethylene (Ethene) | RSK-175 | RSK-175 | ---------- |
| Gas Range Organics (GRO) | EPA 8015C/8015D<br>AK101<br>Kansas LRH | EPA 8015C/8015D<br>AK101<br>Kansas LRH | EPA 8015C/8015D<br>AK101<br>Kansas LRH |
| Hexachlorobutadiene | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| Hexane | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Iodomethane | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Isobutyl alcohol (2-Methyl-1-propanol) | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Isopropyl Alcohol | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| Isopropylbenzene | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| m+p-Xylene | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Methacrylonitrile | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Methane | RSK-175 | RSK-175 | ---------- |
| Methyl Acetate | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| Methyl Cyclohexane | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| Methyl Methacrylate | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Methyl Tert-Butyl Ether (MtBE) | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Methylene Chloride | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Naphthalene | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| n-Butyl Alcohol (n-Butanol) | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| n-Butylbenzene | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| n-Propylbenzene | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| Propionitrile | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| sec-Butylbenzene | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| Styrene | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| tert-Amyl Methyl Ether | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| tert-Butyl Alcohol (2-Methyl-2-propanol) | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| tert-Butylbenzene | ---------- | EPA 8260C/8260D | EPA 8260C/8260D |
| Tetrachloroethene | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Tetrahydrofuran | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Toluene | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| trans-1,2-Dichloroethene | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| trans-1,3-Dichloropropene | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| trans-1,4-Dichloro-2-butene | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |

| Parameter/Analyte | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|
| | | Water | Solid |
| Trichloroethene | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Trichlorofluoromethane | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Vinyl Acetate | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Vinyl Chloride | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| Xylenes, Total | EPA 624.1 | EPA 8260C/8260D | EPA 8260C/8260D |
| **Extractable Organics (Semivolatiles)** | | | |
| 1,1-Biphenyl | ---------- | EPA 8270D/8270E | EPA 8270D/8270E |
| 1,2,4,5-Tetrachlorobenzene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 1,2,4-Trichlorobenzene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 1,2-Dichlorobenzene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 1,2-Diphenylhydrazine (Azobenzene) | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 1,3,5-Trinitrobenzene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 1,3-Dichlorobenzene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 1,3-Dinitrobenzene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 1,4-Dichlorobenzene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 1,4-Dinitrobenzene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 1,4-Dioxane | EPA 625.1 | EPA 8270D/8270E<br>EPA 8270E SIM | EPA 8270D/8270E<br>EPA 8270E SIM |
| 1,4-Naphthoquinone | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 1-Chloronaphthalene | ---------- | EPA 8270D/8270E | EPA 8270D/8270E |
| 1-Methylnaphthalene | ---------- | EPA 8270D/8270E<br>EPA 8270D/8270E SIM | EPA 8270D/8270E<br>EPA 8270D/8270E SIM |
| 1-Naphthylamine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 2,2-oxybis(1-chloropropane) [bis (2-Chloroisopropyl) Ether] | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 2,3,4,6-Tetrachlorophenol | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 2,4,5-Trichlorophenol | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 2,4,6-Trichlorophenol | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 2,4-Dichlorophenol | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 2,4-Dimethylphenol | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 2,4-Dinitrophenol | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 2,4-Dinitrotoluene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 2,6-Dichlorophenol | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 2,6-Dinitrotoluene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 2-Acetylaminofluorene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 2-Chloronaphthalene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 2-Chlorophenol | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 2-methyl-4,6-Dinitrophenol (Dinoseb) | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 2-Methylnaphthalene | EPA 625.1 | EPA 8270D/8270E<br>EPA 8270D/8270E SIM | EPA 8270D/8270E<br>EPA 8270D/8270E SIM |
| 2-Methylphenol | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 2-Naphthylamine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |

| Parameter/Analyte | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|
| | | Water | Solid |
| 2-Nitroaniline | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 2-Nitrophenol | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 2-Picoline | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 3,3'-Dichlorobenzidine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 3,3-Dimethylbenzidine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 3+4-Methylphenol | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 3-Methylcholanthrene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 3-Nitroaniline | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 4,6-Dinitro-2-methylphenol | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 4-Aminobiphenyl | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 4-Bromophenyl phenyl ether | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 4-chloro-3-Methylphenol | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 4-Chloroanilene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 4-Chlorophenyl phenyl ether | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 4-Nitroaniline | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 4-Nitrophenol | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 5-nitro-o-Toluidine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| 7,12-Dimethylbenz(a)anthracene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Acenaphthene | EPA 625.1 | EPA 8270D/8270E<br>EPA 8270D/8270E SIM | EPA 8270D/8270E<br>EPA 8270D/8270E SIM |
| Acenaphthylene | EPA 625.1 | EPA 8270D/8270E<br>EPA 8270D/8270E SIM | EPA 8270D/8270E<br>EPA 8270D/8270E SIM |
| Acetophenone | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Aniline | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Anthracene | EPA 625.1 | EPA 8270D/8270E<br>EPA 8270D/8270E SIM | EPA 8270D/8270E<br>EPA 8270D/8270E SIM |
| Aramite | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Atrazine | ---------- | EPA 8270D/8270E | EPA 8270D/8270E |
| Azobenzene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Benzaldehyde | ---------- | EPA 8270D/8270E | EPA 8270D/8270E |
| Benzidine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Benzo(a)anthracene | EPA 625.1 | EPA 8270D/8270E<br>EPA 8270D/8270E SIM | EPA 8270D/8270E<br>EPA 8270D/8270E SIM |
| Benzo(a)pyrene | EPA 625.1 | EPA 8270D/8270E<br>EPA 8270D/8270E SIM | EPA 8270D/8270E<br>EPA 8270D/8270E SIM |
| Benzo(b)fluoranthene | EPA 625.1 | EPA 8270D/8270E<br>EPA 8270D/8270E SIM | EPA 8270D/8270E<br>EPA 8270D/8270E SIM |
| Benzo(ghi)perylene | EPA 625.1 | EPA 8270D/8270E<br>EPA 8270D/8270E SIM | EPA 8270D/8270E<br>EPA 8270D/8270E SIM |
| Benzo(k)fluoranthene | EPA 625.1 | EPA 8270D/8270E<br>EPA 8270D/8270E SIM | EPA 8270D/8270E<br>EPA 8270D/8270E SIM |
| Benzoic Acid | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Benzyl Alcohol | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| bis (2-Chloroethoxy) Methane | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| bis (2-Chloroethyl) Ether | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |

| Parameter/Analyte | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|
| | | Water | Solid |
| bis (2-Ethylhexyl) Phthalate | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| butyl Benzyl Phthalate | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Caprolactam | ---------- | EPA 8270D/8270E | EPA 8270D/8270E |
| Carbazole | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Chlorobenzilate | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Chrysene | EPA 625.1 | EPA 8270D/8270E<br>EPA 8270D/8270E SIM | EPA 8270D/8270E<br>EPA 8270D/8270E SIM |
| Cresols | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Diallate | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Dibenzo (a,h) anthracene | EPA 625.1 | EPA 8270D/8270E<br>EPA 8270D/8270E SIM | EPA 8270D/8270E<br>EPA 8270D/8270E SIM |
| Dibenzofuran | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Diesel Range Organics (DRO) | EPA 8015C/8015D<br>AK102<br>Kansas MRH/HRH | EPA 8015C/8015D<br>AK102<br>Kansas MRH/HRH | EPA 8015C/8015D<br>AK102<br>Kansas MRH/HRH |
| Diethyl Phthalate | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Dimethoate | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Dimethyl Phthalate | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| di-n-butyl Phthalate | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| di-n-octyl Phthalate | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Diphenylamine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Disulfoton | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Ethyl Methanesulfonate | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Fluorene | EPA 625.1 | EPA 8270D/8270E<br>EPA 8270D/8270E SIM | EPA 8270D/8270E<br>EPA 8270D/8270E SIM |
| Fluoroanthene | EPA 625.1 | EPA 8270D/8270E<br>EPA 8270D/8270E SIM | EPA 8270D/8270E<br>EPA 8270D/8270E SIM |
| Hexachlorobenzene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Hexachlorobutadiene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Hexachlorocyclopentadiene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Hexachloroethane | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Hexachloropropene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Indeno (1,2,3-cd) pyrene | EPA 625.1 | EPA 8270D/8270E<br>EPA 8270D/8270E SIM | EPA 8270D/8270E<br>EPA 8270D/8270E SIM |
| Isodrin | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Isophorone | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Isosafrole | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Methapyrilene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Methyl Methane Sulfonate | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Motor Oil (Residual Range Organics) | EPA 8015C/8015D<br>AK103<br>Kansas MRH/HRH | EPA 8015C/8015D<br>AK103<br>Kansas MRH/HRH | EPA 8015C/8015D<br>AK103<br>Kansas MRH/HRH |
| Naphthalene | EPA 625.1 | EPA 8270D/8270E<br>EPA 8270D/8270E SIM | EPA 8270D/8270E<br>EPA 8270D/8270E SIM |
| Nitrobenzene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |

| Parameter/Analyte | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|
| | | Water | Solid |
| Nitroquinoline-1-oxide (4-Nitroquinoline-1-oxide) | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| N-Nitrosodiethylamine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| N-Nitrosodimethylamine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| N-Nitrosodi-n-butylamine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| N-Nitrosodi-n-propylamine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| N-Nitrosodiphenylamine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| N-Nitrosomethylethylamine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| N-Nitrosomorpholine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| N-Nitrosopiperidine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| N-Nitrosopyrrolidine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| o,o,o-triethyl Phosphorothioate | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| o-Toluidine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Parathion, ethyl | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Parathion, methyl | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| p-Dimethylaminoazobenzene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Pentachlorobenzene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Pentachloroethane | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Pentachloronitobenzene | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Pentachlorophenol | EPA 625.1 | EPA 8270D/8270E<br>EPA 8321A/8321B | EPA 8270D/8270E<br>EPA 8321A/8321B |
| Phenacetin | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Phenanthrene | EPA 625.1 | EPA 8270D/8270E<br>EPA 8270D/8270E SIM | EPA 8270D/8270E<br>EPA 8270D/8270E SIM |
| Phenol | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Phorate | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| p-Phenylene Diamine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Pronamide | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Pyrene | EPA 625.1 | EPA 8270D/8270E<br>EPA 8270D/8270E SIM | EPA 8270D/8270E<br>EPA 8270D/8270E SIM |
| Pyridine | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Safrole | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Sulfotepp | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| Thionazin | EPA 625.1 | EPA 8270D/8270E | EPA 8270D/8270E |
| **Pesticides/Herbicides/PCBs** | | | |
| 2,4,5-T | ---------- | EPA 8321B | EPA 8321B |
| 2,4,5-TP | ---------- | EPA 8321B | EPA 8321B |
| 2,4-D | ---------- | EPA 8321B | EPA 8321B |
| 2,4-DB | ---------- | EPA 8321B | EPA 8321B |
| 4,4'-DDD | EPA 608.3 | EPA 8081B | EPA 8081B |
| 4,4'-DDE | EPA 608.3 | EPA 8081B | EPA 8081B |
| 4,4'-DDT | EPA 608.3 | EPA 8081B | EPA 8081B |
| Aldrin | EPA 608.3 | EPA 8081B | EPA 8081B |
| alpha-BHC | EPA 608.3 | EPA 8081B | EPA 8081B |
| alpha-Chlordane (cis-Chlordane) | EPA 608.3 | EPA 8081B | EPA 8081B |

| Parameter/Analyte | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|
| | | Water | Solid |
| Atrazine | ---------- | EPA 8141B | EPA 8141B |
| Azinophos ethyl | ---------- | EPA 8141B | EPA 8141B |
| Azinophos methyl | EPA 614 | EPA 8141B | EPA 8141B |
| beta-BHC | EPA 608.3 | EPA 8081B | EPA 8081B |
| Bolstar | ---------- | EPA 8141B | EPA 8141B |
| Chlordane (technical) | EPA 608.3 | EPA 8081B | EPA 8081B |
| Chloropyrifos | ---------- | EPA 8141B | EPA 8141B |
| Coumaphos | ---------- | EPA 8141B | EPA 8141B |
| Dalapon | ---------- | EPA 8321B | EPA 8321B |
| delta-BHC | EPA 608.3 | EPA 8081B | EPA 8081B |
| Demeton, total | EPA 614 | EPA 8141B | EPA 8141B |
| Demeton-O | EPA 614 | EPA 8141B | EPA 8141B |
| Demeton-S | EPA 614 | EPA 8141B | EPA 8141B |
| Diazinon | ---------- | EPA 8141B | EPA 8141B |
| Dicamba | ---------- | EPA 8321B | EPA 8321B |
| Dichloroprop | ---------- | EPA 8321A/8321B | EPA 8321B |
| Dichlorovos | ---------- | EPA 8141B | EPA 8141B |
| Dieldrin | EPA 608.3 | EPA 8081B | EPA 8081B |
| Dimethoate | ---------- | EPA 8141B | EPA 8141B |
| Dinoseb (2-methyl-4,6-Dinitrophenol) | ---------- | EPA 8321B | EPA 8321B |
| Disulfoton | EPA 614 | EPA 8141B | EPA 8141B |
| Endonsulfan sulfate | EPA 608.3 | EPA 8081B | EPA 8081B |
| Endosulfan I | EPA 608.3 | EPA 8081B | EPA 8081B |
| Endosulfan II | EPA 608.3 | EPA 8081B | EPA 8081B |
| Endrin | EPA 608.3 | EPA 8081B | EPA 8081B |
| Endrin aldehyde | EPA 608.3 | EPA 8081B | EPA 8081B |
| Endrin ketone | EPA 608.3 | EPA 8081B | EPA 8081B |
| EPN | ---------- | EPA 8141B | EPA 8141B |
| Ethoprop | ---------- | EPA 8141B | EPA 8141B |
| Ethyl Parathion | EPA 614 | EPA 8141B | EPA 8141B |
| Famphur | ---------- | EPA 8141B | EPA 8141B |
| Fensulfothion | ---------- | EPA 8141B | EPA 8141B |
| Fenthion | ---------- | EPA 8141B | EPA 8141B |
| gamma-BHC | EPA 608.3 | EPA 8081B | EPA 8081B |
| gamma-Chlordane (trans-Chlordane) | EPA 608.3 | EPA 8081B | EPA 8081B |
| Heptachlor | EPA 608.3 | EPA 8081B | EPA 8081B |
| Heptachlor epoxide | EPA 608.3 | EPA 8081B | EPA 8081B |
| Hexachlorobenzene | ---------- | EPA 8081B | EPA 8081B |
| Malathion | ---------- | EPA 8141B | EPA 8141B |
| MCPA | ---------- | EPA 8321B | EPA 8321B |
| MCPP | ---------- | EPA 8321B | EPA 8321B |
| Merphos | ---------- | EPA 8141B | EPA 8141B |
| Methoxychlor | EPA 608.3 | EPA 8081B | EPA 8081B |

| Parameter/Analyte | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|
| | | Water | Solid |
| Methyl parathion | EPA 614 | EPA 8141B | EPA 8141B |
| Mevinphos | ---------- | EPA 8141B | EPA 8141B |
| Naled | ---------- | EPA 8141B | EPA 8141B |
| o,o,o-Triethylphos Phorothioate | ---------- | EPA 8141B | EPA 8141B |
| PCB-1016 (Arochlor) | EPA 608.3 | EPA 8082A | EPA 8082A |
| PCB-1221 | EPA 608.3 | EPA 8082A | EPA 8082A |
| PCB-1232 | EPA 608.3 | EPA 8082A | EPA 8082A |
| PCB-1242 | EPA 608.3 | EPA 8082A | EPA 8082A |
| PCB-1248 | EPA 608.3 | EPA 8082A | EPA 8082A |
| PCB-1254 | EPA 608.3 | EPA 8082A | EPA 8082A |
| PCB-1260 | EPA 608.3 | EPA 8082A | EPA 8082A |
| PCB-1262 | EPA 608.3 | EPA 8082A | EPA 8082A |
| PCB-1268 | EPA 608.3 | EPA 8082A | EPA 8082A |
| Phorate | ---------- | EPA 8141B | EPA 8141B |
| Phosmet | ---------- | EPA 8141B | EPA 8141B |
| Propazine | ---------- | EPA 8141B | EPA 8141B |
| Ronnel | ---------- | EPA 8141B | EPA 8141B |
| Simazine | ---------- | EPA 8141B | EPA 8141B |
| Stirophos | ---------- | EPA 8141B | EPA 8141B |
| Sulfotepp | ---------- | EPA 8141B | EPA 8141B |
| Thionazin | ---------- | EPA 8141B | EPA 8141B |
| Tokuthion | ---------- | EPA 8141B | EPA 8141B |
| Total PCBs | EPA 608.3 | EPA 8082A | EPA 8082A |
| Toxaphene | EPA 608.3 | EPA 8081B | EPA 8081B |
| Trichloronate | ---------- | EPA 8141B | EPA 8141B |
| **Explosives** | | | |
| 1,3,5-Trinitrobenzene | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| 1,3-Dinitrobenzene | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| 2,4,6-Trinitrotoluene | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| 3,5-Dinitroaniline | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| 2,4-Dinitrotoluene | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| 2,4-Diamino-6-nitrotoluene | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| 2,6-Dinitrotoluene | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| 2,6-Diamino-4-nitrotoluene | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| 2-amino-4,6-Dinitrotoluene | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |

| Parameter/Analyte | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|
| | | Water | Solid |
| 2-Nitrotoluene | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA8321B | EPA 8330B<br>EPA 8321B |
| 3-Nitrotoluene | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| 4-amino-2,6-Dinitrotoluene | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| 4-Nitrotoluene | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| Nitrobenzene | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| Nitroglycerin | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| HMX (octahydro-1,3,5,7-tetrabitro-1,3,5,7-Tetrazocine) | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| Pentaerythritoltetranitrate (PETN) | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| Picric acid | EPA 8330B | EPA 8330B | EPA 8330B |
| RDX (hexahydro-1,3,5-trinitro-1,3,5-Triazine) | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| Tetryl (methyl 2,4,6-Trinitrophenylnitramine | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| DNX (Hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine) | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| MNX (Hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine) | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA /8321B |
| TNX (hexahydro-1,3,5-trinitroso-1,3,5-triazine) | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B | EPA 8330B<br>EPA 8321B |
| Tris(o-cresyl)phosphate | EPA 8321B | EPA 8321B | EPA 8321B |
| **Explosives LC/MS/MS** | | | |
| Tris(o-cresyl)phosphate | EPA 8321B | EPA 8321B | EPA 8321B |
| Ethylene thiourea | EPA 8321B | EPA 8321B | EPA 8321B |
| Nitroguanidine | EPA 8321B | EPA 8321B | EPA 8321B |
| Triaminotrinitrobenzene (TATB) | EPA 8321B | EPA 8321B | EPA 8321B |
| 1,3,5-Trinitrobenzene | ---------- | EPA 8321B | EPA 8321B |
| 1,3-Dinitrobenzene | ---------- | EPA 8321B | EPA 8321B |
| 2,4,6-Trinitrotoluene | ---------- | EPA 8321B | EPA 8321B |
| 3,5-Dinitroaniline | ---------- | EPA 8321B | EPA 8321B |
| 2,4-Dinitrotoluene | ---------- | EPA 8321B | EPA 8321B |
| 2,6-Dinitrotoluene | ---------- | EPA 8321B | EPA 8321B |
| 3,4-Dinitrotoluene | ---------- | EPA 8321B | EPA 8321B |
| 3,5-Dinitrotoluene | ---------- | EPA 8321B | EPA 8321B |
| 2-amino-4,6-Dinitrotoluene | ---------- | EPA 8321B | EPA 8321B |
| 2-Nitrotoluene | ---------- | EPA 8321B | EPA 8321B |
| 3-Nitrotoluene | ---------- | EPA 8321B | EPA 8321B |

| Parameter/Analyte | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|
| | | Water | Solid |
| 4-amino-2,6-Dinitrotoluene | ---------- | EPA 8321B | EPA 8321B |
| 4-Nitrotoluene | ---------- | EPA 8321B | EPA 8321B |
| Nitrobenzene | ---------- | EPA 8321B | EPA 8321B |
| Nitroglycerin | ---------- | EPA 8321B | EPA 8321B |
| HMX (octahydro-1,3,5,7-tetrabitro-1,3,5,7-Tetrazocine) | ---------- | EPA 8321B | EPA 8321B |
| Pentaerythritoltetranitrate (PETN) | ---------- | EPA 8321B | EPA 8321B |
| RDX (hexahydro-1,3,5-trinitro-1,3,5-Triazine) | ---------- | EPA 8321B | EPA 8321B |
| Tetryl (methyl 2,4,6-Trinitrophenylnitramine | ---------- | EPA 8321B | EPA 8321B |
| DNX (Hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine) | ---------- | EPA 8321B | EPA 8321B |
| MNX (Hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine) | ---------- | EPA 8321B | EPA 8321B |
| TNX (hexahydro-1,3,5-trinitroso-1,3,5-triazine) | ---------- | EPA 8321B | EPA 8321B |

| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | | Tissue | Aqueous Film Forming Foams (AFFF) |
|---|---|---|---|---|---|---|
| | | | Water | Solid | | |
| **Per and Polyfluoroalkyl Substances (PFAS)** | | | | | | |
| Perfluorobutanoic acid (PFBA) | EPA 533 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluoropentanoic acid (PFPeA) | EPA 533 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluorohexanoic acid (PFHxA) | EPA 533 EPA 537.1 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluoroheptanoic acid (PFHpA) | EPA 533 EPA 537.1 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluorooctanoic acid (PFOA) | EPA 533 EPA 537.1 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluorononanoic acid (PFNA) | EPA 533 EPA 537.1 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluorodecanoic acid (PFDA) | EPA 533 EPA 537.1 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluoroundecanoic acid (PFUnA) | EPA 533 EPA 537.1 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluorododecanoic acid (PFDoA) | EPA 533 EPA 537.1 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluorotridecanoic acid (PFTrDA) | EPA 537.1 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |

| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | | Tissue | Aqueous Film Forming Foams (AFFF) |
|---|---|---|---|---|---|---|
| | | | Water | Solid | | |
| Perfluorotetradecanoic acid (PFTeDA) | EPA 537.1 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluorobutanesulfonic acid (PFBS) | EPA 533<br>EPA 537.1 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluoropentanesulfonic acid (PFPeS) | EPA 533 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluorohexanesulfonic acid (PFHxS) | EPA 533<br>EPA 537.1 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluoroheptanesulfonic acid (PFHpS) | EPA 533 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluorooctanesulfonic acid (PFOS) | EPA 533<br>EPA 537.1 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluorononanesulfonic acid (PFNS) | ---------- | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluorodecanesulfonic acid (PFDS) | ---------- | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluorododecansulfonic acid (PFDoS) | ---------- | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluorooctanesulfonamide (PFOSA,FOSA) | ---------- | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| N-ethylperfluorooctane-sulfonamide (NEtFOSA, Et-FOSA) | ---------- | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| N-methylperfluorooctane-sulfonamide (NMeFOSA, Me-FOSA) | ---------- | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| 2-(N-ethylperfluorooctane-sulfonamido) ethanol (NEtFOSE, Et-FOSE) | ---------- | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| 2-(N-methylperfluorooctane-sulfonamido) ethanol (NMeFOSE, Me-FOSE) | ---------- | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| N-ethylperfluorooctane-sulfonamidoacetic acid (NEtFOSAA, EtFOSAA) | EPA 537.1 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| N-methylperfluorooctane-sulfonamidoacetic acid (NMeFOSAA, MeFOSAA) | EPA 537.1 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| 1H,1H,2H,2H-perfluorohexane sulfonic acid (*4:2*) (4:2 FTS) | EPA 533 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| 1H,1H,2H,2H-perfluorooctane sulfonic acid (*6:2*) (6:2 FTS) | EPA 533 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| 1H,1H,2H,2H-perfluorodecane sulfonic acid (*8:2*) (8:2 FTS) | EPA 533 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |

| Parameter/Analyte | Drinking Water | Non-Potable Water | Solid Hazardous Waste | | Tissue | Aqueous Film Forming Foams (AFFF) |
|---|---|---|---|---|---|---|
| | | | Water | Solid | | |
| 3-Perfluoropropylpropanoic acid (3:3 FTCA) | ---------- | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| 2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA) | ---------- | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| 3-Perfluoroheptyl propanoic acid (7:3 FTCA) | ---------- | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluoro(2-propoxypropanoic) acid or Hexafluoropropylene oxide dimer acid (HFPO-DA, GenX) | EPA 533 EPA 537.1 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| 4,8-dioxa-3H-perfluorononanoic acid (DONA, ADONA) | EPA 533 EPA 537.1 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluoro-3-methoxypropanoic acid (PFMPA, PFECA F) | EPA 533 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluoro-4-methoxybutanoic acid (PFMBA, PFECA A) | EPA 533 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Nonafluoro-3,6-dioxaheptanoic acid (NFHDA, PFECA B) | EPA 533 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS) | EPA 533 EPA 537.1 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) | EPA 533 EPA 537.1 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA, PESS) | EPA 533 | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluoropropinoic acid (PFPrA) | ---------- | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluorohexadecanoic acid (PFHxDA) | ---------- | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Perfluorooctadecanoic acid (PFODA) | ---------- | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |
| Bis(trifluoromethane) sulfonimide (TFSI) | ---------- | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A | EPA 1633/1633A |

| **Parameter/Analyte** | **Non-Potable Water** | **Solid Hazardous Waste** | |
|---|---|---|---|
| | | **Water** | **Solid** |
| **Hazardous Waste Characteristics** | | | |
| Conductivity | SM 2510B | EPA 9050A | EPA 9050A |
| Corrosivity | SM 4500 H+B | EPA 9040B/9040C | EPA 9045C/9045D |
| Paint filter liquids test | ---------- | EPA 9095A/9095B | EPA 9095A/9095B |

| Parameter/Analyte | Non-Potable Water | Solid Hazardous Waste | |
|---|---|---|---|
| | | Water | Solid |
| Synthetic Precipitation Leaching Procedure (SPLP) | EPA 1312 | EPA 1312 | EPA 1312 |
| Toxicity Characteristic Leaching Procedure | EPA 1311 | EPA 1311 | EPA 1311 |
| California Waste Extraction Test | CA WET | CA WET | CA WET |
| Turbidity | EPA 180.1 | ---------- | ---------- |
| **Organic Prep Methods** | | | |
| Microwave extraction | ---------- | ---------- | EPA 3546 |
| Separatory funnel liquid-liquid extraction | EPA 3510C | EPA 3510C | ---------- |
| Solid phase extraction | EPA 3535/3535A | EPA 3535/3535A | ---------- |
| Ultrasonic extraction | ---------- | ---------- | EPA 3550B/3550C |
| Volatiles purge and trap | EPA 5030B/5030C | EPA 5030B/5030C | EPA 5030A<br>EPA 5035/5035A |
| Waste dilution | EPA 3580A | EPA 3580A | EPA 3580A |
| **Organic Cleanup Procedures** | | | |
| Florisil Cleanup | EPA 3620B/3620C | EPA 3620B/3620C | EPA 3620B/3620C |
| Silica Gel Cleanup | EPA 3630C | EPA 3630C | EPA 3630C |
| Sulfur Cleanup | EPA 3660A/3660B | EPA 3660A/3660B | EPA 3660A/3660B |
| Sulfuric Acid/Permanganate Cleanup | EPA 3665A | EPA 3665A | EPA 3665A |
| **Metals Digestion** | | | |
| Acid Digestion for Total Metals | EPA 3005A<br>EPA 200.7 (Mod)<br>EPA 200.8 (Mod) | EPA 3005A<br>EPA 200.7 (Mod)<br>EPA 200.8 (Mod) | ---------- |
| Acid Digestion of Sediments, Sludges and Soils | ---------- | ---------- | EPA 3050B |
| Acid Digestion Total Recoverable or Dissolved Metals | EPA 3005A | EPA 3005A | ---------- |
| **Incremental Sampling Methodology** | | | |
| ISM Prep, with or without Grinding | ---------- | ---------- | EPA 8330B Appendix A<br>QSM V6.0 Table B-3/B-30 |

In recognition of the successful completion of the A2LA evaluation process, (including an assessment of the laboratory's compliance with ISO IEC 17025:2005 and for the test methods applicable to the Wyoming Storage Tank Remediation Laboratory Accreditation Program), accreditation is granted to this laboratory to perform recognized EPA methods using the following testing technologies and in the analyte categories identified below:

WYOMING STORAGE TANK PROGRAM

| **Parameter/Analyte** | **Solid Hazardous Waste (Water)** | **Solid Hazardous Waste (Solid)** |
|---|---|---|
| **Metals** | | |
| Cadmium | EPA 6010C/6010D | EPA 6010C/6010D |
| Chromium | EPA 6010C/6010D | EPA 6010C/6010D |
| Lead | EPA 6010C/6010D | EPA 6010C/6010D |
| **Wet Chemistry** | | |
| Hexavalent chromium | EPA 7196A | EPA 7196A / EPA 3060A |
| **Pureable Organics (Volatiles)** | | |
| tert-Amyl Methyl Ether | EPA 8260C/8260D | EPA 8260C/8260D |
| Benzene | EPA 8260C/8260D | EPA 8260C/8260D |
| tert-Butyl alcohol (2-Methyl-2-propanol) | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,2-Dichloroethane | EPA 8260C/8260D | EPA 8260C/8260D |
| Di-isopropylether | EPA 8260C/8260D | EPA 8260C/8260D |
| Ethyl benzene | EPA 8260C/8260D | EPA 8260C/8260D |
| Ethyl tert-butyl ether | EPA 8260C/8260D | EPA 8260C/8260D |
| Gas Range Organics (GRO) | EPA 8015C/8015D | EPA 8015C/8015D |
| Methyl tert-butyl ether (MTBE) | EPA 8260C/8260D | EPA 8260C/8260D |
| Naphthalene | EPA 8260C/8260D | EPA 8260C/8260D |
| Toluene | EPA 8260C/8260D | EPA 8260C/8260D |
| Xylenes, total | EPA 8260C/8260D | EPA 8260C/8260D |
| 1,2-Xylene | EPA 8260C/8260D | EPA 8260C/8260D |
| m+p-Xylene | EPA 8260C/8260D | EPA 8260C/8260D |
| **Extractable Organics (Semivolatiles)** | | |
| Diesel Range Organics (DRO) | EPA 8015C/8015D (WY: C10-C32) | EPA 8015C/8015D (WY: C10-C32) |
| **Organic Prep Methods** | | |
| Volatiles Purge and Trap | EPA 5030B/5030C (water) /5030A (solids) | EPA 5030B/5030C (water) /5030A (solids) |

# Accredited Laboratory

A2LA has accredited

## EUROFINS TESTAMERICA DENVER

*Arvada, CO*

for technical competence in the field of

### Environmental Testing

In recognition of the successful completion of the A2LA evaluation process that includes an assessment of the laboratory's compliance with ISO/IEC 17025:2017, the 2016 TNI Environmental Testing Laboratory Standard, the requirements of the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP), and the requirements of the Department of Energy Consolidated Audit Program (DOECAP) as detailed in version 6.0 of the DoD/DOE Quality System Manual for Environmental Laboratories (QSM), accreditation is granted to this laboratory to perform recognized EPA methods as defined on the associated A2LA Environmental Scope of Accreditation. This accreditation demonstrates technical competence for this defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

Presented this 15th day of November 2024.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2907.01
Valid to October 31, 2026

*For the tests to which this accreditation applies, please refer to the laboratory's Environmental Scope of Accreditation.*

**NEW YORK STATE DEPARTMENT OF HEALTH**
**WADSWORTH CENTER**

Expires 12:01 AM April 01, 2026
Issued April 01, 2025

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*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

*MR. ANTHONY GRIMALDI*
*EUROFINS DENVER*
*4955 YARROW STREET*
*ARVADA, CO 80002*

*NY Lab Id No: 11964*

*is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES POTABLE WATER*
*All approved analytes are listed below:*

**Perfluorinated Alkyl Acids**

| | |
|---|---|
| 11Cl-PF3OUdS | EPA 533 |
| | EPA 537.1, Version 2 |
| 4:2FTS | EPA 533 |
| 6:2FTS | EPA 533 |
| 8:2FTS | EPA 533 |
| 9Cl-PF3ONS | EPA 533 |
| | EPA 537.1, Version 2 |
| ADONA | EPA 533 |
| | EPA 537.1, Version 2 |
| HFPO-DA (GenX) | EPA 533 |
| | EPA 537.1, Version 2 |
| NEtFOSAA | EPA 537.1, Version 2 |
| NFDHA | EPA 533 |
| NMeFOSAA | EPA 537.1, Version 2 |
| Perflourotridecanoic Acid (PFTrDA) | EPA 537.1, Version 2 |
| Perfluordecanoic Acid (PFDA) | EPA 533 |
| | EPA 537.1, Version 2 |
| Perfluoro-3-Methoxypropanoic Acid (F | EPA 533 |
| Perfluoro-4-Methoxybutanoic Acid (PF | EPA 533 |
| Perfluorobutanesulfonic Acid (PFBS) | EPA 533 |
| | EPA 537.1, Version 2 |
| Perfluorobutanoic Acid (PFBA) | EPA 533 |
| Perfluorododecanoic Acid (PFDoA) | EPA 533 |
| | EPA 537.1, Version 2 |
| Perfluoroheptanesulfonic Acid (PFHpS | EPA 533 |
| Perfluoroheptanoic Acid (PFHpA) | EPA 533 |
| | EPA 537.1, Version 2 |

Serial No.: 70701

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*All approved analytes are listed below:*

**Perfluorinated Alkyl Acids**

| | |
|---|---|
| Perfluorohexanesulfonic Acid (PFHxS | EPA 533 |
| | EPA 537.1, Version 2 |
| Perfluorohexanoic Acid (PFHxA) | EPA 533 |
| | EPA 537.1, Version 2 |
| Perfluorononanoic Acid (PFNA) | EPA 533 |
| | EPA 537.1, Version 2 |
| Perfluorooctanesulfonic Acid (PFOS) | EPA 533 |
| | EPA 537.1, Version 2 |
| Perfluorooctanoic Acid (PFOA) | EPA 533 |
| | EPA 537.1, Version 2 |
| Perfluoropentanesulfonic Acid (PFPeS | EPA 533 |
| Perfluoropentanoic Acid (PFPeA) | EPA 533 |
| Perfluorotetradecanoic Acid (PFTeDA) | EPA 537.1, Version 2 |
| Perfluoroundecanoic Acid (PFUnA) | EPA 533 |
| | EPA 537.1, Version 2 |
| PFEESA | EPA 533 |

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**Acrylates**

| | |
|---|---|
| Acrolein (Propenal) | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Acrylonitrile | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Ethyl methacrylate | EPA 8260D |
| | EPA 8260C |
| Methyl acrylonitrile | EPA 8260D |
| | EPA 8260C |
| Methyl methacrylate | EPA 8260D |
| | EPA 8260C |

**Amines**

| | |
|---|---|
| 1,2-Diphenylhydrazine | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| 1,4-Phenylenediamine | EPA 8270D |
| | EPA 8270E |
| 1-Naphthylamine | EPA 8270D |
| | EPA 8270E |
| 2,3-Dichloroaniline | EPA 8270D |
| | EPA 8270E |
| 2-Naphthylamine | EPA 8270D |
| | EPA 8270E |
| 2-Nitroaniline | EPA 8270D |
| | EPA 8270E |
| 3-Nitroaniline | EPA 8270D |

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**Amines**

| | |
|---|---|
| 3-Nitroaniline | EPA 8270E |
| 4,4'-Methylenebis(2-chloroaniline) | EPA 8270D |
| | EPA 8270E |
| 4-Chloroaniline | EPA 8270D |
| | EPA 8270E |
| 4-Nitroaniline | EPA 8270D |
| | EPA 8270E |
| 5-Nitro-o-toluidine | EPA 8270D |
| | EPA 8270E |
| a,a-Dimethylphenethylamine | EPA 8270D |
| | EPA 8270E |
| Aniline | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Carbazole | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Diphenylamine | EPA 8270D |
| | EPA 8270E |
| Methapyrilene | EPA 8270D |
| | EPA 8270E |
| Pronamide | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Propionitrile | EPA 8260D |
| | EPA 8260C |
| Pyridine | EPA 625.1 |

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**Amines**

| | |
|---|---|
| Pyridine | EPA 8270D |
| | EPA 8270E |

**Benzidines**

| | |
|---|---|
| 3,3'-Dichlorobenzidine | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| 3,3'-Dimethylbenzidine | EPA 8270D |
| | EPA 8270E |
| Benzidine | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |

**Chlorinated Hydrocarbon Pesticides**

| | |
|---|---|
| 4,4'-DDD | EPA 8081B |
| | EPA 608.3 |
| 4,4'-DDE | EPA 8081B |
| | EPA 608.3 |
| 4,4'-DDT | EPA 8081B |
| | EPA 608.3 |
| Aldrin | EPA 8081B |
| | EPA 608.3 |
| alpha-BHC | EPA 8081B |
| | EPA 608.3 |
| alpha-Chlordane | EPA 8081B |
| | EPA 608.3 |
| beta-BHC | EPA 8081B |
| | EPA 608.3 |

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**Chlorinated Hydrocarbon Pesticides**

| | |
|---|---|
| Chlordane Total | EPA 8081B |
| | EPA 608.3 |
| Chlorobenzilate | EPA 8081B |
| | EPA 8270D |
| | EPA 8270E |
| delta-BHC | EPA 8081B |
| | EPA 608.3 |
| Diallate | EPA 8081B |
| | EPA 8270D |
| | EPA 8270E |
| Dieldrin | EPA 8081B |
| | EPA 608.3 |
| Endosulfan I | EPA 8081B |
| | EPA 608.3 |
| Endosulfan II | EPA 8081B |
| | EPA 608.3 |
| Endosulfan sulfate | EPA 8081B |
| | EPA 608.3 |
| Endrin | EPA 8081B |
| | EPA 608.3 |
| Endrin aldehyde | EPA 8081B |
| | EPA 608.3 |
| Endrin Ketone | EPA 8081B |
| gamma-Chlordane | EPA 8081B |
| | EPA 608.3 |
| Heptachlor | EPA 8081B |
| | EPA 608.3 |

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**Chlorinated Hydrocarbon Pesticides**

| | |
|---|---|
| Heptachlor epoxide | EPA 8081B |
| | EPA 608.3 |
| Isodrin | EPA 8081B |
| | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Kepone | EPA 8081B |
| Lindane | EPA 8081B |
| | EPA 608.3 |
| Methoxychlor | EPA 8081B |
| | EPA 608.3 |
| Mirex | EPA 8081B |
| | EPA 608.3 |
| PCNB | EPA 625.1 |
| | EPA 8270D |
| Toxaphene | EPA 8081B |
| | EPA 608.3 |

**Chlorinated Hydrocarbons**

| | |
|---|---|
| 1,2,3-Trichlorobenzene | EPA 8260D |
| | EPA 8260C |
| 1,2,4,5-Tetrachlorobenzene | EPA 8270D |
| | EPA 8270E |
| 1,2,4-Trichlorobenzene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| 1-Chloronaphthalene | EPA 8270D |
| | EPA 8270E |

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**Chlorinated Hydrocarbons**

| | |
|---|---|
| 2-Chloronaphthalene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Hexachlorobenzene | EPA 8081B |
| | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Hexachlorobutadiene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Hexachlorocyclopentadiene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Hexachloroethane | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Hexachloropropene | EPA 8270D |
| | EPA 8270E |
| Pentachlorobenzene | EPA 8270D |
| | EPA 8270E |

**Chlorophenoxy Acid Pesticides**

| | |
|---|---|
| 2,4,5-T | EPA 8321B |
| 2,4,5-TP (Silvex) | EPA 8321B |
| 2,4-D | EPA 8321B |
| 2,4-DB | EPA 8321B |
| Dalapon | EPA 8321B |
| Dicamba | EPA 8321B |

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**Chlorophenoxy Acid Pesticides**

| | |
|---|---|
| Dichloroprop | EPA 8321B |
| Dinoseb | EPA 8270D |
| | EPA 8270E |
| | EPA 8321B |

**Demand**

| | |
|---|---|
| Biochemical Oxygen Demand | SM 5210B-2016 |
| Chemical Oxygen Demand | EPA 410.4, Rev. 2.0 (1993) |

**Dissolved Gases**

| | |
|---|---|
| Acetylene | RSK-175 |
| Ethane | RSK-175 |
| Ethene (Ethylene) | RSK-175 |
| Methane | RSK-175 |
| Propane | RSK-175 |

**Fuel Oxygenates**

| | |
|---|---|
| Di-isopropyl ether | EPA 8260D |
| | EPA 8260C |
| Ethanol | EPA 8260D |
| | EPA 8260C |
| Methyl tert-butyl ether | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| tert-amyl methyl ether (TAME) | EPA 8260D |
| | EPA 8260C |
| tert-butyl alcohol | EPA 8260D |
| | EPA 8260C |
| tert-butyl ethyl ether (ETBE) | EPA 8260D |

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**Fuel Oxygenates**

| | |
|---|---|
| tert-butyl ethyl ether (ETBE) | EPA 8260C |

**Haloethers**

| | |
|---|---|
| 2,2'-Oxybis(1-chloropropane) | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| 4-Bromophenylphenyl ether | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| 4-Chlorophenylphenyl ether | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Bis(2-chloroethoxy)methane | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Bis(2-chloroethyl)ether | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |

**Low Level Halocarbons**

| | |
|---|---|
| 1,2,3-Trichloropropane, Low Level | EPA 8011 |
| 1,2-Dibromo-3-chloropropane, Low Le | EPA 8011 |
| 1,2-Dibromoethane, Low Level | EPA 8011 |

**Low Level Polynuclear Aromatics**

| | |
|---|---|
| Acenaphthene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Acenaphthylene Low Level | EPA 8270D |

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**WADSWORTH CENTER**

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*EUROFINS DENVER*
*4955 YARROW STREET*
*ARVADA, CO 80002*

*NY Lab Id No: 11964*

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*All approved analytes are listed below:*

**Low Level Polynuclear Aromatics**

| | |
|---|---|
| Acenaphthylene Low Level | EPA 8270D SIM |
| | EPA 8270E SIM |
| Anthracene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Benzo(a)anthracene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Benzo(a)pyrene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Benzo(b)fluoranthene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Benzo(g,h,i)perylene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Benzo(k)fluoranthene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Chrysene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Dibenzo(a,h)anthracene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Fluoranthene Low Level | EPA 8270D |

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**Low Level Polynuclear Aromatics**

| | |
|---|---|
| Fluoranthene Low Level | EPA 8270D SIM |
| | EPA 8270E SIM |
| Fluorene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Indeno(1,2,3-cd)pyrene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Naphthalene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Phenanthrene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Pyrene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |

**Metals I**

| | |
|---|---|
| Barium, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Cadmium, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |

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**Metals I**

| | |
|---|---|
| Cadmium, Total | EPA 200.8, Rev. 5.4 (1994) |
| Calcium, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Chromium, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Copper, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Iron, Total | SM 3500-Fe B-2011 |
| | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Lead, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |

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**Metals I**

| | |
|---|---|
| Magnesium, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Manganese, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Nickel, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Potassium, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Silver, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Sodium, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |

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**Metals I**

| | |
|---|---|
| Sodium, Total | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Strontium, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |

**Metals II**

| | |
|---|---|
| Aluminum, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Antimony, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Arsenic, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Beryllium, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |

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**Metals II**

| | |
|---|---|
| Beryllium, Total | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Chromium VI | EPA 7196A |
| | SM 3500-Cr B-2011 |
| Mercury, Total | EPA 245.1, Rev. 3.0 (1994) |
| | EPA 7470A |
| Selenium, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Vanadium, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Zinc, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |

**Metals III**

| | |
|---|---|
| Cobalt, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |

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**Metals III**

| | |
|---|---|
| Molybdenum, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Thallium, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Tin, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |
| Titanium, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| Uranium (Mass) | EPA 6020B |
| | EPA 200.8, Rev. 5.4 (1994) |

**Mineral**

| | |
|---|---|
| Alkalinity | SM 2320B-2011 |
| Calcium Hardness | SM 2340B-2011 |
| Chloride | EPA 300.0, Rev. 2.1 (1993) |
| | SM 4500-Cl- E-2011 |
| | EPA 9056A |
| Fluoride, Total | EPA 300.0, Rev. 2.1 (1993) |

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**Mineral**

| | |
|---|---|
| Fluoride, Total | EPA 9056A |
| Hardness, Total | SM 2340C-2011 |
| | SM 2340B-2011 |
| Sulfate (as SO4) | EPA 300.0, Rev. 2.1 (1993) |
| | SM 4500-SO4- E-2011 |
| | EPA 9056A |

**Miscellaneous**

| | |
|---|---|
| Boron, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |
| Bromide | EPA 300.0, Rev. 2.1 (1993) |
| | EPA 9056A |
| Color | SM 2120B-2011 |
| Cyanide, Available | SM 4500-CN G-2016 |
| Cyanide, Total | SM 4500-CN E-2016 |
| | EPA 335.4, Rev. 1.0 (1993) |
| | EPA 9012B |
| Oil and Grease Total Recoverable | EPA 1664A |
| | EPA 1664B |
| Organic Carbon, Total | SM 5310B-2014 |
| | EPA 9060A |
| Perchlorate | EPA 6850 |
| Phenols | EPA 420.4, Rev. 1.0 (1993) |
| | EPA 9066 |
| Silica, Dissolved | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 6010C |
| | EPA 6010D |

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**Miscellaneous**

| | |
|---|---|
| Specific Conductance | SM 2510B-2011 |
| | EPA 9050A |
| Sulfide (as S) | SM 4500-S2- F-2011 |
| | EPA 9034 |
| | SM 4500-S2- D-2011 |
| Total Organic Halides | EPA 9020B |
| Turbidity | EPA 180.1, Rev. 2.0 (1993) |

**Nitroaromatics and Isophorone**

| | |
|---|---|
| 1,3,5-Trinitrobenzene | EPA 8270D |
| | EPA 8270E |
| | EPA 8330B |
| 1,3-Dinitrobenzene | EPA 8270D |
| | EPA 8270E |
| | EPA 8330B |
| 1,4-Naphthoquinone | EPA 8270D |
| | EPA 8270E |
| 2,4,6-Trinitrotoluene | EPA 8330B |
| 2,4-Dinitrotoluene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| | EPA 8330B |
| 2,6-Dinitrotoluene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| | EPA 8330B |
| 2-Amino-4,6-dinitrotoluene | EPA 8330B |
| 2-Nitrotoluene | EPA 8330B |

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**Nitroaromatics and Isophorone**

| | |
|---|---|
| 3,5-Dinitroaniline | EPA 8330B |
| 3-Nitrotoluene | EPA 8330B |
| 4-Amino-2,6-dinitrotoluene | EPA 8330B |
| 4-Nitroquinoline-1-oxide | EPA 8270D |
| | EPA 8270E |
| 4-Nitrotoluene | EPA 8330B |
| Hexahydro-1,3,5-trinitro-1,3,5-triazine | EPA 8330B |
| Isophorone | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Methyl-2,4,6-trinitrophenylnitramine | EPA 8330B |
| Nitrobenzene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| | EPA 8330B |
| Nitroglycerine | EPA 8330B |
| Octahydro-tetranitro-tetrazocine | EPA 8330B |
| Pentaerythritol tetranitrate | EPA 8330B |

**Nitrosoamines**

| | |
|---|---|
| N-Nitrosodiethylamine | EPA 8270D |
| | EPA 8270E |
| N-Nitrosodimethylamine | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| N-Nitrosodi-n-butylamine | EPA 8270D |
| | EPA 8270E |
| N-Nitrosodi-n-propylamine | EPA 625.1 |

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**Nitrosoamines**

| | |
|---|---|
| N-Nitrosodi-n-propylamine | EPA 8270D |
| | EPA 8270E |
| N-Nitrosodiphenylamine | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| N-nitrosomethylethylamine | EPA 8270D |
| | EPA 8270E |
| N-nitrosomorpholine | EPA 8270D |
| | EPA 8270E |
| N-nitrosopiperidine | EPA 8270D |
| | EPA 8270E |
| N-Nitrosopyrrolidine | EPA 8270D |
| | EPA 8270E |

**Nutrient**

| | |
|---|---|
| Ammonia (as N) | EPA 350.1, Rev. 2.0 (1993) |
| Kjeldahl Nitrogen, Total | EPA 351.2, Rev. 2.0 (1993) |
| Nitrate (as N) | EPA 300.0, Rev. 2.1 (1993) |
| | EPA 9056A |
| Nitrate-Nitrite (as N) | EPA 353.2, Rev. 2.0 (1993) |
| | EPA 300.0, Rev. 2.1 (1993) |
| Nitrite (as N) | EPA 300.0, Rev. 2.1 (1993) |
| | SM 4500-NO2 B-2011 |
| | EPA 9056A |
| Orthophosphate (as P) | EPA 365.1, Rev. 2.0 (1993) |
| Phosphorus, Total | EPA 200.7, Rev. 4.4 (1994) |
| | EPA 365.1, Rev. 2.0 (1993) |

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**WADSWORTH CENTER**

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Revised July 01, 2025

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*MR. ANTHONY GRIMALDI*
*EUROFINS DENVER*
*4955 YARROW STREET*
*ARVADA, CO 80002*

*NY Lab Id No: 11964*

*is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER*
*All approved analytes are listed below:*

**Organophosphate Pesticides**

| | |
|---|---|
| Atrazine | EPA 8141B |
| | EPA 8270D |
| | EPA 8270E |
| Azinphos methyl | EPA 8141B |
| | EPA 614 |
| Chlorpyriphos | EPA 8141B |
| Demeton-O | EPA 8141B |
| | EPA 614 |
| Demeton-S | EPA 8141B |
| | EPA 614 |
| Diazinon | EPA 8141B |
| | EPA 614 |
| Dimethoate | EPA 8141B |
| | EPA 8270D |
| | EPA 8270E |
| Disulfoton | EPA 8141B |
| | EPA 625.1 |
| | EPA 614 |
| | EPA 8270D |
| | EPA 8270E |
| Famphur | EPA 8141B |
| | EPA 8270D |
| | EPA 8270E |
| Malathion | EPA 8141B |
| | EPA 614 |
| Parathion ethyl | EPA 8141B |
| | EPA 625.1 |

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**Organophosphate Pesticides**

| | |
|---|---|
| Parathion ethyl | EPA 614 |
| | EPA 8270D |
| | EPA 8270E |
| Parathion methyl | EPA 8141B |
| | EPA 625.1 |
| | EPA 614 |
| | EPA 8270D |
| | EPA 8270E |
| Phorate | EPA 8141B |
| | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Simazine | EPA 8141B |
| Sulfotepp | EPA 8141B |
| | EPA 8270D |
| | EPA 8270E |
| Thionazin | EPA 8141B |
| | EPA 8270D |
| | EPA 8270E |

**Perfluorinated Alkyl Acids**

| | |
|---|---|
| 11Cl-PF3OUdS | EPA 1633A |
| 3:3 FTCA | EPA 1633A |
| 4:2FTS | EPA 1633A |
| 5:3 FTCA | EPA 1633A |
| 6:2FTS | EPA 1633A |
| 7:3 FTCA | EPA 1633A |
| 8:2FTS | EPA 1633A |

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**Perfluorinated Alkyl Acids**

| | |
|---|---|
| 9Cl-PF3ONS | EPA 1633A |
| ADONA | EPA 1633A |
| HFPO-DA (GenX) | EPA 1633A |
| NEtFOSA | EPA 1633A |
| NEtFOSAA | EPA 1633A |
| NEtFOSE | EPA 1633A |
| NFDHA | EPA 1633A |
| NMeFOSA | EPA 1633A |
| NMeFOSAA | EPA 1633A |
| NMeFOSE | EPA 1633A |
| Perflourotridecanoic Acid (PFTrDA) | EPA 1633A |
| Perfluordecanoic Acid (PFDA) | EPA 1633A |
| Perfluoro-3-Methoxypropanoic Acid (F | EPA 1633A |
| Perfluoro-4-Methoxybutanoic Acid (PF | EPA 1633A |
| Perfluorobutanesulfonic Acid (PFBS) | EPA 1633A |
| Perfluorobutanoic Acid (PFBA) | EPA 1633A |
| Perfluorodecanesulfonic acid (PFDS) | EPA 1633A |
| Perfluorododecanesulfonic acid (PFDc | EPA 1633A |
| Perfluorododecanoic Acid (PFDoA) | EPA 1633A |
| Perfluoroheptanesulfonic Acid (PFHpS | EPA 1633A |
| Perfluoroheptanoic Acid (PFHpA) | EPA 1633A |
| Perfluorohexanesulfonic Acid (PFHxS | EPA 1633A |
| Perfluorohexanoic Acid (PFHxA) | EPA 1633A |
| Perfluorononanesulfonic acid (PFNS) | EPA 1633A |
| Perfluorononanoic Acid (PFNA) | EPA 1633A |
| Perfluorooctanesulfonamide (PFOSA) | EPA 1633A |
| Perfluorooctanesulfonic Acid (PFOS) | EPA 1633A |

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**Perfluorinated Alkyl Acids**

| | |
|---|---|
| Perfluorooctanoic Acid (PFOA) | EPA 1633A |
| Perfluoropentanesulfonic Acid (PFPeS | EPA 1633A |
| Perfluoropentanoic Acid (PFPeA) | EPA 1633A |
| Perfluorotetradecanoic Acid (PFTeDA) | EPA 1633A |
| Perfluoroundecanoic Acid (PFUnA) | EPA 1633A |
| PFEESA | EPA 1633A |

**Petroleum Hydrocarbons**

| | |
|---|---|
| Diesel Range Organics | EPA 8015D |
| | EPA 8015C |
| Gasoline Range Organics | EPA 8015D |
| | EPA 8015C |

**Phthalate Esters**

| | |
|---|---|
| Benzyl butyl phthalate | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Bis(2-ethylhexyl) phthalate | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Diethyl phthalate | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Dimethyl phthalate | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Di-n-butyl phthalate | EPA 625.1 |
| | EPA 8270D |

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| | |
|---|---|
| **Phthalate Esters** | |
| Di-n-butyl phthalate | EPA 8270E |
| Di-n-octyl phthalate | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| **Polychlorinated Biphenyls** | |
| Aroclor 1016 (PCB-1016) | EPA 8082A |
| | EPA 608.3 |
| Aroclor 1221 (PCB-1221) | EPA 8082A |
| | EPA 608.3 |
| Aroclor 1232 (PCB-1232) | EPA 8082A |
| | EPA 608.3 |
| Aroclor 1242 (PCB-1242) | EPA 8082A |
| | EPA 608.3 |
| Aroclor 1248 (PCB-1248) | EPA 8082A |
| | EPA 608.3 |
| Aroclor 1254 (PCB-1254) | EPA 8082A |
| | EPA 608.3 |
| Aroclor 1260 (PCB-1260) | EPA 8082A |
| | EPA 608.3 |
| Aroclor 1262 (PCB-1262) | EPA 8082A |
| Aroclor 1268 (PCB-1268) | EPA 8082A |
| **Polynuclear Aromatics** | |
| 2-Acetylaminofluorene | EPA 8270D |
| | EPA 8270E |
| 3-Methylcholanthrene | EPA 8270D |
| | EPA 8270E |

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**Polynuclear Aromatics**

| | |
|---|---|
| 7,12-Dimethylbenzyl (a) anthracene | EPA 8270D |
| | EPA 8270E |
| Acenaphthene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Acenaphthylene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Anthracene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Benzo(a)anthracene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Benzo(a)pyrene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Benzo(b)fluoranthene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Benzo(g,h,i)perylene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Benzo(k)fluoranthene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Chrysene | EPA 625.1 |

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**Polynuclear Aromatics**

| | |
|---|---|
| Chrysene | EPA 8270D |
| | EPA 8270E |
| Dibenzo(a,h)anthracene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Fluoranthene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Fluorene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Indeno(1,2,3-cd)pyrene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Naphthalene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Phenanthrene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Pyrene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |

**Priority Pollutant Phenols**

| | |
|---|---|
| 2,3,4,6 Tetrachlorophenol | EPA 8270D |
| | EPA 8270E |
| 2,4,5-Trichlorophenol | EPA 625.1 |

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**Priority Pollutant Phenols**

| | |
|---|---|
| 2,4,5-Trichlorophenol | EPA 8270D |
| | EPA 8270E |
| 2,4,6-Trichlorophenol | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| 2,4-Dichlorophenol | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| 2,4-Dimethylphenol | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| 2,4-Dinitrophenol | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| 2,6-Dichlorophenol | EPA 8270D |
| | EPA 8270E |
| 2-Chlorophenol | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| 2-Methyl-4,6-dinitrophenol | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| 2-Methylphenol | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| 2-Nitrophenol | EPA 625.1 |
| | EPA 8270D |

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**Priority Pollutant Phenols**

| | |
|---|---|
| 2-Nitrophenol | EPA 8270E |
| 3-Methylphenol | EPA 8270D |
| | EPA 8270E |
| 4-Chloro-3-methylphenol | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| 4-Methylphenol | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| 4-Nitrophenol | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Cresols, Total | EPA 8270D |
| | EPA 8270E |
| Pentachlorophenol | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Phenol | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |

**Residue**

| | |
|---|---|
| Solids, Total | SM 2540 B-2015 |
| Solids, Total Dissolved | SM 2540 C-2015 |
| Solids, Total Suspended | SM 2540 D-2015 |
| Solids, Volatile | EPA 160.4 (Issued 1971) |

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**Semi-Volatile Organics**

| | |
|---|---|
| 1,1'-Biphenyl | EPA 8270D |
| | EPA 8270E |
| 1,2-Dichlorobenzene, Semi-volatile | EPA 8270D |
| | EPA 8270E |
| 1,3-Dichlorobenzene, Semi-volatile | EPA 8270D |
| | EPA 8270E |
| 1,4-Dichlorobenzene, Semi-volatile | EPA 8270D |
| | EPA 8270E |
| 2-Methylnaphthalene | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| 2-Picoline | EPA 8270D |
| | EPA 8270E |
| 4-Amino biphenyl | EPA 8270D |
| | EPA 8270E |
| Acetophenone | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| alpha-Terpineol | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| Aramite | EPA 8270D |
| | EPA 8270E |
| Benzaldehyde | EPA 8270D |
| | EPA 8270E |
| Benzoic Acid | EPA 8270D |
| | EPA 8270E |

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**Semi-Volatile Organics**

| | |
|---|---|
| Benzyl alcohol | EPA 8270D |
| | EPA 8270E |
| Caprolactam | EPA 8270D |
| | EPA 8270E |
| Dibenzofuran | EPA 8270D |
| | EPA 8270E |
| Ethyl methanesulfonate | EPA 8270D |
| | EPA 8270E |
| Isosafrole | EPA 8270D |
| | EPA 8270E |
| Methyl methanesulfonate | EPA 8270D |
| | EPA 8270E |
| n-Decane | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| n-Octadecane | EPA 625.1 |
| | EPA 8270D |
| | EPA 8270E |
| O,O,O-Triethyl phosphorothioate | EPA 8270D |
| | EPA 8270E |
| p-Dimethylaminoazobenzene | EPA 8270D |
| | EPA 8270E |
| Phenacetin | EPA 8270D |
| | EPA 8270E |
| Safrole | EPA 8270D |
| | EPA 8270E |

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**Volatile Aromatics**

| | |
|---|---|
| 1,2,4-Trichlorobenzene, Volatile | EPA 8260D |
| | EPA 8260C |
| 1,2,4-Trimethylbenzene | EPA 8260D |
| | EPA 8260C |
| 1,2-Dichlorobenzene | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| 1,3,5-Trimethylbenzene | EPA 8260D |
| | EPA 8260C |
| 1,3-Dichlorobenzene | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| 1,4-Dichlorobenzene | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| 2-Chlorotoluene | EPA 8260D |
| | EPA 8260C |
| 4-Chlorotoluene | EPA 8260D |
| | EPA 8260C |
| Benzene | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Bromobenzene | EPA 8260D |
| | EPA 8260C |
| Chlorobenzene | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |

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**WADSWORTH CENTER**

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Issued April 01, 2025
Revised July 01, 2025

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*MR. ANTHONY GRIMALDI*
*EUROFINS DENVER*
*4955 YARROW STREET*
*ARVADA, CO 80002*

*NY Lab Id No: 11964*

*is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER*
*All approved analytes are listed below:*

**Volatile Aromatics**

| | |
|---|---|
| Ethyl benzene | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Isopropylbenzene | EPA 8260D |
| | EPA 8260C |
| m/p-Xylenes | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Naphthalene, Volatile | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| n-Butylbenzene | EPA 8260D |
| | EPA 8260C |
| n-Propylbenzene | EPA 8260D |
| | EPA 8260C |
| o-Xylene | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| p-Isopropyltoluene (P-Cymene) | EPA 8260D |
| | EPA 8260C |
| sec-Butylbenzene | EPA 8260D |
| | EPA 8260C |
| Styrene | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| tert-Butylbenzene | EPA 8260D |
| | EPA 8260C |

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**Volatile Aromatics**

| | |
|---|---|
| Toluene | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Total Xylenes | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |

**Volatile Halocarbons**

| | |
|---|---|
| 1,1,1,2-Tetrachloroethane | EPA 8260D |
| | EPA 8260C |
| 1,1,1-Trichloroethane | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| 1,1,2,2-Tetrachloroethane | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | EPA 8260D |
| | EPA 8260C |
| 1,1,2-Trichloroethane | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| 1,1-Dichloroethane | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| 1,1-Dichloroethene | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| 1,1-Dichloropropene | EPA 8260D |

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**Volatile Halocarbons**

| | |
|---|---|
| 1,1-Dichloropropene | EPA 8260C |
| 1,2,3-Trichloropropane | EPA 8260D |
| | EPA 8260C |
| 1,2-Dibromo-3-chloropropane | EPA 8260D |
| | EPA 8260C |
| 1,2-Dibromoethane | EPA 8260D |
| | EPA 8260C |
| 1,2-Dichloroethane | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| 1,2-Dichloropropane | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| 1,3-Dichloropropane | EPA 8260D |
| | EPA 8260C |
| 2,2-Dichloropropane | EPA 8260D |
| | EPA 8260C |
| 2-Chloro-1,3-butadiene (Chloroprene) | EPA 8260D |
| | EPA 8260C |
| 2-Chloroethylvinyl ether | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| 3-Chloropropene (Allyl chloride) | EPA 8260D |
| | EPA 8260C |
| Bromochloromethane | EPA 8260D |
| | EPA 8260C |
| Bromodichloromethane | EPA 8260D |

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**Volatile Halocarbons**

| | |
|---|---|
| Bromodichloromethane | EPA 8260C |
| | EPA 624.1 |
| Bromoform | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Bromomethane | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Carbon tetrachloride | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Chloroethane | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Chloroform | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Chloromethane | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| cis-1,2-Dichloroethene | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| cis-1,3-Dichloropropene | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| cis-1,4-Dichloro-2-butene | EPA 8260D |

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**Volatile Halocarbons**

| | |
|---|---|
| cis-1,4-Dichloro-2-butene | EPA 8260C |
| Dibromochloromethane | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Dibromomethane | EPA 8260D |
| | EPA 8260C |
| Dichlorodifluoromethane | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Hexachlorobutadiene, Volatile | EPA 8260D |
| | EPA 8260C |
| Methyl iodide | EPA 8260D |
| | EPA 8260C |
| Methylene chloride | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Tetrachloroethene | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| trans-1,2-Dichloroethene | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| trans-1,3-Dichloropropene | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| trans-1,4-Dichloro-2-butene | EPA 8260D |
| | EPA 8260C |

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**Volatile Halocarbons**

| | |
|---|---|
| Trichloroethene | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Trichlorofluoromethane | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Vinyl chloride | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |

**Volatiles Organics**

| | |
|---|---|
| 1,4-Dioxane | EPA 8260D |
| | EPA 8260C |
| | EPA 8260C SIM |
| | EPA 8260D SIM |
| | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E |
| | EPA 8270E SIM |
| 2-Butanone (Methylethyl ketone) | EPA 8260D |
| | EPA 8260C |
| 2-Hexanone | EPA 8260D |
| | EPA 8260C |
| 2-Nitropropane | EPA 8260D |
| | EPA 8260C |
| 4-Methyl-2-Pentanone | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |

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**Volatiles Organics**

| | |
|---|---|
| Acetone | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Acetonitrile | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Carbon Disulfide | EPA 8260D |
| | EPA 8260C |
| Cyclohexane | EPA 8260D |
| | EPA 8260C |
| Di-ethyl ether | EPA 8260D |
| | EPA 8260C |
| Ethyl Acetate | EPA 8260D |
| | EPA 8260C |
| Hexane | EPA 8260D |
| Isobutyl alcohol | EPA 8260D |
| | EPA 8260C |
| Isopropanol | EPA 8260D |
| | EPA 8260C |
| Methyl acetate | EPA 8260D |
| | EPA 8260C |
| Methyl cyclohexane | EPA 8260D |
| | EPA 8260C |
| n-Butanol | EPA 8260D |
| | EPA 8260C |
| o-Toluidine | EPA 8270D |
| | EPA 8270E |

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**Volatiles Organics**

| | |
|---|---|
| Tetrahydrofuran | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |
| Vinyl acetate | EPA 8260D |
| | EPA 8260C |
| | EPA 624.1 |

**Sample Preparation Methods**

| |
|---|
| EPA 5030C |
| EPA 9030B |
| EPA 3005A |
| EPA 3510C |
| EPA 3535A |

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**Acrylates**

| | |
|---|---|
| Acrolein (Propenal) | EPA 8260D |
| | EPA 8260C |
| Acrylonitrile | EPA 8260D |
| | EPA 8260C |
| Ethyl methacrylate | EPA 8260D |
| | EPA 8260C |
| Methyl acrylonitrile | EPA 8260D |
| | EPA 8260C |
| Methyl methacrylate | EPA 8260D |
| | EPA 8260C |

**Amines**

| | |
|---|---|
| 1,2-Diphenylhydrazine | EPA 8270D |
| | EPA 8270E |
| 1,4-Phenylenediamine | EPA 8270D |
| | EPA 8270E |
| 1-Naphthylamine | EPA 8270D |
| | EPA 8270E |
| 2-Naphthylamine | EPA 8270D |
| | EPA 8270E |
| 2-Nitroaniline | EPA 8270D |
| | EPA 8270E |
| 3-Nitroaniline | EPA 8270D |
| | EPA 8270E |
| 4,4'-Methylenebis(2-chloroaniline) | EPA 8270D |
| | EPA 8270E |
| 4-Chloroaniline | EPA 8270D |
| | EPA 8270E |

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### Amines

| | |
|---|---|
| 4-Nitroaniline | EPA 8270D |
| | EPA 8270E |
| 5-Nitro-o-toluidine | EPA 8270D |
| | EPA 8270E |
| a,a-Dimethylphenethylamine | EPA 8270D |
| | EPA 8270E |
| Aniline | EPA 8270D |
| | EPA 8270E |
| Carbazole | EPA 8270D |
| | EPA 8270E |
| Diphenylamine | EPA 8270D |
| | EPA 8270E |
| Methapyrilene | EPA 8270D |
| | EPA 8270E |
| Pronamide | EPA 8270D |
| | EPA 8270E |

### Benzidines

| | |
|---|---|
| 3,3'-Dichlorobenzidine | EPA 8270D |
| | EPA 8270E |
| 3,3'-Dimethylbenzidine | EPA 8270D |
| | EPA 8270E |
| Benzidine | EPA 8270D |
| | EPA 8270E |

### Characteristic Testing

| | |
|---|---|
| Corrosivity (pH) | EPA 9045D |
| Ignitability | EPA 1010B |

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### Characteristic Testing

| | |
|---|---|
| Ignitability | EPA 1010A |
| Synthetic Precipitation Leaching Proc. | EPA 1312 |
| TCLP | EPA 1311 |

### Chlorinated Hydrocarbon Pesticides

| | |
|---|---|
| 2,4'-DDD (Mitotane) | EPA 8081B |
| 4,4'-DDD | EPA 8081B |
| 4,4'-DDE | EPA 8081B |
| 4,4'-DDT | EPA 8081B |
| Aldrin | EPA 8081B |
| alpha-BHC | EPA 8081B |
| alpha-Chlordane | EPA 8081B |
| Atrazine | EPA 8270D |
| | EPA 8270E |
| beta-BHC | EPA 8081B |
| Chlordane Total | EPA 8081B |
| Chlorobenzilate | EPA 8081B |
| | EPA 8270D |
| | EPA 8270E |
| delta-BHC | EPA 8081B |
| Diallate | EPA 8081B |
| | EPA 8270D |
| | EPA 8270E |
| Dieldrin | EPA 8081B |
| Endosulfan I | EPA 8081B |
| Endosulfan II | EPA 8081B |
| Endosulfan sulfate | EPA 8081B |
| Endrin | EPA 8081B |

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**Chlorinated Hydrocarbon Pesticides**

| | |
|---|---|
| Endrin aldehyde | EPA 8081B |
| Endrin Ketone | EPA 8081B |
| gamma-Chlordane | EPA 8081B |
| Heptachlor | EPA 8081B |
| Heptachlor epoxide | EPA 8081B |
| Isodrin | EPA 8270D |
| | EPA 8270E |
| Kepone | EPA 8081B |
| Lindane | EPA 8081B |
| Methoxychlor | EPA 8081B |
| Mirex | EPA 8081B |
| Pentachloronitrobenzene | EPA 8270D |
| | EPA 8270E |
| Simazine | EPA 8141B |
| Toxaphene | EPA 8081B |

**Chlorinated Hydrocarbons**

| | |
|---|---|
| 1,2,3-Trichlorobenzene | EPA 8260D |
| | EPA 8260C |
| 1,2,4,5-Tetrachlorobenzene | EPA 8270D |
| | EPA 8270E |
| 1,2,4-Trichlorobenzene | EPA 8270D |
| | EPA 8270E |
| 1-Chloronaphthalene | EPA 8270D |
| | EPA 8270E |
| 2-Chloronaphthalene | EPA 8270D |
| | EPA 8270E |
| Hexachlorobenzene | EPA 8270D |

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Issued April 01, 2025
Revised July 01, 2025

## CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

*MR. ANTHONY GRIMALDI*
*EUROFINS DENVER*
*4955 YARROW STREET*
*ARVADA, CO 80002*

*NY Lab Id No: 11964*

*is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE*
*All approved analytes are listed below:*

**Chlorinated Hydrocarbons**

| | |
|---|---|
| Hexachlorobenzene | EPA 8270E |
| Hexachlorobutadiene | EPA 8270D |
| | EPA 8270E |
| Hexachlorocyclopentadiene | EPA 8270D |
| | EPA 8270E |
| Hexachloroethane | EPA 8270D |
| | EPA 8270E |
| Hexachlorophene | EPA 8270E |
| Hexachloropropene | EPA 8270D |
| | EPA 8270E |
| Pentachlorobenzene | EPA 8270D |
| | EPA 8270E |

**Chlorophenoxy Acid Pesticides**

| | |
|---|---|
| 2,4,5-T | EPA 8321B |
| 2,4,5-TP (Silvex) | EPA 8321B |
| 2,4-D | EPA 8321B |
| 2,4-DB | EPA 8321B |
| Dalapon | EPA 8321B |
| Dicamba | EPA 8321B |
| Dichloroprop | EPA 8321B |
| Dinoseb | EPA 8270D |
| | EPA 8270E |
| | EPA 8321B |
| MCPA | EPA 8321B |
| MCPP | EPA 8321B |

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**Haloethers**

| | |
|---|---|
| 2,2'-Oxybis(1-chloropropane) | EPA 8270D |
| | EPA 8270E |
| 4-Bromophenylphenyl ether | EPA 8270D |
| | EPA 8270E |
| 4-Chlorophenylphenyl ether | EPA 8270D |
| | EPA 8270E |
| Bis(2-chloroethoxy)methane | EPA 8270D |
| | EPA 8270E |
| Bis(2-chloroethyl)ether | EPA 8270D |
| | EPA 8270E |

**Low Level Polynuclear Aromatic Hydrocarbons**

| | |
|---|---|
| Acenaphthene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Acenaphthylene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Anthracene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Benzo(a)anthracene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Benzo(a)pyrene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Benzo(b)fluoranthene Low Level | EPA 8270D |

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**Low Level Polynuclear Aromatic Hydrocarbons**

| | |
|---|---|
| Benzo(b)fluoranthene Low Level | EPA 8270D SIM |
| | EPA 8270E SIM |
| Benzo(g,h,i)perylene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Benzo(k)fluoranthene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Chrysene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Dibenzo(a,h)anthracene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Fluoranthene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Fluorene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Indeno(1,2,3-cd)pyrene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Naphthalene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |
| Phenanthrene Low Level | EPA 8270D |

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**Low Level Polynuclear Aromatic Hydrocarbons**

| | |
|---|---|
| Phenanthrene Low Level | EPA 8270D SIM |
| | EPA 8270E SIM |
| Pyrene Low Level | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E SIM |

**Metals I**

| | |
|---|---|
| Barium, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Cadmium, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Calcium, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Chromium, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Copper, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Iron, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Lead, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |

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**Metals I**

| | |
|---|---|
| Magnesium, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Manganese, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Nickel, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Potassium, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Silver, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Sodium, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Strontium, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |

**Metals II**

| | |
|---|---|
| Aluminum, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Antimony, Total | EPA 6010C |
| | EPA 6010D |

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**Metals II**

| | |
|---|---|
| Antimony, Total | EPA 6020B |
| Arsenic, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Beryllium, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Lithium, Total | EPA 6010C |
| | EPA 6010D |
| Mercury, Total | EPA 7471B |
| Selenium, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Vanadium, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Zinc, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |

**Metals III**

| | |
|---|---|
| Cobalt, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Molybdenum, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Silica, Dissolved | EPA 6010C |

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**Metals III**

| | |
|---|---|
| Silica, Dissolved | EPA 6010D |
| Thallium, Total | EPA 6010C |
| | EPA 6010D |
| | EPA 6020B |
| Tin, Total | EPA 6010C |
| | EPA 6010D |
| Titanium, Total | EPA 6010C |
| | EPA 6010D |

**Minerals**

| | |
|---|---|
| Bromide | EPA 9056A |
| Chloride | EPA 9056A |
| Fluoride, Total | EPA 9056A |
| Sulfate (as SO4) | EPA 9056A |

**Miscellaneous**

| | |
|---|---|
| Boron, Total | EPA 6010C |
| | EPA 6010D |
| Cyanide, Total | EPA 9012B |
| Organic Carbon, Total | EPA 9060A |
| Perchlorate | EPA 6850 |
| Specific Conductance | EPA 9050A |
| Sulfide (as S) | EPA 9034 |

**Nitroaromatics and Isophorone**

| | |
|---|---|
| 1,3,5-Trinitrobenzene | EPA 8270D |
| | EPA 8270E |
| | EPA 8330B |
| 1,3-Dinitrobenzene | EPA 8270D |

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**Nitroaromatics and Isophorone**

| | |
|---|---|
| 1,3-Dinitrobenzene | EPA 8270E |
| | EPA 8330B |
| 1,4-Dinitrobenzene | EPA 8270D |
| | EPA 8270E |
| 1,4-Naphthoquinone | EPA 8270D |
| | EPA 8270E |
| 2,4,6-Trinitrotoluene | EPA 8330B |
| 2,4-Dinitrotoluene | EPA 8270D |
| | EPA 8270E |
| | EPA 8330B |
| 2,6-Dinitrotoluene | EPA 8270D |
| | EPA 8270E |
| | EPA 8330B |
| 2-Amino-4,6-dinitrotoluene | EPA 8330B |
| 2-Nitrotoluene | EPA 8330B |
| 3,5-Dinitroaniline | EPA 8330B |
| 3-Nitrotoluene | EPA 8330B |
| 4-Amino-2,6-dinitrotoluene | EPA 8330B |
| 4-Dimethylaminoazobenzene | EPA 8270D |
| | EPA 8270E |
| 4-Nitroquinoline-1-oxide | EPA 8270D |
| | EPA 8270E |
| 4-Nitrotoluene | EPA 8330B |
| Hexahydro-1,3,5-trinitro-1,3,5-triazine | EPA 8330B |
| Isophorone | EPA 8270D |
| | EPA 8270E |
| Methyl-2,4,6-trinitrophenylnitramine | EPA 8330B |

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**Nitroaromatics and Isophorone**

| | |
|---|---|
| Nitrobenzene | EPA 8270D |
| | EPA 8270E |
| | EPA 8330B |
| Nitroglycerine | EPA 8330B |
| Octahydro-tetranitro-tetrazocine | EPA 8330B |
| Pentaerythritol tetranitrate | EPA 8330B |
| Pyridine | EPA 8270D |
| | EPA 8270E |

**Nitrosoamines**

| | |
|---|---|
| N-Nitrosodiethylamine | EPA 8270D |
| | EPA 8270E |
| N-Nitrosodimethylamine | EPA 8270D |
| | EPA 8270E |
| N-Nitrosodi-n-butylamine | EPA 8270D |
| | EPA 8270E |
| N-Nitrosodi-n-propylamine | EPA 8270D |
| | EPA 8270E |
| N-Nitrosodiphenylamine | EPA 8270D |
| | EPA 8270E |
| N-nitrosomethylethylamine | EPA 8270D |
| | EPA 8270E |
| N-nitrosomorpholine | EPA 8270D |
| | EPA 8270E |
| N-nitrosopiperidine | EPA 8270D |
| | EPA 8270E |
| N-Nitrosopyrrolidine | EPA 8270D |
| | EPA 8270E |

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**Nutrients**

| | |
|---|---|
| Nitrate (as N) | EPA 9056A |
| Nitrite (as N) | EPA 9056A |

**Organophosphate Pesticides**

| | |
|---|---|
| Azinphos ethyl | EPA 8141B |
| Azinphos methyl | EPA 8141B |
| Bolstar | EPA 8141B |
| Carbophenothion | EPA 8141B |
| Chlorpyriphos | EPA 8141B |
| Coumaphos | EPA 8141B |
| Demeton-O | EPA 8141B |
| Demeton-S | EPA 8141B |
| Diazinon | EPA 8141B |
| Dichlorvos | EPA 8141B |
| Dimethoate | EPA 8141B |
| | EPA 8270D |
| | EPA 8270E |
| Disulfoton | EPA 8141B |
| | EPA 8270D |
| | EPA 8270E |
| EPN | EPA 8141B |
| Ethoprop | EPA 8141B |
| Famphur | EPA 8141B |
| | EPA 8270D |
| | EPA 8270E |
| Fensulfothion | EPA 8141B |
| Fenthion | EPA 8141B |
| Malathion | EPA 8141B |

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**Organophosphate Pesticides**

| | |
|---|---|
| Mevinphos | EPA 8141B |
| NALED | EPA 8141B |
| Parathion ethyl | EPA 8141B |
| | EPA 8270D |
| | EPA 8270E |
| Parathion methyl | EPA 8141B |
| | EPA 8270D |
| | EPA 8270E |
| Phorate | EPA 8141B |
| | EPA 8270D |
| | EPA 8270E |
| Ronnel | EPA 8141B |
| Sulfotepp | EPA 8141B |
| | EPA 8270D |
| | EPA 8270E |
| Thionazin | EPA 8141B |
| | EPA 8270D |
| | EPA 8270E |
| Tokuthion | EPA 8141B |
| Trichloronate | EPA 8141B |

**Perfluorinated Alkyl Acids**

| | |
|---|---|
| 11Cl-PF3OUdS | EPA 1633A |
| 3:3 FTCA | EPA 1633A |
| 4:2FTS | EPA 1633A |
| 5:3 FTCA | EPA 1633A |
| 6:2FTS | EPA 1633A |
| 7:3 FTCA | EPA 1633A |

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**Perfluorinated Alkyl Acids**

| | |
|---|---|
| 8:2FTS | EPA 1633A |
| 9Cl-PF3ONS | EPA 1633A |
| ADONA | EPA 1633A |
| HFPO-DA (GenX) | EPA 1633A |
| NEtFOSA | EPA 1633A |
| NEtFOSAA | EPA 1633A |
| NEtFOSE | EPA 1633A |
| NFDHA | EPA 1633A |
| NMeFOSA | EPA 1633A |
| NMeFOSAA | EPA 1633A |
| NMeFOSE | EPA 1633A |
| Perflourotridecanoic Acid (PFTrDA) | EPA 1633A |
| Perfluordecanoic Acid (PFDA) | EPA 1633A |
| Perfluoro-3-Methoxypropanoic Acid (P | EPA 1633A |
| Perfluoro-4-Methoxybutanoic Acid (PF | EPA 1633A |
| Perfluorobutanesulfonic Acid (PFBS) | EPA 1633A |
| Perfluorobutanoic Acid (PFBA) | EPA 1633A |
| Perfluorodecanesulfonic acid (PFDS) | EPA 1633A |
| Perfluorododecanesulfonic acid (PFDc | EPA 1633A |
| Perfluorododecanoic Acid (PFDoA) | EPA 1633A |
| Perfluoroheptanesulfonic Acid (PFHpS | EPA 1633A |
| Perfluoroheptanoic Acid (PFHpA) | EPA 1633A |
| Perfluorohexanesulfonic Acid (PFHxS | EPA 1633A |
| Perfluorohexanoic Acid (PFHxA) | EPA 1633A |
| Perfluorononanesulfonic acid (PFNS) | EPA 1633A |
| Perfluorononanoic Acid (PFNA) | EPA 1633A |
| Perfluorooctanesulfonamide (PFOSA) | EPA 1633A |

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**WADSWORTH CENTER**

Expires 12:01 AM April 01, 2026
Issued April 01, 2025
Revised July 01, 2025

## CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

*MR. ANTHONY GRIMALDI*
*EUROFINS DENVER*
*4955 YARROW STREET*
*ARVADA, CO 80002*

*NY Lab Id No: 11964*

*is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE*
*All approved analytes are listed below:*

**Perfluorinated Alkyl Acids**

| | |
|---|---|
| Perfluorooctanesulfonic Acid (PFOS) | EPA 1633A |
| Perfluorooctanoic Acid (PFOA) | EPA 1633A |
| Perfluoropentanesulfonic Acid (PFPeS | EPA 1633A |
| Perfluoropentanoic Acid (PFPeA) | EPA 1633A |
| Perfluorotetradecanoic Acid (PFTeDA) | EPA 1633A |
| Perfluoroundecanoic Acid (PFUnA) | EPA 1633A |
| PFEESA | EPA 1633A |

**Petroleum Hydrocarbons**

| | |
|---|---|
| Diesel Range Organics | EPA 8015D |
| | EPA 8015C |
| Gasoline Range Organics | EPA 8015D |
| | EPA 8015C |

**Phthalate Esters**

| | |
|---|---|
| Benzyl butyl phthalate | EPA 8270D |
| | EPA 8270E |
| Bis(2-ethylhexyl) phthalate | EPA 8270D |
| | EPA 8270E |
| Diethyl phthalate | EPA 8270D |
| | EPA 8270E |
| Dimethyl phthalate | EPA 8270D |
| | EPA 8270E |
| Di-n-butyl phthalate | EPA 8270D |
| | EPA 8270E |
| Di-n-octyl phthalate | EPA 8270D |
| | EPA 8270E |

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**Polychlorinated Biphenyls**

| | |
|---|---|
| Aroclor 1016 (PCB-1016) | EPA 8082A |
| Aroclor 1221 (PCB-1221) | EPA 8082A |
| Aroclor 1232 (PCB-1232) | EPA 8082A |
| Aroclor 1242 (PCB-1242) | EPA 8082A |
| Aroclor 1248 (PCB-1248) | EPA 8082A |
| Aroclor 1254 (PCB-1254) | EPA 8082A |
| Aroclor 1260 (PCB-1260) | EPA 8082A |
| Aroclor 1262 (PCB-1262) | EPA 8082A |
| Aroclor 1268 (PCB-1268) | EPA 8082A |

**Polynuclear Aromatic Hydrocarbons**

| | |
|---|---|
| 2-Acetylaminofluorene | EPA 8270D |
| | EPA 8270E |
| 3-Methylcholanthrene | EPA 8270D |
| | EPA 8270E |
| 7,12-Dimethylbenzyl (a) anthracene | EPA 8270D |
| | EPA 8270E |
| Acenaphthene | EPA 8270D |
| | EPA 8270E |
| Acenaphthylene | EPA 8270D |
| | EPA 8270E |
| Anthracene | EPA 8270D |
| | EPA 8270E |
| Benzo(a)anthracene | EPA 8270D |
| | EPA 8270E |
| Benzo(a)pyrene | EPA 8270D |
| | EPA 8270E |
| Benzo(b)fluoranthene | EPA 8270D |

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**Polynuclear Aromatic Hydrocarbons**

| | |
|---|---|
| Benzo(b)fluoranthene | EPA 8270E |
| Benzo(g,h,i)perylene | EPA 8270D |
| | EPA 8270E |
| Benzo(k)fluoranthene | EPA 8270D |
| | EPA 8270E |
| Chrysene | EPA 8270D |
| | EPA 8270E |
| Dibenzo(a,e)pyrene | EPA 8270D |
| | EPA 8270E |
| Dibenzo(a,h)anthracene | EPA 8270D |
| | EPA 8270E |
| Dibenzo(a,j)acridine | EPA 8270D |
| | EPA 8270E |
| Fluoranthene | EPA 8270D |
| | EPA 8270E |
| Fluorene | EPA 8270D |
| | EPA 8270E |
| Indeno(1,2,3-cd)pyrene | EPA 8270D |
| | EPA 8270E |
| Naphthalene | EPA 8270D |
| | EPA 8270E |
| Phenanthrene | EPA 8270D |
| | EPA 8270E |
| Pyrene | EPA 8270D |
| | EPA 8270E |

**Priority Pollutant Phenols**

| | |
|---|---|
| 2,3,4,6 Tetrachlorophenol | EPA 8270D |

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**Priority Pollutant Phenols**

| | |
|---|---|
| 2,3,4,6 Tetrachlorophenol | EPA 8270E |
| 2,4,5-Trichlorophenol | EPA 8270D |
| | EPA 8270E |
| 2,4,6-Trichlorophenol | EPA 8270D |
| | EPA 8270E |
| 2,4-Dichlorophenol | EPA 8270D |
| | EPA 8270E |
| 2,4-Dimethylphenol | EPA 8270D |
| | EPA 8270E |
| 2,4-Dinitrophenol | EPA 8270D |
| | EPA 8270E |
| 2,6-Dichlorophenol | EPA 8270D |
| | EPA 8270E |
| 2-Chlorophenol | EPA 8270D |
| | EPA 8270E |
| 2-Methyl-4,6-dinitrophenol | EPA 8270D |
| | EPA 8270E |
| 2-Methylphenol | EPA 8270D |
| | EPA 8270E |
| 2-Nitrophenol | EPA 8270D |
| | EPA 8270E |
| 3-Methylphenol | EPA 8270D |
| | EPA 8270E |
| 4-Chloro-3-methylphenol | EPA 8270D |
| | EPA 8270E |
| 4-Methylphenol | EPA 8270D |
| | EPA 8270E |

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**Priority Pollutant Phenols**

| | |
|---|---|
| 4-Nitrophenol | EPA 8270D |
| | EPA 8270E |
| Pentachlorophenol | EPA 8270D |
| | EPA 8270E |
| Phenol | EPA 8270D |
| | EPA 8270E |

**Semi-Volatile Organics**

| | |
|---|---|
| 1,1'-Biphenyl | EPA 8270D |
| | EPA 8270E |
| 1,2-Dichlorobenzene, Semi-volatile | EPA 8270D |
| | EPA 8270E |
| 1,3-Dichlorobenzene, Semi-volatile | EPA 8270D |
| | EPA 8270E |
| 1,4-Dichlorobenzene, Semi-volatile | EPA 8270D |
| | EPA 8270E |
| 2-Methylnaphthalene | EPA 8270D |
| | EPA 8270E |
| 2-Picoline | EPA 8270D |
| | EPA 8270E |
| 4-Amino biphenyl | EPA 8270D |
| | EPA 8270E |
| Acetophenone | EPA 8270D |
| | EPA 8270E |
| Aramite | EPA 8270D |
| | EPA 8270E |
| Benzaldehyde | EPA 8270D |
| | EPA 8270E |

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**Semi-Volatile Organics**

| | |
|---|---|
| Benzoic Acid | EPA 8270D |
| | EPA 8270E |
| Benzyl alcohol | EPA 8270D |
| | EPA 8270E |
| Caprolactam | EPA 8270D |
| | EPA 8270E |
| Dibenzofuran | EPA 8270D |
| | EPA 8270E |
| Ethyl methanesulfonate | EPA 8270D |
| | EPA 8270E |
| Isosafrole | EPA 8270D |
| | EPA 8270E |
| Methyl methanesulfonate | EPA 8270D |
| | EPA 8270E |
| O,O,O-Triethyl phosphorothioate | EPA 8270D |
| | EPA 8270E |
| Phenacetin | EPA 8270D |
| | EPA 8270E |
| Safrole | EPA 8270D |
| | EPA 8270E |

**Volatile Aromatics**

| | |
|---|---|
| 1,2,4-Trichlorobenzene, Volatile | EPA 8260D |
| | EPA 8260C |
| 1,2,4-Trimethylbenzene | EPA 8260D |
| | EPA 8260C |
| 1,2-Dichlorobenzene | EPA 8260D |
| | EPA 8260C |

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**Volatile Aromatics**

| | |
|---|---|
| 1,3,5-Trimethylbenzene | EPA 8260D |
| | EPA 8260C |
| 1,3-Dichlorobenzene | EPA 8260D |
| | EPA 8260C |
| 1,4-Dichlorobenzene | EPA 8260D |
| | EPA 8260C |
| 2-Chlorotoluene | EPA 8260D |
| | EPA 8260C |
| 4-Chlorotoluene | EPA 8260D |
| | EPA 8260C |
| Benzene | EPA 8260D |
| | EPA 8260C |
| Bromobenzene | EPA 8260D |
| | EPA 8260C |
| Chlorobenzene | EPA 8260D |
| | EPA 8260C |
| Ethyl benzene | EPA 8260D |
| | EPA 8260C |
| Isopropylbenzene | EPA 8260D |
| | EPA 8260C |
| m/p-Xylenes | EPA 8260D |
| | EPA 8260C |
| Naphthalene, Volatile | EPA 8260D |
| | EPA 8260C |
| n-Butylbenzene | EPA 8260D |
| | EPA 8260C |
| n-Propylbenzene | EPA 8260D |

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**Volatile Aromatics**

| | |
|---|---|
| n-Propylbenzene | EPA 8260C |
| o-Xylene | EPA 8260D |
| | EPA 8260C |
| p-Isopropyltoluene (P-Cymene) | EPA 8260D |
| | EPA 8260C |
| sec-Butylbenzene | EPA 8260D |
| | EPA 8260C |
| Styrene | EPA 8260D |
| | EPA 8260C |
| tert-Butylbenzene | EPA 8260D |
| | EPA 8260C |
| Toluene | EPA 8260D |
| | EPA 8260C |
| Total Xylenes | EPA 8260D |
| | EPA 8260C |

**Volatile Halocarbons**

| | |
|---|---|
| 1,1,1,2-Tetrachloroethane | EPA 8260D |
| | EPA 8260C |
| 1,1,1-Trichloroethane | EPA 8260D |
| | EPA 8260C |
| 1,1,2,2-Tetrachloroethane | EPA 8260D |
| | EPA 8260C |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | EPA 8260D |
| | EPA 8260C |
| 1,1,2-Trichloroethane | EPA 8260D |
| | EPA 8260C |
| 1,1-Dichloroethane | EPA 8260D |

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**Volatile Halocarbons**

| | |
|---|---|
| 1,1-Dichloroethane | EPA 8260C |
| 1,1-Dichloroethene | EPA 8260D |
| | EPA 8260C |
| 1,1-Dichloropropene | EPA 8260D |
| | EPA 8260C |
| 1,2,3-Trichloropropane | EPA 8260D |
| | EPA 8260C |
| 1,2-Dibromo-3-chloropropane | EPA 8260D |
| | EPA 8260C |
| 1,2-Dibromoethane | EPA 8260D |
| | EPA 8260C |
| 1,2-Dichloroethane | EPA 8260D |
| | EPA 8260C |
| 1,2-Dichloropropane | EPA 8260D |
| | EPA 8260C |
| 1,3-Dichloropropane | EPA 8260D |
| | EPA 8260C |
| 2,2-Dichloropropane | EPA 8260D |
| | EPA 8260C |
| 2-Chloro-1,3-butadiene (Chloroprene) | EPA 8260D |
| | EPA 8260C |
| 2-Chloroethylvinyl ether | EPA 8260D |
| | EPA 8260C |
| 3-Chloropropene (Allyl chloride) | EPA 8260D |
| | EPA 8260C |
| Bromochloromethane | EPA 8260D |
| | EPA 8260C |

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**Volatile Halocarbons**

| | |
|---|---|
| Bromodichloromethane | EPA 8260D |
| | EPA 8260C |
| Bromoform | EPA 8260D |
| | EPA 8260C |
| Bromomethane | EPA 8260D |
| | EPA 8260C |
| Carbon tetrachloride | EPA 8260D |
| | EPA 8260C |
| Chloroethane | EPA 8260D |
| | EPA 8260C |
| Chloroform | EPA 8260D |
| | EPA 8260C |
| Chloromethane | EPA 8260D |
| | EPA 8260C |
| cis-1,2-Dichloroethene | EPA 8260D |
| | EPA 8260C |
| cis-1,3-Dichloropropene | EPA 8260D |
| | EPA 8260C |
| cis-1,4-Dichloro-2-butene | EPA 8260D |
| | EPA 8260C |
| Dibromochloromethane | EPA 8260D |
| | EPA 8260C |
| Dibromomethane | EPA 8260D |
| | EPA 8260C |
| Dichlorodifluoromethane | EPA 8260D |
| | EPA 8260C |
| Hexachlorobutadiene, Volatile | EPA 8260D |

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**Volatile Halocarbons**

| | |
|---|---|
| Hexachlorobutadiene, Volatile | EPA 8260C |
| Methyl iodide | EPA 8260D |
| | EPA 8260C |
| Methylene chloride | EPA 8260D |
| | EPA 8260C |
| Tetrachloroethene | EPA 8260D |
| | EPA 8260C |
| trans-1,2-Dichloroethene | EPA 8260D |
| | EPA 8260C |
| trans-1,3-Dichloropropene | EPA 8260D |
| | EPA 8260C |
| trans-1,4-Dichloro-2-butene | EPA 8260D |
| | EPA 8260C |
| Trichloroethene | EPA 8260D |
| | EPA 8260C |
| Trichlorofluoromethane | EPA 8260D |
| | EPA 8260C |
| Vinyl chloride | EPA 8260D |
| | EPA 8260C |

**Volatile Organics**

| | |
|---|---|
| 1,4-Dioxane | EPA 8260D |
| | EPA 8260C |
| | EPA 8260C SIM |
| | EPA 8260D SIM |
| | EPA 8270D |
| | EPA 8270D SIM |
| | EPA 8270E |

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*ARVADA, CO 80002*

*NY Lab Id No: 11964*

*is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE*
*All approved analytes are listed below:*

**Volatile Organics**

| | |
|---|---|
| 1,4-Dioxane | EPA 8270E SIM |
| 2-Butanone (Methylethyl ketone) | EPA 8260D |
| | EPA 8260C |
| 2-Hexanone | EPA 8260D |
| | EPA 8260C |
| 2-Nitropropane | EPA 8260D |
| | EPA 8260C |
| 4-Methyl-2-Pentanone | EPA 8260D |
| | EPA 8260C |
| Acetone | EPA 8260D |
| | EPA 8260C |
| Acetonitrile | EPA 8260D |
| | EPA 8260C |
| Carbon Disulfide | EPA 8260D |
| | EPA 8260C |
| Cyclohexane | EPA 8260D |
| | EPA 8260C |
| Di-ethyl ether | EPA 8260D |
| | EPA 8260C |
| Ethyl Acetate | EPA 8260D |
| | EPA 8260C |
| Hexane | EPA 8260D |
| Isobutyl alcohol | EPA 8260D |
| | EPA 8260C |
| Isopropanol | EPA 8260D |
| | EPA 8260C |
| Methyl acetate | EPA 8260D |

Serial No.: 71136

Property of the New York State Department of Health. Certificates are valid only at the address shown and must be conspicuously posted by the laboratory. Continued accreditation depends on the laboratory's successful ongoing participation in the Program. Consumers may verify a laboratory's accreditation status online at https://apps.health.ny.gov/pubdoh/applinks/wc/elappublicweb/, by phone (518) 485-5570 or by email to elap@health.ny.gov.

**NEW YORK STATE DEPARTMENT OF HEALTH**
**WADSWORTH CENTER**

Expires 12:01 AM April 01, 2026
Issued April 01, 2025
Revised July 01, 2025

## CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

*MR. ANTHONY GRIMALDI*
*EUROFINS DENVER*
*4955 YARROW STREET*
*ARVADA, CO 80002*

*NY Lab Id No: 11964*

*is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE*
*All approved analytes are listed below:*

**Volatile Organics**

| | |
|---|---|
| Methyl acetate | EPA 8260C |
| Methyl cyclohexane | EPA 8260D |
| | EPA 8260C |
| Methyl tert-butyl ether | EPA 8260D |
| | EPA 8260C |
| n-Butanol | EPA 8260D |
| | EPA 8260C |
| o-Toluidine | EPA 8270D |
| | EPA 8270E |
| Propionitrile | EPA 8260D |
| | EPA 8260C |
| tert-butyl alcohol | EPA 8260D |
| | EPA 8260C |
| Tetrahydrofuran | EPA 8260D |
| | EPA 8260C |
| Vinyl acetate | EPA 8260D |
| | EPA 8260C |

**Sample Preparation Methods**

| | |
|---|---|
| | EPA 5035A-L |
| | EPA 5035A-H |
| | EPA 3580A |
| | EPA 9030B |
| | EPA 3005A |
| | EPA 3050B |
| | EPA 3550C |
| | EPA 3546 |

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# PERRY JOHNSON LABORATORY ACCREDITATION, INC.

# *Certificate of Accreditation*

*Perry Johnson Laboratory Accreditation, Inc. has assessed the Laboratory of:*

## *MicroVision Labs, Inc.*

***187 Billerica Road, Chelmsford, MA 01824***

*(Hereinafter called the Organization) and hereby declares that Organization is accredited in accordance with the recognized International Standard:*

## ISO/IEC 17025:2017

This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system
(as outlined by the joint ISO-ILAC-IAF Communiqué dated April 2017):

## *Analytical Microscopy and Chemical Testing*

***(As detailed in the supplement)***

Accreditation claims for such testing and/or calibration services shall only be made from addresses referenced within this certificate. This Accreditation is granted subject to the system rules governing the Accreditation referred to above, and the Organization hereby covenants with the Accreditation body's duty to observe and comply with the said rules.

For PJLA:

Tracy Szerszen
President

Perry Johnson Laboratory Accreditation, Inc. (PJLA)
755 W. Big Beaver, Suite 1325
Troy, Michigan 48084

| *Initial Accreditation Date:* | *Issue Date:* | *Expiration Date:* |
|---|---|---|
| June 29, 2019 | July 21, 2023 | September 30, 2025 |

| *Accreditation No.:* | *Certificate No.:* |
|---|---|
| 98218 | L23-560 |

*The validity of this certificate is maintained through ongoing assessments based on a continuous accreditation cycle. The validity of this certificate should be confirmed through the PJLA website: www.pjlabs.com*

# *Certificate of Accreditation: Supplement*

**MicroVision Labs, Inc.**
187 Billerica Road, Chelmsford, MA 01824
Contact Name: John Knowles  Phone: 978-250-9909

*Accreditation is granted to the facility to perform the following testing:*

| FIELD OF TEST | ITEMS, MATERIALS OR PRODUCTS TESTED | SPECIFIC TESTS OR PROPERTIES MEASURED | SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED | RANGE (WHERE APPROPRIATE) AND DETECTION LIMIT |
|---|---|---|---|---|
| Analytical Microscopy [F] | Particles, Nanoscale Particles, Bulk Materials, Biomedical Products, Semiconductors, MEMS Devices, Membranes | SEM, FE-SEM, Morphology, and Dimensions | ASTM E766, MVL 01, MVL 04, MVL 5, MVL 07 | 15 X to 500 000 X |
| | Particles, Dust, Fibers, Soot, Coal, Coal Ash | LM, PLM, Morphology, and Optical Properties | ASTM PDF-STP47926S, MVL 02, MVL 05, MVL 07 | 15 X to 1 800 X |
| Chemical [F] | Particles, Bulk Materials, Coal, Coal Ash, Lead Paint, Soot, Slag | EDS, Semi-Quantitative Elemental Analysis, Compositional Analysis and Elemental Maps | ASTM E1508, MVL 04, MVL 05, MVL 07, MVL 09 | 0.1 % to 1 % |
| | Polymers, Oils, Grease, Organic Compounds, Membranes | Micro-FTIR | ASTM E1252, MVL 07, MVL 21 | Qualitative |

1. The presence of a superscript F means that the laboratory performs testing of the indicated parameter at its fixed location. Example: Outside Micrometer [F] would mean that the laboratory performs this testing at its fixed location.